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**Financial Capacity Assessment  
of the  
City & County of Honolulu  
for the  
Honolulu High Capacity Transit Corridor Project**

**PREPARED FOR THE FEDERAL TRANSIT ADMINISTRATION**

**by Porter & Associates, Inc.  
under subcontract to Milligan & Company, LLC**

**Contract No. DTFT60-08-D-00008**

**January 25, 2012**

**Final Report (reissued)**

**Based on September 2011 Financial Plan**



**PORTER & ASSOCIATES, INC.**

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## Glossary of Abbreviations, Acronyms and Terms

BAN	Bond anticipation note
CAFR	Comprehensive Annual Financial Report
CAGR	Compound Annual Growth Rate: the constant rate of change per year that, when applied to the first value in a time series and each succeeding year, would yield the actual final value in that series. Also known as the average annual rate of change.
CIP	Capital Improvement Program
COR	Council on Revenues
CMAQ	Congestion Mitigation and Air Quality Program
DBOM	Design-Build-Operate-Maintain, a type of procurement
DTS	City of Honolulu Transportation Services Department
FFGA	Full Funding Grant Agreement
FMOC	Financial Management Oversight Contractor
FTA	Federal Transit Administration
FTE	Full-time equivalent employee
GAAP	Generally accepted accounting principles
GAN	Grant anticipation note
GDP	Gross domestic product
GET	General excise tax
G.O.	General obligation
HART	Honolulu Authority for Rapid Transit
HHCTCP	Honolulu High Capacity Transit Corridor Project
HTAX	Hawaii Department of Taxation
New Starts	Part of the \$5309 program relating to the funding of new fixed guideway projects
NTD	National Transit Database
PMOC	Project Management Oversight Contractor
SCC	Standard Cost Category, used in breakdowns of project cost
\$5307	Urbanized Area Formula Grant Programs
\$5309	Includes (1) Discretionary program to supplement formula funding for buses and bus-related facilities in both urbanized and rural areas; (2) discretionary program for new starts projects; and (3) a formula funding program for fixed guideway modernization (FGM).
TECP	Tax-exempt commercial paper
VRM	Vehicle revenue mile
YOE	Year-of-Expenditure (denominates dollars in the year they are expended; contrast with <i>constant dollars</i> , wherein dollars in multiple years are expressed in terms of their buying power in a single year, e.g., 2010 dollars).

# 1. Summary

This document presents a financial capacity assessment of the City & County of Honolulu (hereafter, "the City") in preparation for final design approval for the Honolulu High Capacity Transit Corridor Project ("the Project").

The Project is a 20.1-mile elevated rail line, using light metro technology incorporating automatic train control. A description of the Project is provided in section 2.

The Honolulu Authority for Rapid Transportation (HART) became effective on July 1, 2011. HART is a semi-autonomous authority created by the City to manage the construction and operation of the Project. The City's Department of Transportation Services, Public Transportation Division, will continue to manage bus and demand response services provided under contract by Oahu Transit Services, Inc. A description of these entities is provided in section 2.

The Project is estimated to cost \$5,126 million in year-of-expenditure dollars, inclusive of financing costs. This estimate was confirmed by the Project Management Oversight Contractor (PMOC) in December 2011. The estimate is explained in section 3.1.

The Project cost estimate is assumed to be funded by \$5309 New Starts funds totaling \$1,550 million. This report assumes these funds will be available according to the schedule in Appendix A to this report. The remaining funds include: a 0.5 percent county surcharge on the State of Hawaii 4 percent general excise tax (aka GET surcharge), providing \$3,322.1 million; \$5307 Urbanized Area formula grants (\$244 million); and an American Recovery and Reinvestment Act grant (\$4 million). All except the \$5309 New Starts funds have been committed. The Project is scheduled to begin partial revenue service in December 2015, and would fully open in March 2019.

This report analyzes the reasonableness of the Project financial plan, and a long-term financial plan for all transit services to be operated by HART and the City through 2030. The financial plan is dated September 2011.

This assessment finds:

- At this time, there is no additional capacity in the Project financing plan to fund Project cost increases or to mitigate other adverse events. Cash balances are minimal and debt service coverage is low. Please refer to section 3 for details.
- The City provides highly-utilized transit services, but experienced high growth in locally-funded subsidies (10.9 percent annually, 2005-2010), and has not kept up with fleet replacement needs, indicated by an average bus fleet age of 10.2 years. Please refer to section 5 for supporting information.
- The operating and capital financial plans require a greater relative degree of City financial support than has historically been the case, which could be pushed yet higher if an optimistic subsidy forecast is not realized. Please refer to section 5 for supporting details.



- Stress tests performed on the Project financing plan including a 10 percent increase in Project cost and a 4.3 percent GET surcharge growth rate (post-2012) instead of the 5 percent growth assumed in the financial plan could increase City funding requirements by \$709 million and \$103 million, respectively, totaling \$812 million. While the financial plan submitted by HART describes options that could be pursued to obtain additional revenues should they be needed, such as an extension of the GET surcharge past its current sunset date or implementation of value capture mechanisms, additional state and/or city approvals would be required. Please refer to section 6.1 for supporting information.
- Stress tests performed on the operating subsidy forecast for TheBus and TheHandi-Van services indicate that subsidies could potentially increase by 22 percent (\$1,011 million), 2011-2030, compared to the City's forecast. The higher subsidies reflect the stress test's use of a higher rate of growth for operating cost per vehicle revenue mile (e.g., 4.1 percent for TheBus) than assumed in the City's financial plan (2.8 percent), but less than the historical growth rate (5.2 percent). The higher level of subsidy may be unaffordable. However, Mayor Carlisle, in a letter to FTA Administrator Rogoff, indicated that "the City will maintain its historical commitment to fully fund TheBus operation and services at its current level and with planned enhancements." City Council Chair Martin also indicated to FTA that "adequate funding for TheBus must remain in place not only during the rail transit project's construction, but well into the future..." Please refer to section 6.2 for supporting information on the stress tests.

It is recommended that:

1. The operating cost estimate for the Project be revised to include all relevant HART board and staff activities.
2. Prior to an FFGA, HART should revise the assumptions used to estimate Project financing. FTA appreciates that HART used very conservative financing rate assumptions in the current plan to help demonstrate financial capacity, but this has the effect of over-estimating the cost of financing and potentially artificially increasing the project cost. Interest rate assumptions and other factors affecting debt capacity (e.g., coverage requirements) should be consistent with the then-current market outlook.
3. The City should revise and amend its financial plan to address other items cited in section 8, perhaps most importantly its capacity to fund Project cost increases or funding shortfalls from resources that require no further approvals.

## 2. Scope of the Financial Capacity Assessment

This section briefly describes the project and the project sponsors, and describes the limitations of data and the report.

### 2.1 PROJECT DESCRIPTION

The Honolulu High Capacity Transit Corridor project (“the Project”) is a 20.1-mile, dual-track rail line that will provide frequent service between East Kapolei and the Ala Moana Center in downtown Honolulu. The guideway will be primarily on elevated structure (19.5 miles). The 21 stations included in the Project will all be located on aerial structure.

The Project alignment is shown in Exhibit 2-1, following page.

The Project is expected to be constructed in phases. The first phase will be the portion between East Kapolei and Aloha Stadium, and will also include construction of the vehicle maintenance and storage facility. The second phase will be constructed from Aloha Stadium to Middle Street and the final phase will continue to the Ala Moana Center.

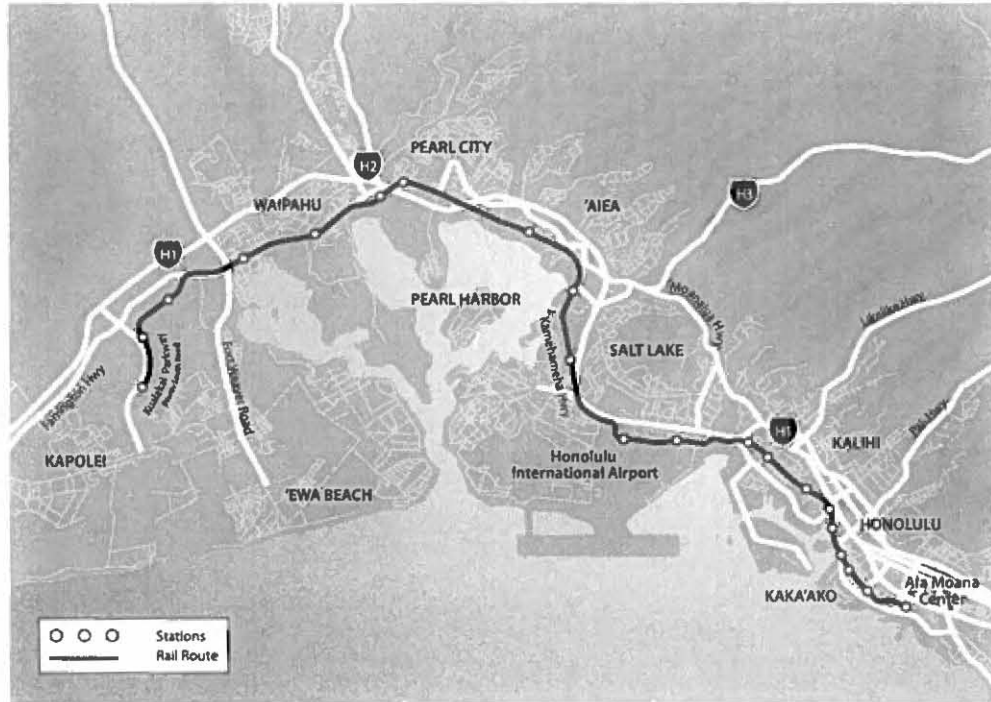
Cost estimates for the Project presented in this Financial Plan reflect a steel wheel on steel rail automated technology, operating primarily on elevated guideway using high floor vehicles and a barrier-free fare collection system.

The rail technology for this Project is known as “light metro rapid transit”, with fully automatic (driverless) train control. Train consists are typically short – two to three cars – allowing quick acceleration and deceleration.

The Project is currently scheduled to open in March 2019. The average weekday trips in the first full year is forecast to be 97,000. Ridership is forecast to grow to 116,000 trips in 2030. Project costs and financing are described in Section 3 of this report.

### 2.2 PROJECT SPONSOR

The Project is sponsored by the City and County of Honolulu, hereafter referred to as the City, acting through the Honolulu Authority for Rapid Transportation (HART). HART became effective in July 2011, and is described more fully in Section 2.2.2. Motor bus and paratransit services will continue to be managed by the City’s Public Transit Division, in the Department of Transportation Services. These services are operated by contract with Oahu Transit Services, Inc.

**Exhibit 2-1: Project Alignment**

### 2.2.1 City & County of Honolulu

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, as amended. The City is the designated recipient of FTA Urbanized Area Formula Funds apportioned to the Honolulu and Kailua-Kāne'ōhe urbanized areas.

The City's governmental structure consists of the Legislative Branch and the Executive Branch. 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. 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 four-year terms.

The City is authorized under Chapter 51 of the Hawai'i Revised Statutes 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.

Transit services are currently provided through the City’s Department of Transportation Services’ Public Transit Division. See section 2.2.3 for additional information on the management of the City’s current transit services.

The City funds bus and paratransit operations through transfers from its General Fund and from its Highway Fund. Transit capital expenditures, other than those funded through Federal grants, are funded primarily from the proceeds of general obligation bonds issued by the City pursuant to its capital improvement program.

Local funds for the Project are provided primarily by a 0.5 percent county surcharge on the existing State of Hawaii 4 percent general excise tax (aka GET surcharge). This surcharge was enabled by Hawaii Revised Statutes (HRS) chapter 46, which authorizes counties to levy up to a 1 percent surcharge on the same activities that are subject to the State 4 percent GET. The GET surcharge was implemented by City Ordinance 05-027 on August 10, 2005. The ordinance specified that the GET surcharge would be levied at the 0.5 percent rate, commencing on January 1, 2007 and terminating on December 31, 2022, consistent with State legislation (HB 1309).

The uses of the GET surcharge are restricted by State law to the “Operating or capital costs of public transportation within each county for public transportation systems, including public buses, trains, ferries, pedestrian paths or sidewalks, or bicycle paths.” The City’s implementing ordinance further restricts the uses to “operating or capital costs of a locally preferred alternative for a mass transit project” and forbids the funds to be used “to build or repair public roads or highways or bicycle paths, or to support public transportation systems already in existence prior to the effective date of Act 247, Session Laws of Hawaii, Regular Session of 2005.”

Revenues from the GET surcharge are collected by the State, which retains 10 percent of the revenues for administrative purposes. The remaining revenues are transferred quarterly to the City’s Special Transit Fund, managed by HART, described in Section 2.2.2. As explained in Section 3 of this report, most of the local capital funds applied to the Project will derive from general obligation bonds issued by the City. GET surcharge revenues will be used to service this debt.

### 2.2.2 Honolulu Authority for Rapid Transportation

HART assumed the duties and responsibilities of the Rapid Transit Division (RTD) of the City's Department of Transportation Services (DTS) with respect to the Project.

The creation of HART was enabled via a November 2010 voter-approved amendment to the Charter of the City and County of Honolulu. The charter amendment was initiated by resolution of the City Council (09-252, CD1). The question submitted to voters was "*Shall the Revised City Charter be amended to create a semi-autonomous public transit authority responsible for the planning, construction, operation, maintenance, and expansion of the City's fixed guideway mass transit system?*" Sixty-three-point-six (63.6) percent of the voters responded affirmatively, thus authorizing HART's creation.

The powers and duties of HART are specified in City Council Resolution no. 09-252, CD 1. The resolution confers broad powers to HART, within the scope of the charter amendment question above. However, the ultimate power to approve line-item appropriations and bond sales proposed by HART remains vested in the City Council.

The HART Board of Directors consists of nine voting members, and one non-voting ex-officio member (the City's Director of Planning and Permitting). The nine voting members include: three members appointed by the Mayor; three members appointed by the City Council; the City's Director of Transportation Services; the State's Director of Transportation; and a ninth member to be selected by the appointed and by-law members. An interim Executive Director has been appointed, while a national search is underway to fill the position permanently. Current HART staff are essentially the staff of the former DTS Rapid Transit Division.

During its first fiscal year (FY 2012, ending June), HART will continue to utilize the City's business systems and administrative practices. Memorandums of Understanding with the City departments are being created to set forth the scope and terms of the services to be provided. This support from the City should enable HART to achieve a quick startup. During FY 2012, HART will evaluate the extent to which it should develop its own business systems.

### 2.2.3 Public Transit Division of the Department of Transportation Services

The Public Transit Division (PTD) of the Department of Transportation Services (DTS) will continue to be responsible for managing the City's fixed route bus and paratransit services. The City's fixed route bus system is referred to as "TheBus"; paratransit services are referred to as "TheHandi-Van". All transit services operate across the entire island of Oahu. TheBus and TheHandi-Van are operated under contract by O'ahu Transit Services, Inc. (OTS).

### 2.3 LIMITATIONS OF DATA AND THE REPORT

The assessment presented herein relies on documents supplied by the City, describing historical revenues, expenditures, assets, and liabilities, as well as a financial plan prepared initially in April 2011, and revised in September 2011. The latter plan was based on the City's revised Project cost estimate, confirmed by the PMOC in December 2011. Additional details regarding the Project cost estimate are provided in section 3.

The FMOC acknowledges that, by their nature, financial forecasts assume the occurrence of future events that are unlikely to occur exactly as planned. Variances between assumed and actual outcomes may occur and could be material.

The September 2011 financial plan, including supplemental information submitted by the City, generally conforms to FTA Guidelines for Transit Financial Plans.

The FCA included a review of the reasonableness of the forecast assumptions used in the City's financial plan, focusing on the contrast between these assumptions and historical trends, in the context of current economic conditions. The assessment carefully examined but did not attempt to fully proof the forecast methodology. Where appropriate, the risks posed by potential variation in these material assumptions were evaluated. These risks are described in section 6, Stress Tests.

### 3. Project Financing Plan

This section of the report describes the Project budget, cash flow, and the City's capacity to accommodate higher costs or funding shortfalls. The primary local funding source for the Project is the 0.5 percent surcharge on the State of Hawaii general excise tax (the "GET surcharge"). The Project and the GET surcharge were described in section 2.

The key findings presented in this section are as follows:

- The Project cost estimate is \$5,126 million in year of expenditure (YOE) dollars. This figure includes bids awarded or selected to date, as well as financing costs incurred through completion of the Project (March 2019).
- The Project cost estimate is assumed to be funded from \$5309 New Starts funds (\$1,550.0 million, 30.2 percent), GET surcharge revenues and bonds (\$3,322.1 million, 64.8 percent), \$5307 Urbanized Area funds (\$244.0 million, 4.8 percent), interest earnings (\$5.1 million, 0.1 percent), and an ARRA grant (\$4.0 million, 0.1 percent). All the non-\$5309 New Starts funds are committed.
- The financing costs attributed to the Project (\$247 million) are conservative. Interest rate assumptions should be revisited prior to a FFGA for this Project.
- At this time, there is no additional capacity in the Project financing plan to fund Project cost increases, or to mitigate other adverse events. Cash balances are minimal and debt service coverage is low.

The City identified two specific options in its financial plan to provide additional revenues to the Project, but both options require additional approvals: (i) extending the GET surcharge past its sunset date, which would require action by the State legislature and the City Council; and (ii) implementing value capture mechanisms, such as special improvement districts and tax increment financing, both of which the City is authorized to implement on action of the City Council. The supporting analyses presented by the City are technical in nature; it is unclear how much political support exists or would exist to gain the necessary approvals.

Additional details on the Project budget, cash flow, and capacity to accommodate higher Project cost are presented in the remainder of this section.

### 3.1 PROJECT BUDGET

As noted in the key findings for section 3, the City's proposed Project cost estimate is \$5,126 million in YOE dollars, consisting of \$4,879 million in capital costs and \$247 million in financing costs. The financing cost estimate was included in the September 2011 financial plan. Details on the sources and uses of funds are provided in the remainder of section 3.1.

#### 3.1.1 Sources of funds

The sources of funds for the Project are depicted in Exhibit 3-1 (following page). An annual breakdown of the funds, in the format of Attachment 6 to the FFGA, is provided in Appendix A.

##### *Federal funds*

The bulk of Federal funds assumed to be applied to the Project is from the \$5309 New Starts program, with additional funds coming from \$5307 Urbanized Area formula funds for the Honolulu area, and from a previously awarded ARRA grant.

§5309 New Starts funds are assumed to be \$1,550 million, as follows:

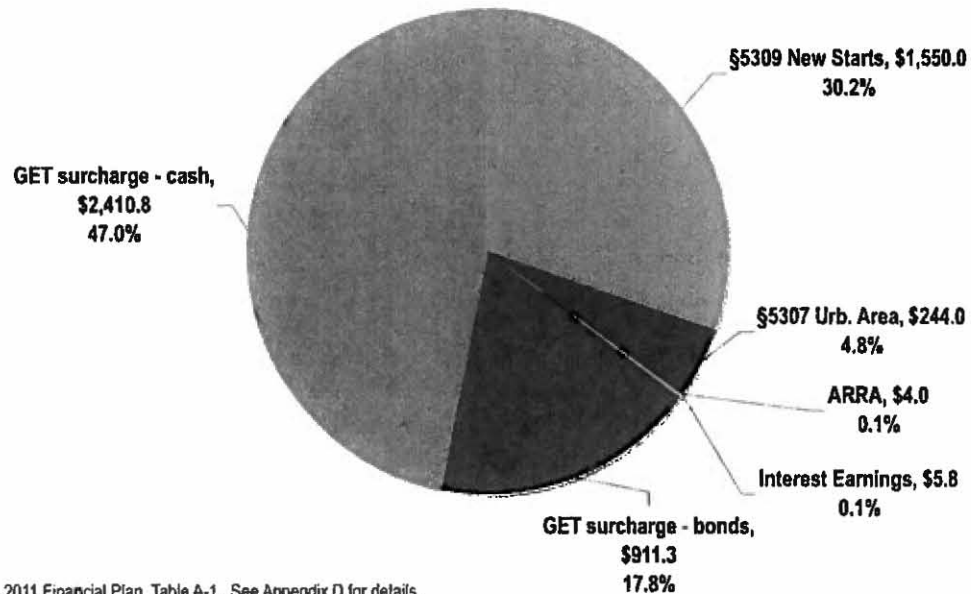
- \$20.91 million apportioned to date
- 224.08 million in City FY 2012 (ending June)
- \$250 million in each of fiscal years 2013-2015
- \$228.48 million in FY 2016
- \$191.63 million in FY 2017
- \$98.33 million in FY 2018
- \$30.03 million in FY 2019
- \$6.54 million in FY 2020

§5309 New Starts funds total 30.2 percent of total Project cost.

§5307 Urbanized Area formula funds total \$244 million, or 4.8 percent of total Project funds. These funds range from a low of \$32 million in FY 2013 to a high of \$39 million in FY 2019. These funds are committed to the Project in the Statewide 2011-2014 Transportation Improvement Plan.



### Exhibit 3-1: Sources of Project Funds (\$5,126 mil., y-o-e)



source: Sept. 2011 Financial Plan, Table A-1. See Appendix D for details.

The City of Honolulu was awarded a \$4 million grant in the American Recovery and Reinvestment Act (ARRA) that has been applied to the Project, accounting for 0.1 percent of Project funds.

All told, Federal funds total \$1,798 million, or 35.1 percent of total Project funds.

#### **Local funds**

Local funds are provided almost entirely by the GET surcharge, consisting of \$2,410.8 million in cash, and \$911.3 million in bonds that would be outstanding at completion of the Project in 2020. The cash portion includes a cash balance of \$341 million at the beginning of FY 2011 (July). These figures are net of tax-exempt commercial paper (TECP) and bond anticipation notes (BANs) issued for cash flow purposes, all of which would be either repaid with cash or refinanced with G.O. debt prior to Project completion. The bonds outstanding at Project completion would be repaid from GET surcharge revenues collected through the sunset date (December 31, 2022). In all, the GET surcharge would fund \$3,322.1 million (64.8 percent) of the Project cost. Please refer to section 3.3 for an analysis of the GET surcharge forecast and its effect on capacity to accommodate higher Project costs.

Interest earnings on cash balances are forecasted to provide another \$5.1 million for the Project, equivalent to 0.1 percent of Project funds.

### 3.1.2 Uses of funds

The current Project cost estimate is \$5,126 million in YOE dollars. This estimate was confirmed by the PMOC in December 2011. This estimate includes financing costs of \$247 million. Additional details on the Project cost estimate and financing costs are provided in the remainder of section 3.1.2.

#### *Current Project Cost Estimate*

The current Project cost estimate is based on the July 2011 Project cost estimate that totaled \$5,212.8 million in YOE dollars. A breakdown of the July 2011 cost estimate is shown in Exhibit 3-2. The SCC worksheet backing this exhibit is included as Appendix B to this report. The financing costs cited in the exhibit and Appendix B (\$230 million) were documented in the City's April 2011 financial plan.

The July cost estimate reflected bids awarded or selected by that date. Preliminary engineering estimates were used for Project elements that had not yet been bid. A breakdown describing the bases for the July 2011 Project cost estimate is provided in Exhibit 3-3.

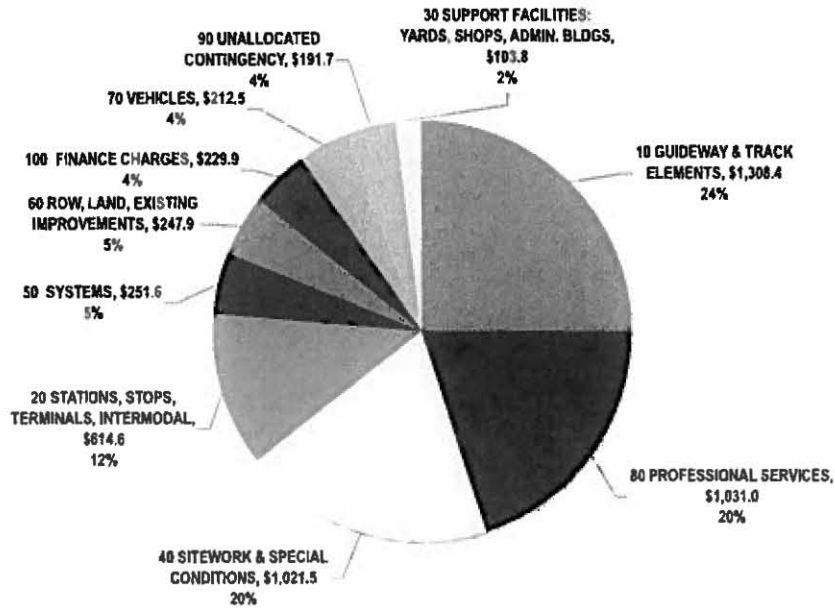
Subsequent to the July 2011 estimate, the City proposed scope modifications to reduce capital costs by \$104 million (to \$4,879 million from \$4,983 million) along with a \$17 million increase in financing costs (to \$247 million from \$230 million). This resulted in an overall change in cost of \$87 million.

