EXECUTIVE CHAMBERS

HONOLULU

BENJAMIN J. CAYETANO
GOVERNOR

November 29, 2002

The Honorable Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, 12th Floor
Honolulu, Hawaii 96813

Dear Ms. Soon:

With this letter, I accept the Final Environmental Impact Statement for the Primary Corridor Transportation Project, island of Oahu, as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes. The economic, social, cultural, and environmental impacts, which will likely occur should this project be implemented, are adequately described in the statement. The analysis, together with the comments made by reviewers, provides useful information to policy makers and the public.

My acceptance of the statement is an affirmation of the adequacy of that statement under the applicable laws but does not constitute an endorsement of the proposed action.

I find that the mitigation measures discussed in the environmental impact statement will minimize the negative impacts of the project. Therefore, if this project is implemented, the City and County of Honolulu and/or its agents should perform these or alternative and at least equally effective mitigation measures at the discretion of the permitting agencies. The mitigation measures identified in the environmental impact statement are listed in the enclosed document.

With warmest personal regards,

Aloha,

/s/ Benjamin J. Cayetano

BENJAMIN J. CAYETANO

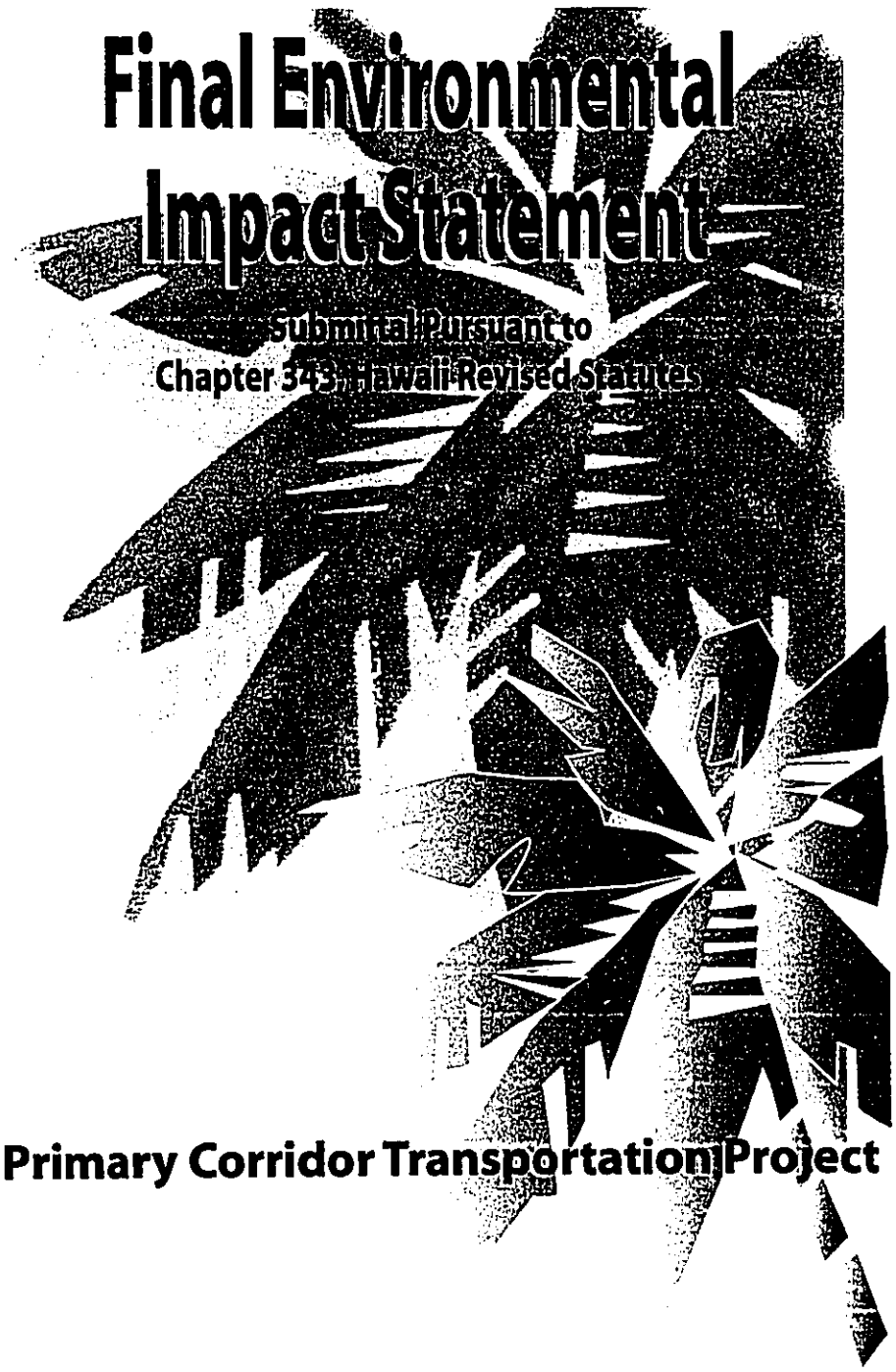
Enclosure

c: Honorable Bruce S. Anderson, Ph.D., M.P.H.
Office of Environmental Quality Control

2002-Oahu-FEIS-
Primary Corridor Transportation

Final Environmental Impact Statement

Submittal Pursuant to
Chapter 343, Hawaii Revised Statutes



VOLUME 1

Chapters 1 to 6
Appendices A and C
Glossary
Acronyms
Bibliography
List of Preparers
List of Recipients

Primary Corridor Transportation Project

City and County of Honolulu
Department of Transportation Services

NOVEMBER 2002

Primary Corridor Transportation Project

FINAL ENVIRONMENTAL IMPACT STATEMENT

SUBMITTED PURSUANT TO:

Chapter 343, Hawaii Revised Statutes; and Hawaii Administrative Rules
Title 11, Chapter 200, Environmental Impact Statement Rules

by

CITY AND COUNTY OF HONOLULU
DEPARTMENT OF TRANSPORTATION SERVICES

November 25, 2002
Date of Approval

Director
Department of Transportation Services
For City and County of Honolulu

The following person may be contacted for additional information concerning this document:

Ms. Cheryl Soon
Director
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Honolulu, Hawaii 96813
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This document and all ancillary documents were prepared under my direction.

Director, Department of Transportation Services
For City and County of Honolulu

Abstract

This Primary Corridor Transportation Project, Final Environmental Impact Statement (FEIS) responds to the comments received on the Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS) published in August 2002 and the Supplemental Draft Environmental Impact Statement (SDEIS) published in March 2002. It also reaffirms selecting the Bus Rapid Transit (BRT) Alternative as the Locally Preferred Alternative (LPA).

Actions described in this FEIS are intended to address existing and future mobility constraints in Oahu's primary transportation corridor. The primary transportation corridor extends from Kapolei in the Ewa District to the University of Hawaii-Manoa and Waikiki in the Primary Urban Center (PUC). Three alternatives are presented in this document: (1) The No-Build Alternative consists of a reconfiguration of the present bus network to a hub-and-spoke pattern, with modest expansion of bus service in developing areas (e.g., Kapolei) to maintain existing service levels; (2) The Transportation System Management (TSM) Alternative which features the reconfiguration of the present bus route network to a hub-and-spoke network, expansion of service by 14 percent over the No-Build Alternative, plus some bus priority treatments on arterials in the Primary Urban Center (PUC) and in Leeward Oahu; and (3) Refined Locally Preferred Alternative (Refined LPA): This alternative builds on the hub-and-spoke bus system in the other alternatives, and adds Regional and In-Town Bus Rapid Transit (BRT) routes. The Regional BRT element includes a continuous H-1 BRT Corridor from Kapolei to Downtown using an a.m. and p.m. contraflow zipper lanes and express lanes. The In-Town BRT component is a high capacity transit spine from Middle Street to Downtown, a University Branch from Downtown to UH-Manoa, a Downtown to Waikiki via Kakaako Mauka Branch, and a Downtown to Waikiki via Kakaako Makai Branch. All three alternatives include the recently updated regional highway plan contained in the Oahu Metropolitan Planning Organization's Transportation for Oahu Plan (TOP 2025).

This document includes copies of comments received on the MIS/DEIS and SDEIS plus the letters responding to those comments. In addition, this document presents the final analyses of these three alternatives in terms of transportation and environmental impacts, financial feasibility and funding sources, and cost-effectiveness. Transportation analyses include effects on transit service and other surface transportation systems, and transit ridership. Environmental parameters examined include land use, displacements and relocations, neighborhood setting, natural resources, air quality, noise, parklands, historic sites, visual resources and impacts during construction.

Copies of this document are available for review at the Department of Transportation Services, Office of Environmental Quality Control, Legislative Reference Bureau Library, Municipal Reference and Records Center, University of Hawaii Hamilton Library, and State Main and Regional Libraries on Oahu.

PREFACE

This Final Environmental Impact Statement (FEIS) is prepared in compliance with the Chapter 343, Hawaii Revised Statutes; and Hawaii Administrative Rules Title 11, Chapter 200. The City and County of Honolulu's Department of Transportation Services (DTS) is the proposing agency. A separate National Environmental Policy Act (NEPA) FEIS is in preparation. The Federal Transit Administration (FTA) is the federal lead agency for the NEPA document, with the Federal Highway Administration (FHWA), U.S. Army Corps of Engineers (ACOE), and Hawaii State Department of Transportation as cooperating agencies. The NEPA FEIS will be prepared in accordance with the National Environmental Policy Act of 1969, §102, 42 U.S.C. §4332: Federal Transit Laws, Title 49 U.S.C. Chapter 53, §5301(e), §5323(b) and §5324(b); Title 49 U.S.C. §303, formerly Department of Transportation Act of 1966, §4(f); National Historic Preservation Act of 1966, §106, 16 U.S.C. §470(f); Executive Order 11990 (Protection of Wetlands); Executive Order 11988 (Flood Plain Management); Executive Order 12898 (Environmental Justice).

The Department of Transportation Services (DTS) distributed the Primary Corridor Transportation Project Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS) to agencies and the public in August 2000. Following the release of the MIS/DEIS, there was an agency and public review period from August 23, 2000 to November 6, 2000. The MIS/DEIS analyzed and compared the environmental, social, transportation, and financial impacts of three alternatives: No-Build, Transportation System Management (TSM), and Bus Rapid Transit (BRT).

In addition to the MIS/DEIS public hearing (held October 12, 2000), special public hearings were conducted by the Honolulu City Council Transportation Committee on September 25 and October 5, 19, and 26, and November 14, 2000. On November 29, 2000, the Honolulu City Council selected the BRT Alternative as the Locally Preferred Alternative (LPA).

At the time of adopting the LPA, the City Council asked the DTS to continue public dialogue on the project. *Community working groups were formed to provide a forum for open dialogue between project sponsors and* neighborhood, civic, business, government and other organizations so that environmental and transportation issues and refinements to project proposals could be discussed. The working groups also provided the community with an opportunity to obtain a greater in-depth understanding about BRT and what it means for their communities.

As a result of the Working Groups and comments received on the MIS/DEIS, the DTS proposed to refine the LPA to include new and modified components, which the City Council endorsed on August 1, 2001. Since the proposed project refinements could result in significant environmental impacts, a Supplement Draft Environmental Impact Statement (SDEIS) was prepared. The State of Hawaii, Office of Environmental Quality Control (OEQC) approved the SDEIS for distribution on March 12, 2002. SDEIS printed copies were distributed to the public, libraries, community groups, and local, State, and federal agencies for review and comment by March 15, 2002. The agency and public review period was from March 23, 2002 to May 7, 2002. The SDEIS public hearing was held April 20, 2002.

For the MIS/DEIS, 152 comment letters were received from federal, state, and local agencies; elected officials; neighborhood boards; businesses; civic organizations; and citizens. Twenty-three people presented oral testimony at the MIS/DEIS public hearing. At the special Transportation Committee public hearings, 86 people presented oral and/or written testimony regarding the project.

For the SDEIS, 95 comment letters were received and 63 people gave oral testimony at the public hearing.

Many comments received expressed support or opposition to a particular alternative. Numerous substantive comments were also received during the MIS/DEIS and SDEIS public comment periods. The most frequently expressed concerns related to the following issues:

1. Costs and methods of financing a BRT alternative;
2. Traffic and transportation issues;
3. Community and social concerns; and
4. Anticipated ridership.

ORGANIZATION OF THE FEIS

The FEIS consists of an Executive Summary, seven chapters and five appendices. The Executive Summary presents the major findings in summary form. The Executive Summary is intended to provide the reader with a basic understanding of the mobility constraints in the primary transportation corridor, the alternatives considered to address these mobility constraints, and the major impacts associated with the alternatives.

Chapter 1, Purpose and Need, provides a description of the mobility problems in the primary transportation corridor, leading to a statement of the goals and objectives that this investment in transportation improvements is meant to achieve.

Chapter 2, Alternatives Considered, provides an overview of the screening and selection process that was applied to alternative transportation investments. Three alternatives are described and subjected to detailed assessment. This chapter discusses the capital and the operating and maintenance costs of each alternative. Alternatives considered, but not ultimately included, are also discussed here.

Chapter 3, Affected Environment, describes the existing social and natural environmental conditions in the primary transportation corridor. This discussion provides an understanding of the environment in which the transportation investments would take place, identifies sensitive resources, and benchmarks the environmental conditions so that an assessment may be made of the impacts that alternative transportation investments could create.

Chapter 4, Transportation Impacts, describes impacts on the transportation system that would result from the alternative transportation investments. Conditions are assessed based on projections to year 2025. The chapter emphasizes the performance of the transit and roadway systems.

Chapter 5, Environmental Consequences, discusses potential impacts of the alternatives on the built and natural environment, both during project construction and upon completion. Mitigation measures to reduce the level of adverse impact are described where appropriate. Specific elements analyzed in the chapter include:

- Land Use and Economic Development
- Displacements and Relocations
- Neighborhoods
- Visual and Aesthetic Resources
- Air Quality
- Noise and Vibration
- Ecosystems
- Water
- Energy
- Historic and Archaeological Resources
- Parklands
- Construction
- Conformance with Sections 106 and 4(f)

Chapter 6, Financial Analysis and Alternatives Comparison, presents information on the financial feasibility and funding sources for each alternative plus evaluates how well each alternative satisfies the project purposes and needs and compares the cost-effectiveness and equity of the alternatives.

Chapter 7, Responses to Comments, presents the oral and written comments received on the MIS/DEIS and SDEIS and the responses to those comments.

Appendix A summarizes the public and agency coordination processes. Appendix B contains conceptual engineering drawings of the alternatives. Appendix C contains correspondence pertaining to various formal environmental coordination processes.

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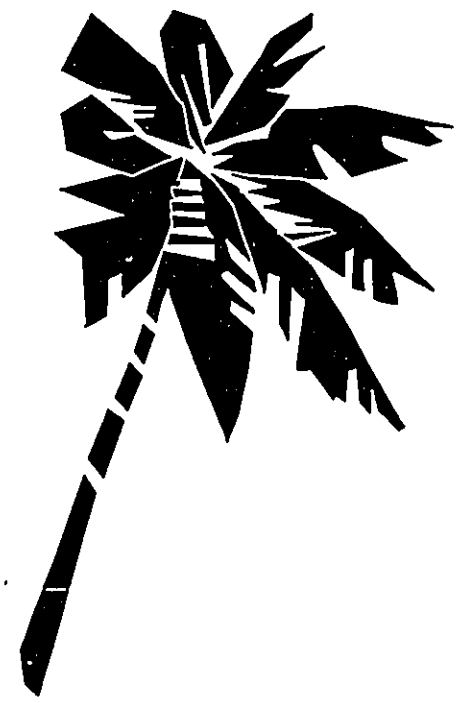

PRIMARY CORRIDOR TRANSPORTATION PROJECT
FINAL ENVIRONMENTAL IMPACT STATEMENT

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EXECUTIVE SUMMARY

The Refined Locally Preferred Alternative (Refined LPA) builds upon the already started conversion of the existing bus system to a hub-and-spoke network by adding a bus rapid transit (BRT) system comprised of the Regional BRT and In-Town BRT in the primary transportation corridor.

The Regional BRT portion of the corridor is approximately 17.5 miles long and includes extending the existing H-1 zipper lane three miles from Radford Drive onto the H-1 airport viaduct to the Keehi Interchange (Nimitz Highway), and constructing an approximately 6.5 mile long outbound, afternoon peak period contraflow zipper lane between Radford Drive and the Waiawa Interchange. Approximately 90 buses per hour will be using the zipper lanes during the peak periods to by-pass the congestion on H-1. To provide access for larger numbers of riders, the Regional BRT also includes constructing an exclusive BRT access-controlled ramp at Luapele Drive, and incorporating bus priority treatments to planned freeway ramps at Palailai Interchange in Kapolei and at the North-South Road Interchange.

The BRT is complemented by a series of other improvements identified in the Oahu Regional Transportation Plan (ORTP) and a network of 20 transit centers and park-and-rides. Seven of these transit centers and/or park-and rides already exist, two will be added as part of the Refined LPA, and eleven new ones will be added as part of the hub-and-spoke program independent of the Refined LPA. The Kapolei Transit Center and North-South Road Park-and-Ride are the two hub transit centers that will be built as part of the Refined LPA. Other projects assumed to be implemented separately that will complement the Refined LPA include the addition of an express lane in both directions for high occupancy vehicles on H-1 between Kapolei and Managers Drive. A peak period contra-flow lane for buses in the median of Kamehameha Highway between Waimano Home Road and Salt Lake Boulevard in Pearl City/Aiea is also assumed to be implemented.

The In-Town BRT will be a 12.8 route mile high-capacity transit system providing frequent service and direct access to major activity destinations and residential neighborhoods throughout Honolulu's urban core. It consists of three branches: the University of Hawaii–Manoa (UH-Manoa) Branch, the Kakaako Mauka Branch, and the Kakaako Makai Branch. These three BRT branches will have 32 transit stops. The In-Town BRT will operate in exclusive median lanes or curbside contra-flow lanes along 38 percent of its length. Along the rest of the alignment it will operate in semi-exclusive curb lanes (29 percent) or in mixed traffic (33 percent). Semi-exclusive lanes are shared with local buses and right-turning vehicles (as well as private buses in Waikiki). During peak periods, the In-Town BRT vehicles will operate at two-minute intervals between Middle Street and Downtown, at four-minute intervals between Downtown and UH, and at three-minute intervals between Downtown and Waikiki (where both Kakaako branches are combined). Off peak service will generally be half as often.

The In-Town BRT will use environmentally friendly, state-of–the-art technologies to provide fast, reliable service to riders. Its advanced features include electric powered, 60-foot long articulated buses with low floors that match the height of the station platforms, along with extra-wide doors and pre-payment of fares for ease of boarding, and traffic signal priority at selected intersections that allow the BRT to miss getting caught just as the traffic light is changing. These advanced features, coupled with limited stop spacing (between ¼ and ½ mile apart), priority lane treatments, and very frequent service will offer riders a true alternative to driving their cars.

Initially the In-Town BRT system will use hybrid-electric powered vehicles. A decision will be made in 2008 as to the final traction power technology. The options at that time will be to continue with hybrid–electric propulsion or to convert to an all-electric, touchable embedded-plate system.

S.0 ORGANIZATION

The purpose of this Final Environmental Impact Statement (FEIS) is to identify potential impacts resulting from the proposed implementation of the Refined Locally Preferred Alternative (Refined LPA). Figure S.0-1 shows the elements of the Refined LPA.

This chapter summarizes the findings of the FEIS, which encompass all project changes throughout the Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS) and Supplemental Draft Environmental Impact Statement (SDEIS) phases, to the present. Section S.1 summarizes the purpose and need for the project followed by Section S.2, which describes the alternatives that were considered, their evolution and the capital and operating and maintenance costs. Section S.3 summarizes the environmental impacts and analyses. Section S.4 discusses the financial analysis and cost-effectiveness analysis. Section S.5 summarizes the analysis of equity and environmental justice. Section S.6 describes trade-offs between the alternatives and issues for future consideration. Section S.7 lists the permits and approvals that are required. Section S.8 summarizes the unresolved issues.

S.1 PURPOSE AND NEED FOR ACTION

Oahu's primary transportation corridor, which stretches from Kapolei in the west to the UH-Manoa and Waikiki in the east (see Figure S.1-1), is the location of the vast share of the total travel occurring on the island. Existing transportation infrastructure in this corridor is overburdened handling current travel demand. Further investment is required to improve the effectiveness of the corridor's transportation infrastructure. Transportation improvements in the corridor will enhance mobility, reduce travel time and improve the quality of life for Oahu's residents and visitors.

Through continual public involvement and technical analysis, the following set of purposes and needs for a transportation investment in the primary transportation corridor was identified:

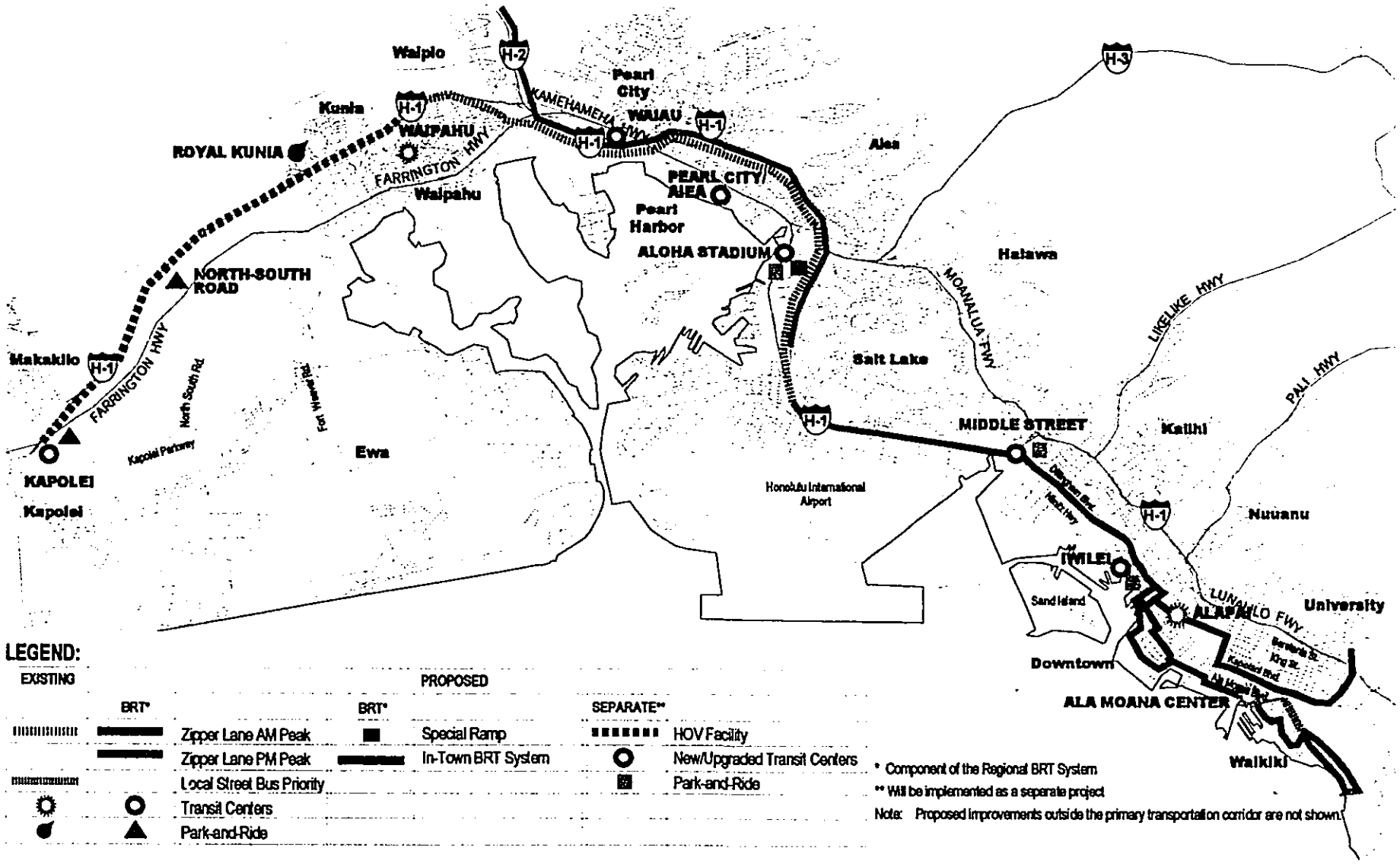
1. Increase the people-carrying capacity of the transportation system in the primary transportation corridor by providing attractive alternatives to the private automobile.
2. Support desired development patterns.
3. Improve the transportation linkage between Kapolei, which is envisioned to be the "Secondary Urban Center" of Oahu, and Honolulu's Urban Core.
4. Improve the transportation linkages between communities in the Primary Urban Center (PUC) to increase the attractiveness of in-town living.

S.2 ALTERNATIVES CONSIDERED AND THEIR EVOLUTION

S.2.1 Evolution of the Alternatives

The alternatives which are presented in the FEIS evolved through an iterative process wherein a wide range of options was progressively analyzed in increasing detail. The final result of this extensive process is the Refined LPA.

Even after the initial alternatives were narrowed down to the three best fit alternatives presented in the MIS/DEIS, these alternatives underwent continual refinement using input from many sources, including the Oahu Trans 2K meetings, formal "scoping" meetings held for the general public and agencies, working group meetings and additional agency and public input.



LEGEND:

EXISTING		PROPOSED			
	BRT*		BRT*		SEPARATE**
	Zipper Lane AM Peak		Special Ramp		HOV Facility
	Zipper Lane PM Peak		In-Town BRT System		New/Upgraded Transit Centers
	Local Street Bus Priority				Park-and-Ride
	Transit Centers				
	Park-and-Ride				

* Component of the Regional BRT System

** Will be implemented as a separate project

Note: Proposed improvements outside the primary transportation corridor are not shown.

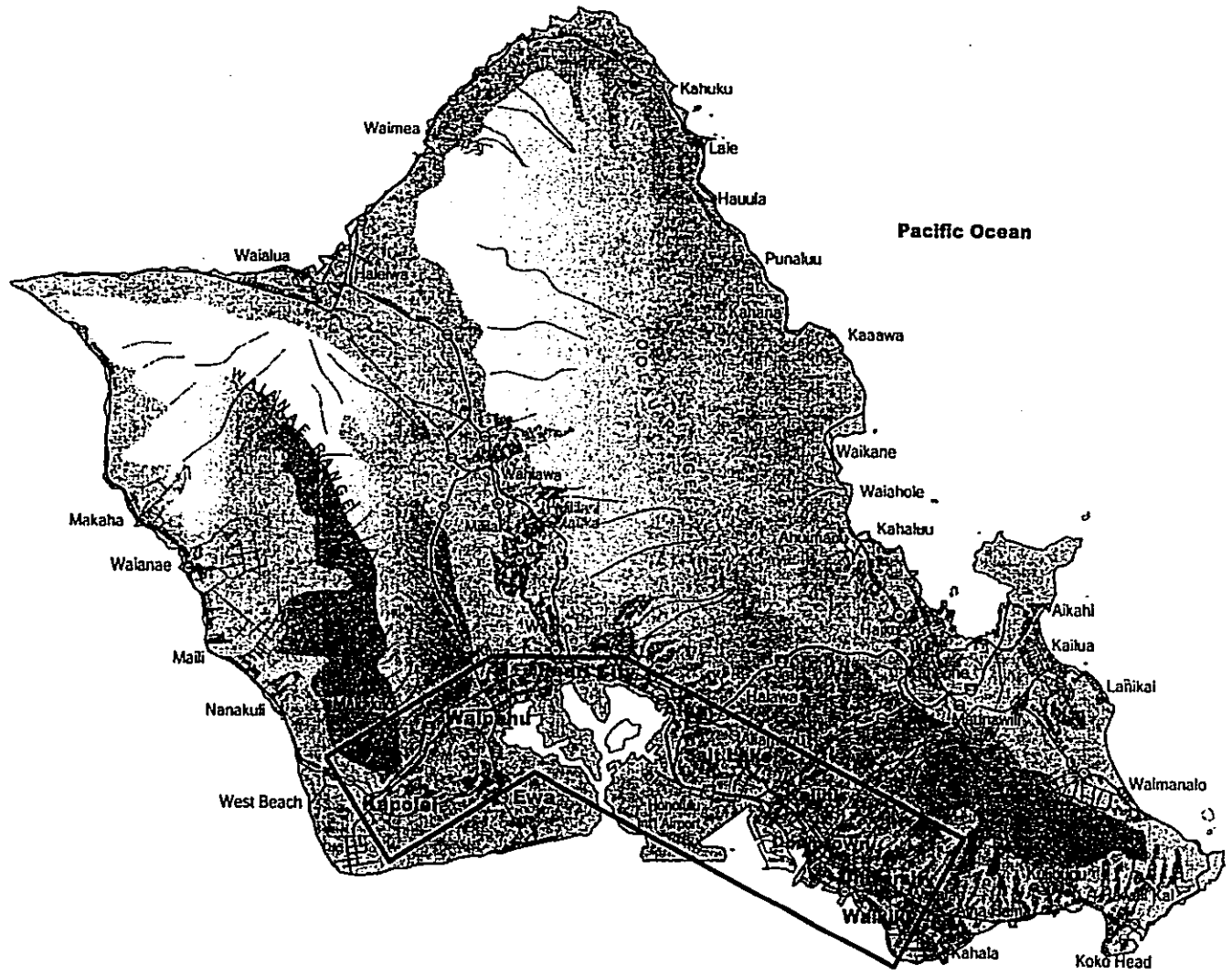
SOURCES:
City and County of Honolulu and Parsons Brinkerhoff, May 2002.

N

Scale: 0 1 2.0 mi

Refined Locally Preferred Alternative (LPA)

Figure S.0-1



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

N

Scale: 0 2 4 mi

Primary Transportation Corridor

Figure S.1-1

The first step in the evolution of the alternatives involved combining information gathered from public and agency outreach with the results of prior studies in order to identify a broad range of alternatives for consideration. Public input was obtained primarily through the 21st Century Oahu Visioning Process and its transportation component, Oahu Trans 2K. The 21st Century Oahu Visioning process began in September 1998, and consisted of a series of neighborhood-based community meetings designed to enhance opportunities for public input in planning a vision for Oahu's communities. The Oahu Trans 2K process involved four rounds of public meetings in 19 districts throughout the island and a fifth round islandwide meeting. In addition, a series of meetings were held with working groups representing six geographic subdivisions of the primary transportation corridor. Since project inception, over 500 meetings have been conducted for Oahu Trans 2K, community working groups, and outreach with agencies, individuals, businesses, institutions, and organizations.

In addition to public and agency input, alternatives were developed based on site visits, review of City and State plans, existing and projected land use and travel demand patterns, environmental constraints, and other research. Transportation alternatives were configured to support land uses that would facilitate transit ridership and contribute to sustainable, livable communities. This will maximize the efficiency and effectiveness of the transportation system, and create a mutually supportive transportation system and land use development pattern.

In August 2000 the Primary Corridor Transportation Project, Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS) was published. Three alternatives were analyzed in the MIS/DEIS: the No-Build Alternative, Transportation System Management (TSM) Alternative, and Bus Rapid Transit (BRT) Alternative.

Following publication of the MIS/DEIS, there was a public review period from August 23, 2000 to November 6, 2000. In addition to the MIS/DEIS public hearing, five special public hearings were conducted by the Honolulu City Council Transportation Committee. On November 29, 2000, the Honolulu City Council selected the BRT Alternative as the LPA.

At the time of adopting the LPA, the City Council directed the Department of Transportation Services (DTS) to continue public dialogue on the project. Community working groups were formed to provide a forum for open dialogue between project sponsors and neighborhood, civic, business, government and other organizations to discuss environmental and transportation issues, and refinements to project proposals. The working groups were generally organized by the following geographic areas: Pearl City/Aiea, Aliamanu/Salt Lake/Foster Village, Kalihi, Downtown/Kakaako, Mid-Town/University, and Waikiki.

Working Group members were responsible for attending meetings, reporting back to their representative organizations, and bringing the resulting feedback to the Working Group meetings. The Pearl City/Aiea, Kalihi, Downtown/Kakaako, and Mid-Town/University Working Groups each had a series of meetings between February and June 2001. The Waikiki Working Group meetings were conducted from August 2001 through April 2002. The Aliamanu/Salt Lake/Foster Village Working Group met in July 2002.

As a result of the working groups and comments received on the MIS/DEIS, the DTS proposed refinements to the LPA to include new and modified components (see Figure S.0-1), which the City Council endorsed on August 1, 2001. The refinements included the addition of a new In-Town BRT branch to serve Aloha Tower Marketplace and the Kakaako Makai area; realignment of a small segment of the UH-Manoa Branch from Ward Avenue to Pensacola Street between South King Street and Kapiolani Boulevard, with a new transit stop along South King Street at Pensacola Street; and elimination of the proposed H-1 Regional BRT ramps at Kaonohi Street and Radford Drive to be replaced by a new H-1 BRT ramp near Aloha Stadium at Luapele Drive. Additionally, it was decided that the Kakaako Mauka Branch and Kakaako Makai Branch would use Alakea and Bishop Streets instead of Richards Street in response to comments received from area residents. Realigning the Kakaako Mauka Branch also provided the opportunity for two new transit stops, one on Alakea Street and one on Bishop Street.

Since the refinements were being proposed after completion and distribution of the MIS/DEIS and because the refinements were anticipated to have environmental impacts that were not disclosed in the MIS/DEIS, a Supplemental Draft Environmental Impact Statement (SDEIS) was prepared. A public hearing on the SDEIS was held on April 20, 2002.

In response to comments received on the SDEIS during the public comment period, several additional refinements have been incorporated into the Refined LPA. These include substituting North-South Road for Kunia Road as the park-and-ride location serving the Ewa Plains area; replacing the direct connector ramps at Kapolei, Kunia (now North-South Road), and Middle Street with less costly BRT priority treatments at these same locations using existing and planned freeway ramps; and, shifting a short section of the Kakaako Makai branch alignment to Forrest Avenue rather than Channel Street as the connection between Ala Moana Boulevard and Ilalo Street.

S.2.2 Description of Alternatives

The three alternatives analyzed in the FEIS are the following:

No-Build Alternative. This alternative includes existing transportation facilities and conversion of the present predominately radial bus system to a hub-and-spoke configuration. Also included are highway improvement projects, which have been identified by OMPO in the Transportation for Oahu Plan 2025 (TOP 2025). Expansion of the bus fleet to maintain current transit service levels, especially in developing areas such as Kapolei, is also part of this alternative. The term "No-Build" needs clarification, because this alternative includes the construction of long-range highway projects and modest expansion of transit service to accommodate future growth. The No-Build Alternative serves as a reference point against which the build alternatives can be compared in terms of environmental impacts.

Transportation Systems Management (TSM) Alternative. Typically, TSM strategies are low to moderate cost improvements designed to increase the efficiency of the existing transportation infrastructure. TSM measures typically include elements such as traffic engineering and signalization, transit operational changes and modest capital improvements. Besides being a potential alternative for selection by decision makers, the TSM Alternative serves as a benchmark against which more extensive build alternatives can be evaluated for their cost-effectiveness.

The TSM Alternative includes reorientation of the present bus route structure from a predominantly radial service pattern to a hub-and-spoke network, extension of the H-1 A.M. zipper lane, bus priority treatments on selected arterials, and a significantly expanded bus fleet over the No-Build Alternative. There would also be two additional transit centers and one more park-and-ride facility with the TSM Alternative. Additionally, many of the other transit centers would be larger compared to those proposed under the No-Build Alternative.

Refined LPA (BRT Alternative). The Refined LPA will provide a more balanced transportation system than the present automobile-oriented infrastructure. A hub-and-spoke bus network similar to the TSM Alternative would connect with the Regional and In-Town BRT elements, integrating the hub-and-spoke network with a fast, high-capacity transit system spanning the primary transportation corridor. The In-Town BRT will provide high capacity, frequent, in-town transit service throughout Honolulu's Urban Core (Middle Street, through Downtown Honolulu, to UH-Manoa and Waikiki). The Regional BRT will incorporate regional transit routes that utilize bus priority facilities (express lanes) on the H-1 Freeway, creating an H-1 Freeway BRT Corridor, with priority treatment for regional transit vehicles at selected ramps and arterials to facilitate movement between the H-1 Freeway BRT Corridor and the corridor's transit centers. The Refined LPA will utilize expanded capacity, increased frequency, and enhanced service quality to attract commuters out of single-occupant automobiles.

The Regional BRT will complement and augment the In-Town BRT. At the Middle Street Transit Center, some of the regional local buses will terminate, while others of the regional express routes will continue into town using the In-Town BRT priority lanes. The Regional BRT vehicles that continue into town will continue along the UH-Manoa and Kakaako Mauka branches and operate as In-Town BRT vehicles to the termini of these routes. With this approach, many passengers commuting from outlying areas will not have to transfer at Middle Street. Through integrated planning and use of timed-transfers at outlying transit centers, route duplication will be reduced, system capacity will be increased and schedule reliability will be improved. These operational attributes are key ingredients of effectiveness. Together, the Regional BRT and In-Town BRT will provide an integrated transit system enhancing mobility within the primary transportation corridor, and between the primary transportation corridor and other parts of the island.

S.2.3 Capital Costs

Table S.2-1 shows the capital cost estimates for the transit portion of the alternatives, by project component. These cost estimates include the normal replacement of buses, TheHandi-Van vehicles, and BRT vehicles over the 23-year analysis period. For comparison purposes, the costs in this section are presented in constant Year 2002 dollars, while the financial analysis in Section S.4 of this Executive Summary and Chapter 6 of this Final Environmental Impacts Statement are in year of expenditure dollars. Therefore, the readers of this document are advised to be cognizant of the differences in the reported costs.

TABLE S.2-1
CAPITAL COST SUMMARY-2003 TO 2025
(MILLIONS OF 2002 DOLLARS)

Project Component	No-Build	TSM	Refined LPA	
			With Hybrid-Electric	With EPT*
Bus & TheHandi-Van Acquisition**	$394.1	$461.9	$512.5	$512.5
Regional Bus Rapid Transit	$10.3	$78.9	$203.0	$203.0
In-Town Bus Rapid Transit ***	$0.0	$0.0	$239.4	$322.7
Total	$404.4	$540.8	$954.9	$1,038.2

Sources: Parsons Brinckerhoff for No-Build and TSM Alternatives. Rider Hunt Levett & Bailey Ltd. for Refined LPA. June 2002.

* EPT: Embedded Plate Technology

** Includes new bus maintenance facility for TSM Alternative and Refined LPA.

*** Includes BRT vehicles net cost for advanced technology beyond standard bus cost.

It is estimated that the total capital costs over the 23-year period would range from about $404 million for the No-Build Alternative, to $1.04 billion for the Refined LPA with embedded plate technology (EPT), in constant 2002 dollars. The cost of the Refined LPA would be approximately $955 million if hybrid-electric rather than EPT is chosen as the final vehicle propulsion technology. As shown in Table S.2-1, the biggest cost item for all the alternatives would be the acquisition of buses and TheHandi-Van vehicles to serve island-wide transit needs. The cost of the BRT components represents only about half of the total cost of the Refined LPA. The BRT cost is $442 or $526 million, depending on the final technology selected.

S.2.4 Operating and Maintenance (O&M) Costs

Table S.2-2 presents annual operating and maintenance (O&M) cost estimates for the alternatives. The costs are for the forecast year 2025, assuming full development of each alternative, and are expressed in 2002 dollars.

TABLE 2.2-2
ANNUAL OPERATING AND MAINTENANCE COST SUMMARY, 2025[1]
(MILLIONS OF 2002 DOLLARS)

Alternative	Bus O&M Cost	In-Town BRT O&M Cost	Total Project O&M Cost
No-Build	$120.7	--	$120.7
TSM	$139.8	--	$139.8
Refined LPA	$144.3	$7.0	$151.2

Source: Parsons Brinckerhoff, June 2002.
Note: 1) Excludes TheHandi-Van O&M cost.

It is estimated that O&M costs for the No-Build Alternative in 2025 would be about $121 million (in 2002 dollars). This compares to current operating costs for the existing bus system of about $118 million. Both numbers do not include TheHandi-Van operations. This increase over today's costs is a result of a modest expansion of bus service and fleet size even in the No-Build Alternative. Comparing the TSM Alternative to the No-Build Alternative, O&M costs are estimated to increase to about $140 million as a result of the increase in the size of the bus fleet. The $151 million O&M cost for the Refined LPA includes two components, the cost of expanded systemwide bus service and the cost of the In-Town BRT.

S.3 IMPACTS AND MITIGATION

This section presents a summary of the significant transportation and environmental impacts associated with each of the alternatives.

S.3.1 Transportation Impacts

Because of the geographical constraints of the primary transportation corridor (mountains on one side and ocean on the other), travel is concentrated within a linear corridor and focused onto a limited number of parallel highway and arterial streets. Even with the planned widenings and other improvements to the highway system, because of projected growth, congestion is forecast to get even worse than today. Community feedback from outreach activities such as the Trans 2K workshops has indicated that grade-separated structures and extensive roadway widening as means to reduce traffic congestion are unacceptable. Instead people indicated that they are in favor of solutions that increase the people carrying capacity of the existing transportation infrastructure. Building upon the already successful bus system in Honolulu by taking it to the next level with a bus rapid transit system is a key element in solving future travel needs while preserving Oahu's idyllic environment. The Refined LPA would offer a fast, efficient travel mode through the congestion for those choosing to travel by transit, because transit vehicles would use the un-congested exclusive and semi-exclusive transit lanes.

A significant indicator of regional travel conditions is Vehicle Hours of Delay (VHD), which is the difference in vehicle travel time between free-flow and congested conditions. In 2025 the Refined LPA is projected to have substantially lower daily VHD than the No-Build or TSM Alternatives (17.3 percent less VHD than the No-Build Alternative and 14.8 percent less VHD than the TSM Alternative). This reduced VHD is indicative of less congestion on roadways.

In 2025 the Refined LPA is forecast to attract 20 percent more riders than the No-Build Alternative and 12 percent more riders than the TSM Alternative. This translates into over 51,400 more transit trips per day than the No-Build and 33,200 more than the TSM Alternative. What is significant about this is that these would all be people diverted from autos to transit, reconfirming that there would be less congestion with the Refined LPA. This means that the Refined LPA will not only benefit transit riders by giving them a less congested route to-and-from the urban core, but will benefit peak period traffic operations on the regional roadway

system by reducing the number of autos using it. The benefits would accrue to all traffic on the freeway by shortening the length of time the freeway is congested.

Additionally, expanding the zipper lane operation to the P.M. peak period will benefit transit riders and carpool occupants with 2 or more riders by providing a less congested path through the heavily traveled H-1 Freeway corridor. An analysis determined that the contra-flow zipper lane could be implemented during the P.M. peak period, while maintaining acceptable traffic flow in the off-peak direction lanes on H-1.

Traffic impacts were analyzed at intersections all along the In-Town BRT alignment where the BRT would be operating in exclusive or semi-exclusive lanes. The findings are the following:

Dillingham Boulevard Corridor. After one lane in each direction converted to exclusive transit use, intersection level of service (LOS) for the Refined LPA will be equal to or better than for the No-Build and TSM Alternatives. This is possible primarily because the Refined LPA is projected to achieve sufficiently higher transit usage to decrease the peak hour, peak direction traffic along Dillingham Boulevard by almost 3,000 vehicles per hour (vph).

South King Street Corridor. Peak traffic during the P.M. peak period in 2025 will continue to be Koko Head-bound along South King Street. Similar to the Dillingham Boulevard Corridor, there is projected to be a reduction of traffic volume along the section of South King Street where the BRT will operate due to the diversion of some auto drivers to transit. This diversion will enable the Refined LPA to perform at comparable intersection LOS to the No-Build and TSM Alternatives, after the conversion of two general-purpose lanes; one to semi-exclusive transit use and one to exclusive transit use.

Kapiolani Boulevard Corridor. The Refined LPA will convert two general-purpose traffic lanes to exclusive transit lanes in the middle of Kapiolani Boulevard generally between Pensacola Street and Atkinson Drive, leaving two general-purpose traffic lanes in each direction regardless of the time period. Contra-flow coning for all traffic will continue Koko Head of Atkinson Drive, but will be discontinued between Atkinson Drive and South Street. The Refined LPA is projected to have a worse intersection LOS in 2025 compared to the No-Build and TSM Alternatives, mainly due to the two fewer lanes available to carry traffic in the peak direction. It is projected, however, that Kapiolani Boulevard traffic will still be operating acceptably for urban peak period conditions in the section with BRT lanes.

Ala Moana Boulevard Corridor. During both A.M. and P.M. peak periods in 2025, the Ala Moana Boulevard/Atkinson Drive intersection is projected to be congested for all the alternatives. Given the physical constraints of Ala Moana Center on the mauka side and Ala Moana Regional Park on the makai side, roadway widening is not an option. Only the Refined LPA with its semi-exclusive lane Koko Head-bound and exclusive lane Ewa-bound will allow BRT vehicles, local buses, and tour buses to bypass the congestion and continue to provide service for their patrons. For the section of Ala Moana Boulevard between the Ala Wai Canal and Kalia Road, the Refined LPA proposes a 5-10 foot widening by reducing the width of the raised median and narrowing the existing traffic lanes to provide an additional lane in both Ewa-bound and Koko Head-bound directions. The additional lanes would be for BRT vehicles, local buses, tour buses and trolleys, and right turning vehicles. Because of the added capacity of these lanes the congestion will be substantially less with the Refined LPA for all traffic along this section.

Kalia Road Corridor. The Refined LPA proposes to widen Kalia Road by one lane in each direction, with these lanes being designated as semi-exclusive lanes. BRT vehicles, local buses, private buses, and vehicles turning right into driveways on Kalia Road will be able to use these lanes. Because of the new lanes proposed for Kalia Road, traffic operations are projected to be better in 2025 with the Refined LPA compared to the No-Build or TSM Alternatives.

Kalakaua Avenue Corridor. Kalakaua Avenue will be used as the Koko Head-bound segment of the counter-clockwise BRT Loop within Waikiki. During normal peak traffic hours Kalakaua Avenue is not projected to be congested with any of the alternatives. During special events, which occur frequently in

Waikiki, Kalakaua Avenue will continue to be congested. During these times the semi-exclusive curb lane will allow the BRT vehicles, tour buses, and trolleys a clearer path through the congestion. During special events such as parades where all or sections of Kalakaua are closed, the BRT vehicles will be re-routed to Kuhio Avenue.

Kuhio Avenue Corridor. The Waikiki Livable Communities project has proposed that the existing sidewalks be widened on Kuhio Avenue. With sidewalk widening, what would remain is enough roadway width to provide two traffic lanes in one direction, one traffic lane in the other direction, and space for median left-turn lanes at selected locations. Turnouts would be provided for commercial truck and tour bus loading and for local bus stops. In the Refined LPA, two lanes would be oriented in the Ewa-bound direction with the curb lane designated as a semi-exclusive lane for BRT vehicles, local City buses, tour buses, trolleys, and right-turning vehicles. Koko Head-bound there would be a single general-purpose traffic lane.

With regard to parking impacts, an efficient transit system will encourage people to use transit rather than drive automobiles. As a result, parking demand in the PUC with the Refined LPA should decline along the transit spine. Where on-street parking is removed to permit transit lanes for the Refined LPA, new neighborhood parking facilities will be considered to replace the on-street parking, but only if they meet other livable community objectives and are the result of community-based planning.

Minor loading zone impacts will occur with the Refined LPA in Downtown and in Iwilei. There would be no loading zone impacts in Waikiki. For the Downtown and Iwilei loading zones affected, substitute loading areas will be developed and coordinated through a community-based planning process.

The Refined LPA will positively affect the pedestrian environment through stop and sidewalk improvements, including Americans with Disabilities Act (ADA) ramps, and safer crosswalks and sidewalks in the vicinity of the BRT stops. Moreover, the Refined LPA will provide benefits for pedestrians in a number of ways. Transit will use less space to carry more people than automobiles. Environmentally friendly transit vehicles will produce less noise and air pollution. These factors will contribute to an improved urban walking experience.

S.3.2 Environmental Impacts

The environmental analyses that were conducted looked at parameters most pertinent to transportation projects, and those parameters that would highlight the differences among the alternatives. The analyses addressed potential impacts on sensitive resources and issues identified during the scoping process, which took place prior to the issuance of the MIS/DEIS. Analyses also included other studies required by law.

Land Use

The In-Town BRT will provide a permanent, fixed transportation infrastructure within the urban core of Honolulu. Its high level of transit service will facilitate transit-oriented development, a mix of residential and commercial uses in a pedestrian friendly environment, which is consistent with the Draft Primary Urban Center Development Plan (May 2002).

The Regional BRT will improve connections between Kapolei and the PUC. The City's Ewa Development Plan (1997) supports the development of Kapolei as the island's second largest urban center, after the PUC. The Refined LPA will provide the strengthened transit connection between Kapolei and the PUC that is necessary to facilitate continuing business, commercial and residential development in Kapolei and the Ewa Plain.

In contrast, it is unlikely that the TSM or No-Build Alternatives would encourage and support transit-oriented development in the urban core, and these alternatives would be generally less supportive of land use goals of the Ewa Development Plan than the Refined LPA.

Economic Impacts During Construction

Analyses were conducted to estimate the effects of project construction on the local economy. Using the Hawaii Department of Business, Economic Development, and Tourism forecasting methodology it is estimated that the elements of the No-Build and TSM Alternatives involving construction would generate 279 and 713 person-years of construction jobs, respectively. In contrast, it is estimated that 3,737 person-years of construction jobs would be created through implementation of the Refined LPA. Since it is expected that construction of the Refined LPA would be financed in part by federal discretionary (New Starts) grants, 1,106 person-years of construction jobs resulting from the Refined LPA would be "new" jobs that would not occur in the absence of the Refined LPA. The No-Build and TSM Alternatives are assumed to utilize federal formula funds, and therefore would not qualify for FTA New Starts funding. As a result, no new construction jobs would result from the use of federal dollars.

In addition to considering the jobs created directly in construction, analyses were also conducted to estimate the indirect and induced jobs. The indirect and induced person-years of jobs that would be created by the No-Build and TSM Alternatives are estimated to be 704 and 1,797, respectively, whereas it is estimated that the Refined LPA would create 9,418 indirect and induced person-years of jobs.

Economic Impacts Directly Attributable To Transit System

The Refined LPA will increase employment for bus drivers (bus and In-Town BRT) and mechanics from 1,181 today to 1,760 by 2025, an increase of approximately 600 jobs or 49 percent. The expanded fleet and new BRT system will also generate additional administrative and management jobs.

Displacements

None of the alternatives will cause displacement of any residences; however, one property will be affected under the Refined LPA. Kapalama Makai, an apartment complex on the corner of Dillingham Boulevard and McNeill Street, will need to have its driveway reconfigured and will lose one to two parking stalls.

The No-Build Alternative, TSM Alternative, and the Refined LPA all assume the construction of the North-South Road park-and-ride facility. The North-South Road Park-and-Ride will require about four acres of agricultural land currently used by an active farm, but the farm would remain viable. There would be no other displacements with the No-Build and TSM Alternatives. The Refined LPA will affect 29 additional businesses or institutions, which will experience minor losses of parking and/or land area due to street widening.

Equity And Environmental Justice

The Refined LPA will not cause disproportionately high and adverse health or environmental effects on minority and low-income populations. Some of the minority and low-income populations would be located near elements of the Refined LPA, such as the In-Town BRT. However, the alignment was selected to minimize adverse impacts while maximizing travel benefits for the primary corridor's neighborhoods, including those occupied by minority and low-income residents. In addition, the improved transit service provided by the Refined LPA will improve mobility for minority and low-income residents throughout the primary transportation corridor. The No-Build and TSM Alternatives would also not cause disproportionately high and adverse health or environmental effects with respect to minority and low-income populations.

Visual And Aesthetic Resources

The Refined LPA provides opportunities to enhance the urban form, not only in the urban core, but also wherever transit improvements are proposed. Many of the elements of the Refined LPA, such as the In-Town and Regional BRT priority lanes, will involve few physical changes other than to the street surface resulting in

little or no visual impact to the existing landscape, regardless of land use. Through the use of streetscape improvements (e.g. sidewalk paving, landscaping, and street lighting) and passenger amenities at BRT stops, the Refined LPA offers an opportunity to enhance the visual quality of the streetscape and improve the pedestrian experience. As a result of the project, there would be a greater sense of visual order and unity because of the physical improvements and landscape treatments along the alignment.

Those project elements potentially causing visual impacts will be designed and landscaped to have the least possible visual impact by blending in with their surroundings. Project elements such as transit centers and transit stops provide urban design opportunities to improve existing streetscapes with cohesively designed architectural elements, landscaping, street furniture, street trees and lighting.

Energy Consumption

The Refined LPA will result in the least amount of direct energy consumption because it would lead to a substantial decrease in the vehicle miles of travel (VMT) by autos. In comparison to the No-Build Alternative, the Refined LPA will reduce energy consumption by about 215,000 barrels of oil in the design year 2025, assuming that hybrid diesel/electric In-Town BRT vehicles are used. In comparison to the TSM Alternative, the Refined LPA will reduce energy consumption by about 250,000 barrels of oil under the same conditions.

Air Quality

Air quality was analyzed at the intersection or microscale level using measurements of carbon monoxide (CO) concentrations. Under worst-case meteorology conditions, all three alternatives would result in CO concentrations above the stringent State ambient air quality standards at most locations or intersections studied. Worst-case 1-hour concentrations under the Refined LPA are predicted to be generally the same as those under either the No-Build or the TSM Alternative, with a few exceptions due to some additional automobile queuing expected at these locations.

The TSM Alternative and Refined LPA would not worsen regional air quality in comparison to the No-Build Alternative.

Noise and Vibration

Future noise levels along the alignment of the In-Town BRT system of the Refined LPA will be lower than with the TSM and No-Build Alternatives because of the use of electric or hybrid-electric vehicles, which produce substantially less noise than standard diesel buses.

There are no severe noise impacts projected for any sites along the Refined LPA alignment. Assuming use of hybrid diesel/electric vehicles, moderate noise impact is projected for one location on the In-Town BRT alignment, the Bishop Garden Apartments on Dillingham Boulevard in Kalihi. If the embedded plate technology is chosen, no impacts are projected.

Using the diesel and hybrid diesel/electric technologies in the Regional BRT system, the BRT vehicles traveling to and from the Aloha Stadium Transit Center are expected to result in moderate noise impacts at the Puuwai Momi Apartments on Salt Lake Boulevard and Kamehameha Highway, and at least one single-family residence on Luaole Place. The final design phase will include studies to determine more specific noise impacts.

Ground vibration levels caused by the rubber-tired electric or hybrid diesel/electric bus would be minimal and would not exceed FTA criteria. Therefore, no vibration impacts are expected under any alternative.

Ecosystems

No state or federally listed, proposed, or candidate threatened or endangered plant or animal species, except the white tern, is likely to be affected within areas proposed for construction under the Refined LPA. The State of Hawaii lists the Oahu population of the white tern (*Gygis alba*) as endangered. White terns are also a federally protected species under the Migratory Bird Treaty Act. No impacts to these birds are expected under the No-Build and TSM Alternatives.

A tree survey and impact analysis for the Refined LPA identified that 154 street tree impacts may occur along the In-Town BRT alignment, of which 34 trees were classified by the project's qualified certified arborist as being notable trees, or trees deemed important to the urban landscape character. The impacts will mostly involve moving trees further back from the curb along those sections of the alignment where the street needs to be widened. Wherever a tree needs to be removed, a similar species as that tree will be planted in its place. No tree impacts are expected under the No-Build and TSM Alternatives.

Water

No major impacts on water resources are expected for any of the proposed alternatives. Increasing transit ridership would reduce non-point source water pollution generated by automobiles.

Historical Resources

Adverse effects to archaeological sites are not expected under the No-Build and TSM Alternatives. Also, there are no historic-period resources (historic buildings, structures and objects constructed or erected after western contact) or traditional cultural properties within the Area of Potential Effect (APE) of either alternative.

Under the Refined LPA, construction of the In-Town BRT may require excavation about two to three feet in depth along the alignment if embedded plate technology is used. This activity would have a moderate to high probability of uncovering subsurface archaeological resources along certain segments, such as in Chinatown, Kakaako, Ala Moana and Waikiki. The APE of the Refined LPA contains several historic-period resources. Most of them will not be adversely affected because right-of-way is not needed at these sites, nor will they be affected by being in proximity to transit stops. The Refined LPA may cause an "adverse effect" on Chinatown, the Hawaii Capital Historic District and Thomas Square because these resources have visual integrity, which may be affected by the transit stops. Other historic-period resources that may be adversely affected by the Refined LPA include the Kapiolani Boulevard historic landscape because of tree relocations, and lava rock curbs, which are considered historic by the State Historic Preservation Division (SHPD), because they will be temporarily removed during construction of certain transit stops.

Parklands

In general, the Refined LPA, and to a lesser extent the TSM Alternative, would enhance the value of the park and recreational resources in the study area by improving their accessibility for transit users. For example, the Kakaako Makai Branch of the In-Town BRT would provide improved transit service to recreation resources in the Kakaako Makai Community Development District.

Construction Impacts

The Refined LPA will have the most new construction, therefore having the greatest impact of the three alternatives. For example, transit lanes will be constructed along the alignment of the In-Town BRT within existing streets. Construction impacts will be temporary and detailed mitigation plans will be developed, including a plan for maintenance of traffic. An archaeological contingency procedure will be prepared, should unanticipated resources be encountered during construction.

The TSM Alternative would include some construction, but mainly involves operational changes to the bus system. The No-Build Alternative has the fewest impacts, because it assumes no additional construction from the future No-Build condition.

S.3.3 Mitigation Commitments

This section summarizes the mitigation measures proposed by the City to minimize any adverse impacts.

Relocations

Since federal funds would be used to assist project construction, the project would be subject to provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (49 CFR Part 24, 42 U.S.C. 4601, et seq.). Although no displacement of businesses or residents is expected, should it become necessary, State law on relocations is provided in Hawaii Revised Statutes (HRS) Chapter 111, Assistance to Displaced Persons.

Fair market compensation for land, buildings and uses would be provided to property owners directly affected by right-of-way requirements. For properties that would experience partial displacement but not relocation, mitigation would be provided at project cost, such as reconstruction of a driveway or parking area.

Visual and Aesthetic Resources

Project elements such as transit centers and transit stops will be designed to visually blend in with their surroundings. In particular, transit stops in or near Chinatown, the Hawaii Capital Historic District, Thomas Square, Kapiolani Boulevard, Waikiki Beach, *Kapiolani Park and UH-Manoa are considered to be in potentially* sensitive areas and will be designed with sensitivity to be compatible with their surrounding contexts, based on public input and conformance with appropriate design standards.

Noise

Noise mitigation for the Bishop Garden Apartments is not deemed to be feasible and will not be included as part of this project, because a wall at this location would impair driver visibility and interfere with pedestrian and traffic movements. Interior sound insulation of the affected apartment units could be a reasonable alternative to a noise barrier, including air-conditioning installation and replacement of windows and doors facing the BRT alignment.

Property line noise barriers would be effective in mitigating the noise impacts to the Puuwai Momi Apartments. A 10-foot high noise barrier wall is proposed along the affected section of Salt Lake Boulevard. Noise barriers would not be feasible in mitigating noise impacts at the single-family residences on Luaole Place, because a barrier would likely interfere with traffic and pedestrian movements. Interior sound insulation and installation of air-conditioning in affected homes could be a reasonable alternative to a noise barrier for this area.

Ecosystems

A survey of the project area will be conducted for white terns and their nests prior to final design. Sensitive trees and areas will also be monitored immediately prior to and/or during construction activities that involve tree relocation, removal, and/or trimming. All monitoring will be coordinated with the U.S. Fish and Wildlife Service (USFWS). DTS will also coordinate tree trimming with the City's Department of Parks and Recreation (DPR), which has standard procedures to avoid impacts to white terns and their eggs.

A tree preservation program will be developed in conjunction with a qualified certified arborist to mitigate unavoidable impacts. The tree preservation program will be in accordance with standard procedures used by

the DPR, and community input will play a role in identifying key components of the program. On-site tree relocation is the preferred mitigation option wherever possible, but land acquisition by the City may be necessary. If a tree must be relocated off-site, the project team under direction from DTS and input from the appropriate working groups will identify suitable sites for relocating each individual tree. DTS will replace trees that must be removed altogether at a minimum of a one-to-one ratio.

Water Resources

Although no impact on water resources is expected, specific sediment and erosion control measures would be resolved during final design, and a best management practices plan would be developed to control roadway contaminants resulting from additional impervious surfaces as a preventative measure.

Historic/Archaeological Resources

A memorandum of agreement (MOA) pursuant to Section 106 of the National Historic Preservation Act will be prepared and will specify that archaeological monitoring be conducted during excavation in areas along the In-Town BRT alignment with moderate to high levels of probability of uncovering archaeological resources. Potential impacts would mostly be related to construction of the embedded plate technology.

The MOA will also contain stipulations that require consultation with the SHPD and other stakeholders on the design of those transit stops that may adversely affect historic properties. The consultation will focus on the type, number and size of structures, architectural style, and protection of important viewsheds and historic characteristics of affected properties.

Parking and Loading Zones

It is expected that an efficient transit system would encourage people to use transit rather than driving private vehicles. Parking demand in the PUC is expected to decline in general under the TSM Alternative and Refined LPA, but especially along the In-Town BRT alignment in the Refined LPA.

In areas where a large concentration of on-street parking spaces will be affected by In-Town BRT operations, replacement parking in new off-street parking facilities will be considered, but only if they meet other livable community objectives and are the result of community-based planning. Areas of concern will be addressed on a case-by-case basis during the project's final design phase.

As with parking impacts, loading zone impacts will be addressed in the final design phase using community-based planning as an integral part of the decision-making process.

Bicycle Facilities

The Refined LPA will not affect the provision of bicycling facilities as identified in the State's Bike Plan Hawaii and the City's Honolulu Bicycle Master Plan. In addition, the Refined LPA will allow curbside semi-exclusive BRT lanes at various locations to be shared with cyclists. Specific mitigation that is proposed includes widening the curbside lanes on Dillingham Boulevard from 14 feet to 18 feet between Middle Street and Waiakamilo Road to provide more room for cyclists and motorists to share the lane, and providing a bike lane on South King Street between Alapai Street and Pensacola Street.

Construction

Coordination between project planners and the community will continue during the development and implementation of a Construction Management Plan and Mitigation Program that would address in detail the project's construction and construction impact mitigation.

A public information program will include education; the presence of representatives at public gatherings; informational materials describing the construction process and its progress; dissemination of information on significant construction activities, detours, and recommended alternative routes; and information pertinent to methods of minimizing public inconvenience. A community advocate selected from the working group organizations will be retained through the construction process to facilitate solutions to specific construction impacts and concerns expressed by affected businesses, organizations and individuals.

An overall project Maintenance of Traffic Plan will include measures to reduce the need for total street closures during construction, detailed traffic flow patterns and traffic detours, measures to minimize the impact of loss of parking during construction, and programs to increase transit ridership.

Detailed pedestrian flow patterns will be developed and alternative pedestrian routes will be provided around or through construction areas to provide access to all adjacent structures and affected facilities.

Access to docks, terminals and other water-related facilities will be maintained through close coordination with all public agencies having harbor-related responsibilities.

Abatement measures tailored to the source will be implemented for the control of fugitive dust, emissions, noise and vibration.

Specific plans will be developed during final design for:

- Sediment and Erosion Control Plan incorporating Best Management Practices (BMPs) to control runoff;
- Spill Containment Control and Countermeasure Plan;
- Solid Waste Management Plan;
- Contaminant Management Plan detailing contaminant handling procedures and remedial response actions; and
- Emergency Response Plan to establish procedures should contaminated materials be encountered.

If a burial or archaeological artifact is uncovered during construction, regardless of archaeological monitoring, work will stop and the SHPD will be notified immediately.

S.4 FINANCIAL ANALYSIS AND COST-EFFECTIVENESS ANALYSIS

A comprehensive financial analysis was conducted to identify the major differences in capital and operating costs among the alternatives. The analysis also identified the timing and level of financial commitments needed from federal and local sources, and assessed the City's ability to operate and maintain the transportation network. The financial plans were developed based on the assumptions that the full scope of each alternative must be completed without raising taxes, and that the City's high bond rating must not be affected.

Funding would be sought from multiple federal and local sources. Construction schedules would be phased according to the availability of funds. Therefore, the construction schedule would be flexible.

To determine the adequacy of funding sources for the capital and operating requirements of the alternatives, major existing revenue sources were examined. Costs were then compared to the revenues projected to be available from these sources over the 14-year period of Fiscal Year (FY) 2003 to FY 2016 which is the period within which all of the capital improvements except vehicle replacements (and an additional bus maintenance facility in the Refined LPA and TSM Alternatives) would be implemented. Costs and revenues were also compared over the 23-year period of FY 2003 to FY 2025. As defined in the City and County of Honolulu's Revised Charter, fiscal years extend from July 1 through June 30.

The Bus Rapid Transit (BRT) systems in the Refined LPA will be implemented over FY 2003-2016. Over the 14-year implementation period, the capital cost of the Refined LPA BRT Program is projected to be $616.7 million in Year of Expenditure dollars (YOE $). Of this total, $243.2 million will be for the In-Town BRT system, $129.1 million will be for adding Embedded Plate Technology (EPT) to the In-Town BRT system, and $244.4 million will be for the Regional BRT system.

Also included in the Refined LPA's financial analysis are the capital costs required for the acquisition and replacement of the entire bus and TheHandi-Van fleet and other system-wide improvements. These amount to $426.0 million (in YOE $) over the 2003 - 2016 period in which the Refined LPA BRT Program is implemented. For the 2003 through 2025 forecasting period used for environmental analyses in this Final Environmental Impact Statement (FEIS) the capital cost of the bus and TheHandi-Van acquisition and replacement program and other system-wide improvements is projected to be $723.3 million (in YOE $). The total estimated capital cost for the Refined LPA including vehicle acquisition and system-wide improvements is therefore $1.04 billion for the period 2003 through 2016, and $1.34 billion for the period 2003 through 2025. These costs are in YOE dollars.

Tables S.4-1 and S.4-2 summarize the capital and operating and maintenance (O&M) funding required by source for the No-Build Alternative, TSM Alternative, and Refined LPA. Table S.4-1 compares the capital funding levels required by source for each alternative over the 14-year, FYs 2003-2016 implementation period. Table S.4-2 contrasts the O&M funding levels required, by source, for the representative years of FY 2007 and FY 2017.

TABLE S.4-1
FUNDING SOURCES FOR CAPITAL COSTS, BY ALTERNATIVE
FISCAL YEARS 2003- 2016 (YOE $, 000)

	NO-BUILD	TSM	Refined LPA
CAPITAL SOURCES			
Federal Transit Administration			
Sec. 5307 UZA Formula	$143,200	$152,513	$222,514
Sec. 5309 FGM	$20,839	$20,839	$20,839
Sec 5309 Bus Capital	$8,665	$8,665	$47,744
Sec. 5309 New Starts	–	–	$242,000
Federal Highway Funds			
FHWA	–	$11,985	$139,659
Local Funds			
G.O. Bonds *	$138,899	$259,48	$369,917
TOTAL CAPITAL FUNDS	**$311,602**	**$453,486**	**$1,042,671**

Source: Sharon Greene & Associates, November 2002. YOE = Year of Expenditure.

Capital Costs

Capital cost estimates were prepared using the Preliminary Engineering drawings and current and historical data on national and local construction costs, trends in materials and labor costs from published sources, and contingency factors. Capital cost estimates include the acquisition of transit vehicles as well as construction of fixed facilities.

TABLE S.4-2
FUNDING SOURCES FOR O&M COSTS, BY ALTERNATIVE
FISCAL YEARS 2007 AND 2017 (YOE $, 000)

	NO-BUILD	TSM	Refined LPA
FY 2007 OPERATING REVENUES			
Passenger Fares (Bus)	$37,195	$37,252	$39,199
TheHandi-Van Fares	$1,705	$1,705	$1,705
FTA Sec. 5307 UZA Funds (Preventive	$18,760	$19,995	$12,838
General Fund Revenues (for transit support)	$93,632	$94,519	$105,645
TOTAL O&M REVENUES	$151,292	$153,471	$159,387
FY 2017 OPERATING REVENUES			
Passenger Fares (Bus)	$49,976	$51,649	$57,621
TheHandi-Van Fares	$2,346	$2,346	$2,346
FTA Sec. 5307 UZA Funds (Preventive	$16,114	$16,114	$11,133
General Fund Revenues (for transit support)	$127,608	$141,093	$156,885
TOTAL O&M REVENUES	$196,045	$211,202	$227,984

Source: Sharon Greene & Associates, November 2002. YOE = Year of Expenditure.

The alternatives differ with regard to their relative reliance on individual funding sources. Some sources, such as FTA Section 5307 UZA Grant and Section 5309 FGM Grant are common to all alternatives and are relatively comparable in terms of funding levels. Other sources such as FTA Section 5309 New Starts, GO Bonds, and BRT fare revenues, are specific to the TSM Alternative and/or Refined LPA.

The capital cost estimates for the No-Build Alternative, TSM Alternative, and Refined LPA in year of expenditure (YOE) dollars over the 14-year implementation period of FYs 2003-2016 are as follows:

Alternative	FYs 2003-2016 Capital Costs (YOE, $,000)
No-Build	$311,602
TSM	$453,486
Refined LPA	$1,042,671

The capital cost estimates include allowances for design, construction administration and estimating contingency as well as the direct construction costs. The Refined LPA would cost $1,042,671 over the course of the 14-year implementation period. Development of a Regional BRT system including a new P.M. zipper lane and a new access ramp would cost $244.4 million. Construction of the In-Town BRT system including acquisition of a fleet of high-capacity electric vehicles (30) would cost $372.3 million ($129.1 million of this would be for the embedded plate technology). The balance of the capital costs would be used to expand the existing maintenance facilities and increase the transit fleet to 794 buses.

No other major capital projects for the City would be deferred if either the TSM Alternative or Refined LPA were selected. One condition of the financial analysis was that adequate capital improvement funds remain for other City projects.

Operating and Maintenance Costs

Estimates of operating and maintenance (O&M) costs were based on the proposed transit fleet and travel characteristics under each alternative. Using constant year 2002 dollars for comparison, the budget for bus and paratransit operations during FY 2002 was about $130.3 million. Under the No-Build Alternative, $135.4 million would need to be budgeted in FY 2017. The TSM Alternative would cost an estimated $145.8 million in FY 2017 to operate. Under the Refined LPA, the estimated operating cost would be $157.4 million. Expressed in YOE dollars, the corresponding O&M costs in 2017 would be $196.0 million for the No-Build Alternative, $211.2 million for the TSM Alternative and $228.0 million for the Refined LPA.

Table S.4-2 shows the amount of General Fund Revenues and other revenues by source would be required in selected representative years to pay for the O&M costs.

Capital Cost Financing

The financial plan involves multiple federal and local funding sources. In accordance with City Council policy guidance, the financial plan was designed to accommodate as much federal funding as possible. City General Obligation (GO) bonds would be used to fund up to 47 percent of the cost of these alternatives. The financing plan focuses on the initial capital implementation period (through the year 2016). All of the amounts shown are in YOE dollars.

About $172.7 million of funding for the No-Build Alternative would come from Federal Transit Administration (FTA) formula grants. About $138.9 million would be from issuing City GO bonds.

Financing for the TSM Alternative would require $259.5 million in GO bonds and another $182.0 million in FTA formula grants. About $12.0 million would be needed from federal highway sources.

The Refined LPA would require $291.1 million in FTA formula funds and $242.0 million in FTA New Starts grants . A total of $369.9 million in GO bonds would be issued. Federal highway funds would provide another $139.7 million, for the Regional BRT improvements.

Overall Impact On City Budget

For FYs 2007-2016, the average annual total City contribution from the General Fund required for the capital (including debt service) and operating cost subsidy would be $139.9 million for the No-Build Alternative, $152.2 million for the TSM Alternative and $171.1 million for the Refined LPA.

FTA Cost-Effectiveness

The Federal Transit Administration measures a project's cost-effectiveness by comparing the cost of a transit investment in relation to its ability to attract new riders to transit. Table S.4-3 shows the factors used to develop the FTA's Cost-Effectiveness Index (CEI). This index is used by FTA only to compare projects throughout the country, and is not an indicator of costs and benefits.

When alternatives are compared using the CEI, the one with the lower cost per new rider represents the more cost-effective alternative. As shown in Table S.4-4, the cost per new rider for the TSM Alternative is $6.25, which is more than the cost per new rider for the Refined LPA of $5.01. Therefore, the Refined LPA is more cost-effective than the TSM Alternative in terms of capturing new transit ridership over the level of the No-Build Alternative. In comparison to the transit ridership level that would be achieved with the TSM Alternative, the CEI of further boosting transit ridership to the level forecast to occur with the Refined LPA would be $4.52.

TABLE S.4-3
FACTORS USED TO DEVELOP FTA COST-EFFECTIVENESS INDEX

Factor	Alternative		
	No-Build	TSM	Refined LPA
Annualized Capital Cost (2002 dollars)	$ 28,760,000	$ 37,910,000	$ 78,400,000
Total Systemwide Annual Operating and Maintenance Cost (2002 dollars)	$ 120,700,000	$ 139,800,000	$ 151,200,000
Total Annualized Cost in Forecast Year (2002 dollars)	$149,460,000	$ 177,710,000	$ 229,600,000
Total Annual Ridership (forecast year)	80,428,040	86,055,200	96,271,560

Source: Parsons Brinckerhoff, Inc., October 2002.

TABLE S.4-4
FTA COST-EFFECTIVENESS INDEX

Factor	Comparison		
	TSM vs. No-Build	Refined LPA vs. No-Build	Refined LPA vs. TSM
Incremental Annualized Cost	$ 28,000,000	$80,000,000	$ 52,000,000
Incremental Annual Ridership	6,000,000	16,000,000	10,000,000
Cost-Effectiveness (incremental cost per new rider)	$ 6.25	$ 5.01	$ 4.52

Source: Parsons Brinckerhoff, Inc., October 2002.

S.5 EQUITY/ENVIRONMENTAL JUSTICE

Equity is defined as the fairness of the distribution of costs, benefits, and impacts across various population subgroups. Fairness is determined by the extent to which the costs and impacts are distributed in a way that is consistent with regional goals.

S.5.1 Impact on Low Income Areas

As stated in Section S.3.3, none of the alternatives would cause disproportionately high and adverse health or environmental effects on minority and low-income populations. Since a substantial number of people from minority and low-income populations will be located near elements of the Refined LPA, these populations will see transit service improve substantially.

S.5.2 Environmental/Socioeconomic Equity and Benefit (Environmental Justice)

An equity and benefit analysis from an environmental and socioeconomic perspective was developed based on the relative balance between environmental and/or socioeconomic impacts and change in transit accessibility. The Refined LPA would result in improved transit accessibility relative to the No-Build and TSM Alternatives.

TABLE S.6-1
SUMMARY OF KEY EVALUATION MEASURES

Measures	NO-BUILD	TSM	Refined LPA
CAPITAL AND O&M COSTS			
Total Capital Cost (FY2003-2025) (Millions of 2002 $)	$404.4	$540.8	$954.9-$1,038.2*
Annual Operating and Maintenance Cost at Full System Operation (Millions of 1998 $)	$120.7	$139.8	$151.2
Impact on City Budget (Average Annual Costs for Debt Service and O&M Net of Fare Revenue) FY 2003-2016 (YOE)	$118.3 million	$129.3 million	$146.9 million
MOBILITY			
Daily Transit Trips Within the Primary Transportation Corridor (2025) (Daily Linked Trips)	261,130	279,400	312,570
Increase in Transit Trips Over the No-Build Within the Primary Transportation Corridor (2025)	N.A.	18,270	51,440
Daily Transit Mode Share Within the Primary Transportation Corridor (2025) (Work Trips)	19.2%	19.5%	22.6%
Daily Revenue Bus Miles (2025)	62,560	77,790	84,450
Comfort Level (Passengers Per Transit Seat) (2025)	1.31	1.01	0.90
Daily Reduction in Vehicle Miles of Travel (Compared to No-Build) (2025)	N.A.	1,080	718,530
Daily Reduction in Vehicle Hours of Delay (2025) (Compared to No-Build)	N.A.	13,285	78,080
Projected Transit Travel Time Between Downtown and Kapolei (2025)	83.1 minutes	78.0 minutes	58.2 minutes
Projected Transit Travel Time between Downtown and Waikiki (2025)	24.4 minutes	25.0 minutes	23.1 minutes
Projected Transit Travel Time between Downtown and UH-Manoa (2025)	24.4 minutes	23.3 minutes	22.6 minutes
Projected Transit Travel Time between Downtown and Kalihi (2025)	17.6 minutes	16.3 minutes	13.3 minutes
Typical Levels of Service on In-Town Roads (Transit)	E/F	E/F	B/C
Typical Levels of Service on In-Town Roads (Autos)	E/F	E/F	E/F
New Parking Spaces Provided at Transit Centers/Park-and-Rides	0	2,700	3,620
On-Street Parking Spaces Removed (Unrestricted/Restricted) (U/R)	0	166 (U) / 0 (R)	373 (U) / 533 (R)
Number of Loading Zones to be Mitigated	0	14	24
LAND USE DEVELOPMENT			
Support of transit-oriented development	Not supportive	Somewhat supportive	Most supportive
ECONOMIC IMPACT			
Employment (direct and indirect person-years jobs)	704	1,797	9,418

TABLE S.6-1 (CONTINUED)
SUMMARY OF KEY EVALUATION MEASURES

Measures	NO-BUILD	TSM	Refined LPA
QUALITY OF LIFE AND LIVABILITY			
In-Town Transit Technology	Diesel Buses	Diesel Buses	Hybrid diesel/electric or EPT for In-Town BRT
Visual Character	No Changes	Development of transit centers provide opportunities to improve the visual environment	Development of transit centers and In-Town BRT stops provide opportunities to improve the visual environment. The sound barrier near future Aloha Stadium Transit Center will cause visual impact.
Noise/Vibration (In-Town)	No or very little perceptible difference from existing conditions	Similar to the No-Build Alternative	Moderate noise impacts at residences from In-Town BRT operations on Dillingham Boulevard, using the hybrid-diesel vehicle. Use of hybrid diesel/electric or electric In-Town BRT vehicles generally less noisy than diesel buses.
Noise/Vibration (Regional)	No Impacts	No Impacts	Moderate noise impacts to nearby residences from increase in bus operations at future Aloha Stadium Transit Center and associated Luapele Ramp.
ENVIRONMENTAL IMPACTS			
Number of Business and Residential Displacements	Loss of four acres of agricultural land.	Loss of four acres of agricultural land.	Removal of two parking spaces at an apartment complex. Displacement of parking stalls, landscaping, and/or driveway effects on 29 businesses. Loss of four acres of agricultural land.

TABLE S.6-1 (CONTINUED)
SUMMARY OF KEY EVALUATION MEASURES

Measures	NO-BUILD	TSM	Refined LPA
Street Trees	No Impact	No Impact	Some tree trimming will be required. 32 "notable" and 68 non-notable trees will be relocated near their original locations. Roughly 50 other trees will be replaced. No designated exceptional trees will be affected.
Change in Energy Consumption Compared to No-Build (in thousands of barrels of oil per year)	N/A	35	-215
Historical Resources	No Impacts	No Impacts	Construction of an EPT system may uncover archaeological resources or native-Hawaiian ancestral burial sites along certain segments. In-Town BRT stops located within or near historic districts or properties with high visual integrity have the potential to affect historic characteristics.
Parkland Impacts	Joint-use of Aloha Stadium Kamehameha Highway parking lot as a transit center/park-and-ride	Same as No-Build Alternative	Same as No-Build Alternative
COST-EFFECTIVENESS			
Incremental Cost Per New Rider (compared to No-Build Alternative)	N/A	$6.25	$5.01
EQUITY			
Impacts/benefits to minority or low-income populations	No adverse impacts/ No increased benefits	No adverse impacts/ Some improvement in transit service	No adverse impacts/ Substantial improvement in transit service

Source: Parsons Brinckerhoff, Inc., November 2002.
Note: *If hybrid diesel/electric vehicles are used, the estimated cost is $954.9 million. If EPT vehicles are used, the estimated cost is $1,038.2 million.

S.6 SIGNIFICANT TRADE-OFFS AMONG ALTERNATIVES

Table S.6-1 summarizes key evaluation factors that best distinguish the alternatives presented in the MIS/DEIS and this FEIS. What is particularly important are the relative trade-offs between the costs of the alternatives and the benefits received for those costs or investments.

S.6.1 No-Build Alternative

The direct costs and level of some environmental impacts of the No-Build Alternative would be the least of all the alternatives studied, while travel delays, energy consumption, air pollutant emissions, and quality of life would be the worst.

Moreover, the No-Build Alternative would not adequately support the purposes and needs of the project. It would not provide a transportation system that would effectively handle present or future levels of travel demand. It would not even maintain current mobility levels. It would not develop attractive travel alternatives to the private automobile, encourage land use development in desired patterns, support implementation of an urban growth strategy that integrates land use and infrastructure planning, nor maintain the existing quality of life. It would only minimally increase the linkage between Kapolei and the Urban Core, and would not improve mobility within the Urban Core.

The No-Build Alternative would cost $404.4 million in 2002 dollars, which includes replacing buses over a 23-year period. Because the No-Build Alternative would not generate new federal funds, no additional employment would be created.

S.6.2 TSM Alternative

Compared to the No-Build Alternative, the TSM Alternative, with its emphasis on enhancing and restructuring bus service, would provide some support to the project's purposes and needs in terms of enhancing people-carrying capacity within the corridor. However, this alternative would not go far in providing an attractive alternative to the private automobile, nor in enhancing desired land use development patterns or the City's urban growth strategy that integrates land use and infrastructure planning. There would be some improvement in the linkage between Kapolei and the Urban Core, butit would not significantly improve mobility within the Urban Core.

Without the implementation of significant transit-oriented infrastructures, transit operation under the TSM Alternative would not be able to maintain current mobility levels.

The level of environmental impact would be greater than under the No-Build Alternative. This alternative would limit the use of an estimated 166 unrestricted parking spaces, mostly on King and Beretania Streets, and affect a number of loading zones. Travel delays would still be lengthy, and energy consumption and air pollutant emissions would increase.

This Alternative would cost $540.8 million in 2002 dollars, which includes replacing buses over a 23-year period. Since there would be no FTA discretionary (New Starts) funding available for use with the TSM Alternative, there would be no additional jobs created beyond those that would occur with the normal in-flow of federal formula funds to the State.

S.6.3 Refined LPA

The Refined LPA represents a major improvement over the No-Build and TSM Alternatives in meeting the project purposes and needs. It would substantially increase people-carrying capacity within the corridor and

help focus growth along the alignment of the In-Town BRT. Higher density redevelopment in a transit-supportive manner, particularly at transit centers and transit stops, would be encouraged. This alternative would be more effective than the TSM and No-Build Alternatives in supporting implementation of an urban growth strategy that integrates land use and infrastructure planning. It would help facilitate desired land use development patterns consistent with the vision for the island.

This alternative would establish transit as an attractive, viable alternative to the automobile. Transit patrons would reap travel time savings. The Refined LPA would cause less motorist delay than either the TSM or No-Build Alternative. The Refined LPA would establish an attractive, high capacity linkage between Kapolei and the Urban Core. It would improve mobility within the Urban Core by improving linkages between key destinations such as Downtown, Kakaako, Kalihi, UH-Manoa, and Waikiki, and would decrease transit travel times between these key destinations.

There would be no relocations of businesses or residents with the Refined LPA, though some partial displacements will be necessary. Parking provided at transit centers and park-and-ride lots would be greater than with the TSM Alternative, as would the loss of on-street spaces. Interference with loading zones would be greater than with the TSM Alternative. Regional air pollutant emissions would decrease. Impacts on historic resources would be minor. Impacts during project construction would be greater than for the TSM Alternative because of the larger scope and longer duration of construction, particularly the building of the In-Town BRT transit lanes on arterial streets.

As part of the Refined LPA, transit centers, transit stops, and other project elements would be designed to maintain or improve visual conditions through cohesively designed structures, street furniture, landscaping and lighting. The quality of urban living would improve.

The cost of this alternative would be $1,038.2 million in 2002 dollars, which includes replacing buses and In-Town BRT vehicles over a 23-year period. The additional federal funds that would be provided under this alternative would create an estimated 3,737 new jobs during construction. Using FTA criteria, the Refined LPA would be more cost-effective in attracting new transit riders compared to the TSM Alternative.

S.7 REQUIRED PERMITS AND APPROVALS

The following regulatory approvals and permits for the Refined LPA are ongoing or will be applied for during the project's final design phase. On-going permits and approvals are denoted by an asterisk (*) below.

Federal

- U.S. Environmental Protection Agency Section 1424(e) Approval (Sole Source Aquifer)*
- U.S. Department of Transportation Notice of Proposed Construction Near Airports
- U.S. Department of Transportation FHWA Approval of Modifications Within Limits of Interstate Highways
- U.S. Army Corps of Engineers – Clean Water Act Section 404 permit (Nationwide)

State

- State Department of Land and Natural Resources, National Historic Preservation Act, Section 106 and HRS Chapter 6E review*
- Hawaii Community Development Authority – Kakaako
- State Department of Transportation Permit to Perform Work Upon a State Highway
- Hawaii Coastal Zone Management Program – Federal Consistency Determination*
- State Department of Health Noise Permit

- National Pollutant Discharge Elimination System (NPDES) Permit
- Disability and Communication Access Board Approval

County
- Development Plan Public Facilities Map Amendment*
- Special Design District Permit
- Zoning Waivers for Public Uses, Public Utilities and Walls
- Sewer Connection Permits
- Water and Water System Requirements for Developments
- Building Permit
- Certificate of Occupancy
- Combustible and Flammable Liquids Tank Installation
- Liquefied Petroleum Gases Permit
- Development Application in Flood Hazard Districts
- Special Management Area Use Permit
- Construction Dewatering Permit (Temporary)
- Grubbing, Grading, Excavation, and Stockpiling Permit
- Street Tree Review
- Trenching Permits
- Street Usage Permit
- Discharge of Water Permit

S.8 UNRESOLVED ISSUES

Most issues raised during the extensive public involvement, coordination, and consultation conducted for this project have been addressed in the FEIS, although some issues remain unresolved. The unresolved issues are presented below with a brief discussion regarding resolution of the issue.

1. BRT Vehicle Technology. Two electric propulsion technologies are being considered for the In-Town BRT vehicles, embedded plate and hybrid diesel/electric. Because the embedded plate technology is still in the final stages of development prior to commercial availability, the City is proposing to use hybrid-electric buses initially along the In-Town BRT alignment. In 2008 a decision will be made whether to switch to an embedded plate technology, and conversion would happen starting in the year 2010 and be completed in 2016. This EIS discloses the known impacts of both hybrid and embedded plate technology, with the exception of impacts from traction power supply stations (TPSS) associated with embedded plate technology. If embedded plate technology is selected, the locations of TPSS will need to be identified and their impacts disclosed in a separate document prior to its implementation.

2. BRT Stop Design. The detailed design of the BRT stops will be completed during the next project phase, final design. The final design of BRT stops will continue to involve public and agency input.

3. Noise Wall Design. The detailed design of the 10-foot high noise wall required at the Puuwai Momi Apartments will be completed during the next project phase, final design. The final design of the noise wall will involve public input.

4. Tree Relocations. The exact locations where affected trees will be replanted will be determined during final design.

5. Ground Water Impacts. Ground Water Impact Assessment (under Section 1424(e) of the Safe Drinking Water Act) and coordination with the EPA to address potential impacts to the Southern Oahu Basal Aquifer (SOBA) is being completed by DTS.

6. Historic/Archaeological Resources Memorandum of Agreement (MOA): The MOA between the City and the SHPD will be completed prior to the final design phase. It will incorporate specific procedures to be followed if Kupuna Iwi are found during construction plus stipulations regarding consultation with the SHPD and other stakeholders on the design of transit stops that may adversely affect historic properties.

7. Hazardous Materials. Phase I investigations of hazardous material sites will be completed where appropriate during the next project phase, final design. As a result of that investigation, specific recommendations, which could include Phase II sampling would be prepared and executed.

8. Parking and Loading Zone Mitigation. In areas where a large concentration of on-street parking spaces will be affected, replacement parking in new off-street parking facilities will be considered during final design, but only if they meet other livable community objectives and are the result of community-based planning. Likewise, loading zone impact mitigation will be considered during final design and community-based planning will be an integral part of the final design phase to address mitigation measures for loading zone impacts.

9. Section 404 permit (Nationwide). New piers may be necessary for a bridge widening at the Waiawa Interchange, but the need for new piers will not be determined until the final design phase. If necessary, a Clean Water Act Section 404 permit will be obtained from the U.S. Army Corps of Engineers (ACOE).

Chapter 1.0
Purpose and Need

CHAPTER 1 PURPOSE AND NEED

1.0 CHAPTER INTRODUCTION, OVERVIEW, AND ORGANIZATION

Introduction

This document is the Final Environmental Impact Statement (FEIS) for the Primary Corridor Transportation Project, prepared pursuant to Chapter 343 of the Hawaii Revised Statutes. It is the culmination of four years of planning and analysis, of public input, and of review and adoption by the Honolulu City Council and the Oahu Metropolitan Planning Organization (OMPO). Not everyone is in agreement with every aspect, but that is to be expected for a project covering the range and diversity of urban landscapes that it will serve. Many changes have occurred as a result of the public and policy inputs received during this time.

The FEIS responds to all comments received in response to either the Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS) [August 2000] or the Supplemental Draft Environmental Impact Statement (SDEIS) [March 2002]. A brief history of significant dates and actions taken during the four years is contained below.

The City and County of Honolulu Department of Transportation Services (DTS) and the U.S. Department of Transportation (USDOT), Federal Transit Administration (FTA) distributed the Primary Corridor Transportation Project MIS/DEIS to agencies and the public in August 2000. Following the release of the MIS/DEIS, there was an agency and public review period from August 23, 2000 to November 6, 2000.

The project public hearing was held on October 12, 2000 at the Neal Blaisdell Center. In addition, the Transportation Committee of the Honolulu City Council sponsored four public hearings within the project's study area after the MIS/DEIS was issued. The City Council selected the Bus Rapid Transit (BRT) Alternative as the Locally Preferred Alternative (LPA) on November 29, 2000, by adopting Resolution No. 00-249.

During the LPA discussion, the City Council asked the DTS to continue public dialogue on the project. Community working groups were formed to provide a forum for dialogue between project sponsors and neighborhood, civic, business and other organizations so that environmental and transportation issues and refinements to project proposals could be discussed. The working groups also provided the community with an opportunity to obtain a greater in-depth understanding about BRT and what it means for the community. The working groups were generally organized by geographic area: Pearl City/Aiea, Kalihi, Downtown/Kakaako, Mid-Town/University, and Waikiki. The working groups met between February 2001 and April 2002.

Several refinements were identified as a result of the working groups, the most significant of which are:

1. Add a new In-Town BRT branch running from the Iwilei Transit Center through Aloha Tower Marketplace and Kakaako Makai,
2. Reroute a short section of the In-Town BRT alignment from Ward Avenue to Pensacola Street, and
3. Replace the Kaonohi Street and Radford Drive ramps to the H-1 Freeway and the Kamehameha Drive-In transit center with a ramp at Luapele Drive to connect to the Aloha Stadium Transit Center/Park-and-Ride.

These project refinements resulted in the DTS initiating a Supplemental DEIS (SDEIS) process, which the City Council endorsed on August 1, 2001 (Resolution No. 01-208). The SDEIS was distributed in March 2002. The public and agency review period was from March 22, 2002 to May 7, 2002. The public hearing was held on April 20, 2002 at the Hawaii Convention Center.

The FEIS incorporates findings from the SDEIS and updates to land use forecasts for Oahu prepared subsequent to the MIS/DEIS. Also reflected in the FEIS is the set of highway projects established in the recently updated Oahu Regional Transportation Plan [ORTP, or Transportation for Oahu Plan 2025 (TOP 2025)]. The Oahu Metropolitan Planning Organization (OMPO) Policy Committee adopted the updated ORTP, including the LPA transit project, on April 6, 2001. The OMPO Policy Committee adopted the Oahu Transportation Improvement Program (OTIP, project code C28) on September 19, 2001, with both the Regional and In-Town elements of the BRT Alternative as approved projects.

The BRT Alternative analyzed and described in this FEIS is referred to as the Refined LPA.

In addition to this FEIS, DTS plans to release a second FEIS in the near future that would be in compliance with federal requirements pursuant to the National Environmental Policy Act (NEPA).

Overview

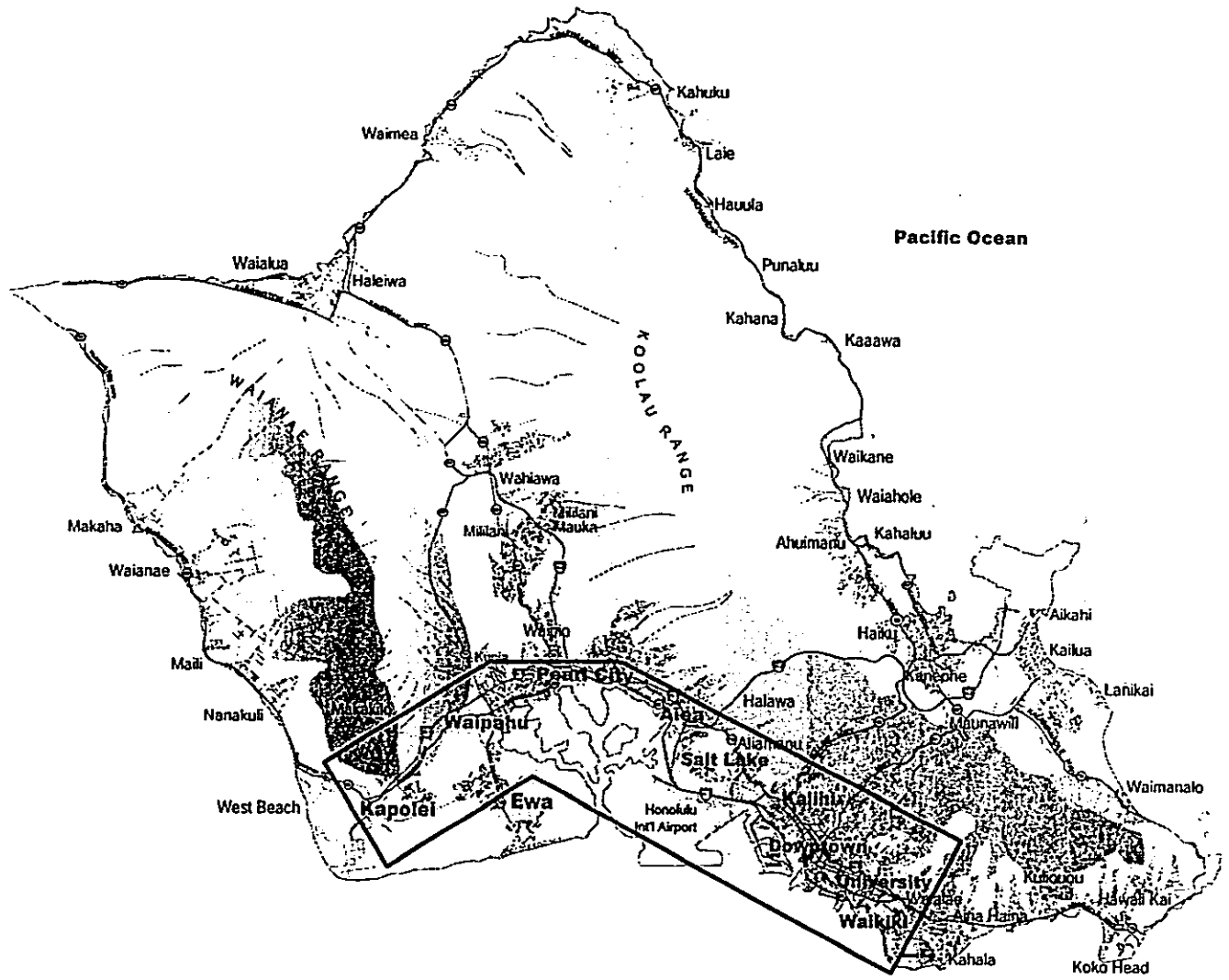
Oahu's primary transportation corridor, which stretches from Kapolei in the west to the University of Hawaii-Manoa (UH-Manoa) and Waikiki in the east (see Figure 1.0-1), is the location of the vast share of the total travel occurring on the island. Existing transportation infrastructure in this corridor is overburdened handling current levels of travel demand. Travelers experience substantial traffic congestion and delay at most times of the day, on weekdays and weekends.

Congestion takes time away from other activities and creates a burden on the economy. Congestion wastes fuel, produces excess air pollutants, decreases roadway safety and causes stress. It reduces Oahu's attractiveness as a visitor destination and lowers residents' quality of life. Future growth will further increase traffic congestion and delay. The quality of life for Oahu's residents and visitors will continue to decrease unless the transportation system in the primary transportation corridor is modified to better accommodate existing and future travel necessary for daily life.

Investment is required to improve the efficiency of the corridor's transportation infrastructure. A more efficient transportation system in the corridor will enhance mobility, reduce travel time and improve the quality of life for Oahu's residents and visitors. The purpose of the Primary Corridor Transportation Project is to examine candidate investments that would improve the efficiency of the transportation system in the primary transportation corridor, and the connections between the corridor and the rest of the island.

For the past four years, the City and County of Honolulu (City) has conducted the 21st Century Oahu visioning process, including its transportation component, Oahu Trans 2K. Oahu Trans 2K has been the most extensive community-based transportation planning effort in the City's history and it is the principal public outreach medium for the Primary Corridor Transportation Project. (More information on Oahu Trans 2K is provided in Appendix A). Thousands of people from every community on Oahu attended over 100 Oahu Trans 2K meetings and workshops, and worked to find solutions to mobility problems that have grown steadily worse over the past three decades. Participants studied maps, identified their unmet mobility needs and discussed ways to meet them.

From the outset, the Oahu Trans 2K workshops produced widespread agreement on certain fundamental issues. First, participants agreed that traffic congestion in the primary transportation corridor is a problem. This perception was confirmed by the traffic analysis performed subsequently. There was agreement that something must be done to make it better. Second, people felt strongly that improvements must be reasonably affordable. Third, while there is an important role for roadways, there was agreement that building



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

N Scale: 0 2 4 mi	**Primary Transportation Corridor**	**Figure 1.0-1**

new or widening existing highways cannot solve the traffic problem because there is inadequate space for new or wider streets. Moreover, participants agreed that extensive double-decking of existing streets is unacceptable for aesthetic and environmental reasons. Fourth and finally, participants agreed that transportation must be viewed within a framework that includes quality of life and other benefits. Any particular transportation investment is not seen as an end in itself; it is viewed as one component in a network of islandwide transportation improvements that will help improve mobility, shape the island's growth patterns, and stimulate livable communities.

Mobility and transportation must be combined with livability goals. Oahu's citizens have supported a vision of the City's future that focuses on preserving the quality of life, protecting the health of the environment, and providing for growth necessary for prosperity. A network of transportation improvements is needed to address mobility and growth objectives of each of the island's communities.

Organization

This Chapter is organized to provide the reader with an understanding of the overall project purposes and the needs being addressed. Section 1.1 provides a summary of the purposes that a transportation investment in Oahu's primary transportation corridor should satisfy. Section 1.2 establishes the basis for concluding that transportation improvements are needed. Section 1.2 begins by describing existing and future land use in the corridor. Land use is described because travel behavior and the demand for travel are derived from the spatial pattern of land uses. Section 1.2.2 describes the existing transportation infrastructure in the corridor because it is this infrastructure that must satisfy the travel demand created by the land use pattern. Section 1.2.3 then presents measures of transportation system performance used to assess how well the existing infrastructure handles travel demand, now and in the future. Analyses are provided for roadway infrastructure and the public transit system. This Section concludes that an investment in transportation infrastructure must be made to handle present and future levels of travel. Based, then, on the shortcomings of the existing transportation infrastructure, Section 1.2.4 elaborates on the requirements that an investment in transportation infrastructure should satisfy to remedy deficiencies. Section 1.3 discusses how an investment in transportation infrastructure in the primary transportation corridor is consistent with prior government plans and is derived from an extensive public outreach program. Section 1.4 closes the Chapter with a description of the formal process now underway to implement the Refined LPA.

1.1 PURPOSE

The early Oahu Trans 2K workshops established the broad points of agreement that a transportation investment is needed to achieve mobility, growth, and livability objectives. Working from these points of broad agreement, project planners have applied engineering, technology and operational approaches to develop a program that reflects the community consensus on transportation policy. The first product of this effort was the Islandwide Mobility Concept Plan (IMCP) March 1999 [1], which laid out a comprehensive framework for future transportation on Oahu. The IMCP identified three prime goals, and nine subgoals, for any transportation plan for Honolulu:

1. Improve In-Town Mobility

    - Subgoal A: Enhance urban roadways to embrace pedestrians, cyclists and transit users
    - Subgoal B: Develop high-capacity, frequent transit service through the urban core

[1] The IMPC was updated in August 2001.

2. Strengthen Islandwide Connections

    - Subgoal A: Maximize the efficiency of the public transportation system
    - Subgoal B: Manage existing roadway capacity
    - Subgoal C: Maintain and strengthen regional highway connections
    - Subgoal D: Improve the linkage between city centers in the PUC and Kapolei

3. Foster Livable Communities

    - Subgoal A: Connect and reinforce local neighborhoods
    - Subgoal B: Improve accessibility for all
    - Subgoal C: Leverage transportation investments to promote economic development

Guided by the three goals in the IMCP, and through continued public involvement and technical analysis, the following set of purposes was identified for the Primary Corridor Transportation Project.

1. Increase the people-carrying capacity of the transportation system in the primary transportation corridor by providing attractive alternatives to the private automobile

With the sheer number of people living and working in Honolulu's urban core, a key strategy to mitigate traffic congestion is to get people out of their cars while they move around. This requires that alternative modes such as walking, bicycling and using public transit be given greater priority. Major destinations in the urban core include Downtown, Waikiki, Kalihi, Kakaako and UH Manoa. Providing improved transit, bicycle, and pedestrian linkages to, from and between these major destinations is crucial to Honolulu's future.

If current levels of mobility and quality of life are to be maintained or improved, we need strategies to increase people-carrying capacity instead of increasing vehicle capacity. Ever-increasing demands will be placed on the primary transportation corridor's roadways, which are already congested by existing levels of transportation demand. Unless trends toward higher automobile usage can be altered, travel times and hours spent on congested highways will increase. Conversion of land from agriculture and open space into suburbs will require more and more local streets, and major roadway expansion. Caught in traffic, buses will operate more slowly and less efficiently than today, decreasing in reliability and attractiveness. This is the negative scenario to be avoided through enlightened investment.

Transportation capacity can be increased through multi-modal solutions planned in an integrated fashion. These include roadway, transit, bicycle, pedestrian and other elements. In order to increase the people-carrying capacity of the transportation system, the present automobile orientation must move to a more balanced mix of transportation modes.

Increased travel demand can be accommodated through roadway construction, and roadway improvements are often the most appropriate response to a transportation problem. However, roadway widening or adding multiple roadway levels in the dense and geographically constrained PUC would be costly and disruptive, and would consume valuable land. Public input overwhelmingly indicates that for the PUC, roadway construction on the scale that would be required to satisfy projected travel demand is not a preferred alternative.

In a preferred scenario, public transit is used in higher proportion to move people in a more space-efficient manner. Improved transit offers the ability to expand people-carrying capacity sufficiently to meet rising levels of future travel demand. The transit system must be made convenient for the user, offering reasonable and dependable travel times. This will allow transit to be attractive and compete successfully with the automobile to slow the growth in demand for highway travel.

The transit system needs to operate as independently as possible from the congestion affecting general-purpose traffic. Then, transit can achieve the speeds and reliability required to attract ridership to transit, and to provide the additional people-carrying capacity needed to improve the overall level of transportation service within the primary transportation corridor. Freed from the congestion and delays of the roadway network, transit vehicles would be able to move quickly, reliably, and efficiently, and would be an attractive alternative to automobile travel.

Increasing the people-carrying capacity of the transportation system in the primary transportation corridor by providing attractive alternatives to the private automobile would satisfy Goal 1 in the IMCP – Improve In-Town Mobility and subgoals A and B. It would also meet the IMCP's Goal 2 – Strengthen Islandwide Connections, subgoals A and B. It would also meet the IMCP's Goal 3 – Foster Livable Communities, subgoals A and B.

2. Support desired development patterns

The City's land use policy for the primary transportation corridor requires that transportation and land use be planned and developed together to implement a comprehensive urban growth strategy. Integrated land use and transportation development will result in a pattern of land uses where many more trips than at present could be made by walking, bicycle, or neighborhood transit systems.

Transportation projects provide urban design opportunities to reinforce community livability. *Transit-oriented planning* targets a shift from auto-oriented, dispersed, single-use development to a land use pattern with a mix of activities that promotes walking and that focuses on a central transit facility. Transit-oriented, mixed-use developments can reduce vehicular travel and congestion by making it easier to make trips on foot or bicycle.

Transportation facilities and services are needed that can serve as the nucleus of new development in conformance with the land use visions articulated in the Ewa and the draft Primary Urban Center (PUC) Development Plans (DPs). The PUC DP Public Review Draft states that an improved transit system can help re-focus growth in the desired development pattern. It calls for pedestrian-scale development, which has convenient walking access to transit. The PUC DP Public Review Draft states: "A tight integration of land use and transportation policies is required to attain the full development of the Primary Urban Center."

New transportation infrastructure must be built at a human scale, generally within the existing streets. The goal is livable, mixed-use communities provided with improved mobility and with less need to use an automobile.

Supporting desired development patterns would satisfy Goal 1 in the IMCP – Improve In-Town Mobility and subgoals A and B. It would also meet the IMCP's Goal 2 – Strengthen Islandwide Connections, subgoals A, C and D. It would also meet the IMCP's Goal 3 – Foster Livable Communities, subgoals A and C.

3. Improve the transportation linkage between Kapolei and Honolulu's Urban Core

Kapolei is intended by the State and the City to be a center of growth and development, as it becomes the "Secondary Urban Center" of Oahu. The emergence of Kapolei as a new city center represents a fundamental shift in travel patterns. Now is the time to ensure this is done in a multi-modal manner.

Designation of Kapolei to be a fully developed city is in itself a traffic mitigation strategy, designed to reduce the dominant travel pattern in and out of Honolulu. Kapolei already contains vibrant and unique

neighborhoods, high quality design, diversified employment, parks, open space and recreational resources, and further development is expected to continue these trends. The vision for Kapolei is a place where people live, work, shop, socialize, and recreate within the area and where alternative forms of transportation to the private automobile can access these facilities. Already the State has completed an office building for over 1,000 State employees relocated from other areas on Oahu. With a new civic center, the City has also relocated many employees to Kapolei. Other existing and future economic development activities include hotel and recreational facilities in Ko Olina, expansion of Kalaeloa-Barbers Point Harbor, redevelopment of Kalaeloa (the former Barbers Point Naval Air Station), world-class sports facilities, and a new University of Hawaii (UH) West Oahu campus. Jobs and other attractions in Kapolei will attract "reverse travel" to this part of Oahu from outside areas.

A transit-based travel option, with frequent express service to and from Downtown and connections to strategically located transit centers, is a necessary transportation element to link Oahu's first and second cities, and will encourage their coordinated growth.

An improved transportation linkage between Kapolei and Honolulu's Urban Core would satisfy Goal 2 in the IMCP – Strengthen Islandwide Connections and each of its four subgoals. It would also meet the IMCP's Goal 3 – Foster Livable Communities, subgoals B and C.

4. Improve the transportation linkages between communities in the PUC

Improving transportation linkages within the PUC is key to increasing the attractiveness of in-town living, thereby helping to focus growth in the PUC. Mobility within the PUC must be convenient and efficient to meet current and future travel demands.

The 1992 City and County of Honolulu General Plan has a policy that would result in the PUC having almost half of Oahu's 2010 population. In addition, over 50 percent of the projected new job growth will be concentrated within the PUC. The PUC will remain the center for employment, cultural activities, educational opportunities, regional shopping, and recreation. It will continue to serve as a major hub for commuters, students and other individuals from all parts of the island.

A high capacity transit spine through the PUC would enhance in-town mobility and provide transit connections between the many travel markets that exist within the Urban Core. The transit spine would support existing activities and assist in creating new ones through redevelopment.

Improving the linkages between communities in the PUC satisfies Goal 1 of the IMCP – Improve In-Town Mobility and both of its subgoals. It will also address Goal 2 – Strengthen Islandwide Connections (subgoals A & B), and Goal 3 – Foster Livable Communities, including each of its three subgoals.

1.2 NEED FOR TRANSPORTATION IMPROVEMENTS

1.2.1 Description of the Study Corridor

The primary transportation corridor is a mix of existing residential and economic centers and areas designated by government plans to become residential and economic centers. The level of transportation service within the corridor, and between the corridor and other parts of Oahu, is vital to the economic well being of the island and the quality of life of Oahu's residents. With future growth being directed by government plans to occur in this corridor, the level of activity within the corridor, already substantial, is expected to increase.

The primary transportation corridor extends from Kapolei in the Ewa District of Oahu to the University of Hawaii at Manoa and Waikiki in the east. The east/west (Koko Head/Ewa) length of the corridor is approximately 26 miles. The north/south (mauka/makai) width is a maximum of four miles, bounded by the

Koolau Mountain Range and the coastline. The corridor is by far the most urban region on Oahu and in the State, encompassing more than 56 percent of the island's population and more than 80 percent of its employment.

1) Existing Land Use

Oahu is divided into eight community oriented planning areas. The primary transportation corridor includes portions of three planning areas – the Primary Urban Center (PUC), Ewa, and Central Oahu (see Figure 1.2-1). These community oriented planning areas are either already substantial centers of population and employment (e.g., PUC), or are on their way to becoming urban centers in the future (e.g., Ewa). The Ewa and PUC plans are called Development Plans (DP) because growth in these areas is anticipated over the next 20 years. The Central Oahu plan is called a Sustainable Community Plan (SCP) because it is a relatively stable area.

Figure 1.2-2 shows the locations of the neighborhoods discussed in this Section.

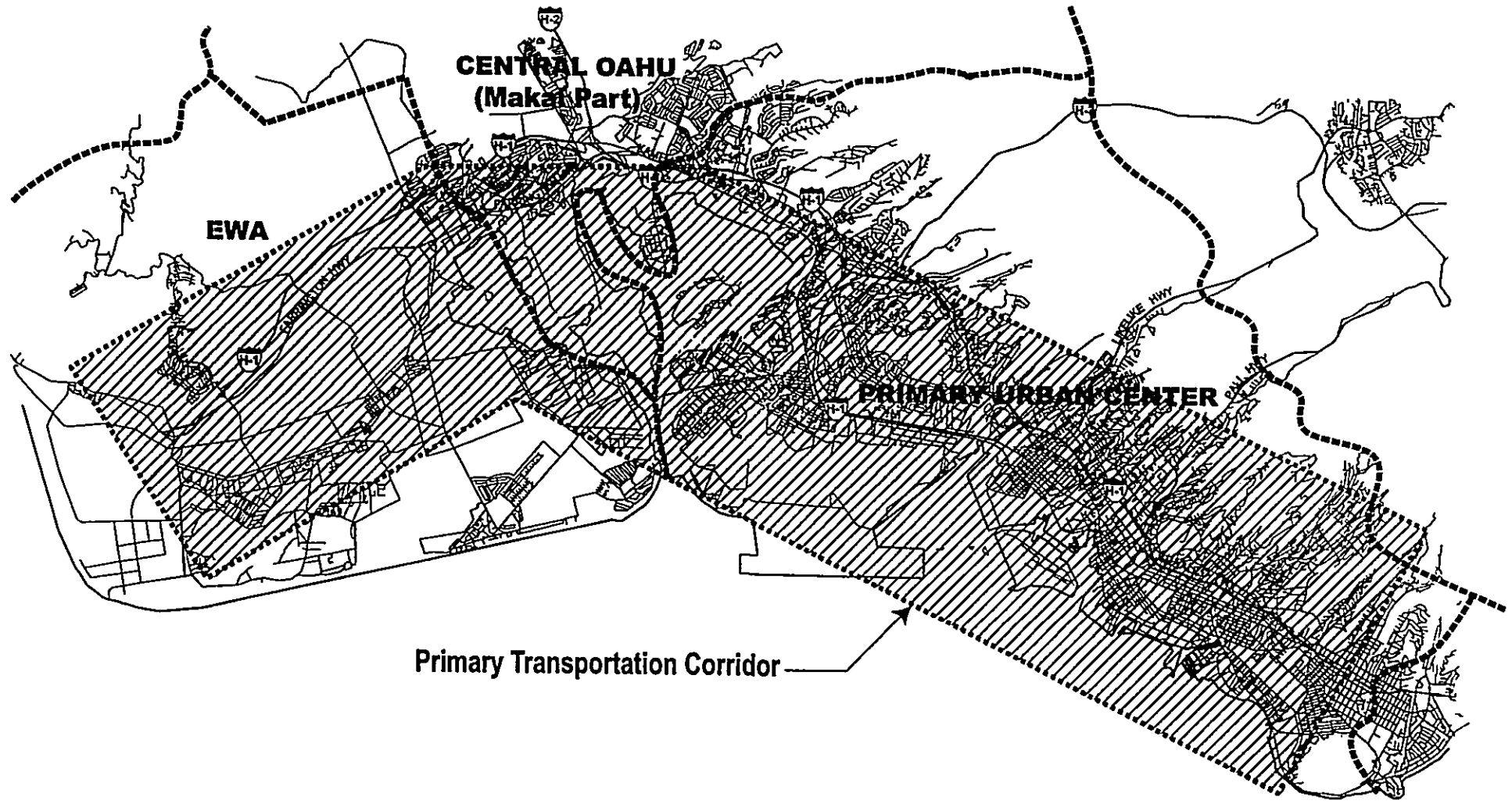
Primary Urban Center (PUC) Development Plan (DP) Area

The PUC extends from Waialae-Kahala to Pearl City and lies between the Koolau Mountain Range and the coastline. The PUC features the most diverse land uses on the island, including residential, military, industrial, commercial, and open space.

The PUC is by far the most populated planning area with 426,313 people (over 48 percent of the island total) in 2000. The PUC is also the center of government, business, economic, and cultural activities in the State, including most of the major employment centers on the island, such as much of the Pearl Harbor Naval Station, Honolulu International Airport, Downtown Honolulu, Fort Shafter, Hickam Air Force Base, Ala Moana Center, and Waikiki. Economic activity is located primarily in the relatively narrow strip between Kalihi-Palama and Kaimuki, the urban core of Honolulu ("Urban Core" or "Heart of Honolulu"). In 2000, the PUC contained 379,802 jobs, or 78 percent of the total employment on the island.

Central Oahu Sustainable Community Plan (SCP) Area

The Central Oahu SCP Area contains the wide, plateau between the Waianae and Koolau mountain ranges. While only the makai portion of the Central Oahu SCP Area is within the primary transportation corridor, this portion includes Waipahu, Kunia, Waikele, and Waipio. These are some of the fastest growing parts of the Central Oahu SCP Area where much new housing has been developed. In addition, Waipio, Waikele, and Kunia each contain a large commercial shopping center: Waipio Shopping Center, Costco, Waikele Center/Waikele Premium Outlets, and Royal Kunia Shopping Center. The latter three draw tourists and shoppers from other parts of the island.

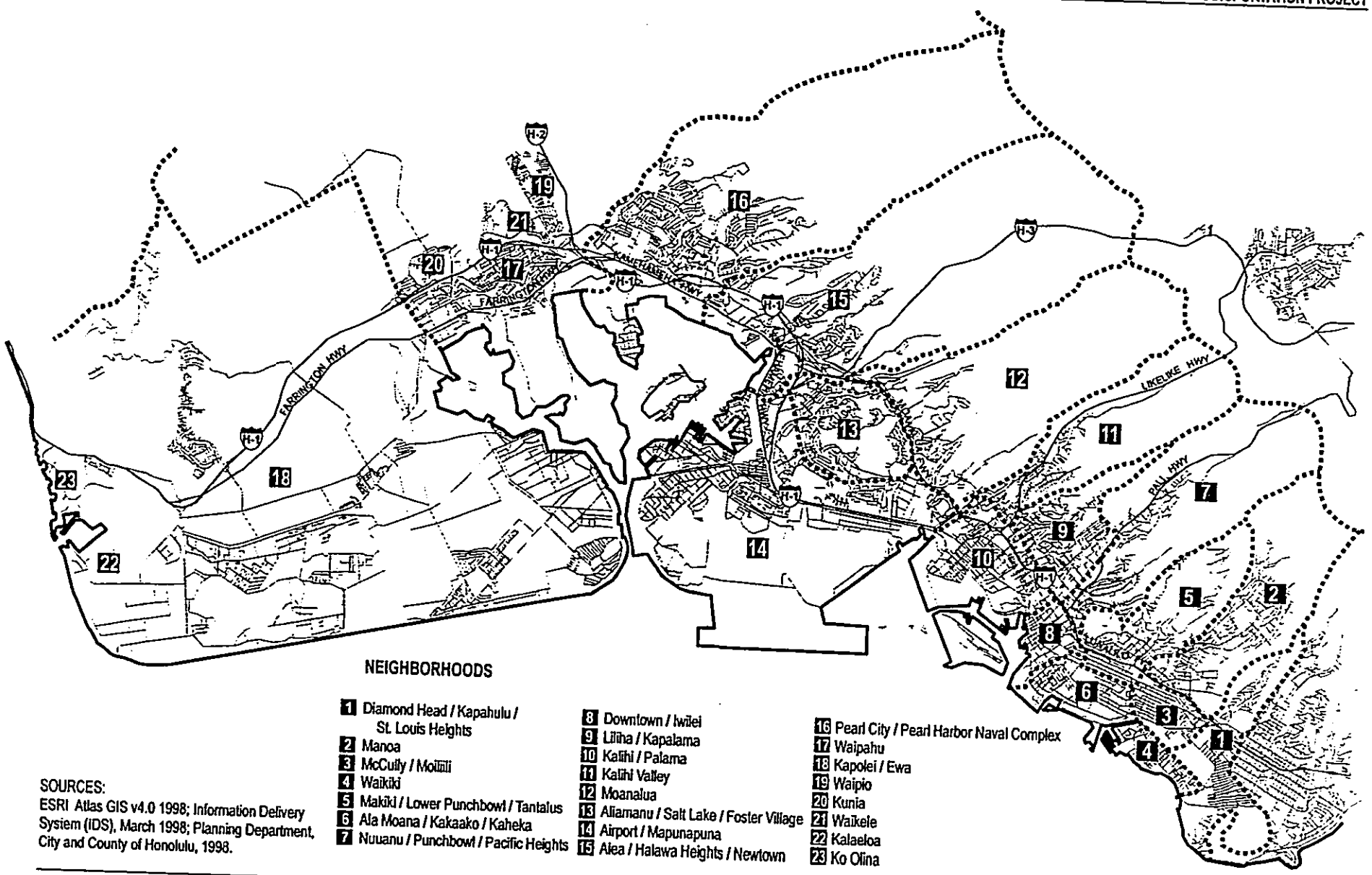


SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

N Scale: 0 1.25 2.50 mi

Development Plan Areas Within The Primary Transportation Corridor

Figure 1.2-1



NEIGHBORHOODS

1 Diamond Head / Kapahulu / St. Louis Heights
2 Manoa
3 McCully / Moiliili
4 Waikiki
5 Makiki / Lower Punchbowl / Tantalus
6 Ala Moana / Kakaako / Kaheka
7 Nuuanu / Punchbowl / Pacific Heights
8 Downtown / Iwilei
9 Liliha / Kapalama
10 Kalihi / Palama
11 Kalihi Valley
12 Moanalua
13 Aliamanu / Salt Lake / Foster Village
14 Airport / Mapunapuna
15 Alea / Halawa Heights / Newtown
16 Pearl City / Pearl Harbor Naval Complex
17 Waipahu
18 Kapolei / Ewa
19 Waipio
20 Kunia
21 Waikele
22 Kalaeloa
23 Ko Olina

SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery Sysiem (IDS), March 1998; Planning Department, City and County of Honolulu, 1998.

N

Scale: 0 .5 1.0 1.5 2.0mi

Neighborhoods

Figure 1.2-2

Ewa Development Plan (DP) Area

Much of the Ewa DP Area is within the primary transportation corridor, and is now experiencing urban growth. The State of Hawaii and the City are encouraging the development of this region as Oahu's "Secondary Urban Center", largely with new master-planned communities. Destinations include Barbers Point Harbor, Kalaeloa (the former Barbers Point Naval Air Station), a civic center with State and City offices, schools, the Ko Olina Resort, and a water theme park.

2) Future Development

The State and City have a development policy encouraging growth in only two areas: the PUC and Ewa. One of the objectives of this policy is to minimize suburban sprawl and the associated costs of extending public infrastructure and services into presently undeveloped areas. The goal of preserving open space given the limited land area of Oahu, is not only a governmental policy, it is a widespread public sentiment frequently repeated during the public outreach activities that have been conducted during project planning. It is captured by the slogan "Keep the Country Country".

Oahu's population increased at an average annual rate of 1.63 percent during the twenty-year period from 1970 to 1990. Although this growth rate has slowed to less than one percent per year between 1990 and 2000, the population of Oahu is still expected to exceed one million people by 2025 (see Table 1.2-1).

TABLE 1.2-1
PROJECTED POPULATION SUMMARY FOR OAHU

	2000	Forecast	
		2025	Increase From 2000
PUC			
Waikiki	21,900	24,120	2,220
Other PUC	404,413	470,311	65,898
Ewa	68,092	114,005	45,913
Other	378,510	421,371	42,861
Total	**872,915**	**1,029,807**	**156,892**

Source: Transportation for Oahu Plan, TOP 2025, April 6, 2001.

The majority of the population growth between now and 2025 is forecasted to occur at the two ends of the primary transportation corridor. As shown in Table 1.2-1, the fastest growing area will be Ewa/Kapolei. More than 114,000 people are expected to be living in the Ewa DP area in 2025, a growth of 67 percent in 25 years. The PUC will also experience significant growth, increasing by over 68,000 people. The Central Oahu population is projected to increase from 148,380 in 2000 to 172,977 in 2025, a gain of over 16 percent (Transportation for Oahu Plan, TOP 2025, April 6, 2001).

Accompanying the anticipated growth in population will be an increase in employment. Employment increased at an average annual rate of 4.13 percent from 1970 to 1990. The present employment projection is based on a 1.1 percent annual increase, resulting in forecasted job growth of over 30 percent between 2000 and 2025.

As shown in Table 1.2-2, the number of jobs on Oahu is projected to increase by approximately 152,000 between 2000 and 2025. About 51 percent of these new jobs will be located in the PUC. Almost 30 percent of the employment growth islandwide is also expected to occur in Ewa/Kapolei, consistent with government growth policies to concentrate development in the PUC and Kapolei.

TABLE 1.2-2
PROJECTED EMPLOYMENT SUMMARY FOR OAHU

		Forecast	
	2000	2025	Increase From 2000
PUC			
Waikiki	40,997	49,175	8,178
Other PUC	338,805	408,670	69,865
Ewa	14,898	56,634	41,736
Other	90,792	122,998	32,206
Total	**485,492**	**637,477**	**151,985**

Source: Transportation for Oahu Plan, TOP 2025, April 6, 2001.

The PUC Development Plan (PUC DP) Public Review Draft includes the forecast that the PUC will capture 45 to almost 50 percent of Oahu's population growth over the next ten years (approximately 43,500 new households and 70,000 new residents). Directing residential growth to the PUC requires development of a high-quality, attractive urban lifestyle including opportunities for people to live, shop, work, and socialize all within a particular neighborhood or geographic area, without the need to travel long distances. A consequence of preserving open space in the country is that existing urban areas in the PUC must be redeveloped, and become attractive urban areas for living and working.

