Honolulu High-Capacity Transit Corridor Project
Alternatives Analysis

Financial Feasibility Report

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Chapter 1 Introduction

This *Financial Feasibility Report* documents and supports the conclusions of Chapter 5 of the *Alternatives Analysis Report* regarding the financial feasibility of the Project Alternatives.

The *Alternatives Analysis Report* presents several alternatives, including the No Build Alternative; the Transportation System Management Alternative; the Managed Lane Alternative, with two options, a Two-direction Option and a Reversible Option; and a Fixed Guideway Alternative, with four alignment options, three of which are Full-corridor Alignments and a 20-mile Alignment. For the Financial Feasibility Analysis and Comparison of Alternatives chapters in the *Alternatives Analysis Report* a more limited set of alternatives is examined. For the Managed Lane Alternative, since the Reversible Option is the lesser cost option and its transportation performance is similar to that of the Two-direction Option, the financial feasibility analysis focuses on the Reversible Option. The financial feasibility of two Fixed Guideway alignments is explored: the lowest cost Full-corridor Alignment, the Kalaeloa – Airport – Dillingham – Halekauwila alignment, and the 20-mile Alignment East Kapolei to Ala Moana Center.

The financial feasibility assessment is based on conceptual engineering and an analysis of capital and operating costs for the alternatives as well as potential funding sources to meet these needs. The *Funding Options Analysis (October 31, 2006)* established assumptions underlying the revenue projections. Capital and O&M costs have been described in Chapter 5 of *Alternatives Analysis Report* and in the *Capital Costing Memorandum (October 23, 2006)* and the *Draft O&M Costing Memorandum (October 30, 2006)*. The details of the financial information will continue to be refined once the Locally Preferred Alternative (LPA) is selected and as it advances through further project development phases. Project cost estimates become more reliable as the project scope is defined in greater detail and funding strategies become more certain. Consistent with the other technical components of the FTA's project development process, the level of the financial analysis increases as the work moves from a relatively broad comparison of alternatives (as in an alternatives analysis) to preliminary engineering and final design.

Chapter 2 Construction and Operating Costs

Capital Costs

Cost estimates were developed using the Federal Transit Administration's (FTA) capital cost format, the Standard Cost Categories (SCC) which classifies all possible project elements into the following 10 categories.

10: Guideway and Track Elements
20: Stations, Stops, Terminals, Intermodal Facilities
30: Support Facilities: Yards, Shops, Administration Buildings
40: Site Work & Special Conditions
50: Systems
60: Right-of-Way, Land, Existing Improvements
70: Vehicles
80: Professional Services (soft costs)
90: Unallocated Contingency
100: Finance Charges (derived from the project's financial plan).

The cost estimates include a variety of contingencies to account for unforeseen but expected additional expenses related to design, change orders, vehicles, right-of-way. There is also a project reserve account. The cost estimation process established unit costs that were used throughout the cost-estimating process to provide uniformity and comparability of cost estimates across all alternatives.

As shown in Table 2-1, construction costs through 2008 were assumed to escalate at two-tenths of a percentage point above the Hawai'i State Department of Business, Economic Development and Tourism's Forecast of the Consumer Price Index for all urban consumers (CPI-U) in Honolulu, as published in its quarterly statistical and economic report as of third quarter of 2006. Non-construction cost items were escalated through 2009 using the CPI-U. Escalation for the 2009-2030 period was set at 3% per year for both construction and other costs.

Table 2-1. Annual Cost Escalation Assumptions

Cost and Revenue Elements	2006	2007	2008	2009-2030	Notes
Major Facility Construction Cost	5.0%	4.0%	3.3%	3.0%	Fixed Guideway and Managed Lanes Only
Major Facility Soft Costs	4.8%	3.8%	3.3%	3.0%	Engineering, Management, Insurance, etc.
All Other Costs	4.8%	3.8%	3.3%	3.0%	Bus Acquisition, Bus Facilities, Operations & Maintenance

Table 2-2 presents capital cost estimates for the alternatives in both October 2006 and Year of Expenditure (YOE) dollars. Included are the costs of implementing each major investment alternative (including construction, systems, vehicles, right-of-way, contingencies, and soft costs), as well as the costs associated with providing bus services.

Table 2-2. Capital Cost Estimates (millions of 2006 and YOE dollars)

Alternative	Major Investment Capital Costs		Bus Acquisition		Bus Facilities		Handi-Van Acquisition		Total Capital Costs	
	2006 $M	YOE $M	2006 $M	YOE $M	2006 $M	YOE $M	2006 $M	YOE $M	2006 $M	YOE $M
Alternative 1: No Build										
No Build Alternative	–	–	545	826	46	64	70	105	660	995
Alternative 2: Transportation System Management										
TSM Alternative	–	–	644	981	143	204	70	105	856	1,290
Alternative 3: Managed Lane										
Reversible Option	2,570	3,202	736	1,133	226	335	70	105	1,031	4,776
Alternative 4: Fixed Guideway										
Full-corridor Alignment Kalaeloa – Airport – Dillingham – Halekauwila	4,620	5,943	463	694	43	62	70	105	5,196	6,804
20-mile Alignment East Kapolei to Ala Moana	3,600	4,559	480	723	43	62	70	105	4,197	5,449

Note: finance charges are not included.

Operating and Maintenance Costs

Operating and maintenance (O&M) costs for buses were developed using detailed bus budgetary and operating data from O‘ahu Transit Services for Fiscal Year 2005. Unit costs were escalated to standardize bus costs in 2006 dollars.

Unit costs for the fixed guideway operation and maintenance (O&M) were developed using data from FTA’s National Transit Database by assigning driving variables to line item object class expenses. Sacramento's Regional Transit District light rail system was determined to be representative of the fixed guideway service, and 2003 to 2004 light rail cost data from that system were used to develop fixed guideway unit costs. The costs

were escalated to standardize fixed guideway costs in 2006 dollars and further adjusted upward to account for higher costs in Honolulu, as compared to the Sacramento area.

Table 2-3 presents estimated year 2030 transit O&M costs for each alternative in 2006 dollars. Operating costs in 2030 for the No Build Alternative are estimated to be approximately $192 million. This compares to current operating costs for the existing bus system of about $132 million. The increase would result from expansion of the bus system, including the use of more articulated vehicles, to continue to meet current service levels with increased demand and roadway congestion.

Table 2-3. Estimated Year 2030 Annual Transit Operating and Maintenance Costs (millions 2006 dollars)

Alternative	Bus O&M Cost		Handi-Van O&M Cost		Fixed Guideway O&M Cost		Total O&M Cost	
	2006 $M	YOE $M	2006 $M	YOE $M	2006 $M	YOE $M	2006 $M	YOE $M
Alternative 1: No Build								
No Build Alternative	192	389	24	48	–	–	216	437
Alternative 2: Transportation System Management								
TSM Alternative	234	475	24	48	–	–	258	523
Alternative 3: Managed Lane								
Reversible Option	261	529	24	48	–	–	285	577
Alternative 4: Fixed Guideway								
Full-corridor Alignment Kalaeloa – Airport – Dillingham – Halekauwila	173	351	24	48	83	168	280	567
20-mile Alignment East Kapolei to Ala Moana	189	384	24	48	61	124	274	556

In 2006 dollars, the estimated O&M costs for the TSM Alternative would be approximately $42 million greater than for the No Build Alternative, reflecting the higher level of bus service. Transit O&M costs for the Managed Lane Alternative Reversible Option would be $69 million higher than the No Build as a result of additional buses that would be put in service on the Managed Lane facility.

Estimated O&M costs for the Fixed Guideway Alternative 20-mile Alignment East Kapolei to Ala Moana Center and the Fixed Guideway Alternative Full-corridor Alignment (Kalaeloa – Airport – Dillingham – Halekauwila) would be approximately $59 to $64 million more than the No Build Alternative. The bus operating cost would be higher for the 20-mile Alignment East Kapolei to Ala Moana Center because more buses would be required for that option than for the Full-corridor Alignment. Overall, bus operating costs would be less for the Fixed Guideway Alternative than for the other alternatives.

Chapter 3 Proposed Funding Sources

Sources of Project Capital

Funding sources for capital costs include a State General Excise and Use Tax (GET) surcharge, City general obligation bonds, and FTA funds. In addition, other potential sources are discussed in a later section of this chapter.

General Excise and Use Tax Surcharge

A 0.5 percent surcharge on the GET will be levied on transactions generated in the City and County of Honolulu from January 1, 2007 to December 31, 2022. The State Council on Revenues' September 2006 forecast of GET revenues from Fiscal Years 2006–2007 to 2012–2013 was used in conjunction with a baseline historical trend in developing alternative forecasts for this revenue source. Table 3-1 presents the estimated annual GET surcharge revenues for three scenarios, net of a 10 percent reduction from the State for tax collection and administration purposes. The "Trend Forecast" scenario is a statistical projection based on historical GET collections for O'ahu. The second scenario, "Council on Revenues 1", is based on the Council on Revenues' GET forecast through June 30, 2013, with a growth stabilized to historical levels through 2022. The "Council on Revenues 2" scenario is based on the Council on Revenues' GET forecast through June 30, 2013, with sustained growth at the 2007 to 2013 levels through 2022. The second and third scenarios assume that the growth rate forecast at the State level by the Council on Revenues will be the same for O'ahu.

The State legislation establishing the GET surcharge limits the expenditure of monies collected to operating or capital costs of a locally preferred alternative for a mass transit project. The funds cannot be used to build or repair public roads or highways, bicycle paths, or support public transportation systems existing as of July 2005. Accordingly, under current law, the GET surcharge can be expended on the Fixed Guideway Alternative but cannot be used for existing transit services for the No Build and TSM Alternatives or to construct the Managed Lane Alternative.