A breakdown of the changes in capital costs in the current Project cost estimate versus the July 2011 estimate is presented in Exhibit 3-4.

In December, the PMOC issued a report confirming the revised Project cost estimate of \$5,126 million. The revised estimate, however, was not available in the SCC worksheet format at the time of this report.

The September 2011 financial plan is based on a Project cost estimate totaling \$5,126 million in YOE dollars.

**Exhibit 3-2: Uses of Project Funds, July 2011 estimate (\$5,212.8 mil., y-o-e)**



source: July 2011 PMOC review. See Appendix B for full breakdown. Note that the Sept. 2011 financial plan uses a lower estimate (\$5,126 mil.) accepted by FTA.

**Exhibit 3-3: Project Cost Estimate Assumptions**

Major Contract Breakdown	Contracting Method	Method of Estimating
West O'ahu /Farrington Highway Guideway Design-Build Contract	Sealed Proposals (Best Value)	Used price in executed contract
Maintenance & Storage Facility Design-Build Contract	Sealed Proposals (Best Value)	Used awarded contractor's proposal
Kamehameha Highway Guideway Design-Build Contract	Sealed Proposals (Best Value)	Used selected offeror's proposal
Airport Segment Guideway and Utilities	Design-Bid-Build	PE estimate
City Center Guideway & Utilities	Design-Bid-Build	PE estimate
Core Systems DBOM Contract (including vehicles)	Sealed Proposals (Best Value)	Used selected offeror's proposal
Stations, parking garage, intermodal contracts	Design-Bid-Build	PE estimate
Elevators/Escalators design, manufacture, install, test, & maintain	Sealed Proposals	PE estimate
Professional Services	Qualifications	PE estimate

source: HHCTCP Financial Plan, Table 2-2

### Exhibit 3-4: Changes in the Current Project Capital Cost Estimate vs. July 2011 Estimate

Item Description	2011\$M	YOESM	Affected SCC
<b>April 2011 Draft Financial Plan Capital Cost Estimate</b>	<b>\$4,346</b>	<b>\$4,983</b>	
Less: Alignment Refinements: Move column locations at Pearl Harbor and Middle Street; lower the guideway profile through the Pearl Harbor Interchange.	4	5	Guideway (SCC 10)
Less: Modify Guideway Emergency Access Provisions: Adjust emergency walkway height and modify emergency illumination.	12	14	Guideway (SCC 10)
Less: Ala Moana Center Station: Adjust station location within Ala Moana Center	35	46	Stations (SCC 20)
Less: Modify Escalator Placement Criteria: Provide escalators where the rise from street to concourse is 16 feet or greater and where 500 or more passengers are anticipated in the peak hour.	13	16	Stations (SCC 20)
Less: East Kapolei Station: Eliminate pedestrian bridge across Kualaka'i Parkway and entrance on far side of Kualaka'i Parkway.	7	8	Stations (SCC 20)
Less: Pearl Highlands Station: Redesign Kiss-and-Ride area and eliminate pedestrian bridge across Kamehameha Highway.	16	19	Stations (SCC 20)
<b>Total Cost Reduction Measures</b>	<b>\$87</b>	<b>\$108</b>	
Plus: UH West O'ahu Station: Defer pedestrian bridge over Kaloi Channel and station entrance at that location and provision of parking on the far side of Kaloi Channel until FY2020	0	3	Stations (SCC 20)
Plus: Ho'opili Station: Reduce station footprint and defer placement of canopy to FY2020.	0	2	Stations (SCC 20)
<b>Total Net Effect of Deferrals on Capital Cost (due to inflation)</b>	<b>\$0</b>	<b>\$4</b>	
<b>September 2011 Revised Draft Financial Plan Capital Cost Estimate</b>	<b>\$4,259</b>	<b>\$4,879</b>	
Difference with April 2011 Draft Financial Plan (March 2011 estimate)	(\$87)	(\$104)	

#### Financing costs

The City envisions a combination of grant anticipation notes (GANs), tax-exempt commercial paper (TECP), bond anticipation notes (BANs), and general obligation (G.O.) bonds to meet the cash flow requirements of the Project.

The debt structure is affected by three provisions of State law.

First, the bonds to be issued for the Project are essentially revenue bonds, since the debt is to be serviced by the GET surcharge, but according to the financial plan a provision of the State constitution requires the bonds to be construed as G.O. debt. Thus, these bonds are subject to statutory limitations on G.O. debt as well as debt affordability guidelines adopted by the City.

Second, state law requires level annual G.O. debt service payments. Thus, repayment of principal cannot be extended to the post-construction period, and interest may not be capitalized.

Third, the sunset date for the GET surcharge effectively requires the maturity of the Project's G.O. debt to not extend past the final transfer of funds to the City from the Hawaii Department of Taxation, currently envisioned to the third quarter of FY 2023.

The debt structure is designed to minimize interest cost and GET surcharge-funded debt, while meeting the Project's cash flow needs:

- Interest cost is minimized by using the shortest terms possible, which under normal circumstances translate to lower interest rates.
- TECP would be issued first, in 2013, and would be rolled over at frequencies not exceeding 360 days.
- BANs would be issued for terms of a year or less, then would be paid from proceeds of a G.O. bond sale.
- GANs would be issued to finance Federal participation in the Project, thus reducing the cash flow financing requirements that otherwise would need to be supported with GET surcharge revenues.

Financing costs include issuance costs and interest paid through the last installment of \$5309 New Starts funds, anticipated to occur in FY 2020. Issuance cost is assumed to be 0.75 percent for G.O. bonds and 0.5 percent for BANs, but included in the interest rate for TECP. The financial plan assumes an interest rate on long-term debt of 4.5 percent (average term 5.8 years). Interest rates on BANs (1-year term) and GANs (average 5-year term) are assumed to be 3.0 percent, while rates on TECP (less than one year term) are assumed to equal 2.5 percent.

The City's current bond rating is AA+. Current AA yields for the maturities assumed in the financial plan are as follows: 1.72 percent for a six-year term; 1.28 percent for a five-year term; 0.22 percent for a one-year term. These are all considerably lower than assumed in the financial plan. Although municipal bond yields are near historical lows, the City's assumed G.O. bond rate still appears conservative. For example, over the past five years, yields on six-year maturities have averaged about 3 percent. The City's assumption on short-term (i.e., 1-year) rates is reasonable compared to the average over the past five years (2.7 percent).

The financing costs attributed to the Project (\$247 million) are conservative. The interest rate assumptions on which the financing costs are calculated should be revisited prior to a FFGA for this Project, in the context of then-current trends.

### 3.2 PROJECT CASH FLOW

The cash flow forecast for the Project, from FY 2011 (June 30) to FY 2020 is shown graphically in Exhibit 3-5 (following page). Sources of funds are shown as stacked positive values (above the X-axis), and uses of funds are shown as stacked negative values (below the x-axis). The year-end cash balance is indicated by the red line. The annual data backing this chart are shown in tabular form in Appendix D.

The Project had a FY 2011 beginning cash balance of approximately \$341 million. This had been accumulated from GET surcharge revenues collected since the inception of the tax (January 2007), net of Project expenses.

Other sources of funds flow into the Project as described in section 3.1.1. The cash flow includes short-term financing in the form of TECP, BANs, and GANs. Because the short-term debt is refinanced or repaid during the construction period, the proceeds that contribute to the cash flow are shown simply in the exhibit as “debt proceeds net of refinancing.” The short-term debt includes \$100 million in TECP, to be issued in 2013, and rolled over until refinanced in 2019. This would be managed within the City's current \$200 million TECP. BANs would be issued annually 2015-2018, with a maximum of \$134 million outstanding. Each issue is assumed to be refinanced or otherwise paid down within a year. GANs would be issued 2013-2015, with a maximum of \$537 million outstanding.

The ending cash balance is forecast to fall to \$95 million at 2012, then to virtually zero through the end of construction (2019). A \$7 million ending cash balance is projected at 2020. This indicates, under current revenue and borrowing assumptions, that no additional cash is available to apply to Project cost increases.

The debt to be issued in support of the Project is summarized in Exhibit 3-6 (following page).

The top half of the table presents GET surcharge-funded debt, which is construed as G.O. debt. This debt would accumulate to a maximum of \$1,061 million outstanding at 2018. GET surcharge revenues would provide a minimum of 1.1 gross coverage (i.e., revenues divided by debt service) through 2023, the final maturity of the bonds.

The bottom half of Exhibit 3-6 presents GANs that would be funded by \$5309 New Starts grants to the Project, probably relying on the FFGA as evidence of Federal commitment. GANs structured in this way have other precedents nationally (e.g., BART Extension to SFO). As noted earlier, the GANs would accumulate to a maximum of \$537 million in 2014. \$5309 New Starts revenues would provide 1.0x coverage on GAN debt service beginning in 2015, and would remain at 1.0x coverage through the final maturity of the GANs in 2019. It is conceivable that a higher coverage ratio may be required to market the GANs.

Exhibit 3-5: Project Cash Flow

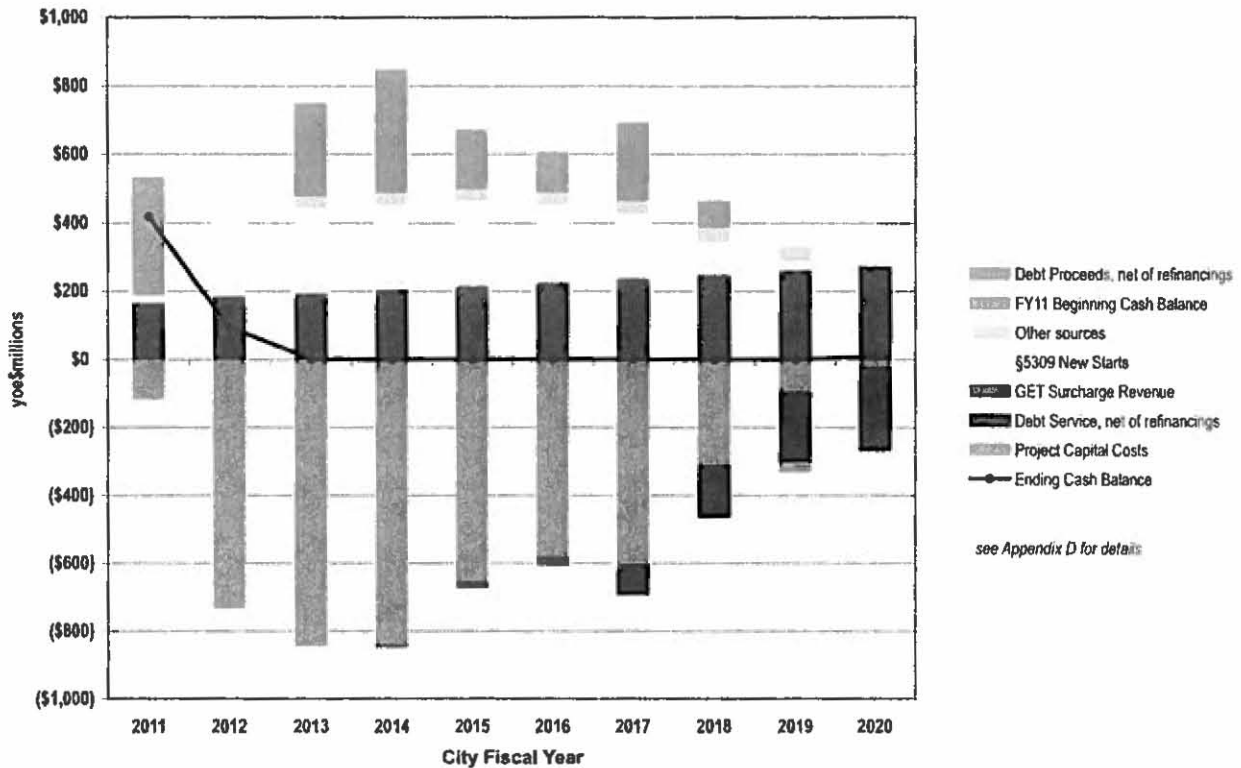


Exhibit 3-6:  
Debt and Debt Service Coverage

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
<b>GET surcharge-funded debt:</b>													
Debt outstanding at year end (\$mil.)	-	-	100	100	289	624	991	1,061	902	694	473	242	(0)
GET surcharge revenue (\$mil.) <sup>1</sup>	166	196	195	205	215	226	237	249	262	275	289	304	224
<b>Debt service (\$mil.):</b>													
Long-term bonds <sup>2</sup>	-	-	-	-	-	7	77	145	203	247	247	247	247
BAN interest	-	-	-	-	-	3	2	4	2	-	-	-	-
CP interest	-	-	-	3	3	3	3	3	3	-	-	-	-
total debt service	-	-	-	3	3	12	81	152	207	247	247	247	247
Debt service coverage ratio	na	na	na	81.9	86.1	18.9	2.9	1.6	1.3	1.1	1.3	1.6	1.1
<b>FFGA-funded debt:</b>													
<i>(grant anticipation notes)</i>													
Debt outstanding at year end (\$mil.)	-	-	175	537	525	312	130	36	6	(0)	(0)	(0)	(0)
\$5309 New Starts funds (\$mil.)	21	224	250	250	250	228	192	98	30	-	-	-	-
Debt service on GANs (\$mil.)	-	-	-	5	250	228	192	98	30	-	-	-	-
Debt service coverage ratio	na	na	na	47.9	1.0	1.0	1.0	1.0	1.0	-	-	-	-

source: HHCTCP Financial Plan, Table A-1

notes:

1. includes annual GET surcharge revenues plus year-end cash balance.

2. Includes principal and interest.

The low debt service coverage for GET surcharge-funded G.O. debt (1.1x) and GANs (1.0x) indicates, on a cash flow basis, that no additional debt capacity exists from these sources.

In summary, there is no capacity in the Project cash flow, with respect to either cash or debt, to finance additional Project costs.

### 3.3 CAPACITY TO ACCOMMODATE HIGHER PROJECT COSTS

The standard FCA test of a project sponsor's capacity to accommodate higher Project costs is to identify cash or debt that could reasonably be obtained to fund a 10 percent increase in Project cost -- in this case, an additional \$513 million.

As noted in section 3.2 above, the Project cash flow has no excess cash, and the debt service coverage ratios indicate there is no additional debt capacity. Thus, there is no room in the cash flow to accommodate additional Project cost.

Moreover, GET surcharge revenues, if less than forecast, may constrain the City's financial capacity to undertake the Project. The GET surcharge revenue forecast is reasonable in comparison to an average historical growth rate. However, because this is the predominant local funding source and its growth from year to year can be highly variable as demonstrated by historical collections, this key source of Project financing could be a significant risk factor.

The City identified two specific options in its financial plan to provide additional revenues to the Project, but both options require additional approvals: (i) extending the GET surcharge past its sunset date, which would require action by the State legislature and the City Council; and (ii) implementing value capture mechanisms, such as special improvement districts and tax increment financing, both of which the City is authorized to implement on action of the City Council. Extension of the GET surcharge alone could address a 10 percent cost increase. Value capture mechanisms, based on preliminary analysis by the City, have much lower revenue potential, and would need to be applied in combination with other sources to address a 10 percent cost increase.

Additional details on the City's capacity to accommodate higher Project costs are provided in the remainder of this section.

#### 3.3.1 GET surcharge revenue forecast

The GET surcharge is levied on certain taxable activities in the City & County of Honolulu, coterminous with the island of Oahu. The taxable activities correspond to those of the State GET that are taxed at a 4 percent rate. Because the GET surcharge



is a relatively new tax, first collected in January 2007, with a geographically unique tax base, there is no exact long-term series of collections against which to compare a forecast. However, GET taxable activity on Oahu is known to be highly correlated with that of the State as a whole. A long-term historical series does exist for the State 4 percent GET. This series was assumed to be a reasonable approximation of long-term taxable economic activity on Oahu under the GET surcharge, and was used in this section to establish a historical context for evaluating the GET surcharge revenue forecast.

Exhibit 3-7 presents actual (1982-2011) and forecast (2012-2023) annual percentage changes in GET revenue. The forecast, while labeled as "State", is actually the GET surcharge forecast presented in the September 2011 financial plan. The US GDP data presented in the chart are actual through June 2011; the forecast is derived from the Congressional Budget Office Long-Term Budget Outlook (June 2011). The exhibit also presents the compound annual growth rate (CAGR) for rolling 5-year periods from 1981 onwards, for the GET and the US GDP.

GET revenue growth in the historical period is highly variable, which makes it difficult to forecast. In fact, in seven-year forecasts prepared by the Hawaii Department of Taxation (HTAX) for fiscal years 2000-2006 (the 2006 four-year forecast being the last one against which actual results [2010] could be measured), the average forecast error ranged from +28 percent (over-forecast) to -18 percent. The forecast error can be attributed to the effect of economic bubbles on the Hawaii economy – it benefits from discretionary investment and consumer spending. The beginning and end of a bubble is notoriously difficult to predict.

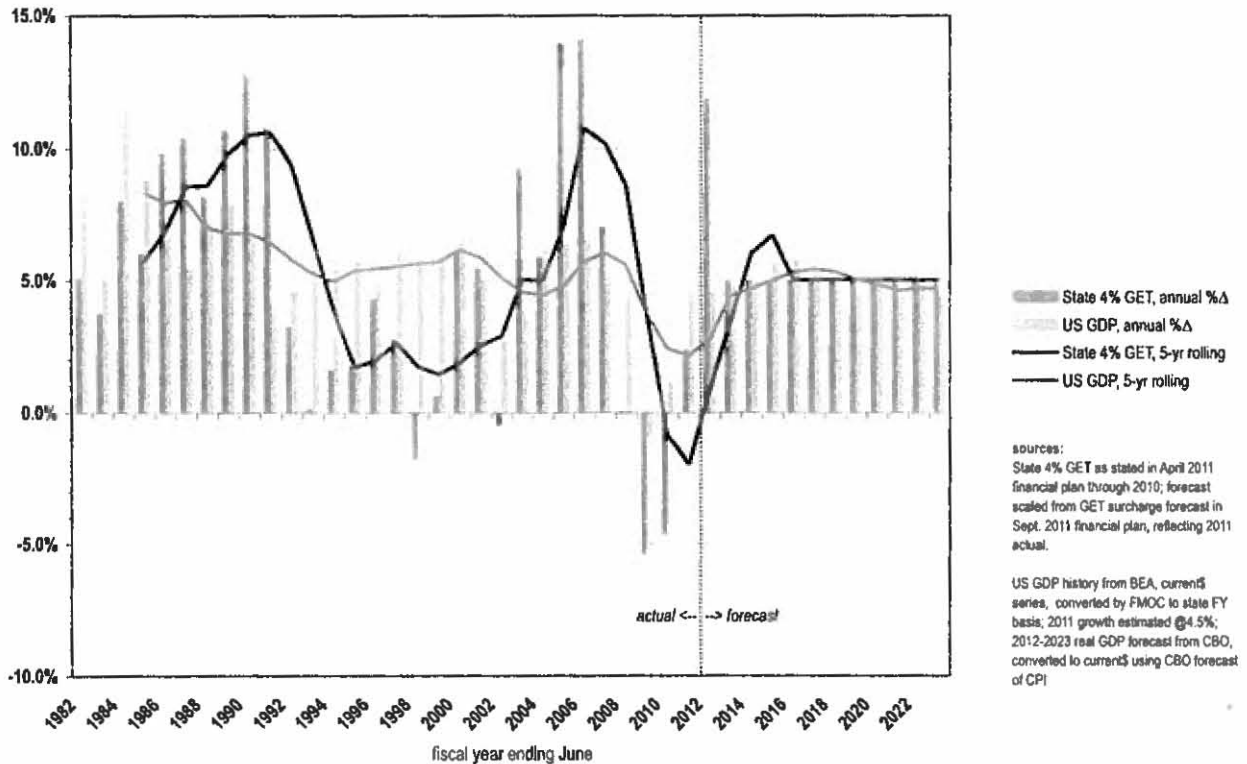
The GET surcharge revenue forecast results in a 5.6 percent compound annual growth rate (CAGR) between FY 2011 (ended June 30) and FY 2022, the last full year of GET surcharge collections. The forecast includes a sharp (11.9 percent) increase in FY 2012, with subsequent years averaging 5.04 percent annual growth – exactly equal to the historical rate (1981-2010). The 11.9 percent increase 2011-2012 includes a surge in revenues actually collected by the State in FY 2011 but not transferred to the City until the first quarter of FY 2012 (ending 30 September).

The GET surcharge revenue forecast CAGR (5.6 percent) is very close to a forecast of the State GET prepared by HTAX in September 2011, pursuant to a forecast of State General Fund revenues prepared by the Council on Revenues. HTAX forecasts a 5.5 percent CAGR in state GET revenues for fiscal years 2011 through 2018.

The GET surcharge revenue forecast is slightly bullish compared to a forecast of the US GDP prepared by the Congressional Budget Office (CBO) in June 2011. CBO forecasts 4.9 percent growth (2.8 percent real) between 2010 and 2023.

In the historical period (1981-2010), US GDP grew 5.6 percent annually, or about 0.6 points higher than the statewide GET revenues that were used to estimate historical growth for the GET surcharge (5.04 percent). In this period, the Hawaii GET

Exhibit 3-7: Historical & Forecast Annual Growth Rates, State 4% GET and US GDP



outperformed US GDP during two bubbles – one in the period 1986-1991 associated with a building boom, fueled by investment from Japan; and one in the period 2003-2007, also known as the US housing bubble, fueled by mainland US investors. The bubbles can be seen more clearly in Exhibit 3-7 in the lines portraying the 5-year rolling CAGR. Thus, the Hawaii economy can surge to levels of growth greater than the US economy as a whole, but in the past 30 years it grew at a lower rate than the US economy as a whole.

In summary, the GET surcharge forecast is in the range of what may be considered reasonable. The historical variability in statewide GET revenues suggests that any forecast of GET revenues is inherently risky.

### 3.3.2 City debt affordability guidelines

The City has established affordability guidelines regarding its use of debt to finance capital projects, most recently by Resolution No. 06-222 in June 2010. The guidelines are considered by rating agencies when evaluating the City's bond rating. Two of the guidelines are relevant to the extent of debt envisioned for the Project:

- Debt service for general obligation bonds, including self-supported bonds and enterprise and special revenue funds, should not exceed 20 percent of the City's total operating budget.
- Debt service on direct debt, excluding self-supported bonds, should not exceed 20 percent of the General Fund revenues.

Exhibit 3-8 illustrates the impact of Project-related debt on the City's pro forma performance against these guidelines. In the exhibit, the lines indicating the impact of Project-related debt are labeled as "w/HHCTCP."