To achieve this vision, improvements must be encouraged in older neighborhoods to attract new residents. The PUC DP introduces the concept of higher-density housing supported by extensive urban amenities.

Primary Urban Center (PUC) Development Plan (DP) Area

Elements of urban life that must be enhanced to attract new residents include quality housing; high-quality public spaces that are used as neighborhood focal points; livable neighborhoods where streets are used as public places; and enhanced transportation service, including pedestrian and bicycle facilities, so one does not have to use a car to have mobility and perform the daily functions of work, shopping, education and recreation.

Redevelopment in the PUC is designated primarily for the area makai of the H-1 Freeway between Middle Street and Kapahulu Avenue. A secondary growth/redevelopment area is located between Aiea and Pearl City. These areas have the most favorable conditions for accommodating new housing, and 90 to 95 percent of the expected growth in population by 2025 is expected to occur within these redevelopment areas.

Central Oahu Sustainable Community Plan (SCP) Area

A revised Central Oahu Sustainable Communities Plan (Central Oahu SCP) has gone through the Planning Commission review and approval process and is at the City Council for adoption. The Waipahu portion of the Central SCP Area that is in the primary transportation corridor is slated for development.

Ewa Development Plan (DP) Area

Kapolei is intended by the State and the City to be a center of growth and development, as it becomes the "Secondary Urban Center" of Oahu. The vision for Kapolei is a place where people live, work, shop, socialize, and recreate within the area, without needing to travel long distances, and where alternative forms of transportation to the private automobile can access these facilities.

Designation of Kapolei to be a fully developed city is in itself a traffic mitigation measure, reducing the dominant flow to and from Honolulu. The intent is that Kapolei's economic development will complement and support economic activity in the Urban Core, not compete with it. Therefore, the transportation linkage between Kapolei and the Urban Core, already important, will grow in importance.

1.2.2 Existing Transportation Facilities And Services In The Corridor

This Section discusses the existing infrastructure responsible for satisfying the travel demand in the corridor, and the next Section assesses how well this infrastructure is satisfying current travel demand. In brief, transportation service is provided by roadways, public bus service and special transportation facilities, which encourage high-occupancy vehicles. Maps of the existing roadways, bus routes and other elements of the transportation system are provided in Chapter 3.

1) Roadway Network

The roadway network in the primary transportation corridor is concentrated in the area between the mountains and ocean, with the dominant highways generally paralleling the coastline. The principal Ewa/Koko Head roadway is the Interstate H-1 Freeway, which runs from Kapolei to Kahala. Moanalua Freeway, which runs from the Halawa Interchange to Kahauiki Interchange, also runs Ewa-Koko Head. The H-2 Freeway services traffic between Mililani/Wahiawa and Pearl City, and the H-3 Freeway is a trans-Koolau roadway between Windward Oahu and Halawa. In addition, there is an extensive network of arterial and local roadways.

2) Public Transit System

The City currently provides fixed-route public transit service on Oahu. It is converting from a radial route structure to a hub-and-spoke structure. This hub-and spoke program is a major overhaul of the existing bus service operations. Starting with Leeward Oahu, the program goal is to convert the existing, primarily radial bus route architecture into a hub-and-spoke system that connects the different communities throughout the island. Such a system includes limited stop bus service all day long and enhanced neighborhood shuttle services. All 18 Leeward routes were converted in 2000. All 20 Central routes will be converted in 2003.

TheBus, as this service is called, maintains a current fleet of 525 buses deployed on 88 routes extending to urban, suburban and rural areas throughout the island. The bus network includes five route types:

- Urban Trunk service is the direct bus service along the Ewa/Koko Head arterials of the central portion of the PUC, operating with a high level-of-service and connecting neighborhoods on both sides of Downtown. More than half of the system's daily boardings are on urban trunk routes. A special type of urban trunk service is the new Route A and Route B service (called "CityExpress!"), which provides limited stop service from Waipahu to UH-Manoa, and the Route C "CountryExpress!" service that provides limited stop service along the Waianae coast.
- Urban Collector service provides access to the transit system from neighborhoods surrounding Downtown Honolulu that are not directly served by urban trunk routes.
- Suburban Trunk service provides a direct connection between suburban neighborhoods and Downtown Honolulu.
- Suburban Feeder service provides access to the transit system for neighborhoods outside the PUC not served by suburban trunk routes.
- Express routes provide direct, limited stop service between certain suburban neighborhoods and major activity centers within the PUC, generally limited to peak hours.

TheBus route network focuses transit service to dominant employment and retail centers in the PUC, while providing service along major arterial streets en route to these centers. Because of the locations of these centers, the area from Middle Street to Kahala has the most frequent bus coverage, with many of the bus lines coming together on a few parallel roadways.

Transit service to/from suburban areas is served by express bus service during the morning and afternoon peak periods, while these areas are served by regular route trunk lines during off-peak periods.

In addition, the City provides a comparable paratransit service, called TheHandi-Van, to complement the fixed route bus service. TheHandi-Van serves semi- and non-ambulatory disabled persons who cannot utilize TheBus.

TheBus vehicles are serviced at two maintenance facilities, one in Pearl City and the other in Kalihi-Palama.

3) Special Transportation Facilities

To facilitate bus service and improve the person-carrying capacity of major roadways, special lanes have been constructed for buses and other high-occupancy vehicles (HOVs). H-1 includes a Koko Head-bound contraflow lane (zipper lane) that operates during the a.m. peak period from Managers Drive to the Pearl Harbor Interchange, with a concurrent flow shoulder lane extension to Keehi Interchange. Several major arterial roadways are coned to create contraflow travel lanes during peak periods, and there are exclusive bus only lanes on Hotel Street in Downtown and on a section of Kalakaua Avenue in Waikiki.

4) Bicycle Facilities

Bicycle facilities in the study area include a collection of routes, lanes, and paths. The longest, and one of the most heavily used, is the Pearl Harbor Bike Path. Other major bike facilities include a path on Bougainville Drive/Nimitz Highway from Radford Drive to Middle Street; lanes on Nimitz Highway from Waiakamilo Road to Bishop Street; a route on Young Street; lanes on University Avenue from Kapiolani Boulevard to Dole Street; paths along the Ala Wai Golf Course and Park; and paths along Kapiolani Park. Bike Plan Hawaii (April 1994), prepared by the State of Hawaii Department of Transportation (HDOT), and the Honolulu Bicycle Master Plan (April 1999), prepared by the DTS, link existing and future bicycle facilities to create a network that can be used for recreation and commuting.

Other bicycle facilities include bicycle parking in many areas in Downtown Honolulu. The City has placed bike racks on all of the City buses, with hookups to the bus bicycle racks now at 1,100 per day.

1.2.3 Measures of Transportation System Performance

This Section describes the quality of current and future service provided by the roadway and transit components of the primary transportation corridor's system. The assessment of future performance assumes growth and development occur as predicted, and implementation of highway improvements expected to occur as discussed in the TOP 2025. The assessment of future system performance assumes transit system coverage would be expanded to accommodate population growth.

1) Roadway Performance

Existing Roadway Performance

Travel demand within the primary transportation corridor currently overburdens the roadway system, particularly for the travel markets between suburban/Ewa/Kapolei areas and the Urban Core, and within the Urban Core. Symptoms of system inadequacy include congestion, delay, fuel waste, excess air pollutants and other detractions from the quality of life.

While resident households, port operations, airport activities, other commercial activities and visitors all generate travel on Oahu, travel by members of resident households represents over 90 percent of total traffic volume and transit ridership. In 2000, Oahu residents made more than 2.7 million trips on an average weekday. Of these, approximately 962,000 were work trips (TOP 2025, April 6, 2001). Downtown Honolulu, by far the largest single employment concentration on Oahu, attracted 105,000 of the work trips (11 percent). Many work trips were also attracted to the Airport/Pearl Harbor area, Kakaako, and Waikiki. Many trips to

work began in the residential areas of Aiea, Ewa, Kalihi, and Kaneohe. Over the next 25 years, these travel origin-destination combinations will continue to be important as the PUC grows and develops.

Historically, travel on Oahu has increased more rapidly than population. As shown in Table 1.2-3, while Oahu's population increased 14.9 percent from 1980 to 2000, daily vehicle miles traveled increased by more than 47.5 percent. This rapid increase in travel has caused roadway congestion, as demonstrated by the over 36 percent growth in daily vehicle hours traveled during the same period.

TABLE 1.2-3
OAHU POPULATION AND DAILY TRAVEL CHARACTERISTICS

Year	Population	Vehicle Miles Traveled	Vehicle Hours Traveled
1960	500,409	4,301,370	N/A
1980	762,565	8,741,110	328,900
2000	876,156	12,900,015	449,910

Source: Oahu Metropolitan Planning Organization from US Census Data and Travel Demand Model; Parsons Brinckerhoff, Inc., 1999 and 2001; and http://quickfacts.census.gov/gfd/meta/long68166.htm.

Table 1.2-4 shows Honolulu compared to similar sized urban areas. The travel rate index (TRI) measures how much longer a trip takes on a congested facility compared to the travel time when the road is not congested. For the 17 years between 1982 and 1999, Honolulu travelers experienced more roadway congestion than similar-sized cities across the U.S. Congestion has gotten progressively worse in Honolulu, increasing from nine percent in 1982 to 22 percent in 1999.

TABLE 1.2-4
TRAVEL RATE INDEX[1]

	1982	1986	1990	1996	1997	1999
Honolulu	1.09	1.12	1.21	1.21	1.22	1.22
Average Medium-Sized Urban Area[2]	1.05	1.07	1.11	1.16	1.17	1.18

Source: Texas Transportation Institute, Urban Roadway Congestion-Annual Report, 1998 and The 2001 Urban Mobility Report, Texas A&M University, 1999 and May 2001.

Notes: [1] TRI is a measure of how much longer a trip takes during congested conditions compared to the same trip during uncongested conditions. A TRI of 1.2 means the trip during a congested period takes 20 percent longer than during an uncongested time.
[2] Population between 500,000 and 1,000,000.

Honolulu's arterial street system reflects the same high levels of congestion when measured in person-miles (one person traveling one mile on a roadway). In 1990, 71 percent of person-miles traveled on arterial streets were on congested roadways, but by 1996 the percentage had increased to 78 percent.

Delays resulting from roadway congestion are equivalent to the loss of almost three working days for every Oahu resident each year, or roughly four working days for every driver in Honolulu in the past few years. The annual delay per resident for Honolulu is shown in Table 1.2-5.

Further, vehicles idling on congested roadways waste fuel, costing money and contributing to air pollution and global warming. In 1999, 19 million gallons of fuel were wasted by cars stuck in traffic in Honolulu, amounting to 30 gallons of fuel wasted for every Oahu resident (see Table 1.2-6). This fuel waste is up from 11 gallons per resident in 1982.

TABLE 1.2-5
ANNUAL DELAY PER OAHU RESIDENT (HOURS)

	1982	1986	1990	1995	1997	1999
Honolulu	6	10	17	19	19	19

Source: Texas Transportation Institute, The 2001 Urban Mobility Report, Texas A&M University, May 2001.

TABLE 1.2-6
ANNUAL WASTED FUEL (MILLIONS OF GALLONS)

	1982	1986	1990	1995	1997	1999
Honolulu	6	10	18	21	21	21

Source: Texas Transportation Institute, The 2001 Urban Mobility Report, Texas A&M University, May 2001.

Combining these various measures of transportation system performance produces a "cost of congestion." The annual "cost of congestion" in 1999 for Honolulu was $240 million (The 2001 Urban Mobility Report, Texas Transportation Institute, May 2001).

Stepping this cost down to a per capita basis, the annual cost of congestion was $345 in 1999 per capita in Honolulu. This cost represents a substantial drag on the local economy. The annual cost of congestion was only $90 per capita in 1982.

Reliance on the automobile has also resulted in the demand to convert land for parking. Based on an average of 2.17 automobiles per household, 350,000 private automobiles are estimated to be based in the PUC. On average, every vehicle requires 350 square feet for parking, totaling 2,800 acres of land in residential areas for parking, some of which could otherwise be used for parks and affordable housing, or other purposes. This 2,800 acres figure does not include parking lots at employment sites, retail outlets, or recreation venues.

In summary, the existing transportation system struggles to serve the present level of travel demand in the primary transportation corridor, subjecting travelers to substantial congestion, delay and waste of fuel. Existing shortcomings will become more pronounced with growth.

Future Highway Performance

Travel demand between suburban/Ewa/Kapolei areas and the Urban Core, and within the Urban Core, will continue to tax the highway system, even with the roadway improvements presently planned. Growth in resident travel relates to growth in population and employment. Table 1.2-7 summarizes the projected growth in resident vehicular travel demand between 2000 and 2025. (In accordance with FTA guidelines, the planning horizon for a possible transit investment is 25 years from the present.) Travel demands in the a.m. and p.m. peak periods (which vary by roadway segment) are projected to grow by over 22 percent.

TABLE 1.2-7
TOTAL RESIDENT VEHICLE TRIP TRAVEL DEMAND

	A.M. Peak Period	P.M. Peak Period
2000	393,864	489,125
2025	485,199	604,429
Growth	91,335	115,304
Percent Growth	23%	24%

Source: Oahu Metropolitan Planning Organization Travel Demand Model and Parsons Brinckerhoff, 2002.

Table 1.2-8 shows the projected growth in travel by Oahu residents between 2000 and 2025 categorized by key travel markets.

TABLE 1.2-8
RESIDENT PERSON TRIP TRAVEL DEMAND WITHIN SELECTED TRAVEL MARKETS

Travel Market	Daily Person Trips			
	2000	2025	Difference	Percent Change
Within Urban Core	1,112,243	1,420,592	308,349	28%
Suburban to Urban Core	622,023	664,842	42,819	7%
Ewa/Kapolei to Urban Core	54,182	69,156	14,974	28%
Suburban to Ewa/Kapolei	81,602	167,917	86,315	106%

Source: Oahu Metropolitan Planning Organization Travel Demand Model and Parsons Brinckerhoff, 2002.

The travel market between suburban areas and Ewa/Kapolei will be the most rapidly growing on a percentage basis. However, over one-half of the island's travel will continue to occur wholly within the PUC, heavily concentrated in an Ewa-Koko Head direction, with intra-PUC travel expected to increase by over 300,000 trips per day. Even with the significant reorientation of travel patterns to and from the Ewa/Kapolei area, there is substantial projected growth in travel between the PUC and Kapolei, and within the PUC. This large increase in travel within the PUC is a major reason why the capacity to handle in-town mobility must substantially increase through the improvement of transit service. The relationship between travel demand and roadway capacity may be illustrated through the analysis of screenlines, imaginary lines drawn at strategic locations. Traffic volumes on roadways crossing the defined screenlines are summed to produce a total travel demand across a screenline. This screenline travel demand is compared to the total roadway capacity across the screenline, derived by summing the capacities of the key roadways as they cross the screenlines. Ratios of travel demand to roadway capacity (volume/capacity ratios) are then calculated to assess highway performance at the screenlines. A volume/capacity ratio of 1.00 indicates that the roadway capacity of the screenline is completely utilized, while a volume/capacity ratio greater than 1.00 indicates that significant vehicular delay would occur because of roadway congestion. These volume/capacity ratios are frequently related to an index called level-of-service (LOS), which ranges from A (free-flow) to F (congested flow).

Tables 1.2-9 and 1.2-10 summarize 2000 and 2025 peak period data at selected screenlines, focusing on traffic flowing in the Ewa-Koko Head direction. Figure 1.2-3 illustrates the location of these screenlines.

TABLE 1.2-9
COMPARISON OF YEAR 2000 AND YEAR 2025 SCREENLINE LOS
A.M. PEAK HOUR INBOUND TO DOWNTOWN

Screenline	Year 2000				Year 2025			
	Vehicle Volume	Capacity	V/C Ratio	LOS	Vehicle Volume	Capacity	V/C Ratio	LOS
Kahe Pt.	1,892	3,200	0.59	A	3,004	3,200	0.94	E
Ewa	4,783	6,800	0.70	C	8,617	11,700	0.74	C
Waikele	7,278	9,750	0.75	C	12,973	11,500	1.13	F
Kalauao	16,030	15,900	1.00	F	25,089	17,650	1.42	F
Moanalua	17,527	20,400	0.86	F[1]	22,072	22,100	1.00	F[1]
Kapalama	15,758	16,800	0.94	E	23,595	20,500	1.15	F
Nuuanu	15,627	18,600	0.84	F[1]	21,196	18,600	1.14	F
Ward	12,097	18,900	0.67	F[1]	21,132	18,900	1.09	F
Manoa-Palolo	15,332	21,150	0.72	F[1]	20,800	21,150	0.98	F
Kapakahi	5,296	5,400	0.98	E	6,039	5,400	1.12	F

Source: Parsons Brinckerhoff, Inc., May 2002
Note: LOS F caused by downstream congestion backing up across screenline.

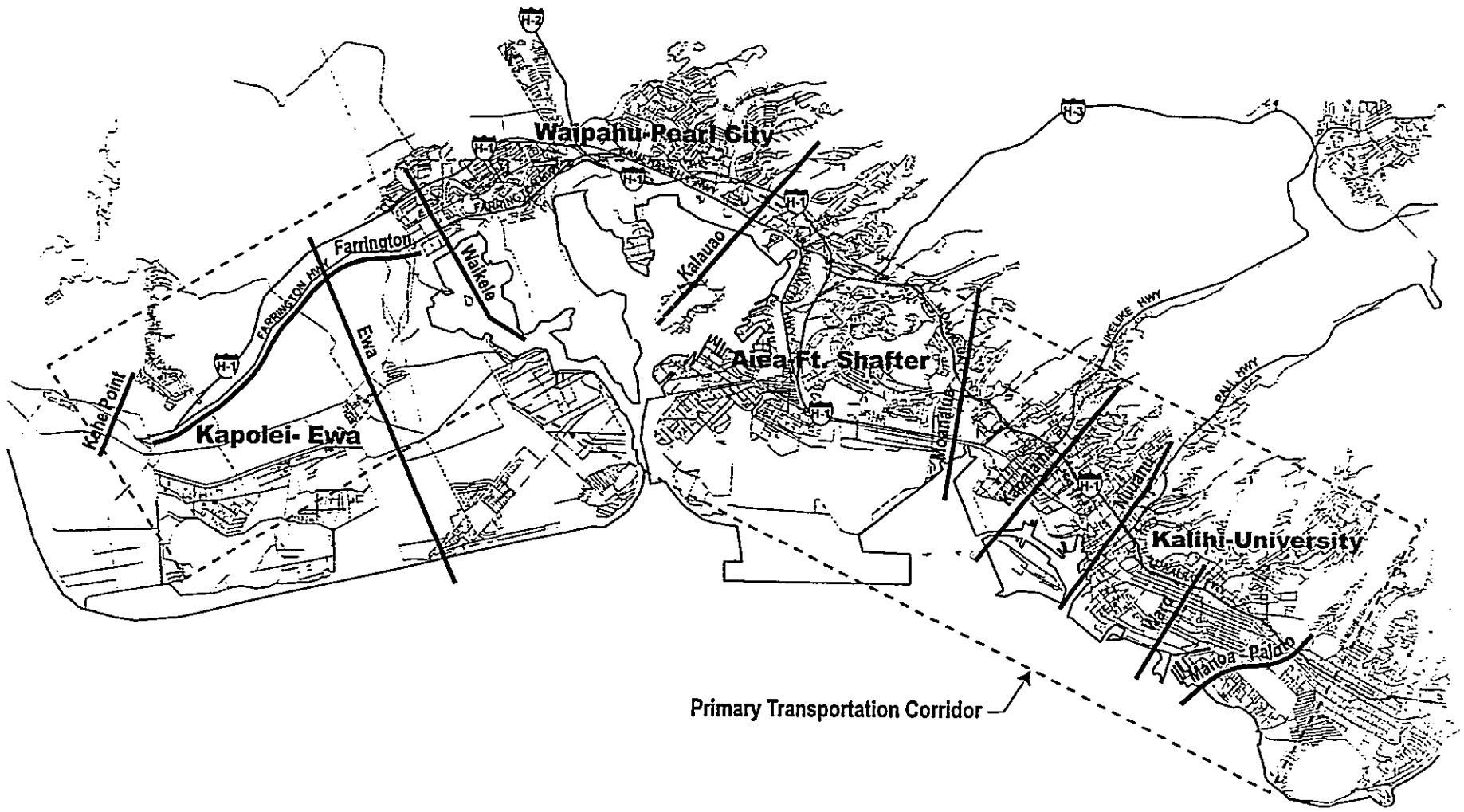
At key screenlines between the Waiawa Interchange (H-1/H-2 junction), through the Urban Core and into East Honolulu, the LOS analysis indicates that many roadways are significantly over capacity under existing conditions. This finding on the current level of transportation service supports the analysis reported in the previous section, that the existing transportation infrastructure is severely taxed even under current levels of travel demand. Further, even including the near-term improvements to the transportation system presently programmed, volume/capacity ratios are projected to worsen between 2000 and 2025.

TABLE 1.2-10
COMPARISON OF YEAR 2000 AND YEAR 2025 SCREENLINE LOS
P.M. PEAK HOUR OUTBOUND FROM DOWNTOWN

Screenline	Year 2000				Year 2025			
	Vehicle Volume	Capacity	V/C Ratio	LOS	Vehicle Volume	Capacity	V/C Ratio	LOS
Kahe Pt.	1,875	3,200	0.59	A	3,683	3,200	1.15	F
Ewa	4,435	6,800	0.65	B	9,497	11,700	0.81	D
Waikele	7,011	9,750	0.72	C	10,489	12,500	0.84	D
Kalauao	14,677	14,150	1.04	F	21,936	17,650	1.24	F
Moanalua	14,620	18,200	0.80	F[1]	20,599	19,900	1.04	F
Kapalama	14,535	17,700	0.82	F[1]	21,266	21,800	0.98	E
Nuuanu	15,628	18,100	0.86	F[1]	21,193	18,100	1.17	F
Ward	15,329	22,200	0.74	F[1]	21,592	22,200	1.00	F
Manoa-Palolo	12,643	21,050	0.60	F[1]	21,994	21,050	1.04	F
Kapakahi	4,348	4,050	1.07	F	4,963	4,050	1.23	F

Source: Parsons Brinckerhoff, Inc., May 2002.
Note: [1] LOS F caused by downstream congestion backing up across the screenline.

Within the Urban Core of Honolulu, much of the roadway performance is controlled by conditions at key intersections. If intersections are congested, the total trip time is lengthened even if traffic flows smoothly between the intersections.



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, June 2002.

N Scale: 0 1.25 2.50 mi

Screenlines Within Or Near The Primary Transportation Corridor

Figure 1.2-3

Table 1.2-11 summarizes 2000 and projected 2025 peak hour intersection LOS at key intersections within the Urban Core. Many of the intersections are approaching capacity under existing conditions, and intersection performance is projected to worsen between 2000 and 2025 because travel within the Urban Core is projected to grow.

TABLE 1.2-11
COMPARISON OF EXISTING AND FUTURE INTERSECTION LOS

Intersection	Peak Time Period	2000	2025
Kalihi Street & Dillingham Boulevard	A.M.	C	F
	P.M.	E	F
Kalihi Street & N. King Street	A.M.	D	F
	P.M.	D	F
Bishop Street & S. King Street	A.M.	D	F
	P.M.	D	F
Punchbowl Street & S. King Street	A.M.	D	F
	P.M.	C	F
Punchbowl Street & Ala Moana Boulevard	A.M.	B	C
	P.M.	D	F
Kalakaua Avenue & Kapiolani Boulevard	A.M.	C	F
	P.M.	E	F
Nimitz Highway & Sand Island Access Road	A.M.	F	F
	P.M.	F	F

Source: Parsons Brinckerhoff, Inc., May 2002.

In summary, the highway screenline and the Urban Core intersection analyses indicate that highway users currently experience substantial traffic congestion. Even with the assumed improvements to the transportation system (these assumed improvements are contained in the No-Build Alternative as discussed further in Chapter 2), peak hour conditions for 2025 vehicular traffic would be even worse than 2000 conditions because of growth in travel demand. Thus, an approach of increasing person-capacity is needed.

The travel conditions indicated by the screenline and intersection LOS results in average islandwide auto speeds of 28.95 miles per hour (mph) and 29.01 mph during the A.M. peak period and P.M. peak period, respectively. Table 1.2-12 summarizes projected year 2025 peak period auto travel times between selected origins and destinations.

The regional auto travel times are lower during the A.M. peak period than during the P.M. peak period, because autos traveling during the A.M. peak period would benefit from the contra-flow zipper lane/shoulder lane operation on H-1 Freeway, between the Paiwa Interchange and the Keehi Interchange. The zipper lane/shoulder lane operation does not currently operate during the P.M. peak period and is not assumed to operate in this time period in the future.

2) Public Transit Performance

TheBus had approximately 213,000 boardings per day in 2000. Measured in passengers per revenue-mile and operating expenses per passenger, TheBus is one of the most productive and efficient bus systems in the U.S. In 1994 and again in 2000 the City bus system received a "Best Transit System in America Award" from the American Public Transit Association.

TABLE 1.2-12
YEAR 2025 PEAK PERIOD AUTO TRAVEL TIMES
(Travel Time in Minutes)

Trip Origins/Destinations	A.M. Peak Period	P.M. Peak Period
Downtown-Kapolei	44.6	57.1
Downtown-Mililani	46.4	58.4
Downtown-Waikiki	12.7	13.8
Downtown-U.H.-Manoa	12.9	12.7
Downtown-Middle St. TC	13.4	11.0

Source: Parsons Brinckerhoff, Inc., November 2002.

Note: TC = Transit Center
Travel time direction is inbound to Downtown in the A.M. peak period and outbound from Downtown in the P.M. peak period.

TheBus has excellent service coverage and there is significant passenger demand. Many express and trunk routes experience substantial overcrowding. On an average day across the system, there are over 30 instances of waiting passengers being passed up because buses are full. Bunching of buses caught in traffic congestion causes schedules to be unreliable. Because buses must compete for roadway space with other vehicles, increasing capacity on bus routes is difficult. With the high level of traffic congestion on today's highway system, and increased traffic congestion forecasted for the future, the ability of the bus system to continue providing the service it does today is limited. The ability of the system to improve the level of service to reduce current overloads and meet future travel demand would be even more limited.

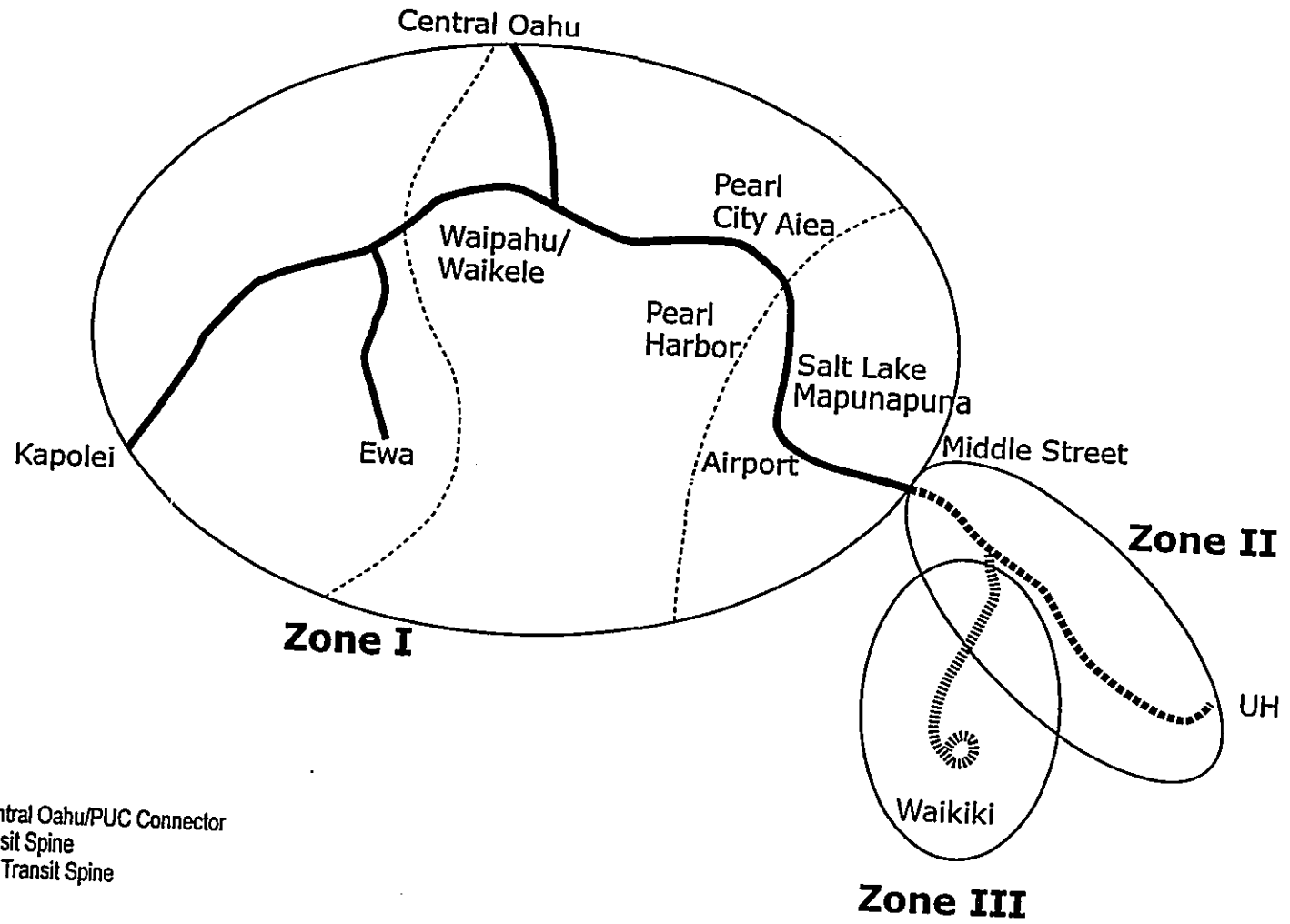
In summary, unless significant changes are made to enhance the transit system, increasing congestion on the roadway system will constrain the ability of TheBus to provide convenient and reliable mobility options for those who can choose between transit and driving. With roadway congestion continuing to worsen, average bus speeds and on time performance will be poor as long as buses operate in mixed traffic. Ridership growth will be more difficult to achieve under such circumstances. The ability of TheBus to absorb future travel demand, much less improve the current level of service for transit patrons, is limited if the system continues to be operated in congested traffic.

1.2.4 Zonal Requirements for Travel Within the Corridor

Not only must the network increase its capacity to move people, but the types of transportation service to be provided must be reflective of the unique transportation needs that exist on a subarea basis.

Figure 1.2-4 displays three distinct travel zones or market areas within the primary transportation corridor. Zone I extends from Kapolei to Middle Street, and contains three subzones: Kapolei/Ewa, Waipahu/Waikele/Pearl City, and Salt Lake/Airport. Zone II encompasses Downtown Honolulu, extending from Middle Street to the University of Hawaii. Zone III covers Waikiki as well as overlapping with parts of the Urban Core. A fourth zone includes the rest of the island outside of the primary transportation corridor. In developing transportation alternatives to address future demand, the travel patterns and unique needs of the individual zones and subzones must be understood so the alternatives that address the mobility issues of the corridor also match localized needs for transportation service.

Zone I, the region of the Secondary Urban Center, has the principal travel requirements of more frequent express service from Kapolei to Downtown Honolulu, intrazonal circulation, and connections to the rest of



Travel Zones Within The Primary Transportation Corridor

Figure 1.2-4

Oahu. Since Kapolei will support jobs and a range of cultural, educational, and other activities, residents need to be able to meet many of their needs by traveling wholly within the City of Kapolei. In addition, jobs and other attractions in Kapolei will attract "reverse travel" to this part of Oahu from outside areas.

The Waipahu/Waikele/Pearl City subzone of Zone I is a suburban area, including the regional shopping hubs of Waikele Center/Waikele Premium Outlets and Pearlridge Center. Therefore, the Waipahu/Waikele/Pearl City subzone's primary travel needs are connections to the Urban Core for residents who work in town, a connection to Kapolei, and connections into this subzone to access the shopping centers.

The Salt Lake/Airport subzone of Zone I contains the largest housing areas for military families, and employment centers such as the Honolulu International Airport and the Mapunapuna industrial area. Pearl Harbor is a major employer and visitor attraction. Connections to this subzone from all parts of the island will continue to be critical for commuters and airport users, and connections from all over Oahu to Pearl Harbor will be important.

Zone II is Honolulu's Urban Core, where the travel needs relate to convenient and efficient in-town mobility associated with "in-town" living. Many trips could be made by walking, bicycling or public transportation. Since Zone II will remain the primary center for employment, cultural activities, educational opportunities, regional shopping, and recreation, it will continue to serve as a major hub for commuters, students, and other individuals from all parts of the island. With major redevelopment planned for Kakaako, an opportunity exists to coordinate transit plans with Kakaako development plans so that mobility and livability objectives are fully realized.

Zone III comprises Waikiki and its 21,900 residents, 31,300 hotel rooms, 40,997 employees, plus numerous retail, entertainment, and recreational attractions. Waikiki has the highest concentration of trip making per square mile of any area on the island, with population and employment projected to increase further by 2025. While many trips stay within Waikiki and are made by walking or transit, most Waikiki residents work, go to school or have health care and other needs outside of Waikiki. They therefore require good connections to Downtown and other parts of the PUC. Also, most of the employees who work in Waikiki live elsewhere, and need good transportation access to places of employment. Waikiki's concentration of recreational activities, restaurants, nightlife, parks and beaches attract residents from around the island.

1.3 PLANNING CONTEXT

This Section discusses the context within which planning for transportation improvements in the primary transportation corridor has been occurring. Section 1.3.1 discusses how an investment in transportation infrastructure in the primary transportation corridor would be consistent with government plans. Section 1.3.2 was added to the FEIS and explains the transportation planning process. Section 1.3.3 discusses the public outreach activities that DTS has conducted, starting in the Fall of 1998. Input from the Oahu Trans 2K series of meetings has been critical in establishing consensus on key issues and in developing and evaluating alternative transportation solutions for the corridor, as described in more detail in Chapter 2. Section 1.3.2 also describes the development of the Islandwide Mobility Concept Plan (IMCP), an important document that integrated public input into transportation goals and objectives for the island.

1.3.1 Transportation Improvements in Relation to Government Plans

The purposes and needs presented so far in this Chapter have been discussed for many years, and government planning has long recognized them in transportation goals and objectives for the island, although not necessarily stated in the current terminology of sustainability.

Transportation planning in the primary transportation corridor involves several local, State, and federal agencies, primarily the DTS, the HDOT, and the Oahu Metropolitan Planning Organization. The transportation-related goals and objectives developed by planning agencies are summarized in Table 1.3-1.

Since the 1960s, public transit has been acknowledged as a key component of local and State plans to meet transportation demands in urban Honolulu. Therefore, in addition to the previously presented quantitative analysis showing the need for transit to address the inadequacy of the existing roadway system to satisfy existing and future travel demand, improvements in the transit system conform to long-standing government policies. Specifically, the Transportation for Oahu Plan, TOP 2025 (April 6, 2001) includes the Regional and

In-Town Bus Rapid Transit (BRT) components. The need for the BRT in the PUC corridor emerged from a transportation system planning process.

In addition to the goals in Table 1.3-1, the goals and objectives in the City and County of Honolulu's Islandwide Mobility Concept Plan (March 1999, updated August 2001) present a vision for integrating transportation and land use planning. This plan, which grew out of the public involvement activities conducted for this project (described further in Appendix A), emphasizes the role of transportation in helping build, strengthen, and connect communities throughout Oahu; focusing growth in designated areas; and enhancing the island's overall quality of life.

The range of government goals and objectives reflected in Table 1.3-1 were used to evaluate the alternatives before the Refined LPA was selected for implementation.

1.3.2 Oahu's Transportation Planning Process

This section presents a brief explanation of the transportation planning process in Oahu. This section was added to the FEIS in response to comments received on the MIS/DEIS and SDEIS. The information presented was extracted from the Transportation for Oahu Plan, TOP 2025, which was approved by the Oahu Metropolitan Planning Organization (OMPO) on April 6, 2001.

1.3.2.1 Transportation for Oahu Plan (TOP) 2025 Background

he OMPO, the designated metropolitan planning organization for Oahu, is responsible for the metropolitan transportation planning process requirements. The United States Department of Transportation mandates these requirements for establishing the eligibility of metropolitan areas for federal funds earmarked for ground transportation systems. One requirement is that each major urban area develops a multi-modal long-range plan that documents ground transportation projects selected for federal funding for a minimum time horizon of 20 years. The TOP 2025 was developed within the context of the comprehensive, cooperative and continuing (3C) planning process established and carried out by OMPO and its participating agencies. OMPO is the officially designated regional agency that must ensure that the 3C process addresses all federal concerns regarding various transportation modes on Oahu while satisfying the transportation needs of the state and county.

Current federal surface transportation legislation, enacted in 1998 as the Transportation Equity Act for the 21st Century (TEA-21), requires transportation strategies in metropolitan regions to address several planning factors. This federal law also expanded public participation in the transportation planning process and required increased cooperation among the jurisdictions that own and operate the region's transportation system.

TEA-21 requires that the following seven planning factors be considered (*Title 23, U.S.C., Section 134, Metropolitan Planning, (f) Scope of Planning Process)*:

TABLE 1.3-1
LOCAL AND STATE TRANSPORTATION GOALS AND OBJECTIVES FROM PLANS

City and County of Honolulu, General Plan for the City and County of Honolulu (Adopted 1992)
• To create a transportation system which will enable people and goods to move safely, efficiently, and at a reasonable cost; serve all people, including the poor, the elderly, and the physically handicapped; and offer a variety of attractive and convenient modes of travel.
• To maintain transportation and utility systems that will help Oahu continue to be a desirable place to live and visit.
City and County of Honolulu, Primary Urban Center Development Plan (Public Review Draft, May 2002)
• Develop a balanced transportation system that reduces reliance on cars and improves alternate modes connecting neighborhoods and activity centers.
• Implement land use strategies to achieve a balanced transportation system.
• Improve the public transit system, including development of a rapid transit component.
• Implement Transportation Demand Management (TDM) strategies.
• Review existing plans and establish priorities for roads and road improvements.
• Implement the Honolulu Bicycle Master Plan.
• Enhance and improve pedestrian mobility.
City and County of Honolulu, Ewa Development Plan (Adopted August 1997)
• Certification of adequate transportation access and services before zoning approval of new residential and commercial development.
• Planned rapid transit corridor to connect the City of Kapolei with Waipahu and onward to the Primary Urban Center.
• Improved linkages within the region, including to and across the former Barbers Point Naval Air Station.
• Design master planned residential communities to support non-automotive travel.
State of Hawaii, Hawaii State Plan (Adopted January 30, 1989)
• An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.
• A statewide transportation system consistent with planned growth objectives throughout the State.
• Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in Chapter 226, HRS.
• Coordinate State, County, Federal, and private transportation activities and programs toward the achievement of statewide objectives.
• Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties.
• Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs.
• Encourage transportation systems that serve to accommodate present and future development needs of communities.
• Promote programs to reduce dependence on the use of automobiles.
• Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawaii's natural environment.
• Encourage safe and convenient uses of low-cost, energy-efficient, non-polluting means of transportation.

TABLE 1.3-1 (CONTINUED)
LOCAL AND STATE TRANSPORTATION GOALS AND OBJECTIVES FROM PLANS

Oahu Metropolitan Planning Organization Transportation for Oahu Plan, TOP 2025 (Adopted April 6, 2001)
• Develop and maintain Oahu's islandwide transportation system to ensure safe, convenient, and economical movement of people and goods.
• Develop and maintain Oahu's transportation system in a manner that maintains environmental quality and community cohesiveness.
• Develop and maintain Oahu's transportation system in a manner that is sensitive to community needs and desires.
• Develop a travel demand management system for Oahu that optimizes use of existing transportation resources.

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity and efficiency.
2. Increase the safety and security of the transportation system for motorized and non-motorized users.
3. Increase the accessibility and mobility options available to people and for freight.
4. Protect and enhance the environment, promote energy conservation and improve quality of life.
5. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
6. Promote efficient system management and operation.
7. Emphasize the preservation of the existing transportation system.

Federal regulations require Oahu's regional transportation plan to have a minimum 20-year planning horizon, be fiscally constrained and be updated at least every five years. (Refer to 23 CFR, Part 450 for details of the federal regulations.) To conform to the requirement for a 20-year planning horizon, the TOP 2025 has a planning horizon of the year 2025. To comply with the requirements that the regional transportation plan be fiscally constrained, the plan includes an analysis of financial resources reasonably expected to be available to fund the transportation infrastructure projects that are included in the plan. Lastly, the TOP 2025 will need to be updated during 2005.

The TOP 2025 goals and objectives were developed at the study outset and reflect the issues and concerns raised by study participants. The following issues were part of the previous long-range transportation plan for Oahu, *2020 Oahu Regional Transportation Plan (2020 ORTP)* and were judged to continue to be reasonable for the TOP 2025 planning process:

- Transportation Services
- Quality of Life
- Community Responsibility
- Demand Management

The OMPO Policy Committee adopted a system goal for each of the four major issues for the TOP 2025. A series of objectives were then developed that would accomplish each of the system goals. The *2020 ORTP* System Goals and Objectives were used as a starting point for the discussions; the objectives adopted by the OMPO Policy Committee for the TOP 2025 reflect the current philosophy of OMPO for the future

transportation network of Oahu. The seven planning factors dictated by the TEA-21 legislation were also reviewed in formulating the final goals and objectives for the TOP 2025.

The TOP 2025 consists of projects that fall into the following general categories to help achieve the adopted goals and objectives for the TOP 2025:

- Congestion Relief Projects
- Transit and Alternative Modes Projects
- Operations and Safety Projects
- Second Access Projects
- Second Access Projects
- Projects that Support Community Planning Goals
- Projects that Provide Local Circulation and/or Community Access

1.3.2.2 Identifying Projects for Consideration in the TOP 2025

One hundred fifty-three (153) projects were identified as candidate projects using recommendations from the technical staffs of several involved agencies (including projects from the *2020 ORTP*), public comments and a technical analysis of future travel demand with the 2025 Baseline condition.

Based on a future travel demand forecast, the projects to address the capacity deficiencies were identified. A project description was developed for each identified project (in many instances, this project description consisted of a refined definition based on previous planning efforts), and the entire list of potential projects was reviewed. Similar and related projects were combined into a single project. As a result, the initial list of 153 projects was consolidated into a list of 101 projects. This list of projects and the associated projects descriptions were presented to the public in a series of Regional Meetings.

1.3.2.3 The Transportation for Oahu Plan (TOP) 2025

The candidate projects were grouped into six categories based on the project intent. The intent responds directly to project goals and objectives and serves as a useful means for organizing the projects for discussion. These six categories are used in the following paragraphs to describe the projects selected for the TOP 2025. The OMPO Policy Committee also included consideration of system preservation needs in their deliberations.

Many projects addressed goals and objectives that overlap the categories that were used for the TOP 2025 evaluation. For example, a project that relieves congestion will often improve safety and operations. Similarly, a project that provides improved transit service and offers an alternative mode to the traveling public will often divert trips from autos to transit, thus relieving traffic congestion. This discussion recognizes the overlap of project intent but focuses on the primary purpose of each project.

At the same time, while a primary purpose of a project may be to relieve automotive congestion or improve automotive safety and operations of existing streets, any and all improvements funded in the TOP 2025 will be constructed so that transportation efficiency and safety is improved for all roadway users, including motorists, bicyclists, pedestrians and transit riders. These projects include, but are not limited to placement of guard rails, curbing, signage, lane or road widenings and street realignments.

Congestion Relief Projects

Congestion Relief projects were conceived primarily to increase the vehicle-carrying capacity of Oahu streets and highways. They are proposed for facilities and areas with existing levels of severe congestion and locations where travel demand projections show that congestion will worsen over the next 20 years. Adding lanes to freeways and arterials or making improvements to major interchanges are typical of this category of projects.

Transit and Alternative Mode Projects

A number of projects were proposed to provide alternative modes of transportation to the single-occupancy automobile and to use the street and highway infrastructure more efficiently. Bus Rapid Transit (BRT), expanded bus service, paratransit service, vanpool programs, ferry service, bike paths and routes and pedestrian facilities are in this category. Managing travel demand includes many of these alternative modes but also includes strategies to change work behavior (telecommuting, variable work hours and four-day workweeks, among others).

Operations and Safety Projects

Many of the projects were proposed to improve the safety and operations of existing streets and freeways. Intersection improvements, the addition of continuous left turn lanes, street realignments, street or highway widenings, Intelligent Transportation Systems, interchange modifications, freeway ramp and transition lane modifications and general safety improvements fall in this category.

Second Access Projects

Portions of Oahu have limited access to the remainder of the island. Oftentimes, a single facility connects numerous homes and businesses to the larger community. A hostage incident, a major traffic accident, high water or a landslide have and continue to isolate citizens from emergency services, work, school and grocery shopping. In some instances, projects to connect minor "back" roads can provide a second way into and out of an area at a relatively low cost. In other instances, a major new facility would be required to cross one of Oahu's mountain ranges. These projects were not generally perceived as having large traffic carrying capacity, being capable of moving traffic at high speeds, or generally being used on a daily basis. Rather, these projects would provide second access to an area when the primary access is out of service.

Projects in Support of Community Planning Goals

Several types of projects were considered to support a diverse set of community planning goals. This diversity of goals is entirely appropriate given the varied nature of the communities on Oahu, such as new residential and commercial areas, expanding industrial facilities, growing retail areas, and existing developed areas.

Community planning efforts for the Ewa area have identified the need for additional street and highway facilities in the high growth Ewa and Kapolei areas. Projects that are most likely to be consistent with the master plan under development for this area were proposed for TOP 2025, and many are included in the final TOP 2025.

Another type of project within this category is the replacement of the bridge crossing the Kalihi Channel to Sand Island with a tunnel to facilitate movement of freighters into and out of Honolulu Harbor with greater efficiency and capacity.

Beautification projects also may relieve traffic congestion or improve safety or operations, but have as their primary goal the support of community planning goals.

Projects that Provide Local Circulation and/or Community Access

A number of projects were conceived to improve local circulation. In some instances, these projects add new access to an area, such as the Waikiki access from H-1 Ewa-bound or the second access to Leeward Community College. In other instances, the proposed projects close a gap in the street network, such as the Moanalua Road extension, or revise circulation patterns, such as the changes in one-way/two-way operations for Punchbowl and the Piikoi/Pensacola pair. These projects are designed to improve local traffic flow rather than affect regional travel patterns. However, since these projects play an important role in local circulation and access to communities, they merit inclusion in the regional plan.

Projects Included in the TOP 2025

Table 1.3-2 lists the projects selected for inclusion in the TOP 2025 as those that should be given the highest priority for implementation within the constraint of project revenues. The table identifies the general geographic area of the island where the proposed project will be located.

1.3.2.4 Conclusion

With the TOP 2025 improvements, the future transportation system on Oahu is projected to perform substantially better than a scenario without the proposed improvements. Transit ridership increased by more than 14 percent under the scenario with the TOP 2025 improvements. For the two strongest indicators of congestion on the roadway system (vehicle hours traveled and vehicle hours of delay), the TOP 2025 transportation system performs at congestion levels that are significantly less than the scenario without the improvements. Under the scenario with the TOP 2025 improvements, vehicle hours traveled are projected to decline by 12 percent and the vehicle hours of delay on the roadway system are projected to decline by 23 percent.

Performance of the TOP 2025 with respect to meeting the identified goals and objectives was also evaluated. All objectives were met by the proposed list of transportation improvements.

The financial analysis demonstrates that the TOP 2025 highway and transit projects for the fiscally constrained regional transportation plan will have sufficient revenues through a combination of existing revenue sources and additional revenue assumed to be in place over the next 20 years. The total identified funding needs included the estimated cost of the TOP 2025 projects of slightly more than $3.6 billion along with system preservation needs for state highways identified as an additional $1.05 billion over the life of the 25-year plan.

The total identified need of almost $4.7 billion exceeded the revenues that could be assumed to be in place from only existing sources.

In addition to the traditional FHWA, FTA, state and local contributions to TOP 2025 projects, two other sources of revenues were identified. The first is developer contributions, which may involve private financing of selected elements of projects, facilities or land donations. The other additional revenue source results from the typical increases in the tax rates of state highway funding.

The assumptions used to project the additional State Highway Special Fund revenues are reasonable based on historical trends in tax rate increases over the last 25 years. Likewise, the assumption of an average developer contribution of 20 percent of potential developer-funded projects, which will be developed in a forum

TABLE 1.3-2
TOP 2025 PROJECTS

Area*	Category**	Project Number	Project Description	Estimated Cost (Millions of Year 2000 $)
Oahu	Transit/Alt	I-1	Implement State Bicycle Plan	$ 70.2
Oahu	Transit/Alt	I-2	Implement Van Pool Program	$ 2.5
Oahu	Ops/Safety	I-3	Intelligent Transportation Systems	$ 110.0
Oahu	Ops/Safety	I-4	Travel Demand management	$ 114.7
CO*	Ops/Safety	C-5	Farrington Hwy. EB vertical realignment near Waipahu Dept Rd.	$ 20.0
CO	Ops/Safety	C-7	Kamehameha Hwy. widening Ka Uka to Lanikuhana	$ 97.5
CO	C Relief	C-10	Kunia Rd. widening H-1 to vicinity of Anonui St.	$ 25.9
CO	Local Circ	C-15	Waipahu Depot Rd. widening makai of Farrington Hwy.	$ 3.6
CO	Local Circ	C-16	Waipahu St. eastward extension to Waihona St.	$ 4.5
CO	Ops/ Safety	C-17	Waipahu St. left turn lanes	$ 9.4
EHon*	C Relief	P-38	Kalanianaole Hwy. extend A.M. contraflow lane to Keahole St.	$ 1.2
EHon	Ops/Safety	P-47	Kalanianaole Hwy. Rock fall Protection at Makapuu	$ 20.0
Ewa	Ops/Safety	E-1	H-1 Makakilo Interchange new WB on-ramp	$ 10.9
Ewa	C Relief	E-2	H-1 Kapolei Interchange new interchange	$ 44.3
Ewa	Comm. Plan	E-3	H-1 Palailai Interchange improvements (connects to E-10)	$ 8.5
Ewa	Comm. Plan	E-5	Farrington Hwy. widening Kalaeloa to Kamokila	$ 4.9
Ewa	Ops/Safety	E-6	Farrington Hwy. widening Kapolei Golf Course to Fort Weaver Rd.	$ 31.6
Ewa	Comm. Plan	E-8	Fort Barrette Rd. widening Farrington Hwy. to F.D. Roosevelt Blvd.	$ 21.5
Ewa	C Relief	E-9	Fort Weaver Rd. widening Farrington Hwy. to Geiger Rd.	$ 38.6
Ewa	Comm. Plan	E-10	Hanua St. new roadway Malakole St. to Farrington Hwy.	$ 13.1
Ewa	Comm. Plan	E-11	Kalaeloa roadway improvements	$ 26.9
Ewa	Comm. Plan	E-12	Kalaeloa Blvd. corridor improvements	$ 13.1
Ewa	Comm. Plan	E-13	Kapolei Pkwy. completion (Kapolei to Ewa Bch.)	$ 28.5
Ewa	Comm. Plan	E-14	Makakilo Dr. extension (second access)	$ 8.5
Ewa	Comm. Plan	E-15	Mauka Frontage Rd. Makakilo Dr. to Kalaeloa Blvd.	$ 6.4
Ewa	Comm. Plan	E-17	North-South Road Kapolei Parkway to H-1 (includes new interchange with H-1)	$ 90.0
Koolau. (Wind-ward)	Ops/Safety	K-2	Kahekili Hwy. improvements Haiku Rd. to Kamehameha Hwy. (Note: Improvements will include contraflow in existing right-of-way between Haiku Road and Hui Iwa Street, intersection improvements at Hui Iwa and Kamehameha Highway and other improvements.)	$ 3.5
Koolau. & NS* (Wind-ward)	Ops/Safety	K-15	Kamehameha Hwy. Safety Improvements (Note: Safety improvements to include turn lanes, guardrails, signage, crosswalks, etc. to improve safety and do not include widening except where needed for storage/turn lanes safety improvements.)	$ 100.0

TABLE 1.3-2 (CONTINUED)
TOP 2025 PROJECTS

Area*	Category**	Project Number	Project Description	Estimated Cost (Millions of Year 2000 $)
NS	2nd Access	N-3	Waimea Bay Access Rd. emergency connectors	$ 20.0
PUC*	Ops/Safety	P-0 Baseline	Interstate Route H-1, EB off-ramp to Punahou St. (funded before 2001 but included for completeness	Funding completed
PUC	Transit/Alt	P-1	Honolulu Bicycle Master Plan (Note: $20 million cost shown for TOP 2025 is a portion of the $78.7 million for all elements of the Master Plan	$ 20.0
PUC	Transit/Alt	P-2a	Regional Bus Rapid Transit	$ 268.0
PUC	Transit/Alt	P-2b	In-town Bus Rapid Transit and Bus/Handi-Vans	$ 821.1
PUC	Transit/Alt	P-3	Express Commuter Ferry	$ 20.0
PUC	C Relief	P-6 Baseline	H-1 WB Widening Waimalu viaduct to Pearl City off-ramp	$ 45.0
PUC	C Relief	P-7	H-1 EB widening Waiawa to Halawa	$ 216.8
PUC	C Relief	P-8	H-1 WB widening Vineyard to Middle	$ 121.3
PUC	Ops/Safety	P-9	H-1 WB weaver modification Lunalilo to Vineyard off-ramp	$ 21.0
PUC	Ops/Safety	P-10	H-1 EB widening Ward to Punahou, close Piikoi on-ramp	$ 21.0
PUC	Ops/Safety	P-11	H-1 University Interchange modification	$ 20.7
PUC	Ops/Safety	P-12	H-1 WB widen Waipahu off-ramp	$ 8.4
PUC	Local Circ	P-14	Second access to Leeward Community College	$ 6.0
PUC	Local Circ	P-22	Moanalua Rd. extension Waimano Home Rd. to Waihona St.	$ 4.9
PUC	C Relief	P-23	Nimitz Hwy. improvements Keehi to Pacific St.	$ 192.7
PUC	Local Circ	P-28	Piikoi Pensacola one-way couplet (reverse)	$ 3.6
PUC	Local Circ	P-29	Punchbowl Street conversion to two-way operation	$ 2.0
PUC	C Relief	P-32	Fort Armstrong Tunnel	$ 300.0
PUC	Ops/Safety	P-34	Sand Island Access Rd. widening	$ 4.4
PUC	Comm. Plan	P-35	Sand Island Bridge (replace with tunnel)	$ 200.0
PUC	Local Circ	P-36***	Waikiki access from H-1 Ewa-Bound	$ 90.9
PUC	Comm. Plan	P-40	Kamehameha Hwy. beautification project (Waiawa to Pearl Harbor)	$ 30.1
PUC	C Relief	P-41 Baseline	Puuloa Rd. widening – Salt Lake Blvd. to Nimitz Hwy.	$ 21.6
PUC	C Relief	P-42	H-1 Widening (westbound) through Waiawa Interchange	$ 21.3
PUC	C Relief	P-43	H-1 Widening (westbound) Waiau to Waiawa Interchange	$ 59.5
PUC	C Relief	P-44	Waiawa Interchange Improvements	$ 21.3
PUC	C Relief	P-45 Baseline	H-1 Eastbound: Widen by one lane from Middle St. to Vineyard Blvd	$ 30.0
PUC	C Relief	P-46 Baseline	Salt Lake Blvd. widening: Lawehana St. to Ala Lilikoi (widen from 2 to 4 lanes)	$ 31.0
Waianae	2nd Access	W-2	Waianae Emergency Access Road system	$ 9.3
Waianae	Ops/ Safety	W-5	Farrington Hwy. realignment around Makaha Bch. Park	$ 35.1

TABLE 1.3-2 (CONTINUED)
TOP 2025 PROJECTS

Area*	Category**	Project Number	Project Description	Estimated Cost (Millions of Year 2000 $)
Waianae	Transit/Alt	W-7 Baseline	Leeward Bikeway, Waipio Point Access Rd. to Lualualei	$ 3.0
Waianae	Ops/Safety	W-8	Farrington Hwy. Safety Improvements (Note: Cost estimate reflects intersections improvements only.	$ 25.0
			Total for All Projects:	**$ 3,624.8**

Source: Transportation of Oahu Plan, TOP 2025, Oahu Metropolitan Planning Organization, April 6, 2001.
Notes: * CO = Central Oahu
PUC = Primary Urban Center
NS = North Shore
EHon = East Honolulu
NB = Northbound
SB = Southbound
EB = Eastbound
WB = Westbound

** Categories:
C Relief = Congestion Relief Projects
Transit/Alt = Transit and Alternative Modes Projects
Ops/Safety = Operations and Safety Projects
2nd Access = Second Access Projects
Comm. Plan = Projects that Support Community Planning Goals
Local Circ = Projects that Provide Local Circulation and/or Community Access

***P-36
Project P-36 was designated by the Policy Committee as the lowest priority for selected projects, and extensive review and study will be required.

outside of the TOP 2025, is also valid. As a result of these assumptions and the projections of federal, state and local highway funding levels, the revenues are sufficient to fund the TOP 2025 recommendations.

The TOP 2025 recommendations define a transportation system for Oahu's future that will help to achieve the four goals adopted for the plan. The projects included in the TOP 2025 achieve these goals within the fiscal constraints of funding that will be available within the 25-year time frame of the plan.

1.3.3 Oahu Trans 2K Public Outreach Planning Process

The Oahu Trans 2K series of participatory workshops (the islandwide transportation component of the 21st Century Oahu visioning program) began in the Fall of 1998, and has thus far included five rounds of community outreach meetings. Together, DTS and HDOT went out to the public to provide background information on mobility issues and listen to the public. The meetings were widely advertised and well attended. These meetings represented a continuation and acceleration of public outreach meetings that had begun on a more informal basis a year earlier.

During Round 1 of the meetings (September/October 1998), participants viewed an introductory video and presentation boards showing possible solutions to transportation problems. Participants were then encouraged to brainstorm about neighborhood and islandwide transportation issues and possible solutions. They made comments directly onto large area maps. The results of this round of meetings were compiled into a database of 2,400 specific ideas, and were used to develop a draft islandwide mobility concept.

In Round 2 of the meetings (November/December 1998), participants viewed a video summarizing the Round 1 process and a short presentation that outlined the draft islandwide mobility concept, which was developed from the Round 1 input. With the assistance of trained facilitators, participants gathered in groups organized by neighborhood to review workbooks tailored to each transportation planning zone.

After two rounds of community-based meetings, the input obtained was incorporated into the Islandwide Mobility Concept Plan, which was prepared and issued in March 1999 and reprinted with updates in August 2001. This plan articulated three central goals:

- Improve in-town mobility;
- Strengthen islandwide connections; and
- Foster livable communities.

The Round 3 meetings were held during March/April 1999 in combination with the meetings of 19 vision teams across the island. Information presented included the Islandwide Mobility Concept Plan and transit alternatives for a high-capacity transit spine in the primary transportation corridor. The Round 3 meetings also announced the upcoming formal scoping for the Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS), which occurred in May 1999.

In Round 4 of the meetings (October 1999), the plans for public transit, as discussed in the first three rounds of meetings, were presented for questions and discussion. Discussion included the operation of the passenger loading platforms in the middle of the street, center-running transit operations in comparison to curbside-running, the use of "high-tech" approaches to provide schedule and waiting time information to transit users, possible features of transit vehicles, and route alignment details.

A Round 5 Oahu Trans 2K meeting was held on August 14, 2001 at Neal Blaisdell Center (NBC). This community open house included informational displays on different aspects of the BRT system and the Oahu Trans 2K program, specifically the project refinements developed by the Pearl City/Aiea, Kalihi, Downtown/Kakaako, and Mid-Town/University Working Groups. An informational briefing on the Working Group process and BRT project refinements was presented.

Five rounds of community-based meetings showed that there is a strong interest in transit technology, how a new transit technology would integrate into the community and with the existing bus system, and the funding aspect of the project.

1.4 ROLE OF THE FEIS IN PROJECT DEVELOPMENT

This Section provides a brief overview of the formal transportation project development process and the role of the FEIS in that process in compliance with the statutory requirements of the Hawaii Environmental Impact Statement (EIS) Law (Chapter 343, Hawaii Revised Statutes [HRS]).

An MIS was a prescribed federal planning study that is conducted as one of the first steps in project development when a need for a major metropolitan transportation investment is identified and federal funding is potentially involved. A transportation solution can consist of roadway, transit, pedestrian, and other elements singly or in combination. The MIS evaluates alternative transportation solutions to the mobility problems of the corridor.

A DEIS addresses the potential environmental impact of a project, and meets the environmental review requirements of the Hawaii EIS Law. Combining the MIS with the DEIS allows for a more comprehensive analysis of possible environmental impacts and alternatives, and facilitates project delivery. No program decisions can be finalized until these processes are completed.

The DEIS process begins with scoping, followed by preparation of the document. The formal scoping meeting for the DEIS was held on May 11, 1999.

In accordance with the Hawaii EIS Law, the EIS Preparation Notice was published in the April 23, 1999 The Environmental Notice.

The DTS and FTA distributed the Primary Corridor Transportation Project, Major Investment Study/Draft Environmental Impact Statement [MIS/DEIS] (August 2000) to agencies and the public in August 2000. Following the release of the MIS/DEIS, there was an agency and public review period from August 23, 2000 to November 6, 2000.

The Locally Preferred Alternative (LPA) may be one of the alternatives addressed in the DEIS, a modification of one of those alternatives, or a hybrid combining the best features of several. Subsequent to the release of the MIS/DEIS and the public and agency comment period, the City Council selected the BRT Alternative as the LPA. The identification of the LPA is a signal to the FTA that sufficient local consensus exists on a particular project alternative to proceed to the Preliminary Engineering/Final Environmental Impact Statement (PE/FEIS) phase and beyond the environmental review process.

The City Council approved local funds for the PE/FEIS effort in the 2001 City Capital Improvement Program budget. Federal funds were programmed in the 2001 OMPO Overall Work Program and TIP, and FTA has approved grants for the work. Financial analysis determined that sufficient revenues will be available for TOP 2025 highway and transit projects including the BRT project. By being included in the TOP 2025, the BRT Alternative is eligible to be included in future TIPs.

As a result of the Working Groups and comments received on the MIS/DEIS, the DTS proposed to amend the LPA to include new and modified components, which the City Council approved on August 1, 2001. Since the *refinements were proposed after the MIS/DEIS was completed and distributed and* because the refinements were anticipated to have environmental impacts that were not disclosed in the MIS/DEIS, a Supplemental Draft Environmental Impact Statement (SDEIS) was prepared.

The SDEIS was distributed in March 2002. The public and agency review period was from March 22, 2002 to May 7, 2002. The public hearing was held on April 20, 2002.

Following the public comment period for the SDEIS, this FEIS was prepared. The FEIS responds to all comments received on the MIS/DEIS and SDEIS. The release of this FEIS will be announced by publishing a Notice of Availability (NOA) in The Environmental Notice.

Pursuant to Chapter 343 HRS, the Governor of the State of Hawaii accepts the FEIS, completing the environmental review process under the State EIS Law. Publication of acceptance of the FEIS by the Governor is followed by a 60-day legal challenge period.

A separate FEIS that complies with the NEPA requirements will be prepared.

Chapter 2.0
Alternatives Considered

CHAPTER 2 ALTERNATIVES CONSIDERED

2.0 CHAPTER OVERVIEW AND ORGANIZATION

Overview

This Chapter defines the three alternatives analyzed in this FEIS. It also describes other alternatives that were considered but eliminated due to failure to satisfy purpose and need requirements and/or due to other concerns such as public opposition, significant environmental impacts and lack of financial feasibility.

The three alternatives that meet the four purpose and need requirements stated in Chapter 1, although to varying degrees, are:

- The No-Build Alternative: The No-Build Alternative consists of a reconfiguration of the present bus network to a hub-and-spoke pattern, with modest expansion of bus service in developing areas (e.g., Kapolei) to maintain existing service levels.
- Transportation System Management (TSM) Alternative: This is a required alternative in the Federal Transit Administration (FTA) process. In addition to the reconfiguration of the present bus route network to a hub-and-spoke network, this alternative includes expansion of service by 14 percent over the No-Build Alternative, plus some bus priority treatments on arterials in the Primary Urban Center (PUC) and in Leeward Oahu.
- Refined Locally Preferred Alternative (Refined LPA): This alternative builds on the hub-and-spoke bus system in the other alternatives, and adds Regional and In-Town Bus Rapid Transit (BRT) routes. The Regional BRT element includes a continuous H-1 BRT Corridor from Kapolei to Downtown using an a.m. and p.m. contraflow zipper lanes and express lanes. The In-Town BRT component is a high capacity transit spine from Middle Street to Downtown, a University Branch from Downtown to UH-Manoa, a Downtown to Waikiki via Kakaako Mauka Branch, and a Downtown to Waikiki via Kakaako Makai Branch.

All three alternatives include the recently updated regional highway plan contained in the Oahu Metropolitan Planning Organization's (OMPO's) Transportation for Oahu Plan (TOP 2025).

Organization

Section 2.1 summarizes the development and evaluation of candidate alternatives that were considered to meet the purpose and need requirements. It describes the development of the three alternatives carried forward for detailed assessment. Section 2.2 provides a physical description of the three alternatives. Sections 2.3 and 2.4 present capital and operating cost information on each alternative. Section 2.5 presents the proposed implementation schedule for each alternative. Section 2.6 describes the alternatives that were analyzed and eliminated.

2.1 EVOLUTION OF THE ALTERNATIVES CARRIED FORWARD

The alternatives described in this Chapter evolved over the course of developing the FEIS through an iterative process wherein a wide-range of options was progressively analyzed in increasing detail until it was winnowed down to the three "best fit" alternatives.

Even after the initial alternatives were winnowed down to the best fit alternatives, they underwent continual refinement using input from many sources including the Oahu Trans 2K meetings, formal "scoping" meetings held for the general public and agencies (described in Chapter 1), and working group meetings and other

agency and public input. Public and agency involvement activities that have been conducted to date are discussed in more detail in Appendix A. Section 2.6 provides additional information on the evaluation of options, and how the options being carried forward were selected.

The first step in the evolution of the alternatives involved combining information gathered from public and agency outreach with the results of prior studies to identify a broad range of alternatives for consideration in addressing the project purposes and needs. Public input was obtained primarily through the 21st Century Oahu Visioning Process and its transportation component, Oahu Trans 2K. The 21st Century Oahu Visioning process began in September 1998, and consisted of a series of neighborhood-based community meetings designed to enhance public input in planning a vision for Oahu communities.

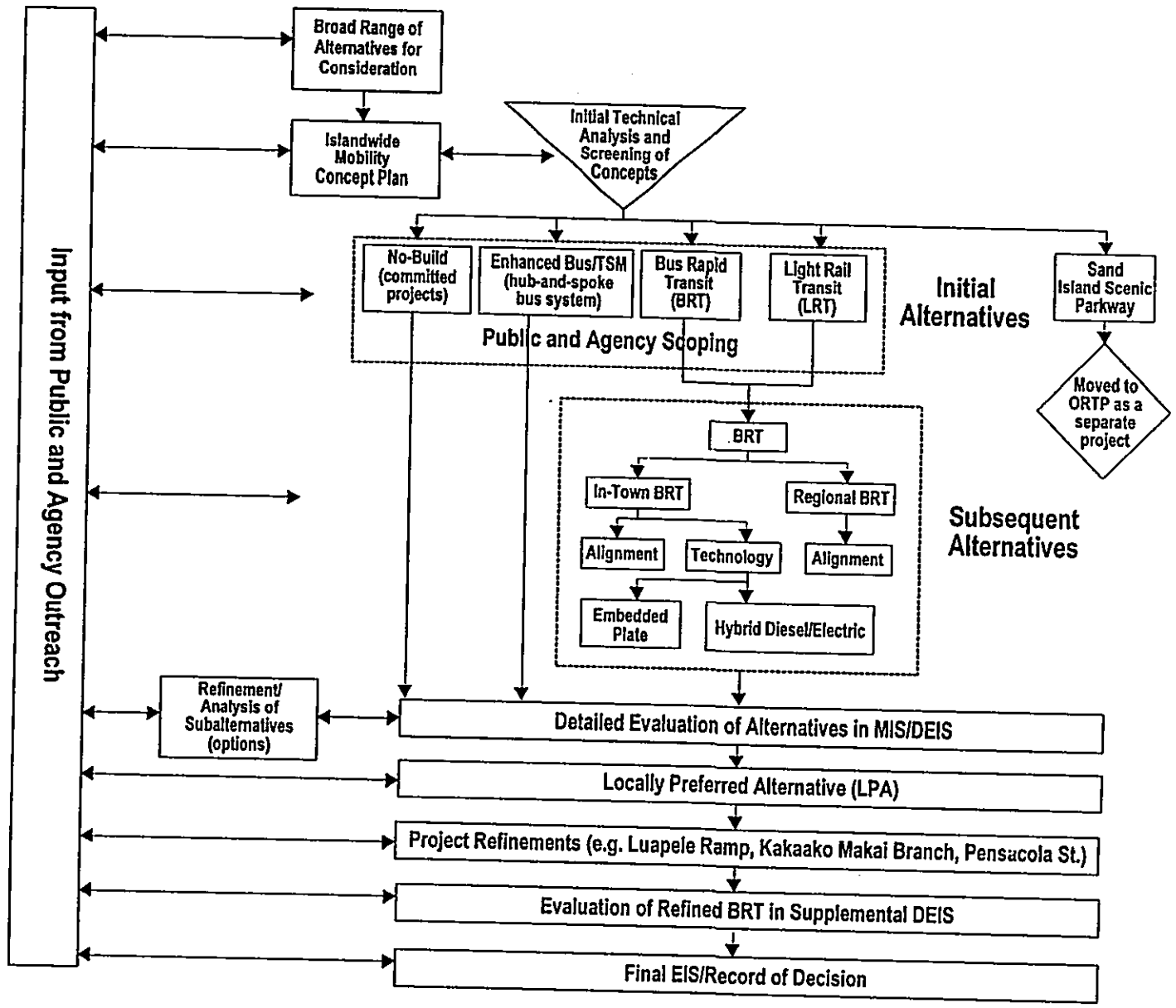
To date, the Oahu Trans 2K process has involved four rounds of public meetings in 19 districts throughout the island, a single, fifth round meeting held at Neal Blaisdell Center, and a series of meetings with working groups representing five geographic subdivisions of the primary transportation corridor. The first two rounds of meetings resulted in the Islandwide Mobility Concept Plan (1999)[1]. This Plan, described in Chapter 1, crystallized transportation goals and objectives for the island, and outlined transportation alternatives for the primary transportation corridor.

In addition to public and agency input, alternatives were developed based on site visits, review of City and State plans, existing and projected land use and travel demand patterns, environmental constraints, and other research. Transportation alternatives were configured to support land uses that would boost transit ridership and sustain livable communities. This will maximize the efficiency and effectiveness of the transportation system, and create a mutually supportive transportation system and land use development pattern.

After Rounds 1 and 2 of the Oahu Trans 2K meetings, public and agency input was combined with technical analysis to define an initial set of alternatives: No-Build, Enhanced Bus/Transportation System Management (TSM), Bus Rapid Transit (BRT), and Light Rail Transit (LRT) (see Figure 2.1-1). These alternatives were defined as follows:

- The No-Build Alternative consisted of the existing bus system plus expansion of bus service in developing areas (e.g., Kapolei) to maintain as consistent a level of bus service as today.
- Transportation System Management, or TSM, refers to a package of relatively low to moderate cost measures designed to make more efficient use of the existing transportation infrastructure. The Enhanced Bus/TSM Alternative reconfigured the present predominately radial bus route network to a hub-and-spoke network.
- The BRT Alternative built on the TSM Alternative, and included bus priority measures and a trolley system between Downtown Honolulu and Waikiki.
- The LRT Alternative analysis considered the costs and impacts of introducing a new mode, an at-grade light rail system. Three alignment alternatives were reviewed. The base alternative ran between Middle Street and UH-Manoa. A second alternative extended from Middle Street to Pearlridge, and a third extended still farther to Waipahu. An alignment along Nimitz Highway fronting the Airport was also compared to an alignment on Salt Lake Boulevard.
- The concept for a direct connection between Keehi Interchange and Kakaako via Sand Island was developed to provide a more direct and scenic gateway entry to Waikiki and Kakaako for visitors and others from the Airport and points Ewa. This was called the Sand Island Scenic Parkway, or SISP. Options were analyzed for pairing SISP with the BRT and LRT Alternatives.

[1] Updated in August 2001.



Alternatives Development And Screening Process

Figure 2.1-1

Transportation Demand Management (TDM) measures were included in all the alternatives being developed. TDM measures are strategies that reduce or shift the time of travel by private automobile, and include such measures as vanpooling (subsidized vehicles used for commuter ride-sharing), and parking constraints or surcharges. The same TDM assumptions are incorporated in all of the alternatives, such as continued growth of the vanpool program and growth in bicycle and pedestrian travel.

The initial alternatives above (No-Build, Enhanced Bus/TSM, BRT and LRT, and the SISP concept) were described in the Environmental Impact Statement Preparation Notice (EISPN) which was published in April 1999. This is a formal public notification that is a part of the environmental review process, and is discussed in more detail in Chapter 1.

After publication of the EISPN, public comments were reviewed and detailed technical analyses were performed to evaluate these alternatives. This included route alignment engineering, travel demand forecasting, environmental studies, cost estimating, and preliminary financial studies. Based on these technical studies and the comments received on the EISPN, the initial alternatives were reconfigured to enhance their efficiency, cost-effectiveness, and ability to support mobility, land use and quality of life goals.

Section 2.6 contains a discussion of the comments pertaining to alternatives that were received in response to the EISPN. The best features of the initial alternatives were combined to create improved alternatives. A new BRT Alternative was developed as a hybrid, containing the best features of the initial BRT and LRT Alternatives. The LRT Alternative was dropped because analyses revealed that BRT using electric-powered or hybrid-electric-powered vehicles could accomplish virtually all of the objectives of LRT at substantially less cost. In addition, highway alternatives to the Regional and In-Town BRT and LRT systems were identified and subsequently eliminated from further consideration as alternatives.

The alternatives carried forward through Rounds 3 and 4 of the Oahu Trans 2K process were:

1. No-Build: Similar to the initial No-Build Alternative;
2. TSM: A refinement of the initial Enhanced Bus/TSM Alternative;
3. BRT: A hybrid alternative containing the best features of the initial BRT and LRT Alternatives; and
4. BRT/SISP: A combination of the BRT Alternative with Sand Island Scenic Parkway.

In Rounds 3 and 4 of the Oahu Trans 2K meetings, the above revised alternatives were presented, and public input confirmed the major concepts and provided additional input on the alternatives that were used to further refine them.

Subsequent to the Round 4 Oahu Trans 2K meetings it was decided, based upon input from coordinating public agencies, to move the Sand Island Scenic Parkway element forward apart from the transit alternatives being considered in the MIS/DEIS. Separating SISP from the transit element permitted a decision on the "Locally Preferred" transit alternative while SISP moves through the regional planning and then project development processes.

The three alternatives that were studied in the MIS/DEIS were:

- No-Build Alternative: The No-Build Alternative consisted of expansion of bus service in developing areas to maintain existing service levels by adding buses and developing new routes.
- Transportation System Management (TSM) Alternative: The primary features of this alternative were the reconfiguration of the present bus route network to a hub-and-spoke network, and bus priority treatment on some In-Town streets.
- Bus Rapid Transit (BRT) Alternative: This alternative built on the hub-and-spoke bus system in the TSM Alternative, and added Regional and In-Town BRT routes. The Regional BRT element included a continuous H-1 BRT Corridor from Kapolei to Downtown using a.m. and p.m. zipper lanes and new express lanes. The In-Town BRT component was comprised of a high capacity transit spine from Middle Street to Downtown, a University Branch from Downtown to UH-Manoa, and a Downtown to Waikiki Branch via Kakaako Mauka.

Since the update to the highway element of the OMPO regional transportation plan was still under study at that time, only short-term highway projects included in OMPO's Transportation Improvement Program were reflected in the MIS/DEIS.

Following publication of the Primary Corridor Transportation Project, Major Investment Study/Draft Environmental Impact Statement [MIS/DEIS] (August 2000), there was a public review period from August 23, 2000 to November 6, 2000. In addition to the MIS/DEIS public hearing, special public hearings were conducted by the Honolulu City Council Transportation Committee on September 25 and October 5, 19, and 26, and November 14, 2000. On November 29, 2000, the Honolulu City Council selected the BRT Alternative as the Locally Preferred Alternative (LPA).

At the time of adopting the LPA, the City Council asked the DTS to continue public dialogue on the project. Community working groups were formed to provide a forum for open discussion between project sponsors and neighborhood, civic, business, government and other organizations so that environmental and transportation issues and refinements to project proposals could be discussed. The working groups also provided the community with an opportunity to obtain a greater in-depth understanding about BRT and what it means for their community. The working groups were generally organized by geographic area. They included Pearl City/Aiea, Aliamanu/Salt Lake/Foster Village, Kalihi, Downtown/Kakaako, Mid-Town/University, and Waikiki.

Working Group members were responsible for attending meetings, reporting back to their representative organizations, and bringing that feedback to the Working Group meetings. The Pearl City/Aiea, Kalihi, Downtown/Kakaako, and Mid-Town/University Working Groups had several, separate meetings between February and June 2001. Waikiki Working Group meetings were conducted from August 2001 through April 2002 and the Aliamanu/Salt Lake/Foster Village Working Group had one meeting in July 2002.

As a result of the Working Groups and comments received on the MIS/DEIS, the DTS proposed to refine the LPA to include new and modified components, which the City Council endorsed on August 1, 2001. It was decided that a new In-Town BRT branch be added to serve Aloha Tower Marketplace and the Kakaako Makai area; that a small segment of the UH-Manoa Branch should be realigned from Ward Avenue to Pensacola Street between South King Street and Kapiolani Boulevard with a new transit stop along South King Street at Pensacola Street; and to eliminate the proposed H-1 Regional BRT ramps at Kaonohi Street and Radford Drive and replace them with a new H-1 BRT ramp near Aloha Stadium at Luapele Drive. Additionally, it was decided that the Kakaako Mauka Branch and Kakaako Makai Branch would use Alakea and Bishop Streets instead of Richards Street in response to comments received from area residents. Realigning the Kakaako Mauka Branch will also create two new transit stops, one on Alakea Street and one on Bishop Street.

Since the refinements were being proposed after completion and distribution of the MIS/DEIS and because the refinements were anticipated to have environmental impacts that were not disclosed in the MIS/DEIS, a Supplemental Draft Environmental Impact Statement (SDEIS) was prepared. Its content and process followed Section 11-200-26 of the Hawaii Administrative Rules (HAR). The results of the SDEIS are reflected in this FEIS. A description of the Alternatives, including the Refined Locally Preferred Alternative (LPA) follows in Section 2.2.

2.2 DEFINITION OF ALTERNATIVES

This section contains detailed descriptions of the physical features of the three alternatives.

2.2.1 No-Build Alternative

The No-Build Alternative (see Figure 2.2-1) serves as a possible alternative for selection by decision makers as well as the baseline against which to compare the other alternatives. It includes existing transportation

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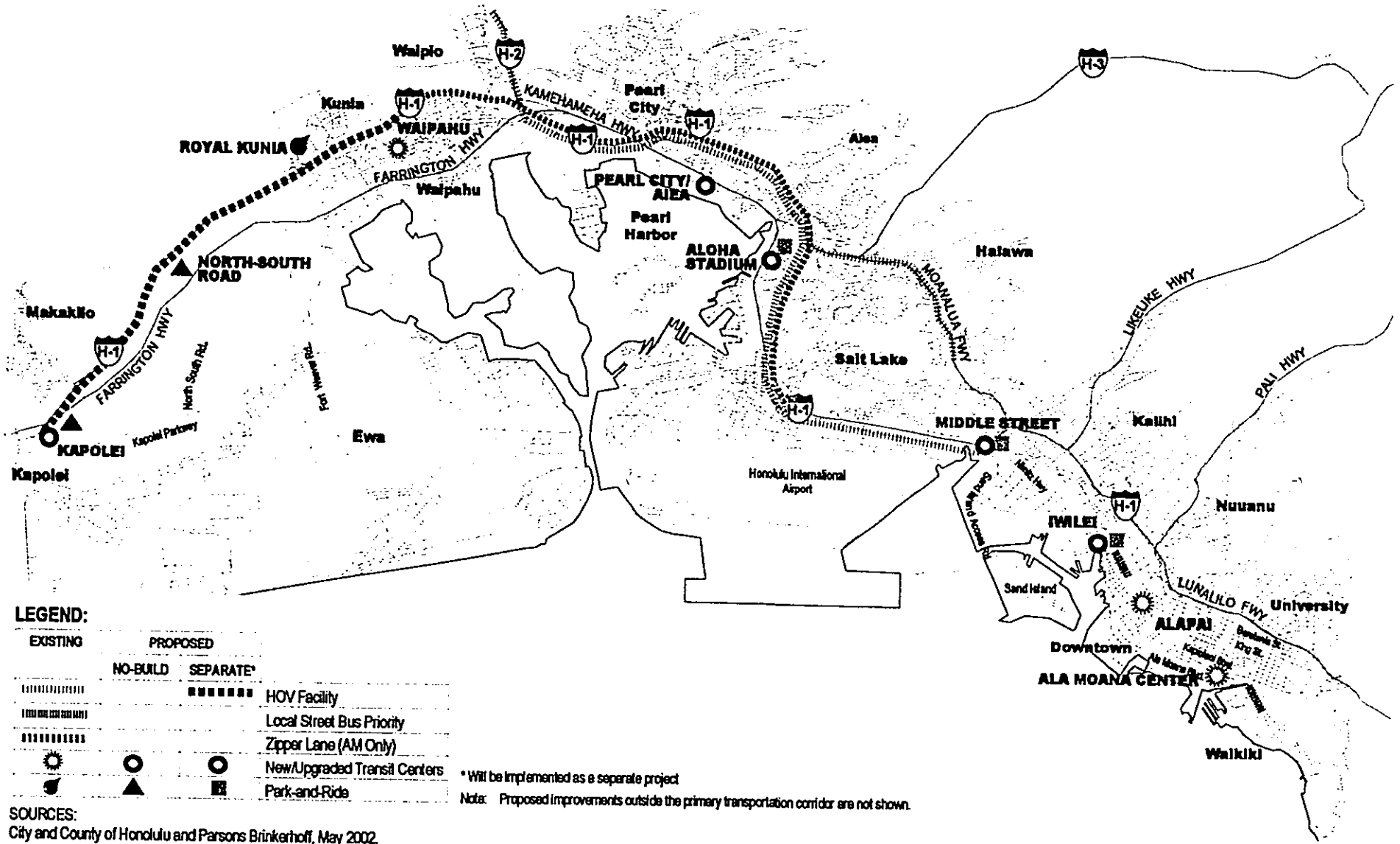
2.2.1 No-Build Alternative

The No-Build Alternative (see Figure 2.2-1) serves as a possible alternative for selection by decision makers as well as the baseline against which to compare the other alternatives. It includes existing transportation



No-Build Alternative

Figure 2.2-1

facilities and conversion of the present predominately radial route structure to a hub-and-spoke configuration. Also included are highway improvement projects, which have been identified by OMPO in the TOP 2025. Expansion of the bus fleet to maintain current transit service levels, especially in developing areas such as Kapolei, is also part of this alternative. The term "No-Build" is somewhat misleading, because this alternative includes the construction of long-range highway projects and modest expansion of transit service to accommodate future growth.

1) Baseline Transportation Improvement Projects

The No-Build Alternative includes the highway projects identified in OMPO's TOP 2025. This baseline highway network is also part of the TSM and Refined LPA Alternatives. (See Figure 2.2-1A.) The 2025 highway network is included even in the No-Build Alternative so that the impact assessments are focused only on the differences in the transit elements amongst the Alternatives. Included in the baseline highway improvements is the extension of express (HOV) lanes (town bound and outbound) in the median of the H-1 Freeway between Managers Drive and Kapolei. These express lanes were shown in the MIS/DEIS and SDEIS as part of the BRT Alternative. Since these lanes are now part of the OMPO TOP 2025 they are instead shown as a baseline highway project that will be implemented as a separate project.

The No-Build Alternative also includes implementation of the State and City bicycle master plans (shown later in Section 3.2.4) and various programmed pedestrian improvements. The No-Build Alternative and all of the other alternatives capture the intent to create a more bicycle and pedestrian-friendly environment. These pedestrian and bicycle improvements are part of the baseline condition included in all of the alternatives.

2) Transit Network

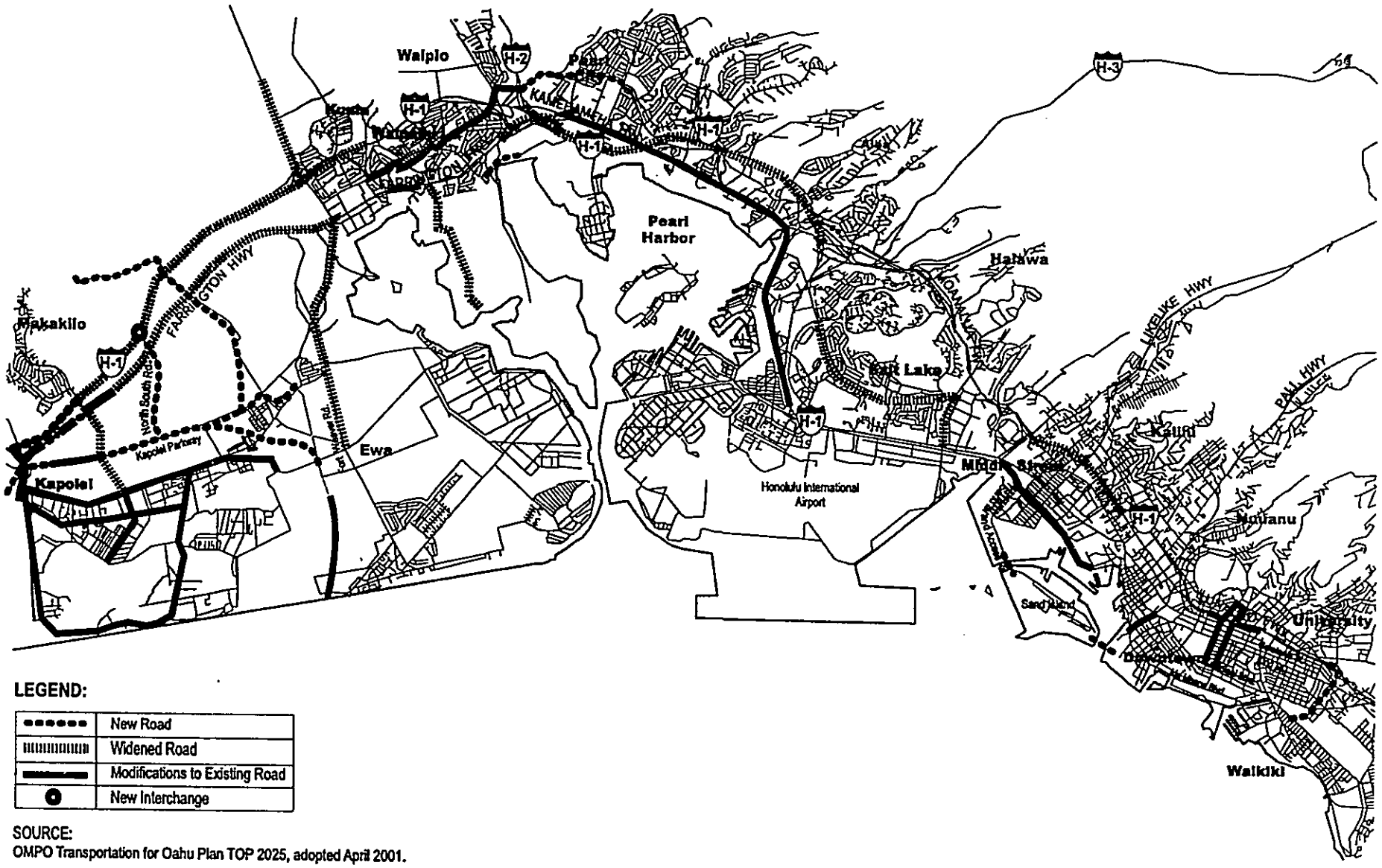
The No-Build Alternative (Figure 2.2-1) includes reorientation of the present bus route structure from a radial service pattern to a hub-and-spoke network. The reason reconfiguration to a hub-and-spoke network is included for the No-Build Alternative in the FEIS, yet was not included in the MIS/DEIS, is that the City has already started implementation of this reconfiguration. The conversion to a hub-and-spoke network had not been committed to when the MIS/DEIS was prepared. The hub-and-spoke network is also part of the TSM Alternative and the Refined LPA.

The objectives of the hub-and-spoke network are to reduce overall travel times, improve schedule reliability, improve operational efficiency and improve off-peak service. Other benefits of a hub-and-spoke network are expansion of corridor capacity and improved transit network connectivity. While a hub-and-spoke system can increase the number of transfers, this is mitigated by having timed-transfers and lower overall travel times for many trips.

Hub-and-spoke networks provide an integrated system of convenient and accessible circulator, local and express routes, organized around transit centers and transfer points. The bus routes are the "spokes" of the hub-and-spoke system, and the transit centers and transfer points are the "hubs" where people make intermodal and intramodal transfers. There would be a hierarchy of community and regional transit centers, and neighborhood transfer points, each drawing from different size service areas.

The transit centers that have already been committed as part of the hub-and-spoke network and have been include in the Oahu Transportation Improvement Program, FY 2002 – 2004, would remain a part of the No-Build and TSM Alternatives, and the Refined LPA. These transit centers are denoted in the description of alternatives as being implemented by DTS as a separate project.

Frequent express and limited-stop buses would operate between the regional transit centers. Circulator routes provide service between a transit center and a neighborhood or commercial district. The circulator buses would be smaller vehicles providing mobility within neighborhoods, and delivering transit patrons to a transit center or transfer point for connections to line haul routes. Local routes would link multiple transit centers or transfer points and provide service along major streets. Routes in Leeward Oahu have already



LEGEND:

------	New Road
||||||||||||||	Widened Road
▬▬▬	Modifications to Existing Road
●	New Interchange

SOURCE:
OMPO Transportation for Oahu Plan TOP 2025, adopted April 2001.

N Scale: 0 1 2 mi

Highway Elements For All Alternatives

Figure 2.2-1A

been reconfigured to a hub-and-spoke configuration and routes in Central Oahu are in the process of conversion.

The size and mix of buses needed in the fleet that are shown in Table 2.2-1 are based on the number of buses needed for operations in the peak period as projected using the travel demand forecasting models. This "peak pull-out" can occur in either the morning or afternoon peak period. The peak pull-out is defined as the sum of the buses required in the peak period on each route. The total fleet size is the peak pull-out demand plus 15 percent spares.

TABLE 2.2-1
NO-BUILD ALTERNATIVE 2025 FIXED-ROUTE BUS NETWORK

Route Structure	
Circulator Routes	28
Local Routes	25
Express Routes	33
Limited-Stop Routes	3
TOTAL	89
Fleet Size (including spares)	
Minibus (30-foot)	108
Standard 40-foot Bus	485
Articulated Bus (60-foot)	32
TOTAL	625
Daily Trips (weekday)	
A.M. Peak Period	1,284
Off-Peak Period	1,698
P.M. Peak Period	1,223
Daily Operations (weekday)	
Revenue Bus Miles	62,560
Revenue Bus Hours	4,470
Daily Ridership Forecast (weekday)	
Total Linked Trips	261, 130

Source: Parsons Brinckerhoff, June 2002.

Methodology

The peak pull-out on a route is determined by calculating the bus capacity needed to accommodate the forecasted passenger load at the peak load point on the route. The first step is to calculate the number of bus trips needed in the peak hour to accommodate the load. If the peak load point demand can be handled at the assumed frequency of service with minibuses (assumed capacity of 42 for this analysis), then minibuses are assigned to the service. If standard buses are needed (assumed capacity of 70 for this analysis), then standard buses are assigned; if articulated buses are needed (assumed capacity of 100 for this analysis), then articulated buses are assigned. Since articulated buses cost more to operate than standard buses, articulated buses are assigned to a route only if more than one bus trip is saved in comparison with the number of trips required by standard buses. There are exceptions to this: First, some routes, because of topography, are assigned hill-climber minibuses, and standard buses and articulated buses are not considered. Second, some circulator routes are assigned minibuses automatically. Third, some routes, particularly those traveling on narrow streets, are identified as inappropriate for articulated buses.

If the demand at the peak load point is sufficiently low that even minibuses at the coded frequency of service provide too much capacity, then less frequent service (i.e. a fewer number of bus trips) may be assigned. However the frequency is not lowered below what is considered minimum service for the type of route.

If the demand at the peak load point is too high to be accommodated by an articulated bus at the frequency of service assumed in the travel demand model, then more frequent service (i.e. a larger number of bus trips) is assigned.

Once the number of bus trips and equipment is defined for a route, the number of vehicles that is required is calculated, based on the roundtrip travel time for the route, including layover time.

Definitions

Circulator Routes: Circulator bus routes provide mobility within neighborhoods and connections to more regional bus routes. The No-Build Alternative includes the "Hub-and-Spoke" circulators recently implemented in the Waianae Coast, Kapolei-Makakilo, and Waipahu areas. Urban collector routes generally provide service within neighborhoods every 15 to 30 minutes during peak periods and every 30 to 60 minutes during off-peak periods. Suburban feeder routes generally operate every 60 minutes.

Local Routes: The existing urban and suburban trunk routes would continue to provide local service throughout Oahu. Urban trunk lines provide concentrated service through Honolulu, creating combined peak-period headways of less than five minutes along several major streets. Suburban trunk routes provide direct but multi-stop connections between the Primary Urban Center (PUC) and communities in Ewa, Central Oahu, Windward Oahu, and East Honolulu. They operate every 10 to 20 minutes during peak periods and every 20 to 30 minutes during off-peak periods.

Express Routes: Express routes between suburban communities and Honolulu/Kapolei during peak commute periods would continue to supplement local service. Express routes provide direct, non-stop connections between outlying suburban neighborhoods and major activity centers within the PUC and Kapolei. All *express bus service is scheduled during or around peak periods.*

Limited-Stop: The existing CityExpress! (Route A) would continue to provide limited-stop service every 7.5 minutes between Middle Street and the University of Hawaii (UH), and every 15 minutes between Waipahu and Middle Street. CityExpress! (Route B) would continue to offer limited-stop service between Middle Street and Waikiki. Route B service frequency would be every 15 minutes, 7 days a week. CountryExpress! (Route C) would also maintain its limited-stop service between Makaha, Kapolei, Downtown Honolulu and Ala Moana Center, using the H-1 Freeway between Kapolei and Kalihi. A trip between Kapolei and Downtown would last roughly 35 minutes. Route C would continue to run every 30 minutes, 7 days a week.

Table 2.2-2 shows the transit centers and park-and-ride facilities incorporated into the No-Build Alternative. A hierarchy of regional and community transit centers and neighborhood transfer points would be established.

Regional transit centers would be large-scale facilities serving multiple trip purposes and would meet the needs of larger geographic areas of the island. These facilities would typically serve a variety of transit services including circulator, express and local bus routes. Typical amenities include numerous off-street bus bays around a waiting area, information kiosks, restrooms, commercial services, and kiss-and-ride areas. While there are no new Regional Transit Centers proposed in the No-Build Alternative, typically Regional Transit Centers when built in outlying locations would also include park-and-ride lots.

Community transit centers would be medium-sized facilities that meet the needs of a number of nearby neighborhoods. These facilities would primarily serve passengers transferring between different community circulators and one or more local and express services. A community transit center would typically be located off-street and proximate to larger-scale commercial activities such as shopping centers. Features typically include multiple bus bays around a sheltered structure, seating, route signage and information, and vending and other small-scale commercial services.

TABLE 2.2-2
NO-BUILD ALTERNATIVE TRANSIT CENTERS, TRANSFER POINTS AND PARK-AND-RIDE FACILITIES

Regional Transit Center	Community Transit Center	Neighborhood Transfer Points	Park-and-Ride Facility
Alapai *	*Middle Street* **	Wahiawa Town**	Wahiawa *
Ala Moana Center *	Waipahu *	Mililani Town**	Mililani Mauka *
*Aloha Stadium***	*Kapolei*	Kailua**	Royal Kunia *
	*Iwilei***	Kaimuki**	Hawaii Kai *
	Pearl City/Aiea**	*Waianae*	North-South Road
	*Kaneohe***		

Source: Parsons Brinckerhoff, June 2002.
*Denotes an existing facility
**Will be implemented by DTS as a separate project
Italicized Transit Centers denote that parking would be provided.

Neighborhood transfer points would be small facilities designed to meet the transit needs of nearby residents. They would primarily serve passengers transferring between neighborhood circulator routes and one or more local or express routes. Ideally a neighborhood transfer point would be located near other neighborhood services such as grocery stores, dry cleaners, and other convenience functions. These transfer points could be on-street with bus turnouts or off-street around an island platform. Key features would include bus turnout lanes, shelter for waiting transit patrons, lighting, sidewalks and bicycle racks.

3) Transit Technology

The No-Build Alternative assumes the continued use and expansion of the existing bus fleet, which presently consists mostly of 40-foot standard diesel buses and 60-foot articulated diesel buses. The technologies in the No-Build Alternative are minibuses, and standard and articulated buses with conventional diesel propulsion.

While minibuses could use alternative fuel sources, including electric batteries or propane, standard and articulated buses, particularly the ones on long-haul routes, would need to be diesel or hybrid diesel/electric because of the mountainous terrain and limited range of battery-powered vehicles. Hybrid diesel/electric buses are electrically propelled vehicles in which the electricity is produced by an on-board generator (alternator) powered by a diesel engine.

4) Park-And-Ride Lots

Intermodal access to the transit network would continue to be provided at four existing park-and-ride lots (Wahiawa Armory, Mililani Mauka, Royal Kunia, and Hawaii Kai). Parking would also be provided at some of the transit centers that DTS would implement as separate projects associated with the hub-and-spoke network. These include the Aloha Stadium, Iwilei, and Middle Street Transit Centers. A new park-and-ride lot would also be provided along North-South Road and at the Kapolei Transit Center.

5) Maintenance Facilities

The 2025 bus fleet would be accommodated at the Kalihi-Palama and Pearl City Bus Maintenance Facilities. To meet forecasted transit demand, the mix of equipment would change to the distribution shown in Table 2.2-1.

6) Vanpool

Vanpool Hawaii is an existing program that subsidizes the use of 7-passenger (and higher capacity) vans as a traffic alleviation measure. In 2001, the program supported 164 vehicles. Continued growth in the number of

vans on Oahu is expected. For a $50 fee per passenger per month, vanpool participants receive the use of a vanpool van. Participating drivers are expected to recruit at the start-up of the vanpool group until it sustains a full ridership level within a few months after start-up. The program pays for all of the operational and maintenance expenses, including insurance (but not fuel and parking). The driver can use the van as a personal vehicle after commuting hours and on weekends. The program is currently funded with Federal Highway Administration (FHWA) and State of Hawaii matching funds. Passenger revenues are returned to the state to offset its costs. In 2001, the vanpool program cost $1.7 million and realized $642,000 in revenues.

The Hawaii Department of Transportation (HDOT) currently administers the vanpool program through a contract with a private operator. HDOT considers the vanpool program to be a demonstration program and is not interested in running the program permanently. Since the City could administer the vanpool program, management of the Oahu component of the vanpool program by the City is included as part of the No-Build and other alternatives. Since the combination of federal grants and participant revenues could potentially fully fund the vanpool program, the transfer of vanpool administration to the City is assumed not to impose any financial obligation on the City.

7) Mitigation Measures Requiring Permanent Construction

Mitigation measures would be implemented for the baseline highway projects. Because the detailed impacts have not yet been identified, many of these mitigation measures have not yet been developed. Since the baseline highway projects and their associated mitigation measures are included in all of the alternatives, the mitigation measures for these projects would be constant in all alternatives, and would not help differentiate among them.

2.2.2 Transportation System Management (TSM) Alternative

TSM strategies are low to moderate cost improvements designed to increase the efficiency of the existing transportation infrastructure. TSM measures typically include elements such as traffic engineering and signalization, transit operational changes and modest capital improvements. Besides being a potential alternative for selection by decision makers, the TSM Alternative serves as a benchmark against which more extensive build alternatives can be evaluated for their cost-effectiveness.

The TSM Alternative is an intermodal alternative (see Figure 2.2-2). It includes reorientation of the present bus route structure from a predominantly radial service pattern to a hub-and-spoke network, extension of the H-1 A.M. zipper lane, bus priority treatments on selected arterials, and a significantly expanded fleet over the No-Build Alternative to provide more convenient service. The objectives of the hub-and-spoke bus network are to reduce overall travel times, improve schedule reliability, improve operational efficiency and improve off-peak service.

The transit centers and transfer points that serve as hubs and are included in the No-Build Alternative are also included in the TSM Alternative. There would also be an additional transit center in Waianae. Additionally, the Middle Street and Kapolei transit centers would be larger.

Parking lots and garages at certain transit centers and stand-alone park-and-ride facilities would provide intermodal access to the hub-and-spoke network. Supplementing the existing park-and-ride lots (Wahiawa, Mililani Mauka, Royal Kunia, and Hawaii Kai) would be new parking facilities that are part of the new transit centers implemented as separate projects associated with the hub-and-spoke network. These include the Waianae, Kapolei, Aloha Stadium, Middle Street, Iwilei, and Kaneohe Transit Centers. In addition there would be a new park-and-ride lot near the proposed H-1 Interchange at North-South Road. Each facility would accommodate 100 to 750 parking spaces. Table 2.2-3 shows the transit centers, transfer points and park-and-ride facilities incorporated into the TSM Alternative.

CORRECTION

THE PRECEDING DOCUMENT(S) HAS BEEN REPHOTOGRAPHED TO ASSURE LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

TABLE 2.2-2
NO-BUILD ALTERNATIVE TRANSIT CENTERS, TRANSFER POINTS AND PARK-AND-RIDE FACILITIES

Regional Transit Center	Community Transit Center	Neighborhood Transfer Points	Park-and-Ride Facility
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Ala Moana Center *	Waipahu *	Mililani Town**	Mililani Mauka *
*Aloha Stadium***	*Kapolei*	Kailua**	Royal Kunia *
	*Iwilei***	Kaimuki**	Hawaii Kai *
	Pearl City/Aiea**	*Waianae*	North-South Road
	*Kaneohe***		

Source: Parsons Brinckerhoff, June 2002.
*Denotes an existing facility
**Will be implemented by DTS as a separate project
Italicized Transit Centers denote that parking would be provided.

Neighborhood transfer points would be small facilities designed to meet the transit needs of nearby residents. They would primarily serve passengers transferring between neighborhood circulator routes and one or more local or express routes. Ideally a neighborhood transfer point would be located near other neighborhood services such as grocery stores, dry cleaners, and other convenience functions. These transfer points could be on-street with bus turnouts or off-street around an island platform. Key features would include bus turnout lanes, shelter for waiting transit patrons, lighting, sidewalks and bicycle racks.

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The No-Build Alternative assumes the continued use and expansion of the existing bus fleet, which presently consists mostly of 40-foot standard diesel buses and 60-foot articulated diesel buses. The technologies in the No-Build Alternative are minibuses, and standard and articulated buses with conventional diesel propulsion.

While minibuses could use alternative fuel sources, including electric batteries or propane, standard and articulated buses, particularly the ones on long-haul routes, would need to be diesel or hybrid diesel/electric because of the mountainous terrain and limited range of battery-powered vehicles. Hybrid diesel/electric buses are electrically propelled vehicles in which the electricity is produced by an on-board generator (alternator) powered by a diesel engine.

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Intermodal access to the transit network would continue to be provided at four existing park-and-ride lots (Wahiawa Armory, Mililani Mauka, Royal Kunia, and Hawaii Kai). Parking would also be provided at some of the transit centers that DTS would implement as separate projects associated with the hub-and-spoke network. These include the Aloha Stadium, Iwilei, and Middle Street Transit Centers. A new park-and-ride lot would also be provided along North-South Road and at the Kapolei Transit Center.

5) Maintenance Facilities

The 2025 bus fleet would be accommodated at the Kalihi-Palama and Pearl City Bus Maintenance Facilities. To meet forecasted transit demand, the mix of equipment would change to the distribution shown in Table 2.2-1.

6) Vanpool

Vanpool Hawaii is an existing program that subsidizes the use of 7-passenger (and higher capacity) vans as a traffic alleviation measure. In 2001, the program supported 164 vehicles. Continued growth in the number of

vans on Oahu is expected. For a $50 fee per passenger per month, vanpool participants receive the use of a vanpool van. Participating drivers are expected to recruit at the start-up of the vanpool group until it sustains a full ridership level within a few months after start-up. The program pays for all of the operational and maintenance expenses, including insurance (but not fuel and parking). The driver can use the van as a personal vehicle after commuting hours and on weekends. The program is currently funded with Federal Highway Administration (FHWA) and State of Hawaii matching funds. Passenger revenues are returned to the state to offset its costs. In 2001, the vanpool program cost $1.7 million and realized $642,000 in revenues.

The Hawaii Department of Transportation (HDOT) currently administers the vanpool program through a contract with a private operator. HDOT considers the vanpool program to be a demonstration program and is not interested in running the program permanently. Since the City could administer the vanpool program, management of the Oahu component of the vanpool program by the City is included as part of the No-Build and other alternatives. Since the combination of federal grants and participant revenues could potentially fully fund the vanpool program, the transfer of vanpool administration to the City is assumed not to impose any financial obligation on the City.

7) Mitigation Measures Requiring Permanent Construction

Mitigation measures would be implemented for the baseline highway projects. Because the detailed impacts have not yet been identified, many of these mitigation measures have not yet been developed. Since the baseline highway projects and their associated mitigation measures are included in all of the alternatives, the mitigation measures for these projects would be constant in all alternatives, and would not help differentiate among them.

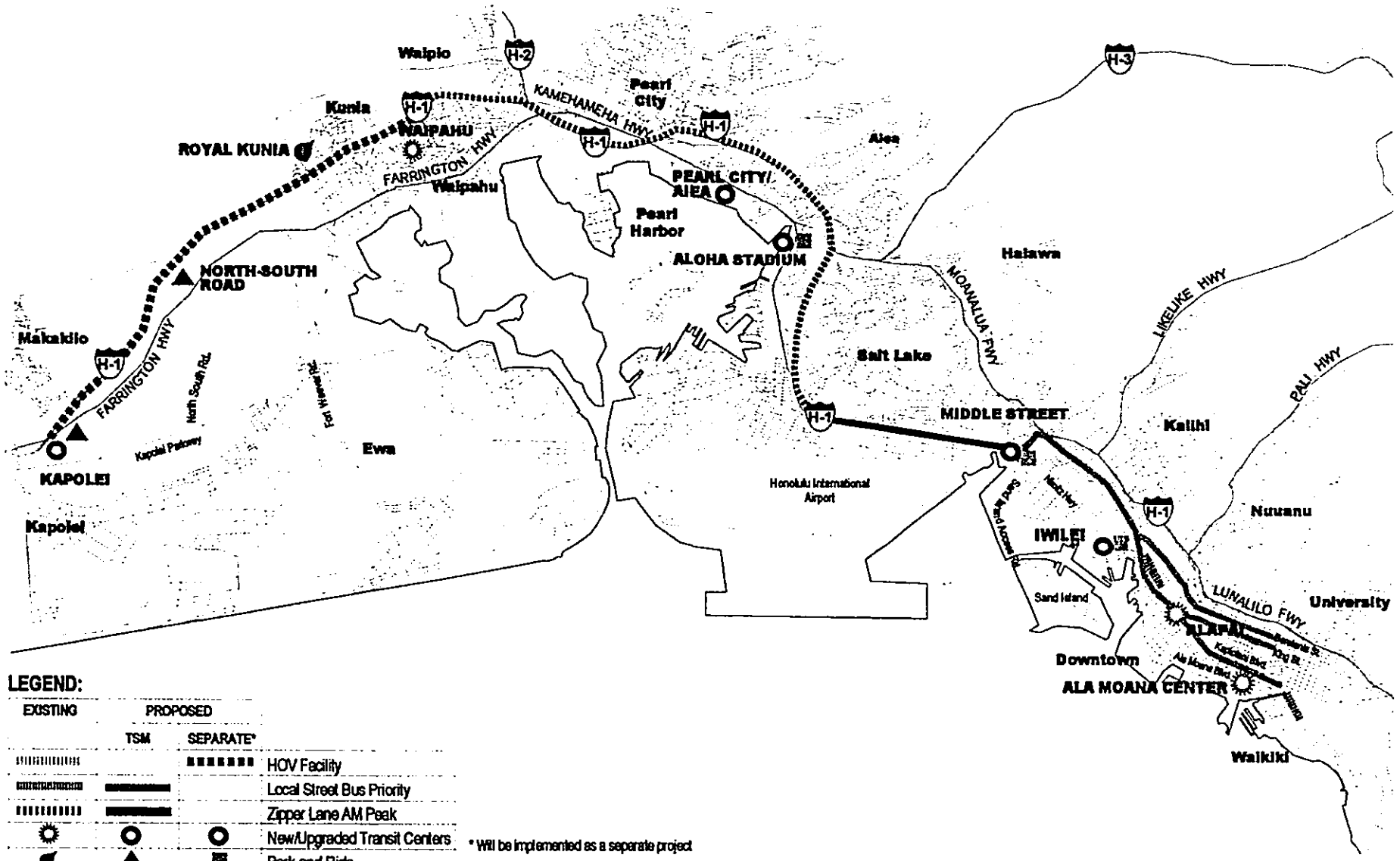
2.2.2 Transportation System Management (TSM) Alternative

TSM strategies are low to moderate cost improvements designed to increase the efficiency of the existing transportation infrastructure. TSM measures typically include elements such as traffic engineering and signalization, transit operational changes and modest capital improvements. Besides being a potential alternative for selection by decision makers, the TSM Alternative serves as a benchmark against which more extensive build alternatives can be evaluated for their cost-effectiveness.

The TSM Alternative is an intermodal alternative (see Figure 2.2-2). It includes reorientation of the present bus route structure from a predominantly radial service pattern to a hub-and-spoke network, extension of the H-1 A.M. zipper lane, bus priority treatments on selected arterials, and a significantly expanded fleet over the No-Build Alternative to provide more convenient service. The objectives of the hub-and-spoke bus network are to reduce overall travel times, improve schedule reliability, improve operational efficiency and improve off-peak service.

The transit centers and transfer points that serve as hubs and are included in the No-Build Alternative are also included in the TSM Alternative. There would also be an additional transit center in Waianae. Additionally, the Middle Street and Kapolei transit centers would be larger.

Parking lots and garages at certain transit centers and stand-alone park-and-ride facilities would provide intermodal access to the hub-and-spoke network. Supplementing the existing park-and-ride lots (Wahiawa, Mililani Mauka, Royal Kunia, and Hawaii Kai) would be new parking facilities that are part of the new transit centers implemented as separate projects associated with the hub-and-spoke network. These include the Waianae, Kapolei, Aloha Stadium, Middle Street, Iwilei, and Kaneohe Transit Centers. In addition there would be a new park-and-ride lot near the proposed H-1 Interchange at North-South Road. Each facility would accommodate 100 to 750 parking spaces. Table 2.2-3 shows the transit centers, transfer points and park-and-ride facilities incorporated into the TSM Alternative.



LEGEND:

EXISTING	PROPOSED TSM	PROPOSED SEPARATE*	
		■■■■■■■■	HOV Facility
▬▬▬▬▬▬	▬▬▬▬		Local Street Bus Priority
▮▮▮▮▮▮▮▮▮▮	▬▬▬▬		Zipper Lane AM Peak
☼	○	○	New/Upgraded Transit Centers
▲	▲	▣	Park-and-Ride

* Will be implemented as a separate project

Note: Proposed improvements outside the primary transportation corridor are not shown.

SOURCES:
City and County of Honolulu and Parsons Brinckerhoff, May 2002.

N Scale: 0 1 2 mi

TSM Alternative

Figure 2.2-2

TABLE 2.2-3
TSM ALTERNATIVE TRANSIT CENTERS, TRANSFER POINTS, AND PARK-AND-RIDE FACILITIES

Regional Transit Center	COMMUNITY TRANSIT CENTER	Neighborhood Transfer Points	Park-and-Ride Facility
Alapai *	*Waianae***	Wahiawa Town**	Wahiawa *
Ala Moana Center *	Waipahu *	Mililani Town**	Mililani Mauka *
Kapolei	*Iwilei***	Kailua**	North-South Road
*Aloha Stadium***	*Kaneohe***	Kaimuki**	Royal Kunia *
*Middle Street **	Pearl City/Aiea**		Hawaii Kai *

Source: Parsons Brinckerhoff, June 2002.
*Denotes an existing facility
**Will be implemented by DTS as a separate project from the TSM Alternative.
Italicized Transit Centers denote that parking would be provided.

Table 2.2-4 summarizes the 2025 Transit Network for the TSM Alternative.

TABLE 2.2-4
TSM ALTERNATIVE 2025 FIXED-ROUTE BUS NETWORK

Route Structure	
Circulator Routes	28
Local Routes	25
Express Routes	36
Limited-Stop Routes	3
TOTAL	**92**
Fleet Size (including spares)	
Minibus (30-foot)	129
Standard 40-foot Bus	518
Articulated Bus (60-foot)	53
TOTAL	**700**
Daily Trips (weekday)	
A.M. Peak Period	1,440
Off-Peak Period	1,952
P.M. Peak Period	1,388
Daily Operations (weekday)	
Revenue Bus Miles	77,790
Revenue Bus Hours	5,220
Daily Ridership Forecast (weekday)	
Total Linked Trips	270,060

Source: Parsons Brinckerhoff, June 2002.

1) Baseline Transportation Improvement Projects

The TSM Alternative assumes the same baseline highway projects included in the No-Build Alternative, in other words the highway improvements in OMPO's TOP 2025 (see Figure 2.2-1A).

The TSM Alternative also assumes implementation of the State and City bicycle master plans and various programmed pedestrian improvements. This Alternative captures the intent to create a more bicycle and pedestrian-friendly environment.

2) Transit Network

Under the TSM Alternative, the existing radial bus route structure would be converted to a hub-and-spoke system. The present long suburban trunk routes to Downtown would be converted to shorter circulator and local routes serving regional transit centers. Connections between local, express, and limited-stop services would be made at the regional transit centers. The community and neighborhood transit centers would also enhance access to the transit network by providing a convenient location for timed-transfers to longer distance routes.

Circulators

The TSM Alternative includes 28 circulator routes, including the 18 existing urban collector and suburban feeder routes. Recently implemented "Hub-and-Spoke" circulator routes within the Waianae Coast, Kapolei, and Waipahu areas are also included. Two existing urban and suburban trunk routes in Pearl City and Salt Lake would become circulators to feed improved limited-stop and express services. Circulators in commercial areas would generally offer service every 15 to 30 minutes, but neighborhood circulators could have up to one hour headways. Circulators would be scheduled to facilitate transfers with limited-stop and express services running between transit centers.

Local Routes

The 25 local routes in the TSM Alternative would be developed primarily from existing urban and suburban trunk routes. To access improved express and limited-stop services between transit centers, most of the existing suburban routes from Ewa and Central Oahu would terminate at the Waipahu, Aloha Stadium, or Middle Street Transit Centers where patrons would transfer to express services into Downtown. Routes from Windward Oahu would end at Ala Moana Center. In general, local routes would provide peak-period service every 5 to 15 minutes, and off-peak service every 15 to 30 minutes.

Express Routes

The TSM Alternative includes 36 express routes that would provide direct service between suburban communities and major destinations in Kapolei and the PUC, primarily during peak periods. Targeted to long distance commuters, most express routes would operate only in the direction of peak commuter movements, although some would operate inbound and outbound during the same peak period. The Alapai Transit Center would remain the primary hub for peak-period express routes between suburban communities and Downtown Honolulu, and most of these services would operate every 10 to 30 minutes during the peak period. Lower-demand routes would operate two to four trips per day.

Consistent with the vision of Kapolei as a major employment center by 2025, new express services would operate every 20 to 40 minutes throughout the day to and from Kapolei.

Limited-Stop Services

The existing CityExpress! (Route A) from Waipahu to UH-Manoa via Pearlridge would continue to provide fast, frequent cross-town service through Downtown Honolulu. Service to UH-Manoa would be provided every 15 minutes from Waipahu and every 7.5 minutes from Middle Street. Route A would be supplemented by other limited-stop service through the entire PUC, including City Express! (Route B) and CountryExpress! (Route C). City Express! (Route B) would continue to offer limited stop service between Middle Street and Waikiki. Route B service frequency would be every 15 minutes, 7 days a week. CountryExpress! (Route C) provides fast service from Makaha to Downtown Honolulu and Ala Moana Center. Route C would operate every 30 minutes, every day. A trip between Kapolei and Downtown would last roughly 35 minutes.

3) Transit Technology

Similar to the No-Build Alternative, the transit technologies provided in the TSM Alternative are minibuses and 40-foot standard and 60-foot articulated buses. While minibuses could use alternative fuel sources, including electric batteries or propane, standard and articulated buses, particularly the ones used on long-haul routes, would need to be diesel or hybrid diesel/electric because of the mountainous terrain and limited range of battery-powered vehicles.

4) Bus Priority/Express Improvements

To give priority to buses and other transit vehicles, special lane and traffic signal improvements would be provided on H-1 and key segments of congested arterial streets. In the TSM Alternative there would be approximately 47 miles of bus priority lanes in the PUC and Ewa to provide faster and more reliable bus operations.

The proposed bus priority measures include the following:

- The existing zipper lane provides a morning peak period inbound contraflow lane for multiple occupant vehicles with three or more occupants from 5 to 7 a.m., and with two or more occupants from 7 to 8 a.m. between Managers Drive in Waipahu and the Pearl Harbor Interchange. With the TSM Alternative, the existing zipper lane will be extended an additional 2.8 miles from Radford Drive, onto the H-1 airport viaduct, to Keehi Interchange (Nimitz Highway), creating an 11.6-mile-long morning peak period zipper lane. The extended zipper lane would connect to the A.M. contraflow lane on Nimitz Highway proposed by HDOT.
- Semi-exclusive bus lanes would be placed on King Street and Beretania Street, between Middle Street and Kalakaua Avenue. They would also be implemented on Kapiolani Boulevard between South Street and Atkinson Drive in the peak direction only. (*Semi-exclusive bus priority lanes are* lanes that would be reserved for buses, although vehicles turning into and out of driveways and turning right at intersections would be permitted to use them.) These bus priority facilities would generally operate only during peak periods.
- Bus priority treatments such as queue jump lanes (a queue jump lane is a short exclusive lane that allows buses to move to the head of a line of traffic) and traffic signal priority would be implemented on Middle Street, King Street, Beretania Street, Kapiolani Boulevard, Ala Moana Boulevard, and Kuhio Avenue.
- In Ewa, bus priority lanes would be incorporated into Kapolei Parkway, North-South Road and a section of Farrington Highway between Fort Barrette Road and Kunia Road.
- A mauka-bound queue jump lane would be provided on Kunia Road between Farrington Highway and the H-1 Freeway.
- Preferential bus treatments, including queue jump lanes and traffic signal priority systems, would be provided on Kamehameha Highway between Waimano Home Road and Moanalua Freeway.
- Fort Weaver Road between Geiger Road and Farrington Highway would be widened to accommodate new express lanes for buses and vehicles carrying two or more persons.

5) Maintenance Facilities

The 2025 bus fleet would be maintained at the Kalihi-Palama and Pearl City Bus Maintenance Facilities. Construction of a third smaller facility would be needed to accommodate the larger fleet. The need for a third bus facility is not anticipated until approximately 2016. Therefore, site selection for the facility will be made at a later date.

6) Mitigation Measures Requiring Permanent Construction

Mitigation measures would be implemented for the baseline highway projects. Because the detailed impacts have not yet been identified, many of these mitigation measures have not yet been developed. Since the committed projects and their associated mitigation measures are included in all of the alternatives, the mitigation measures for these projects would be constant in all alternatives, and would not help differentiate among them.

No mitigation measures that could entail permanent construction are anticipated.

2.2.3 Refined Locally Preferred Alternative (LPA)

The Refined LPA is a multi-modal alternative that provides a more balanced transportation system than the present automobile-dominated situation. A hub-and-spoke bus network similar to the TSM Alternative would connect with the Regional and In-Town Bus Rapid Transit (BRT) systems, integrating the hub-and-spoke network with a fast, high-capacity transit system spanning the primary transportation corridor (see Figure 2.2-3). The In-Town BRT system will provide high capacity, frequent, in-town transit service spanning Honolulu's Urban Core (Middle Street, through Downtown Honolulu, to UH-Manoa and Waikiki). The Regional BRT system will incorporate regional transit routes that utilize bus priority facilities (express lanes) on the H-1 Freeway, creating an H-1 Freeway BRT Corridor, with priority treatment for regional transit vehicles at selected ramps and arterials to facilitate movement between the H-1 Freeway BRT Corridor and the corridor's transit centers. The Refined LPA incorporates a very aggressive level of transit service to draw people out of single-occupant automobiles.

The Regional BRT system will complement and augment the In-Town BRT system. At the Middle Street Transit Center, most of the regional local buses will terminate, while most of the regional express routes will continue into town using the In-Town BRT priority lanes. The Regional BRT vehicles that continue into town will continue along the UH-Manoa and Kaka'ako Mauka branches and operate as In-Town BRT vehicles to the termini of these routes. With this approach, many passengers will not have to transfer at Middle Street. Through integrated planning and use of timed-transfers at outlying transit centers, route duplication will be reduced, system capacity will be increased and schedule reliability will be improved. These operational attributes are key ingredients of effectiveness. Together, the Regional and In-Town BRT systems will provide an integrated transit system enhancing mobility within the primary transportation corridor, and between the primary transportation corridor and other parts of the island.

