

Albert Baizas

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Sent: Tuesday, November 04, 2008 5:21 AM
To: Nadeem.Tahir@dot.gov
Cc: Simon Zweighaft; Kurio, Phyllis
Subject: RE: Spot Report #2 - PE Entry Readiness Report- City and County of Honolulu - October 2008 - FINAL

Nadeem

Attached is a copy of Spot Report #2 with the watermark removed.

Regards,

Justine A. Belizaire

Associate

Booz | Allen | Hamilton

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To: Belizaire, Justine [USA]
Cc: Zweighaft@infraconsultllc.com
Subject: FW: Spot Report #2 - PE Entry Readiness Report- City and County of Honolulu - October 2008 - FINAL

Justine: Can you look into this?

Nadeem S. Tahir, P.E., CCM.
Director, Office of Program Management and Oversight
U.S.D.O.T. Federal Transit Administration, Region IX
201 Mission Street, Ste 1650
San Francisco, CA 94105
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From: Simon Zweighaft [mailto:Zweighaft@infraconsultllc.com]
Sent: Monday, November 03, 2008 1:22 PM
To: Tahir, Nadeem <FTA>
Cc: Kurio, Phyllis
Subject: RE: Spot Report #2 - PE Entry Readiness Report- City and County of Honolulu - October 2008 - FINAL

Hi Nadeem:

4/30/2009

AR00075896

Your note says that the Report is Final, however the Report itself still contains a "draft" watermark. Would it be possible to send out a copy of the report with the watermark removed?

Regards,

Simon

From: Nadeem.Tahir@dot.gov [mailto:Nadeem.Tahir@dot.gov]
Sent: Monday, November 03, 2008 10:56 AM
To: wyoshioka@honolulu.gov; thamayasu@honolulu.gov
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Subject: FW: Spot Report #2 - PE Entry Readiness Report- City and County of Honolulu - October 2008 - FINAL

Dear Mr. Yoshioka and Mr. Hamayasu:

Attached for your information is the above referenced Honolulu PE Entry Readiness Final Spot Report dated October 2008 from Booz Allen Hamilton, our Project Management Oversight Contractor (PMOC). Some of the report highlights are as follows:

- It is the PMOC's professional opinion that the City has demonstrated that it has the technical capacity and capability to implement the PE phase of project development.
- Based on its review of the City's current technical capacity and capability and the project status, the PMOC recommends the specific areas listed under section 2.3 of the report be fully addressed by the City in the early stages of PE. These include staffing, technology selection, PMP and PDP, the Project cost and schedule, further definition of the project scope, final alignment, maintenance yard location, station locations and support facilities, project delivery approach and methods for the procurement of utility, facility and system design and construction/installation contracts, the RAMP, SSMP, RFMP and Third-party negotiations and agreements.

If you or your staffs have any questions or comments on this report, please do not hesitate to call me at the numbers listed below or Cathy Luu, our Program Manager assigned to this project, at (415) 744-2730.

Nadeem S. Tahir, P.E., CCM.
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FEDERAL TRANSIT ADMINISTRATION
PROJECT MANAGEMENT OVERSIGHT PROGRAM

Contract No. DTFT60-04-D-00013
Project No. DC-27-5041
Task Order No. 10

CLIN 0005: Spot Report
Spot Report #2 – PE Entry Readiness Report

Grantee: City and County of Honolulu

Honolulu High-Capacity Transit Corridor
Project

Spot Report #2 – PE Entry Readiness Report
October 2008

FINAL

By: Booz Allen Hamilton
8283 Greensboro Dr.
McLean, VA 22102

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LIST OF ACRONYMS

AA	Alternatives Analysis
BFMP	Bus Fleet Management Plan
DB	Design-Build
DEIS	Draft Environmental Impact Statement
DTS	City and County of Honolulu Department of Transportation Services
EIS	Environmental Impact Statement
FD	Final Design
FEIS	Final Environmental Impact Statement
FFGA	Full Funding Grant Agreement
FTA	Federal Transit Administration
GEC	General Engineering Consultant
GET	State of Hawai'i General Excise and Use Tax
HHCTC	Honolulu High-Capacity Transit Corridor (Project)
HDOT	State of Hawai'i Department of Transportation
LONP	Letter of No Prejudice
LPA	Locally Preferred Alternative
MOS	Minimum Operating Segment
NEPA	National Environmental Policy Act
NTP	Notice to Proceed
PB	PB Americas, Inc.
PDP	Project Development Plan
PE	Preliminary Engineering
PMO	Project Management Oversight
PMOC	Project Management Oversight Contractor
PMP	Project Management Plan
PMSC	Project Management Support Consultant
QA/QC	Quality Assurance / Quality Control
QMP	Quality Management Plan
RAMP	Real Estate and Acquisition Management Plan
RFI	Request for Information
RFMP	Rail Fleet Management Plan
RFQ	Request for Qualifications
ROD	Record of Decision
RTD	DTS Rapid Transit Division
SCC	Standard Cost Category
SSMP	Safety and Security Management Plan
UH	University of Hawai'i
YOE	Year of Expenditure

1. INTRODUCTION

Report Date	FINAL - October 31, 2008
Project Name / Location	Honolulu High-Capacity Transit Corridor Project Honolulu, Hawai'i
Project Sponsor	City and County of Honolulu
Project Management Oversight Contractor (PMOC) firm	Booz Allen Hamilton
Person (and affiliation if different from PMOC firm) providing this report	Justine Belizaire, with input from Frank McCarron, Scott Kiefer, Robert Mowry, John Simon, John Gutierrez, Laura Cham, Margie Newman (H.C. Peck), Gary Touryan (PACO), and Kris Kim (KKCS)
Length of time PMOC has been assigned to this project:	Booz Allen has been assigned for 17 months. Justine Belizaire has been assigned for 17 months.
Date when project sponsor's cost estimate was prepared:	October 23, 2006
Date shown on project sponsor's Standard Cost Category (SCC) worksheets:	October 23, 2006

The purpose of this report, Spot Report #2, is to document the Project Management Oversight Contractor's review of the technical capacity and capability of the City and County of Honolulu to enter into Preliminary Engineering for the Honolulu High-Capacity Transit Corridor (HHCTC) Project in accordance with the Federal Transit Administration (FTA) New Starts requirements and to provide an overall project status. The HHCTC Project is a candidate for the FTA New Starts program.

This report was first submitted as a draft on May 16, 2008 based on the project status and document review through May 1, 2008. The second and third drafts were submitted on June 20, 2008 and August 4, 2008, respectively, to reflect comments received from FTA. A fourth draft was submitted on September 2, 2008 to reflect the information provided by the City in the Administrative Draft Environmental Impact Statement (DEIS) dated August 1, 2008. A subsequent revised draft report was submitted on September 19, 2008 to incorporate additional FTA comments and requirements, and information received from the City during the risk workshop held in Honolulu on September 8-11, 2008. On September 24, 2008, this report was again revised to include the updates to Project Schedule sections of the report, based on the PMOC review of the consolidated project schedule uploaded by the City on September 21, 2008.

The final draft of Spot Report #2 incorporated all comments provided by FTA Region IX and FTA Headquarters through October 16, 2008. On October 30, 2008 FTA advised that there were no further comments to Spot Report #2. This Spot Report #2 is issued as Final.

2. EXECUTIVE SUMMARY

The City and County of Honolulu (City) is requesting to enter into Preliminary Engineering (PE) for the Honolulu High-Capacity Transit Corridor (HHCTC) Project in accordance with the Federal Transit Administration (FTA) New Starts requirements. Before entering into PE, FTA requires projects to complete the appropriate steps in the areas of project development, financial management and technical capacity and capability. The project development and financial management requirements have been reviewed by FTA. This Project Management Oversight Contractor (PMOC) report only addresses the review of the latter requirement.

This report documents: 1) the PMOC's review of the technical capacity and capability of the City to enter into PE for the HHCTC Project and 2) the overall project status with regards to scope, cost and schedule. To develop this report, the PMOC used the *PMO Program Operating Guidance* and the *New Starts Project Planning and Development Checklist of Project Sponsor Submittals to FTA to Enter Preliminary Engineering* developed by FTA in July 2007.

2.1. Technical Capability and Capacity

In order to demonstrate technical capacity and capability, the PMOC performed a detailed review of the City's organization and of the professional expertise assembled to develop the requirements necessary for progressing the Project from inception to Revenue Service, including the deliverables required by the FTA New Starts Project Planning and Development. The PMOC has evaluated the City's technical capacity and capability to enter into PE through meetings and workshops with the City management, staff and consultants, documentation reviews, and site visits and tours. Based on a thorough evaluation and document review, *it is the PMOC's professional opinion that the City has demonstrated that it has the technical capacity and capability to implement the PE phase of project development.*

The PMOC recommends that the PMP be updated in the early part of PE to include updates to the project delivery method and a new organization chart to reflect changes in staff. The PMP also needs to be updated to include a Project Development Plan (PDP) as a sub-plan to the PMP and to include a staffing plan to address the concerns with the transition during the PE phase of positions currently occupied by the PMSC to full-time City staff and the dates by which the City intends to staff each of the positions.