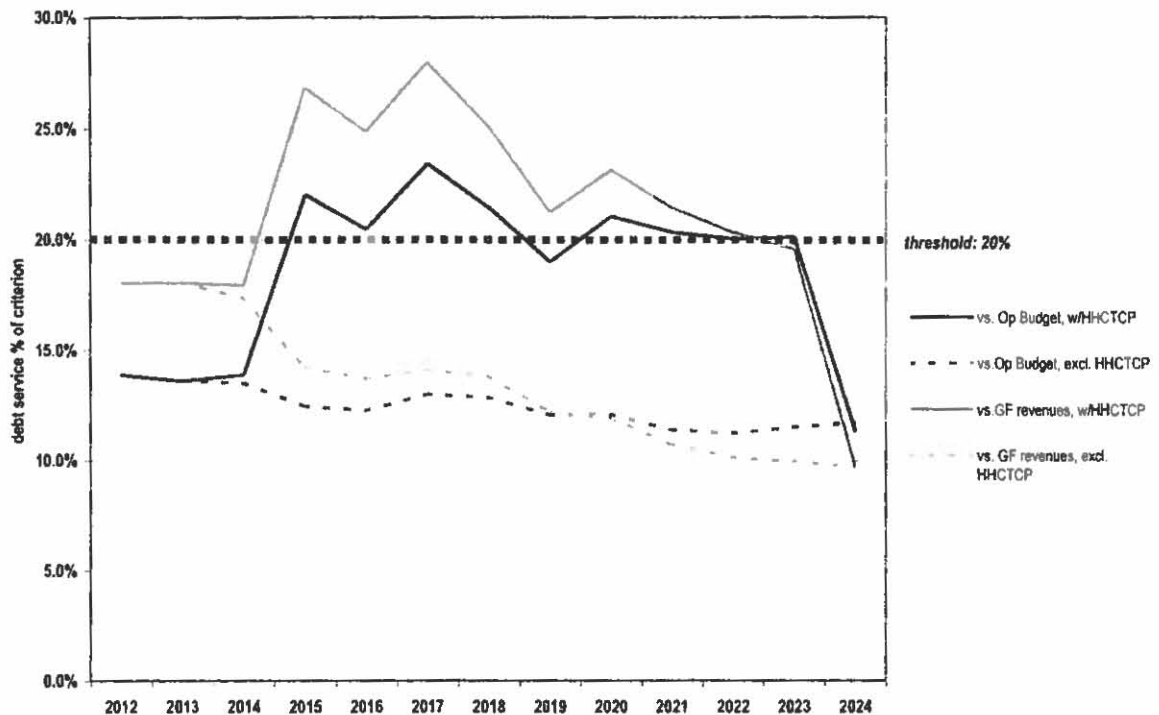
Without Project-related debt, the City would be comfortably within its debt affordability guidelines – debt service for G.O. bonds would decline from the current level of 14 percent of the operating budget, while direct debt would fall steadily from the current 18 percent of general fund revenues. Notably, these figures exclude sewer revenue bonds, which, because they are self-supporting and are not G.O. bonds, are not subject to the guidelines. This fact is relevant because the City is ordered under a Consent Decree to undertake a major, multi-billion upgrade of its wastewater treatment system.

Project-related debt would cause the 20 percent threshold for both guidelines to be exceeded. Debt service on G.O. bonds would exceed the 20 percent threshold for the period 2015-2023 (excluding 2019), and would reach a maximum of 23.4 percent of the operating budget. Debt service on direct debt would exceed the 20 percent threshold for the period 2015-2023, and would reach a maximum of 28.0 percent of general fund revenues.

In October 2011, the City's Managing Director approved a request by the City's Director of Budget and Fiscal Services (also referred to as the chief financial officer or CFO) to waive the debt affordability guidelines for Project-related debt. The Managing Director is the Mayor's chief administrative aide, and oversees all Executive departments and agencies. The CFO noted that the guidelines did not contemplate a situation wherein project-specific, G.O. debt service was funded by a new, special-purpose revenue stream. HART has represented that the Managing Director and the CFO are duly authorized to suspend the debt affordability guidelines. Therefore, the guidelines are not interpreted in this FCA as constraining the City's ability to issue Project-related debt.



Exhibit 3-8: Impact of Project Debt on City Affordability Guidelines



### 3.3.3 Options Identified by the City to provide additional capacity

The City identified two specific options in its financial plan to provide additional revenues to the Project, but both options require additional approvals: (i) extending the GET surcharge past its sunset date, which would require action by the State legislature and the City Council; and (ii) implementing value capture mechanisms, such as special improvement districts and tax increment financing, both of which the City is authorized to implement on action of the City Council. The supporting analyses presented by the City are technical in nature; it is unclear how much political support exists or would exist to gain the necessary approvals.

These options are more fully described in the remainder of this section.

***Extending the GET surcharge***

The financial plan identified the financial shortfall (i.e., additional cost or reduced revenues) associated with several adverse events. Given the baseline revenue forecast, the number of quarters the tax would need to be extended, based on revenues projected for the final quarter of the GET surcharge forecast (\$63 million, 3rd quarter, FY 2023) would be as follows:

- A \$150 million annual cap on §5309 New Starts funding would produce a \$33 million shortfall, requiring one additional quarter of revenue collections.
- No §5307 funds applied to the Project would produce a \$223 million shortfall, requiring four additional quarters of revenue collections.
- Lower (-1 percent) GET surcharge revenues would produce a \$118 million shortfall, requiring two additional quarters of revenue collections.
- A 10 percent increase in Project capital cost would produce a \$434 million shortfall, requiring seven additional quarters of revenue collections.

An extension of the GET surcharge sunset date would require an amendment to State law, and to the City implementing ordinance. If past practice is followed, no public vote on the extension would be required.

***Value capture revenues***

The financial plan identified several options to capture some gain in real estate value associated with the benefits conferred by the Project. These options include tax increment financing, special improvement districts, and development impact fees. The City is specifically authorized to implement the first two of these options (i.e., City ordinances exist). Council approval would be required for each tax increment district or special improvement district that is to be created.

To provide an order of magnitude estimate of potential revenue generation from value capture, the City included in the financial plan an analysis of the three value capture concepts in three geographic contexts – within a half-mile radius of each of the planned stations; within one-half mile of the corridor alignment (excluding station areas); and within the broader urbanized area (excluding the station and corridor areas). For each of the three concepts, revenue estimates were developed for the three potential areas of benefit over a 30-year period (2012-2048). The revenue streams were converted to an estimate of bond proceeds using very conservative assumptions: 30-year bonds with an 8.0 percent coupon, requiring a 2.0x gross coverage ratio on annual debt service. The City estimated that bond proceeds of \$65 million to \$95 million could potentially be applied to the Project.

These estimates are very preliminary, and additional research would be required to determine if the estimates are reasonable.

\* \* \* \* \*

This section of the report found that Project funds, other than \$5309 New Starts funds, are fully committed, but that no capacity now exists to fund unanticipated higher Project costs or funding shortfalls.

Also, the availability of local funds could be less than planned. The forecast of GET surcharge revenues (the dominant source of local funds) is reasonable in comparison to historical trends, but because of the historic variability in GET growth rates from year-to-year the forecast could still be considered slightly risky. A lower amount of GET revenue could conceivably be realized.

In order to provide additional financing capacity, the City may lobby the State legislature to amend current law to extend the GET surcharge beyond its current sunset date, and may consider implementing value capture mechanisms to provide additional revenue to the Project.

## 4. Financial Condition

The analysis of financial condition presented in this section of the report focused on existing transit services – TheBus and TheHandi-Van – including both operating and capital programs. The analysis assessed the current condition of these programs, using a look-back period of 2005-2010, and identified benchmarks that are used to evaluate the reasonableness of assumptions backing the financial plan, presented in section 5 of this report.

The analysis of transit operations focused on trends in transit operating subsidies and factors contributing to the growth in subsidies, as well as how the subsidies are funded. This focus is appropriate because it helps establish the capacity of the City to fund future operating subsidies. Between 2005 and 2010, there was 7.1 percent annual growth in operating subsidies, funded primarily by a 10.9 percent annual increase in City operating subsidies. Growth in the City subsidy exceeded the growth rate for total operating subsidies, due to a constant level of Federal funds applied to preventive maintenance, which gradually reduced the relative contribution of Federal funds. The overall growth rate in operating subsidies was influenced by service expansion, principally for demand-response services, and unit costs (i.e., cost per vehicle revenue mile) growing more rapidly (+5.2 percent) than unit passenger revenues (+2.1 percent).

The capital program analysis focused on asset age and condition, replacement costs, and the capacity to fund capital replacement costs. Transit assets are, in general, in the last third of their useful life; revenue vehicles are slightly more aged, in the last quarter of their useful life (e.g., the bus fleet average age is 10.2 years). Thus, the City faces substantial fleet replacement needs. Between 2005 and 2010, capital funds appropriated by the City were almost exactly equal to average annual replacement costs, but actual expenditures were 63 percent of appropriations.

Supporting details on the operating and capital program analysis are presented in the remainder of this section.

### 4.1 TRANSIT OPERATIONS

The transit operations analysis focused on factors contributing to the amount of operating subsidy required to fund operations, as well as growth in the amount of operating subsidy itself. The results were normalized by vehicle revenue miles (VRM) operated, so that the rate of growth in operating subsidy and its contributors can be used to assess the reasonableness of assumptions for like variables in the operating financial plan, evaluated in section 5.2 of this report.



A summary of the operating trends is shown in Exhibit 4-1 (following page), which presents the compound annual growth rate (CAGR) for the operating subsidy per VRM and its major contributing components.

Honolulu transit operating subsidies grew at a 7.1 percent annual rate between 2005 and 2010. On a unit basis (i.e., operating subsidy per VRM), operating subsidies grew at 6.4 percent annually. The transit operating measures contributing to this outcome were as follows:

- Service, as measured by VRM, increased slightly, at 0.7 percent annually. Virtually all the increase is attributed to demand-response service (i.e., TheHandi-Van).
- Service effectiveness, measured by passenger boardings per VRM, increased at 1 percent annually. All the improvement in service productivity was attributed to motor bus service (i.e., TheBus); demand-response service effectiveness declined during the look-back period.
- Average fare revenue per boarding increased by 1.1 percent annually. The adult cash fare and monthly pass actually increased at higher rates (4.6 percent and 8.4 percent respectively), inferring that riders using prepaid fare media were making progressively more trips.
- Passenger revenue per VRM increased at 2.1 percent annually, reflecting the combined effect of growth in service effectiveness (+1.0 percent) and average fare revenue per boarding (+2.1 percent).
- Operating subsidies were funded by the City (82 percent) and Federal formula capital grants applied to preventive maintenance, an operating expense (18 percent).
- City operating subsidies increased at a 10.9 percent annual rate between 2005 and 2010. These subsidies represented 9.7 percent of General Fund and Highway fund revenues during that time.

Additional details on trends in service, ridership & revenue, operating costs, and operating subsidies are provided in the remainder of section 4.1.

#### 4.1.1 Service Trend

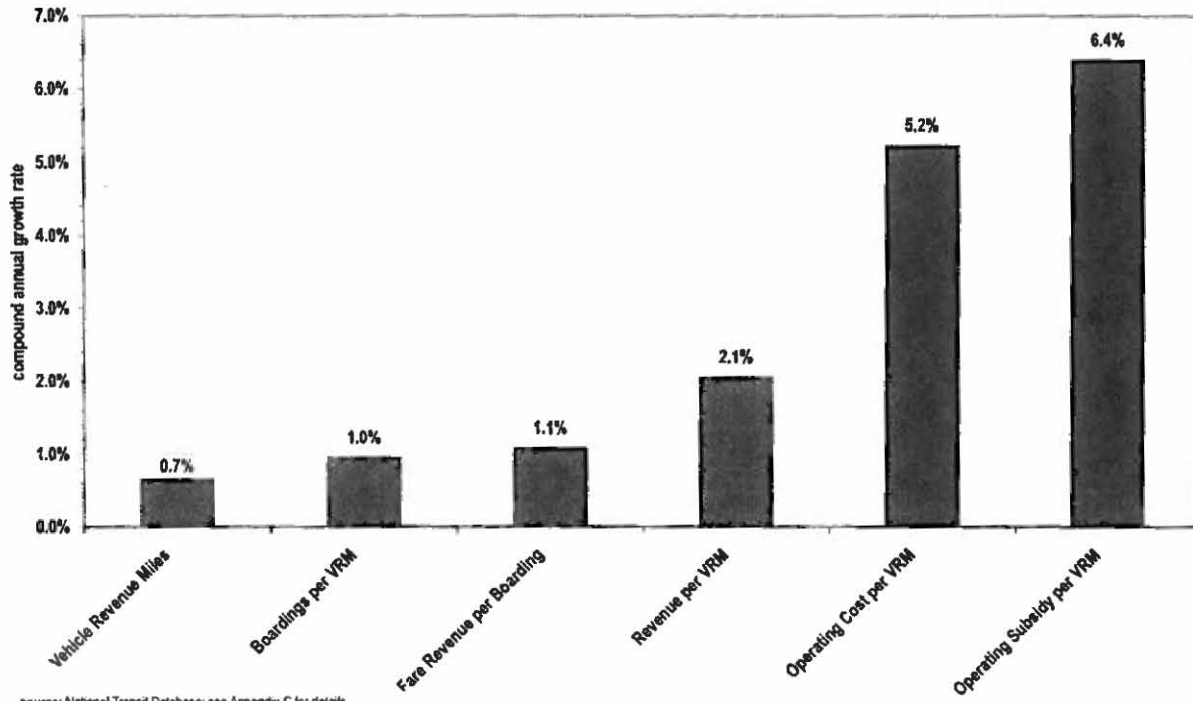
The 2005-2010 trend in VRM is shown in Exhibit 4-2 (following page).

Overall, VRM grew at 0.7 percent annually, rising to 23.3 million VRM in 2010 from 22.54 million VRM in 2005.





**Exhibit 4-1:**  
**Rates of Growth in Selected Transit Operating Statistics, 2005-2010**



**Exhibit 4-2:**  
**Transit Service, 2005-2010**

	2005	2006	2007	2008	2009	2010	trend, 2005-2010		
							Δ	%Δ	CAGR
<b>Vehicle Revenue Miles (VRM) (mil.)</b>									
TheBus	18.39	18.02	17.92	18.27	18.46	18.34	(0.04)	-0.2%	0.0%
TheHandi-Van	4.15	4.32	4.61	4.83	5.00	4.96	0.81	19.5%	3.6%
total system	22.54	22.34	22.53	23.11	23.46	23.30	0.76	3.4%	0.7%
<b>Percent of system VRM</b>									
TheBus	81.6%	80.7%	79.5%	79.1%	78.7%	78.7%	-2.9%	-3.5%	-0.7%
TheHandi-Van	18.4%	19.3%	20.5%	20.9%	21.3%	21.3%	2.9%	15.5%	2.9%

source: National Transit Database. See Appendix C for details.  
 CAGR = compound annual growth rate

Virtually all the service growth was vested in TheHandi-Van demand response service, which grew at a 3.6 percent annual rate, and 19.5 percent overall between 2005 and 2010. Service growth for TheHandi-Van stabilized in 2010.

VRM for TheBus changed very little during the 2005-2010 period – the average was 18.24 million VRM, ranging from a high of 18.46 million VRM (+1.2 percent) and a low of 17.92 million VRM (-1.7 percent). The amount of service provided in 2010 (18.34 million VRM) was virtually the same as in 2005 (18.39 million VRM).

#### 4.1.2 Ridership & Revenue Trend

The 2005-2010 trend in ridership and fare revenue is shown in Exhibit 4-3. Ridership is measured in boardings, which is shorthand for unlinked passenger trips as reported to NTD. A boarding occurs each time a person boards a vehicle; thus, a trip involving one transfer would result in two boardings.

Total ridership (TheBus plus TheHandi-Van) grew by 1.6 percent annually, to 73.95 million boardings in 2010 from 68.17 million boardings in 2005. TheBus ridership grew at faster rate (1.7 percent annually) than did TheHandi-Van ridership (0.9 percent annually).

Total fare revenue grew at 2.8 percent annually, to \$45.88 million in 2010 from \$39.93 million in 2005. Virtually all the growth in fare revenue was attributed to TheBus, which accounted for 98.8 percent (\$5.95 million) of the incremental fare revenue (\$6.02 million) between 2005 and 2010.

Fare revenue growth was partially attributable to increases in bus ridership, noted above, but was also affected by an increase in average fare revenue per boarding, which increased to \$0.64 in 2010 from \$0.61 in 2005, a 1.1 percent annual rate of growth. This growth rate, however, was less than the increase in fares. Fare increases occurred in 2009 and 2010. Between 2005 and 2010, the cash fare increased by 25 percent (or 4.6 percent annually), and the monthly pass price increased by 50 percent (or 8.4 percent annually). The relatively smaller increase in the average fare revenue per boarding, when viewed in light of these substantial increases in the face value of adult fares, suggest that one or a combination of the following has occurred: (i) substantially greater use is being made of prepaid, unlimited-ride fare media (such as the monthly pass); (ii) transfer rates have increased; (iii) the methodology used to estimate boardings from trip samples results in an overstatement of boardings; or (iv) there has been an increase in fare evasion.

**Exhibit 4-3:  
Ridership & Revenue,  
2005-2010**

	2005	2006	2007	2008	2009	2010	trend, 2005-2010		
							Δ	%Δ	CAGR
<b>Boardings (mil.)</b>									
TheBus	67.41	70.38	71.75	69.76	77.33	73.16	5.75	8.5%	1.7%
TheHandi-Van	0.76	0.78	0.81	0.83	0.84	0.79	0.03	4.4%	0.9%
total system	68.17	71.17	72.56	70.59	78.17	73.95	5.78	8.5%	1.6%
<b>Fare Revenue (\$mil.)</b>									
TheBus	39.93	41.53	41.74	41.98	42.46	45.88	5.95	14.9%	2.8%
TheHandi-Van	1.44	1.51	1.60	1.63	1.66	1.51	0.07	5.0%	1.0%
total system	41.36	43.04	43.34	43.62	44.12	47.38	6.02	14.6%	2.8%
<b>Fare Revenue per Boarding (\$/mil.)</b>									
TheBus	0.59	0.59	0.58	0.60	0.55	0.63	0.03	5.9%	1.1%
TheHandi-Van	1.90	1.93	1.98	1.96	1.98	1.91	0.01	0.6%	0.1%
total system	0.61	0.60	0.60	0.62	0.56	0.64	0.03	5.6%	1.1%
<b>Adult passenger fare</b>									
Cash fare	2.00	2.00	2.00	2.00	2.25	2.50	0.50	25.0%	4.6%
Monthly pass	40.00	40.00	40.00	40.00	50.00	60.00	20.00	50.0%	8.4%
Break-even rides	20	20	20	20	22	24	4	20.0%	3.7%
<b>Boardings per VRM</b>									
TheBus	3.67	3.91	4.00	3.82	4.19	3.99	0.32	8.8%	1.7%
TheHandi-Van	0.18	0.18	0.18	0.17	0.17	0.16	(0.02)	-12.6%	-2.7%
total system	3.02	3.19	3.22	3.06	3.33	3.17	0.15	4.9%	1.0%
<b>Fare Revenue per VRM (\$/mil.)</b>									
TheBus	2.17	2.30	2.33	2.30	2.30	2.50	0.33	15.2%	2.9%
TheHandi-Van	0.35	0.35	0.35	0.34	0.33	0.30	(0.04)	-12.1%	-2.5%
total system	1.83	1.93	1.92	1.89	1.88	2.03	0.20	10.8%	2.1%

source: all but fares from National Transit Database. See Appendix C for details. Fare schedule from Table 3-3, April 2011 financial plan.

CAGR = compound annual growth rate

VRM = vehicle revenue miles

Boardings per VRM, a measure of service effectiveness, increased by 1 percent annually to 3.17 in 2010 from 3.02 in 2005. There was a slight decrease in this measure in 2010, probably reflecting the combined effects of a fare increase (+11 percent cash, +20 percent monthly pass) and the economic recession that commenced in FY 2008. All of the improvement in boardings per VRM was provided by TheBus. Service effectiveness for TheHandi-Van declined slightly (to 0.16 from 0.18) during the 2005-2010 period.

Fare revenue per VRM increased at 2.1 percent annually. This reflects the combined effect of the increases in boardings per VRM (1.0 percent annually) and fare revenue per boarding (1.1 percent annually).



## Exhibit 4-4:

Transit Operating Cost  
& Cost Recovery, 2005-2010

	2005	2006	2007	2008	2009	2010	trend, 2005-2010		
							Δ	%Δ	CAGR
Operating Cost (\$mil.)									
TheBus	127.07	137.94	142.87	154.33	165.08	162.94	35.87	28.2%	5.1%
TheHandi-Van	17.63	22.11	24.81	28.23	30.56	30.20	12.56	71.2%	11.4%
total system	144.70	160.05	167.68	182.56	195.64	193.14	48.43	33.5%	5.9%
Operating Cost per VRM (\$/¢)									
TheBus	6.91	7.66	7.97	8.45	8.94	8.88	1.97	28.5%	5.2%
TheHandi-Van	4.25	5.12	5.38	5.84	6.11	6.09	1.84	43.4%	7.5%
total system	6.42	7.16	7.44	7.90	8.34	8.29	1.87	29.1%	5.2%
Fare Recovery Ratio									
TheBus	0.31	0.30	0.29	0.27	0.26	0.28	(0.03)	-10.4%	-2.2%
TheHandi-Van	0.08	0.07	0.06	0.06	0.05	0.05	(0.03)	-38.7%	-9.3%
total system	0.29	0.27	0.26	0.24	0.23	0.25	(0.04)	-14.2%	-3.0%

source: National Transit Database. See Appendix C for details.

CAGR = compound annual growth rate

VRM = vehicle revenue mile

### 4.1.3 Operating Cost Trend

The 2005-2010 trend in annual operating costs is shown in Exhibit 4-4. Cost recovery, as measured by the fare recovery ratio (i.e., fare revenue ÷ operating cost) is also shown, using the annual fare revenues cited earlier in Exhibit 4-3.

Operating costs increased at a 5.9 percent annual rate, to \$193.14 million in 2010 from \$144.7 million in 2005. This rate of growth benefited from a *reduction* in operating cost in 2010, due to a decrease in claims cost and insurance premiums. The operating cost growth rate between 2005 and 2009 was 7.8 percent.

While most (74 percent) of the dollar increase in operating cost is attributable to TheBus, that is due to its larger scale – in 2005, it accounted for 88 percent of total operating cost, falling to 84 percent in 2010. The rate of operating cost growth was much higher for TheHandi-Van (11.4 percent annually) than TheBus (5.1 percent annually). This reflects the relatively larger increase in VRM for TheHandi-Van (3.6 percent annually) than TheBus, for which VRM was almost static between 2005 and 2010.

Operating unit cost, measured as operating cost per VRM, grew at a 5.2 percent annual rate. Unit cost growth was higher for TheHandi-Van (7.5 percent annually) than for TheBus (5.2 percent annually). Both rates of growth exceeded the Honolulu CPI for this period, which grew at 3.5 percent annually.

Given these extra-inflationary increases in operating costs, and sub-inflationary increases in fare revenue, the fare recovery ratio fell to 0.25 in 2010 from 0.29 in 2005. This ratio reached a low of 0.23 in 2009. The increase to 0.25 in 2010 was the result of the operating cost decrease noted above, and the fare increase noted in section 4.1.2.

#### 4.1.4 Operating Subsidy Trend

The 2005-2010 trend in annual operating subsidy is shown in Exhibit 4-5 (following page). Operating subsidy is calculated as the difference between operating cost and fare revenue, presented in the two prior sections. The amount of operating subsidy actually paid by the City is less than presented in Exhibit 4-5, due to the utilization of grants (e.g., \$5307 urbanized area grants applied to preventive maintenance) and other sources of operating income, which are addressed in section 4.1.4 below.

Operating subsidies increased at a 7.1 percent annual rate, to \$145.75 million in 2010 from \$103.34 million in 2005. Operating subsidies for TheBus grew at 6.1 percent annually, while those for TheHandi-Van grew at 12.1 percent annually.

On a unit basis (i.e., operating subsidy per VRM), operating subsidies grew at 6.4 percent annually, to \$6.25 per VRM in 2010 from \$4.58 per VRM in 2005. The rates of growth in unit subsidies for TheBus and TheHandi-Van (6.1 percent and 8.2 percent, respectively) are much closer to one another than their overall rates of cost growth noted above, since the unit costs adjust for differences in the scale of operation.

These unit subsidies are a useful benchmark for evaluating the reasonableness of the financial plan's forecast of operating subsidies for TheBus and TheHandi-Van, addressed in section 5.1 of this report.

#### 4.1.5 Sources of funds for the operating subsidy

The transit operating subsidy is funded by the City and by Federal formula funds applied to preventive maintenance. Exhibit 4-6 (following page) shows a breakdown of the sources of operating subsidy for the period 2005-2010, the compound annual growth rates (CAGR) over this period, and – for City revenue sources – the CAGR for a longer timeframe (1995-2010).