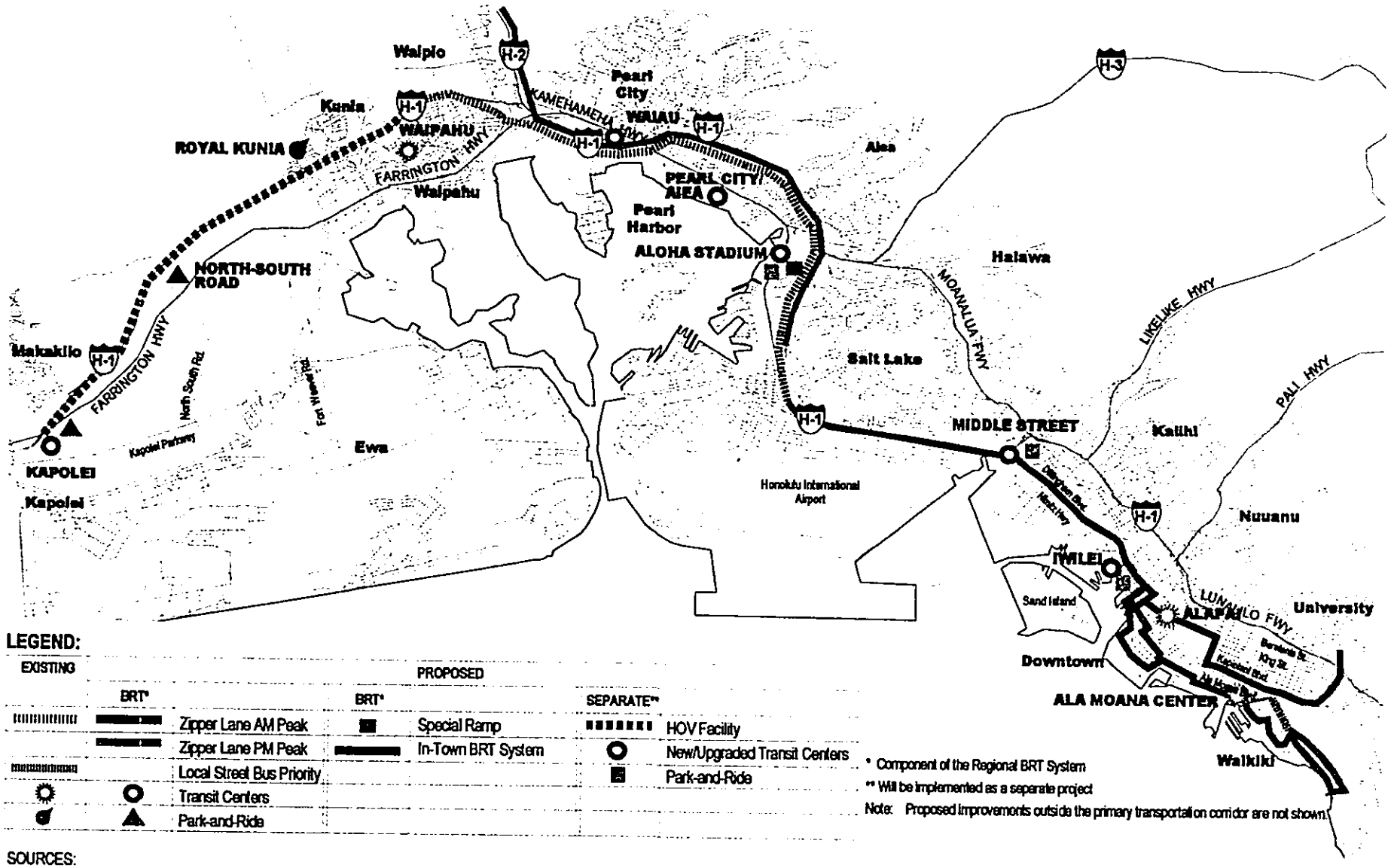
1) Committed Transportation Improvement Projects

The Refined LPA assumes the same baseline highway projects included in the No-Build Alternative (see Figure 2.2-1A).

The Refined LPA Alternative also assumes implementation of the State and City bicycle master plans and various programmed pedestrian improvements. This Alternative also captures the intent to create a more bicycle and pedestrian-friendly environment.

2) Transit Network

The Refined LPA includes the baseline reorientation of the present bus route structure from a radial service pattern to a hub-and-spoke network. Hub-and-spoke networks provide an integrated system of convenient and accessible circulator, local and express routes, organized around transit centers and transfer points. The bus routes are the "spokes" of the hub-and-spoke system, and the transit centers and transfer points are the "hubs" where people make intermodal and intramodal transfers.



LEGEND:

EXISTING		PROPOSED			
	BRT*		BRT*		SEPARATE**
	Zipper Lane AM Peak		Special Ramp		HOV Facility
	Zipper Lane PM Peak		In-Town BRT System		New/Upgraded Transit Centers
	Local Street Bus Priority				Park-and-Ride
	Transit Centers				
	Park-and-Ride				

* Component of the Regional BRT System

** Will be implemented as a separate project

Note: Proposed improvements outside the primary transportation corridor are not shown.

SOURCES:
City and County of Honolulu and Parsons Brinkerhoff, May 2002.

N Scale: 0 1 2.0 mi

Refined Locally Preferred Alternative (LPA)

Figure 2.2-3

There would be a hierarchy of community and regional transit centers, and neighborhood transfer points, each drawing from different size service areas. The transit centers that have already been committed as part of the hub-and-spoke network and have been include in the Oahu Transportation Improvement Program, FY 2002 – 2004, would remain as part of the Refined LPA. The projects denoted as being implemented by DTS as a separate project from the Refined LPA include these transit centers.

Integration of the Regional and In-Town BRT systems will occur through an islandwide network of transit centers. Four regional transit centers (Kapolei, Aloha Stadium, Middle Street, and Alapai) will provide high-capacity transfer points for patrons to access the Regional and In-Town BRT systems. The Waianae, Waipahu, Pearl City/Aiea, Waiau, and Kaneohe community transit centers will enhance connections to local and express buses into Downtown, while community transit centers on the In-Town BRT alignment (Iwilei and Ala Moana Center) will provide mauka-makai connections with the In-Town BRT system. Enhanced local circulation and access to the BRT system will be provided at four neighborhood transfer points (Wahiawa Town, Mililani Town, Kailua, and Kaimuki). Table 2.2-5 shows the transit centers and transfer points incorporated into the Refined LPA, and which ones will be implemented by DTS as separate projects associated with the hub-and-spoke network. These separate projects will be built independent of a decision to proceed with the Refined LPA. Also shown in Table 2.2-5 are five park-and-ride facilities that will be part of this alternative. Each park-and-ride facility will accommodate 100 to 1,000 parking spaces.

With the Refined LPA many of the transit centers and park-and-rides will be larger and/or take on a different role because of the higher level of service than with the TSM Alternative.

TABLE 2.2-5
REFINED LPA TRANSIT CENTERS, TRANSFER POINTS AND PARK-AND-RIDE FACILITIES

Regional Transit Center	Community Transit Center	Neighborhood Transfer Points	Park-and-Ride Facility
Alapai *	*Waianae***	Wahiawa Town**	Wahiawa *
Kapolei	Waipahu *	Mililani Town**	Mililani Mauka *
*Aloha Stadium **	Pearl City/Aiea**	Kailua**	North-South Road
*Middle Street **	Waiau **	Kaimuki**	Royal Kunia *
	*Iwilei **		Hawaii Kai *
	Ala Moana Center *		
	*Kaneohe**		

Source: Parsons Brinckerhoff, June 2002.
* Denotes an existing facility
* * Will be implemented by DTS as a separate project from the Refined LPA
Italicized Transit Centers denote that parking would be provided.

As with the No-Build and TSM Alternatives, the existing radial network of bus routes will be reconfigured to a hub-and-spoke configuration. Local bus routes through the Urban Core will be modified to minimize overlap with the In-Town BRT. A summary of the 2025 Transit Network for the Refined LPA is provided in Table 2.2-6.

Circulator Routes: Circulator bus routes will provide access from transit centers into neighborhoods and commercial districts and include existing urban collector and suburban feeder routes. Recently implemented "Hub-and-Spoke" circulator routes within the Waianae Coast, Kapolei, and Waipahu areas are also included. Certain local routes would be converted into circulators to feed the In-Town BRT. Circulator routes in rural and suburban areas will connect to express and local services, as they do today. In-town circulators will generally operate every 15 to 30 minutes, but some neighborhood circulators will have up to one-hour headways.

TABLE 2.2-6
REFINED LPA 2025 FIXED-ROUTE BUS NETWORK

Route Structure	
Circulator Routes	30
Local Routes	20
Express Routes	30
Limited-Stop Routes	2
TOTAL	**82**
Fleet Size (including spares)	
Minibus (30-foot)	200
Standard 40-foot Bus	412
Articulated Bus (60-foot)	152
In-Town BRT Vehicles	30
TOTAL	**794**
Daily Trips (weekday)	
A.M. Peak Period	2,325
Off-Peak Period	2,942
P.M. Peak Period	2,145
Daily Operations (weekday)	
Revenue Bus Miles	84,440
Revenue Bus Hours	5,300
Daily Ridership Forecast (weekday)	
Total Linked Trips	312,570

Source: Parsons Brinckerhoff, June 2002.

Local Routes: The Refined LPA includes local bus routes that connect suburban communities with the In-Town BRT. Connections to the In-Town BRT will occur at the Middle Street Transit Center for the majority of bus service from Leeward and Central Oahu and at the Union Mall Transit Stop for bus service from Windward Oahu. Most local buses that currently enter Waikiki from its Koko Head side will terminate at Kapahulu Avenue near the Honolulu Zoo. Most local buses that currently enter Waikiki from its Ewa side will terminate at Saratoga Road. The In-Town BRT and the existing Routes B, 2, and 13 will service passengers from the terminating routes, thereby reducing the number of transit buses passing through Waikiki. Systemwide, peak-period local service will generally be provided every 5 to 15 minutes, with off-peak service every 15 to 30 minutes.

Express Routes: Express buses provide rapid point-to-point service, typically between suburban and downtown areas. Express buses can perform limited collection and distribution functions in suburban and downtown areas, but travel directly between these areas in the line-haul portion of the trip.

During peak periods, express routes will supplement local services from suburban communities to Downtown and Kapolei. Express service from Ewa and Central Oahu will use the H-1 Freeway BRT Corridor. Some of the express routes will continue into town along the In-Town BRT alignment (these are discussed under Regional BRT Routes), and others will continue via other routings (H-1 or Nimitz Highway). The express buses that use H-1 or Nimitz Highway will connect to the In-Town BRT in Downtown. Express routes from Windward Oahu and East Honolulu will continue to serve the Alapai Transit Center and UH-Manoa Transit Stop. Most express services will operate every 10 to 30 minutes during peak periods, although some express routes serving rural areas will operate less frequently (50- to 75-minute headways during peak periods).

Consistent with the vision of Kapolei as a major employment center, new express service will be provided between Kapolei and Pearl Harbor, Waikiki, Mililani and Wahiawa. This restructured network will replace five existing express routes to Aloha Stadium, Pearl City, Waipahu, and Kalihi.

Limited-Stop Services

The existing CityExpress! (Route A) from Waipahu to UH-Manoa via Pearlridge will continue to provide fast, frequent cross-town service through Downtown Honolulu. Service to UH-Manoa will be provided every 15 minutes from Waipahu and every 7.5 minutes from Middle Street. One change to Route A will be the use of King Street/Beretania Street instead of Kapiolani Boulevard between Downtown and U.H.-Manoa to avoid duplicating service provided by the In-Town BRT. City Express! (Route B) will continue to offer limited-stop service between Middle Street and Waikiki. Route B service frequency will be every 15 minutes, 7 days a week. The existing CountryExpress! (Route C) that provides fast service from Makaha to Downtown Honolulu and Ala Moana Center will become part of the Regional BRT, providing essentially the same service as it does today but having the benefit of becoming part of the BRT system within the Urban Core of Honolulu.

3) Regional BRT System

The Refined LPA will create an H-1 BRT Corridor consisting of existing and new express and zipper lanes, allowing Regional BRT and express buses from Ewa and Central Oahu to bypass peak period traffic congestion on their way to Downtown in the morning and returning from Downtown in the evening. Priority treatments at ramps will be provided for BRT vehicles to easily move between selected transit centers and the H-1 BRT Corridor. Other multiple occupancy vehicles will also benefit by being able to use the proposed improvements to the H-1 Corridor.

Regional BRT Routes

Several regional transit routes will serve as the Regional BRT. These routes will provide access to the Urban Core of Honolulu using freeway and arterial priority express lane treatments such as the zipper lane and contra-flow lanes. Once they reach the Middle Street Transit Center, these regional BRT routes will join and augment the In-Town BRT vehicles, essentially becoming part of the In-Town BRT system. They will operate along the In-Town BRT alignment in the priority lanes. Four regional routes are proposed: Makaha regional, Wahiawa regional, Ewa Beach/Waipahu regional, and Pearl City regional. The Makaha regional will be very similar to the existing CountryExpress! (Route C) but will have the advantage of utilizing the In-Town BRT priority lanes. The Wahiawa regional will provide regional service from Wahiawa and Mililani and continue as part of the UH-Manoa In-Town BRT branch. The Ewa Beach/Waipahu regional will provide Regional BRT service from Ewa Beach and Waipahu, continuing through town via the Kakaako Mauka alignment. The Pearl City regional will originate in the Waimano Home Road area of Pearl City and provide access into town via the Luapele Ramp at Aloha Stadium.

H-1 BRT Corridor

There are three elements to the H-1 BRT Corridor: H-1 zipper lane extension, new afternoon zipper lane, and on/off ramp improvements to access the zipper lanes. These elements will create an H-1 BRT Corridor, a continuous, fast corridor between Kapolei and Middle Street for BRT vehicles. The elements of the H-1 BRT Corridor are:

1. The existing zipper lane provides a morning peak period inbound contraflow lane for multiple occupant vehicles with three or more occupants from 5 to 7 a.m. and with two or more occupants from 7 to 8 a.m., between Managers Drive in Waipahu and the Pearl Harbor Interchange. Under the Refined LPA, the existing zipper lane will be extended an additional 2.8 miles from Radford Drive, onto the H-1 airport viaduct, to Keehi Interchange (Nimitz Highway), creating an 11.6-mile-long morning peak period zipper lane.
2. An outbound, afternoon peak period contraflow zipper lane will be built for vehicles with multiple occupants. The outbound zipper lane will be created by providing a second movable barrier that will replace the existing fixed median barrier on H-1 in some places. The new afternoon peak period zipper lane on the makai side of the freeway will provide a 6.6-mile Ewa-bound zipper lane between Radford Drive and the Waiawa Interchange.

3. Special ramp improvements proposed as part of this project and ramp improvements planned by the HDOT will allow Regional BRT buses to use the zipper lane and for these buses to easily move between the H-1 BRT Corridor and selected transit centers and park-and-rides. These ramp improvements are discussed below:

   Kapolei: New on- and off-ramps between the H-1 BRT Corridor and a proposed overpass at Wakea Street will serve Kapolei, facilitating access to the H-1 BRT Corridor all day long. These ramps are part of HDOT's planned improvements for H-1.

   North-South Road: A new park-and-ride located near the North-South Road/H-1 Interchange will be connected to the H-1 BRT Corridor via the new ramps planned for construction by HDOT.

   Waiawa Interchange: A new zipper lane for vehicles with multiple occupants will be added to the Waiawa Interchange to permit a direct connection between the H-1 p.m. zipper lane and the mauka-bound HOV lane on H-2.

   Luapele Drive: This ramp is the alternative site chosen with the assistance of the Pearl City/Aiea Working Group after the Kaonohi Street and Radford Drive locations were dropped (see Figure 2.2-2). A reversible ramp from the section of the H-1 Freeway near Aloha Stadium is proposed for the exclusive use of buses.

   The ramp will begin on a section of Luapele Drive and will emerge in the median of H-1 connecting with the a.m. and p.m. zipper lanes. The ramp will require widening the freeway just Koko Head of the stadium area viaduct by a minimum of ten feet on both sides. Appendix B includes the Luapele Drive ramp preliminary engineering design drawings. With deletion of the Kaonohi Street ramp, the proposed transit center/park-and-ride at Kamehameha Drive-In was dropped and the Aloha Stadium Transit Center/Park-and-Ride expanded.

   The Pearl City/Aiea Working Group also recommended serving the Pearl City/Aiea communities with a system of circulator buses focused on transit centers at the Pearl City Youth Complex (near Hale Mohalu) (Waiau) and former Jim Slemons auto dealership site (Pearl City/Aiea). These transit centers would be linked to the BRT system via express services operating along Kamehameha Highway using a contraflow lane during peak periods. Express buses would stop at the Waiau, Pearl City/Aiea Transit Centers as well as at the Aloha Stadium Transit Center before entering the H-1 zipper lane via the Luapele Drive ramp. The Department of Transportation Services (DTS) is programming the Waiau and Pearl City/Aiea Transit Centers and Kamehameha Highway improvements into the City Capital Improvement Program (CIP) as separate projects from the Refined LPA since they have independent utility.

   The contraflow zipper lane and reversible ramp at Luapele Drive will operate in the direction of peak traffic flow. Transit service will be provided in the reverse peak direction, but the contraflow lane and reversible ramps will only be used by vehicles traveling in the peak direction.

   Preliminary engineering design drawings for those elements that are part of the Refined LPA are contained in Appendix B.

   Design Exceptions

   Because of right-of-way limitations and roadway constraints in the H-1 corridor where the Regional BRT is proposed, it is not possible to meet all desirable design standards in the American Association of State Highway and Transportation Officials (AASHTO), A Policy on Geometric Design of Highways and Streets, 1994. This is sometimes the case with projects that involve modifications to existing facilities and does not preclude these projects from being eligible for federal funding.

AASHTO, in cooperation with the Federal Highway Administration (FHWA), sponsored a research project, which produced design guidelines for high occupancy vehicle and bus rapid transit facilities. The product of this research, National Cooperative Highway Research Program (NCHRP) Report 414, HOV Systems Manual, 1998, includes suggested reduced design standards when desired design standards cannot be met. These reduced design standards have been accepted by FHWA on other projects through design exceptions.

Locations on the Regional BRT alignment where design exceptions may be required are shown in Table 2.2-7. For the most part, these design exceptions will be for reduced lane widths or the use of shoulder lanes for traffic lanes.

TABLE 2.2-7
REGIONAL BRT H-1 FREEWAY IMPROVEMENTS REQUIRING DESIGN EXCEPTIONS

Section	Existing Conditions	Proposed Conditions	AASHTO Minimum Standards	NCHRP "Reduced" Standards
H-2 Terminus to Halawa Interchange (P.M. zipper lane) (5.0 miles)				
Lane width	11'	11'	12'	11'
Median shoulder width	2'	2'	10'	2'
Zipper lane left shoulder width	--	4'	10'	2'
Right-side shoulder width	none w/ shoulderld. lane		10'	4'
Bridge structural capacity	No increase in load		Load Factor Design	
Halawa Interchange to Radford Drive (P.M. zipper lane) (0.8 miles)				
Zipper lane left shoulder width	--	4'	10'	2'
Zipper lane right-side shoulder width	--	8'	10'	8'
Ramp right-side shoulder width	--	4'	8'	4'
Radford Drive to Keehi Interchange (extended A.M. zipper lane) (5.0 miles)				
Zipper lane left shoulder width	--	6'	10'	2'
Zipper lane right-side shoulder width	--	4'	10'	8'[1]
Lane width	12'	11'	12'	11'

Source: R.M. Towill Corporation, May 2002.
Note:[1] Proposed barrier distance of 22.5 feet, which is greater than NCHRP "Reduced" distance of 22 feet.

Modifications to Interstate H-1

Implementing the Regional BRT improvements will require modifications of Interstate Route H-1 at various locations as follows:

Waiawa Interchange:

- Between the existing Interstate Route H-2 zipper lane crossover and the Pearl City viaduct, the median area and the makai side of the freeway would be widened by about 20 feet to provide p.m. zipper lane crossover facilities.
- The Interstate Route H-2 inbound roadway and bridges would be widened on the Koko Head side by about 12 feet to provide a p.m. zipper lane.

Waiawa Interchange to Halawa Interchange:

- Between the Moanalua Road undercrossing and Halawa Interchange, the makai side of the freeway would be widened by about two feet to provide a p.m. zipper lane. Additional widening at various spot locations may also be desirable to provide breakdown areas.

Halawa Interchange to Keehi Interchange:

- Koko Head of the Radford overpass, the median area and the mauka side of the freeway would be widened by approximately four feet to provide a p.m. zipper lane crossover.
- The Luapele Drive ramp would require widening the freeway just Koko Head of the stadium area viaduct by a minimum of 10 feet on both sides.

All of the above widenings will be done within the existing H-1 right-of-way.

Transit Technology for the Regional BRT System

The technology for the Regional BRT vehicles will be standard and articulated buses with conventional diesel or hybrid diesel/electric propulsion.

Transit Centers and Park-and-Rides

Intermodal access (e.g., automobile, pedestrian, bicycle) and intramodal access (e.g., connections between feeder and line haul transit routes) to the Regional and In-Town BRT systems will occur at transit centers and park-and-ride lots (see Table 2.2-5). Transit centers with parking will be Waianae, Kapolei, Aloha Stadium, Middle Street, Iwilei, and Kaneohe. Transit centers and transfer points without parking will be at Waipahu, Alapai, Ala Moana Center, Pearl City/Aiea, Waiau, Wahiawa Town, Mililani Town, Kailua, and Kaimuki. A new park-and-ride facility will be located at North-South Road. Existing park-and-ride lots are located at Wahiawa, Mililani Mauka, Royal Kunia, and Hawaii Kai.

Maintenance Facilities

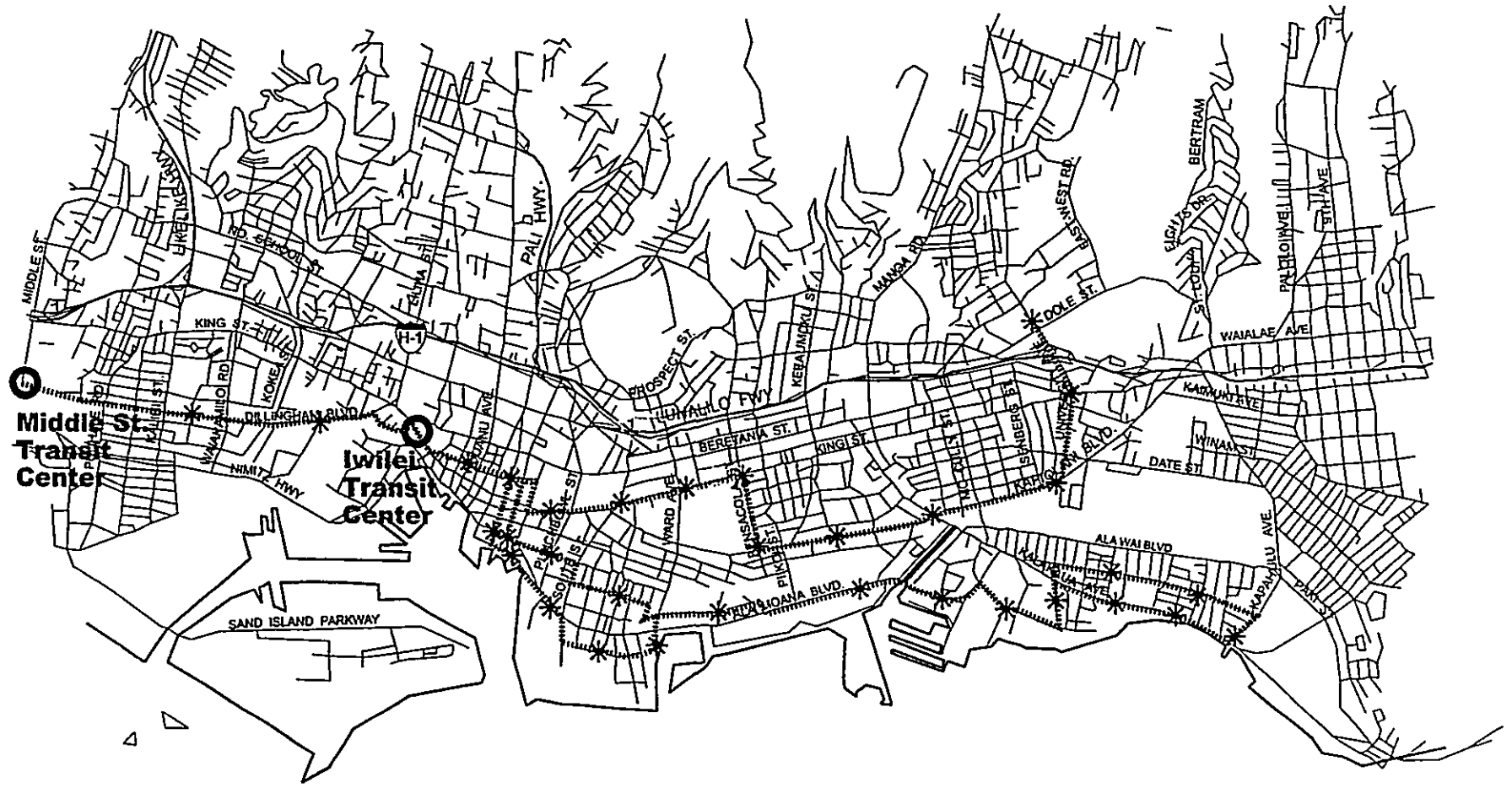
Storage and maintenance of the Regional BRT transit fleet (and the regular bus fleet) will occur at the existing Kalihi-Palama and Pearl City bus maintenance facilities. In addition, a new bus maintenance facility will be required 10 to 12 years from now.

Even with a new third bus facility, the Kalihi-Palama facility will need to be retrofit and expanded for storage and servicing of the BRT vehicles. This expansion will be coordinated with development of the Middle Street Transit Center/Park-and-Ride. The proposed expansion site is adjacent to and makai of the existing Kalihi-Palama facility. The modifications to the existing facility to maintain BRT vehicles are part of the Refined LPA, whereas the transit center/park-and-ride functions on the new expansion site are advancing as an independent project.

Since the third maintenance facility will not be needed for 10 to 12 years, identifying specific location options can be deferred until then.

4) In-Town BRT System

The In-Town BRT system will be a 12.8-mile high-capacity transit system providing frequent service and direct access to major activity destinations and residential neighborhoods throughout Honolulu's Urban Core.



LEGEND:

.....	Proposed In-Town BRT Alignment
*	Transit Stops
O	Transit Center

SOURCE:
Parsons Brinckerhoff, May 2002.

N Scale: 0 .25 .50 mi

In-Town BRT Branch Alignments

Figure 2.2-3A

(See Figure 2.2-3A.) Convenient connections between the In-Town BRT system and circulator, local, and express buses will occur at selected BRT stops. Based on comments received on the MIS/DEIS and SDEIS and concerns from the public, three major project refinements have been made to the In-Town BRT system. These refinements are described and incorporated in the following discussion of the In-Town BRT system.

Along a good portion of the system's length, In-Town BRT vehicles will operate at-grade in exclusive transit lanes along major arterial streets. In other locations, the In-Town BRT system will operate either in semi-exclusive curb lanes (i.e., lanes are also used by vehicles making turns) or in mixed traffic.

Starting at the Ewa terminus, the alignment will extend 2.7 miles from the Middle Street Transit Center to Downtown along Dillingham Boulevard. From Downtown, the UH-Manoa Branch alignment will run 4.1 miles to UH-Manoa via South King Street, Kapiolani Boulevard and University Avenue. Instead of heading makai on Ward Avenue as was proposed in the MIS/DEIS, the alignment has been modified to continue on South King Street, turn makai on Pensacola Street and then continue along Kapiolani Boulevard to University Avenue. A second branch will connect Downtown Honolulu with the mauka portion of Kakaako and Waikiki. The Kakaako Mauka Branch alignment is approximately 4.6 miles long. A third branch, the Kakaako Makai Branch will serve Downtown, the Aloha Tower Marketplace area, the makai portion of Kakaako, and Waikiki. From Bishop Street and Nimitz Highway to the connection with the Kakaako Mauka Branch at Ward Avenue and Auahi Street, the alignment extends approximately 1.4 miles.

An In-Town BRT vehicle will take 7.5 minutes to travel from Middle Street to Downtown Honolulu. From Downtown, it will take 14 minutes to reach UH-Manoa. Travel time from Downtown to Waikiki will be approximately 16 minutes via the Kakaako Mauka Branch and 18 minutes via the Kakaako Makai Branch. In-Town BRT services will operate every two minutes during peak periods from Middle Street to Downtown, and about every four minutes during peak periods on each of the branch segments.

Along 38 percent of its length, the In-Town BRT system will run in transit lanes in the median of existing arterial roads (e.g., Kapiolani and Dillingham Boulevards) or in exclusive curbside contra-flow lanes (e.g., S. King Street). In other locations the system will run along the curb in semi-exclusive lanes (29 percent), or in mixed traffic (33 percent). Semi-exclusive lanes are shared with local buses and right-turning vehicles (as well as private buses in Waikiki). In general, running the In-Town BRT system in the roadway median avoids conflicts with vehicles making right-hand turns and turning into and out of driveways, resulting in faster speeds for the In-Town BRT vehicles.

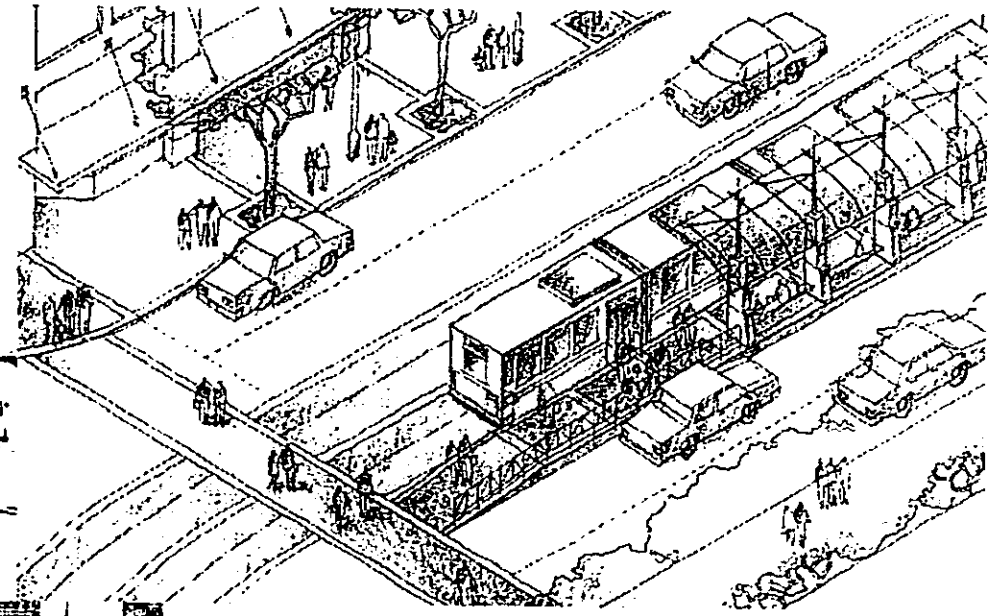
Transit stops will have different configurations in median-running sections than in curb-running sections. In curb-running areas, the transit stop will resemble current bus stops with raised boarding areas, and increased amenities including enhanced shelters, seats, and landscaping, where space permits.

Median transit stops will have raised platforms in the median of the street, typically 13 inches higher than the street, eight feet wide and 160 feet long. The platforms will be accessed by well-marked, signal-controlled, safe, pedestrian crosswalks. The platforms will be accessible to persons with disabilities by ramps from the crosswalk to the raised platforms.

The system will be designed for accessibility by disabled riders in compliance with the Americans with Disabilities Act.

Platforms will be provided with sheltered waiting areas, seats, lighting and safety railings so that transit patrons can wait in safety and comfort for the next In-Town BRT vehicle. Some of the stops will also be provided with signs indicating the waiting time until the next vehicle. Ticketing machines could be provided to minimize the fare transactions conducted on-board the vehicle. Figure 2.2-4 shows typical median and curb transit stops for the In-Town BRT system.

Curb Transit Stop
(Semi-Exclusive Lane)



Median Transit Stop
(Exclusive Lane)

	Typical In-Town BRT Transit Stops	Figure 2.2-4

Middle Street to Downtown Branch

Route

The route will begin at the Middle Street Transit Center, and proceed along the center median of Dillingham Boulevard through Kalihi. The reconfigured cross section will have a transit lane and a vehicular lane in each direction. Left-turn lanes will still be provided mauka-bound at Laumaka Street, and in both directions at Puuhale Road, Kalihi Street, McNeill Street, Waiakamilo Road, Kohou Street, Kokea Street, and Alakawa Street. At Kaaahi Street, the route will turn makai to reach the proposed Iwilei Transit Center located adjacent to the former Oahu Railway and Land Company (OR&L) Station building. From the Iwilei Transit Center, the route will proceed mauka on Iwilei Road and turn Koko Head onto the mauka side of North King Street. The route will then use the Hotel Street Transit Mall and continue through Downtown before the Kakaako Makai and Mauka branches turn makai onto Bishop Street. The UH-Manoa Branch will continue along Hotel Street before turning makai onto Richards Street.

Proposed Transit Stops

- Middle Street Transit Center: The location of this transit center will be adjacent to and makai of the existing Kalihi-Palama Bus Maintenance Facility.
- Kalihi: This transit stop will be located at Dillingham and McNeill Street (near Dillingham Shopping Plaza).
- Honolulu Community College: This transit stop will be located at Alakawa Street.
- Iwilei Transit Center: This transit center will be located next to the former OR&L Station building.
- Chinatown: This transit stop will be located at Kekaulike Street, and serve Chinatown.
- Union Mall: This transit stop will be located between Fort Street and Union Malls and would serve the Central Business District.

The cross-section on Dillingham Boulevard was modified from that shown in the MIS/DEIS based on input from the Kalihi Working Group. In response to concerns about potential delays to motorists with only one 14-foot general-purpose lane in each direction, the general-purpose lanes were widened to be 18-foot lanes between Laumaka Street and Waiakamilo Road. Eighteen-foot lanes will permit vehicles to go around a local bus stopped at the curb or a right-turning vehicle without having to encroach into the BRT lane. Additionally, in response to the Working Group, additional U-turns and left turns were incorporated into the plan. To preserve the True Kamani trees along the section of Dillingham Boulevard from Waiakamilo Road to Kaaahi Street, the general-purpose lanes will be 14 feet wide, with turnouts at the local bus stops.

UH-Manoa Branch

Route

The UH-Manoa Branch alignment has been refined. After running on Richards Street for one block, the UH-Manoa branch will turn onto the curbside lanes of South King Street. Instead of turning on Ward Avenue to access Kapiolani Boulevard, the route will continue on South King Street to Pensacola Street. At Pensacola Street, the route will turn makai to connect with Kapiolani Boulevard. This realignment is a direct result of the input from working group members that a BRT alignment on Pensacola Street will result in less traffic impacts than on the already congested Ward Avenue and will better serve McKinley High School and the Kaiser Honolulu Clinic. On Pensacola Street, the BRT will operate in two exclusive lanes next to the Ewa side curb. A raised landscaped median will separate the BRT vehicles from the three lanes of auto traffic.

The In-Town BRT will operate mostly in the center median of Kapiolani Boulevard to Atkinson Drive. The Koko Head-bound BRT will be in an exclusive median lane from Pensacola Street to Atkinson Drive. In the Ewa-bound direction the BRT will be in mixed traffic from Atkinson Drive to just past Kaheka Street, then in an

exclusive median lane to just east of Piikoi Street, where it will transition in mixed traffic to a right turn at Pensacola Street. On Kapiolani Boulevard, between Atkinson Drive and Kalakaua Avenue, the Koko Head-bound BRT vehicles will operate in mixed traffic as they transition from the median transit lanes to curbside lanes. From Kalakaua Avenue to Isenberg Street, BRT vehicles will be in the curbside lanes operating in mixed traffic. Between Isenberg Street and University Avenue, the BRT vehicles will transition from curbside lanes to median lanes. From Kapiolani Boulevard to King Street on University Avenue, the BRT vehicles will be in exclusive median lanes. At King Street the mauka-bound BRT will transition to a semi-exclusive curb lane. Between Varsity Place and Sinclair Circle the mauka-bound BRT will operate in a mixed-traffic curb lane. The makai-bound BRT will remain in an exclusive median lane from Sinclair Circle to Kapiolani Boulevard.

On Kapiolani Boulevard, exclusive left-turn lanes for motorists will be provided at Pensacola Street, Piikoi Street, Kaheka/Mahukona Street, Atkinson Drive, McCully Street, Paani Street, Hoawa Street, Isenberg Street, and University Avenue. On University Avenue, left-turn bays will be maintained at Date Street, King/Beretania Streets, Varsity Place, Puaena Place, and Dole Street. The route will terminate in a counter-clockwise turn back loop at Sinclair Circle.

Proposed Transit Stops

- Iolani Palace: This transit stop will provide convenient access to the Post Office, Hawaii State Library, Honolulu Hale, State Capitol and Iolani Palace. The Koko Head-bound stop will be in front of the Post Office. The Ewa-bound stop will be in front of the State Library.
- Alapai Transit Center: Modifications to the existing Alapai Transit Center will enable connections between the In-Town BRT system and express buses to Windward Oahu and East Honolulu. Both stops will be on the Koko Head side of the King/Alapai Streets intersection.
- Thomas Square/ Neal Blaisdell Center (NBC): This transit stop will provide service to the Honolulu Academy of Arts, Thomas Square, Straub Clinic & Hospital and Neil Blaisdell Center. Based on input from the Downtown/Kakaako/Ala Moana Working Group, the BRT stops have been relocated to Koko Head of Ward Avenue.
- King/Pensacola: This new transit stop will be located on South King Street at Pensacola Street. It will serve McKinley High School, the Kaiser Honolulu Clinic and nearby residential areas.
- Pensacola/Kapiolani: This stop formerly on Kapiolani Boulevard will now be on Pensacola Street. This transit stop will serve nearby residential areas and potential development, which may occur on the site of the former community college and vacant lot on the corner of Pensacola Street and Kapiolani Boulevard.
- Ala Moana/Keeaumoku: This transit stop will serve Ala Moana Center and existing and future developments in the Keeaumoku area.
- Convention Center: This transit stop will be located on Kapiolani Boulevard at Atkinson Drive and Kalakaua Avenue. The Koko Head-bound platform will be located just Ewa of Atkinson Drive, while the Ewa-bound platform will be located Ewa of Kalakaua Avenue.
- Isenberg: This transit stop will serve the McCully/Moiliili residential area.
- University/King: This transit stop will be located mauka of King Street in front of Varsity Theater and Puck's Alley. The mauka-bound stop will be curbside, whereas the makai-bound stop will be in the median.
- UH-Manoa: This transit stop, and the Koko Head terminus of the UH-Manoa Branch, will be located at Sinclair Circle to serve the UH campus, University High School and nearby residential areas.

Kakaako Mauka Branch

Route

The Kakaako Mauka Branch has also been refined. The Kakaako Mauka branch will extend from the Union Mall Transit Stop to Kapahulu Avenue at the Koko Head end of Waikiki, via the mauka portion of Kakaako. As a result of concerns from local residents and businesses, the alignment has been moved off Richards Street between Hotel and Halekauwila Streets. BRT vehicles traveling in the Koko Head direction will head makai on Bishop Street to Nimitz Highway, turn Koko Head and proceed along Nimitz Highway to connect with Halekauwila Street. BRT vehicles traveling in the Ewa direction will turn onto Ala Moana Boulevard from Halekauwila Street and turn mauka on Alakea Street to Hotel Street and the Union Mall Transit Stop. Two new transit stops will be added to the route. The first transit stop will be on Bishop Street between Queen Street and Nimitz Highway, and the second stop will be located on Alakea Street between Nimitz Highway and Queen Street.

The branch will run through Kakaako, just mauka of Ala Moana Boulevard on Halekauwila and Pohukaina Streets with a transition at South Street. The Ewa-bound lane on Halekauwila Street will be an exclusive lane between Punchbowl Street and Ala Moana Boulevard. Along the remainder of Halekauwila Street the BRT will operate in mixed traffic. In the Koko Head direction on Halekauwila Street, the BRT will be in mixed traffic all the way. At Kamani Street, the alignment will transition from Pohukaina Street and continue Koko Head on Auahi Street. Along Pohukaina and Auahi Streets the BRT will be in semi-exclusive curb lanes. At the Koko Head end of Auahi Street, the route will turn onto the short Queen Street segment to rejoin Ala Moana Boulevard and head Koko Head towards Waikiki. Along Ala Moana Boulevard, the Koko Head-bound vehicles will operate along the makai curb, while Ewa-bound vehicles will operate in the mauka curb lane between Kalia Road and Hobron Lane and on the mauka side of the center median between Hobron Lane and Queen Street.

From Ala Moana Boulevard, the route will turn makai on Kalia Road and enter Fort DeRussy. The route will continue along Kalia Road to Saratoga Road, with Kalia Road being widened by one lane in each direction between the Hale Koa Hotel and Saratoga Road. The alignment will turn mauka on Saratoga Road. The BRT will be in semi-exclusive lanes on Kalia Road from Maluhia Street to Saratoga Road, and on Saratoga Road from Kalia Road to Kalakaua Avenue. At the intersection of Saratoga Road and Kalakaua Avenue, the route will split into a one-way couplet. The Koko Head-bound transit lane will be in the makai curb lane of Kalakaua Avenue until after the stop at Uluniu Street where it will transition mauka to turn onto Kapahulu Avenue. The Kapahulu terminus will be a transit stop on the Koko Head side of Kapahulu Avenue. The transit stop improvements at this site will be within the 18-foot-wide sidewalk area. The return loop will turn Ewa onto Kuhio Avenue, and the Ewa-bound transit lane will be located along the mauka curb of Kuhio Avenue. The alignment will turn onto the Ewa side of Kalaimoku Street to return to Saratoga Road. Within Waikiki the BRT lanes will for the most part be shared with local buses and private transit vehicles. The exceptions will be the left-turn lane from Kalia Road to Ala Moana Boulevard, and the Kalaimoku contra-flow lane.

Proposed Transit Stops

The following discusses transit stops that would be provided along the Kakaako Mauka Branch:

- Bishop: This Koko Head-bound transit stop will be located adjacent to the Topa Financial Center (previously known as Amfac Center) on Bishop Street just makai of Queen Street.
- Alakea: This Ewa-bound transit stop will be located adjacent to the Harbor Square tower on Alakea Street.
- Halekauwila: This transit stop at Punchbowl Street on Halekauwila will serve the Restaurant Row complex, Prince Kuhio Federal Building, and other nearby government and commercial centers.
- Cooke Street: This transit stop on Pohukaina Street will be adjacent to Mother Waldron Park and serve planned residential, retail and commercial uses in the area.
- Kamakee: This transit stop will be located on Auahi Street and would provide access to the Victoria Ward developments and Kewalo Basin.

- Ala Moana Park: This transit will would be located next to Ala Moana Beach Park and Ala Moana Center.
- Hobron: This transit stop will be located on Ala Moana Boulevard, serving the Hobron residential area and hotels.
- Fort DeRussy: This transit stop will be located on Kalia Road adjacent to Fort DeRussy and the Hilton Hawaiian Village and Hale Koa Hotels.
- Saratoga: This transit stop will be located near the Waikiki Post Office at the Koko Head end of Fort DeRussy, and hotels on Saratoga and Kalia Roads.
- Kalakaua/Seaside: This Koko Head-bound transit stop will be adjacent to the Royal Hawaiian Shopping Center, and surrounding hotel and retail areas.
- Kalakaua/Uluniu: This Koko Head-bound transit stop will be located near Kuhio Beach across from the Hyatt Regency Hotel.
- Kapahulu: This on-street transit stop will be located on the Koko Head side of the intersection of Lemon Road and Kapahulu Avenue. The stop will serve the Honolulu Zoo and Kapiolani Regional Park.
- Kuhio/Liliuokalani: This Ewa-bound transit stop will be located by the Radisson Waikiki Prince Kuhio Hotel.
- Kuhio/Seaside: This Ewa-bound transit stop will be located across from the Waikiki Trade Center.

Kakaako Makai Branch

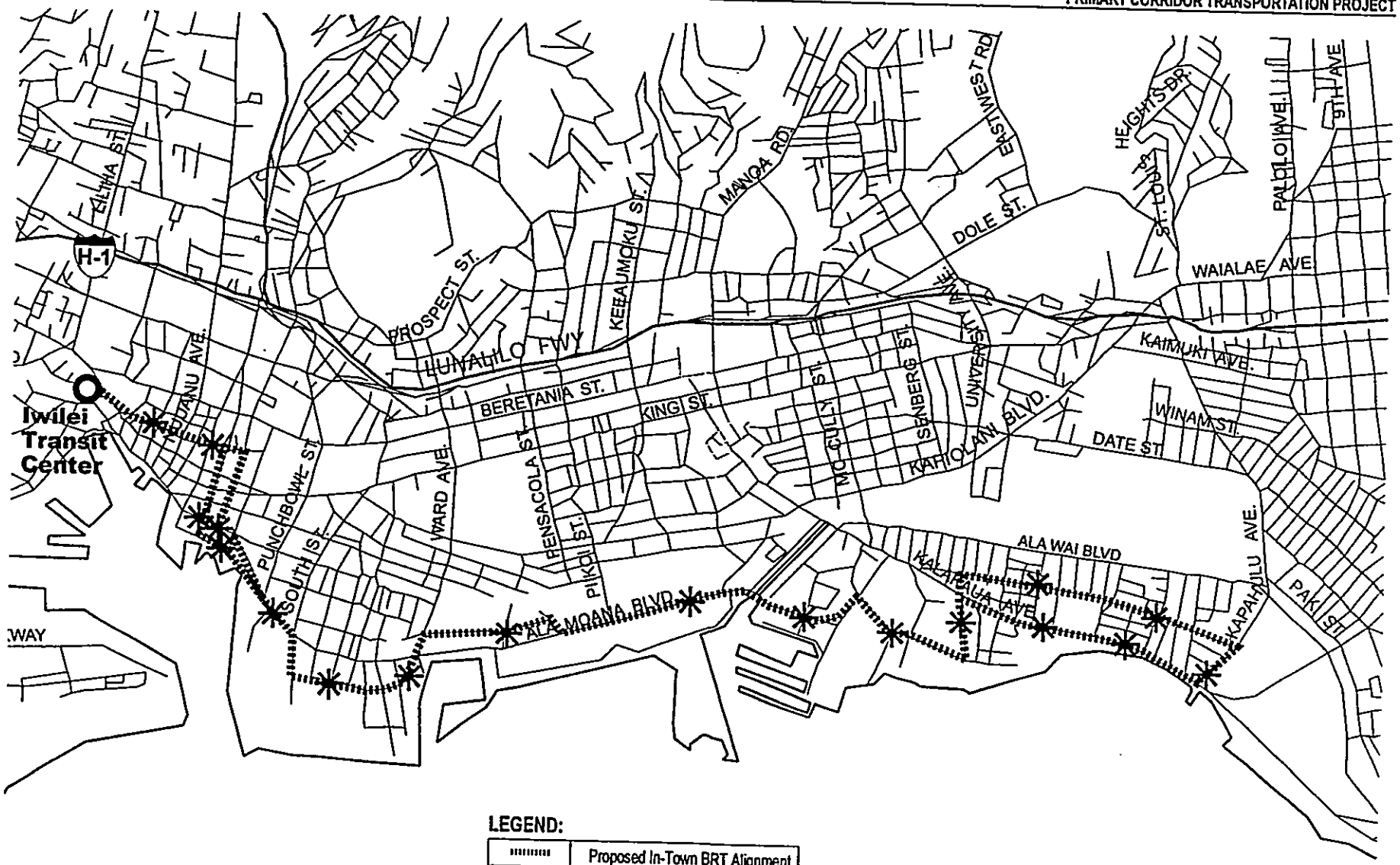
Based on comments received after completing the MIS/DEIS and input from the Downtown/Kakaako Working Group, it was determined that another In-Town BRT branch is warranted to serve Aloha Tower Marketplace and the makai portion of Kakaako, south of Ala Moana Boulevard. Inclusion of the Kakaako Makai Branch in the project is the result of the City Council's confirmation of this need.

Route

The Ewa end of the new branch will be the Iwilei Transit Center and the Koko Head end of the branch will be at Kapahulu Avenue in Waikiki. Starting from the Iwilei Transit Center, the new branch will travel mauka onto Iwilei Road, turn Koko Head onto North King Street, and proceed to the Hotel Street Transit Mall. The Kakaako Makai Branch will continue in the makai direction on Bishop Street to Aloha Tower Drive. From Aloha Tower Drive, the branch will continue in the Koko Head direction on Ala Moana Boulevard and then turn in the makai direction onto Forrest Avenue. It will then turn in the Koko Head direction onto Ilalo Street and then turn in the mauka direction onto Ward Avenue and then Koko Head at Auahi Street. From this point, the branch will follow the Kakaako Mauka Branch routing to its terminus in Waikiki.

In the Ewa direction, the Kakaako Makai branch will travel Ewa from Waikiki following the Kakaako Mauka Branch until Auahi Street at Ward Avenue. From Auahi Street/Ward Avenue, the Kakaako Makai Branch will travel Ewa in reverse of the Koko Head direction; except that, at the intersection of Bishop Street/Nimitz Highway, the branch will turn Koko Head onto Nimitz Highway, then mauka onto Alakea Street, and then follow the Kakaako Mauka Branch to the Iwilei Transit Center, where the new branch ends. Figure 2.2-5 shows the proposed Kakaako Makai alignment.

The purpose of the Kakaako Makai In-Town BRT Branch is to better serve existing and future land uses in and along the downtown Honolulu and Kakaako waterfront. Existing attractions that will be served by the Kakaako Makai Branch include the Aloha Tower Marketplace, Hawaii Maritime Museum, Piers 10 and 11 cruise ship terminal, Kakaako Waterfront Park, and Children's Discovery Center. Future land uses that would be served include future phases of Aloha Tower Marketplace, a new cruise ship terminal at Pier 2, the proposed University of Hawaii School of Medicine and related bio-medical research facilities, the proposed Hawaii Science and Technology Center, and commercial plus retail development at Kewalo Basin.



LEGEND:

.....	Proposed In-Town BRT Alignment
*	Transit Stops
O	Transit Center

SOURCE:
Parsons Brinckerhoff, May 2002.

N Scale: 0 .25 .50 mi

Kakaako Makai Branch

Figure 2.2-5

Proposed Transit Stops

The new Kakaako Makai Branch of the In-Town BRT would use 12 of the same transit stops as the Kakaako Mauka Branch, and will also add four new transit stops to the system. The four new stops will primarily service the Aloha Tower Development Area and Kakaako Community Development District Makai Area. Providing BRT service and creating four new transit stops is consistent with the development plans for the Aloha Tower and Kakaako Development Areas. The stops will provide direct means of access and encourage pedestrian-friendly, transit-oriented development and infill in these waterfront development areas. Extending the BRT through these development areas will be a benefit because it would provide access and an alternative transportation mode to the automobile.

- Aloha Tower Transit Stop: This transit stop will be located on Aloha Tower Drive just to the Koko Head side of Bishop Street by the Hawaii Maritime Museum.
- Fort Armstrong Transit Stop: This transit stop will be located on Ala Moana Boulevard near the U.S. Immigration Station/Department of Health Building, Restaurant Row, and the site of a future passenger ship terminal at Pier 2.
- Coral Transit Stop: This transit stop will be located along Ilalo Street between Coral and Cooke Streets in the center of the Kakaako Community Development District Makai Area.
- Kewalo Basin Transit Stop: This transit stop will be located along Ilalo Street Koko Head of Ahui Street.

To give transit the priority necessary to make it an attractive alternative to the private automobile, some lanes along the proposed In-Town BRT alignment will need to be converted from general-purpose lanes to transit only lanes. This will result in an increase in the person-carrying capacity of these streets yet will result in a reduced number of lanes for general-purpose traffic. Table 2.2-8 summarizes the proposed redistribution of lanes. The table has been updated since the MIS/DEIS to reflect the Refined LPA.

5) Transit Technology for the In-Town BRT System

Selection of a transit technology that best harmonizes with the densities in Honolulu's Urban Core is a key decision. The technology must maximize beneficial impacts, such as facilitation of desired urban land use patterns and improvement of the quality of urban life, while minimizing adverse impacts. To help identify appropriate candidate technologies, ten criteria were established from community input and technical evaluation. These criteria are:

- Right-of-Way (ROW): Selected technologies must not require a new dedicated ROW or grade separation because urban Honolulu has insufficient space for a new dedicated ROW, and a grade-separated system was previously proposed but did not obtain the required City Council support. Suitable technologies must be able to operate at-grade on existing streets and highways. While vehicles may operate in exclusive lanes, the technology must permit at-grade cross traffic and pedestrian crossings.
- Line Capacity: Selected technologies must have the capacity to move more than 3,000 passengers per hour per direction because travel demand forecasting indicates that this is the approximate line haul requirement in 2025.
- Emissions and Noise: Air pollution emissions from selected technologies must be substantially lower than the 2004 EPA regulations provided in Table 2.2-9. Once adopted, the EPA's 2004 regulations will apply to all transit vehicles, including those powered by diesel engines. Noise emissions must not exceed those of a conventional light rail vehicle or trolley bus with electric propulsion.
- Service Proven: Selected technologies must either show sufficient maturity, or the technology must be in an advanced stage of development. If the technology is not yet "proven in revenue service", the risk associated with implementing a developmental technology must be carefully weighed.
- Affordability: Selected technologies must have system costs per unit length not exceeding that of an at-grade light-rail line of $60 million per mile.

TABLE 2.2-8
PROPOSED DISTRIBUTION OF LANES WITH REFINED LPA

	NUMBER OF LANES				
	EXISTING		PROPOSED		
Location	General Purpose	Transit	General Purpose	Semi-Exclusive Transit	Exclusive Transit
Dillingham Boulevard					
Middle St. - Laumaka St.	6+1 turning	0	6+1 turning	0	0
Laumaka St. - Kaaahi St.	4+1 turning	0	2+1 turning	0	2
Kaaahi Street					
Dillingham Blvd. – Kaaahi Place	2+1 turning	0	2+1 turning	0	0
Kaaahi Place – Iwilei Road	0	0	2	0	2
Iwilei Road					
Kaaahi Street – N. King St.	4	0	3	0	1
N. King Street					
Iwilei Rd. - Hotel St.	4+1 turning	1	4	0	2
Hotel Street					
N. King St. - Richards St.	0	2	0	0	2
Richards Street					
Hotel St. - King St.	2	0	2	0	1
S. King Street					
Richards St. - Mililani St.	5	0	4	0	1
Mililani St. - Alapai St.	6	0	5	0	1
Alapai St. – Pensacola St.	6	0	4	1	1
Pensacola Street					
S. King St. - Kapiolani Blvd.	4	0	3	0	2
Kapiolani Blvd.					
Pensacola St. – Kaheka St.	6	0	4+1 turning	0	2
Kaheka St. – Atkinson Dr.	5+1 turning	0	4+1 turning	0	1
Atkinson Dr. - Kalakaua Ave.	6+1 turning	0	6+2 turning	0	0
Kalakaua Ave. – University Ave.	6+1 turning	0	6+1 turning	0	0
University Ave.					
Kapiolani Blvd. – King Street	6+1 turning	0	4+1 turning	0	2
King St. – Varsity Pl.	6+1 turning	0	4+1 turning	1	1
Varsity Pl. – Sinclair Circle	6	0	5	0	1
Alakea St.					
S. Hotel St. – S. King St.	6	0	5	1	0
S. King St. – Queen St.	4	0	4	0	0
Queen St. – Nimitz Highway.	4+1 turning	0	4	0	1
Nimitz Highway					
Alakea St. – Richards St.	6+1 turning	0	6+1 turning	0	0
Halekauwila St.					
Richards St. – Punchbowl St.	1	0	1	0	1
Punchbowl St. – South St.	2	0	2	0	0
South St.					
Halekauwila St. - Pohukaina St.	4	0	2	1	1
Pohukaina St.					
South St. – Kamani St.	2	0	2	2	0
Kamani St.					
Pohukaina St. - Auahi St.	2	0	2	0	0

TABLE 2.2-8 (CONTINUED)
PROPOSED DISTRIBUTION OF LANES WITH REFINED LPA

	NUMBER OF LANES				
	EXISTING		PROPOSED		
Location	General Purpose	Transit	General Purpose	Semi-Exclusive Transit	Exclusive Transit
Auahi St.					
Kamani St. - Ward Ave.	5	0	5	0	0
Ward Ave. – Queen St.	4	0	2	2	0
Queen St.					
Auahi St. - Ala Moana Blvd.	4+1 turning	0	3+1 turning	1	1
Ala Moana Blvd.					
Queen St. - Atkinson Dr.	6+1 turning	0	4+1 turning	1	1
Atkinson Dr. – Hobron Lane	6+1 turning	0	5+1 turning	1	1
Hobron Lane – Kalia Road	6+1 turning	0	6+1 turning	2	0
Kalia Rd.					
Ala Moana Blvd. – Maluhia St.	5	0	4	0	1
Maluhia St. - Saratoga Rd.	2	0	2	2	0
Saratoga Rd.					
Kalia Rd. - Kalakaua Ave.	3	0	2	2	0
Kalakaua Ave.					
Saratoga Rd. - Kaiulani Ave.	4	0	3	1	0
Kaiulani Ave. – Uluniu Ave.	3	0	2	1	0
Uluniu Ave. – Kapahulu Ave.	3	0	3	0	0
Kapahulu Ave.					
Kalakaua Ave. - Kuhio Ave.	4	0	4	0	0
Kuhio Ave.					
Kapahulu Ave. - Kalaimoku St.	4+1 turning	0	2+1 turning	1	0
Kalaimoku St.					
Kuhio Ave. - Kalakaua Ave.	2	0	2	0	1
Bishop St.					
S. Hotel St. – Queen St.	5	0	5	0	0
Queen St. – Nimitz Highway	4	0	3	1	0
Nimitz Highway – Aloha Tower Dr.	4	0	4	0	0
Aloha Tower Dr.					
Bishop St. – Connector St.	3	0	3	0	0
Connector St. – Ala Moana Blvd.	1	0	1	0	0
Ala Moana Blvd.					
Connector St. – Forrest Ave.	6	0	6	0	0
Forrest Ave.					
Ala Moana Blvd. – Ilalo St.	4	0	4	0	0
Ilalo St.					
Forrest Ave. – Ahui St.	2	0	2	0	0
Ward Ave.					
Ahui St. – Auahi St.	5	0	5	0	0
Ala Moana Blvd					
Forrest Ave. – Connector St.	6	0	6	0	0
Connector St. (Richard St. Extension)					
Ala Moana Blvd. – Aloha Tower Dr.	2	0	2	0	0

TABLE 2.2-8 (CONTINUED)
PROPOSED DISTRIBUTION OF LANES WITH REFINED LPA

	NUMBER OF LANES				
	EXISTING		PROPOSED		
Location	General Purpose	Location	General Purpose	Location	General Purpose
Nimitz Highway					
Bishop St. – Alakea St.	6+2 turning	0	6+2 turning	0	0

Source: Parsons Brinckerhoff, September 2002.

TABLE 2.2-9
EPA URBAN BUS ENGINE STANDARDS (G/BHP-HR)

Year	HC	CO	Nox	PM
2004 Proposed	0.5	15.5	2.5 (NMHC) or 2.4 NOx	0.05

Source: EPA, 1999.
Notes: g/bhp-hr – grams per brake horsepower-hour, HC – Hydrocarbons, CO – Carbon Monoxide, NOx – Nitrogen Oxides, PM – Particulate Matter, NMHC - Non-Methane Hydrocarbons

- Safety: Selected technologies must meet local and national life/safety requirements.
- Accessibility: Selected technologies must comply with Americans with Disabilities Act (ADA) requirements.
- Visual Impact: Selected technologies must not require an overhead guideway or overhead contact system (overhead wires or catenaries) for wayside propulsion that disrupts mauka-makai views.
- Flexibility: Selected technologies must have the capability to be re-routed around blockages, and not preempt parades and other activities along the alignment.
- Sense of Permanence: Selected technologies must represent a substantial government commitment to a specific alignment in order to evoke the desired land use response from land developers.

Technologies currently under consideration have the following features: (1) rubber-tired, (2) low floor, (3) driver operated, (4) located at-grade in a reserved right-of-way (street lane), (5) able to be crossed by pedestrians and other traffic, (6) single articulated, (7) capable of operating under their own power for short distances to avoid disruptions in the transit lane, and (8) electrically powered. Technologies rejected from further consideration are presented in Section 2.6.

The requirement for electric power is driven by concerns about air and noise emissions. Electric power would be provided either from power modules embedded in the street (touchable embedded plate technology), or on-board hybrid electric propulsion in which a diesel engine powers an alternator, which produces electricity. The electricity is stored in a battery, and the power is distributed by electric cable to "hub motors", which are electric motors located on each wheel. In this manner, it is possible to eliminate the drive train, facilitating a "low floor" configuration.

Overhead wires (catenaries) would not be required under either technology option.

This FEIS was prepared to permit either option to be selected later in the project development process. This FEIS analysis reflects the 'worst case' impacts of both technologies. The degree to which the lesser impact technology would reduce impacts is also discussed in this FEIS.

The technologies under consideration are now described.

Embedded Plate Systems

An embedded plate system is a form of wayside traction power delivery in which a power strip is embedded in the roadway or installed in a track. The power strip does not cause electric shocks if touched by persons or by crossing traffic.

One design, STREAM by Ansaldo/Breda, employs a segmented power strip that is embedded in the street. Each segment of the power strip is energized only when the power collector below the transit vehicle is in contact with the segment. At all other points, the power strip is not energized, and therefore poses no hazard to pedestrians or other surface traffic crossing the alignment. The energized segment is always underneath the vehicle, and within its boundaries.

When the vehicle leaves the transitway lanes with the power strip, it shifts automatically to on-board batteries that are kept charged. The batteries are able to power the vehicle after it leaves the transitway, allowing the vehicle to cross difficult intersections, make tight turns, move during emergencies, and maneuver during maintenance. Since the batteries are charged during normal operation, the vehicle does not need to stop for the batteries to be changed or charged.

The STREAM technology was conceptualized in 1994 and underwent approximately 7 years of research, design, and testing at a test track in Rome. A 1.25-mile system has been constructed in Trieste, Italy and is under further testing in revenue service. The Trieste system uses both 40-foot and 60-foot buses. Each bus is equipped with Nickel Metal Hydride batteries that allow the buses to operate on non-energized portions of the line. The STREAM technology could provide quiet, comfortable, and environmentally clean transportation service with great user appeal in Honolulu.

The STREAM technology may require additional safety tests to qualify for U.S. safety certification. Based on progress to date, the earliest estimated date for use of the STREAM system in the U.S. would be no earlier than 2005.

Another design, by Wamplfler (a German firm), employs "inductive power transfer" (IPT), the same electrical principle as in a transformer. Insulated rails embedded in the road surface carry an electric current that induces a current in power pickups on board the vehicle. In contrast to STREAM, no surface contact is required. The pick-up on the vehicle captures a magnetic field generated by the power strip in the road. Power is received as alternating current that is rectified on board to become direct current.

With batteries on-board the vehicle, the power strip could be interrupted at intersections and other areas where its placement would be difficult or expensive. The batteries would provide power to cross areas without a power strip. IPT could also be used to charge the batteries of a transit vehicle at transit centers or stops. IPT is not yet available for the high-powered requirements of mass transit installations, such as monorails or BRTs. However, the IPT system is currently available for continuous loads of approximately 150 KW. Higher power transit applications are expected in the near future.

Alstom Transport is also currently developing a touchable embedded power supply system called ALISS, which is similar to STREAM and Wamplfer's IPT system. While STREAM uses a magnet to raise the conductor and power segments as the vehicle passes over it, ALISS has no moving parts. Radio communication between the vehicle and the embedded power supply system, and static switching results in segments being energized as the vehicle passes overhead. Unlike STREAM, ALISS is not integrated with a steering mechanism. ALISS requires the vehicle's power pick-up to be positioned over the units embedded in the roadway by independent means.

ALISS is still under development. Alstom has completed bench testing and is currently manufacturing some of the components for a test track at their manufacturing facility in La Rochelle, France.

Embedded plate systems will require the construction and operation of traction power supply stations (TPSS) that transmit the electricity to operate the vehicles. The approximately 15 TPSS sites to be located intermittently along the In-Town BRT alignment would each have a roughly 500 square-foot footprint and in most cases would be located out of sight inside existing or proposed buildings. Potential TPSS locations are designated on the preliminary engineering drawings provided in Appendix B (see Volume 3). However, since it would be 8 to 14 years before the EPT is installed depending on the segment, the locations shown on the design drawings are not site specific; each notation is intended only to indicate the general vicinity in which a TPSS would be placed. Site specific environmental assessments of each TPSS would be prepared prior to proceeding with implementation of EPT. Locations and design treatments would be established with community input.

Hybrid Propulsion

A hybrid propulsion system is one in which a propane or diesel engine onboard the transit vehicle drives a generator (alternator) that produces electric power to charge batteries. In addition, the batteries are also charged during braking by operating the motors as generators (regenerative braking), which converts the kinetic energy of the vehicle into electrical energy that is stored in the battery.

Current is drawn from the batteries to run electric propulsion motors that drive the wheels, and the internal combustion engine is not directly coupled to the wheels. The configuration is similar to diesel/electric locomotives that have been in service for many years.

One advantage of this technology is that regardless of the speed of the vehicle, the internal combustion engine can be operated constantly at its most efficient speed and load. Running the engine at maximum efficiency maximizes fuel economy while minimizing air and noise emissions. The batteries can also be used to move the bus if there is a problem with the engine or alternator.

Diesel engine technology has advanced recently to reduce emissions, particularly in aspiration (i.e., getting air into the cylinders more efficiently), precise control of providing the fuel to the engine, and exhaust after-treatment. These developments, together with being able to operate the diesel engine at its most efficient speed and load, contribute to its lower exhaust emissions in comparison to conventional diesel technology.

It is expected that the emissions from diesel/electric hybrids will be significantly lower than the criteria presented earlier in Table 2.2-9, although the exact performance is still being established by government regulators.

New York City Transit Agency has extensively tested 40-foot hybrid electric buses for over 3 years and has ordered a fleet of 100 buses for revenue service. However, testing and manufacturing experience indicates that the battery technology is not easily extended to the larger 60-foot bus. If research efforts involving advanced electrical storage modules, such as the Super-Capacitor, are successful; a 60-foot hybrid prototype bus may be available to order in the 2004-2005 time frame (delivery is one to two years later). But, the share of the 60-foot bus market in the U.S. (5 percent) has not yet encouraged suppliers to focus on the research and development investment needed to produce a hybrid powered 60-foot model.

The use of Fuel Cell energy storage and propulsion technology has shown promising results in 40-foot bus testing by the Chicago Transit Authority (CTA). Fuel cells are energy storage devices that combine hydrogen and air to produce electricity. The only by-products are water vapor and carbon dioxide. CTA, along with other U.S. transit agencies, are currently expanding revenue service testing on these buses in limited numbers. Although a 60-foot bus has not yet been developed, the fuel cell technology will more easily lend itself to heavy-duty applications. Production quality revenue service 40-foot buses are expected in 2005, and 60-foot models may be available soon after.

Hydrogen can also be used as a fuel in the internal combustion engine. This technology is farther behind hydrogen fuel cell, although experiments using hydrogen in heavy-duty internal combustion engines have

been ongoing for many years. There is currently no pure hydrogen fuels used in buses, and may not be for some time due to the difficulties in handling hydrogen gas.

The recent improvements in diesel engine technology (without hybrid drives) adequately meet the emission standards in Table 2.2-9 and provide the horsepower required for an articulated vehicle. Articulated buses using advanced diesel engine propulsion refer to this technology as "Clean Diesel" or "Diesel-Electric". "Wheel-hub motors" built into the hubs of the wheels facilitate the design of articulated, low-floor buses by eliminating the need for a drive shaft and axle under the vehicle and allowing the power plant to be placed in the rear of the vehicle. The CiViS bus, by Matra/Renault, has been in revenue service in Rouen, France since 2000 and will operate in the BRT system under development in Las Vegas by the Clark County Regional Transit (RTC) system later this year. Neoplan will also produce an articulated vehicle using this propulsion technology, in a dual-mode configuration alongside overhead catenary power, for the Massachusetts Bay Transit Authority (MBTA) Silverline BRT service in 2004.

Technology Selection for In-Town BRT

The transit industry is in an era of rapid change in propulsion system technology. The two candidate technologies, embedded plate and hybrid diesel-electric propulsion, are in various stages of development. It is too early to anticipate whether either one will be capable of meeting all of the In-Town BRT system performance and functional requirements prior to 2004. Hence, the City is proposing to use commercially available 40-foot hybrid–electric buses as the interim technology to operate the In-Town BRT system in the near term.

The final selection of the technology for the In-Town BRT system would be based on a detailed evaluation of the technology options. The designs, and test/demonstration results of each technology would be evaluated against specific performance and functional requirements for the In-Town BRT system. These requirements would be provided to the manufacturers and they would be asked to provide the City with design data and test/demonstration results, as well as prepare written comments on the City's requirements.

An Industry Review would then be undertaken. Separate meetings would be held with each participating manufacturer to review their comments on the City's requirements and discuss the City's questions. Following these meetings and site visits, a transit technology would be selected.

6) Maintenance Facilities

Storage and maintenance of the In-Town BRT fleet would occur at the Kalihi-Palama Bus Maintenance Facility at Middle Street. Reconfiguration of the service bays would be necessary to accommodate the In-Town BRT vehicles, and the facility would need to be expanded. This expansion would be coordinated with development of the Middle Street Transit Center. The expansion site would be adjacent to and makai of the existing Kalihi-Palama Bus Maintenance Facility.

7) Mitigation Measures Requiring Permanent Construction

The Refined LPA would require standard construction mitigation measures including noise, dust, sediment and erosion control. In addition, permanent noise mitigation would be required in certain areas along the H-1 BRT corridor.

8) Other Features

From Kapiolani Boulevard/Atkinson Drive to Koko Head of University Avenue, the a.m. and p.m. (morning and evening) peak period contra-flow lanes would be preserved and operate as at present. At the Atkinson Drive intersection, there would be a total of three left-turn only lanes during the a.m. peak period. On Atkinson Drive, between Kapiolani and Ala Moana Boulevards, the a.m. and p.m. peak period contra-flow lanes would be maintained.

2.3 CAPITAL COSTS

This section presents capital cost estimates of the three alternatives (see Table 2.3-1). The costs of the standard set of highway projects that are included in all three alternatives are not included in these costs.

TABLE 2.3-1
CAPITAL COST SUMMARY
(MILLIONS OF 2002 DOLLARS)

Project Component	No-Build	TSM	Refined LPA	
			With Hybrid-Electric	With EPT
Bus & TheHandi-Van Acquisition*	$394.1	$461.9	$512.5	$512.5
Regional Bus Rapid Transit	$10.3	$78.9	$203.0	$203.0
In-Town Bus Rapid Transit **	$0.0	$0.0	$239.4	$322.7
Total	$404.4	$540.8	$954.9	$1,038.2

* Includes new bus maintenance facility for TSM and Refined LPA Alternatives.
** Includes BRT vehicles net cost for advanced technology beyond standard bus cost.
Sources: Parsons Brinckerhoff for No-Build and TSM Alternatives. Rider Hunt Levett & Bailey Ltd. for Refined LPA. June, 2002.

2.3.1 Methodology

Cost estimates were prepared in 2002 dollars. Components include site preparation, roadways, ramp structures, pavements, landscaping and utility work, electrical and roadway work associated with the embedded-plate technology (EPT), restoration of adjacent infrastructure, and vehicles. Engineering design, owner administration, taxes and contingencies are also included. Land acquisition costs have now been included within the cost estimates as the specific locations for roadway improvements and EPT electrical substations have been identified during design development.

During this phase of the project, cost estimates are referred to as preliminary estimates, since they are based on preliminary design rather than detailed design. The level of design detail available for the project affects the accuracy of the cost estimates. Also, it should be understood that the cost estimates are applicable to the project description presented earlier in this Chapter. If features of the project change, the cost estimates would need to be adjusted accordingly.

Unit costs were derived from historical data from comparable transit systems, such as the BRT system in Orlando, Florida, and the recently completed H-3 Freeway project, as well as various private and public infrastructure projects recently bid within the State. Costs are based on in-place costs, including labor, construction, permanent equipment, and permanent materials. Prices for highly specialized systemwide components, including vehicles and the EPT within the roadway have been based on composite industry prices from recent transit projects. To account for differences between Hawaii and mainland costs, a Hawaii adjustment factor was applied to items such as the price of materials and the cost of labor.

Basic assumptions used in developing the capital cost data are:

- Estimates were prepared using 2002 dollars;
- No premium time on labor costs was included;
- Normal productivity rates as historically experienced were utilized; and
- Adequate experienced craft labor is assumed to be available.

Typical facility costs are based on the preliminary engineering developed for each work item. Costs are developed by combining the costs of components applicable to a typical cross-section into one unit cost. These parametric unit costs have detailed unit price development backup to substantiate the parametric unit costs. Special facilities costs were developed for the EPT within the roadway and associated electrical supply and distribution elements needed to operate the system. Systemwide elements are those elements necessary for operation, but whose costs can only be partly allocated to a specific geographic segment of the system (e.g., vehicles, storage and maintenance facilities, and so forth).

Once the typical and special facility and systemwide element costs have been determined, they are subject to add-on factors. Add-on factors cover engineering, program administration, insurance, and contingencies. They are referred to as add-on factors because they are added to the unit costs.

Capital costs were developed for each alternative utilizing both "bottom up" and "top down" estimating approaches. However, most of the unit costs were developed using a "bottom up" approach, meaning the cost of each major category of work is determined by totaling the cost of their component parts. Based on the preliminary engineering, the quantities of the major work elements are defined. Unit prices for each major work element are developed and combined with the estimated quantities to determine the cost of each major category of work, such as transit stops, park-and-ride facilities, access ramps, transit platforms, roadway pavement, and so forth. The advantages of this approach are the ability to adjust costs with engineering refinements, and a higher level of confidence.

The unit prices include contractor-supplied insurance. On many major projects, the owner supplies the insurance or assumes management risks in order to reduce costs.

As noted, the costs for design and construction administration have been added to the hard construction costs. This category also includes system start-up costs, as these activities are interrelated with the engineering and construction work. The allowance included is eight percent, and it was applied to all capital cost categories except right-of-way acquisition, relocation, and vehicles. Generally, six percent is for engineering and design, and two percent is for construction administration.

A contingency is included in the capital cost estimate to account for unforeseen items, quantity fluctuations and variances in unit costs as the project progresses. This percentage will be reduced as the project progresses, and reflects the degree of risk associated with the level of engineering data presently available. The civil and utility scope of construction work was reduced from the 25 percent contingency outlined in the MIS/DEIS to an amount consistent with the industry standard on the order of 15 percent given the development of the documentation during the preliminary engineering phase. However, the MIS/DEIS contingency of 25 percent was retained for the work associated with the EPT installation, as the level of information available for this area of work is considered more preliminary. The 25 percent MIS/DEIS contingency has been maintained for all land acquisition costs. A 10 percent contingency was applied to BRT vehicles.

The cost of the applicable general excise tax mandated by the State of Hawaii is included as a percentage (4.166) of the total capital cost of all categories.

2.3.2 Results

Table 2.3-1 shows the capital cost estimates for the transit portion of the three alternatives, by project component in 2002 dollars. They span a range from about $404 million for the No-Build Alternative, to $1.0 billion for the Refined LPA with embedded plate technology. The Refined LPA with hybrid-electric technology would be around $960 million. These cost estimates exaggerate the initial capital costs since they reflect the replacement of the entire bus, TheHandi-Van, and In-Town BRT vehicles over the 23-year analysis period of the FEIS. Initial costs (first 16 years) in 2002 dollars would be $182 million for the No-Build Alternative, $266 million for the TSM Alternative, and $633 million for the Refined LPA, exclusive of EPT costs.

2.4 OPERATING AND MAINTENANCE COSTS

This section presents estimates of annual operating and maintenance (O&M) costs for the transit (fixed-route bus) elements of the three alternatives. For the purpose of this chapter, the operating and maintenance costs of the highway projects that are included in all three alternatives are not included in these costs, other DTS and HDOT O&M costs are not reflected (e.g., costs of coning contraflow lanes, maintaining traffic signals and

bus priority measures) and the costs of operating and maintaining TheHandi-Van fleet are also not included. O&M costs including TheHandi-Van are discussed in Chapter 6. The costs of operating the Luapele Drive reversible ramp and the addition to the existing zipper lanes are not included in the estimates. The costs of administering the Vanpool Hawaii program are assumed to equal the direct revenues and federal funding (i.e. break-even operation). The costs are for the forecast year 2025, assuming full development of each alternative, and are expressed in 2002 dollars.

2.4.1 Cost Estimation Methodology

Costs are produced using an estimation methodology for bus supply characteristics, calibrated to Oahu Transit Services (OTS's) annual expenses for 2000, which is the most recent year for which very detailed itemizations of costs are available. Costs then are escalated to Year 2002 values using OTS's observed unit cost inflation during the two-year period, for the system as a whole. The inputs to the estimation are prepared by the travel demand forecasting models and consist of passenger loading assigned to the bus routes, as coded for the travel demand forecasting models, for the a.m. peak period, the p.m. peak period and the off-peak period, as well as the estimated running time and distance for each bus route. The bus supply estimation methodology takes these inputs and estimates the frequency of bus service and number of vehicles – either standard buses, minibuses, articulated buses, or BRT vehicles – needed to accommodate the estimated demand during each of the three time periods. It further estimates the vehicle hours and miles that would be provided for the entire day. These daily estimates are then increased to an annual estimate and used to estimate annual bus operating costs. All steps in the process rely on data provided by OTS about its operating practices on a daily and annual basis.

Annual operating and maintenance costs are estimated as a function of three variables: annual revenue vehicle miles, annual revenue vehicle hours, and peak vehicles. "Peak vehicles" represents the maximum number of vehicles required for providing peak period service, and provides the closest measure available for representing system size. Note that "peak vehicles" is not the same as "fleet size"; the latter additionally includes spare vehicles. A unit cost has been estimated for each variable. In addition, an amount for fixed costs is added to reflect administrative or overhead type costs incurred in operating the transit system. Based on experience elsewhere, different unit costs are used for standard 40-foot buses (or 30-foot minibuses) and 60-foot articulated buses. Annual costs are estimated using the following equation:

Annual O&M Cost = $ 47.96 x Annual Revenue Vehicle Hours
+ $ 0.91 x Annual Standard or Minibus Revenue Vehicle Miles
+ $ 1.27 x Annual Articulated Revenue Vehicle Miles
+ $ 51,699 x Standard or Minibus Peak Vehicles
+ $ 61,399 x Articulated Peak Vehicles
+ $88,159,596 in Fixed Costs.

The variables above are estimated for each alternative's operating plan.

In addition, O&M costs for embedded plate and hybrid-electric vehicles are estimated to be eight percent higher than articulated vehicles. This eight percent increase reflects the O&M cost differential that King County Metro Transit in Seattle has observed between normal articulated buses and the dual-power articulated buses that operate in the Downtown Seattle Transit Tunnel. These buses operate both on diesel power and electric power, with electric power picked up via trolley poles. The cost differential for these more-complicated buses is being used as a guide for the additional O&M costs that might be associated with embedded plate or hybrid-electric vehicles.

2.4.2 Results

Table 2.4-1 presents the annual O&M costs in 2002 dollars using the methodology described above. The Handi-Van operations are not included in these costs.

TABLE 2.4-1
ANNUAL OPERATING AND MAINTENANCE COST SUMMARY, 2025[1]
(MILLIONS OF 2002 DOLLARS)

Alternative	Bus O&M Cost	In-Town BRT O&M Cost	Total Project O&M Cost
No-Build	$120.7	--	$120.7
TSM	$139.8	--	$139.8
Refined LPA	$144.3	$7.0	$151.2

Source: Parsons Brinckerhoff, June 2002.
Note: 1) Excludes TheHandi-Van O&M cost.

As indicated in Table 2.4-1, O&M costs for the No-Build Alternative in 2025 would be about $120.7 million (in 2002 dollars). This compares to current 2002 operating costs for the existing bus system of an estimated $117.6 million, not including TheHandi-Van operations. This increase is due to the fact that population growth between now and 2025 will require expanded service into areas not already served by transit. Comparing the TSM Alternative to the No-Build Alternative, one can observe that the TSM alternative would increase O&M costs by about $19.1 million, to about $139.8 million. The TSM alternative attempts to accomplish as much as possible by expanding the bus system without making a major capital investment. The system expansion inevitably entails additional O&M costs.

The O&M cost for the Refined LPA includes two components: the cost of bus service and the cost of the In-Town BRT service. The In-Town BRT service includes $420,000 per year to maintain the electrical distribution infrastructure. The added cost of operating an extended a.m. zipper lane and the p.m. zipper lane on H-1 is assumed as a HDOT cost, not a PCTP cost.

2.5 IMPLEMENTATION SCHEDULE

This section presents the proposed implementation schedule for the alternatives. The proposed schedules for each alternative are shown in Figures 2.5-1 and 2.5-2.

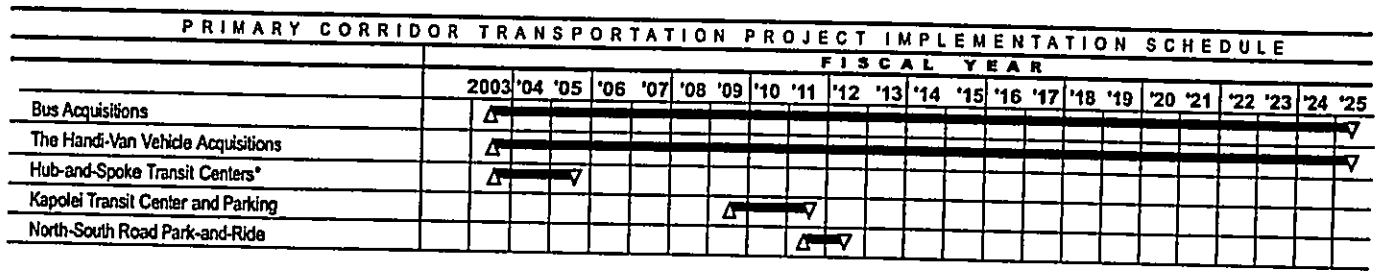
The No-Build Alternative schedule consists of an ongoing, regular program of bus acquisition from the present through 2025. These acquisitions would both retire older vehicles, and increase the fleet size. Vehicle types would include those for TheBus and the TheHandi-Van programs. The baseline transit network includes the reorientation of the bus route structure to a hub-and-spoke network. The transit centers that have already been committed to the hub-and-spoke network and have been included in the Oahu Transportation Improvement Program, FY 2002-2004, would remain as part of the No-Build and TSM Alternatives, and the Refined LPA.

The No-Build Alternative also includes a new transit center with parking in Kapolei and a new park-and-ride along North-South Road.

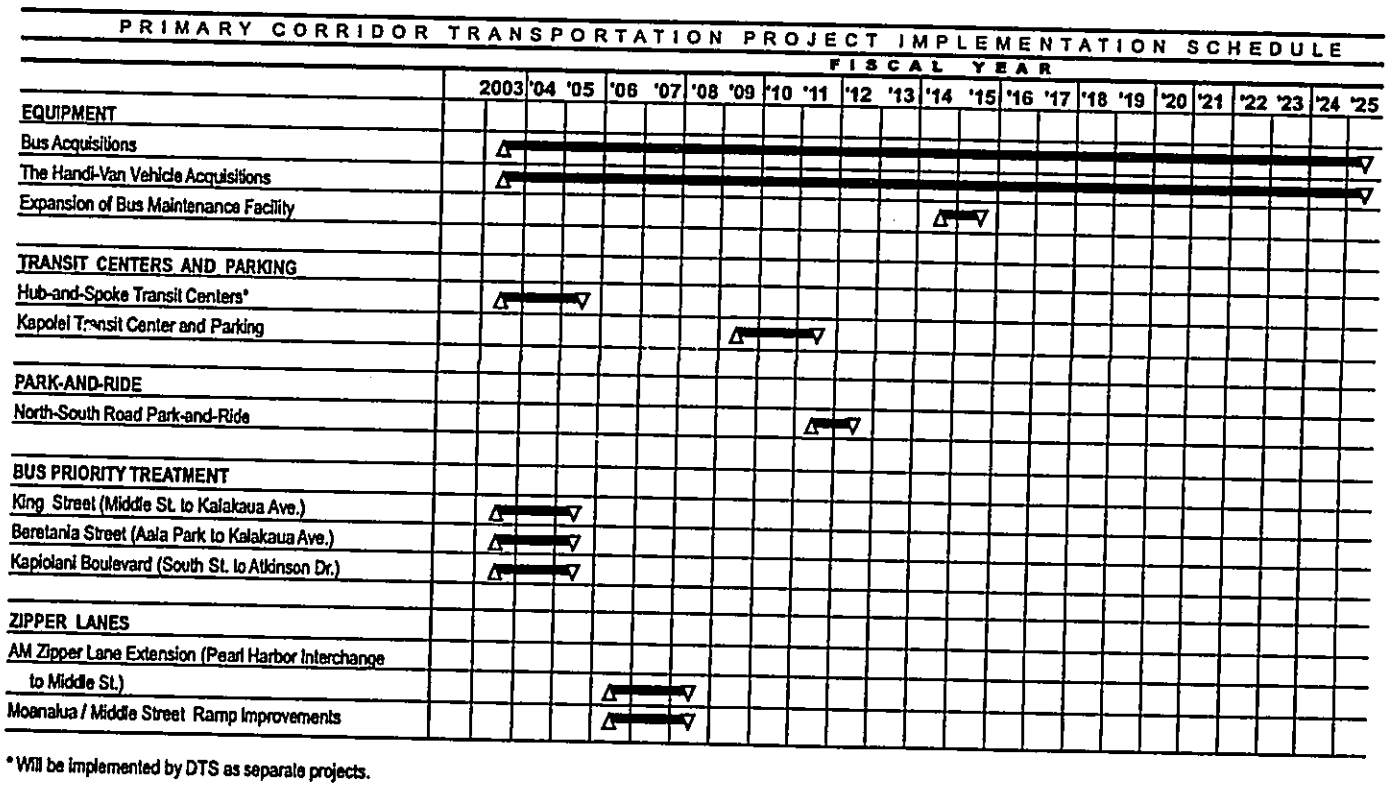
The TSM Alternative also includes the No-Build Alternative elements and adds the following elements:

- Expansion of a bus maintenance facility between 2014 and 2015;
- Implementation of three bus priority measures, primarily between 2003 and 2005; and

No-Build Alternative



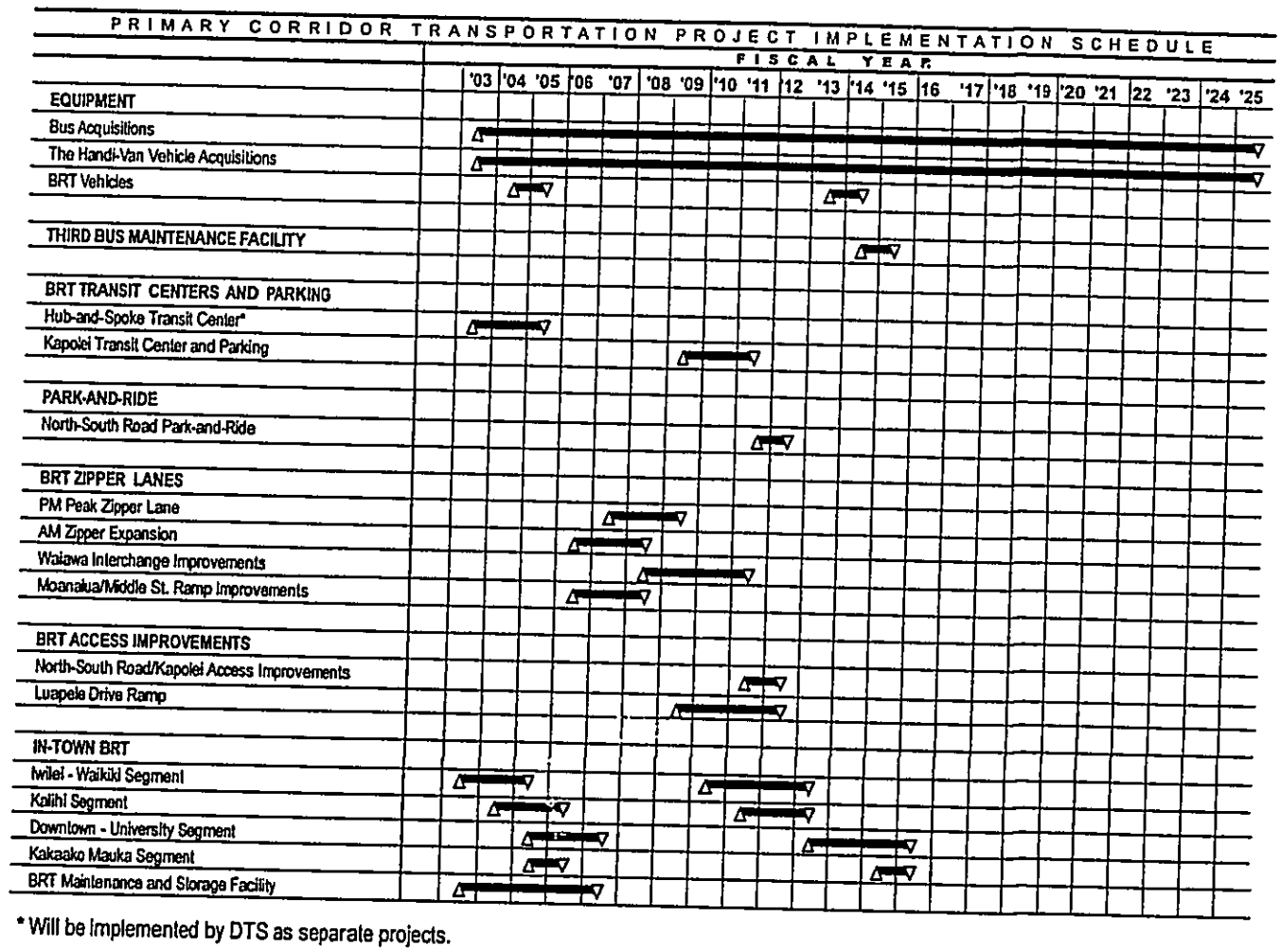
TSM Alternative



* Will be implemented by DTS as separate projects.

Primary Corridor Transportation Project Implementation Schedule: No-Build and TSM Alternatives — **Figure 2.5-1**

Refined LPA



* Will be implemented by DTS as separate projects.

Primary Corridor Transportation Project Implementation Schedule: Refined LPA | **Figure 2.5-2**

- Construction of the a.m. zipper lane extension and Moanalua Freeway/Middle Street ramp improvements between 2006 and 2008.

The following factors were considered when developing the overall project schedule for the Refined LPA:

- Cash flow analysis;
- Geographically distributing project benefits at each phase of construction;
- Minimizing construction-phase impacts in one area at one time by geographically distributing the work at each phase of construction; and
- Synergies among different project elements.

Based on these considerations, the BRT project elements will be implemented as a series of manageable, discrete projects. At each stage of project development, including the initial phases, the elements in place at that time would work with each other to improve transportation service. Benefits would start accruing immediately, and the level of benefit would increase as more components are added through time.

The resulting schedule includes the following time frames for the major Refined LPA project elements and other related projects:

- DTS is currently transforming the bus network to a hub-and-spoke network. The transit centers that would be constructed for the hub-and-spoke network would remain as part of the Refined LPA. These transit centers are being implemented by DTS as separate projects from the Refined LPA and would be implemented from 2003 – 2005. These projects are designated in Table 2.5-2 as Hub-and-Spoke Transit Centers.
- Implementation of the In-Town BRT will begin with construction of the Iwilei-Waikiki Branch (without EPT) from 2003 through 2005, with concurrent implementation of the Kalihi Segment (2004 – 2006), Downtown – University segment (2005 – 2007) and Kakaako Mauka segment (2005 – 2006).
- During the initial years of operation, the Downtown – University segment of the BRT would operate in semi-exclusive lanes curbside lanes on Kapiolani Boulevard before ultimately operating in exclusive lanes in the center of the street. Early year forecasts indicate that exclusive lanes will not be needed during the initial years.
- Thirty hybrid-electric vehicles will be ordered for delivery in sync with completion of the fixed facilities so that operations can begin on the Iwilei-Waikiki branch in 2005 and in 2007 for the entire In-Town BRT. Additions to the existing Kalihi-Palama maintenance facility will also be made during this period for the storage and maintenance of BRT vehicles.
- Implementation of the embedded plate system, if selected as the long-term propulsion technology, would begin with construction along the Iwilei-Waikiki segment in 2010. The complete conversion to EPT on all In-Town segments would occur in 2016.
- Phasing of the Regional BRT will begin with the a.m. zipper lane extension in 2006. The p.m. zipper lane will be constructed between 2007 and 2009, with the extension of the zipper lane to H-2 via the Waiawa Interchange occurring between 2008 and 2011.
- Kapolei Transit Center between 2009 and 2011; and the North-South Road Park-and-Ride and access improvements between 2011 and 2012.
- The Luapele Drive BRT ramp will be implemented between 2009 and 2012.

2.6 SCREENING OF ALTERNATIVES

The alternatives have evolved over the course of the Primary Corridor Transportation Project through an iterative process. A wide-range of options was progressively analyzed in increasing detail until it was winnowed down to the "best fit" alternatives described in Section 2.2. The evolution was based on conceptual

engineering and cost analysis as well as public and agency review and comment. This Section summarizes the results of the various iterative steps in the development and screening of the alternatives:

- Section 2.6.1 describes the major alternatives that were eliminated early on. The initial alternatives, as presented in the project's Environmental Impact Statement Preparation Notice (EISPN) were No-Build, Enhanced Bus/TSM, BRT and LRT with three LRT sub-alternatives (LRT 1, 2 and 3). Comments were received in response to the EISPN, and responses to those comments that addressed alternatives are listed in Section 2.6.1. Also listed in this section are comments received in response to the EISPN for the Supplemental DEIS.
- Section 2.6.2 discusses the alternative alignments for the In-Town BRT that were rejected.
- Section 2.6.3 sets forth the criteria for selection of the transit technology for the In-Town BRT and describes the candidate technologies no longer under consideration.

2.6.1 Alternatives Considered and Eliminated

Two alternatives often studied by other communities considering major transportation investments were eliminated early on by the public for Honolulu's primary transportation corridor because they were deemed not responsive to the purpose and need statements in Chapter 1 and the stated goal of the City Council from the outset of the study, which was to keep the project affordable. These alternatives were a fully grade-separated transit alternative, and an all-highway alternative to transit. The public input and analytical process that led to elimination of these alternatives is discussed.

1) Fully Grade-Separated Transit Alternative

Advantages of a fully grade-separated transit alternative are:

- It would be completely buffered from the existing surface road network and its congestion, allowing transit vehicles to move quickly on a dedicated right-of-way, free from interference with any other transportation system; and
- It would not create a significant impediment to the operation of the surface road system.

A fully grade-separated transit system would offer the maximum performance possible with transit, and therefore provide transit patrons with the highest level of service.

Grade separation of a transit system in the primary transportation corridor could be achieved with an elevated guideway, an underground subway, or some combination of the two. Fully grade-separated transit systems for Honolulu have been seriously considered twice in the past three decades. In both instances, extensive analysis produced a strong and credible case for grade-separated transit investments. Nonetheless, the proposals ultimately were not built due to lack of sufficient support by the public and/or elected officials.

The concerns that led to the rejection of the most recently proposed elevated rapid transit system were primarily two: (1) its high cost and (2) its physical and visual impacts.

Previous studies have shown that construction of a subway through Honolulu's urban core would be prohibitively expensive. The extreme disruption of existing underground utilities and constant dewatering made necessary by a high water table and poor soils would drive construction costs to unacceptable levels ($3.6 billion in 2002 dollars for a 12.8-mile system along the presently proposed In-Town BRT alignment). While an elevated guideway would be less costly than a subway, such a system would still be substantially more expensive and visually more obtrusive than an at-grade system. The elevated system proposed most recently was abandoned when elected policymakers would not approve a local funding mechanism that required an increase in taxes. A 12.8-mile elevated rapid transit system along the presently proposed In-Town BRT alignment would cost on the order of $1.95 billion in 2002 dollars. By comparison, the In-Town BRT costs are estimated at approximately $240 million in 2002 dollars, assuming hybrid-electric technology and approximately $325 million assuming embedded plate technology.

Public input received in hundreds of Vision Team and Oahu Trans 2K meetings and workshops attended by thousands of Oahu residents revealed widespread agreement that while an elevated transit system might serve the goals of improving in-town mobility and strengthening connections between communities, such a system would not foster livable communities. The predominant sentiment among thousands of participants was that a grade-separated transit system would be unacceptably: (1) intrusive on the visual environment; (2) divisive of communities; and (3) too expensive. These shortcomings were judged by public participants to outweigh the recognized benefits of a grade-separated system, i.e., high speed and capacity, increased reliability and reduced negative impact on the surface road system.

Honolulu's failure to complete the proposed elevated transit system a decade ago, and extensive public input into the current process, confirmed that a grade-separated system could not, because of its high costs, visual obtrusiveness, and community divisiveness, gain the level of local public and/or official acceptance necessary to sustain such an investment. All of the transit alternatives considered in the FEIS are therefore based on at-grade operation.

2) Highway Alternative to Transit Considered and Rejected

This section addresses the use of a highway solution to address the project's purposes and needs. The intent of the highway alternative is to provide people-carrying capacity comparable to the Regional and In-Town components of the transit system, and link the same origins and destinations.

Highway Alternative to the Regional Transit System

The construction and land acquisition costs to widen the H-1 freeway between Leeward Oahu and the PUC to serve commuter demands in single occupant vehicles rather than in BRT buses would be astronomical. The social and environmental impacts would also be intolerable. For comparison purposes therefore a greater shift to HOV usage was assumed for the all highway alternative to avoid these prohibitive costs and impacts. For the highway alternative, many of the features in the Refined LPA, including lane-use priority for multiple occupancy vehicles is assumed. An outbound, afternoon peak period contraflow zipper lane would be installed between Waiawa Interchange and Radford Drive and be available to vehicles with multiple occupants. The a.m. zipper lane would be extended to Middle Street, and the a.m. HOV/express lanes, and the p.m. HOV lanes currently in operation would be maintained. Ramp improvements at Waiawa Interchange would be provided. Park-and-rides would be constructed at Kapolei, North-South Road, and Aloha Stadium. Unlike the Regional BRT system, however, the proposed Luapele Drive bus priority ramp and the Middle Street Transit Center would not be provided. The cost of the highway only component from Kapolei to Middle Street in 2002 dollars would be approximately $150 million, in comparison to approximately $205 million for the Regional BRT system (exclusive of bus acquisitions and the cost of a new bus maintenance facility).

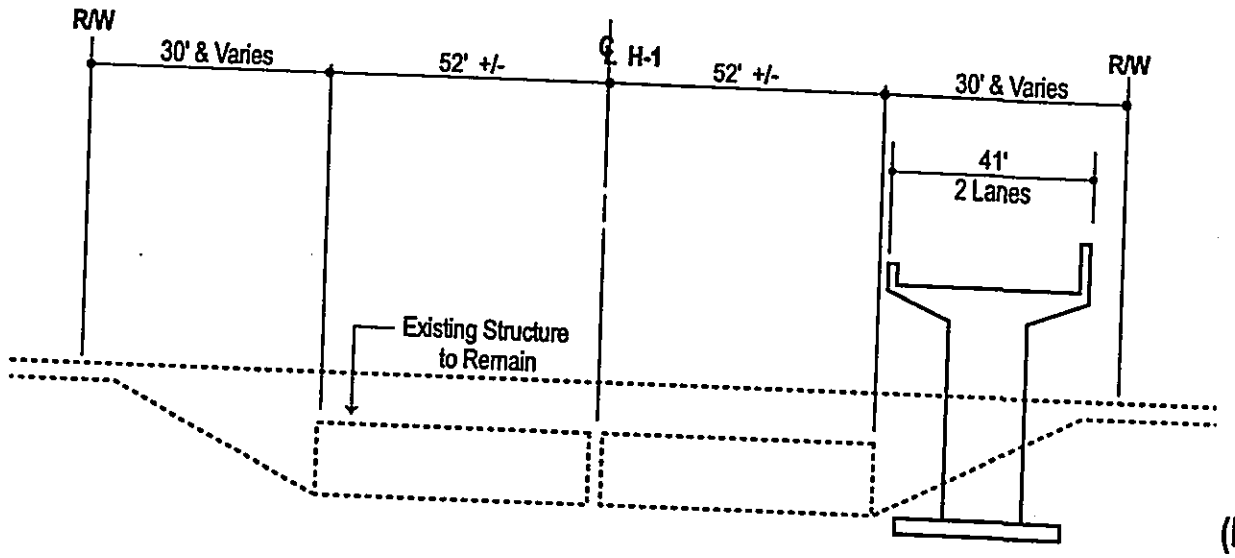
Roadway Alternative to the In-Town Transit Spine

To service commuter demands from the Ewa side of Oahu and travel demands from the Iwilei, Downtown and Kakaako communities equivalent to the In-Town BRT system, a highway alternative would require a two-lane viaduct on H-1 and North King Street would have to be widened to 6 lanes.

(1) Middle Street to Kalihi, Iwilei, Downtown and Kakaako Improvements

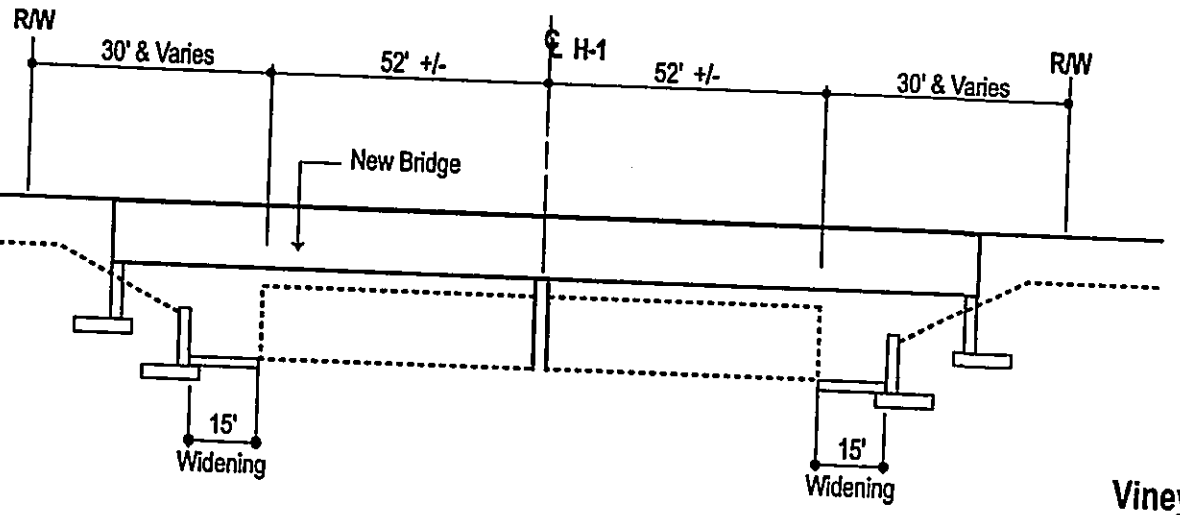
For the H-1 Viaduct, North King Street and other local roadway improvements listed below to provide comparable people-carrying capacity to the In-Town BRT system, the following would be require:

- Construct a two-lane H-1 viaduct (one lane in each direction separated by a median barrier) beginning about 1,000 feet before the tunnel under North King Street to just past the Vineyard Boulevard exit. The viaduct would be aligned along the side slope makai of H-1 (see Figure 2.6-1).
- Widen H-1 by one lane in each direction from the new viaduct to Punchbowl Street.
- Widen North King Street to six lanes between Middle Street and Liliha Street.



Note:
Existing R/W Location varies.

Kahauiki Interchange (Middle Street) to Vineyard Boulevard



Vineyard Boulevard to Punchbowl Street

Improvements to H-1 Between Middle Street and Punchbowl Street Required With a Highway Alternative to In-Town BRT

Figure 2.6-1

- Improve the North King Street/Liliha Street/Dillingham Boulevard intersection by adding lanes.
- Widen Liliha Street to six lanes from North King Street to H-1.
- Extend Queen Street and Pohukaina Street to Pensacola Street and convert to a one-way couplet.
- Reverse the one-way couplet direction of Pensacola Street and Piikoi Street.

These improvements from Middle Street to Downtown and Kakaako would cost a minimum of $950 million in 2002 dollars.

(2) Improvements to Access Waikiki

To service Waikiki at a level comparable to the BRT, the highway alternative would require an additional Koko Head-bound lane on H-1 between Ward Avenue and Punahou Street, a new interchange at McCully Street, a two-lane viaduct on McCully Street between H-1 and Waikiki, and various other interchange and highway improvements. The Piikoi Street Koko Head-bound on-ramp would be closed, thereby reducing the traffic volume on the H-1 segment between Ward Avenue and McCully Street. The elements to enhance access to Waikiki via roadway improvements are as follows:

- Widen H-1 Ewa-bound by one lane between the Ward Avenue on-ramp to the Punahou Street off-ramp. Close the Piikoi Street on-ramp.
- Close the Lunalilo Street Ewa-bound on-ramp. Convert Magellan Avenue between Ward Avenue and Prospect Street to one-way operation. Construct Magellan Avenue braided on-ramp to connect just past the Pali Highway off-ramp.
- Construct a new H-1 interchange at McCully Street.
- Construct a new King Street Ewa-bound on-ramp (see discussion of Manoa interchange improvements that follow).

These improvements to access Waikiki would cost approximately $295 million in 2002 dollars.

(3) Improvements to Access UH-Manoa

Manoa interchange and other highway improvements are proposed in the highway only alternative to service the UH-Manoa area. In the Ewa-bound direction, traffic conditions would be improved by closing the H-1 Lunalilo Street on-ramp, eliminating the weave problem that creates congestion and backs up traffic beyond the Manoa interchange. A replacement on-ramp would be provided at Magellan Street, just prior to the Punchbowl on-ramp. These improvements would have operational benefits in the University to Downtown Ewa-bound H-1 segment. Proposed roadway access improvements to the UH-Manoa area include:

- Close the Bingham Street Koko Head-bound and Wilder Avenue Ewa-bound off-ramps (to be replaced by the new McCully Street interchange).
- Construct Koko Head-bound collector-distributor (C-D) road starting just past the Bingham Street off-ramp. Redirect the University Avenue loop on- and off-ramps to connect to the C-D road.
- Reconstruct the University Avenue loop on- and off-ramps to connect to the C-D road.
- Construct new Lower Campus Road Koko Head-bound on-ramp and connect to new C-D road.
- Reconnect the new C-D road to H-1 just past the King Street off-ramp.
- Braid Ewa-bound University Avenue off-ramp with new two-lane King Street on-ramp
- Reconstruct University Avenue on-ramps to merge with H-1 just prior to the existing Wilder Avenue off-ramp (to be closed).

These improvements to access UH-Manoa would cost approximately $190 million in 2002 dollars.

The cost of the highway component from Kapolei to UH-Manoa in 2002 dollars would be approximately $1.6 billion, in comparison to approximately $445 million for the Regional and In-Town BRT system with hybrid-electric technology and $525 million with embedded plate technology. It would therefore be significantly more expensive. Besides cost, there would be significant negative impacts to the environment as well as displacements if a highway alternative were to be substituted for the proposed BRT.

Consistency with Project Purposes and Needs

The project's purposes and needs are broader than just satisfying the suburban to Downtown commuter travel market. The purposes include fostering desired land use development patterns, enhancing the quality of in-town living and in-town mobility, and facilitating the development of livable communities throughout the island, but more importantly, in the PUC.

Given the project purposes and needs, a new or enhanced set of roads and highways that only provided for travel demand between suburban areas and Downtown would not satisfy the need of in-town travelers. For a highway to satisfy the project purposes and needs, it would need to perform the functions of the Regional and In-Town BRT system contained in the Refined LPA. A network of roadway improvements that attempts to provide this capacity is described above. However, a highway alternative, unlike the In-Town BRT would not enhance in-town mobility and the quality of in-town living by providing a high capacity transit system across Honolulu's Urban Core. A highway alternative would not provide an alternative travel mode to the automobile. A highway alternative would be counter to, not supportive of the desired redevelopment pattern in the PUC (livable communities). Additionally, the network of roadway improvements described above would adversely affect neighborhood cohesion.

Conclusion

Because a highway solution that encouraged suburban/Downtown commuter cars to enter Downtown would be inconsistent with the project purposes of enhancing in-town mobility, quality of life, and fostering desired land use development patterns, it has been rejected. As with grade-separated transit, highway investment alternatives in the primary transportation corridor have been well studied over the past three decades. The studies have consistently concluded that building only highways without a major investment in a transit system is not a viable approach to solve Oahu's travel needs. The reasons fall into three categories: (1) excessive cost; (2) traffic impacts; and (3) environmental and community impacts. Roadway construction on the scale to provide the capacity of the In-Town BRT system would adversely affect neighborhood cohesion, create substantial residential and business displacements, create visual intrusions, increase noise impacts, modify existing surface transportation patterns, and create major disruptions during construction.

Development in the primary transportation corridor is very dense and there are few if any potential routes for new highways. Construction and land acquisition costs for highways sufficient to meet the demand of commuters between Leeward and Central Oahu and the PUC would be astronomical. Any widening of the H-1 Freeway between Middle Street and University Avenue would also require rebuilding of overpasses and access ramps. Similarly, double-decking would be too expensive in both construction and environmental costs. The network of roadway improvements described above would cost approximately $1.6 billion or more and would be substantially more costly than $445 to $525 million (excluding bus acquisition and maintenance facility costs) for the comparable BRT components that they would "replace".

Even if it were practical to construct sufficient new highway infrastructure to meet commuter demand, it would be virtually impossible to expand the capacity of downtown surface streets to efficiently absorb the increased traffic. Based on the projected growth in travel, the City and State would need to construct 13 freeway lane miles and eight principal arterial lane miles annually just to keep congestion at the present level. This is the equivalent of building a new H-3 Freeway every 5 years.

There is insufficient public support for an all highway alternative. The Oahu Trans 2K outreach meetings revealed a clear community consensus that an important goal of any transportation program in the primary

transportation corridor must be to foster livable communities. This consensus included general agreement that extensive widening and/or double-decking of roads through existing neighborhoods is not an acceptable alternative to increasing people-carrying capacity with a higher level of transit. Elimination of these options, in effect, eliminates any highway only alternative, because any such alternative would require one or all of them.

3) Comments on the Alternatives from Responses to the MIS/DEIS EISPN and SDEIS EISPN

The initial No-Build, Enhanced Bus/TSM, BRT and LRT Alternatives were described in the project's original EISPN. Some of the comments received in response to the EISPN pertained to alternatives. Comments on the alternatives from the agency and public scoping meetings duplicated comments received in response to the EISPN. Table 2.6-1 lists the alternatives suggested for consideration by the public and government agencies commenting on the EISPN, and how those suggestions have been addressed in project planning. Comments were also received in response to the EISPN for the Supplemental DEIS. Table 2.6-1 also lists the alternatives suggested for consideration in comments to the SDEIS EISPN.

2.6.2 Alignment Screening for the In-Town BRT

Numerous alignment options were considered between the termini at Middle Street, UH-Manoa and Waikiki. These options were generated and screened by the project technical staff through an intensive process that included extensive community outreach, and meetings with stakeholders. Options were located in existing street rights-of-way, but varied in terms of which streets would be used for the In-Town BRT. During the screening process, alignment options were contrasted with each other based on their ability to meet project purposes and needs (Chapter 1), ridership potential, and available right-of-way. Alignment options were then further refined through additional public input and more detailed technical studies. (Note: The currently proposed alignment for the In-Town BRT is described in Section 2.2.3.)

TABLE 2.6-1
EISPN COMMENTS RELATING TO ALTERNATIVES

Comment	Commenter	Response
Address Highway Alternatives	FHWA	1) The Refined LPA is a combined highway and transit alternative. 2) A highway only alternative is not sufficient to satisfy project purposes and needs, as addressed elsewhere in Section 2.6.1. A highway only alternative is inconsistent with the public's vision for the island's transportation system, as documented through the Oahu Trans 2K process. 3) Highway improvements are included in the OMPO regional transportation plan (TOP 2025).
Ensure multi-modal Alternatives – more than just cars and buses	FHWA, DBEDT-Office of Planning	The TSM Alternative and Refined LPA are multi-modal alternatives.
Identifying stand-alone components of Alternatives	SDOT	The components of the alternatives are described in Chapter 2.
Use of chartered/subsidized vehicles at peak hours	SDOT; Douglas Meller	TDM measures such as those proposed are incorporated in all alternatives. For example, all of the alternatives include a vanpool component (use of subsidized vehicles at peak hours) and subscription buses (such as LOTMA).

TABLE 2.6-1 (CONTINUED)
EISPN COMMENTS RELATING TO ALTERNATIVES

Comment	Commenter	Response
Ferry Alternative	DBEDT-Office of Planning	A ferry system does not represent a comprehensive alternative that satisfies all of the project's purposes and needs. While a ferry system may become an important element of the total transportation system, a ferry system alone could not serve existing or future travel demand in the primary transportation corridor.
TDM Alternatives – regulate parking fees, etc.; road pricing	DBEDT-Office of Planning; Douglas Meller; Bruce Plasch	TDM measures are included in the alternatives, but are not expected to fully address projected increases in travel demand in the primary transportation corridor.
Incentive and education programs on alternative transportation (e.g. various forms of HOV); disincentives on single-occupant private automobile transportation	Hawaii Bicycling League; Life of the Land	1) DTS and SDOT will continue to promote multi-modal transportation (e.g., SDOT will continue to promote the zipper lane and the vanpool program, and DTS will continue to promote its limited stop transit services, City Express! and Country Express!). 2) By using existing street capacity as a dedicated transitway, the Refined LPA will create incentives for the increased use of multiple-occupant vehicles along the alignment of the In-Town BRT.
Alternative with emphasis on servicing/improving access to Leeward areas, rather than getting to and from PUC	Leeward Oahu Transportation Management Association (LOTMA)	1) All of the alternatives include provisions for enhancing mobility within the Ewa area through increasing roadway connectivity and capacity, and enhanced transit service. All of the alternatives increase transit accessibility within, and to Kapolei/Ewa through the use of a "hub-and-spoke" bus network configuration. 2) All of the alternatives support the development of Kapolei as both a residential and employment center. 3) All of the alternatives would improve transit service along the Waianae coast. 4) Travel demand forecasting indicates that there will still be substantial travel between the PUC and other parts of the island, and within the PUC.
Segments of previously-indicated roadways for priority treatments do not appear to be included (e.g., Kamehameha Highway from Wahiawa to Radford Drive)	LOTMA	These measures are included in the No-Build, TSM, and Refined LPA Alternatives.
Alternative without Sand Island	LOTMA; Douglas Meller	The DEIS and SDEIS are both without the SISP. The SISP has become part of OMPO's TOP 2025 Plan.
Use double-decker buses	Hawaii Bicycling League	For reasons of operational efficiency and handicap accessibility, using longer articulated buses is a better way of increasing passenger capacity per vehicle than adding a second level of seating.

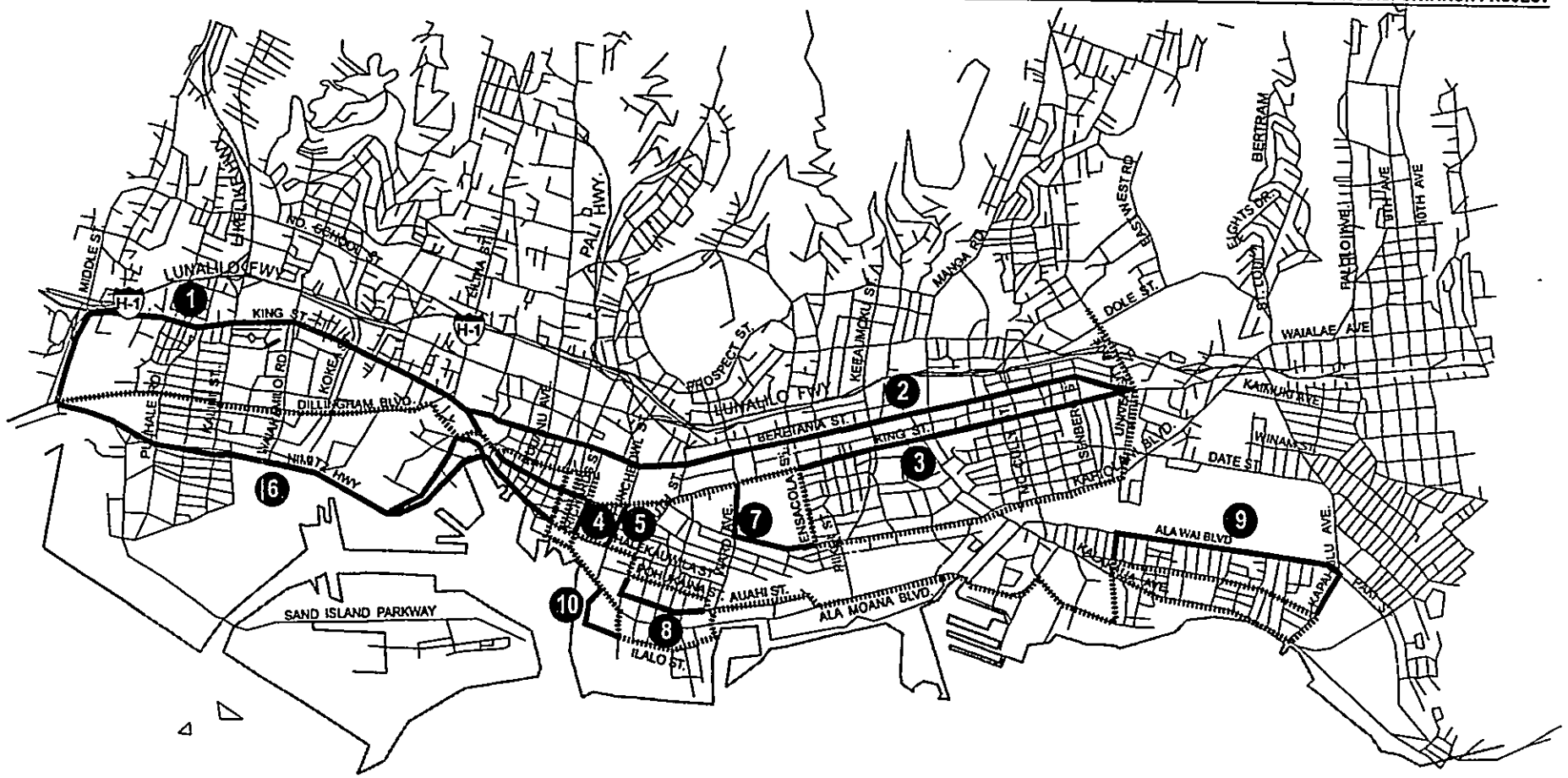
TABLE 2.6-1 (CONTINUED)
EISPN COMMENTS RELATING TO ALTERNATIVES

Comment	Commenter	Response
Why is an extension to Kahala not included?	Outdoor Circle; Life of the Land	The analysis of future travel demand and existing infrastructure capacity indicates that the major shortfall in transportation capacity extends from the PUC to the Ewa area.
Alternative focusing on safety measures to increase pedestrian, bicycle, disabled access. Such an alternative would increase demand for transit and other alternative transportation modes.	Life of the Land	The TSM and Refined LPA Alternatives are multimodal alternatives that increase pedestrian, bicycle and disabled access to transit and other alternative modes.
Do not create alternate freeway routes out of local streets	Hawaii Bicycling League	The highway only alternative was considered and rejected as discussed elsewhere in Section 2.6.1.
Enhanced Bus Alternative that increases both bus and auto efficiency	Life of the Land	The TSM and Refined LPA Alternatives enhance bus and auto efficiency to varying degrees.
Enhanced Bus Alternative that increases only bus efficiency, making buses more attractive than cars	Life of the Land	The TSM and Refined LPA Alternatives enhance bus and auto efficiency to varying degrees. The Refined LPA does more to increase bus and auto efficiency than the TSM Alternative. In the TSM Alternative, at some intersections, conditions for automobiles would be better than for transit vehicles.
Commuter-based Dedicated Bicycle Lane Alternative	Life of the Land	Both SDOT and DTS have developed master plans to enhance the network of bicycle facilities and increase bicycling as a serious transportation mode for some travel markets. Improvement of bicycle facilities is included in all of the alternatives.
Alternative eliminating some bus stops for more efficiency	Douglas Meller	Both the City Express! and Country Express! services are limited-stop bus services, and more limited stop services will be provided under the TSM and Refined LPA Alternatives.
Alternative promoting carpooling, and use of other unused equipment and capacity	Bruce Plasch	The TSM and Refined LPA Alternatives include incentives for HOV vehicles (carpooling), and other measures to enhance the operational efficiency of the existing transportation network including private sector transit services (using unused equipment and capacity).
Two separate, linked Express Bus systems: one to Honolulu and one to Kapolei, with circulator buses	Life of the Land	These features are included in the TSM and Refined LPA Alternatives.

TABLE 2.6-1 (CONTINUED)
EISPN COMMENTS RELATING TO ALTERNATIVES

Comment	Commenter	Response
Expansion of plans to elevated rail (1992 plan)	Life of the Land	A fully grade-separated transit system was considered but rejected, as discussed elsewhere in Section 2.6.1.
Employer Trip Reduction (ETR) plans	Life of the Land	These and other TDM measures are included in all of the alternatives.
Including express buses from outside PUC in a plan for PUC is beyond scope	Life of the Land	The PUC is so important in terms of islandwide trip generation and trip attraction that transportation planning for the PUC cannot be limited to only the PUC. Connections between the PUC and other parts of the island must also be considered.
Use of electric vehicles	Life of the Land	The Refined LPA includes the use of electric powered vehicles.
Consider a grade-separated light rail alternative.	Wendell Lum	A fully grade-separated transit system was considered and rejected since it was determined that the public was not in favor of an elevated transit system because of its high cost and its physical and visual impacts. This is discussed in Section 2.6.1 of the FEIS.
Do not operate the BRT on Richards Street.	Harbor Square Residents	The BRT alignment has been revised to travel on Alakea and Bishop Streets and will not travel on Richards Street between S. King Street and Nimitz Highway.
Include the proposed Farrington Highway transit corridor/BRT spur.	*Gary H. Okino,* Councilmember	A number of possible transit improvements are being considered for Waipahu. One of these would give priority to buses on Farrington Highway. Once a decision is reached on the type of improvement needed a separate environmental assessment will be undertaken.
Route the Kakaako-Mauka Branch continuing makai on South St. to Auahi St. turning left on Auahi and traveling straight on Auahi all the way to the Queen Street stub off Ala Moana.	Kakaako Improvement Association	The proposed Kakaako Makai Branch would provide convenient access to the "critical mass" area of Ala Moana Boulevard. The branch would operate along Ilalo Street, one block makai of Ala Moana Boulevard. Transit stops would be located at Coral Street and Ahui Street providing easy access to the businesses along Ala Moana Boulevard.
The Kakaako-UH Manoa branch should use Pensacola instead of Ward between S. King and Kapiolani.	Kakaako Improvement Association	One of the proposed refinements to the Refined LPA is to realign a portion of the Kakaako-UH Manoa branch as suggested. The branch would continue along South King Street to Pensacola Street to Kapiolani.

Source: Parsons Brinckerhoff, June 2002.



LEGEND:

.....	Proposed In-Town BRT Alignment	5	Punchbowl Street
———	Alternatives Considered	6	Nimitz Highway
1	North King Street	7	Ward Avenue
2	South Beretania Street	8	Auahi Street
3	South King Street	9	Ala Wai Boulevard
4	Richards Street	10	Channel Street

SOURCE:
Parsons Brinckerhoff, May 2002.

N Scale: 0 .5 1 mi

Alternate Alignments Considered For In-Town BRT

Figure 2.6-2

1) In-Town BRT Alignment Options

The following discussion summarizes the major alignment options considered but rejected from further consideration. Figure 2.6-2 shows the location of these alignment options.