Table 3-1. GET Surcharge Revenues for Three Growth Scenarios 2007-2022

Calendar Year	"Trend Forecast"		"Council on Revenues 1"		"Council on Revenues 2"	
	Net Revenues (2006 $ M)	Net Revenues (YOE[1] $ M)	Net Revenues (2006 $ M)	Net Revenues (YOE $ M)	Net Revenues (2006 $ M)	Net Revenues (YOE $ M)
2007	154	162	164	172	164	172
2008	155	169	170	185	170	185
2009	156	175	175	196	175	196
2010	157	181	178	206	178	206
2011	158	188	181	216	181	216
2012	159	195	185	227	185	227
2013	161	203	187	236	190	240
2014	162	211	189	246	195	253
2015	164	220	191	256	200	267
2016	166	229	193	267	205	283
2017	168	239	195	278	210	299
2018	170	249	198	289	215	316
2019	172	259	200	301	221	333
2020	173	269	202	314	227	352
2021	175	280	204	327	233	372
2022	177	292	206	340	239	393
TOTAL	**2,626**	**3,520**	**3,018**	**4,056**	**3,185**	**4,310**

[1]YOE = year of expenditure

Reasonability of GET Growth Forecasts

As shown above, the amount of revenue generated by the GET surcharge will vary significantly depending on how the tax base grows from 2007 to 2022. For purposes of the baseline feasibility analysis, the "Council on Revenues 1" scenario was adopted as the most likely, or "baseline," forecast.

In addition to inflation, two adjustments were made to the GET surcharge revenue estimates. These adjustments are reflected in the net revenue amounts in Table 3-1 above.

- O'ahu's GET tax base was reduced by 17 percent to estimate GET revenues that would be assigned to another county. This assigned GET tax base would not be subject to the surcharge. The formula for the 17 percent adjustment is 100 percent minus (67 percent divided by 81 percent), where:

    1. 67 percent represents the State Department of Business, Economic Development and Tourism's estimate of O'ahu's average de facto population as a percentage of the State de facto population over the next 30 years; and

    2. 81 percent represents the estimate of O'ahu's GET tax base as a percentage of the State total.

Consistent with the enabling State legislation, GET surcharge revenues net of the 17 percent mentioned above was further reduced by 10 percent to reflect the amount retained by the State for tax collection and administration purposes.The combined impact of the

two adjustments mentioned above is a 25 percent reduction in GET surcharge revenues, in each collection year.

City General Obligation Bonds

The City issues general obligation bonds to construct bus facilities and to purchase equipment and rolling stock. General obligation bonds are direct obligations of the City for which its full faith and credit are pledged. This source can be used by all alternatives, but expenditures are subject to appropriation by the Honolulu City Council.

FTA Section 5309 New Starts Program (49 USC Section 5309)

The New Starts program provides funds for construction of new fixed guideway systems or extensions to existing fixed guideway systems. A fixed guideway refers to any transit facility that uses rails or is otherwise dedicated to transit and/or high occupancy vehicles (HOVs).

Eligible purposes for these funds include light rail line, rapid rail (heavy rail), commuter rail, automated fixed guideway system (such as a "people mover"), a busway/HOV facility, or an extension of any of these. Also, New Starts projects can involve the development of transit corridors and markets to support the eventual construction of fixed guideway systems, including the construction of park-and-ride lots and the purchase of land to protect rights-of-way.

Only the Fixed Guideway Alternative would be eligible for New Starts funding. The No Build and TSM Alternatives would not be eligible because they do not entail construction of a fixed guideway facility. The Managed Lane Alternative would not be eligible for New Starts funding because of use by toll-paying single-occupancy vehicles, which are excluded from the statutory definition of "fixed guideway" (49 USC Section 5302).

Projects become candidates for funding under this program by successfully completing the appropriate steps in FTA's major capital investment planning and project development process. Projects must also meet certain project justification and financial commitment criteria specified in law and regulation.

The FTA New Starts funding process spans several years from Alternatives Analysis, the selection of an LPA, Preliminary Engineering, and Final Design, culminating in a Full Funding Grant Agreement (FFGA) during the Final Design Phase. The FFGA would commit future FTA funding subject to future Congressional appropriations.

New Starts funding allocation recommendations are made by FTA in an annual report to Congress. A funding level between $800 million and $1,200 million in YOE dollars is assumed to be plausible, yet by no means guaranteed (see further discussion of New Starts expectations under "Risks and Uncertainties").

Sources for System Capital Replacement and Operating and Maintenance (O&M) Expenses

Establishing that the initial capital expenses of a particular alternative can be funded does not necessarily imply that the long-term operating and maintenance and capital replacement expenses also can be funded. The feasibility of sustaining the investment in an alternative during and after the implementation period also was assessed.

Honolulu currently receives the following sources of Federal funding for transit:

- Section 5307 Urbanized Area Formula Program
- Section 5309 Capital Investment Grants and Loans – Rail and Fixed Guideway Modernization Program
- Section 5309 Bus and Bus Facilities Discretionary Funds.

FTA Urbanized Area Formula Program (49 USC Section 5307)

Section 5307 funds are apportioned on the basis of legislative formula. For areas of 50,000 to 199,999 in population, the formula is based on population and population density. For areas with populations of 200,000 and more, the formula is based on a combination of bus revenue vehicle miles, bus passenger miles, fixed guideway revenue vehicle miles, and fixed guideway route miles, as well as population and population density. The City is the designated recipient for Section 5307 funds apportioned to the Honolulu urbanized area and to the Kailua-Kāneʻohe urbanized area.

Activities eligible for Section 5307 funds include planning, engineering design, and evaluation of transit projects and other technical transportation-related studies; capital investments in bus and bus-related activities, such as replacement of buses, overhaul of buses, rebuilding of buses, crime prevention and security equipment, and construction of maintenance and passenger facilities; capital investments in new and existing fixed guideway systems; and preventative maintenance.

The Section 5307 apportionment amounts for 2007 to 2009 reflect FTA's estimates net of an annual $1 million transfer to the State of Hawaiʻi for its vanpool program. For 2010 to 2016, the apportionment amounts are assumed to grow at an annual rate of 2.1%, consistent with the Congressional Budget Office forecast of the Highway Trust Fund revenues through 2016. This growth rate was assumed to remain the same from 2016 to 2030. In addition to this base growth rate, each alternative is likely to increase the formula amount of Section 5307 funding as a result of an improved level of service, e.g. more bus or fixed guideway passenger miles. Section 5307 funds can be used for all cost elements of the No Build, TSM, and Fixed Guideway Alternatives, and bus and related bus facility elements of the Managed Lane Alternative.

FTA Transit Capital Investment Program (49 USC Section 5309)

The transit capital investment program provides capital assistance for three primary activities:

- New and replacement buses and facilities
- Modernization of existing rail systems
- New fixed guideway systems and extensions to fixed guideway systems.

Bus and Bus Capital Program

Bus Capital Program funds are allocated at the discretion of the Secretary of the U.S. Department of Transportation, although Congress fully earmarks all available funding.

Eligible purposes include: acquisition of buses for fleet and service expansion; bus maintenance and administrative facilities; transfer facilities; bus malls; transportation centers; intermodal terminals; park-and-ride stations; acquisition of replacement vehicles; bus rebuilds; bus preventative maintenance; passenger amenities such as passenger shelters and bus stop signs; accessory and miscellaneous equipment such as mobile radio units; supervisory vehicles; fareboxes; and computers, shop and garage equipment. The bus-related elements of all the alternatives are eligible for Bus Capital funds, if so allocated by Congress.

The discretionary nature of this program makes the level of funding difficult to predict, as it is subject to Congressional earmarking. Future allocations were forecast using the City's historical 10-year growth rate in bus and bus capital funding of 4.8 percent.

Rail and Fixed Guideway Modernization (FGM) Program

A fixed guideway refers to any transit service that uses exclusive or controlled rights-of-way or rails, entirely or in part. The term includes that portion of motor bus service operated on exclusive or controlled rights-of-way and HOV lanes.

Eligible purposes include capital projects to modernize or improve fixed guideway systems (e.g., purchase and rehabilitation of rolling stock, track, line equipment, structures, signals and communications, power equipment and substations, passenger stations and terminals, security equipment and systems, maintenance facilities and equipment, operational support equipment, including computer hardware and software, system extensions, and preventative maintenance). All alternatives would be eligible for FGM funds.

FGM funds are apportioned using a formula containing seven tiers, and the City's apportionment is based on bus service operating on the Fort Street Transit Mall and HOV lanes. FGM apportionment amounts for 2007 to 2009 reflect FTA's estimates. For 2010 to 2030, the apportionment amounts are assumed to grow at an annual rate of 2.1%, consistent with the Congressional Budget Office forecast of the Highway Trust Fund revenues through 2016, extended through 2030. As with the Section 5307 formula funds,

the implementation of a fixed-guideway alternative would lead to an increase in the formula apportionment amount due to the improved level of service.

Growth in Federal Funding Due to Project Implementation

Each of the alternatives evaluated in the AA would have some incremental effect on the amount of funding that Honolulu receives from these sources. In the case of the Section 5307 Urbanized Area Formula program and the Section 5309 Fixed Guideway Modernization program, an expansion of the parameters considered in the calculation of funding would result in increased assistance for Honolulu, subject to a growing national authorization for these programs. In the case of the Section 5309 Bus Discretionary program, added buses or bus-related improvements do not necessarily correspond to increases in the FTA contribution. Table 3-2 shows the 2007 and 2030 FTA revenue expectations for each alternative.