##### *City operating subsidies*

Operating subsidies provided by the City consist of transfers to the Public Transit Fund from two other City funds – the General Fund and the Highway Fund. These transfers accounted for about 82 percent of transit operating subsidies, 2005-2010.

During this period, transfers to the Public Transit Fund represented about 9 percent of total General Fund and Highway Fund revenues, and almost 10 percent of same if the GET surcharge is excluded. These are useful benchmarks for evaluating the financial capacity to fund future transit operating subsidy needs, presented in section 5.1 of this report. As noted in section 2 of this report, uses of the GET surcharge are effectively limited to the Project. Thus, in establishing a benchmark for the analysis of forecasted operating subsidies, it is logical to exclude the GET surcharge revenues.

**Exhibit 4-5:  
Transit Operating Subsidy,  
2005-2010**

	2005	2006	2007	2008	2009	2010	trend, 2005-2010		
							Δ	%Δ	CAGR
<b>Operating Subsidy (\$mil.)</b>									
TheBus	87.14	96.41	101.13	112.35	122.62	117.06	29.92	34.3%	6.1%
TheHandi-Van	16.20	20.60	23.21	26.60	28.90	28.69	12.49	77.1%	12.1%
total system	103.34	117.00	124.34	138.95	151.52	145.75	42.41	41.0%	7.1%
<b>Operating Subsidy per VRM (\$/mi)</b>									
TheBus	4.74	5.35	5.64	6.15	6.64	6.38	1.64	34.7%	6.1%
TheHandi-Van	3.90	4.77	5.04	5.50	5.78	5.78	1.88	48.3%	8.2%
total system	4.58	5.24	5.52	6.01	6.46	6.25	1.67	36.4%	6.4%

source: calculated from National Transit Database, where subsidy = operating cost less fare revenue. See Appendix C for details.

CAGR = compound annual growth rate

VRM = vehicle revenue mile

**Exhibit 4-6:  
Sources of Operating Subsidy  
\$mil.**

	2005	2006	2007	2008	2009	2010	CAGR, 2005-2010	CAGR, 1995-2010
<b>City Funds<sup>1</sup></b>								
General Fund								
Real property taxes	499.7	591.3	689.4	769.4	851.3	901.7	12.5%	5.2%
Other sources, excluding GET surcharge	205.4	212.3	240.7	233.8	189.8	126.5	-9.2%	-1.2%
subtotal	705.0	803.6	930.0	1,003.2	1,041.0	1,028.2	7.8%	4.0%
GET surcharge	-	-	48.4	169.1	160.9	157.6	na	na
total General Fund revenues	705.0	803.6	978.5	1,172.3	1,201.9	1,185.8	11.0%	5.0%
Highway Fund								
City & County Fuel Tax	51.4	52.4	52.2	50.6	50.3	47.6	-1.5%	0.4%
County Motor Vehicle Weight Tax	45.5	58.7	71.6	71.9	71.5	84.0	13.0%	8.9%
Other sources	36.4	41.5	48.6	46.9	62.4	49.2	6.2%	3.6%
total Highway Fund revenues	133.3	152.6	172.3	169.4	184.2	180.8	6.3%	4.2%
Total, General & Highway Fund revenues	838.4	956.2	1,150.8	1,341.7	1,386.0	1,366.6	10.3%	4.9%
as above, excluding GET surcharge	838.4	956.2	1,102.4	1,172.6	1,225.2	1,209.1	7.6%	4.0%
Transfers to Public Transit Fund	74.1	93.1	106.1	105.9	127.3	124.3	10.9%	2.6%
% of General & Highway fund revenues	8.8%	9.7%	9.2%	7.9%	9.2%	9.1%		
as above, net of GET surcharge	na	na	9.6%	9.0%	10.4%	10.3%		
<b>Federal funds<sup>2</sup></b>								
§5307 Urbanized Area Formula funds	27.7	21.8	21.0	21.0	21.0	21.0	-5.4%	na
§5309 Fixed Guideway Maintenance	0.7	-	-	3.2	1.8	-	na	na
total Federal funds	28.4	21.8	21.0	24.2	22.8	21.0	-5.9%	na
Total operating subsidy <sup>3</sup>	102.5	114.9	127.1	130.1	150.1	145.3	7.2%	na
% funded by City	72%	81%	83%	81%	85%	86%		
% funded by FTA (preventive maint.)	28%	19%	17%	19%	15%	14%		

**notes:**

1. From the City's comprehensive annual financial reports (CAFR).

2. From NTD database, "Tax\_Funds" sheet. These are capital funds applied to preventive maintenance, recorded as an operating expense.

3. "Total operating subsidy" in this exhibit is the sum of "Transfers to Public Transit Fund" and "Federal funds applied to preventive maintenance".

It approximates but does not exactly equal the annual transit subsidy computed in Exhibit 4-5.

prepared for the Federal Transit Administration  
January 25, 2012



Excluding the GET surcharge, the combined revenues of the General Fund and the Highway Fund grew at a 7.6 percent annual rate 2005-2010, and at a 4.0 percent annual rate 1995-2010. As noted in section 3, the Hawaii economy experienced substantial growth during the housing bubble from 2003-2007. Accordingly, the near-term historical growth rate is high relative to the longer-term historical growth rate.

***Federal funds applied to preventive maintenance***

Funds from FTA's §5307 Urban Area Formula grant program and §5309 Fixed Guideway Modernization program may be applied to preventive maintenance, an operating cost, although the funds are technically termed capital funds. Between 2005 and 2010, Federal funds from these sources accounted for 18 percent of transit operating subsidies.

Between 2005 and 2010, about 96 percent of the Federal funds applied to operations were from the §5307 program. These funds were held constant at \$21 million from 2007-2010, down from the high of \$27.7 million in 2005. The §5307 funds applied to preventive maintenance during this period represented about 86 percent of total §5307 funds apportioned to the Honolulu urbanized area.

In summary, existing transit operations experienced 7.1 percent annual growth in operating subsidies, funded primarily by a 10.9 percent annual increase in City operating subsidies. Growth in the City subsidy exceeded the growth rate for total operating subsidies, due to a constant level of Federal funds applied to preventive maintenance, which gradually reduced the relative contribution of Federal funds. The overall growth rate in operating subsidies was influenced by service expansion, principally for demand-response services, and unit costs growing more rapidly (+5.2 percent) than unit passenger revenues (+2.1 percent).

## 4.2 TRANSIT CAPITAL

The sources and uses of capital funds for TheBus and TheHandi-Van were analyzed to better understand the age and condition of capital assets, and to establish benchmarks to use in the evaluation of the capital financial plan in section 5.2 of this report. The look-back period used in this analysis was 2005-2010.

The findings from this analysis are as follows:

- Transit capital assets, in total, are in the last third of their useful life – buildings and improvements are relatively younger, having 59 percent to 75 percent of their useful life remaining, but all other assets are in the last quarter of their useful life, most importantly revenue vehicles.
- The revenue fleet is relatively old – buses were 10.2 years old on average at the end of FY 2010; 41 percent of the fleet was retirement-eligible.
- The average annual replacement cost of all transit assets is approximately \$30.5 million in 2010 dollars, based on the purchase cost and useful life of the assets, escalated to 2010\$ as a function of growth in the Honolulu CPI.
- Between 2005 and 2010, the City appropriated an average \$30.9 million (2010\$) for TheBus and TheHandi-Van capital programs, nearly equal to on-going replacement costs.
- Federal capital grants accounted for about 59 percent of capital expenditures; about 63 percent of these funds were from the \$5307 and \$5309 formula programs. About 78 percent of formula grant funds were applied to preventive maintenance, an operating expense.

Additional details are provided below.

### 4.2.1 Age & condition of transit capital assets

The City's transit capital assets include a mix of a minority of relatively young assets and a majority of relatively old assets, most importantly its revenue vehicle fleet. At the end of FY 2010, the average age of TheBus fleet was 10.2 years, and 41 percent of the fleet was eligible for retirement (i.e., older than 12 years). TheHandi-Van fleet had an average age of 5.9 years, and 52 percent of the fleet was eligible for retirement. Most supporting equipment – machinery, autos, trucks – are similarly old. Thus, the City is facing some significant capital replacement needs for these assets in the near future. This issue is analyzed further in section 5.2 of this report. Facilities are relatively new or are in good operating condition.



Additional details on all depreciable assets, and specifically the revenue vehicle fleet, are provided below.

***General asset age and investment needs implied by depreciation***

The age and replacement needs of the City's transit assets can be established generally by the cost basis, accumulated depreciation, and net book value of its depreciable assets.

When a depreciable asset is purchased, the purchase cost (or cost basis) is amortized over subsequent years, according to its estimated useful life. Buses, for example, are depreciated over 12 years, with one-twelfth of the cost recorded as depreciation expense each year. This expense is accumulated in the fixed asset ledger for as long as the asset is owned by the City. An asset's net book value is the cost basis less accumulated depreciation. Summed over all assets of a like class (e.g., buses, fare collection equipment), the ratio of net book value to cost basis provides an estimate of the percentage of the average remaining useful life for a class of assets. This technique is useful for assets replaced on a relatively frequent cycle, but provides a less definitive estimate for long-lived assets, such as buildings.

The average annual replacement needs can be estimated from this data as well, based on the ratio of cost basis to depreciable life, escalated from the midpoint of the depreciable life to denominate the cost in constant (say 2010) dollars.

Exhibit 4-7 (following page) provides a summary of the remaining useful life by asset class, and approximate average annual replacement cost, for transit capital assets owned at June 30, 2010. Overall, approximately one-third of the useful life of these assets remains. The average annual replacement cost, in 2010 dollars, is approximately \$30.9 million.

TheBus capital assets have approximately 29 percent of their useful life remaining. This estimate is biased upward by relatively recent and valuable investment in leasehold improvements and buildings. Non-facility assets are all in the last quarter or less of their useful life. Buses, on average, have 24 percent of their useful life remaining, translating to an average age based on the fixed asset calculations of about 9 years. As noted in the fleet profiles below, the average age is actually slightly older.

TheHandi-Van capital assets have approximately 66 percent of their useful life remaining. As in the bus calculations, this estimate is biased upward by relatively recent and valuable investment in leasehold improvements and buildings, but the effect is more extreme than for TheBus because, for TheHandiVan, these assets account for a much larger share of the cost basis (55.9 percent versus 18.6 percent). Vans, on average, have 23 percent of their useful life remaining, translating to an average age based on the fixed asset calculations of about 5 years. As noted below, the average age is actually slightly older.

**Exhibit 4-7:**  
**Transit Capital Asset Age and Estimated Average Annual Replacement Cost**  
 \$mil.

	Cost Basis	Net Book Value	Remaining Useful Life	Annual Replacement Cost, 2010\$
<b>TheBus</b>				
Revenue vehicles	200.2	47.5	24%	19.3
Autos & trucks	2.1	0.3	14%	0.5
Leasehold Improvements	5.1	3.9	75%	0.6
Buildings	46.9	27.9	59%	2.3
Machinery & Equipment	9.6	0.2	3%	1.5
Revenue Collection Equipment	2.6	0.1	3%	0.4
Computer Equipment	1.7	0.3	18%	0.3
Communications Equipment	12.4	1.3	10%	1.9
total	280.7	81.5	29%	26.7
<b>TheHandi-Van</b>				
Revenue vehicles	13.1	3.1	23%	2.0
Autos & trucks	0.4	0.0	3%	0.1
Leasehold Improvements	9.2	9.0	98%	1.0
Buildings	11.7	10.9	93%	0.6
Machinery & Equipment	0.3	0.1	29%	0.0
Revenue Collection Equipment	-	-	0%	-
Computer Equipment	0.2	-	0%	0.0
Communications Equipment	2.5	1.6	63%	0.4
total	37.5	24.7	66%	4.2
<b>System total</b>	<b>318.1</b>	<b>106.2</b>	<b>33%</b>	<b>30.9</b>

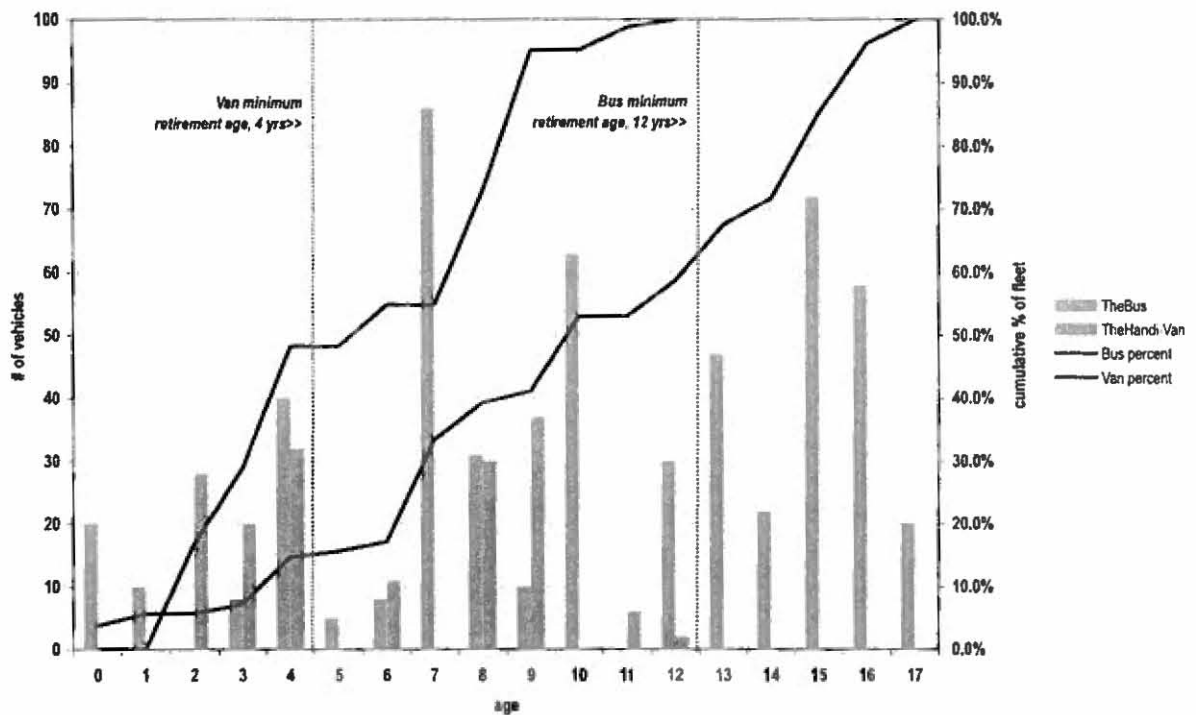
source: Derived from trial balance @/30/10, provided by Oahu Transit Services, Inc. See Appendix E for details.

**Exhibit 4-8:**  
**Fleet Average Age**

	2005	2006	2007	2008	2009	2010	2005-2010	
							Δ	Δ%
TheBus	7.3	8.3	8.4	9.2	9.9	10.2	2.9	40%
TheHandi-Van	4.8	5.6	4.7	4.7	4.8	5.9	1.1	22%

source: NTD annual profiles, 2005-2009; 2010 age calculated from City's NTD submittal.

Exhibit 4-9: Fleet Age Profile, June 2010



### Fleet age

The 2005-2010 trend in fleet age for TheBus and TheHandi-Van vehicles is shown in Exhibit 4-8 (prior page). The fleet age profile for each fleet at fiscal year end 2010 is shown in Exhibit 4-9.

Both vehicle fleets have become progressively older in the past six years. TheBus fleet average age increased to 10.2 years in 2010 from 7.3 years in 2005, a 40 percent increase. TheHandi-Van average age increased to 5.9 years in 2010 from 4.8 years in 2005, a 22 percent increase. However, TheHandi-Van fleet exhibits relative stability in fleet age, hovering around the 4-year minimum retirement age, whereas TheBus fleet average age has increased steadily.

At the end of 2010, 41 percent of TheBus fleet, and 52 percent of TheHandi-Van fleet, were eligible for retirement.

#### 4.2.2 Trends in sources & uses of capital funds

The trends in sources and uses of capital funds for TheBus and TheHandi-Van were analyzed to better understand how these assets are financed, how past expenditures compare to estimate of annual replacement needs noted above, and to establish benchmarks to use in the evaluation of the capital financial plan in section 5.2 of this report.

##### *Actual annual funds and expenditures, versus apportionments*

The analysis of the sources and uses of capital funds included both the funds applied on an annual basis, as reported through NTD, and the City's annual appropriations of capital funds. Capital projects are typically multi-year endeavors. Because the appropriations are for an entire project, the amount of funds appropriated over some period of time typically, but not always, exceed expenditures since some projects for which funds have been appropriated may be incomplete.

Exhibit 4-10 shows the annual sources and uses of funds actually applied to capital projects in the top half of the table, and the funds appropriated by the City in the bottom half of the table.

Between 2005 and 2010, the City expended about \$18.3 million (YOE) annually on capital projects for TheBus and TheHandi-Van. This converts to about \$19.4 million annually in constant 2010 dollars (2010\$) based on the Honolulu CPI. Approximately 40.6 percent (\$7.9 million, 2020\$) of average annual expenditures was funded by the City, and 59.4 percent (\$11.5 million, 2010\$) was funded by Federal grants. A breakdown of Federal grants apportioned to Honolulu in this period is described in *Federal apportionment trends*, below. Average annual capital expenditures for TheBus accounted for 70.7 percent (\$13.7 million, 2010\$) of the total, primarily for revenue vehicles (\$11.3 million, 2010\$). TheHandi-Van accounted for 29.3 percent (\$5.6 million, 2010\$) of average annual expenditures, primarily for facilities (\$2.8 million, 2010\$) and revenue vehicles (\$1.4 million, 2010\$).

The City's appropriations to the capital program for TheBus and TheHandi-Van averaged \$29.1 million annually (YOE\$), converting to about \$30.5 million annually in 2010 dollars. These appropriations show a slightly greater use of local funds (54.7 percent) than the local funds actually applied to capital projects (40.6 percent).

The average annual funds appropriated by the City in 2010 dollars (\$30.5 million) aligns almost exactly with the estimated annual capital replacement cost presented in Exhibit 4-7 (\$30.9 million), indicating that the City's planned capital expenditures were sufficient to maintain state of good repair. However, the actual funds expended (\$18.3 million) were just 59 percent of the estimated annual replacement cost. This ratio was virtually the same for revenue vehicles – actual expenditures, in 2010\$, were about 60 percent of the estimated annual replacement cost. This helps to explain the steady aging of the bus fleet cited in Exhibit 4-8, and indicates that funds have been appropriated for fleet replacements not yet received.

### Exhibit 4-10: Transit Capital Sources & Uses of Funds

yo\$mil. except where noted otherwise

	2005	2006	2007	2008	2009	2010	average, yo\$	average, 2010\$	percent of total
<b>Annual data (NTD)</b>									
<b>Sources</b>									
Local	15.8	1.7	5.2	4.9	11.4	3.9	7.2	7.9	40.6%
Federal	0.8	0.2	18.1	12.6	8.8	26.1	11.1	11.5	59.4%
total sources	16.6	1.9	23.3	17.5	20.2	30.0	18.3	19.4	100.0%
<b>Uses</b>									
<b>TheBus</b>									
Revenue vehicles	8.3	-	19.9	5.6	9.6	20.7	10.7	11.3	58.4%
Systems & Guideways	0.5	0.3	0.1	0.1	0.3	1.2	0.4	0.5	2.3%
Facilities & Stations	-	0.5	0.0	1.2	1.0	6.7	1.6	1.6	8.2%
Other	0.1	0.2	0.2	0.7	0.3	0.4	0.3	0.3	1.8%
total	8.9	1.0	20.2	7.6	11.2	29.1	13.0	13.7	70.7%
<b>TheHandiVan</b>									
Revenue vehicles	0.9	-	3.1	2.0	1.9	-	1.3	1.4	7.3%
Systems & Guideways	0.0	-	-	1.5	0.8	-	0.4	0.4	2.1%
Facilities & Stations	6.7	0.9	-	6.4	0.5	0.9	2.6	2.9	14.8%
Other	0.0	0.0	-	-	5.7	-	1.0	1.0	5.1%
total	7.6	1.0	3.1	9.9	8.9	0.9	5.2	5.6	29.2%
<b>Total, Existing System</b>									
Revenue vehicles	9.2	-	23.0	7.6	11.5	20.7	12.0	12.7	65.7%
Systems & Guideways	0.5	0.3	0.1	1.6	1.2	1.2	0.8	0.9	4.4%
Facilities & Stations	6.7	1.4	0.0	7.6	1.4	7.7	4.1	4.4	23.0%
Other	0.2	0.2	0.2	0.7	6.0	0.4	1.3	1.3	6.8%
total, existing system	16.6	1.9	23.3	17.4	20.2	30.0	18.2	19.3	99.9%
Other capital projects	-	-	-	0.1	0.0	0.0	0.0	0.0	0.1%
total uses	16.6	1.9	23.3	17.5	20.2	30.0	18.3	19.4	100.0%
<b>City Appropriations <sup>1</sup></b>									
<b>Sources:</b>									
Local	12.6	4.7	13.1	25.7	18.9	19.7	15.8	16.7	54.7%
Other	-	5.9	10.7	22.0	30.0	11.2	13.3	13.8	45.3%
total	12.6	10.6	23.8	47.7	49.0	31.0	29.1	30.5	100.0%
<b>Uses:</b>									
Vehicles	6.4	7.9	14.0	25.3	31.1	20.3	17.5	18.3	60.0%
Facilities & Equipment	0.4	1.9	0.5	0.7	0.8	1.2	0.9	1.0	3.2%
Passenger Facilities	5.8	0.8	9.3	21.8	17.1	9.4	10.7	11.2	36.7%
total	12.6	10.6	23.8	47.7	49.0	31.0	29.1	30.5	100.0%

source: NTD data from annual profiles (2005-2009) and 2010 City submittal; City appropriations from City staff, 6/14/11.

note 1: These figures exclude appropriations for special projects (e.g., the HHCTCP), which totaled \$1,497.8 million, 2005-2010, which were 96% locally funded.



**Exhibit 4-11:**  
**FTA Grant Apportionments**  
 \$mil.

	2005	2006	2007	2008	2009	2010	CAGR
§5307 Urbanized Area <sup>1</sup>	27.0	24.1	26.4	29.0	31.1	31.3	3.0%
§5309 Fixed Guideway Modernization <sup>1</sup>	1.1	1.3	1.5	2.0	2.1	2.0	13.7%
subtotal, formula grants	28.1	25.4	27.9	31.0	33.2	33.3	3.5%
§5309 Bus & Bus Facilities <sup>2</sup>	8.7	7.4	1.3	4.1	1.3	-	na
total	36.8	32.7	29.2	35.1	34.5	33.3	-2.0%

**sources:**

1. HHCTCP Financial Plan, April 2011, Table 2-6, p. 2-8.

2. Federal Register notices (Annual FTA Apportionments, Allocations, & Program Information).

§5309 New Starts grants excluded. See Section 3 for history of New Starts grants applied to the Project.

**Federal apportionment trends**

The City's primary sources of Federal grants for TheBus and TheHandi-Van capital programs are the §5307 Urbanized Area and §5309 Fixed Guideway Modernization formula programs, and §5309 Bus & Bus Facilities earmarks. The 2005-2010 trend in these sources is shown in Exhibit 4-11.

Formula grant apportionments increased to \$33.3 million in 2010 from \$28.1 million in 2005, an average annual increase of 3.5 percent. §5307 apportionments account for 94 percent of the six-year total. About 22 percent (\$39.6 million) of the funds apportioned were applied to capital projects; the remainder was applied to preventive maintenance, an operating expense.

§5309 Bus & Bus Facilities have been variable, averaging about \$3.8 million (YOES), converting to about \$4.3 million annually in constant 2010 dollars, based on the Honolulu CPI.

\* \* \* \* \*

The analysis of the City's operating and capital programs for TheBus and TheHandi-Van presented in Section 4 identified benchmarks that are used in the next section of the report to evaluate the reasonableness of financial plan assumptions, chief among these being: i) the rate of growth in City operating subsidies (10.9 percent annually); ii) city subsidies as a percentage of General Fund and Highway Fund revenues (9.7 percent); iii) the rate of growth in General Fund and Highway Fund revenues (7.6 percent near-term, 4.0 percent long-term); and iv) capital asset replacement needs (approximately \$30.5 million annually).