1. North King Street: Greater business disruptions, greater traffic impacts, and fewer land use development opportunities in comparison to Dillingham Boulevard.
2. South Beretania Street: Too far mauka to serve the heart of Downtown, less land use development potential in comparison to Kapiolani Boulevard, narrow at Koko Head end.
3. King Street, Koko Head of Pensacola Street: Extensive impact to on-street parking in an area with many small business frontages requiring auto access. Less growth shaping opportunity.
4. Richards Street: The Kakaako Mauka and Makai alignments were shifted from Richards Street to Alakea and Bishop Streets in response to local residents' concerns that the alignment on Richards Street would have impacts on traffic, driveway access, pedestrian safety, and residential ambience.
5. Punchbowl Street: Punchbowl Street was analyzed as an alternative alignment to the Alakea and Bishop Streets couplet. It was rejected due to the traffic impacts it would produce at the S. King/Punchbowl Streets intersection, and its failure to serve the Aloha Tower area.
6. Nimitz Highway Koko Head of junction with Sand Island Access Road: Nimitz Highway is more of a regional highway facility than Dillingham Boulevard with higher speed, more through traffic, more control of access, etc. An alignment on Dillingham Boulevard would much better serve Kalihi residents, businesses and institutions. There is more opportunity to attract ridership on Dillingham Boulevard than on Nimitz Highway because of the types of land uses.
7. Ward Avenue: The In-Town BRT UH-Manoa Branch alignment was shifted from Ward Avenue to Pensacola Street between S. King Street and Kapiolani Boulevard based upon input from the Downtown/Kakaako and Mid-Town/University Working Groups. The Pensacola Street alignment would better serve McKinley High School and Kaiser Honolulu Clinic, and result in lessened traffic impacts than on the already congested Ward Avenue.
8. Auahi Street: Shifting the Kakaako Mauka Branch alignment from Pohukaina Street to Auahi Street was analyzed as an alternative to adding the Kakaako Makai Branch. This was rejected since it did not serve either Kakaako Mauka or Kakaako Makai very well, with excessive walking distances to many travel generators.
9. Ala Wai Boulevard: With right-side loading, all passengers would be required to cross Ala Wai Boulevard going to-and-from the transit stop. Also, it is removed from the densest areas of trip generation in Waikiki, which are towards Kalakaua and Kuhio Avenues. Because of this an extra 3 to 6 minutes (walking or on a bus) would be added to 83 percent of the BRT passenger trips when traveling Ewa bound.
10. Channel Street: Until HCDA and SDOT, Harbors Division decide on access improvements to serve the proposed cruise ship terminal at Pier 2, the BRT will use Forrest Avenue. Channel Street is a possible alternative routing in the future.

2) In-Town BRT Terminus of UH-Manoa Branch

Two options for the terminus of the In-Town BRT UH-Manoa Branch were considered in addition to the proposed terminus at Sinclair Circle, as follows:

- Lower Campus: There is no available right-of-way for a transit stop or turnaround due to the narrowness of Varsity Place. The proposed terminus at Sinclair Circle serves the main campus better. Therefore this option was dropped.

- Varney Circle: This option would bring the In-Town BRT onto campus. Distances from the transit stop to most destinations at UH-Manoa would be decreased in comparison to the Sinclair Circle terminus, however, penetrating the campus with a transitway is inconsistent with master plans for UH-Manoa. Also, there would be a significant added cost for virtually no ridership gain. Therefore this option was dropped.

3) Waikiki Alternative Alignments Considered

Because many comments on the SDEIS were related to alternative alignments considered in Waikiki, this summary has been added in the FEIS.

Five alternative alignments were considered in Waikiki: (a) Kalakaua/Ala Wai Loop, (b) Kalakaua/Kuhio Loop (the LPA), (c) Kuhio/Ala Wai Loop, (d) Two-Way BRT on Kuhio, and (e) Kapiolani/Kalakaua/Ena Road.

a. The Kalakaua/Ala Wai Loop was eliminated because it would force 80% of the BRT users to walk an extra 650 to 800 feet or ride around a loop (when going Ewa bound), which would add an additional three minutes to their trip; it also would not serve the greatest amount of ridership. All the Ala Wai Boulevard origins and destinations are on one side of the street only; therefore, all BRT users would have to cross Ala Wai Boulevard to get to and from the Ala Wai Boulevard BRT stops.

b. The Kalakaua/Kuhio Loop (the LPA), would serve just as many residents as the Kalakaua/Ala Wai Loop (6,200), but is much closer to the jobs in Waikiki (14,300 on Kalakaua, 10,500 on Kuhio compared to 1,500 on Ala Wai). This alignment is closer to the places local residents from outside Waikiki want to go in Waikiki as represented by the location of hotel rooms, restaurants and shopping (12,200 hotel rooms on Kalakaua, 4,200 on Kuhio compared to 800 on Ala Wai Boulevard). This alignment will still permit sidewalks to be widened on Kuhio Avenue and maintain automobile access plus passenger and freight loading/unloading for hotels and businesses on Kalakaua and Kuhio Avenues. This alternative was selected as part of the LPA.

c. The two-way Kuhio Alignment would have all the BRT stops on one street, which would be less confusing for infrequent users. It would however displace passenger and freight loading zones on Kuhio Avenue and/or restrict them to late night/early morning hours. The Kuhio Avenue level of service would result in twice the delay compared to the Kalakaua/Kuhio Loop. The bicycle route would be substandard (i.e. shared lanes less than 14 feet) and it would preclude sidewalk widening on Kuhio Avenue.

d. The Kuhio/Ala Wai Loop would be closer to Waikiki residents (4,500 housing units on Ala Wai compared to 1,700 housing units on Kalakaua). This alignment would also result in less vehicle and pedestrian interference on Ala Wai Boulevard than on Kalakaua Avenue. However, this alignment would be inconvenient for Waikiki employees (14,300 jobs along Kalakaua compared to 1,500 jobs along Ala Wai). This alignment would also be inconvenient for local residents from outside Waikiki who want to visit the hotels, restaurants and shops in Waikiki (12,200 hotel rooms on Kalakaua compared to 800 along Ala Wai). This alignment would also require that all BRT users cross Ala Wai Boulevard to get to and from the Ala Wai Boulevard BRT stops.

e. The alignment entering Waikiki via Kapiolani/Kalakaua/Ena Road versus Ala Moana/Kalia would consolidate a portion of the UH and Waikiki BRT branches. It was rejected because it would require a grade separation at the Kapiolani/Kalakaua/Atkinson intersections, require widening the Kalakaua Avenue bridge, and would not serve major generators on Ala Moana Boulevard near Hobron Lane.

2.6.3 Evaluation of Technologies for the In-Town Transit Segment

A large number of comments were made on technology. This section addresses those comments.

The purpose of this Section is to explain the basis for rejecting technologies not presently under consideration for the In-Town segment of the transit spine. Section 2.2.3 discusses the technology selection criteria. In summary, they are:

- Right-of-Way (ROW): Selected technologies must not require a new dedicated ROW or grade separation because urban Honolulu has insufficient space for a new dedicated ROW, and a grade-separated system was previously proposed but did not obtain the required City Council support due to the need for a tax increase. Suitable technologies must be able to operate at-grade on existing streets and highways. While vehicles may operate in exclusive lanes, the technology must permit at-grade cross traffic and pedestrian crossings.
- Line Capacity: Selected technologies must have the capacity to move more than 3,000 passengers per hour per direction because travel demand forecasting indicates that this is the approximate line haul requirement in 2025.
- Emissions and Noise: Air pollution emissions from selected technologies must be substantially lower than the 2004 EPA regulations provided in Table 2.2-9. Once adopted, the EPA's 2004 regulations will apply to all transit vehicles, including those powered by diesel engines. Noise emissions must not exceed those of a conventional light rail vehicle or trolley bus with electric propulsion.
- Service Proven: Selected technologies must either show sufficient maturity, or the technology must be in an advanced stage of development. If the technology is not yet "proven in revenue service", the risk associated with implementing a developmental technology must be carefully weighed.
- Affordability: Selected technologies must have system costs per unit length not exceeding that of an at-grade light-rail line of $60 million per mile.
- Safety: Selected technologies must meet local and national life/safety requirements.
- Accessibility: Selected technologies must comply with Americans with Disabilities Act (ADA) requirements.
- Visual Impact: Selected technologies must not require an overhead guideway or overhead contact system (overhead wires, or catenaries) for wayside propulsion that disrupts mauka-makai views.
- Flexibility: Selected technologies must have the capability to be re-routed around blockages, and not preempt parades and other activities along the alignment.
- Sense of Permanence: Selected technologies must represent a substantial government commitment to a specific alignment in order to evoke the desired land use response from land developers.

1) Overview of Technologies

These criteria were applied to the following conventional and emerging technologies, which are described in more detail in Product 1-6 Technical Paper Assessing the Capabilities of Selected Transit Technologies (July 1999), Product 1-9 In-Town BRT: Choosing the Final Technology (April 2000), and Product 4-3 Quarterly Report Summarizing Current Development Status and Operating Data for Candidate BRT Technologies, (June 2001).

- Rail Rapid Transit;
- Commuter Rail;
- Light Rail Transit (LRT);
- Monorail;
- Automated Guideway Transit (AGT), including Automated People Movers;
- MAGLEV (magnetically levitated vehicles);
- Light-Duty Bus;

- Standard Bus;
- Conventional Trolley Bus (with overhead wires—"catenary");
- Tram-on-Tires (large multi-articulated bus-type vehicle, some with catenaries);
- Articulated Diesel-Powered Bus;
- Articulated Hybrid-Powered Electric Bus; and
- Articulated Electric Bus Powered from Embedded Power Plates

Based on the screening criteria, the following technologies were eliminated as candidates for the In-Town transit segment:

- Light-Duty Bus: does not provide adequate capacity for the line haul requirement of the In-Town segment.
- Tram-on-Tires operated in driverless mode: not considered safe for operation at-grade in mixed traffic, hence requires dedicated ROW.
- Conventional Trolley Bus: requires overhead catenary wires with negative visual impact.
- Rail Rapid Transit: too expensive, and requires grade separation and exclusive ROW.
- Commuter Rail: too expensive, and requires exclusive ROW.
- Light Rail Transit: A detailed comparison of LRT technology with modern electric bus technology is provided later in this Section. While this technology was included in the initial alternatives, it was later rejected because of the relatively high costs associated with track work and utility relocation. LRT performance could be achieved with electric bus technology at a substantially reduced cost.
- AGT: requires grade separation and/or exclusive ROW.
- Monorail: requires grade separation and/or exclusive ROW.
- MAGLEV: too expensive, technology not sufficiently mature, and requires grade separation and exclusive ROW.
- Standard and/or Articulated Low-Floor Diesel-Powered Buses: would not meet project emission and noise goals for the In-Town transit system.

Propulsion systems using Compressed Natural Gas (CNG) were also eliminated due to the unavailability of and lack of infrastructure for natural gas on Oahu.

The technologies currently under consideration are: (1) rubber-tired, (2) low floor, (3) driver operated, (4) located at-grade, typically in a street lane, (5) able to be crossed by pedestrians and other traffic, (6) single articulated, (7) capable of operating under their own power for at least short distances to avoid disruptions in the transit lanes, and (8) electrically powered.

The requirement for electric power is driven by concerns about air and noise emissions. Electric power would be provided either from a touchable power strip embedded in the street (embedded plate technology), or on-board hybrid electric propulsion in which a diesel engine powers an alternator which produces electricity. The electricity is stored in a battery, and the power is distributed by cable to electric "hub motors", located on each wheel. In this manner, it is possible to eliminate the drive train, facilitating a "low floor" vehicle configuration.

The resulting candidate technology options for the In-Town BRT vehicle are:

- Articulated low-floor hybrid-powered electric bus; and
- Articulated low-floor electric bus powered by an embedded plate power collection system.

Since both of these are emerging technologies the impact analyses in the FEIS are designed to permit either option to be selected at a later date. The degree to which each technology would produce different impacts is discussed in the FEIS where there would be a difference.

Fuel cell technologies are also a possible technology for the In-Town System, but fuel cell buses will not be commercially available soon enough for application during the early stages of the Primary Corridor Transportation Project.

2) Detailed Comparison of Light Rail and Electric Bus Technologies

At the time the EISPN for the MIS/DEIS was issued, both LRT and BRT were under consideration for the Urban Core. Subsequent to the issuance of the EISPN, and the scoping process, technical analysis led to a decision to drop the LRT option. Analysis showed that BRT technology could provide the service characteristics required in the Urban Core at a much lower cost than LRT. Moreover, considering the specific conditions and goals of this project, BRT was determined to be superior to LRT in critical ways – so much so that further study of LRT was deemed to be unjustified. The following discussion amplifies the comparison between LRT and BRT technologies.

Similarities

a) Performance: Speed, Capacity and Noise

Both LRT and BRT technologies would have similar performance characteristics, especially when applied to the central, highly urbanized section of the Urban Core. At in-town speeds, both would have similar acceleration rates; and nominal emergency braking rates would also be similar.

While LRT technology could be configured to provide far greater peak line capacity through the use of multi-vehicle trains, ridership estimates for the corridor indicate that both LRT and BRT technologies would meet the capacity needs for the foreseeable future.

From the perspective of noise and vibration impacts, especially at the proposed operating speed in the range of 35 mph or less, no significant differences would exist between the two technologies. Speeds in the range of 35 to 40 mph represent a "break point," above which steel wheels on steel rails would be somewhat quieter than comparable electric-powered rubber-tired vehicles, and below which slower speeds would slightly favor rubber tires over steel wheels.

The noise differences are not large, however, and vehicles of both technologies would run more quietly than diesel buses. In sharp curves, rubber tires have an advantage because wheel squeal could occur with steel-wheeled vehicles.

b) Sense of "Permanence"

The major transit investment should not only be compatible with, but also reinforce, the City's growth shaping goals. To achieve this, the transit system should be seen as a permanent, form-giving component of the mobility system that serves the Urban Core.

For the transit system to achieve a sense of permanence, it should have formal transit stops, be fixed in a permanent alignment, and be designed to be compatible with the varied communities through which it passes. If designed properly, a transit system that would use either steel-wheeled or electric-powered rubber-tired vehicles could achieve this objective.

c) Alignment Flexibility

Both technologies would have the ability to traverse relatively sharp curves and steep grades. BRT vehicles could make tighter turns than LRT vehicles, however based upon the proposed alignment in the Urban Core, no apparent constraints exist which would strongly favor one technology over the other.

d) Exclusive Street-Level Alignment

The most important performance features both technologies could achieve would be higher average speeds, higher frequency service, greater ultimate capacity, and far more reliable service than buses or streetcars in mixed traffic. This would be accomplished by providing, as much as possible, an exclusive lane, or where this is not possible semi-exclusive lane, for the transit vehicles in both directions of travel.

e) Power Source

Both the LRT and BRT technologies recommended for the In-Town system would be powered by electric motors. LRT technologies require wayside power delivery systems. While the traditional form of wayside power supply for an LRT system is overhead wires, the recommended wayside power distribution system would be a relatively new in-street buried electric power distribution and collection technology referred to as "embedded plate". Embedded plate technology (EPT) could also be used for the BRT vehicles. Hybrid diesel/electric buses, which are also under consideration, do not require a wayside power delivery system, since the power is generated on-board.

f) Achieving Positive Separation From Traffic

Both vehicle technologies could operate in mixed traffic or could be configured to operate in exclusive and semi-exclusive lanes so that automobiles, trucks, bikes and buses only cross the lanes at traffic signal-controlled intersections.

If mixed traffic were to be allowed with through and turning automobiles in the transit lane, the operation would become very slow and unpredictable – analogous to a streetcar or conventional bus. The travel time, ridership, and urban design advantages would be reduced. Therefore, to the maximum extent possible, both technologies should be separated from adjacent lanes by positive delineation, consisting of raised markers and colored pavement.

g) Level Boarding

Both technologies would use either partial or 100 percent low-floor vehicle designs, which speeds ingress and egress for all passengers, and facilitates accessibility for physically disabled individuals. With floor heights of approximately 13 inches, these vehicles would allow the system to use stations with relatively low, unobtrusive platforms, and still provide level passenger loading without steps.

Differences

In ways just described, both LRT and BRT technologies could meet the requirements for the In-Town system, and could do so attractively and efficiently. Important differences, however, exist which are described next.

a) Station Interface and Accessibility

An advantage at stations would exist if vehicles operating in the exclusive section of the system were guided.

Through positive guidance, it is possible to control the interface between a LRT vehicle and the station platform such that the platform-to-vehicle floor gap (both horizontal and vertical) would be within the limits specified by the Americans with Disabilities Act (ADA) for wheelchair accessibility.

For LRT vehicles, level boarding would be achieved from the guidance provided by steel rails embedded in the street and vehicle suspension characteristics designed to meet the gap requirements.

Conceptually, a similar capability could be obtained for BRT vehicles using a guided technology.

With non-guided vehicles, it is possible to have the vehicle operator steer the bus to a berthing position and equip the vehicle with a relatively simple on-board ramp which would deploy to bridge the remaining gap. This is successfully done on a number of existing transit systems.

b) Operating Labor/Training of Vehicle Operators

Higher-capacity vehicles and the ability to form trains would give LRT systems a potential operating labor advantage over BRT systems because one vehicle operator could be responsible for far more passengers.

Travel demand forecasts for this project, however, showed that entraining LRT vehicles would not be necessary, even during peak periods.

c) Operating Flexibility

A major advantage of the BRT technologies under consideration is their ability to leave the designated BRT lanes to go around blockages in the lane (e.g., underground utility work, accidents, etc.) and to be re-routed during parades or other special events. The steel-wheeled LRT vehicles do not have this operational flexibility.

d) Ridership Difference

Because the standard LRT vehicles can carry 30 to 40 percent more passengers per vehicle than articulated electric buses, even when operating as single units, fewer vehicles are needed to serve the same level of ridership.

While positive from an operating cost standpoint, it results in less frequent service being needed with LRT vs. BRT systems. The service frequency difference resulted in approximately 20 percent fewer riders projected to use the LRT than the BRT system.

e) Capital Costs

The most significant cost differentiators are the trackwork for the LRT system, and the transit vehicles.

Embedded trackwork for an LRT system is estimated to add substantial cost compared to a BRT system which does not require tracks (in the range of $9-13 million more per mile). Over approximately 12.8 miles, the cost differential would be $115-166 million.

Vehicle cost differences while not straightforward to estimate could be as much as $2 million per vehicle. Electric buses are much less expensive than LRT vehicles. Even considering that fewer LRT vehicles would be required than electric buses (due to the per vehicle capacity differential) there would still be a substantial total cost savings in rolling stock with electric buses.

Potential BRT vehicles generally require replacement at the standard replacement interval for buses of 12 to 15 years. In contrast, LRT vehicles would require replacement at the standard LRT interval of 25 to 30 years. The longer useful life of the LRT vehicles would over time help to offset the greater initial cost for LRT vehicles.

The total BRT system construction cost savings assuming the embedded plate technology would be on the order of 35 percent, compared to a comparable LRT system. The differences are due to trackwork, life cycle vehicle costs and other fixed facility savings. The cost difference would be even greater if the comparison was between LRT and a BRT system using hybrid diesel/electric vehicles rather than EPT.

Evaluation of BRT and LRT Technologies

In the following comparison of LRT versus BRT, the physical alignment and station locations were assumed to be the same for both technologies. The only differences between them would be the technology used and the associated operating and performance characteristics (i.e. vehicle capacities, frequency of service, etc.).

a) Criterion One: Improve Mobility

Ridership would be lower on the LRT than on the BRT system because of the difference in the frequency of service. Because of the larger size of standard LRT vehicles, the headways on an LRT system would be longer to serve the same number of passengers. Because of the less frequent service on an LRT system, some passengers would find an LRT system less attractive than a BRT system with shorter headways. Therefore, ridership projections for the BRT option were forecast to be almost 20 percent greater than on the LRT alternative because of the more frequent service.

b) Criterion Two: Growth-Shaping

Both LRT and BRT systems in a transitway with similar transit stops would impart a sense of "permanence" to help catalyze transit-oriented development along the alignment. The perception of "permanence" (a permanent government commitment to a particular alignment) is likely to be greater with an LRT system because of the increased level of fixed investment in the alignment (e.g., investment in trackwork). Therefore, the land use investments may be somewhat greater from an LRT system than a BRT system.

c) Criterion Three: Quality of Life and Livability

Quality of life was evaluated from the perspective of the amount of noise and air pollution, which would be experienced by people along the In-Town transit alignment. Livability was assessed from the standpoint of visual orientation, streetscape, and scale; in other words, a sense of place.

Noise Levels

The passby noise of an LRT vehicle operating at 30 mph at a distance of 50 feet is 78 dBA in comparison to a BRT vehicle, which has a passby level of 75 dBA. This is a difference of 3 dBA, which is a "perceptible" to "noticeable" change in noise level. Therefore, the passby noise from an electric bus would be somewhat quieter than the passby noise from an LRT vehicle. Wheel squeal noise for LRT due to steel wheels running on steel rails in areas with tight turning radii could generate noise. Vibration impacts could also occur with the LRT technology, although these impacts would be mitigated. Electric bus technology would have lower noise levels than LRT technology due to the use of rubber tires. Vibration impacts would also be less.

Air Quality

LRT vehicles and electric buses powered by embedded plate technology would emit no air pollutants at street level. Hybrid diesel/electric buses would emit minimal levels of air pollutants because the diesel generator would be operating at peak efficiency from an environmental perspective.

d) Criterion Four: Capital and Operating Costs

Capital costs for the In-Town BRT system would be 35 percent less than with an LRT system on the same alignment. This cost difference even reflects the need to replace BRT vehicles on a 12-15 year replacement cycle while LRT vehicles have a 30-year useful life. The added cost for the LRT option reflects the high costs of trackwork, yards and shops. Vehicle costs would actually be somewhat less for the LRT option when the less frequent replacement cycle and smaller fleet requirements are taken into account.

Annual systemwide transit operating and maintenance costs were also estimated for each alternative for the forecast year 2025. Operating and maintenance costs would be roughly the same for the LRT and BRT options, even though the LRT would require specially trained and dedicated mechanics and operators.

e) Criterion Five: Cost-Effectiveness Analysis

Cost-effectiveness analysis compares the ridership gains with the costs for each alternative. This analysis has become an important part of the federal procedures for analyzing major transit projects. A project's cost-effectiveness index (CEI) is determined by a formula that measures the project's net cost per new passenger that would be attracted to a build alternative relative to the TSM Alternative. Therefore, when two project alternatives are compared in terms of their CEIs, the one with the lower index represents the more cost-effective of the two.

The CEI for the BRT option is very competitive compared to other national projects competing for funding. The cost per new rider gained with the LRT would be 2.8 times as costly as with the BRT. As a result, the CEI for the LRT option would be substantially less competitive in competing for FTA New Starts funds than the BRT Alternative.

f) Summary of Evaluation Findings

The BRT option would be more advantageous than LRT in meeting the islandwide and in-town mobility needs while supporting all of the livability goals. It has the highest ridership. The cost-effectiveness of the BRT option would be competitive with projects currently recommended for funding by FTA. The LRT option would be less competitive. Advanced bus technologies (embedded plate and hybrid diesel/electric) offer the quality of life benefits (e.g., reduced or no air and noise emission levels) previously associated only with LRT technology. The BRT also offers operating flexibility around blockages and special events that is not possible with LRT. The BRT system provides the features needed for Honolulu at substantially lower cost than an LRT system. Therefore, the LRT option was eliminated because most of the performance of an LRT system could be achieved at a substantial cost savings with low-floor, electric-powered, articulated bus technology.

Chapter 3.0
Affected Environment

CHAPTER 3 AFFECTED ENVIRONMENT

3.0 CHAPTER OVERVIEW AND ORGANIZATION

This Chapter describes the existing social and natural environmental conditions in the primary transportation corridor. It is a requirement of the State Environmental Impact Statement (EIS) Law that current conditions in the area potentially affected by a project be described in order to benchmark them. Only after the existing conditions are understood may an assessment be made of the impacts that the No-Build, Transportation System Management (TSM) and Refined Locally Preferred Alternatives could create. Chapter 4 discusses the impacts of these alternatives on the transportation system; Chapter 5 discusses the impacts of these alternatives on other aspects of the environment.

The existing conditions information has been revised to reflect the most current data available since the Major Investment Study/Draft EIS (MIS/DEIS) and Supplemental Draft EIS (SDEIS) were published and circulated for public and agency review and comment. It should be noted that although the 2000 Census data gathering has been completed not all of the information was available at the time this Final EIS was compiled.

Because of the size and diversity of the primary transportation corridor, this section focuses on parameters that:

- are most pertinent to consider for a transportation project;
- were identified for particular attention through the scoping process, comments received on the MIS/DEIS and SDEIS, and other public involvement activities;
- represent particularly sensitive resources;
- would be affected differently by the alternatives (and therefore would reconfirm selecting the Refined BRT Alternative as the Refined Locally Preferred Alternative (Refined LPA)
- are required by law to be assessed.

Disciplines addressed in this Chapter include:

- Land Use and Economic Activity
- Transportation
- Neighborhoods
- Visual and Aesthetic Conditions
- Air Quality
- Noise and Vibration
- Ecosystems
- Water Resources
- Hazardous Materials
- Historic and Archaeological Resources
- Parklands

3.1 LAND USE AND ECONOMIC ACTIVITY

3.1.1 Regional Summary

Oahu is 44 miles long and 30 miles wide, containing almost 380,000 acres of land surrounded by a coastline of 112 miles. Because much of the land is mountainous, only about 54 percent of the total area is potentially developable (see Figure 3.1-1). The island is the most populous in the Hawaiian Archipelago, and comprises the City and County of Honolulu. Based on State land use classifications, 26 percent of Oahu is classified as Urban, 34 percent is classified as Agriculture, and the remaining 40 percent is classified as Conservation.

3.1.2 General Study Area

The primary transportation corridor is by far the most urban region on Oahu and in the State, supporting over 57 percent of the island's population and over 80 percent of all employment. The City and County of Honolulu divides Oahu into eight planning areas, each with specific land use objectives and development requirements as discussed below. Figure 3.1-2 illustrates the planning areas.

1) Primary Urban Center (PUC) Planning Area

The PUC extends from Pearl City at the Ewa end to Waialae-Kahala at the Koko Head end, and is bounded on the north by the Koolau Mountain Range and on the south by the coastline (see Figure 3.1-2). The 2000 Annual Report on the Status of Land Use on Oahu (May 2001) states that approximately 16 percent of the 65,000 acres within the PUC is designated for residential use; four percent is designated for commercial/industrial use; 12 percent is designated for public facilities, including parks; 53 percent is designated for preservation; and 13 percent is used by the military.

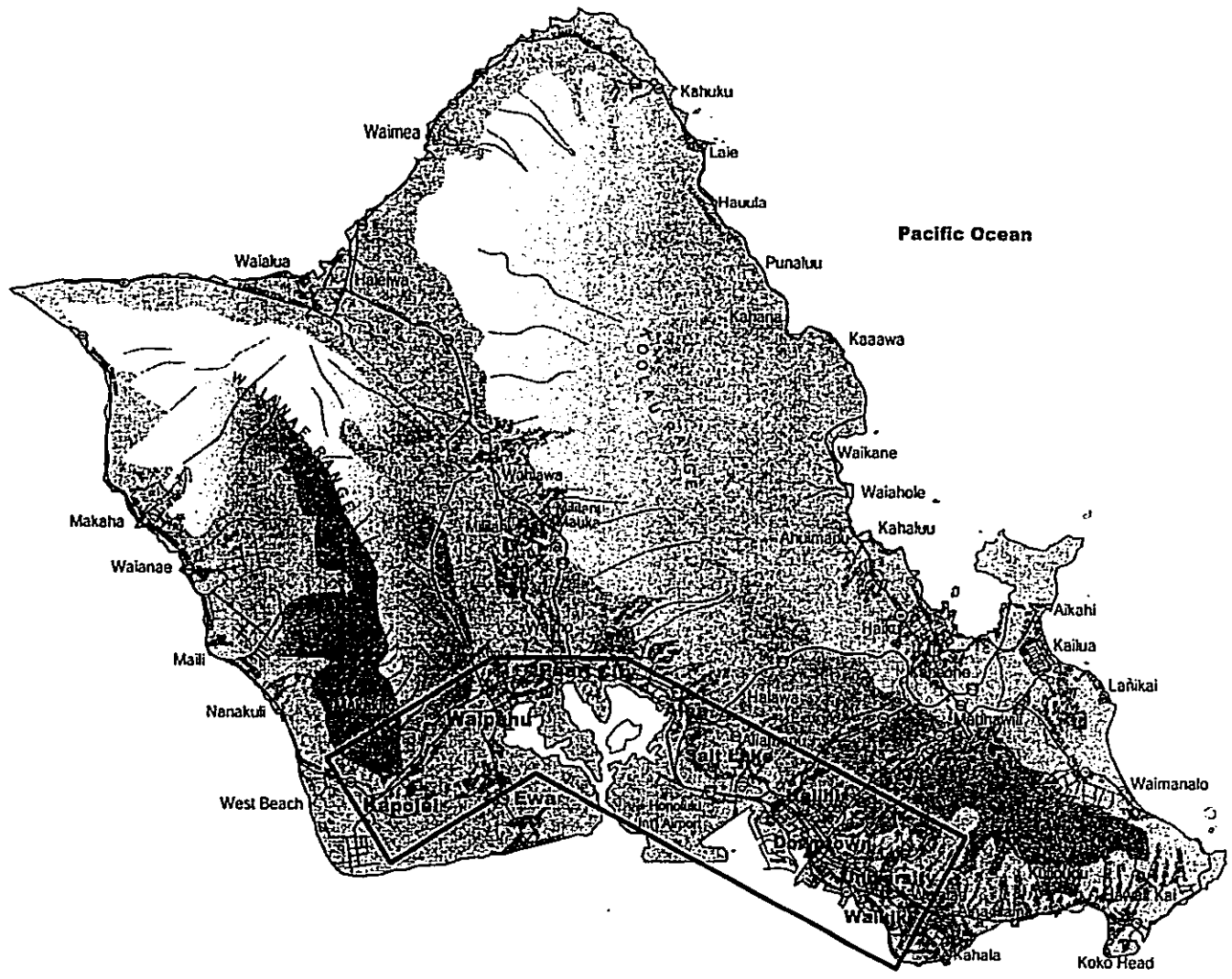
The PUC is by far the most populated planning area. In 2000, its resident population was 426,000, or close to 49 percent of the island total. Throughout the 1980s and 90s, population in other parts of the island increased at a faster rate than in the PUC. This is due to a substantial increase of relatively affordable housing in the Ewa and Central Oahu planning areas during this period, shifting population growth from the PUC to these outlying regions.

The housing stock of this area is diverse, varying from single-family dwellings to high-rise apartment buildings. The density of units in the PUC is higher than in any of the other planning areas.

2) Ewa and Central Oahu Planning Areas

The southern portion of the Central Oahu planning area is within the primary transportation corridor, including Waipahu Town and the surrounding Kunia, Waikele and Waipio communities. The Central Oahu planning area contains the wide fertile plateau between the Waianae and Koolau Ranges previously in extensive agricultural use.

Much of the Ewa planning area is within the primary transportation corridor. Much of this planning area is a low elevation plain that extends from sea level at the coastline to an elevation of only about 100 feet three to five miles inland. Like Central Oahu, the Ewa region was once one of Oahu's prime sugarcane cultivation areas, but is now experiencing urban growth as the State, and City and County of Honolulu support development of the region as the "secondary urban center" of Oahu. Diversified agricultural activities, as well as park construction have also begun on certain abandoned cane fields.

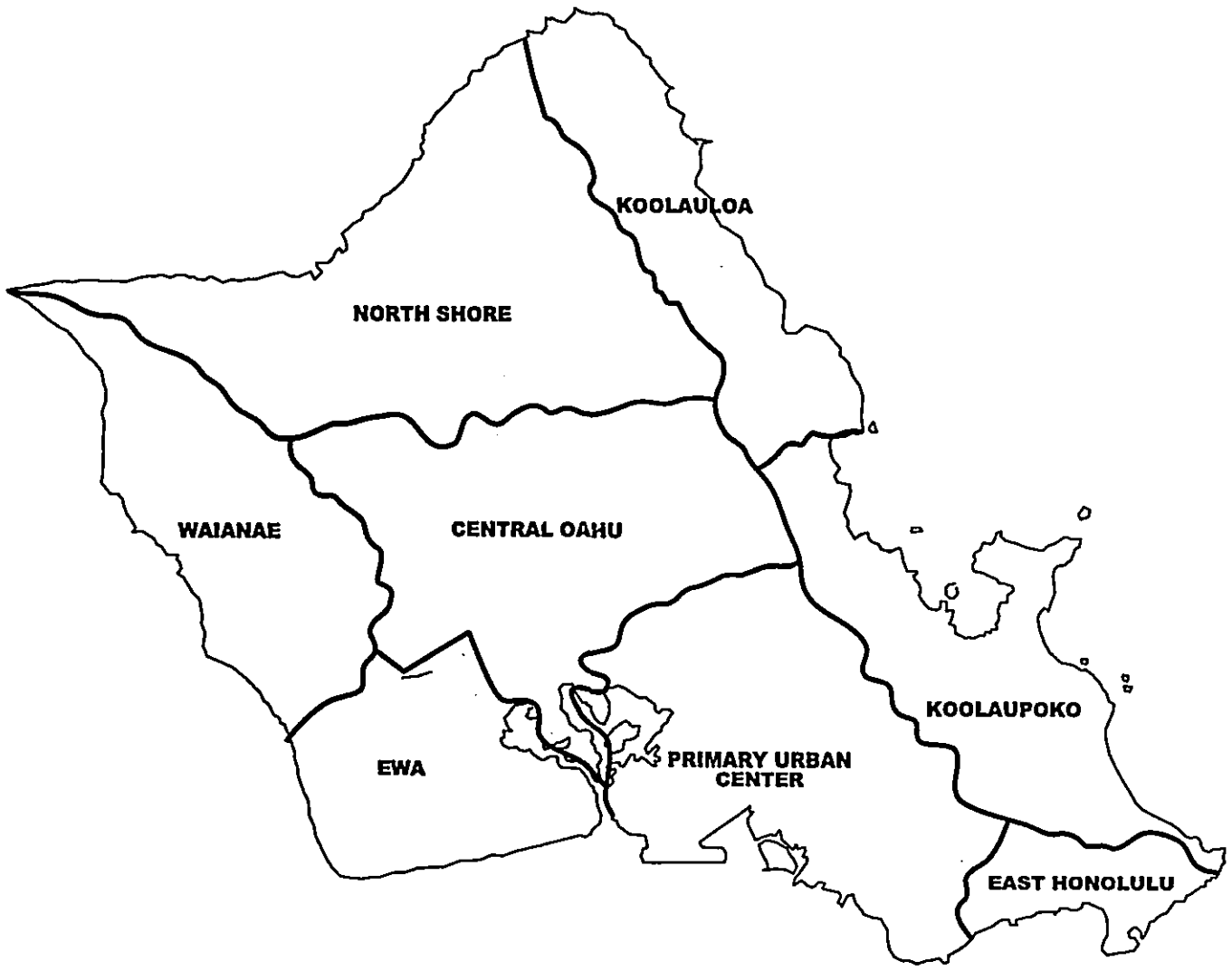


SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

N Scale: 0 2 4 mi

Primary Transportation Corridor Study Area

Figure 3.1-1



SOURCES:
ESRI Atlas GIS v4.0 1998; City and County of Honolulu, Department of Planning & Permitting.

N

Scale: 0 2 4 mi
Scale: 0 4 8 km

Development Plan Areas

Figure 3.1-2

3.1.3 Corridor Land Uses

1) PUC Planning Area

The PUC features the most diverse land uses on the island (see Figures 3.1-3A through 3.1-3C). Developable areas in the valleys and on the Koolau ridges support primarily single-family residential uses, such as the neighborhoods of Manoa, Pacific Heights, Nuuanu, Kalihi Valley, Halawa Heights, Newtown, Pearl City Uplands, and Pacific Palisades. Multi-family residential areas are predominantly in Waikiki, McCully-Moiliili, Kaheka, Makiki- Punchbowl, upper Downtown, Kalihi-Palama, Salt Lake, and Pearlridge.

Industrial uses are mainly located in Kakaako, Iwilei, Kalihi-Kalihi Kai, Sand Island, Mapunapuna, the Airport area, Pearl Harbor, and Halawa and Waiawa Valleys.

The PUC remains the center of government, business, economic, and cultural activities in the State. The PUC contains most of the major employment centers on the island, such as the Honolulu International Airport, and Sand Island and Mapunapuna industrial districts; Downtown Honolulu including the adjacent Capitol District; and Waikiki. In 2000, the PUC contained about 380,000 jobs, or 78 percent of the total civilian employment on the island.

The PUC also contains a substantial military presence, mostly in the western portion. Pearl Harbor Naval Complex, Hickam Air Force Base, Tripler Army Medical Center, and Fort Shafter are the main military installations. Combined employment at these installations is 22,944 (State Databook, 2001).

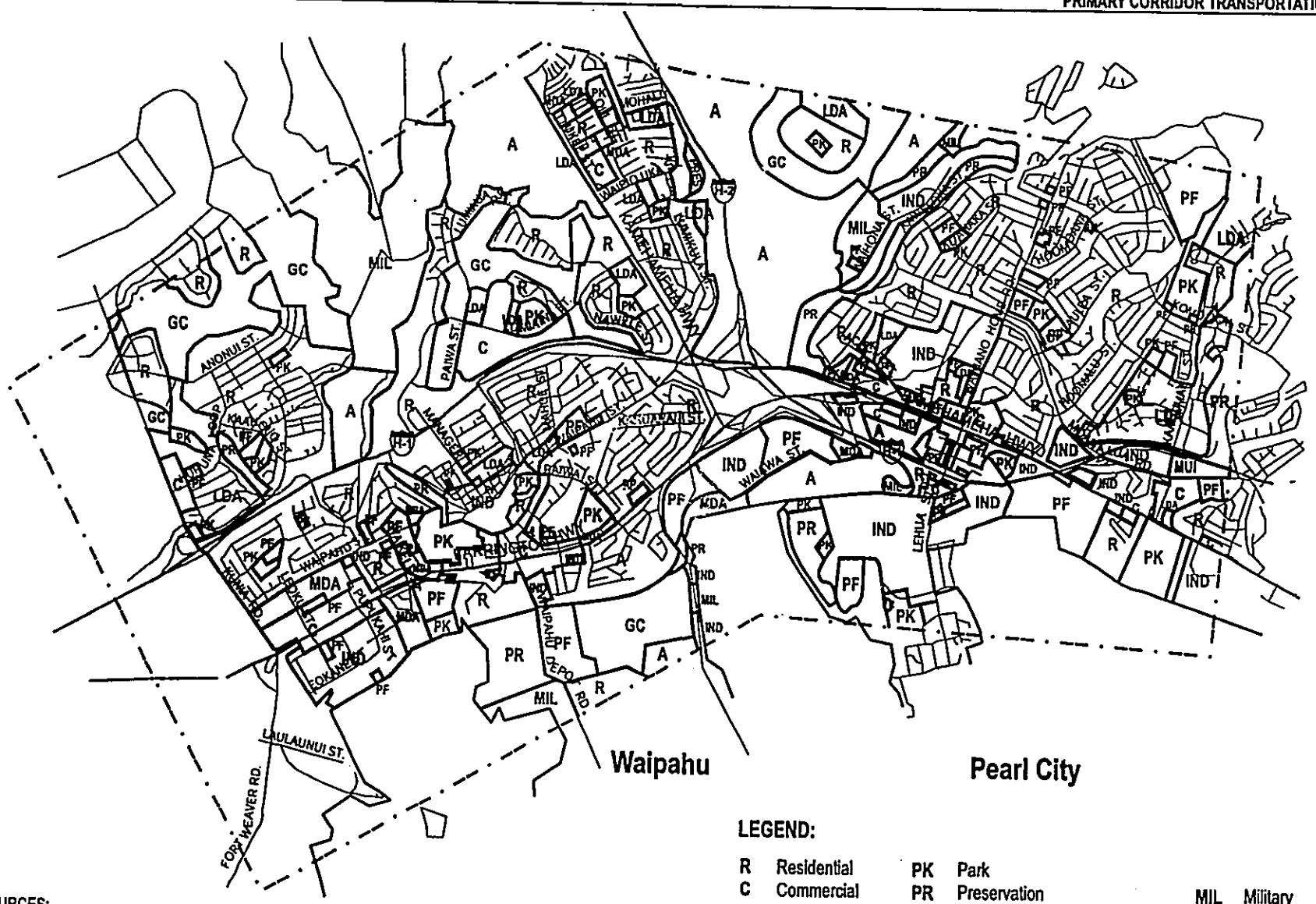
Office, retail, service, and government centers are located primarily between Kalihi-Palama and Kaimuki, an area constituting the urban core of Honolulu ("Urban Core"). The Urban Core is extremely diverse in terms of land uses: low to high-density residential; small to large-scale commercial and industrial establishments; and recreational facilities ranging from small neighborhood parks to large regional parks, such as Ala Moana and Kapiolani Parks. This area contains Chinatown, the island's central business district (Downtown Honolulu), the State Capitol, City Hall (Honolulu Hale), and the State's largest visitor accommodation and activities center, Waikiki. A sizable commercial area is located on the western side of the PUC, between Aiea and Pearl City.

2) Central Oahu Planning Area

Central Oahu planning area land uses include prime agricultural lands, military installations, and major residential communities. Over the last two decades, the land use focus of Central Oahu has been residential development, although there is a small high technology park near Mililani. Most of the new housing has been developed in the master planned communities of Mililani, Waipio, Waikele and Kunia.

Waipio, Waikele and Kunia are relatively new suburban communities of single-family residences and low-density townhouses. All three contain large commercial shopping centers: Waipio Shopping Center, Royal Kunia Shopping Center, Costco and Waikele Center/Waikele Premium Outlets. The latter three draw shoppers from other parts of the island and tourists.

Waipahu is one of Central Oahu's oldest communities, generally bounded by Waiawa Interchange to the east, Pearl Harbor West Loch to the south, the H-1 Freeway to the north and Fort Weaver Road to the west. While originally a set of plantation villages built around the Waipahu Sugar Mill and segregated by ethnicity, since the end of the Second World War, Waipahu has transformed into suburban and commercial land uses. Today, the northern part of Waipahu is predominantly single-family residential, and the southern portion along Farrington Highway is mixed-use commercial, light industrial and low- to medium-density apartments. The commercial uses consist of strip malls and car dealerships along the highway.



SOURCES:
City and County of Honolulu, October 1998; Parsons Brinckerhoff,
Primary Corridor Transportation Project, Major Investment Study/ Draft Environmental Impact Statement, August 2000.

LEGEND:

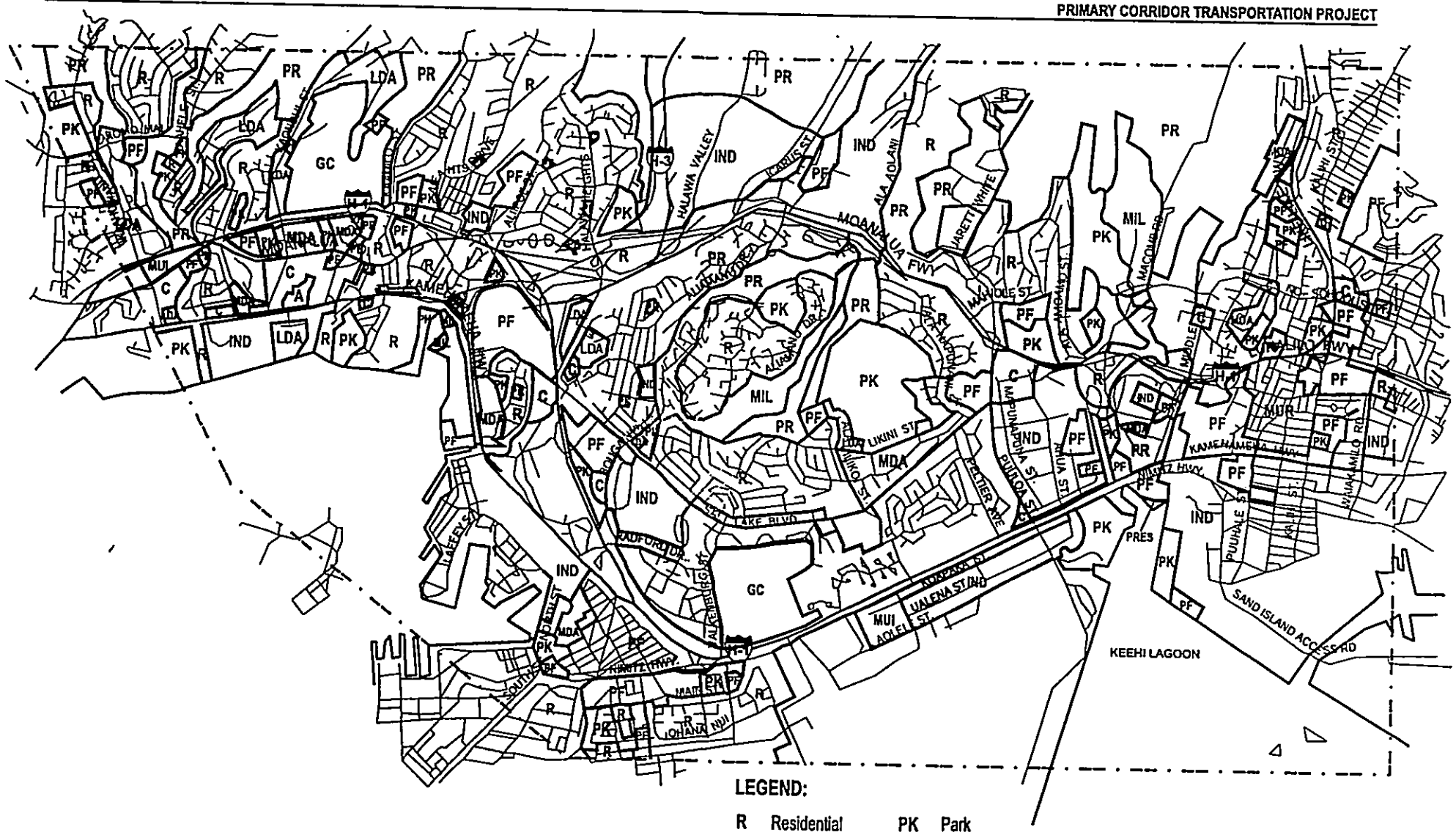
R	Residential	PK	Park	MIL	Military
C	Commercial	PR	Preservation	MUR	Mixed Use Residential
A	Agricultural	PF	Public Facility	MUC	Mixed Use Commercial
GC	Golf Course	LDA	Low Density Apartments	MUI	Mixed Use Industrial
IND	Industrial	MDA	Medium Density Apartments		

N

Scale: 0 .25 .50 mi

Development Plan Land Uses: Waipahu - Pearl City

Figure 3.1-3A



LEGEND:

R	Residential	PK	Park	MIL	Military
C	Commercial	PR	Preservation	MUR	Mixed Use Residential
A	Agricultural	PF	Public Facility	MUC	Mixed Use Commercial
GC	Golf Course	LDA	Low Density Apartments	MUI	Mixed Use Industrial
IND	Industrial	MDA	Medium Density Apartments		

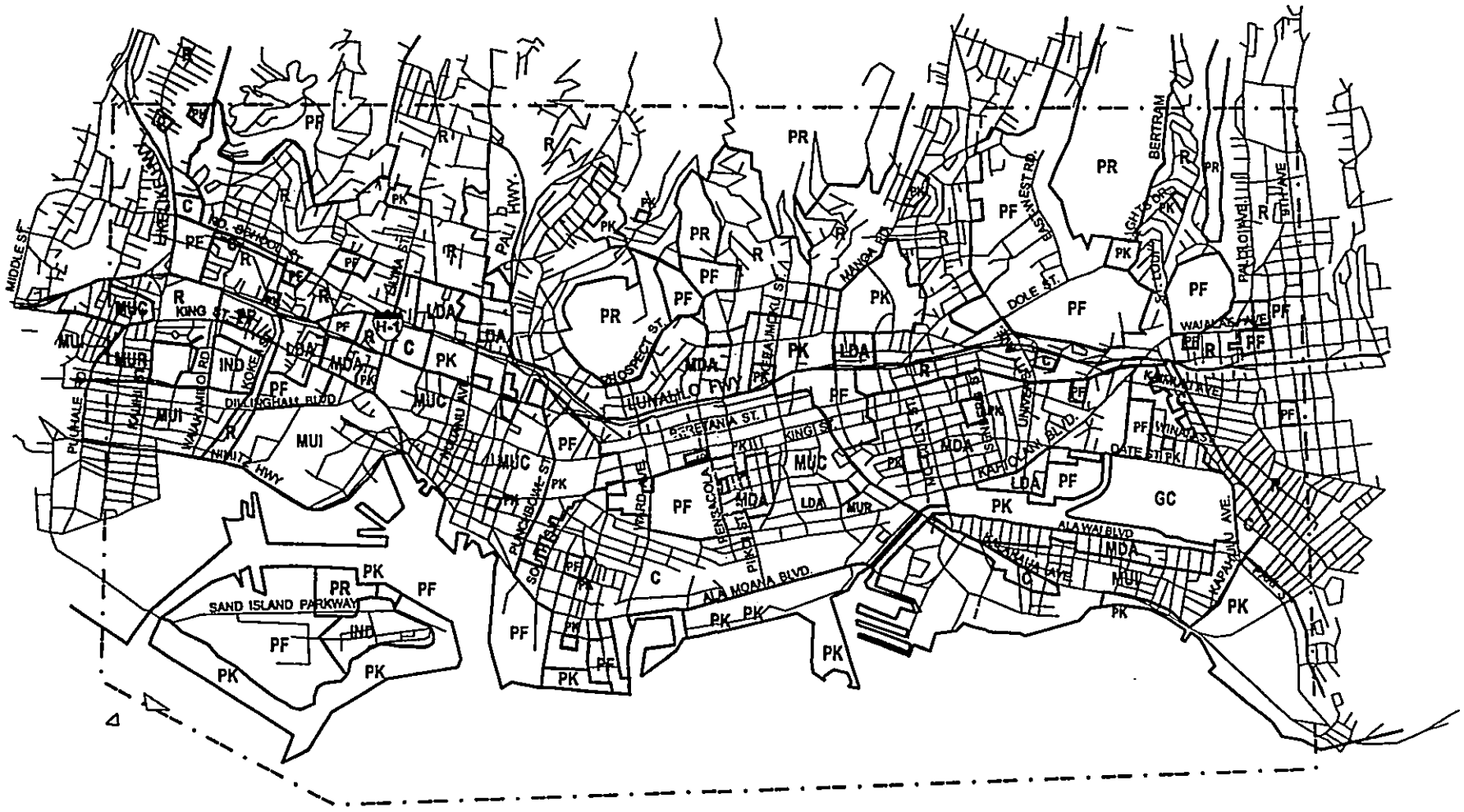
SOURCES:
City and County of Honolulu, October 1998; Parsons Brinckerhoff,
Primary Corridor Transportation Project, Major Investment Study/ Draft Environmental Impact Statement, August 2000.

N

Scale: 0 .25 .50 mi

Development Plan Land Uses: Aiea - Fort Shafter

Figure 3.1-3B



SOURCES:
City and County of Honolulu, October 1998; Parsons Brinckerhoff,
Primary Corridor Transportation Project, Major Investment Study/ Draft Environmental Impact Statement, August 2000.

LEGEND:

R	Residential	PK	Park	MIL	Military
C	Commercial	PR	Preservation	MUR	Mixed Use Residential
A	Agricultural	PF	Public Facility	MUC	Mixed Use Commercial
GC	Golf Course	LDA	Low Density Apartments	MUI	Mixed Use Industrial
IND	Industrial	MDA	Medium Density Apartments		

N

Scale: 0 .25 .50 mi

Development Plan Land Uses: Kalihi - University

Figure 3.1-3C

Mililani has a population of approximately 90,000 residents as well as a regional shopping center and several community shopping centers. It is immediately outside the primary transportation corridor. However, most of the workers who live there are commuters who use the corridor on a daily basis.

3) Ewa Planning Area

Ewa has experienced rapid residential growth within new master planned developments. The oldest community in the region is Ewa Villages, which was built in the 1890s and consisted of eight villages housing immigrant plantation workers, segregated by national origin. Ewa Villages is currently undergoing redevelopment to provide newer housing and commercial uses. Ewa Beach, Honokai Hale, and Makakilo were developed from the 1950s through the 1970s, and all are still expanding. Newer communities include West Loch, Ewa Gentry, Ocean Pointe, and the Villages of Kapolei. Newer communities consist mostly of single-family residences or low-density townhouses.

The City of Kapolei, located in the western portion of the Ewa Planning Area, is being developed as the "second city" of Oahu. Existing land uses include a community shopping center, a 16-screen movie theater complex, a 73-acre regional park, an office complex, a bank office building, and a State office building. A State Public Library, a City and County Civic Center, and a police station were recently opened. Other employment areas in Ewa include Kalaeloa (formerly Barbers Point Naval Air Station), Campbell Industrial Park, Kapolei Business Park and Ko Olina resort. Campbell Industrial Park, located just west of the primary transportation corridor, contains approximately 300 businesses on 1,367 acres, including the State's two petroleum refineries, large warehouses and distribution facilities. Ko Olina, also west of the corridor, is a 1,000-acre resort that includes a premier hotel, townhouses, four sandy lagoons, a golf course and clubhouse, and a marina. Additional housing is under construction or being planned, and substantial further growth for Ko Olina is planned.

Agriculture in the Ewa planning area continues despite urban encroachment. Since the end of sugarcane cultivation in the early-1990s, small-scale leased farms cultivating diversified agricultural crops have begun to operate in old sugarcane fields between Waipahu and the Villages of Kapolei.

3.1.4 Proposed Development Projects

The City of Kapolei, the area from Pearl City to Aloha Stadium, and the area from Middle Street to Kapahulu and Waialae Avenues (the "Urban Core") contain many development projects in the planning or construction phases. Table 3.1-1 shows proposed development projects in the primary transportation corridor. As they are implemented, these projects will influence adjacent land uses.

3.1.5 Plans and Policies

1) State Plans, Policies and Controls

Land Use Plans and Controls

Hawaii State Plan

The Hawaii State Plan (June 1991) consists of comprehensive goals, objectives, policies and priorities in all areas of government functions. These functions include the protection of the physical environment, the provision of public facilities, and the promotion and assistance of socio-cultural advancement.

State Land Use Commission

Chapter 205, Hawaii Revised Statutes (HRS), involving the State Land Use Commission (SLUC), regulates land use by establishing four categories: Urban, Agriculture, Conservation, and Rural. The intent of the land classification is to accommodate growth while retaining important natural resources. Each district has specific land use objectives and development constraints.

TABLE 3.1-1
PROPOSED DEVELOPMENT PROJECTS WITHIN THE PRIMARY TRANSPORTATION CORRIDOR

Ewa
- Kalaeloa/Barbers Point Harbor expansion (ongoing)
- Kapolei Business Park (ongoing)
- City of Kapolei expansion (office buildings, civic center, commercial, etc.) (ongoing)
- Redevelopment of Barbers Point Naval Air Station (general aviation airport, regional park, etc.)
- Build out of the Villages of Kapolei (ongoing)
- East Kapolei
- Ocean Pointe (formerly Ewa Marina) (ongoing)
- Build-out of Ewa Gentry (ongoing)
- Build-out of Ewa Villages (ongoing)

Central Oahu
- Redevelopment of Waipahu Sugar Mill site (ongoing)
- Build-out of Royal Kunia (ongoing)
- Build-out of Waikele (ongoing)
- Waiawa by Gentry

Pearl Harbor
- Manana redevelopment, including Pearl City Junction (ongoing)
- Retail expansion of Pearl Highlands Center
- Ford Island redevelopment
- Aiea Sugar Mill site redevelopment
- Kamehameha Drive-In Theater site reuse
- Redevelopment makai of Kamehameha Highway between Waimalu and Kalauao Streams

Honolulu (Urban Core)
- Various high-rise housing projects in Waikiki
- King Kalakaua Plaza, Phase II (commercial, Waikiki)
- Various senior housing projects in McCully/Moiliili
- Entertainment complex at Ala Moana Center
- Victoria Ward shopping, entertainment, and housing (ongoing)
- Various high-rise housing projects in Kakaako
- Kakaako Makai redevelopment
- Various housing projects in the Punchbowl area
- Bank of Hawaii office tower
- Aloha Tower complex expansion

Source: City and County of Honolulu Department of Planning and Permitting, 2000.

Most of the lands within the primary transportation corridor are Urban. However, part of the Ewa planning area within the corridor has an Agriculture designation. On Oahu, the City and County of Honolulu administers land uses within Urban districts, with the following exceptions:

- State lands, such as lands controlled by the State of Hawaii Department of Transportation (HDOT) (e.g., portions of Honolulu Harbor, Honolulu International Airport and State roadway facilities) or the Hawaii Department of Land and Natural Resources (HDLNR) (e.g., submerged lands and state parks);
- Areas controlled by the military;

- The Kakaako Community Development District, which is administered by the Hawaii Community Development Authority (HCDA), a State authority; and
- The Aloha Tower area controlled by the Aloha Tower Development Corporation (ATDC), a State entity.

Coastal Zone Management

The objectives and policies of the Hawaii Coastal Zone Management (CZM) Program are intended to protect and manage Hawaii's valuable coastal areas and resources. Pursuant to 15 CFR 930.32, federally permitted, licensed or assisted activities undertaken in or affecting Hawaii's coastal zone must be consistent with the objectives and policies of the CZM program. The primary transportation corridor is in the CZM area.

Kakaako Community Development District Plans

Kakaako, the area east of Downtown Honolulu bounded by South Street to the west (Ewa), Kapiolani Boulevard to the north (mauka), Piikoi Street to the east (Koko Head) and the coastline to the south (makai), is a special development district under the management of the Hawaii Community Development Authority (HCDA), a State agency established for long-range community planning and development. HCDA has developed major redevelopment plans for this district, which are in various stages of implementation. These redevelopment plans are intended to make Kakaako a major activity node for residential, industrial, office, maritime and other land uses. The Kakaako Community Development District Plan, adopted in 1982, serves as the basis for guiding public and private development activities in Kakaako.

For planning purposes, the district has been divided into Mauka and Makai areas, demarcated by Ala Moana Boulevard.

The Makai Area Plan, originally prepared and adopted in 1983, was revised in 1998. The basic land use premise of the plan is that substantial portions of the 221-acre Makai Area should be set aside for public enjoyment and access to the waterfront. According to the plan, the overall vision is "to create an active area through a variety of new developments, including an expansive waterfront park, maritime uses along the harbor, restaurants, seafood markets and entertainment along Kewalo Basin, a children's museum and a theater for performing arts, a world-class aquarium, and commercial development of the interior areas" (Makai Area Plan, August 1998). Plans for the area also include a new UH medical school and a private biomedical research facility.

HCDA's development strategy incorporates commercial activities, parks, restoration of the former Ala Moana Pump Station for a restaurant and Hawaiian music venue, and the inclusion of other public facilities in Kakaako Makai. As part of this strategy, current projects include infrastructure improvements to Ilalo Street and relocation of the City corporation yards out of Kakaako.

The Mauka Area Plan addresses 300 acres north of Ala Moana Boulevard, and was revised in 1997. The overall goal of the Mauka Area Plan echoes that of the Kakaako Community Development District Plan, which is to guide private and public development in the revitalization of Kakaako. Recent improvements to Kamakee Street from Kapiolani Boulevard to Queen Street improved circulation in the Mauka Area. Higher density development, including additional medium-to-high density residential uses, are envisioned for the Mauka Area.

Aloha Tower Development Plan

The State's Aloha Tower Development Corporation (ATDC) is responsible for the redevelopment of 22 acres of pier area fronting Downtown Honolulu. The ATDC developed a four-phased master plan in the late 1980s for Piers 5 to 14. The proposed plan includes maritime facilities, restaurants, retail shops, offices, a hotel, and residential condominiums. Thus far, only the first phase, redevelopment of Piers 8 to 10, has been completed. Phase One consists mainly of the Aloha Tower Marketplace development, which includes restaurants and retail stores. ATDC is updating the current master plan for Piers 5/6, 10/11 and 12 – 14, and is expected to lay the groundwork for additional development opportunities.

Honolulu Waterfront Master Plan

The Honolulu Waterfront planning area encompasses approximately 1,550 acres adjoining Honolulu Harbor. The 1989 Honolulu Waterfront Master Plan Final Report (HWMP) (1989), prepared for the Office of State Planning (now the Office of Planning in the State Department of Business, Economic Development and Tourism), included a variety of mixed-use developments in the harbor vicinity, and a Sand Island Parkway, including a tunnel between Sand Island and Kakaako. The Oahu Commercial Harbors 2020 Master Plan has updated portions of this Plan.

State Transportation Plans

Oahu Commercial Harbors 2020 Master Plan

The HDOT Harbors Division prepared the Oahu Commercial Harbors 2020 Master Plan (OCHMP) (May 1997), a long-range plan for all of the commercial harbors on the island: Honolulu Harbor, Kalaeloa Barbers Point Harbor, and Kewalo Basin. The OCHMP updated separate 2010 plans prepared for Honolulu and Kalaeloa Barbers Point Harbors. The OCHMP addressed issues and needs relating to the maritime industry exclusively (e.g., cargo and passenger movements and fishing), unlike the HWMP, which addressed additional waterfront issues, such as commercial development and landside recreation.

Major port facility improvements recommended for Honolulu Harbor include a new container terminal at the former Kapalama Military Reservation, improving Kalihi Channel to establish a second harbor entrance, a cruise ship terminal at Pier 2, expansion of the Young Brothers interisland terminal at Piers 39 and 40, a roll-on, roll-off (RORO) automobile terminal at Piers 31 to 33, an excursion vessel passenger terminal at Piers 26 and 27, and berths at Piers 19 and 20 for cruise ships. Recommended roadway improvements include a perimeter roadway around Honolulu Harbor, and a roadway tunnel under Kalihi Channel (in association with deep-draft improvements to Kalihi Channel) to replace the Sand Island Bridge.

Statewide Cruise Facilities Study (Needs Assessment)

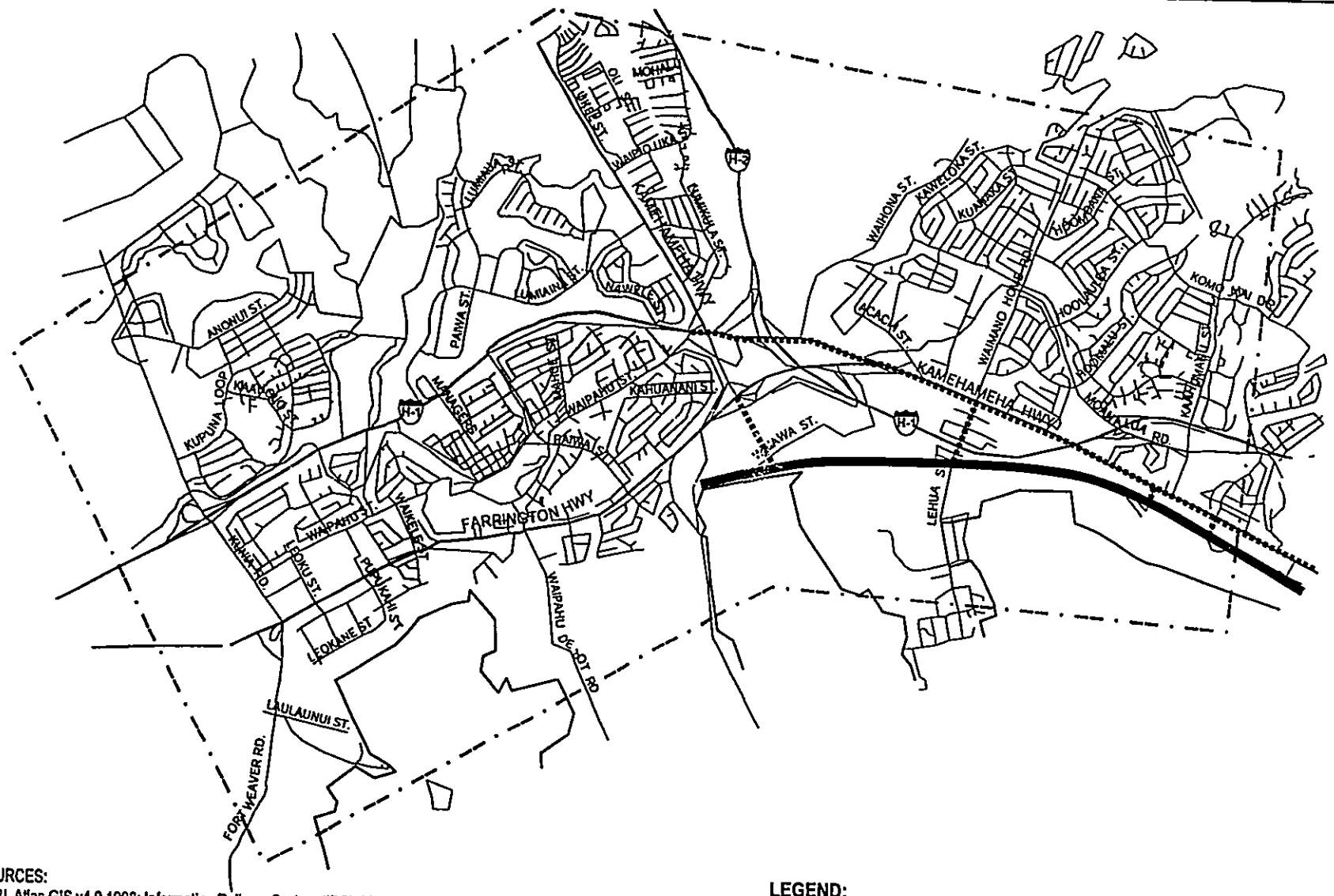
This HDOT (Harbors Division) study assessed existing and projected levels of passenger cruise ship activity in Hawaii, in part to help the State determine cruise ship infrastructure and facility requirements for each county. Recommendations included construction of a cruise ship terminal at Pier 2 in Honolulu Harbor, and development of interim cruise ship facilities at Piers 19 and 20. Physical improvements on the neighbor islands were also recommended.

Honolulu International Airport Master Plan – 2010

The Honolulu International Airport Master Plan – 2010 (State of Hawaii, Department of Transportation, Airports Division, August 1994) largely focuses on facility development within the boundaries of the airport. While there is some discussion of roadway improvements, including roads in the vicinity of the airport, such improvements are limited to street level changes, and will not directly impact the grade-separated H-1 traffic.

Bike Plan Hawaii

Bike Plan Hawaii (April 1994) recommended improvements to the State's bikeway systems. This Plan serves as guidance to the HDOT and county transportation agencies when roadways are built or modified. The Honolulu Bicycle Master Plan (April 1999), prepared by the City and County of Honolulu, recently supplemented this plan (the County plan is discussed more fully below). Figures 3.1-4A through 3.1-4C show existing and future bikeways, according to Bike Plan Hawaii and the Honolulu Bicycle Master Plan.



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998; Honolulu Bicycle Master Plan - Helber Hastert & Fee Planners, Bicycle Federation of America, Engineering Concepts, Inc. & David Cheever Marketing, April 1999.

LEGEND:

▬▬	Existing Bikeways
▪▪▪▪▪▪▪	Proposed Bikeways

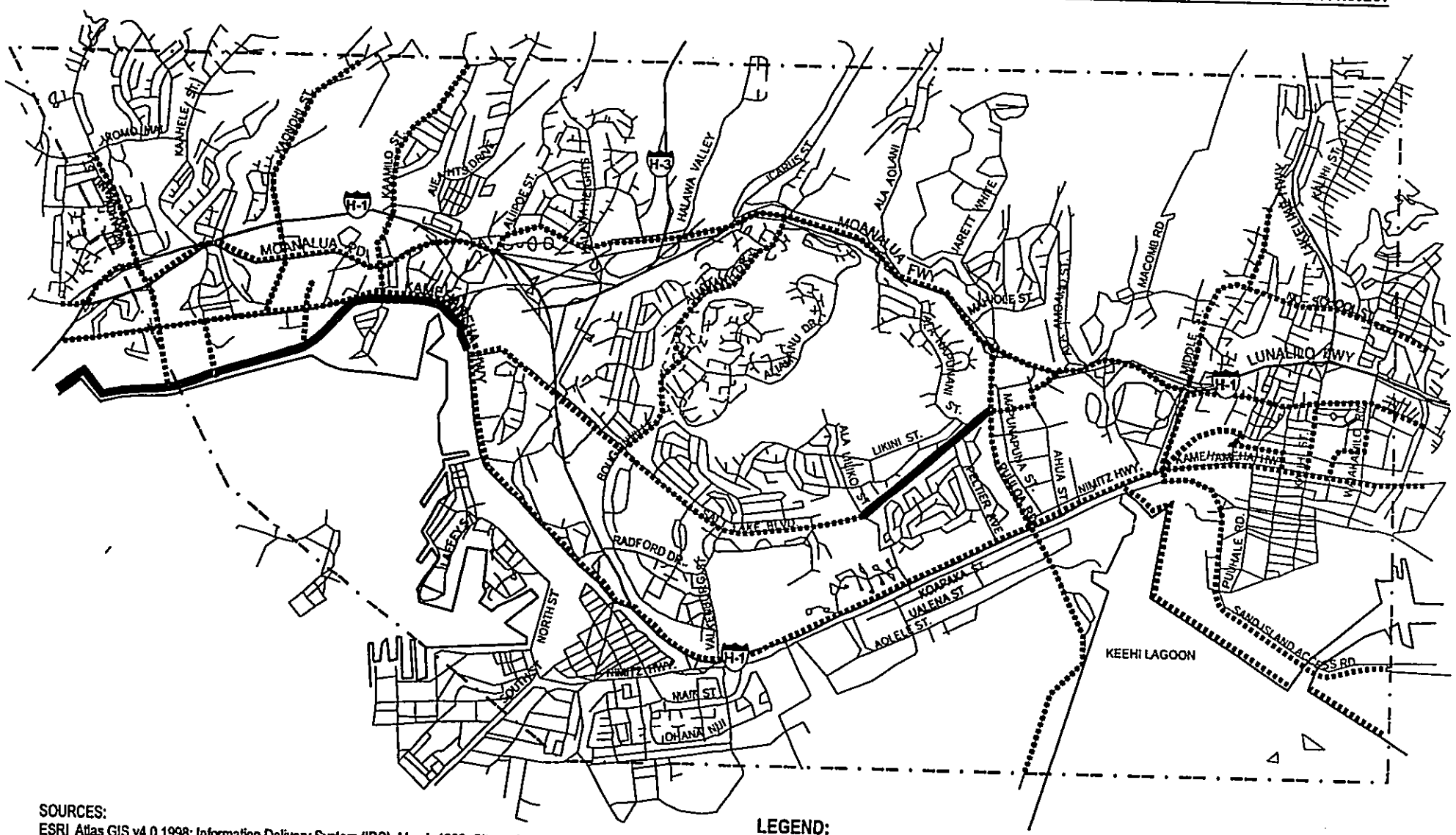
N

Scale: 0 .25 .50 mi

Scale: 0 .5 1 km

Bikeways: Waipahu - Pearl City

Figure 3.1-4A



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998; Honolulu Bicycle Master Plan - Helber Hastert & Fee Planners, Bicycle Federation of America, Engineering Concepts, Inc. & David Cheever Marketing, April 1999.

LEGEND:

▬	Existing Bikeways
▮▮▮▮▮▮▮	Proposed Bikeways

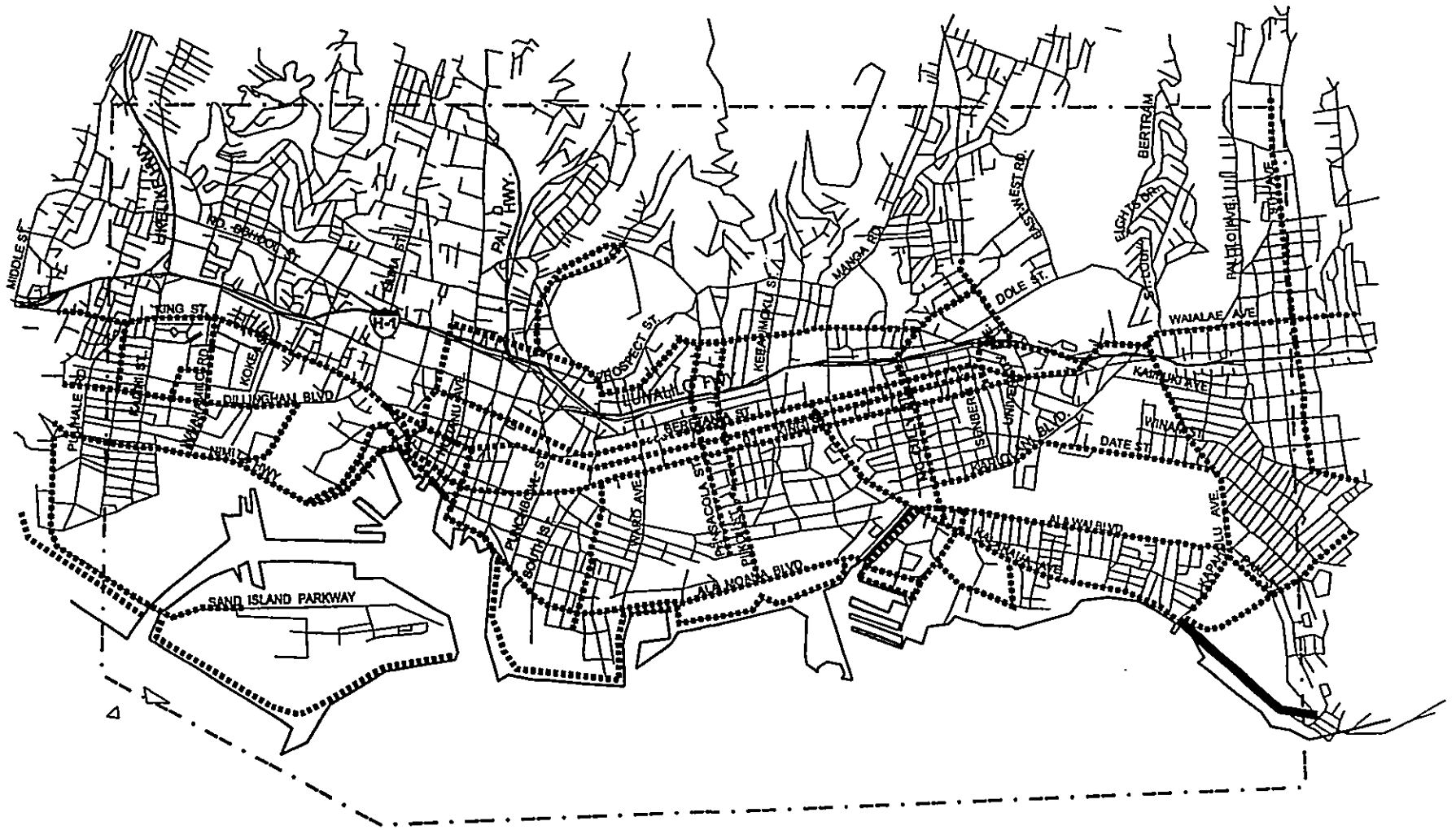
N

Scale: 0 .25 .50 mi

Scale: 0 .5 1 km

Bikeways: Aiea - Fort Shafter

Figure 3.1-4B



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998; Honolulu Bicycle Master Plan - Helber Hastert & Fee Planners, Bicycle Federation of America, Engineering Concepts, Inc. & David Cheever Marketing, April 1999.

LEGEND:

▬▬	Existing Bikeways
▮▮▮▮▮▮▮	Proposed Bikeways

N

Scale: 0 .25 .50 mi

Scale: 0 .5 1 km

Bikeways: Kalihi - University

Figure 3.1-4C

Recreational Plans

State Comprehensive Outdoor Recreation Plan (SCORP)

First prepared in 1966, the SCORP is updated every five years by the State Parks Division of HDLNR. The December 1996 statewide plan provides the planning assumptions and technical basis for developing and operating recreational facilities. This document identifies existing federal and state outdoor recreational facilities, and an assessment of future demand for recreation resources and programs. Surveys and interviews conducted in conjunction with this plan in 1996 indicated that there is increasing demand for additional and safe bicycling and pedestrian corridors statewide. While demand for ocean recreational facilities will continue, future development of marinas and recreational harbors will most likely have to be carried out by private developers (p. 4-13, SCORP 1996).

Educational Institution Plans

UH Manoa Master Plan

The Long Range Development Plan, University of Hawaii, Master Plan 1994 Update (Prepared by Group 70 International for University of Hawaii – Community Colleges Physical Facilities Planning and Construction Office, April 1994) is a facility plan for the University of Hawaii's Manoa campus. The Master Plan is reviewed and approved by the UH Board of Regents, and serves as a basis for infrastructure improvements and capital program funding requests. The 1994 Update of the UH Manoa Campus long range development plan proposes to enhance the "sense of place" on the campus by locating both pedestrian and vehicular gateways at key access points to campus. The UH plans to construct a pedestrian gateway at the intersection of Campus Road and University Avenue, and a landscaped mall continuing to a "town center" at Varney Circle.

Leeward Community College and West Oahu Campus Master Plan

The purpose of the Leeward Community College Long Range Development Plan, Final Environmental Assessment (LRDP) (Prepared by Group 70 International, for University of Hawaii – Community Colleges Physical Facilities Planning and Construction Office, March 1999) is to develop a plan for the physical site and facilities uses within the West Oahu campus and improve the transportation linkage to the surrounding community, among other goals. Most plans specified in the LRDP are aimed at improving on-site facilities. There is some discussion of ways to improve the access to and from the campus that is currently limited to Waiawa Road and Ala Ike Road on the makai side of H-1, near the Farrington Highway interchange.

UH West Oahu

A University of Hawaii (UH) West Oahu campus is planned for the Ewa region. A site on the mauka side of the H-1 Freeway in the vicinity of the future North-South Road Interchange was previously considered, but this plan was abandoned. Following extensive discussions with the community, UH officials are likely to move ahead on a 500-acre site on the Ewa plain located between Kapolei Golf Course and the future North-South Road.

UH Health and Wellness Center

The UH Health and Wellness Center will be a new campus for the U.H. John A. Burns School of Medicine (JABSOM) in Kakaako Makai. It will be located between Ilalo Street and the Kakaako Waterfront Park. The first phase of the project includes construction of two buildings that will house the JABSOM, biomedical research facilities and the Cancer Research Center of Hawaii. Phase II of the project includes a parking structure and a future research center.

2) Military Installation Planning

Pearl Harbor

The Department of the Navy prepared the Pearl Harbor Naval Complex Master Plan (October 1991), a comprehensive planning document, to guide the development of the Pearl Harbor Naval Station and surrounding auxiliary facilities. Also noteworthy is the development of a master plan for Ford Island, known

as the Ford Island Concept Plan (1998). This master plan envisions approximately $600 million of investment in residential, tourist, military and other land uses on Ford Island through public/private partnerships.

Ford Island Development

The U.S. Department of the Navy (Navy) is embarking on a program to sell or lease certain land holdings, and to improve the infrastructure, reconstruct facilities and locate or relocate Navy functional elements, family housing and supporting activities on Ford Island. Although this program involves properties other than Ford Island, which is located within Pearl Harbor and is accessed via the recently completed Admiral Clarey Bridge off of Kamehameha Highway, it is nevertheless named the "Ford Island Development Program" because it implements specific authorizing legislation (10 USC 2814). The other affected properties are at Halawa Landing, Iroquois Point/Puuloa Housing, Waikele Branch Naval Magazine, and the former Barbers Point Naval Air Station. On Ford Island, the Navy is planning to provide up to 420 new family housing units, up to 190 thousand square feet of administrative space, bachelor enlisted quarters for up to a thousand personnel, a consolidated training complex, and infrastructure to support the development. Up to 75 acres on Ford Island are allowed to be developed by the private sector.

Fort Shafter Complex

The U.S. Army's Fort Shafter is another military facility within the study corridor and the Fort Shafter Installation Master Plan (1985) describes the planning framework for this facility. Currently, there are 4,080 bachelor and family housing units within the Fort Shafter complex, which consists of Fort Shafter, Tripler Army Medical Center (TAMC) and Aliamanu Military Reservation (AMR). Most military housing at Fort Shafter is located on the mauka side. There are no new units programmed between now and the year 2005.

Armed Forces Recreation Center – Fort DeRussy

A Master Plan, prepared by the University of Southern Mississippi (1988) for the U.S. Army and approved by the Secretary of the Army (1988), recommended improvements to Fort DeRussy placing greater emphasis on its recreational mission. An EIS for the Master Plan was prepared and received approval in 1991. The facility has subsequently been redeveloped to fulfill its primary mission of recreation and most Army reserve functions have been moved to Fort Shafter. The improvements included extensive landscaping of the Army post, construction of the second hotel tower, construction of a 1,300-stall hotel parking structure, and realignment and widening of Kalia Road.

Hickam Air Force Base

The Comprehensive Plan - Future Land Use Plan, Hickam Air Force Base, Oahu, Hawaii (October 1988) guides land use planning and future development of the base. New facilities are not planned near Nimitz Highway.

Kalaeloa (former Barbers Point Naval Air Station) Reuse

The naval air station was closed in 1999. A master plan designates various mixed uses to be developed over time. The redeveloped area would support about 3,390 jobs including the general aviation airport, the National Guard and lands for Hawaiian Home Lands use.

Fort Armstrong

Fort Armstrong is a former military facility located at Piers 1 and 2 in the Kakaako Makai area. This area was once the primary container cargo facility on Oahu. Now it is used for maritime break-bulk and limited container cargo operation, ship maintenance operation, and Foreign Trade Zone warehouse and offices. In the future, Pier 2 could be needed as an additional cruise boat terminal.

3) City and County of Honolulu Plans and Policies

General Plan of the City and County of Honolulu

The General Plan (revised 1992) includes broad statements on the objectives and policies of the City and County of Honolulu with regard to overall physical and economic development of the island, as well as the health and safety of the island's residents. The General Plan directs population growth and new residential development primarily to the PUC and Ewa, while limiting growth in other areas.

Development and Sustainable Community Plans

The City and County of Honolulu prepared a Development or Sustainable Community Plan for each of the eight planning areas. A general overview of the planning areas within the primary corridor can be found in Section 3.1.2. Past development plans consisted of detailed (by parcel) land use and public facilities maps. In 1992, the Revised Charter of the City and County of Honolulu was amended to require development plans to "consist of conceptual schemes for implementing and accomplishing the development objectives and policies of the General Plan and serve as a policy guide for more detailed zoning maps and regulations and public and private sector investment decisions."

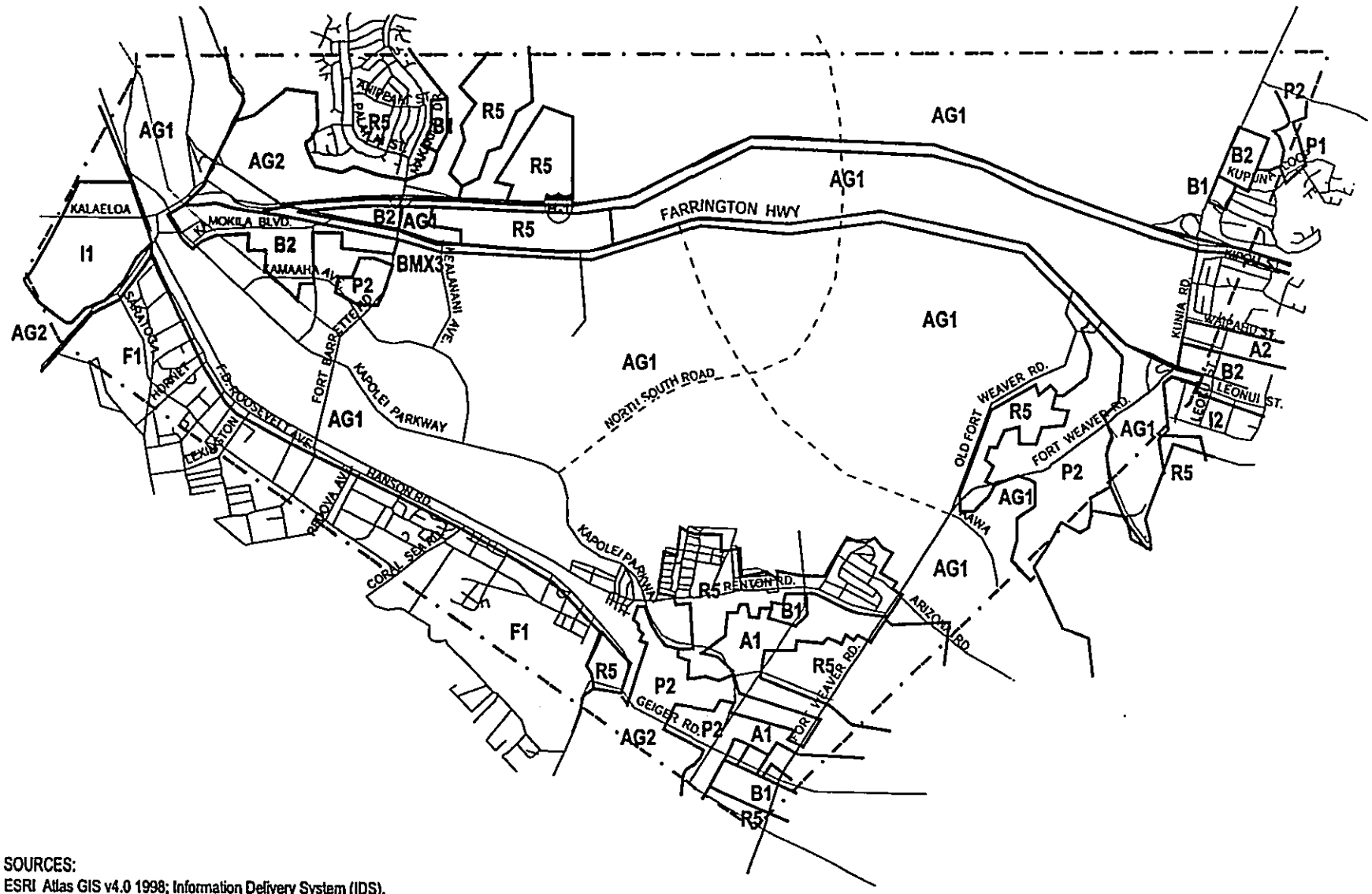
The PUC Development Plan (PUC DP) is currently being revised. Until the revision is adopted, the previously approved PUC DP remains in force. According to the PUC DP (Revised Ordinances of Honolulu, 1990, Chapter 24, Article 2), the PUC shall accommodate relatively intensive commercial, governmental, residential, and recreational functions while safeguarding and adding to the existing amenities of the City's urban environment.

The Ewa Development Plan (Ewa DP) (adopted in August 1997) was the first to be updated consistent with the 1992 Charter Amendments. The Ewa DP consists of vision statements, community design principles and guidelines; and conceptual mapping of open space networks, public facility networks, and urban land uses. The vision for Ewa is the development of a "Secondary Urban Center" on Oahu to provide opportunities for urban development and residential growth. The Ewa DP projects over 38,000 housing units located primarily in master planned communities in the Ewa area by 2020. Substantial job growth is also estimated, with over 52,000 jobs in the Ewa DP Area by 2020. The City of Kapolei would have over 25,000 jobs in office, retail and government; Campbell Industrial Park and parcels adjacent to Kalaeloa Barbers Point Harbor would support more than 7,000 jobs; and the redeveloped Kalaeloa area would support approximately 3,390 jobs. Kapolei has already become the headquarters for some State agencies, which have relocated from Downtown, and a further shift in government jobs to Kapolei is expected. The City and County Civic Center and a new police station have opened in Kapolei.

The Central Oahu Sustainable Community Plan (Central Oahu SCP) has been completed, and has passed first reading at the City Council. It was referred to the Council's Planning Committee for further public discussion. Until the Central Oahu SCP is adopted by the City Council, the previous Central Oahu Development Plan remains in force.

Under the Revised Charter (1992), the Department of Planning and Permitting (DPP) administers zoning. The City and County of Honolulu Land Use Ordinance (LUO) is the local zoning code, and zoning is required to be in conformance with the Development Plans, which are policy guidelines. Zoning designations within the study area are shown in Figures 3.1-5A through 3.1-5F.

The LUO includes Special Districts and zoning designations (see Figures 3.1-5A through 3.1-5F). The study area contains the Chinatown, Hawaii Capital, Punchbowl, Thomas Square, Waikiki and Diamond Head Special Districts. The Special District ordinance outlines specific objectives and design controls for each special district, such as guidelines for architectural controls, building heights, landscaping, and preservation of visual resources and historic structures.



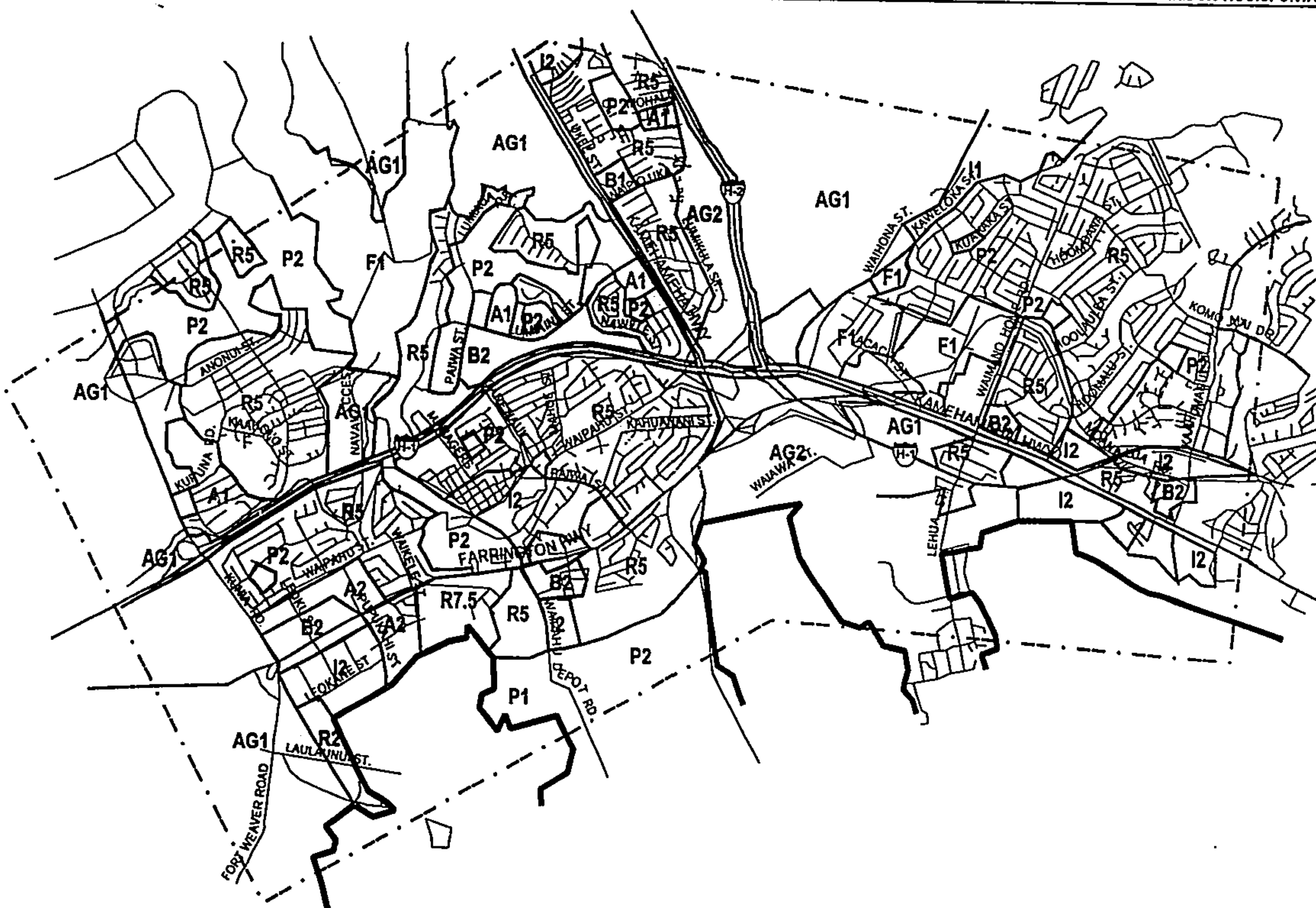
SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

* Zoning map designations can be found on Figure 11-6F.

N Scale: 0 .25 .50 mi

Zoning Map: Kapolei - Ewa

Figure 3.1-5A



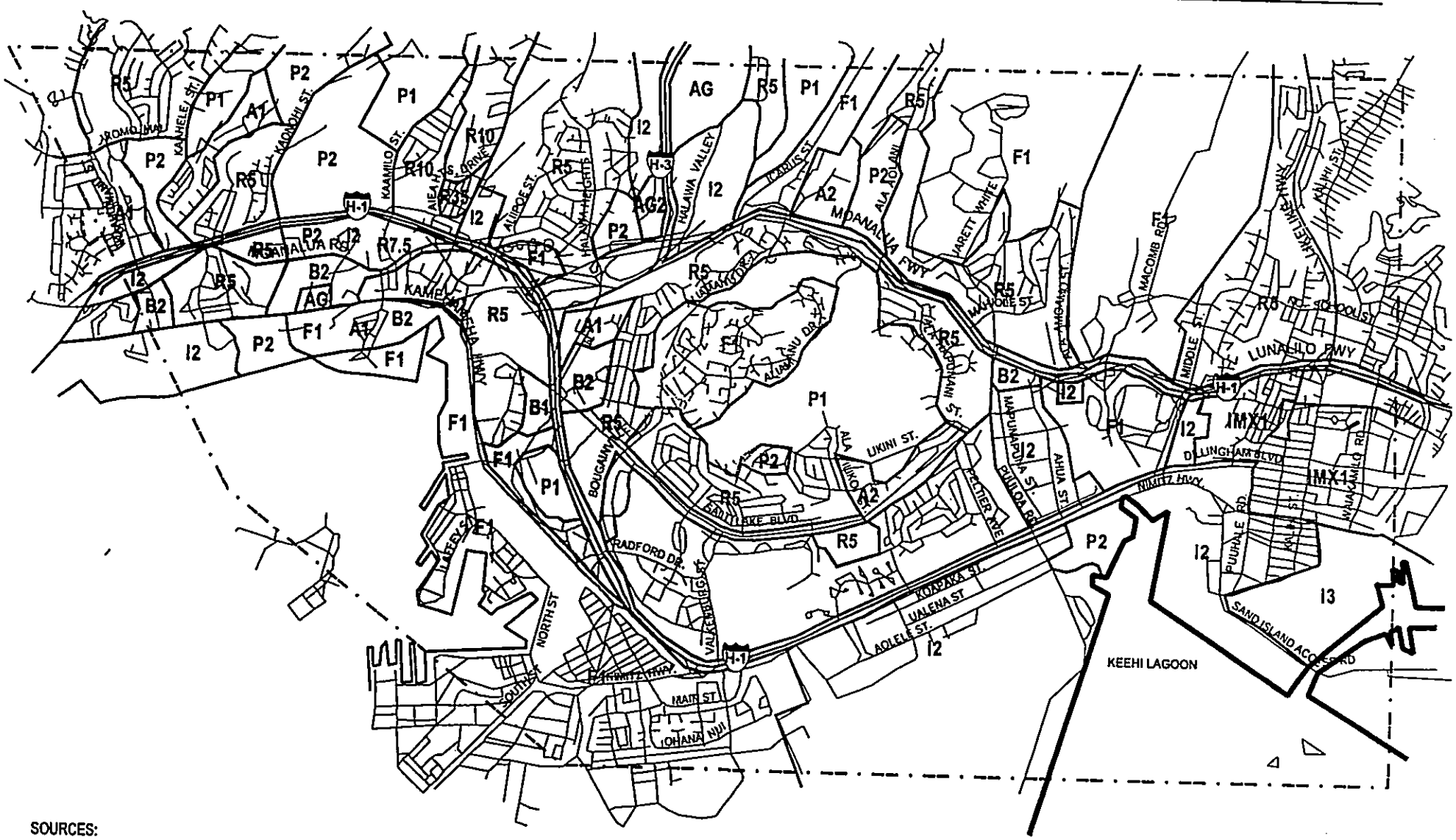
SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

* Zoning map designations can be found on Figure 11-6F.

N Scale: 0 .25 .50 mi

Zoning Map: Waipahu - Pearl City

Figure 3.1-5B



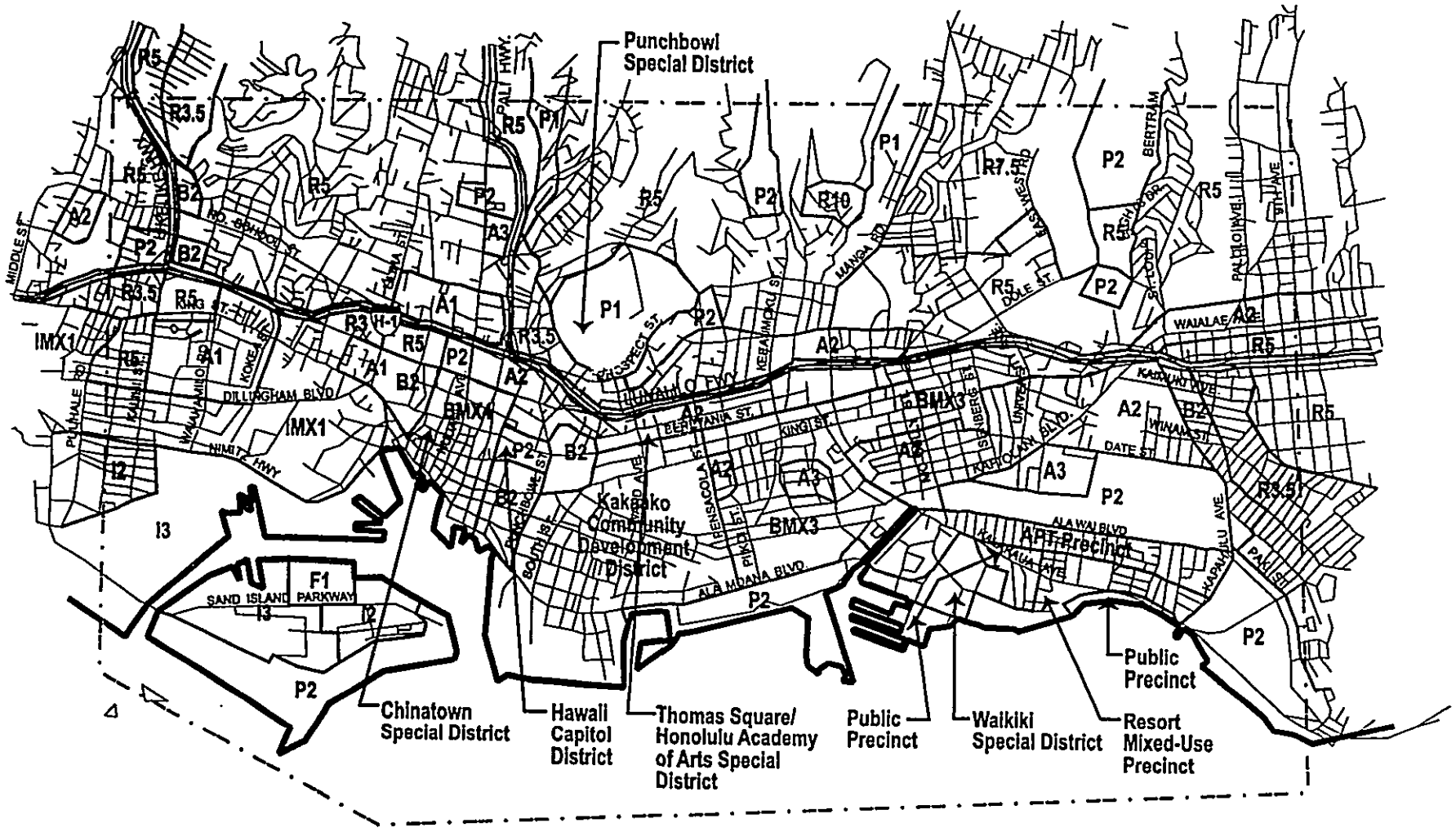
SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

* Zoning map designations can be found on Figure 11-6F.

Scale: 0 .25 .50 mi

Zoning Map: Aiea - Fort Shafter

Figure 3.1-5C



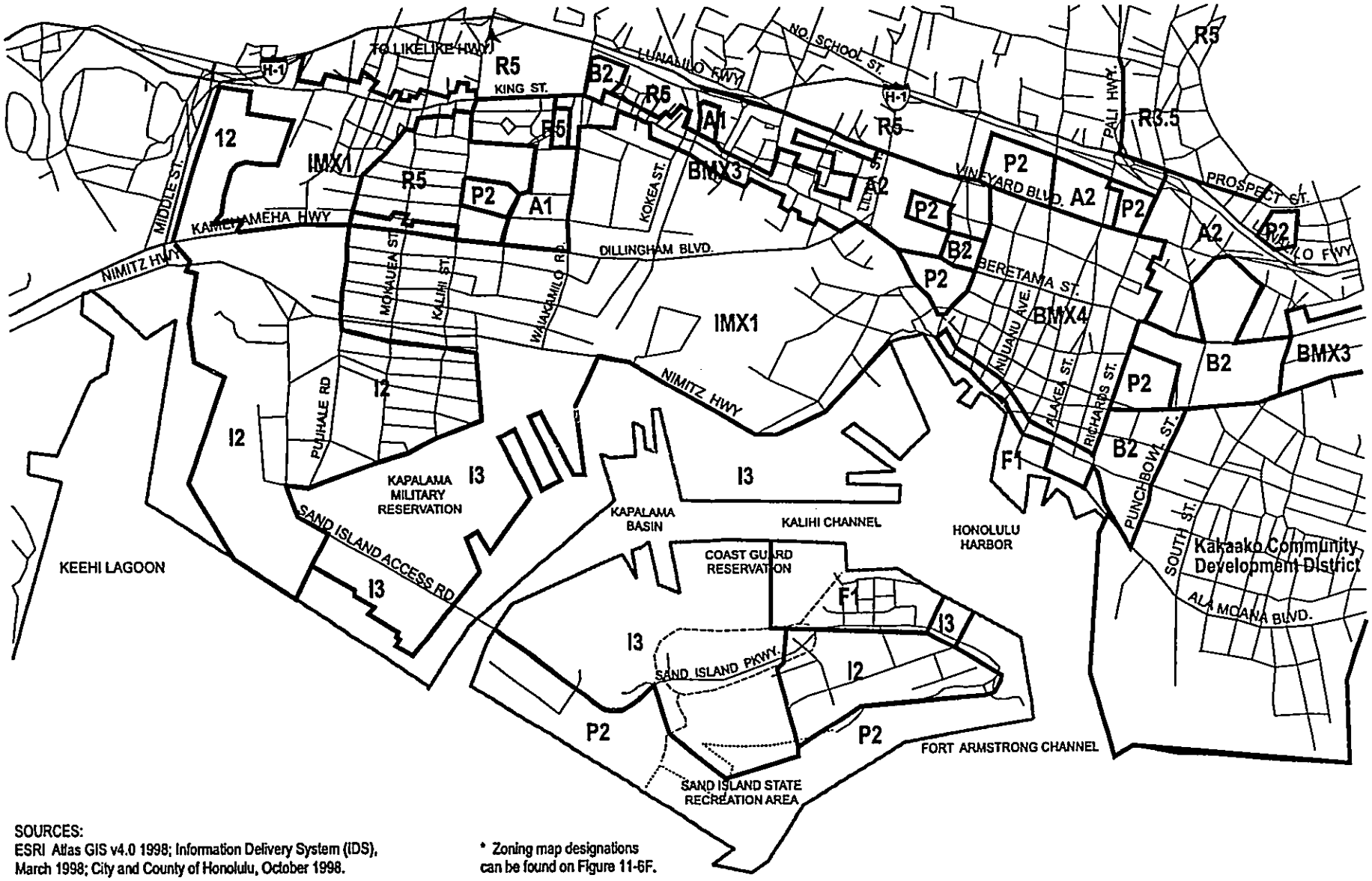
SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

* Zoning map designations can be found on Figure 11-6F.

N Scale: 0 .25 .50 mi

Zoning Map: Kalihi - University

Figure 3.1-5D



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

* Zoning map designations can be found on Figure 11-6F.

N Scale: 0 .50 1.0 mi

Zoning Map: Downtown - Kalihi - Sand Island

Figure 3.1-5E

1.	P2	General Preservation
2.	AG1	Restricted Agricultural
3.	AG2	General Agricultural
4.		Country Districts
5.	R2 & R10	Residential
6.	R7.5 & R5	Residential
7.	A1	Low Density Apartment
8.	A2	Medium Density Apartment
9.	A3	High Density Apartment
10.	AMX1	Low Density Apartment Mixed Use
11.	AMX2	Medium Density Apartment Mixed Use
12.	AMX3	High Density Apartment Mixed Use
13.		Resort Districts
14.	B1	Neighborhood Business
15.	B2	Community Business
16.	BMX3	Community Business Mixed Use
17.	BMX4	Central Business Mixed Use
18.	I1	Limited Industrial
19.	I2	Intensive Industrial
20.	I3	Waterfront Industrial
21.	IMX1	Industrial Commercial Mixed Use
22.	F1	Military and Federal

SPECIAL DISTRICTS

23.	Hawaii Capitol Special District
24.	Punchbowl Special District
25.	Chinatown Special District
26.	Thomas Square / Honolulu Academy of Arts Special District
27.	Waikiki Special District

SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; Planning Department, City and County of Honolulu, October 1998.

Zoning Map: Legend

Figure 3.1-5F

Special Management Area

The 1975 Shoreline Protection Act designated a shoreline Special Management Area (SMA), and Hawaii Revised Statutes (HRS) Chapter 205A outlines special controls, policies, and guidelines for development within the SMA. This Act gave the counties authority to issue permits for development proposed within the SMA. For the City and County of Honolulu, DPP is the agency that administers the SMA use permit program.

The City Council acts on major SMA permits (those with capital costs over $125,000 within the SMA). The DPP director acts on minor SMA permits. Figures 3.1-6A through 3.1-6D show the SMAs within the study area.

Honolulu Bicycle Master Plan

The City and County has developed a bicycle facility master plan for the PUC. The Honolulu Bicycle Master Plan was completed in April 1999, and includes the following concepts to improve bicycling in the PUC:

- Bike-Friendly Route from Pearl City to Kahala: a bicycle-friendly route providing connections between Pearl City and Kahala (across urban Honolulu), tailored to the more experienced cyclist;
- College Access Network: bikeway improvements on roadways leading and adjacent to colleges and universities; and
- Lei of Parks: A system of bikeways linking regional and local parks from Aloha Tower to Diamond Head.

Traffic Calming Program

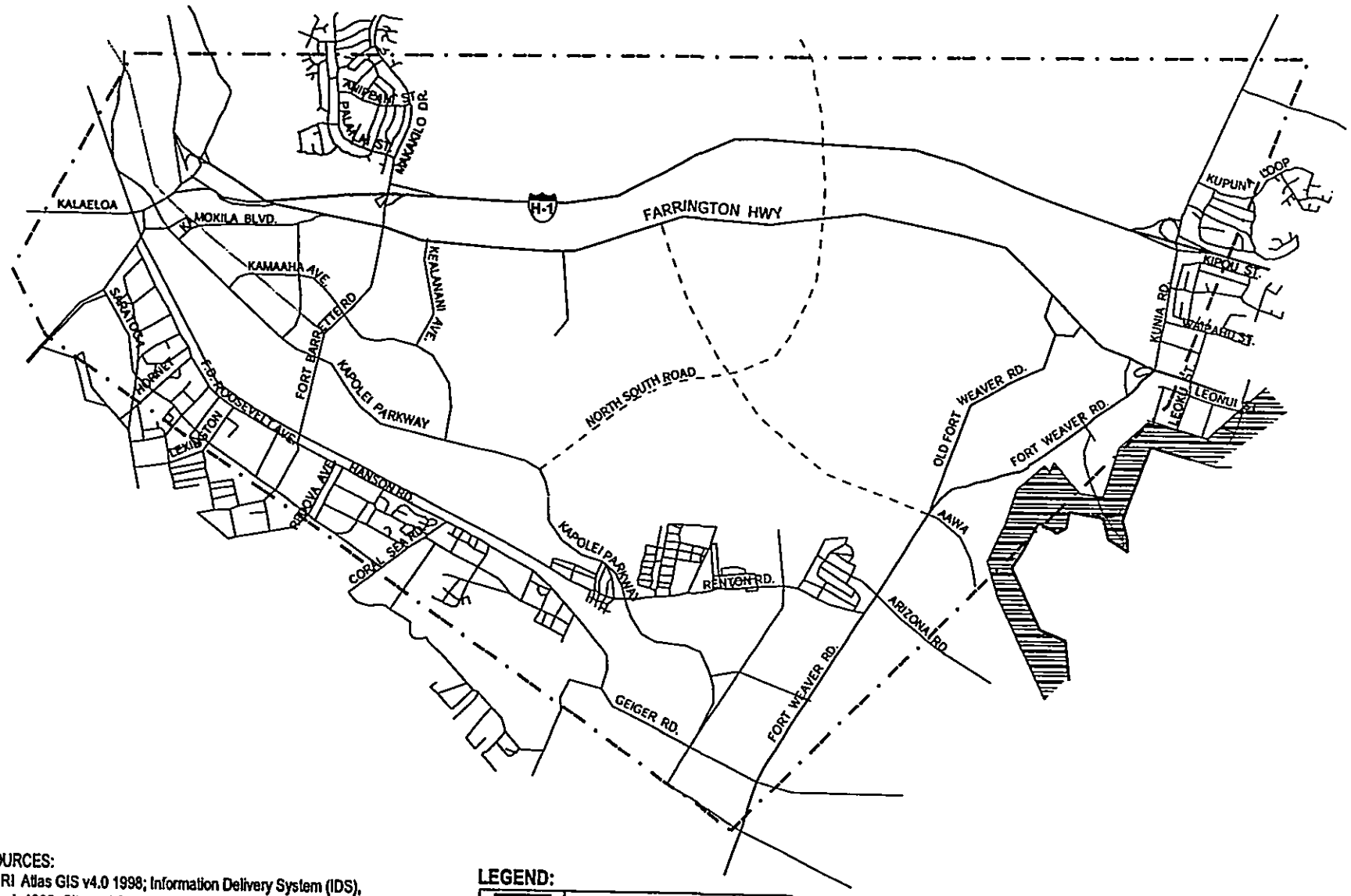
The City and County of Honolulu Department of Transportation Services (DTS) is leading a community-based program that identifies streets, usually in residential areas, that have problems with speeding and/or excessive cut-through traffic. After identification of appropriate areas, DTS is working with communities to implement traffic calming measures on these streets. Traffic calming is intended to modify driver behavior by re-designing the street so that vehicle speeds are reduced. Slower traffic has other benefits, such as improved safety for other motorists, pedestrians and bicyclists, and reduced traffic noise. In addition, with appropriate design, traffic calming measures can also enhance neighborhood identity.

Hub-and-Spoke Bus Route Revision Program

This program involves converting the existing City and County bus routes from a predominately radial network to a hub-and-spoke configuration. Hub-and-spoke networks provide an integrated system of convenient and accessible circulator, local and express routes, organized around transit centers. The bus routes are the "spokes" and the transit centers are the "hubs" in the hub-and-spoke network. So far, 18 routes in Leeward Oahu have been converted to hub-and-spoke, and plans are underway in Central Oahu for conversion of the routes there in 2003.

4) Oahu Metropolitan Planning Organization

The Oahu Metropolitan Planning Organization (OMPO) is a joint State of Hawaii and City and County of Honolulu organization. It prepares the Oahu regional transportation plan (ORTP). The ORTP has many functions, including the identification of facilities and programs to meet increased travel demands on Oahu. The Transportation for Oahu Plan 2025 (TOP 2025), adopted in April 2001, updates the 2020 ORTP in response to the changing transportation needs of Oahu and extends the planning horizon to the year 2025. The In-Town and Regional BRT elements of the Refined Locally Preferred Alternative are included in the TOP 2025 Plan.



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

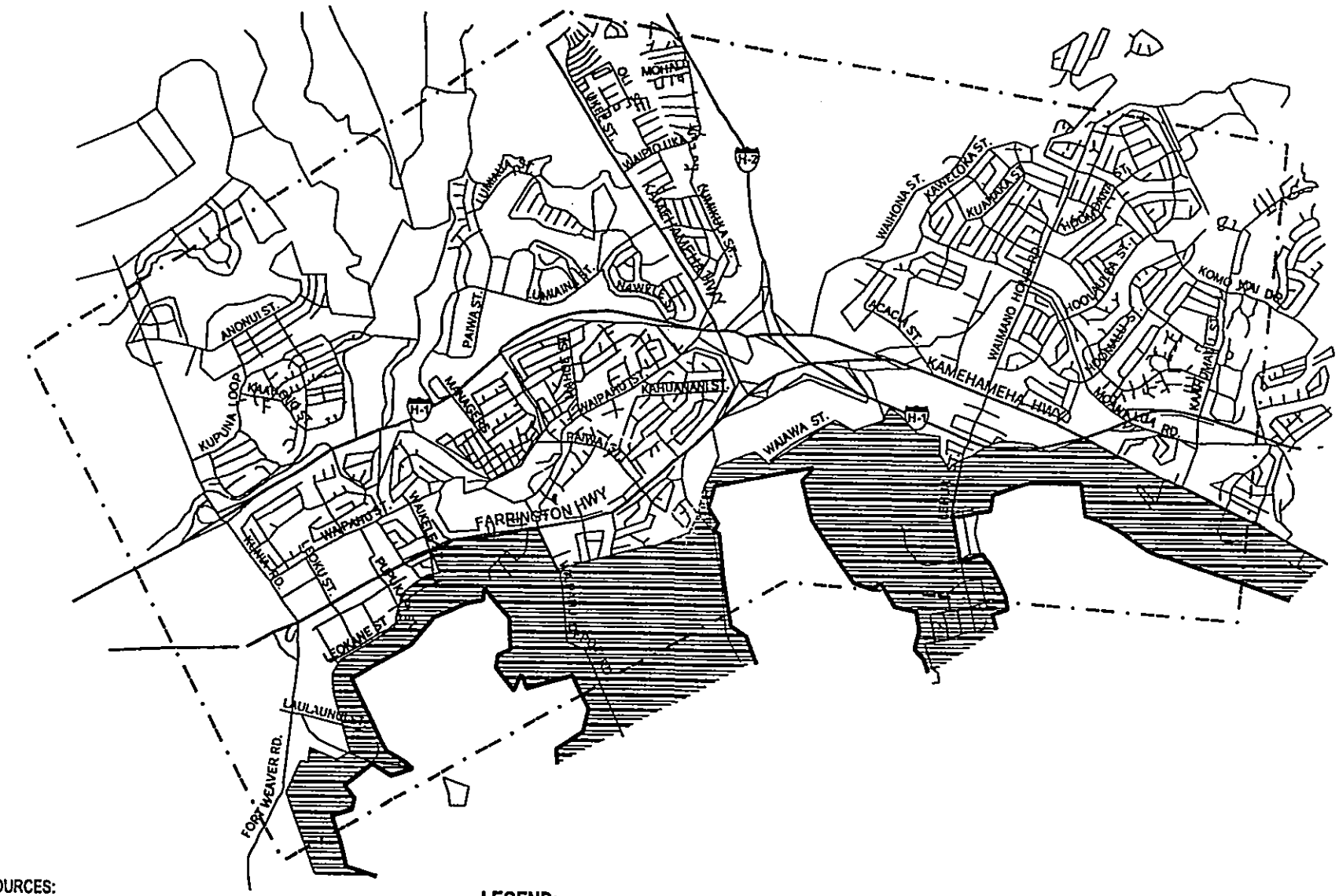
LEGEND:
Special Management Area

N

Scale: 0 .25 .50 mi
Scale: 0 .5 1 km

Special Management Area: Kapolei - Ewa

Figure 3.1-6A



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

LEGEND:

	Special Management Area

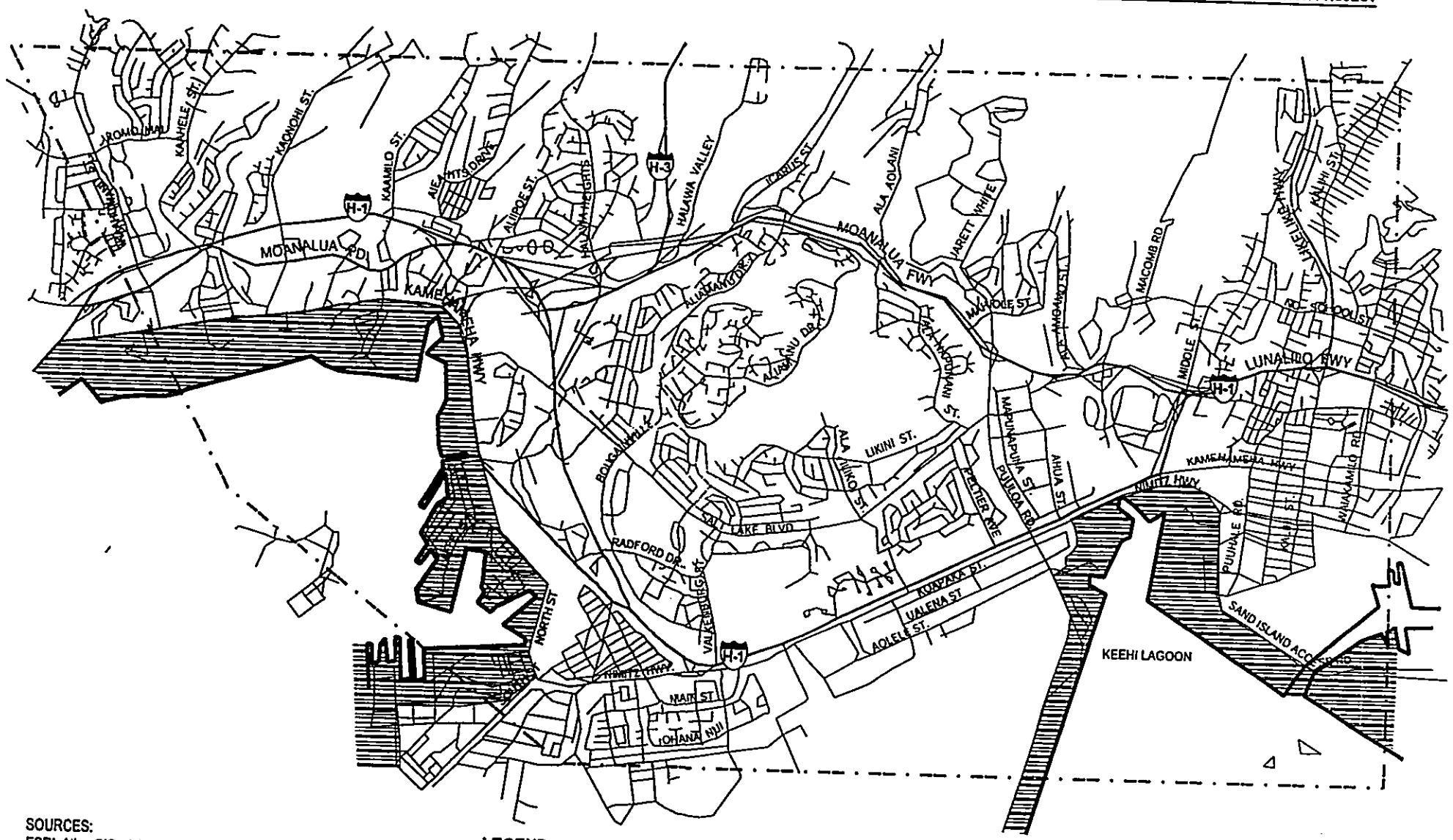
N

Scale: 0 .25 .50 mi

Scale: 0 .5 1 km

Special Management Area: Waipahu - Pearl City

Figure 3.1-6B



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

LEGEND:

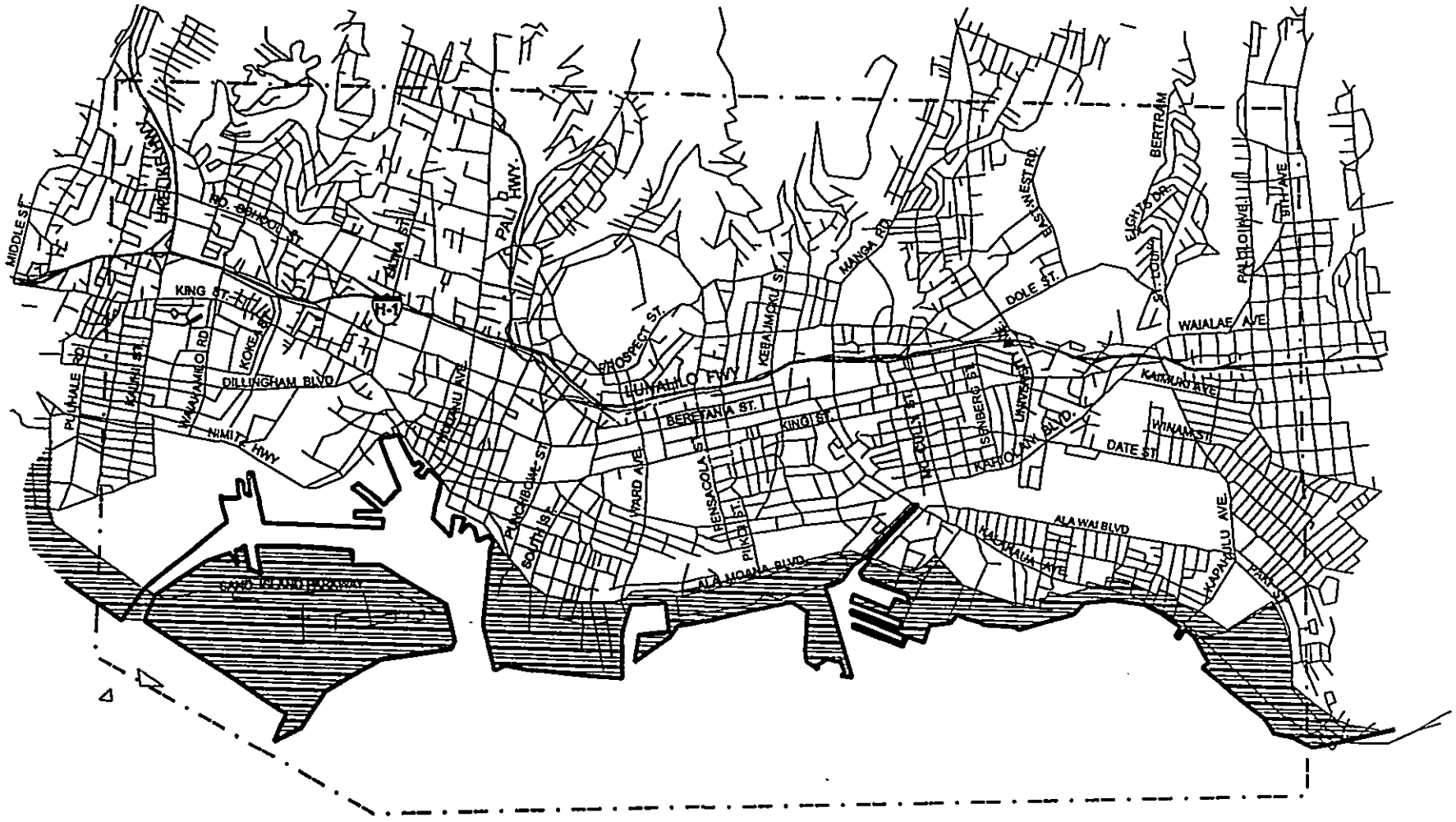
Special Management Area

Scale: 0 .25 .50 mi

Scale: 0 .5 1 km

Special Management Area: Aiea - Fort Shafter

Figure 3.1-6C



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

LEGEND:
Special Management Area

N

Scale: 0 .25 .50 mi

Scale: 0 .5 1 km

Special Management Area: Kalihi - University

Figure 3.1-6D

5) Private-Sector Plans

Waikikian Development Plan

The Hilton Hotels Corporation is planning to replace the former Waikikian Hotel, a parcel located along Ala Moana Boulevard between Hilton Hawaiian Village and the Renaissance Ilikai Hotel, with a new 350-foot hotel building containing up to 350 vacation ownership units, that includes parking, a restaurant, retail shops, a wedding chapel, and a swimming pool. The project also includes widening Dewey Lane, the road between the Waikikian Hotel site and the Ilikai, as well as appurtenant facilities and infrastructure.