2.2. Project Status

Project Scope

The project guideway and station locations are being finalized, however, architectural and structural alternatives for the guideway and stations are still being evaluated to further define the scope of the project. Based on direction from the Mayor, the City is proceeding with a steel-wheel on steel-rail technology; however, the City Council and local transit opponents' actions need to be monitored throughout the next few months. The City will continue to evaluate the architectural and structural alternatives, perform additional geotechnical/soils and environmental testing in an effort to further define the project scope, and interface with the local communities to finalize the station characteristics during PE.

Project Budget

The project budget included in the Project Management Plan is based on the preliminary AA cost estimate, which reflects the conceptual design and has simply been brought into current 2007-year dollars. An updated cost estimate is included in the Administrative DEIS issued by the City on August 1, 2008. The updated budget reflects the capital cost estimate based on recent engineering refinements to the project scope. The current capital cost estimate, excluding finance charges, for the "First Project" of the HHCTC Project, Salt-Lake Alternative is \$3,901 million in 2007 dollars and \$4,772 million in Year of Expenditures (YOE).

Project Schedule

The City is in the early, preliminary stages of development of a Master Project Schedule for this project. The City developed individual and independent schedules for the development of the Environmental Impact Statement (EIS), PE, Final Design, Construction, Vehicle Procurement and Procurement. The individual schedules for delivery of the EIS and PE have been well developed, while other individual schedules have not been well defined.

On September 21, 2008, the City provided a consolidated Master Project Schedule for PMOC review, to which the PMOC provided detailed review comments to the City on October 1, 2008. The City and the PMOC held a conference call on October 7, 2008 to discuss action items developed by the City following the PMOC schedule review comments, and as a result of the meeting, the City agreed to revise the Master Project Schedule in order to produce a technically sound and properly integrated Master Project Schedule. The City continues to progress the schedule in an effort to formulate the appropriate project delivery methods to achieve an initial operating segment by the end of year 2013. Completion of "First Project" is currently scheduled in December 2018. The PMOC determined that the current project schedule is sufficiently defined for the project at this phase, although it is an optimistic schedule and will need to be further refined during PE.

Based on a thorough review of the Master Project Schedule received on September 21, 2008 and the subsequent schedule review meeting, *it is the PMOC's professional opinion that the Master Project Schedule is sufficiently defined for a project in its current phase, and that the Master Project Schedule needs to be further refined during PE.*

2.3. During Preliminary Engineering

Based on its review of the City's current technical capacity and capability and the project status, the PMOC recommends the following areas be fully addressed by the City in the early stages of PE:

- Hiring of additional City staff in order to develop the internal capability needed to effectively manage all consultants throughout the PE phase, and further development of the role and responsibilities of the RTD Quality Manager from PE through Revenue Operations, and the permanent staffing of a Manager of Safety and Security and the Manager of Real Estate.
- Finalizing the technology selection progress, including monitoring the City Council and local transit opponents' actions
- Update of the PMP to include a Project Development Plan (PDP) as a sub-plan to the PMP, and a staffing plan, as well as updates to the project delivery method and the

organization chart. The PMP also needs to be updated to be consistent with the current status of the project, including the information provided in the Administrative DEIS, Contract Packaging Plan and Master Project Schedule as provided by the City.

- Further development of the PMP during PE in the areas of: the proposed Transit Authority, if approved, including scope of authority and roles and responsibilities of key staff positions; the project delivery approach; cost, schedule and claims management; Document Control Plan; Process for Procurement and Contracts; and Construction Management and Testing and Start-Up sections.
- Continue to develop a technically sound and properly integrated Master Project Schedule.
- Further definition of the project scope, final alignment, maintenance yard location, station locations and support facilities.
- Evaluation and development of the project delivery approach and methods for the procurement of utility, facility and system design and construction/installation contracts.
- Implementation and update of the Real Estate and Acquisition Management Plan (RAMP), Bus Fleet Management Plan (BFMP), Safety and Security Management Plan (SSMP) and Quality Management Plan (QMP) as the project progresses, and the development of a Rail Fleet Management Plan (RFMP) and Contingent Management Plan.
- Third-party negotiations and agreements.

3. PROJECT HISTORY

The HHCTC Project is a 29-mile elevated fixed guideway system along O`ahu's south shore between Kapolei and the University of Hawai`i (UH) at Mānoa, including a spur to Waikīkī.

In July 2005, the state legislation authorized a 0.5-percent General Excise and Use Tax (GET) Surcharge as a source of revenue to build the transit corridor project. The GET surcharge went into effect on January 1, 2007 and has an end date of December 31, 2022. An Alternatives Analysis (AA) was initiated in August 2005 and the AA report was presented to the Honolulu City Council in October 2006. Public meetings were held on the AA in November and December 2006, and on December 22, 2006, the City Council selected the fixed guideway alternative as the Locally Preferred Alternative (LPA). In selecting fixed guideway as the LPA, the City Council left some areas of the alignment open, which will be decided upon as the project progresses. These include West Kapolei, Salt Lake Boulevard versus Airport alignment, and the Waikīkī/UH at Mānoa branches. The total LPA alignment is approximately 29 miles long from end to end.

The City Council also identified and selected a minimum operable segment ("the First Project"), which would be built first with the current funding/revenue available. This "First Project" is a 19-mile alignment from East Kapolei, through Salt Lake Boulevard and downtown, and with an eastern terminus at the Ala Moana (Shopping) Center. The "First Project" does not include the alignment from West Kapolei to East Kapolei, or from Ala Moana Center to Waikīkī or to the UH at Mānoa.

The "First Project" is divided into two phases. Phase I is approximately 6 miles long and includes 6 stations. The proposed limits of Phase I are from the future site of the Kroc Center development at North-South Road to the vicinity of Pearl Highlands. Phase II encompasses the remaining 13 miles and 13 stations, and is from Pearl Highlands through Salt Lake Boulevard and downtown, with an eastern terminus at the Ala Moana (Shopping) Center.

On July 1, 2007, the City created the Rapid Transit Division (RTD) within the Department of Transportation Services (DTS) through enactment of the City's Fiscal Year 2008 Executive Operating Budget and Program. The RTD's responsibilities will include project development, management and implementation. New staff members continue to be added to the City's organization within RTD and through InfraConsult, LLC, the City's Project Management Support Consultant (PMSC). The City has started advertising the positions currently performed by InfraConsult, LLC.

On August 24, 2007, the City executed a General Engineering Consultant (GEC) contract for \$85 million with PB Americas, Inc. (PB) to perform National Environmental Policy Act (NEPA) documentation and PE activities. The City combined the activities needed to support NEPA and conduct PE into the GEC contract with separate Notices to Proceed (NTPs).

On April 17, 2008, the Mayor directed DTS to move forward with steel-wheel on steel-rail technology. The City is currently developing the DEIS and advancing into PE based on steel wheel on steel-rail technology. At present, the City intends to request entry into PE by the end

of 2008.

The City intends to implement the project using an incremental approach as shown in Figure 1. It is the City's intent to perform the final design and begin construction of the initial phase of the "First Project" (Phase I) after the Record of Decision (ROD) is issued using a design-build method of delivery with local funds. Phase I is scheduled to be in operation at the end of 2013.

Phase II is comprised of the remaining limits of the "First Project", Segments D, E and F. Phase II could be opened in phases as construction is completed; the final section of the "First Project" is scheduled for operation in 2018, five years after Phase I is placed into service. The City is evaluating other options, such as Phase I operations on a demonstration basis during limited hours. The City is currently developing the Master Schedule for project delivery which outlines this approach.

On August 1, 2008, the City issued the Administrative DEIS to FTA for review and comment. The Administrative DEIS includes three fixed guideway build alternatives:

- Salt Lake only
- Airport only
- Airport and Salt Lake

The Salt Lake alternative is currently being evaluated for entry into PE.