## 5. Financial Capability

This section of the report assesses the City's financial capability to implement the operating financial plan, and the capital financial plan for on-going capital expenditures. The City's capacity to implement the Project financing plan was addressed in section 3.

The City's financial capability was assessed by comparing key assumptions in the financial plan to benchmark values developed in section 4.

A key common element of the operating and on-going capital financial plans is the degree of financial support required of the City. The GET surcharge – the dominant source of financing for the Project – is of minimal importance to the financial plans reviewed in this section, since virtually all of that revenue is used to support the Project. Accordingly, the operating and on-going capital financial plans will need to rely on funding sources that exist today, principally cash and general obligation debt proceeds from the City.

The operating and capital financial plans require a greater relative degree of City financial support than has historically been the case, which could be pushed yet higher if an optimistic subsidy forecast is not realized:

- The additional operating subsidy required by the Project, for both the new rail operation and expanded bus services to support the Project, is forecasted to require up to 16 percent of combined General Fund and Highway Fund revenues, versus a historical level (2005-2010) of 9.6 percent. In 2010 dollars, the Project would add approximately \$66.6 million to the City subsidy when it fully opens in FY 2019, a 54 percent increase relative to the City's actual 2010 transit subsidy.
- The forecasted rates of growth in TheBus and TheHandi-Van operating subsidy per vehicle revenue mile (VRM) – 2.9 percent and 2.6 percent respectively – are much lower than the subsidy growth experienced 2005-2010 (6.1 percent and 8.2 percent respectively), principally due to an optimistic operating cost forecast. These subsidies account for 74 percent of the forecasted City financial support for transit (operating and capital), 2011-2030. Thus, an increase in their rate of growth would have a material impact on the City's capability to implement the financial plan.
- The on-going capital financial plan assumes average annual City financial support of \$25.4 million (2010\$) that is 52 percent higher than the historical benchmark (\$16.7 million annually, 2010\$, 2005-2010).

Many other elements of the financial plan, however, appear to be reasonable and well-considered. Additional details on the operating and on-going capital financial plan are presented in the remainder of this section.

## 5.1 OPERATING FINANCIAL PLAN

This section describes the operating impact of the Project, describes the key features of the operating financial plan, and presents a critique of the financial plan assumptions. The operating plan cash flow is included as Appendix D to this report. The data cited in section 5.1 derive from the values shown in Appendix D unless stated otherwise.

The Project will have a significant impact on the financial support required of the City, and will also carry significantly more passenger trips. New, additional operating subsidies associated with the Project, assumed to be paid by the City, total \$83.7 million in 2020, which is the first full year of operation. This converts to \$66.6 million in constant 2010 dollars, a 54 percent increase relative to the City's actual 2010 transit subsidy (\$124.3 million). City subsidies are paid from its General Fund and Highway Fund. The subsidy is forecast to grow from the current (2010) 10.3 percent share of the combined revenues of these funds, to a maximum of 16.0 percent in 2019, and would average 14.6 percent for the remainder of the forecast.

The forecasted unit subsidies (i.e., subsidy per vehicle revenue mile) are well below historical experience for TheBus (6.1 percent historical, 2.9 percent forecast) and TheHandi-Van (8.2 percent historical, 2.6 percent forecast). This reflects optimistic operating cost forecasts for TheBus (unit cost 5.2 percent historical versus 2.8 percent forecast) and TheHandi-Van (unit cost 7.5 percent historical versus 2.6 percent forecast).

Because the subsidies required for these two operations account for 74 percent of total City funds (operating and capital) applied to transit, 2011-2030, even a small increase in the operating subsidy growth rate would translate into a material increase in City financial support. The effect of higher subsidy growth rates is explored in section 6, *Stress Tests*.

### 5.1.1 Impact of the Project

The impact of the Project is comprised of two parts -- the Project itself (i.e., the 20.2-mile elevated light metro rail line), and expanded bus service to feed the Project.

#### *The Project*

The Project is scheduled to be implemented in phases, and would fully open in March 2019. The first phase is the portion between East Kapolei and Aloha Stadium, assumed to open in December 2015 (FY 2016). The second phase, from Aloha Stadium to Middle Street, is assumed to open in October 2017 (FY 2018). The full line, continuing on to the Ala Moana Center, is assumed to open in March 2019 (FY 2019). Service would continue to expand, in terms of more trains, through FY 2029.

A flat fare system is planned, whereby a rider would pay a set fare for a trip of any length on the rail line, and/or a bus. Currently, a barrier-free fare system is planned, requiring the utilization of fare inspectors, but the rail line is being constructed with the capability to convert to a barrier-type system.



The operating subsidy associated with operation of the Project is forecast to be \$61.2 million (YOE dollars) in its first full year of operation – FY 2020. This converts to \$48.8 million in 2010 dollars. This estimate reflects the selected bid for a design-build-operate-maintain (DBOM) contract, as well as the results of a cost build-up model to estimate the cost of operating activities that would not be in the contractor's scope.

Implementation of the Project is forecasted to serve an additional 80,590 weekday transit trips in 2020 relative to those made in 2010 (169,011), a 48 percent increase.

#### ***Expanded bus service***

Bus service would be reconfigured and expanded (as envisioned in the ridership forecast) to work more effectively with the rail line. Bus service, as measured in vehicle revenue miles, would be 14.3 percent greater in 2020 than in 2010. The pro rata share of bus operating subsidy attributable to the Project is forecasted to be \$22.4 million in FY 2020, which converts to \$17.9 million in constant 2010 dollars. Buses would carry 76 percent of the weekday unlinked transit trips (or boardings) in 2020 (304,000 of 402,000). Bus boardings in 2020 are forecasted to be 35 percent higher than in 2010.

### **5.1.2 Financial plan**

The operating financial plan extends through 2030. It is structured in much the same way as exists today, but for the introduction of rail service. The service assumptions, operating cost forecast, and revenue forecast are described below.

#### ***Service assumptions***

Exhibit 5-1 (following page) shows the annual vehicle revenue miles (VRM) for TheBus, TheHandi-Van, and the Project.

TheBus VRM would increase by 17.5 percent, to 21.6 million in 2030 from 18.3 million in 2010, an average annual growth rate of 0.8 percent. TheBus VRM is consistent with the assumptions used in the ridership forecast.

TheHandi-Van VRM is estimated to increase by 66.1 percent, to 8.2 million in 2030 from 5.0 million in 2010, an average annual growth rate of 2.6 percent. These VRM were not cited in the plan; rather, they are estimated here from the plan's assumption that TheHandi-Van ridership would grow at 2.57 percent annually, coincident with the forecasted population growth for persons 65 and older in Honolulu. The VRM estimate assumes constant service productivity (i.e., boardings per VRM).

Rail VRM is forecasted to grow to 8.4 million in 2030 from 7.0 million in the first full year of operation in 2020, an increase of 1.8 percent annually. Rail VRM would initially be 0.5 million in 2016, reflecting a partial-year operation, growing in steps to 1.29 million in 2017 and 3.17 million in 2019, reflecting the phased opening plan.

Exhibit 5-1: Vehicle Revenue Miles Forecast

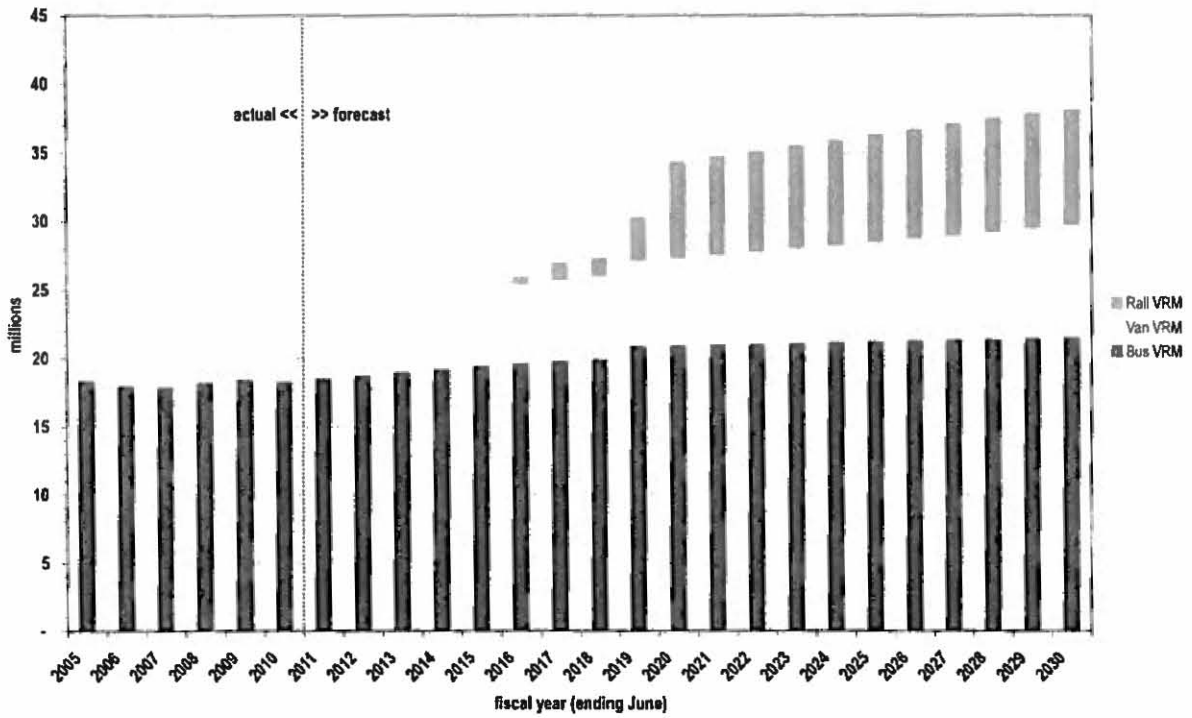
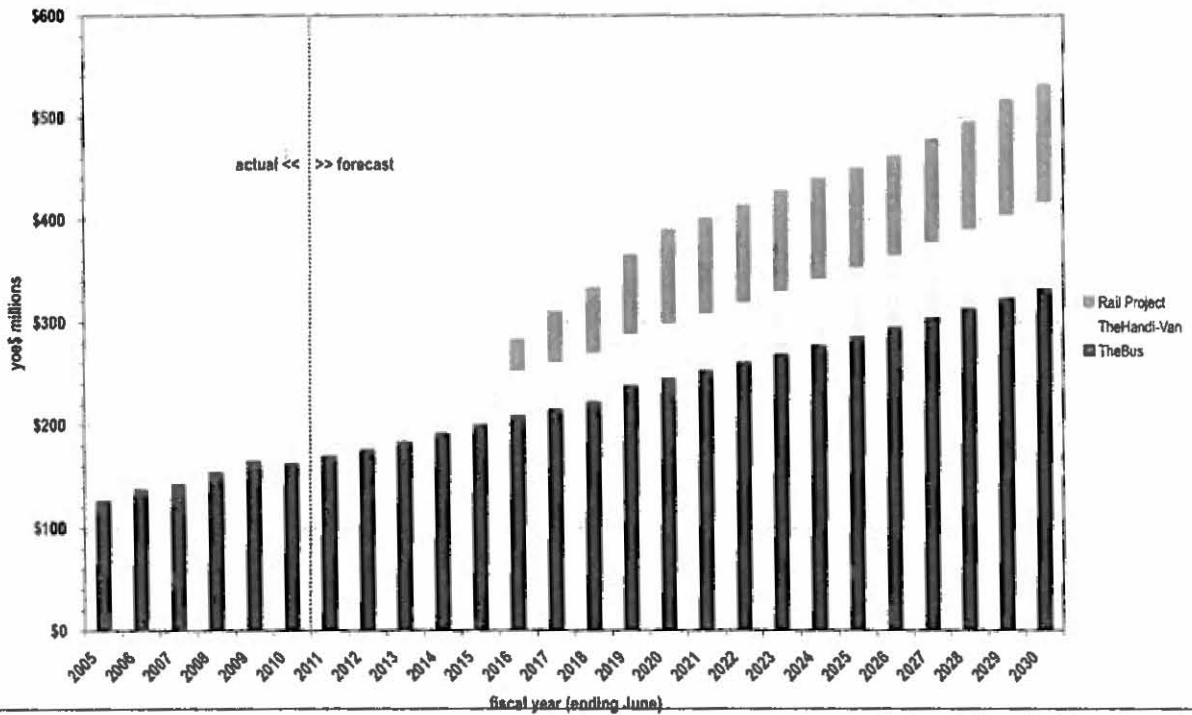


Exhibit 5-2: Operating Cost Forecast



prepared for the Federal Transit Administration  
January 25, 2012

### *Operating cost forecast*

Exhibit 5-2 (prior page) shows the annual operating cost forecast for TheBus, TheHandi-Van, and the Project.

Total operating cost would increase 176 percent, to \$533 million in 2030 from \$193 million in 2010, an average annual growth rate of 5.2 percent. Between 2011 and 2030, TheBus accounts for 67 percent of operating cost, TheHandi-Van 15 percent, and the Project 18 percent.

TheBus operating cost is forecast to increase 104 percent, to \$333 million in 2030 from \$163 million in 2010, an average annual growth rate of 3.6 percent. Unit cost (i.e., cost per VRM) would increase to \$15.45 in 2030 from \$8.88 in 2010, an average annual growth rate of 2.8 percent. TheBus operating costs were forecast using a multivariate cost allocation model, which relates the 2010 cost of an object class (e.g., wages and salaries) to one or more operating variables (e.g., vehicle hours). The resulting unit costs were escalated to current (i.e., YOE) dollars using forecasts of the CPI (2.3 percent), health care cost growth (4.87 percent, Bureau of Labor Statistics), and diesel fuel cost growth (average 3.1 percent, Energy Information Administration).

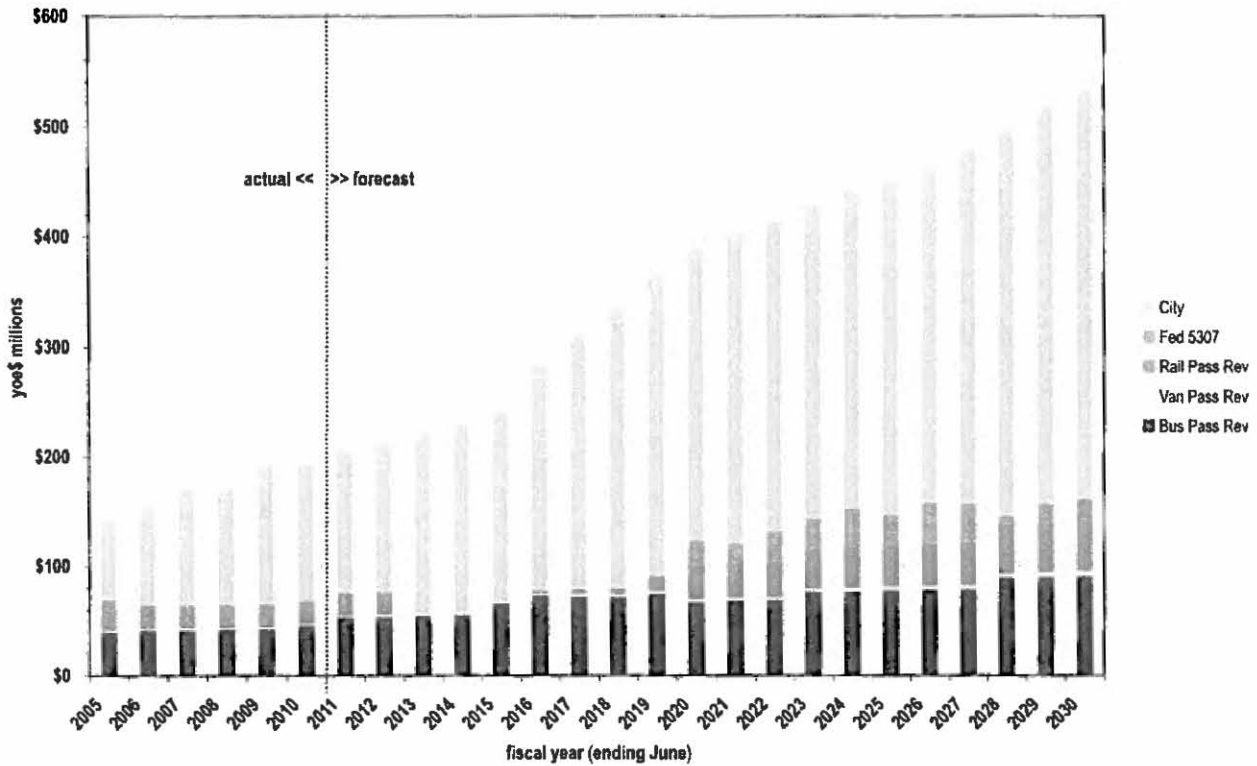
TheHandi-Van operating cost is forecast to increase 179 percent, to \$84 million in 2030 from \$30 million in 2010, an average annual growth rate of 5.3 percent. Unit cost (i.e., cost per VRM) would increase to \$10.21 in 2030 from \$6.09 in 2010, an average annual growth rate of 2.86 percent. TheHandi-Van operating costs were forecast based on the 2010 cost per boarding, applied to a boardings forecast of 2.57 percent annual growth, and escalated to current dollars based on the CPI forecast noted above.

Operating costs for the Project are forecast to grow to \$116 million in 2030 from \$92 million in 2020, an average annual growth rate of 2.3 percent. Unit cost (i.e., cost per VRM) would increase at a 0.5 percent annual rate during this period, reflecting the scale economies of this automated operation.

As stated in the financial plan, the operating costs for the Project were developed using data from the Core Systems Contract bid selected in FY 2011. Escalated O&M costs were bid for the Intermediate O&M Period #1 (aka Phase 1) and Intermediate O&M Period #2 (aka Phase 2). For the Full O&M Period and the Optional O&M Period, the Core Systems Contract bid provides operating costs by year in FY 2011 dollars. The contract includes a formula based on indices published by the U.S. Bureau of Labor and Statistics (BLS) for labor costs, electricity prices, consumer prices, and producer prices to escalate the costs to YOE dollars.

The operating activities not covered in the Core Systems Contract will be provided directly by HART. These costs account for approximately 10 percent of total Project operating cost and include costs for guideway structure inspections and maintenance, security patrols (not including the Maintenance and Storage Facility, which is covered by the Core Systems Contract), fare revenue collection and equipment servicing, fare

**Exhibit 5-3: Operating Revenue Forecast**



inspection and enforcement, station maintenance (including escalators and elevators), and Core Systems Contract oversight. A resource build-up approach was used to determine these costs, based on level of service variables. However, the cost estimate does not include HART staff and other operating costs associated with other executive and managerial functions.

**Revenue forecast**

The revenue forecast is shown in Exhibit 5-3 for all sources – passenger fare revenue (TheBus, TheHandi-Van, the Project), §5307 urbanized area formula grants applied to preventive maintenance, and the City operating subsidy. Revenues are forecasted to grow by 176 percent, to \$533 million in 2030 from \$193 million in 2010, an average annual increase of 5.2 percent.

Revenues applied to operations are forecast to exactly equal operating costs, as has been the case historically. This feature of the plan occurs because the City would pay the net operating subsidy (i.e., operating cost less passenger fare revenue, miscellaneous operating income, and grants) from its General Fund and Highway Fund. Consequently, no operating cash balance is maintained independent of those of the City funds from which the net operating subsidy is paid.

The assumptions backing the forecast of each revenue source are briefly described below.

**Passenger fare revenues**

Passenger revenues are forecasted to grow 200 percent, to \$142.1 million in 2030 from \$47.4 million in 2010, an average annual increase of 5.6 percent. The rates of growth in passenger fare revenues vary by mode:

- TheBus revenues are forecast to grow 99 percent, to \$91 million in 2030 from \$46 million in 2010, an average annual increase of 3.5 percent. On a unit basis, revenues would increase to \$4.23 per vehicle revenue mile in 2030 from \$2.50 in 2010, an average annual increase of 2.7 percent.
- TheHandi-Van revenues are forecast to grow 194 percent, to \$4.4 million in 2030 from \$1.5 million in 2010, an average annual increase of 5.5 percent. On a unit basis, revenues would increase to \$0.54 per vehicle revenue mile in 2030 from \$0.39 in 2010, an average annual increase of 2.9 percent.
- Rail revenues are forecast to grow to \$116 million in 2030 from \$31 million in 2020, the first full year of the Project's operation, an average annual increase of 4.1 percent. On a unit basis, revenues would increase to \$5.54 per vehicle revenue mile in 2030 from \$4.46 in 2020, an average annual increase of 2.2 percent.

The passenger revenue forecast assumes the same fare structure for bus and rail, with free transfers. The forecast assumes that the average fare per linked trip will remain constant, consistent with the travel demand model. Fares are assumed to increase every four years, at a rate that yields a constant real fare between 2010 and 2030.

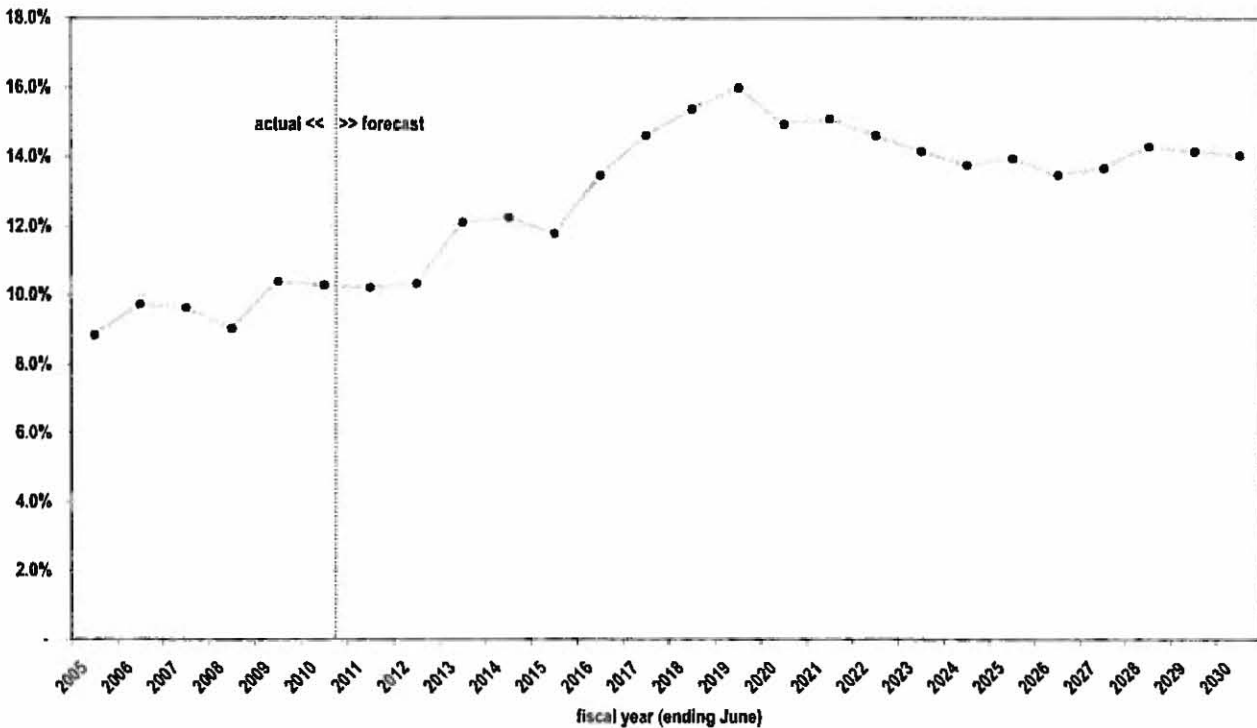
***§5307 grant funds applied to preventive maintenance***

§5307 funds comprise the bulk (94 percent) of Federal grant funds applied to operations in the operating forecast. The remainder is comprised of funds from the §5316 Job Access-Reverse Commute (JARC) and §5317 New Freedom grant programs, which total about \$1 million per year.

§5307 funds are applied intermittently to operations – steady at the current (2010) level of \$21 million through 2012; zero in the period 2013-2019 due to the §5307 funds being applied to the capital costs of the Project during that time; then again from 2020 (\$22 million) to 2030 (\$19 million). Between 2020 and 2030, §5307 funds applied to operations average \$24.7 million. This converts to about \$18 million in 2010 dollars, which is less than the amount actually applied to operations in 2010.