Waikiki Beach Walk

Outrigger Enterprises, Inc. will be redeveloping its landholdings makai of Kalakaua Avenue, in Waikiki, along Lewers Street, Kalia Road, Beach Walk and Saratoga Road. The project, spanning two phases, will upgrade five existing hotels, demolish six older hotels, and provide a new entertainment retail complex, a new hotel, and enhanced public areas.

3.1.6 Population and Employment Trends

The State Department of Business, Economic Development, and Tourism (DBEDT) develops population and employment forecasts for the entire island; the City and County's Department of Planning and Permitting then steps down the islandwide "control total" to subareas of the island.

1) Population Trends and Projections

Table 3.1-2 contains 2025 population projections from OMPO's latest Transportation for Oahu Plan 2025, and summarized distribution of the island totals by subareas as of 2000. The plan was developed based on socioeconomic and land use forecasts provided by the City and County of Honolulu Department of Planning & Permitting for the year 2025, which were based on State DBEDT projections. These more recent forecasts have been used to update travel demand analysis in the FEIS.

TABLE 3.1-2
PROJECTED OAHU POPULATION SUMMARY

	2000	Forecast	
		2025	Change From 2000
PUC DP			
Waikiki	21,900	24,120	2,220
Other PUC	404,413	470,311	65,898
Ewa	68,092	114,205	46,113
Other	378,510	421,171	42,661
Total	**872,915**	**1,029,807**	**156,892**

Source: OMPO, April 2001, based on C&C of Honolulu Department of Planning and Permitting forecasts.

The State and City have a development policy that encourages growth in the PUC and Kapolei, in part to minimize suburban sprawl and the associated costs of extending public infrastructure and services into presently undeveloped areas. The goal of preserving open space ("keep the country country"), given the limited land area of Oahu, is not only a governmental policy, it is a widespread public sentiment frequently repeated during the public outreach activities that have been conducted during project planning.

Therefore, consistent with the goal of concentrating new growth in the PUC and Kapolei/Ewa, the majority of the population growth between now and 2025 is forecasted to occur in the primary transportation corridor. As shown in Table 3.1-2, the fastest growing area will be Ewa. Approximately 114,000 people are projected to be living in the Ewa area in 2025, a growth of up to 67 percent in 25 years. The PUC also will experience significant growth, increasing by 66,000 people. The Central Oahu population is projected to increase from 148,380 in 2000 to 172, 977 in 2025, a gain of 17 percent (OMPO, April 2001).

2) Employment

Accompanying the growth in population will be an increase in employment. Employment increased at an average annual rate of 4.13 percent from 1970 to 1990. As shown in Table 3.1-3, according to the April 2001 OMPO forecast the number of jobs on Oahu is projected to increase by approximately 152,000 jobs between the years 2000 and 2025. About 51 percent of these new jobs will be located in the PUC. A second area for employment growth is expected to occur in Ewa/Kapolei and Waipahu (Department of Planning and Permitting, City and County of Honolulu, January 1999).

Major employment centers in the primary transportation corridor are:

- Pearl Harbor;
- Pearlridge Center;
- Honolulu International Airport;
- Industrial districts in Pearl City, Halawa Valley, Airport area, Mapunapuna, Kalihi, Iwilei and Kakaako;
- Downtown Honolulu and the Capitol District;
- Ala Moana Center and surrounding area;
- Waikiki; and
- University of Hawaii at Manoa.

Major employment centers outside or near the primary transportation corridor are Ko Olina Resort, Campbell Industrial Park and Kalaeloa (former Barbers Point Naval Air Station).

TABLE 3.1-3
PROJECTED EMPLOYMENT SUMMARY [1]

	2000	Forecast	
		2025	Change From 2000
PUC DP			
Waikiki	41,997	49,175	8,178
Other PUC	338,805	408,670	69,865
Ewa	14,895	56,634	41,736
Other	90,792	122,998	32,206
Total	**485,992**	**637,477**	**151,985**

Source: OMPO, April 2001, based on C&C of Honolulu Department of Planning and Permitting Forecasts.
Notes: [1]Excludes construction employment, which totaled 24,800 in 1997 and is projected at 26,200 in 2025.

The trade, service and government (military, federal, State and County) sectors are the major employment categories, representing 76 percent of all jobs on the island. This distribution of employment among sectors is not anticipated to change in the near future.

Despite the growing popularity of telecommuting and other trends in the nature of the workplace, future employment is forecast to be substantial and centralized in the PUC and Ewa (Kapolei).

3.2 EXISTING TRANSPORTATION CONDITIONS

This section presents a summary of the characteristics of the existing transportation system in the study area.

3.2.1 Highway Network

Oahu's road network is heavily constrained by topography (major roadway facilities in the study area are shown in Figure 3.2-1). Roadways are primarily located in the coastal areas between the mountains and ocean. The dominant highways, with the exception of H-2 and H-3 Freeways and Likelike and Pali Highways, generally parallel the coastline and carry Ewa-Koko Head traffic. Oahu has three state freeways:

- H-1 Freeway, extending from Ewa to Waialae/Kahala;
- H-2 Freeway, servicing traffic between Mililani/Wahiawa and Pearl City; and
- H-3 Freeway, carrying traffic between Windward Oahu and Pearl Harbor.

Average daily traffic (ADT) indicates the level of roadway usage at representative points on the roadway. The H-1 Freeway is the most traveled freeway on Oahu, with ADT of 216,966, measured between the Waiau and Halawa Interchanges (traffic in both directions). ADT on H-2, south of Kipapa Bridge, is 78,858. The lowest ADT is 39,605, recorded on H-3, north of Halawa Interchange. (Traffic Survey Data, Island of Oahu, 2000).

Route 78 (Moanalua Road) serves as an H-1 Freeway bypass from the Kahauiki Interchange in Kalihi to the Halawa Interchange. It then continues as an arterial roadway, nearly parallel to Kamehameha Highway, winding through Aiea and ending in Pearl City at Waimano Home Road. Motorists traveling between Kahala and Hawaii Kai use Kalanianaole Highway. Pali and Likelike Highways traverse the Koolau Mountains, connecting the downtown area with Windward Oahu (Kailua and Kaneohe). Additional roads carry regional and local traffic.

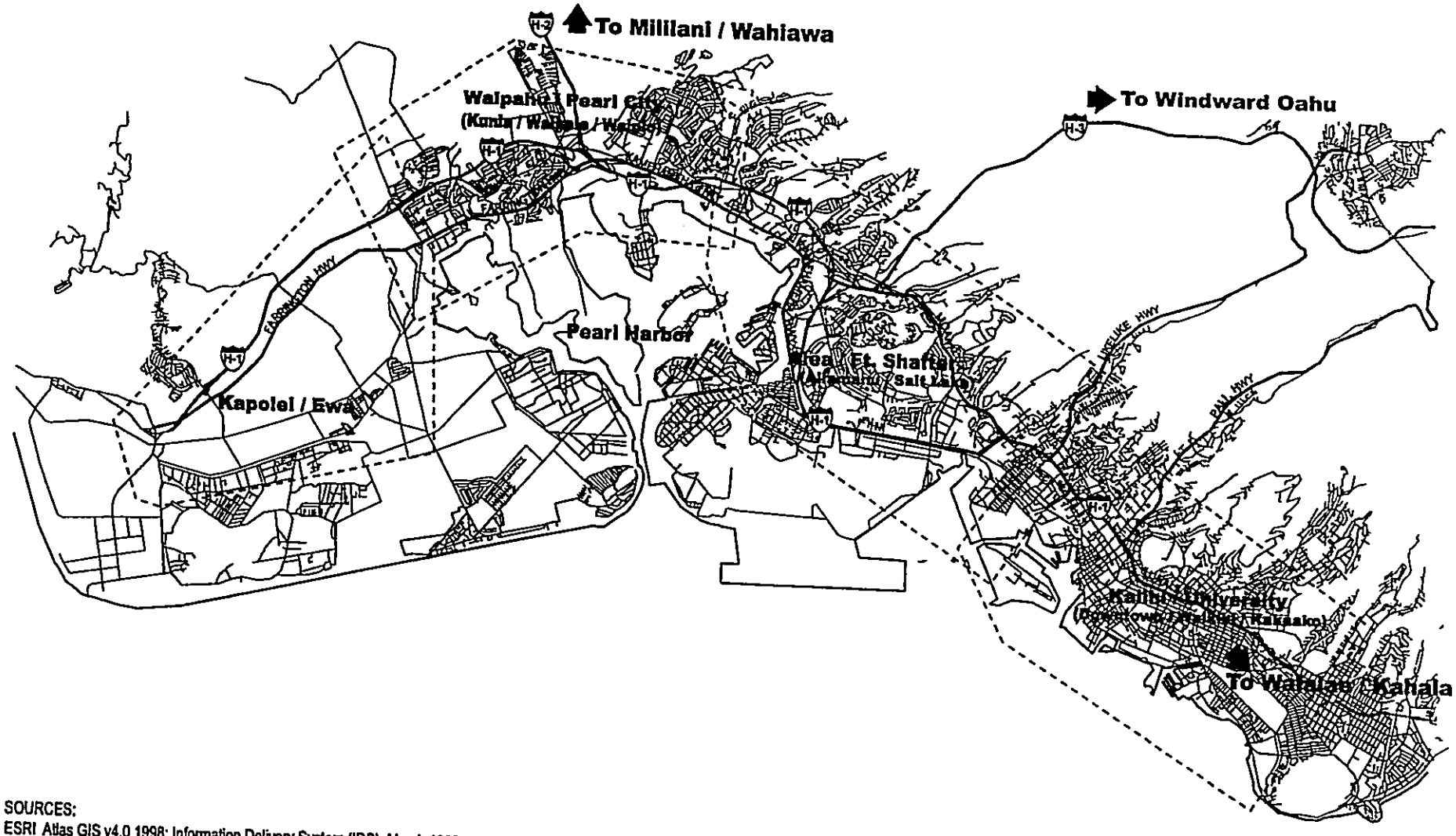
This road network serves many travel markets, including home to work trips from residential areas in Central and Leeward Oahu to Downtown, Honolulu International Airport to Waikiki, and goods distribution from Honolulu Harbor.

Level of Service F (congested conditions) with characteristic stop-and-go traffic, is common during the morning and afternoon peak hours on the major roadways, particularly on the H-1 Freeway from the Waiawa Interchange (near the junction of H-1 and H-2) to the University of Hawaii area. Signalized routes, like Nimitz Highway, also are congested, typically requiring more than one traffic signal cycle to clear intersections and with long vehicle queues during peak periods.

Based on existing peak hour traffic volumes, the transportation corridors Ewa of Downtown Honolulu are the most constrained, with corridor deficiencies ranging from 2,500 to 4,000 vehicles per hour (vph). Other corridors, such as the Trans-Koolau and East Honolulu corridors, experience peak period congestion but not to the same degree as the primary transportation corridor.

To avoid peak-hour congestion, many motorists have shifted their time of travel, resulting in extended peak traffic hours. Weekday morning and afternoon peak traffic conditions typically last two to three hours each. Mid-day weekend traffic conditions also can resemble the weekday peak period conditions.

Recent improvements have provided better mobility for buses and vehicles with two or more passengers. The zipper lane, a contra-flow freeway lane created by using movable concrete barriers, has created a



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

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Scale: 0 .75 1.50 mi

Scale: 0 1.25 2.5 km

Existing Highway System

Figure 3.2-1

relatively high-speed morning peak period lane on the H-1 Freeway between Waiawa Interchange and Pearl Harbor Interchange. This lane has helped reduce travel time between these interchanges, but vehicles in the zipper lane must still rejoin vehicles in the general purpose lanes at Keehi Interchange and face the same delays as other vehicles traveling Koko Head from there.

Physical constraints make the addition of highway capacity within the primary transportation corridor very difficult, particularly in the segment between Middle Street and Downtown. Given the difficulty of adding roadway capacity within this corridor, more innovative approaches to accommodating future growth in travel are needed.

3.2.2 Transit Network

The City and County of Honolulu has an extensive fixed-route bus system (TheBus) that provides islandwide service and is described in the following sections.

1) Bus Routes and Operations

TheBus system began service in March 1971 with a fleet of 67 buses. The active bus fleet for FY 2001 includes 525 vehicles, with 450 buses operating on over 88 routes during peak periods. All buses are equipped with bicycle racks and encourage multi-modal travel.

During the weekdays, morning service begins at 3:16 a.m. and night service ends at 1:54 a.m. On Saturdays and Sundays, TheBus system operates from 3:51 a.m. to 2:03 a.m.

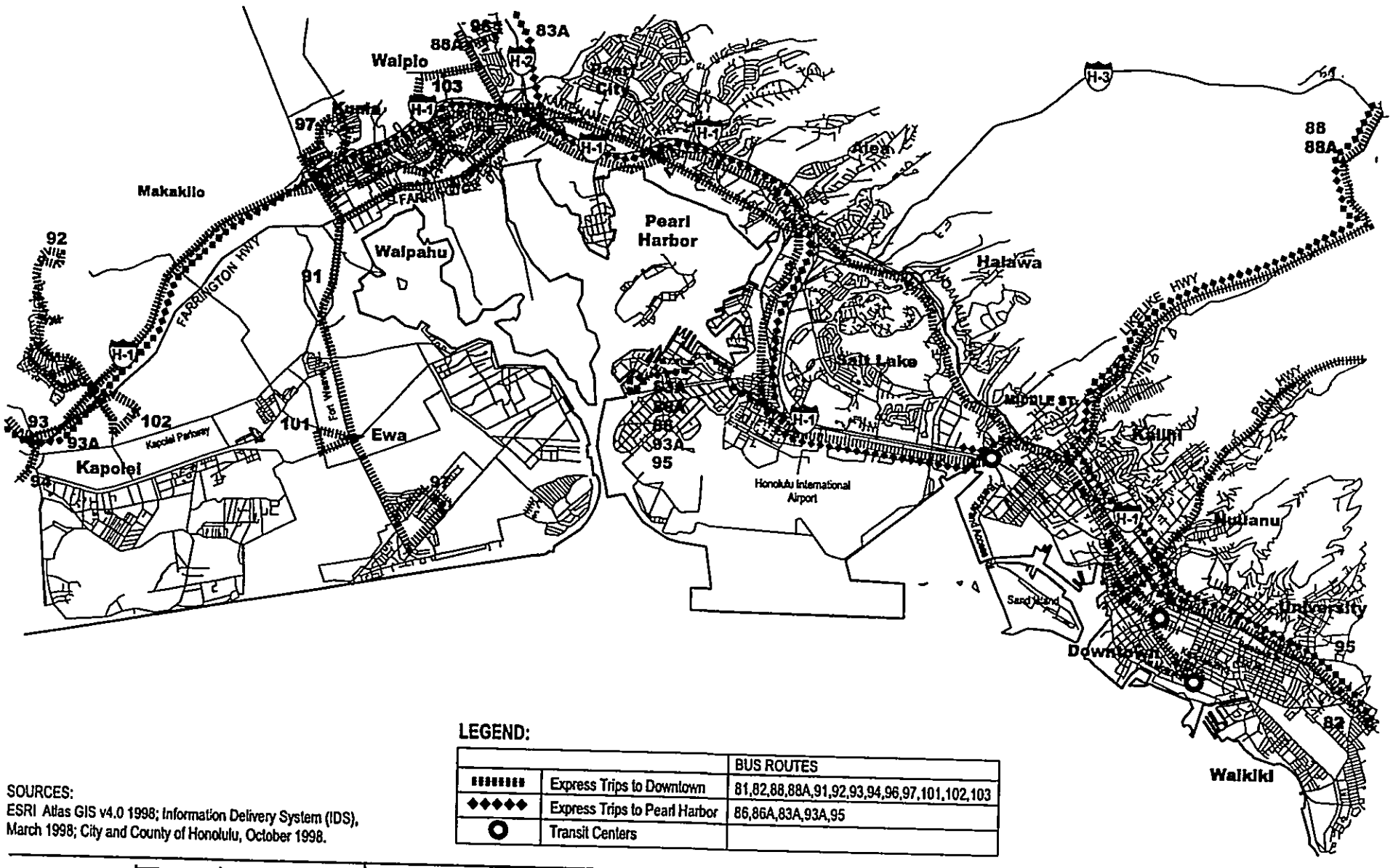
The current bus network consists of five route types:

- Urban Trunk – routes serving the downtown area;
- Urban Collector – routes connecting downtown neighborhoods to urban trunk routes and downtown destinations;
- Suburban Trunk – routes providing direct service between suburban neighborhoods and the downtown area;
- Suburban Feeder – routes connecting smaller suburban neighborhoods to suburban trunk routes; and
- Express – routes providing limited stop service from suburban areas to the downtown area.

Besides serving different parts of the island, each route type provides different levels of service, with the urban trunk routes providing the highest levels of service and the express routes providing a limited number of trips during peak periods only. With the exception of suburban feeders, nearly all routes provide direct access to the downtown area. This high level of service benefits passengers with limited wait times and provides multiple options for passengers traveling in the downtown area.

Figures 3.2-2A through 3.2-2D show the major existing bus routes. Routes 1 through 32, exclusive of Route 11, serve the central urban area of Honolulu. Route 11 and Routes 47 through 65 provide bus service between Central Honolulu and the outlying suburban and rural areas of Oahu. Routes 70 through 77 provide feeder and shuttle bus service within selected communities of suburban and rural Oahu. Routes numbered 80 and higher provide peak-period express service between suburban residential communities and major employment and activity centers (i.e., Downtown, University of Hawaii at Manoa, Waikiki, and Pearl Harbor). Routes A, B, and C are new limited stop routes.

Service frequency varies with route. In general, during peak periods, five routes operate at 10-minute or shorter headways, and 18 other routes operate at headways of 30 minutes or less. Actual service to patrons along major portions of trunk routes is more frequent, since several routes operate on the same street. Routes with peak period headways of 60 minutes or longer are Routes 70 and 72.



LEGEND:

		BUS ROUTES
▪▪▪▪▪▪▪▪	Express Trips to Downtown	81,82,88,88A,91,92,93,94,96,97,101,102,103
◆◆◆◆◆	Express Trips to Pearl Harbor	86,86A,83A,93A,95
O	Transit Centers	

SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

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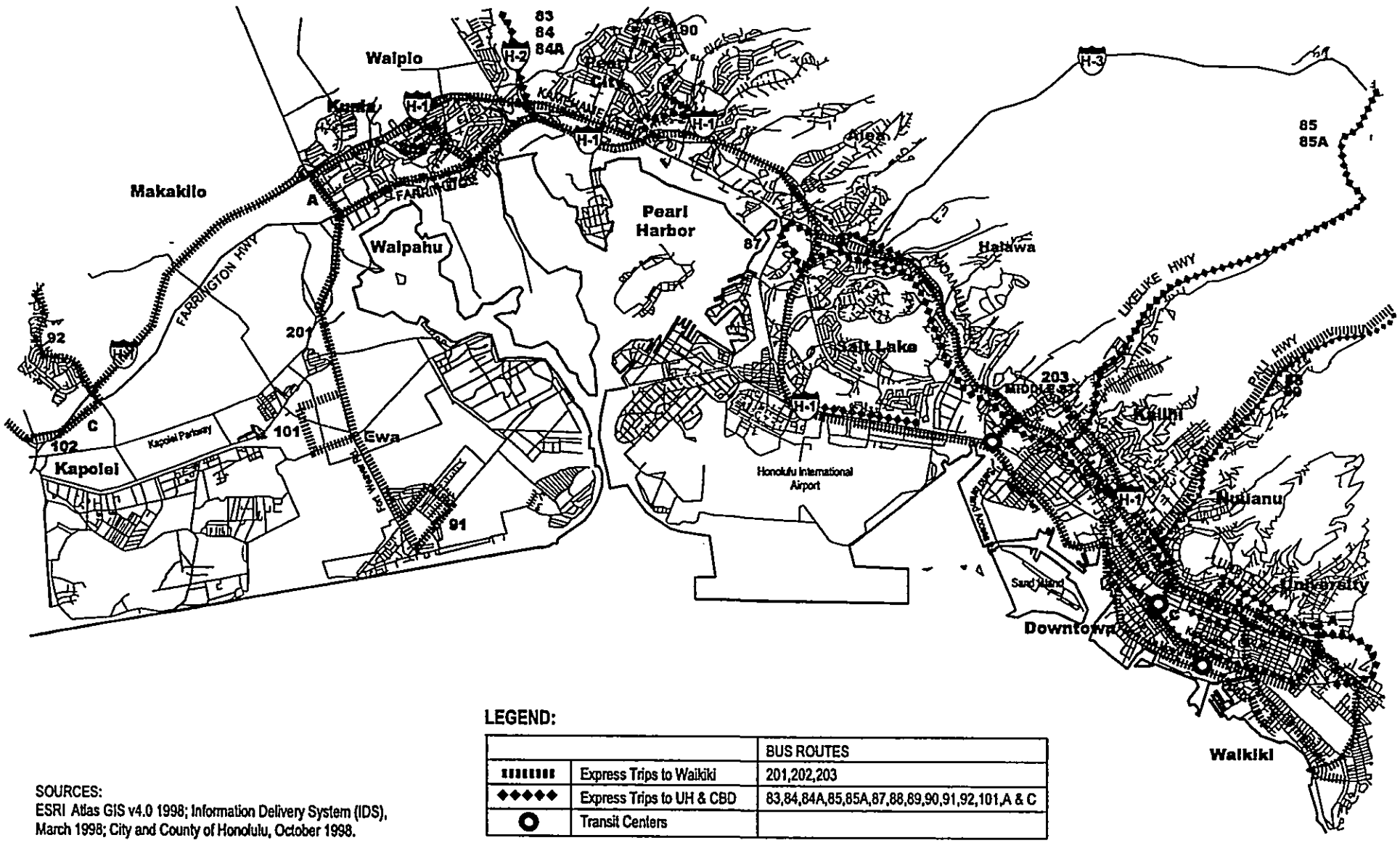
Scale: 0 1.25 2.50 mi

Scale: 0 2.0 4 km

Existing Express Bus Routes: Downtown / Pearl Harbor

Figure 3.2-2A



LEGEND:

		BUS ROUTES
▮▮▮▮▮▮▮	Express Trips to Waikiki	201,202,203
◆◆◆◆◆	Express Trips to UH & CBD	83,84,84A,85,85A,87,88,89,90,91,92,101,A & C
O	Transit Centers	

SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

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Scale: 0 1.25 2.50 mi

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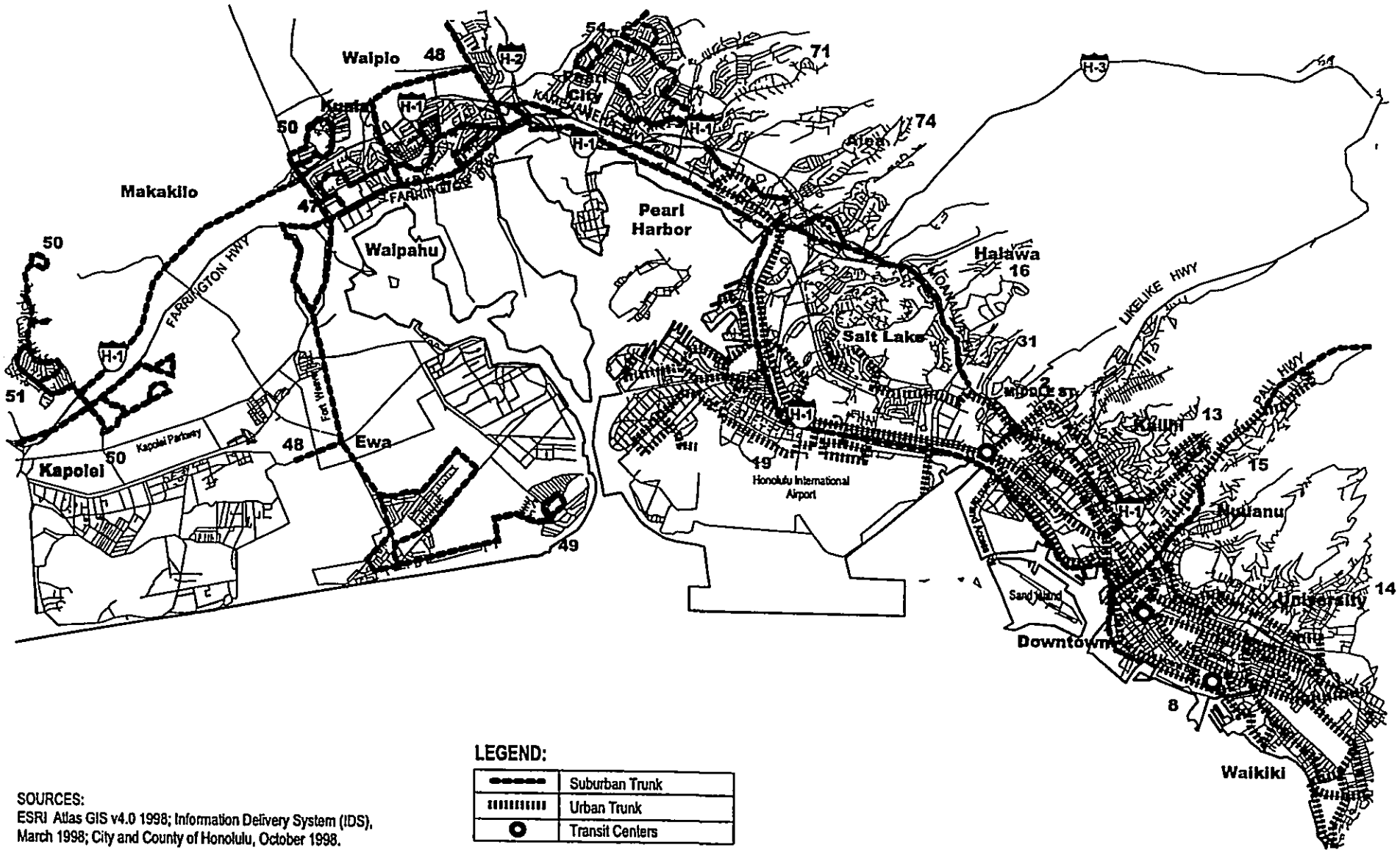
Existing Express Bus Routes: UH, Downtown and Waikiki

Figure 3.2-2B



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

LEGEND:

▬▬▬	Suburban Trunk
▮▮▮▮▮▮▮▮▮▮	Urban Trunk
◉	Transit Centers

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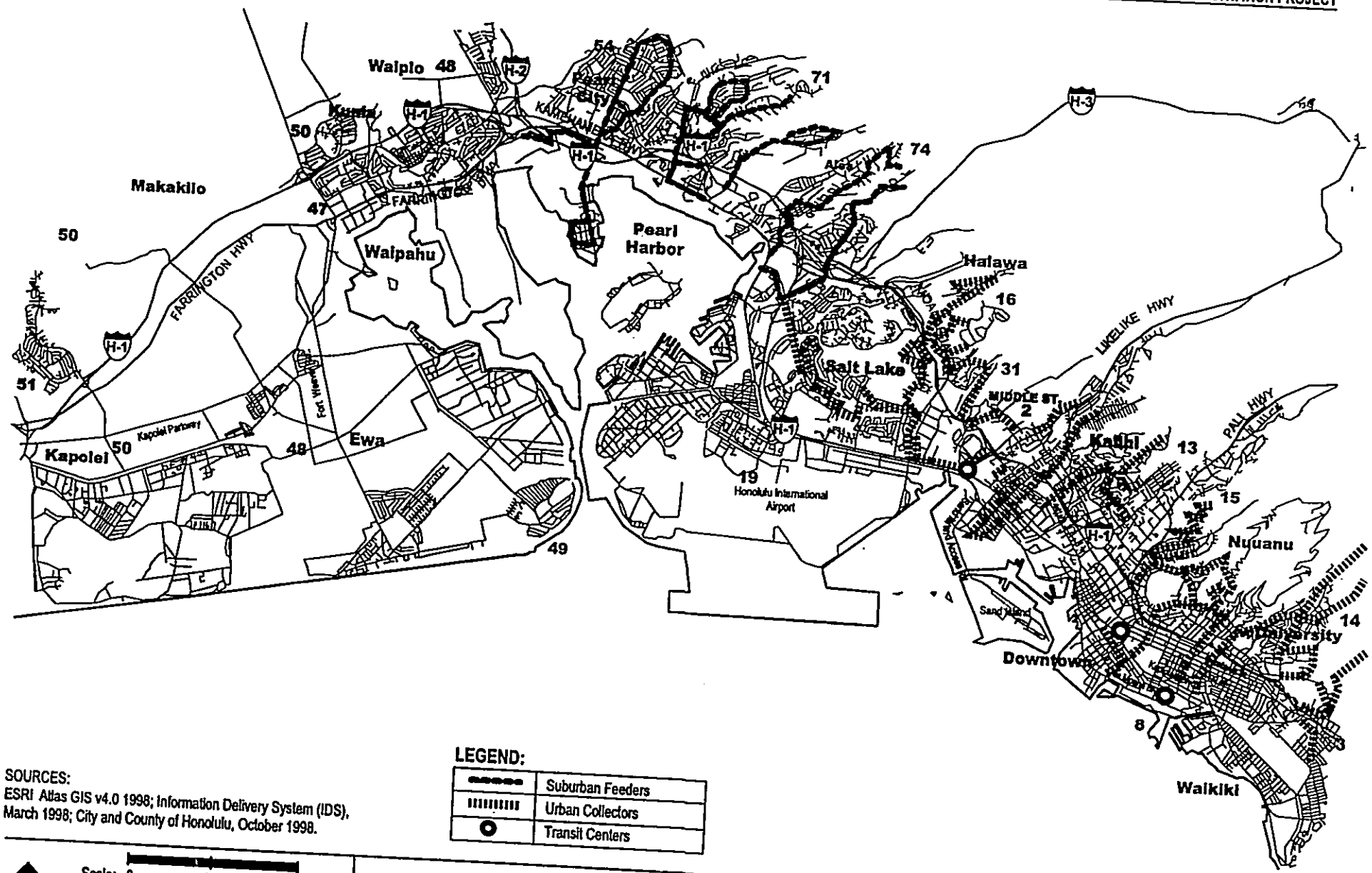
Scale: 0 1.25 2.50 mi

Scale: 0 2.0 4 km

Existing Local Bus and Trunk Routes: Suburban Trunk and Urban Trunk

Figure 3.2-2C



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

LEGEND:

▬▬▬	Suburban Feeders
▮▮▮▮▮▮▮▮▮	Urban Collectors
◉	Transit Centers

N

Scale: 0 1.25 2.50 mi

Scale: 0 2.0 4 km

Existing Local Bus & Trunk Routes: Suburban Feeders and Urban Collectors

Figure 3.2-2D

During the peak period, TheBus system is approaching capacity and, in recent years, average operating speeds have declined. Reduced speeds diminish the attractiveness of transit as an alternative to the private automobile, and congestion reduces transit schedule reliability. In Downtown, particularly on King and Beretania Streets, peak-hour bus volumes exceed 75 buses per hour. If bus volumes increase into the 80 to 100 buses per hour range, additional declines in bus speeds can be expected. Closely spaced bus stops are also contributing to the decline in bus speeds. The declines in average operating speeds have been most pronounced for all route types except express.

With the exception of Leeward Oahu, which is the first area to be converted to a hub-and-spoke pattern, the existing bus system operates largely as a "radial" system, with most routes directed Downtown. Most bus routes are oriented to get people into and out of the PUC. A radial system is appropriate for trips to and from Downtown, but is not ideal for other combinations of origin and destination, such as from one suburban area to another. In addition, as a result of the radial bus network configuration, the major Ewa-Koko Head streets in Downtown carry not only the urban trunk routes but also urban collector routes. Duplication of service along these corridors provides greater convenience for passengers with buses passing through more frequently. However, this duplication is operationally not efficient and results in slower travel through the corridor.

To improve operating efficiency, special lanes have been constructed and/or designated for use only by buses and other high occupancy vehicles (HOV). Priority-lane operations include the Kalakaua Avenue bus lane, the H-1 Freeway HOV/bus lane, the Hawaii Kai Drive/Kawaihae Street bus lane, the Kalanianaole Highway HOV/bus lane and the Moanalua Freeway HOV/bus lane. Within Downtown, the half-mile-long Hotel Street Transit Mall also facilitates bus operations.

The Hub-and-Spoke Bus Route Revision Program is a further means to improve operating efficiency through the corridor. Currently underway, this program is a major overhaul of the existing bus service operations. Starting with Leeward Oahu, the program goal is to convert the existing, primarily radial bus route architecture into a hub-and-spoke system that connects the different networks throughout the island. Such a system includes limited bus stop service all day long and enhanced local and neighborhood circulator services. All 18 Leeward Oahu routes were converted in 2000. All 20 Central Oahu routes are scheduled to be converted in 2003. The PUC routes will start the changeover process during fiscal year 2003.

Table 3.2-1 shows the number of daily trips, the revenue hours and estimated daily boardings by route type. Approximately 50 percent of the total estimated daily ridership uses an urban trunk service along the Ewa-Koko Head arterials of the central portion of the PUC. However, all suburban trunk routes have ridership levels ranked in the top 25 for the system.

TABLE 3.2-1
SUMMARY OF BUS ROUTE TRIPS, REVENUE HOURS AND ESTIMATED DAILY BOARDINGS

Route Type	Daily Trips		Revenue Hours		Estimated Daily Boardings	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Urban Trunk	1,449	35%	1,392.50	39%	102,676	50%
Urban Collector	541	13%	266.05	7%	11,568	6%
Suburban Trunk	902	22%	1,041.95	29%	50,893	25%
Suburban Feeder	629	15%	238.30	7%	7,419	4%
Express	246	6%	285.25	8%	10,267	5%
City/CountyExpress!	350	9%	373.85	10%	24,251	12%

Source: Oahu Transit Services, Inc. (OTS) March 2002.

2) Transit Travel Times

On TheBus system, there is a large difference in travel times for peak hours and off-peak hours. Table 3.2-2 provides examples of the travel time differences between peak and off-peak trips.

TABLE 3.2-2
ESTIMATED TRAVEL TIMES (MINUTES)

Origin	Destination	Express Routes – Peak	Non-Express Routes – Off-Peak	City/County Express! Avg. All Day
Ewa	Downtown Honolulu	58	81	
Waipahu	Downtown Honolulu	58	80	58
Makaha	Downtown Honolulu	81	107	81
Pearl City	Downtown Honolulu	40	46	46
Kaneohe	Downtown Honolulu	40	55	

Source: Technical Paper on Current Transit Quality of Service in the Primary Corridor, Parsons Brinckerhoff Inc., March 1999. City/CountryExpress! travel times taken from OTS March 2002 sign-up data.

According to the Technical Paper on Current Transit Quality of Service in the Primary Corridor (March 1999), the existing bus system traveling through Downtown Honolulu is convenient, having many bus choices and frequent service. However, such a high level of service is limited to travel within Downtown during peak periods. *For example, limited stop express buses from outlying areas are not available during off-peak hours,* requiring passengers to catch local buses with longer travel times. Passengers must also transfer more often at central downtown stops to catch the buses to their final destinations. In general, the furthest distances take the most time to travel not only because of the distance itself, but also because there are more bus stops during the trip.

Moreover, current bus scheduling does not coordinate the timing of transfers. As a result, trips requiring transfers often take longer than if they were continuous trips, making bus service less attractive for such trips. Part of the hub-and-spoke conversion is to schedule the bus arrival times at transit centers to reduce transferring times.

3.2.3 Travel Patterns

Resident households, port operations, the airport, other commercial activities, and visitors are the generators of travel on Oahu. Of these travel components, travel by members of resident households represents well over 90 percent of traffic volumes and transit ridership. This section documents current travel patterns of resident households in terms of their geographic orientation, travel purpose, and travel mode.

The information for all travel forecasts has been derived from the travel forecasting procedures maintained by OMPO, the regional transportation planning agency for the island. These procedures simulate the choices made by residents, businesses, and visitors regarding the nature, number, mode, time-of-day, and geographic orientation of trips that are made on a typical weekday. The procedures have been developed based on data obtained in extensive surveys of Oahu households, transit riders, and air passengers.

Estimates using these procedures indicate the amount of travel between different parts of the island, the share of this travel that occurs on different modes (autos, carpools, buses, and walking), and the traffic volumes and transit ridership that result on individual streets and transit lines. The following sections

summarize the 2000 estimates using these procedures. The analysis is based on February 28, 1999 land use information the DPP prepared and provides a baseline for comparison with all future-year forecasts.

The summaries are based on 23 planning districts that consist of the 762 small subareas of the island, called "transportation analysis zones" (TAZs), used by computerized travel demand modeling programs. The planning districts for Oahu are the following:

- Downtown
- Kakaako
- Ala Moana
- Beretania
- Makiki
- Waikiki
- McCully
- UH Manoa
- Kaimuki
- Iwilei
- Kalihi
- Airport
- Salt Lake
- Aiea
- Waipahu
- Mililani
- Ewa
- Waianae
- North Shore
- Koolauloa
- Kaneohe
- Kailua
- East Honolulu

Modeling programs estimate the number of trips between each pair of zones and then allocate these zone-to-zone trips to the available travel modes, highway facilities, and transit services. Trips and transit share are analyzed in the "production-attraction" format. Productions are defined to be at the residence while attractions are at the workplace or other non-home location. A worker, who travels from home to work and then returns home makes two trips, both produced at the residence and attracted to the workplace. This format therefore yields summary tables in which predominantly residential areas have many more productions than attractions, while employment areas have many more attractions than productions.

1) Travel by Resident Households

The 2000 travel patterns of permanent Oahu residents were estimated for a typical weekday for travel *to/from* work and for all other travel purposes, respectively. "Home-based-work" trips are summed across all travel modes. These trips include travel made directly between home and work (and between work and home) but exclude the six to seven percent of work travel that involves an intermediate stop (for shopping or day-care pick-ups, for example). The estimate indicates that Oahu residents on a typical weekday make about 552,500 direct work trips, equivalent to about 276,000 workers making one trip to work and a second to return home. Not all workers travel to work on a typical weekday because of part-time employment, vacations, sick leave, business travel, and shifted work schedules (with two weekdays off rather than the weekend off). Further, some workers make intermediate stops during their work trips and are therefore counted in other types of trips.

Of the 552,500 daily work trips, approximately 106,700 work trips (19 percent) are attracted to jobs in Downtown, by far the largest single employment concentration on Oahu. Large numbers of work trips are also attracted to the Airport/Pearl Harbor area, Kakaako, and Waikiki. Large volumes of work trips are produced in the residential areas within Aiea, Mililani, Kalihi, and Kaneohe.

The estimated distribution of work travel indicates that Downtown tends to be the most common workplace location for residents of the urban core of Oahu. The largest single travel market to jobs in Downtown is from the Kalihi district, which is both close to Downtown and heavily, populated. Residents of areas that are more distant from Downtown tend to find employment more frequently in their own district (as with Ewa, the North Shore and Koolauloa) or in a significant employment center – often a military base – as with Salt Lake, Mililani, Kaneohe, and Kailua.

Oahu residents make slightly over 2,000,000 trips for all other purposes – such as school, shopping, and recreation –for all travel modes on a typical weekday. Because these trips are generally much shorter than for work travel, the most likely location of these activities is within the same district as the residence. This effect is particularly true for the larger, outlying districts where more than 60 percent of non-work travel remains within the district (as in Mililani, Waianae, Kaneohe, and Kailua).

2) Travel on Transit Services by Resident Households

This section discusses the 2000 estimated trips using transit services on a typical weekday for work and for all other purposes. The transit trips are "linked" through any transfers made along the way. Thus, the total number of boardings (or "unlinked" trips) on transit buses associated with travel by Oahu residents is approximately 15 percent higher than the number of linked trips. Travel by visitors increases the number of boardings by another 15 percent, almost entirely on bus services within Waikiki and to Ala Moana Center.

Some 95,700 daily work trips use the bus system, approximately 17 percent of all home-based-work trips. As expected, the largest concentration of trips involving transit is to workplaces in Downtown Honolulu. The high share of downtown workers who use transit – 35 percent – presumably results from high parking costs, excellent bus service, and the relatively large number of downtown workers who live in nearby residential areas that also enjoy excellent bus service. Large transit volumes also occur to jobs in Kakaako and Waikiki, while transit carries a much smaller share of workers traveling to areas outside the urban core. The transit share of travel produced from various residential areas is relatively constant, ranging primarily between 13 and 18 percent. These moderate shares are the products of very high transit shares from every residential area to Downtown and the urban core, combined with much lower shares to other areas. Variations in transit shares are tied to the average income and auto-ownership levels of various residential areas (Waikiki, Waipahu, and Iwilei), as well as the presence of nearby military facilities to which transit travel is not competitive (Airport and Mililani).

Oahu residents on a typical weekday make approximately 93,100 non-work transit trips. While Downtown is again the most common single destination for these transit trips, the concentration of non-work transit travel to Downtown is much less pronounced than it is for work trips. This pattern is the result of the nature of non-work travel (generally shorter and to areas closer to home than Downtown) and the households who choose transit for non-work travel (high concentrations of elderly, students, and lower-income persons).

3) Automobile Travel by Resident Households

The estimates for 2000 also show the number of trips that would be made using automobiles, based on auto person travel on a typical weekday for work and for all other purposes. There were approximately 942,500 daily work-related auto person trips in 2000. As expected, the largest number of these trips are attracted to Downtown. Other significant areas attracting work-related auto person trips are McCully, Iwilei, Pearl City/Aiea, and Mililani. Areas producing large shares of work-related trips are Pearl City/Aiea, Waipahu, Mililani, Ewa, Kaneohe, and Kailua. A key pattern to note is that there are significant suburban areas (Pearl City/Aiea, Mililani) attracting work trips as well as the more urban areas (Downtown, McCully, Iwilei).

There were approximately 1,339,000 daily non-work auto person trips in 2000. The larger non-work trip attractors are oriented more toward the suburban areas such as Pearl City/Aiea, Waipahu, Mililani, Kaneohe, and Kailua. Significant non-work attraction areas are Downtown, McCully, and Iwilei. Areas producing non-work auto person trips are Salt Lake, Pearl City/Aiea, Waipahu, Mililani, Kaneohe, Kailua, and East Honolulu.

3.2.4 Bicycle Travel and Pedestrian Facilities

The Honolulu Bicycle Master Plan (April 1999), sponsored by the City and County of Honolulu, and Bike Plan Hawaii (April 1994), a Statewide bike plan, inventoried existing facilities and provided recommendations to enhance bicycle travel (refer to Figure 3.1-4A through 3.1-4C).

About 100,000 bicycles are registered in Honolulu, and 1.3 percent of employees (10,500 persons) bike to work (1990 Census). There are 24.8 miles of bikeways within the PUC, the longest being the Pearl Harbor Bike Path extending from near Aloha Stadium to Waipio Peninsula (Waipahu). The DTS installed bicycle racks on downtown sidewalks to make it easier to bike to work, and placed bicycle racks on all of its buses. Hookups to the bus bicycle racks now exceed 1,100 per day (Oahu Transit Services, Inc., November 2001).

Oahu has a developed pedestrian trail system, several components of which exist entirely or in part within the project area. The study area also contains other areas of concentrated pedestrian activity, including pedestrian malls and public beach accesses. For example, there is heavy pedestrian traffic daily in and around areas such as Downtown, Waikiki, Ala Moana, and University. On Kalakaua Avenue, the City and County of Honolulu widened the sidewalk to enhance the pedestrian experience along Kuhio Beach (Kuhio Beach Park Expansion/ Kalakaua Promenade, Signing and Striping Plan, City and County of Honolulu,. August 18, 1999). The City and County also developed the Historic Waikiki Trail that winds through Waikiki, taking pedestrians to various sites of historic importance (Office of Waikiki Development, Mayor's Office, March 2000).

3.2.5 Parking

The high cost of land and development densities in Downtown Honolulu and Waikiki make it important to preserve or improve existing parking conditions, either by increasing supply or reducing the demand for spaces. Parking prices indicate that the existing parking spaces are in high demand. Parking costs published by the Downtown Planet in November 2001 showed that short-term weekday parking rates in the Downtown/Chinatown area range from 50 cents per half hour to $3.00 for every 20 minutes. Monthly rates can be as much as $250, especially in the center of Downtown, although more outlying parking garages such as those on the edge of Chinatown cost as little as $75.

Public parking can be categorized as either off-street or on-street. Off-street parking is those spaces available in parking structures or designated parking lots. These parking facilities may be privately or publicly operated. On-street parking refers to curbside spaces that may or may not be marked with meters or painted spaces. Metered parking fees accrue to the City and County of Honolulu.

The availability of parking varies by neighborhood and by street. Most travel destinations tend to have associated off-street parking facilities. Metered and unmetered on-street parking is also available throughout the entire study area, particularly at major destinations such as Chinatown, Downtown, Ala Moana, and Waikiki. In general, parking at major destinations tends to be metered and in higher demand than those at less trafficked areas. On-street parking also tends to be restricted to certain non-peak hours of the day, especially where those spaces are in the curbside lanes of roads with rush hour traffic. In areas of high parking demand, many parking vendors offer off-street parking opportunities to the public, including municipally operated parking garages.

3.2.6 Loading Zones

Vehicle loading zones are curbside areas set aside for passenger or cargo loading and unloading. They can also include some bus and shuttle stops. Some loading zones are restricted to use only during certain hours of the day, while others are unrestricted.

Loading zones are located throughout the city, but their frequency and sizes vary. Locations with highly used loading zones tend to be in key areas like Downtown and Waikiki. Due to the limited parking opportunities and the frequency of passenger loading and unloading in these areas, loading zones serve an important public function in the congested metropolitan setting. In contrast, most of the project corridor Ewa of Middle Street tends to be less populated and centered around major highways such as H-1, which contain no significant loading zones.

Waikiki has a significant number of loading zones. The existing parking and loading restrictions in Waikiki are shown on the signing and striping plans for Kalakaua, Kapahulu and Kuhio Avenues, contained in DTS Bulletin Number 4 entitled the Kalakaua Avenue Safety and Beautification Project (circa 1988). This bulletin states that the restrictions were initiated on May 26, 1987. In general, private vehicles are restricted from stopping, standing, or parking along Kalakaua Avenue and Kuhio Avenue. Commercial passenger and baggage loading and unloading along curbs are allowed on both sides of Kuhio Avenue and on the makai side of Kalakaua Avenue, except between the hours of 3:30 p.m. and 5:30 p.m. and where prohibited. There

is no restriction on loading and unloading in loading bays at any time. Freight loading and unloading is allowed from 10:00 p.m. to 9:30 a.m. on both sides of Kuhio Avenue and from 10:00 p.m. to 9:00 a.m. on the makai side of Kalakaua Avenue. No stopping, standing, loading, or unloading is permitted on the mauka side of Kalakaua Avenue except freight vehicles with permits between the hours of 10:00 p.m. and 9:00 a.m. Kapahulu Avenue has a roughly 200-foot segment on the Ewa side that is restricted to loading and unloading only on Mondays through Saturdays between 7:00 a.m. and 11:00 p.m.

On Alakea Street between King and Hotel Streets, passenger and freight loading takes place on the Ewa curb at all hours of the day. This block is marked as "No Parking, Tow Away Zone" which allows commercial vehicles with permits to make brief stops for loading and unloading operations. On Kaaahi Street, freight loading occurs along both sides of this dead end street in the Iwilei area.

3.3 NEIGHBORHOODS

The primary transportation corridor spans 18 identifiable neighborhoods (see Figure 3.3-1 and Table 3.3-1). Their demographics, community resources, and location relative to the alternatives characterize these neighborhoods below.

3.3.1 Demographic Description

1) Population Trends

Population growth by neighborhood from 1990 to 2000 is shown in Table 3.3-1. The total 2000 Oahu population was 876,156, which was about five percent greater than the 1990 population. In the 1990s, the average annual growth rate was about one-half percent, based on an estimated 1997 islandwide population of approximately 870,000. Nevertheless, during the 1990s, certain neighborhoods experienced substantial population growth.

For example, Waipahu/Waikele/Kunia/Waipio and Ewa/Kapolei grew 22 and 97 percent, respectively, during the 1990s. These neighborhoods are in the western part of the corridor where former agricultural land is being converted to urban uses. Housing in Ewa and Central Oahu tends to be more affordable than in the PUC, resulting in a much higher growth rate in these outlying areas compared to the rest of the island. This trend is not changing in the 2000s, as most new housing is being built in Ewa and Central Oahu.

Growth areas in the PUC were clustered in Ala Moana/Kakaako and Downtown (see Table 3.3-1). Population growth in these neighborhoods resulted mostly from development of high-rise apartment buildings. Little to moderate growth occurred in the Pearl City, Makiki/Tantalus/Lower Punchbowl, Nuuanu/Punchbowl/Pacific Heights, and Kalihi Valley neighborhoods. Neighborhoods that experienced no growth or decreases in population from 1990 to 2000 were mostly in the eastern part of the PUC, such as Manoa, McCully/Moiliili, Waikiki and Diamond Head/Kapahulu/St. Louis Heights, and in the Aiea, Aliamanu/Salt Lake, Liliha/Kapalama Kalihi/Palama, Moanalua, and Airport/Hickam/Pearl Harbor Naval Station neighborhoods. Some of these neighborhoods are older communities, contain mostly single-family residences and are in transition from residential to commercial or industrial uses. Also, an aging population characterizes some of the neighborhoods.

TABLE 3.3-1
POPULATION GROWTH BY NEIGHBORHOOD
(1990 TO 2000)

Neighborhood	Population		Percent Change
	1990	2000	
Diamond Head/Kapahulu/St. Louis Hts.	20,945	19,137	-8.6%
Manoa	21,496	21,184	-1.5%
McCully/Moiliili	28,466	26,122	-8.2%
Waikiki	19,768	19,720	-0.2%
Makiki/Tantalus/Lower Punchbowl	29,416	30,145	2.5%
Ala Moana/Kakaako	10,978	14,186	29.2%
Nuuanu/Punchbowl/Pacific Heights	16,254	16,494	1.5%
Downtown/Iwilei	11,601	14,575	25.6%
Liliha/Kapalama	21,221	19,905	-6.2%
Kalihi/Palama	40,147	37,987	-5.4%
Kalihi Valley	17,798	17,937	0.8%
Moanalua	12,256	11,748	-4.1%
Aliamanu/Salt Lake/Foster Village	37,498	36,572	-2.5%
Airport/Hickam/Pearl Harbor Naval Station	26,762	18,163	-32.1%
Aiea	32,553	31,221	-4.1%
Pearl City/Pearl Harbor Complex	46,928	47,794	1.8%
Waipahu/Waikele/Kunia/Waipio	51,174	62,402	21.9%
Ewa/Kapolei/Makakilo	26,898	53,099	97.4%
Total Oahu	**836,231**	**876,156**	**4.8%**

Source: 2000 Census SF1 File; Planning Davison, Honolulu Department of Planning and Permitting, January 2002.

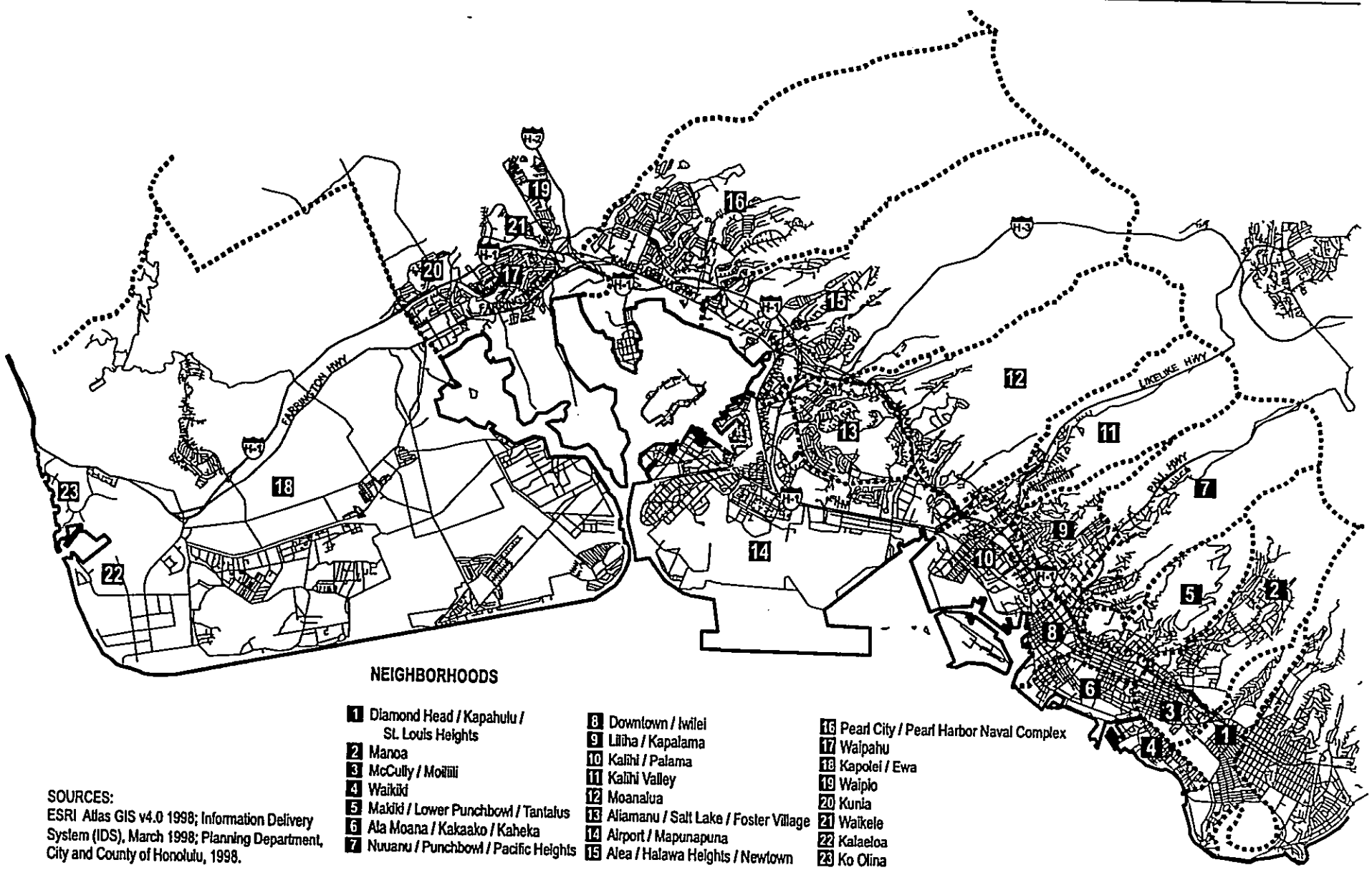
2) Ethnicity

In 1990, Whites made up 32 percent of the islandwide population. They were followed by Japanese (24 percent), Filipino (14 percent), Hawaiian/part Hawaiian (11 percent), and Chinese (8 percent). The 2000 Census allowed people to choose their ethnicity among two or more races, which makes it difficult to compare this information with the 1990 census. Table 3.3-2 presents the 2000 ethnicity by neighborhood. It presents only the ethnicity data for those indicating one race on the Census form because the majority of people completing the Census indicated only one race. For example, on Oahu 80.1% indicated one race and 19.9% indicated two or more races. It should be noted that because people could indicate more than one race, the percentages will not total 100.

Ethnic mix varies by neighborhood. Neighborhoods with proportionately higher populations of White residents are Waikiki and Airport/Hickam/Pearl Harbor Naval Station. Waikiki has a high transient population. The Airport neighborhood encompasses mostly Air Force and Navy military housing. Asians are the largest ethnic group islandwide. Fifteen of the neighborhoods have Asian populations of 50% or greater. The exceptions are Waikiki, Airport, and Moanalua. Native Hawaiians and other Pacific Islanders are less numerous in the corridor than the groups previously described. The neighborhoods with the highest proportion of Hawaiian and other Pacific Islanders, exceeding the nine percent islandwide proportion, are Kalihi Valley, Kalihi/Palama, and Nuuanu/Punchbowl. The Papakolea homestead area, a Department of Hawaiian Home Lands (DHHL) property, is located in the Nuuanu/Punchbowl neighborhood.

3) Families and Households

Household and family characteristics by neighborhood are shown in Table 3.3-3. Seventy-five percent of the households on Oahu in 1990 were families, which are defined as two or more persons related by blood, marriage, or law living together. This percentage dropped to 72 percent in 2000. Neighborhoods with the



NEIGHBORHOODS

1 Diamond Head / Kapahulu / St. Louis Heights
2 Manoa
3 McCully / Moiliili
4 Waikiki
5 Makiki / Lower Punchbowl / Tantalus
6 Ala Moana / Kakaako / Kaheka
7 Nuuanu / Punchbowl / Pacific Heights
8 Downtown / Iwilei
9 Liliha / Kapalama
10 Kalihi / Palama
11 Kalihi Valley
12 Moanalua
13 Aliamanu / Salt Lake / Foster Village
14 Airport / Mapunapuna
15 Alea / Halawa Heights / Newtown
16 Pearl City / Pearl Harbor Naval Complex
17 Waipahu
18 Kapolei / Ewa
19 Waipio
20 Kunia
21 Waikele
22 Kalaeloa
23 Ko Olina

SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; Planning Department, City and County of Honolulu, 1998.

N

Scale: 0 .5 1.0 1.5 2.0mi

Neighborhoods

Figure 3.3-1

TABLE 3.3-2
ETHNICITY BY NEIGHBORHOOD – 2000[1]

Neighborhood	White	Black	American Indian	Asian	Native Hawaiian	Other	Two or More Races
Diamond Head/Kapahulu/St. Louis Heights	21%	0.5%	0.1%	55%	7%	0.7%	16%
Manoa	21%	0.7%	0.2%	59%	4%	0.7%	15%
McCully/Moiliili	15%	1%	0.2%	60%	7%	0.9%	16%
Waikiki	44%	2%	0.3%	39%	5%	1%	10%
Makiki/Tantalus	22%	1%	0.2%	54%	6 %	1%	16%
Ala Moana/Kakaako	19%	1%	0.2%	62%	4%	0.7%	12%
Nuuanu/Punchbowl	16%	0.5%	0.1%	53%	12%	0.8%	19%
Downtown	22%	1%	0.2%	58%	6%	0.7%	12%
Liliha/Kapalama	8%	0.3%	0.1%	67%	8%	0.3%	16%
Kalihi/Palama	4%	0.6%	0.1%	66%	14%	0.7%	14%
Kalihi Valley	6%	0.4%	0.1%	66%	12%	0.7%	16%
Moanalua	22%	5%	0.2%	46%	7%	2%	18%
Aliamanu/Salt Lake	19%	6%	0.3%	52%	6%	2%	14%
Airport/Hickam/Pearl Harbor Naval Station	62%	12%	0.6%	11%	1%	4%	9%
Aiea	18%	2%	0.3%	50%	8%	1%	20%
Pearl City	16%	2%	0.2%	56%	6%	1%	18%
Waipahu/Waikele/Kunia/Waipio	8%	2%	0.2%	62%	9%	1%	18%
Ewa/Kapolei/Makakilo	17%	2%	0.2%	50%	7%	1%	23%
Oahu	21%	2%	0.2%	46%	9%	1.3%	20%

Source: 2000 Census SF1 File; Planning Division, Honolulu Department of Planning and Permitting, January 2002.
Note: [1]Does not sum to 100 percent because people could chose more than one ethnicity.

TABLE 3.3-3
HOUSEHOLD AND FAMILY CHARACTERISTICS BY NEIGHBORHOOD – 2000

Neighborhood	Median Age	Households (HH)	Families (Percent of HH)	Average HH Size
Diamond Head/Kapahulu/St. Louis Heights	42.7	7,698	59%	2.44
Manoa	39.3	7,051	68%	2.59
McCully/Moiliili	38.9	12,670	48%	2.04
Waikiki	42.2	11,397	36%	1.72
Makiki/Tantalus	41.0	14,998	46%	1.97
Ala Moana/Kakaako	42.9	7,797	41%	1.78
Nuuanu/Punchbowl	43.5	6,180	66%	2.63
Downtown	40.9	6,818	41%	1.87
Liliha/Kapalama	44.4	6,495	72%	2.93
Kalihi/Palama	36.3	10,258	75%	3.57
Kalihi Valley	36.5	3,941	85%	4.42
Moanalua	36.0	3,219	87%	3.08
Aliamanu/Salt Lake	33.4	11,732	75%	3.09
Airport/Hickam/Pearl Harbor Naval Station	25.7	5,001	98%	3.32
Aiea	37.6	10,580	71%	2.89
Pearl City	37.7	14,369	82%	3.13
Waipahu/Waikele/Kunia/Waipio	34.1	16,937	81%	3.60
Ewa/Kapolei/Makakilo	30.8	14,324	85%	3.68
Oahu	35.7	286,450	72%	2.95

Source: 2000 Census SF1 File; Planning Division, Honolulu Department of Planning and Permitting, January 2002.

highest percentage of families are mainly in the western half of the corridor, Ewa of Moanalua, and include Pearl City, Waipahu and Ewa as well as Moanalua and Airport/Hickam/Pearl Harbor areas. The 2000 census indicates that these community characteristics have not changed. These neighborhoods have higher percentages of low-density housing (see Section 3.1.3), have generally younger inhabitants based on median age, and have larger household sizes.

Neighborhoods with lower percentages of families and smaller household sizes are generally located in the older parts of the central Urban Core, such as McCully/Moiliili, Makiki/Tantalus, Downtown, and Ala Moana/Kakaako. These neighborhoods have higher percentages of multifamily housing.

Educational attainment among adults in the corridor is similar to the overall Oahu population. However, certain neighborhoods, such as Manoa, Waikiki, and Makiki/Tantalus, substantially exceed the islandwide profile for high school and college graduates. Neighborhoods with a substantially lower distribution of educational attainment compared to the islandwide distribution are Kalihi/Palama and Kalihi Valley.

4) Housing Stock

Housing characteristics by neighborhood are shown in Table 3.3-4. Housing of all types on Oahu increased from about 174,000 units in 1970 to over 280,000 units in 1990 to 316,000 in 2000. A majority of the new homes were developed in Ewa and Central Oahu. Most of the housing units are low-density, single-family and townhouse dwellings. In the corridor, low-density neighborhoods are generally clustered in the eastern and western portions. Housing units in central Urban Core neighborhoods are higher densities, and many are in medium to high-rise apartment buildings. These neighborhoods include McCully/Moiliili, Waikiki, Makiki/Tantalus, Ala Moana/Kakaako, Downtown, Kalihi/Palama and Aliamanu/Salt Lake.

Vacancy rates of most neighborhoods ranged from one to three percent in 1990, compared to the two percent islandwide rate. The islandwide vacancy rate rose to five percent in 2000. McCully/Moiliili had a 7 percent vacancy rate followed by Manoa (3 percent) and Waikiki (23 percent).

TABLE 3.3-4
HOUSING CHARACTERISTICS BY NEIGHBORHOOD – 2000

Neighborhood	Housing Units	Vacancy Rate	Home Ownership Rate
Diamond Head/Kapahulu/St. Louis Hts.	8,649	6%	53%
Manoa	7,420	3%	60%
McCully/Moiliili	14,098	7%	28%
Waikiki	18,370	23%	34%
Makiki/Tantalus	16,368	6%	39%
Ala Moana/Kakaako	9,440	8%	32%
Nuuanu/Punchbowl	6,584	3%	59%
Downtown	7,342	6%	23%
Liliha/Kapalama	6,852	3%	57%
Kalihi/Palama	11,108	6%	29%
Kalihi Valley	4,169	3%	60%
Moanalua	3,4,62	2%	50%
Aliamanu/Salt Lake	12,927	6%	46%
Airport/Hickam/Pearl Harbor Naval Sta.	5,627	1%	2%
Aiea	11,044	3%	59%
Pearl City	14,182	2%	71%
Waipahu/Waikele/Kunia/Waipio	17,897	4%	64%
Ewa/Kapolei/Makakilo	15,845	4%	69%
Oahu	315,988	5%	55%

Source: 2000 Census SF1 File; Planning Division, Honolulu Department of Planning and Permitting, January 2002.

5) Home Ownership and Stability

Home ownership characteristics are also shown in Table 3.3-4. Oahu has a lower home ownership rate (55 percent) as a result of the high cost of housing in Hawaii. In 2000, home ownership rates across the corridor neighborhoods vary from 71 and 69 percent in Pearl City and Ewa/Kapolei/Makakilo, respectively, to 2, 23, 28 and 29 percent in the Airport area, Downtown, McCully/Moiliili and Kalihi/Palama, respectively. Neighborhoods with high ownership rates tend to be more stable than neighborhoods with higher proportions of renters because resident turnover tends to be less. Also, suburban outlying areas tend to have higher home ownership rates than in central Honolulu. In 2000, the Ewa area had a 70 percent home ownership rate compared to 46 percent for the PUC and 60 percent for Central Oahu.

6) Income

Income by neighborhood is shown in Table 3.3-5. The 2000 Census income data was not available as of May 2002. Median household income in 1990 for Oahu was $40,581. Certain neighborhoods in the corridor, such as Manoa and Pearl City, had median incomes substantially higher than this islandwide median. Neighborhoods with moderately high median incomes were Nuuanu/Punchbowl, Liliha/Kapalama, Moanalua, Aiea and Waipahu/Waikele/Kunia/Waipio.

Neighborhoods with median incomes substantially lower than the islandwide median were Waikiki, Makiki/Tantalus, Ala Moana/Kakaako, Downtown, Kalihi/Palama, and Airport/Hickam/Pearl Harbor Naval Station. However, the first four of these neighborhoods have smaller average household sizes than the Oahu average, partially explaining the lower median household incomes. Although the Airport neighborhood has a low median income level, it consists mostly of military housing, which is a form of in-kind income. The poverty

TABLE 3.3-5
INCOME AND HOME OWNERSHIP CHARACTERISTICS BY NEIGHBORHOOD – 1990

Neighborhood	Median Household (HH) Income	Families in Poverty (Percent)	Selected Sources of Income (Percent of HH)		
			Social Security	Retirement -	Public Assistance
Diamond Head/Kapahulu/St. Louis Hts.	$39,357	4%	11%	8%	2%
Manoa	$51,866	2%	10%	8%	1%
McCully/Moiliili	$31,974	7%	8%	5%	2%
Waikiki	$26,980	6%	11%	8%	2%
Makiki/Tantalus	$33,623	6%	8%	5%	1%
Ala Moana/Kakaako	$25,162	7%	11%	7%	2%
Nuuanu/Punchbowl	$44,199	4%	11%	8%	2%
Downtown	$25,436	10%	7%	4%	4%
Liliha/Kapalama	$43,164	2%	14%	9%	2%
Kalihi/Palama	$25,647	16%	13%	7%	6%
Kalihi Valley	$39,794	13%	12%	8%	5%
Moanalua	$43,706	2%	8%	7%	1%
Aliamanu/Salt Lake	$38,078	4%	4%	6%	2%
Airport/Hickam/Pearl Harbor Naval Sta.	$29,989	2%	1%	0.5%	0.4%
Aiea	$45,585	4%	8%	8%	2%
Pearl City	$55,053	2%	6%	7%	1%
Waipahu/Waikele/Kunia/Waipio	$46,501	8%	7%	6%	4%
Ewa/Kapolei/Makakilo	$40,679	4%	5%	6%	2%
Oahu	$40,581	5%	8%	7%	2%

Source: Neighborhood Profiles, City and County of Honolulu Planning Department (now Department of Planning and Permitting), 1996.
Note: Does not sum to 100 percent because vacant units are included in the calculation.

rate of this neighborhood is only two percent, much lower than the Oahu overall rate. Neighborhoods with high poverty rates are Downtown, Kalihi/ Palama, Kalihi Valley and Waipahu/Waikele/Kunia/Waipio. These areas contain low-income and/or public housing units, have a disproportionate number of elderly residents, and are areas where new immigrants have settled. Low-income means a household income at or below the Department of Health and Human Services guidelines.

Neighborhoods with the highest percentages of households receiving social security and retirement incomes tend to be located in the center of the PUC, such as Liliha/Kapalama, Kalihi/Palama, and Kalihi Valley. These neighborhoods contain a large amount of older housing and long-time residents. Neighborhoods in the western portion of the corridor have lower rates of households with social security and retirement incomes. Neighborhoods with higher rates of households receiving public assistance are Downtown, Kalihi/Palama, Kalihi Valley and Waipahu/Waikele/Kunia/Waipio, the same neighborhoods that have higher than average poverty rates.

3.3.2 Community Facilities and Services

Community facilities and services include libraries, shopping centers, churches, police stations, fire stations, schools (public and private), hospitals, and clinics. Parks are discussed in Section 3.11.

Activity centers and growth areas that attract and generate travel exist throughout the study area. Table 3.3-6 lists some of the major activity centers in the corridor by DP AREA.

3.3.3 Cultural Activities

To identify the cultural activities and resources in the study area, a panel of experts was formed and convened on May 24, 2001. Its purpose was to develop a working definition of "cultural practice" in an urban setting and to develop a working definition of the geographic boundary of the study area. The panel included individuals with expertise including cultural anthropology, urban planning, social impact assessment and planning, and ethnography. The definition of "cultural practices" was expanded to include the many traditions and ethnicities of Hawaii. The study corridor was identified, as the area between the H-1 Freeway and the ocean, from Middle Street to Kapiolani Park. Several methods were employed to identify cultural practices and resources, such as using the panel members' and key informants' knowledge, driving and walking through the study area neighborhoods, and obtaining schedules and other publications that provide cultural event information.

The panel was able to identify over 400 cultural practices, which were categorized in the following manner:

- Culturally Significant Districts. Often referred to as Traditional Cultural Properties (see Section 3.10), the only culturally significant districts identified in the study area are Chinatown and the Iolani Palace/King Kamehameha Statue area. Both areas are also listed on the National Register of Historic Places in part or whole. Further details on these two areas are provided in Section 3.10.2.

- Flora Gathered for Lei-Making, Sharing, Ceremonies and Cultural Activities. Flowers, foliage, seeds and other flora materials are gathered from private and public properties throughout the study area.

- Lion Dances and Fireworks Associated with Lunar New Year Celebrations. The streets and sidewalks of Chinatown are the venue for cultural practices during the Lunar New Year.

- Kupuna Iwi. Kupuna Iwi (ancestral bones) in the study area is discussed in Section 3.10.2.

- Parades and Street Festivals. Some of the streets in the study area from Downtown Honolulu to Waikiki are used for parades and street festivals, many of which are annual events. The corridor used most often

for parades includes South King Street from Downtown to Punchbowl Street, to Ala Moana Boulevard to Kalakaua Avenue up to Kapiolani Park.

TABLE 3.3-6
MAJOR ACTIVITY SITES IN THE
PRIMARY TRANSPORTATION CORRIDOR

Ewa Area	
City of Kapolei	Kalaeloa(former Barbers Point Naval Air Station)
Central Oahu Area	
Royal Kunia Shopping Center	Waikele Center/Waikele Premium Outlets
Waipahu Town	Waipio
Waikele	Kunia
Primary Urban Center Area	
Leeward Community College	West Oahu College
Pearl Highlands Center	Pearl City Shopping Center
Westridge Shopping Center	Pearlridge Center
Pearl Kai Center	Aloha Stadium
Stadium Marketplace and Mall	Bougainville Center
Salt Lake	Pearl Harbor Naval Base
Arizona Memorial	Hickam Air Force Base
Mapunapuna Industrial Area	Honolulu International Airport
Honolulu Community College	Middle Street Industrial Area
Kalihi Kai Industrial District	Kalihi/Palama
Iwilei Industrial District	Sand Island
Honolulu Harbor	Chinatown
Downtown Financial District	Government centers (Federal/State/City)
Queen's Medical Center	Kakaako
Pali Momi Medical Center	Kaiser Medical Center
Victoria Ward Centers	Neal Blaisdell Center
Kapiolani Business District	Ala Moana Park
Ala Moana Center	Fort DeRussy
Waikiki	Honolulu Zoo
Ala Wai Park	Tokai University Pacific Center
Kapiolani Park	University of Hawaii at Manoa
McCully/Moiliili	Chaminade College
Hawaii Convention Center	

Source: Parsons Brinckerhoff, Inc., September 2002.

3.4 VISUAL AND AESTHETIC CONDITIONS

An important part of the alternatives development and analysis was the consideration given to the possible visual and aesthetic impacts a future system might have on existing visual resources. The visual impact analysis was based on the Federal Highway Administration's (FHWA's) methodology for visual impact assessment as described in their Publication No. FHWA-HI-88-054 guidelines, Visual Impact Assessment for Highway Projects. Three types of visual resources are discussed in this section: sectors/landscape units, coastal views, and other special view opportunities.

3.4.1 Sectors and Landscape Units

For ease of analysis, the project area was divided into sectors and landscape units. A "sector" is defined as a large but recognizable geographic entity having generally consistent land use and visual character. Sectors are comprised of smaller components called "landscape units." Thirteen sectors and 70 landscape units along potential alignments were identified in the primary transportation corridor. These sectors and landscape units are described in more detail in the Environmental Baseline Report (Parsons Brinckerhoff, Inc., June 1999).

Visual impacts were identified based on the visual character and visual quality of the landscape units, and how the alternatives are visually compatible with these units. Visual character refers to certain aesthetic attributes such as form, line, color, or texture. Visual quality is the level at which the landscape unit is vivid (memorable), is intact (free from visual encroachment), or has unity (forms a coherent harmonious visual pattern). For more detail on the methodology for analysis, refer to the Environmental Baseline Report.

Landscape units were ranked by visual field assessments on a 10-point scale with 10 being very high and 0 being very low. Of the 70 landscape units identified in the study area, the units with the highest visual character and quality include the following:

- Hawaii Capital Special District
- Chinatown Special District
- Nimitz Highway portion fronting Downtown Honolulu
- portions of Kapiolani Boulevard between the Hawaii Convention Center and Ala Moana Center
- Ala Moana Boulevard fronting Ala Moana Park
- Kalia Road in Waikiki
- portions of Kalakaua Avenue along Waikiki Beach
- portions of Ala Wai Boulevard parallel to the Ala Wai Canal
- Kapahulu Avenue between Kalakaua and Kuhio Avenues
- University Avenue between H-1 and Bachman Hall
- portions of North and South King Streets from Liliha Street through Chinatown and Downtown
- Thomas Square/Academy of Arts Special District

3.4.2 Coastal View Sections

In addition to landscape units, the primary transportation corridor contains several major coastal viewsheds. The Hawaii Coastal Zone Management Program and the City's Special Management Area Use Program both require the consideration of important coastal views.

The Coastal View Study (City and County of Honolulu, Department of Land Utilization, 1987) identifies significant makai and lateral views along Oahu's coastline. The following are those significant makai and lateral views along Oahu's shoreline that also relate to the primary transportation corridor, as listed in the Coastal View Study:

- Ewa Beach Road/Ewa Beach Park (makai views from park)
- Pearl Harbor (makai views of harbor from Kamehameha Highway, at Richardson Park)
- Keehi Lagoon (makai views of lagoon from Lagoon Drive and from Kamehameha Highway)
- Honolulu Harbor (makai views of harbor from Nimitz Highway)
- Kewalo Basin
- Ala Moana Park/Magic Island
- Ala Wai Yacht Harbor

- Kalia Road/Fort DeRussy
- Kalakaua Avenue/Waikiki Beach

3.4.3 Other Special View Opportunities

Special view opportunities were considered by identifying the character and quality of the visual environment. The importance of coastal views and views within special districts was further reinforced. The following view opportunities were considered relative to these viewsheds:

- Residential, Commercial, Institutional, and Industrial Areas: Views of and from various types of buildings and built environments within the viewsheds;
- Koolau and Waianae Mountain Ranges: Views of and from the distant mountains.
- Special Districts: Views of and from special districts designated by the City and County of Honolulu, or non-designated areas of distinctly unique character due to cultural and historical context. Special Districts include Chinatown, Hawaii Capital, Thomas Square, and Waikiki;
- Non-designated Districts: Views of and from neighborhoods that have not been officially designated by the City and County of Honolulu, but nonetheless possess unique identifiable character and fabric. These non-designated districts include the Kalihi-Palama District on North King Street, University of Hawaii-Manoa Campus mauka of Dole Street, Downtown, and Kapiolani Boulevard.
- Pacific Ocean, Pearl Harbor, and Honolulu Harbor: Limited makai views of and from the water adjacent to the study areas.

Specific view opportunities along potential project alignments include:

- Keehi Lagoon
- Kalihi-Palama District
- Kakaako Waterfront Park
- Downtown
- Hawaii Capital Special District
- Chinatown Special District
- Thomas Square/Academy of Arts Special District
- Waikiki Special District
- Hawaii Convention Center
- University of Hawaii - Manoa
- Pacific Ocean, Pearl Harbor, and Honolulu Harbor
- Koolau and Waianae Mountain Ranges

3.5 AIR QUALITY

3.5.1 Relevant Pollutants

Ambient concentrations of air pollution are regulated by both national and State ambient air quality standards (AAQS) (see Table 3.5-1). As indicated in the table, national and State AAQS have been established for particulate matter (PM), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), ozone and lead. The State has also set a standard for hydrogen sulfide.

Particulate matter includes dust, soot, smoke, and liquid droplets. Sulfur oxides, which include SO_2, are colorless gases emitted primarily by burning fossil fuels and volcanic activity. Nitrogen dioxide is a brownish, highly corrosive gas with a pungent odor that is formed from nitrogen oxides emitted by electric utilities,

TABLE 3.5-1
AMBIENT AIR QUALITY STANDARDS

Pollutant	Units	Averaging Time	Maximum Allowable Concentration		
			National Primary	National Secondary	State of Hawaii
Particulate Matter (<10 microns)	$\mu g/m^3$	Annual 24 Hours	50[1] 150[2]	50[1] 150[2]	50 150[3]
Particulate Matter (<2.5 microns)	$\mu g/m^3$	Annual 24 hours	15[1] 65[4]	15[1] 65[4]	- -
Sulfur Dioxide	$\mu g/m^3$	Annual 24 Hours 3 Hours	80 365[3] -	- - 1,300[3]	80 365[3] 1,300[3]
Nitrogen Dioxide	$\mu g/m^3$	Annual	100	100	70
Carbon Monoxide	$\mu g/m^3$	8 Hours 1 Hour	10,000 40,000	10,000 40,000-	5,000 10,000
Ozone	$\mu g/m^3$	8 Hours 1 Hour	157[5,6] 235[7]	157[5,6] 235[7]	- 100[3]
Lead	$\mu g/m^3$	Calendar Quarter	1.5	1.5	1.5
Hydrogen Sulfide	$\mu g/m^3$	1 Hour	-	-	35[3]

Source: Section 40, Part 50, Code of Federal Regulations.
Chapter 11-59, Hawaii Administrative Rules.

Notes:
[1] Three-year average of annual arithmetic mean.
[2] 99th percentile value averaged over three years.
[3] Not to be exceeded more than once per year.
[4] 98th percentile value averaged over three years.
[5] Three-year average of fourth-highest daily 8-hour maximum.
[6] Implementation of standard currently stayed pending federal court decision.
[7] Standard is attained when the expected number of exceedances is less than or equal to 1.

industrial boilers and combustion of fossil fuels. Carbon monoxide is a colorless, odorless and tasteless gas produced by the incomplete combustion of fossil fuels. Ozone is formed in the atmosphere by a chemical reaction of nitrogen oxides and volatile organic compounds in the presence of sunlight. Although an ozone layer in the upper atmosphere shields the earth from harmful ultraviolet radiation, high ozone levels at ground level can cause harmful effects to humans and plants. Lead is a naturally occurring substance that has been used extensively in paint and gasoline. Historically, lead particulates enter the air mainly from vehicle exhaust. The elimination of lead in gasoline sold in the United States has greatly reduced the amount of lead in the air. Hydrogen sulfide is a colorless malodorous gas with the smell of rotten eggs. It is normally generated when sewage is allowed to stand for a long period.

The national AAQS are stated in terms of primary and secondary standards for most of the regulated air pollutants. National primary standards are designed to protect public health with an "adequate margin of safety". On the other hand, national secondary standards define levels of air quality necessary to protect public welfare from "any known or anticipated adverse effects of a pollutant". In contrast to the national AAQS, the State AAQS are designed "to protect public health and welfare and to prevent the significant deterioration of air quality". The AAQS specify a maximum allowable concentration for a given air pollutant for one or more averaging times to prevent harmful effects. Averaging times vary from one hour to one year depending on the pollutant and type of exposure necessary to cause adverse effects. In the case of the short-term (i.e., 1-hour to 24-hour) AAQS, national and State standards allow a specified number of exceedances per year. The State AAQS are in some cases considerably more stringent than comparable national AAQS. In particular, the Hawaii 1-hour AAQS for CO is four times more stringent than the comparable national limit, and the State 1-hour limit for ozone is more than twice as stringent as the national 1-hour standard. Pending court review, the national 1-hour ozone standard will be phased out during the next few years in favor of a new (and more stringent) 8-hour standard.

The pollutants relevant to the project are those related in large measure to motor vehicles, which have historically constituted a major source of ambient air pollution. These pollutants are CO, hydrocarbons, nitrogen oxides and ozone. Lead was a major motor vehicle pollutant until its elimination from gasoline. Carbon monoxide impacts are localized. Even under the worst meteorological conditions, high concentrations of CO under the most congested traffic conditions are limited to a relatively short distance from heavily traveled roadways. Therefore, CO impacts are analyzed on a localized or "microscale" level. Hydrocarbon and nitrogen oxide automotive emissions play a large role in the formation of ozone. Since the chemical reactions are slow and occur as the pollutants diffuse downwind, elevated ozone levels are often found many miles from pollutant sources. Therefore, the impacts from hydrocarbon and nitrogen oxide emissions are generally analyzed on a regional or "mesoscale" level.

3.5.2 Regional Compliance with the Standards

Air pollutants from vehicular, industrial, natural and/or agricultural sources affect the present air quality in the project area. Much of the PM emissions on Oahu originate from area sources, such as agriculture. Sulfur oxides are emitted almost exclusively by point sources, such as power plants and refineries. Nitrogen oxide and hydrocarbon emissions emanate predominantly from industrial point sources, although area sources (mostly motor vehicle traffic) also contribute a substantial share of total nitrogen oxide emissions. The majority of CO emissions are generated by motor vehicles.

The Hawaii State Department of Health (DOH) operates a network of nine air quality monitoring stations at various locations on Oahu. However, each station typically monitors only certain air quality parameters. Seven of the DOH air monitoring stations on Oahu are located within or near the project study area. These include stations at Kapolei, Makaiwa, Pearl City, Liliha, Sand Island, Downtown Honolulu and Waikiki. Table 3.5-2 summarizes annual statistics from these stations based on the most recent data currently available. A brief summary of the air quality monitoring data at these stations is provided below.

Particulate matter of less than 10 microns in diameter (PM-10) is monitored at Kapolei, Pearl City, Liliha and Downtown Honolulu. The maximum 24-hour PM-10 concentrations 1999 and 2000 ranged from 43 ug/m^3 at the Downtown Honolulu station in 1999 to 164 ug/m^3 at the Pearl City station in 2000. There were no recorded exceedances of the State or national AAQS.

Carbon monoxide is monitored at Kapolei, Downtown Honolulu and Waikiki. In 1999 and 2000, maximum 1-hour CO concentrations at these locations ranged from 5.2 to 4,788 ug/m^3, and no exceedances of the State or national 1-hour AAQS were recorded. The 8-hour CO concentrations for 1999 and 2000 reached a maximum level of 1,853 ug/m^3, which is 37 percent of the allowable State limit and 19 percent of the allowable national limit. Although the highest CO concentrations typically occur on sidewalks near traffic-congested intersections, DOH measurements are not made at these locations because of practical constraints. Therefore, the DOH monitoring data may not be entirely representative of the maximum concentrations that occur within public areas.

Ozone is measured only at the Sand Island station. The maximum 1-hour concentration for 1999 was 110 ug/m^3 and for 2000 was 98 ug/m^3. There were no exceedances of the State or national AAQS.

Sulfur dioxide (SO_2) is monitored at Kapolei, Makaiwa and Downtown Honolulu. No exceedances of the State or national 3-hour standard were recorded at these stations in 1999 and 2000. The maximum 3-hour SO_2 concentration recorded was 50 ug/m^3 at the Makaiwa station in 1999. This is about four percent of the State and national standards. There were also no exceedances of the State or national 24-hour AAQS for SO_2 during 1999 and 2000. The maximum 24-hour concentration at any of the three locations during 1999 and 2000 monitoring period was 20 ug/m^3, which is about five percent of the State and national standards.

Ambient lead monitoring was discontinued in October 1997 with the EPA's approval.

TABLE 3.5-2
AIR QUALITY DATA FOR STUDY AREA MONITORING STATIONS (1999-2000)

Air Pollutant	Kapolei		Makaiwa		Pearl City		Lilliha		Sand Island		Downtown Honolulu		Waikiki	
	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000
24-Hour Particulate Matter <10 microns in diameter (PM-10)														
Possible Periods (Day)	365	366	NM	NM	365	366	365	366	NM	NM	365	366	NM	NM
Valid Periods (Day)	362	356	NM	NM	252	358	350	361	NM	NM	357	361	NM	NM
Highest Value (ug/m^3)	129	148	NM	NM	94	164	133	65	NM	NM	43	83	NM	NM
Annual Mean (ug/m^3)	15	17	NM	NM	14	16	15	15	NM	NM	14	14	NM	NM
Number times SAAQS exceeded	0	0	NM	NM	0	0	0	0	NM	NM	0	0	NM	NM
Number times NAAQS exceeded	0	0	NM	NM	0	0	0	0	NM	NM	0	0	NM	NM
1-Hour Carbon Monoxide (CO)														
Possible Periods (Hour)	8760	8784	NM	NM	NM	NM	NM	NM	NM	NM	8760	8784	8760	8784
Valid Periods (Hour)	8395	8595	NM	NM	NM	NM	NM	NM	NM	NM	8610	8726	7959	8728
Highest Value (ug/m^3)	1482	2508	NM	NM	NM	NM	NM	NM	NM	NM	4788	3990	3990	4332
Annual Mean (ug/m^3)	215	336	NM	NM	NM	NM	NM	NM	NM	NM	706	774	1048	905
Number times SAAQS exceeded	0	0	NM	NM	NM	NM	NM	NM	NM	NM	0	0	0	0
Number times NAAQS exceeded	0	0	NM	NM	NM	NM	NM	NM	NM	NM	0	0	0	0
8-Hour Carbon Monoxide (CO)														
Possible Periods (8-Hour)	1095	1098	NM	NM	NM	NM	NM	NM	NM	NM	1095	1098	1095	1098
Valid Periods (8-Hour)	1048	1076	NM	NM	NM	NM	NM	NM	NM	NM	1076	1091	994	1094
Highest Value (ug/m^3)	613	1055	NM	NM	NM	NM	NM	NM	NM	NM	1853	1753	2337	2166
Annual Mean (ug/m^3)	215	336	NM	NM	NM	NM	NM	NM	NM	NM	706	774	1048	905
Number times SAAQS exceeded	0	0	NM	NM	NM	NM	NM	NM	NM	NM	0	0	0	0
Number times NAAQS exceeded	0	0	NM	NM	NM	NM	NM	NM	NM	NM	0	0	0	0

TABLE 3.5-2 (CONTINUED)
AIR QUALITY DATA FOR STUDY AREA MONITORING STATIONS (1999-2000)

Air Pollutant	Kapolei		Makaiwa		Pearl City		Liliha		Sand Island		Downtown Honolulu		Waikiki	
	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000
1-Hour Ozone (O_3)														
Possible Periods (Hour)	NM	NM	NM	NM	NM	NM	NM	NM	8760	8784	NM	NM	NM	NM
Valid Periods (Hour)	NM	NM	NM	NM	NM	NM	NM	NM	8566	8482	NM	NM	NM	NM
Highest Value (ug/m^3)	NM	NM	NM	NM	NM	NM	NM	NM	110	98	NM	NM	NM	NM
Annual Mean (ug/m^3)	NM	NM	NM	NM	NM	NM	NM	NM	40	32	NM	NM	NM	NM
Number times SAAQS exceeded	NM	NM	NM	NM	NM	NM	NM	NM	0	0	NM	NM	NM	NM
Number times NAAQS exceeded	NM	NM	NM	NM	NM	NM	NM	NM	0	0	NM	NM	NM	NM
3-Hour Sulfur Dioxide (SO_2)														
Possible Periods (3-Hour)	2920	2928	2920	2928	NM	NM	NM	NM	NM	NM	2757	2928	NM	NM
Valid Periods (3-Hour)	2710	2505	2899	2862	NM	NM	NM	NM	NM	NM	2757	2832	NM	NM
Highest Value (ug/m^3)	30	23	50	72	NM	NM	NM	NM	NM	NM	46	45	NM	NM
Annual Mean (ug/m^3)	2	1	2	3	NM	NM	NM	NM	NM	NM	2	1	NM	NM
Number times SAAQS exceeded	0	0	0	0	NM	NM	NM	NM	NM	NM	0	0	NM	NM
Number times NAAQS exceeded	0	0	0	0	NM	NM	NM	NM	NM	NM	0	0	NM	NM
24-Hour Sulfur Dioxide (SO_2)														
Possible Periods (Day)	365	366	365	366	NM	NM	NM	NM	NM	NM	365	366	NM	NM
Valid Periods (Day)	360	362	364	361	NM	NM	NM	NM	NM	NM	350	357	NM	NM
Highest Value (ug/m^3)	6	6	11	20	NM	NM	NM	NM	NM	NM	8	9	NM	NM
Annual Mean (ug/m^3)	2	1	2	3	NM	NM	NM	NM	NM	NM	2	1	NM	NM
Number times SAAQS exceeded	0	0	0	0	NM	NM	NM	NM	NM	NM	0	0	NM	NM
Number times NAAQS exceeded	0	0	0	0	NM	NM	NM	NM	NM	NM	0	0	NM	NM

Source: Annual Summary Hawaii Air Quality Data, 1999 and 2000, State Department of Health, Clean Air Branch.
Notes: NM = Not Measured.
Possible Periods = the total number of possible sampling periods in the year.
Valid Periods = the total number of valid sampling periods.

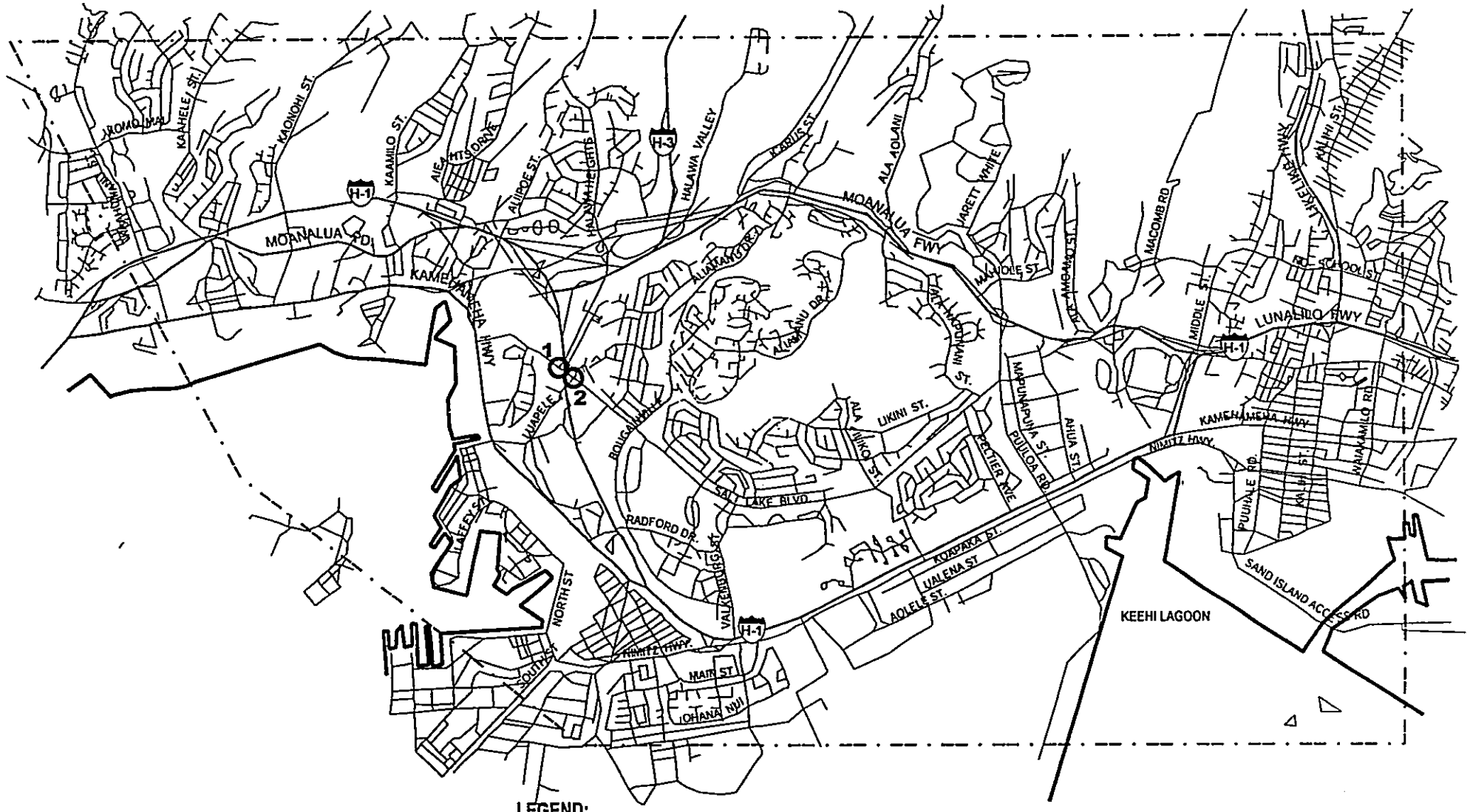
Nitrogen dioxide is only monitored at the Kapolei station. The highest measurements of NO_2 concentrations ranged between 7 and 9 ug/m^3, well within the State and national AAQS. Therefore, no exceedances were recorded.

Based on the discussion above, the State and national AAQS for SO_2, NO_2, ozone and PM-10 currently appear to be met in the project area. In fact, the project area, as well as the entire State, is presently an attainment area for all national AAQS. In addition, while CO measurements taken at the monitoring stations suggest that concentrations are in compliance with the State standards, CO concentrations near congested intersections could exceed the State AAQS at times. As indicated in Section 3.5.1, the State standards for ozone and CO are more stringent than the national standards.

3.5.3 Identification of Sensitive Sites

Since areas near congested intersections may have CO concentrations exceeding the State AAQS, representative receptor areas within the project boundaries were identified for analysis. Because of the large scale of this project and the many intersections that could be affected by it, the CO microscale air quality analysis was limited to 23 intersections dispersed across the project area. They were selected based on a qualitative assessment that these could be areas of maximal CO concentrations from existing and future traffic congestion. They are meant to be representative of the locations in the project area expected to experience peak CO concentrations. The selected intersections are listed below, and the locations of these intersections are shown by number on Figures 3.5-1A and 3.5-1B.

1. Kahuapaani Street / Salt Lake Boulevard
2. Luapele Drive / Salt Lake Boulevard
3. N. King Street / Kalihi Street
4. Dillingham Boulevard / Kalihi Street
5. S. King Street / Bishop Street
6. Hotel Street / Bishop Street
7. S. King Street / Punchbowl Street
8. S. King Street / Ward Avenue
9. S. King Street / Pensacola Street
10. Kapiolani Boulevard / Pensacola Street
11. Kapiolani Boulevard / Kalakaua Avenue
12. S. King Street / Beretania Street / University Avenue
13. Dole Street / University Avenue
14. Nimitz Highway / Sand Island Access Road
15. Nimitz Highway / Waiakamilo Road
16. Ala Moana Boulevard / Richards Street
17. Ala Moana Boulevard / South St.
18. Ala Moana Boulevard / Atkinson Drive
19. Ala Moana Boulevard / Kalia Road
20. Kalakaua Avenue / Kaiulani Avenue
21. Kalakaua Avenue / Kapahulu Avenue
22. Kuhio Avenue / Kapahulu Avenue
23. Kuhio Avenue / Seaside Avenue



LEGEND:

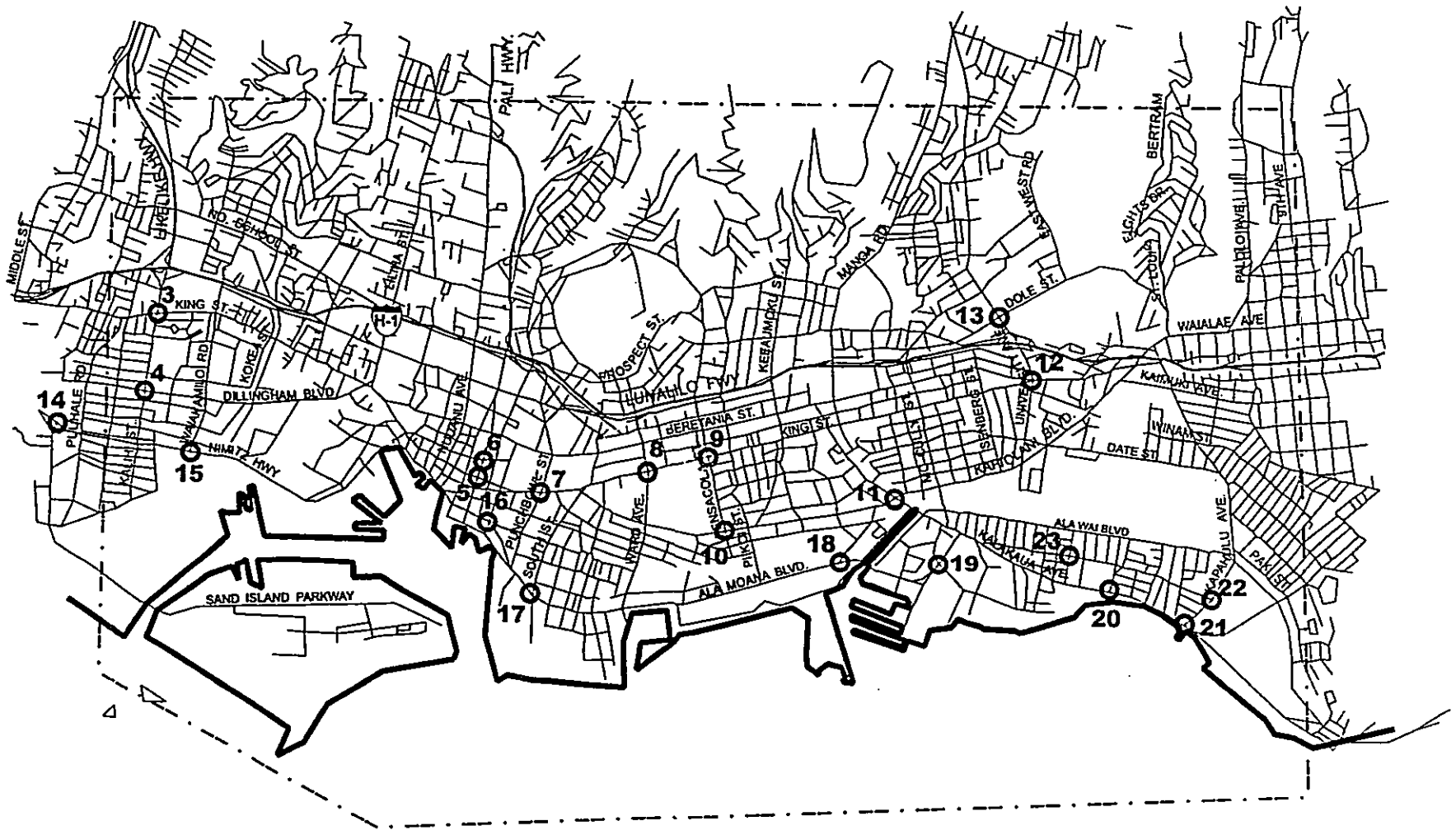
# O	Location of Intersections that underwent Microscale Analysis

SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

N Scale: 0 .25 .50 mi

Intersections That Underwent Microscale Analysis

Figure 3.5-1A



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

LEGEND:

# O	Location of Intersections that underwent Microscale Analysis

N

Scale: 0 .25 .50 mi

Intersections That Underwent Microscale Analysis

Figure 3.5-1B

3.6 NOISE AND VIBRATION

3.6.1 Noise and Vibration Metrics and Standards

1) Transit Noise

The Federal Transit Administration (FTA) has developed criteria for assessing noise impacts related to transit projects. The standards outlined in Transit Noise and Vibration Impact Assessment (FTA, 1995) are based on community reaction to noise. The standards evaluate changes in existing noise conditions using a sliding scale. The higher the level of existing noise, the less transit projects are allowed to contribute additional noise.

The basic unit of measurement for noise is the decibel. To better account for human sensitivity to noise, decibels are measured on the "A-scale," abbreviated dBA. In accordance with FTA guidelines, the EIS focuses on average noise conditions over a 24-hour period, in order to account for human sensitivity to noise during the nighttime hours. Noise that occurs at night (between 10:00 p.m. and 7:00 a.m.) is given a ten dBA penalty. This adjusted noise measurement unit is known as a Day Night Equivalent Level (Ldn). A rural area with no major roads nearby would average around 50 dBA (Ldn); a noisy residential area close to a major arterial would average around 70 dBA. Most of the residential areas in the study corridor fall within this range. Figure 3.6-1 provides other typical Ldn values for rural and urban areas.

Some land use activities are more sensitive to noise than others (parks, churches, and residences are more noise sensitive than industrial and commercial areas). The FTA Noise Impact Criteria group sensitive land uses into the following three categories:

- Category 1: Buildings or parks where quiet is an essential element of their purpose.
- Category 2: Residences and buildings where people normally sleep. This includes residences, hospitals and hotels where nighttime sensitivity is assumed to be of utmost importance.
- Category 3: Institutional land uses with primarily daytime uses that depend on quiet as an important part of operations, including schools, libraries and churches.

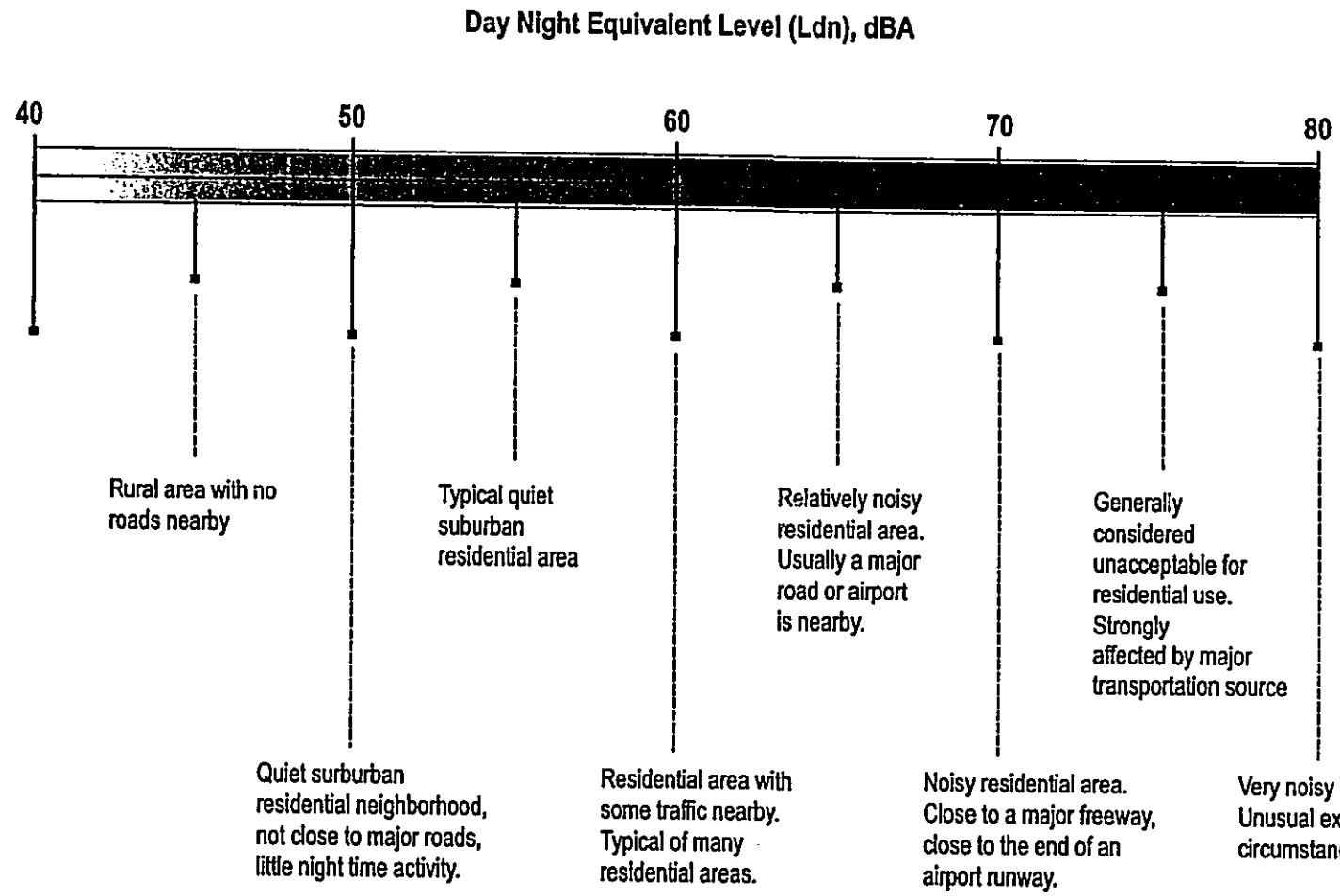
Representative noise sensitive receptors are selected where existing 24-hour noise levels are measured for Category 2 land uses and peak one-hour noise levels are measured for Category 1 and 3 land uses. At these locations, the noise level including that from the proposed transit alternatives is calculated and compared to the measured existing noise level.

2) Transit Vibration

In addition to transit noise, there is also the concern for potential impacts of vibration from transit operations. Ground-borne vibration is a small but rapidly fluctuating motion transmitted through the ground. Ground-borne vibration diminishes (or "attenuates") over distance. Some soil types transmit vibration quite efficiently; others do not. The response of humans, buildings, and sensitive equipment to vibration is described in this section in terms of the root-mean square (RMS) velocity level in decibel units (VdB). As a point of reference, the average person can just barely perceive vibration velocity levels below 70 VdB. Comparisons of typical ground-borne vibration levels are presented in Figure 3.6-2.

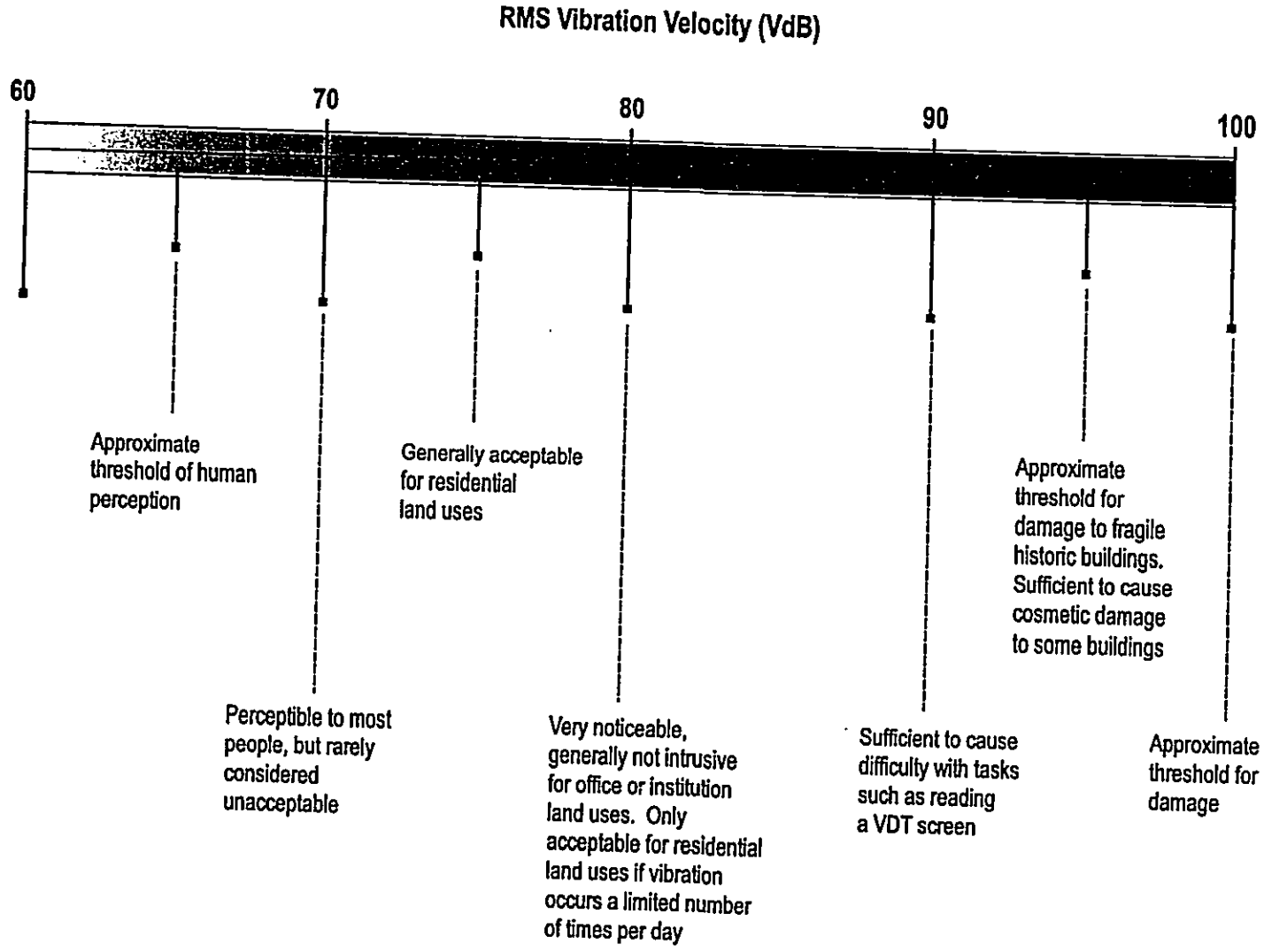
3.6.2 Existing Noise and Vibration Environment

Existing noise levels vary widely along the BRT alignment, which reflects the variety of current land uses and noise sources within the study area. Noise levels were measured in April and December of 1999 and October 2001 to characterize the existing noise environment in the vicinity of the Refined BRT alignment (Figures 3.6-3A and 3.6-3B). To assess the potential noise effects of the proposed Aloha Stadium Transit Center,



SOURCE:
FTA, April 1995

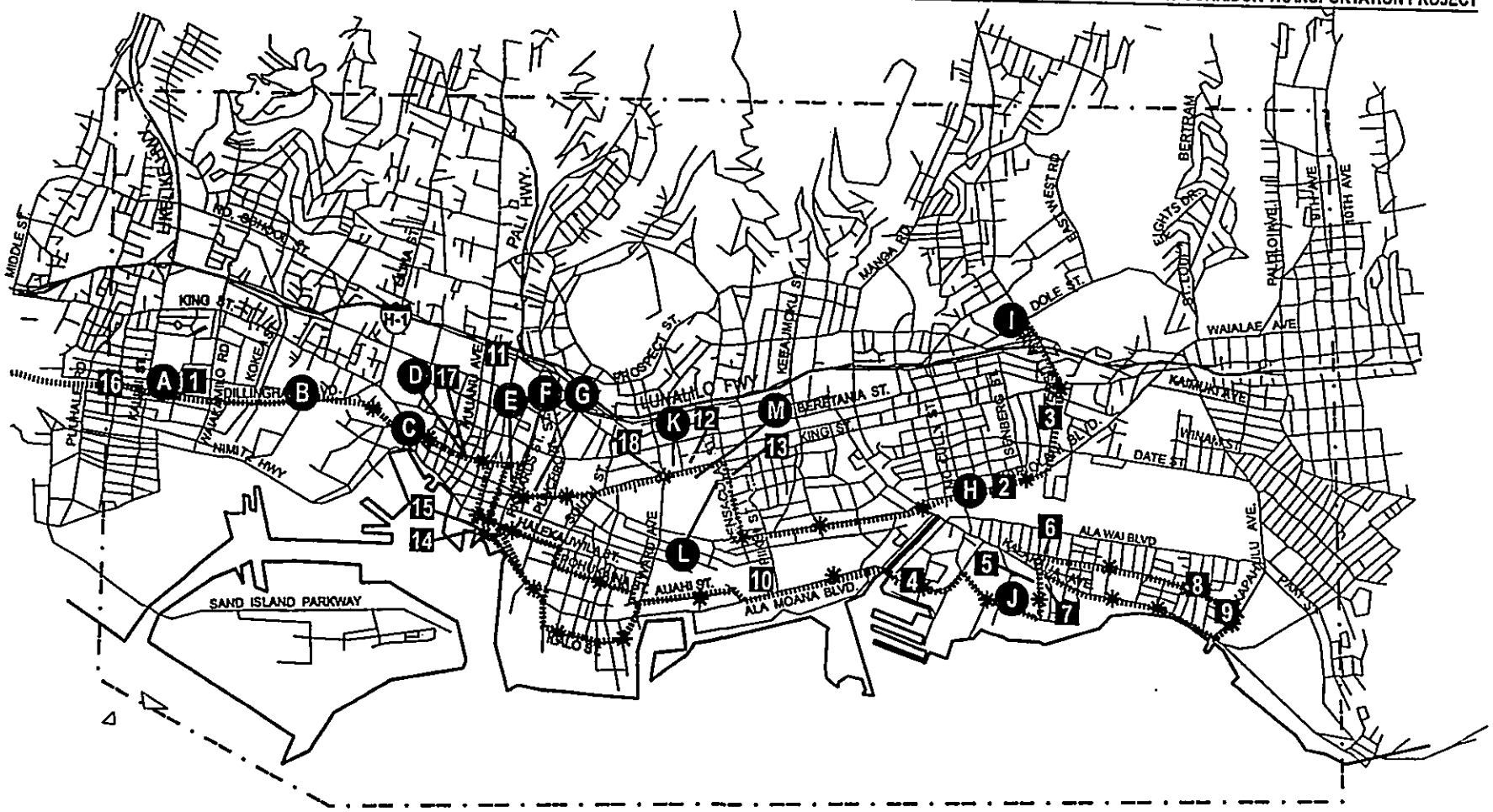
Typical Ldn Values For Rural And Urban Areas — **Figure 3.6-1**



SOURCE:
FTA, April 1995

Typical Levels Of Ground-Borne Vibration

Figure 3.6-2



LEGEND:

●	15 - Minute Noise Monitoring Sites
■	24 - Hour Noise Monitoring Sites
▪▪▪▪▪▪▪▪	Refined Locally Preferred Alternative
✳	Transit Center/Stop

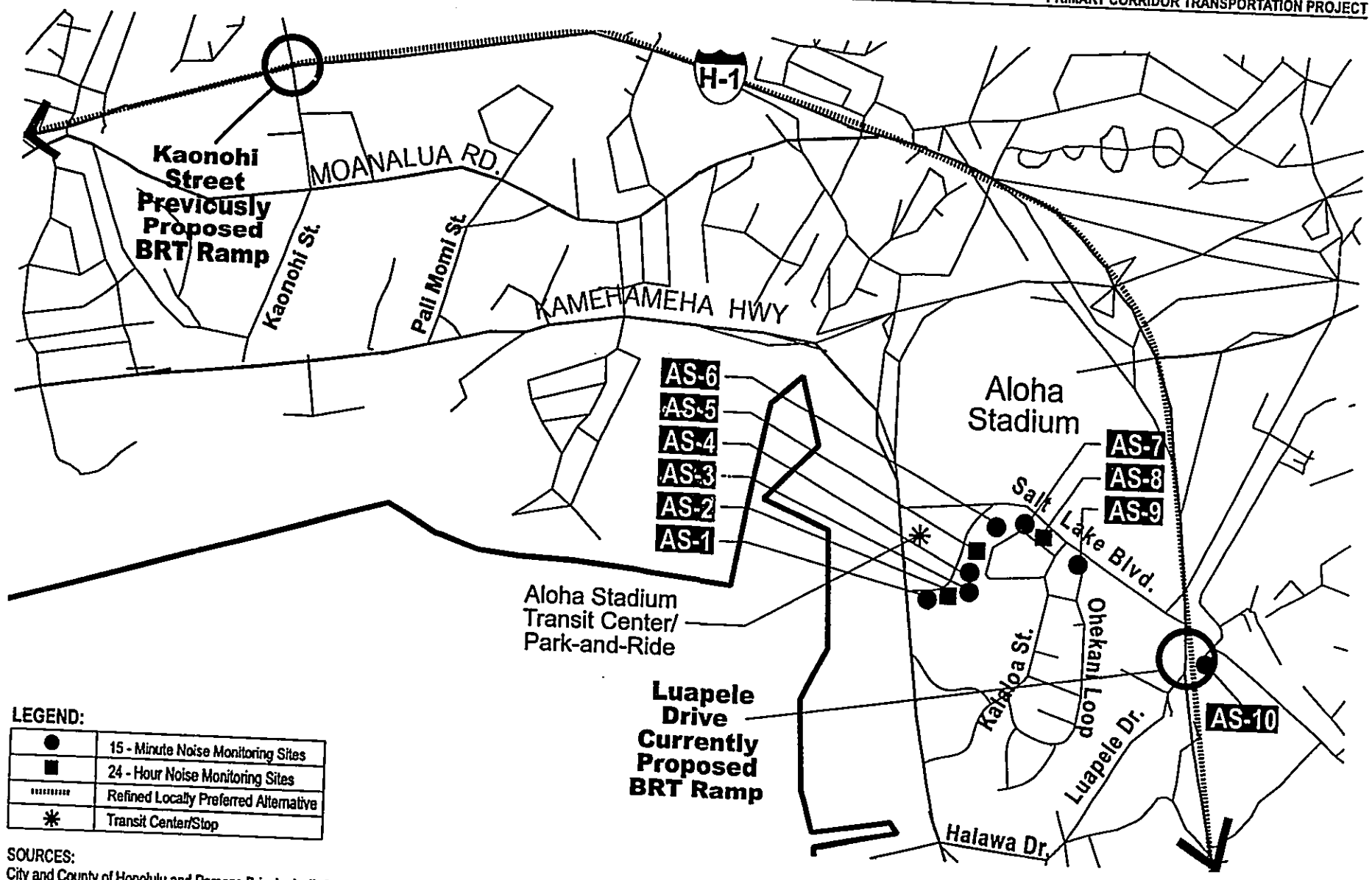
SOURCES:
Parsons Brinckerhoff Quade & Douglas, Inc., 2002; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

N

Scale: 0 .25 .50 mi

Noise Monitoring Sites: Kalihi - University

Figure 3.6-3A



LEGEND:

●	15 - Minute Noise Monitoring Sites
■	24 - Hour Noise Monitoring Sites
▪▪▪▪▪▪▪▪▪▪	Refined Locally Preferred Alternative
✳	Transit Center/Stop

SOURCES:
City and County of Honolulu and Parsons Brinckerhoff, October 2001.

N Scale: 0 .25 mi

Noise Monitoring Sites: Aloha Stadium Transit Center and Luapele Ramp

Figure 3.6-3B

additional noise measurements were conducted in June 2002 at sensitive receptor locations (Sites AS-1 through AS-10) in the Puuwai Momi and Halawa Valley residential communities. The existing noise levels for a total of 41 sites are summarized in Table 3.6-1.

Twenty-eight sites required long-term (24-hour) measurements to characterize noise levels at land uses with nighttime sleep activity such as residences and hotel/motels. The 13 short-term measurement sites represent daytime land uses such as schools and parks. Each measurement location is representative of surrounding noise sensitive land uses. Ambient vibration levels were not measured as part of this study. The FTA Vibration Impact Criteria were used to identify locations where potential impacts may occur based on existing land use activities.

3.7 ECOSYSTEMS

This section reviews the existing vegetation, wildlife, and marine ecosystems in the study area.

3.7.1 Terrestrial Vegetation

Vegetation within the study area consists of:

- Maintained plantings, such as roadway medians, shoulders, landscaping of adjacent properties, golf courses, and botanical gardens
- Ruderal (weedy) patches, such as undeveloped properties
- Abandoned agricultural areas, such as the area makai of H-1 near Kapolei
- Cultivated agricultural areas, such as the Pearlridge watercress farm and the diverse agricultural areas in Ewa

According to the U.S. Fish and Wildlife Service (FWS), three federally endangered plant species have been observed within the Ewa area of the study corridor:

- kooloaula *(Abutilon menziesii)*,
- awiwi *(Centaurium sebaeoides)*, and
- ihiihi *(Marsillea villosa)*

In addition, the plant pu'uka'a (*Torulinium odoratum* ssp. *auriculatum)*, a Species of Concern, has been reported within the Ewa portion of the study area.

Many impressive trees and plants are found within the study area. Some of these trees meet the criteria for "Exceptional Trees," which are defined as "a tree or grove of trees with historic or cultural value, or which by reason of its age, rarity, location, size, aesthetic quality, or endemic status has been designated by the city council as worthy of preservation." (Revised Ordinance of Honolulu Section 41-13.2, 1990)

In addition, several streets within the study area contain mature vegetation within medians and streetscapes. These include Dillingham Boulevard, Richards Street, Halekauwila Street, Kapiolani Boulevard, South King Street, and Kalakaua Avenue. Many examples of banyan trees, monkeypods, mahogany trees, palm trees, and other impressive species lie along the corridors.

The community and elected officials had concerns regarding the potential impacts to existing trees as a result of the proposed project. A tree inventory was conducted where street widening was anticipated. In compiling the baseline tree inventory, a certified arborist recorded trees on the In-Town BRT alignment. Other streets and specific areas were added to the inventory as necessary. More than 900 trees were inventoried. The

TABLE 3.6-1
MEASURED EXISTING NOISE LEVELS

Receiver Location	Land Use Category[1]	Address	Ldn/Leq[2]
		LONG-TERM 24-HOUR SITES	
1	FTA 2	Bishop Garden Apartments at 1470 Dillingham Boulevard	66/64
2	FTA 2	2386 Kapiolani Boulevard	74/72
3	FTA 2	845 University Avenue	69/71
4	FTA 2	Apartment Building, 1720 Ala Moana	77/75
5	FTA 2	Saratoga Avenue at Post Office	66/63
6	FTA 2	Apartments on Kuhio Avenue between Launiu & Kaiolu Streets	76/78
7	FTA 2	Outrigger Waikiki Islander Hotel	70/76
8	FTA 2	Waikiki Banyan Hotel	72/72
9	FTA 2	Queen Kapiolani Hotel on Kapahulu at Cartwright Road	70/68
10	FTA 2	1350 Ala Moana Boulevard	73/71
11	FTA 2	Executive Center at Hotel and Bishop Streets	77/77
12	FTA 2	Residences on King Street	66/66
13	FTA 2	1122 Elm Street Apartment on Pensacola Street	74/74
14	FTA 2	Harbor Square Condominiums – Ala Moana Boulevard side	76/74
15	FTA 2	Harbor Square Condominiums – Alakea Street side	73/71
16	FTA 2	Nakama Residence (near Blood Bank)	77/77
17	FTA 2	Chinatown Gateway Apartments	73/72
18	FTA 2	Straub Hospital	75/72
AS-1[3]	FTA 2	Puuwai Momi Apartments – Building 1	67/68
AS-2	FTA 2	Puuwai Momi Apartments – Building 3	67/68
AS-3[3]	FTA 2	Puuwai Momi Apartments – Buildings 4 and 5	62/63
AS-4[3]	FTA 2	Single-family residence on Ohenana Loop, Halawa Valley Estates	55/54
AS-5	FTA 2	Single-family residence on Ohenana Loop, Halawa Valley Estates	60/59
AS-6[3]	FTA 2	Single-family residence on Ohenana Loop, Halawa Valley Estates	60/59
AS-7[3]	FTA 2	Single-family residence on Ohenana Loop, Halawa Valley Estates	69/70
AS-8	FTA 2	Single-family residence on Ohenana Loop, Halawa Valley Estates	69/70
AS-9[3]	FTA 2	Single-family residence on Ohialomi Place, Halawa Valley Estates	72/73
AS-10	FTA 2	Single-family residence on Luaole Place	69/68
		SHORT-TERM 15-MINUTE SITES	Leq
A	FTA 3	Kalihi Kai Elementary School	69
B	FTA 3	Honolulu Community College	72
C	FTA 3	Aala Park on King Street	68
D	FTA 3	Chinatown Gateway Park at Hotel and Bethel	73
E	FTA 3	YWCA on Richards Street	68
F	FTA 3	Iolani Palace, on Richards	68
G	FTA 3	Iolani Palace, on King	75
H	FTA 3	Ala Wai Community Park	67
I	FTA 3	Buddhist Study Center on University Avenue	70
J	FTA 3	Fort DeRussy, on mauka side of Kalia Road	66
K	FTA 3	Thomas Square on King Street	62
L	FTA 3	McKinley High School classroom building on Pensacola Street	61
M	FTA 3	McKinley High School building on King Street	62

Source: Parsons Brinckerhoff, Inc. September 2002.

