

06

CHAPTER

Cost and Financial Analysis

This chapter presents estimates for capital and operating and maintenance (O&M) costs for the No Build and Build Alternatives. These cost estimates are based on conceptual engineering and operations analysis that followed the Honolulu High-Capacity Transit Corridor Project's Alternatives Analysis phase. This chapter also presents a financing plan for the Project.

Year-of-expenditure dollar cost estimates include assumed inflation between today and the expected date of the expenditure.

2007 dollar cost estimates reflect prices in fiscal year 2007.

2008 dollar cost estimates reflect prices in fiscal year 2008.

This financial analysis only considers costs, resources, and funding strategies associated with public transit services provided by the City. Unless otherwise stated, costs and revenues in this chapter are presented in fiscal year (FY) 2007 dollars and/or year-of-expenditure (YOE) dollars. The forecast period referred to is between 2007 and 2030. For the City and County of Honolulu (City), the fiscal year begins on July 1 and ends on June 30

(e.g., FY2007 is from July 1, 2006, to June 30, 2007). In this chapter, all year references are to fiscal years.

6.1 Cost Estimate Methodology

6.1.1 Capital Costs Methodology

The capital cost estimate is the total cost of implementing the Project. It is based on standard cost categories the Federal Transit Administration (FTA) created in establishing a consistent format for reporting, estimating, and managing capital costs for New Starts projects. This method allows for the summary of quantities to be tracked during the Project's follow-on design phases. These categories follow:

- **Guideway and Track Elements**—includes construction of the guideway structure and all supportive structural elements, including preparatory work, track work, and special track work elements.
- **Stations, Stops, Terminals, Intermodals**—includes rough grading, excavation, ventilation structures and equipment, station power and lighting, and other station elements.

- **Support Facilities**—includes construction of and equipment for support facilities (yards, shops, and administrative buildings).
- **Site Work and Special Conditions**—includes capital costs for unique or non-typical elements. Elements that address project-wide construction activities include clearing, demolition, fine grading, and other earthwork items outside the guideway limits.
- **Systems**—includes traction power, traction power substations, signals, crossing protection, communications, the fare collection system, equipment, and central control.
- **Right-of-Way, Land, and Existing Improvements**—includes securing and providing all property rights and relocations.
- **Vehicles**—includes rail rolling stock and support vehicles.
- **Professional Services (Soft Costs)**—includes engineering and design services, project management for design and construction, and other design-related activities.
- **Unallocated Contingency (Project Reserve)**—includes contingency that applies to the overall project and cannot be applied to a specific standard cost category.
- **Finance Charges**—includes costs related to financing the Project, including interest and bond issuance costs.

In this chapter, the cost estimates for specific items are based on typical construction practices and procedures on similar projects. Quantities are estimated based on service plans and conceptual engineering performed to date. Estimated costs for each standard cost category were increased in accordance with FTA guidance for estimates developed prior to preliminary engineering, to account for unknown but expected additional expenses.

Inflation was applied to the cost estimate based on the Project’s implementation schedule (Figure 2-42 in Chapter 2). The forecast of inflation is based on the Consumer Price Index for all Urban

Consumers (CPI-U), as determined by the Hawai‘i Department of Business, Economic Development, and Tourism. A consistent set of inflation assumptions has been applied to all costs and revenues. Early capital costs were escalated at an annual rate of 1.1 percent above the CPI-U in FY2009 and by an annual rate of 0.4 percent above the CPI-U in FY2010, to reflect the uncertainty of some near-term labor and material costs.

The capital cost estimate of implementing each Build Alternative is presented in Table 6-1. Capital cost estimates, excluding finance charges, range from \$3.9 billion for the Salt Lake Alternative to \$4.8 billion for the Airport & Salt Lake Alternative in fiscal year 2008 dollars. The capital cost for the Airport Alternative is estimated to be about \$200 million higher than the Salt Lake Alternative.

6.1.2 Operating and Maintenance Cost Methodology

Fixed Guideway Operating and Maintenance

O&M costs for the Build Alternatives were estimated based on historical O&M costs for existing rail transit systems that have similar characteristics to the Project, including Washington, D.C. (WMATA), Miami, and Los Angeles. These costs were adjusted to reflect O‘ahu’s higher costs of goods and services, where appropriate.

TheBus and TheHandi-Van Operating and Maintenance

A cost allocation model was used to estimate O&M costs for each bus system component. For each Build Alternative, bus system O&M costs reflect current costs for TheBus, the transit service plan, and anticipated inflation.

6.2 Capital Plan

The capital plan analyzes capital expenditures for each Build Alternative and for ongoing systemwide capital costs. The capital plan reflects the costs and revenues related to implementing the Project and

Table 6-1 Capital Cost Estimates for the Build Alternatives by Cost Category (millions of 2008 and YOY dollars)

Cost Categories	Salt Lake Alternative		Airport Alternative		Airport & Salt Lake Alternative	
	2008 \$M	YOY \$M	2008 \$M	YOY \$M	2008 \$M	YOY \$M
Guideway construction	\$1,239	\$1,522	\$1,300	\$1,547	\$1,633	\$1,961
Station construction	255	328	297	359	325	396
Yard, shops, and support facilities	120	137	120	138	120	138
Site work and special conditions	668	781	664	763	732	849
Systems	239	307	272	341	329	417
Right-of-way	137	159	150	174	157	183
Vehicles	286	355	295	357	295	357
Professional services	756	937	795	972	941	1,129
Unallocated contingency (project reserve)	221	270	232	278	271	324
Total Cost Excluding Finance Charges	\$3,921	\$4,797	\$4,125	\$4,927	\$4,803	\$5,753
Finance charges	356	479	378	506	538	727
Total Cost	\$4,277	\$5,276	\$4,503	\$5,433	\$5,341	\$6,480
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Project cost (construction, vehicles, right-of-way, soft costs)	\$3,100	\$3,824	\$4,263	\$3,897	\$3,796	\$4,546
Contingency	821	973	862	1,030	1,007	1,206
Total Cost Excluding Finance Charges	\$3,921	\$4,797	\$4,125	\$4,927	\$4,803	\$5,753

Totals may not add due to rounding.

maintaining the bus and fixed guideway systems in a state of good repair.

6.2.1 Capital Costs

Capital costs for all Build Alternatives are presented in Table 6-2.

The estimates include ongoing costs for replacing, rehabilitating, and maintaining capital assets in a state of good repair throughout the forecast period (2007 to 2030). Rail rehabilitation and replacement costs are expected to begin 16 years after initial construction activities are completed.

Current bus service would be restructured and expanded to support general growth in service. To support this, the number of buses operating during peak periods is expected to grow from 435 in FY2007 to 469 in FY2030. Assuming that 20 percent of the bus fleet is held in reserve would

increase the total bus fleet from the current 540 buses to about 563 by FY2030. TheHandi-Van fleet is expected to grow from 146 vehicles in FY2007 to 185 in FY2030.

Figure 6-1 summarizes capital costs for all transit travel modes through the forecast period. It includes an expenditure of \$129 million (YOY \$) for bus facilities that are not part of the Project, as programmed in the O’ahu Metropolitan Planning Organization’s (O’ahuMPO) *FYs 2008–2011 Transportation Improvement Program* (O’ahuMPO 2008).

6.2.2 Proposed Capital Funding Sources for Build Alternatives

This section describes the various funding sources assumed for implementation of the Project and for the system’s ongoing capital needs. These sources include General Excise and Use Tax (GET)

Table 6-2 Overview of Capital Expenditures through 2030 (millions of 2008 and YOE dollars)

Alternative		Fixed Guideway Implementation	Fixed Guideway Rehabilitation and Replacement	TheBus and TheHandi-Van Expansion and Replacement	Total
No Build	2008 \$M	\$0	\$0	\$1,123	\$1,123
	YOE \$M	\$0	\$0	\$1,792	\$1,792
Salt Lake	2008 \$M	\$3,921	\$59	\$933	\$4,914
	YOE \$M	\$4,797	\$113	\$1,373	\$6,283
Airport	2008 \$M	\$4,125	\$62	\$933	\$5,121
	YOE \$M	\$4,927	\$116	\$1,373	\$6,416
Airport & Salt Lake	2008 \$M	\$4,803	\$73	\$933	\$5,809
	YOE \$M	\$5,735	\$136	\$1,373	\$7,244

Totals may not add due to rounding.

surcharge funds, FTA New Starts revenues, and other Federal assistance programs for ongoing capital needs, complemented by local assistance.

General Excise and Use Tax Surcharge

The local funding source for the Project is a dedicated 0.5-percent surcharge on the State of Hawai'i's GET. In 2005, the Hawai'i State Legislature authorized counties to adopt this surcharge for public transportation projects. Following this authorization, the City enacted Ordinance 05-027 establishing a 0.5-percent surcharge on the GET collected in the City and County of Honolulu to be levied through December 31, 2022. This revenue is to be exclusively used for the Project's capital and/or operating expenditures and could be used to back General Obligation Bonds as needed for the Project. GET surcharge revenues are estimated to be \$4,054 million (YOE \$) through FY2023.

FTA Section 5309 New Starts Program (49 USC 5309)

The FTA's discretionary New Starts program is the primary Federal source of funds for supporting fixed guideway transit projects. This financial analysis assumes the Project would receive \$1.2 billion (YOE \$) for the Salt Lake Alternative and

\$1.4 billion (YOE \$) for the Airport and Airport & Salt Lake Alternatives from the New Starts program. FTA has agreed to consider a funding request of \$1.2 billion but has not been approached regarding a higher level.

City General Obligation Bonds

This financial analysis assumes that General Obligation Bonds would be the main financial instrument used by the City to finance the Project. This funding source would be required to bridge funding gaps in any given year and would be repaid by the revenue sources described in previous sections. General Obligation Bonds are direct obligations of the City, for which its full faith and credit are pledged. Section 6.4, Cash Flow Analysis, provides further details on financing assumptions for the Project.