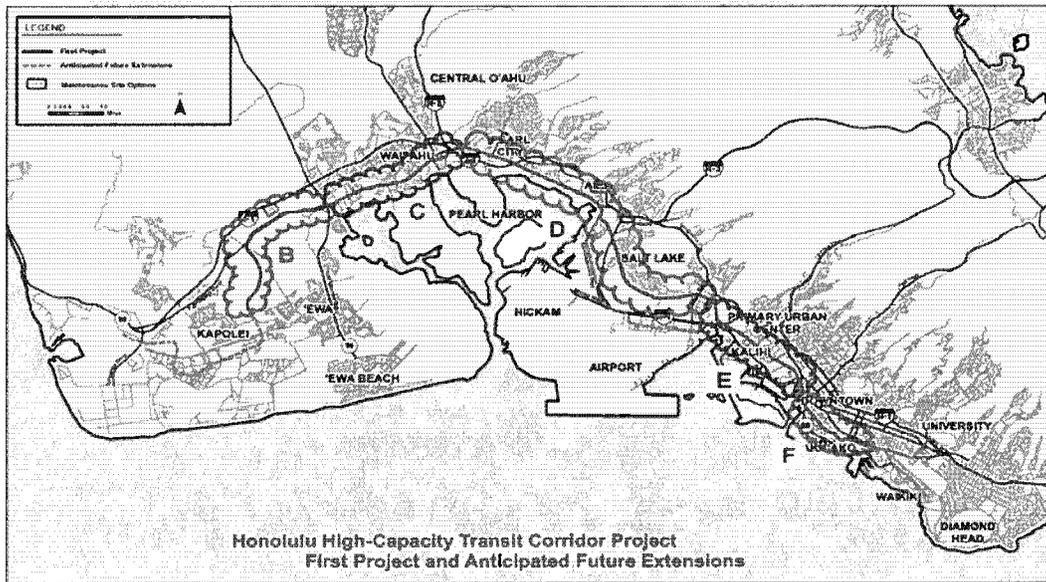


Figure 1. First Project and Anticipated Future Extensions

4. REVIEW AND FINDINGS

The HHCTC Project is scheduled to enter into PE by the end of 2008. Before entering into PE, FTA requires projects to complete the necessary activities in the areas of project development, financial management and technical capacity and capability. This report only addresses the latter requirement. With regard to project development, the City completed the final Alternatives Analysis (AA) Report on the Locally Preferred Alternative (LPA) and FTA has reviewed and accepted the AA Report. The Draft Environmental Impact Statement (DEIS) is in the final stages of development and the City has submitted the Administrative DEIS to FTA for review and comment prior to request for entry into PE. As for financial management, the City completed and submitted the Financial Plan to FTA on December 4, 2007, for review and acceptance. The Financial Plan was reviewed by FTA and its Financial Management Oversight Contractor, and a draft FY 2009 New Starts Financial Assessment was issued to FTA on June 19, 2008.

This section of the report presents: 1) the status of the required documents and the PMOC's overall assessment regarding the City's readiness to enter the into PE phase of the HHCTC Project from a technical capacity and capability perspective and 2) the PMOC's review of the reliability of the project scope, cost, and schedule of the LPA prior to entry into PE.

4.1. GRANTEE TECHNICAL CAPACITY AND CAPABILITY REVIEW

To develop this report, the PMOC used the *PMO Program Operating Guidance* and the *New Starts Project Planning and Development Checklist of Project Sponsor Submittals to FTA to Enter Preliminary Engineering* developed by FTA in July 2007, identifying the activities that the City is required to successfully complete in order to demonstrate technical capacity and capability prior to entering into PE. The requirements and scheduled delivery dates of these requirements were formally developed with the City in June 2007 and in August 2008, and identify the following required documents (FTA deliverables) or actions:

- Project Management Plan (PMP), inclusive of a Project Development Plan (PDP) and a staffing plan
- Real Estate and Acquisition Management Plan (RAMP)
- Quality Management Plan (QMP)
- Bus Fleet Management Plan (BFMP)
- Safety and Security Management Plan (SSMP)
- Third-Party Agreements Management Plan (included in the PMP)
- Rail Fleet Management Plan (RFMP)
- Contracting Plan for Preliminary Engineering Phase (included in the PMP)
- Contingency Management Plan (identifying significant areas of uncertainty in scope, cost and schedule)
- Integrated Master Project Schedule

The PMOC reviewed the various FTA deliverables as they were developed and provided by the City. The PMOC then discussed any comments, concerns, or outstanding issues with the individual documents with the City and suggested ways to address the issues identified. These

discussions with the City resulted in the document being revised in an effort to address all of the requirements necessary to advance into PE effectively.

The PMOC reviewed the organizational capability and capacity of the City to oversee and manage the PE phase of the HHCTC Project in line with federal, state, and local regulations and industry best practices. The technical capacity and capability evaluation is based on the overall assessment of the documents listed above except for the Financial Plan, which is being evaluated by FTA.

The following subsections provide the status of the checklist documents. The checklist deliverables reviewed by the PMOC provided a clearer understanding of the organizational structure of the City with regard to the HHCTC Project. The deliverable review was also performed to determine if the City has the appropriate management policies and procedures in place to adequately oversee and manage the project, and to verify that the City has all required documentation necessary to enter into PE in late 2008, as currently anticipated.

4.1.1. STAFFING REVIEW

At the start of the FTA/PMOC oversight in April 2007, the DTS presented 26 staff positions for the HHCTC Project, 21 of which were filled by staff from InfraConsult, LLC, the PMSC.

In the past year, the City has made tremendous progress in providing the staff needed to demonstrate the technical capacity and capability necessary to design, construct and operate the HHCTC Project. In August 2007, the City executed a contract with a GEC to provide technical services needed to advance the design and NEPA requirements.

On June 5, 2007, the City issued a Request for Qualifications (RFQ) for a GEC for PE services, including the NEPA work. The City combined the activities needed to support NEPA and conduct PE into the GEC contract with separate NTPs. NTP #1, issued on August 24, 2007, is for work required to prepare a DEIS and the documents required by the FTA to support the City's application to advance to PE. NTP #2 would cover the PE effort needed once FTA has approved entry into PE. NTP #3 would be issued for the remainder of the contract work not included in NTP #1 or NTP #2. The City executed a contract with PB and issued NTP #1 on August 24, 2007. All PB key managers are currently on site. The addition of PB to the project provides the City with the ability to obtain any necessary technical expertise to complete both the PE and the EIS process effectively.

On July 1, 2007, the City formed the RTD that falls under DTS. The RTD is responsible for the management and oversight of the project from PE through construction, including all actions and project deliverables required by the FTA New Starts Program, and will interface with other City departments as needed. The RTD is headed by Mr. Toru Hamayasu, who will direct the project staff. The project staff will consist of full-time City employees supplemented with staff from the PMSC, who will fill key project roles pending the hiring of full-time City staff. The PMSC will continue to staff all required City positions in the interim.

The current City staff has the capability to manage the work presently being performed by the

PMSC and the GEC. As work progresses into PE, the City will need to add the necessary staff to be directly accountable for the development of the project design, budget and schedule. Development of the project design will include quality review and audit of the GEC as well as any engineering design consultants assigned to the project; the monitoring of safety and security design requirements and implementation; and continued oversight of the real estate acquisition process.

Currently, the project's organizational structure includes City staff along with PMSC and GEC staff, as shown in the City-GEC organizational chart (Figure 2). The current organizational structure provides the experience and expertise to manage the project at this phase of the work and the assigned City staff are sufficiently qualified to manage and monitor all current project activities including the third-party consultants/contractors to be procured during PE Phase of the Project. The City staff currently includes the following positions:

- Toru Hamayasu – Project Executive
- Phyllis Kurio – Grants Manager
- Faith Miyamoto – Chief, Transit Planning and Environmental Studies
- Kenneth Banao – Transportation Planner
- Bruce Nagao – Acting Chief, Land Use Planning
- Edwina Tabata – Acting Contracts Administrator
- Patrick Williams – Public Information Specialist
- Sarah Blane – Administrative Specialist

The City's long-term strategy is to hire locally and have the PMSC train new City staff using the consultant's expertise in an effort to ensure that the new hire is capable of managing the City's consultants effectively. As the abilities of City staff increase, the need for PMSC staff will diminish until the PMSC staff is no longer necessary. The City does not have a set timetable for replacing the PMSC with City staff; however, the City intends to fill all the current PMSC positions with full-time City staff before the end of the current PMSC contract, which expires at the end of the scheduled PE period in March 2010. Until that time, the City will continue to supplement its staff with PMSC staff. The City has begun to advertise city positions currently filled by the PMSC. Should the City not replace all the PMSC staff by City staff by the end of PE, the City intends to issue a second Project Managements Services Contract to augment the City staff for Final Design.

The PMOC has some concern that the City may encounter difficulty acquiring the experienced staff needed for the long-term assignment given Hawai'i's cost of living and distance from the mainland. The PMOC is also concerned that at present, the City does not have a staffing plan that addresses the transition of the positions currently held by the PMSC. In the early part of PE, the City needs to include a staffing plan in the PMP to address the transition during the PE phase of positions currently occupied by PMSC staff to City staff and the dates by which the City intends to staff each of the positions.

At a minimum, the PMOC recommends that the City strive to fill the key management positions currently occupied by the PMSC as early as possible once they are in PE. The key positions the city should focus on filling are, Chief Project Officer, Manager of Quality Assurance, Manager of Safety and Security, Chief Project Controls and Contracts Administrator. The position of Manager of Real Estate Acquisition must be filled prior to the issuance of ROD. The PMOC recommends continued monitoring of the City's project management process to ensure that the City is effectively managing the HHCTC Project and continues to be responsible for all decisions affecting project design, cost and schedule until all key management positions identified are transitioned to full-time City staff. The transition from PMSC staff to full-time City staff should be monitored throughout the PE phase of the project.