The overall §5307 grant fund forecast included in the financial plan assumes baseline growth (i.e., net of the impact of the Project) of 3.1 percent annually. The Project will increase the Honolulu urbanized area apportionment, because it adds to operating statistics used to apportion the funds (e.g., vehicle revenue miles). With the Project included, §5307 apportionments are forecast to increase at a 4.5 percent annual rate between 2010 and 2030.

**Exhibit 5-4:  
City Transit Subsidy as Percentage of General Fund & Highway Fund Revenues**



#### *City operating subsidies*

City operating subsidies are forecast to grow 199 percent, to \$372 million in 2030 from \$124 million in 2010, an average annual increase of 5.6 percent. These subsidies are anticipated to be paid from the revenues of the City's General Fund and Highway Fund, as is now the case.

Exhibit 5-4 shows the percentage of the combined revenues of these funds that would be required to pay the City share of the transit operating subsidy. The growth rate of the combined fund revenue is assumed to be 4 percent. This rate approximates actual growth 1995-2010, and is slightly greater than the 3.4 percent annual growth rate (2011-2017, extended to 2024) assumed by the City's Department of Budget and Fiscal Services in the debt affordability analysis discussed in section 3 of this report.

The transit subsidy share of combined General Fund and Highway Fund revenues climbs from the current (2010) 10.3 percent to a high of 16.0 percent at 2019, then stabilizes at an average 14.2 percent through 2030.



### Exhibit 5-5: Critique of Operating Plan Assumptions

Item	Historical growth rate	Forecast growth rate	Assessment	Impact
<b>TheBus operations</b>				
Vehicle revenue miles (VRM)	-	0.8%	Reasonable - consistent with demand model	
Boardings per VRM	1.7%	1.2%	Reasonable - consistent with demand model	
Operating cost per VRM	5.2%	2.8%	Optimistic	High
Revenue per VRM	2.9%	2.7%	Reasonable - consistent with demand model	
Subsidy per VRM	6.1%	2.9%	Optimistic	High
<b>TheHandi-Van operations</b>				
Vehicle revenue miles (VRM)	3.6%	2.6%	Reasonable - reflects target population growth	
Operating cost per VRM	7.5%	2.6%	Optimistic	Moderate
Revenue per VRM	-2.5%	2.9%	Optimistic	Moderate
Subsidy per VRM	8.2%	2.6%	Optimistic	Moderate
<b>Rail operations</b>				
Boardings per VRM	-	1.6%	Reasonable - consistent with demand model	
Operating cost per VRM	-	0.5%	Reasonable - based largely on bid	
Revenue per VRM	-	2.2%	Reasonable - consistent with demand model	
Subsidy per VRM	-	-0.6%	Reasonable - calculated result	
<b>System-wide items:</b>				
\$5307 grant funds	3.0%	4.3%	Reasonable given Project impacts	
Total operating subsidy	7.1%	5.1%	Optimistic	High
City operating subsidy	10.9%	5.6%	Optimistic	High

#### 5.1.3 Critique

The reasonableness of the operating financial plan assumptions is assessed in Exhibit 5-5, which compares historical growth rates to those assumed in the financial plan.

Most of the assumptions are reasonable, particularly those associated with the revenue forecasts, with the exception of operating subsidies.

The forecasted unit subsidies (i.e., subsidy per vehicle revenue mile) are well below historical experience for TheBus (6.1 percent historical, 2.9 percent forecast) and TheHandi-Van (8.2 percent historical, 2.6 percent forecast). For TheBus, this differential is chiefly due to the divergence between historical unit cost (5.2 percent) and forecasted unit cost (2.8 percent). A small increase in the unit cost growth rate will trigger a larger growth rate in the unit subsidy, since cost is much greater in magnitude than passenger revenues. For TheHandi-Van, the divergence in forecast versus historical subsidy growth reflects optimistic assumptions with regard to both unit cost (7.5 percent versus 2.6 percent) and unit revenues (-2.5 percent versus 2.9 percent).

The forecast of the City operating subsidy also is optimistic – the forecast growth rate is 5.6 percent, versus the historical growth rate of 10.9 percent.

The unit subsidy growth rate is included in the stress tests described in section 6 of this report.



## 5.2 CAPITAL FINANCIAL PLAN

This section describes the capital impact of the Project on on-going capital costs, describes the key features of the capital financial plan, and presents a critique of the financial plan assumptions. The on-going capital plan cash flow is included in Appendix D to this report. The data cited in section 5.2 derives from the values shown in Appendix D unless stated otherwise. Capital expenditures and funding in this section of the report are expressed in both YOE dollars and 2010 dollars, the latter to facilitate comparison to historical data.

On-going capital costs include replacement and expansion of existing transit capital assets, plus costs of the Project that were not included in the Project financing plan discussed in section 3 of this report – additional railcars to service forecasted growth in ridership, and the Capital Asset Replacement Program (CARP) that will be included in the Core Systems design-build-operate-maintain (DBOM) contract. These aspects of Project-related cost have only a moderate impact on on-going capital requirements, accounting for 14.5 percent of total expenditures (YOE\$) through 2030.

The primary risk in the on-going capital financial plan is the forecasted growth in City G.O. bond proceeds (\$25.4 million annually, 2010\$), which is 52 percent higher than the historical benchmark (\$16.7 million annually, 2010\$). This is a moderate risk to the financial plan when scaled against the operating plan risks identified in section 5.1.

### 5.2.1 Impact of the Project

The impact of the Project on the overall financial plan is significant, but its impact on the on-going capital financial plan is slight.

Two Project-related items are included in the on-going capital plan – additional rail cars (\$35.1 million, YOE) and the rail Capital Asset Replacement Program (CARP) that will be included in the Core Systems design-build-operate-maintain (DBOM) contract (\$155.3 million, YOE). Together, these account for 14.5 percent of the on-going capital program.

The purchase of ten additional railcars is expected to be needed to accommodate forecasted ridership in FY 2024. The Financial Plan assumes that this delivery will be made over two years, with five railcars in FY2024 and the remaining five in FY 2025.

The rail CARP consists of periodic overhaul, rehabilitation, refurbishment or replacement of major components, equipment and facilities acquired in the Core Systems contract. The Core Systems contract sets out a maximum level of CARP spending in FY2011 dollars for each year of the contract and includes a formula based on indices of labor costs and producer prices to escalate the maximum cost budget to year of expenditure dollars. It is assumed that the costs in the last year of the Optional O&M Period (2028) will continue through the end of the forecast period.



### 5.2.2 Financial plan

The financial plan extends through 2030. It is structured in much the same way as exists today, but for the introduction of rail service. The most noticeable changes are an increase in §5309 Fixed Guideway Modernization funds in the last seven years of the forecast, reflecting the phased implementation of rail service, and the rail car and CARP expenditures noted above.

#### *Capital expenditure forecast*

The capital expenditure forecast, in YOE dollars, is shown in Exhibit 5-6 (following page). It includes the additional rail cars and CARP expenditures noted above, as well as bus and van fleet acquisition and other capital costs.

The acquisition of new and replacement buses is the largest single cost item, totaling \$756.7 million in YOE dollars, converting to \$578.2 million in 2010 dollars. It accounts for 58 percent of 2011-2030 capital expenditures. The cost estimate is consistent with the Bus Fleet Plan. The fleet plan includes the replacement of hybrid buses with clean diesel buses, and an expansion in the fleet – to 490 peak vehicles from the current (2010) 428 peak vehicles.

The CARP program is the second-largest single cost item, totaling \$155.3 million in YOE dollars, converting to \$108.5 million in 2010 dollars. It accounts for 12 percent of 2011-2030 capital expenditures. All these expenditures are incurred in the 2020-2030 period, after the Project is fully operational.

The acquisition of new and replacement vans is the third-largest single cost item, totaling \$134.1 million in YOE dollars, converting to \$103.5 million in 2010 dollars. It accounts for 10 percent of 2011-2030 capital expenditures. There is not a current fleet plan for TheHandi-Van fleet.

“Other capital costs” include a variety of bus facility projects. These total \$231.7 million in YOE dollars, converting to \$199.1 million in 2010 dollars. This category accounts for 18 percent of 2011-2030 capital expenditures. The capital plan reflects expenditures for bus facilities programmed in the FY2011-FY2014 Transportation Improvement Program, approved on July 2, 2010. The TIP includes projects such as the design and construction of the Middle Street intermodal center, a maintenance facility for TheBus and TheHandi-Van operations in West O’ahu, and transit security projects. The financial plan uses cost estimates from the TIP through FY 2016, and then assumes that \$5 million will be spent annually on bus and TheHandi-Van facilities, including transit security projects, small transit centers, and transit preferential treatments.

Exhibit 5-6: On-going Capital Expenditure Forecast

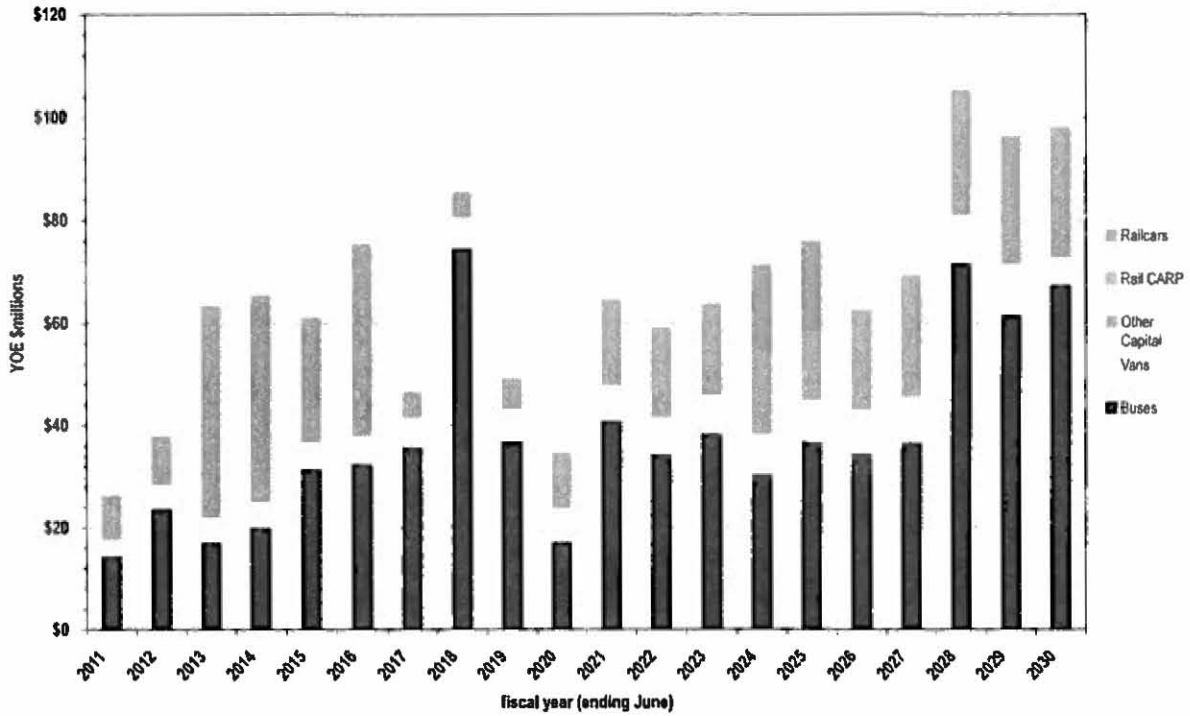
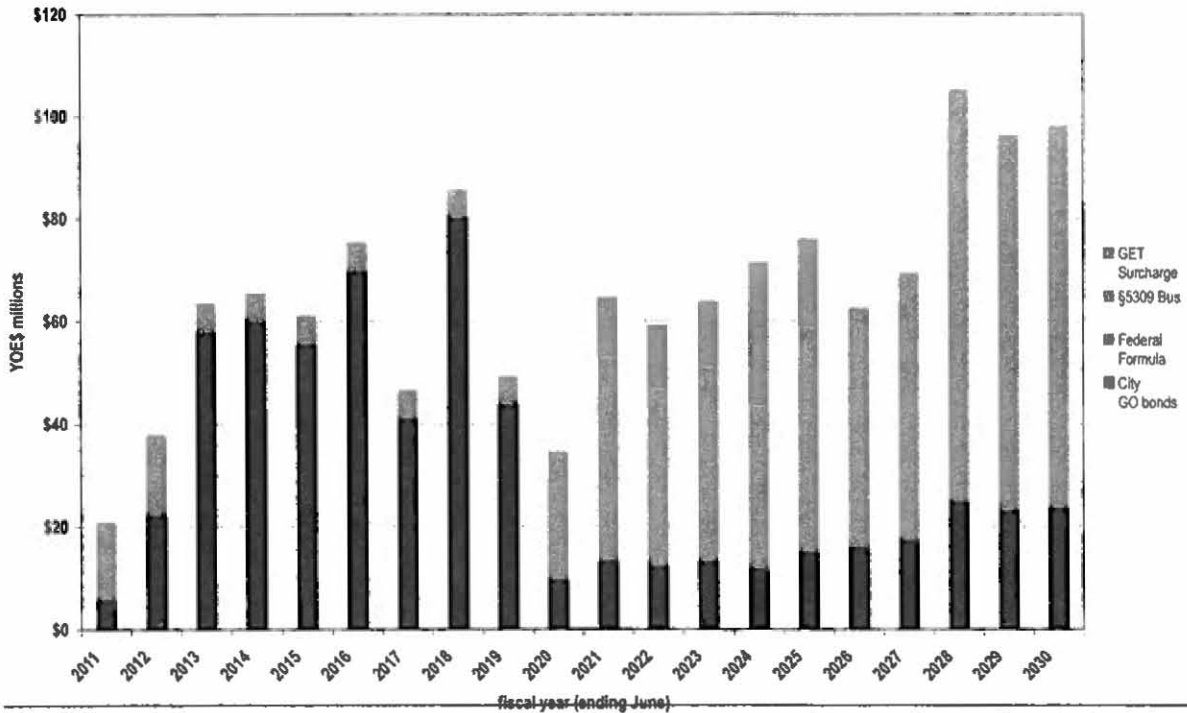


Exhibit 5-7: On-going Capital Funds Forecast



prepared for the Federal Transit Administration  
January 25, 2012

### ***Sources of capital funds***

The sources of capital funds, in YOE dollars are shown in Exhibit 5-7 (prior page). The sources include City G.O. bond proceeds, Federal formula funds, §5309 Bus and Bus Facility funds, and GET surcharge revenues not applied to the Project financing plan discussed in section 3.

City G.O. bond proceeds are the single largest source of capital funds, totaling \$615.3 million (YOE), converting to \$508.7 million in 2010 dollars. This source will fund 46.9 percent of total capital expenditures.

Federal formula funds are the second largest source of capital funds, totaling \$498.3 million (YOE), converting to \$351.1 million in 2010 dollars. This source will fund 38.0 percent of total capital expenditures. The formula funds applied to capital expenses are primarily comprised of §5307 Urbanized Area formula funds, YOE\$409.1 million (\$291.3, 2010\$) and §5309 Fixed Guideway Modernization, YOE\$144.6 million (\$102.6 million, 2010\$), which ramp up in the 2016-2030 period, reflecting the impact of the Project on the apportionment to the Honolulu urbanized area. There is also a small amount (less than \$1 million) of funds from the §5316 Job Access-Reverse Commute (JARC) and §5317 New Freedom grant programs. Transfers to the State vanpool program (\$55.7 million YOE, \$43.0 million 2010\$) are netted out against the formula funds.

§5309 Bus and Bus Facility grants are the third-largest source of capital funds, totaling \$111.2 million (YOE), converting to \$88.3 million in 2010 dollars. This source will fund 8.5 percent of total capital expenditures. These discretionary funds are assumed to be accessible every year in the forecast, a scenario that may not play out given the extent of discretionary funds assumed to be available for the Project.

GET surcharge revenues not applied to Project costs (see section 3) are the fourth-largest source of capital funds, totaling \$82.6 million (YOE), converting to \$61.0 million in 2010 dollars. This source will fund 6.3 percent of total capital expenditures.

Rounding out the capital funding picture is an ARRA grant, totaling \$5.47 million, applied to capital projects in 2011.

### Exhibit 5-8: Critique of On-Going Capital Plan Assumptions

Item	Historical Value, 2010\$	Forecast value, 2010\$	Assessment	Impact
Bus replacement cost <sup>1</sup>	19.3	28.9	Reasonable; estimate is sufficient for replacement and expansion	None
Van replacement cost <sup>1</sup>	2.0	5.2	Reasonable; estimate is sufficient for replacement and expansion	None
Other asset replacement cost <sup>1</sup>	9.6	10.0	May be understated; project descriptions read more as expansion than replacement	Slight
\$5309 Bus grants <sup>2</sup>	4.3	4.4	Reasonable in comparison to history, but may prove more difficult to attain with large \$5309 New Starts grant	Slight
City capital funds <sup>3</sup>	16.7	25.4	May be optimistic; depends on City's competing needs, not addressed in the plan	Moderate

**notes:**

1. See Appendix E for replacement cost estimates.
2. Historical value discounted at CPI from grant amounts shown in Exhibit 4-11.
3. Historical value from Exhibit 4-10.

#### 5.2.3 Critique

The reasonableness of the on-going capital financial plan assumptions is assessed in Exhibit 5-8, which uses average annual 2010\$ values as the basis for comparing historical results to forecast assumptions. This method is used in lieu of compound annual growth rates that can distort this type of comparison when the historical base is short (in this case, six years) with highly variable year-to-year changes.

The revenue vehicle cost assumptions for both TheBus and TheHandi-Van are reasonable, which is important given the large extent (68 percent) of the capital program for which they account. As noted earlier, the underlying values (i.e., units and timing of fleet replacement) for the cost estimate reflect the Bus Fleet Management Plan.

The other major assumptions presented in the exhibit carry risk, ranging from slight to moderate:

- “Other asset” replacement cost (\$10.0 million annually), which addresses a variety of assets as described above, though close to the historical benchmark (\$9.6 million annually) may be understated, since the forecast includes new facility expense. This poses slight risk, since it is a relatively low cost element (17.6 percent) of the capital plan, and opportunity exists to reprogram funds from new facilities to replacement costs.

- §5309 Bus and Bus Facility grants (\$4.4 million) are close to the historical benchmark, but because the funds are discretionary may be difficult to attain. The risk is slight – this source accounts for 8.5 percent of capital funds.
- City G.O. bond proceeds (\$25.4 million annually) are 52 percent higher than the historical benchmark (\$16.7 million annually). This is a moderate risk to the financial plan when scaled against the operating plan risks identified in section 5.1. The actual degree of risk is difficult to determine without a financial plan from the City, describing the outlook for all G.O. bonds and the City's capacity to service that debt.

None of the above variables were carried forward to the stress tests in section 6, but instead were considered in the development of recommendations, presented in section 8.

\* \* \* \* \*

This section presented the operating and on-going capital financial plans, and assessed key assumptions in light of historical benchmarks. The key finding is that City financial contributions to these plans are significantly higher in a relative sense than has historically been the case, and, in the case of operating subsidies, may be understated. A stress test of the operating subsidy forecast for TheBus and TheHandiVan service is explored in section 6.

## 6. Stress Tests

The purpose of the stress tests is to evaluate the sensitivity of the financial plan to plausible, adverse changes in key assumptions, and to gauge the City's capacity to accommodate those changes.

Two sets of stress tests were performed – the first set is specific to the Project financing plan described in section 3; the second addresses the rate of subsidy growth for TheBus and TheHandi-Van services, described in section 5.

It is doubtful that the City could cover the additional funding requirements produced by the stress tests – \$2.17 billion through 2030 – from current resources. In its financial plan, the City suggested that an extension of the GET surcharge past its current sunset date (December 31, 2022) was one potential mitigative strategy and implementation of value capture mechanisms such as tax increment finance districts or benefit assessment districts was another.

### 6.1 PROJECT-RELATED STRESS TESTS

Two Project-related stress tests were performed:

- an increase in Project cost of \$512.6 million (10 percent of the City's proposed Project cost estimate, including financing costs); and
- a decrease in the average annual growth rate in GET surcharge revenues post-2012, to 4.3 percent annually from the 5.04 percent annual average growth rate in the Project financing plan.

The lower GET surcharge revenue growth rate corresponds to a Congressional Budget Office forecast (4.9 percent annual GDP growth), less the historical difference (1981-2010) in growth between revenues from the State 4 percent GET (5.04 percent annually) and US GDP (5.6 percent annually), as noted in section 3.3.1.

Both stress tests were analyzed by calculating their annual effect on the Project cash flow, and their effect on the FY 2023 ending cash balance of the Transit Fund, the fund established by the City to account for the costs and revenues used in constructing the Project. The 10 percent increase in Project cost was converted to an annual cost by first apportioning this increase, pro rata to forecasted Project expenditures 2012-2020, then calculating annual debt service expense using the assumptions for G.O. debt described in the Project financing plan. The annual effect of the difference in GET surcharge growth rates was calculated by applying a 4.3 percent growth rate to the FY 2012 estimate and subsequent years, then subtracting the baseline GET surcharge forecast.

Exhibit 6-1: Project-Related Stress Tests – Impact on Transit Fund

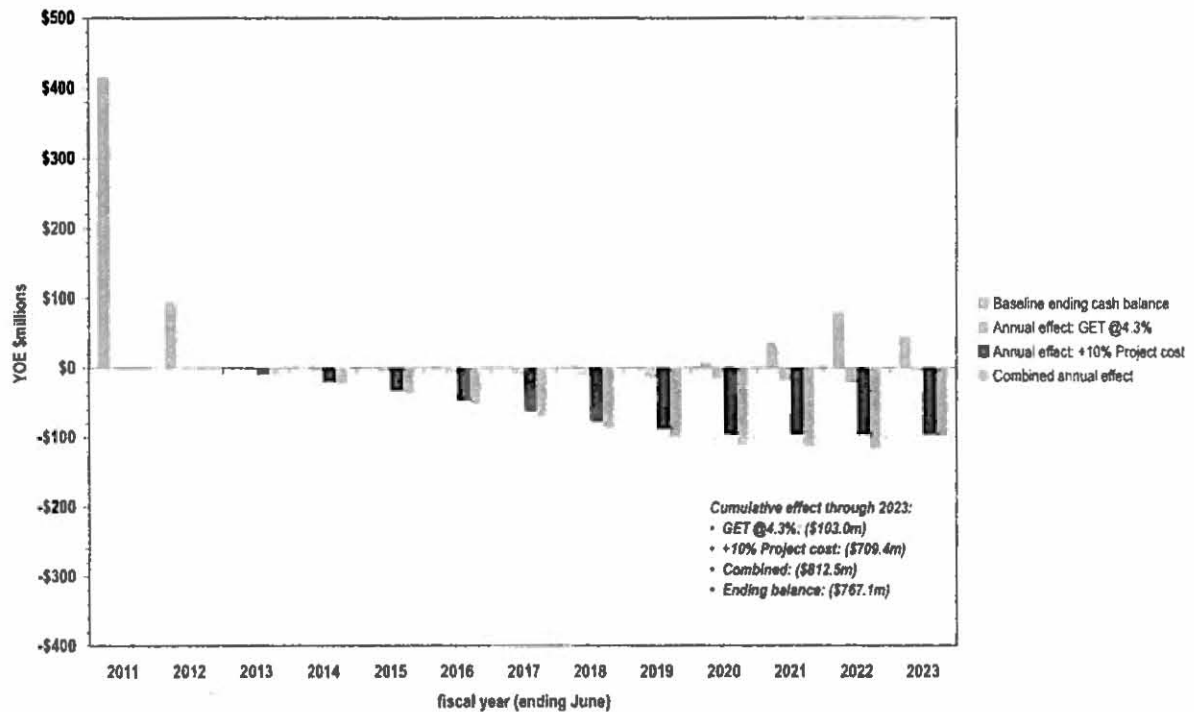


Exhibit 6-1 depicts the results of these stress tests, which can be summarized as follows:

- The 10 percent increase in Project cost would add \$709.4 million to Project expenditures, and would reduce the ending cash balance to a negative \$664.0 million.
- The lower growth rate for GET surcharge revenues would remove \$103.0 million from Project revenues, reducing the ending cash balance to a negative \$57.6 million.
- Together, the stress tests act to increase the funding requirements for the Project by \$812.5 million, and would reduce the ending cash balance to a negative \$767.1 million.