6.2.3 Funding Sources for Ongoing Capital Expenditures

Federal Assistance

The City receives Federal assistance for ongoing transit capital investments through various funding programs from the FTA. The three main sources of Federal funds for ongoing capital expenses are as follows:

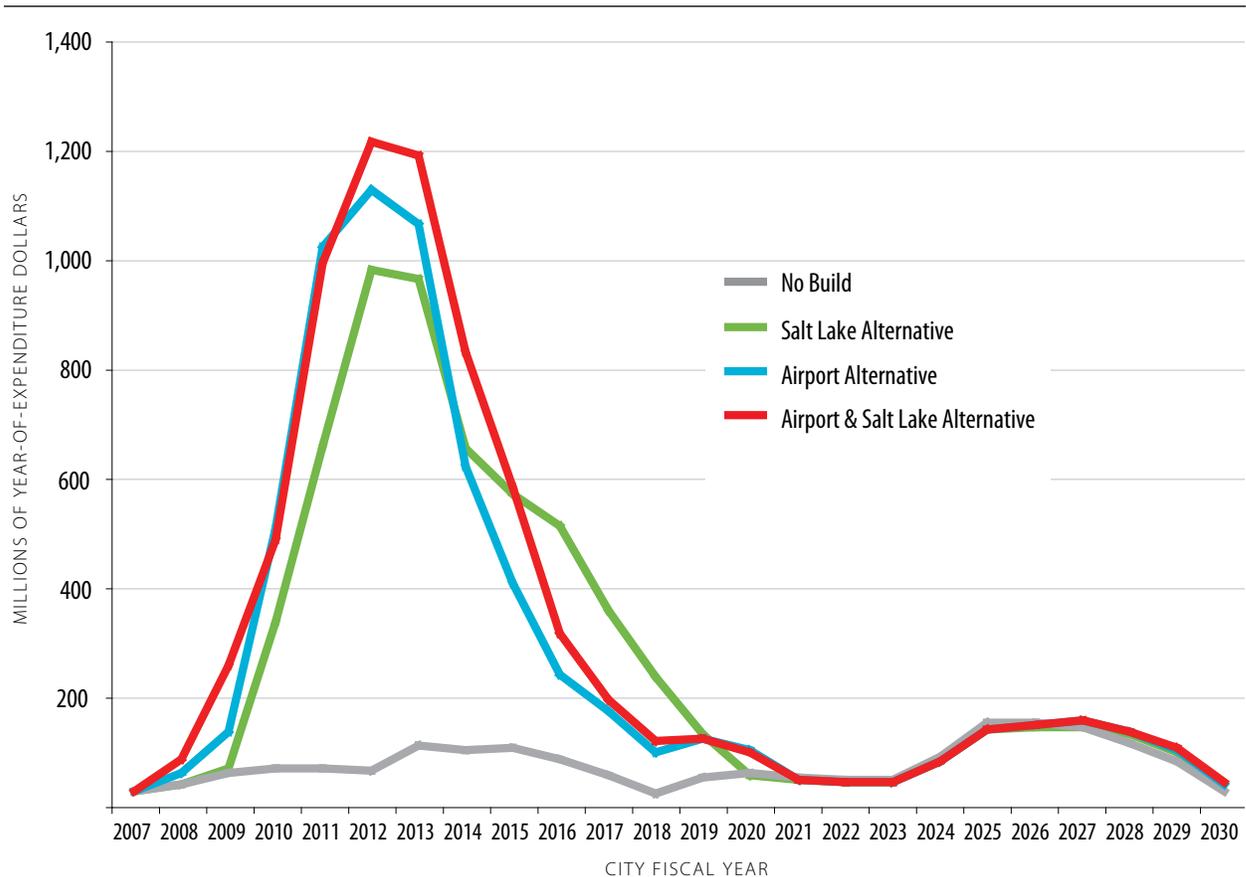


Figure 6-1 Total Capital Expenditures by Alternative (Excluding Finance Charges) FY2007–FY2030 (YOE \$M)

- FTA Urbanized Area Formula Program (49 USC 5307)**—these funds are distributed to the Honolulu and Kailua-Kāneʻohe urbanized areas using a formula set by law. Activities eligible for Section 5307 funds include capital investments in bus and bus-related activities (e.g., the replacement of buses, overhaul of buses, rebuilding of buses, crime prevention and security equipment, and construction of maintenance and passenger facilities). The total amount of Section 5307 funds received by the City through FY2030 would depend on the alternative selected and would amount to approximately \$1.0 billion (YOE \$).
- FTA Capital Investment Grants (49 USC 5309): Fixed Guideway Modernization Program**—these funds are distributed using a formula specified by law. Implementa-

tion of the Project would increase Fixed Guideway Modernization funds for Honolulu because the formula is largely based on the number of fixed guideway miles. Total Section 5309 Fixed Guideway Modernization funding is expected to be approximately \$120 million (YOE \$) through FY2030.

- FTA Capital Investment Grants (49 USC 5309): Bus and Bus-Related Equipment and Facilities Capital Program**—these funds are distributed on a discretionary basis. All bus-related elements of the Project are eligible for bus capital funds. It is assumed that Honolulu’s bus capital allocations between 2008 and 2030 will be equal to the average of the allocations between 1996 and 2008 (\$6 million per year). Total Section 5309 bus funding is expected to be \$132 million (YOE \$) through FY2030.

City General Obligation Bonds

The City currently issues General Obligation Bonds to finance ongoing transit capital expenses. This includes TheBus and TheHandi-Van purchases, construction of facilities and transit centers, and other public transportation capital improvements. The financial analysis assumes that the City will continue to use General Obligation Bond proceeds to match Federal contributions and finance ongoing systemwide capital expenditures. This would correspond to approximately \$267 million (YOE \$) in General Obligation Bond proceeds through FY2030.

No private source of capital revenue was assumed to fund the Project. Opportunities for joint development or other forms of public-private partnerships could affect the amount needed from the City or could help fund construction of additional sections of the Project.

6.3 Operating and Maintenance Plan

This section discusses the data and unit costs used to calculate O&M needs and the sources and uses of operating funds through FY2030 by alternative.

6.3.1 Operating and Maintenance Costs

Table 6-3 summarizes O&M costs in 2030 for each Build Alternative, by travel mode. Total O&M costs for the Salt Lake Alternative would be \$109 million (YOE \$) greater than for the No Build Alternative in 2030. The O&M costs for the Airport and Airport & Salt Lake Alternatives would be \$119 and \$172 million (YOE \$) greater than the No Build Alternative, respectively.

The fixed guideway system's operating costs are anticipated to be 24 percent of total O&M costs for the public transportation system in FY2030. O&M costs would increase in a step-like manner as operable segments are opened for revenue service, until the entire alignment is completed in FY2018.

6.3.2 Operating and Maintenance Funding Sources

This section describes the range of O&M funding sources anticipated. These sources include FTA Section 5307 funds for preventive maintenance, fare revenues, and transit contributions from the City's General and Highway Funds.

Federal Funding

Section 5307 funds were first applied to capital needs, with the remainder going to preventive maintenance. Based on historical trends, it is assumed that a maximum of 20 percent of annual O&M expenditures would be associated with preventive maintenance, and thus could be covered by Section 5307 funds.

In FY2008, the Honolulu and Kailua-Kāne'ohe urbanized areas were apportioned a combined \$29 million in Section 5307 formula funds by FTA. This amount is expected to increase to \$31.5 million in FY2009 based on current authorization levels. Over the longer term, the City is expected to receive a total of approximately \$1.0 billion (YOE \$) through FY2030 from this funding program, \$650 million of which is assumed to be used for capital needs and the remainder going to preventive maintenance.

Fare Revenues

Approximately 273,000 linked trips per day are forecast in 2030. The fare structure for the fixed guideway is assumed to follow the current bus fare structure, with transfers between modes assumed to be free. This would yield fare box revenues ranging from \$41 million in FY2007 to \$140 million (YOE \$) in FY2030.

To maintain consistency with the travel demand analysis, the actual 2007 average fare of \$0.77 per linked trip was assumed to grow with inflation throughout the forecast period. Figure 6-2 shows the annual fare revenues (in YOE \$) expected for

Table 6-3 2030 Operating and Maintenance Cost by Alternative, by Mode

Alternative	TheBus		Fixed Guideway		TheHandi-Van		Total		Difference from No Build	
	YOE \$M	2007 \$M	YOE \$M	2007 \$M	YOE \$M	2007 \$M	YOE \$M	2007 \$M	YOE \$M	2007 \$M
No Build	\$363	\$186	—	—	\$48	\$25	\$411	\$211	—	—
Salt Lake	\$348	\$179	\$123	\$63	\$48	\$25	\$519	\$267	\$109	\$56
Airport	\$349	\$179	\$133	\$68	\$48	\$25	\$530	\$272	\$119	\$61
Airport & Salt Lake	\$348	\$179	\$187	\$96	\$48	\$25	\$583	\$300	\$172	\$88

Totals may not add due to rounding.

the Project’s Salt Lake Alternative; revenues for the other Build Alternatives would be similar. Fares would likely be increased in steps consistent with historical practice. In 2001, the City Council adopted a resolution to adjust fare levels so that the fare box recovery ratio (the ratio of annual fare revenues to annual O&M costs) for TheBus would be maintained between 27 and 33 percent in any given year. The assumed average fare discussed previously would result in a fare box recovery ratio for the combined bus and fixed guideway systems that follows the City’s resolution in most years, including 2030 when the ratio is expected to equal about 30 percent.

City Contribution

The City’s contribution to transit O&M is currently funded using revenues from the General and Highway Funds. The General Fund mainly comprises real property tax revenues, but also includes revenues from a transient accommodations tax (transferred from the State), motor vehicle annual registration fees, and a public service company tax. The Highway Fund consists of revenues from the City fuel tax, the vehicle weight tax, and a public utility franchise tax. General and Highway Fund revenues were assumed to increase by the CPI-U inflation rates (as defined in Section 6.3.1, Operating and Maintenance Costs) plus 1.5 percent, which reflects the historical real growth rate of General and Highway Fund revenues.

Between FY1994 and FY2002, the transit subsidy has averaged 11 percent of the total Highway and General Fund revenues. Since 2003, City revenues have increased, as a result of large increases in real estate values on O’ahu, more quickly than O&M costs for TheBus. This has resulted in a transit subsidy below 10 percent. Figure 6-3 shows that this percentage is likely to increase through FY2030, averaging 14 percent over the entire forecast period with the Build Alternatives.

The City receives about \$375,000 annually in transit-related advertising revenues, but this analysis is conservative and does not assume operating revenues from advertising or parking. In the event that more of these revenues are made available, the City’s required operating subsidy would be proportionally lower.