Table 3-2. Expected FTA Revenues by Alternative in 2007 and 2030 (millions of year of expenditure dollars)

Year	Source	Alternative				
		No Build	TSM	Managed Lane	20-mile Fixed Guideway	Full-Length Fixed Guideway
FY 2007	5307	26	26	26	26	26
	5309 FGM	1	1	1	1	1
	5309 Bus	8	8	8	8	8
	TOTAL	**35**	**35**	**35**	**35**	**35**
FY 2030	5307	56	58	57	79	99
	5309 FGM	3	3	3	13	17
	5309 Bus	22	22	22	22	22
	TOTAL	**81**	**83**	**82**	**114**	**138**

City and County Revenue Sources

The City's contribution to transit O&M is funded using local revenues from the General and Highway Funds. During the 1994 to 2005 period, revenues from these two local sources totaled a combined $8.4 billion, of which $920 million (11 percent) has gone to transit. During this period, the General Fund and Highway Fund grew at a real annual rate (net of inflation) of 0.64%. This growth rate is assumed to continue through the analysis period.

The City provides the local match to federal funds for capital replacement and expansion from the Highway Improvement Bond Fund.

Additional Sources

The discussion above focuses on sources that are the most likely to have the largest impact on the feasibility of the project alternatives. However, other sources for both project capital and ongoing expenses can be sought as additional revenues, if needed.

These additional sources include, on the project capital side: additional local taxes not yet passed for transit use, private real-estate-related sources, such as Tax Increment Financing, Benefit Assessment Districts, and Developer Mitigation Fees, as well as bonding against future user fees for the Managed Lane Alternative. On the ongoing funding side, increases in fares and other user fees and increases in local taxes could be used to fund any shortage in the City's transit budget. These sources have not yet been explored to determine their applicability to the Honolulu High-Capacity Transit Corridor Project; therefore their impact at this time is unquantifiable.

Financing Options

There are a range of options for financing a capital-intensive transit project, from relying on the City's current GO bonding capacity to issuing bonds to be repaid exclusively from future GET surcharge collections or New Starts contributions. The City and County of Honolulu currently issues General Obligation (GO) debt for the benefit of transit. Though GO debt capacity for this use is currently constrained by current obligations, given affordability guidelines, it is reasonable to assume that the capacity for future GO debt would increase if GET surcharge revenues are received, thereby enabling GO bonding for the project. Another option would be the issuance of revenue bonds backed only by future GET surcharge collections. Or the City may choose to adjust (delay) the project construction schedule in order to more closely match inflows with outflows and reduce or eliminate finance costs altogether.

The financial feasibility analysis of this report employs a simple structure constructed to be indifferent to the specific financing strategy employed. A generic bridge-loan debt structure was modeled with interest rate assumptions based on a tax-exempt coupon equivalent to six percent.[1] For alternatives that are eligible for GET surcharge revenues, funds at the beginning of the project, when in excess of project costs, are entered into a trust or savings account in which they earn interest based on the prevailing savings rate, assumed to be five percent.[2] As project expenses commence, the trust account is depleted to meet these expenses after which point the loan is drawn against. In cases that are financially feasibility, the loan facility is fully repaid using GET surcharge revenues and other identified sources by 2022, the last authorized year of approved GET surcharge collection. The above modeling construct provides accurate order of magnitude measures of financial feasibility irrespective of specific financing decisions such as the use of general obligation rather than revenue bonds and the use of leverage rather than pay-as-you-go funding.

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[1] The six percent interest rate is based on four percent insured tax exempt security as of October 2, 2006 plus 100 basis points accounting for future increases in interest rates and 100 basis points for other fees.

[2] The five percent interest rate corresponds to the US treasury interest rate on two-year notes as of October 2006.

Chapter 4 Financial Feasibility Analysis

Financial Feasibility of Major Capital Investment

No Build and TSM Alternatives

The No Build and TSM Alternatives correspond essentially to an improvement in bus service. Therefore, their relative capital costs are not differentiated from their respective ongoing bus replacement and expansion capital costs. Financial feasibility for these alternatives will be determined in the context of ongoing system-wide capital needs discussed below.

Managed Lane Alternative

The Managed Lane Alternative is not eligible for GET surcharge revenues. Therefore, the financial feasibility of the capital investment has to be assessed using existing local funding in the form of GO Bonds, as well as toll revenues from users of the managed lane facility. Since the Reversible Option is the lesser cost option and its transportation performance is similar to that of the Two-Direction Option, the financial feasibility analysis for the Managed Lane Alternative focuses on the Reversible Option.

The Managed Lane Alternative generates revenue from tolls paid by single occupancy vehicles using the facility. The toll rates would be set at such a level as to manage vehicular demand to maintain operating conditions at a speed of 50 mph or better. For year 2030, peak period toll rates are estimated to be $6.40 (2006 dollars) for the Reversible Option. In off-peak times, the toll rates are estimated to be $2.85 (2006 dollars) for the Reversible Option. On an average weekday in 2030, 14,660 toll-paying vehicles are estimated to use the facility in the peak period; 940 vehicles in the off-peak period. This is estimated to yield an average of $29 million (2006 dollars) in annual toll revenue, or $58.8 million (YOE dollars). The cost of operating and maintaining the toll facilities is estimated to average $7.6 million (2006 dollars), or $15.4 million (YOE dollars). Net revenues would be $21.4 million (2006 dollars) or $43.4 million (YOE dollars).

Table 4-1 shows sources and uses of funds for the financing of the Reversible Option. The alternative has an estimated capital cost of $2.57 billion in 2006 dollars. In YOE dollars, the estimated amount is $3.2 billion. Since no toll revenues would be obtained until after the managed lane facility is in operation, the City would need to issue bonds with the net toll revenues as a first pledge, along with other City tax revenues. Net toll revenues can support a portion of the capital expenditure required ($1.5 billion in YOE dollars), yet there would remain a portion to be repaid by other sources. The decision to cover this expense using GO sources has cost and policy implications that go beyond the scope of the present study. The City's debt policy and affordability guidelines imply a stringent limit on annual debt service, and preliminary analysis of outstanding debt as of August 2005 suggests that there is only a limited amount of room left for incremental debt issuance beyond the current level. Going beyond that level risks a potential credit

rating downgrade, incurring a higher interest cost not only for the project itself, but for any other city project funded by GO Bonds.

Table 4-1. Sources and Uses of Funds Managed Lane – Reversible Option

	2006$ M	YOE[1]$ M
Net Toll Revenues	664	1,498
Other Sources	3,020	5,112
Total Revenues	3,684	6,610
Capital Costs	2,572	3,202
Financing Costs	1,112	3,408
Total Costs	3,684	6,610

[1]YOE - year of expenditure
Amounts may not add up due to rounding.

Appendix A shows the project cash flow for the Managed Lane Alternative – Reversible Option through 2046, the end of the financing period (thirty years from the last year of construction). Assuming that the full cost of the Reversible Option is financed with 30-year current interest bonds with an interest rate of 5.5%, principal and interest payments over the term of the loan period would total approximately $6.61 billion in YOE dollars. The debt service payment, in FY 2030, would be approximately $220 million in YOE dollars. Estimated net toll revenues in 2030 would be approximately $43 million in YOE dollars, leaving a balance of $177 million to be paid from City funds. Over the life of the loans, through 2047, net toll revenues are anticipated to pay for approximately 23 percent ($1.498 billion) of the total debt service, and the remaining 77 percent ($5.112 billion) would need to be paid from City funds.

Fixed Guideway Alternative

The financial feasibility analysis was conducted on the lowest cost Full-corridor Alignment (Kalaeloa – Airport – Dillingham – Halekauwila) and the 20-mile Alignment East Kapolei to Ala Moana Center.

The Fixed Guideway Alternative is eligible for GET surcharge revenues and FTA New Starts funds. The financial feasibility analysis assumes that debt financing would be limited to meeting the needs of the peak years of construction when yearly costs would exceed revenues from these two sources. A generic limited-duration loan debt structure was modeled with interest rate assumptions based on a tax-exempt coupon equivalent to six percent.[3] At the beginning of the project, GET surcharge revenues in excess of project costs would be deposited into a trust or savings account and earn interest based on

[3] The six percent interest rate is based on four percent insured tax-exempt security as of October 2, 2006, plus 100 basis points accounting for future increases in interest rates and 100 basis points for other fees.

the prevailing savings rate, assumed to be five percent.[4] Monies from the trust or savings account would be used in later years to pay for construction costs until the account is depleted, after which point funds from the loan facility would be used.

The financial feasibility of the project alternative is demonstrated when revenues are sufficient to fully repay the loan facility by 2022, the last authorized year of GET surcharge collection. It is assumed that New Starts and any other required source enter the project during years of construction in pro-rata amounts with the construction draw-down schedule.

Table 4-2 and Table 4-3 show sources and uses of funds for the financing of the 20-mile Alignment and the Full-corridor Alignment for each of the different GET surcharge revenue scenarios described previously. For the 20-mile Alignment, with the exception of the "Trend Forecast" scenario, New Starts and GET surcharge revenues would be sufficient to fund the project. For the baseline scenario "Council on Revenues 1", $1.015 billion in New Starts funding (YOE dollars) would be required for the project. In the "Trend Forecast" scenario, $282 million from other sources would be required, assuming $1.2 billion in New Starts funds.

For the Full-corridor Alignment, in all three scenarios, GET surcharge revenues plus an assumed $1.2 billion (YOE dollars) in New Starts funds would not be sufficient to construct the project. As much as $1.586 billion in additional sources would be required.