Either stress test would eliminate the planned \$83 million transfer to on-going capital cost (described in section 5.2), intended to help fund the cost of additional rail cars and the rail Capital Asset Replacement Program (CARP).

## 6.2 STRESS TESTS AFFECTING THE CITY OPERATING SUBSIDY

Two stress tests were performed that affect the amount of City subsidy required for TheBus and TheHandi-Van.

As noted in section 5, the forecasted rate of growth in unit subsidy (i.e., subsidy per vehicle revenue mile, or VRM) for each of the services is low relative to historical experience (2005-2010). TheBus subsidy per VRM was forecast at 2.9 percent annually, versus a historical rate of 6.1 percent. TheHandi-Van subsidy per VRM was forecast at 2.6 percent annually, versus a historical rate of 8.2 percent.

For TheBus, the stress test applied 4.5 percent annual growth to the FY 2011 value calculated from the financial plan, then calculated the difference between the stressed value and the baseline forecast. Because the revenue forecast for TheBus was deemed reasonable, this stress test really reflects on the forecasted unit cost (i.e., cost per VRM), which at an average annual growth of 2.8 percent annually was less than historical growth (5.2 percent annually, 2005-2010). The stressed 4.5 percent annual growth in TheBus unit subsidies reflects 4.1 percent annual growth in unit cost.

A similar procedure was used to stress the operating subsidy for TheHandi-Van. The stress test applied 5.5 percent annual growth to the FY 2011 value. Because the both the unit revenue forecast and the unit cost forecast for TheHandi-Van were deemed optimistic, the stress test implies less favorable values for both variables. The forecasted unit revenue (i.e., revenue per VRM), at 2.8 percent average annual growth, is more than historical growth (-2.5 percent annually, 2005-2010). The forecasted unit cost (i.e., cost per VRM), at 2.6 percent average annual growth, is less than historical growth (7.5 percent annually, 2005-2010). The stressed 5.5 percent annual growth in TheHandi-Van unit subsidies implies 1.75 percent growth in unit revenues and 5.4 percent growth in unit cost.

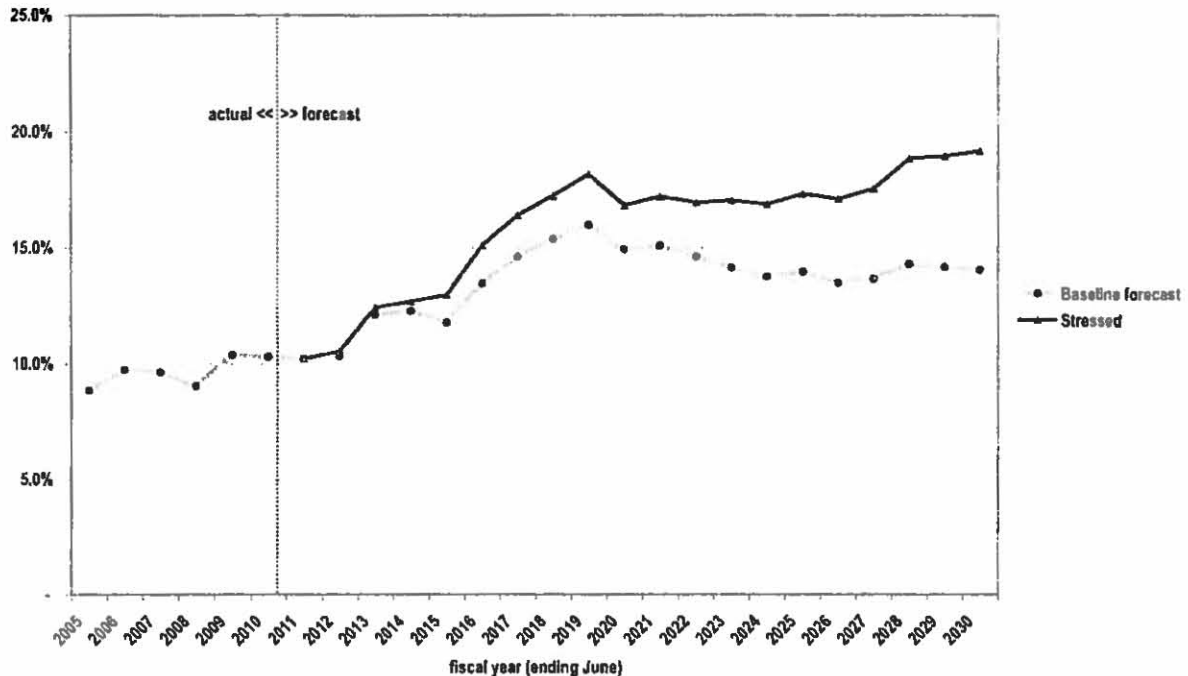
At these less favorable growth rates, TheBus annual subsidy would grow to \$314.4 million in 2030, versus a forecast of \$241.9 million. The cumulative effect is to add \$569.9 million to the subsidy forecast.

Similarly, TheHandi-Van annual subsidy would grow to \$143.1 million in 2030, versus a forecast of \$79.7 million. The cumulative effect is to add \$441.3 million to the subsidy forecast.

The combined impact, 2011-2030, is \$1,011.2 million, which would add 22 percent to the overall subsidy forecast. This net amount would be added to the City's operating subsidy, which already reflects the application of Federal grant funds to preventive maintenance. The resulting 7.7 percent average annual growth rate in City-funded subsidies for TheBus and TheHandi-Van is still less than the average growth experienced 2005-2010 (10.9 percent annually).



**Exhibit 6-2: Stress Test**  
**City Transit Subsidy Percentage of General Fund & Highway Fund Revenues**



The combined effect of these two stress tests on the City's subsidy as a percentage of General Fund and Highway Fund revenues is shown in Exhibit 6-2. This chart includes City subsidies for the Project; these were not included in the stress tests because the operating cost and passenger revenue estimates were deemed reasonable. Thus Exhibit 6-2 reflects the baseline forecast of rail operating subsidies, and the stressed values for TheBus and TheHandi-Van subsidies. The increase in subsidy requirements associated with the stress tests would require a growing percentage of the General Fund and Highway Fund revenues, rising to 19.2 percent at 2030 from about 10.3 percent in 2010.

### 6.3 CITY'S CURRENT CAPACITY TO ADDRESS STRESS TESTS

The magnitude of additional funding requirements found in the stress tests – about \$1.81 billion through 2030 – is unlikely to be funded from the City's current resources.

The City's General Fund had an unobligated fund balance of \$104.1 million at the close of FY 2010, an increase of \$46.7 million since 2005. The Highway Fund had an unobligated fund balance of \$23.5 million at the close of FY 2010, an increase of \$6.9 million since 2005. These combine to a maximum \$127.6 million currently available, and imply growth of about \$10.7 million annually. It is doubtful that the City could bear the additional costs of the stress tests from current revenues.

In its financial plan, the City suggested that an extension of the GET surcharge past its current sunset date (December 31, 2022) was one potential mitigative strategy and implementation of value capture mechanisms such as a tax increment finance or benefit assessment districts was another. A GET extension would provide an opportunity to amortize Project debt over a longer period, improving the annual cash flow, and perhaps providing a means to fund the Project's operating subsidy.

## 7. Conclusions

1. All the non-§5309 New Starts funds included in the Project financial plan (\$3,575.95 million, YOY) are committed.
2. The financing costs attributed to the Project (\$247 million) are conservative.
3. The GET surcharge-funded debt to be issued for the Project will not be constrained by the City's debt affordability guidelines, since the guidelines have been waived.
4. GET surcharge revenue, the dominant source of local financing for the Project, is forecast to grow 11.9 percent in 2012, and at 5.04 percent rate through 2023. The 5.04 percent rate is consistent with the estimated long-term (1981-2010) GET surcharge revenue trend.
5. At this time, there is no additional capacity in the Project financing plan to fund Project cost increases, or to mitigate other adverse events.
6. Transit operating subsidies funded by the City increased at a 10.9 percent annual rate between 2005 and 2010, reflecting extra-inflationary cost growth, and expansion of highly subsidized demand-responsive service.
7. Transit capital assets, on average, are in the last third of their useful life – buildings and improvements are relatively younger, but all other assets are in the last quarter of their useful life, most importantly revenue vehicles.
8. The operating and capital financial plans require a greater relative degree of City financial support than has historically been the case, which could be pushed yet higher if an optimistic subsidy forecast is not realized.
9. The operating cost forecast for the Project reflects an accepted bid, and can be considered reasonable, but some additional costs for activities performed by HART need to be added to the cost estimate.
10. The Project will require a 54 percent increase in City subsidies relative to 2010.
11. Stress tests performed on the Project financing plan – a 10 percent increase in Project cost, and a 4.3 percent GET surcharge growth rate (post-2012) – would increase City funding requirements by \$709 million and \$103 million, respectively, totaling \$812 million.
12. Stress tests performed on the operating subsidy forecast for TheBus and TheHandi-Van services indicate that subsidies could increase by 22 percent (\$1,011 million), 2011-2030, which may be unaffordable.

## 8. Recommendations

1. The operating cost estimate for the Project should be revised to include all relevant HART board and staff activities.
2. The assumptions used to estimate Project financing costs were very conservative. Prior to a FFGA for this Project, HART should ensure that the interest rate assumptions and other factors affecting debt capacity (e.g., coverage requirements) are consistent with the then-current market outlook, so as to not overstate financing costs in the FFGA.
3. The City should revise and amend its financial plan to address the following items:
  - a) a specific plan as to how the City would fund Project cost increases from resources which require no further approvals.
  - b) a description of the historical factors contributing to extra-inflationary unit cost growth for TheBus and TheHandi-Van services, and an explanation of how these factors are considered in the operating cost forecast.



## Appendices

- A. Sources of Project Funds
- B. Project Cost Estimate (March 2011)
- C. Transit Operating Trends, 2005-2010
- D. Baseline Cash Flow, September 2011 (draft)
- E. Transit Depreciable Assets at June 30, 2010

**APPENDIX A:  
Sources of Project Funds**

year\$millions

City Fiscal Year (ending June)	Federal Funds			subtotal, Federal	Local	total
	§5309 New Starts	§5307 Urb. Area	ARRA			
Prior to 2012	20.91	-	4.00	24.91	171.46	196.36
2012	224.08	-	-	224.08	509.98	734.07
2013	250.00	31.71	-	281.71	564.88	846.59
2014	250.00	32.48	-	282.48	566.94	849.42
2015	250.00	33.26	-	283.26	392.33	675.59
2016	228.48	34.06	-	262.54	348.42	610.96
2017	191.63	34.87	-	226.50	421.11	647.61
2018	98.33	38.35	-	136.68	224.91	361.59
2019	30.03	39.27	-	69.30	74.29	143.59
2020	6.54	-	-	6.54	53.64	60.18
total	1,550.00	244.00	4.00	1,798.00	3,327.95	5,125.95
% of total	30.2%	4.8%	0.1%	35.1%	64.9%	100.0%

source: Honolulu High Capacity Transit Corridor Financial Plan, Table A-1, September 2011



# APPENDIX B: Project Cost Estimate at July 2011

Note: the current cost estimate is \$5,126 million. This estimate was not available in SCC Worksheet format at the time of this report.

MAIN WORKSHEET-BUILD ALTERNATIVE								(Rev 13 June 1, 2010)
City and County of Honolulu		Data Consistent with March Submittal and April Financial Plan				Today's Date <b>July 2011</b>		
Honolulu Rail Transit Project (Rail) - Aloha to Ala Moana Center		FY of Base Year 5		FY 2011				
Entry into Final Design		FY of Revenue Opt		FY 2019				
	Quantity	Base Year Dollars w/o Contingency (000)	Base Year Dollars Allocated Contingency (000)	Base Year Dollars TOTAL (000)	Base Year Dollars Unit Cost (000)	Base Year Dollars Percentage of Construction Cost	Base Year Dollars Percentage of Total Project Cost	YOE Dollars Total (000)
<b>10 GUIDEWAY &amp; TRACK ELEMENTS (route miles)</b>	<b>20.05</b>	<b>970,450</b>	<b>163,893</b>	<b>1,134,343</b>	<b>56,627</b>	<b>40%</b>	<b>29%</b>	<b>1,288,287</b>
10.01 Guideway At grade on/above right of way				0				0
10.02 Guideway At grade semi-enclosed (above cross traffic)				0				0
10.03 Guideway At grade on/above traffic				0				0
10.04 Guideway Over structure	19.45	896,508	153,347	1,049,855	53,971			1,210,302
10.05 Guideway Out-of-lane				0				0
10.06 Guideway Underground cut & cover				0				0
10.07 Guideway Underground tunnel				0				0
10.08 Guideway Retained cut & fill	0.60	6,036	904	6,940	11,547			7,402
10.09 Track Direct loader		68,071	8,997	77,068				86,707
10.10 Track Embankment				0				0
10.11 Track Ballasted		7,434	361	7,795				2,023
10.12 Track Special (switches, turnout)		1,398	279	1,677				2,204
10.13 Track Vibration and noise dampening				0				0
<b>20 STATIONS, STOPS, TERMINALS, INTERMODAL (number)</b>	<b>21</b>	<b>413,434</b>	<b>97,421</b>	<b>510,855</b>	<b>24,803</b>	<b>18%</b>	<b>11%</b>	<b>614,602</b>
20.01 At grade station stop shelter (rail terminal platform)	1	6,179	1,266	7,445	7,445			8,348
20.02 At grade station stop shelter (rail terminal platform)	20	393,514	61,520	455,034	22,752			493,626
20.03 Underground station stop shelter (rail terminal platform)				0				0
20.04 Other station landings (terminals, intermodal ferry, biking, etc)				0				0
20.05 Joint development				0				0
20.06 Automobile parking multi-story structure		45,535	9,798	55,333				77,919
20.07 Dividers and barriers		64,226	10,811	75,037				78,730
<b>30 SUPPORT FACILITIES, YARDS, SHOPS, ADMIN. BLDGS</b>		<b>63,365</b>	<b>11,044</b>	<b>74,409</b>	<b>4,787</b>	<b>3%</b>	<b>2%</b>	<b>102,898</b>
30.01 Administration Building (office, sales, storage, revenue counting)				0				0
30.02 Light Maintenance Facility		6,368	306	6,674				8,511
30.03 Heavy Maintenance Facility		35,023	4,263	39,287				42,778
30.04 Storage or Maintenance of Rail Building		7,157	590	7,747				8,742
30.05 Yard and Yard Trac		35,806	4,665	40,471				43,774
<b>40 SITEWORK &amp; SPECIAL CONDITIONS</b>		<b>789,739</b>	<b>134,943</b>	<b>924,682</b>	<b>45,114</b>	<b>32%</b>	<b>20%</b>	<b>1,021,488</b>
40.01 Deposition, Grading, Earthwork		16,119	2,321	17,440				19,517
40.02 Site Utilities, Utility Relocation		290,743	59,779	350,522				368,378
40.03 Haz mat (concrete seal removal/dredging, ground water treatment)		6,064	727	6,791				7,633
40.04 Environmental mitigation (e.g. wetlands, historic/archaeologic, parks)		29,305	3,402	32,707				36,803
40.05 Site structures including retaining walls, sound walls		18,323	2,280	20,603				22,536
40.06 Pedestrian (bike access and accommodation, landscaping)		30,287	6,878	37,165				44,678
40.07 Automobile, bus, van accessways including roads, parking lots		148,564	25,582	174,146				212,523
40.08 Temporary Facilities and other indirect costs during construction		208,650	34,530	243,180				324,230
<b>50 SYSTEMS</b>		<b>184,136</b>	<b>23,404</b>	<b>207,540</b>	<b>10,288</b>	<b>7%</b>	<b>6%</b>	<b>281,687</b>
50.01 Train control and signals		69,073	8,363	77,436				82,601
50.02 Traffic signals and crossing protection		8,897	1,875	10,772				13,043
50.03 Traction power supply, substations		24,172	2,911	27,083				33,601
50.04 Traction power distribution (catenary and third rail)		27,892	3,806	31,698				37,347
50.05 Communications		43,917	6,277	50,194				60,602
50.06 Fire detection system and equipment		7,484	858	8,342				10,324
50.07 Central Control		7,553	364	7,917				9,868
<b>Construction Subtotal (10 - 80)</b>	<b>2,422,773</b>	<b>416,766</b>	<b>2,839,539</b>	<b>141,888</b>	<b>100%</b>	<b>62%</b>	<b>3,288,210</b>	
<b>90 ROW, LAND, EXISTING IMPROVEMENTS</b>		<b>172,780</b>	<b>69,180</b>	<b>241,960</b>	<b>12,081</b>		<b>8%</b>	<b>347,942</b>
90.01 Purchase in fee of rail rights		157,534	63,013	220,547				264,649
90.02 Relocation of existing households and businesses		15,247	6,087	21,334				23,293
<b>70 VEHICLES (number)</b>	<b>80</b>	<b>156,722</b>	<b>18,807</b>	<b>175,529</b>	<b>2,194</b>		<b>4%</b>	<b>212,481</b>
70.01 Light Rail				0				0
70.02 Heavy Rail	80	140,148	16,819	156,967	1,962			191,657
70.03 Commuter Rail				0				0
70.04 Bus				0				0
70.05 Other				0				0
70.06 Non-revenue vehicles		11,825	1,419	13,244				14,550
70.07 Spare parts		4,748	670	5,418				6,214
<b>80 PROFESSIONAL SERVICES (applies to Cate 10-80)</b>		<b>839,406</b>	<b>92,609</b>	<b>932,015</b>	<b>45,863</b>	<b>32%</b>	<b>29%</b>	<b>1,031,047</b>
80.01 Professional Engineering		51,183	4,329	55,512				68,207
80.02 Final Design		183,296	21,327	204,623				222,178
80.03 Project Management for Design and Construction		284,105	24,875	308,980				350,323
80.04 Construction Administration & Management		145,688	14,589	160,277				187,315
80.05 Professional Liability and other Non-Construction Insurance		43,869	4,357	48,226				56,104
80.06 Legal Permits, Permit Fees by other agencies (state etc)		55,746	5,574	61,320				69,918
80.07 Surveys, Testing, Investigation, Inspection		6,178	485	6,663				8,073
80.08 Start up		40,874	6,383	47,257				55,534
<b>Subtotal (10 - 80)</b>	<b>3,551,653</b>	<b>587,312</b>	<b>4,138,965</b>	<b>208,286</b>			<b>92%</b>	<b>4,791,280</b>
<b>90 UNALLOCATED CONTINGENCY</b>				<b>187,199</b>			<b>4%</b>	<b>191,880</b>
<b>Subtotal (10 - 90)</b>				<b>4,326,164</b>	<b>216,732</b>		<b>96%</b>	<b>4,983,161</b>
<b>100 FINANCE CHARGES</b>				<b>189,824</b>			<b>4%</b>	<b>238,898</b>
<b>Total Project Cost (10 - 100)</b>				<b>4,515,988</b>	<b>228,896</b>		<b>100%</b>	<b>5,212,778</b>
Allocated Contingency as % of Base Yr Dollars w/o Contingency				18.35%				
Unallocated Contingency as % of Base Yr Dollars w/o Contingency				4.63%				
Total Contingency as % of Base Yr Dollars w/o Contingency				22.97%				
Unallocated Contingency as % of Subtotal (10 - 80)				4.50%				
YOE Construction Cost per Mile (000)								1164.554
YOE Total Project Cost per Mile Rail Including Vehicles (000)								1243.365
YOE Total Project Cost per Mile (000)								1259.950

**Appendix C:**  
**Transit Operating Trend, 2005-2010**

	2005	2006	2007	2008	2009	2010	trend, 2005-2010		
							Δ	%Δ	CAGR
<b>"TheBus" (Motor Bus)</b>									
VRM (000s)	18,389	18,019	17,924	18,273	18,462	18,344	(45)	-0.2%	0.0%
O&M (\$000s)	127,069	137,936	142,867	154,331	165,079	162,938	35,869	28.2%	5.1%
Fare Rev (\$000s)	39,925	41,531	41,742	41,984	42,455	45,875	5,950	14.9%	2.8%
Operating subsidy (\$000s) <sup>1</sup>	87,144	96,405	101,125	112,347	122,624	117,063	29,919	34.3%	6.1%
Boardings (000s)	67,408	70,384	71,749	69,760	77,330	73,159	5,751	8.5%	1.7%
Cost per VRM (\$)	6.91	7.66	7.97	8.45	8.94	8.88	1.97	28.5%	5.2%
Fare revenue per VRM (\$)	2.17	2.30	2.33	2.30	2.30	2.50	0.33	15.2%	2.9%
Operating subsidy per VRM (\$)	4.74	5.35	5.64	6.15	6.64	6.38	1.64	34.7%	6.1%
Boardings per VRM	3.67	3.91	4.00	3.82	4.19	3.99	0.32	8.8%	1.7%
Fare recovery ratio	0.31	0.30	0.29	0.27	0.26	0.28	(0.03)	-10.4%	-2.2%
Average revenue per boarding (\$)	0.59	0.59	0.58	0.60	0.55	0.63	0.03	5.9%	1.1%
Full cash fare (\$)	2.00	2.00	2.00	2.00	2.25	2.50	0.50	25.0%	4.6%
Ratio of avg rev/brd to full cash fare	0.30	0.30	0.29	0.30	0.24	0.25	(0.05)	-15.3%	-3.3%
Fleet size	525	525	531	541	531	530	5	1.0%	0.2%
Peak vehicles	416	415	424	439	439	428	12	2.9%	0.6%
Spare ratio	26%	27%	25%	23%	21%	24%	-2%	-9.0%	-1.9%
Avg Fleet Age	7.3	8.3	8.4	9.2	9.9	10.2	2.9	39.7%	6.9%
<b>"TheHandi-Van" (Demand Response)</b>									
VRM (000s)	4,152	4,322	4,608	4,833	5,000	4,960	808	19.5%	3.6%
O&M (\$000s)	17,634	22,109	24,813	28,233	30,562	30,198	12,564	71.2%	11.4%
Fare Rev (\$000s)	1,437	1,512	1,601	1,631	1,664	1,509	72	5.0%	1.0%
Operating subsidy (\$000s) <sup>1</sup>	16,197	20,597	23,212	26,602	28,898	28,689	12,492	77.1%	12.1%
Boardings (000s)	757	784	808	834	841	790	33	4.4%	0.9%
Cost per VRM (\$)	4.25	5.12	5.38	5.84	6.11	6.09	1.84	43.4%	7.5%
Fare revenue per VRM (\$)	0.35	0.35	0.35	0.34	0.33	0.30	(0.04)	-12.1%	-2.5%
Operating subsidy per VRM (\$)	3.90	4.77	5.04	5.50	5.78	5.78	1.88	48.3%	8.2%
Boardings per VRM	0.18	0.18	0.18	0.17	0.17	0.16	(0.02)	-12.6%	-2.7%
Fare recovery ratio	8%	7%	6%	6%	5%	5%	(0.03)	-38.7%	-9.3%
Average revenue per boarding (\$)	1.90	1.93	1.98	1.96	1.98	1.91	0.01	0.6%	0.1%
Fleet size	194	206	220	245	296	na <sup>2</sup>	na <sup>2</sup>	na <sup>2</sup>	na <sup>2</sup>
Peak vehicles	157	171	188	205	229	na <sup>2</sup>	na <sup>2</sup>	na <sup>2</sup>	na <sup>2</sup>
Spare ratio	24%	20%	17%	20%	29%	na <sup>2</sup>	na <sup>2</sup>	na <sup>2</sup>	na <sup>2</sup>
Avg Fleet Age	4.8	5.6	4.7	4.7	4.8	5.9	1.06	22.1%	4.1%
<b>SYSTEM</b>									
VRM (000s)	22,541	22,341	22,532	23,106	23,462	23,304	763	3.4%	0.7%
O&M (\$000s)	144,703	160,045	167,680	182,564	195,641	193,136	48,433	33.5%	5.9%
Fare Rev (\$000s)	41,362	43,043	43,343	43,615	44,119	47,384	6,022	14.6%	2.8%
Operating subsidy (\$000s) <sup>1</sup>	103,341	117,002	124,337	138,949	151,522	145,752	42,411	41.0%	7.1%
Boardings (000s)	68,165	71,168	72,557	70,594	78,171	73,949	5,784	8.5%	1.6%
Cost per VRM (\$)	6.42	7.16	7.44	7.90	8.34	8.29	1.87	29.1%	5.2%
Fare revenue per VRM (\$)	1.83	1.93	1.92	1.89	1.88	2.03	0.20	10.8%	2.1%
Operating subsidy per VRM (\$)	4.58	5.24	5.52	6.01	6.46	6.25	1.67	36.4%	6.4%
Boardings per VRM	3.02	3.19	3.22	3.06	3.33	3.17	0.15	4.9%	1.0%
Fare recovery ratio	0.29	0.27	0.26	0.24	0.23	0.25	(0.04)	-14.2%	-3.0%
Average revenue per boarding (\$)	0.61	0.60	0.60	0.62	0.56	0.64	0.03	5.6%	1.1%

sources: National Transit Database annual profiles, 2005-2009; 2010 data from City of Honolulu NTD submittal