6.4 Cash Flow Analysis

The cash flow analysis compares costs with revenues on a year-by-year basis, factoring in financing as necessary. Table 6-4 summarizes funding sources and the use of funds for each Build Alternative over the forecast period. The *Honolulu High-Capacity Transit Corridor Project Summary Cash Flow Tables* (RTD 2008s) present the year-by-year cash flow tables for the Build Alternatives.

6.4.1 Financing Assumptions for the Project

This financial analysis assumes that GET surcharge revenues would be the only source of funding

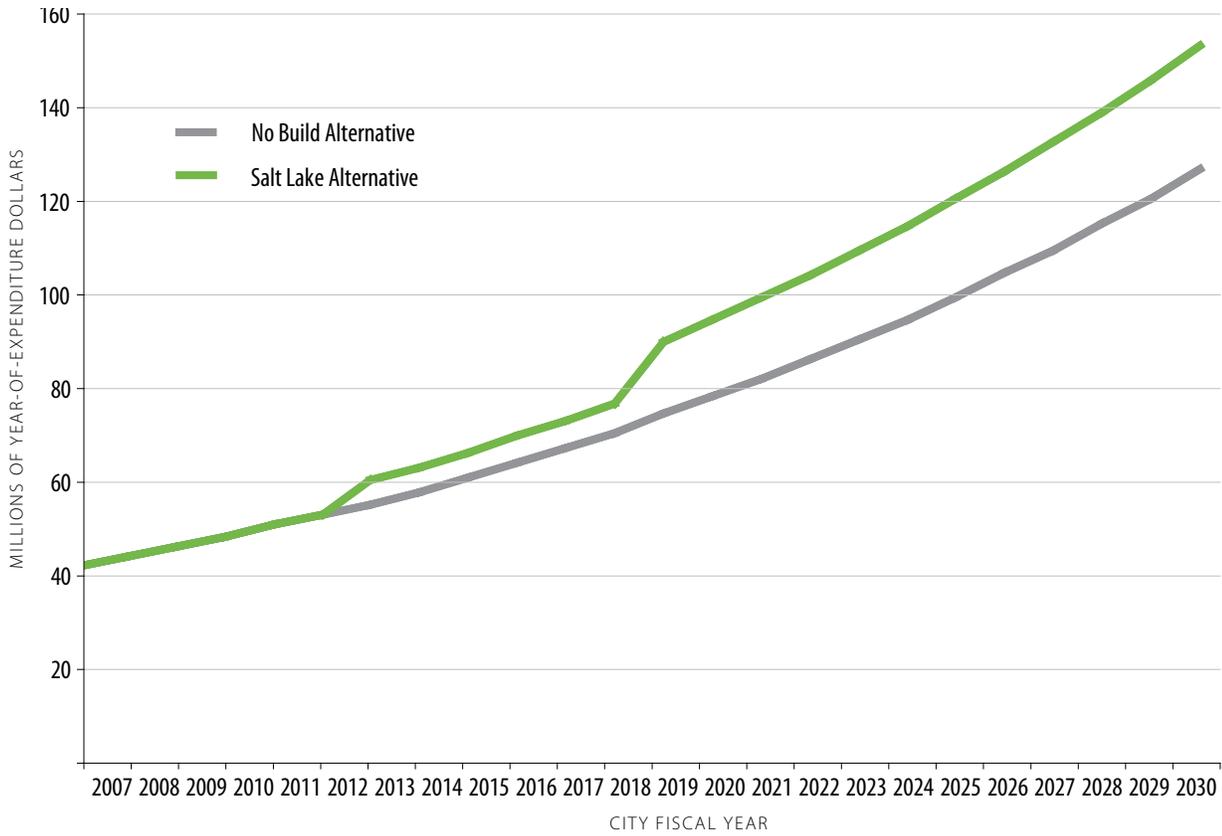


Figure 6-2 Systemwide Fare Revenues for the Salt Lake and the No Build Alternatives (YOE \$M)

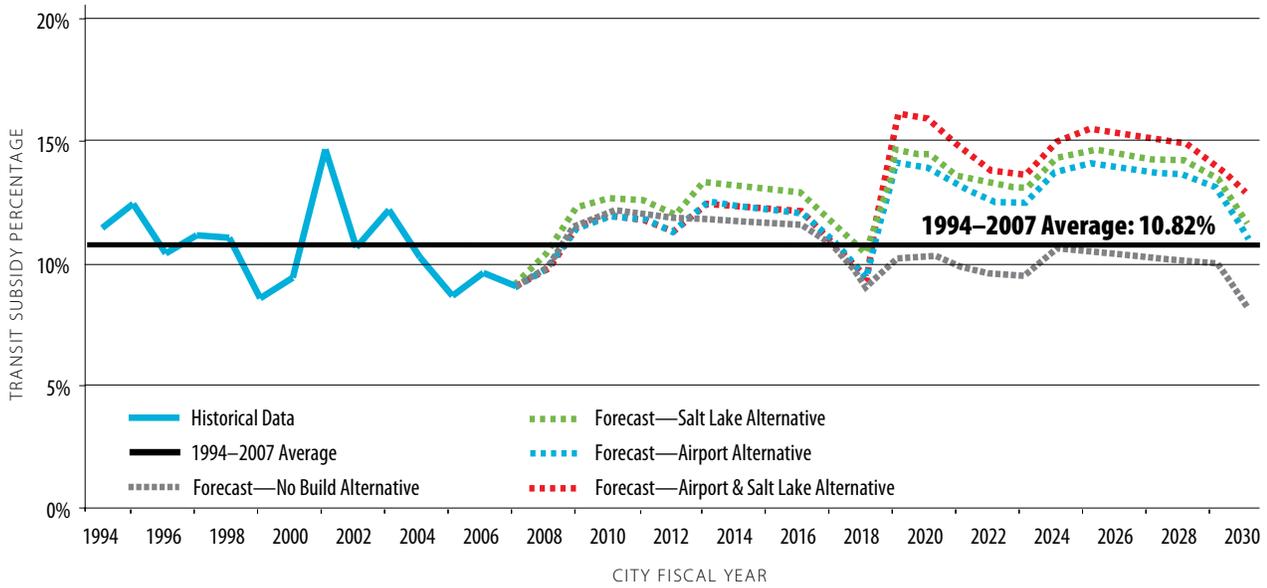


Figure 6-3 Projected Transit Contribution from the General Fund

Table 6-4 Project Sources and Uses of Capital Funds by Alternative (Millions of YOE Dollars)

	Salt Lake Alternative (YOE \$M)	Airport Alternative (YOE \$M)	Airport & Salt Lake Alternative (YOE \$M)
GET and New Starts (PAYGO Only)	\$2,564	\$2,622	\$1,001
GO bond proceeds	\$2,255	\$2,329	\$3,707
Project Sources	\$4,819	\$4,951	\$4,707
Project Uses			
Project capital cost (excluding finance charges)	\$4,797	\$4,927	\$5,753
Issurance cost on GO bonds	\$23	\$23	\$37
Project Uses	\$4,819	\$4,951	\$5,790
Surplus/(Shortfall)	\$0	\$0	(\$1,083)

Totals may not add due to rounding.

through FY2012, with FTA New Starts funding starting in FY2013.

In years when GET surcharge revenues and/or New Starts funding would not be sufficient to meet the cash flow requirement to cover capital expenditures, a mix of City General Obligation Bonds and short-term borrowing would be used to bridge the funding gap. The weighted average interest rate on long-term debt is assumed to be 3.71 percent, which is consistent with the City's current AA financial rating and based on rates as of July 17, 2008. All General Obligation debt is assumed to mature in FY2023, corresponding to the last fiscal year of receipt of GET revenues.

The finance charges incurred for each Build Alternative would range from \$479 million for the Salt Lake Alternative to \$727 million (YOE \$) for the Airport & Salt Lake Alternative. Most of these finance charges would correspond to interest payments on General Obligation Bonds. The remainder would include finance charges related to the cost of issuance of General Obligation Bonds and short-term debt and the interest expense on commercial paper proceeds.

Interest would be earned on any positive year-end cash balances, which has been calculated at 3 percent per year. Interest income is expected to range from \$9 million for the Airport & Salt Lake Alternative to \$32 million for the Airport Alternative (YOE \$).

6.4.2 Project Cash Flow

The Salt Lake and Airport Alternatives would be financially feasible. The primary difference between them is the amount of Federal funding assumed in the capital plan. The Salt Lake Alternative is based on \$1.2 billion of Federal funding and the Airport Alternative would require \$1.4 billion. The Airport & Salt Lake Alternative would require much higher revenues from the GET surcharge and/or New Starts funding to be financially viable. While FTA has agreed to consider a funding request of \$1.2 billion, the agency has not been approached to consider the \$1.4 billion for the Airport Alternative. Should additional New Starts funding not be available, other funding would be necessary.

Airport Connection

The Airport & Salt Lake Alternative could be constructed in phases, with completion of the guideway

between East Kapolei and Ala Moana Center along Salt Lake Boulevard followed by a connection from the Middle Street Transit Center to the airport. Additional funding would be required to build the phased airport connection. The cost of this alternative phasing would be somewhere between the costs of the Salt Lake and Airport Alternatives. Therefore, this could be a more feasible short-term option for serving the airport than building the Airport & Salt Lake Alternative.

6.4.3 Ongoing Capital Expenditure Cash Flow

Systemwide ongoing capital expenditures include all necessary replacement, rehabilitation, and improvements to the existing system (TheBus and TheHandi-Van) as well as the Project. Funding sources used to pay for these capital expenses consist of discretionary and formula-based Federal funding programs (see Section 6.2.3, Funding Sources for Ongoing Capital Expenditures, for descriptions of these programs). Any resulting funding gap is assumed to be bridged on an annual basis with City General Obligation Bonds, as is currently the case with transit-related budgets. Therefore, the resulting ongoing capital sources and uses would balance in any given year.

6.4.4 Operating and Maintenance Expenditure Cash Flow

O&M funds would be used for the bus and paratransit system as well as for the Project. Sources of O&M funds include fare box revenues and Federal grants, and any remaining funding requirements are assumed to be funded through City subsidies from its General and Highway Funds. The resulting operating sources and use of funds would balance in any given year. The Summary Cash Flow Tables (RTD 2008s) include year-by-year ongoing operating expenditure cash flows.