Table 4-2. Sources and Uses of Funds – 20-mile Alignment

	"Trend Forecast"		**"Council on Revenues 1"**		**"Council on Revenues 2"**	
	2006 $M	YOE[1] $M	2006 $M	YOE $M	2006 $M	YOE $M
Total Net GET Surcharge Revenues	2,626	3,520	3,018	4,056	3,185	4,310
New Starts Funds	948	1,200	802	1,015	662	837
Other Sources	223	282	0	0	0	0
Total Revenues	3,797	5,002	3,820	5,071	3,847	5,147
Fixed Guideway Capital Cost	3,605	4,559	3,605	4,559	3,605	4,559
Net Interest Costs	192	443	216	511	243	587
Total Cost	3,797	5,002	3,820	5,071	3,847	5,147

[1]YOE - year of expenditure
Amounts may not add up due to rounding.

[4] The five percent interest rate corresponds to the U.S. Treasury interest rate on two-year notes as of October 2006.

Table 4-3. Sources and Uses of Funds – Full-corridor Alignment

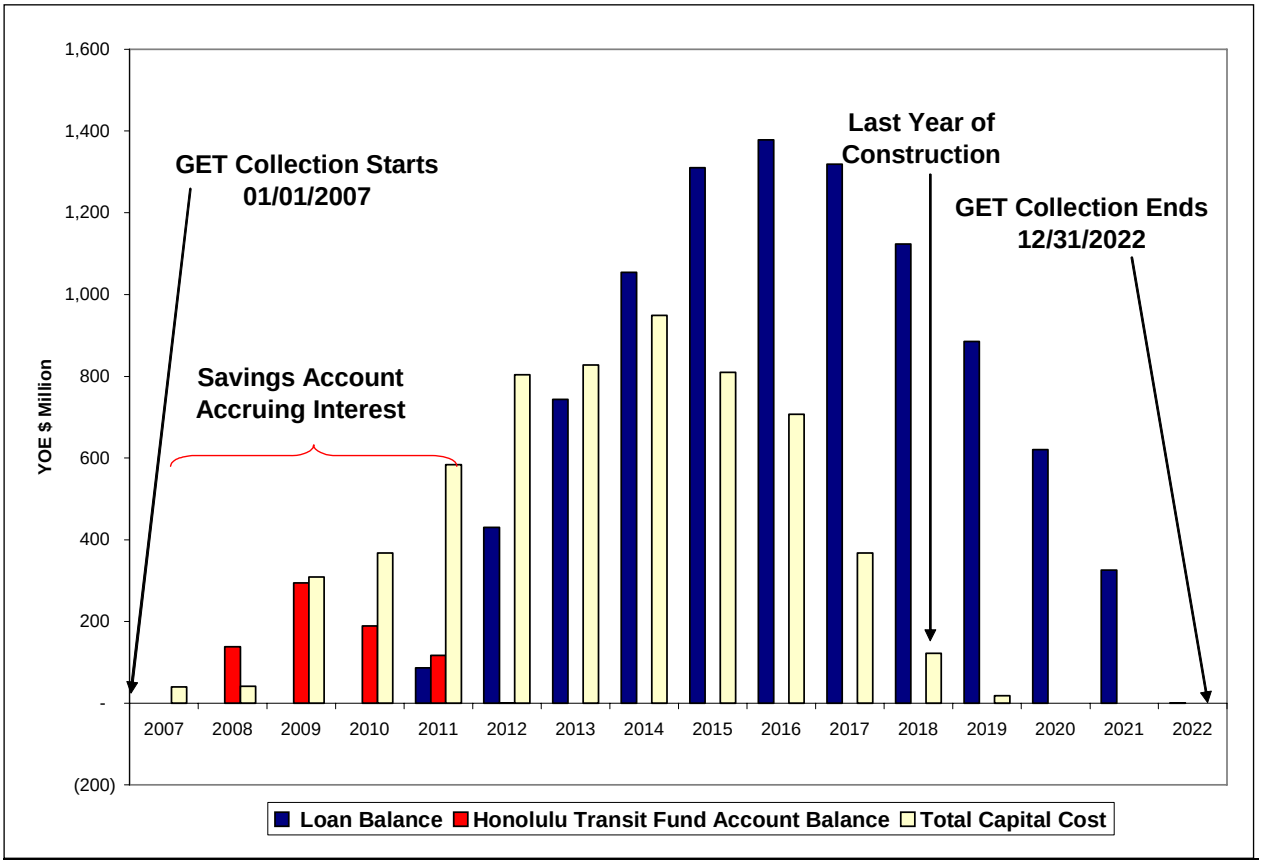
	"Trend Forecast"		"Council on Revenues 1"		"Council on Revenues 2"	
	2006 $M	YOE[1] $M	2006 $M	YOE $M	2006 $M	YOE $M
Total Net GET Surcharge Revenues	2,626	3,520	3,018	4,056	3,185	4,310
New Starts Funds	933	1,200	934	1,200	934	1,200
Other Sources	1,234	1,586	860	1,106	717	922
Total Revenues	4,793	6,306	4,812	6,362	4,836	6,432
Fixed Guideway Capital Cost	4,621	5,943	4,621	5,943	4,621	5,943
Net Interest Costs	172	363	191	418	216	488
Total Cost	4,793	6,306	4,812	6,362	4,836	6,432

[1]YOE - year of expenditure
Amounts may not add up due to rounding.

Cash Flows for the Fixed Guideway Alternatives

Table 4-4 through Table 4-9 present the capital cash flow scenarios for Calendar Years 2007 through 2022 for the 20-mile and Full-corridor Alignments. In each case, revenues from the GET surcharge in 2007 and 2008 are greater than project expenditures; this balance is deposited into a savings account. The savings account balance is drawn down during 2009 to 2011 for the 20-mile Alignment and 2009 to 2012 for the Full-corridor Alignment. After this period, construction costs are met first by New Starts and other sources and then by drawing down on the loan facility. For each alternative, the levels of New Starts funds and other sources were sized in order to fully repay project debt by 2022, the last authorized year of GET surcharge collection. Figure 4-1 illustrates the financial dynamics showing the balance of the loan facility, savings balance, along with the construction cost drawdown schedule from 2007 to 2022.

Figure 4-1. Savings Balance, Loan Facility Balance, and Capital Costs for 20-mile Alignment



Note: "Council on Revenues 1" scenario assumed.

Table 4-4. Fixed Guideway 20-mile Alignment Major Capital Investment Cash Flow, "Trend Forecast" Scenario

Transaction	Calendar Year and Amount in Millions of Year-of-Expenditure Dollars																
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**Total**
Capital Funding Sources																	
FTA New Starts	3	3	3	108	159	211	196	192	168	97	52	7	–	–	–	–	**1,200**
Other Sources	1	1	1	25	37	50	46	45	40	23	12	2	–	–	–	–	**282**
GET Surcharge	162	169	175	181	188	195	203	211	220	229	239	249	259	269	280	292	**3,520**
Transfer from Savings	–	–	140	63	84	–	–	–	–	–	–	–	–	–	–	–	**287**
Loan Proceeds	–	–	–	–	87	292	266	264	217	56	–	–	–	–	–	–	**1,184**
Total Sources	**166**	**173**	**318**	**378**	**556**	**748**	**711**	**712**	**645**	**405**	**303**	**257**	**259**	**269**	**280**	**292**	**6,474**
Capital Outlays																	
Construction Costs	–	–	249	302	463	629	578	564	487	257	150	–	–	–	–	–	**3,680**
Soft Costs	40	41	69	76	92	110	106	106	101	81	32	25	–	–	–	–	**880**
Subtotal	*40*	*41*	*318*	*378*	*556*	*739*	*685*	*670*	*588*	*337*	*182*	*25*	–	–	–	–	**4,559**
Deposits to Savings	126	132	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**258**
Loan Principal Repayment	–	–	–	–	–	–	–	–	–	–	52	168	205	228	253	279	**1,184**
Financing Costs	–	–	–	–	–	9	26	42	57	67	69	65	54	42	28	12	**472**
Total Outlays	**166**	**173**	**318**	**378**	**556**	**748**	**711**	**712**	**645**	**405**	**303**	**257**	**259**	**269**	**280**	**292**	**6,474**

Notes: Amounts may not add up due to rounding. Transfer from savings amounts include interest earned.

Table 4-5. Fixed Guideway 20-mile Alignment Major Capital Investment Cash Flow, "Council on Revenues 1" Scenario

Transaction	Calendar Year and Amount in Millions of Year-of-Expenditure Dollars																
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**Total**
Capital Funding Sources																	
FTA New Starts	4	4	4	91	134	178	165	162	142	81	44	6	–	–	–	–	**1,015**
Other Sources	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**–**
GET Surcharge	172	185	196	206	216	227	236	246	256	267	278	289	301	314	327	340	**4,056**
Transfer from Savings	–	–	118	81	120	–	–	–	–	–	–	–	–	–	–	–	**320**
Loan Proceeds	–	–	–	–	86	344	314	311	256	68	–	–	–	–	–	–	**1,378**
Total Sources	**176**	**189**	**318**	**378**	**556**	**749**	**715**	**719**	**654**	**416**	**322**	**295**	**301**	**314**	**327**	**340**	**6,768**
Capital Outlays																	
Construction Costs	–	–	249	302	463	629	578	564	487	257	150	–	–	–	–	–	**3,680**
Soft Costs	40	41	69	76	92	110	106	106	101	81	32	25	–	–	–	–	**880**
Subtotal	*40*	*41*	*318*	*378*	*556*	*739*	*685*	*670*	*588*	*337*	*182*	*25*	–	–	–	–	**4,559**
Deposits to Savings	137	148	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**284**
Loan Principal Repayment	–	–	–	–	–	–	–	–	–	–	59	195	238	265	294	326	**1,378**
Financing Costs	–	–	–	–	–	10	30	48	66	78	81	75	63	49	32	15	**547**
Total Outlays	**176**	**189**	**318**	**378**	**556**	**749**	**715**	**719**	**654**	**416**	**322**	**295**	**301**	**314**	**327**	**340**	**6,768**

Notes: Amounts may not add up due to rounding. Transfer from savings amounts include interest earned.