Presently, the City Council is considering an amendment to the City Charter to create a Transit Authority. In order for the Transit Authority to be created and operational on July 1, 2009, the measure must be placed on the 2008 general election ballot. A draft charter amendment has been developed for City Council review. The Transit Authority would be a semi-autonomous City agency responsible for planning, design, construction, operation, maintenance, and expansion of the fixed-guideway mass transit system. As initially proposed, the Transit Authority would have the following authority and functions:

- Full and complete control of all real and personal property used or useful in connection with the fixed-guideway system
- Full and complete authority to plan, manage, control, administer, operate, maintain, repair and expand the fixed-guideway system, including extensions
- Authority to make and execute contracts and other instruments
- Authority to prepare and issue warrants
- Authority to promote, create and assist development projects near fixed-guideway system stations
- Authority to apply for, receive and accept grants of property, money and services and other assistance.

Other functions of the Transit Authority are still being discussed. City employees holding positions with the RTD would be transferred to the Transit Authority.

Once in the PE phase, the City will need to address the following PMOC concerns:

- The RTD Quality Manager has the ultimate responsibility for the Quality Assurance (QA) and Quality Control (QC) for the project from PE through Revenue Operations, but does not currently have a significant role defined in the various project phases. The City needs to further expand the roles and responsibilities of the RTD QA Manager to include participation in QA/QC audits, reviews, inspections and testing to ensure compliance throughout the project.
- The Manager of Safety and Security is temporarily being filled by the Chief Facilities Engineer. The City needs to provide a permanent replacement responsible for the oversight of Safety and Security implementation and certification.
- The Manager of Real Estate, is being temporarily filled by the Chief Land Division. The City needs to provide a permanent replacement responsible for the real estate acquisition and relocation activities prior to the issuance of ROD by the FTA.

- The transition of positions held by PMSC staff to full-time City staff during the PE phase needs to be fully addressed, specifically the positions of Chief Project Officer, Manager of Quality Assurance, Chief Project Controls and Contracts Administrator.

It is the PMOC's professional opinion that the City address the above staffing concerns during PE. More importantly, the City needs to develop a staffing plan as part of the PMP to address the concerns with the transition of positions currently held by PMSC staff to full-time City staff and the dates by which the City intends to staff each of the positions.

4.1.2. PROJECT MANAGEMENT PLAN (PMP)

The FTA New Starts Program requires that its grantees undertaking a major capital project submit a PMP for FTA's review and approval prior to advancing to subsequent project phases. The PMP is a key document in determining grantees' technical capacity and capability to efficiently and effectively implement a major capital project.

The City submitted a preliminary working draft of the PMP on June 12, 2007. The PMP needed further development to meet the FTA guidelines *Section 49 USC 5327 and 49 CFR 633 Project Management Oversight, FTA Grant Management Guidelines, FTA Circular 5010.1C and FTA's Project and Construction Management Guidelines 2003 Update.*

The City resubmitted the PMP on September 14, 2007, and based on this submission, the PMOC and the City conducted a review/workshop on October 16, 2007, to further develop the plan prior to formal submittal. The City resubmitted the PMP on December 20, 2007, which the PMOC reviewed and provided its comments to the City in January 2008.

The final draft of the PMP was provided by the City on March 17, 2008. The PMOC provided comments to this version of the PMP on April 25, 2008 and the City submitted a final baseline version of the PMP (revision 0) on May 21, 2008, which covers all of the 13 elements required to be included in a PMP for entry into PE. Refer to Spot Report #3, dated October 2008, for a full review and analysis of each of the 13 elements covered in the PMP.

The following table provides the document and submission dates for each of the PMP working drafts received from the City and reviewed by the PMOC:

	Document Date	Receipt Date
First Working Draft	June 12, 2007	June 12, 2007
Second Working Draft	September 14, 2007	September 14, 2007
Third Working Draft	December 20, 2007	December 20, 2007
Final Working Draft	March 17, 2008	March 17, 2008
Final Signed Baseline, Rev. 0	May 21, 2008	May 21, 2008

Due to updates to the project delivery method, revisions to the organizational chart as a result of staff changes and concerns with City staff transition, further development of the PMP in the following areas will be required during the PE phase of the project:

- In line with the current status of the project, including the information provided in the

Administrative DEIS, Contract Packaging Plan and Master Project Schedule as provided by the City.

- Development of a Project Development Plan (PDP) providing the essential processes to be used, anticipated costs and schedule, and various metrics to satisfactorily measure performance in attaining the planned delivery of products and completion during the period between the completion of the AA Phase through the completion of PE Phase
- Staffing plan and revised organization chart due to changes in PMSC positions and City staff, and to address the transition of PMSC staff to City staff during the PE phase
- Proposed Transit Authority (if approved) will have to be reflected in the PMP, to include scope of authority, roles and responsibilities of key staff positions, an organizational chart, and resumes of key staff
- Project Delivery approach to be updated during PE to reflect alignment, station locations and segment delivery methods once finalized
- Cost, schedule and claims management sections to be expanded during PE as the requirements and the processes are further defined
- A Document Control Plan detailing document control procedures and the document filing system to be provided
- Process for Procurement and Contracts to be expanded during PE to incorporate the roles of the GEC, General Construction Manager and Contractors at the various stages of the project
- Construction Management and Testing and Start-Up sections to be expanded during PE as the requirements and the processes are further defined.

It is the PMOC's professional opinion and recommendation that the City update the PMP in the early part of PE phase to include and address the areas noted above. In particular, the PMP needs to include a Project Development Plan (PDP) as a sub-plan to the PMP, and a staffing plan, as well as updates to the project delivery method and the organization chart.

4.1.3. REAL ESTATE AND ACQUISITION MANAGEMENT PLAN (RAMP)

The FTA New Starts Program requires that its grantees undertaking a major capital project submit a RAMP for FTA's review and approval prior to advancing into the PE, Final Design and Full Funding Grant Agreement phases of the project.

The purpose of the RAMP is to demonstrate that the City has done adequate planning to implement the right-of-way appraisals, land acquisition, relocation and property management activities for all phases of the project. These policies and procedures must also incorporate compliance requirements of state statutes and guidelines.

The City submitted an initial draft RAMP on January 3, 2008. The PMOC reviewed the draft against FTA policies and procedures that conform to the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* as amended and implementing the regulations at *49 CFR Part 24* (collectively "the Uniform Act") and *FTA Circular 5010.1C*. The PMOC provided and discussed its comments with the City during a workshop held on January 16, 2008.

During the months of February and March 2008, the PMOC had several informal discussions

with the City and provided informal comments to assist the City with the development of the RAMP. On March 12, 2008 the City resubmitted the RAMP (dated February 29, 2008) for PMOC review and comment. Based on comments received from H. C. Peck, as a subcontractor to the PMOC, the City revised the RAMP and issued the final draft submission on April 17, 2008, which was significantly revised to address previous comments and concerns of PMOC.

The following table provides the document and submission dates for each of the RAMP working drafts received from the City and reviewed by the PMOC:

	Document Date	Receipt Date
First Working Draft	January 3, 2008	January 3, 2008
Second Working Draft	February 29, 2008	March 12, 2008
Final Working Draft	April 1, 2008	April 17, 2008
Final Signed Baseline, Rev. 0	May 22, 2008	May 22, 2008

On May 22, 2008, the final baseline version (revision 0) of the RAMP was transmitted to the PMOC. The final submittal is acceptable for entry into PE. Overall, the RAMP:

- Provides an overview of the acquisition process
- Defines roles for the City, project personnel, consultants and subconsultants involved in all phases of the right-of-way acquisition and relocation activities
- Outlines acquisition strategies and decision-making processes
- Identifies coordination requirement and processes
- Defines tasks and assigns responsibilities for those tasks
- Describes the project controls that will be utilized to monitor the acquisition schedule, costs and quality control.
- Identifies 254 total parcels, 83 of which are full takes.