6.5 Risks and Uncertainties

The financial analysis described in this chapter and the sources and uses of funds are subject to a

number of risks and uncertainties. Some risks are project specific and others are related to macro-level uncertainties affected by the local and global economies. Although this analysis has defined a set of most-likely scenarios based on the cost, revenue, funding, and financing assumptions described, several operating and capital risks could materially affect the final financial results. Uncertainties can be organized into the following major categories.

6.5.1 Project Cost Risks

Changes in Project Scope

As the Project progresses through the planning stages and more information is gathered, differences in construction costs could occur. Cost increases could be due to unexpected soil conditions and geotechnical issues, the need for unexpected utility relocations, the presence of unanticipated groundwater and other environmental impacts and mitigation measures, and changes stemming from the community involvement process.

Changes in Project Schedule

Schedule delays could be related to unforeseen construction challenges, local decision-making processes, equipment malfunctions, or general construction delays. Although a longer construction period would translate into a greater exposure to inflationary risk, this may be somewhat mitigated by a better match between available sources and uses of funds, which would reduce the amount of borrowing required.

Operating Cost Increases

Potential increases in labor, fuel, electrical rates, and other key variables that comprise operating expenses could have a material impact on O&M costs. As an example, fuel costs have risen drastically in the past year and continue to go up. Differences in bus and rail operating costs are possible, due to differences in technology and variations in labor productivity and unit costs between the two modes.

System Operation

Project costs have been estimated assuming that trains would operate with drivers, even though they would be able to function in fully automated mode without drivers. A decision not to use drivers could reduce operating costs.

6.5.2 Economic and Financial Risks

Inflation

Inflation is applied to costs and revenues alike, and risks would exist if construction-related inflation is underestimated. For example, global factors such as a supply/demand imbalance in commodities play a major role in construction material prices, such as steel.

Interest Rates

Variations in interest rates could affect the interest earnings rate on cash balances and the interest paid on any outstanding debt, as well as the size of the long-term bonded debt service.

Municipal Market Uncertainties

Because it is assumed that the City will continue to be able to issue bonds in the tax-exempt municipal marketplace, uncertainties about market factors should not be overlooked. For example, although municipal borrowing rates are near historical lows, interest rates, issuance expenses, tax-exempt status and regulations, and preferred debt structures may change from today's market factors. Also, given the global credit climate and the challenges that bond insurance providers are currently experiencing, liquidity and access to credit enhancement mechanisms may be structurally different in the future.

GET Surcharge Revenues

Local tax revenues are dependent on O'ahu's economic activity, which relies heavily on the economy on the mainland and Japan. Variables like tourism spending and retail sales could materially impact the net GET surcharge revenues available to fund the Project.

6.5.3 Funding Risks

FTA New Starts Funding

The Project assumes Federal participation in funding through the Section 5309 New Starts process. The magnitude of this funding source requires the City to have confidence and assurance that Federal funding will be forthcoming once a commitment is made to the Project. For its part, FTA must assure that any Federal funds provided will be fully and productively used and leveraged by the City to the greatest extent possible. During final design, these and other mutual assurances would be described in a Full Funding Grant Agreement between the City and the FTA.

The amount of money that a project sponsor can expect to receive in any given year depends on available authorizations by Congress and the nationwide competition for this funding. The availability of New Starts or other funds could affect the Project's timing and ultimate cost. Additional bond proceeds could be used to cover shortfalls in capital funds, but as a result the Project's overall cost could increase due to debt service expenses.

Fare Policy and Ridership

Growth in transit ridership is uncertain because the availability of alternate modes and riders' price sensitivity could decrease ridership, at least in the short-term. For purposes of the Draft EIS, the assumption is made that there would be free transfers to and from the fixed guideway service. Upside risks also exist, and demand could be higher than expected. Although this would affect fare revenues positively, it could also increase the system's level-of-service requirements. Any changes in ridership that vary from what is forecasted could also affect the required level-of-service, which would affect operating costs.

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07

CHAPTER

Evaluation of Alternatives

This chapter compares the Honolulu High-Capacity Transit Corridor Project’s Build Alternatives from several perspectives. Section 7.1 draws on information in prior chapters and summarizes how well each Build Alternative is projected to meet the Project’s Purpose and Need. Section 7.2 discusses the Build Alternatives’ potential effect on transportation and the environment. Section 7.3 adds a cost perspective to the effectiveness comparison, to consider an alternative’s benefits in justifying its capital and operating costs. Section 7.4 looks at affordability given available funding sources. The chapter concludes with Section 7.5, a discussion of trade-offs to be made in selecting an alternative for implementation.

The evaluation measures used in this chapter reflect local goals for the Project (described in Chapter 1, Background, Purpose and Need) as well as Federal Transit Administration (FTA) criteria for evaluating projects proposed for funding under the Section 5309 New Starts program. FTA criteria that are meaningful to a comparative analysis of the Build Alternatives include user benefits and development potential (both measures

of effectiveness) and the FTA’s cost-effectiveness index. By including these criteria, this chapter fulfills Council on Environmental Quality regulations (40 CFR 1502.23), which require that an Environmental Impact Statement (EIS) “indicate those considerations, including factors not related to environmental quality, which are likely to be relevant and important to a decision.”

7.1 Effectiveness in Meeting Project Purpose and Need

Section 1.8, Need for Transit Improvement, of this Draft EIS describes four needs that the Project is intended to meet. This section evaluates how well each alternative meets these needs, based on the variety of measures of effectiveness shown in Table 7-1. Several of these measures are primarily intended to address local goals, while others are also factors considered in FTA New Starts evaluations.

7.1.1 Improve Corridor Mobility

Just as mobility and congestion have worsened over the years, conditions in 2030 will be worse than

Table 7-1 Project Goals and Objectives

Goal	Evaluation Measures
Improve corridor mobility	<ul style="list-style-type: none">• Transit ridership (daily linked trips)• Transit user benefits• Corridor travel time• Vehicle miles of travel (VMT)• Vehicle hours of travel (VHT)• Vehicle hours of delay (VHD)
Improve corridor travel reliability	<ul style="list-style-type: none">• Percent of transit trips using fixed guideway• Percent of transit passenger miles in exclusive right-of-way
Improve access to planned development to support City policy to develop a second urban center	<ul style="list-style-type: none">• Development within station area compared to existing amount of development
Improve transportation equity	<ul style="list-style-type: none">• User benefits to transit-dependent communities• Percent of project costs borne by communities of concern

today unless actions are taken to accommodate the expected growth in islandwide travel and particularly in the study corridor. Despite implementation of the planned \$3 billion in roadway improvements identified in the *O’ahu Regional Transportation Plan 2030* (ORTP), the No Build Alternative still would not relieve traffic congestion for drivers or improve mobility for transit riders compared to today. Average travel times along major corridors would increase. Locations farthest from employment centers would experience the largest increase in congestion, decline in mobility, and constrained access. The Build Alternatives would substantially improve corridor mobility compared to the No Build Alternative. Differences between the Build Alternatives would be small.

As shown in Table 7-2, vehicle miles traveled (VMT), vehicle hours traveled (VHT), and vehicle hours of delay (VHD) would increase under the No Build Alternative compared to today. Vehicular traffic volumes on major roadways would grow substantially between now and 2030. Increases in daily traffic across screenlines would range from 10 to 50 percent (Table 3-11 in Chapter 3).

For TheBus and TheHandi-Van riders, these increases in highway congestion would directly affect their mobility because travel times on buses would increase. For the No Build Alternative, transit would continue to operate in mixed traffic, except on several short bus-only segments and in high-occupancy vehicle lanes on freeways. As shown in Figure 3-5 (in Chapter 3), average transit speed has dropped by approximately 10 percent since 1984 (from 14.6 to 13.2 mph) and is projected to continue to decline through 2030 to approximately 12.7 mph under the No Build Alternative.

The Build Alternatives would increase average transit speeds by approximately 25 percent compared to 2007, leading to higher transit ridership and travel time savings for existing and new transit users. Transit travel times between major destinations would drop by nearly 50 percent compared to the No Build Alternative (Table 7-2). As transit becomes a faster, and thus more attractive, travel choice, ridership would increase. As shown in Table 7-2, transit ridership would increase by approximately 45,000 trips per day (20 percent) by 2030 with the Build Alternatives compared to the No Build Alternative, and transit users would save

Table 7-2 Effectiveness of Alternatives in Improving Corridor Mobility

Objective	2007 Existing Conditions	Alternative			
		2030 No Build	2030 Salt Lake	2030 Airport	2030 Airport & Salt Lake
Transit Travel Time (minutes)					
Wai`anae to UH Mānoa	128 minutes	121 minutes (1 transfer)	91 minutes (2 transfers)	93 minutes (2 transfers)	92 minutes (2 transfers)
Kapolei to Ala Moana Center	101 minutes	105 minutes	57 minutes	59 minutes	58 minutes
Transit Performance*					
Transit ridership (daily linked trips)	183,500	225,500	270,300	272,800	271,900
Transit user benefits (hours per year)	n/a	n/a	16,246,000	17,043,000	16,643,000
Highway Performance					
Daily islandwide VMT	11,581,000	13,583,000	13,097,000	13,086,000	13,104,000
Daily islandwide VHT	334,000	415,000	386,000	385,000	385,000
Daily islandwide VHD	74,000	106,000	85,000	84,000	83,000

*FTA is currently reviewing the estimates made for ridership and user benefits.

up to 16 million or more equivalent hours of travel time per year by 2030.

The transit mobility benefits of the three Build Alternatives would differ, but not significantly. Because it would serve more employment, the Airport Alternative is projected to attract more riders and to have higher user benefits than the other two Build Alternatives. Fewer riders would use the Airport & Salt Lake Alternative than the Airport Alternative because of less frequent service on the airport alignment under the Airport & Salt Lake Alternative. For travelers from ‘Ewa to Downtown and points farther Koko Head, travel time for the Airport Alternative would be one minute longer.

Increases in transit ridership would benefit highway users as well, by removing drivers from the roadways through better transit service. The Build Alternatives would reduce traffic congestion and improve mobility compared to the No Build Alternative (Table 7-2). Daily VMT would decrease by 4 percent; VHT would decrease by about 7 percent; and VHD would decrease by 20 to 22 percent, depending on the alternative.

In terms of highway performance measures, the Airport Alternative would be more effective than the other two Build Alternatives in terms of reducing VMT and VHT, but the Airport & Salt Lake Alternative would be more effective in reducing VHD.