Table 4-6. Fixed Guideway 20-mile Alignment Major Capital Investment Cash Flow, "Council on Revenues 2" Scenario

Transaction	Calendar Year and Amount in Millions of Year-of-Expenditure Dollars																
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**Total**
Capital Funding Sources																	
FTA New Starts	4	4	4	75	110	146	136	133	117	67	36	5	–	–	–	–	**837**
Other Sources	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**–**
GET Surcharge	172	185	196	206	216	227	240	253	267	283	299	316	333	352	372	393	**4,310**
Transfer from Savings	–	–	118	97	103	–	–	–	–	–	–	–	–	–	–	–	**319**
Loan Proceeds	–	–	–	–	127	378	344	339	278	76	–	–	–	–	–	–	**1,543**
Total Sources	**176**	**189**	**318**	**378**	**556**	**752**	**720**	**725**	**662**	**425**	**335**	**321**	**333**	**352**	**372**	**393**	**7,009**
Capital Outlays																	
Construction Costs	–	–	249	302	463	629	578	564	487	257	150	–	–	–	–	–	**3,680**
Soft Costs	40	41	69	76	92	110	106	106	101	81	32	25	–	–	–	–	**880**
Subtotal	*40*	*41*	*318*	*378*	*556*	*739*	*685*	*670*	*588*	*337*	*182*	*25*	–	–	–	–	**4,559**
Deposits to Savings	137	148	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**285**
Loan Principal Repayment	–	–	–	–	–	–	–	–	–	–	62	211	262	297	335	376	**1,543**
Financing Costs	–	–	–	–	–	13	35	55	74	88	90	85	71	55	37	17	**621**
Total Outlays	**176**	**189**	**318**	**378**	**556**	**752**	**720**	**725**	**662**	**425**	**335**	**321**	**333**	**352**	**372**	**393**	**7,009**

Notes: Amounts may not add up due to rounding. Transfer from savings amounts include interest earned.

Table 4-7. Fixed Guideway Full-corridor Alignment Major Capital Investment Cash Flow, "Trend Forecast" Scenario

Transaction	Calendar Year and Amount in Millions of Year-of-Expenditure Dollars																
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**Total**
Capital Funding Sources																	
FTA New Starts	2	2	2	79	126	173	178	204	174	152	79	26	4	–	–	–	**1,200**
Other Sources	2	2	2	104	166	228	235	270	230	201	104	35	5	–	–	–	**1,586**
GET Surcharge	162	169	175	181	188	195	203	211	220	229	239	249	259	269	280	292	**3,520**
Transfer from Savings	–	–	130	3	104	58	–	–	–	–	–	–	–	–	–	–	**295**
Loan Proceeds	–	–	–	–	–	151	224	290	228	180	9	–	–	–	–	–	**1,081**
Total Sources	**166**	**173**	**309**	**367**	**584**	**805**	**840**	**975**	**852**	**762**	**431**	**309**	**268**	**269**	**280**	**292**	**7,682**
Capital Outlays																	
Construction Costs	–	–	242	294	473	674	694	801	672	577	265	100	–	–	–	–	**4,791**
Soft Costs	40	41	67	73	110	130	133	148	138	130	103	22	18	–	–	–	**1,153**
Subtotal	*40*	*41*	*309*	*367*	*584*	*803*	*828*	*949*	*809*	*707*	*367*	*122*	*18*	–	–	–	**5,943**
Deposits to Savings	126	132	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**258**
Loan Principal Repayment	–	–	–	–	–	–	–	–	–	–	–	126	196	228	253	279	**1,081**
Financing Costs	–	–	–	–	–	1	12	26	43	55	64	62	54	42	28	12	**399**
Total Outlays	**166**	**173**	**309**	**367**	**584**	**805**	**840**	**975**	**852**	**762**	**431**	**309**	**268**	**269**	**280**	**292**	**7,682**

Notes: Amounts may not add up due to rounding. Transfer from savings amounts include interest earned.

Table 4-8. Fixed Guideway Full-corridor Alignment Major Capital Investment Cash Flow, "Council on Revenues 1" Scenario

Transaction	Calendar Year and Amount in Millions of Year-of-Expenditure Dollars																
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**Total**
Capital Funding Sources																	
FTA New Starts	2	2	2	79	125	173	178	204	174	152	79	26	4	–	–	–	**1,200**
Other Sources	2	2	2	73	116	159	164	188	160	140	73	24	4	–	–	–	**1,106**
GET Surcharge	172	185	196	206	216	227	236	246	256	267	278	289	301	314	327	340	**4,056**
Transfer from Savings	–	–	109	9	127	83	–	–	–	–	–	–	–	–	–	–	**328**
Loan Proceeds	–	–	–	–	–	163	263	341	268	212	12	–	–	–	–	–	**1,259**
Total Sources	**176**	**189**	**309**	**367**	**584**	**805**	**841**	**979**	**859**	**771**	**441**	**340**	**309**	**314**	**327**	**340**	**7,949**
Capital Outlays																	
Construction Costs	–	–	242	294	473	674	694	801	672	577	265	100	–	–	–	–	**4,791**
Soft Costs	40	41	67	73	110	130	133	148	138	130	103	22	18	–	–	–	**1,153**
Subtotal	*40*	*41*	*309*	*367*	*584*	*803*	*828*	*949*	*809*	*707*	*367*	*122*	*18*	–	–	–	**5,943**
Deposits to Savings	137	148	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**284**
Loan Principal Repayment	–	–	–	–	–	–	–	–	–	–	–	146	228	265	294	326	**1,259**
Financing Costs	–	–	–	–	–	1	13	30	49	64	74	72	63	48	32	15	**462**
Total Outlays	**176**	**189**	**309**	**367**	**584**	**805**	**841**	**979**	**859**	**771**	**441**	**340**	**309**	**314**	**327**	**340**	**7,949**

Notes: Amounts may not add up due to rounding. Transfer from savings amounts include interest earned.

Table 4-9. Fixed Guideway Full-corridor Alignment Major Capital Investment Cash Flow, "Council on Revenues 2" Scenario

Transaction	Calendar Year and Amount in Millions of Year-of-Expenditure Dollars																
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**Total**
Capital Funding Sources																	
FTA New Starts	2	2	2	79	125	173	178	204	174	152	79	26	4	–	–	–	**1,200**
Other Sources	2	2	2	61	96	133	137	157	134	117	61	20	3	–	–	–	**922**
GET Surcharge	172	185	196	206	216	227	240	253	267	283	299	316	333	352	372	393	**4,310**
Transfer from Savings	–	–	109	21	146	50	–	–	–	–	–	–	–	–	–	–	**326**
Loan Proceeds	–	–	–	–	–	224	291	371	291	229	12	–	–	–	–	–	**1,418**
Total Sources	**176**	**189**	**309**	**367**	**584**	**806**	**845**	**984**	**866**	**780**	**451**	**362**	**340**	**352**	**372**	**393**	**8,176**
Capital Outlays																	
Construction Costs	–	–	242	294	473	674	694	801	672	577	265	100	–	–	–	–	**4,791**
Soft Costs	40	41	67	73	110	130	133	148	138	130	103	22	18	–	–	–	**1,153**
Subtotal	*40*	*41*	*309*	*367*	*584*	*803*	*828*	*949*	*809*	*707*	*367*	*122*	*18*	–	–	–	**5,943**
Deposits to Savings	137	148	–	–	–	–	–	–	–	–	–	–	–	–	–	–	**284**
Loan Principal Repayment	–	–	–	–	–	–	–	–	–	–	–	159	251	297	335	377	**1,418**
Financing Costs	–	–	–	–	–	3	17	36	57	73	83	82	71	55	37	17	**531**
Total Outlays	**176**	**189**	**309**	**367**	**584**	**806**	**845**	**984**	**866**	**780**	**451**	**362**	**340**	**352**	**372**	**393**	**8,176**

Notes: Amounts may not add up due to rounding. Transfer from savings amounts include interest earned.

Financial Feasibility Assessment of Major Capital Investment

Since different alternatives are eligible for different sources of revenues, the financial feasibility assessment of major capital investment necessarily varies by alternative. The No Build and Transportation System Management alternatives do not involve what would be considered as major capital investments; they are to varying degrees an improvement in the current level of bus service. Therefore, the financial feasibility for these alternatives is only assessed in the context of the ongoing capital and O&M feasibility, described in the following section. On the other hand, the Managed Lane and Fixed Guideway alternatives would be major capital investments and require a substantial funding commitment for initial capital outlays. Table 4-10 describes the tests that were used to assess the financial feasibility of each alternative. The base case scenario for the Managed Lane Alternative corresponds to the reversible lane option, financed with thirty year current interest bonds at 5.5 percent interest rate. The base case for both fixed guideway alignments corresponds to the "Council on Revenues 1" revenue scenario, with an interest cost on outstanding loan facility balance of 6 percent and a maximum New Starts Funding amount of $1.2 billion dollars.

It must be acknowledged that each alternative's financial feasibility is dependant upon the above mentioned sensitivity factors. These factors are mentioned in and further expanded upon in Chapter 5. The financial feasibility assessment is based on preliminary estimates of costs and revenues which will be refined following the decision on a Locally Preferred Alternative.