Resolution of the following areas of concerns needs to occur prior to the next RAMP submittal:

- Previous versions of the RAMP did not adequately address the reporting and working relations between the key positions Chief Land Division and Manager of Real Estate and Relocation Specialist. While the RAMP final version for Pre-PE provides adequate descriptions of the reporting and working relationships between these positions, these key positions report to different Directors. The City has developed an issue resolution process to elevate disputes between these two key positions to the Managing Director or the Mayor, if necessary. The PMOC recommends that this organizational structure continue to be monitored to evaluate its effectiveness as identified.
- One of the key positions identified is Manager of Real Estate. The City has identified the Chief Land Division of the Department of Design and Construction, who is adequately qualified, to fill this position until it can be filled permanently. When the Manager of Real Estate position has been permanently filled, the PMOC recommends that the applicant's qualifications be reviewed to ensure sufficient previous experience with federally-funded projects to successfully implement the project in compliance with the Uniform Act.
- The City has indicated to the PMOC that it expects to adopt the Hawai'i Department of Transportation's (HDOT's) policies and procedures for land acquisition and relocation

once they are completed and approved by the Federal Highway Division. HDOT is currently revising the policies and procedures to reflect the latest revisions to the Uniform Act Regulation Final Rule (49 CFR Part 24). While the RAMP submitted by the City meets FTA policies and procedures that conform to the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970* as amended, and implementing the regulations at *49 CFR Part 24* (collectively "the Uniform Act") and *FTA Circular 5010.1C*, it does not include requirements specific to HDOT. The City will review the policies and procedures and make any modification(s) that would be necessary to meet the FTA and City requirements. The PMOC recommends that the HDOT policies and procedures be reviewed once they are in place to assure appropriate compliance. Should the HDOT policies and procedures for land acquisition and relocation not be completed or accepted by the Federal Highway Division, the City will proceed with right-of-way acquisition using the policies and procedures currently detailed in the RAMP. At this time, there is no scheduled date for the completion and acceptance of the HDOT policies and procedures.

- The City's Department of Budget and Fiscal Services will prepare a Relocation Plan prior to the ROD being issued for the project. This relocation plan will become a supplement to the RAMP. The PMOC recommends that the RAMP and Relocation Plan be reviewed for sufficiency prior to any land acquisition activities that would result in displacement.

As the project design proceeds and there is further refinement of the right-of-way plans, the RAMP will need to be modified to incorporate changes necessary to successfully complete the land acquisition and relocation activities. The RAMP is a living document and it is expected that the City will update the RAMP periodically as necessary to maintain compliance with the Uniform Act and other regulatory requirements.

Based on the PMOC's review of the May 22, 2008, RAMP, it is the PMOC's opinion that the RAMP meets FTA requirements to implement the PE phase of project development.

4.1.4. QUALITY MANAGEMENT PLAN (QMP)

The FTA New Starts Program requires that its grantees undertaking a major capital project submit a QMP for FTA's review and approval prior to advancing to subsequent project phases. The City submitted an initial working draft QMP on January 3, 2008. The PMOC reviewed this draft against FTA *Quality Assurance and Quality Control Guidelines, FTA-IT-90-5001-02.1, dated February 2002*, which provide quality program guidance to grantees undertaking design, construction, or equipment acquisition in the management of federally funded projects. The PMOC and the City discussed comments on the draft QMP during a workshop held on January 16, 2008.

The following table provides the document and submission dates for each of the QMP working drafts received from the City and reviewed by the PMOC:

	Document Date	Receipt Date
First Draft		January 3, 2008

	Document Date	Receipt Date
Final Working Draft	March 25, 2008	March 26, 2008
Final Signed Baseline, Rev. 0	May 12, 2008	June 16, 2008

The City submitted a revised QMP addressing the PMOC initial comments on March 26, 2008 (dated March 25, 2008). Although the PMOC provided the City comments to this version of the QMP on April 15, 2008, the QMP submitted covered all of the requirements required in the *FTA Quality Assurance and Quality Control Guidelines, FTA-IT-90-5001-02.1* and is therefore acceptable for entry into PE in its current version. The QMP is a living document that will be updated as the project proceeds through the different phases and stages of the Project.

Based on the PMOC's review of the May 12, 2008, QMP, it is the PMOC's opinion that the QMP meets FTA requirements to implement the PE phase of project development.

4.1.5. BUS FLEET MANAGEMENT PLAN (BFMP)

FTA requires that its grantees undertaking a major capital project submit a BFMP for FTA's review and approval prior to advancing to subsequent project phases. The objective of the BFMP is to ensure that bus service is not degraded during design and construction of the grantee's rail project. The BFMP should provide a clear explanation of the current situation and operation with regards to composition of the existing bus fleet, maintenance facilities and operating conditions.

The City submitted an initial draft BFMP on June 12, 2007. The PMOC reviewed this draft and advised the City that the plan needed further development to meet the *FTA's guidance on Bus Fleet Management Plans for New Starts projects dated April 8, 1999* and *FTA's Guidance for Transit Financial Plans, dated June 2000*, that requires that the number of busses in service, vehicle retirements, acquisitions and overhauls and the associated annual costs are documented in the BFMP. The PMOC and the City discussed comments on the draft BFMP on June 13, 2007, and the City resubmitted a revised BFMP on January 03, 2008 (dated December 2007), however, the plan did not address a number of the PMOC comments. After further discussions with the City on January 15, 2008 and formal review comments transmitted on January 23, 2008, the City resubmitted the BFMP on April 4, 2008, which incorporated the PMOC's review comments and addressed the FTA requirements for development of a BFMP.

The following table provides the document and submission dates for each of the BFMP working drafts received from the City and reviewed by the PMOC:

	Document Date	Receipt Date
First Working Draft	June 12, 2007	June 12, 2007
Second Working Draft	December 2007	January 3, 2008
Final Working Draft	April 2008	April 4, 2008
Final Signed Baseline, Rev. 0	April 2008	June 16, 2008

Based upon PMOC review of the revised BFMP submitted on April 4, 2008, the plan now provides sufficient data, discussion and documentation in the following areas:

- Peak levels of service by year with the number of vehicles required while satisfactorily meeting FTA requirements for spare ratios
- Fleet average age, composition, vehicle requirements and purchase plan
- Current and projected bus ridership using load factor policy
- A description of maintenance facilities, practices and procedures to maintain and adequately address the existing and expansion of the fleet
- Service quality and reliability measures including but not limited to vehicle reliability
- Load factors and on-time performance
- A projected annual project that coincides with the financial capacity review.
- Spare ratio averages approximately 20 percent from current year through 2020.

Based on the PMOC's review of the April 2008, BFMP, it is the PMOC's opinion that the BFMP meets FTA requirements to implement the PE phase of project development.

4.1.6. RAIL FLEET MANAGEMENT PLAN (RFMP)

The City has not fully developed a RFMP at this time. They have developed a set of assumptions which will form the basis of a RFMP once certain decisions on vehicle type and operating parameter are further developed. Based on the current assumptions developed by the City, a fleet of 60 "Metro Light" rail cars is being proposed. The "Metro Light" rail car being proposed is similar to rail cars currently in operation in Europe, but not in the United States. The "Metro Light" vehicle is based on the following assumptions:

- 6200 peak riders in the peak hour peak direction
- Car capacity of 172 riders (3.5 person/sq meter)
- 3.5 minute headways, with 2-car consists.
- 40 minute runtime end to end, 80 minute round trip (actual runtimes appears to be less than 39 minutes)

Based on the above, the City is proposing a fleet of 60 rail cars broken down as follows:

- 23 trains in service (46 rail cars)
- 2 trains at ready (4 rail cars)
- 20% spare ratio (10 rail cars)

At present, the City is continuing to analyze and develop the vehicle specifications. Completion of the vehicle specifications is currently scheduled for May 2009. In addition, the vehicle delivery schedule for the project, i.e. initial number of vehicles to delivered and the sequence of delivery to support the Revenue Operations dates, is still under development by the City and will be further refined during PE.

The use of a 20% spare ratio at this time appears to be adequate based on the assumptions provided by the City for the number of rail cars to be purchased. Car capacity, load factor and ridership projections/simulations will assist in determining design of the car itself to meet peak vehicle demand. However, until the technology of the vehicle is finalized, the City cannot determine what maintenance cycles will be required to include in the formula for calculating the spare ratio.

The City will be required to submit a fully developed RFMP for review in support of entry into Final Design to ensure that the City will have adequate service to meet the transit demand for the years following construction of the New Starts project.

4.1.7. SAFETY AND SECURITY MANAGEMENT PLAN (SSMP)

FTA’s New Starts Program requires that each project receiving FTA funding develop a SSMP for submittal to FTA. FTA issued guidelines for SSMPs contained in Circular 5800.1, on June 21, 2007 and effective as of August 1, 2007, to guide grantees in developing these documents.

The PMOC held a workshop with the City on October 17, 2007 to review the updated FTA requirements for the development of the SSMP. The City submitted a draft SSMP on January 3, 2008 (dated December 28, 2007), and the PMOC discussed its review and comments with the City on January 16, 2008, with formal review comments transmitted on January 23, 2008.

The City completed and submitted a final draft of the SSMP on March 11, 2008. The PMOC used the FTA guidelines checklist to evaluate the SSMP for readiness to enter into PE and provided comments to the City on April 15, 2008. Based on this review, the PMOC recommended that the SSMP policy statement include a statement on completing a safety and security certification program and that the SSMP be signed and approved by the City prior to issuance of the baseline document for entry into PE. The final signed baseline, dated May 12, 2008, of the SSMP was received on June 16, 2008 and included the PMOC comments as well as comments from the Honolulu Police Department.