Notes: [1] Land use category descriptors:
FTA Category 1 = Buildings or parks where quiet is an essential element of their purpose.
FTA Category 2 = Residences and other buildings where people sleep, such as hotels, apartments and hospitals.
FTA Category 3 = Institutional land uses with primarily daytime and evening use, including schools, libraries and churches.
[2] Ldn is used for land uses with nighttime noise sensitivity and for residential areas where FTA rather than FHWA noise procedures are applicable. Peak-hour Leq is used for commercial, industrial, and other land uses that do not have nighttime noise sensitivity.
[3] 24-hour noise levels at these locations were estimated based upon short-term noise samples, which were compared to the closest 24-hour noise measurement locations.

survey entailed noting the tree species, size (in diameter at breast height), distance from the curb, maturity (including transplantability), and health condition. The arborist determined the maturity, transplantability, and health of each tree by conducting a visual check.

Notable trees were also identified as part of the study. A "notable" tree is defined as those trees that the arborist deemed to be important to the urban landscape character. This category includes individual trees or tree types, as well as groups of trees that together comprise a recognized and important element of the visual landscape. Examples of notable trees along the alignment are large banyan trees (*Ficus spp.*) on Kalia Road, the Kamani trees (*Callophylum inophyllum*) lining Dillingham Boulevard, monkeypod trees (*Samanea saman*) on Kapiolani Boulevard, and clusters of various palms on Saratoga Road in Waikiki.

Tree health was also considered in determining whether or not trees are "notable". If the arborist identified a tree to be "overmature" (close to its life expectancy for successful replanting) or otherwise unhealthy, the tree was typically not deemed to be "notable". Only in a few instances were unhealthy or overmature individual trees identified as "notable" because of their contribution to the overall landscape. Examples of such trees are the Kamani trees on Dillingham Boulevard and the monkeypods on Kapiolani Boulevard.

Preliminary designs prepared after the MIS/DEIS was published (August 2000) and initial plans indicated that there would be impacts on urban street trees. Because of concerns about the magnitude of tree impacts initially identified, the City undertook concerted efforts to redesign portions of the In-Town BRT to minimize tree impacts. Redesign efforts in various locations included shifting or eliminating bus stops, reducing the number or size of traffic and BRT lanes, converting some exclusive BRT lanes to semi-exclusive or mixed-traffic lanes, and designing bus stops around existing trees, among others.

3.7.2 Freshwater Fish and Terrestrial Wildlife

The study area encompasses mostly urbanized land. Any remaining terrestrial wildlife habitats are generally highly modified and populated with introduced wildlife species. Numerous streams within the corridors provide habitat for species of introduced and indigenous fish, and migrating shorebirds. All streams have been modified in the lower reaches and are of relatively poor ecological quality.

The FWS notes that the Hawaiian hoary bat (*Lasiurus cinereus semotus*), federally listed as endangered, has been sporadically sighted within the Honolulu metropolitan area. The following waterbird species, federally listed as endangered, have been observed in wetland areas within the project area:

- Hawaiian coot (Fulica americana alai),
- Hawaiian duck (*Anas wyvilliana*),
- Hawaiian common moorhen (*Gallinula chloropus sandvicensis*), and
- Hawaiian stilt (*Himantopus mexicanus knudseni*).

The Oahu elepaio (*Chaoiempis sandwichensis ibidis*) has also recently been listed as an endangered species and its critical habitat designated. Their critical habitat is associated with the Koolau and Waianae mountains on Oahu.

The State of Hawaii lists the Oahu population of the white tern (*Gygis alba*) as endangered. White terns are a relatively recent bird to the avifauna of Oahu. Prior to the 1960s, they could only be seen with regularity in the Northwestern Hawaiian Islands. Their establishment on Oahu may be a result of crowded conditions elsewhere which have forced the birds to search for other roosting and nesting localities. At present the major site used by white terns on Oahu is Kapiolani Park, with some activity scattered elsewhere in urban Honolulu (Bruner, May 1992).

3.8 WATER

This section discusses surface waters (such as lagoons, streams, navigable waters, or harbors), groundwater, floodplains, coastal areas, wetlands, and water-dependent recreation.

3.8.1 Surface Water

The State's general policy is to maintain or improve existing water quality in all State waters. All waters of the State of Hawaii are classified as inland waters or marine waters. Inland waters are fresh waters, brackish waters, or saline waters, including streams, springs, wetlands, estuaries, anchialine pools, and saline lakes. Types of marine waters are embayments, open coastal waters, or oceanic waters. The State has defined water use classifications for inland and marine waters and set water quality criteria for each water use classification.

According to the Hawaii Department of Health (HDOH) administrative rules, inland waters can be either water use Class 1 or Class 2. The water quality in Class 1 waters is to be maintained in their natural states; no waste discharge is allowable. Class 2 waters are those to be protected for recreational use, propagation of aquatic life, agricultural and industrial water supplies, shipping, and navigation. Marine waters are categorized as Class AA and Class A. Class AA waters are to "remain in the natural pristine state as nearly as possible with an absolute minimum of pollution or alteration of water quality from any human-caused source or actions." Class A waters can be used for "recreational use and aesthetic enjoyment," among other allowable uses compatible with protecting the natural resources in these waters (Hawaii Administrative Rules (HAR), Chapter 11-54, Water Quality Standards).

1) Coastal Surface Waterbodies

The following large coastal surface water bodies are located within or adjacent to the project study area:

- Pearl Harbor
- Keehi Lagoon
- Honolulu Harbor
- Kewalo Basin
- Ala Wai Canal and Boat Harbor

These five water bodies are all highly urbanized and/or altered from their natural state. All have been listed by HDOH as "Water Quality-Limited Segments," as required by the Clean Water Act Section 305(b) and defined by 40 CFR 130.8. Water Quality-Limited Segments are water bodies having pollutants in excess of the established water quality standards, such that they cannot reasonably be expected to attain or maintain state water quality standards without additional action to control sources of pollution.

a) Pearl Harbor

Pearl Harbor is an estuary designated as Class 2 inland water, with a special set of water quality criteria because of its polluted condition. Pearl Harbor receives flows from a drainage basin of approximately 100 square miles. Freshwater inflows create a stratified estuary where a surface layer of brackish water flows out of the main channel with little tidal influence. The abundant rainfall at the heads of the streams that drain into Pearl Harbor results in runoff that transports pollutants from upland forest, agricultural, commercial, industrial, military, and residential lands. Water quality parameters for nitrogen, phosphorus, turbidity, fecal coliform, temperature, and chlorophyll are frequently violated in Pearl Harbor. The narrow entrance channel and the configuration of the lochs retard flushing of the harbor (Hawaii Coastal Zone Management Program, Office of State Planning, June 1996). Siltation is also a major problem, which is addressed by frequent maintenance dredging. Sediments are continuously resuspended by ship traffic.

b) Keehi Lagoon

Keehi Lagoon is a highly modified water body, designated Class A by HDOH. After World War II, seaplane runways were dredged, greatly increasing the volume of the lagoon and retarding flushing. When the Honolulu International Airport (HIA) was built, an additional circulation channel was constructed, which improved water quality, but a gradient of increasing turbidity and plant nutrients exists toward the discharges of Kalihi and Moanalua Streams. Other point source discharges to the lagoon include a drainage canal from HIA and adjacent industrial areas, and several additional drainage outlets along Lagoon Drive on the more southwesterly shoreline of the lagoon. The currents in Oahu's southern coastal waters move from Honolulu Harbor into Keehi Lagoon. These currents may transport pollutants into Keehi Lagoon and recirculate suspended matter. Various causes, effects and symptoms of water pollution in the lagoon have been documented, including petrochemical contamination of sediments and water, fish kills, and the presence of human enteric viruses. Although circulation in Keehi Lagoon is good, the lagoon regularly experiences violations of water quality parameters for phosphorus and turbidity. Nearly the entire lagoon includes fill material deposited from nearby dredging and from other sources.

In 1943, Kalihi Channel was dredged to the depth of 35–40 feet as part of military project to connect Kapalama Basin in Honolulu Harbor with the open ocean. Currently, there are two bridges over the Kalihi Channel effectively blocking ship access to Honolulu Harbor from Keehi Lagoon.

Over 300 vessels (e.g. boats and floating structures) are anchored throughout Keehi Lagoon and are often used as residences. Many of the vessels are not seaworthy and cannot propel themselves under their own power.

c) *Honolulu Harbor*

Honolulu Harbor is a Class A marine embayment. Honolulu Harbor has had recognized water pollution problems as far back as the 1920s. Two streams, Kapalama and Nuuanu, and numerous ditches and storm drains, contribute runoff to the harbor, along with associated pollutants. Water quality in the Kapalama Basin portion of the harbor is particularly poor because of discharges from Kapalama Stream. The parameters of greatest concern are nutrients, metals, suspended solids, pathogens, and turbidity (HDOH, March 1998). Coliform bacteria, nitrogen, phosphorus, and turbidity levels in the water regularly exceed State water quality standards. In 1978 and subsequent HDOH sampling, heavy metals, chlorinated pesticides, polychlorinated biphenyls (PCBs), chlordane, and dieldrin (a toxic chlorinated organic compound used in insecticides) have been identified in harbor waters.

d) Kewalo Basin

Two major storm drains discharge into Kewalo Basin, a Class A marine embayment. One drain serves Ala Moana Park and Center and the mauka residential and commercial areas. The other drain serves the Ward Avenue-Kakaako District, which consists of mostly light industrial and commercial businesses. All areas support heavy vehicular traffic. Kewalo Basin's design hinders circulation of water in the basin. As a result, the urban pollutants that collect in the basin remain concentrated for extended periods. Street debris, oil, chemicals, nutrients, and heavy metals are transported by urban runoff into Kewalo Basin (Hawaii Coastal Zone Management Program, Office of State Planning, June 1996). Water quality standards have been exceeded for nitrogen, phosphorus, and turbidity (HDOH, March 1998).

e) Ala Wai Canal and Boat Harbor

The Ala Wai Canal is a Class 2 inland water or estuary; the Ala Wai Boat Harbor at the mouth of the Ala Wai Canal is a Class A marine water body. As the connecting point for the Makiki, Manoa, Palolo, and Kapahulu watersheds, the Ala Wai Canal accumulates sediments, nutrients, some heavy metal contaminants, solid waste, and trash (Hawaii Coastal Zone Management Program, Office of State Planning, June 1996).

Phytoplankton growth, suspended sediments, and visually objectionable trash discolor water in the canal. In addition, some incidences of bacterial infection have been reported. Water circulation from the point where the Manoa Stream meets the canal to near Kapahulu Avenue is poor. Floating debris collects under the makai side of the McCully Street Bridge, creating an unsightly mess. There is a fish advisory against the consumption of fish from the Ala Wai Canal, as well as other urban streams in Honolulu. Though the Ala Wai Canal flows into the boat harbor, the fish advisory does not mention the boat harbor specifically or other water bodies associated with urban streams.

2) Streams

In addition to the large water bodies discussed above, several streams are located within the study area. Most of these stream channels have been altered in the lower reaches and are not of high ecological quality. These streams include the following:

- Makakilo Gulch
- Makalapa Gulch
- Hunehune Gulch
- Kaloi Gulch
- Honouliuli Gulch
- Waikele Stream
- Kapakahi Stream
- Panakauahi Gulch
- Waiawa Stream
- Punanani Gulch
- Waimalu Stream
- Kalauao Stream
- Drainage canal next to Kalauao Stream
- Aiea Stream
- Halawa Stream
- Moanalua Stream
- Kahauiki Stream
- Kalihi Stream
- Kapalama Stream/Drainage Canal
- Waolani Stream
- Nuuanu Stream
- Pauoa Stream
- Makiki Stream
- Manoa-Palolo Drainage Canal

The water quality in these urban streams is poor. HDOH in May 1998 placed a health advisory against the consumption of fish from the Ala Wai Canal and other urban streams in Honolulu, due to the detection of organochlorine pesticides and lead in the fish. This advisory is still in effect (HDOH Fish Advisory, "DOH advises public to not eat fish from Honolulu streams," May 21, 1998).

3.8.2 Groundwater

1) Soil and Geology

Within the study area, coral reefs and eroded volcanic material have formed a wedge of sedimentary rock and sediments, referred to as caprock, which rests on the underlying volcanic rock. Caprock is composed predominantly of coral-algal limestone, interlaid with terrigenous clays and muds. Volcanic ash from the Honolulu volcanic series is often found in the caprock. The caprock is approximately zero to 1,000 feet thick in the study area (Wentworth, 1951).

Underneath the caprock lies the volcanic rock of the Koolau Range in most of the study area. Occasionally, these rocks are exposed towards the Koko Head end and they dominate the central portion. The rocks are mostly volcanic lava flows and pyroclastic deposits. The volcanic rocks exposed towards the Ewa end of the study area near Kapolei are part of the Waianae volcanic series.

There is recent alluvium in the study area, consisting mainly of clayey organic silt with variable amounts of sand, some pockets of gravel and cobbles, and localized thin layers of marine sediments. Low-lying areas were filled during urbanization and are usually underlain by recent alluvium. Often, these areas were

originally marshlands. The Downtown Honolulu area consists mainly of silty sand and coral gravel dredged from Honolulu Harbor. It is unconsolidated, with high porosity and permeability.

The central and Ewa portions of the study area are mostly on alluvium and volcanic rock. The volcanic rocks are typical a'a and pahoehoe flows. They vary greatly in strength, thickness, hardness, and other engineering properties. There are also pyroclastic deposits that are generally permeable, low in strength, and may be highly weathered. Soil coverage on top of these rocks is generally thin to nonexistent.

2) Aquifers

The Southern Oahu Basal Aquifer (SOBA) is the principal aquifer underlying all of southern Oahu. The portions of the SOBA in the study area are the Pearl Harbor Aquifer Sector and the Ewa Aquifer System. In accordance with the 1984 Sole Source Aquifer Memorandum of Understanding between the FHWA and the Environmental Protection Agency (EPA), a Ground Water Impact Assessment (GWIA) has been prepared to meet the coordination requirements of Section 1424(e) of the Safe Drinking Water Act.

The SOBA occurs as a basal freshwater lens floating on saline groundwater. It is recharged by rainfall that falls on the mauka area of Honolulu and the Leeward Coast. The caprock overlies the SOBA and impedes the escape of groundwater from this basaltic aquifer. Water in the caprock is brackish and not potable. The caprock is less permeable than water-bearing lava flows near the Koolau Range and constitutes a barrier that retards the seaward flow of groundwater. The caprock layer thins with distance from the shoreline and ends at varying distances inland, and the basalt layer is exposed or underlies surficial materials. As a consequence, inland areas of central Honolulu have the highest water tables in southern Oahu.

Beneath the caprock and underlying all of southern Oahu, the SOBA is heavily utilized, containing large supplies of fresh water. The basal groundwater is under artesian pressure; water levels range from ten to thirty feet above sea level. Although the capacity of the caprock to store and transmit water is small compared to that of the basalt aquifer, the caprock contains large quantities of water accumulating from rainfall, irrigation return, and leakage upward from the artesian portion of the basalt aquifer. Caprock water is generally of poor quality because of its relatively high chloride content, but it has been developed for agricultural and industrial purposes. Groundwater levels in the caprock in the study area vary with ocean tides and may also be influenced locally by streams. Depths may be as little as five feet below ground surface in the Koko Head portion of the study area.

There are numerous injection wells for waste discharge into the caprock in central Honolulu, including those for thermal effluent, car-wash return, and rainwater. Pollutants in these discharges do not reach the SOBA, however, due to upward artesian pressure.

The U.S. Environmental Protection Agency (EPA) has designated the SOBA as the sole or principal source of drinking water for the Pearl Harbor area. Based on Hawaii status codes related to the protection of drinking water, the SOBA is designated as a currently used source of fresh drinking water that is both irreplaceable and highly vulnerable to contamination (Mink and Lau, 1990).

3.8.3 Floodplains

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) indicate several areas within the study area falling within the 100- or 500-year base floodplains. These floodplains are associated with streams, estuaries, canals and tsunami inundation areas. The largest of these floodplain areas occurs Koko Head of Ward Avenue, makai of South King Street, and Ewa of Paoakalani Avenue. This area includes Ala Moana Beach Park, the Ala Moana Center, and Waikiki. The area includes the 100-year base floodplains associated with the Manoa-Palolo Stream and the Ala Wai Canal. It includes areas that would be inundated by worst-case hurricane conditions.

Other flood zones within the study area are associated with streams entering Pearl Harbor. Wailani, Kapakahi, and Waikele Streams form a floodplain where they enter the West and Middle Lochs. Waiawa, Honouliuli, Aiea, and Kalauao Streams all have floodplains associated with them as they enter Pearl Harbor. Additional floodplains occur at the mouth of Pearl Harbor, along much of the Leeward Coast, and along Halawa Stream near Moanalua Highway. Another isolated floodplain occurs at the confluence of Nuuanu and Waolani Streams near the intersection of the Pali Highway and the H-1 Freeway. Floodplains are also associated with Kaloi Gulch, near Kapolei Parkway.

3.8.4 Wetlands

As defined by 40 CFR 230.41(a)(1), wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. There are no wetlands suspected to be present within the proposed construction areas as many of the streams in the study area are concrete-lined, eliminating the potential for wetlands to exist.

3.8.5 Navigable Waters

Waters subject to tidal influence are generally defined as navigable. Further, navigability is defined by usage such that non-tidal streams carrying commercial traffic are deemed navigable. Table 3.8-1 lists the streams in the majority of the study area that have been deemed navigable. Navigation of all streams in the study area is extremely limited or non-existent. Most navigation is limited to small recreational boating such as canoes and kayaks (Communication with the U.S. DOT and the United States Coast Guard on March 23, 2000). Coordination with the U.S. Coast Guard will continue. For the purposes of the Department of the Army permitting requirements, the Division Engineer for the U.S. Army Corps of Engineers (ACOE) determines navigability under the authority of 33 Code of Federal Regulations (CFR) Part II, Section 329.14(b). The Coast Guard determination does not necessarily affect the ACOE permitting jurisdiction.

TABLE 3.8-1
NAVIGABLE WATERWAYS IN THE STUDY AREA

Waterway	Navigable Length	
	Kilometers	Miles
Walawa Stream	0.16	0.1
Waimalu Stream	0.16	0.1
Waikele Stream	1.67	1.0
Kahauiki Stream	0.74	0.5
Panakauahi Gulch	2.04	1.3
Kapakahi Gulch	0.37	0.2
Kalauao Creek	0.16	0.1
Aiea Creek	0.32	0.2
Halawa Creek	0.32	0.2
Moanalua Stream	1.60	1.0
Kalihi Stream	0.80	0.5
Kapalama Stream	0.80	0.5
Nuuanu Stream	0.80	0.5
Pauoa Stream	Entire length	
Manoa-Palolo Drainage Canal	Entire length	
Ala Wai Canal	Entire length	

Sources: U.S. DOT, United States Coast Guard, letter, June 13, 1989.

3.8.6 Coastal Zone Management (CZM) Areas

The U.S. Department of Commerce in September 1978 approved the Hawaii Coastal Zone Management (CZM) Program with the following goals:

- Protect valuable resources;
- Preserve management options;
- Ensure public access to beaches, recreation areas, and natural reserves; and
- Provide for solid and liquid waste treatment within the Special Management Area (SMA).

In Hawaii, the Department of Business, Economic Development, and Tourism (DBEDT) administers the program. Federally funded activities must receive a consistency determination from the CZM program to assure that they meet the guidelines in the State policy. Hawaii Revised Statutes (HRS) Chapter 205A outlines special controls, policies, and guidelines for development within the area along the shoreline referred to as the Special Management Area (SMA) designated by the 1975 Shoreline Protection Act. This act gave the counties authority to issue permits for development activities proposed within the SMA. For the City and County of Honolulu, the Department of Planning and Permitting (formerly the Department of Land Utilization) is the agency that administers most of the SMA Use Permit program. The City Council has the authority to approve these SMA permits. In addition, the Kakaako area is a Hawaii Community Development District. This district stretches from Honolulu Harbor to Piikoi Street. In this district, the Hawaii Community Development Authority (HCDA) has the authority to approve SMA permits.

3.8.7 Water Recreation

Recreational uses of surface waters within or adjacent to the study area are limited primarily to the ocean and the Ala Wai Canal. The Department of Land and Natural Resources (DLNR), Division of Boating and Ocean Recreation, manages the recreational uses of shore waters and shore areas in accordance with Chapter 13-*250-256, Part III, entitled "Ocean Waters, Navigable Streams and Beaches." It divides the coastal areas into* segments and specifies what water-based uses are allowed within specific zones. Most of the study area falls within the South Shore Oahu Ocean Recreation Management segment, which includes all ocean waters and navigable streams from Makapuu Point to the west boundary of the Reef Runway of HIA. In addition to swimming and sunbathing, people surf, snorkel, paddle, canoe, sail, cruise, ride jet skis, whale watch, water ski, and fish in this area. The remaining Ewa portion of the study areas falls within a Non-designated Ocean Recreation segment, from Pearl Harbor to Kalaeloa (formerly Barbers Point).

Makai of Ala Moana Regional Park is the Ala Moana Commercial Thrill Craft Zone, which is restricted to commercial operators. Ewa of this zone and makai of HIA is the Keehi Lagoon/Kahakaaulana Islet Commercial Zone, which is the site of commercial thrill craft and other commercial ocean activities. Recreational thrill craft are accommodated in the Reef Runway Zone that parallels the airport's Reef Runway.

Recreational use of the navigable streams in the corridor is minimal. Recreational use of the Ala Wai Canal consists primarily of paddling and fishing. However, as mentioned earlier in this section, the water quality is poor and HDOH has issued a health advisory regarding the consumption of fish from the Ala Wai Canal. (HDOH Fish Advisory, "DOH advises public to not eat fish from Honolulu streams," May 21, 1998).

3.9 HAZARDOUS MATERIALS

Present and historic land uses in the corridor could have produced site contamination. Most contaminated sites are or were associated with the use, transportation, or storage of hazardous materials. Heavy industrial activities and commercial uses such as vehicle service stations and dry cleaning operations are among the types of land uses with the potential to produce site contamination. Site contamination could result from on-site land uses, or contaminants may have migrated from a nearby site to an area involved in one or more of

the project alternatives. This section provides preliminary information on documented sources of hazardous materials or contamination in the primary transportation corridor that could affect property acquisition or construction associated with the project.

Regulatory information indicates the presence of Leaking Underground Storage Tanks (LUSTs), other sources of petroleum contamination, PCBs, potential solid waste, and/or hazardous waste materials throughout the Regional and In-Town BRT corridors. The Refined LPA will operate primarily on existing streets, where no hazardous materials are expected to be encountered. No hazardous material sites have been identified at proposed transit stops. However, off street facilities associated with the BRT, such as transit centers and traction power supply stations (TPSS) for the In-Town BRT may encounter site contamination issues.

The approximately 15 TPSS sites to be located intermittently along the In-Town BRT alignment would each have a roughly 500 square-foot footprint. In most cases, they would be located inside existing or proposed buildings. Potential TPSS locations are designated on the preliminary engineering drawings provided in Appendix B (see Volume 3). However, since it would be 8 to 14 years before the EPT is installed depending on the segment, the locations shown on the design drawings are not site specific; each notation is intended only to indicate the general vicinity in which a TPSS would be placed. Site specific environmental assessments of each TPSS would be prepared prior to proceeding with implementation of EPT. Locations and design treatments would be established with community input.

Methane is likely to be present in the subsurface areas where petroleum contamination occurs. Methane is produced during the degradation of organic matter, including petroleum hydrocarbons. Methane could be a concern in the case of confined subsurface structures (such as utility vaults) where methane gases can build up and potentially ignite. Such incidents have been reported in areas of Iwilei and downtown Honolulu, and the presence of methane may need to be considered in project planning.

3.10 HISTORIC AND ARCHAEOLOGICAL RESOURCES

3.10.1 Applicable Legal and Regulatory Requirements

Section 106 of the National Historic Preservation Act (NHPA) requires that actions that are federally funded, authorized or carried out take into account the effect of such actions on any district, site, building, structure or object that is included in or eligible for inclusion in the National Register of Historic Places (NRHP). Such resources are called "historic properties." Section 106 requires coordination and consultation the State Historic Preservation Officer (SHPO), and other agencies and organizations that may have an interest in or is mandated to protect historic properties. In addition, the Advisory Council on Historic Preservation is afforded the opportunity to comment on actions that may potentially affect historic properties.

Chapter 6E of the Hawaii Revised Statutes (HRS) places similar responsibilities on State agencies to evaluate their projects. Since the project involves both federal and State agencies, both HRS Chapter 6E and Section 106 apply to the project.

The Section 106 and Chapter 6E process consists of: (1) identification of historic properties in the Area of Potential Effect (APE); (2) assess potential project effects on the historic properties in the APE, and, (3) if necessary, mitigate adverse impacts. This section of the FEIS documents activities to identify historic properties in accordance with the requirements of the Code of Federal Regulations (CFR) pertaining to the Protection of Historic Properties (36 CFR 800) (known as Section 106) and HRS Chapter 6E.

For a district, site, building, structure or object to be considered eligible for the NRHP, it has "integrity of location, design, setting, materials, workmanship, feeling, and association", and meet any one of the following criteria:

(A) associated with events that have made a significant contribution to the broad patterns of history;
(B) associated with the lives of persons significant in the past;
(C) embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or
(D) yielded, or may likely yield, information important in prehistory or history.

The Hawaii Register of Historic Places (HR) provides an additional criterion:
(E) site that has cultural significance, such as religious structures (shrines, *heiau*), or human burial locations.

For descriptive purposes, the historic properties identified in this section are categorized in the following manner:

- Archaeological Remains, Sites or Resources. Most of these historic or potentially historic properties would be related to the Native Hawaiian population, especially those originating prior to western contact.
- Historic-Period Resources. These are historic or potentially historic buildings, structures or objects constructed or erected after western contact. This category includes historic districts.
- Traditional Cultural Properties (TCP). An area or place associated with the cultural practices or beliefs of a living community because it is rooted in that community's history, or it is important in continuing that community's cultural identity.

3.10.2 Description of the Resources

The study area with regards to historic properties is called the Area of Potential Effect (APE). It is defined in 36 CFR 800.16 as the "geographic area or areas within which an undertaking (project, activity or program) may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. [It] is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking." Since many elements of the Refined LPA, such as the In-Town BRT transitway, would not rise above or extend beyond existing streets, the APE was limited to the street itself. However, where elements of the Refined LPA uses new right-of-way, such as transit centers, and/or involve structures, such as transit stops, the APE would be extended to the new right-of-way or those properties immediately adjacent to the structure. However, what is meant by adjacent could vary depending on the property. In a letter dated March 8, 2000, the SHPO concurred with the APE definition (see Appendix D).

1) Archaeological Resources

It is unlikely that archaeological remains exist near the soil surface in the project area because most of the project area is fill and/or the soil surface has been highly disturbed in association with large-scale agriculture and urban development. Also, the APE along most of the project area would be within the H-1 Freeway and existing streets. However, archaeological deposits, including burials, have been discovered in the project area, such as in Chinatown, Downtown/Aloha Tower, the Capitol District, Kakaako, the University of Hawaii Historic District, the Fort DeRussy area, and along Kalakaua Avenue in Waikiki. Some of these discoveries were unexpected. For example, one human burial was discovered in 1997 during construction activities at Pier 40 in an area of reclaimed land, and three burials were found on a site adjacent to the Middle Street Bus Maintenance Facility in 1992. The sandy soil conditions of Fort DeRussy and Kalakaua Avenue make the discovery of burials in these locations not unexpected. Further study or monitoring would be conducted if required on a site-specific basis, depending on the construction activity (i.e. excavation).

Some of the Refined LPA's off-street elements are proposed to be in the Ewa plain, an area that has undergone substantial ground disturbance from past and present agricultural activities that would have removed or destroyed surface or near surface archaeological remains. However, natural archaeological/cultural features remain, such as Puu Kapolei. Other off-street elements of the Refined LPA

are in urban areas where it is highly unlikely that there would be surface or near-surface archaeological resources or sites, but subsurface remains may be encountered if deep excavation is required.

2) Historic-Period Resources

The following program was used to identify historic-period resources in the APE. This program relied on consultation with the State Historic Preservation Division (SHPD).

1. Research of secondary data sources, such as previous survey reports and current NRHP and HR lists to identify known historic properties;
2. Conduct windshield surveys to identify buildings or structures that may be 50 years or older;
3. Obtain information on the age of buildings and structures identified in the windshield survey;
4. Consult with SHPD to eliminate buildings or structures that clearly would not meet NRHP Criteria;
5. Conduct inventory survey of the remaining buildings or structures after Step Four to assess eligibility for the NRHP; and
6. Obtain SHPD concurrence on NRHP eligibility assessment.

As described above, the APE for historic-period resources would not extend beyond the roadway for many of the elements of the TSM Alternative and Refined LPA because they would be at-grade and within roadway rights-of-way. There are no historic-period resources in the APE of the TSM Alternative. Similarly, there are no historic-period resources in the APE of the Regional BRT element of the Refined LPA, including project elements in Ewa and Aloha Stadium. However, the APE of the In-Town BRT element of the Refined LPA includes several historic-period resources, among them are the Chinatown Historic District, Hawaii Capital Historic District, and the University of Hawaii Historic District (see Table 3.10-1 and Figures 3.10-1A and 3.10-1B) because transit stops will be located within each of these districts. Other historic-period resources listed on Table 3.10-1 and shown on Figures 3.10-1A and 3.10-1B were determined to be within the APE of the In-Town BRT because they are adjacent to proposed transit stops or would be affected by right-of-way acquisition. Many of the historic-period resources in the APE are located in an historic district. Descriptions of the three affected historic districts are provided below.

A. Chinatown Historic District

Chinatown (State Site 80-14-1380) is the oldest section of Downtown Honolulu. Constructed in the first decades of the 20th century, after the fire of 1900, Chinatown still retains a concentration of original and historically significant buildings, and its distinctive cultural activities and environment even of its earliest ethnic community. These historically significant buildings are primarily simple, two- and three-story structures of common materials, but with interesting details and harmonious designs. Typically the buildings abut the front and side property lines, with awnings over the sidewalks. Together, the buildings form a historical environment more significant than the individual structures.

The Chinatown BRT Stop will be in proximity to two potentially historic properties, the Lung Doo Benevolent Society and Yew Char Buildings.

B. Hawaii Capital Historic District

The Hawaii Capital Historic District (State Site 80-14-1307) includes most of the important civic buildings in the core of Honolulu (see Figure 3.10-1B). The historic centralization of government services in Honolulu resulted in an unusual concentration of public and private architecture, spanning the years from 1820 (the Mission Frame House) through 1969 (the State Capitol Building).

The government buildings have inspired commercial firms, churches, the YMCA and YWCA, among others, to erect buildings complementing the civic structures. Most of the civic buildings are government-owned, but

several are commercial or other institutional buildings. Some of the buildings in the district were specifically listed in the overall NRHP nomination, such as Iolani Palace and Grounds, Kawaiahao Church and Grounds, Saint Andrew's Cathedral, and the Mission Houses because they had already been placed individually on the NRHP. The U.S. Post Office, Custom House and Court House (State Site 80-14-9952), one of the two historic-period resources of the district in the APE of the In-Town BRT, was individually listed on the NRHP in 1975. Additional buildings were placed on the NRHP along with the district in 1978, including the other historic-period resources in the district in the APE, the Hawaii State Library (State Site 80-14-1307), There is a wide range of architectural styles in the district, with distinguished examples of Classical Revival, Romanesque, Spanish Mission, Italian Mediterranean, New England Colonial, French Baroque, and Georgian buildings.

The significance of this district resides in its architectural and visual character, its large amount of open space, and its central role in the history of Oahu and the Hawaiian Islands.

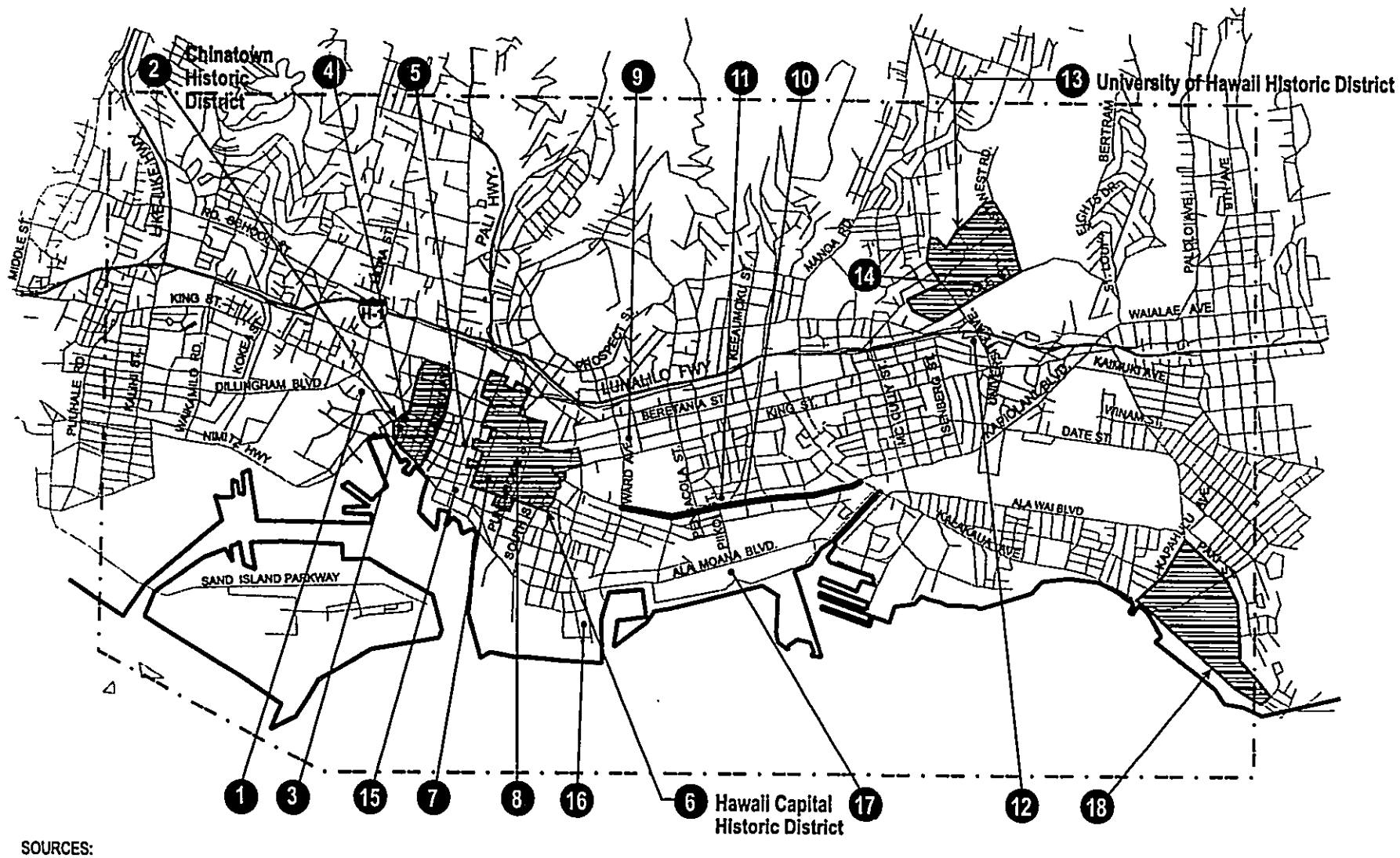
C. University of Hawaii Historic District

The University of Hawaii (UH) Historic District (State Site 80-14-1325) is a non-contiguous district that includes the historically significant structures on the Manoa campus (see Figure 3.10-1A). Structures (e.g., transit stops) associated with the In-Town BRT will not be near the two areas of the campus that contribute heavily to the historical significance of the district: the original quadrangle and a circular drive off Dole Street.

TABLE 3.10-1
KNOWN AND POSSIBLE HISTORIC-PERIOD RESOURCES IN THE APE

Loc. No.	Historic Resource	Street	State Site Number	Register Status[1]	Tax Map Key	Year Built
1	OR&L Office & Document Storage Building and Station	N. King St.	80-14-1380	HR & DE	1-5-7:2	1914
2	Chinatown Historic District	N. King St. and Hotel St.	80-14-9986	NRHP	All of plats 1-7-2,3,4, et al.	1900-1920
3	Lung Doo Benevolent Society	N. Hotel St.	None	*	1-7-3:33	
4	Yew Char Building	N. Hotel St.	None	*	1-7-3:42	
5	Portland Building	Hotel St.	None	DE (1/11/80)	2-1-10:13	1903
6	Hawaii Capital Historic District	Various	80-14-1307	NRHP	Various	--
7	U.S. Post Office, Custom House, & Court House (HCHD)	S. King St.	80-14-9952	NRHP	2-1-25:4	1871
8	Hawaii State Library	S. King St.	80-14-1307	NRHP	2-1-25:1	1913
9	Thomas Square	S. King St.	80-14-9990	NRHP	2-4-1:1	--
10	Kapiolani Boulevard historic landscape	Kapiolani Blvd.	None	*	Various	--
11	Blue Cross Animal Hospital	Kapiolani Blvd.	None	*	2-3-15:1	1938
12	Varsity Theater	University Ave.	None	TBD	2-8-006:032	1939
13	University of Hawaii Historic District	University Ave.	80-14-1325	HR	2-8-015:001	1931
14	Bachman Hall	UH Campus -- University Ave.	None	*	2-8-023:003	1949
15	Dillingham Transportation Building	735 Bishop St.	80-14-9900	NRHP	2-1-14:03	1929
16	City and County Corporation Yard	Ilalo St.	None	*	2-1-60:5	1948-57
17	Ala Moana Park	Ala Moana Blvd.	80-14-1388	HR	2-3-37:01	--
18	Kapiolani Park (i/c Honolulu Zoo)	Kapahulu Ave.	80-14-9758	HR	Various	--

Source: Mason Architects, Inc. and State Historic Preservation Division, 2002
Notes: [1] Register Status:
NRHP Listed on National Register of Historic Places.
HR Listed on Hawaii Register of Historic Places (very likely to be eligible for the National Register).
DE Determined Eligible for the National Register by the Keeper of the NRHP.
* Determined eligible from consultation with SHPD on June 24, 2002.



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998; Mason Architects Inc., May 1999.

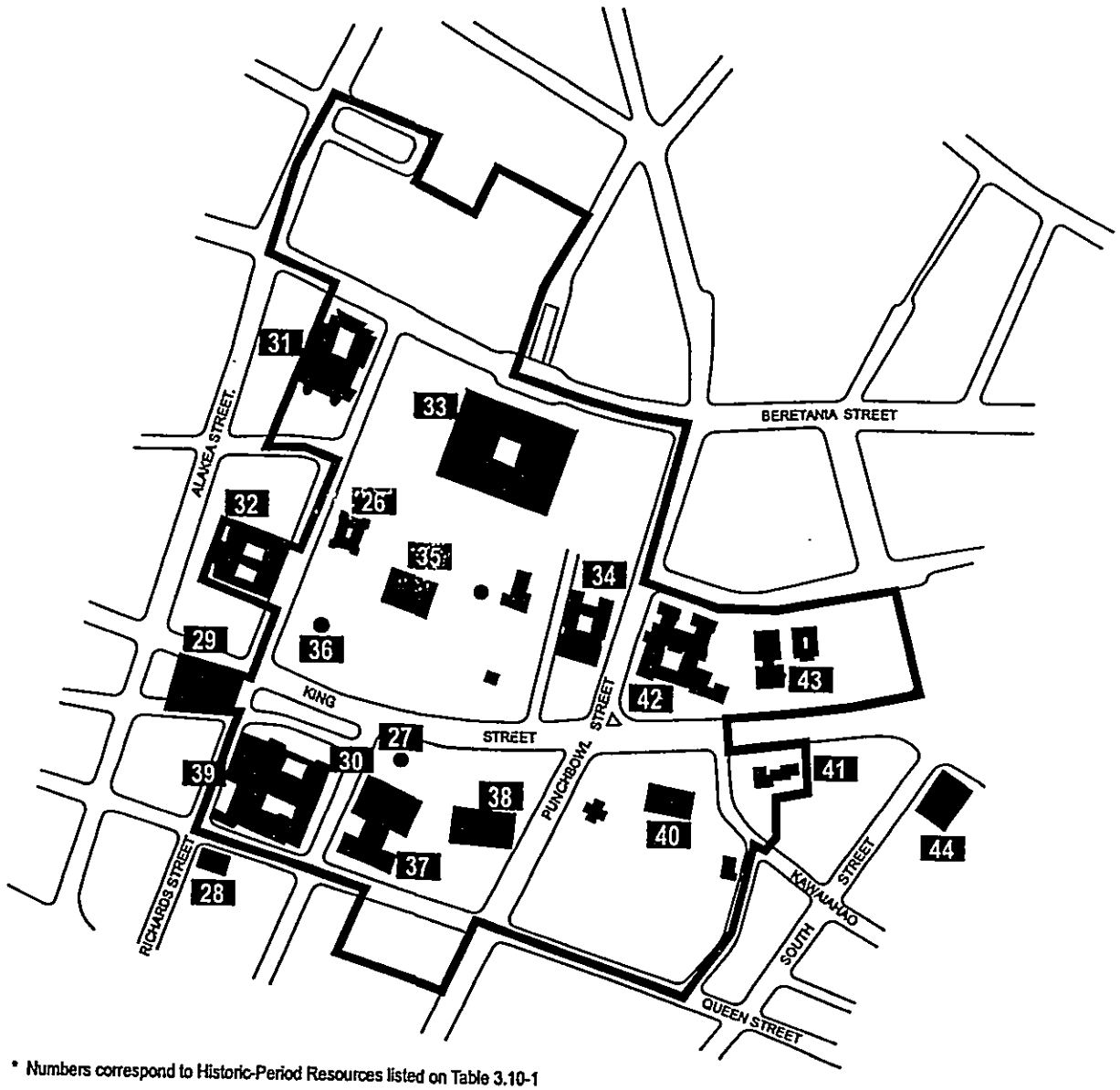
* Numbers correspond to Historic-Period Resources listed on Table 3.10-1

N Scale: 0 .25 .50 mi

Historic-Period Resources In The Area Of Potential Effect: Kalihi To University Of Hawaii

Figure 3.10-1A

26 Iolani Barracks
27 Kamehameha Statue
28 Melim Building
29 Hawaiian Electric
30 Armed Services YMCA
31 State Office Building
32 Laniakea YWCA
33 Hawaii State Capitol and Grounds
34 Hawaii State Library
35 Iolani Palace and Grounds
(Old Archives and Court House)
36 Iolani Palace Bandstand
37 Ali'iolani Hale
38 Territorial Office Building
39 US Post Office,
Custom House and Court House
40 Kawaiaha'o Church and Grounds
(Lunalilo's Tomb and Adobe School House)
41 Mission House
42 Honolulu Hale and Grounds
43 Mission Memorial Building and Annex
44 Advertiser Building



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998; Mason Architects Inc., May 1999.

* Numbers correspond to Historic-Period Resources listed on Table 3.10-1

N

Scale: 0 .0625 .125mi

Historic Period Resources in the Area of Potential Effect: Hawaii Capital Historic District

Figure 3.10-1B

In addition, In-Town BRT structures will not be adjacent to other historic properties of the district, such as Founders Gate. However, the UH-Manoa BRT stop will be placed at Sinclair Circle and would be in proximity to Bachman Hall across a grassy lawn. The historic status of Bachman Hall has not been determined.

D. Other Historic-Period Resources

Other notable historic-period resources listed on Table 3.10-1 include the OR&L Office & Document Storage Building and Station (State Site 80-14-1380), Thomas Square (State Site 80-14-9990), Kapiolani Boulevard historic landscape, Dillingham Transportation Building (State Site 80-14-9900), Ala Moana Park, and Kapiolani Park, which includes Honolulu Zoo. The SHPD has designated the monkeypod trees along Kapiolani Boulevard as an historic landscape. These trees are considered "notable" because they are important to the urban landscape character.

Historic Sidewalk Features, which are typically curbs made of lava rocks and sidewalks made of Chinese granite, are located at various places throughout Honolulu, from Kalihi to University and Waikiki. They were used during earlier periods of Honolulu's development. The light-colored Chinese granite sidewalks tend to be limited to the Chinatown/Downtown area. Table 3.10-2 provides the locations along the proposed In-Town BRT alignment where lava curbs have been identified and may be affected.

TABLE 3.10-2
HISTORIC SIDEWALK AND CURB ELEMENTS
IN THE AREA OF POTENTIAL EFFECT OF THE IN-TOWN BRT

Location	Comments
CHINATOWN/DOWNTOWN	
Hotel Street at Kekaulike Mall.	Makai side - all lava; Mauka side - mostly lava
Alakea Street between Queen Street and Nimitz Highway	KKHD Side - about 2.5 pieces of lava at existing bus stop
Bishop Street between Queen Street and Nimitz Highway	Ewa Side – lava curbs
South King Street at Punchbowl Street in front of State Library	Mauka side curb and edge of sidewalk all lava
KAKAAKO/MAKIKI	
South King Street at Alapai Street to Cooke Street	Mauka side - all lava to Cooke Street; Makai side – mostly lava
South King Street at Ward Avenue, in front of Thomas Square and Neal Blaisdell Center	Mauka side - all lava from Ward to Victoria St., except storm drain; Makai side - all lava at existing bus pull-out
South King Street at Pensacola Street, in front of Kaiser Honolulu Clinic	Mauka side - mostly lava; Makai side - all lava
WAIKIKI AREA	
Saratoga Road	Mostly lava rock

Source: Parsons Brinckerhoff, Inc., December 2001.
Note: Curbs locations surveyed approximately as shown in design drawings (SSFM, November 26, 2001). No granite sidewalks were noted during field surveys.

3) Traditional Cultural Properties or Practices (TCPs)

A traditional cultural property (TCP) may also be eligible for the NRHP. According to the National Register Bulletin 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties (1994), a TCP is defined generally as a resource that is eligible for the NRHP because of its association with the cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community. Consultation was held with the Office of Environmental Quality Control (OEQC) and the Office of Hawaiian Affairs (OHA) to identify potential TCPs in the study area.

Following the initial consultation, a panel of experts was formed and convened. Its purpose was to develop a working definition of "cultural practice" in an urban setting and to develop a working definition of the geographic boundary of the study area. The panel included a mix of individuals with expertise including cultural anthropology, urban planning, social impact assessment and planning, and ethnography.

The panel work session was held on May 24, 2001. It was agreed to define "cultural practices" to include the many traditions and ethnicities of Hawaii. The study corridor was identified, as the area between the H-1 Freeway and the ocean, and from Middle Street to Kapiolani Park. Several methods were employed to identify cultural areas and practices, such as using the knowledge of the panel members and key informants, driving and walking through the neighborhoods of the study area, and obtaining schedules and other publications that provide information about cultural events.

The panel was able to identify over 400 cultural practices, which were categorized in the following manner: From this list, two culturally significant districts were identified: Chinatown and Iolani Palace/Kamehameha Statue area. As stated above, both areas are already considered historic properties in part or whole.

Chinatown is the location of more than 70 cultural practices, the largest critical mass of practices identified in the study area. The "cultural character" of Chinatown is reinforced by the design of buildings, streets, and landscaping, as well as practices, such as the constant presence of sidewalk retail activities.

The Iolani Palace/Kamehameha Statue area, which is part of the Hawaii Capital Historic District, is culturally significant because of its historical and cultural symbolism. The "look" and the ability to carry out certain ceremonies in and through this area are important attributes, such as the starting point of the King Kamehameha Day Parade.

3.11 PARKLANDS

Parks and recreational facilities in the study area have been identified through a review of available mapping, coordination with City, State, and federal agencies, and field surveys. This section describes the findings of this work.

Hawaii's mild tropical climate encourages a variety of outdoor recreational activities. Consequently, numerous areas have been designated as parks and recreational areas on the island of Oahu. They are heavily utilized by the public for various activities, making Oahu's parks and recreational facilities valuable and important.

Through literature review, agency coordination and field review, parklands in the project area were identified. In addition to interviewing agencies, several documents were reviewed, including the Index of Oahu Parks and Facilities (City and County of Honolulu, April 1997); Existing State Parks and Other Areas Fiscal Year 1997-98 (State of Hawaii, 1998); aerial photos; and TMK Oahu Street and Condo Map Book, 12th Edition (Hawaii TMK Service, 1998).

This list was evaluated to identify those park and recreation resources located immediately adjacent to elements of the alternatives, including those located adjacent to proposed ramps, park-and-ride lots, and transit centers and transit stops. These parks and recreational facilities are listed on Table 3.11-1, and their locations are shown on Figures 3.11-1A through 3.11-1C.

TABLE 3.11-1
PARKLAND RESOURCES IMMEDIATELY ADJACENT TO PROJECT ELEMENTS

Map Key[1]	Park	Street	(Acres)	Classification [2]	Jurisdiction
1	Aloha Stadium	Kamehameha Hwy and Salt Lake Boulevard	97.44	Sports Arena	State of Hawaii
2	Aala Park	North King Street	6.69	Urban Park	City and County
3	Fort Street Mall	Fort Street	0.87	Mall	City and County
4	Chinatown Gateway Park	Bethel Street	0.40	Urban Park	City and County
5	Union Street Mall	Between Hotel and Bishop Streets	0.36	Mall	City and County
6	Iolani Palace State Monument	Hotel Street	10.60	Urban Park	State of Hawaii
7	Unnamed park adjacent to federal building	Ala Moana Boulevard and Halekauwila Street	N/A	Urban Park	United States
8	Thomas Square	South Beretania Street, Ward Avenue and King Street	6.42	Urban Park	City and County
9	Mother Waldron Neighborhood Park	Pohukaina Street	1.76	Neighborhood Park	City and County
10	Ala Moana Regional Park, including Aina Moana Recreation Area *(Magic Island)*	Ala Moana Boulevard	119.18	Regional Park	City and County
11	Frank C. Judd Mini Park	Kapiolani Boulevard	0.37	Mini Park	City and County
12	Ala Wai Promenade	Kalakaua Avenue	4.43[3]	Urban Park	City and County
13	Ala Wai Community Park and Clubhouse	Kapiolani Boulevard	13.98	Community Park	City and County
14	Ala Wai Neighborhood Park	University Avenue	15.70	Neighborhood Park	City and County
15	Duke Paoa Kahanamoku Beach Park	Paoa Place	0.43	Beach Park	City and County
16	King Kalakaua Park (formerly Waikiki Gateway)	Kalakaua Avenue	0.57	Urban Park	City and County
17	Beachwalk Triangle	Beachwalk and Kalakaua Ave.	0.15	Urban Park	City and County
18	Princess Kaiulani Triangle	Kaiulani and Kuhio Avenues	0.12	Urban Park	City and County
19	Kuhio Avenue Mini Park	Kuhio Avenue	0.12[4]	Mini Park	City and County
20	Kuhio Beach Park	Kalakaua Avenue	3.40	Beach Park	City and County
21	Kapiolani Regional Park[5] (includes Honolulu Zoo)	Kapahulu and Kalakaua Avenues	154.73	Regional Park	City and County
22	Kapiolani Beach Park	Kalakaua Avenue	12.09	Beach Park	City and County
23	Waikiki Beach[6]	Kalakaua Avenue	unknown	Various	Various (City, State, and Private)
24	Irwin Memorial Park	Aloha Tower Drive	0.7	Urban Park	State of Hawaii
25	Makai Gateway Park	Ilalo Street	6	Community Park	State of Hawaii
26	Kakaako Waterfront Park	Kelikoi Street	30	State Park	State of Hawaii
27	Tamarind Park	Bishop/King Streets	N/A	Urban Park	Private

Sources: Parsons Brinckerhoff Inc., Initial Field Survey 1989, Update January 1992; City and County of Honolulu Department of Parks and Recreation, Index of Oahu Parks and Facilities, 1997; DLNR, State Parks Division, Existing State Parks and Other Areas, 1998, Agency Interviews, December 1999.

TABLE 3.11-1 (CONT.)
PARKLAND RESOURCES IMMEDIATELY ADJACENT TO PROJECT ELEMENTS

Notes:

[1]Map Key refers to numbers on Figures 3.11-1A through 3.11-1C.

[2]Classifications:

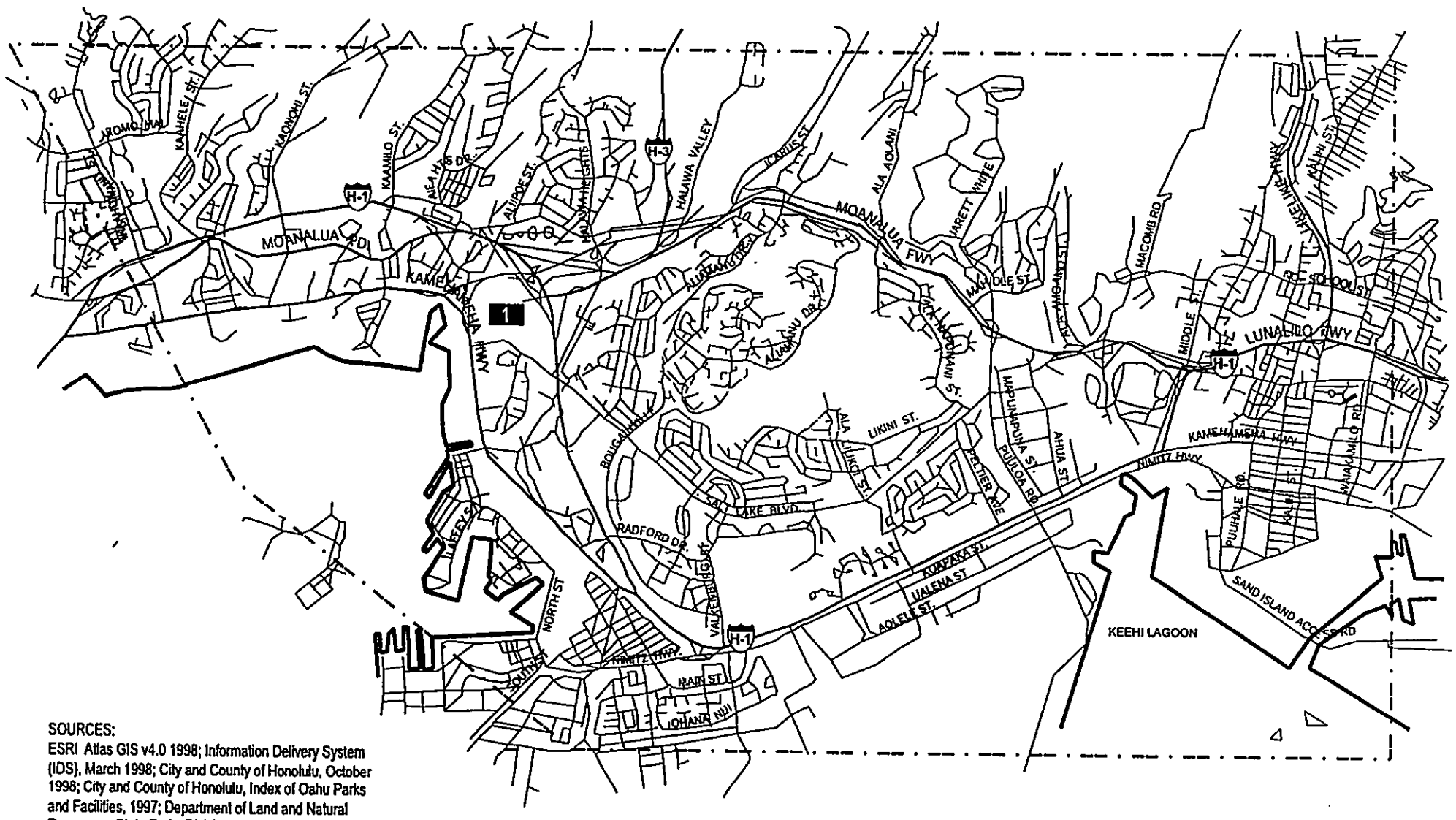
District Park - park approximately 20 acres in size servicing approximately 25,000 people, with playfields, recreation complex and passive areas.
Community Park - park approximately 10 acres in size servicing approximately 5,000 people with playfields, passive areas and a recreation building.
Neighborhood Park - park approximately 6 acres in size, servicing approximately 5,000 people, with playfields, courts, and a comfort station.
Mall - long, narrow, pedestrian walkway in commercial areas, with benches, water fountains, arbors, landscaping.
Mini Parks - small landscaped areas, servicing high-density areas with benches, picnic tables, and children's play areas.
Regional Park - Large area that may serve the entire island or region of the island with a variety of recreation park types and facilities, natural and cultural sites.
Urban Parks - Passive landscaped areas, usually located in residential or business areas.
Beach/Shoreline Park- Area along shoreline, with facilities to support water activities, picnicking, and other passive activities.
Classifications not included: Right-of-Ways, Traffic Related Areas, Military Parks and Unencumbered State Land

[3]Ala Wai Promenade has two portions, the Waikiki side and the Ewa side. The Ewa side is larger and measures roughly 4.43 acres. The size of the Waikiki side could not be determined, but it is a smaller, thin strip of land along the Ala Wai Canal, between Ala Moana Boulevard and McCully Street.

[4]The Kuhio Mini Park consists of three small areas along Kuhio Avenue. The area of only the largest of the three is known; the other two mini parks are landscaped bus stops.

[5]The acreage for Kapiolani Regional Park includes the Honolulu Zoo, the tennis courts, Paki Community Park, Waikiki Playground, and the community gardens.

[6]The name "Waikiki Beach" refers to a stretch of beach from the State-owned Duke Kahanamoku Beach to the edge of Sans Souci Beach, and does not refer to an official beach park area. Note that beach ownership in this area is both public and private.



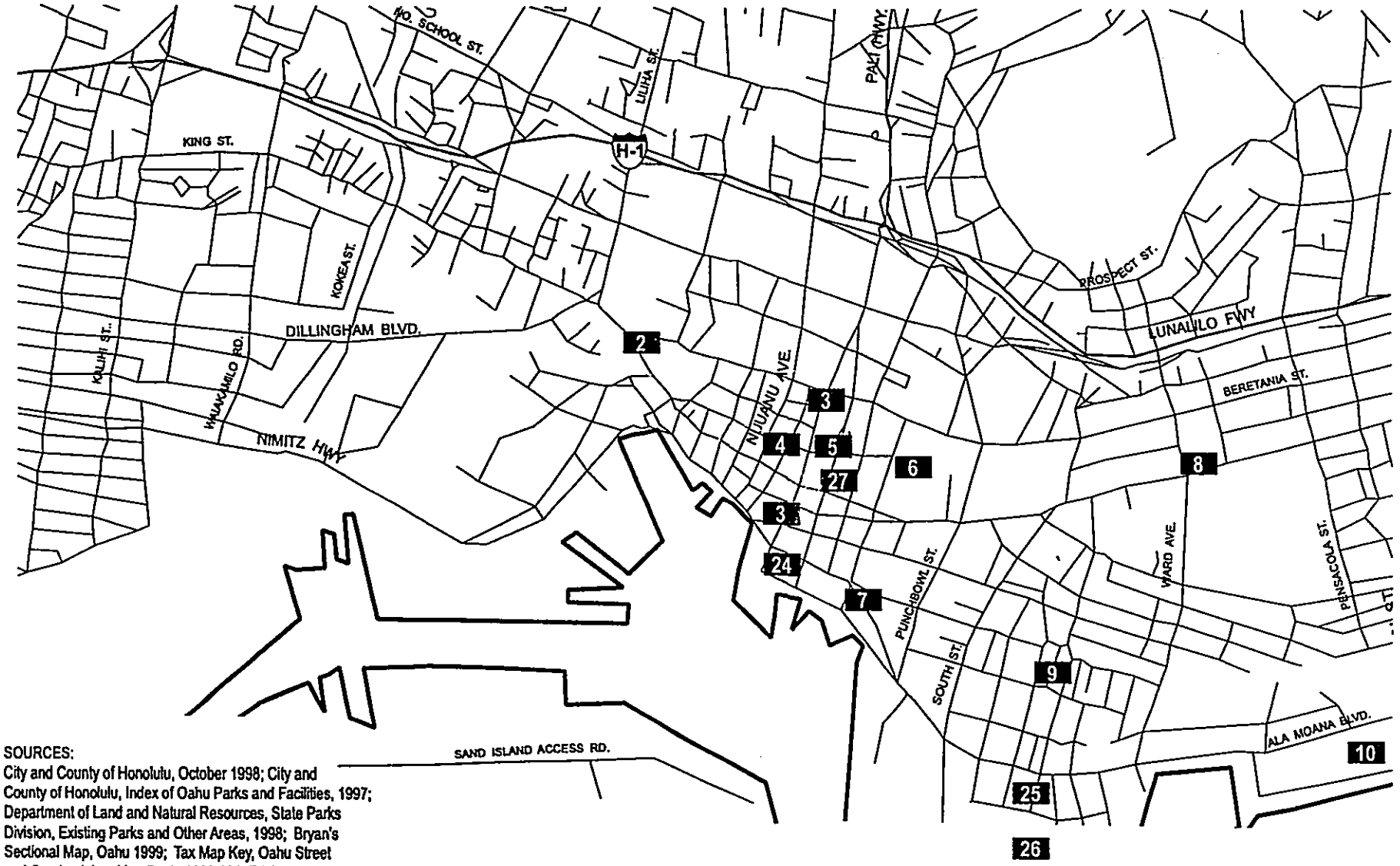
SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998; City and County of Honolulu, Index of Oahu Parks and Facilities, 1997; Department of Land and Natural Resources, State Parks Division, Existing Parks and Other Areas, 1998; Bryan's Sectional Map, Oahu 1999; Tax Map Key, Oahu Street and Condominium Map Book, 1998 12th Edition.

* Parklands' location/description can be found on Table 3.11-1

N Scale: 0 .25 .50 mi

Parkland Resources Adjacent To Project Elements: Aiea - Fort Shafter

Figure 3.11-1A



SOURCES:
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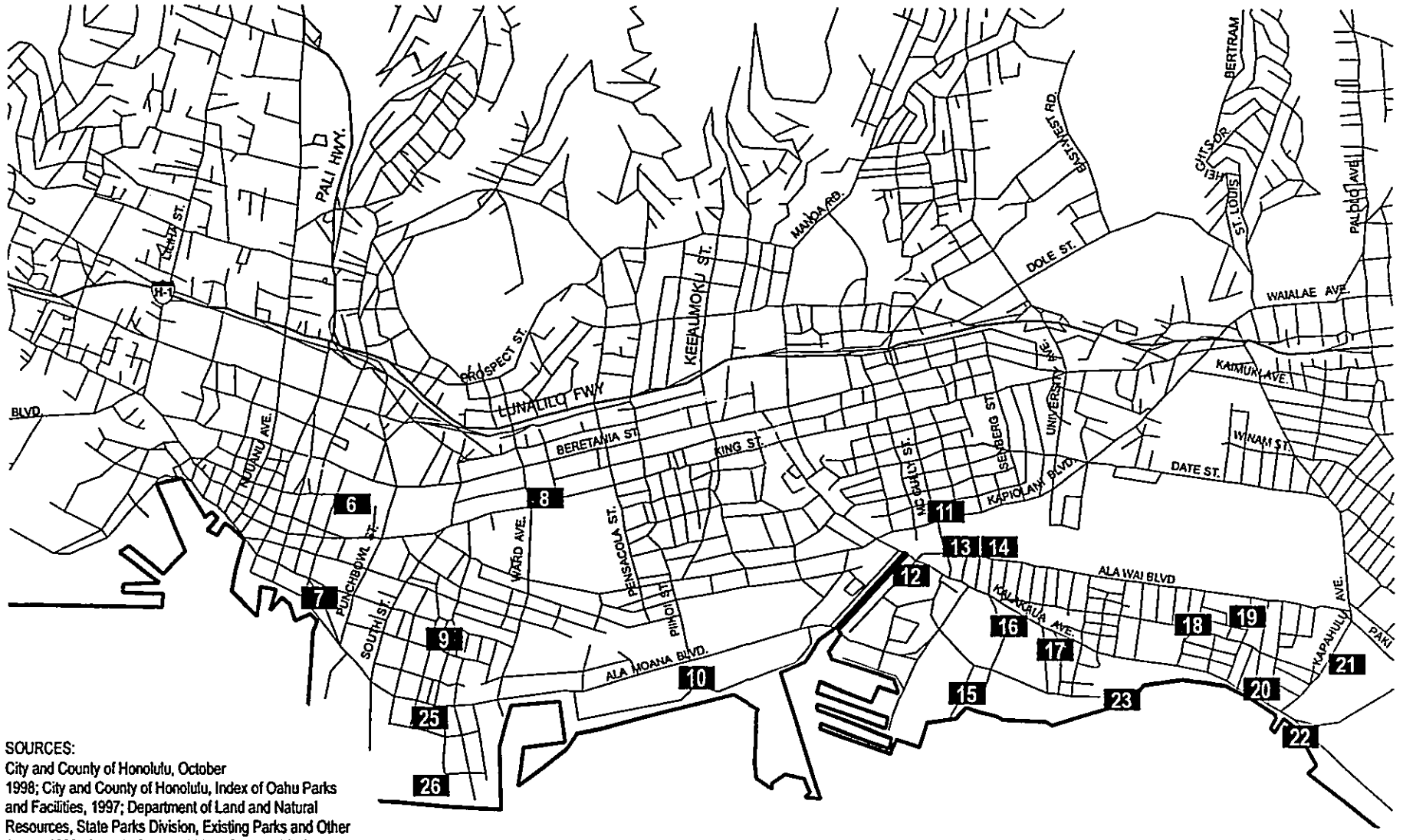
* Parklands' location/description can be found on Table 3.11-1

N Scale: 0 .50 1 mi

Parkland Resources Adjacent To Project Elements: Fort Shafter - Downtown

Figure 3.11-1B



SOURCES:
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* Parklands' location/description can be found on Table 3.11-1

N Scale: 0 .50 1 mi

Parkland Resources Adjacent To Project Elements: Downtown - Waikiki

Figure 3.11-1C

Chapter 4.0
Transportation Impacts

CHAPTER 4 TRANSPORTATION IMPACTS

4.0 OVERVIEW

This Chapter describes the transportation related impacts and performance of the Refined LPA and compares it to the No-Build and TSM Alternatives. The focus is on impacts and performance in 2025, the planning horizon for this project.

Several years have elapsed since publication of the DEIS. During this period some refinements have been made to the Locally Preferred Alternative based on community input and public comments. To maintain a fair comparison, comparable refinements have also been made to the No-Build and TSM Alternatives. These refinements are described in Chapter 2. Other differences from the DEIS that are reflected in this chapter of the FEIS are:

- The background highway network for all of the Alternatives in the FEIS has been updated to be consistent with the recently updated Oahu Metropolitan Planning Organization (OMPO) regional transportation plan contained in the report Transportation for Oahu Plan-TOP 2025. The DEIS included the committed to near-term projects that were in the then current Transportation Improvement Program (TIP) in the background highway network. The background highway network used in the FEIS is shown in Figure 2.2-1A in Chapter 2.
- The information presented in this chapter, as well as all of the evaluation information based on travel forecasts presented in other chapters, has been developed using the most current travel demand forecasting models and procedures established by OMPO. These models simulate the choices made by residents and visitors regarding the nature, number, mode, time-of-day, and geographic orientation of trips that they make on an average weekday. The models have been developed with data obtained in extensive surveys of Oahu households, transit riders, and air passengers. The OMPO forecasting models used in the FEIS analyses reflect refinements to the OMPO models used in the DEIS, as OMPO continues to refine and improve their models. An explanation of the travel demand models is provided in section 4.1, and a full documentation of the OMPO forecasting models and procedures is available in OMPO Model Development Project, Final Documentation, 2002.
- Year 2025 forecasts reflect the population and employment projections that were prepared by the Department of Business, Economic Development and Tourism (DBEDT) in February 2000 and the zonal allocations that were prepared from these projections by the City's Department of Planning & Permitting. These revised forecasts are not significantly different from the forecasts used in the MIS/DEIS with the year 2025 population now forecast to be 5 percent lower and employment 4 percent higher than reflected in the MIS/DEIS.
- The BRT operations plan has been refined so that of the Regional BRT vehicles that serve the Middle Street Transit Center continue into town using the In-Town bus priority lanes rather than terminating at Middle Street. This will result in less transferring being required, faster travel times for riders, and more effective use of the In-Town BRT improvements.

Transportation performance is assessed in five principal areas: Island-wide and Corridor travel demand and indices, transit impacts, highway impacts, parking impacts, and bicycle and pedestrian impacts.

4.1 OMPO TRAVEL DEMAND MODELS

Analyses of future transportation conditions conducted for the Primary Corridor Transportation Project were based on results obtained from the OMPO travel demand models. This section provides an overview of the elements of the travel demand model.

The OMPO travel demand models are analytic techniques that predict future travel demand based on land use, socioeconomic, and transportation system characteristics. Underlying the models is an assumption that demand for transportation is created by the separation of urban activities – the need to participate in these urban activities leads to a need for travel. The goal of analysis is to infer from the spatial distribution of activities the amount, type, and location of travel that a population will undertake. Regional travel forecasting requires: 1) gathering data at the lowest practical level of aggregation; 2) using official forecasts of population, employment, and income; 3) developing models to accurately represent travel behavior; and 4) applying the models to the forecast data inputs to produce forecasts of future travel patterns.

The travel demand model relies on the data of where individuals, businesses, and other places of activity are located (or will be located). In the case of forecasts, this is typically done in several steps: economic growth (basic employment) is estimated, then population growth stimulated by those jobs is estimated, then population-serving employment and attendant population increases are estimated. The resulting jobs and population (or households) are then allocated to small areas, or zones, of the region (typically, based on aggregations of census blocks, or in some cases, tracts.)

The State of Hawaii, Department of Business, Economic Development and Tourism (DBEDT) prepares forecasts for each county of total population, employment, personal income, and visitors. The City and County of Honolulu, DPP, allocates the population, dwelling units, and employment to the 726 TAZs.

The travel demand model incorporates numerous household and individual characteristics to make its forecast. Chief among these characteristics are household auto ownership and household or worker income.

The model also uses the performance of the transportation infrastructure available to each traveler. This infrastructure is described as networks of facilities through which transportation service is provided. The highway network in travel demand modeling is an abstraction of real or proposed facilities for serving the general driving public, commercial vehicles providing public transportation and goods movement services, bicyclists, and pedestrians. The abstraction emphasizes connectivity and spatial separation of the activity centers from which demand for travel emerges rather than representing physical details such as curvature, grade, and surface type, although these features are accounted for implicitly in the representation of vehicle throughput (capacity) for the roadway.

The transit network represents the spatial and temporal connectivity of the public transportation system on Oahu by relating transit routes and service levels to the highway network and thus to travel activity centers. The transit network abstraction allows generalized measures of separation to be determined between areas of the island which reflects weighted average in-vehicle travel time, access/egress time, out-of-vehicle waiting and transfer times, and cost.

The transportation networks provide a means for measuring the spatial separation between the groups of travelers and the opportunities they are attempting to realize. This separation, or as often called, impedance measure, affects the decisions travelers make in their destination, departure time, mode and route choices. The transportation networks are thus used to determine the demand for travel on routes between centers of activities. This demand for travel on routes of the networks may ultimately be related back to the transportation facilities being represented in the model to evaluate the transportation impacts of land use, facility, and service level changes, among other transportation policy concerns.

The population and employment forecasts, allocated to zones, and transportation networks become the inputs in the demand modeling process. They are used in conjunction with a set of models of travel behavior which, together with the abstracted demographic, economic, and infrastructure data, produce predictions of travel demand. The OMPO models of travel behavior include two sets of procedures, models of resident travel that forecast travel patterns of Oahu residents on an average weekday, and a set of ancillary models that forecast airport access trips, trips by visitors and trips by commercial vehicles. Following the estimation of travel demand (defined as numbers of trips between specified origins and destinations, by mode and by time of day) a final set of models are used to assign these trips to highway and transit networks.

CORRECTION

THE PRECEDING DOCUMENT(S) HAS BEEN REPHOTOGRAPHED TO ASSURE LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

CHAPTER 4 TRANSPORTATION IMPACTS

4.0 OVERVIEW

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4.1 OMPO TRAVEL DEMAND MODELS

Analyses of future transportation conditions conducted for the Primary Corridor Transportation Project were based on results obtained from the OMPO travel demand models. This section provides an overview of the elements of the travel demand model.

The OMPO travel demand models are analytic techniques that predict future travel demand based on land use, socioeconomic, and transportation system characteristics. Underlying the models is an assumption that demand for transportation is created by the separation of urban activities – the need to participate in these urban activities leads to a need for travel. The goal of analysis is to infer from the spatial distribution of activities the amount, type, and location of travel that a population will undertake. Regional travel forecasting requires: 1) gathering data at the lowest practical level of aggregation; 2) using official forecasts of population, employment, and income; 3) developing models to accurately represent travel behavior; and 4) applying the models to the forecast data inputs to produce forecasts of future travel patterns.

The travel demand model relies on the data of where individuals, businesses, and other places of activity are located (or will be located). In the case of forecasts, this is typically done in several steps: economic growth (basic employment) is estimated, then population growth stimulated by those jobs is estimated, then population-serving employment and attendant population increases are estimated. The resulting jobs and population (or households) are then allocated to small areas, or zones, of the region (typically, based on aggregations of census blocks, or in some cases, tracts.)

The State of Hawaii, Department of Business, Economic Development and Tourism (DBEDT) prepares forecasts for each county of total population, employment, personal income, and visitors. The City and County of Honolulu, DPP, allocates the population, dwelling units, and employment to the 726 TAZs.

The travel demand model incorporates numerous household and individual characteristics to make its forecast. Chief among these characteristics are household auto ownership and household or worker income.

The model also uses the performance of the transportation infrastructure available to each traveler. This infrastructure is described as networks of facilities through which transportation service is provided. The highway network in travel demand modeling is an abstraction of real or proposed facilities for serving the general driving public, commercial vehicles providing public transportation and goods movement services, bicyclists, and pedestrians. The abstraction emphasizes connectivity and spatial separation of the activity centers from which demand for travel emerges rather than representing physical details such as curvature, grade, and surface type, although these features are accounted for implicitly in the representation of vehicle throughput (capacity) for the roadway.

The transit network represents the spatial and temporal connectivity of the public transportation system on Oahu by relating transit routes and service levels to the highway network and thus to travel activity centers. The transit network abstraction allows generalized measures of separation to be determined between areas of the island which reflects weighted average in-vehicle travel time, access/egress time, out-of-vehicle waiting and transfer times, and cost.

The transportation networks provide a means for measuring the spatial separation between the groups of travelers and the opportunities they are attempting to realize. This separation, or as often called, impedance measure, affects the decisions travelers make in their destination, departure time, mode and route choices. The transportation networks are thus used to determine the demand for travel on routes between centers of activities. This demand for travel on routes of the networks may ultimately be related back to the transportation facilities being represented in the model to evaluate the transportation impacts of land use, facility, and service level changes, among other transportation policy concerns.

The population and employment forecasts, allocated to zones, and transportation networks become the inputs in the demand modeling process. They are used in conjunction with a set of models of travel behavior which, together with the abstracted demographic, economic, and infrastructure data, produce predictions of travel demand. The OMPO models of travel behavior include two sets of procedures, models of resident travel that forecast travel patterns of Oahu residents on an average weekday, and a set of ancillary models that forecast airport access trips, trips by visitors and trips by commercial vehicles. Following the estimation of travel demand (defined as numbers of trips between specified origins and destinations, by mode and by time of day) a final set of models are used to assign these trips to highway and transit networks.

The OMPO models of resident travel include five components:

- The Vehicle Ownership model estimates the distribution of vehicle-ownership levels by each type of household. It takes as input a distribution of households in each zone by their demographic characteristics, as produced by the land use model.
- The Trip Generation model predicts the trip-productions and trip attractions, stratified by 11 trip purposes, based on calibrated trip-rates applied to the numbers and characteristics of households and jobs in each zone on the island. The Vehicle-Ownership and Trip Generation models are applied together in a single computer program.

The 11 trip purposes used in the models of resident travel are:

1. Journey-to-Work – Home-Based Work
2. Journey-to-Work – Home-Based Non-Work
3. Journey-to-Work – Work-Based Non-Work
4. Journey-to-Work – Non-Home-Based, Non-Work-Based
5. Journey-at-Work – Work-Based
6. Journey-at-Work – Non-Work-Based
7. Non-Work-Related – Home-Based College
8. Non-Work-Related – Home-Based K-12 School
9. Non-Work-Related – Home-Based Shopping
10. Non-Work-Related – Home-Based Other
11. Non-Work-Related – Non-Home-Based

Examples of these trip purposes are described as follows:

a. A person leaves his home and goes to work (Journey-to-Work – Home-Based Work).

b. A person leaves his home heading toward work and stops at the dry cleaner (Journey-to-Work – Home-Based Non-Work). He continues on and then stops for a coffee (Journey-to-Work – Non-Home-Based, Non-Work-Based). He continues on and reaches work (Journey-to-Work – Work-Based Non-Work).

c. A person leaves work and goes to lunch (Journey-at-Work – Work-Based). He continues on to shop (Journey-at-Work – Non-Work-Based), and then returns to work (Journey-at-Work – Work-Based).

d. A person leaves his home and goes to college (Non-Work-Related – Home-Based College).

e. A person leaves his home and goes to high school (Non-Work-Related – Home-Based K-12 School).

f. A person leaves his home and goes shopping (Non-Work-Related – Home-Based Shopping). He continues on to a restaurant (Non-Work-Related – Non-Home-Based), and then returns home (Non-Work-Related – Home-Based Other).

- The Trip Distribution model applies a logit formulation to develop a zone-to-zone trip table for each trip purpose using the predicted trip productions and trip attractions in each zone together with zone-to-zone highway travel times derived from the highway network. The distribution model for several purposes uses segmentation by vehicle-ownership level. The model considers all travel over the average weekday for each trip purpose, using peak-period highway times for travel to/from work and school and off-peak highway times for all other trip purposes.
- The Mode Choice model applies a nested-logit formulation to estimate the shares of each zone-to-zone travel market that will use each of 10 competing travel options. The options include alternative modes (auto, transit, and non-motorized travel), occupancies (1, 2, and 3+ per vehicle), transit access-modes

(walk, park/ride, and kiss/ride), transit paths (local, premium, and guideway), walking, and bicycling. The model considers a large number of characteristics of the trip, the traveler, and the competing travel options to estimate the shares attracted to each option. Like the Trip Distribution model, the Mode Choice model considers travel for an entire average weekday for each trip purpose, using peak travel conditions for commuter travel and off-peak conditions for all other trip purposes.

- The Time-of-Day / Direction model accomplishes several steps necessary to prepare trip tables for assignment to the highway and transit networks. First, it allocates the daily trip tables developed by the Trip Distribution model for each trip purpose across the individual time-periods of the day. Second, for the person-trips choosing one of the automobile options, it converts trip tables from production-attraction format to origin-destination format and computes vehicle trips based on the three occupancy levels. Finally, the model aggregates the resulting trips across trip purposes to produce time-period specific tables for assignment to the highway and transit networks.

The ancillary models include:

- The Airport Access trip procedures estimate vehicle trips generated by air travelers, to and from the airport. The estimation procedures consist of a trip generation step, a distribution step, and a mode choice/time of day step.
- The Visitor model utilizes a nested logit structure to simultaneously estimate the frequency/destination and mode choice of visitors traveling from hotels or resort condos to 25 key destinations on Oahu.
- The Truck trip estimation procedures estimate trips by 2-, 3-, and 4-axle trucks. The estimation procedures consist of a trip generation step, a distribution step, and a time of day step.

In the final travel demand modeling step, trips in the mode- and time-specific trip tables are assigned to paths in their respective infrastructure networks ("trip assignment.") The implied network performance (i.e., interzonal time characteristics) is calculated based on the volume expected on each link. The assignment algorithm typically assumes that each traveling party will attempt to minimize its individual cost ("generalized cost") for each trip.

The highway assignment procedures perform equilibrium capacity constraint assignments for the morning peak period (from 5 to 9 AM), the evening peak period (from 2 to 6 PM), and the off-peak period.

Transit trips are assigned by peak and off-peak time period to five different path types (walk-to-local-bus, walk-to-premium-bus, walk-to-guideway, kiss-n-ride, and park-n-ride). These results are then combined into one file for each time period, reporting volumes on each bus line in the network.

4.2 REGIONAL TRAVEL DEMAND AND SYSTEMWIDE PERFORMANCE

Chapter 1 of this FEIS summarizes existing and projected future travel demand for the Island of Oahu. The summaries show that travel to and from and within the urban core of Honolulu constitutes the majority of the travel that takes place on the island for both current and projected time frames. Because of the geographical constraints of the primary corridor (mountains on one side and ocean on the other), travel is concentrated along a linear corridor and focused onto a limited number of parallel highway and arterial streets. Even with the planned widenings and other improvements to the highway system, because of projected growth, congestion is forecast to get even worse than today. Community feedback from outreach activities such as the Trans 2K workshops have indicated that grade-separated structures and extensive roadway widening as means to reduce traffic congestion are unacceptable. Instead people indicated that they are in favor of solutions that increase the people carrying capacity of the existing transportation infrastructure. Building upon the already successful bus system in Honolulu by taking it to the next level with a bus rapid transit system is embraced by the community and endorsed by elected officials as a key element in solving future travel needs while preserving Oahu's idyllic environment.

The following sections summarize the regional transportation implications of implementing the Regional and In-Town BRT system as part of Oahu's multi-modal long-range regional transportation plan.

4.2.1 Person Trips By Mode

Table 4.2-1 summarizes the number of daily person trips projected for the year 2025 by mode. As shown, the Refined LPA is projected to result in the greatest number of transit person trips, about 52,000 more than the No Build Alternative. Correspondingly, the Refined LPA would have the lowest number of auto person trips compared to the other Alternatives.

TABLE 4.2-1
PROJECTED YEAR 2025 DAILY SYSTEMWIDE
PERSON TRIPS BY MODE

Type of Trip	No-Build	TSM	Refined LPA
Auto Person Trips	3,367,860	3,368,250	3,302,070
Transit Person Trips	261,130	279,400	312,570

Source: Parsons Brinckerhoff Inc., June 2002

4.2.2 Systemwide Highway Performance

Vehicular travel demand within the primary corridor is projected to exceed available capacity for all the Alternatives even with widening of the H-1 Freeway and other programmed roadway improvements as described in the TOP 2025 plan. Faced with this situation the goal has been to make the most efficient use of the roadway space available so that the greatest number of people can be served.

Table 4.2-2, Projected Year 2025 Daily Vehicle Miles of Travel (VMT) and Vehicle Hours of Delay (VHD), shows that in 2025 the Refined LPA (which has the highest level of transit service provided), would have the lowest VMT by autos and other vehicles compared to the TSM and No-Build Alternatives. This results from increased use of travel modes other than single-occupant-vehicles (SOVs); i.e: fewer vehicles, less VMT.

TABLE 4.2-2
PROJECTED YEAR 2025 TRAVEL DEMAND INDICATORS
DAILY VEHICLE MILES TRAVELED (VMT) AND VEHICLE HOURS OF DELAY (VHD)

Alternative	Time Period	VMT	VHD	Daily Vehicle Trips
No-Build	A.M.	5,145,570	177,750	555,140
	Off-Peak	6,846,540	81,065	877,875
	P.M.	5,596,345	192,890	660,150
	Total Daily	17,588,455	451,705	2,093,165
TSM	A.M.	5,133,800	173,015	554,970
	Off-Peak	6,840,120	81,255	878,365
	P.M.	5,587,195	184,155	660,250
	Total Daily	17,561,115	438,420	2,093,585
Refined LPA	A.M.	4,893,630	145,470	535,040
	Off-Peak	6,614,640	72,135	856,560
	P.M.	5,361,660	156,020	641,125
	Total Daily	16,869,930	373,625	2,032,725

Source: Parsons Brinckerhoff, Inc., June 2002
Notes: VMT = vehicle miles traveled
VHD = vehicle hours of delay

This is confirmed by the lower number of vehicle trips (and, therefore, more transit usage) projected to occur with the Refined LPA than with the TSM or No-Build Alternatives.

Lower VMT is also indicative of less traffic congestion. When there is a high level of traffic congestion, drivers often take longer and more circuitous paths as they "hunt" for less congested routes. This, in turn, affects neighborhoods as streets meant to accommodate local traffic become through traffic routes.

Another indicator of regional travel is Vehicle Hours of Delay (VHD), which is the difference between free-flow and congested vehicle travel time. In 2025 the Refined LPA is projected to have substantially lower daily VHD than the No-Build or TSM Alternatives. This reduced VHD is indicative of less congestion on roadways island-wide.

4.2.3 Systemwide Transit Performance

To the extent that an alternative attracts more riders than another, it is providing better mobility by reducing travel time or cost. Increases in transit ridership also can be viewed as a proxy for many other transit benefits – reduced highway congestion, energy consumption, and emissions.

As shown in Table 4.2-3, the Refined LPA is forecast to attract more riders than either the TSM or No-Build Alternatives. Similarly, the Refined LPA would result in an increased percentage of transit trips (mode share) compared to the other alternatives. This indicates that the reductions in VMT, VHT, and Daily Vehicle Trips forecast for the Refined LPA are a result of a shift in mode from auto to transit.

TABLE 4.2-3
PROJECTED ISLAND-WIDE TRANSIT RIDERSHIP
(FORECAST YEAR 2025)

	No-Build	TSM	Refined LPA
Total Transit Trips (Daily Linked-Trips)	261,130	279,400	312,570
New Transit Trips compared with No-Build	Not Applicable	18,270	51,440
New Transit Trips compared with TSM	Not Applicable	Not Applicable	33,170
Transit Mode Share:			
All Trip Purposes	6.6%	6.9%	7.9%
Work Trips	14.7%	15.7%	18.4%

Source: Parsons Brinckerhoff, Inc., June 2002

4.2.4 Highway Screenlines

Another indicator used in evaluating roadway mobility is the comparison of projected traffic volume versus roadway capacity at selected screenlines. A screenline is an imaginary line that cuts across roadways in a transportation corridor. In a screenline analysis the traffic volumes and capacities of all major roadways passing through the imaginary line are summed and compared as a volume over capacity (v/c) ratio. A v/c ratio greater than one indicates that demand exceeds capacity, which, in turn, indicates that traffic congestion would occur at that screenline. Figure 1.2-3 in Chapter 1 illustrates the location of the screenlines used in the analysis.

Tables 4.2-4 and 4.2-5 summarize the projected Year 2025 peak hour, peak direction traffic volumes, the associated roadway capacities, and the resulting volume over capacity ratio (v/c ratio) for the A.M. and P.M. peak hours, respectively at those screenlines. A useful index to categorize v/c is Level of Service (LOS). LOS is a qualitative index based on the v/c quantitative analysis that involves traffic volumes, number of roadway

TABLE 4.2-4
PRIMARY CORRIDOR
ESTIMATED LEVEL OF SERVICE AT SCREENLINES, 2025 A.M. PEAK HOUR INBOUND

Screenline Name	No-Build				TSM				Refined LPA			
	Vehicle Volume	Capacity	V/C Ratio	LOS	Vehicle Volume	Capacity	V/C Ratio	LOS	Vehicle Volume	Capacity	V/C Ratio	LOS
Kahe Point	4,596	4,050	1.13	F	4,597	4,050	1.14	F	4,328	4,050	1.07	F
Ewa	8,617	11,700	0.74	C	8,484	11,700	0.73	C	7,850	11,700	0.67	B
Waikele	12,973	11,500	1.13	F	12,892	11,500	1.12	F	12,244	11,500	1.06	F
Kalauao	25,089	17,650	1.42	F	24,904	17,650	1.41	F	23,669	17,650	1.34	F
Moanalua	22,072	22,100	1.00	F	22,028	22,100	1.00	F	20,392	22,100	0.92	E
Kapalama	23,595	22,700	1.04	F	23,326	22,700	1.03	F	21,224	21,800	0.97	E
Nuuanu	23,422	20,300	1.15	F	22,541	20,300	1.11	F	20,700	20,300	1.02	F
Ward	21,132	20,200	1.05	F	20,434	18,300	1.12	F	19,358	19,300	1.00	F

Source: Parsons Brinckerhoff, Inc., June 2002
Note: * LOS F caused by downstream congestion

TABLE 4.2-5
PRIMARY CORRIDOR
ESTIMATED LEVEL OF SERVICE AT SCREENLINES, 2025 P.M. PEAK HOUR OUTBOUND

Screenline Name	No-Build				TSM				Refined LPA			
	Vehicle Volume	Capacity	V/C Ratio	LOS	Vehicle Volume	Capacity	V/C Ratio	LOS	Volume	Capacity	V/C Ratio	LOS
Kahe Point.	4,365	4,050	1.08	F	4,233	4,050	1.05	F	4,001	4,050	0.99	E
Ewa	9,497	11,700	0.81	D	9,350	11,700	0.80	D	8,737	11,700	0.75	C
Waikele	11,710	12,500	0.94	E	11,567	12,500	0.93	E	11,154	12,500	0.89	D
Kalauao	21,936	15,900	1.38	F	21,822	15,900	1.37	F	20,944	17,650	1.19	F
Moanalua	20,599	19,900	1.04	F	20,524	19,900	1.03	F	19,557	21,600	0.91	E
Kapalama	22,541	22,700	0.99	E	22,106	22,700	0.97	E	20,683	21,800	0.95	E
Nuuanu	22,358	20,500	1.09	F	22,084	20,500	1.08	F	21,184	20,500	1.03	F
Ward	21,592	24,400	0.88	D	21,813	22,500	0.97	E	20,689	20,600	1.00	F

Source: Parsons Brinckerhoff, Inc., June 2002
Note: * LOS F caused by downstream congestion

lanes and their configurations, and traffic signal timing and phasing. LOS ranges from A, (free-flow conditions) to F, (congested conditions).

As shown in Tables 4.2-4 and 4.2-5, even with the significant highway improvements recommended in the OMPO long-range regional transportation plan, year 2025 travel demand on roadways is projected to exceed capacity at many of the screenlines within the primary corridor. At almost all of the screenlines the level of congestion would be equal or less with the Refined LPA compared to the No-Build and TSM Alternatives.

The most congested location is forecast to be at the Kalauao screenline in the Pearl City-Aiea sub-region. This screenline has only three major roadways: H-1 Freeway, Moanalua Road, and Kamehameha Highway. The OMPO long-range regional transportation plan recommends that H-1 in this area be widened by one lane in each direction. Even with such widening, the v/c ratio is still projected to be well above 1.0 with all of the Alternatives. However, as shown in table 4.1-5 the congestion in this area would be substantially less during the afternoon peak period with the Refined LPA that has the addition of the P.M. zipper lane.

4.2.5 Summary

Forecasted year 2025 travel demand is projected to result in continued congestion on regional roadways within the primary corridor. This level of congestion is projected to be worse than today and, in conjunction with other factors such as cost of parking, will result in commuters seeking alternative modes of transportation. The Refined LPA, with its enhanced zipper lanes, and in-town priority treatments will provide a way to avoid this congestion, thereby attracting more new riders than the No-Build and TSM Alternatives.

4.3 TRANSIT IMPACTS

In the previous section (4.2), the Refined LPA was identified as having the highest level of transit ridership. This section discusses and compares the transit characteristics of the No Build, TSM, and Refined LPA Alternatives in further detail.

4.3.1 Transit Service Supplied

Transit service levels that would result from each alternative and their relative differences in the levels of service provided between the alternatives are highlighted in this section. Table 4.3-1 offers several indicators of how much transit service would be supplied to transit riders under each alternative. Revenue miles are the number of miles a transit vehicle is open to the paying public to ride. Revenue hours are the number of hours people can ride transit, excluding times when the vehicles are operating but not open to the public (e.g., when a bus leaves its route to return to the garage). All the future alternatives would increase the fleet size, service revenue miles, and revenue hours over the system today.

TABLE 4.3-1
PROPOSED TRANSIT SERVICE INDICATORS
(FORECAST YEAR 2025)

	2000 System	No-Build	TSM	Refined LPA
Annual Revenue Miles (million)	17.10	19.27	23.96	26.01
Annual Revenue Hours (million)	1.25	1.29	1.44	1.63
Fleet Size	530	626	700	794

Source: Parsons Brinckerhoff, Inc. and Federal Transit Administration, 2000 National Transit Database.

Each build alternative (TSM and Refined LPA) would provide more revenue miles and revenue hours than the No-Build Alternative, indicating increased capacity and more frequent service. The increase of the No-Build Alternative of 2025 over 2000 would be about a 13 percent increase in annual revenue miles. The TSM Alternative would have approximately a 40 percent increase over 2000. The Refined LPA would have approximately a 52 percent increase over 2000. The higher amount of revenue hours and revenue miles with the Refined LPA is a reflection of the objective to provide added person carrying capacity in the corridor without building new roadways.

4.3.2 Ridership Impacts of the Alternatives

This section presents the impacts of the alternatives on the use of transit. This is important since an increase in transit ridership demonstrates the improved access and operating efficiency of the system. It begins with a comparison in terms of islandwide ridership, then proceeds to look at ridership in key travel markets.

1) Impact on Ridership Within the Primary Transportation Corridor

Table 4.2-3 showed the island-wide forecast of transit ridership for Oahu. Island-wide, the Refined LPA is projected to attract 51,440 more riders per day than the No-Build and 33,170 more than the TSM Alternative. A more complete understanding of the differences among the alternatives can be discerned by examining ridership within the primary transportation corridor, which is the focus of this FEIS. The Refined LPA would attract additional transit riders by both improving in-town mobility and strengthening the connections throughout the corridor. The increases in ridership and mode split shown in Table 4.3-2 reflect the service benefits – particularly reduced travel time – which such a system would provide within the primary transportation corridor.

TABLE 4.3-2
PROJECTED TRANSIT RIDERSHIP WITHIN THE PRIMARY TRANSPORTATION CORRIDOR
(DAILY LINKED-TRIPS IN 2025)

	No-Build	TSM	Refined LPA
Total Transit Ridership within the Primary Transportation Corridor	202,000	216,130	234,390
Transit Mode Share:			
All Trip Purposes	8.5%	8.7%	10.0%
Work Trips	19.2%	19.5%	22.6%

Source: Parsons Brinckerhoff, Inc., June 2002

While the TSM Alternative would provide greater service benefits than the No-Build Alternative, the added benefits of a high capacity BRT system are shown to attract substantially more riders within the primary transportation corridor.

With regard to the Refined LPA, its projected 312,570 average daily linked-transit trips, island-wide, are forecast to account for 432,430 transit boardings on an average weekday in 2025. This compares to current average daily linked-transit trips of 185,660. The increase in daily ridership would represent a 68 percent increase. As shown in Table 4.3-3 approximately 19 percent of the daily transit boardings island-wide would involve use of the In-Town BRT.

2) Other Measures of Service

The ridership forecasting results can be used to compute several other indicators of the level of service provided by each alternative. These measures are presented in Tables 4.3-4 and 4.3-5 and discussed below.

TABLE 4.3-3
TRANSIT RIDERSHIP BY SUB-MODE
(FORECAST YEAR 2025)

Transit Sub-Mode	Refined LPA Daily Transit Boardings
Boardings on Regional BRT and Local Buses	348,350
Boardings on In-Town BRT	84,080
Total Boardings	432,430

Source: Parsons Brinckerhoff, Inc., June 2002

Transfer Rates

One indicator of the level of service is the number of transfers a typical rider must make to complete a trip. Riders prefer not to transfer, unless transferring results in other benefits such as a shorter total travel time. In Table 4.3-4, the amount of transferring is expressed in terms of the number of boardings per linked transit trip. The Refined LPA would involve the greatest amount of transferring. With the No-Build and TSM Alternatives more riders would have a one-mode ride from origin to destination. The additional transferring in the Refined LPA is to a high degree offset by the more frequent, more comfortable, and more reliable service provided, and in many cases by the shorter total travel time provided by the Refined LPA.

TABLE 4.3-4
OTHER MEASURES OF SERVICE
(FORECAST YEAR 2025)

Measure	No-Build	TSM	Refined LPA
Boardings per Linked Trip (Transfer Rates)	1.29	1.33	1.38
Passenger per Seat at Peak Load Point (Comfort)	1.31	1.01	0.90

Source: Parsons Brinckerhoff, Inc., June 2002

Comfort

Level of comfort can be measured in terms of the probability of getting a seat on the transit vehicle during the peak hour. As shown in Table 4.3-4, the seated capacity of the TSM Alternative would be about equal to the demand. On an average weekday, there would be at least one seat for every rider even at the heaviest used part of the system. The seated capacity of the Refined LPA would be slightly greater than the demand. With the No-Build Alternative, however, the ridership demand would exceed the seated capacity by over 30 percent. Almost a third of all riders would not find a seat and would be required to stand. In some instances with the No-Build Alternative, buses would be full and would pass by riders waiting at stops.

Reliability of Service

Another component of transit level of service is the reliability of the service, or the likelihood the service will remain on schedule. In most cases, the reliability of service is correlated to the amount of the service that utilizes exclusive and semi-exclusive lanes. Transit service in local mixed traffic is most subject to delays caused by traffic congestion, as discussed in Section 4.3. Transit service in an exclusive or semi-exclusive lane is less subject to delays caused by other vehicles or outside events. The Refined LPA can thus be expected to be less affected by traffic delays and offer more reliable service, which will play a role in attracting transit riders.

Transit Travel Time in the Primary Transportation Corridor

The Refined LPA is the only alternative to provide a P.M. zipper lane and major ramp improvements for buses along the H-1 Freeway. It also, because of the transit priority lanes intown, is projected to result in better transit LOS at the analyzed intersections within the urban core. This means that, because of the congestion on the roadways and the provision of exclusive and semi-exclusive lanes, the Refined LPA would provide faster transit travel times and more reliable service within the Primary Corridor than either the TSM or No-Build Alternatives.

Travel time differences by 2025 are shown in Table 4.3-5, Transit Travel Time Within the Primary Corridor, for selected origins and destinations. Table 4.3-5 shows that the P.M. zipper lane and priority transit lanes in-town provided in the Refined LPA will allow the BRT to operate significantly faster than buses in the No-Build Alternative, where no new priority is given to transit vehicles. The travel times shown include time spent walking to-and-from transit stops and time spent waiting for the bus, as well as the in-vehicle travel time.

TABLE 4.3-5
PROJECTED 2025 PM PEAK HOUR TRANSIT TRAVEL TIMES
WITHIN THE PRIMARY CORRIDOR

	No-Build	TSM	Refined LPA
	Transit Travel Time (minutes)	Transit Travel Time (minutes)	Transit Travel Time (minutes)
Downtown–Kapolei	83.1	78.0	58.2
Downtown-Mililani	66.5	61.5	42.1
Downtown-Waikiki	24.4	25.0	23.1
Downtown-U.H.-Manoa	24.4	23.3	22.6
Downtown-Middle St. TC	17.6	16.3	13.3

Source: Parsons Brinckerhoff, Inc., June 2002

4.3.3 Ridership on the In-Town BRT

This section provides detailed information on the projected ridership for the In-Town BRT , including the number of boardings and alightings projected for each stop and the link volumes between stops.

1) Boardings and Alightings

Table 4.3-6 shows how the 84,080 daily boardings on the In-Town BRT would be distributed by stop. The heaviest utilized stops would be the Middle Street Transit Center, which is the Ewa terminus of the In-Town BRT, and the Union Mall stop in Downtown Honolulu before the UH and Waikiki lines branch. Of the 84,080 daily In-Town boardings, 22,570 would occur on the two lines between Middle Street and Downtown Honolulu, 45,240 would occur on the Kakaako/Waikiki Branches and 16,270 would occur on the University Branch. An additional 14,210 boardings would occur on buses that started along the Regional BRT segment and continued into town along the In-Town BRT alignment.

Transit riders arrive at their boarding station by walking, by bus, and by driving or being dropped off. Table 4.3-7 shows how many people are expected to arrive at each stop on the In-Town BRT by each mode. Almost 66 percent, or 64,700, of all In-Town BRT riders are expected to arrive by walking, and another 32 percent, or 31,910, would arrive by bus. Transfers from other buses are expected at 20 of the stops, with almost 72 percent of the transfers occurring at Middle Street Transit Center.

Kapahulu, University/King, Kalihi, and Isenberg are the next most frequent bus transfer stops. Less than 5 percent of all In-Town BRT riders are expected to arrive by auto.

TABLE 4.3-6
REFINED LPA
PROJECTED IN-TOWN BRT STATION BOARDINGS AND ALIGHTINGS
(TOTAL DAILY IN YEAR 2025)

Eastbound			Westbound		
Station	**On**	**Off**	**Station**	**On**	**Off**
From Regional BRT	14,210		**University Branch**		
Middle Street to Downtown Honolulu			UH Manoa	2,055	
Middle Street Transit Center	7,720	2,150	University/King	1,100	140
Kalihi	1,395	650	Isenberg	940	260
Honolulu Community College	2,600	725	Convention Center	1,010	270
Iwilei Transit Center	1,720	270	Keeaumoku/Ala Moana Center	1,450	565
Chinatown	1,650	860	Pensacola	570	290
Union Mall		2,830	McKinley High School	1,355	435
UH Manoa Branch			Thomas Square	285	130
Union Mall	1,040		Alapai Transit Center	2,755	280
Iolani Palace	220	1,120	Iolani Palace	1,120	220
Alapai Transit Center	280	2,755	Union Mall		1,040
Thomas Square	130	285	**Waikiki Branch – Ward to Waikiki**		
McKinley High School	435	1,355	Kapahulu	3,320	
Pensacola	290	570	Kalakaua/Uluniu	3,930	80
Keeaumoku/Ala Moana Center	565	1,450	Kalakaua/Seaside	5,245	500
Convention Center	270	1,010	Saratoga	4,180	290
Isenberg	260	940	Fort DeRussy	2,710	2,720
University/King	140	1,100	Hobron	1,965	810
UH Manoa		2,055	Ala Moana Park	1,600	3,780
Kakaako Mauka Branch			Kamakee		585
Union Mall	2,785		**Kakaako Mauka Branch**		
Bishop/Queen	2,510	1,805	Kamakee	1,280	
Federal Building	380	660	Cooke Street	1,860	1,045
Cooke Street	1,045	1,860	Federal Building	660	380
Kamakee		1,280	Bishop/Queen	1,805	2,510
Kakaako Makai Branch			Union Mall		2,785
Union Mall	75		**Kakaako Makai Branch**		
Aloha Tower	130	25	Kamakee	25	
Channel Street	395	70	Ahui Street	190	70
Cooke Street	65	155	Cooke Street	155	65
Ahui Street	70	190	Channel Street	70	395
Kamakee		25	Aloha Tower	25	130
Waikiki Branch – Ward to Waikiki			Union Mall		75
Kamakee	585		**Downtown Honolulu to Middle Street**		
Ala Moana Park	3,780	1,600	Union Mall	2,830	
Hobron	810	1,965	Chinatown	860	1,650
Fort DeRussy	2,720	2,710	Iwilei Transit Center	270	1,720
Saratoga	290	4,180	Honolulu Community College	725	2,600
Kalakaua/Seaside	500	5,245	Kalihi	650	1,395
Kalakaua/Uluniu	80	3,930	Middle Street Transit Center	2,150	7,720
Kapahulu		3,320	To Regional BRT		14,210
Total	**49,145**	**49,145**	***Total***	**49,145**	**49,145**

Source: Parsons Brinckerhoff, Inc.

TABLE 4.3-7
REFINED LPA
PROJECTED IN-TOWN BRT MODE OF ARRIVAL
(FORECAST YEAR 2025)

Station	Walk	Bus	Drive
Middle Street Transit Center	120	23,020	950
Kalihi	1,420	630	0
Honolulu Community College	3,030	40	250
Iwilei Transit Center	1,720	10	260
Chinatown	2,510	0	0
Union Mall	10,140	910	0
Iolani Palace	1,330	10	0
Alapai Transit Center	2,680	350	0
Thomas Square	390	430	0
McKinley High School	1,310	480	
Pensacola	830	30	0
Keeaumoku/Ala Moana Center	1,950	70	0
Convention Center	1,280	0	0
Isenberg	710	490	0
University/King	560	680	0
UH Manoa	1,320	730	0
Aloha Tower/Federal Bldg.	1,380	280	0
Cooke Street	2,910	480	0
Kamakee	1,830	60	0
Ala Moana Park	5,320	60	0
Hobron	2,780	0	0
Fort DeRussy	5,430	0	0
Saratoga	3,200	1,020	250
Kalakaua/Seaside	500	0	0
Kuhio/Seaside	5,240	0	0
Kalakaua/Uluniu	80	0	0
Kuhio/Liliuokalani	3,930	0	0
Kapahulu	790	2,530	0
Total	**64,700**	**31,910**	**1,710**

Source: Parsons Brinckerhoff, Inc., June 2002

2) Link Volumes

Table 4.3-8 displays the forecast of In-Town BRT link volumes between stops for the Refined LPA. As shown, the Ewa end of the In-Town BRT will be more heavily utilized than the Koko Head termini. On the Ewa end, the In-Town BRT would carry a relatively uniform load from Middle Street to Downtown Honolulu, reaching a maximum of approximately 24,640 one-way daily riders on the Chinatown to Union Mall segment. Heading Koko Head from Downtown, the link volumes are projected to decrease as the ends of the UH and Waikiki branches are reached.

4.4 HIGHWAY IMPACTS

The Islandwide Mobility Concept Plan (1999), one of the principal frameworks of the Primary Corridor Transportation Project, and a direct outcome of the Oahu Trans 2K workshops, acknowledges the difficulty and relatively temporary benefit of widening roadways. Physical and aesthetic constraints make roadway widening within the Primary Corridor very difficult and expensive, particularly within the urban core of

TABLE 4.3-8
REFINED LPA
PROJECTED IN-TOWN BRT LINK VOLUMES
(TOTAL DAILY IN YEAR 2025)

Eastbound		Westbound	
Segment	**Volume**	**Segment**	**Volume**
From Regional,	14,210		
Middle Street to Downtown Honolulu		**University Branch**	
Middle Street Transit Center to Kalihi	19,780	UH Manoa to University/King	2,055
Kalihi to Honolulu Community College	20,525	University/King to Isenberg	3,015
Honolulu Community College to Iwilei Transit Center	22,400	Isenberg to Convention Center	3,695
Iwilei Transit Center to Chinatown	23,850	Convention Center to Keeaumoku/Ala Moana Center	4,435
Chinatown to Union Mall	24,640	Keeaumoku/Ala Moana Center to Pensacola	5,320
University Branch		Pensacola to Thomas Square	6,520
Union Mall to Iolani Palace	9,150	Thomas Square to Alapai Transit Center	6,675
Iolani Palace to Alapai Transit Center	6,675	Alapai Transit Center to Iolani Palace	9,150
Alapai Transit Center to Thomas Square	6,520	Iolani Palace to Union Mall	10,050
Thomas Square to Pensacola	5,600	**Kakaako/ Waikiki Branch**	
Pensacola to Keeaumoku/Ala Moana Center	5,320	Kapahulu to Kuhio/Liliuokalani	3,320
Keeaumoku/Ala Moana Center to Convention Center	4,435	Kuhio/Liliuokalani to Kuhio/Seaside	7,170
Convention Center to Isenberg	3,695	Kuhio/Seaside to Saratoga	11,915
Isenberg to University/King	3,015	Saratoga to Fort DeRussy	15,805
University/King to UH Manoa	2,055	Fort DeRussy to Hobron	15,795
Kakaako/ Waikiki Branch		Hobron to Ala Moana Park	16,950
Union Mall to Aloha Tower/Fed. Bldg.	16,190	Ala Moana Park to Kamakee	14,770
Aloha Tower/Federal Building to Cooke Street	15,610	Kamakee to Cooke Street	15,610
Cooke Street to Kamakee	14,185	Cooke Street to Aloha Tower/Federal Building	16,190
Kamakee to Ala Moana Park	14,770	Aloha Tower/Federal Building to Union Mall	15,660
Ala Moana Park to Hobron	16,950	**Downtown Honolulu to Middle Street**	
Hobron to Fort DeRussy	15,795	Union Mall to Chinatown	24,640
Fort DeRussy to Saratoga	15,805	Chinatown to Iwilei Transit Center	23,850
Saratoga to Kalakaua/Seaside	11,915	Iwilei Transit Center to Honolulu Community College	22,400
Kalakaua/Seaside to Kalakaua/Uluniu	7,170	Honolulu Community College to Kalihi	20,525
Kalakaua/Uluniu to Kapahulu	3,320	Kalihi to Middle Street Transit Center	19,780
		To Regional	14,210

Source: Parsons Brinckerhoff, Inc., June 2002

Honolulu from Middle Street to Waialae-Kahala. Given the difficulty of adding lanes, future transportation improvements within the urban core are principally focused on transporting more people within the same roadway space as provided at present.

The Year 2025 No-Build, TSM, and Refined LPA Alternative traffic volumes all utilize the same land use and background highway network assumptions, which are based on the OMPO TOP 2025 regional transportation plan. The primary difference between the Alternatives is the configuration and operation of the transit network. The Primary Corridor has two sub-corridors: the regional sub-corridor along H-1 Freeway between Kapolei and Middle Street, and the In-Town sub-corridor, located between Middle Street and University Avenue/Kapahulu Avenue. The primary impact of the Refined LPA assessed for regional highways is the consequence of implementing the contra-flow zipper lane during the P.M. peak period in addition to the existing A.M. peak period operation.

Improvements within the urban core with the TSM and Refined LPA Alternatives focus on converting general-purpose traffic lanes to semi-exclusive and exclusive transit lanes. Doing so improves person carrying capacity, thereby providing an alternative to the automobile for enhanced mobility within the urban core. At the same time, the semi-exclusive and exclusive transit lanes reduce the roadway capacity on streets where they are implemented. The In-Town sub-corridor analysis evaluates the impacts of implementing these transit priority measures on the street system within the urban core of Honolulu.

4.4.1 Regional Roadway Impacts

Limited access freeways and high-capacity arterial roadways provide much of the regional roadway mobility. The No-Build and TSM Alternatives would utilize only the A.M. zipper system that exists today. The Refined LPA would provide higher capacity levels for transit and high-occupancy autos through the use of the existing A.M. and proposed P.M. zipper lane. The P.M. zipper lane would provide the same type of benefit for Ewa-bound peak period traffic that the A.M. zipper lane provides for Koko Head-bound peak period traffic today. The BRT will also provide regional transit priority through the use of an express ramp at Luapele Drive directly into and out of the zipper lane. Priority treatments at other ramps for BRT buses are also included.

1) Freeway Operations with Zipper Lane Deployed

The OMPO long-range regional transportation plan assumes that the H-1 Freeway is widened by one lane in each direction between Halawa Interchange and Waiawa Interchange. This will permit displacement of two Koko Head-bound lanes to implement the Ewa-bound zipper lane during the P.M. peak period. This is comparable to the way the zipper lane is currently implemented during the A.M. peak period. The zipper lane is currently designated as a high-occupancy vehicle lane, requiring at least two or three persons per vehicle depending on the time of morning. Expanding the zipper lane operation to the P.M. peak period will benefit not only transit riders, but high-occupancy vehicle occupants as well. Today, the A.M. zipper lane carries at least 2,000 more people per hour than the highest utilized general-purpose lane.

The zipper lane system is an integral part of the Regional BRT component of the Refined LPA. It will allow buses to bypass much of the congestion that is forecasted for the general-purpose lanes on H-1 Freeway for the P.M. as well the A.M. peak periods.

Analyses were conducted to determine the impacts of the proposed zipper lane improvements. One of the issues considered is the impacts to freeway operations on H-1 Freeway just Koko Head of the Kaonohi Street grade separation. This area, known as the Kalauao Screenline, is representative of freeway operations influenced by existing and proposed deployment of the zipper lane. It also provides a consistent segment of roadway on which vehicular operations can be evaluated and person carrying ability can be measured and compared between the Alternatives.

If an Ewa-bound zipper lane were implemented during the P.M. peak period traffic conditions, seven lanes would be provided for traffic in the Ewa-bound direction. The zipper lane would displace two Koko Head-bound lanes, leaving four lanes in the Koko Head-bound direction. The projected maximum A.M. peak period hourly volume in the Koko Head-bound direction would be 15,650 vph, while the maximum hourly volume in the Ewa-bound direction would be 8,360 vph. Table 4.4-1 summarizes the results that indicate that the general-purpose lanes of Koko Head-bound H-1 would be heavily loaded but acceptable(LOS E), and the Ewa-bound H-1 would also operate at LOS E during the future A.M. peak period. The zipper lane would provide a means for buses and HOVs to bypass the LOS F congestion in the Koko Head-bound direction.

The projected maximum P.M. peak period hourly volume in the Ewa-bound direction would be 14,700 vph, while the maximum hourly volume in the Koko Head-bound direction would be 8,940 vph. Analysis results summarized in Table 4.4-1 show that both directions of H-1 Freeway would operate at an acceptable LOS E during the P.M. peak period. The zipper lane would still allow buses and HOVs to travel at a better LOS than the Ewa-bound general-purpose lanes on H-1. The Koko Head-bound direction would operate at LOS E with four general-purpose lanes.

TABLE 4.4-1
PROJECTED YEAR 2025 H-1 FREEWAY OPERATIONS AT KALAUAO SCREENLINE WITH REFINED LPA

	A.M. Peak Hour			P.M. Peak Hour		
	Lanes	Volume (vph)	LOS	Lanes	Volume (vph)	LOS
Koko Head-Bound	7	15,650	E		8,940	E
Ewa-Bound		8,360	E	7	14,700	E

Source: Parsons Brinckerhoff, Inc., June 2002.
Note: vph = vehicles per hour, LOS = level of service.

2) Person Throughput on H-1 Freeway

More frequent service combined with proposed zipper lane and ramp enhancements will result in greater use of the A.M. zipper lane by buses in the Refined LPA. As a result, the Refined LPA is projected to carry more people through the Kalauao Screenline in the Koko Head-bound direction than the other Alternatives.

During the P.M. peak period, the added zipper lane operation in the Ewa-bound direction coupled with more frequent service and ramp enhancements for the Refined LPA will result in significant increases in person throughput (i.e. number of people passing across the screenline). Direct benefits would accrue not only to buses, but all vehicles with multiple occupants. Additionally, provision of the P.M. zipper lane would draw multiple occupant traffic out of the HOV and general-purpose lanes, providing indirect benefits to other motorists as well.

Table 4.4-2 compares the person throughput in the peak direction between the No-Build, TSM, and Refined LPA Alternatives. As shown, the Refined LPA will provide more person throughput capability on H-1 Freeway, especially during the P.M. peak period due to the proposed P.M. zipper lane. Transit passenger carrying capacity will also be increased because of more frequent service and the ability for buses to exit and enter the zipper lane at key locations along the corridor.

TABLE 4.4-2
PROJECTED YEAR 2025 COMPARISON OF H-1 FREEWAY PERSON THROUGHPUT AT THE KALAUAO SCREENLINE

Type of Lane(s)	A.M. Peak Hour			P.M. Peak Hour		
	No-Build	TSM	Refined LPA	No-Build	TSM	Refined LPA
Zipper	6,755	7,710	9,675	N.A.	N.A.	6,725
HOV	4,405	4,300	3,800	5,060	5,295	3,800
General Purpose	12,710	12,650	12,650	10,140	10,120	10,120
Total	23,870	24,660	26,125	15,180	15,415	20,645

Source: Parsons Brinckerhoff, Inc., June 2002
Note: Numbers are persons per hour.

3) Summary

The Refined LPA will not only benefit transit riders by giving them an uncongested route to-and-from the urban core, but will benefit peak period traffic operations on the regional roadway system by reducing the number of autos using it. The benefits would accrue to all traffic on the freeway by shortening the length of time the freeway is congested.

Additionally, expanding zipper lane operation to the P.M. peak period will benefit transit riders and carpool occupants with 2 or more riders by providing a less congested path through the heavily traveled H-1 Freeway

corridor. Analysis determined that the contra-flow zipper lane could be implemented during the P.M. peak period, while maintaining acceptable traffic flow in the off-peak direction lanes on H-1.

4.4.2 In-Town Traffic Operations

The Oahu Trans 2K meetings identified community sentiment for an alternative approach to addressing traffic congestion on roadways within the urban core of Honolulu. Meeting attendees acknowledged that while there is an important role for roadways, building new or widening existing highways couldn't solve current traffic congestion because there is inadequate space for new for wider streets. This is especially true within the urban core of Honolulu. Even if space existed for widening within the urban core, this widening would be ineffective without the ability to widen regional facilities and improve the interfaces between the regional facilities and urban core roadways. The goal therefore is to identify a way to carry more people within the urban core without rebuilding the entire roadway system. Additionally, the Oahu Trans 2K process identified a desire that communities, particularly in the urban core, become more pedestrian friendly and less auto dependent.

Still, regionally accepted projections of future population and employment growth imply a need to improve the capacity to move people to and from and within the urban core of Honolulu. Within the urban core, roadway improvements have a role in improving this capacity, but roadway improvements alone fall short. Without major roadway widening or grade-separation of intersections, roadway capacities can only be marginally enhanced through efficiency programs such as intersection channelization and traffic signal coordination. Contra-flow operation (borrowing a lane of traffic from the opposing direction of travel) during peak periods is helpful in increasing capacities, but is expensive to maintain and can only be implemented under the right conditions.

Most of the roadways within the urban core of Honolulu have already been optimized as much as possible using these techniques. Any future capacity enhancements without roadway widening or grade-separations will have to come from a shift away from single occupant vehicles, to transit and other modes. This has already begun with the initiation of limited-stop transit service such as CityExpress! A and B and CountryExpress! C. These limited-stop transit services provide faster travel times due to the reduced number of stops along their routes and are, therefore, able to carry more people per hour. Even so, when roadways become congested, the transit vehicles become trapped within the congestion along with other vehicles. The roadway capacity again becomes the constraint.

The In-Town BRT will take transit to the next level in terms of person carrying capacity. The CityExpress! limited-stop concept is expanded by expediting limited-stop transit vehicles through the traffic congestion via a combination of semi-exclusive and exclusive transit lanes. To do this without widening roadways, lanes within roadways will be converted from general-purpose traffic use to semi-exclusive or exclusive transit lanes. Because buses carry more people per vehicle than general-purpose autos, providing buses an expedited path along a roadway increases the person carrying capacity of a roadway.

While increasing the people carrying capacity, the traffic impact of converting lanes is that it reduces the auto-carrying capacity of the roadways where semi-exclusive or exclusive lanes have replaced general-purpose lanes. Screenline analysis, using volume/capacity (v/c) ratios, is used to address the corridor impacts of this capacity reduction. A V/C ratio of 1.00 indicates that the corridor volume demand equals the summed capacity of the roadway links along the screenline. A screenline is an imaginary line through which all roadways within a corridor pass. A corridor V/C ratio greater than 1.00 indicates that the corridor demand is greater than the screenline capacity. These V/C ratios are often linked to an index called level of service (LOS). LOS ranges from LOS A to LOS F, with LOS A indicating free-flow traffic conditions and LOS F indicating congested traffic conditions. Because auto capacity within streets within the urban core of Honolulu is governed by intersection operations, intersection analyses were also performed to assess the impacts of the Refined LPA in relation to the No Build and TSM Alternatives. The intersection analyses also use an LOS index to identify operational levels. Unlike the screenline analyses, the intersection LOS is based on average vehicle delay expressed as seconds per vehicle. Measures to mitigate these impacts are identified where

feasible. The In-Town traffic operations are divided into four general areas for the purposes of this discussion: 1) Dillingham Boulevard Corridor, 2) Downtown Area, 3) Mid-Town Corridor, and 4) Waikiki Corridor.

1) Dillingham Boulevard Corridor

a. Overview

Figure 4.4-1 illustrates the location of the Dillingham Boulevard corridor, which is from Middle Street to North King Street in an Ewa-Koko Head orientation. It is located parallel to and between North King Street and Nimitz Highway. The Ewa end of this corridor is actually named Kamehameha Highway between Middle Street and Puuhale Road, becoming Dillingham Boulevard Koko Head of Puuhale Road. For most of its length, Dillingham Boulevard currently has a 5-lane cross-section made up of 2 lanes in each direction and a painted median that accommodates exclusive left-turn lanes. On its Ewa end, it is connected to the H-1 Freeway Viaduct, Middle Street, and Nimitz Highway (under the viaduct) via ramping at the Keehi interchange. The Ewa end of Dillingham has a 7-lane cross-section (3 lanes Koko Head-bound, 3 lanes Ewa-bound and a median for exclusive left-turn lanes) with a transition to the 5-lane cross-section at Puuhale Road. The Koko Head-end of Dillingham Boulevard ends at North King Street, opposite Liliha Street. Major intersections are signalized and on-street parking is not allowed. The posted speed limit is 35 mph (25 mph near schools). Existing transit service on Dillingham Boulevard is provided by bus routes C (Country Express!), Route 3-Ruger/Navy, Route 52-Ala Moana Center/Wahiawa Circle Island, and Route 62-Ala Moana Center/Wahiawa Heights. The combined service on Dillingham Boulevard is approximately 10 to 11 buses per hour during the peak periods and 9 buses per hour during the midday time period.

In its current configuration it is able to accommodate existing A.M. and P.M. peak hour volumes although queuing may occur during the A.M. peak period on the Koko Head-bound ramps from H-1 and Nimitz Highway to Dillingham Boulevard.

During peak periods, it is projected that as many as 60 BRT buses per hour, per direction, will utilize Dillingham Boulevard. Along Dillingham Boulevard the BRT will carry 3,500 passengers during the A.M. peak hour.