Table 4-10. Summary of Financial Feasibility of Capital Expenses

Alternative	Feasibility Tests	Feasibility Assessment	Sensitivity Factors
No Build	N/A	N/A	N/A
TSM	N/A	N/A	N/A
Managed Lane – Reversible Option	Debt service requirement for financing compared to the City's General Obligation debt margin	Not Feasible Preliminary analysis suggests toll revenues would cover only $1.498 billion of $6.610 billion debt service costs (YOE dollars). The City would be required to cover an additional $5.112 billion in debt service payments from 2007 to 2046. City has limited ability to meet this GO bonding expense.	Revenues: ▪ Level of toll revenues ▪ City's capacity for taking on additional GO debt ▪ Level of General Fund and Highway Fund revenues ▪ Availability of other sources of funding Costs: ▪ Interest rate ▪ Construction cost and cost escalation ▪ Construction schedule and delays ▪ O&M costs (reduce net toll revenue available to repay debt service)
Fixed Guideway – 20-mile Alignment	Reasonableness of expectations for revenue sources from FTA New Starts, GET surcharge revenues, and Other Sources	Feasible	Revenues: ▪ Level of GET surcharge revenues ▪ Level of Federal Funding ▪ Availability of other sources of revenues Costs: ▪ Interest rate ▪ Construction costs and escalation ▪ Construction schedule and delays
Fixed Guideway – Full-corridor Alignment	Same as 20-mile Alignment	Feasible contingent on obtaining up to $1,106 million from currently unidentified sources.	Same as 20-mile Alignment.

Financial Feasibility of the Capital Replacement and Operating Needs

Financial Feasibility of Ongoing Capital Replacement

Table 3-2 showed the estimated amount of Federal funds expected from the Section 5307 Urbanized Area Formula program, the Section 5309 Fixed Guideway Modernization program, and the Section 5309 Bus Discretionary program. Section 5307 funds are assumed to be used in priority for capital needs. Any surplus is then used for preventative maintenance, which is budgeted as an operating expense. These funds would be sufficient to meet expected bus replacement and capital expansion needs for all alternatives. Revenues and costs for ongoing capital needs are included in the operating period cash flows for each alternative shown in Appendix B.

Financial Feasibility of Operations & Maintenance of Transit System with Alternative

Four main sources of revenues are assumed in the financial feasibility assessment of the operating outlays:

- **Fare box revenues:** Fare revenues were estimated by multiplying the current average fare, adjusted for inflation, by the number of expected riders. Table 4-11 shows the expected fare box recovery ratio for each alternative for FY 2007 and FY 2030. A City Council policy requires that the bus fare box recovery ratio be maintained between 27 and 33 percent of the total annual operating costs. As shown in the table, the TSM Alternative and the Managed Lane Alternative would not fall within this range in FY 2030. The fare level could be raised and this could result in some temporary loss of patronage.
- **Non-fare revenues:** Non-fare revenues include advertising revenues and rental income. These were set to equal one percent of the annual fare revenues based on similar sized transit systems in the U.S.
- **Section 5307 funds (for preventative maintenance):** Section 5307 funds are assumed to be used in priority for capital needs. Any surplus is then used for preventative maintenance, which is budgeted as an operating expense. The amount of funds available for preventative maintenance uses would vary by alternative. Those alternatives with larger bus capital requirements (Table 2-2) and fewer expected FTA revenues (Table 3-2), in particular the TSM Alternative and the Managed Lane Alternative, would require a larger portion of Section 5307 funds be spent on capital needs and would thus have a lesser amount available for preventative maintenance.
- **City operating support for transit O&M:** The City funds the balance of O&M expenses after Federal and local funds from the Highway Fund and General Fund. Table 4-11 shows the percent of share of the Highway and General Fund directed to transit O&M expenses in 2007 and 2030 for each alternative. The Managed Lane and TSM alternatives would require the largest percentage subsidy from the City's operating budget because they both add bus-related operating costs without a

significant increment in fare and other revenues. Each of the alternatives involves some incremental contribution from the City compared to the current operating subsidy.

Table 4-11. Average Fare Box Recovery Ratio and City Operating Support to Transit

Alternative	Fare Box Recovery Ratio		City Operating Support to Transit[1]	
	FY 2007	FY 2030	FY 2007	FY 2030
No Build Alternative	30%	28%	10%	13%
TSM Alternative	30%	24%	10%	17%
Managed Lane Alternative – Reversible Option	30%	22%	10%	20%
Fixed Guideway 20-mile Alignment East Kapolei to Ala Moana Center	30%	28%	10%	16%
Fixed Guideway Full-corridor Alignment Kalaeloa – Airport – Dillingham – Halekauwila	30%	29%	10%	15%

[1]Transit operating subsidy as a percentage of total General Fund and Highway Fund revenues

Financial Feasibility Assessment of Ongoing Capital, Operations and Maintenance

Complete cash flows for the operating period are included in Appendix B to this report. They show that each alternative can be financially feasible from an ongoing operations and maintenance standpoint conditional on an increase in the share of the City funds directed towards transit over the project period. The share of General and Highway Fund revenues that went to transit averaged 11 percent over the 1994 to 2005 period. If we assume that the City's revenues will keep growing at the same historical growth of 0.64% above inflation, the resulting operating subsidy in 2030 is estimated to be 2 percent higher for the No Build Alternative, 6 percent higher for TSM Alternative, 9 percent higher for Managed Lane Alternative – Reversible Option, 5 percent higher for the Fixed Guideway 20-mile Alignment East Kapolei to Ala Moana Center and 4 percent higher for the Fixed Guideway Full-corridor Alignment Kalaeloa – Airport – Dillingham – Halekauwila.

Table 4-12. Summary of Financial Feasibility of Ongoing Capital and O&M Expenses

Alternative	Feasibility Tests	Feasibility Assessment	Sensitivity Factors
No Build	Future rare box recovery ratio City expenditures for transit compared to current levels	Feasible	Revenues: ▪ Ridership uncertainty ▪ Level of Federal formula and bus discretionary funds ▪ Level of General and Highway Fund revenues (especially property taxes) Costs: ▪ Ongoing capital and O&M cost escalation
TSM	Same as above	Feasible contingent on increased City funding to transit	Same as above
Managed Lane – Reversible Option	Same as above	Feasible contingent on increased City funding to transit	Same as above
Fixed Guideway – 20-mile Alignment	Same as above	Feasible	Same as above
Fixed Guideway – Full-corridor Alignment	Same as above	Feasible	Same as above

Chapter 5 Risks and Uncertainties

The foregoing analysis has discussed the financial feasibility of implementing the various alternative transit solutions for Honolulu, given current cost and revenue estimates. However, uncertainties around key economic and financial factors remains and the City will have to take steps in order to mitigate those risks as much as possible.

Economic and Financial Risk

Economic risks include such factors as the inflation rate and the vitality of the general economy. An increase in inflation beyond current expectations would result in increased costs for all alternatives, including capital costs, financing costs, and O&M costs. On the other hand, key revenue sources, including the GET surcharge and several of the City's General Fund and Highway Fund revenue sources, would likely experience additional growth with an increase in inflation rates. A downturn in the economy would negatively affect revenues from tax collection on the island but could also result in a slowing in the growth of construction costs.

A financial risk is related to the level of the interest rate on the debt used to finance capital costs. A 6.0 percent per annum interest rate is assumed on a generic bridge-loan facility for the Fixed Guideway Alternative. Table 5-1 shows that only if the interest rate increases beyond 9.0 percent would a small amount of funding from sources other than the GET surcharge and New Starts funds be needed to cover the capital cost of the Fixed Guideway Alternative 20-mile alignment.

Table 5-1. Interest Rate Sensitivity for Fixed Guideway Alternative 20-mile Alignment

	YOE$ M		
Interest Rate (p.a.)	GET Revenues	New Starts	Other Sources
5.0%	4,056	941	-
6.0%	4,056	1,015	-
7.0%	4,056	1,085	-
8.0%	4,056	1,150	-
9.0%	4,056	1,200	10
10.0%	4,056	1,200	66

Level of FTA Funds

The level of FTA funds is subject to annual appropriations and to program reauthorizations approximately every six years. The analyses assume that future FTA funding levels will have the same growth trends as in the recent past. Future reauthorization legislation may result in different growth levels. Additionally, all projects following FTA's New Starts process compete for a limited amount of New Starts

funds. The total amount of New Starts funds pledged to a project is not finalized until just prior to entering into a Full Funding Grant Agreement (FFGA).

For the "Council on Revenues 1" scenario, the Fixed Guideway Alternative 20-mile Alignment requires $1,015 million in addition to expected GET surcharge revenues. If New Starts funds are able to cover this balance, no other source would be required. However, if Honolulu receives less than this amount, the City would need to add revenues from other sources.

Construction Risk

Scheduling delays, world market conditions, the availability of skilled labor, and unforeseen construction challenges can lead to cost increases that may challenge the financial feasibility of the project. The capital cost estimates include contingencies, both those allocated to specific cost elements and an overall project reserve amount, which add approximately 33% to the cost estimate, in year 2006 dollars. The financial analysis also makes assumptions concerning construction cost inflation. During the 1990s, construction cost escalation consistently trailed the general rate of inflation. In the early 2000s, as a result of world market conditions and storm impacts, that situation was reversed, with construction costs growing more rapidly than the general rate of inflation. This analysis assumes that construction costs will continue to grow more rapidly than the general rate of inflation through 2008, then will grow at the general rate of inflation.