The following table provides the document and submission dates for each of the BFMP working drafts received from the City and reviewed by the PMOC:

	Document Date	Receipt Date
First Working Draft	December 28, 2007	January 3, 2008
Final Working Draft	March 10, 2008	March 11, 2008
Final Signed Baseline, Rev. 0	May 12, 2008	June 16, 2008

The SSMP incorporates the role of the State Safety Oversight Agency (SSOA) as required by the FTA Guidelines for SSMPs contained in Circular 5800.1. FTA requires states to designate an agency to oversee the safety of any fixed guideway transit (non-commuter rail) system within the state. The process for establishing an SSOA has been identified by the City; however, the schedule for requesting the establishment of the oversight agency has not been determined. During the FTA/PMOC meeting in April 2008, the FTA indicated that they will advise the State of the SSOA requirement at the time approval to enter PE is issued.

Based on the PMOC’s review of the May 12, 2008, SSMP, it is the PMOC’s opinion that the SSMP meets FTA requirements to implement the PE phase of project development.

4.1.8. THIRD-PARTY AGREEMENTS MANAGEMENT PLAN

The Third-Party Agreement Management Plan is in the initial stages and is currently included in the PMP. As third-party agreements are established and negotiated during PE, a separate Third-Party Agreements Management Plan will be developed during PE for review.

The City has begun coordination with third-party agencies to determine the scope of work associated with each agency. The initial utilities identified include:

- Public Utilities – water supply force main, stormwater and wastewater pipelines, sewer
- Private Pipeline Utilities – Gasco, Tesoro, Chevron
- Hawaiian Electric Company (HECO) – High Voltage Transmission Lines (above ground and oil cased underground)
- Hawaiian Telecom
- Private Communications
- Military Communications
- Navy Fuel lines.

The City is presently completing its utility mapping, and once complete, will proceed with verification for the utilities locations. Utility relocation plans are presently in the preliminary plans, however the City is evaluating the possibility of including the utility relocation in the design-build contracts for the initial segments as there would be no time for the City to perform the utility relocations prior to the anticipated December 2009 ROD. Early relocation of utilities for Segments D, E and F are currently being evaluated. At present, the City does not expect any major problems with sewer or water utilities along the project, as the alignment does not impact any major lines. In addition, coordination meetings with third-party agencies presently in progress have been encouraging and no significant issues have developed.

Based on the PMOC's review of the third-party agreement plan as part of the March 17, 2008, PMP, it is the PMOC's opinion that the third-party agreement plan meets FTA requirements to implement the PE phase of project development.

4.1.9. FINANCIAL PLAN

FTA requires a Financial Plan be submitted by grantees as part of the New Starts process. On December 4, 2007, the City submitted the Financial Plan to FTA for review and acceptance. The Financial Plan was reviewed by FTA and its Financial Management Oversight (FMO) contractor and a draft FY 2009 New Starts Financial Assessment was issued to FTA on June 19, 2008.

4.1.10. CONTRACTING PLAN FOR PRELIMINARY ENGINEERING PHASE

The Contracting Plan for PE is currently included in the PMP as the project delivery approach and methods are still being developed by the City. Based on current discussions with the City, Segments B and C will be design-build contracts while the remaining Segments will be design-bid-build (See Figure 1 for Segment locations). A design-build approach is being planned to advance the project schedule in order to minimize escalation costs and demonstrate physical progress while the remainder of the project is in Final Design. Work on these early contracts is planned to be initiated after ROD but ahead of the Full Funding Grant Agreement (FFGA), utilizing local excise tax funding.

Systems and vehicle contracts are currently planned as single contracts with multiple NTPs. The City is currently developing a preliminary Project Delivery Plan detailing the proposed project delivery methods and interfaces for review by FTA and the PMOC. The City will further evaluate the project delivery methods as they progress in PE.

4.1.11. CONTINGENCY MANAGEMENT PLAN

The City has not developed a Contingency Management Plan at this time as the specific risk requirements for the HHCTC Project have not yet been defined. FTA has required that a Pre-PE Risk Assessment be performed prior to approval for entry into PE. FTA has procured an independent PMOC to perform the Pre-PE Risk Assessment analysis, currently scheduled for completion by the first week in December 2008.

In the PMP, the City identified the four major sources of risk to the project; Design Risks, Construction Risks, Financing and Economic Risks, External Political and Social Risks. The PMP also identifies the types of risks within each category and potential mitigation efforts to be considered throughout the project phases. Upon completion of the Pre-PE Risk Assessment currently being performed, the Risk PMOC will provide a preliminary risk register, from which the City will develop a Contingency Management Plan identifying the specific risks on the HHCTC Project and the anticipated mitigation measures to be implemented from the PE Phase of the project through project completion.

4.2. PROJECT STATUS

This section of the report documents the PMOC's review of the reliability of the project scope, cost, and schedule of the LPA prior to entry into PE. The HHCTC Project is in the Pre-PE stage. The City completed the final AA report on the LPA, which has been reviewed and accepted by FTA. The Administrative DEIS was issued on August 1, 2008 to FTA for review comment. The project guideway and station locations are being finalized, however, structural alternatives for the guideway and stations are still being evaluated in order to further define the scope of project.

The current project cost estimate is in FTA's Standard Cost Category (SCC) format and is based on the AA advanced conceptual drawings updated to 2007 dollars. An updated cost estimate is anticipated by the end of 2008, following completion of the DEIS by the City.

The City is in the early, preliminary stages of development of a Master Schedule for this project. The City developed individual and independent schedules for the various stages of the project and on September 21, 2008 provided a consolidated Master Project Schedule for PMOC review. The City is currently revising the Master Project Schedule in response to the PMOC comments and a revised Master Project Schedule is anticipated in October 2008.

4.2.1. PROJECT SCOPE

AA was initiated in August 2005 and the AA report was presented to the Honolulu City Council in October 2006. Public meetings were held on the AA in November and December 2006, and

on December 22, 2006, the City Council selected the fixed guideway as the LPA, with the selection also including the alignment of the project. The four alternatives evaluated in the AA process were:

- No-Build
- Transportation System Management
- Managed Lanes
- Fixed Guideway

The LPA selected is a 29-mile elevated fixed guideway system along O`ahu's south shore between Kapolei and the UH at Mānoa, including a spur to Waikīkī. The proposed "First Project" constitutes the MOS and is a 19 mile route between East Kapolei and Ala Moana Center via Salt Lake Boulevard with 19 stations. It does not include the alignment from West Kapolei to East Kapolei, or from Ala Moana Center to Waikīkī or to the UH at Mānoa.

In selecting Fixed Guideway as the LPA, the City Council left some areas and portions of the alignment open, which will be decided upon as the project progresses. These include West Kapolei (one alignment was longer than the other, although it passed through more populated/developed areas), Salt Lake Boulevard versus the Airport alignment, and the Waikīkī/UH at Mānoa branches. The City is currently including both the Salt Lake Boulevard and the Airport alignments in the DEIS for a total project alignment of 34 miles. Initial fleet size is anticipated to be 60 vehicles. On August 1, 2008, the City issued the Administrative DEIS to FTA for review and comment. The Administrative DEIS includes three fixed guideway build alternatives:

- Salt Lake only
- Airport only
- Airport and Salt Lake

The Salt Lake only alternative is currently being evaluated for entry into PE.

The "First Project" is divided into two phases. Phase I of the "First Project" alignment is approximately 6 miles long and includes 6 stations. The proposed limits of Phase I are from the future site of the Kroc Center development at North-South Road to the vicinity of Pearl Highlands. Phase II encompasses the remaining 13 miles and 13 stations, and is from Pearl Highlands through Salt Lake Boulevard and downtown, with an eastern terminus at the Ala Moana (Shopping) Center.

Conditions for selecting the LPA Alignment included:

- The west terminus of the alignment is at East Kapolei, where there are plans for significant future development (UH West O`ahu and State Department of Hawaiian Home Lands)
- Serve Waipahu, which is primarily a highly dense residential area with some commercial development along the main road
- Serve the Pearl Harbor area and Aloha Stadium
- Serve the Salt Lake Boulevard area, which is highly residential and currently very congested, with several areas of very dense development including commercial, business and residential land uses

- Serve downtown Honolulu and Kalihi, both of which are high-density commercial and residential areas, including two community colleges.

The assumptions made for the operation of the Fixed Guideway in the AA report were:

- System will operate from 4 a.m. to 12 a.m., with 3 to 10 minute headways.
- Maximum speed will be about 60 mph, in a fully dedicated right-of-way with dedicated vehicles, mainly on aerial/elevated guideway with columns in existing roadway medians, although at-grade may be possible in some areas
- Guideway is less than 30-feet wide between stations, and approximately 50-feet plus vertical circulation at stations
- Stations will be spaced approximately at every mile and approximately 270-feet long
- Cost to ride will be the same as “TheBus” with transfer available from one to the other.