7.1.2 Improve Corridor Travel Reliability

With the No Build Alternative, travel reliability for both drivers and transit riders would decrease by 2030. Because delay on the system is not predictable from one day to another, reliability for drivers would worsen. The large increase (44 percent) in VHD that would occur with the No Build Alternative includes an element of unpredictability that requires special accommodations in travel planning. Average travel times would increase somewhat under the No Build Alternative, but the impact on reliability would be more dramatic, especially in the morning. The reason is that drivers are forced to allocate more time to account for the possibility that delays will occur. These unknowns make it difficult to estimate a trip’s duration when scheduling appointments.

All transit riders would experience similar decreases in reliability under the No Build Alternative. Problems with turnbacks and schedule adherence already plague the transit system. These reliability factors are expected to get worse in the future as the highway system becomes more congested.

Under the Build Alternatives, reliability for transit riders would increase substantially as trips are moved from buses operating on streets in mixed traffic and congested freeways to the fixed guideway, which would provide a predictable travel time. Between 31 and 33 percent of transit trips and between 63 and 65 percent of transit passenger miles would be carried on an exclusive fixed guideway that is not subject to traffic delay (Table 7-3).

With the Build Alternatives, bus passengers would also realize service reliability as a result of route restructuring that replaces long-haul bus routes with shorter local routes integrated with the fixed guideway system. Driver and bus transit reliability would also improve as a result of reduced congestion and delay on the highway.

The Build Alternatives would substantially improve transit reliability compared to the No Build Alternative. The transit reliability benefits of the three Build Alternatives differ slightly. The percentage of transit trips carried on the fixed guideway would be slightly greater for the Airport Alternative than for the other Build Alternatives.

7.1.3 Improve Access to Planned Development to Support City Policy to Develop a Second Urban Center

A goal of the Project is to support urban development consistent with the City General Plan (DPP 2002a), which is the blueprint for future population and employment growth. By providing improved mobility and access, a fixed guideway transit facility can serve as a catalyst for shaping development patterns in a corridor.

Although all of the alternatives are generally consistent with Local, District, and State plans, the Build Alternatives best serve the areas of O’ahu designated for future growth and development.

Compared to the No Build Alternative, the Build Alternatives would support a greater amount of development and redevelopment around stations by enhancing access and supplying a daily influx of transit riders and potential customers for businesses. Differences between the Build Alternatives would be small.

The relative effectiveness of the Build Alternatives is presented in Table 7-4. As shown, the benefits are similar in terms of providing better access to the “second city” planned for Kapolei. As shown in Table 7-2, transit travel times from Kapolei to Ala Moana Center would be reduced by between 40 and 45 percent as a result of the Project compared to the No Build Alternative. The improved transit conditions are further illustrated in Figure 7-1, which shows travel time savings for the majority of

Table 7-3 Effectiveness of Alternatives in Improving Corridor Travel Reliability

Objective	2007 Existing Conditions	Alternative			
		2030 No Build	2030 Salt Lake	2030 Airport	2030 Airport & Salt Lake
Percent of transit trips carried on fixed guideway	0%	0%	31%	33%	32%
Percent of transit passenger miles in exclusive right-of-way	3%	4%	63%	65%	64%

Table 7-4 Effectiveness of Alternatives in Supporting Planned Development

Objective	Alternative			
	2030 No Build	2030 Salt Lake	2030 Airport	2030 Airport & Salt Lake
Development within Station Area Compared to Existing Amount of Development				
Growth in population 2007 to 2030	n/a	59,580	59,720	59,640
Growth in employment 2007 to 2030	n/a	26,440	27,070	27,600

transit users in ‘Ewa and Central O‘ahu, which are areas planned for future development. By providing better transit access, the Kapolei area would be better able to grow and develop than it would be if it remained isolated from the rest of the region by congested roadways.

Differences between the alternatives relate to the amount of development that would be allowed at each station area. The Airport Alternative has greater potential benefit in this regard, because the growth in trips within walking distance of transit stations would be slightly higher than with the other Build Alternatives.

7.1.4 Improve Transportation Equity

Equity relates to the fair distribution of a project’s benefits and impacts, so that no group would carry an unfair burden of a project’s negative environmental, social, or economic impacts or receive less than a fair share of a project’s benefits. This section focuses on considering the following evaluation criteria:

- Population segments benefiting from alternative investments
- Population segments paying for alternative investments
- Net benefits by population segment, compared to needs
- Travel-time savings for transit-dependent populations

Approximately 35 percent of O‘ahu’s population currently lives in areas that have concentrations of communities of concern. Communities of

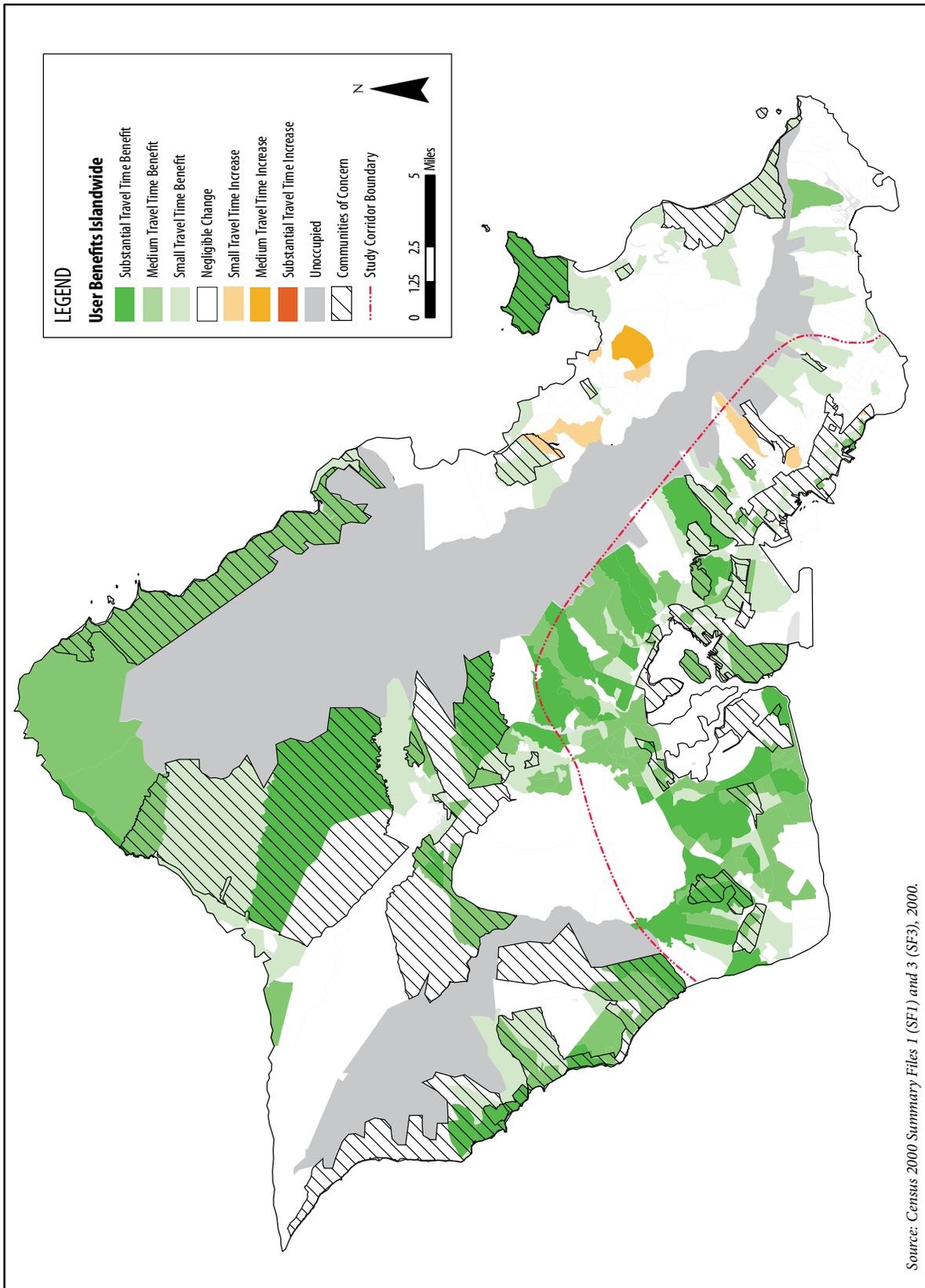
concern are defined as concentrations of minority, low-income, transit-dependent, and linguistically isolated households (Figure 7-1).

A majority of the population living in communities of concern is located within or adjacent to the study corridor (Figure 7-1). The Project would provide service where the transit need is greatest, connecting areas that have the highest transit dependency, which includes communities of concern. The percentage of the population within communities of concern that would be located within one-half mile of a transit station is shown in Table 7-5.

Table 7-5 Population of Communities of Concern within Easy Walking Distance of Stations in 2030

Alternative	Percentage of Communities of Concern within One-Half Mile of Fixed Guideway Stations
No Build	n/a
Salt Lake	37%
Airport	36%
Airport & Salt Lake	38%

The Project would provide transit travel-time savings to approximately 65 percent of the islandwide population in 2030 compared to the No Build Alternative (Table 7-6). Of the 35 percent of the island’s population that resides in areas containing concentrations of communities of concern, over half would realize a substantial transit travel-time savings. The rest of



Source: Census 2000 Summary Files 1 (SF1) and 3 (SF3), 2000.

Figure 7-1 Communities of Concern and User Benefits for the Build Alternatives Compared to the No Build Alternative

Table 7-6 Equity Comparison of 2030 Transit Travel-Time Savings for Build Alternatives Compared to the No Build Alternative

Effect on Transit Travel Time	Percent of Islandwide Population		
	Within Communities of Concern	Outside Communities of Concern	Total
Travel-time savings compared to the No Build Alternative	23%	42%	65%
Negligible travel-time change compared to the No Build Alternative	12%	21%	33%
Travel-time increase compared to the No Build Alternative	0%	2%	2%
Total	35%	65%	100%

the island’s population that resides in areas with concentrations of communities of concern would experience little change in transit travel time as a result of the Project. Approximately 2 percent of the population would experience an increase in travel times, and less than 0.5 percent of the areas that would experience a substantial increase in transit travel times contain high concentrations of communities of concern.