Table A-1. Managed Lane Alternative – Reversible Option Major Capital Investment Cash Flow

Transaction	Calendar Year and Amount in Millions of Year-of-Expenditure Dollars																			
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Capital Funding Sources																					
Highway Fund or General Fund	3	6	21	40	75	119	160	196	212	219	192	191	190	189	188	187	186	184	183	181	180
Toll Revenue	–	–	–	–	–	–	–	–	–	–	38	40	41	43	44	46	47	49	51	53	55
Toll Collection Expenses	–	–	–	–	–	–	–	–	–	–	(10)	(11)	(11)	(11)	(12)	(12)	(13)	(13)	(13)	(14)	(14)
Net Toll Revenue	–	–	–	–	–	–	–	–	–	–	*28*	*29*	*30*	*31*	*32*	*34*	*35*	*36*	*38*	*39*	*40*
Bond Proceeds	40	41	225	273	505	649	597	516	228	110	18	–	–	–	–	–	–	–	–	–	–
Total Sources	**43**	**47**	**246**	**313**	**580**	**768**	**757**	**712**	**440**	**329**	**238**	**220**	**220**	**220**	**220**	**220**	**220**	**220**	**220**	**220**	**220**
Capital Outlays																					
Construction Costs	–	–	175	213	422	542	499	431	178	86	–	–	–	–	–	–	–	–	–	–	–
Soft Costs	40	41	49	60	83	107	98	85	50	24	18	–	–	–	–	–	–	–	–	–	–
Subtotal	*40*	*41*	*225*	*273*	*505*	*649*	*597*	*516*	*228*	*110*	*18*	–	–	–	–	–	–	–	–	–	–
Bond Debt Service	3	6	21	40	75	119	160	196	212	219	220	220	220	220	220	220	220	220	220	220	220
Total Outlays	**43**	**47**	**246**	**313**	**580**	**768**	**757**	**712**	**440**	**329**	**238**	**220**	**220**	**220**	**220**	**220**	**220**	**220**	**220**	**220**	**220**

Transaction	Calendar Year and Amount in Millions of Year-of-Expenditure Dollars																		
	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	Total
Capital Funding Sources																				
Highway Fund or General Fund	179	177	175	174	172	170	168	166	164	160	155	137	116	79	31	(12)	(50)	(69)	(79)	5,112
Toll Revenue	57	59	61	63	66	68	70	73	76	78	81	84	87	91	94	97	101	105	109	2,027
Toll Collection Expenses	(15)	(15)	(16)	(17)	(17)	(18)	(18)	(19)	(20)	(20)	(21)	(22)	(23)	(24)	(24)	(25)	(26)	(27)	(28)	(529)
Net Toll Revenue	*42*	*43*	*45*	*47*	*48*	*50*	*52*	*54*	*56*	*58*	*60*	*62*	*65*	*67*	*70*	*72*	*75*	*78*	*81*	*1,498*
Bond Proceeds	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3,202
Total Sources	**220**	**220**	**220**	**220**	**220**	**220**	**220**	**220**	**220**	**218**	**215**	**199**	**181**	**145**	**102**	**60**	**25**	**9**	**1**	**9,812**
Capital Outlays																				
Construction Costs	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2,547
Soft Costs	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	656
Subtotal	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3,202
Bond Debt Service	220	220	220	220	220	220	220	220	220	218	215	199	181	145	102	60	25	9	1	6,610
Total Outlays	**220**	**220**	**220**	**220**	**220**	**220**	**220**	**220**	**220**	**218**	**215**	**199**	**181**	**145**	**102**	**60**	**25**	**9**	**1**	**9,812**

Note: Total YOE estimates are slightly lower than the numbers in Chapter 5 of the *Alternatives Analysis Report* due to semi annual escalation

Table B-1. No Build Alternative Cash Flow, 2008–2030

Fiscal Year Ending	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Millions of Year-of-Expenditure Dollars																						
Ongoing Capital Improvements and Replacements																							
Bus, Bus Related and Handi-Van Capital Cost	19	19	42	33	35	34	47	45	36	37	37	34	43	35	46	52	46	63	57	53	61	62	60
Section 5307 Funds {Capital}	6	6	23	16	16	16	25	23	16	16	15	12	19	11	19	24	18	30	24	20	26	26	23
Section 5309 Rail Modernization Program	1	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Section 5309 Bus Discretionary	8	8	8	9	9	10	10	11	11	12	12	13	13	14	15	16	16	17	18	19	20	21	22
Carryover	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Local Match {@20%}	4	4	8	7	7	7	9	9	7	7	7	7	9	7	9	10	9	13	11	11	12	12	12
Total Capital Revenues	**19**	**19**	**42**	**33**	**35**	**34**	**47**	**45**	**36**	**37**	**37**	**34**	**43**	**35**	**46**	**52**	**46**	**63**	**57**	**53**	**61**	**62**	**60**
Surplus (Shortfall) {Cumulative}	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Operations and Maintenance																							
Bus O&M Cost	151	161	172	179	186	194	201	209	218	227	237	246	259	270	281	294	306	319	333	349	366	377	389
Handi-Van O&M Cost	20	21	21	22	23	24	25	26	27	28	29	31	32	33	35	36	37	39	41	42	44	46	48
Section 5307 Funds {Preventative Maintenance}	21	23	7	16	16	18	9	12	21	22	24	28	23	32	25	22	29	18	25	31	27	29	33
Fare Revenues {excl. Handi-Van}	45	47	49	51	53	55	57	60	62	65	67	70	73	76	79	83	86	90	93	97	101	105	110
Handi-Van Fare Revenues	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4	4
Fare Box Recovery {excl. Handi-Van} (%)	**30%**	**29%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**29%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**
Non-Fare Revenues	–	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
General and Highway Fund Subsidy	104	110	136	132	138	142	157	161	159	166	171	175	191	191	208	221	225	246	250	258	277	284	288
Surplus (Shortfall) for O&M	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
General and Highway Fund Revenues	1,006	1,046	1,084	1,124	1,165	1,208	1,252	1,298	1,345	1,394	1,445	1,498	1,553	1,610	1,668	1,729	1,793	1,858	1,926	1,997	2,070	2,145	2,224
Transit Share of General+Highway Fund (%)	**10%**	**11%**	**12%**	**12%**	**12%**	**12%**	**13%**	**12%**	**12%**	**12%**	**12%**	**12%**	**12%**	**12%**	**12%**	**13%**	**13%**	**13%**	**13%**	**13%**	**13%**	**13%**	**13%**

Table B-2. TSM Alternative Cash Flow, 2008–2030

Fiscal Year Ending	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Millions of Year-of-Expenditure Dollars																						
Ongoing Capital Improvements and Replacements																							
Bus, Bus Related and Handi-Van Capital Cost	19	19	49	40	56	39	72	57	59	39	51	39	49	39	78	84	66	90	66	69	70	66	72
Section 5307 Funds {Capital}	6	6	29	23	32	32	33	33	34	18	26	16	23	21	44	45	38	49	32	34	33	29	33
Section 5309 Rail Modernization Program	1	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Section 5309 Bus Discretionary	8	8	8	9	9	10	10	11	11	12	12	13	13	14	15	16	16	17	18	19	20	21	22
Carryover	–	–	–	–	2	–	12	–	–	–	–	–	–	–	6	4	–	4	–	–	–	–	–
Local Match {@20%}	4	4	10	8	11	8	14	11	12	8	10	8	10	8	16	17	13	18	13	14	14	13	14
Total Capital Revenues	**19**	**19**	**49**	**42**	**56**	**51**	**72**	**57**	**59**	**39**	**51**	**39**	**49**	**45**	**82**	**84**	**70**	**90**	**66**	**69**	**70**	**66**	**72**
Surplus (Shortfall) {Cumulative}	**–**	**–**	**–**	**2**	**–**	**12**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**6**	**4**	**–**	**4**	**–**	**–**	**–**	**–**	**–**	**–**
Operations and Maintenance																							
Bus O&M Cost	151	161	172	179	196	212	227	238	250	262	277	285	307	321	339	355	371	391	409	431	445	459	475
Handi-Van O&M Cost	20	21	21	22	23	24	25	26	27	28	29	31	32	33	35	36	37	39	41	42	44	46	48
Section 5307 Funds {Preventative Maintenance}	21	23	2	8	–	1	–	1	1	19	12	23	17	21	–	–	9	–	18	18	21	27	25
Fare Revenues {excl. Handi-Van}	45	47	49	51	54	56	58	61	63	66	69	72	75	78	81	85	88	92	96	100	104	109	113
Handi-Van Fare Revenues	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4	4
Fare Box Recovery {excl. Handi-Van} (%)	**30%**	**29%**	**28%**	**28%**	**27%**	**26%**	**26%**	**26%**	**25%**	**25%**	**25%**	**25%**	**24%**	**24%**	**24%**	**24%**	**24%**	**24%**	**23%**	**23%**	**23%**	**24%**	**24%**
Non-Fare Revenues	–	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
General and Highway Fund Subsidy	104	110	141	140	163	177	191	200	209	203	223	217	243	252	284	302	307	334	331	350	359	364	379
Surplus (Shortfall) for O&M	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
General and Highway Fund Revenues	1,006	1,046	1,084	1,124	1,165	1,208	1,252	1,298	1,345	1,394	1,445	1,498	1,553	1,610	1,668	1,729	1,793	1,858	1,926	1,997	2,070	2,145	2,224
Transit Share of General+Highway Fund (%)	**10%**	**11%**	**13%**	**12%**	**14%**	**15%**	**15%**	**15%**	**16%**	**15%**	**15%**	**14%**	**16%**	**16%**	**17%**	**17%**	**17%**	**18%**	**17%**	**18%**	**17%**	**17%**	**17%**