In conjunction with AA, an initial scope was developed for the project, which included preliminary alignment development reflecting all alternatives, typical sections for the guideway and structures (both elevated and at-grade), typical station design, and a preliminary cost estimate.

In the last year, the City’s GEC has held several workshops in advance of PE in an effort to determine the most effective alternatives for execution of the project. These workshops allow the GEC to analyze and evaluate structural and geotechnical options for both the guideway foundations and the aerial structure and architectural alternatives for the stations, as well as station area interface and design to maximize circulation. The workshops also address project constructability and systems interface. The GEC has also undertaken and completed several environmental studies, performed initial soil boring testing and studied alignment refinements including station and support facility locations.

The City is currently performing several tasks in an effort to further define the project scope and, as a result, the Master Project Schedule. The City is currently preparing plan and profile drawings; identifying right-of-way for the guideway, stations and ancillary facilities; and identifying traffic lane impacts on roadways adjacent to the proposed alignment. The City has also begun utility coordination, environmental studies and foundation and aerial structural analysis in order to determine the most effective alternatives for execution of the project.

During PE, the City will continue to evaluate architectural and structural alternatives and perform additional geotechnical/soils and environmental testing in an effort to further define the project scope. The City will hold public meetings with the various affected communities to finalize the station characteristics and interface with the local communities.

4.2.2. PROJECT PRELIMINARY DESIGN

With regard to staffing support for Preliminary Design, the GEC has technical capability and capacity to evaluate the various options required to produce a complete set of preliminary design documents and to perform the preliminary design requirements for the HHCTC Project. As demonstrated in the PMP, the City, with the support of the PMSC, has developed the necessary procedures to monitor the GEC’s performance, as well as ensure that the City requirements are

included in the design through scheduled design reviews.

Further development of the City's fleet size, station platform lengths, track configurations, signal, power and communications systems, and maintenance facilities to operate and accommodate ridership in the 25-year forecast will be performed during the PE phase of the project.

4.2.3. PROJECT CAPITAL COST

In May 2007, the PMOC conducted a Cost Validation Analysis based on the information provided by the City in the Final Capital Costing Memorandum, Product 8.5 – Honolulu High-Capacity Transit Corridor, Alternative Analysis/Draft Environmental Impact Statement, dated October 23, 2006, prepared by Parsons Brinkerhoff Quade and Douglas. This costing memorandum document provided detailed cost estimates, including unit costs and quantities, for each project alternative by alignment and segment.

A Top-Down Cost Validation and a Unit Cost Validation analysis were performed to determine cost estimate reasonability in total and for each of the ten major FTA SCC. The Top-Down Cost Validation used FTA's Light Rail Capital Cost and Heavy Rail Capital Cost Databases, sources which document the as-built costs and project characteristics for close to 50 U.S. rail transit investments. These databases were used to identify where the forecast cost of specific SCC cost elements for the HHCTC Project differs materially from past experience. The analysis then considered the potential reasons for these cost variations.

The Unit Cost Validation was conducted by comparing the project's unit cost estimates for concrete, steel, and other primary materials with mainland costs for these same items, each adjusted to correct for regional cost differences (using sources such as RS Means, U.S. Army Corps of Engineers, Department of Defense, etc.). The unit cost validation also compared and contrasted project unit cost assumptions with actual unit costs from recently completed major capital projects in the Honolulu metro region.

A key challenge in conducting this cost reasonability analysis was the lack of a defined project technology and modal definition. Given this lack of specificity, the current project costs were assessed using against the historical, as-built cost experiences of both light and heavy rail projects. The Top-Down Analysis revealed that the project costs exhibit the cost characteristics of both light and heavy rail projects, with some elements having cost characteristics more similar to light rail (e.g., stations and vehicles) and others more similar to heavy rail (most notably aerial structure).

In summary, the cost validation analysis determined that the total project cost estimates are reasonable for Pre-PE, falling marginally below the expected costs based on recent U.S. light and heavy rail projects. However, when the variance analysis is limited to "hard asset" costs alone, including track and structures, facilities, systems, stations and vehicles, the project cost estimates are found to marginally exceed the database predicted costs for a pre-PE project. In contrast, the combined project cost estimates for special conditions, right-of-way, and soft-costs were found to be lower than expected based on prior project experience as represented in the

database.

Overall, the unit cost estimates for the HHCTC Project were generally found to be similar to or within acceptable ranges to those derived from other existing sources, and hence should be considered reasonable at this stage of the project. The provisions for contingencies were found to be adequate and appropriate for a project in the pre-PE phase. Also, the assumed inflation rates used to adjust project costs from 2007 dollars to Year-of-Expenditure (YOE) dollars were found to be reasonable but not conservative, based on recent cost inflation for construction projects nationally and local Honolulu consumer cost inflation.

The current project estimate is included in the Administrative DEIS and reflects design refinements made to the project scope since the AA conceptual design cost estimate. The Administrative DEIS cost estimate appears reasonable for a project at the Pre-PE stage of development. Furthermore, the estimate's level of detail is commensurate with a project at the Pre-PE phase. The estimate was prepared in accordance with generally accepted estimating principles and practices; however, since the project is in the Pre-PE stage, major cost elements and risk items should be reviewed as the design and engineering mature and the construction schedule is refined. Such items include utility relocations, real estate acquisitions and ROW considerations, environmental remediation, and geotechnical impacts to foundation design and construction.

This current project estimate will be used in the New Starts Report and the Financial Plan to be submitted by the City later this year. A comparison of the Capital Cost Summary provided in the November 2007 Financial Plan and the Administrative DEIS is shown below:

Table 1. Capital Cost Summary

	Financial Plan (November 2007)		Administrative DEIS (August 1, 2008)	
	Millions \$2007	Millions \$YOE	Millions \$2007	Millions \$YOE
Cost Excluding Finance Charges	\$3,727	\$4,684	\$3,901	\$4,772
Cost Including Finance Charges	\$3,918	\$4,940	\$4,261	\$5,256

As the project scope is further developed during the DEIS and PE process, the City anticipates completing an updated cost estimate for review by the end of 2008.

4.2.4. PROJECT RISK

The project scope is being determined at this time, and the guideway alignment and station locations are being finalized. In addition, the project schedule is still in development and the project budget included in the Administrative DEIS is based on the AA conceptual design with some design refinements.

In May 2007, the PMOC performed a Cost Validation Analysis of the project costs developed on the basis of the conception design performed during AA. As a part of the Cost Validation

Analysis, the PMOC reviewed potential cost risks and identified cost elements that either may be missing from the current estimates or that may benefit from further refinement, to reduce cost risk. The following are some of those items that may pose cost risks to the project, and hence deserve further attention during PE:

- Utility Relocation – The last comprehensive utility assessment for buried utilities was performed in 1991 and consisted largely of a review of city utility maps. The current project estimate consists of updated relocation costs applied to the 1991 assessment data. Hence, there is risk that the current cost may be too low, suggesting the need for an updated utility assessment. Also, private utility relocation costs are assumed to be split 90/10 (project/private). The fact that the utility company bears any cost reduces the incentive to perform the relocations promptly, increasing the likelihood that the project may bear 100 percent of the relocation cost in order to maintain schedule.
- Real Estate Acquisition and Relocation – At present, the City continues to refine the alignment right-of-way along with location of stations and support facilities. The City has begun to identify land parcels affected by the project including station touchdown locations, park-and-ride facilities and construction access and lay-down areas. Because much of the data used in the City’s development of the project budget relies upon analysis completed in 1991, all real estate costs, including relocation costs, will be re-estimated once all affected parcels are identified.
- Environmental Mitigation Requirements – Again, once the City determines the final location of the alignment along with station locations and support facilities, further environmental studies will be necessary to determine the full extent, if any, of the environmental mitigation necessary to complete the project.
- Sub-surface Soil Conditions (Geotechnical) – Because of the differing nature of the subsurface soils along the alignment, further geotechnical studies will be necessary during PE to determine foundation locations and types.

All risks identified above will require further evaluation during the Pre-PE Risk Assessment to be performed by FTA prior to entry into PE.

4.2.5. PROJECT SCHEDULE

Based on the Master Project Schedule received on October 13, 2008, request to enter PE is anticipated by the end of 2008, ROD on August 28, 2009, start of construction for Phase I (Segments B and C) by December 30, 2009 and Revenue Service for Phase I by November 2013. Table 2 presents a summary of the planned schedule of milestones activities provided by the City. Table 3 provides the dates for the start of construction and revenue operations for each of the segments in the First Project.