Tourists pay approximately 30 percent of the general excise and use tax surcharge collected, which is the Project’s local funding source. The remaining local transit investment costs are distributed throughout the Island proportional to how much each individual expends on goods and services.

The Build Alternatives would substantially improve transportation equity compared to the No Build Alternative. Although adverse effects would occur with each Build Alternative, these effects would be similar for each. Based on demographics within the study corridor, the need for public transit is greatest within the areas served by the Project.

7.2 Transportation and Environmental Consequences

The Build Alternatives’ effect on transportation and the environment would differ substantially from the No Build Alternative but would only vary slightly among the Build Alternatives.

7.2.1 Transportation

Each Build Alternative would have a positive effect on transit use within the study corridor, which would help reduce delay in the transportation system as a whole, regardless of travel mode. Although each Build Alternative would be effective in attracting high transit ridership, the highest number of transit trips would occur with the Airport Alternative (Table 7-2). The Salt Lake Alternative would have the shortest end-to-end transit travel time. The time to specific destinations would vary depending on the destination and the alignment. However, with the exception of destinations within the Airport and Salt Lake areas, the differences would be very small (within 1 to 2 minutes).

The Project would affect parking availability, both during construction and permanently once the Project is complete and in operation. The Airport & Salt Lake Alternative would remove approximately 1,200 parking spaces, which would be the most of all the Build Alternatives. The Airport Alternative would remove approximately 1,050 parking spaces, which would be the least of all the Build Alternatives. Mitigation of parking loss and the effects of spillover parking at stations could include replacing lost spaces or implementing parking management programs.

As indicated in Table 3-22 (in Chapter 3), the Salt Lake Alternative would affect more bicycle and pedestrian facilities along the study corridor, but

as with other aspects, these differences are minor among the Build Alternatives.

During the construction period, lanes would be closed for construction of the overhead guideway located in the median of existing roadways. Although the time to build these improvements would be kept as short as possible, one or more lanes in sections of major highways would be closed while columns are placed and the guideway erected. The greatest number of lane closures during construction would be required for the Airport & Salt Lake Alternative and the fewest would occur with the Airport Alternative. Through most of the study corridor, these closures would be the same for all Build Alternatives.

7.2.2 Environmental Consequences

The Project would convert between 145 and 165 acres of land to transportation use (Table 4-3 in Chapter 4). The Airport Alternative would require the least land conversion, and the Airport & Salt Lake Alternative would require the most. Any of the Build Alternatives would convert approximately 88 acres of currently prime, unique, or important farmland to transportation use. However, all the land that would be converted is within the area planned for conversion to non-farm use by other projects. The number of property acquisitions and displacements would vary slightly among the Build Alternatives, with the fewest acquisitions for the Airport Alternative at 182 affected properties and the most for the Airport & Salt Lake Alternative with 208 affected properties (Table 4-5 in Chapter 4). The Build Alternatives would have similar visual effects, with differences only between Aloha Stadium and Kalihi.

The guideway's design would ensure that ground-level environmental noise levels with the Build Alternatives would be comparable to the No Build Alternative. Project-generated noise at two locations along Kamehameha Highway would

exceed the FTA impact criteria, resulting in moderate impacts.

Construction of the Project could encounter contaminated soils. Eight potentially contaminated sites would be affected by all of the Build Alternatives. One additional site would be affected by the Salt Lake and Airport & Salt Lake Alternatives.

The Salt Lake, Airport, and Airport & Salt Lake Alternatives would require removal of approximately 350, 550, and 650 street trees, respectively, and pruning of approximately 100, 100, and 150 additional street trees, respectively. Between 50 and 75 percent of the removed trees are anticipated to be able to be transplanted.

Archaeological resources and burials are anticipated to be encountered with any of the Build Alternatives. The likelihood of encountering burials is slightly greater for the Salt Lake and Airport & Salt Lake Alternatives than for the Airport Alternative. The Airport and Airport & Salt Lake Alternatives would affect more historic resources (including the Pearl Harbor National Historic Landmark) compared to the Salt Lake Alternative, but all of the Build Alternatives would adversely affect the same historic resources.

All Build Alternatives would result in reduced air pollution, energy consumption, and water pollution compared to the No Build Alternative. The differences among the alternatives would be small: the Airport Alternative would have the greatest benefit and the Salt Lake Alternative would have the least benefit for these elements of the environment. The Build Alternatives would have no substantial effect on geology; natural hazards; or threatened, endangered, or protected species.

7.3 Cost-effectiveness

The cost-effectiveness analysis compares the benefits of each alternative with its costs. It considers

whether an alternative’s benefit would justify its capital and operating costs and whether the added benefits of a more expensive alternative would justify the added costs.

Cost-effectiveness is one of the key criteria that FTA uses to evaluate projects proposed for Section 5309 New Starts funding. The FTA’s cost-effectiveness index is a ratio formed by adding an alternative’s annualized capital cost to its year 2030 operating and maintenance cost, and the total is divided by user benefits. Costs and benefits were both calculated compared to a baseline alternative that represents the best that can be done to improve transit service in the study corridor without building a fixed guideway transit facility.

The cost-effectiveness indices for the Build Alternatives compared to the baseline fall within the “medium” range established by FTA for its New Starts ratings, which, along with other considerations, is currently required to qualify for New Starts funding. FTA is currently reviewing the estimates made for ridership and user benefits, operating and maintenance costs, and capital costs for the Build Alternatives. If these results hold up through subsequent phases of project development, along with other FTA considerations, the Project would be in the competitive range for funding consideration. Funding recommendations are made each year from among the projects that have completed the planning and project development process, including the National Environmental Policy Act process. These recommendations reflect the merits of the projects competing for available Federal funds at the time, as well as the availability of New Starts funding authorization.

Comparing the Build Alternatives using the FTA cost-effectiveness index, the Salt Lake and Airport Alternatives achieve similar results (Table 7-7). The higher cost of the Airport Alternative would be offset by the higher ridership and user benefits for that alternative. The Airport & Salt Lake

Alternative would be less cost-effective because user benefits would not fully offset the additional costs.

Table 7-7 Cost-effectiveness of the Build Alternatives

Measure	Alternative		
	2030 Salt Lake	2030 Airport	2030 Airport & Salt Lake
Cost per hour of transportation system user benefits*	\$17.53	\$17.78	\$22.86

*FTA is currently reviewing the estimate of user benefits.

7.4 Financial Feasibility

7.4.1 Measure of Capital Financial Feasibility

The primary sources of capital for the Project are the general excise and use tax (GET) surcharge revenues and Federal New Starts funds. Any capital funding shortfalls, including any shortfall on debt repayment incurred from the issuance of bonds, would need to be covered using additional revenues from other as-yet-unidentified sources. The amount of other revenues required over and above GET surcharge and New Starts revenues provides a measure of the relative financial feasibility for each Build Alternative (Table 7-8).

The Salt Lake and Airport Alternatives would be financially feasible based on this measure, because they would not require additional funding sources beyond the GET surcharge revenues and Federal New Starts funds. The Airport & Salt Lake Alternative would require additional revenues, given the assumptions underlying the financial analysis in Chapter 6, Cost and Financial Analysis. If the Airport & Salt Lake Alternative was constructed in phases, the phase between the Middle Street Transit Center and the Airport would also require additional revenue.

Table 7-8 Financial Feasibility

	2030 No Build Alternative	2030 Salt Lake Alternative	2030 Airport Alternative	2030 Airport & Salt Lake Alternative
Other City revenues required for capital (million year-of-expenditure dollars)	n/a	\$0 (\$24 surplus)	\$0	\$1,080
Average percentage of City General and Highway Funds needed for operating and maintenance	12%	14%	14%	14%

7.4.2 Measure of City Financial Contribution for Operating and Maintenance

Fare revenues and the GET surcharge would need to be supplemented to cover total future operations and maintenance costs. As with the current bus transit system, additional funding would be obtained through an allocation from the City’s General and Highway Funds. Between fiscal years 1994 and 2007, an average of 11 percent of the total revenue from General and Highway Funds revenues was spent on transit (the maximum was 15 percent in 2001). A measure of the relative operating financial feasibility for the Project is the City’s contribution to transit operations as a percentage of total forecast General and Highway Funds revenues.

7.4.3 Comparison of Alternatives

The Salt Lake and Airport Alternatives would be financially feasible with the currently identified capital revenue sources. All Build Alternatives would increase the total operation and maintenance subsidy from the City’s General and Highway Funds.

7.5 Important Trade-offs

All Build Alternatives would provide similar levels of transportation benefit. However, benefits are somewhat different in communities that would be served by each alternative. Table 7-9 compares transit travel times for several locations that would be served differently by each of the three Build Alternatives. All travel times would be greater for

the No Build Alternative than for any of the Build Alternatives.

At \$3.9 billion (2008 dollars), the Salt Lake Alternative would be the least expensive to construct and would carry the fewest passengers, with 88,000 daily passengers in 2030 (Table 3-16 in Chapter 3). It would provide the most direct connection between the ends of the study corridor, resulting in a slight increase in through trips but a substantially smaller number of trips to Pearl Harbor Naval Base and Honolulu International Airport compared to the other Build Alternatives. It would directly serve residential areas in the Salt Lake neighborhood.

The Airport Alternative would cost more than the Salt Lake Alternative but would carry the most passengers with 95,000 daily passengers in 2030. It would provide access to employment centers at Pearl Harbor Naval Base and Honolulu International Airport and would have substantially greater ridership to those areas than the Salt Lake Alternative. It would serve the Salt Lake neighborhood with connecting bus service.

The Airport Alternative would have approximately 5 percent fewer parcel acquisitions than the Salt Lake Alternative. It would also result in slightly less air pollution and energy consumption. Because of its proximity to the Pearl Harbor National Historic Landmark, it would have more of an effect on the setting of historic resources than the Salt Lake Alternative. The Airport Alternative would affect one additional Section 4(f) resource.

Table 7-9 Comparison of Transit Travel Times (Minutes) among Alternatives

Travel Origin and Destination	2030 No Build Alternative	2030 Salt Lake Alternative	2030 Airport Alternative	2030 Airport & Salt Lake Alternative
From `Ewa to Pearl Harbor	99	62	48	50
From `Ewa to Salt Lake	109	53	63	55
From Salt Lake to Downtown	41	26	32	27
From `Ewa to Airport	115	65	51	53
From Airport to Downtown	43	38	21	22

Overall, the differences in effects on environmental resources among these alternatives would not be significant.