**notes:**

1. Operating subsidy is calculated as the difference between operating cost and fare revenue. Actual subsidy paid the City may be less, due to use of grants and other sources of operating income.
  2. The fleet size reported by the City for 2010 is less than earlier years, and its definition is not consistent with the fleet series reported in the NTD annual profiles. Trend stats were not calculated.
- CAGR = compound annual growth rate





**APPENDIX D:**  
**Baseline Cash Flow, September 2011 (draft)**  
 YOE \$millions

page 1 of 6

City Fiscal Year -->	2010	2011	2012	2013	2014	2015	2016	2017
<b>CAPITAL PLAN</b>								
<b>Project Funding Sources</b>								
Net GET Surcharge Revenues	121	166	186	195	205	215	226	237
New Starts Revenues for the Project	-	21	224	250	250	250	228	192
5307 Formula Funds Used for the Project	-	-	-	32	32	33	34	35
ARRA Funds Used for the Project	4	-	-	-	-	-	-	-
Net Proceeds from Long-term Debt	-	-	-	-	-	100	350	350
Net Proceeds from Medium Term Notes (BANs)	-	-	-	-	-	88	71	133
Net Proceeds from Medium Term Notes (GANs)	-	-	-	174	360	221	-	-
Net Proceeds from Short-term Construction Financing	-	-	-	100	100	100	100	100
Interest Income on Cash Balance	1	2	2	0	-	-	-	-
<b>Total Project Sources of Funds</b>	<b>126</b>	<b>189</b>	<b>412</b>	<b>751</b>	<b>948</b>	<b>1,007</b>	<b>1,009</b>	<b>1,047</b>
<b>Project Capital Costs</b>								
Total Capital Cost	80	117	734	846	840	655	580	603
<b>Debt Service</b>								
Total Principal Payment on Long-term Debt	-	-	-	-	-	-	-	50
Total Interest Payment on Long-term Debt	-	-	-	-	-	-	7	27
Medium Term Notes Due (BANs)	-	-	-	-	-	-	88	71
Medium Term Interest Due (BANs)	-	-	-	-	-	-	3	2
Medium Term Notes Due (GANs)	-	-	-	-	-	234	213	182
Medium Term Interest Due (GANs)	-	-	-	-	5	16	16	9
Short-term Financing Due	-	-	-	-	100	100	100	100
Finance Charges on Short-term Debt	-	-	-	-	3	3	3	3
Transfer of Excess GET Surcharge Funds to Ongoing Capital	-	-	-	-	-	-	-	-
<b>Total Project Uses of Funds</b>	<b>80</b>	<b>117</b>	<b>734</b>	<b>846</b>	<b>948</b>	<b>1,007</b>	<b>1,009</b>	<b>1,047</b>
Finance Charges	-	-	-	1	10	21	31	44
<b>Project Cash Balance</b>								
Beginning Cash Balance	298	345	417	95	-	-	-	-
Additions (deletions) to Cash	47	72	(322)	(95)	-	-	-	-
Ending Cash Balance	345	417	95	-	-	-	-	-
<b>Funding Sources for Ongoing System-wide Capital Cost</b>								
<b>Federal Assistance for Ongoing Capital Cost</b>								
5309 Fixed Guideway Modernization Funds	2	2	2	2	2	2	2	2
5309 Bus Discretionary Grants	6	6	6	6	6	6	6	6
5307 Used for Ongoing Capital Cost	9	9	10	-	-	-	-	-
ARRA Funds Used for Ongoing Capital Cost	20	5	-	-	-	-	-	-
FTA Section 5316 (JARC) and 5317 (New Freedom)	-	0	0	0	0	0	0	0
Transfers to the State's Vanpool Program	(1)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
<b>Total Federal Assistance for Ongoing Capital Cost</b>	<b>35</b>	<b>21</b>	<b>16</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>6</b>
<b>Ongoing City Capital Funding</b>								
Transfer of Excess GET Surcharge Funds from Project Capital Plan	-	-	-	-	-	-	-	-
City General Obligation Bond Proceeds	9	6	22	58	60	55	70	41
<b>Total Funding Sources for Ongoing Capital Cost</b>	<b>44</b>	<b>26</b>	<b>38</b>	<b>63</b>	<b>66</b>	<b>61</b>	<b>75</b>	<b>47</b>
<b>Ongoing Capital Costs</b>								
Additional Railcar Acquisitions	-	-	-	-	-	-	-	-
Rail Capital Asset Replacement Program (CARP)	-	-	-	-	-	-	-	-
Bus Acquisitions	29	14	24	17	20	31	32	36
Other Capital Cost	14	9	9	41	40	24	37	5
Hand-Van Acquisitions	1	3	5	5	5	5	6	6
<b>Total Ongoing Capital Cost</b>	<b>44</b>	<b>26</b>	<b>38</b>	<b>63</b>	<b>66</b>	<b>61</b>	<b>75</b>	<b>47</b>

**NOTE:** This Baseline Cash Flow utilized a Project Cost Estimate of \$4,879 million, excluding financing costs. This cost estimate was confirmed by the PMOC in December 2011, and is less than the estimate appearing in Appendix B of this report (\$4,983 million, excluding financing costs). The estimate appearing in Appendix B was the most recent Project Cost Estimate (July 2011) available in the SCC Worksheet format typically included in a Financial Capacity Assessment report.

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 January 25, 2012



**APPENDIX D:**  
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City Fiscal Year -->	2010	2011	2012	2013	2014	2015	2016	2017
<b>OPERATING PLAN</b>								
<b>Operating Revenues</b>								
Fare Revenues (TheBus)	46	53	54	55	56	66	73	73
Fare Revenues (Rail)	-	-	-	-	-	-	2	4
Total Fare Revenues (Handi-Van)	2	2	2	2	2	2	2	2
<b>Total System Operating Revenue</b>	<b>48</b>	<b>55</b>	<b>56</b>	<b>57</b>	<b>58</b>	<b>68</b>	<b>77</b>	<b>78</b>
<b>Federal Operating Assistance</b>								
FTA Section 5307 Formula Funds Used for Preventive Maint.	21	21	21	-	-	-	-	-
FTA Section 5316 (JARC) and 5317 (New Freedom)	-	1	1	0	1	1	1	1
<b>Total Revenues for Operations</b>	<b>69</b>	<b>76</b>	<b>77</b>	<b>57</b>	<b>58</b>	<b>69</b>	<b>79</b>	<b>79</b>
<b>Local Operating Assistance</b>								
City's Operating Subsidy	127	128	135	165	173	173	206	232
<b>Operations and Maintenance (O&amp;M) Costs</b>								
TheBus O&M Costs	163	170	176	184	192	200	209	216
Fixed Guideway O&M Cost	-	-	-	-	-	-	31	50
TheHandi-Van O&M Costs	32	34	35	37	39	41	43	45
Other O&M Cost	-	1	1	1	1	1	1	1
<b>Total O&amp;M Costs</b>	<b>195</b>	<b>205</b>	<b>213</b>	<b>222</b>	<b>232</b>	<b>242</b>	<b>284</b>	<b>312</b>
Farebox Recovery Ratio (TheBus and Rail)	28.1%	31.1%	30.6%	29.8%	29.0%	32.9%	31.3%	28.7%
Farebox Recovery Ratio (TheBus)	28.1%	31.1%	30.6%	29.8%	29.0%	32.9%	34.9%	33.7%
Farebox Recovery Ratio (Rail)								



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City Fiscal Year -->	2018	2019	2020	2021	2022	2023	2024	2025
<b>CAPITAL PLAN</b>								
<b>Project Funding Sources</b>								
Net GET Surcharge Revenues	249	262	275	289	304	224	-	-
New Starts Revenues for the Project	98	30	7	-	-	-	-	-
5307 Formula Funds Used for the Project	38	39	-	-	-	-	-	-
ARRA Funds Used for the Project	-	-	-	-	-	-	-	-
Net Proceeds from Long-term Debt	250	158	-	-	-	-	-	-
Net Proceeds from Medium Term Notes (BANs)	58	-	-	-	-	-	-	-
Net Proceeds from Medium Term Notes (GANs)	-	-	-	-	-	-	-	-
Net Proceeds from Short-term Construction Financing	100	-	-	-	-	-	-	-
Interest Income on Cash Balance	-	-	-	0	0	1	-	-
<b>Total Project Sources of Funds</b>	<b>794</b>	<b>490</b>	<b>282</b>	<b>289</b>	<b>304</b>	<b>225</b>	<b>-</b>	<b>-</b>
<b>Project Capital Costs</b>								
Total Capital Cost	310	95	21	-	-	-	-	-
<b>Debt Service</b>								
Total Principal Payment on Long-term Debt	106	160	208	221	231	242	-	-
Total Interest Payment on Long-term Debt	40	43	40	26	16	5	-	-
Medium Term Notes Due (BANs)	134	58	-	-	-	-	-	-
Medium Term Interest Due (BANs)	4	2	-	-	-	-	-	-
Medium Term Notes Due (GANs)	95	29	6	-	-	-	-	-
Medium Term Interest Due (GANs)	4	1	0	-	-	-	-	-
Short-term Financing Due	100	100	-	-	-	-	-	-
Finance Charges on Short-term Debt	3	3	-	-	-	-	-	-
Transfer of Excess GET Surcharge Funds to Ongoing Capital	-	-	-	12	13	13	28	17
<b>Total Project Uses of Funds</b>	<b>794</b>	<b>490</b>	<b>275</b>	<b>259</b>	<b>260</b>	<b>260</b>	<b>28</b>	<b>17</b>
Finance Charges	52	49	40	26	16	5	-	-
<b>Project Cash Balance</b>								
Beginning Cash Balance	-	-	-	7	37	81	45	17
Additions (deletions) to Cash	-	-	7	30	44	(35)	(28)	(17)
Ending Cash Balance	-	-	7	37	81	45	17	-
<b>Funding Sources for Ongoing System-wide Capital Cost</b>								
<b>Federal Assistance for Ongoing Capital Cost</b>								
5309 Fixed Guideway Modernization Funds	2	3	3	3	3	5	5	7
5309 Bus Discretionary Grants	6	6	6	6	6	6	6	6
5307 Used for Ongoing Capital Cost	-	-	20	34	29	30	24	35
ARRA Funds Used for Ongoing Capital Cost	-	-	-	-	-	-	-	-
FTA Section 5316 (JARC) and 5317 (New Freedom)	-	-	-	-	-	-	-	-
Transfers to the State's Vanpool Program	(2)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
<b>Total Federal Assistance for Ongoing Capital Cost</b>	<b>6</b>	<b>6</b>	<b>25</b>	<b>40</b>	<b>34</b>	<b>38</b>	<b>32</b>	<b>44</b>
<b>Ongoing City Capital Funding</b>								
Transfer of Excess GET Surcharge Funds from Project Capital Plan	-	-	-	12	13	13	28	17
City General Obligation Bond Proceeds	80	44	10	13	12	13	12	15
<b>Total Funding Sources for Ongoing Capital Cost</b>	<b>86</b>	<b>49</b>	<b>35</b>	<b>65</b>	<b>59</b>	<b>64</b>	<b>71</b>	<b>76</b>
<b>Ongoing Capital Costs</b>								
Additional Railcar Acquisitions	-	-	-	-	-	-	17	18
Rail Capital Asset Replacement Program (CARP)	-	1	6	12	13	13	11	8
Bus Acquisitions	75	37	17	41	34	38	30	37
Other Capital Cost	5	5	5	5	5	5	5	5
Handi-Van Acquisitions	6	6	7	7	7	8	8	8
<b>Total Ongoing Capital Cost</b>	<b>86</b>	<b>49</b>	<b>35</b>	<b>65</b>	<b>59</b>	<b>64</b>	<b>71</b>	<b>76</b>

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**APPENDIX D:**  
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City Fiscal Year -->	2018	2019	2020	2021	2022	2023	2024	2025
<b>OPERATING PLAN</b>								
<b>Operating Revenues</b>								
Fare Revenues (TheBus)	72	75	68	68	69	76	77	78
Fare Revenues (Rail)	5	13	31	32	33	37	37	38
Total Fare Revenues (Handi-Van)	3	3	3	3	3	3	3	4
<b>Total System Operating Revenue</b>	<b>80</b>	<b>91</b>	<b>102</b>	<b>103</b>	<b>104</b>	<b>116</b>	<b>118</b>	<b>119</b>
<b>Federal Operating Assistance</b>								
FTA Section 5307 Formula Funds Used for Preventive Maint.	-	-	22	18	27	28	35	28
FTA Section 5316 (JARC) and 5317 (New Freedom)	1	1	1	1	1	1	1	1
<b>Total Revenues for Operations</b>	<b>80</b>	<b>92</b>	<b>125</b>	<b>122</b>	<b>133</b>	<b>145</b>	<b>154</b>	<b>148</b>
<b>Local Operating Assistance</b>								
City's Operating Subsidy	254	275	267	281	283	285	288	304
<b>Operations and Maintenance (O&amp;M) Costs</b>								
TheBus O&M Costs	223	238	246	253	261	270	278	287
Fixed Guideway O&M Cost	63	78	92	93	95	98	99	97
TheHandi-Van O&M Costs	48	50	52	55	58	61	64	67
Other O&M Cost	1	1	1	1	1	1	1	1
<b>Total O&amp;M Costs</b>	<b>335</b>	<b>367</b>	<b>392</b>	<b>403</b>	<b>416</b>	<b>430</b>	<b>442</b>	<b>452</b>
<b>Farebox Recovery Ratio (TheBus and Rail)</b>	<b>26.9%</b>	<b>27.9%</b>	<b>29.2%</b>	<b>28.9%</b>	<b>28.4%</b>	<b>30.7%</b>	<b>30.3%</b>	<b>30.2%</b>
<b>Farebox Recovery Ratio (TheBus)</b>	<b>32.3%</b>	<b>31.5%</b>	<b>27.4%</b>	<b>26.9%</b>	<b>26.3%</b>	<b>28.3%</b>	<b>27.7%</b>	<b>27.1%</b>
<b>Farebox Recovery Ratio (Rail)</b>			<b>6.6%</b>	<b>7.2%</b>	<b>8.0%</b>	<b>17.1%</b>	<b>33.8%</b>	<b>34.2%</b>



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City Fiscal Year -->	2026	2027	2028	2029	2030	Total
<b>CAPITAL PLAN</b>						
<b>Project Funding Sources</b>						
Net GET Surcharge Revenues	-	-	-	-	-	3,154
New Starts Revenues for the Project	-	-	-	-	-	1,550
5307 Formula Funds Used for the Project	-	-	-	-	-	244
ARRA Funds Used for the Project	-	-	-	-	-	4
Net Proceeds from Long-term Debt	-	-	-	-	-	1,208
Net Proceeds from Medium Term Notes (BANs)	-	-	-	-	-	350
Net Proceeds from Medium Term Notes (GANs)	-	-	-	-	-	755
Net Proceeds from Short-term Construction Financing	-	-	-	-	-	600
Interest Income on Cash Balance	-	-	-	-	-	7
<b>Total Project Sources of Funds</b>	-	-	-	-	-	<b>7,872</b>
<b>Project Capital Costs</b>						
Total Capital Cost	-	-	-	-	-	4,879
<b>Debt Service</b>						
Total Principal Payment on Long-term Debt	-	-	-	-	-	1,218
Total Interest Payment on Long-term Debt	-	-	-	-	-	204
Medium Term Notes Due (BANs)	-	-	-	-	-	352
Medium Term Interest Due (BANs)	-	-	-	-	-	11
Medium Term Notes Due (GANs)	-	-	-	-	-	759
Medium Term Interest Due (GANs)	-	-	-	-	-	51
Short-term Financing Due	-	-	-	-	-	600
Finance Charges on Short-term Debt	-	-	-	-	-	15
Transfer of Excess GET Surcharge Funds to Ongoing Capital	-	-	-	-	-	83
<b>Total Project Uses of Funds</b>	-	-	-	-	-	<b>8,170</b>
Finance Charges	-	-	-	-	-	295
<b>Project Cash Balance</b>						
Beginning Cash Balance	-	-	-	-	-	-
Additions (deletions) to Cash	-	-	-	-	-	(298)
Ending Cash Balance	-	-	-	-	-	-
<b>Funding Sources for Ongoing System-wide Capital Cost</b>						
<u>Federal Assistance for Ongoing Capital Cost</u>						
5309 Fixed Guideway Modernization Funds	18	19	20	20	22	147
5309 Bus Discretionary Grants	6	6	6	6	6	117
5307 Used for Ongoing Capital Cost	27	31	59	51	51	418
ARRA Funds Used for Ongoing Capital Cost	-	-	-	-	-	26
FTA Section 5316 (JARC) and 5317 (New Freedom)	-	-	-	-	-	0
Transfers to the State's Vanpool Program	(3)	(4)	(4)	(4)	(4)	(57)
<b>Total Federal Assistance for Ongoing Capital Cost</b>	<b>47</b>	<b>52</b>	<b>81</b>	<b>73</b>	<b>75</b>	<b>650</b>
<u>Ongoing City Capital Funding</u>						
Transfer of Excess GET Surcharge Funds from Project Capital Plan	-	-	-	-	-	83
City General Obligation Bond Proceeds	16	17	25	23	24	624
<b>Total Funding Sources for Ongoing Capital Cost</b>	<b>63</b>	<b>69</b>	<b>105</b>	<b>96</b>	<b>98</b>	<b>1,357</b>
<b>Ongoing Capital Costs</b>						
Additional Railcar Acquisitions	-	-	-	-	-	35
Rail Capital Asset Replacement Program (CARP)	14	19	19	20	20	155
Bus Acquisitions	34	37	72	62	67	786
Other Capital Cost	5	5	5	5	5	246
Handi-Van Acquisitions	9	9	9	10	5	135
<b>Total Ongoing Capital Cost</b>	<b>63</b>	<b>69</b>	<b>105</b>	<b>96</b>	<b>98</b>	<b>1,357</b>

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City Fiscal Year -->	2026	2027	2028	2029	2030	total
<b>OPERATING PLAN</b>						
<b>Operating Revenues</b>						
Fare Revenues (TheBus)	79	79	89	90	91	1,486
Fare Revenues (Rail)	39	39	45	46	47	447
Total Fare Revenues (Handi-Van)	4	4	4	4	4	60
<b>Total System Operating Revenue</b>	<b>122</b>	<b>122</b>	<b>138</b>	<b>140</b>	<b>142</b>	<b>1,994</b>
<b>Federal Operating Assistance</b>						
FTA Section 5307 Formula Funds Used for Preventive Maint.	37	34	8	17	19	335
FTA Section 5316 (JARC) and 5317 (New Freedom)	1	1	2	2	2	20
<b>Total Revenues for Operations</b>	<b>159</b>	<b>158</b>	<b>148</b>	<b>159</b>	<b>163</b>	<b>2,349</b>
<b>Local Operating Assistance</b>						
City's Operating Subsidy	305	322	350	361	372	5,289
<b>Operations and Maintenance (O&amp;M) Costs</b>						
TheBus O&M Costs	295	305	314	324	333	5,138
Fixed Guideway O&M Cost	97	101	106	113	116	1,331
TheHandi-Van O&M Costs	70	73	77	81	84	1,147
Other O&M Cost	1	2	2	2	2	23
<b>Total O&amp;M Costs</b>	<b>464</b>	<b>480</b>	<b>498</b>	<b>520</b>	<b>535</b>	<b>7,638</b>
<b>Farebox Recovery Ratio (TheBus and Rail)</b>	<b>29.8%</b>	<b>29.3%</b>	<b>32.1%</b>	<b>31.1%</b>	<b>30.6%</b>	
Farebox Recovery Ratio (TheBus)	26.6%	26.0%	28.5%	27.9%	27.3%	
Farebox Recovery Ratio (Rail)	34.2%	37.2%	37.7%	39.1%	39.8%	



**APPENDIX E:**  
**Transit Depreciable Assets at June 30, 2010**  
 \$mil.

	Cost Basis	Accumulated Depreciation	Net Book Value	% of total cost basis	% of total net value	% life remaining	useful life	annual depreciation (est.)	average annual replacement cost, 2010\$
<b>Bus operations</b>									
Revenue vehicles (buses)	200.2	(152.6)	47.5	63%	45%	24%	12	16.7	19.3
Autos & trucks	2.1	(1.8)	0.3	1%	0%	14%	5	0.4	0.5
Leasehold Improvements	5.1	(1.3)	3.9	2%	4%	75%	10	0.5	0.6
Buildings	46.9	(19.1)	27.9	15%	26%	59%	30	1.6	2.3
Machinery & Equipment	9.6	(9.4)	0.2	3%	0%	3%	7	1.4	1.5
Revenue Collection Equipment	2.6	(2.5)	0.1	1%	0%	3%	7	0.4	0.4
Computer Equipment	1.7	(1.4)	0.3	1%	0%	18%	7	0.2	0.3
Communications Equipment	12.4	(11.1)	1.3	4%	1%	10%	7	1.8	1.9
Office Furnishings & Equipment	0.0	(0.0)	-	0%	0%	0%	7	0.0	0.0
total, bus	280.7	(199.2)	81.5	88%	77%	29%		22.9	26.7
<b>Paratransit operations</b>									
Revenue vehicles (vans)	13.1	(10.1)	3.1	4%	3%	23%	7	1.9	2.0
Autos & trucks	0.4	(0.3)	0.0	0%	0%	3%	5	0.1	0.1
Leasehold Improvements	9.2	(0.2)	9.0	3%	9%	98%	10	0.9	1.0
Buildings	11.7	(0.8)	10.9	4%	10%	93%	30	0.4	0.6
Machinery & Equipment	0.3	(0.2)	0.1	0%	0%	29%	7	0.0	0.0
Revenue Collection Equipment	-	-	-	0%	0%	0%	7	-	-
Computer Equipment	0.2	(0.2)	-	0%	0%	0%	7	0.0	0.0
Communications Equipment	2.5	(1.0)	1.6	1%	1%	53%	7	0.4	0.4
Office Furnishings & Equipment	-	-	-	0%	0%	0%	7	-	-
total, paratransit	37.5	(12.8)	24.7	12%	23%	66%		3.7	4.2
<b>Total depreciable assets</b>									
Revenue vehicles	213.3	(162.7)	50.6	67%	48%	24%		18.6	21.4
Autos & trucks	2.5	(2.2)	0.3	1%	0%	12%		0.5	0.5
Leasehold Improvements	14.4	(1.5)	12.9	5%	12%	90%		1.4	1.6
Buildings	58.6	(19.9)	38.8	18%	37%	66%		2.0	2.8
Machinery & Equipment	9.9	(9.6)	0.3	3%	0%	3%		1.4	1.5
Revenue Collection Equipment	2.6	(2.5)	0.1	1%	0%	3%		0.4	0.4
Computer Equipment	2.0	(1.6)	0.3	1%	0%	16%		0.3	0.3
Communications Equipment	14.9	(12.0)	2.9	5%	3%	19%		2.1	2.3
Office Furnishings & Equipment	0.0	(0.0)	-	0%	0%	0%		0.0	0.0
total	318.2	(212.0)	106.2	100%	100%	33%		26.6	30.9

source: Oahu Transit Services, Inc., trial balance at 6/30/10 (dated 5/17/11)  
 Replacement cost estimated at 2.5% annual cost escalation from midpoint of useful life.