Table 2. Summary Schedule of Milestone Activities

Activity Description	Planned Schedule	Actual Schedule
RFQ – Advertise for GEC Contract	06/05/2007	06/05/2007
RFQ – Contract Award for GEC Contract	08/24/2007	08/24/2007
Start Vehicle Procurement	12/05/2007	12/05/2007
Select Vehicle Technology	03/12/2008	04/17/2008
Start PE for “First Project”	12/31/2008	
Finalize DEIS/Publish Notice of Availability	12/24/2008	
Start Utility Relocation	12/30/2009	
Start Right-of-Way Relocation and Acquisition	11/15/2009	
Issue Procurement - Phase I Design-Build Contract	11/07/2008	
Finalize FEIS/Publish Notice of Availability	07/17/2009	
Record of Decision (ROD)	08/28/2009	
Issue NTP for Phase I Design-Build Contract	12/22/2009	
Start Phase I Construction	12/30/2009	
Complete Vehicle Specification/Issue Vehicle RFP	05/04/2009	
Start Construction of Maintenance Storage Facility	05/20/2010	
NTP for Transit Vehicles	04/09/2010	
Vehicles – First Delivery	08/31/2011	
Vehicles – Delivery (Remaining Vehicles)	01/27/2015	
Enter Final Design - Phase II	12/26/2011	
FFGA	02/26/2011	
Start Remaining Construction	04/21/2011	
Complete Phase I Construction	11/28/2013	
Revenue Operation for the “First Project”	12/18/2018	

Table 3. Milestone Dates of Segments D, E and F

Segment	Start of Construction Date	Revenue Operations Date
Segment B/C – West Oahu and Farrington	12/24/2009	11/28/2013
Segment D – Kamehameha	06/27/2011	11/05/2017
Segment E – Salt Lake	04/21/2011	12/18/2018
Segment F – City Center	06/17/2011	12/18/2018

At present, the City is considering combining the Design-Build contracts for Segments B and C. A delay to the current project schedule could delay the start of Phase I design-build contracts and in effect extend the completion date of the Segment C design-build contract beyond 2013. Delays to the current schedule could also increase the cost of the Phase I construction due to increased escalation costs. Phase I construction is currently scheduled to be funded by the local excise tax.

In order to support the Phase I Design-Build Contract, the City anticipates issuing a Letter of No Prejudice (LONP) for advanced Utility Relocation and Right-of Way Acquisition and Relocation

activities prior to schedule ROD date. FTA has cautioned the City against pursuing LONPs for the activities identified prior to ROD; however, the City's schedule includes the anticipated activities.

Although the PMOC has determined that the current project schedule is optimistic, further evaluation of the project scope and delivery methods by the City during the PE phase of the project will determine appropriate schedule activities and durations.

The City is in the early, preliminary stages of development of a Master Project Schedule for the "First Project" of the HHCTC project. The City developed individual and independent schedules for the development of the EIS, PE, Final Design, Construction, Vehicle Procurement and Procurement. The individual schedules for delivery of the EIS and PE have been well developed, while other individual schedules have not been well defined. Additionally, until recently the City had not attempted to integrate the individual schedules into a Master Schedule.

On September 21, 2008, the City provided a consolidated Master Project Schedule for PMOC review, to which the PMOC provided detailed review comments to the City on October 1, 2008. The City and the PMOC held a conference call on October 7, 2008 to discuss action items developed by the City following the PMOC schedule review comments, and as a result of the meeting, the City agreed to revise the Master Project Schedule in order to produce a technically sound and properly integrated Master Project Schedule. The City continues to progress the schedule in an effort to formulate the appropriate project delivery methods to achieve an initial operating segment by the end of year 2013.

The following action items were developed by the City and accepted by the PMOC in order to produce a technically sound and properly integrated Master Project Schedule:

- Add Start-up activities showing a duration of nine months prior to each line opening of service.
- Highlight the FTA and PMO required review activities and durations including LONP activities and durations for Utility Relocation and ROW Acquisition and Relocation activities anticipated prior to ROD in support of the Phase I Design-Build Contract.
- Add more linkages among activities.
- Identify and include the owner furnished items that the City can identify at present.
- Show vehicle delivery activities.
- Show a line item for vehicle testing.
- Add interface points when facilities will be available for systems installation contractors if possible.
- Show a phased development of the maintenance facility.
- Show staffing and training for operations.
- Add other detailed activities shown on the PE/EIS P6 schedule which were omitted from the P3 schedule.
- Break down ROW activities into preparation for acquisition and purchase/relocation.
- Provide at least two separate activities for systems installation indicating the break in installation between the Design-Build section and the Design-Bid-Built sections.
- Produce the schedule in P6 format.

Once the action items listed above are included, ongoing updates of the Master Project Schedule will occur as more detailed activities are added supporting each different project phase, starting from Pre-PE, PE, Final Design, Procurement and Construction phases. The City has advised that the individual and independent schedules originally developed will no longer be used for project scheduling; that the Master Project Schedule will be maintained as the project progresses; and that all future subject schedules will be developed from the Master Project Schedule.

Based on a thorough review of the Master Project Schedule, *it is the PMOC's professional opinion that the Master Project Schedule is sufficiently defined for a project in its current phase and that the schedule needs to be further refined during PE.*

4.2.6. ONGOING ISSUES REQUIRING PMOC MONITORING

Going forward, the following issues need to be monitored, developed and resolved during the PE phase:

- Hiring of additional City staff in order to develop the internal capability needed to effectively manage all consultants throughout the PE phase. At present, the PMOC recommends that the following be filled by City staff during the PE phase but prior to entry into Final Design:
 - ▶ Chief Project Officer
 - ▶ Manager of Quality Assurance
 - ▶ Manager of Safety and Security
 - ▶ Chief Project Controls
 - ▶ Contracts AdministratorThe position of Manager of Real Estate Acquisition must be filled before the issuance of ROD.
- Update and further development of the PMP during the PE phase to include: the proposed Transit Authority, if approved, including scope of authority and roles and responsibilities of key staff positions; project delivery approach; cost, schedule and claims management; Document Control Plan; Process for Procurement and Contracts; and Construction Management and Testing and Start-Up sections.
- The overall project schedule and the concern that it continues to be exceedingly optimistic.
- The project scope needs to be further detailed in order to develop a complete Master Project Schedule. Development of the Master Schedule should further define schedule activities and identify critical path activities and associated milestone dates.
- The Real Estate Acquisition and Relocation schedule has not been defined and could potentially impact the current critical path identified.
- Technology selection actions among the Mayor, the City Council and anti-rail critics. Although the project is proceeding with steel-wheel on steel-rail technology, as of April 21, 2008 an anti-rail group announced that they will attempt to collect the 44,535 signatures from registered voters needed by August 1, 2008 to place a measure on the November 2008 ballot. The petition reads, "Shall an ordinance be adopted to prohibit trains and rail transit in the City and County of Honolulu?" The PMOC will continue to monitor this effort, as it could significantly delay the project should this anti-rail group

5. CONCLUSIONS AND RECOMMENDATIONS

The HHCTC Project is scheduled to enter into PE in late 2008. This report addresses the PMOC's review of the organizational capability and capacity of the City to oversee and manage the PE phase of the HHCTC Project in line with federal, state, and local regulations and industry best practices, as well as the overall status of the HHCTC Project with regards to scope, cost and schedule.

Based on meetings and workshops with the City management and staff, documentation reviews, and site visits and tours, *it is the PMOC's professional opinion that the City has successfully addressed all the requirements necessary to demonstrate the technical capacity and capability to effectively manage the PE phase of capital project development.*

As the project moves forward, there are certain areas that the City needs to focus on and address in early stages of the PE phase to assure effective delivery of the project. These areas include:

- Hiring of additional City staff in order to develop the internal capability needed to effectively manage all consultants throughout the PE phase, and further development of the role and responsibilities of the RTD Quality Manager from PE through Revenue Operations, and the permanent staffing of a Manager of Safety and Security and the Manager of Real Estate.
- Update of the PMP to include a Project Development Plan (PDP) as a sub-plan to the PMP, and a staffing plan, as well as updates to the project delivery method and the organization chart. The PMP also needs to be updated to be consistent with the current status of the project, including the information provided in the Administrative DEIS, Contract Packaging Plan and Master Project Schedule as provided by the City.
- Further development of the PMP during PE in the areas of: the proposed Transit Authority, if approved, including scope of authority and roles and responsibilities of key staff positions; the project delivery approach; cost, schedule and claims management; Document Control Plan; Process for Procurement and Contracts; and Construction Management and Testing and Start-Up sections.
- Finalizing the technology selection progress, including monitoring the City Council and local transit opponents' actions.
- Continue to develop a technically sound and properly integrated Master Schedule.
- Further definition of the project scope, final alignment, maintenance yard location, station locations and support facilities.
- Evaluation and development of the project delivery approach and methods for the procurement of utility, facility and system design and construction/installation contracts.
- Implementation and update of the RAMP, BFMP, SSMP and QMP as the project progresses, and development of a RFMP and Contingency Management Plan.
- Third-party negotiations and agreements.