The Airport & Salt Lake Alternative would directly serve both the Salt Lake and Airport areas, but at \$5.0 billion (2008 dollars) the cost to complete this alternative would be greater than currently identified available funds. The Airport & Salt Lake Alternative could be constructed in phases, with completion of the guideway between East Kapolei and Ala Moana Center along Salt Lake Boulevard followed by a connection from Middle Street Transit Center to the Airport. The connection from the Airport to Aloha Stadium would be completed as the final phase of the Project when additional funds become available.

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08

CHAPTER

Comments and Coordination

Agencies, non-governmental groups, and the public have been engaged throughout the planning process for the Honolulu High-Capacity Transit Corridor Project, as required by Federal and State law. The National Environmental Policy Act (NEPA) (USC 1969) mandates agency and public participation in defining and evaluating the impacts of the project alternatives. The Project has followed Section 6002 of the *Safe, Accountable, Flexible, Efficient, Transportation Equity Act—A Legacy for Users* (SAFETEA-LU) (PL 2005) guidance for federally funded projects. It has also followed U.S. Department of Transportation guidelines for public participation, including Title VI of the Civil Rights Act of 1964 (USC 1964c) and Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (USEO 1994).

The requirements of Chapter 343 of the Hawai‘i Revised Statutes (HRS) (HRS 2008) and implementing regulations contained in Title 11, Chapter 200 (HAR 1996) of the Hawai‘i Administrative Rules (HAR) also include consultation with agencies, citizen groups, and concerned individuals

during the Project. Coordination activities required under the implementing regulations of Section 106 of 36 CFR 800, *Protection of Historic and Cultural Properties*, have also been implemented during the course of the Project.

NEPA and HRS 343 require that a Draft Environmental Impact Statement (EIS) provide full disclosure of the environmental impacts associated with a proposed action. The agencies and the public must be given a reasonable opportunity to comment on that action.

8.1 Public and Community Outreach

The Project’s public involvement efforts began with the Project’s Alternatives Analysis phase in December 2005. Opportunities for public comment and information sharing will continue throughout the remainder of the Project, using the now well-established network of existing civic and community groups.

The Public Involvement Plan (PIP) developed for the Alternatives Analysis and Draft EIS phase

details public involvement strategies to be used throughout the Project. Its fundamental goal is to engage, inform, and respond to the public. As public comments are received and evaluated, the PIP will be updated and revised to reflect changes in the Project and ensure that coordination is thorough, effective, and relevant.

8.1.1 Public Outreach Techniques

To reach as many community members as possible, a wide variety of public involvement tools have been used throughout the Project. Informational materials produced on an ongoing basis include monthly newsletters, fact sheets, brochures, media releases, public meeting announcements, and other relevant project handouts. At the conclusion of the Alternatives Analysis, a video was produced highlighting the report's findings. Complementing materials include the project website (honolulutransit.org), telephone information line (808-566-2299), radio programs, and a monthly show on public access television.

Islandwide community updates were held during the course of the Project to share information and gather input on significant milestone decisions. The Project maintains an active Speakers Bureau to provide informational presentations to community groups, agencies, and organizations. A full list of Speakers Bureau presentations is included in Appendix E, General Record of Correspondence and Coordination. To date, over 1,500 comments on the Project have been submitted through the website, and over 400 have been received via the project information line.

8.1.2 Government and Other Agency Coordination

Government agencies that have an interest in and/or regulatory authority regarding the Project have been actively engaged. These agencies were sent scoping information and requests to become participating or cooperating agencies during the environmental process.

Feedback was solicited from the following government and other agencies through direct contact:

- Elected officials
- Neighborhood Boards
- The Transit Advisory Committee (formerly the Transit Solutions Advisory Committee)
- Governmental agencies and stakeholders
- Interested organizations

Appendix D includes a list of governments, agencies, and organizations contacted.

Lead, Cooperating, and Participating Agencies

The Council on Environmental Quality defines *lead agency* as the agency or agencies preparing or taking primary responsibility for preparing an EIS. Lead agencies for the Project include the City and County of Honolulu Department of Transportation Services Rapid Transit Division (RTD) and the Federal Transit Administration (FTA). RTD is the local transit agency, the designated recipient of project funds, and a co-lead agency with the FTA.

The Council on Environmental Quality defines a *cooperating agency* as any Federal agency (other than a lead agency) with jurisdiction by law or special expertise with respect to any environmental impacts that may be involved in a proposed project or project alternative (40 CFR 1508.5). A State or Local agency with similar qualifications may, with agreement from the lead agencies, also become a cooperating agency.

Also, pursuant to 40 CFR 1506.3, "a cooperating agency may adopt without recirculating the Draft EIS of a lead agency when, after an independent review of the statement, the cooperating agency concludes that its comments and suggestions have been satisfied."

Cooperating agencies for the Project include:

- U.S. Department of Defense (U.S. Army Corps of Engineers)—the Project will likely require the U.S. Army Corps of Engineers'

- permits and approval related to stream crossings along the alignment.
- U.S. Department of Defense (U.S. Army Garrison–Hawai‘i)—the Project will likely require the U.S. Army’s approval related to crossing U.S. Army property.
 - U.S. Department of Homeland Security (U.S. Coast Guard–14th Coast Guard District)—the Project will likely require the U.S. Coast Guard’s permits and approval related to crossing streams and navigable waterways.
 - U.S. Department of Transportation, Federal Highway Administration—the Project will likely require the Federal Highway Administration’s approval related to crossing and accessing the interstate highway system.
 - State of Hawai‘i Department of Transportation—the Project will likely require the State of Hawai‘i Department of Transportation’s approval related to using state rights-of-way.

Participating agencies are those with an interest in the Project. The standard for participating agency status is broader than for cooperating agency status. According to SAFETEA-LU regulations, “any Federal, State, regional, and local government agency that may have an interest in the project should be invited to serve as participating agencies. Nongovernmental organizations and private entities cannot serve as participating agencies.”

For this Project, participating agencies include:

- U.S. Department of Agriculture (Natural Resource Conservation Service)
- U.S. Department of Defense (U.S. Naval Base Pearl Harbor)
- U.S. Department of the Interior (Fish and Wildlife Service)
- U.S. Department of the Interior (National Park Service)
- U.S. Department of the Interior (U.S. Geological Survey Pacific Island Ecosystems Research Center)

- U.S. Department of Transportation, Federal Aviation Administration
- U.S. Environmental Protection Agency
- U.S. Federal Emergency Management Agency
- State of Hawai‘i Department of Accounting and General Services
- State of Hawai‘i Department of Business, Economic Development, and Tourism
- State of Hawai‘i Department of Defense
- State of Hawai‘i Department of Education
- State of Hawai‘i Department of Hawaiian Home Lands
- State of Hawai‘i Department of Health
- State of Hawai‘i Department of Land and Natural Resources
- State of Hawai‘i Department of Land and Natural Resources (State Historic Preservation Division)
- State of Hawai‘i, Hawai‘i Community Development Authority
- State of Hawai‘i Office of Environmental Quality Control
- State of Hawai‘i Office of Hawaiian Affairs
- University of Hawai‘i
- O‘ahu Metropolitan Planning Organization

Participating agencies were identified and invited to participate at the start of the NEPA process. Their participation includes providing input to scoping, development of the Purpose and Need, and identification of potential effects. Project scoping and issuance of the Draft EIS provide official comment periods for the public and participating and cooperating agencies.

The lead, cooperating, and participating agencies have worked cooperatively throughout the Project’s environmental process, as required by the SAFETEA-LU regulations described in this chapter. During this process, their main goal is to ensure that all agency concerns are satisfactorily addressed and that the permit review and approval process proceeds smoothly and expeditiously.

Table 8-1 summarizes the roles and responsibilities of the Project’s lead, participating, and cooperating agencies. Appendix D includes agency correspondence.

8.1.3 Section 106 and Consulting Party Coordination

The lead agency is responsible for complying with Section 106 of the National Historic Preservation Act. Section 106 requires the lead agency to “accommodate historic preservation concerns with the needs of Federal undertakings through consultation among the agency official and other parties with an interest in the effects of the undertaking on historic properties...” (36 CFR 800.1(a)). Although other parties are consulted for their input, the Federal agency has the authority to make all decisions.

To comply with Section 106, consultation with the State Historic Preservation Division (SHPD) has been continuous since October 2007. SHPD has agreed on methodologies and definitions of the Area of Potential Effect. Agreement on the significance of properties within the study corridor is anticipated. The Project team is currently

consulting with SHPD regarding Memorandums of Agreement for potential impacts to archaeological, cultural, or historic resources. The final results of consultation with the SHPD on assessing effects will be included in the Final EIS.

Opportunities for ongoing public input on historic, cultural, and archaeological resources will continue through the remainder of the EIS process. Members of the public will have an opportunity to review and comment on archaeological, cultural, and historical resource findings during the Draft EIS public hearing and public comment period.

Consulting parties who have a demonstrable interest in historic properties that may be affected are invited to participate in a proposed project’s Section 106 process. The City sent letters to Section 106 consulting parties inviting them to be consulting parties for the Project’s Section 106 process and also to update them on the Archaeological Resources, Cultural Resources, and Historic Resources Technical Reports. Project team members are also meeting with Section-106 consulting parties to refine the technical reports and to also inform them on the Project and upcoming

Table 8-1 Summary of Agency Roles and Responsibilities

Agency Designation	Role	Responsibility
Lead	Primary responsibility: ensuring compliance with NEPA and preparing the environmental document.	Requests participation from other agencies; provides project information; conducts field reviews; holds scoping meetings; provides pre-draft and pre-final documents; ensures documentation is adequate for project and related decisions; and makes final decisions on key milestones.
Cooperating	Any Federal agency, other than a lead agency, that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposed project or project alternative (may also be a State agency).	Participates early in the NEPA process; participates in developing the Purpose and Need and alternatives and in the scoping process; develops information and analysis; provides staff support; attends joint field reviews; participates in public involvement activities; reviews draft environmental documents; and provides comments.
Participating	Any Federal, State, Regional, or Local government agency that may have an interest in a proposed project. Nongovernmental organizations and private entities cannot serve as participating agencies.	Participates in developing the Purpose and Need and alternatives and identifying potential impacts during scoping and the Draft EIS. Will be briefed on the Project before issuance of the Draft EIS.

activities. The following organizations are Section-106 consulting parties:

- State of Hawai‘i Department of Land and Natural Resources (State Historic Preservation Division)
- U.S. Department of Defense (U.S. Naval Base Pearl Harbor)
- Historic Hawai‘i Foundation
- University of Hawai‘i Historic Preservation Certificate Program
- American Institute of Architects
- Hawai‘i Community Development Authority (for Kaka‘ako and Kalaeloa)
- Office of Hawaiian Affairs
- O‘ahu Island Burial Council
- Hui Malama I Na Kupuna O Hawai‘i Nei (Group Caring for the Ancestors of Hawai‘i)
- Royal Order of Kamehameha
- The Ahahui Ka‘ahumanu (civic club formed in 1864 to celebrate the life of Queen Ka‘ahumanu)
- The Hale O Na Ali‘i O Hawai‘i
- The Daughters and Sons of the Hawaiian Warriors
- Association of Hawaiian Civic Clubs
- 15 Individual Hawaiian Civic Clubs

Appendix D includes copies of all Section 106 correspondence.