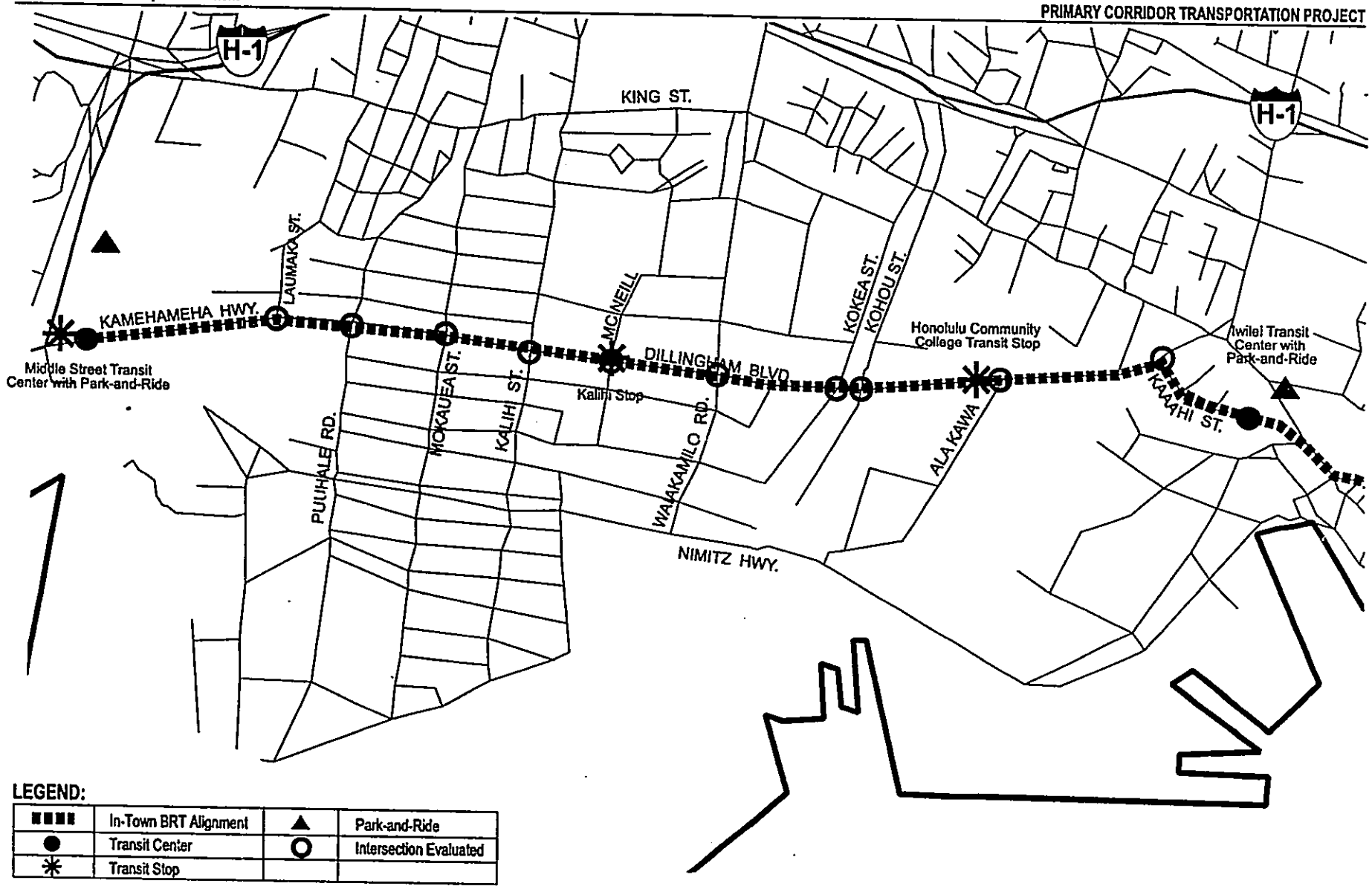
Because Dillingham Boulevard is such a key link, transit will be given priority through the use of exclusive BRT lanes located in the middle of Dillingham Boulevard. Only BRT buses will use these lanes. To achieve this, two traffic lanes (one in each direction) out of the existing four traffic lanes on Dillingham Boulevard will be converted from auto to exclusive transit use. Median exclusive left-turn lanes will be maintained at most intersections.

In response to comments to the MIS/DEIS, a series of working group meetings comprised of business owners, property owners, community representatives, government agencies, and other stakeholders were held. This working group reviewed concerns expressed with the BRT Alternative contained in the MIS/DEIS and made suggestions to improve it.

Two key modifications to the BRT Alternative that came out of this process related to accessibility to properties along Dillingham Boulevard and traffic operation with a single traffic lane in each direction.

Accessibility to Properties Along Dillingham Boulevard

The BRT will be located in the middle of Dillingham Boulevard in exclusive lanes. Vehicles will be able to turn left at selected intersections and driveway locations. U-turns will also be allowed at most intersections. Most driveways will be limited to right-in/right-out traffic movements, a change from the current condition that allows left-turns to be made into the painted two-way left-turn median.



LEGEND:

▮▮▮▮	In-Town BRT Alignment	▲	Park-and-Ride
●	Transit Center	○	Intersection Evaluated
✳	Transit Stop		

SOURCE:
Parsons Brinckerhoff Quade & Douglas, Inc., June 2002.

N Scale: 0 .50 1 mi

Dillingham Boulevard Corridor

Figure 4.4-1

Large commercial vehicles would have difficulty using the U-turns at signalized intersections because of their turning radii. Solutions for large commercial vehicles to access properties from all directions and better traffic circulation parallel to Dillingham Boulevard were identified.

The following modifications to the BRT Alternative were made to address these issues:

- U-turns will be allowed at most signalized intersections, allowing vehicles the ability to access driveways regardless of their direction of travel.
- Parallel roadways, such as Colburn Street, Kaumualii Street, and Kaluaopalena Street, will be modified, where appropriate, to improve access and traffic circulation within the Dillingham Corridor. These roadways will enable larger commercial trucks to circulate when they are too large to execute a U-turn at a signalized intersection. To enable these parallel roadways to effectively serve this circulator function, it is also proposed to signalize intersections with major cross streets such as Waiakamilo Road, McNeill Street, and Mokauea Street. Parallel roadways within primarily residential areas will not be used for circulation purposes.
- In rare special cases where essential low volume access to driveways could not be accommodated through other means, access across the exclusive BRT lanes will be allowed.

Figure 4.4-2 illustrates alternate property access on Dillingham Boulevard.

Single Traffic Lane Operation on Dillingham Boulevard

A single lane for traffic has the potential to be blocked by local buses while loading or unloading passengers (some local bus service will remain on Dillingham Boulevard with these buses running in the curb lane, not in the exclusive transit lane), commercial vehicles stopped for loading and unloading, and vehicles slowing to make right turns. These obstructions could limit the ability for Dillingham Boulevard to effectively carry traffic. The following modifications to the BRT Alternative in the MIS/DEIS are reflected in the Refined LPA:

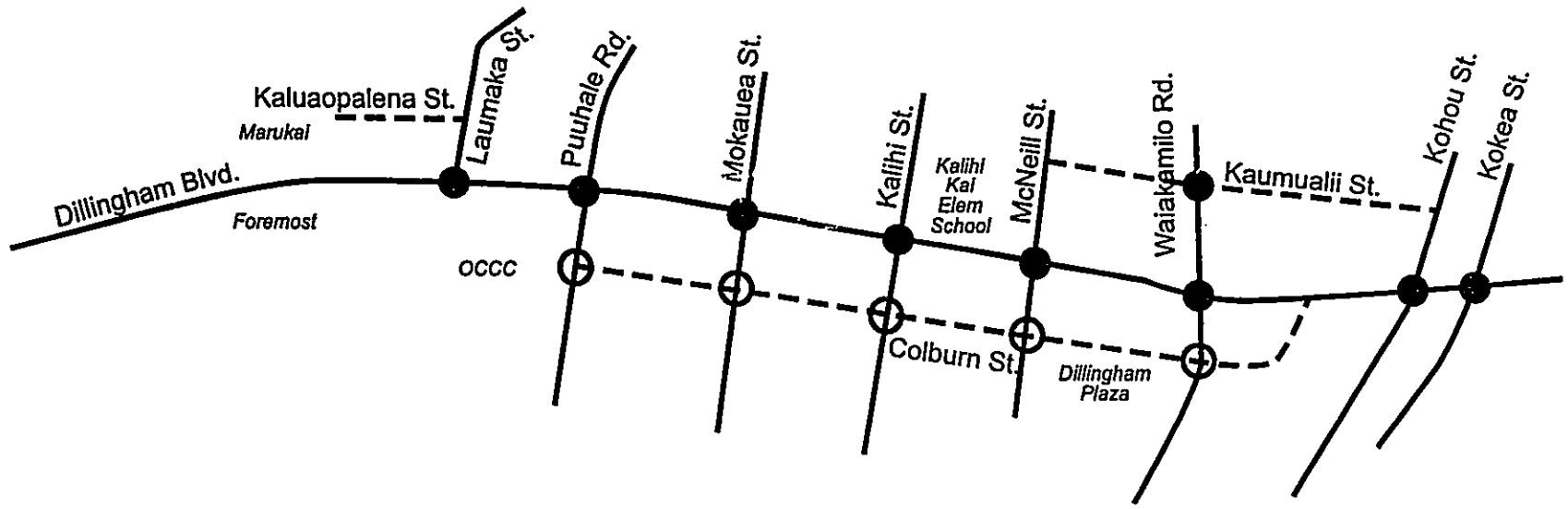
- Selective widening of Dillingham Boulevard . One of the key changes to the BRT Alternative is the addition of an approximate 7-foot widening on the makai side of Dillingham Boulevard between Waiakamilo Road and Puuhale Road to provide two 18-foot traffic lanes. These wider lanes (one in each direction) would allow through traffic on Dillingham Boulevard to bypass vehicles turning right into driveways or streets and local buses stopping for passengers.

- Bus Turnouts. Between Waiakamilo Road and Kaaahi Street, it was the consensus of the working group not to widen Dillingham Boulevard in this section, but to provide bus turnouts (bus bays), so that local buses stopping to load and unload passengers will not block through traffic. Turnouts rather than widening will allow the existing Kamani trees that line Dillingham Boulevard to remain.

b. Year 2025 Traffic Volumes on Dillingham Boulevard

While the No-Build and TSM Alternatives do not propose any changes to the lane configurations on Dillingham Boulevard, the Refined LPA proposes the conversion of one traffic lane in each direction to exclusive transit lanes in each direction. This will leave one traffic lane in each direction, capable of carrying general-purpose traffic. This reallocation of lanes has raised concerns about the impacts to motorists on Dillingham Boulevard and other parallel streets and highways.

To better understand the intersection analyses of traffic impacts that follow, background with regard to the future traffic projected for Dillingham Boulevard is presented.



LEGEND:

▬ ▬	Alternative Access
●	Existing Traffic Signal
○	Proposed Traffic Signal

SOURCES:
City and County of Honolulu, July 2002; Parsons Brinckerhoff, July 2002.

N Scale: 0 .25 .5 mi

Alternative Property Access on Dillingham Boulevard

Figure 4.4-2

Existing traffic on Dillingham Boulevard during peak periods totals around 1,500 vehicles per hour (vph) in the peak direction. This traffic demand currently requires two traffic lanes in each direction on Dillingham Boulevard.

To analyze what is likely to happen when two lanes on Dillingham Boulevard are converted to exclusive BRT use requires looking at a screenline through the affected area. As discussed in the regional highway portion of this chapter, a screenline is an imaginary line along which traffic volumes on parallel roadways that cross it are summed. This provides an understanding of the total traffic demand through an area and identifies the distribution of that demand to the roadways that cross the screenline. Table 4.4-3 summarizes A.M. peak hour traffic volumes at the Kapalama screenline for existing conditions, projected Year 2025 conditions for the three Alternatives. The Kapalama screenline is located along the Kapalama Canal and is crossed by School Street, H-1 Freeway, Olomea/Halona Streets (H-1 frontage roads), North King Street, Dillingham Boulevard, and Nimitz Highway.

As shown in Table 4.4-3, the current Kapalama screenline is near capacity in the peak direction during the A.M. peak hour. Further, all future Alternatives result in peak direction A.M. peak hour travel demand that exceeds the capacity of the Kapalama screenline. This occurs even when including the capacity enhancements within the Nimitz Highway corridor assumed in the OMPO long-range regional transportation plan.

Table 4.4-3 also shows that the Refined LPA is projected to have a beneficial effect on the Kapalama screenline through a reduction in auto traffic by attracting more trips to transit. The Refined LPA will result in almost 3,000 fewer vehicle trips in the peak direction during the A.M. peak hour than the No Build Alternative and almost 2,000 fewer vehicle trips than the TSM Alternative during the same period.

It is anticipated that for all Alternatives, all roadways that make-up the Kapalama screenline will be at or above capacity. However, because of the reduction in auto travel with the Refined LPA, Dillingham Boulevard will be able to maintain a volume over capacity (V/C) ratio of 1.00 with one less lane than in the No-Build and TSM Alternatives, and still result in lower V/C ratios on Nimitz Highway and the H-1 Freeway.

c. Person Throughput on Dillingham Boulevard

The previous analysis demonstrated that a single lane on Dillingham Boulevard is forecast to result in v/c ratios at or below those on adjacent roadways.

Although the analysis also concluded that all roadways along the Kapalama screenline would be at or above capacity, the Dillingham Boulevard corridor is the only corridor that provides a protected facility for the transit mode via the exclusive BRT lanes.

This will enable Dillingham Boulevard to carry more people per hour with the Refined LPA than with the TSM or No-Build Alternatives. Table 4.3-4 summarizes the capacity in number of person trips per hour that could be accommodated within Dillingham Boulevard. This table is based on the Kapalama screenline volumes shown in Table 4.4-3 and the bus and BRT volumes based on the proposed headways for each Alternative.

As shown, the Refined LPA will be able to accommodate half the auto person trips per hour compared to the No-Build and TSM Alternatives. On the other hand, the Refined LPA will be able to serve 10 times the number of transit trips per hour than would the No-Build Alternative. Overall, the Refined LPA will have about three to four times the total person trip capacity in the Dillingham Boulevard corridor than the No-Build or TSM Alternatives.

TABLE 4.4-3
COMPARISON OF PROJECTED SCREENLINE TRAFFIC VOLUMES
KAPALAMA SCREENLINE-A.M. PEAK HOUR-KOKO HEAD-BOUND

	2000 Existing		2025 No Build		2025 TSM		2025 Refined LPA	
Roadway	**Volume**	**V/C**	**Volume**	**V/C**	**Volume**	**V/C**	**Volume**	**V/C**
School Street	1,285	0.92	1,400	1.00	1,400	1.00	1,400	1.00
H-1 Freeway	7,065	1.01	9,740	1.39	9,700	1.31	8,640	1.23
Olomea Street	965	0.96	1,000	1.00	1,000	1.00	1,000	1.00
North King St.	1,260	0.90	1,780	1.11	1,600	1.00	1,600	1.00
Dillingham Blvd.	1,335	0.96	1,780	1.11	1,600	1.00	900	1.00
Nimitz Highway	3,850	0.99	8,170	1.26	7,590	1.17	7,510	1.16
Screenline Total	**15,758**	**0.98**	**23,870**	**1.25**	**22,890**	**1.20**	**21,050**	**1.14**

Source: Parsons Brinckerhoff, June 2002
Note: Volume is expressed as vehicles per hour (vph), V/C=volume/capacity ratio.

The ability of the Refined LPA to achieve the amount of transit person capacity shown in Table 4.4-4 is dependent on the exclusive lanes located in the middle of Dillingham Boulevard. These lanes help the BRT vehicles to bypass congestion on Dillingham Boulevard, thereby enabling them to achieve higher transit frequencies.

TABLE 4.4-4
ESTIMATED PERSON TRIP THROUGHPUT CAPACITY ON DILLINGHAM BOULEVARD
KAPALAMA SCREENLINE – A.M. PEAK HOUR – KOKO HEAD-BOUND

Mode	2025 No-Build	2025 TSM	2025 Refined LPA
Transit Persons/Hour	770	210	7,080
Auto Persons/Hour	2,120	1,920	1,060
Total Persons/Hour	2,890	2,130	8,140

Source: Parsons Brinckerhoff Inc., June 2002
Note: All table entries in persons/hour. TSM Alternative uses other corridors more heavily for bus routing.
Average Auto Occupancy = 1.2 persons/auto, Average Bus Occupancy = 70 persons/bus
Average BRT Occupancy = 100 persons/BRT

d. Intersection Analyses

Selected intersections along Dillingham Boulevard were evaluated using methods documented in the 2000 Highway Capacity Manual, published by the Transportation Research Board, and the results are summarized in Table 4.3-5. The results of these analyses show that in the year 2025 most intersections along Dillingham Boulevard will be congested with demand exceeding capacity. In the No-Build, TSM, and Refined LPA Alternatives, most intersections are projected to operate at Level Of Service (LOS) F. Note that No-Build, TSM, and Refined LPA Alternative delays are similar, even if the Refined LPA has only half as many traffic lanes on Dillingham Boulevard than the No-Build or TSM Alternatives. This results from the reduction in traffic volume caused by a significant shift in mode of travel from auto to transit as discussed previously.

The benefit of the exclusive transit lane is clearly shown by the transit LOS. This LOS focuses on the amount of delay projected for transit vehicles on Dillingham Boulevard. In the case of the No-Build and TSM Alternatives, this reflects the average delay projected for all through vehicles on Dillingham Boulevard. In the Refined LPA, transit priority is provided via exclusive BRT lanes, and this LOS refers to the average delay projected for BRT buses in the exclusive lanes. As shown in Table 4.4-5, the exclusive lane provides dramatic improvements in transit LOS over the No-Build and TSM Alternatives.

TABLE 4.4-5
PROJECTED YEAR 2025 PEAK HOUR INTERSECTION LOS
DILLINGHAM BOULEVARD (DELAY IN SECONDS)

Intersection	Peak Time Period	No-Build				TSM				BRT			
		Auto LOS	Delay	Transit LOS	Delay	Auto LOS	Delay	Transit LOS	Delay	Auto LOS	Delay	Transit LOS	Delay
Laumaka St. and	A.M.	E	77.0	E	78.5	E	77.0	E	78.5	B	14.4	B	12.3
Dillingham Blvd	P.M.	F	121.8	F	125.8	F	121.8	F	125.8	F	94.0	A	7.7
Puuhale Rd. and	A.M.	D	52.3	D	51.0	D	52.3	D	51.0	C	31.6	B	11.3
Dillingham Blvd	P.M.	F	87.9	E	56.2	F	87.9	E	56.2	E	78.0	B	15.8
Mokauea St. and	A.M.	F	104.4	E	78.4	F	104.4	E	78.4	F	145.2	A	8.8
Dillingham Blvd	P.M.	F	123.9	F	137.5	F	123.9	F	137.5	F	172.1	C	25.5
Kalihi St. and	A.M.	F	359.0	F	288.9	F	359.0	F	288.9	F	338.5	C	34.4
Dillingham Blvd	P.M.	F	218.7	F	198.2	F	218.7	F	198.2	F	220.9	C	31.5
McNeill St. and	A.M.	F	98.4	F	102.8	F	98.4	F	102.8	F	85.6	B	18.2
Dillingham Blvd	P.M.	F	171.3	F	188.0	F	171.3	F	188.0	F	103.3	C	27
Waiakamilo Rd. and	A.M.	F	159.8	F	107.7	F	159.8	F	107.7	F	132.2	C	32
Dillingham Blvd	P.M.	F	174.7	F	188.1	F	174.7	F	188.1	F	116.7	C	29.5
Kohou St. and	A.M.	F	98.3	F	105.9	F	98.3	F	105.9	F	96.1	C	25
Dillingham Blvd	P.M.	F	108.5	F	117.6	F	108.5	F	117.6	F	91.9	C	24.5
Kokea St. and	A.M.	F	132.8	F	149.0	F	132.8	F	149.0	F	132.8	C	28.0
Dillingham Blvd	P.M.	F	143.7	F	153.6	F	143.7	F	153.6	F	138.1	C	25.0
Ala Kawa St. and	A.M.	F	114.5	F	125.5	F	114.5	F	125.5	F	100.0	B	19.2
Dillingham Blvd	P.M.	F	133.5	E	69.5	F	133.5	E	69.5	F	136.4	C	23.5
Kaaahi St and	A.M.	F*	-	F*	-	F*	-	F*	-	F*	-	C	20.0
Dillingham Blvd	P.M.	F*	-	F*	-	F*	-	F*	-	F*	-	C	25.0

Source: Parsons Brinckerhoff Inc., June 2002
Note: *LOS F caused by downstream condition. Providing exclusive transit lanes along Dillingham Boulevard in the Refined LPA will result in much higher person trip throughput on Dillingham Boulevard.

e. Summary

The configuration of the BRT Alternative originally proposed in the MIS/DEIS has been refined to be responsive to comments received on the DEIS and the SDEIS.

The BRT Alternative concept of converting two lanes of Dillingham Boulevard from general traffic use to exclusive transit use remains. The refinement is comprised of a 7-foot widening on the makai side (less than a lane width) for Dillingham Boulevard between Puuhale and Waiakamilo Roads to provide 18-foot wide traffic lanes instead of the originally proposed 14-foot lanes. This will allow through traffic on Dillingham Boulevard to bypass local buses, commercial vehicles, or right-turning vehicles as they load/unload or slow executing a right-turn. Between Waiakamilo Road and Kaaahi Street, bus turnouts will be provided for local buses instead of the 18-foot wide lanes. This will preserve the existing Kamani trees located in that segment of Dillingham Boulevard, while keeping local buses when loading and unloading passengers out of the through traffic flow.

A more formalized system of U-turns and parallel streets are also proposed to provide property access for landowners and businesses located adjacent to Dillingham Boulevard.

The Refined LPA is projected to result in a lower (less congested) screenline V/C ratio than the No-Build or TSM Alternative.

Even with one lane in each direction converted to exclusive transit use, intersection LOS for the Refined LPA will be equal to or better than for the No-Build and TSM Alternatives. This is possible primarily because the Refined LPA is projected to achieve sufficiently higher transit usage to decrease the A.M. peak hour, peak direction traffic at the Kapalama screenline by almost 3,000 vph. A similar decrease is forecast to occur during the P.M. peak period.

2) Downtown Area

The Regional and Dillingham Corridors work to conduct BRT vehicles to the Iwilei Transit Station on the edge of Downtown. From there, the In-Town BRT utilizes a short segment of N. King Street and then uses the existing Hotel Street Transit Mall.

Use of the Hotel Street Transit Mall by BRT vehicles will shift local transit vehicles from Hotel Street to parallel streets such as King Street and Beretania Street. Consolidation and reorganization of local and express bus routes would enable the parallel streets to accommodate the other transit vehicles.

The three In-Town BRT alignments then separate to serve their respective corridors. The Kakaako Mauka and Kakaako Makai BRT branches use the Bishop/Alakea couplet in mixed-flow mode between Hotel Street Transit Mall and Ala Moana Boulevard. The UH-Manoa Branch uses Richards Street between Hotel Street Transit Mall and South King Street.

Because there are fewer BRT vehicles on each of these branches than on the consolidated Middle Street to Downtown segment and because the BRT vehicles are proposed to run in mostly mixed-flow mode, which do not reallocate general-purpose traffic lanes, traffic impacts along Bishop/Alakea and Richards Street are projected to be minimal.

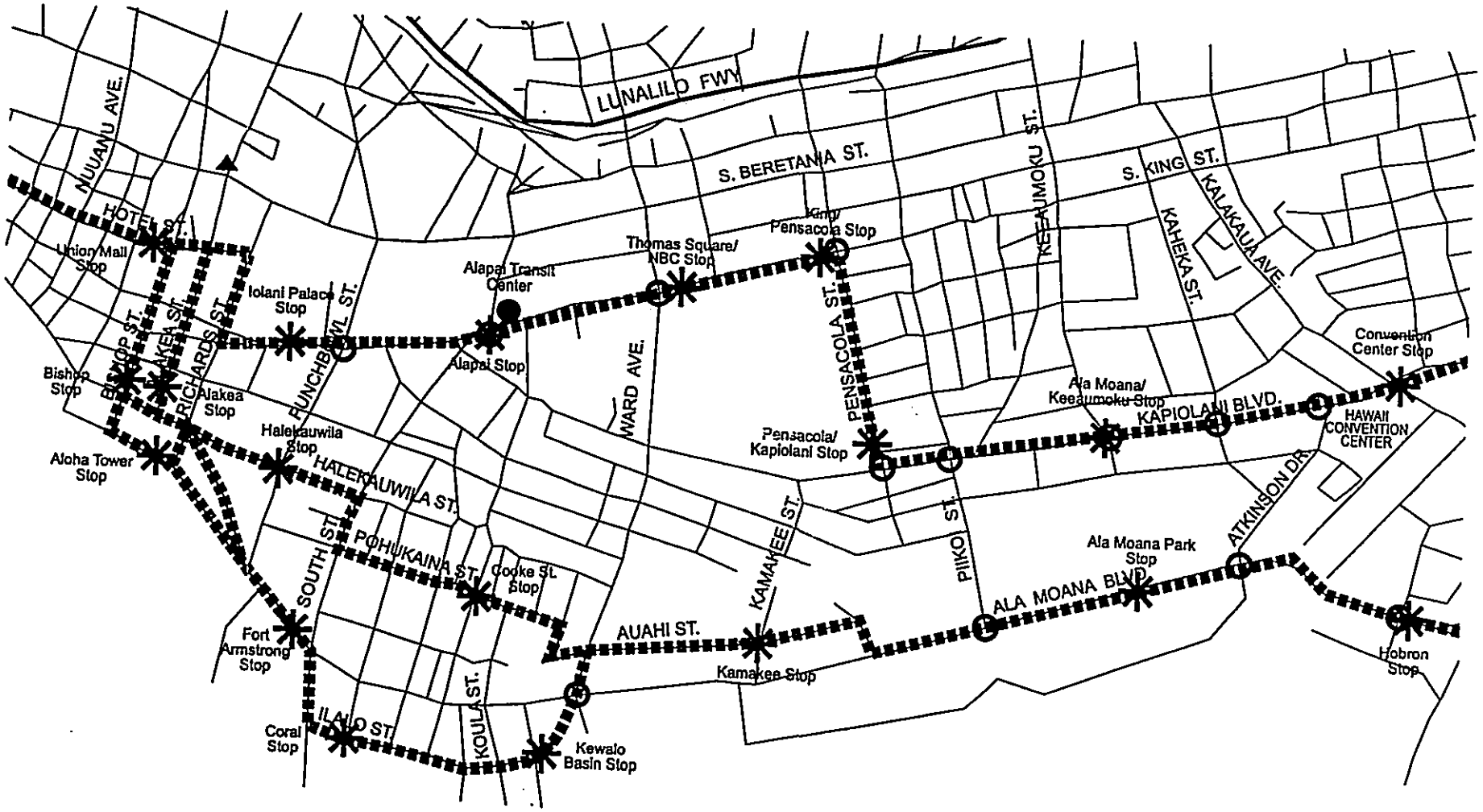
3) Mid-Town Corridor

a. Overview

The Mid-Town Corridor covers the area from Downtown through Ala Moana. The In-Town BRT has three branches in this corridor, which are characterized by a combination of exclusive transit lanes, semi-exclusive transit lanes, and mixed-flow operation. Figure 4.4-3 shows the In-Town BRT alignments in the Mid-Town Corridor.

The Mid-Town Corridor, starts where the UH-Manoa Branch connects to South King Street at Richards Street, and the Kakaako Mauka and Kakaako Makai Branches intersect Nimitz Highway (Ala Moana Boulevard) at Bishop/Alakea Streets.

Along sections of Richards, South King, and Pensacola Streets, where the BRT will be operating in a curbside contra-flow lane, flashing warning signs with audible devices will be installed to alert pedestrians at crosswalks, and motorists at driveways that a BRT bus is approaching. In between driveways and crosswalks, edge treatments such as shrub plantings and bollards with chains will be installed to warn and discourage pedestrians from crossing at places other than crosswalks.



LEGEND:

■■■■	In-Town BRT Alignment	▲	Park-and-Ride
●	Transit Center	○	Intersection Evaluated
✳	Transit Stop		

SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

N

Scale: 0 .125 .25 mi

Midtown Corridor

Figure 4.4-3

Traffic impacts within the Kakaako Mauka and Kakaako Makai areas are expected to be minimal. The BRT vehicles will be traveling on secondary streets such as Halekauwila, Pohukaina, and Auahi within Kakaako Mauka, and on Aloha Tower Drive and Ilalo Street within Kakaako Makai. The Kakaako Makai branch will also travel on a short segment of Ala Moana Boulevard, between Aloha Tower Drive and Forrest Avenue, but does so in mixed-traffic. BRT buses will have little effect on the overall traffic flow on these roadways.

If transit priority is implemented within the traffic signal timing schemes, there could be additional delays to cross-street traffic. The primary transit priority technique would be to extend the green phase on the BRT route to allow a BRT vehicle to pass through the intersection without stopping. Signal priority is not the same as signal preemption used by emergency vehicles. Signal preemption changes the traffic signal as soon as it is safe to do so to accommodate an emergency vehicle. All other phases are preempted. Signal priority only modifies the signal timing within a narrow range to expedite transit vehicle flow along a corridor.

The following sections discuss the projected year 2025 traffic impacts of the three Alternatives where implementation of semi-exclusive and exclusive lanes would occur on major arterial segments within the Mid-Town Corridor. These intersections occur along South King Street and Kapiolani Boulevard between Punchbowl Street and Kalakaua Avenue and on Ala Moana Boulevard between Piikoi Street and Atkinson Drive.

b. Year 2025 Peak Hour Traffic Volumes Within Mid-Town Corridor

Table 4.4-6 summarizes the projected year 2025 outbound (Koko Head-bound) P.M. peak hour traffic volumes at the Ward Avenue screenline. The P.M. peak hour outbound volumes are the most constrained and are, therefore, the focus of this analysis.

TABLE 4.4-6
COMPARISON OF SCREENLINE TRAFFIC VOLUMES AT WARD SCREENLINE-PM PEAK HOUR-KOKO HEAD-BOUND

ROADWAY	2000 Existing		2025 No-Build		2025 TSM		2025 Refined LPA	
	Volume	V/C	Volume	V/C	Volume	V/C	Volume	V/C
H-1 Freeway	7,545	1.00	7,750	1.03	7,950	1.05	7,950	1.05
Kinau Street	1,490	0.75	1,850	0.93	1,900	0.95	1,950	0.98
South King St.	3,335	0.69	4,690	0.98	4,215	0.96	3,500	0.97
Kapiolani Blvd.	1,825	0.67	2,630	0.97	2,600	0.96	2,605	0.96
Queen Street	300	0.60	900	0.90	900	0.90	950	0.95
Ala Moana Blvd.	2,740	0.91	2,940	0.98	2,920	0.97	2,895	0.97
Screenline Total	**17,235**	**0.84**	**20,760**	**0.99**	**20,485**	**0.99**	**19,850**	**1.00**

Source: Parsons Brinckerhoff Inc., June 2002.
Note: Volume is expressed as vehicles per hour (vph), V/C=volume/capacity ratio.

The projected Ward Avenue screenline volumes are similar for all three Alternatives, with the Refined LPA being about 1,000 vehicles per hour (vph) less than the No-Build and about 600 vph less the TSM Alternative. Although the Refined LPA results in the lowest screenline traffic volume, it results in the highest volume over capacity (v/c) ratio. The ratio is higher for the Refined LPA, because the roadway capacity for traffic decreases due to the conversion of general-purpose traffic lanes to semi-exclusive and exclusive transit lanes. In this case, the decrease in traffic volume due to the mode shift to transit is not quite enough to offset the decrease in roadway capacity.

c. Person Throughput on South King Street and Kapiolani Boulevard

A goal of the Primary Corridor Transportation Project is to increase mobility by improving the flow of people not just vehicles. The Midtown Corridor roadways will be able to carry substantially more people than they would otherwise through the use of semi-exclusive and exclusive transit lanes.

South King Street is a one-way Koko Head-bound arterial with six traffic lanes available during peak periods. A semi-exclusive transit lane is proposed in the Koko Head-bound direction for BRTs, local buses, and vehicles making right turns into driveways and cross streets. An exclusive BRT lane traveling contra-flow to the prevailing Koko Head-bound traffic will serve the Ewa-bound BRT buses. Implementing these two transit priority lanes without widening South King Street will require converting two South King Street general-purpose lanes to transit use.

Similarly, once the alignment transitions from South King Street to Kapiolani Boulevard at Pensacola Street, two lanes will be converted from general-purpose to exclusive transit use on Kapiolani Boulevard, between Pensacola Street and Atkinson Drive. These lanes will be located in the middle of Kapiolani Boulevard and will be used by BRT buses exclusively. Because the two exclusive lanes on Kapiolani Boulevard will have the greatest impact, it is the focus of this analysis. Table 4.4-7 summarizes the results of the person throughput analysis for Kapiolani Boulevard.

TABLE 4.4-7
PERSON TRIP THROUGHPUT CAPACITY ON KAPIOLANI BOULEVARD BETWEEN PENSACOLA STREET AND ATKINSON DRIVE
P.M. PEAK HOUR – KOKO HEAD-BOUND

Mode	2025 No-Build	2025 TSM	2025 Refined LPA
Transit Persons/Hour	1,120	1,290	2,690
Auto Persons/Hour	3,220	3,220	2,150
Total Persons/Hour	4,340	4,480	4,840

Source: Parsons Brinckerhoff Inc., June 2002.
Note: All table entries in persons/hour. TSM Alternative uses other corridors more heavily for bus routing.
Average Auto Occupancy = 1.2 persons/auto, Average Bus Occupancy = 70 persons/bus
Average BRT Occupancy = 100 persons/BRT

As shown in Table 4.4-7, the Refined LPA has the potential to carry 8-12 percent more persons per hour than possible with the TSM and No-Build Alternatives, respectively, in the peak direction during the P.M. peak hour. For all Alternatives, the general-purpose lanes will be at capacity. The exclusive transit lanes, however, will be well below their capacity. Within this segment, the exclusive BRT lanes are projected to carry 22 BRT buses per hour in the peak direction. The Refined LPA, therefore, will significantly increase the potential person carrying capacity of Kapiolani Boulevard without having to widen it.

d. South King Street

South King Street is the one-way Koko Head-bound half of the South King Street/South Beretania Street high-capacity couplet. The Refined LPA proposes to operate BRT buses in both Koko Head and Ewa-bound directions on South King Street. The Koko Head-bound direction will be in a semi-exclusive lane shared by BRT buses, local transit, and right-turning vehicles. The Ewa-bound exclusive contra-flow lane will be for BRTs only. Local buses will continue to utilize South Beretania Street in the Ewa-bound direction along with general-purpose traffic.

Table 4.4-8 summarizes the intersection and transit LOS along South King Street.

TABLE 4.4-8
PROJECTED YEAR 2025 INTERSECTION LOS –MID-TOWN CORRIDOR ON SOUTH KING STREET

Intersection	Peak Time Period	No-Build				TSM				Refined LPA			
		Auto LOS	Delay	Transit LOS	Delay	Auto LOS	Delay	Transit LOS	Delay	Auto LOS	Delay	Transit LOS	Delay
Punchbowl St.	A.M.	E	75.5	D	35.5	E	90.0	C	22.6	E	57.2	C	34.5
and South King St.	P.M.	D	46.1	C	34.0	D	57.9	B	18.3	D	44.8	C	31.0
Alapai St.	A.M.	B	16.3	B	15.8	B	17.3	B	11.7	D	40.8	C	24.4
and South King St.	P.M.	C	30.7	C	20.2	D	36.9	C	20.6	E	78.2	B	18.8
Ward Ave.	A.M.	B	17.9	B	18.4	B	18.3	B	13.2	C	23.2	B	13.1
and South King St.	P.M.	D	47.7	C	28.7	D	49.7	C	20.5	D	49.7	B	14.1
Pensacola St.	A.M.	C	24.4	C	27.0	C	24.4	C	23.5	C	33.2	B	19.4
and South King St.	P.M.	C	26.3	C	33.5	C	26.3	C	33.5	C	34.5	B	19.7

Source: Parsons Brinckerhoff Inc., June 2002.

Peak traffic orientation during the A.M. peak period will continue to be in the Ewa-bound (into Downtown) direction for this corridor. Since South King Street operates as a couplet with South Beretania Street, the peak direction traffic will be on South Beretania Street, leaving South King Street with relatively unconstrained intersection operations even in 2025, with the exception of Punchbowl Street. The South King Street/Punchbowl Street intersection is projected to be congested in 2025 due to the high traffic demand on Punchbowl Street. For the Alapai Street, Ward Avenue, and Pensacola Street intersections, the TSM and Refined LPA Alternatives are projected to be operating at slightly lower, but still unconstrained LOS compared to the No-Build Alternative due to the reduction in general-purpose lanes (one for the TSM and two for the Refined LPA). Providing a semi-exclusive (Koko Head-bound) and an exclusive (Ewa-bound) transit lane for the BRT will allow the BRT to operate better than general purpose lanes along South King Street. The transit LOS is based on the delay experienced by the transit vehicles at the intersections summarized in Table 4.4-8.

Peak traffic during the P.M. peak period in 2025 will continue to be Koko Head-bound along South King Street. Similar to the Dillingham Corridor, there is projected to be a reduction of traffic volume at the Ward Avenue screenline due to the diversion of some auto drivers to transit. This diversion will enable the Refined LPA to perform at comparable intersection LOS to the No-Build and TSM Alternatives, even with the conversion of two general-purpose lanes; one to semi-exclusive transit use and one to exclusive transit use.

e. Kapiolani Boulevard

A key feature of Kapiolani Boulevard today is the contra-flow lane operated in the peak direction during peak traffic periods. The contra-flow lane coning operation provides four traffic lanes in the peak direction and two traffic lanes in the off-peak direction. The No-Build and TSM Alternatives would maintain this configuration, although the TSM Alternative would allocate one peak direction lane for semi-exclusive transit operation (buses and right-turning vehicles). During contra-flow operation, left turns from the off-peak direction of Kapiolani Boulevard are prohibited, forcing off-peak direction left turns to make circuitous jug handle movements using streets parallel to Kapiolani Boulevard.

The Refined LPA will convert two general-purpose traffic lanes to exclusive transit lanes in the middle of Kapiolani Boulevard generally between Pensacola Street and Atkinson Drive, leaving two traffic lanes in each direction regardless of the time period. Contra-flow coning will continue Koko Head of Atkinson Drive, but will be discontinued between Atkinson Drive and South Street. Exclusive left-turn traffic lanes on Kapiolani Boulevard are proposed in the Refined LPA at the Pensacola Street, Piikoi Street, and Kaheka/ Mahukona Street intersections. These will operate throughout the day.

Table 4.4-9 summarizes the projected intersection level of service along Kapiolani Boulevard.

TABLE 4.4-9
PROJECTED YEAR 2025 INTERSECTION LOS – MID-TOWN CORRIDOR ON KAPIOLANI BOULEVARD

Intersection	Peak Time Period	No-Build				TSM				Refined LPA			
		Auto LOS	Delay	Transit LOS	Delay	Auto LOS	Delay	Transit LOS	Delay	Auto LOS	Delay	Transit LOS	Delay
Pensacola St.	A.M.	C	24.7	B	12.4	D	36.6	A	9.7	E	56.0	B	15.5
Kapiolani Blvd.	P.M.	C	25.8	B	13.4	C	27.3	A	9.8	D	47.6	B	16.4
Piikoi St. and	A.M.	C	29.7	B	11.4	D	46.5	A	7.8	E	56.7	B	11.7
Kapiolani Blvd.	P.M.	C	30.5	C	35.0	C	34.5	B	11.8	E	57.4	C	27.0
Keeaumoku St. and	A.M.	C	23.8	B	16.5	D	37.5	B	13.3	E	77.5	A	5.3
Kapiolani Blvd.	P.M.	C	33.6	C	30.9	C	40.0	B	20.3	D	44.4	B	19.5
Atkinson Dr. and	A.M.	C	26.4	C	25.1	D	35.2	C	20.4	D	42.4	B	17.3
Kapiolani Blvd.	P.M.	F*	-	F*	-	F*	-	B	14.7	F*	-	B	13.0

Source: Parsons Brinckerhoff Inc., June 2002.
Note: *LOS F caused by downstream condition

Both the No-Build and TSM Alternatives are proposed to retain the current contra-flow coning operation on Kapiolani Boulevard. Although this operation inconveniences drivers by restricting left turns from Kapiolani Boulevard in the off-peak direction, it does have the advantage of providing four lanes of travel in the peak direction. It also has the advantage of providing at least two through lanes unhindered by the friction of turning movements (the curb lane and the coned lane handle the turning traffic). Under the projected Year 2025 peak hour traffic volumes, Kapiolani Boulevard intersections are projected to operate acceptably with the exception of the Kapiolani Boulevard/Atkinson Drive intersection during the P.M. peak hour. This intersection is expected to be impacted by congestion at the downstream Kapiolani Boulevard/Kalakaua Avenue intersection. Because this delay is caused by the downstream intersection, delay is difficult to predict and no value is provided.

The Refined LPA is projected to have lower intersection LOS in 2025 compared to the No-Build and TSM Alternatives, mainly due to the two fewer lanes available to carry traffic in the peak direction. It is projected that Kapiolani Boulevard will operate about two LOS levels lower than the No-Build or TSM Alternative, but will still be operating acceptably for urban peak period conditions. As in the No-Build and TSM Alternatives, the Kapiolani Boulevard/Atkinson Drive intersection is projected to be affected by the congestion at the downstream Kapiolani Boulevard/Kalakaua Avenue intersection.

Providing exclusive transit lanes on Kapiolani Boulevard will allow the BRT to operate with less constraints through this corridor. This is especially helpful where traffic congestion is projected. The exclusive lanes allow the BRT to bypass the traffic queues caused by the congestion.

f. Ala Moana Boulevard

During both A.M. and P.M. peak periods in 2025, the Ala Moana Boulevard/Atkinson Drive intersection is projected to be congested for all Alternatives. Especially during the P.M. peak period, congestion at the Atkinson Drive intersection is expected to affect the upstream Ala Moana Boulevard/Piikoi Street intersection. Given the physical constraints of Ala Moana Center on the mauka side and Ala Moana Park on the makai side of Ala Moana Boulevard, roadway widening is not an option for this roadway segment. As a result, this segment is projected to be a traffic bottleneck in the long-range future regardless of the alternative implemented (See Table 4.4-10).

TABLE 4.4-10
PROJECTED YEAR 2025 INTERSECTION LOS –MID-TOWN CORRIDOR ON ALA MOANA BOULEVARD

Intersection	Peak Time Period	No-Build				TSM				Refined LPA			
		Auto LOS	Delay	Transit LOS	Delay	Auto LOS	Delay	Transit LOS	Delay	Auto LOS	Delay	Transit LOS	Delay
Piikoi St. and	A.M.	D	58.9	D	48.9	D	58.9	D	48.9	E	79.8	C	28.4
Ala Moana Blvd	P.M.	F*	-	F*	-	F*	-	F*	-	F*	-	C	29.6
Atkinson Dr. and	A.M.	F	91.7	E	63.5	F	91.7	E	63.5	F	130.5	C	27.2
Ala Moana Blvd	P.M.	F	82.5	E	66.7	F	82.5	E	66.7	F	239.5	C	31.5

Source: Parsons Brinckerhoff Inc., 2002.
Note: * LOS F caused by downstream congestion

Given this finding, the Refined LPA will clearly provide greater mobility for more people through this area. While traffic will be significantly delayed in all Alternatives, only the Refined LPA with its semi-exclusive lane Koko Head-bound and exclusive lane Ewa-bound will allow BRT vehicles, local buses, and tour buses to bypass the congestion and continue to provide service for their patrons. The No-Build and TSM Alternatives will provide no real advantage to the public or private buses, subjecting both to the same delays as other traffic in this bottleneck location.

3) Waikiki Corridor

a. Overview

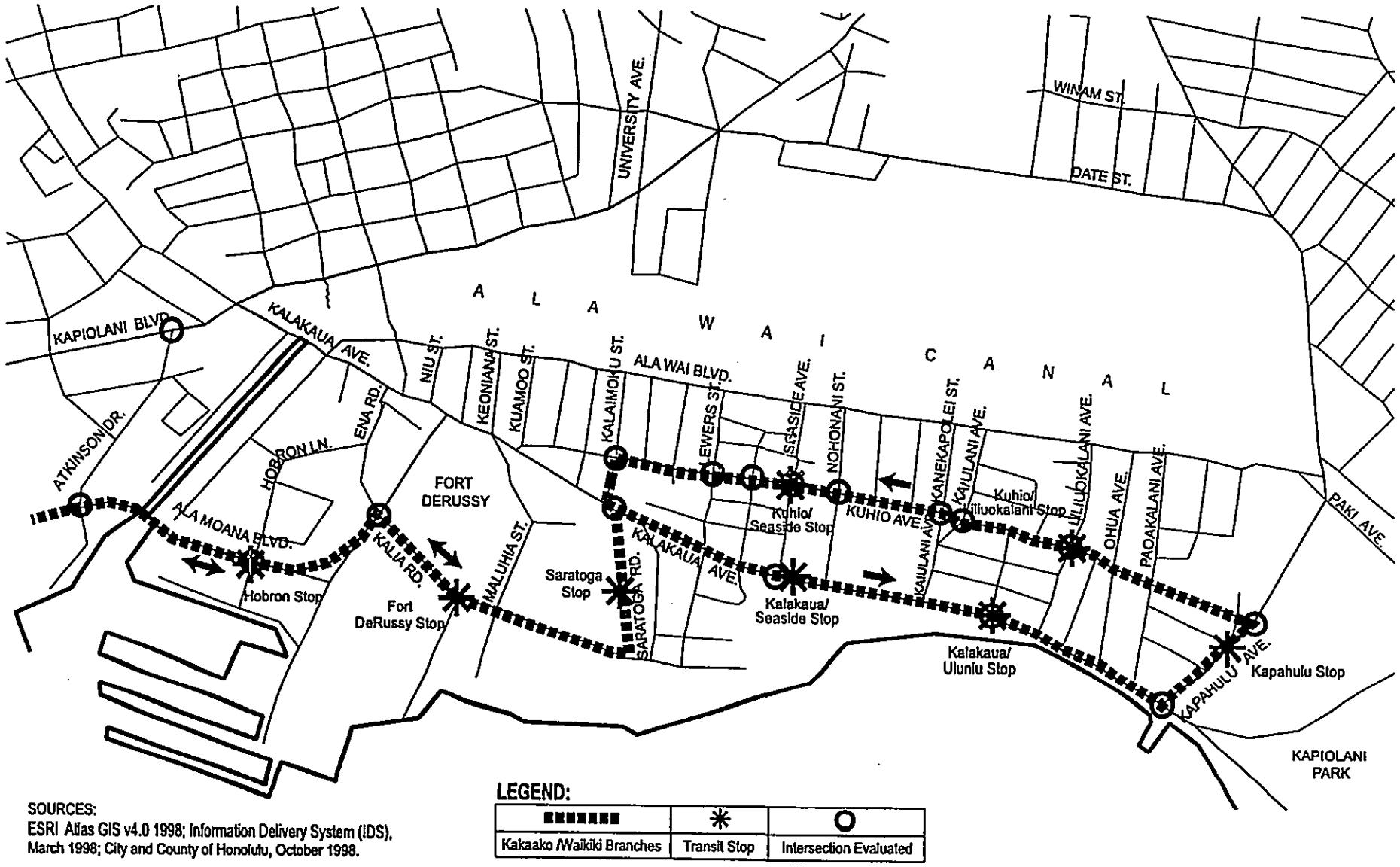
The Waikiki Corridor is located between the Ala Wai Canal (at Ala Moana Boulevard) on the Ewa end to Kapahulu Avenue on the Koko Head end. Figure 4.4-4 shows the Waikiki Corridor.

b. Ala Moana Boulevard

Ala Moana Boulevard, between Atkinson Drive and Kalakaua Avenue, experiences periods of congestion even today. To remedy this condition, the Refined LPA proposes to widen a section of Ala Moana Boulevard between the Ala Wai Canal and Kalia Road by 5-10 feet by reducing the width of the raised median, along with narrowing the existing traffic lanes to provide an additional lane in both Ewa-bound and Koko Head-bound directions.

In the Koko Head-bound direction, a semi-exclusive lane is proposed to be added to theexisting three general-purpose lanes. BRT vehicles, local buses, tour buses and trolleys, and vehicles making right-turns will be allowed into this lane. It will begin just Ewa of Holomoana Street and continue along the curb to Kalia Road. Transit vehicles will be given an advanced green at the Ala Moana Boulevard /Atkinson Drive signal to allow them to reach this lane without competing with traffic in the general-purpose lanes between Atkinson Drive and Holomoana Street. This configuration will provide three lanes dedicated to through traffic movement at Hobron Lane plus a left-turn lane, and a semi-exclusive lane serving transit vehicles and right-turning traffic. The semi-exclusive lane will continue to Kalia Road, where it becomes a right-turn-only lane into Kalia Road. The three general-purpose lanes on Koko Head-bound Ala Moana Boulevard will continue through the Kalia Road intersection with one lane tapering out before reaching Kalakaua Avenue. The net effect in the Koko Head-bound direction will be to remove friction to traffic destined for the core of Waikiki, while improving access for properties adjacent to Ala Moana Boulevard within this segment.

In the Ewa-bound direction, the semi-exclusive lane will begin at the Kalia Road intersection. It will continue to Hobron Lane, where it will transition from a curbside lane to a median lane. An advanced green signal will allow the BRT and other transit vehicles to transition to an exclusive median lane without conflict from other



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

LEGEND:

Kakaako /Waikiki Branches	Transit Stop	Intersection Evaluated

N Scale: 0 .125 .25 mi

Waikiki Corridor

Figure 4.4-4

through traffic on Ala Moana Boulevard. This lane will continue to Atkinson Drive, where it will continue as an exclusive transit lane, available only to BRT vehicles and private buses. Also, to reduce conflicts at Atkinson Drive, left turns into Ala Moana Park will be prohibited. Motorists will be able to use the Ewa entrance to Ala Moana Park. The three general-purpose lanes will be configured as two through Ewa-bound lanes and one exclusive right-turn lane.

Table 4.4-11 summarizes projected 2025 traffic conditions for this segment of roadway.

TABLE 4.4-11
PROJECTED YEAR 2025 INTERSECTION LOS – WAIKIKI CORRIDOR
ON ALA MOANA BOULEVARD

Intersection	Peak Time Period	No-Build				TSM				Refined LPA			
		Auto LOS	Delay	Transit LOS	Delay	Auto LOS	Delay	Transit LOS	Delay	Auto LOS	Delay	Transit LOS	Delay
Atkinson Drive	A.M.	F	91.7	E	63.5	F	91.7	E	63.5	F	130.5	C	27.2
And Ala Moana Blvd.	P.M.	F	82.5	E	66.7	F	82.5	E	66.7	F	239.5	C	31.5
Hobron Lane	A.M.	F	228.4	F	278.4	F	228.4	F	278.4	E	31.2	C	10.9
And Ala Moana Blvd.	P.M.	F	101.7	F	63.8	F	101.7	F	63.8	E	41.7	C	19.9
Kalia Road	A.M.	F	116.9	F	95.3	F	116.9	F	95.3	F	93.2	D	60.9
And Ala Moana Blvd.	P.M.	F	314.9	F	196.2	F	314.9	F	196.2	F	141.7	D	69.9

Source: Parsons Brinckerhoff Inc., June 2002

The most constrained conditions are projected to occur at the Ala Moana Boulevard/Hobron Lane intersection. This intersection currently accommodates the through traffic on Ala Moana Boulevard and a significant level of turning traffic to-and-from Hobron Lane. Hobron Lane serves the Renaissance Ilikai Hotel, the Hawaii Waikiki Prince Hotel, and the Ala Wai Boat Harbor on the makai side and numerous condominiums and hotels on the mauka side. This intersection currently experiences and is projected to experience periods of traffic congestion. Because of the added lanes for BRTs, other transit, and right-turning vehicles, the Refined LPA is projected to provide the best LOS. Its LOS E is still considered congested, but is much better than the LOS F projected in the No-Build and TSM Alternatives. More importantly, the Refined LPA will provide a less congested path for both public and private transit buses through this historically congested corridor.

Recent plans for a new hotel tower within the Hilton Hawaiian Village propose a new signalized intersection along Ala Moana Boulevard located at the existing Dewey Lane. Dewey Lane is located between the Renaissance Ilikai Hotel and the Hilton Hawaiian Village and is currently restricted to right-in/right-out traffic movements. The Draft Environmental Impact Statement (DEIS) Waikikian Development Plan, July 2001, documents proposals to modify this intersection as a full-movement, signalized intersection. The DEIS indicates that the Dewey Lane intersection would operate acceptably during the peak hour time periods.

c. Kalia Road

Kalia Road is currently configured with 5 traffic lanes (2 Koko Head-bound, 2 Ewa-bound, 1 median left-turn lane) between Ala Moana Boulevard and Maluhia Road (Hale Koa Hotel and Fort DeRussy Entrances). Koko Head of Maluhia Road, Kalia Road is a two-lane roadway with one lane in each direction and left-turn lanes provided at key intersections. The Refined LPA proposes to widen Kalia Road by one lane in each direction, with these lanes being designated as semi-exclusive lanes. BRT, local buses, private buses, and autos turning right into driveways on Kalia Road will be able to use these lanes.

To provide an exclusive lane for Ewa-bound BRT buses at Ala Moana Boulevard, the existing three general-purpose Ewa-bound lanes on Kalia Road (1 exclusive left, 1 left/through, and 1 exclusive right) would be reallocated as 2 general-purpose lanes (1 exclusive left, 1 left/through/right) and the exclusive transit lane.

Because of the new lanes proposed for Kalia Road, traffic operations are projected to be better in 2025 with the Refined LPA compared to the No-Build or TSM Alternatives that would only have two lanes on Kalia Road, Koko Head of Maluhia Road. Because the future bus operations plan proposes to turn-back some of the local bus routes in the Fort DeRussy area, the proposed semi-exclusive transit lanes will be very helpful. The transit routes will be turned-back to decrease the number of local buses circulating on Kuhio Avenue.

d. Saratoga Road

Kalia Road currently transitions from a two-way street to an Ewa-bound one-way street at Saratoga Road. The existing Saratoga/Kalia intersection is STOP-sign controlled. The future configuration of this intersection depends on final plans for Outrigger Hotel's redevelopment. Outrigger plans to redevelop an area between Kalakaua Avenue and Kalia Road and along Lewers Street and Beachwalk. As part of those plans, a new hotel tower is proposed between Beachwalk and Saratoga Road with its lobby entrance on Saratoga Road. Preliminary plans show two driveways for the lobby entrance located on Saratoga Road, close to the Kalia Road/Saratoga Road intersection. The BRT will turn from Kalia Road to Saratoga Road, maintaining a through and semi-exclusive lane in both directions. How Outrigger proposes to configure this intersection as part of the redevelopment could have an effect on the operation of the BRT and other traffic. The Outrigger's project is still in the planning phase at this time, and Outrigger continues to work with the City to arrive at a configuration that would be appropriate for the hotel and BRT operations.

Projected BRT and local bus volumes combined are estimated to total 60 transit vehicles/hour. This is a small fraction of the traffic volume that currently uses this intersection. It is believed that this volume can be accommodated by any reasonable intersection developed in conjunction with the Outrigger's redevelopment plan.

At Kalakaua Avenue, a new lane will be added in the mauka direction to allow an additional right turn movement onto Kalakaua Ave.

e. Kalakaua Avenue

Kalakaua Avenue will be used as the Koko Head-bound segment of the counter-clockwise BRT Loop within Waikiki. The No-Build and TSM Alternatives would not have buses operating on Kalakaua Avenue between Kuhio Avenue and Kapahulu Avenue.

On Kalakaua Avenue in the Refined LPA, three through lanes and a semi-exclusive lane are proposed heading in the Koko Head direction until Kaiulani Street where the mauka lane will be terminated. At Uluniu Avenue, the BRT will switch to a mixed-flow operation to provide 3-through lanes, and the BRT will transition from the makai lane to the mauka lane to make a left turn onto Kapahulu Avenue. On Kapahulu Avenue, the BRT will operate in mixed traffic.

Traffic within Waikiki along Kalakaua Avenue is extremely variable, depending on special events such as festivals, conventions, wedding receptions and others. Since these special events do not generally occur during peak commuting time periods, the analysis in this FEIS focuses on recurring conditions during the peak commuting time periods. That is when the BRT will be running at maximum frequency. During periods of back-up in the right lane, BRT vehicles will be able to go around the congestion by using the adjacent lane. Additionally, during special events such as parades, the BRT will be re-routed off of Kalakaua Avenue to alternate streets.

As shown in Table 4.4-12, there is little impact projected in 2025 from the BRT on Kalakaua Avenue.

TABLE 4.4-12
PROJECTED YEAR 2025 INTERSECTION LOS – WAIKIKI CORRIDOR
ON KALAKAUA AVENUE

Intersection	Peak Time Period	No-Build				TSM				Refined LPA			
		Auto LOS	Delay	Transit LOS	Delay	Auto LOS	Delay	Transit LOS	Delay	Auto LOS	Delay	Transit LOS	Delay
Saratoga Road	A.M.	D	62.7	**	**	D	62.7	**	**	D	65.5	C	27.2
and Kalakaua Ave.	P.M.	E	78.5	**	**	E	78.5	**	**	E	79.5	C	31.5
Seaside Avenue	A.M.	B	25.4	**	**	B	25.4	**	**	B	25.9	B	25.9
and Kalakaua Ave.	P.M.	C	35.8	**	**	C	35.8	**	**	C	41.7	C	39.9
Uluniu Street	A.M.	B	25.9	**	**	B	25.9	**	**	B	30.2	B	25.9
and Kalakaua Ave.	P.M.	C	35.9	**	**	C	35.9	**	**	C	35.7	C	29.9

Source: Parsons Brinckerhoff Inc., June 2002
Note: ** transit on Kuhio Avenue only.

f. Kuhio Avenue

Kuhio Avenue is currently a four-lane collector roadway with two lanes in each direction. In addition, left-turn lanes are located within a painted median.

The Waikiki Livable Communities project is an effort currently underway aimed at identifying improvements within Waikiki that can make it an even more pleasant environment in which to live, work, and visit. One of the concepts that has emerged from the Livable Waikiki effort is to create wide pedestrian promenades on both sides of Kuhio Avenue. To accomplish this, the existing sidewalks would be widened into Kuhio Avenue, the existing roadway would be narrowed, and the traffic lanes reduced. What would remain is enough roadway width to provide two traffic lanes in one direction, one traffic lane in the other direction, and space for median left-turn lanes at selected locations. Turnouts would be provided for commercial truck and tour bus loading and for local bus stops.

In the Refined LPA Alternative, two lanes would be oriented in the Ewa-bound direction with the curb lane designated as a semi-exclusive lane for BRT, municipal bus, and tour bus vehicles. There would be a single Koko Head-bound lane for general-purpose traffic.

The No-Build and TSM Alternatives would be identical along Kuhio Avenue. Local buses and tour buses would travel in mixed-flow, as they do today. Two traffic lanes would be oriented in the Koko Head-bound direction and one lane would be oriented in the Ewa-bound direction.

In the Refined LPA, the lane configuration will be the reverse of the No-Build and TSM Alternatives, with two lanes being oriented in the Ewa-bound direction and one lane being oriented in the Koko Head-bound direction. One of the Ewa-bound lanes will be designated a semi-exclusive lane for use by BRT vehicles, local buses, private buses, and autos making right turns into cross streets or driveways. Immediately after Lewers Street the BRT will swap lanes with Ewa-bound through lanes to prepare it for a left-turn onto Kalaimoku Street. To achieve this without having BRT vehicles mix with the through traffic, the BRT will be given an advance green signal before the Ewa-bound through traffic, allowing the BRT to change into the makai lane unimpeded. The BRT will then follow Kalaimoku Street back to Saratoga Road.

Table 4.4-13 summarizes the projected 2025 LOS for Kuhio Avenue intersections. As shown, the majority of the intersections are projected to operate at LOS F for all of the Alternatives. This is largely a result of the significant increase in hotel rooms forecasted, especially in the International Marketplace area.

TABLE 4.4-13
PROJECTED YEAR 2025 PEAK HOUR INTERSECTION LOS –WAIKIKI CORRIDOR ON KUHIO AVENUE

Intersection	Peak Time Period	No-Build				TSM				Refined LPA			
		Auto LOS	Delay	Transit LOS	Delay	Auto LOS	Delay	Transit LOS	Delay	Auto LOS	Delay	Transit LOS	Delay
Kalaimoku St.	A.M.	F	136.7	F	124.4	F	137.0	F	124.4	F	409.4	E	56.1
And Kuhio Ave.	P.M.	F	145.5	F	152.8	F	146.0	F	152.8	F	336.8	E	78.3
Lewers St.	A.M.	F	339.5	F	277.4	F	340.0	F	277.4	F	520.5	C	20.7
And Kuhio Ave.	P.M.	F	317.9	F	371.4	F	318.0	F	371.4	F	496.2	D	43.6
Royal Hawaiian Ave.	A.M.	F	158.7	F	117.8	F	159.0	F	117.8	F	195.4	D	28.3
And Kuhio Ave.	P.M.	F	143.4	F	133.3	F	143.0	F	133.3	F	201.7	D	47.4
Seaside Ave.	A.M.	F	217.0	F	241.3	F	217.0	F	241.3	F	166.5	C	29.4
And Kuhio Ave.	P.M.	F	168.8	F	121.8	F	169.0	F	121.8	F	249.2	C	31.6
Kanekapolei St.	A.M.	F	245.5	F	305.6	F	245.5	F	305.6	F	92.6	C	25.2
And Kuhio Ave.	P.M.	F	140.5	F	89.7	F	140.5	F	89.7	F	60.7	B	18.9
Liliuokalani Ave	A.M.	F	212.5	F	249.8	F	213.0	F	249.8	C	31.2	B	10.9
And Kuhio Ave.	P.M.	F	126.1	F	135.8	F	126.0	F	135.8	D	41.7	B	19.9
Kapahulu Avenue	A.M.	C	20.3	B	17.9	C	20.3	B	17.9	B	19.1	B	18.4
And Kuhio Ave.	P.M.	E	79.4	F	121.3	E	79.4	F	121.3	E	67.1	B	12.6

Source: Parsons Brinckerhoff Inc., June 2002

The Refined LPA will offer substantial benefit to BRT and other bus riders since they will have a dedicated lane that avoids the traffic congestion forecasted for Kuhio Avenue. The other Alternatives would not provide any transit priority and, therefore, transit riders would experience similar delays to the overall traffic on Kuhio Avenue.

4.5 PARKING IMPACTS

Parking impacts fall into three categories. The first category of impact is that related to parking at transit centers and park-and-rides. The second is on-street parking impacts, due to the designation of exclusive or semi-exclusive lanes for transit vehicles. The third category of impact pertains to off-street parking.

4.5.1 Transit Centers and Park-and-Ride Facilities

To intercept auto users and get them on transit, park-and-ride facilities are proposed in all of the alternatives. Many of the park-and-rides will occur at transit centers and give parkers transit connections to multiple destinations. From a regional perspective these park-and-rides will reduce VMT as well as parking and traffic impacts in the urban core. While there may be some localized impacts associated with these park-and-rides, sites have been selected to minimize the potential traffic impacts and increase opportunities to enhance neighborhoods.

Table 4.5-1 shows the number of parking spaces proposed at each transit center and park-and-ride facility in the No-Build, TSM and Refined LPA Alternatives. The number of spaces shown is based on projected usage from the travel demand models combined with a preliminary assessment of site constraints and surrounding neighborhood compatibility. Project-specific community planning and environmental assessments would be performed for each of these sites prior to their implementation. It is intended that a parking pricing schedule be developed to encourage parking outside of the urban core rather than parking within the core.

Not all of the new spaces shown in Table 4.5-1 would be built as part of the PCTP, since some spaces are being planned as independent projects. These independent projects are shown as part of the No-Build Alternative. The number of spaces that would be developed as part of the PCTP for the TSM and Refined LPA Alternatives are shown in parentheses. In addition to the 2,100 new park-and-ride spaces that would be constructed as part of independent projects there would be 600 additional new spaces with the TSM Alternative and 1,520 additional new spaces with the Refined LPA.

4.5.2 On-Street Parking

Curbside parking spaces were counted as being affected if their expected use in the year 2025 will be affected in any way, either all day long or by limiting their use to off-peak hours.

Parking spaces are categorized by availability during peak and off-peak hours. "Unrestricted parking" spaces are defined as those currently available during peak and off-peak hours. There are no parking spaces that are available only during peak hours and not at off-peak hours. Therefore, unrestricted parking spaces represent those parking spaces that would be impacted during peak period transit operation.

"Restricted parking" spaces refer to all other types, namely spaces that currently have some time restriction on parking. Most such spaces are available only during off-peak hours. These spaces will therefore not be affected by peak-period transit operations, because their use is not allowed during the peak traffic hours. The definition of restricted parking also includes spaces that are available only partially during off-peak hours, such as those on Ala Moana Boulevard that are for use only on weekends, holidays, and overnight on weekdays.

TABLE 4.5-1
PROPOSED NEW PARKING STALLS AT TRANSIT CENTERS AND PARK-AND-RIDES

Proposed Transit Centers and Park-and-Ride Facilities	Number of New Parking Stalls		
	No-Build	TSM	Refined LPA
Aloha Stadium Park-and-Ride (upgrade part of existing parking)	500	500(0)	1,000(500)
Iwilei Transit Center	300	300(0)	300(0)
Kaneohe Transit Center	150	150(0)	150(0)
Kapolei Transit Center	0	400(400)	470(470)
North-South Road Park-and-Ride	300	500(200)	600(300)
Middle Street Transit Center	750	750(0)	1,000(250)
Waianae Transit Center	100	100(0)	100(0)
TOTAL	**2,100(0)**	**2,700(600)**	**3,620(1,520)**

Source: Parsons Brinckerhoff, Inc., June 2002.
Note: Numbers represent total amount of parking spaces for each alternative. Numbers in (X) represent the portion of total amount that is part of PCTP.

The number of affected parking spaces was determined from City and County striping plans and/or independent field checks. Where curb parking spaces were not marked by parking meters and/or parking space stripings, the linear curbside distance available for parking (exclusive of driveways and other uses such as bus stops, loading zones, no parking zones, etc.) was measured and divided by 22 feet, a typical parking space length according to the current City and County's Traffic Standards Manual (DTS, July 1976).

Impacts during the peak hours (unrestricted spaces) will occur under both build alternatives. The Refined LPA will have the greatest impact, taking as much as 373 unrestricted spaces. The TSM Alternative would have the next largest impact on unrestricted parking (166 spaces). The TSM Alternative would have parking impacts, as a result of the need for improvements such as road-widening and semi-exclusive lanes for the local bus priority system. The No-Build Alternative is the only alternative that would not have any parking impacts.

In addition, the Refined LPA will affect restricted parking spaces that are currently not available at peak hours. All of these impacts (533 spaces) will be confined to the In-Town BRT alignment. The No-Build and TSM Alternatives would not affect any restricted parking spaces.

1) No-Build Alternative

The No-Build Alternative would not have any impacts on existing parking spaces, because it does not propose any changes to current roadway uses.

2) TSM Alternative

The TSM Alternative would affect roughly 166 unrestricted parking spaces that are currently available during peak and off-peak hours. This alternative would not affect any restricted parking spaces that are currently limited to off-peak use only.

Potential parking reductions would occur on King Street and Beretania Street. Transit vehicles would operate in semi-exclusive lanes on these streets, requiring that curbside lanes be restricted to use by transit vehicles or vehicles making right turns. The impact would occur along King Street between Middle Street and Kalakaua Avenue (139 spaces) and Beretania Street between Aala Park and South King Street (27 spaces). The 139 parking spaces on King Street consist of the segment from Middle Street to Richards Street, which would lose 109 spaces, Richards Street to Ward Avenue 24 spaces, and Ward Avenue to Kalakaua Avenue 30 spaces. These spaces (marked and unmarked) would require the elimination of parking spaces currently available during the morning peak hours (parking in these spaces is generally prohibited during the afternoon peak), while they would still be available during off-peak hours.

3) Refined LPA

The In-Town BRT will affect a total of 373 unrestricted and 533 restricted parking spaces. Of these the Middle Street to Downtown branch will affect parking on Kaaahi Street (27 unrestricted spaces).

Along the University Branch, 199 unrestricted spaces and 343 restricted spaces will be affected. Of this amount, 20 unrestricted spaces on Richards Street between Hotel and King Streets will be lost. Kapiolani Boulevard will lose the most curb parking, totaling roughly 214 unmarked restricted parking spaces available now only at off-peak times. Of the 214 unmarked restricted parking spaces, about 48 unmarked spaces on the makai side of Kapiolani Boulevard between McCully Street and University Avenue will be affected, and the remaining roughly 166 affected spaces on Kapiolani Boulevard occur along the stretch between Pensacola and McCully Streets. Other spaces affected by the University Branch will be along South King Street (43 unrestricted and roughly 98 restricted), Pensacola Street (80 unrestricted and 9 restricted), and University Avenue (56 unrestricted and 22 restricted).

Along the Kakaako Mauka Branch into Waikiki, 91 unrestricted spaces and 190 restricted spaces will be affected. On Halekauwila and Pohukaina Streets, 69 unrestricted and 66 restricted spaces will be affected. These spaces are all marked. The makai side of Ala Moana Boulevard will lose 124 restricted spaces (unmarked), though these impacts will be limited to weekend, holiday, and nighttime uses, when they are currently available. Other unrestricted spaces will be affected on Queen Street (5 marked spaces), Saratoga Road (5 marked spaces), and Kapahulu Avenue (12 marked spaces).

The Kakaako Makai alignment using Ilalo Street will affect 21 unrestricted parking spaces on Ilalo Street, where BRT stops are proposed. The parking impact estimate for Ilalo Street is based on redevelopment plans for the Kakaako Makai area, as planned by Hawaii Community Development Authority (HCDA).

4.5.3 Off-Street Parking

The discussion on displacements in Section 5.2 deals with off-street parking impacts. Table 5.2-2 identifies the properties that will loose parking spaces under the Refined LPA. These proposed parking impacts are the result of street widening.

4.5.4 Parking Mitigation

It is expected that an efficient transit system would encourage people to use transit rather than driving private vehicles. In fact, on the order of 7,000 people per day under the TSM Alternative and over 21,000 people per day under the Refined LPA are expected to be diverted out of their cars to use transit. Some of these former auto drivers would be able to give up their cars or park their cars at outlying park-and-ride facilities, thereby lessening the need for parking in the Primary Urban Center (PUC). The need for parking would decline regardless of whether the people who gave up their cars are residents and/or employees in the PUC. Thus, parking demand in the PUC is expected to decline in general under all Build alternatives, but especially along the transit spine in the Refined LPA. Moreover, the community planning process will be an integral part of the design phase to help mitigate any potential parking impacts to specific neighborhoods.

In areas where a large concentration of parking spaces will be affected, replacement parking in new off-street parking facilities will be considered, but only if they meet other livable community objectives and are the result of community-based planning. For example, replacement parking could be provided in the neighborhood around University Avenue, where 78 on-street parking spaces will be lost, but this plan has not been decided with the community. At least initially, representatives of the McCully/Moiliili neighborhood who served on the Mid-Town/University working group chose not to replace this parking since it would result in the loss of land for other uses. More recently the issue of replacement parking was requested to be reconsidered in the final design phase.

Replacing the off-peak and weekend parking lost on Ala Moana Boulevard is not viable, so no replacement parking is proposed for that area. Other areas of concern will be addressed on a case by base basis during the project's final design phase.

4.6 LOADING ZONE IMPACTS

Conceptual engineering designs have taken into consideration the need to avoid impacts on as many loading zones as possible, especially in the Waikiki area. Potentially affected areas and the proposed mitigations are discussed in this Section.

As shown in Table 4.6-1, the linear distance designated as loading zones was measured along the proposed alignments. The number of zones that these distances represent is also included in the table. One continuous street segment that allows loading activity was counted as one loading zone; if the activity was allowed continuously along several blocks each block was counted as a separate zone.

TABLE 4.6-1
SUMMARY OF ESTIMATED LOADING ZONE IMPACTS

Alternative	Total Distance (Feet)	Peak And Off-Peak (Number Of Zones)		Off-Peak Only Loading (Number Of Zones)	
		Commercial Vehicles With Permit	Passenger Or Other Vehicles	Commercial Vehicles With Permit	Passenger Or Other Vehicles
No-Build	0	0	0	0	0
TSM	1,200	9	5	0	0
Refined LPA	725	16	8	2	0

Source: Parsons Brinckerhoff, Inc., June 2002

The table also distinguishes the loading zones allowed during peak and off-peak hours, as opposed to those zones restricted to use only during off-peak hours.

Most loading zones are also restricted to use by commercial vehicles, which are primarily tour buses and freight vehicles with permits. Other vehicles that may stand briefly in such loading zones include taxicabs, armored cars, and special transit service vehicles.

4.6.1 No-Build Alternative

The No-Build Alternative would not have any impacts on existing loading zones, because that alternative does not propose any changes to existing roadway uses.

4.6.2 TSM Alternative

Under the TSM Alternative, a local street bus priority system would operate on North and South King Street and on South Beretania Street. In total, an estimated 1,200 feet of loading zones would be affected. Buses would operate on North King Street in semi-exclusive lanes, affecting both mauka and makai curbside loading zones during peak periods. On South King Street and South Beretania Street, where the bus would operate in a couplet, only the right curbside lane in the direction of travel would be affected during peak periods. The total impact of this alternative would be the equivalent of 13 loading zone spaces, of which 9 are peak and off-peak loading zones for commercial vehicles with permits.

4.6.3 Refined LPA

The loading zone impacts for the In-Town portion of the Refined LPA will be approximately 725 feet of curbside loading space. The Regional BRT will not result in any loading zone impacts. Impacts that will occur are those associated with the In-Town BRT, mostly in Downtown, plus on Kaaahi Street in Iwilei. The Refined LPA will not preclude continued use of any of the existing passenger or freight loading zones on either Kalakaua or Kuhio Avenues in Waikiki.

On Kaaahi Street, freight loading occurs along both sides of this currently dead end street. With the Refined LPA on-street loading between Dillingham Boulevard and Kaaahi Place will be prohibited, and these operations will have to be relocated either to side streets or to off-street parking/loading areas.

In the block of Alakea Street between King and Hotel Streets, passenger and freight loading takes place on the Ewa curbs at all hours of the day. This block is marked as "No Parking, Tow Away Zone" which allows commercial vehicles with permits to make brief stops for loading and unloading operations. During the P.M. peak period the BRT will operate in a semi-exclusive Ewa curb lane (BRT and left turning vehicles only) in this block, and stopping or loading will be prohibited. The proposed BRT lane along Kalakaua Avenue has been revised since publication of the MIS/DEIS. The proposed curbside BRT lane will extend from Saratoga Road to Uluniu Avenue as a semi-exclusive lane, which will allow commercial passenger carriers and right turning vehicles to share the curbside lane with the BRT. Passenger and freight loading operations that use the existing pullouts on the makai curb will not be affected by the BRT. Koko Head of Uluniu, the BRT will operate in mixed traffic to Kapahulu Avenue where it turns left in the mauka direction.

On Kalakaua Avenue, commercial freight carriers will be allowed to use the makai-side, semi-exclusive BRT curb lane during legal delivery hours (10 P.M. to 9 A.M.). The BRT will simply pass around a stopped loading truck by using the adjacent traffic lane. In the event that a freight truck blocks the BRT curb lane during other times, the BRT vehicle can simply go around the stopped vehicle in the adjacent lane. There will not be any noticeable impact to freight loading on Kalakaua Avenue with the Refined LPA.

On Kuhio Avenue, the BRT has been modified from an exclusive center lane as shown in the MIS/DEIS to operating in a semi-exclusive lane on the mauka curb. This lane will be shared with local buses, commercial passenger buses, and right-turning vehicles. Today freight loading is generally permitted along both sides of the street from 10 P.M. to 7:30 A.M. Commercial passenger loading is permitted all-day and night except between the hours of 3:30 to 5:30 P.M. With the Refined LPA, turnout bays will be provided along both sides of Kuhio Avenue to allow commercial freight vehicles, tour buses, taxis, and trolleys to load during the designated hours and still allow moving vehicles to pass these parked vehicles safely without encroaching on the semi-exclusive lane. Stricter enforcement of the loading zone hours of availability will be needed on Kuhio Avenue with the Refined LPA so that it works effectively. The benefits will be an enhanced pedestrian environment through widened sidewalks and added landscaping, as well as improved transit circulation.

Similarly, tour buses and trolleys will be able to continue to load/unload at their current locations o n either side of both Kalakaua and Kuhio Avenues with the BRT.

4.6.4 Loading Zone Impacts Mitigation

As with parking impacts, community-based planning will be an integral part of the final design phase to address mitigation measures for loading zone impacts.

Along Kuhio Avenue, turnout bays will be provided which will permit passenger and freight loading to continue to occur along the mauka and makai curbs during the designated hours.

4.7 BICYCLING IMPACTS

This section describes the project's potential impacts to existing and currently proposed bicycle systems in the study area, as described in the Honolulu Bicycle Master Plan (April 1999).

The No-Build Alternative would not affect bicycle transportation because it would not affect existing streets in a manner to interfere with the safety and convenience of cyclists. Implementation of the Bicycle Master Plan would continue under all alternatives. All buses would have bike racks to accommodate intermodal transit. New bike parking racks will continue to be installed around the city.

The TSM Alternative, which includes a network of semi-exclusive bus and in-town bus priority lanes, would not affect bicycle usage because no existing bikeway would be displaced or modified.

One of the primary purposes of the Refined LPA is to enhance in-town mobility by restoring a balanced transportation system that includes measures that encourage transit, bicycle, and pedestrian modes. Therefore, the Refined LPA has been designed to provide concurrent systems enhancing transit, bicycle and pedestrian travel within the very limited space of the existing roadway rights-of-way. Cyclists have been accommodated along the entire length of the In-Town BRT system.

The general approach to enhancing bicycle travel under the BRT Alternative includes the following elements:

- BRT vehicles would be equipped with bike racks to facilitate intermodal transit. Bike parking facilities would be installed at transit centers, transit stops, and park-and-ride facilities.
- A separate bike lane will be provided, or in many areas, 14 to 18 feet wide curbside lanes for the joint use of bicycles and vehicles will be provided.
- Where a bike lane or 14 to 18 feet wide curbside lanes cannot be accommodated, cyclists will be allowed to share the transitway in curb-running sections. Many cities, including New York City, London, Toronto, Madison Wisconsin, Seattle and Portland Oregon, allow bicycles to use at least portions of their curb-running transitways.

In most cases, these measures will improve bicycle transportation over the existing conditions.

Coordination with cyclists will be conducted to further define the details of the bicycle mitigation program.

The In-Town BRT element of the Refined LPA could assist with implementation of planned bikeway facilities through coordination of right-of-way and/or use of travel lanes. Planned bikeway facilities that could be jointly developed include proposed facilities on Dillingham Boulevard, South King Street, Ala Moana Boulevard, Kalia Road, and Saratoga Road. Methods of incorporating these proposed bicycle facilities in the design will be addressed in the final design phase.

4.7.1 Impacts to Existing Bikeways and Cycling

Although most of the In-Town BRT alignment is not designated as a "bikeway", roadways along the alignment are used by cyclists to varying degrees because of the paucity of bikeway facilities. Figures 3.1-4A through 3.1-4C show existing bikeways in the study area that support cycling as a viable transportation mode and recreational activity. Bikeways recommended in the Honolulu Bicycle Master Plan are also shown.

A bikeway can be a bike route, lane or path. A bike route is a road that is designated for the shared use of bicycles and motor vehicles. Bike routes typically have wide shoulder lanes or relatively little traffic. A bike lane is a portion of a roadway designated by striping, signage or pavement markings for the preferential or exclusive use of bicycles. A bike path is a completely separated right-of-way designated for the exclusive or semi-exclusive use of bicycles. In urban areas, bike paths are normally paved, and located in parks or scenic areas.

Most of Honolulu's existing bikeways are not linked systematically, although the Pearl Harbor Bike Path is continuous between Waipahu and Aloha Stadium, and eventually is proposed for extension to Kapolei. Bikeways on Kalanianaole Highway also form a continuous link between Kahala and Hawaii Kai.

When bikeways are not continuous, cyclists must use roadways that are not designated as bikeways. More confident cyclists often use the street. Less confident cyclists tend to ride on sidewalks or landscaped areas off of the roadway, although riding on sidewalks in business districts, such as Downtown, is illegal.

Segments that contain semi-exclusive/exclusive BRT curbside lanes include Hotel Street (lanes wide enough for shared bicycle use), South King Street between Alapai Street and Ward Avenue (existing bike lane to be retained), University Avenue by Puck's Alley (existing bike lane to be retained), Ala Moana Boulevard between Piikoi Street and Atkinson Drive (lanes wide enough for shared bicycle use), Kalakaua Avenue (existing bike lane to be retained), Kapahulu Avenue (existing bike lane to be retained) and Kuhio Avenue.

Street-by-street descriptions of how the BRT lanes will affect bicycle transportation in the study area are provided below. In general, these impact analyses are based on the principle that the following street changes would improve bicycling transportation:

- new bicycle lane or path;
- curbside BRT lane where it would replace an existing general purpose lane, but would not displace an existing bike lane (cyclists will be allowed to use curbside BRT lanes); and
- widened curbside lane where both vehicles and cyclists can share use safely.

Bicycle transportation service would remain the same if street changes retain curbside conditions of the affected roadway, such as retaining bike lanes or keeping the same curbside lane widths. Bicycle transportation would be adversely affected if curbside lanes are narrowed or the number of through lanes is reduced to a point where motor vehicles cannot pass cyclists safely without venturing onto the BRT lane.

Dillingham Boulevard is not currently designated a bikeway although it links the Keehi Interchange end of the Nimitz Highway bike path with Kalihi and Iwilei. Much of Dillingham Boulevard presently has little or no shoulder space, and the curb lanes are not wide enough for bicycles and motor vehicles to travel side-by-side safely.

The In-Town BRT exclusive BRT lanes are proposed to be generally center running on Dillingham Boulevard, reducing the number of through lanes by two. The impacts on each section of Dillingham Boulevard would be as follows:

- Existing paths/sidewalks will remain between the Nimitz Highway bike path and the first crosswalk on Dillingham Boulevard.

- Between Middle Street and Puuhale Road, the BRT will transition from shared curbside-lane (Ewa bound) and center-running lane (Koko Head bound) to exclusive center-running lanes. However, throughout this section, the width of the curb lanes (shared BRT and general) will range from 14 feet to 18 feet, which is adequate for cyclists and motor vehicles to travel side-by-side.
- Bicycle transportation will improve in the section between Puuhale Road and Waiakamilo Road because the curbside lanes will be widened to 18 feet. This is an improvement over the existing narrower lane width.
- The BRT exclusive lanes will continue on Dillingham Boulevard past Waiakamilo Road, and use Kaaahi Street and Iwilei Road, to link with North King Street. The curbside lane widths would be narrowed to generally 12 feet along this segment, the same as today. However, by reducing the number of general purpose lanes from four to two, vehicles and cyclists would have to share the 12-foot lanes, which is not enough space for vehicles to pass cyclists safely without venturing onto the BRT lane. Cyclists will have the option of using existing bike lanes on Waiakamilo Road and Nimitz Highway, Koko Head of Waiakamilo Road.
- Bicycle transportation will not be affected by the BRT use of Kaaahi Street because it presently has no outlet, and is not used for cycling. Only a very small portion of Iwilei Road would be used for BRT lanes.

The BRT on North King Street will occupy the two mauka side lanes, which will not affect cycling because cyclists could use the makai curb lane when traveling in the Koko Head-bound direction.

The BRT will occupy the existing bus lanes on Hotel Street, an existing bus mall. The Waikiki Branch (Kakaako Mauka and Makai) will use Bishop and Alakea Streets, and the UH Manoa Branch will use Richards Street to South King Street. To maintain access to properties along Bishop, Alakea and Richards Street, the BRT lanes will be shared with other vehicles, except the Koko Head bound BRT lane on Richards Street. Therefore, the existing level of bicycle access on Hotel, Bishop, Alakea and Richards Streets will remain the same.

On South King Street, the Koko Head bound In-Town BRT will occupy general-purpose lanes. Therefore, bicycle transportation along the makai side of South King Street will not be affected along this section. Although a curbside-running Koko Head-bound BRT lane is proposed from Alapai Street to Pensacola Street, bicycle transportation along this segment will improve because a bike lane will also be provided along this section (see Section 4.6.3).

The Ewa-bound BRT lane on South King Street between Richards Street and Pensacola Street will occupy a new contra-flow lane next to the mauka curb. This will prevent the use of this lane by Koko Head-bound cyclists who currently use this lane to avoid the makai-side lanes that turn onto Kapiolani Boulevard. Cyclists have the option of using an existing shared-use bike path within the Capitol District, which passes next to the State Capitol, Iolani Palace, the State Library, Honolulu Hale and the Municipal Building.

The BRT lanes will be on the Ewa side on Pensacola Street. Cyclists will be able to use both sides of this one-way street, the same as today. On Kapiolani Boulevard between Pensacola Street and Atkinson Drive, the BRT will generally be center running, but some segments will be shared-use along the center and curb lanes. Kapiolani Boulevard is limited as a cycling facility, but since four travel lanes will remain after the BRT is in place, the present level of bike access will be retained.

At Atkinson Drive and Kalakaua Avenue, the BRT will shift to curbside running in general purpose lanes to University Avenue. Since the BRT will be operating in general traffic, the existing level of bicycle transportation along this section of Kapiolani Boulevard will remain the same.

On University Avenue, the BRT will shift to center-running exclusive lanes to King Street. The existing makai-bound and mauka-bound bike lanes will be relocated to the curb, and existing street parking will be removed

(see Section 4.5). Therefore, the existing level of bicycle transportation along this section of University Avenue will remain the same. After the King Street stop the mauka bound BRT will operate in mixed traffic to Sinclair Circle so that the existing bike lane can be retained. In the makai direction the BRT will be in an exclusive median lane between Sinclair Circle and King Street. The existing bike lane on this side of University Avenue will be retained also.

The Kakaako Mauka and Kakaako Makai branches of the In-Town BRT start deviating from the UH branch at the Hotel Street/Bishop Street/Alakea Street intersections. The Kakaako mauka and makai branches will then split at the Ala Moana Boulevard/Bishop Street/Alakea Street Intersections, with the mauka branch continuing on Halekauwila Street to South Street, and the makai branch continuing on Bishop Street to Aloha Tower Marketplace, to Aloha Tower Drive, and then on to Ala Moana Boulevard until Forrest Avenue. Since the BRT will be operating in mixed traffic through most of the areas described, the existing level of bicycle transportation will remain the same. One of the BRT lanes on Halekauwila Street will be shared with general-purpose vehicles and the other will be exclusive up to Punchbowl Street. Therefore, there will be a slight improvement in bicycle transportation on Halekauwila Street. Bicycle transportation will not be affected on South Street because cyclists could ride on the Koko Head side of this one-way mauka-bound street.

The Kakaako Mauka branch will operate in Semi-exclusive curbside-running lanes on Pohukaina and Auahi Streets in Kakaako, leaving two through lanes. Therefore, bicycle transportation on these streets will be improved as cyclists will be able to use the semi-exclusive lanes without conflicts from through traffic.

Along the Kakaako Makai branch, from Aloha Tower Marketplace the BRT will operate along Ala Moana Boulevard, Forrest Avenue, Ilalo Street and Ward Avenue in mixed traffic. Bicyclists will therefore be unaffected. The Kakaako Makai branch rejoins the Kakaako Mauka branch at the Ward Avenue/ Auahi Street intersection. After traveling on Auahi Street in semi-exclusive lanes the two branches transition to Ala Moana Boulevard via Queen Street. . From Queen Street to just Koko Head of Atkinson Drive, the Koko Head-bound BRT will be on Ala Moana Boulevard in a curbside-running semi-exclusive lane and the Ewa-bound BRT will be in a center-running exclusive lane. Ala Moana Boulevard attracts very little bicycle usage because of a lack of shoulder space, and motor vehicles travel at relatively high speeds. A current alternative to using Ala Moana Boulevard between Queen Street and Atkinson Drive is a shared-use pedestrian/bicycle path within Ala Moana Regional Park running along the park's mauka-boundary near, and parallel to, Ala Moana Boulevard. In the Koko Head bound direction, the BRT lane will improve bicycle transportation because of the semi-exclusive BRT curbside lane. However, the bicycle transportation service will remain the same in the Ewa bound direction.

From Atkinson Drive to Hobron Lane, the Ewa-bound BRT will be in a center-running exclusive lane on Ala Moana Boulevard. It will be in a semi-exclusive curb lane between Hobron Lane and Kalia Road. The Koko Head bound BRT on Ala Moana Boulevard will be in a curb-running semi-exclusive lane between Atkinson Drive and Kalia Road.

Continuing on in Waikiki, the BRT will follow a curbside alignment on Kalia Road, Saratoga Road, Kalakaua Avenue, Kapahulu Avenue and Kuhio Avenue. These BRT lanes will be mostly semi-exclusive lanes. None of these streets are designated bikeways. Since cyclists will be allowed to use these BRT lanes, the Refined LPA will improve bicycle transportation in Waikiki.

4.7.2 Impacts to Future Bikeway Facilities

The Honolulu Bicycle Master Plan (April 1999) calls for the development of an integrated network of bikeways that would link people with their destinations. The State Department of Transportation, the agency that prepared Bike Plan Hawaii, was an active participant in the preparation of the Honolulu Bicycle Master Plan, which updates the State's Bike Plan Hawaii (April 1994) for the Primary Urban Center.

The recommendations of both plans are similar. The Honolulu Bicycle Master Plan recommends the development of a regional bike corridor, which would be a grid of east-west and mauka-makai bikeways. Figures 3.1-4A through 3.1-4C show the recommended bikeways in the Honolulu Bicycle Master Plan.

The No-Build Alternative would not affect the proposed bikeways.

The TSM Alternative could affect the proposed bikeways because of the network of semi-exclusive lanes that are proposed in the PUC. Bicycles would be able to share the semi-exclusive lanes with transit vehicles.

With the Refined LPA, the following street segments, which are proposed by the Honolulu Bicycle Master Plan to be used for bikeway facilities, will also be used by the proposed In-Town BRT:

- Dillingham Boulevard between Keehi Interchange and Puuhale Road;
- North and South King Streets between Iwilei Road and Pensacola Street;
- University Avenue between Varsity Place and Maile Way; and
- Ala Moana Boulevard between Downtown and Waikiki.

Therefore, these future bikeway facilities may be jointly planned with the In-Town BRT to enhance both transit and bicycle travel. For example, the Refined LPA includes bike lanes on South King Street between Alapai Street and Pensacola Street.

4.7.3 Mitigation Measures

To improve or maintain the level of bicycle transportation in the study area, the following bicycle enhancement projects will be provided under the Refined LPA:

- Curbside semi-exclusive BRT lanes at various locations to be shared with bicyclists;
- Widen the curbside lanes on Dillingham Boulevard from 14 feet to 18 feet between Middle Street and Waiakamilo Road; and,
- Bike lane on South King Street between Alapai Street and Pensacola Street.

4.8 PEDESTRIAN IMPACTS

All of the alternatives will preserve existing pedestrian facilities, such as sidewalks and walking paths. All the elements of the Refined LPA will be constructed primarily on existing roadways and existing pedestrian street crossings will be preserved. Full pedestrian access will be provided at transit centers and curbside In-Town BRT stops in conformance with the Americans With Disabilities Act (ADA). Existing signalized cross walks will be upgraded to access center-running In-Town BRT stops.

Moreover, the Refined LPA will provide benefits for pedestrians in a number of ways. Transit will use less space to carry more people than automobiles. Environmentally friendly transit vehicles will produce less noise and air pollution. These factors will contribute to an improved urban walking experience. As transit begins to carry a heavier load of trips under this alternative, the transportation system will become more balanced and walking would play a greater role.

If the local communities so desire, redevelopment around the transit centers and transit stops will allocate resources for pedestrian improvements. This will provide the opportunity to widen and landscape sidewalks making urban Honolulu a more attractive place. Growth focused around the BRT system could be tailored to transit/pedestrian oriented uses.

4.8.1 Special Event Impacts

None of the alternatives will affect parades and large events, such as Hoolaulea, that are held on Ala Moana Boulevard and/or Kalakaua Avenue, even the Refined LPA with its In-Town BRT. When required the Kakaako/Waikiki Branches of the In-Town BRT can be rerouted during parades, just as the bus routes along these streets are rerouted during parades today. The embedded-pate technology may require the substitution of buses for the BRT vehicles along that branch or branch segment during parades and special events.

Chapter 5.0
Environmental Analysis and Consequences

CHAPTER 5 ENVIRONMENTAL ANALYSIS AND CONSEQUENCES

5.0 CHAPTER OVERVIEW AND ORGANIZATION

Overview

With Chapter 4 having addressed the transportation impacts of the No-Build Alternative, Transportation System Management (TSM) Alternative, and Refined Locally Preferred Alternative (Refined LPA), this Chapter discusses the potential impacts these alternatives may have on the built and natural environments. The purpose of this presentation is to disclose fully the beneficial and adverse impacts of the alternatives. Laws do not require selecting the alternative with the least adverse impacts, but the consequences of selecting each alternative must be disclosed.

This Chapter identifies the short-term (construction-phase) and long-term (operational-phase) impacts that would be associated with the project. Measures to mitigate adverse impacts are identified, and these mitigation measures are included in the project definition (i.e., the mitigation measures applicable to the Refined LPA will be implemented in association with project construction).

As described in Section 2.2, all three of the alternatives would utilize future transit centers and park-and-ride facilities needed to support the City's on-going conversion of its radial bus route system to a hub-and-spoke system. Many of these transit centers and park-and-rides will be built as independent projects regardless of which alternative is implemented. With the TSM Alternative and Refined LPA there would be an incremental increase in transit use of these future centers or "hubs" over what would occur under a no action or No-Build scenario. This chapter provides discussion of the environmental impacts of these incremental differences as well as the impacts of other features of the TSM Alternative and Refined LPA that are not part of the No-Build Alternative.

The impacts of the No-Build Alternative compared to the existing conditions (Chapter 3) are discussed below. The analyses show that the No-Build Alternative poorly supports the purposes and needs of the project, as described in Chapter 1. The No-Build Alternative does not provide a transportation system that would effectively handle present or future travel demand levels. It would not maintain even current mobility levels, encourage land use development in desired patterns, support implementation of an urban growth strategy that integrates land use and infrastructure planning, or maintain the existing quality of life. The No-Build Alternative would rely on conventional diesel buses, at least for the immediate future, and continue the present focus on automobiles for transportation. Consequently, regional air pollutant emissions would worsen by between 15 to 30 percent by 2025, although increased emissions may be offset by reductions resulting from vehicle emission improvements. Localized (intersection-level) air quality (worst-case 1-hour microscale concentrations) would generally worsen, but not to a point where they would violate National Ambient Air Quality Standards. Noise levels along streets would remain similar to present levels, even with an increase in diesel buses and vehicles, because the vehicles would be moving more slowly ("pass by" noise increases with speed).

Compared to the future No-Build baseline conditions, the TSM Alternative, with its emphasis on revamping bus service and some bus priority improvements, would provide moderate support to the project's purposes and needs by enhancing people-carrying capacity within the corridor. However, this alternative would not support desired land use development patterns or the City's urban growth strategy that integrates land use and infrastructure planning.

The TSM Alternative on the average would not worsen air quality conditions. Noise levels would not increase, again because of the trade-off between more vehicles and slower speeds. Impacts to neighborhoods, historic resources, ecosystems, water resources, and parklands would be similar to those under the No-Build

Alternative. The Refined LPA represents a major transportation improvement over the TSM Alternative in terms of meeting the project purposes and needs. It will substantially increase people-carrying capacity within the corridor and help focus growth along the In-Town BRT alignment. Higher density redevelopment in a transit-supportive manner, particularly at transit centers and transit stops, will be encouraged. This alternative will be more effective than the TSM and No-Build Alternatives in supporting implementation of an urban growth strategy that integrates land use and infrastructure planning. It will help facilitate desired land use development patterns consistent with the vision for the island. It will improve connections between Kapolei and the Primary Urban Center (PUC), and among communities in the PUC.

The Refined LPA could potentially require the loss of 4-acres from a farm, as well as partial displacements affecting 29 additional properties resulting from the loss of off-street parking, landscaping, and/or the reconfiguration of driveways. These partial displacements would result primarily from road widening on Dillingham Boulevard. Affected landowners would be compensated for these partial property takings, if they are required.

Consultation under Section 106 of the National Historic Preservation Act is continuing. The Refined LPA will cause an "adverse effect" on Chinatown, the Capital District, and Thomas Square because these resources have visual integrity, which may be affected by the transit stops. Therefore, the FTA and the State Historic Preservation Officer (SHPO) will be executing a Memorandum of Agreement (MOA).

In the Refined LPA, transit stops and other project elements will be designed to maintain or improve visual conditions through cohesively designed landscaping, street furniture, street trees and lighting. Transit stops in special design districts will be designed to harmonize with their unique environments. For example, the Refined LPA will have transit stops in Chinatown, Thomas Square, the Hawaii Capital Special Districts, and on Kalakaua Avenue fronting the Duke Kahanamoku statue. However, the transit stops will avoid placing canopies or other elements such that they will affect views of any important landmarks. The Luapele ramp included in this alternative would introduce a new visual element.

By using electric bus technology along the In-Town portion of the alignment, the Refined LPA will reduce emissions compared to the diesel buses in the No-Build and TSM Alternatives. Additionally, because the Refined LPA will reduce automobile travel, regional air emissions will be less. Also, the electric buses will generally be quieter than conventional diesel buses.

The Refined LPA construction impacts will be greater than those of the TSM Alternative because construction is more extensive. For example, concrete transit lanes and transit stops will be constructed along the In-Town BRT alignment. Construction impacts will be temporary and detailed mitigation plans will be developed, including a traffic maintenance plan. An archaeological contingency procedure has been developed for the unlikely event that unanticipated archaeological resources are encountered during construction.

Neighborhood and water resource impacts will be similar to the No-Build and TSM Alternatives.

Organization

This Chapter is organized around technical disciplines. Within each discipline, the No-Build Alternative, TSM Alternative, and Refined LPA benefits and impacts are presented and contrasted. The environmental consequences assessment identifies the effects of each alternative.

This Chapter includes discussions of the following environmental, socio-economic, and cultural parameters:

- Land Use/Employment
- Displacements/Relocations of Existing Land Uses
- Neighborhoods
- Visual and Aesthetic Resources

- Air Quality
- Noise/Vibration Levels
- Ecosystems
- Water Resources
- Energy Usage
- Historic and Archaeological Resources
- Parkland Resources

Construction-phase impacts, and secondary and cumulative impacts, are addressed at the end of the Chapter.

5.1 LAND USE AND EMPLOYMENT

This section analyzes the potential effects the alternatives would have on existing land uses, development projects and land use plans and policies. Section 5.1.1 summarizes the land use findings. Section 5.1.2 focuses on the regional impacts, while Section 5.1.3 focuses on corridor-level impacts such as accessibility, land use and development, and consistency with plans and policies. Section 5.1.4 discusses transit center and transit stop area impacts. The concluding section summarizes the effects the alternatives would have on employment.

5.1.1 Overview

The Refined LPA's transit components will be compatible with and support current land use plans and policies that link transportation and land use through transit-oriented goals and objectives. The No-Build and TSM Alternatives would be less supportive of proposed public policies and plans.

The sense of permanence can have a major effect on land use and development. Among the alternatives that were evaluated, the sense of permanence referred to in Section 2.2.3 would best be met by the Refined LPA rather than the No-Build and TSM Alternatives because only the Refined LPA will provide a major investment in a fixed transitway. Conventional bus routes can be changed "overnight", which does not convey a sense of permanence to developers interested in investing in a community.

Related to permanence, transit system technology can also be a factor in land use and development. As described in Section 2.2.3, there are two transit technologies currently being considered for the In-Town BRT element of the Refined LPA. The embedded plate technology would require a higher public investment than the hybrid diesel/electric technology in wayside improvements, such as power modules, traction power supply stations, and utility relocation. The embedded plate-powered vehicles obtain wayside power from plates embedded in the pavement, whereas hybrid diesel/electric vehicles obtain power internal to the vehicle using diesel engines and batteries. The fixed infrastructure needed by the embedded plate technology provides the permanency that could spur transit-oriented development in certain areas. This is in addition to public investment in transit lane pavement and lane delineations, stations, streetscape furnishings, and modified traffic signals that give priority to In-Town BRT vehicles, which would also be provided if the hybrid diesel/electric technology were used.

Complementary transit services (e.g., circulator bus routes) that will connect with the In-Town BRT may also help focus development to selected areas. Therefore, the Refined LPA will provide the type of public investment that could encourage transit-oriented development in targeted areas, especially if this investment is accompanied by transit supportive land use policies relative to zoning, parking, and mixed-uses.

5.1.2 Regional Impacts

The study area is mostly urban. As described in Section 3.1, study area land uses vary widely from dense residential, business and commercial districts to industrial parks to suburban residences to agricultural fields to undeveloped conservation and open space. While the Refined LPA could facilitate transit-oriented development along the In-Town transit spine, it would be unlikely to change other land use trends along other places in the study area. The Refined LPA will convey government's willingness to invest in a fixed transit system thereby providing a sense of permanence in the primary transportation corridor, a policy action that has had strong influence in generating much needed developer interest in cities elsewhere. This same policy may help focus transit-oriented development along the In-Town BRT alignment particularly at transit stops. Examples of transit-oriented development include mixed-use high density residences and pedestrian-scale commercial districts.

5.1.3 Corridor Level Impacts

1) Land Use and Accessibility

One of the major factors affecting land development is transportation accessibility. Linkages to major destinations and activity generators, such as employment centers (e.g., central business districts), schools, shopping centers and parks or recreational resources, make real estate attractive for land development. Conversely, properties with poor linkages to activity centers are not as attractive as properties that have good access, which make them poor candidates for land development. Transportation can be a powerful tool the City can use in promoting transit-oriented development in certain areas. Transit-oriented development has improved the quality of life in the urban environment of other cities.

As shown in Table 5.1-1, Major Destinations in the Primary Urban Center (PUC), the alternatives would offer varying service levels to important economic centers in the PUC. These centers are the major travel destinations of the PUC, such as Aloha Stadium, Pearl Harbor, Ala Moana Center, and Waikiki, the State's principal visitor accommodation center. As shown on Table 5.1-1, the Refined LPA will provide better transit service to most of these destinations as compared to the No-Build and TSM Alternatives.

2) Land Use and Development

Considering a major transit investment is not only focusing on mobility but also on broader land use planning objectives to direct future growth to existing urban areas in a manner that will improve the quality of the urban lifestyle and potentially protect agricultural land and open space from urban development.

Since the Refined LPA will provide substantially better transit service than the TSM and No-Build Alternatives and will provide a permanent, fixed piece of transportation infrastructure (In-Town BRT) within the urban core of Honolulu, it will facilitate transit-oriented development, consisting of higher-density mixed residential and commercial land uses. It is doubtful that the TSM or No-Build Alternative would encourage transit-oriented development in the urban core. Investments in fixed facility-type transit, such as the In-Town BRT, have resulted in transit-oriented development in other cities, such as Portland, Oregon; San Diego, California; and Denver, Colorado.

A fixed transit corridor can serve as the backbone of a compact, sustainable city. Such a permanent facility signals to the development community a commitment to permanent access and travel markets. A fixed transit system such as the In-Town BRT coupled with transit supportive land use policies relative to zoning, parking, and mixed-uses, has been shown to encourage the development community to invest along the transit spine in other cities. This assessment of the relationship between transit investments and development responses is consistent with the views of a panel of land use/transportation planners and developers from other parts of the United States and Honolulu that was convened for this project in July 1999.

TABLE 5.1-1
MAJOR DESTINATIONS IN THE PRIMARY URBAN CENTER

Site	Location	Size or Service Levels	No-Build	TSM	Refined LPA
1	Pearl City Shopping Center	250,000 sq. ft. GLA	0	0	+
2	Pearlridge Center	1,400,000 sq. ft. GLA	0	0	++
3	Pearl Highlands Center	409,847 sq. ft. GLA	0	0	++
4	Aloha Stadium	About 50,000 seats	0	+	++
5	Stadium Mall	220,287 sq. ft.	0	+	++
6	Salt Lake	17,121 residents in 2000	0	0	0
7	Pearl Harbor Naval Base	15,000 workers	0	0	0
8	Arizona Memorial	1.5 million attendees/year	0	0	0
9	Honolulu International Airport	9 million passengers/year	0	0	0
10	Mapunapuna	163 acres	0	0	+
11	Middle Street Industrial Area	NA	0	+	++
12	Honolulu Community College	4,000 students	0	0	++
13	Kalihi/Palama	37,987 residents in 2000	0	0	++
14	Costco Warehouse	150,000 sq. ft.	0	0	+
15	Home Depot	145,000 sq. ft.	0	0	+
16	Kalihi Kai Industrial District	585 acres	0	0	0
17	Sand Island	About 510 acres	0	0	0
18	Iwilei Industrial District	320 acres	0	++	++
19	Chinatown	About 30 acres	++	++	++
20	Downtown Financial District	60,000 daytime population	++	++	++
21	Government Centers (Federal/State/City)	About 150 acres, 3 million sq. ft.	++	++	++
22	Queen's Medical Center	About 750,000 sq. ft.	+	+	+
23	Kakaako	over 600 acres; 20,000 workers	0	0	++
24	Victoria Ward Centers	over 250,000 sq. ft.	0	0	++
25	Neal Blaisdell Center	22 acres; about 400,000 att./year	0	0	++
26	Kapiolani Business District	About 2 million sq. ft. commercial	0	0	++
27	*Ala Moana Center*	*2 million sq. ft. GLA*	++	++	++
28	Ala Moana Park	About 120 acres	++	++	++
29	Hawaii Convention Center	200,000 sq. ft. exhibit space; 47 meeting rooms of over 100,000 sq. ft.	++	++	++
30	Waikiki Beach	8.3 million annual visitors	0	0	++
31	Kapahulu/Diamond Head	19,419 residents in 2000	0	0	+
32	Ala Wai Golf Course	200,000 rounds/year	0	0	+
33	Honolulu Zoo	700,000 attendees/year	0	0	++
34	Kapiolani Park	155 acres	0	0	++
35	McCully/Moiliili	26,122 residents in 2000	0	0	++
36	University of Hawaii at Manoa	19,000 students	0	0	+
37	Tokai University Pacific Center	—	0	0	+
38	Hilton Hawaiian Village	22 acs; 2,545 rooms; 1,900+ employees	0	0	++
39	Hale Koa Hotel, Fort DeRussy	72 acs; 817 rooms; 900+ employees	0	0	++
40	Royal Hawaiian Shopping Center	6.5 acs; 279,000 sq. ft. GLA; 1,500+ employees	0	0	++
41	Aloha Tower Marketplace / Maritime Center	22 acres	0	0	++
42	Kakaako Waterfront Park	30 acres	0	0	++
43	McKinley High School	2,000 students	0	0	++

Sources: City Department of Planning and Permitting and Parsons Brinckerhoff, September 2002.

Notes:
- ++ These activities are located within 1/4-mile of transit centers or BRT transit stops.
- + These activities are located within 1/2-mile of transit centers or BRT transit stops.
- 0 These activities are not served by transit centers or BRT transit stops. Where an activity has more than one location, at least one location is served but not necessarily all locations, treatments, and other ground level elements.

sq. ft. = square feet
GLA = gross leaseable area

The land use panel concluded that transit-oriented development in the urban core would not likely happen without a major investment in a permanent fixed transit system. The land use panel indicated that the urban

core has available land for development or redevelopment despite a relatively high urbanization level. The panel suggested that appropriate implementation tools be established that encourage development in the PUC and discourage or prohibit development where it is not desired, such as on agricultural land and open space.

Finally, the land use panel noted that many conditions to spur transit-oriented development are in place in Honolulu and a fixed transit corridor could facilitate the City and County's land use vision of greater mixed-use densities in certain parts of the city. This conclusion was conditioned upon a comprehensive transit/land use implementation strategy developed and managed by a strong land development implementation body. For example, the land use panel pointed out that facilitating development along a transit corridor would require consolidating numerous small tracts of land to allow for higher density land uses. According to transit-oriented development experts Michael Bernick and Robert Cervero in Transit Villages in the 21st Century, 1997, "If developers face the prospect of negotiating individual land purchases among multiple land owners, any one of whom can renege and doom a project, little is likely to happen. The risks and uncertainties are just too great."

The areas along the transit corridor where transit-oriented redevelopment appear to have the greatest potential because of ownership patterns are in Kakaako and Iwilei. The Hawaii Community Development Authority (HCDA) plans and regulates Kakaako land use (see Section 3.1) and the Housing and Community Development Corporation of Hawaii (HCDCH), a State agency, is planning the redevelopment of a portion of Iwilei. Other parts of the corridor as indicated below have the potential for limited transit-oriented redevelopment with some land consolidation:

- Joint use commercial/retail with the proposed transit center at Middle Street;
- Kapalama Canal area between Dillingham Boulevard and King Street for medium density residences (see Figure 5.1-1);
- Kapiolani Boulevard at Keeaumoku Street, an area that includes the Sheridan Street Superblock (see *Figure 5.1-1*);
- Area surrounding the Hawaii Convention Center, which has the potential for high-rise mixed uses;
- University Avenue at King Street area, which is planned for University-oriented mixed residential and retail use; and
- Lewers Street area in Waikiki, which is being planned for hotel and commercial development.

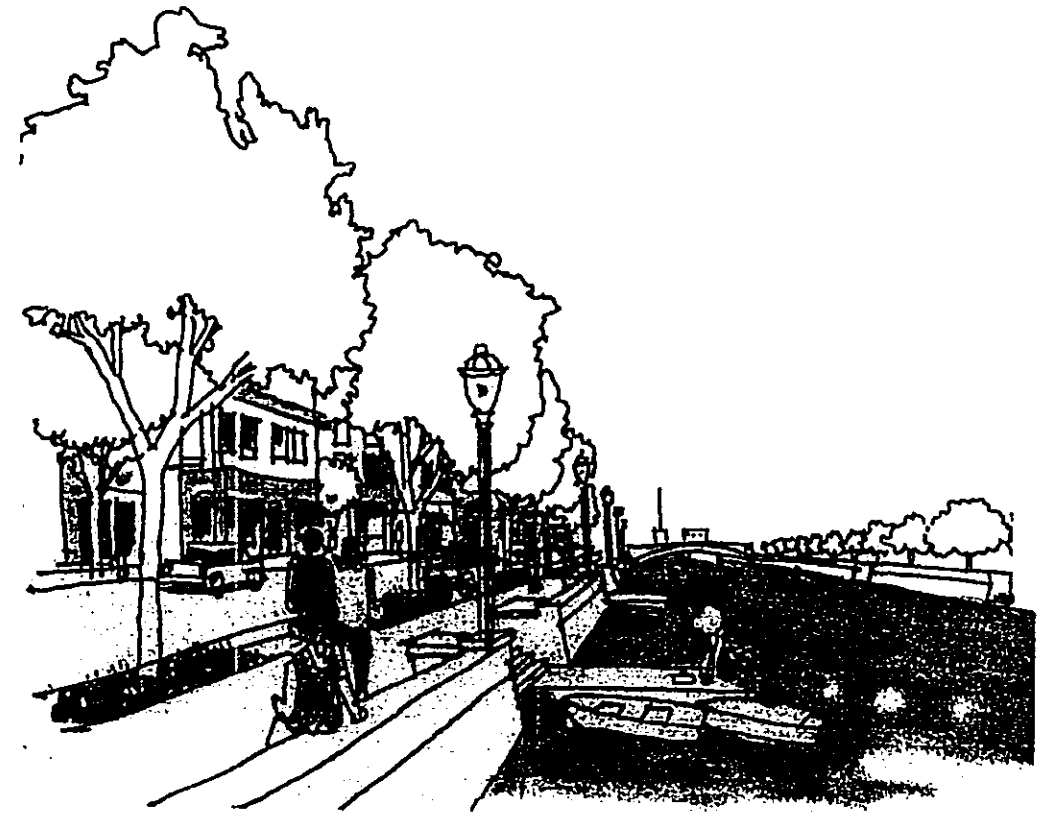
3) Consistency with Land Use Plans and Policies

All of the alternatives would be consistent with the plans and policies of the State of Hawaii and the City and County of Honolulu. The alternatives would also be consistent with relevant plans regarding transportation, recreation, educational institutions, military installations, and major private sector developments. Table 5.1-2 provides a summary of the project alternatives' consistency with these plans and policies. Further discussion is provided below.

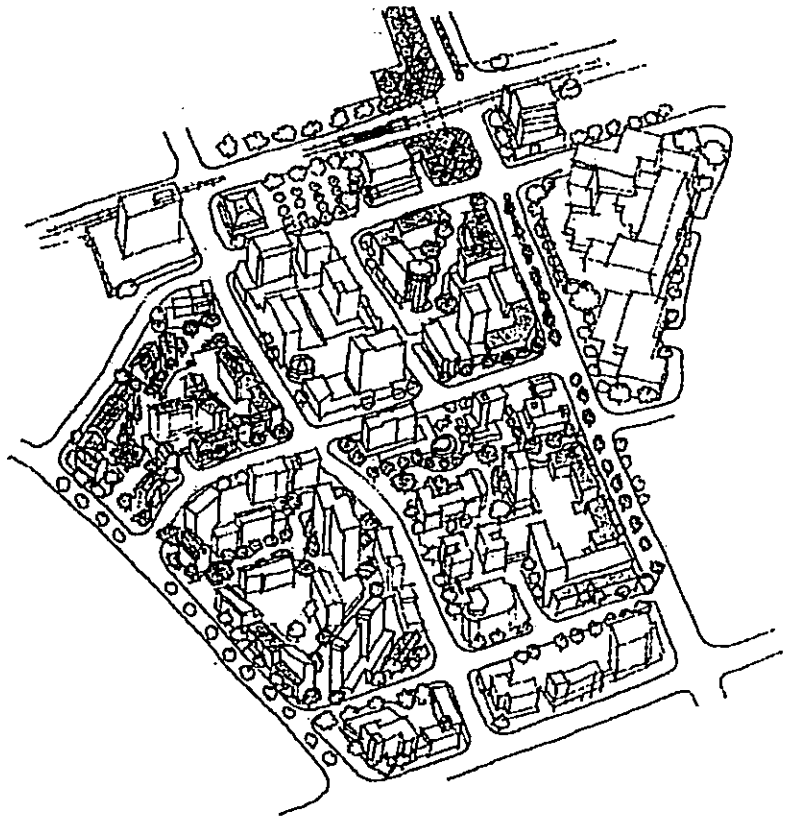
State Plans, Policies and Programs

Hawaii State Plan

All the alternatives would generally be consistent with the objectives and policies of the Hawaii State Plan (June 1991), in particular those relating to public welfare and economic development because of the provision of transportation infrastructure. Even the No-Build alternative, because it includes baseline projects identified in the Oahu Regional Transportation Plan (see Section 2.2.1), would support State Plan objectives and policies relating to public welfare and economic development.



Promenade:
Possibility of mid-rise housing along Kapalama Canal



Mixed Uses
Possibility of residential units atop shops and services along Kapiolani Boulevard and Sheridan Streets

	Land Use Development Possibilities	Figure 5.1-1

TABLE 5.1-2
CONSISTENCY WITH PLANS AND POLICIES

	ALTERNATIVE		
	No-Build	TSM	Refined LPA
State of Hawaii			
Land Use Plans and Controls			
Hawaii State Plan	C	C	C
State Land Use Classifications	C	C	C
State Coastal Zone Management Program	C	C	C
Kakaako Mauka and Makai Area Plans	C	C	C
Aloha Tower Development Plan	C	C	C
Honolulu Waterfront Master Plan	C	C	C
Transportation Plans			
Oahu Commercial Harbors 2020 Master Plan	C	C	C
State Cruise Ship Terminal Needs Assessment	C	C	C
Honolulu International Airport Master Plan	C	C	C
Bike Plan Hawaii	C	C	C
Highways Division Plans and Projects	C	C	C
Recreational Plans			
Statewide Comprehensive Recreational Plan	C	C	C
Educational Institution Plans			
UH-Manoa Long Range Master Plan	C	C	C
Leeward Community College Long Range Plan	C	C	C
UH-West Oahu Campus Master Plan	C	C	C
UH Health and Wellness Center	C	C	C
Military Installation Planning			
Pearl Harbor Naval Complex Master Plan	C	C	C
Ford Island Development	C	C	C
Fort Shafter Complex	C	C	C
Hickam Air Force Base	C	C	C
Armed Forces Rec Center – Fort DeRussy	C	C	C
Kalaeloa (former Barbers Point NAS) Reuse	C	C	C
Fort Armstrong	C	C	C
City and County of Honolulu			
General Plan of the City and County of Honolulu	C	C	C
Development and Sustainable Community Plans	C	C	C
Special Management Area	C	C	C
Honolulu Bicycle Master Plan	C	C	C
Traffic Calming Program	C	C	C
Hub-and-Spoke Bus Route Revision Program	C	C	C
Oahu Metropolitan Planning Organization			
Oahu Regional Transportation Plan (TOP 2025)	C	C	C
Private-Sector			
Waikikian Development Plan	C	C	C
Waikiki Beach Walk	C	C	C

Source: Parsons Brinckerhoff, Inc., September 2002.
Key: C: Consistent with Plan/Program

State Land Use Classifications

Transportation improvements under the No-Build, TSM and Refined LPA Alternatives would be consistent with the State "Urban" classification, which predominates the primary transportation corridor. Under the Refined LPA, the proposed North-South Road park-and-ride facility in Ewa is on "Agriculture" classified land. However, much of the Ewa area is classified "Urban", even in undeveloped areas, and those areas still classified "Agriculture" would likely soon be reclassified "Urban" in the near future because they are being planned for urban uses, such the UH West Oahu site.

Coastal Zone Management Program

The following describes the project's consistency with the objectives and policies of the State's Coastal Zone Management (CZM) Program. The Department of Business, Economic Development and Tourism (DBEDT), the agency administering the State's CZM program, will review the assessment.

Recreation Resources
None of the alternatives would adversely affect use of any park or recreational resource. See Section 5.11 for further information.

Historic Resources
Although no historic-period resource would be directly affected by any of the alternatives, the project's Memorandum of Agreement (MOA) will specify consultation with the State Historic Preservation Division and other interested parties on the design of the In-Town BRT stops that may affect the visual integrity of certain historic properties. Also, construction of the In-Town BRT along certain segments may uncover archaeological resources and possibly human burials of native Hawaiians. The MOA, therefore, provides a monitoring plan. See Section 5.10 for further information.

Scenic And Open Space Resources
Since the primary elements of the TSM and Refined LPA Alternatives involve vehicles, such as buses and In-Town BRT vehicles, adverse impacts to important visual resources are not expected. Some of the In-Town BRT stops would be located in areas with high visual or aesthetic value. Therefore, they will be designed to blend in with their environment. See Section 5.4 for further information.

Coastal Ecosystems
None of the alternatives would be located in the Shoreline Setback Area or the Special Management Area. Therefore, impacts to coastal ecosystems are not anticipated. See Section 5.7 for further information.

Economic Uses
None of the alternatives would adversely affect coastal dependent economic activities. The Refined LPA in particular, will extend the In-Town BRT system into Waikiki, the State's premier visitor resort.

Coastal Hazards
None of the alternatives would be located along the shoreline. Therefore, exposure to coastal hazards would not occur.

Managing Development
Certain elements of the alternatives will require State and County permits that include provisions for public participation and the protection of coastal resources.

Public Participation
The Primary Corridor Transportation Project has conducted wide-ranging and extensive public involvement. Appendix A contains a description of the project's public involvement activities.

Beach Protection
None of the alternatives will affect coastal erosion because no project element will be adjacent to or abut the shoreline.

Marine Resources
None of the alternatives will affect marine or coastal resources because no project element will be adjacent to or abut the shoreline.

Kakaako Mauka and Makai Area Plans

None of the alternatives will adversely affect Hawaii Community Development Authority development plans for the Kakaako Special District, which are intended to make Kakaako into a major activity node for residential, industrial, office, maritime and other land uses. The In-Town BRT will traverse both Kakaako Mauka and Makai, and therefore will support and benefit the type of mixed-used development envisioned for these areas. See Section 5.1.4 for additional discussion on the land use impacts of the In-Town BRT in Kakaako.

Aloha Tower Development Plan

None of the alternatives will adversely affect the State's Aloha Tower Development Corporation (ATDC) redevelopment plans for the Aloha Tower area, Piers 5 to 14, which will include maritime facilities, restaurants, retail shops, offices, a hotel, and residential condominiums. The In-Town BRT will serve the existing Aloha Tower Marketplace, and therefore, will support other future development. See Section 5.1.4 for additional discussion on the land use impacts of the In-Town BRT at Aloha Tower.

Honolulu Waterfront Master Plan

None of the alternatives will adversely affect the State's plans for the Honolulu Waterfront, an area encompassing approximately 1,550 acres adjoining Honolulu Harbor. These plans were detailed in the 1989 Honolulu Waterfront Master Plan Final Report. The Oahu Commercial Harbors 2020 Master Plan (OCHMP) has updated portions of this plan (see below).

Oahu Commercial Harbors 2020 Master Plan

None of the alternatives will adversely affect the Hawaii Department of Transportation (HDOT), Harbors Division long-range plan for its land holdings at Honolulu Harbor. The OCHMP addressed issues and needs relating to the maritime industry exclusively, such as cargo and passenger movements and fishing.

State Cruise Ship Terminal Needs Assessment

The HDOT Harbors Division study recommended a cruise ship terminal at Pier 2 in Honolulu Harbor, and development of interim cruise ship facilities at Piers 19 and 20. None of the alternatives will adversely affect these plans. The Kakaako Makai Branch of the In-Town BRT would be in proximity to the future Pier 2 cruise ship terminal.

Honolulu International Airport Master Plan

None of the alternatives will adversely affect the HDOT Airports Division development plans for Honolulu International Airport.

Bike Plan Hawaii

Discussion of project consistency with Bike Plan Hawaii is provided in Section 4.7.2.

HDOT Highways Division Plans and Projects

The Refined LPA will be consistent with the HDOT Highways Division improvement plan known as Ala Moana Boulevard Improvements: Atkinson Drive to Kalakaua Avenue. The project involves landscaping to improve the pedestrian environment. The proposed transit and pedestrian oriented improvements can be designed to be consistent with one another.

HDOT Highways Division has an ongoing program to restore the concrete bridge deck on the Pearl City viaduct of the H-1 Freeway. The Regional BRT improvements include replacement of the existing permanent median barrier with a movable one. The movable barrier will be lighter weight than the fixed barrier. Implementing the BRT improvements will be coordinated with the maintenance/rehabilitation program for the Pearl City viaduct to ensure consistency with the State's ongoing program for this facility.

Close coordination between the affected State agencies and the DTS will continue so that the Refined LPA maximizes compatibility with the State's plans and programs for the surrounding area.

Statewide Comprehensive Recreational Plan

None of the alternatives will adversely affect State Parks Division's plans for developing and operating recreational facilities in the State. See Section 5.11 for additional information on potential impacts to parks and recreational facilities.

UH-Manoa Master Plan

None of the alternatives will adversely affect the University of Hawaii's facility plans for its Manoa campus. An important element of the UH-Manoa plan is to enhance the "sense of place" on the campus by locating both pedestrian and vehicular gateways at key access points to campus. Although the In-Town BRT UH-Manoa Stop will be located at Sinclair Circle, it will have no adverse effect on projects designed to enhance the "sense of place".

Leeward Community College Long Range Plan

None of the alternatives will adversely affect the University of Hawaii's facilities plans for its Leeward Community College. For example, the Regional BRT will not affect plans to provide additional access to and from the campus.

UH-West Oahu

None of the alternatives will adversely affect the University of Hawaii's plans to develop a new campus in Ewa, the UH- West Oahu campus. The North-South Road park-and-ride facility under the Refined LPA will be located near the proposed campus site.

UH Health and Wellness Center

None of the alternatives will adversely affect the University of Hawaii's plans to develop a UH Health and Wellness Center, which would also be the new campus for the UH John A. Burns School of Medicine, in Kakaako Makai. The In-Town BRT will traverse Kakaako Makai, and therefore will support the transportation

needs of the facility. See Section 5.1.4 for additional discussion on the land use impacts of the In-Town BRT in Kakaako Makai.

Military Installation Planning

Pearl Harbor Naval Complex Master Plan

None of the alternatives will adversely affect the Department of the Navy facility plans for the Pearl Harbor Naval Complex, which includes redevelopment of Ford Island (see below).