Table B-3. Managed Lane Alternative – Reversible Option Cash Flow, 2008–2030, excluding Major Investment Capital Costs

Fiscal Year Ending	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Millions of Year-of-Expenditure Dollars																						
Ongoing Capital Improvements and Replacements																							
Bus, Bus Related and Handi-Van Capital Cost	19	19	49	38	55	39	74	63	66	45	58	67	80	81	100	103	106	113	77	82	75	78	86
Section 5307 Funds {Capital}	26	29	31	31	32	33	33	34	35	35	37	38	40	41	43	44	46	47	49	51	53	43	44
Section 5309 Rail Modernization Program	1	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3
Section 5309 Bus Discretionary	8	8	8	9	9	10	10	11	11	12	12	13	13	14	15	16	16	17	18	19	20	21	22
Carryover	–	21	43	45	56	55	68	55	51	46	59	64	64	55	48	28	8	(12)	(35)	(27)	(20)	(5)	–
Local Match {20%}	4	4	10	8	11	8	15	13	13	9	12	13	16	16	20	21	21	23	15	16	15	16	17
Total Capital Revenues	**39**	**63**	**94**	**95**	**110**	**108**	**128**	**114**	**112**	**104**	**122**	**130**	**135**	**129**	**128**	**111**	**94**	**78**	**50**	**62**	**71**	**78**	**86**
Surplus (Shortfall) {Cumulative}	**21**	**43**	**45**	**56**	**55**	**68**	**55**	**51**	**46**	**59**	**64**	**64**	**55**	**48**	**28**	**8**	**(12)**	**(35)**	**(27)**	**(20)**	**(5)**	**–**	**–**
Operations and Maintenance																							
Bus O&M Cost	151	161	172	179	196	212	227	238	252	266	281	296	312	329	347	366	385	406	428	452	476	502	529
Handi-Van O&M Cost	20	21	21	22	23	24	25	26	27	28	29	31	32	33	35	36	37	39	41	42	44	46	48
Section 5307 Funds {Preventative Maintenance}	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11	13
Fare Revenues {excl. Handi-Van}	45	47	49	51	54	56	58	61	64	68	71	74	78	81	84	88	92	96	100	104	108	113	118
Handi-Van Fare Revenues	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4	4
Fare Box Recovery {excl. Handi-Van} (%)	**30%**	**29%**	**28%**	**28%**	**28%**	**26%**	**26%**	**26%**	**25%**	**25%**	**25%**	**25%**	**25%**	**25%**	**24%**	**24%**	**24%**	**24%**	**23%**	**23%**	**23%**	**23%**	**22%**
Non-Fare Revenues	–	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
General and Highway Fund Subsidy	124	133	143	148	163	178	191	201	212	224	235	249	263	277	293	310	327	345	365	385	407	419	441
Surplus (Shortfall) for O&M	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
General and Highway Fund Revenues	1,006	1,046	1,084	1,124	1,165	1,208	1,252	1,298	1,345	1,394	1,445	1,498	1,553	1,610	1,668	1,729	1,793	1,858	1,926	1,997	2,070	2,145	2,224
Transit Share of General+Highway Fund (%)	**12%**	**13%**	**13%**	**13%**	**14%**	**15%**	**15%**	**15%**	**16%**	**16%**	**16%**	**17%**	**17%**	**17%**	**18%**	**18%**	**18%**	**19%**	**19%**	**19%**	**20%**	**20%**	**20%**

Table B-4. Fixed Guideway Alternative 20-mile Alignment Cash Flow, 2008–2030, excluding Major Investment Capital Costs

Fiscal Year Ending	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
	Millions of Year-of-Expenditure Dollars																						
Ongoing Capital Improvements and Replacements																							
Bus, Bus Related and Handi-Van Capital Cost	19	19	39	29	26	31	33	40	32	33	48	35	44	35	38	40	41	56	49	49	51	48	54
Section 5307 Funds {Capital}	6	6	21	12	10	13	14	19	12	12	24	13	19	11	13	14	14	25	21	21	21	18	21
Section 5309 Rail Modernization Program	1	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	12	12	12	13	13
Section 5309 Bus Discretionary	8	8	8	9	9	10	10	11	11	12	12	13	13	14	15	16	16	17	18	19	20	21	22
Carryover	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	12	24	37	49
Local Match {@20%}	4	4	8	6	5	6	7	8	6	7	10	7	9	7	8	8	8	11	10	10	10	10	11
Total Capital Revenues	**19**	**19**	**39**	**29**	**26**	**31**	**33**	**40**	**32**	**33**	**48**	**35**	**44**	**35**	**38**	**40**	**41**	**56**	**61**	**74**	**87**	**98**	**116**
Surplus (Shortfall) {Cumulative}	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**12**	**24**	**37**	**49**	**62**
Operations and Maintenance																							
Bus O&M Cost	151	161	172	179	186	194	201	208	215	222	230	239	249	260	272	283	296	309	323	337	352	367	384
20-Mile Fixed Guideway O&M Cost	–	–	–	–	–	–	–	–	–	–	–	61	65	70	74	79	85	90	96	103	109	117	124
Handi-Van O&M Cost	20	21	21	22	23	24	25	26	27	28	29	31	32	33	35	36	37	39	41	42	44	46	48
Section 5307 Funds {Preventative Maintenance}	21	23	9	19	22	20	19	15	22	23	12	24	19	49	49	50	52	43	49	51	53	59	58
Fare Revenues {excl. Handi-Van}	45	47	49	51	53	55	57	59	61	63	65	82	86	91	96	100	106	111	117	123	129	136	142
Handi-Van Fare Revenues	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4	4
Fare Box Recovery {excl. Handi-Van} (%)	**30%**	**29%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**29%**	**29%**	**28%**	**27%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**
Non-Fare Revenues	–	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
General and Highway Fund Subsidy	104	110	133	129	132	140	147	158	156	161	178	221	238	219	232	244	256	279	289	303	318	330	350
Surplus (Shortfall) for O&M	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
General and Highway Fund Revenues	1,006	1,046	1,084	1,124	1,165	1,208	1,252	1,298	1,345	1,394	1,445	1,498	1,553	1,610	1,668	1,729	1,793	1,858	1,926	1,997	2,070	2,145	2,224
Transit Share of General+Highway Fund (%)	**10%**	**11%**	**12%**	**11%**	**11%**	**12%**	**12%**	**12%**	**12%**	**12%**	**12%**	**15%**	**15%**	**14%**	**14%**	**14%**	**14%**	**15%**	**15%**	**15%**	**15%**	**15%**	**16%**

Table B-5. Fixed Guideway Alternative Full-corridor Alignment Cash Flow, 2008–2030, excluding Major Investment Capital Costs

Fiscal Year Ending	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Ongoing Capital Improvements and Replacements																							
Bus, Bus Related and Handi-Van Capital Cost	19	19	42	33	29	30	32	45	33	27	38	28	43	30	31	37	38	51	48	49	51	52	55
Section 5307 Funds {Capital}	6	6	23	16	12	12	13	23	13	8	16	8	18	7	7	12	12	21	17	21	21	21	22
Section 5309 Rail Modernization Program	1	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	16	17	17	17
Section 5309 Bus Discretionary	8	8	8	9	9	10	10	11	11	12	12	13	13	14	15	16	16	17	18	19	20	21	22
Carryover	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	16	33	50
Local Match {20%}	4	4	8	7	6	6	6	9	7	5	8	6	9	6	6	7	8	10	10	10	10	10	11
Total Capital Revenues	**19**	**19**	**42**	**33**	**29**	**30**	**32**	**45**	**33**	**27**	**38**	**28**	**43**	**30**	**31**	**37**	**38**	**51**	**48**	**65**	**84**	**101**	**122**
Surplus (Shortfall) {Cumulative}	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**16**	**33**	**50**	**67**
Operations and Maintenance																							
Bus O&M Cost	151	161	172	179	186	194	201	208	216	222	229	236	229	239	249	260	272	283	296	309	322	336	351
Full Length Fixed Guideway O&M Cost	–	–	–	–	–	–	–	–	–	–	–	–	89	94	101	107	115	122	130	139	148	158	168
Handi-Van O&M Cost	20	21	21	22	23	24	25	26	27	28	29	31	32	33	35	36	37	39	41	42	44	46	48
Section 5307 Funds {Preventative Maintenance}	21	23	7	15	19	20	20	11	21	28	20	29	20	69	71	69	71	64	70	70	72	75	76
Fare Revenues {excl. Handi-Van}	45	47	49	51	53	55	57	59	61	63	65	67	90	95	100	105	110	116	122	128	135	141	149
Handi-Van Fare Revenues	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4	4
Fare Box Recovery {excl. Handi-Van} (%)	**30%**	**29%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**28%**	**29%**	**29%**	**29%**	**29%**	**29%**	**29%**	**29%**	**29%**
Non-Fare Revenues	–	–	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
General and Highway Fund Subsidy	104	110	136	133	134	140	146	162	157	156	170	166	236	199	210	226	238	260	270	287	303	318	336
Surplus (Shortfall) for O&M	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
General and Highway Fund Revenues	1,006	1,046	1,084	1,124	1,165	1,208	1,252	1,298	1,345	1,394	1,445	1,498	1,553	1,610	1,668	1,729	1,793	1,858	1,926	1,997	2,070	2,145	2,224
Transit Share of General+Highway Fund (%)	**10%**	**11%**	**12%**	**12%**	**12%**	**12%**	**12%**	**12%**	**12%**	**11%**	**12%**	**11%**	**15%**	**12%**	**13%**	**13%**	**13%**	**14%**	**14%**	**14%**	**15%**	**15%**	**15%**