8.1.4 HRS Chapter 343 Coordination

The EIS preparation notice for this Project was published in the Hawai‘i Office of Environmental Quality Control’s (OEQC’s) Environmental Notice on December 8, 2005, thus beginning the 30-day comment period under HRS 343 for the Project. Comments received are contained in the *Honolulu High Capacity Transit Corridor Project Scoping Report* (DTS 2006d) located in Appendix E.

Written responses were prepared and sent to all commenters who provided either a mailing address or an e-mail address for responses. This Draft EIS addresses comments and issues raised during the

EIS preparation notice comment period and issues noted during the NEPA scoping process in 2007.

HRS 343 and its implementing regulations contained in Title 11, Chapter 200, of the HAR, require that agencies, citizen groups, and concerned individuals be consulted for input. Interested parties may request consulting party status to receive ongoing project and coordination information. Downtown Neighborhood Board No. 13 and the Outdoor Circle requested and were granted consulting party status under HRS 343. Both parties have received periodic updates on the Project, and consultation activities will continue throughout the Project.

Notification of the Draft EIS will also be published in the OEQC Environmental Notice. This will begin the 45-day comment period for the EIS. All comments submitted will be separately addressed on a point-by-point basis, and written responses will be prepared and sent. Responses will also be included in the Final EIS. All agencies, citizen groups, and concerned individuals who submitted comments during the comment period will also be sent a copy of the Final EIS once it is issued.

8.2 Community Outreach during the Alternatives Analysis Phase

Federal regulations (40 CFR 1501) require scoping to follow publication of a Notice of Intent to prepare an EIS and take place before the Draft EIS is prepared. A public meeting was held during the scoping process. Notice of this meeting was published in the *Federal Register*, in local newspapers, and through other means of announcing public meetings.

An initial Notice of Intent was published for the Project on December 5, 2005. Two public scoping meetings and one agency scoping meeting were held in December 2005. The first public meeting was on December 13, 2005 at the Neal S. Blaisdell

Center Pikake Room at 777 Ward Avenue in Downtown Honolulu from 5:00 to 8:00 p.m. The second public meeting was on December 14, 2005 at the Kapolei Middle School Cafeteria at 91-5335 Kapolei Parkway in Kapolei, from 7:00 to 9:00 p.m. Agencies, non-governmental groups, and the general public were given the opportunity to comment on the Project's Purpose and Need, alternatives, and other project issues.

The comment period for these scoping meetings ended on January 9, 2006. In all, 528 comments were received via mail, website, and telephone and at the meetings (requests to be placed on the mailing list were not included in this total). Comments were grouped into three categories: Purpose and Need, Alternatives, and Scope of Analysis.

The agency scoping meeting was on December 13, 2005 at the Neal S. Blaisdell Center Pikake Room at 777 Ward Avenue from 2:00 to 4:00 p.m. Invitation letters were mailed between December 5 and 7, 2005 to 87 Federal, State, and County agencies and to utility companies. This meeting was attended by 20 agencies and utility companies. Comments were received from the following agencies and utilities:

- U.S. Department of Transportation, Federal Aviation Administration
- U.S. Environmental Protection Agency
- U.S. National Park Service
- Hawai'i Community Development Authority
- State of Hawai'i Department of Accounting and General Services
- State of Hawai'i Department of Education
- State of Hawai'i Department of Hawaiian Home Lands
- State of Hawai'i Department of Land and Natural Resources
- State of Hawai'i Office of Environmental Quality Control
- Office of Hawaiian Affairs
- University of Hawai'i

- City and County of Honolulu Department of Design and Construction
- City and County of Honolulu Fire Department
- Downtown Neighborhood Board No. 13
- Hawaiian Electric Company

Project personnel attended 104 neighborhood board meetings and 204 Speakers Bureau events during the Project's Alternatives Analysis phase.

The Alternatives Analysis was completed in October 2006 and submitted to the City Council for use in its selection of a Locally Preferred Alternative. Agency and public comments on the Alternatives Analysis were generally categorized as either supporting a specific alternative or opposing the Project. Numerous other general comments or questions did not directly support or oppose specific options.

8.3 Community Outreach during the Project's Preliminary Engineering/EIS Phase

Another series of public and agency scoping meetings was held prior to beginning the Project's preliminary engineering (PE)/EIS phase. A Notice of Intent was published on March 15, 2007 stating that this notice superseded the previous Notice of Intent published on December 5, 2005.

Agencies, non-governmental groups, and the general public were again given the opportunity to comment on the Project's Purpose and Need, alternatives, or other project issues. Coordination is currently continuing with cooperating and participating agencies. Meetings with individual agencies have been held to discuss and finalize evaluation methods and project issues and to collect project data.

Three public scoping meetings were held in March and April 2007. The first was on March 28, 2007 at

Kapolei Hale at 1000 Uluohia Street from 6:00 to 9:00 p.m. The second was on March 29, 2007 at McKinley High School at 1039 South King Street from 5:00 to 8:00 p.m. The third was on April 3, 2007 at Salt Lake Elementary School at 1131 Ala Liliko'i Street from 5:00 to 8:00 p.m.

There were 104 comments received via mail, website, and telephone and at scoping meetings. The following types of comments were not included in this total: requests to be placed on the mailing list, comments on alternatives already considered and/or eliminated from further consideration, comments on new alternatives considered previously and eliminated, Council hearing comments from the Alternatives Analysis phase, and taxation comments.

An agency scoping meeting was held on March 28, 2007 at Honolulu Hale, Mission Memorial Auditorium, 550 King Street from 10:00 a.m. to 12:00 p.m. Twenty agencies attended.

The public involvement techniques used during the Alternatives Analysis phase will continue throughout the PE/EIS phase. In addition to updating groups and organizations on the Project's progress, additional presentations have been made to new groups and organizations. Public meetings have been held throughout the study corridor in the form of community updates, participation in the Town Hall meetings, and informational displays. Project personnel have also attended Neighborhood Board meetings and have been available via radio call-in shows. The Project website and hotline are updated and maintained.

Cooperating agencies have been offered the opportunity to be briefed on the Project and given an opportunity to comment on the Draft EIS. Cooperating agencies will be invited to attend the Draft EIS public hearings. Participating agencies will receive a copy of the Draft EIS for review and

comment and will be invited to attend the Draft EIS public hearings.

All cooperating agencies will receive a preliminary copy of the Final EIS for review and comment prior to its distribution. All Participating Agencies will receive a copy of the Final EIS, and will receive notification when the Record of Decision is issued.

Agencies with permitting authority will continue to be consulted during the permit application process. Permit applications will be submitted, and data will be developed to support the needs identified by permitting agencies.

8.4 Public Hearings

As part of the NEPA and HRS 343 process, the Draft EIS is being circulated for a 45-day review and comment period. During this period, the document is being made available to interested and concerned parties, including residents, property owners, community groups, the business community, elected officials, and public agencies, for public and agency comment.

A series of formal public hearings will also be held during this 45-day period. The purpose of the hearings is to give interested parties an opportunity to formally submit comments on the Project and the analysis contained in the Draft EIS. Attendance at the hearings is not required to submit comments. Responses to comments received will be addressed in the Final EIS.

8.5 Accommodations for Minority, Low-Income, and Persons with Disabilities

All meetings are held in handicapped-accessible facilities in compliance with the Americans with Disabilities Act. Every effort has been made to respond to members of the public who require a sign language interpreter, an assistive learning

system, a translator, or any other accommodations to facilitate participation in the transit planning process. Every reasonable effort is made to accommodate individuals requiring assistance.

Executive Order 12898 requires that, as part of the environmental evaluation of the alternatives, the Project must address environmental justice issues. To comply with this requirement, community demographics and socioeconomic impacts were carefully considered in analyzing the alternatives. The public participation process ensures “full and fair participation by potentially affected communities” throughout the duration of the Project.

Particular attention has been paid to reaching low-income and minority populations that are traditionally underserved and underrepresented in the public involvement process. Materials have been prepared in the major languages used on O‘ahu, and translators have been available upon request at meetings. Information has been distributed through cultural organizations, ethnic associations, housing associations, community development groups, and similar organizations. Community issues brought forth in community meetings, during stakeholder interviews, and at public workshops have been addressed as part of evaluating the project alternatives.

The use of public involvement techniques to engage communities of concern consists of public information materials offered via the project website, handed out at meetings or other community events, and provided through the Speakers Bureau program. To reach populations who do not speak and/or read English, information on how to obtain reading materials in their native languages has been provided. An informational flyer has been developed in 11 languages (Chinese, English, Hawaiian, Ilocano, Japanese, Korean, Laotian, Samoan, Spanish, Tagalog, and Vietnamese) and is continually updated as new project information is available. For these translated materials, the major

languages spoken on the Island were selected. These flyers have been mailed to potential environmental justice neighborhoods, handed out in person, and provided to churches and community service organizations.

As the Project has progressed, over 100 community service organizations have been included on the project mailing list. These organizations have also been provided with appropriate translated flyers to distribute to their communities.

Through the Speakers Bureau and literature deliveries, a concerted effort has been made to reach out to local churches, elderly care facilities, and community organizations that cater to these populations. All organizations that previously received presentations were contacted with requests to conduct new presentations to provide updates on the Project’s progress.