Ford Island Development

None of the alternatives will adversely affect the Department of the Navy plans to provide military personnel and family housing, administrative and training facilities, and supporting infrastructure on Ford Island. The only element of the alternatives near Ford Island is the Aloha Stadium Transit Center/Park-and-Ride, which would be located at the overflow parking lot of the stadium. This facility will not be on Navy property, and therefore, will not influence the scope and schedule of the Ford Island development program. Indirect impacts may occur since traffic relating to the transit center and traffic from higher future Ford Island resident and worker populations would use the Kamehameha Highway / Salt Lake Boulevard (Koko Head bound) intersection. On the other hand, the transit center's proximity to Ford Island would improve transit service for the workers and residents of the island.

Fort Shafter Complex

None of the alternatives will adversely affect the U.S. Army's facility plans for Fort Shafter.

Armed Forces Recreation Center – Fort DeRussy

None of the alternatives will adversely affect the U.S. Army's master and recreational planning of Fort DeRussy in Waikiki. Recent improvements to the installation have included extensive landscaping, a second tower to the Hale Koa Hotel, a 1,300-stall hotel parking structure, and realignment and widening of Kalia Road. The In-Town BRT will traverse Fort DeRussy on Kalia Road, and will require widening of Kalia Road, which will displace some landscaping and a few parking spaces (see Section 5.2.2 for additional information). Despite these impacts, none of the installation's recreational facilities will be affected.

Hickam Air Force Base

None of the alternatives will affect the U.S. Air Force's facility plans for Hickam Air Force Base.

Kalaeloa (former Barbers Point Naval Air Station) Reuse

Despite not technically being a military installation plan, none of the alternatives will nevertheless affect redevelopment of the former Naval installation, which may include developing a general aviation airport and Department of Hawaiian Home Lands use.

Fort Armstrong

Similar to Kalaeloa, Fort Armstrong is also a former military installation located at Piers 1 and 2 in Kakaako Makai. None of the alternatives will adversely affect future facilities, which would include continuing maritime break-bulk and limited container cargo operations at Pier 1, and a cruise ship terminal at Pier 2.

City and County of Honolulu Plans, Policies and Controls

General Plan

Since the automobile was introduced in Hawaii early in the 1900s, development of Oahu evolved from that of an ahupuaa (land division extending from uplands to sea used by pre-contact Hawaiians) system to one that was based on plantation agriculture and the port of Honolulu (Honolulu Harbor). Current land use patterns are largely based on the needs of the automobile, with resultant pressure to suburbanize peripheral agricultural and open space lands. As in much of the United States, Oahu's suburbs, such as those in Central and Leeward Oahu, have an imbalance of houses compared to jobs that results in traffic congestion along major transportation corridors as large numbers of workers commute to Honolulu's central business district and other employment centers, such as Waikiki.

The City and County of Honolulu General Plan provides goals and objectives to guide future growth, addressing key issues, such as population, economic activity, housing, and utilities. These four areas are very influential in the direction and rate of future growth. As a matter of General Plan policy, future growth is directed to where residential and employment uses would occur in conjunction with transportation access and circulation. The General Plan also "address[es] the need for a balanced system for the pedestrian, bikeway, public transportation, and automobile". It also calls for a variety of attractive and convenient travel modes, including "public transportation-for travel to and from work...through a mass transit system including exclusive right-of-way rapid transit and feeder-bus components..."

The No-Build Alternative does not support General Plan policies because it does nothing to address the key issues relating to helping direct population distribution, economic activity, housing, and utilities. The TSM Alternative somewhat supports the General Plan population distribution policies, but does not support the orderly economic growth and transportation policies.

The Refined LPA supports the General Plan policies and guidelines because all the elements of this alternative provide a more balanced transportation system than either the No-Build or TSM Alternatives. It supports the transportation-related objectives of the plan. In addition, it will also use the transportation investment of this alternative to facilitate transit-oriented development in the urban core. Along with other supportive policies, the Refined LPA is consistent with the City's organizing principles relating to land use and economic growth.

Development and Sustainable Community Plans

Not only is transportation important for the efficient movement of people and goods, but it is also integral to the quality of life of residents. Spending less time traveling means more time for recreation or other enjoyable activities. Transportation should, therefore, be tightly integrated with land use management controls and policies. The corridor spans three different planning areas (Ewa, Central Oahu and PUC) as designated by the City and is, therefore, influenced by different transportation policies as stated in the development or sustainable community plan of the respective planning area. Recognizing that each planning area has a unique piece of the transportation corridor, it is necessary to review these policies as they have been outlined in their individual development plans.

The Ewa Development Plan was updated and adopted in 1997. Since the Central Oahu Sustainable Community Plan and the PUC Development Plan are currently being updated or adopted, existing and proposed policies are analyzed. Table 5.1-3 summarizes the consistency of the alternatives with policies and guidelines contained in the Ewa, Central Oahu and PUC Development/Sustainable Community Plans (present Ewa Plan and present and proposed Central Oahu and PUC Plans).

TABLE 5.1-3
RELATIONSHIP OF ALTERNATIVES TO PRESENT AND PROPOSED DEVELOPMENT OR SUSTAINABLE COMMUNITY PLAN POLICIES AND GUIDELINES

Development or Sustainable Community Plan	Alternative		
	No-Build	TSM	Refined LPA
Ewa	O	O	XX
Central Oahu (Present)	O	X	XX
Central Oahu (Proposed)	O	O	XX
Primary Urban Center (Present)	O	O	XX
Primary Urban Center (Proposed)	O	O	XX

Sources: Helber Hastert & Fee Planners, Inc.; Plan Pacific, Inc., April 20, 1999.
Notes: XX Highly Consistent with Policy
X Consistent with Policy
O Weak or Poorly Defined Relationship to Policy

As indicated on Table 5.1-3, the No-Build and TSM Alternatives would be inconsistent with current and proposed growth policies of the development and sustainable community plans, particularly proposed land use policies to encourage higher densities in the urban core and discourage development on agricultural and open space lands elsewhere on the island. These alternatives would not relieve pressure to urbanize outlying agricultural lands, leading to higher transportation costs and limited choices of urban lifestyles.

Implementing the Refined LPA will result in an increase in people-carrying capacity and transit service particularly in the PUC, which will provide incentives for transit-oriented development if other supportive polices are implemented. Transit-oriented development, which consists of a mix of residential and commercial uses in a pedestrian friendly environment, are envisioned in the proposed updated PUC Development Plan (May 2002) along the In-Town BRT alignment, such as in Kakaako.

In summary, the No-Build and TSM Alternatives would fail to address the proposed land use and economic development policies to encourage greater densities in the urban core because neither would provide an attractive and convenient travel mode for PUC residents. In addition, neither alternative would address the General Plan goal of limiting suburban development of agricultural and open space lands. The panel of experts assembled to review the proposed alternatives and evaluate their transit-oriented development potential echoed these findings.

Special Management Area

Segments of the In-Town BRT in Kakaako Makai, along Ala Moana Boulevard and in Waikiki will be within the Special Management Area (SMA). Normally, work on existing right-of-way is not considered "development", the standard in which a SMA use permit is needed. It may be likely that pavement work for the In-Town BRT would not be considered "development", but a transit stop, even if located on existing right-of-way, would be considered a "development". Assuming that transit stops and Traction Power Supply Station (TPSS) would be the only elements of the In-Town BRT that would be a "development", a major SMA use permit would be required if the affected transit stop or TPSS in the SMA has a capital cost of over $125,000. Major SMA use permits require approval by the City Council, but minor SMA use permits may be granted by the Director of the City Department of Planning and Permitting.

Developing the In-Town BRT will be consistent with the SMA program because it will not adversely affect access to and along the shoreline, and viewsheds to, from and along the shoreline. To the contrary, the Refined LPA will improve access to the shoreline in some areas. It will not introduce structures that would affect beach processes or present hazards along the shoreline.

Honolulu Bicycle Master Plan

Discussion of project consistency with the Honolulu Bicycle Master Plan is provided in Section 4.7.2.

Traffic Calming Program

None of the alternatives will affect DTS's community-based program that identifies and resolves speeding and/or excessive cut-through traffic problems on residential streets.

Hub-and-Spoke Bus Route Revision Program

None of the alternatives will adversely affect the DTS's program to convert existing City bus routes from a predominately radial network to a hub-and-spoke configuration. All three alternatives assume converting to hub-and-spoke routes. See Section 4.3 for the discussion on transit service impacts.

Oahu Metropolitan Planning Organization

None of the alternatives will adversely affect the Oahu Metropolitan Planning Organization's Transportation for Oahu Plan 2025 (TOP 2025), adopted in April 2001. The No-Build Alternative includes the baseline highway network of the TOP 2025. The TSM Alternative includes the highway network plus improvements to the bus transit system. The baseline highway network as well as the In-Town and Regional BRT are included in the TOP 2025 Plan.

Private-Sector Plans

Waikikian Development Plan

None of the alternatives will adversely affect Hilton Hotels Corporation's plan to replace the former Waikikian Hotel with a new 350-foot hotel building. The In-Town BRT will be adjacent to the Hilton Hawaiian Village on Ala Moana Boulevard and Kalia Road, and therefore will serve the transit needs of the hotel and planned development. See Section 5.1.4 for additional discussion on the land use impacts of the In-Town BRT in Waikiki.

Waikiki Beach Walk

None of the alternatives will adversely affect the Outrigger Enterprises, Inc. plan to redevelop its landholdings along Lewers Street, Kalia Road, Beach Walk and Saratoga Road. The In-Town BRT will be adjacent to the development on Kalia and Saratoga Roads, and therefore will serve the transit needs of the development. See Section 5.1.4 for additional discussion on the land use impacts of the In-Town BRT in Waikiki.

5.1.4 Transit Center and Transit Stop Area Impacts

Future development of the area surrounding transit centers and transit stops would be guided and affected by existing and proposed land uses and regulations. The policies guiding growth, particularly those General Plan and Development or Sustainable Community Plan policies discussed in Section 3.1 and Section 5.1.3, support transit-oriented development. Other factors that affect transit center and transit stop area land uses include the availability of land for development, zoning, existing land uses, and market conditions. A transit stop's land use development influence, as experienced in other cities, is generally concentrated within a quarter-mile of the stop. This distance coincides with the maximum distance that most people would walk to-and-from a transit stop. It also has been found that transit stops located within commercially designated areas support higher density land development and redevelopment than those in low-density residential

areas. The influences of land use policies were based on the Ewa Development Plan, and drafts of the Central Oahu Sustainable Community Plan and the PUC Development Plan.

It should be noted that, compared with existing bus stops, the transit stops associated with the In-Town BRT will have more extensive improvements, providing a greater sense of permanence. Curbside as well as median transit stops will have increased amenities including raised platforms, enhanced shelters, seating and landscaping. Well-marked, signal controlled pedestrian crosswalks will be used at all median transit stops. In addition, sheltered waiting areas, seats, lighting and safety railings will be provided so that transit patrons can wait in safety and comfort. Figure 2.2-4 shows typical median and curbside transit stops for the In-Town BRT.

Table 5.1-4 provides a comparison of the general land use impacts anticipated among the No-Build and TSM Alternatives and the Refined LPA.

1) Regional Facilities

As shown in Table 5.1-4, the Kapolei Transit Center, and the North-South Road park-and-ride facility will be constructed under the No-Build and TSM Alternatives and the Refined LPA. Figure 5.1-2 shows the general location of the proposed Kapolei Transit Center and North-South Road Park-and-Ride. Also included in Table 5.1-4 are transit centers that are included in the Oahu Transportation Improvement Program (OTIP), FY 2002-2004 as part of the conversion of the network to a hub-and-spoke configuration. The OTIP transit centers include: Aloha Stadium, Middle Street, Iwilei, Pearl City/Aiea, Wahiawa Town, Mililani Town, Kailua, and Kaneohe. Figure 5.1-3 shows the general location of the Pearl City/Aiea transit center.

Kapolei Transit Center/Park-and-Ride

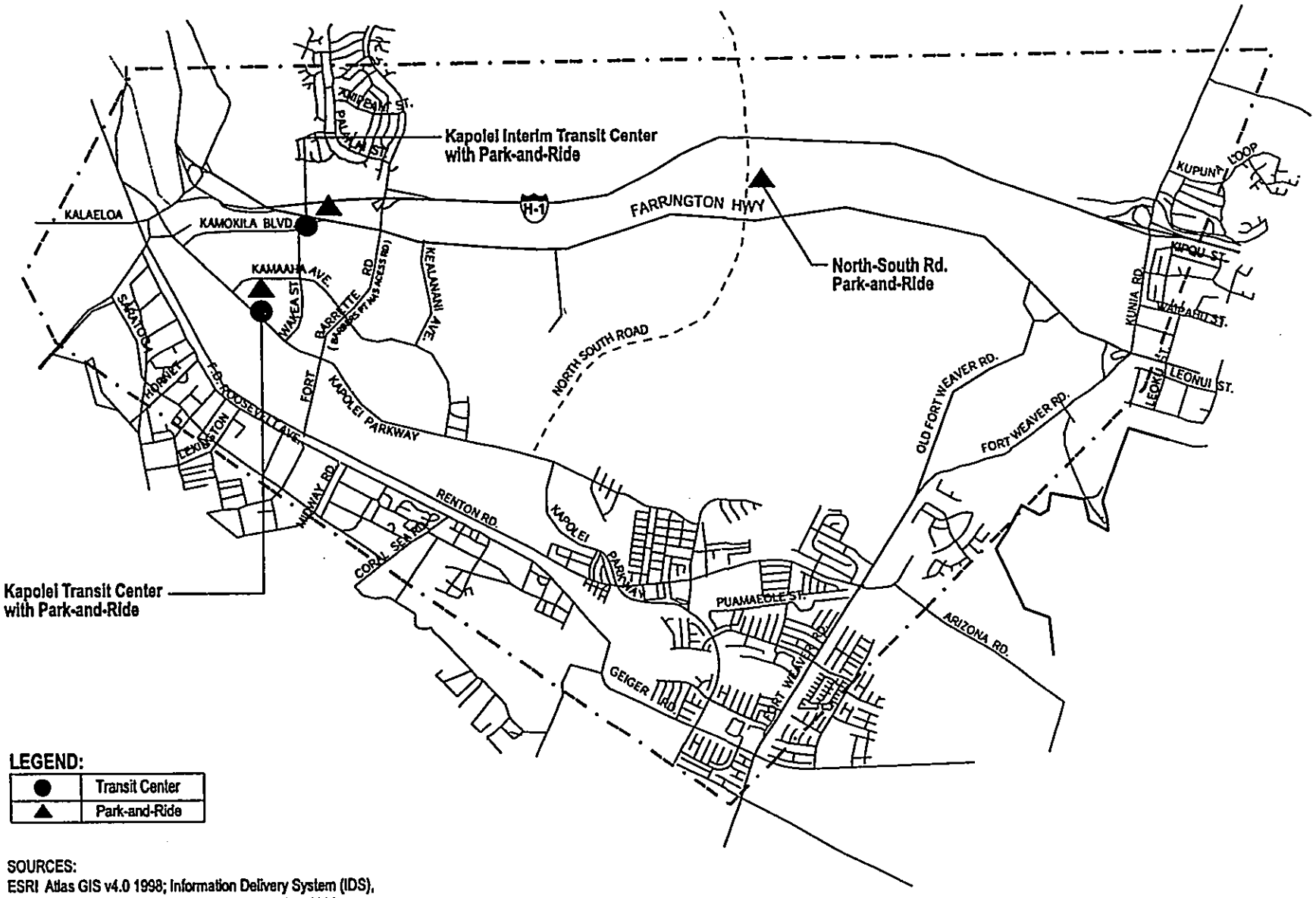
With the No-Build and TSM Alternatives and the Refined LPA, a new transit center and park-and-ride facility in the growing City of Kapolei could help foster development of parcels in and around this transit-related site. For example, pedestrian activity within and around the transit center could encourage retail stores and eating establishments to locate near the center. In addition, the transit center could encourage other commercial investment or services, such as childcare. The connection between Kapolei and the Honolulu urban core, as discussed in Section 1.1, is necessary to encourage coordinated growth. The City is planning to open an interim or temporary transit center with a park-and-ride lot at a vacant parcel near the new City police station. As Kapolei grows, the transit center would be relocated to a location nearer the city center.

North-South Road Park-and-Ride

The North-South Road Park-and-Ride, which will be located along the future North-South Road between Farrington Highway and the H-1 Freeway, is proposed under the No-Build and TSM Alternatives and the Refined LPA. This proposed site also allows using the future North-South Road Interchange with the H-1 Freeway for bus access. The growing Ewa residential communities need a park-and-ride facility so that current and new residents are encouraged to use transit instead of private automobiles for commuting. The park-and-ride facility will support land use plans and policies of this growth area. The site of the proposed park-and-ride facility will displace existing agricultural land. Since the surrounding land will remain agriculture, the land uses surrounding the facility will not change unless zoning is changed to urban designations. If that were to occur, the park-and-ride facility could influence the development that occurs. For example, the UH Board of Regents has recently approved the area makai of the park-and-ride as the site for UH-West Oahu.

Aloha Stadium Transit Center/Park-and-Ride

A regional transit center at the Aloha Stadium overflow parking lot along Kamehameha Highway is included under the No-Build and TSM Alternatives and the Refined LPA (see Table 5.1-4). Unlike the Kapolei Transit Center, the Aloha Stadium Transit Center is not expected to induce land use changes in the area surrounding the site because much of the surrounding area is occupied by the stadium and its parking, and a U.S. military



LEGEND:

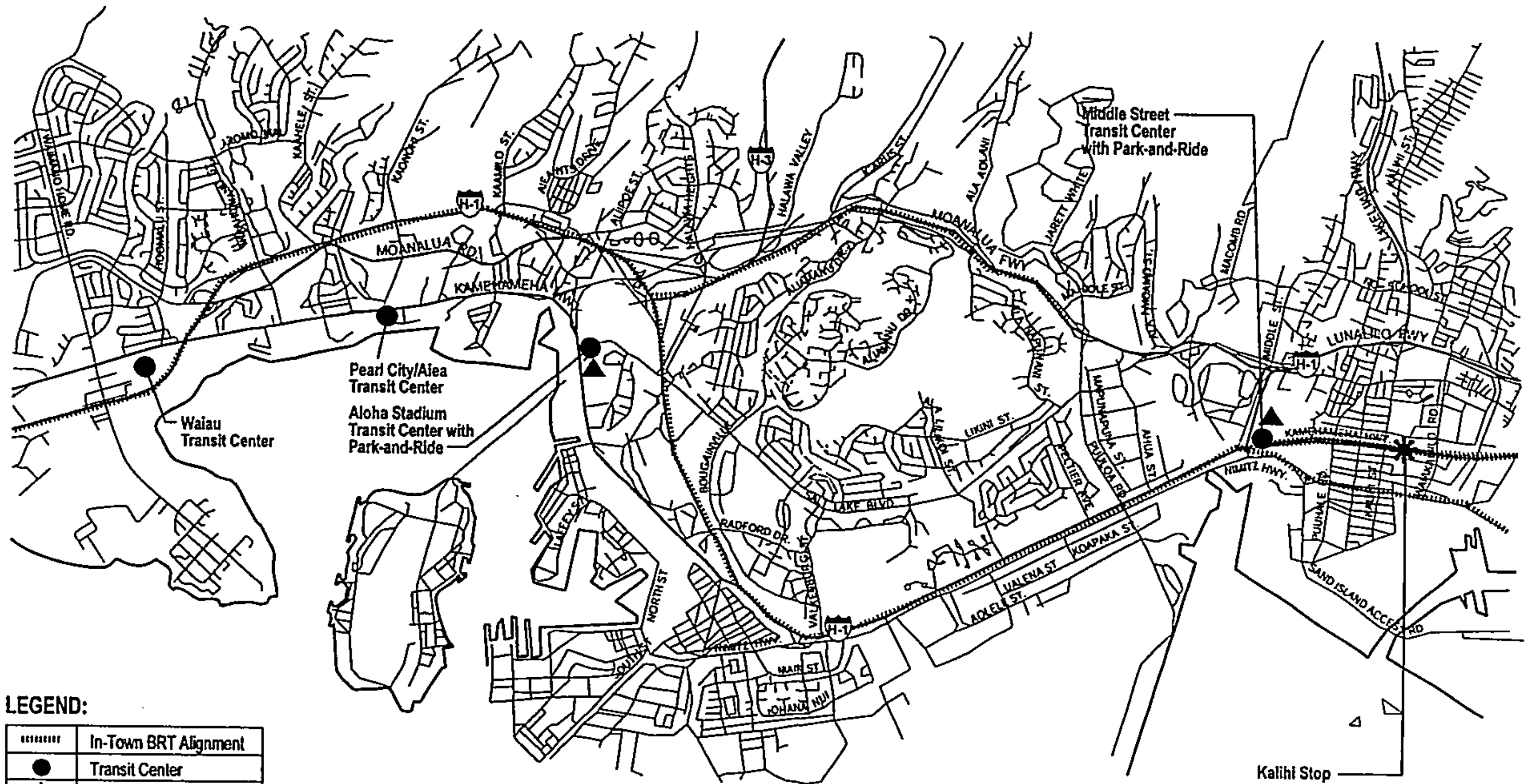
●	Transit Center
▲	Park-and-Ride

SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

N Scale: 0 .25 .50 mi

Transit Center/Park-and-Ride Locations: Kapolei - Ewa/Waipahu

Figure 5.1-2



LEGEND:

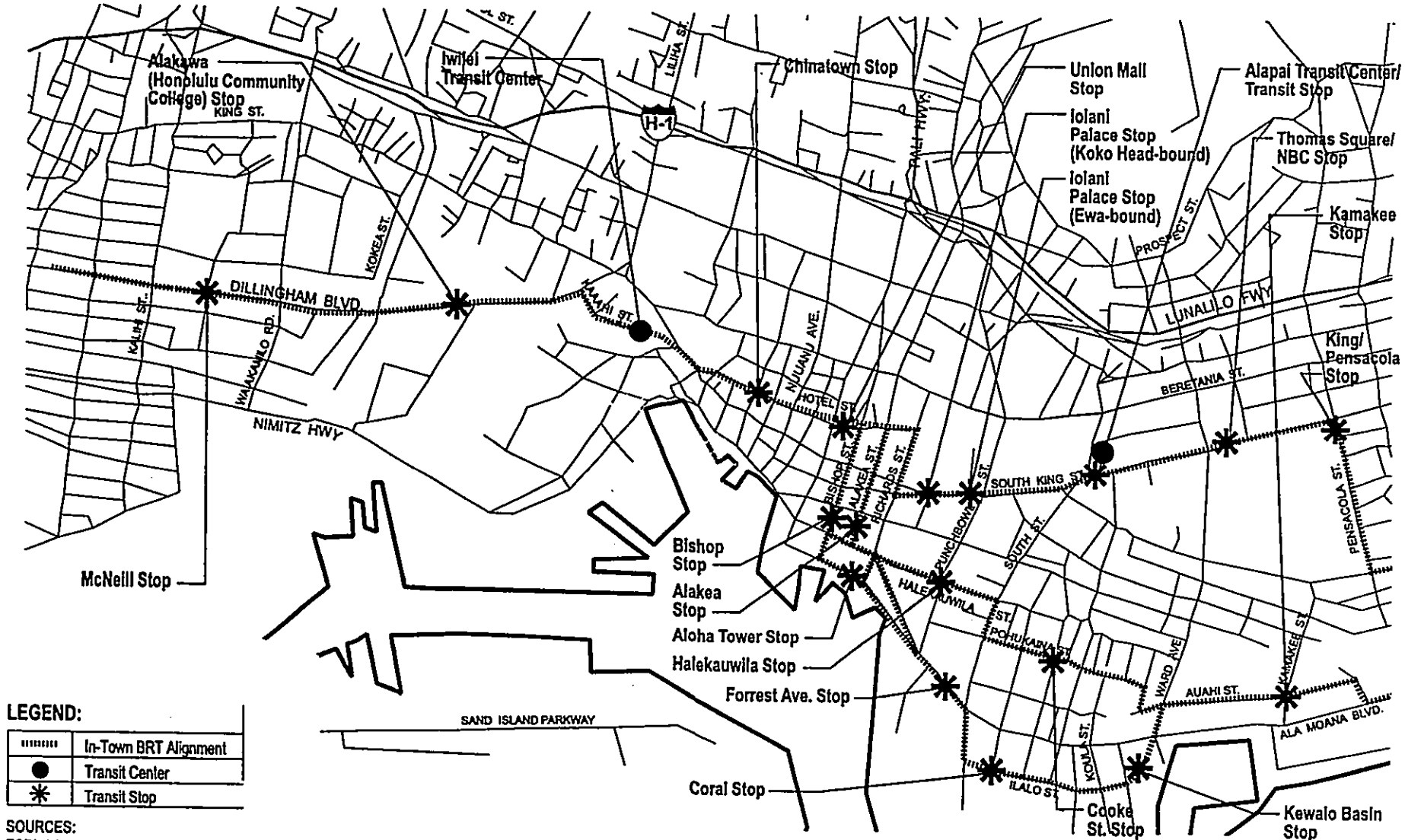
▪▪▪▪▪▪	In-Town BRT Alignment
●	Transit Center
✳	Transit Stop
▲	Park-and-Ride

SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

N Scale: 0 .25 .50 mi

Transit Center/Transit Stop/Park-and-Ride Locations: Pearl City - Aiea - Kalihi

Figure 5.1-3



LEGEND:

▪▪▪▪▪▪▪▪	In-Town BRT Alignment
●	Transit Center
✳	Transit Stop

SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

N

Scale: 0 .375 .75 mi

Transit Center/Transit Stop Locations: Kalihi - Downtown - Kakaako

Figure 5.1-4

TABLE 5.1-4
POTENTIAL FOR TRANSIT-ORIENTED DEVELOPMENT

Transit Facility	Alternatives		
	No-Build	TSM	REFINED LPA
Regional Facilities			
Kapolei Transit Center/Park-and-Ride	XX	XX	XX
North-South Road Park-and-Ride	X	X	X
Aloha Stadium Transit Center/Park-and-Ride	X	X	X
Middle Street Transit Center/Park-and-Ride	X	X	X
Pearl City/Aiea Transit Center	X	X	X
Wahiawa Town Transit Center	X	X	X
Mililani Town Transit Center	X	X	X
Kailua Transit Center	X	X	X
Kaneohe Transit Center/Park-and-Ride	X	X	X
In-Town Facilities			
Middle Street to Downtown			
Middle Street Transit Center/Park-and-Ride	-	X	X
Kalihi Stop	-	-	X
Honolulu Community College Stop	-	-	X
Iwilei Transit Center	X	X	XX
Chinatown Stop	-	-	X
Union Mall Stop	-	-	X
University Branch			
Iolani Palace Stop	-	-	X
Alapai Transit Center	X	X	X
Thomas Square/NBC Stop	-	-	X
King/Pensacola Stop	-	-	X
Pensacola/Kapiolani Stop			XX
Ala Moana/Keeaumoku Stop	-	-	XX
Convention Center Stop	-	-	X
Isenberg Stop	-	-	X
University/King Stop	-	-	XX
UH-Manoa (Sinclair Circle) Stop	-	-	X
Kakaako/Waikiki Branches			
Bishop Stop	-	-	X
Alakea Stop	-	-	X
Halekauwila Stop	-	-	XX
Cooke Street Stop	-	-	XX
Kamakee Stop	-	-	XX
Ala Moana Park Stop	-	-	X
Hobron Stop	-	-	XX
Ft. DeRussy Stop	-	-	X
Saratoga Stop	-	-	XX
Kalakaua/Seaside Stop	-	-	X
Kalakaua/Uluniu Stop	-	-	X
Kapahulu Stop	-	-	X
Kuhio/Liliuokalani Stop	-	-	X
Kuhio/Seaside Stop	-	-	X
Aloha Tower Stop	-	-	X
Fort Armstrong Stop	-	-	XX
Coral Stop	-	-	XX
Kewalo Basin Stop	-	-	XX

Sources: Helber Hastert & Fee Planners, Inc.; Plan Pacific, Inc.; Parsons Brinckerhoff, Inc., September 2002

Notes:
- X — May support transit-oriented development if other factors are present
- XX — Support transit-oriented development
- \- — No Transit Center or Stop at this location

base (Pearl Harbor). The remainder of the surrounding land uses consists of residential neighborhoods of single-family and medium-density dwellings and two shopping centers about a half-mile away. Therefore, there are no developable lands adjacent to the proposed transit center, unless zoning changes are made and the community is supportive of higher-densities and/or land use changes.

2) In-Town Facilities

Three transit centers, 31 transit stops, and one park-and-ride facility are planned for urban Honolulu from Middle Street to the University of Hawaii at Manoa and Waikiki for the In-Town BRT element of the Refined LPA (see Table 5.1-4). The Alapai and Iwilei Transit Centers are included in all alternatives. The Middle Street Transit Center/Park-and-Ride is planned for the TSM Alternative and the Refined LPA.

As shown on Table 5.1-4, the Refined LPA provides an In-Town BRT system that will include dedicated transit lanes, transit centers and transit stops that will be permanent facilities. Such facilities have the potential to facilitate transit-oriented development patterns. For example, as discussed in Section 1.1, the draft update of the PUC Development Plan calls for pedestrian-scale development with convenient walking access to transit. The land uses surrounding Dillingham Boulevard, Iwilei, Kakaako, Convention Center, Kapiolani Boulevard, and some Waikiki sites would be, to varying degrees, influenced by the presence of transit-related facilities and would support a pedestrian-scale environment. Although it is unlikely other parts of the city would see dramatic land use changes because of certain constraints such as ownership patterns, their urban environment would nevertheless become more pedestrian oriented, which could support certain establishments or lifestyles. The parts of Honolulu in which substantial land use changes resulting from the project would not be expected, but would nevertheless see their pedestrian environment enhanced by the In-Town BRT are the Middle Street business area, Chinatown, Neal Blaisdell Center near Thomas Square, and certain areas within Waikiki that have been fully developed under current City land use policies.

The following discusses in more detail some of the areas around the transit centers and transit stops.

Middle Street to Downtown

There are two transit centers and four transit stops planned for the area between Middle Street and Downtown (Union Mall) (see Table 5.1-4). See Figures 5.1-3 and 5.1-4 for general locations.

Middle Street Transit Center/Park-and-Ride Facility

The Middle Street Transit Center/Park-and-Ride site (a separate DTS project) is currently surrounded by industrial and commercial uses on three sides, and military uses on one (Ewa) side. The City is not planning to change these uses, and will probably maintain current zoning. Therefore, the transit center/park-and-ride facility is not expected to change or intensify surrounding land uses, except at the site itself, where as part of the project, joint-use transit oriented retail/commercial establishments will be developed.

Kalihi and Honolulu Community College (HCC) Transit Stops, and Iwilei Transit Center

The Kalihi Transit Stop will support Dillingham Boulevard commercial establishments and serve area residents. While many of the businesses and residences are on small lots, which limits redevelopment potential if there is no consolidation of small parcels, the commercial areas would likely experience some redevelopment to be compatible with increased pedestrian activities because of the presence of a transit stop.

The HCC Transit Stop is not expected to cause substantial land use changes because the surrounding environment is already built-up. However, it will serve HCC employees and the student population plus employees in the surrounding industrial and commercial area.

Since the Iwilei Transit Center (a separate DTS project) will be planned along with a larger HCDCH/DAGS mixed-use senior housing complex. However, due to lack of funding at this time, the mixed-use development is not a committed project.

Chinatown and Union Mall Transit Stops

The In-Town BRT stops in Chinatown and Downtown are not expected to influence major land use changes or intensification because the area is already highly developed. However, the transit stops will provide improved transit service to employees, residents, and visitors in a manner similar to how Hotel Street is currently used as a bus-only facility, with a high degree of pedestrian activity on both sides of the street.

UH-Manoa Branch

One transit center and nine transit stops are planned for the In-Town BRT, UH-Manoa Branch (see Table 5.1-4). The facilities' general locations are shown on Figures 5.1-4 and 5.1-5.

Iolani Palace Transit Stop and Alapai Transit Center

The Iolani Palace Transit Stop will be located in the Historic Precinct of the Hawaii Capital Special District. It will be designed as a low key facility so as not to detract from the historically important buildings, grounds and circulation patterns in the Precinct. Because the transit stop is located in an important historic district, land use changes would not be expected.

The Alapai Transit Center, located on the mauka side of the Cooke and South King Streets intersection, would remain operational under the No-Build and TSM Alternatives. Under the Refined LPA, the facility's basic function will remain the same. Since the land uses surrounding the transit center include the Capitol District and a relatively built-up urban environment, which includes the main police station, substantial land use changes surrounding the transit center are not expected under the Refined LPA, unless the transit center itself is redeveloped for mixed-use transit/commercial uses.

Thomas Square/NBC, King/Pensacola, Pensacola/Kapiolani, and Ala Moana/Keeaumoku Transit Stops

The areas surrounding the proposed Thomas Square/NBC and King/Pensacola Transit Stops are established with the Honolulu Academy of Arts, Thomas Square, Blaisdell Concert Hall, Hawaiian Electric Company (HECO), Straub Clinic and Hospital, Honolulu Club, Kaiser Honolulu Clinic, and McKinley High School. Since One Archer Lane was developed, parcels for redevelopment are limited. Parcels near South King and Pensacola Streets are relatively small, and without consolidation, redevelopment opportunities in this area would be limited. Therefore, a transit stop will not likely influence land use changes at these locations.

In contrast, the Pensacola/Kapiolani and Ala Moana/Keeaumoku Transit Stops will help foster the intensification of commercial and residential land uses because there are several large vacant parcels that provide excellent development opportunities. The City is also encouraging in-fill development of other vacant and underutilized parcels along Kapiolani Boulevard.

Convention Center Transit Stop

With or without a transit stop, the recently constructed Hawaii Convention Center is expected to encourage redevelopment of the adjacent areas, except the low and medium density residences in the Keheka and McCully/Moiliili neighborhoods. Commercial land uses along Kapiolani Boulevard, Atkinson Drive, and Kalakaua Avenue have the potential to intensify because of the transit stop and the convention center.

Isenberg Transit Stop

The area surrounding the proposed transit stop that will be at the corner of Isenberg Street and Kapiolani Boulevard consists primarily of single-family and multifamily residences in relatively small lots on the mauka side of Kapiolani Boulevard, and high-density apartment buildings on the makai side. Although zoning on the mauka side allows for higher density housing, without consolidating the small residential parcels, major redevelopment of the area is not expected with or without the transit stop. The makai side is already built-up, and is not likely to change as a result of the transit stop.

University/King and UH-Manoa Transit Stops

Small scale commercial activities surround the proposed transit stop at University Avenue and King Street. It is anticipated that the transit stop would result in increased pedestrian activity and this would in turn result in intensified commercial activity. In addition, the updated draft PUC Development Plan is encouraging higher density residences in the general vicinity of the stop through the conversion and consolidation of smaller lots.

The UH-Manoa (Sinclair Circle) Transit Stop is located within the University of Hawaii campus, adjacent to the Bachman Hall lawn and Sinclair Library. The University is planning to retain the distinct open space and the gateway/entrance to the University, and is, therefore, not planning major land use changes in the area of the stop. However, a small parking structure is planned near Sinclair Circle. Residences, primarily single-family homes on small parcels, near the University would not likely be affected by the transit stop. Although the stop will support the University through improved transit services, it is not expected to influence land use changes.

Kakaako Mauka Branch

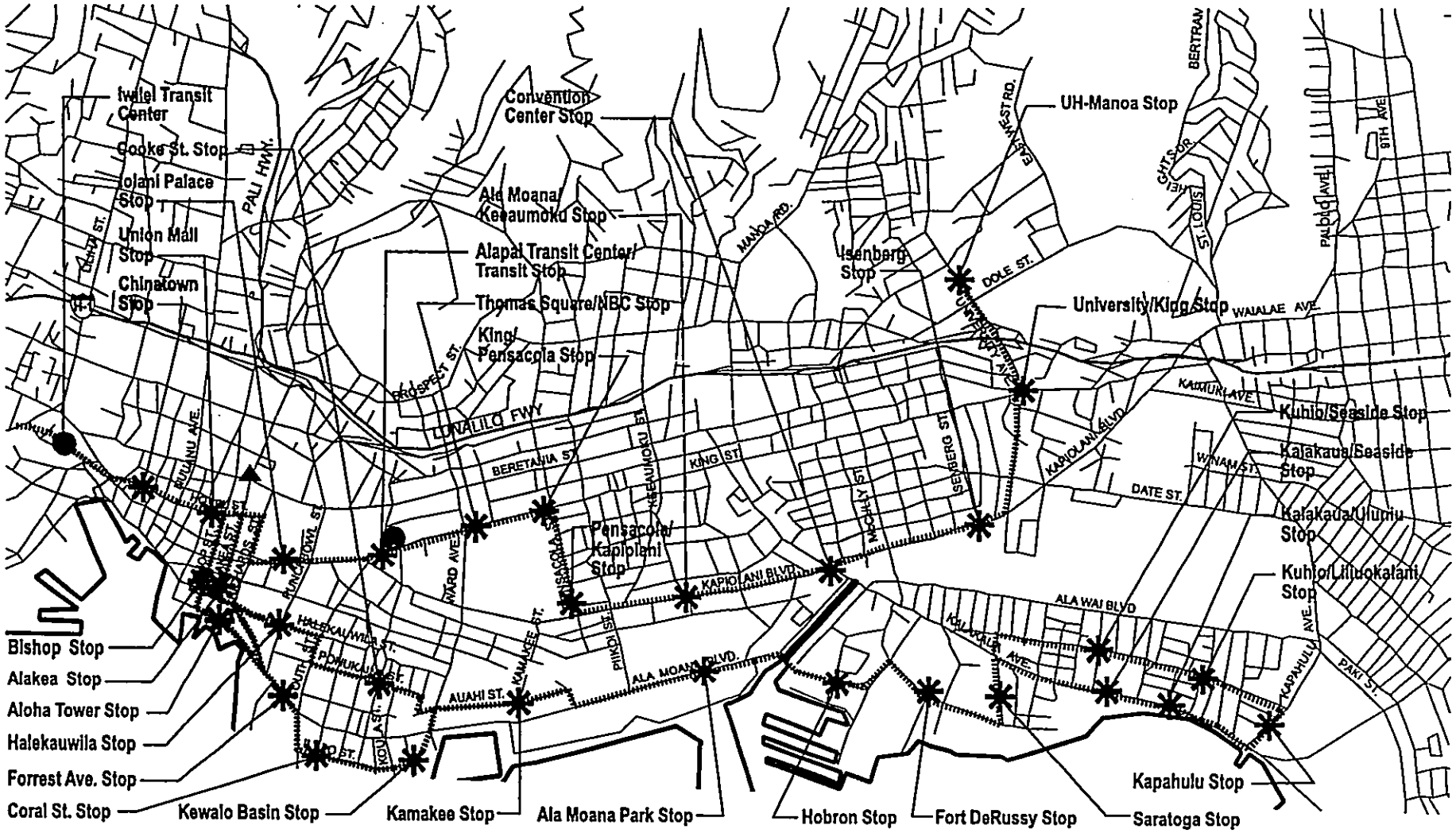
There are 14 transit stops planned for the Kakaako Mauka Branch of the In-Town BRT (see Table 5.1-4). The general locations of these stops are shown in Figure 5.1-5.

Bishop and Alakea Transit Stops

The Bishop and Alakea Transit Stops will be located in the heart of Honolulu's downtown and financial district. Similar to the other stops in Chinatown and Downtown, it is not expected that these stops would influence major land use changes or intensification because the area is already highly developed. However, the transit stops will provide improved transit service to employees, residents, and visitors.

Halekauwila and Cooke Street Transit Stops

The Halekauwila Transit Stop will be adjacent to the State and Federal offices on Punchbowl Street, and along with the Cooke Street Stop, is located in the Kakaako Community Development District. The Kakaako development district provides substantial opportunities for transit-oriented land uses because HCDA is constructing the roadway and utility infrastructure and large land parcels are becoming available for development. HCDA is also encouraging a mix of residential and commercial uses, which is consistent with the transit- and pedestrian-oriented objectives of the project.



SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998.

LEGEND:

In-Town BRT Alignment		Transit Stop	
Transit Center		Park-and-Ride	

N

Scale: 0 .25 .50 mi

Transit Center/Transit Stop Locations: Kalihi - UH-Manoa - Waikiki

Figure 5.1-5

Kamakee Transit Stop and Ala Moana Park Transit Stop

The Kamakee Transit Stop is within Victoria Ward Centers, a major commercial district that includes movie theaters, restaurants, and small to large retail establishments. The new owner/developer is planning to continue enlarging this already successful commercial district. Therefore, land use intensification in the Kamakee Stop vicinity would occur with or without the In-Town BRT.

The stop at Ala Moana Regional Park is surrounded by a major recreational resource on one side and a major commercial shopping center on the other. Therefore, this stop will not lead to any changes in land uses in the general vicinity.

Hobron, Ft. DeRussy, Saratoga, Kalakaua/Seaside, Kalakaua/Uluniu, Kapahulu, Kuhio/Liliuokalani and Kuhio/Seaside Transit Stops

With few exceptions, the transit stops in Waikiki will not substantially influence land use changes. However, they will support pedestrian-oriented business activities along Ala Moana Boulevard, and Kalakaua and Kuhio Avenues.

Two areas in Waikiki are anticipated to undergo substantial redevelopment: the vacant or low-rise apartment buildings surrounding Hobron Lane and Lipeepee Street, and the blocks bound by Lewers Street, Kalakaua Avenue, Saratoga Road, and Kalia Road.

The Hobron/Lipeepee area is zoned Apartment, although the current PUC Development Plan Land Use Map designates this area for Resort Mixed Use. The proposed Hobron Transit Stop could encourage a zone change that allows hotel and commercial development and/or mixed uses, but the City Council would have to approve any zoning change and would consider many other factors, including public opinion.

The Outrigger Hotel Corporation, which owns or manages several hotels in the Lewers and Saratoga Road area, has plans for redeveloping these blocks, utilizing incentives such as the zoning regulations mentioned in Section 3.1, and local and State tax exemptions for new construction projects. The proposed Saratoga Stop would probably not induce redevelopment by itself, but would be an asset to the redevelopment.

The transit stops at Kalakaua/Seaside Avenues and at Kalakaua/Uluniu Avenues could increase business activity at the street level. The transit stops will reinforce the existing pedestrian-oriented uses. Since Kalakaua Avenue is already highly developed, land use intensification is not expected.

The stop on Kapahulu just mauka of Lemon Road would have no impact on land uses since it is adjacent to Kapiolani Park on the Koko Head side and to high-density hotels on the Ewa side.

Since most of the properties in the Kuhio/Liliuokalani Transit Stop vicinity have been developed to the maximum allowed under current zoning regulations, the present land use patterns are expected for the most part to remain unchanged, with or without the In-Town BRT stop. However, properties mauka of Kuhio Avenue have development potential as they have remained vacant since the early 1990s as a result of unfavorable market conditions for new, high-rise condominium projects. The proximity of the transit stop could make the development of these properties more attractive, but the timing of future development would more likely be influenced by market conditions.

A BRT stop could make the area of Kuhio/Seaside Avenues more attractive for high-rise residential development, especially since the In-Town BRT will help reduce noise levels from diesel buses and otherwise improve the ambience of Kuhio Avenue. However, like other areas in Waikiki, the BRT stop would not result

in a sufficient increase in pedestrian activity at the street level to produce an intensification of land uses on its own.

Kakaako Makai Branch

There are four transit stops planned for the Kakaako Makai Branch of the In-Town BRT system that are not also part of the Kakaako Mauka Branch (see Table 5.1-4). Their general locations are shown on Figure 5.1-5.

Aloha Tower Transit Stop

The Aloha Tower Transit Stop will be located next to Aloha Tower Marketplace and the Hawaii Maritime Museum. The transit stop will make Aloha Tower Marketplace, Hawaii Maritime Museum and surrounding areas more readily accessible, and therefore, could generate greater business activity. Business conditions will need to improve however, at Aloha Tower Marketplace before additional retail, hotel, passenger cruise ship facilities and entertainment uses are added.

Fort Armstrong, Coral and Kewalo Basin Transit Stops

The Fort Armstrong Transit Stop will be located on Ala Moana Boulevard in proximity to the U.S. Immigration Office and the Kakaako Pumping Station, two properties listed on the National Register of Historic Places. Real estate for the transit stop will not be taken from these properties, nor would the stop affect the view of these properties from Ala Moana Boulevard. The transit stop will support and may encourage future commercial land uses in Kakaako Makai, which are being planned by the Hawaii Community Development Authority.

The Coral Transit Stop will be located next to the Makai Gateway and the Kakaako Waterfront Parks, which feature cultural and recreational facilities. It will also be in proximity to the proposed biotech facilities and University of Hawaii School of Medicine. The stop will not change existing and planned land uses, but it could encourage growth of commercial activities on the mauka side of Ilalo Street.

The Kewalo Basin Transit Stop will be located near a restaurant and maritime fishing operations. A complex of shops, restaurants, and entertainment facilities are planned for Kewalo Basin, with or without the In-Town BRT. However, this transit stop will provide convenient access to these activities, as well as the Children's Discovery Center and nearby marine research facilities.

5.1.5 Construction Employment Impacts

Substantial economic impacts would result from the Refined LPA compared to the No-Build Alternative. These impacts may be measured by increases in State output/economic activity, employment, and job earnings.

Construction expenditures would occur over the period of construction, directly creating new demand for construction materials and jobs. These direct impacts would lead to indirect or secondary economic impacts, as output from other industries increases to supply the construction industry. The direct and indirect impacts of construction expenditures cause firms in all industries to employ more workers, leading to induced impacts as the additional wages and salaries paid to workers lead to higher consumer spending, creating new demand in many other economic sectors.

1) Methods and Assumptions

Terminology

To analyze the economic impacts of the alternatives, the economic consequences of an increase in the demand for construction goods and services were modeled. Economists use input-output (I-O) models to analyze how changes in a specific industry affect other industries and households.

The following terms help to characterize this process.

- **Direct Impacts** — the increase in demand within the State economy for construction materials and services from the project; usually measured as construction expenditures, but can also be expressed as the number of new construction jobs or job earnings.
- **Indirect Impacts** — the sum of all transactions that filter through the State economy because of the direct purchase of material and labor by the project's construction activity.
- **Induced Impacts** — the increase in household consumption within the State economy from workers who receive additional earnings through the direct or indirect impacts of construction.
- **Total Impacts** — the sum of the direct, indirect and induced economic impacts as measured by the overall increase in output, employment, and/or earnings within the State economy; also referred to as the total multiplied impacts, where the multiplier is the ratio of total to direct impacts.
- **Gross Impacts** —the economic effects of total project expenditures prior to assessing the proportion of economic impacts that would have still occurred in the absence of the project being constructed.
- **Net Impacts** —just the economic effects attributable to funds that are available only because of the project; these being funds that might otherwise not enter the local economy. For purposes of examining economic impacts on the State, only the federal grant funds that would be applied to project construction are assumed to be money that would not be spent within the State in the absence of the project. Economists emphasize the net impacts as more accurate measures of the true increases in output, employment, and earnings associated with a project.

Figure 5.1-6 illustrates the typical spending multipliers arising from the construction activity that would be associated with a transportation investment in the primary transportation corridor, and the associated flow of funds through the State economy.

For this analysis, the Hawaii Input-Output Study 1997 Benchmark Report (March 2002) provides demand multipliers for output, earnings, and employment, by industry/economic sector, from the State Input-Output model. The Benchmark Report is the seventh in a series of input-output (I-O) studies of Hawaii's economy prepared over the past 35 years by the Department of Business, Economic Development & Tourism (DBEDT).

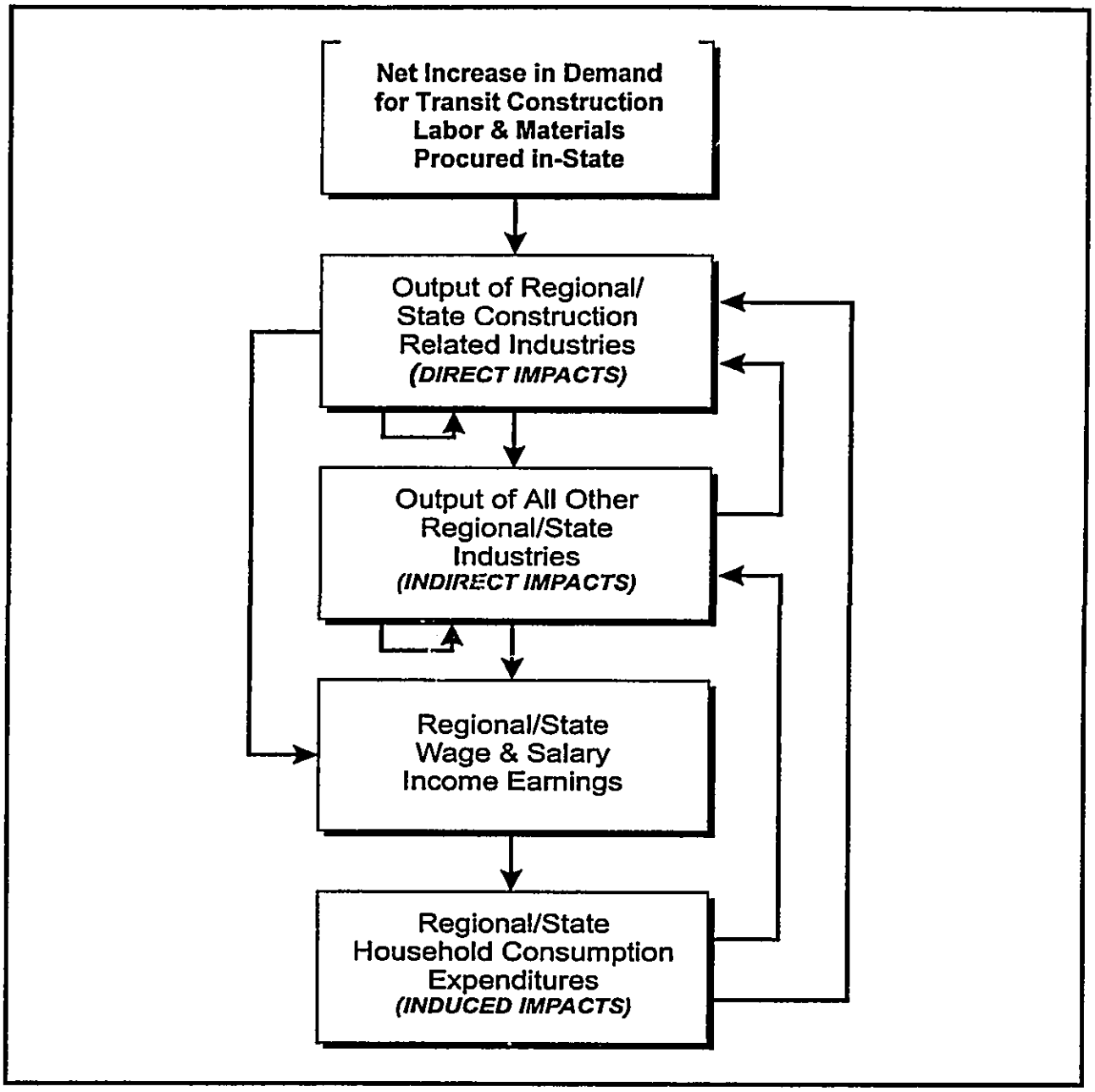
These multipliers apply to the State. For this project, Oahu represents the majority of the State's market for construction activities, and given the magnitude of the project, expenditures would have wider-ranging economic impacts. Therefore, given the economic dominance of Oahu to the rest of the State and the geographic isolation of the State from the rest of the U.S. economy, it is appropriate to consider statewide economic impacts.

Application of State of Hawaii Input-Output Multipliers

Three classes of State of Hawaii I-O final demand multipliers are utilized to estimate the gross and net impacts:

- ***Final Demand Output Multipliers*** translate the initial project capital expenditures (demand) for construction outputs to the total multiplied effect on the demand for output of all firms/industries (in dollars) within the State economy;

FIGURE 5.1-6
CONSTRUCTION SPENDING MULTIPLIER REACTIONS



Source: Parsons Brinckerhoff, Inc. July 2000.

- ***Final Demand Earnings Multipliers*** translate the same direct project expenditures into the total multiplied effect on wage and salary earnings within the State economy; and
- ***Final Demand Employment Multipliers*** convert project expenditures into the total multiplied effect on employment within the State economy, expressed in person-year jobs.

An estimate for the construction-related direct employment can be backed into by dividing a fourth class of multiplier, the ***Direct Effect Employment Multipliers,*** into the total employment estimates derived from the final demand employment multipliers when the capital cost estimates do not include detailed labor

requirements. Similar ***Direct Effect Earnings Multipliers*** and resultant direct wage and salary earnings estimates can also be derived.

As shown in Table 5.1-5, capital costs are divided into three categories: general construction (including engineering/design services), components from outside of Hawaii (including vehicles and pre-manufactured elements), and land acquisition. The majority of the capital costs fall under the first category, general construction, which is assumed to be completely procured within the regional economy. The construction services industry I-O multipliers for the State are then applied to this portion of the total capital costs. Buses and other transit vehicles are assumed to be procured from outside the State.

TABLE 5.1-5
CAPITAL COSTS BY CATEGORIES (2002 $ × 1,000)

Alternative	Expenditure/Multiplier Categories			
	General Construction	Components from Outside of Hawaii	Land	Total
No-Build	$36,500	$367,900	–	$404,400
TSM	$93,100	$435,700	$12,000	$540,800
Refined LPA	$488,000	$543,800	$6,400	$1,038,200

Source: Parsons Brinckerhoff, Inc., October 2002.

Table 5.1-6 presents final demand multipliers and the direct effect multipliers for the State as contained in the DBEDT Input-Output Study.

TABLE 5.1-6
STATEWIDE ECONOMIC IMPACT MULTIPLIERS

		FINAL DEMAND MULTIPLIERS			DIRECT EFFECT MULTIPLIERS	
Expenditure Category	Hawaii I-O Industry #	Output (dollars)	Earnings (dollars)	Employment (jobs)	Earnings (dollars)	Employment (jobs)
Construction	#23, Road Construction	2.12	0.68	19.3	1.92	2.52

Source: Hawaii Input-Output Study 1997 Benchmark Report, Department of Business, Economic Development and Tourism (March 2002).

Gross total economic impacts are calculated by multiplying the expenditure in millions of dollars in the General Construction category in Table 5.1-5 by the appropriate final demand multiplier in Table 5.1-6. Using the Refined LPA as an example, the expenditure of $488 million in the general construction category multiplied by the final demand employment multiplier of 19.3 yields a gross total employment impact on all industries within the regional economy of approximately 9,420 person-year jobs.

1. ($488M × 19.3) = 9,418 person-year jobs

However, some of these jobs would have occurred without the investment in the primary transportation corridor. A more realistic measure of net impacts on employment can be assessed by multiplying the gross total employment impact by the percentage of general construction expenditures representing the in-flow of federal discretionary grant money to the State. This gives approximately 2,800 person-year jobs, which represents the increase in statewide employment attributable to federal Section 5309 New Starts money used to fund the project.

2. ($488M × 19.3 × 29.6% (which represents the percentage of federal New Starts funds vs. local and other federal funds expected to be contributed to the construction portions of the Refined LPA)) = 2,787 person-year jobs.

Gross direct construction employment within the State can be derived by dividing the direct effect employment multiplier from Table 5.1-6 into the gross total employment attributable to the construction expenditures from Table 5.1-7, or approximately 3,740 person-year jobs in project engineering and construction.

3. (9,418 ÷ 2.52) = 3,737 person-year jobs

Similarly, gross direct employment earnings for these 3,740 person-year jobs over the construction period would total approximately $173 million in 2002 dollars.

4. ($331.8M ÷ 1.92) = $172.8 in 2002 dollars.

2) Construction Economic Impacts Summary

The gross and net total impacts on the State economy resulting from construction activities are exhibited in Tables 5.1-7 and 5.1-8. Table 5.1-7 presents the gross total economic impacts for the entire State.

TABLE 5.1-7
TOTAL ECONOMIC IMPACTS OF PROJECT

Alternative	(A) Gross Direct *Expenditure* for Construction ($2002 Million)	Total Statewide Impacts			Direct Construction Impacts	
		(B) Output *($ Million)*	(C) Earnings *($ Million)*	(D) Employment *(Jobs)*	(E) Earnings ($ Million)	(F) Employment (Jobs)
		=(A) x 2.12	=(A) x 0.68	=(A) x 19.3	=(C)÷1.92	=(D)÷2.52
No-Build	36.5	77.4	24.8	704	12.9	279
TSM	93.1	197.4	63.3	1,797	33.0	713
Refined LPA	488.0	1,034.6	331.8	9,418	172.8	3,737

Source: Parsons Brinckerhoff, Inc., using DBEDT multipliers from I-O model, October 2002.

TABLE 5.1-8
ECONOMIC IMPACTS OF FEDERAL DISCRETIONARY FUNDS

Alternative	(A) FTA Section 5309 New Starts Funds Expected ($2002 Million)	Total Statewide Impacts			Direct Construction Impacts	
		(B) Output ($ Million)	(C) Earnings ($ Million)	(D) Employment (Jobs)	(E) Earnings ($ Millions)	(F) Employment (Jobs)
		=(A) x 2.12	=(A) x 0.68	=(A) x 19.3	=(C)÷1.92	=(D)÷2.52
No-Build	0.0	0.0	0.0	0.0	0.0	0.0
TSM	0.0	0.0	0.0	0.0	0.0	0.0
Refined LPA	144.4	306.1	98.2	2,787	51.1	1,106

Source: Parsons Brinckerhoff, Inc., using DBEDT multipliers from I-O model, October 2002.

Using the Refined LPA as an example, new demand for construction would generate gross direct impacts equal to the capital cost of $488 million in 2002 dollars. Adding in the indirect and induced impacts on the output of other industries in the State, the gross multiplied impact on output would be about $1 billion over the construction period. Of this amount, $331.8 million would be paid to workers as wage and salary earnings for the 9,418 person-year jobs generated.

Table 5.1-8 presents the net total economic impacts within the State attributable to FTA Section 5309 New Starts money used to help fund the project. Demand for construction expenditures would range from no New Starts construction money for the No-Build and TSM Alternatives to $144.4 million for the Refined LPA (2002 dollars), reflecting the money generated by New Starts grants used for construction of portions of the project. Adding in indirect and induced impacts on the output of other Hawaii industries, the net multiplied impact on output would range from no construction money for the No-Build and TSM Alternatives to $306.1 million for the Refined LPA over the construction period. These numbers correspond to no new jobs created for the No-Build and TSM Alternatives to 2,787 person-years of new jobs created by the Refined LPA.

While gross total economic impacts are useful for examining the overall magnitude of the project, the net economic impacts from federal discretionary (grant) funds represent more generally accepted and appropriate estimates of the true economic impacts that would arise solely from project construction. This is because local funds invested in the project and federal formula funds which would flow to the State anyway would likely be spent in some other manner within the local economy — with similar multiplied impacts — in the absence of investment in the primary transportation corridor.

Economic Impacts Resulting From The Refined LPA

The Refined LPA will create additional transit jobs. There would be approximately 1,760 jobs as compared to 1,181 jobs today. This is an increase of approximately 600 jobs or 49 percent. This reflects new bus drivers and mechanics. There will be additional administration and management jobs. These numbers were derived using the same ratio of jobs per vehicle requirements as with the existing fleet.

Economic Impacts to Private Bus Operators

The BRT routings, stop locations and other features are designed to serve trips by Oahu residents going to-and-from home, work, school, shopping and other purposes. It is not designed to serve the tourist market as are the private bus operations in Honolulu. Unlike private sector buses, the BRT will not pick-up passengers at their hotels, transfer them to-and-from the airport, take them directly to a desired tourist destination non-stop, or accommodate luggage unless the luggage can fit on the passenger's lap.

Although it is not ideally suited for tourists, some may choose to use the BRT since it serves some activity centers that attract tourists. However, the BRT goes to these places because most of these are also major employment sites or sites where local residents go to as well. According to islandwide data compiled by the OMPO and a recent on-board survey conducted in Waikiki, visitor's account for approximately five to ten percent of total daily boardings systemwide and 20-25 percent of boardings in Waikiki. The tourists expected to use the public transit system with the BRT is forecast to be no greater proportionally than today.

When applied to the forecasted daily boardings associated with the Waikiki portion of the In-Town BRT, the total number of visitor trips is equal to approximately 7.7 percent (6,400) of all daily In-Town BRT boardings (83,200). It is not expected that tour bus and trolley operators will be adversely affected due to the relatively low number of tourists that are expected to choose BRT for their travel needs. The more important determiners of economic impact on tour bus operators will be intra-industry competition and the overall health of the tourism market as expressed in visitor arrivals.

The Kaimuki-Kapahulu-Waikiki Trolley is a result of the community visioning team's effort to increase the vitality of the area. The trolley began operation on August 1, 2000. The trolley operates seven days a week

from early in the morning to 11:00 p.m. on thirty-minute headways. There are 25 stops along the trolley route, which would connect to the future BRT in Waikiki. The trolley is averaging over 120 riders per day. The City contracts with a private bus operator for this service, which has provided the private operator the opportunity for economic benefit. Other opportunities to contract with private passenger carriers will exist on the Refined LPA circulator routes.

5.2 DISPLACEMENTS AND RELOCATIONS

This section discusses potential displacements of existing land uses associated with the No-Build Alternative, TSM Alternative, and the Refined LPA. Displacements would occur in the following cases:

- at certain proposed transit stops, transit centers, TPSS, and maintenance facilities where right-of-way for the transit feature could not be accommodated within the existing government owned right-of-way; and
- along proposed transit alignments where the existing roadway right-of-way would not be adequate for proposed project elements (e.g. widening of Kapiolani Boulevard at Kalakaua Avenue).

The analysis of displacement impacts is based on preliminary engineering plans as of November 2002, from which a list of potentially affected tax map keys (TMKs) was compiled. In the case of occupied TMKs, existing businesses, residences or institutions were specifically identified. The business names reflect tenants occupying those locations in early 2002. The number of employees at potentially affected businesses was estimated using the Hawaii Business Directory (1997, 1998, and 1999 versions) and by field checking locations as necessary between December 2001 and January 2002. Follow-up field checks were also conducted in September 2002.

Where an alternative would require additional right-of-way, the associated property acquisitions could result in total or partial displacement of existing land uses. For this initial analysis, a "total displacement" was defined as cases where enough of a property would be lost as to make the existing land use on that property no longer viable. A property was defined as a tax map key (TMK) parcel. For example, if a parcel were to lose a large portion of an occupied building, be segmented, and/or lose access to the street system, it was deemed a total displacement. A "partial displacement" determination was applied to cases where some land and/or building portion may be lost, but it was deemed that the continuation of the existing land use would be economically viable, based on information currently available. The "partial displacement" determination was also extended to circumstances where private parking may be affected, and includes impacts as minimal as the loss of marginal landscaping.

The TSM Alternative and the Refined LPA would be constructed within or adjacent to existing roadways as much as possible, in part to minimize costs and also to minimize business, residential and institutional displacements. Section 5.2.2 details business displacements under the TSM Alternative and the Refined LPA.

In summary, none of the alternatives would require any total displacements. The No-Build and TSM Alternatives would result in 1 partial displacements of agricultural land used by one farm. Under the Refined LPA, 30 properties would experience minor losses of land area, including the impact to the farm.

5.2.1 Residential Impacts

None of the project alternatives will require the total displacement of any residence. However, one property will be affected under the Refined LPA. Kapalama Makai, an apartment complex on the corner of Dillingham Boulevard and McNeill Street, will require a modification of its driveway, and would lose one or two parking spaces.

5.2.2 Business and Institutional Impacts

1) Total Displacements

None of the alternatives would require the total displacement of any business or institution.

2) Partial Displacements

The No-Build Alternative, TSM Alternative, and the Refined LPA assume the construction of a park-and-ride facility along the future North-South Road. The North-South Road Park-and-Ride would remove about four acres of active agricultural land; however, the farm would remain viable (See Table 5.2-1). There would be no other partial displacements for the No-Build or TSM Alternatives.

TABLE 5.2-1
PARTIAL DISPLACEMENTS WITH IMPACTS TO AGRICULTURE

TMK	Business or Institution	Industry or Use	Impact on Business or Institution	Project Element
9-1-018:005	Farm	Agriculture	Loss of approximately 4 acres of agriculture land	North-South Road Park and Ride Site

Source: R.M. Towill and Parsons Brinckerhoff, Inc., April 2002 and September 2002.

The In-Town BRT element of the Refined LPA will require additional right-of-way at certain locations along its alignment where roadway right-of-way is inadequate for the system, and for traction power supply stations (TPSS). Although these right-of-way requirements will not require any business or institutional relocations, 29 businesses or institutions will be affected by losses of land area, which may affect their driveway access, parking and/or landscaping. These impacts are described on Tables 5.2-2 and 5.2-3.

Twenty-six businesses and institutions will be affected by partial displacements along Dillingham Boulevard, the alignment of the In-Town BRT Kalihi Branch. As stated on Table 5.2-2 and Table 5.2-3, they will generally be affected by modifications to their driveways (i.e., cut due to Dillingham Boulevard widening), and displacements of parking and/or landscaping.

The Kakaako, University and Waikiki Branches will require very little right-of-way from adjacent parcels, and the impacts would be displacements of relatively small amounts of landscaping. Lane widening for the University Branch on Pensacola Street will result in the displacement of some landscaping fronting McKinley High School. The Waikiki Branch will require the widening of Kalia Road, which will result in the displacement of the Fort DeRussy landscaped area next to the road. No buildings would be affected, however.

If embedded plate technology is used, the In-Town BRT will require approximately 15 traction power supply stations (TPSS). Most of the TPSS could be incorporated into existing or future buildings, or could be placed in areas that are not considered to have aesthetic value, such as parking lots. Potential TPSS locations are designated on the preliminary engineering drawings provided in Appendix B (see Volume 3). However, since it would be 8 to 14 years before the EPT is installed depending on the segment, the locations shown on the design drawings are not site specific; each notation is intended only to indicate the general vicinity in which a TPSS would be placed. Site specific environmental assessments of each TPSS would be prepared prior to proceeding with implementation of EPT. Locations and design treatments would be established with community input.

TABLE 5.2-2
REFINED LPA PARTIAL DISPLACEMENTS WITH DRIVEWAY OR PARKING IMPACTS

TMK	Business or Institution	Industry or Use	Impact on Business or Institution	Project Element
1-2-013: 002	Oahu Community Correctional Center (OCCC)	Corrections Facility	Displacement of landscaping	Kalihi Branch
1-2-003:006	Hana Pa'a Hawaii	Fishing Supplies Retailer	Displacement of 1 parking stall, and modification of driveway	Kalihi Branch
1-2-003:017	Fantastik Auto Repair	Auto Repair	Modification of driveway and loss of parking	Kalihi Branch
1-2-003:017	Alpha Hawaii	Taxi Tours	Modification of driveway and loss of parking	Kalihi Branch
1-2-003:018	Power Sweepers of Hawaii Inc.	Pavement and Parking Maintenance	Displacement of up to 4 parking spaces	Kalihi Branch
1-5-017:004	Honolulu Community College	School	Displacement of landscape/grassy area, and relocation of parking entrance	Kalihi Branch
1-5-028:019	City Bank	Bank	Displacement of 1 parking stall and landscaping	Kalihi Branch
1-5-028:022	Checker Auto Parts	Auto Parts Retailer	Displacement of 3 parking stalls and landscaping.	Kalihi Branch
1-5-028:066	Eki Cyclery	Bicycle Store	Displacement of up to 10 unmarked parking stalls.	Kalihi Branch
1-5-028:073	Bank of Hawaii	Bank	Displacement of 1 parking stall, and landscaping	Kalihi Branch
1-5-029:050	Sizzler's	Restaurant	Displacement of landscaping and up to 8 shared parking stalls	Kalihi Branch
1-5-029:050	Hawaii National Bank	Bank	Displacement of landscaping and up to 8 shared parking stalls	Kalihi Branch
2-6-005: 001	Fort DeRussy	Army military base and recreational facility	Displacement of landscaping	Waikiki Branch

Source: SSFM and Parsons Brinckerhoff, Inc., April 2000 and September 2002.

5.2.3 Real Property Acquisition Program

Since federal funds would be used to assist project construction, the project would be subject to provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (49 CFR Part 24, 42 U.S.C. 4601, et seq.). State law on relocations is provided in Hawaii Revised Statutes (HRS) Chapter 111, Assistance to Displaced Persons.

Fair market compensation for land, buildings and uses would be provided to property owners directly affected by right-of-way requirements. For properties that would experience partial displacement but not relocation, mitigation would be provided at project cost, such as reconstruction of building façades and replacement of

lost parking stalls. In addition, moving and other expenses would be reimbursed, as described below. The costs of the relocation assistance are included in the project's cost estimates, as described in Chapter 2.

TABLE 5.2-3
REFINED LPA PARTIAL DISPLACEMENTS WITH IMPACTS TO LANDSCAPING

TMK	Business or Institution	Industry or Use	Impact on Business or Institution	Project Element
1-2-016:029	Love's Bakery	Bakery	Loss of landscaping	Middle St. maintenance facility
1-2-003:020	Building Industry Association of Hawaii	Trade Organization	Displacement of landscaping, and modification of sidewalk	Kalihi Branch
1-2-003:106	Island Recycling	Recycling Ctr.	Modification of driveway and displacement of parking	Kalihi Branch
1-2-009:011	Blood Bank of Hawaii	Blood Bank	Displacement of landscaping and modification of sidewalk	Kalihi Branch
1-5-015:010	Bank of Hawaii	Administrative Offices	Displacement of landscape/grassy area	Kalihi Branch
1-5-020:003	H&R Block	Tax Services	Displacement of landscape/grassy area	Kalihi Branch
1-5-020:003	Spot's Inn Plate Lunch	Restaurant	Displacement of landscape/grassy area	Kalihi Branch
1-5-020:007	Kapalama Shopping Ctr.	Shopping Plaza	Displacement of a small amount of landscaping	Kalihi Branch
1-5-020:007	Hilti	Construction Equipment Retailer	Displacement of a small amount of landscaping	Kalihi Branch
1-5-022:001	New Hope	Church	Displacement of a small amount of landscaping	Kalihi Branch
1-5-025:002	Kalihi Kai Elementary School	School	Displacement of landscaping and a large tree	Kalihi Branch
1-5-029:049	Tesoro	Gas Station	Displacement of landscaping	Kalihi Branch
1-5-029:049	Popeye's	Restaurant	Displacement of landscaping	Kalihi Branch
1-5-029:049	Burger King	Restaurant	Displacement of landscaping, and modification of sidewalk	Kalihi Branch
2-1-027:002	Federal Building	Office Building	Displacement of landscaping	Downtown-Kakaako Branch
2-3-009:010	McKinley High School	High School	Displacement of landscaping/grassy area	University Branch

Source: SSFM and Parsons Brinckerhoff, Inc., May 2002 and September 2002.

5.3 NEIGHBORHOODS, COMMUNITY FACILITIES, AND ENVIRONMENTAL JUSTICE

5.3.1 General Impacts

This section discusses potential impacts to neighborhoods and community character during operation of the proposed alternatives.

None of the alternatives would adversely affect community or neighborhood character or facilities since the proposed transit improvements (changes in bus service) would operate over existing streets with minimal new construction. Although the P.M. zipper lane on the H-1 Freeway and expansion of the Kalihi/Palama (Middle Street) bus maintenance facility are elements of the Refined LPA, neither action would change the existing industrial and mixed business use character of the Airport, Mapunapuna, or Kalihi neighborhoods. Neighborhood character and cohesion in these areas would not be adversely affected.

With the Refined LPA, establishment of an In-Town transit spine and transit stops would enhance community cohesion at new stop locations, especially where redevelopment potential exists, such as the Iwilei and Kakaako areas of the corridor. Transit stops and transit centers would provide a focal point of activity in areas where, at present, there is little foot traffic and people activity.

1) Fire and Rescue Services/Police/Emergency Medical Services

Increases in traffic volumes and worsening congestion in the primary transportation corridor would continue under the No-Build and TSM Alternatives. Emergency response times would worsen, and access to services and facilities would become increasingly congested and dangerous, especially during peak hours. With the Refined LPA, response times for emergency vehicles would improve because they would be able to use the transit priority lanes of the Regional and In-Town BRT systems to bypass roadway congestion when in route to an emergency.

2) Schools

No adverse effects on school facilities from the No-Build and TSM Alternatives and Refined LPA are expected. Rather, access to schools in the corridor would be improved through enhanced transit service. For example, the Refined LPA would provide a BRT line from the Middle Street Transit Center to the University of Hawaii-Manoa campus. Construction would not interfere with campus facilities, and the Refined LPA would enhance access to the UH-Manoa campus. Other schools that would benefit under the Refined LPA are Honolulu Community College, McKinley High School, and Lunalilo and Jefferson Elementary Schools.

3) Parks and Recreation Areas

The No-Build and TSM Alternatives and Refined LPA would not adversely affect parks and recreation areas. With the Refined LPA, access would be improved to Thomas Square, Ala Moana Regional, Ala Wai, Makai Gateway, Kakaako Waterfront, Kuhio Beach and Kapiolani Parks. Impacts on parklands are discussed in more detail in Section 5.11.

4) Traffic and Parking

Traffic and parking impacts are discussed in Chapter 4. Overall, traffic volumes and congestion would increase the most with the No-Build Alternative. Transit stops, transit centers, and park-and-ride lots would generate localized increases in auto traffic during rush hours. The most noticeable effects would occur in areas where there is already substantial vehicle activity and in areas where small increases in existing low or low-to-moderate traffic levels may be perceptible. Construction of the Refined LPA in the street rights-of-way of the Ala Moana/Kakaako neighborhood on Pensacola Street and Ala Moana Boulevard, and of Moiliili on Kapiolani Boulevard and University Avenue, would result in loss of some on-street parking spaces. The net effect is that the people carrying ability of these streets would be increased under the Refined LPA.

5.3.2 Barriers to Social Interaction

None of the alternatives would create visual and psychological barriers within neighborhood boundaries. The In-Town BRT stops would be at-grade where social interaction can continue to take place.

5.3.3 Mitigation Measures

Sensitive design of the new stops and transit centers can help the new facilities blend with and enhance the existing environment. Use of appropriate design character, construction materials and landscaping would help lessen the visual intrusion of a new facility in or adjacent to a neighborhood. Other mitigating design features include installation of new pedestrian paths and bikeways or enhancement of such existing facilities.

5.3.4 System Safety and Security

System safety and security planning would be part of the overall system design for the Refined LPA. Primary concern would be for the safety of passengers and transit personnel, as well as pedestrians, motorists, and others that could be affected by the project. The design would provide a safe environment that would minimize the possibility of injury to anyone, or damage to transit system facilities and equipment.

The system design under the Refined LPA would aim to be such that no single equipment failure or human error could result in serious injury. An operating plan including a hazard analysis and risk assessment would be developed. This plan would include general approaches to failure management, including modes of operation under abnormal conditions. A separate maintenance plan would also prescribe preventive and corrective maintenance procedures. This plan would address equipment reliability, routine maintenance procedures and schedules, and safety assurance procedures for vehicles used in revenue service.

System security would be provided to protect the public and the transit system from crime and vandalism in the Refined LPA. The security system may include a combination of the following: transit system workers, special transit police, and local police. A comprehensive System Security Plan would be prepared during the final design phase to address passenger security, employee security, revenue security, vandalism, theft, crowd control, power/mechanical failures, fires, accidents, and other incidents.

Safety concerns have been taken into account in the locating and concept design of the median transit stops for the In-Town BRT element. Measures including bollards at the ends of the platforms and safety railings along the backside of the platforms on the transit medians would provide passengers a safe waiting environment. Further, median transit stops would be located at street intersections so that riders would be using crosswalks to get safely to and from the boarding area.

5.3.5 Environmental Justice (Executive Order 12898)

Presidential Executive Order (EO) 12898, signed on February 11, 1994, is called the Executive Order on Environmental Justice. It requires federal agencies to take appropriate and necessary steps to identify and avoid disproportionately high and adverse effects of federally-assisted projects on minority and low-income populations' health or environment. Minority is defined as (OST Docket No. OST-95-1411):

- Black Americans, which includes persons having origins in any of the black racial groups of Africa;
- Hispanic Americans, which include persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race;
- Asian Americans, which include persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands; and
- American Indians and Alaskan Natives, which include persons having origins in any of the original people of North America and who maintain cultural identification through tribal affiliation or community recognition.

Low-income means a household income at or below the U.S. Department of Health and Human Services poverty guidelines, which, for 2002 in Hawaii, was an income at or below $20,820 per year for a family of four.

Figure 3.3-1 identifies the major neighborhoods in the study area. As described in Chapter 2, the proposed project would be implemented from Kapolei on the west end, to Manoa and Waikiki on the east end. However, the level of adverse impact and benefit on any particular neighborhood would depend on which elements of the project would be located within that neighborhood. As described in Section 3.3-1, minorities, as defined above, actually comprise the "majority" of the Oahu population. As indicated on Table 3.3-2, only Airport/Hickam/Pearl Harbor had a non-minority population of greater than 50 percent. Therefore, it is difficult to assess compliance with EO 12898 using only the minority criterion, or else almost every neighborhood in the study area, regardless of their socio-economic status, would be afforded protection under EO 12898, which is clearly not the intent of the executive order. However, by considering other factors, such as income, poverty and housing status (see Tables 3.3-4 and 3.3-5), the socio-economic differences between neighborhoods becomes apparent. In addition, it was necessary to analyze the socio-economic conditions of areas smaller than neighborhood units because the aggregated data on major neighborhoods (shown in Tables 3.3-2 through 3.3-5) could conceal information relevant to the identification of a smaller area within a neighborhood as a concentration of minority and low-income populations. It should be noted that Table 5.3-1 and Figures 5.3-1A through 5.3-1C use 1990 Census income data because as of June 2002, 2000 Census income data was not available.

Table 5.3-1 displays minority and low-income populations by neighborhood or sub-neighborhood in the study area, and Figures 5.3-1A through 5.3-1C show their locations. Race, household income, rental occupancy rates, and poverty levels were considered in identifying these populations. Another important factor considered was whether the neighborhood or sub-neighborhood has a high percentage of families within its total number of households. Neighborhoods with small average household sizes (i.e., small percentage of families), even though they may have relatively lower median household income and high renter-occupancy rates, were often not considered to be minority and low-income populations. Examples of such areas include residences near a college or university, or urban areas populated by young working adults (i.e., those who are not in their prime earning years) who have chosen an "urban lifestyle." However, some of these types of neighborhoods contained high poverty rates, and were therefore identified as containing minority and low-income populations.

Four sub-neighborhoods in Waipahu, the residential area near Aloha Stadium, Chinatown, Kaheka and Lower McCully were identified as sub-neighborhoods containing minority and low-income populations. The only major neighborhood identified with minority and low-income populations is Kalihi-Palama.

The TSM Alternative and Refined LPA would not cause disproportionately high and adverse health or environmental effects on these minority and low-income populations because:

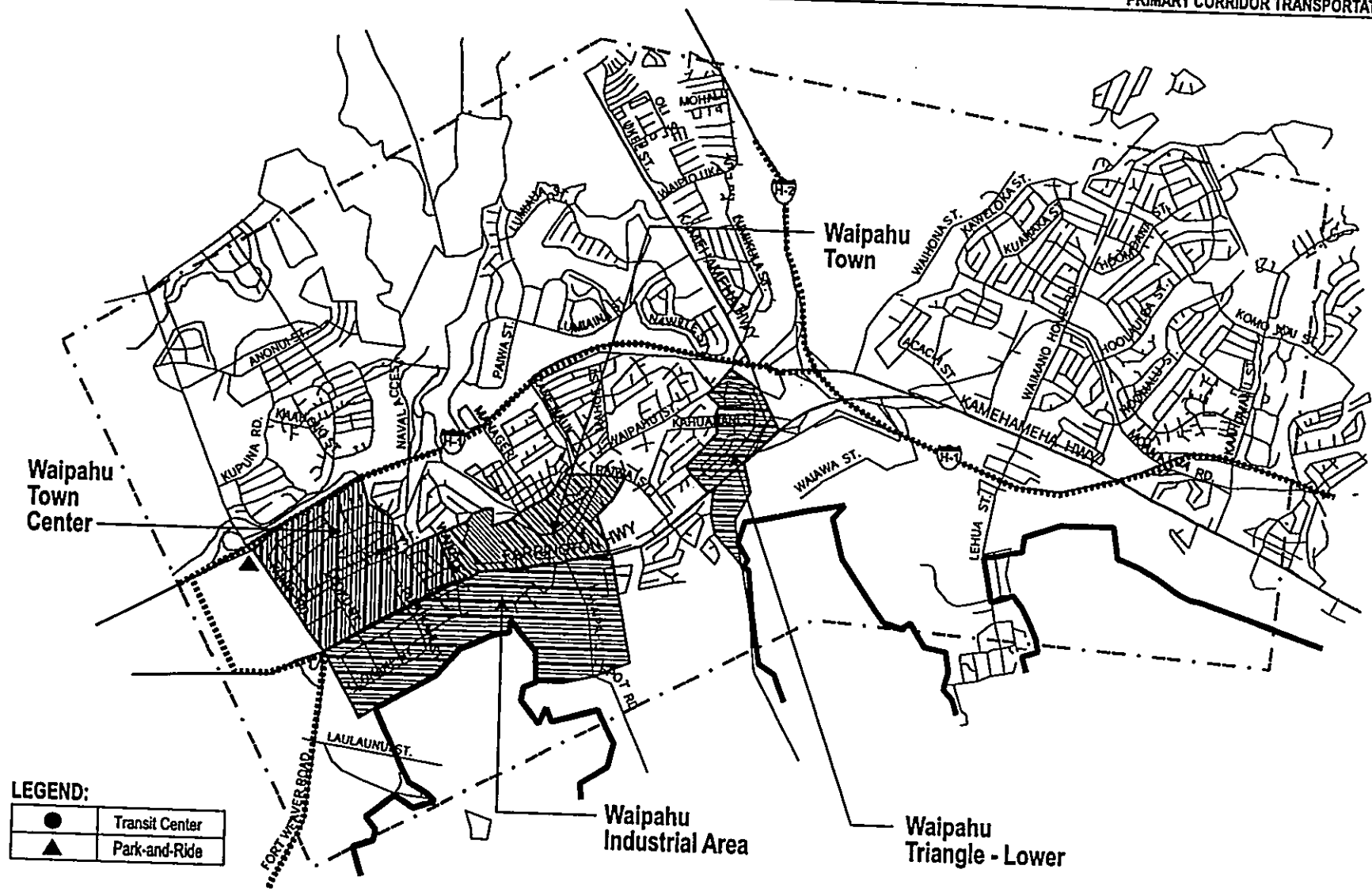
- although some of the populations would be located near elements of the proposed project, such as the alignment of the In-Town BRT, the project would benefit these populations by improving their transit service;
- the alignments were selected in such a manner as to minimize adverse impact while maximizing travel benefits for minority and low-income residents (Chapter 2 contains a further discussion of the balancing of transportation benefits with environmental impacts leading to the selection of certain arterial streets for the alignment of the In-Town BRT system);
- the alignment goes through dozens of neighborhoods, most of which are not minority or low-income;

TABLE 5.3-1
ENVIRONMENTAL JUSTICE
MINORITY AND LOW-INCOME POPULATIONS IN STUDY AREA
(BY NEIGHBORHOOD OR SUB-NEIGHBORHOOD)

Neighborhood or Sub-Neighborhood	Rationale[1]
Waipahu Town Center (sub) Census Tract (CT) 89.01 5,344 persons	80 percent minority population $33,200 median household income 6 percent family poverty rate 57 percent renter occupancy 90 percent of households are families
Waipahu Industrial Area (sub) Parts of CT 87.03 and 87.02 2,813 persons	77 percent minority population $19,811 median household income 35 percent family poverty rate 94 percent renter occupancy 82 percent of households are families
Waipahu Town (sub) Parts of CT 82, 87.02 and 88 3,850 persons	90 percent minority population $33,636 median household income 18 percent family poverty rate 69 percent renter occupancy 89 percent of households are families
Waipahu Triangle – Lower (sub) Parts of CT 82 and 87.01 3,404 persons	96 percent minority population $45,476 median household income 10 percent family poverty rate 38 percent renter occupancy 87 percent of households are families
Stadium (sub) Parts of CT 74, 75.01 and 76 3,114 persons	83 percent minority population $28,669 median household income 22 percent family poverty rate 60 percent renter occupancy 85 percent of households are families
Kalihi-Palama CT 53 (part), 54, 55, 56 57, 58, 59, 60, 61, 62.01 (part) and 62.02 40,144 persons	91 percent minority population $25,647 median household income 16 percent family poverty rate 71 percent renter occupancy 76 percent of households are families
Chinatown (sub) CT 52 2,480 persons	88 percent minority population $13,202 median household income 17 percent family poverty rate 97 percent renter occupancy 45 percent of households are families
Kaheka (sub) CT 36.01 5,151 persons	75 percent minority population $20,544 median household income 9 percent family poverty rate 69 percent rental occupancy 34 percent of households are families
Lower McCully (sub) 5,856 persons Parts of CT 24.01 and 25	78 percent minority population $24,208 median household income 12 percent family poverty rate 77 percent rental occupancy 49 percent of households are families

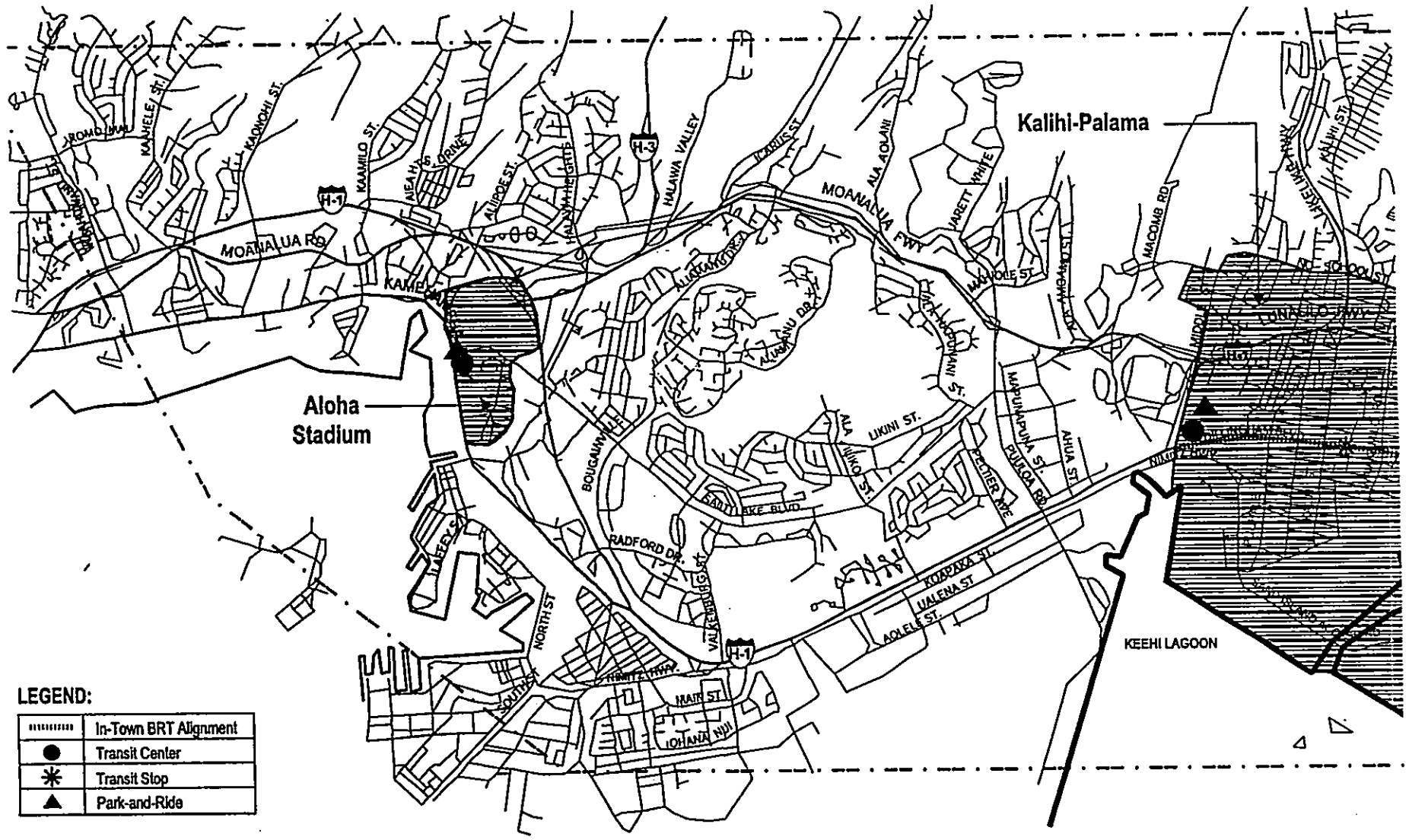
Source: Neighborhood Profiles, City and County of Honolulu Planning Department (now Department of Planning and Permitting), and Parsons Brinckerhoff, Inc., 1996

Note: [1] Data is from the year 1990 U.S. Census.
"Other race" was included in minority population.



Locations of Minority and Low-Income Populations: Waipahu - Pearl City

Figure 5.3-1A



LEGEND:

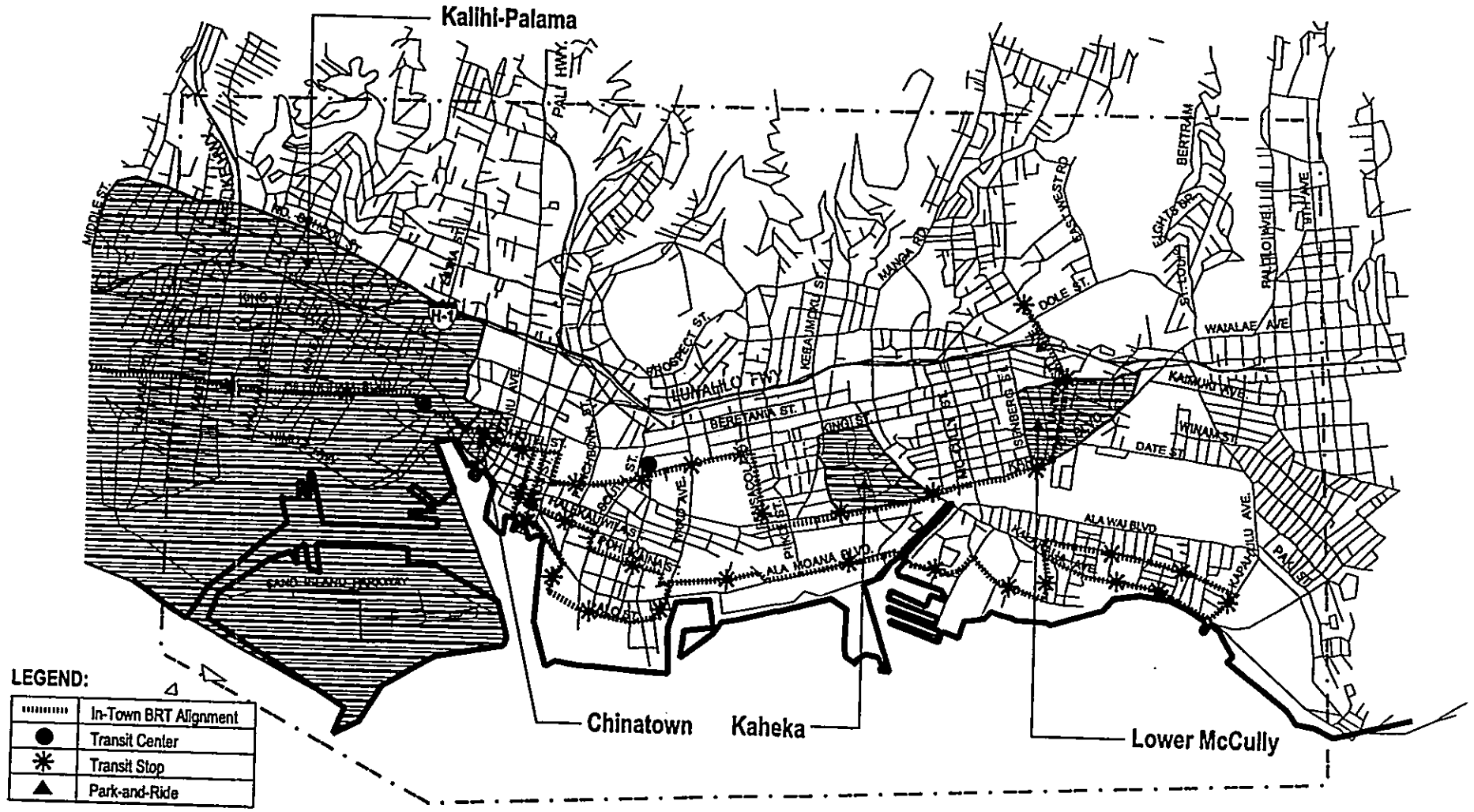
▪▪▪▪▪▪▪▪▪▪	In-Town BRT Alignment
●	Transit Center
✳	Transit Stop
▲	Park-and-Ride

SOURCE:
U.S. Census Bureau

N Scale: 0 .25 .50 mi

Locations of Minority and Low-Income Populations:
Aiea - Fort Shafter

Figure 5.3-1B



SOURCE:
U.S. Census Bureau

N Scale: 0 .25 .50 mi

Locations of Minority and Low-Income Populations: Kalihi - University

Figure 5.3-1C

- minority and low-income areas are not being isolated by the project;
- the proposed project would not create health risks to minority and low-income populations; and
- project-related impacts to the minority and low income populations would be avoided, minimized or mitigated whenever possible.

In summary, minority and low-income areas would receive the positive benefit of improved access and would not be disproportionately affected by negative impacts.

Most of the minority and low-income populations identified on Table 5.3-1 are not located near construction activities associated with the proposed project and, therefore, would not experience disproportionate adverse health or environmental effects. The P.M. zipper lane would be the only project element near the minority and low-income populations in Waipahu. Similarly, the Stadium residential area would not be affected by the H-1 Freeway ramp at Luapele Drive, P.M. zipper lane and the Aloha Stadium Transit Center, the only project elements near this neighborhood.

Minority and low-income populations identified on Table 5.3-1 that would be directly affected by the project are located in Kalihi-Palama, Chinatown, Kaheka, and Lower McCully (see Figures 5.3-1A through 5.3-1C). The In-Town BRT would traverse the Kalihi-Palama and Chinatown neighborhoods, and be adjacent to the Kaheka and Lower McCully sub-neighborhoods. Because these neighborhoods have high rates of transit usage, moving the In-Town BRT alignment to avoid these neighborhoods would detract from the ability of the project to enhance service to minority and low-income populations. The Refined LPA would substantially improve the level of transit service (amenities, access and quality) provided to the minority and low-income populations in the urban core. The Refined LPA, as well as the TSM Alternative, would also improve transit service for minority and low-income populations outside the urban core, such as those populations in Waipahu, because of the conversion to a hub-and-spoke system and increase in service levels compared to the *No-Build Alternative*.

The benefit to the identified minority and low-income populations is improved transit service, without the drawback of disproportionate adverse health or environmental impacts. As described in Section 2.2.3, the In-Town BRT system would be constructed by converting general-purpose traffic lanes on city streets, which would eliminate the need for major right-of-way acquisitions.

Participation from residents and business owners serving the minority and low-income populations has been actively solicited throughout project planning (see Appendix A). Workshops, presentations and small group meetings have been held in communities throughout the island, including the five rounds of workshops within the Oahu Trans 2K process, the sub-area Working Groups, and individual meetings with community, environmental, business and civic organizations. Input from these public involvement activities has been influential in planning the proposed project.

Potential health risks to minority and low-income populations are related to traffic safety, adverse air quality and noise impacts, and the release of hazardous materials. However, these risks would not disproportionately affect minority or low-income populations, and potential impacts of these types would be minimal or mitigated, as described elsewhere in this document.

Potential traffic safety hazards could involve transit riders being exposed to In-Town BRT and other vehicles while walking to or waiting at the In-Town BRT median platforms. To mitigate potential traffic hazards, these median In-Town BRT stops would be located at intersections where crosswalks are provided, and the platforms would include bollards and railings for safety (see Section 5.3.4). Air quality impacts would not pose health risks because carbon monoxide (CO) levels throughout the project area would not exceed the National Ambient Air Quality Standards (AAQS), and would be generally the same as the No-Build Alternative (see Section 5.5). The State AAQS would be exceeded at certain intersections under all the alternatives. However, it should be noted that the State AAQS for CO is set at such a stringent level, that it is exceeded at many locations that have even moderate traffic volumes. Also, the air quality analysis is based on the assumption of worst-case meteorological conditions that may only occur once a year or even less.

The proposed project would cause noise impacts to an EJ population near Aloha Stadium, but this impact will be mitigated (see Section 5.6). Other adverse impacts to the minority and low-income populations adjacent to the project include construction impacts, and the removal of some landscaping. Whenever possible, measures to avoid, minimize, or mitigate adverse impacts would be implemented as described in relevant sections of this document.

Another potential adverse impact to minority and low-income populations is the proposed location of the Refined LPA's maintenance facility. The site is in the Kalihi-Palama neighborhood, integrated with the existing bus maintenance facility on Middle Street (see Section 2.2.3). This site was selected because of its proximity to the existing bus maintenance facility, the parcel zoning is industrial, and there are no residences immediately adjacent to the site (the nearest residences are several hundred meters to the east). Therefore, the placement of this facility in Kalihi-Palama does not represent a disproportionately high and adverse effect on minority and low-income populations.

In conclusion, the proposed project would be located at and near some minority and low-income populations. In accordance with EO 12898, federal projects must take appropriate and necessary steps to avoid disproportionately high and adverse effects on these populations. For those minority and low-income populations near elements of the project (in particular the Refined LPA), these populations would benefit from improved transit service without experiencing disproportionate health or environmental impacts. Even the proposed location of the Refined LPA system maintenance facility in Kalihi-Palama is not a disproportionately high and adverse impact, because residents would not be directly affected by such a facility.

5.4 VISUAL AND AESTHETIC RESOURCES

This section identifies the project elements that would result in visual impacts and discusses them in relation to the important visual resources identified in Section 3.4.

Potential visual impacts were determined by assessing the compatibility of the transportation improvements in the context of the existing environment. A key concept in visual quality assessment is the notion of visual compatibility between the alternatives and the existing landscape. "Visual compatibility" is defined as the degree to which the existing visual resources and the proposed transportation improvements can co-exist harmoniously. The degree of visual compatibility is greater when a transportation improvement blends in, *i.e.*, conforms, rather than contrasts, with surrounding visual resources.

5.4.1 Impacts

Regardless of the propulsion technology selected, the In-Town BRT in the Refined LPA will use bus-like vehicles without an overhead catenary system or fixed rails, running at-grade on existing roadways. Therefore, the enhanced operation of buses and the new BRT vehicles will not have a negative impact on visual resources along most of the proposed alignment. Priority treatments for buses will involve minimal physical changes to the vertical view plane, resulting in little or no visual impact on the existing landscape, regardless of land use. The embedded plate technology requires traction power supply stations (TPSS) about every 3,300 feet in sections where the BRT vehicles operate at two-minute headways and 6,600 feet apart in sections where vehicles operate at four-minute headways. A typical TPSS structure is approximately 35 feet by 15 feet by 10 feet high. Locations of the supply stations will be made as unobtrusive as possible. Where it is feasible, supply stations will be located within a proposed transit center, or within other existing or proposed buildings such as parking structures. In the absence of an available appropriate structure, TPSSs will be located in vacant lots or in lots shared with existing structures.

The Refined LPA provides opportunities to enhance the urban form -- not only in the urban core but also wherever transit improvements are proposed. These enhancements to activity centers serve as opportunities for mixed uses and public spaces. As an at-grade system, typically running within existing roadways and streets, it offers an opportunity to improve the visual quality of the streetscape and enhance the pedestrian experience. There will be a greater sense of visual order and unity because of the physical improvements

and landscape treatments along the alignment. There will be special paving at crosswalks, street lighting, banners, street furniture, and plantings along the entire corridor, which will reinforce the character of the area and provide a visual sense of place.

In comparison, the TSM Alternative would have minimal visual impact, because transportation elements that would be most visually apparent would be sound barriers and transit centers. The No-Build Alternative would have little or no visual impact.

Some of the In-Town BRT stops would be located in areas with high visual or aesthetic value for several reasons, such as urban landscaping, cultural surroundings, open space, public and institutional establishments and environmental characteristics. Mitigation measures for these impacts are described in Section 5.4.2.

1) No-Build Alternative

The No-Build Alternative would not involve additional construction; therefore, no impacts on visual resources would occur.

2) TSM Alternative

Most proposed improvements are limited to existing roadways such as the H-1 Freeway; therefore, there would be little or no visual change.

3) Refined LPA

Transit centers/transit stops and road widening elements may have some visual impacts. Other structures such as bus ramps would not be visually intrusive to the existing surrounding views.

Transit centers and park-and-ride lots will include passenger shelters, street furniture, light standards, landscaping and in some cases passenger and community oriented retail and public facilities. These elements will be designed to be appropriate in each setting and could, in some cases, enhance the aesthetics of the area. Most transit centers will not be located in visually sensitive areas.

The Kapolei Transit Center and the North-South Road Park-and-Ride will occur in areas that are not yet fully urbanized, but will be increasingly urbanized in the next 5 to 20 years. This transit center and park-and ride lot will feature passenger shelters, street furniture, lighting, landscaping, and canopy trees. These elements could help to enhance the visual order of these areas, without disrupting existing mauka views.

Some transit stops will be located in or near visually sensitive areas. Special Districts have visual resources valued by visitors and residents; therefore, design of the transit system will be handled carefully through these areas. Kapiolani Boulevard will have some median and curbside transit stops. These canopied waiting areas will vary depending on the surrounding neighborhood but in general will look like the typical stops pictured in Figure 2.2-4. The In-Town BRT stops in the Chinatown, Thomas Square/Academy of Arts, and Hawaii Capital Special Districts will be designed so that none of the elements affect views of any important landmarks. The transit stop planned near the Duke Kahanamoku Statue on Kalakaua Avenue, also will not block views of the statue.

At the Working Group (See Section 1.0.) meetings, the participants brainstormed about the elements the BRT transit stops should include. Based on these sessions, the technical staff developed representative concepts for several of the transit stops and other visually important locations. These can be seen in Figures 5.4-1 through 5.4-10.

Other sensitive areas where transit stops are planned include the following, and therefore, transit stops in or near these areas may require special design treatment, which may also involve consultation with organizations that care for these resources:

- Downtown
- Waikiki Special District
- Hawaii Convention Center
- UH-Manoa
- Ala Moana Park
- Kalia Road in Fort DeRussy
- Along Kalakaua Avenue
- Kapiolani Park (including Honolulu Zoo)
- Makai Gateway Park

A new reversible bus ramp will be built to the H-1 Freeway off of Luapele Drive to serve the proposed Aloha Stadium Transit Center. The ramp would be constructed underneath the H-1 Freeway Viaduct in Halawa between existing piers and would partially be a tunnel. It would not create a new visual intrusion on the landscape.

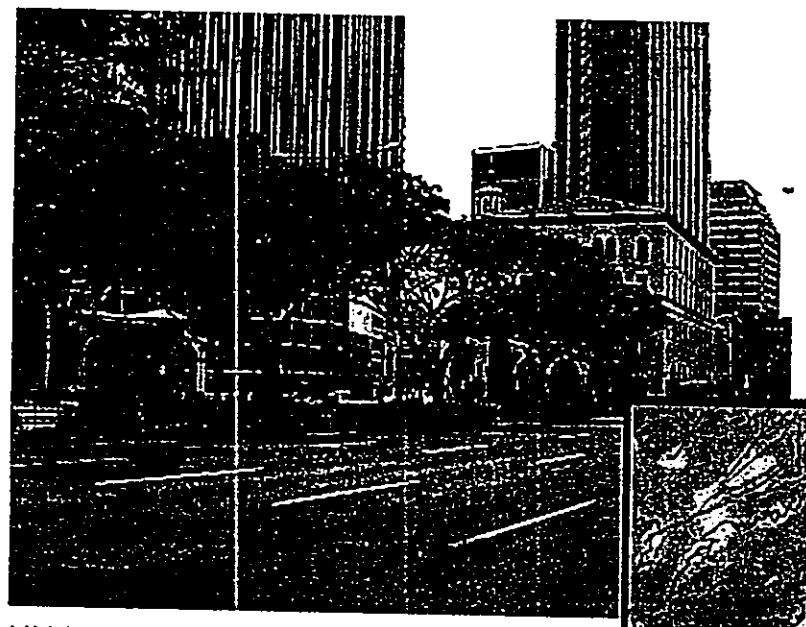
To mitigate the noise impacts of the Aloha Stadium Transit Center on the Puuwai Momi residential complex (see noise impact discussion in Section 5.6), a sound wall will be erected along the existing fence line of the apartment complex on Salt Lake Boulevard at Kamehameha Highway. The wall would be a solid structure roughly 410 feet long and 10 feet high. Figure 5.4-11 is a visual rendering of how the sound wall could look; however, the noise wall will be designed in the next project phase – final design – which would include public input.

Some of the In-Town BRT transit lanes will involve street widening which will require tree trimming, relocation, or removal/replacement at points along the alignment (See Section 5.7). Any potential visual impacts on landscaping will be mitigated through provision of new street plantings, appropriate tree trimming or tree replacement to accommodate the BRT lanes. Roadway widening in some areas will not have much impact, because widening is expected to be visually compatible with surrounding land uses. Public review comments on the SDEIS included concerns about the visual impact of relocating some of the monkeypod trees on Kapiolani Boulevard. Because these tree impacts will be mitigated, as described in Section 5.7, no visual impact is expected.

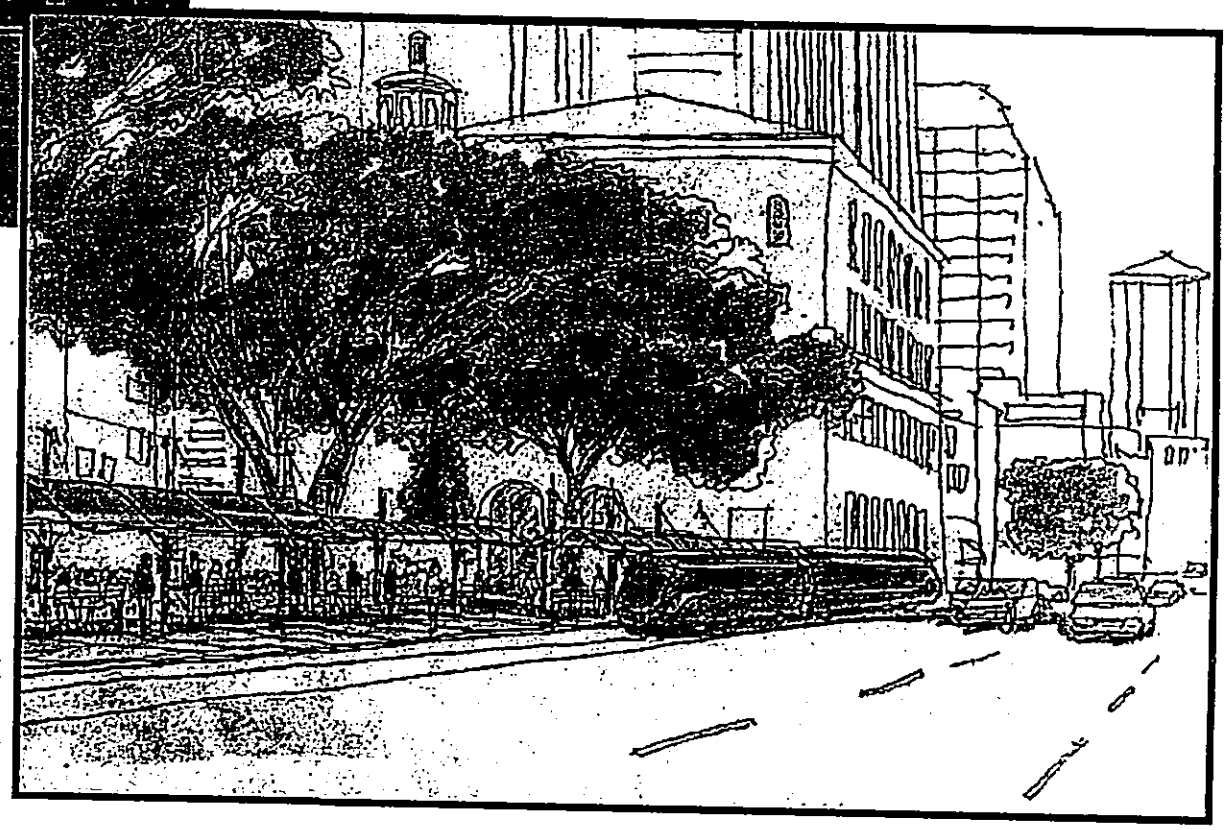
5.4.2 Mitigation

All project elements potentially causing visual impacts will be designed and landscaped to have the least possible negative visual effect. Project elements such as transit centers and transit stops will be designed to visually blend in with their surroundings.

The physical appearance of transit stops located in Special Districts will be determined during final design. Chinatown, the Capitol District, Thomas Square, Kapiolani Boulevard, Waikiki Beach, Kapiolani Park and UH-Manoa are considered potentially sensitive areas for transit stops. Stops will be designed to blend in with their surrounding contexts, based on public input and conformance with appropriate design standards. Effective planning with area businesses, residents, and agencies will result in design features unique to each area. For example, the transit stop at Kalakaua Avenue and Uluniu Avenue, will be designed to blend in with the recent Kuhio Beach improvements by using similar materials and design treatments. This stop will be a discreetly designed stop so as not to obstruct the view of the Duke Kahanamoku Statue and the ocean from the street.



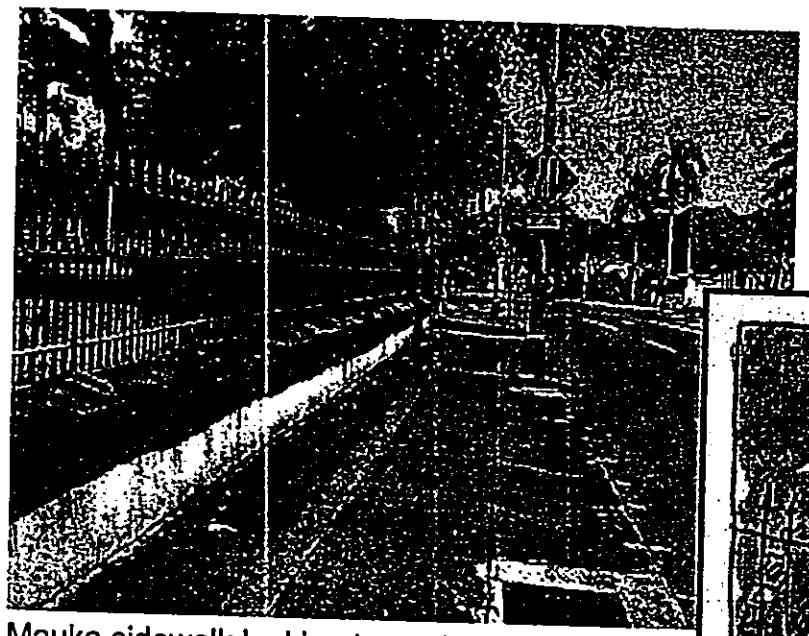
UH-bound station location on the makai side of King Street.



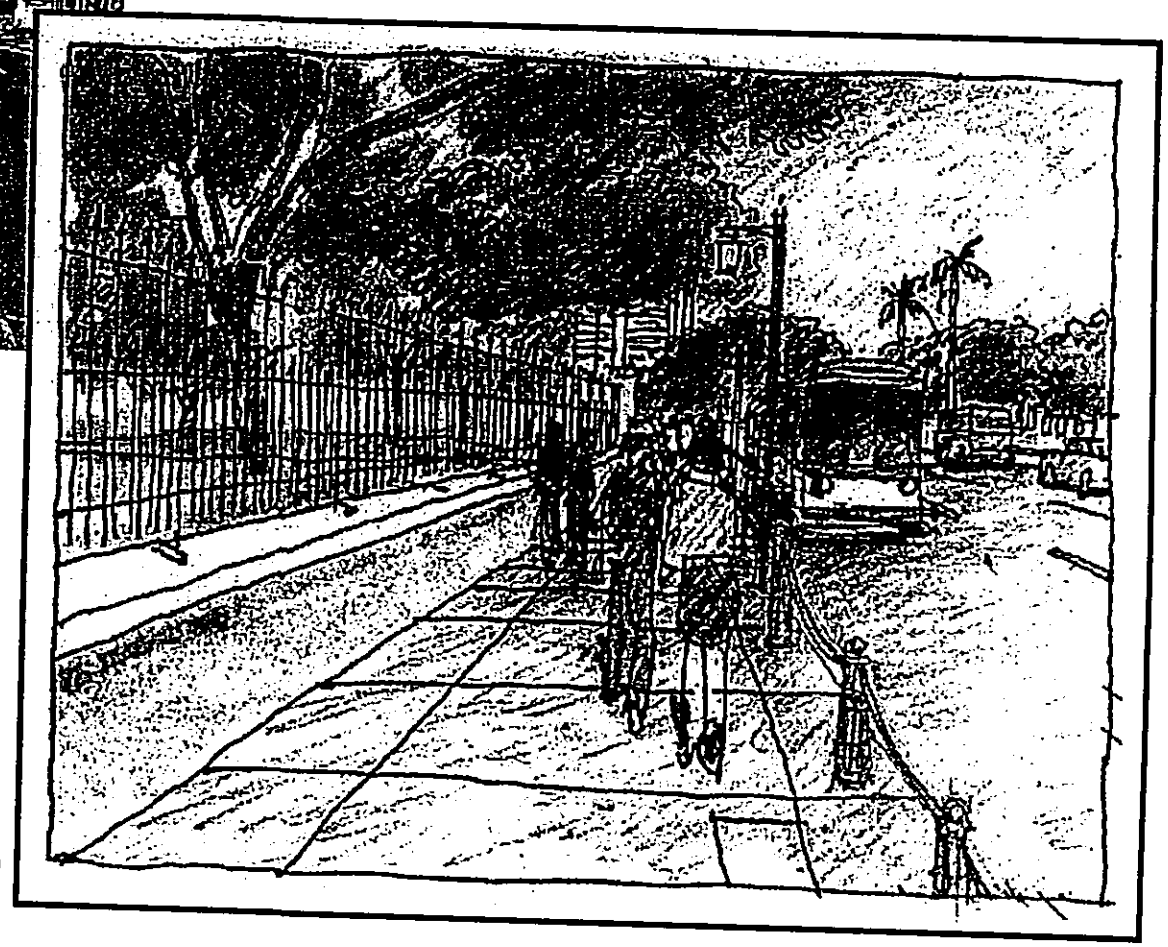
Light and transparent canopies arranged to create a small courtyard under existing monkeypod trees.

SOURCE:
Urban Works, 2001.

Iolani Palace (Post Office) Transit Stop Concept | **Figure 5.4-1**



Mauka sidewalk looking towards Kawaiahao Church.



A safety barrier at the curb using bollards.

SOURCE:
Urban Works, 2001.

Refined LPA Pedestrian Improvements in Front of Iolani Palace

Figure 5.4-2

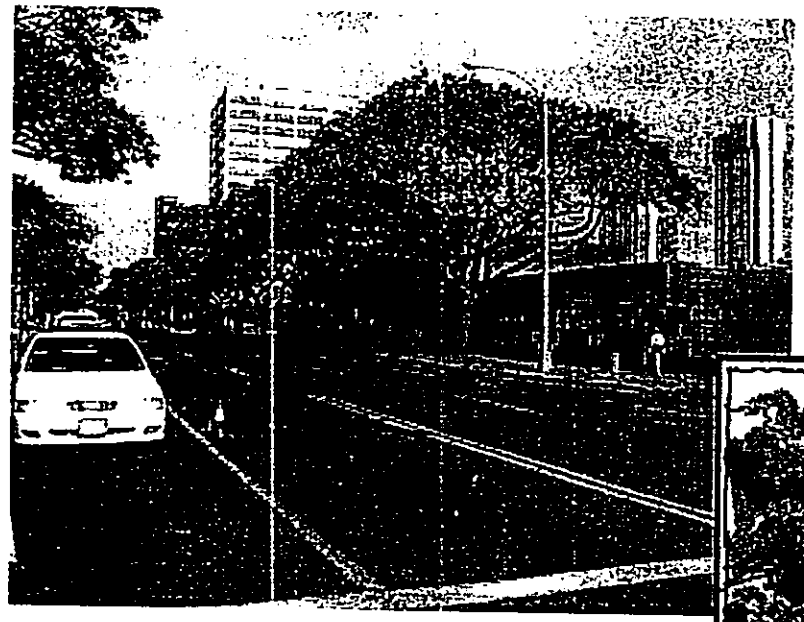
Station location in front of Hawaii State Library.

Sculpted landforms create a pleasant waiting area, adding to the usefulness of the great lawn.

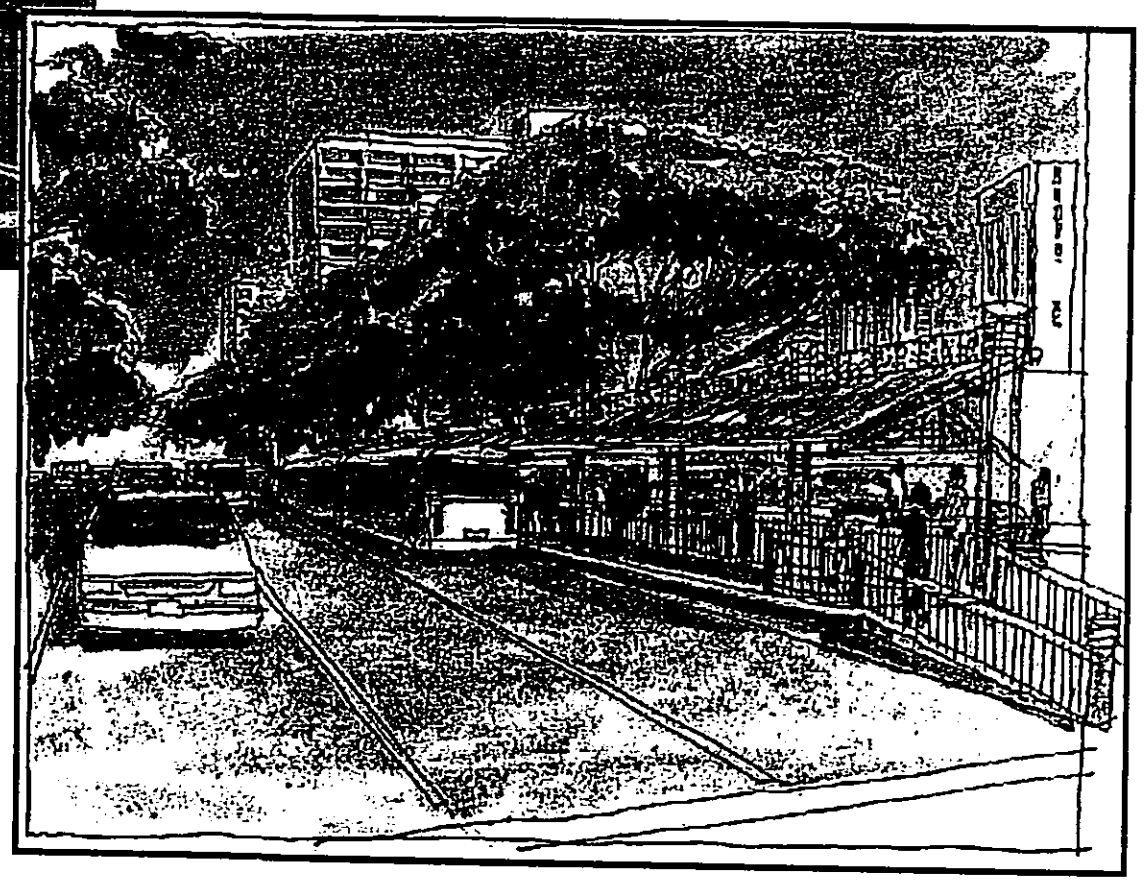
SOURCE:
Urban Works, 2001.

Iolani Palace (State Library) Transit Stop Concept

Figure 5.4-3



Kapiolani Boulevard looking toward the Convention Center.

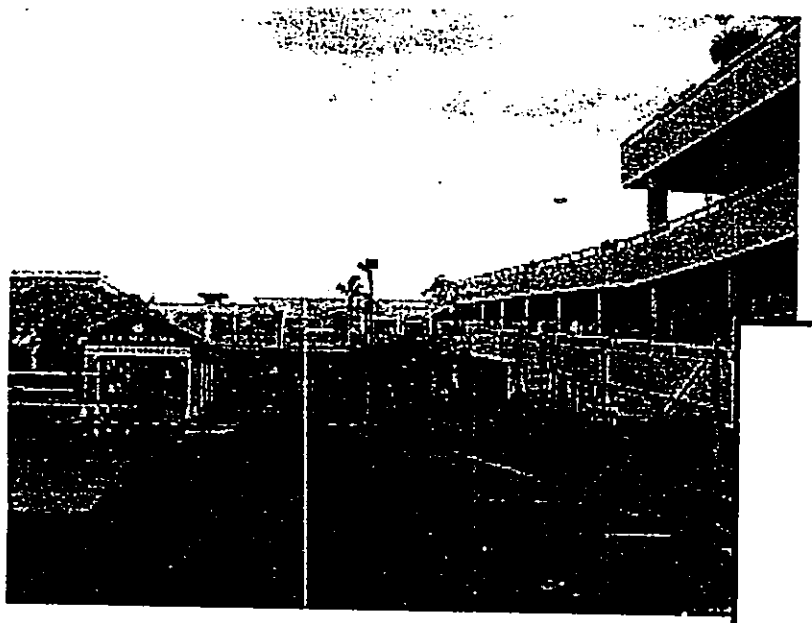


Conceptual sketch of the UH-bound BRT stop.

SOURCE:
Urban Works, 2001.

Ala Moana/Keeaumoku Transit Stop Concept

Figure 5.4-4



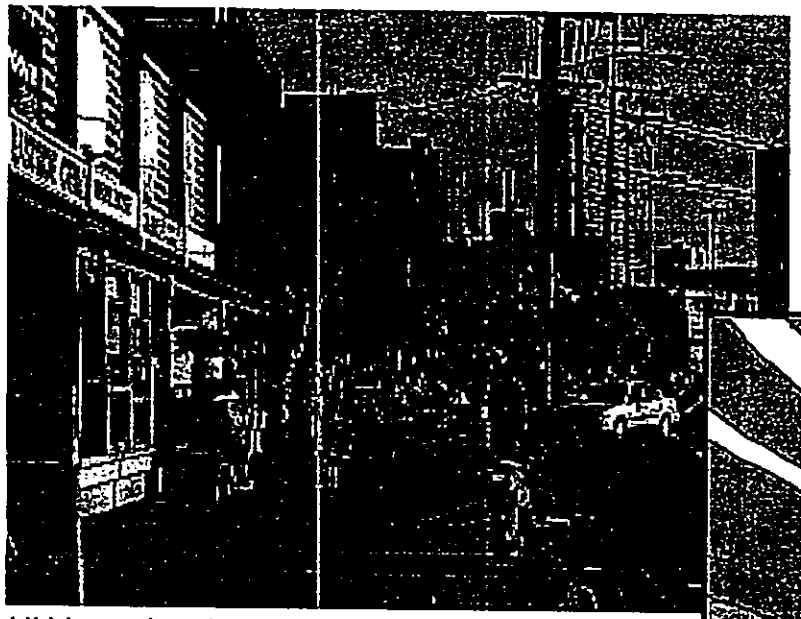
Existing conditions leading to Ala Moana Center.

Conceptual sketch of median station platform with access via Kapiolani crosswalk to Ala Moana Center Promenade.

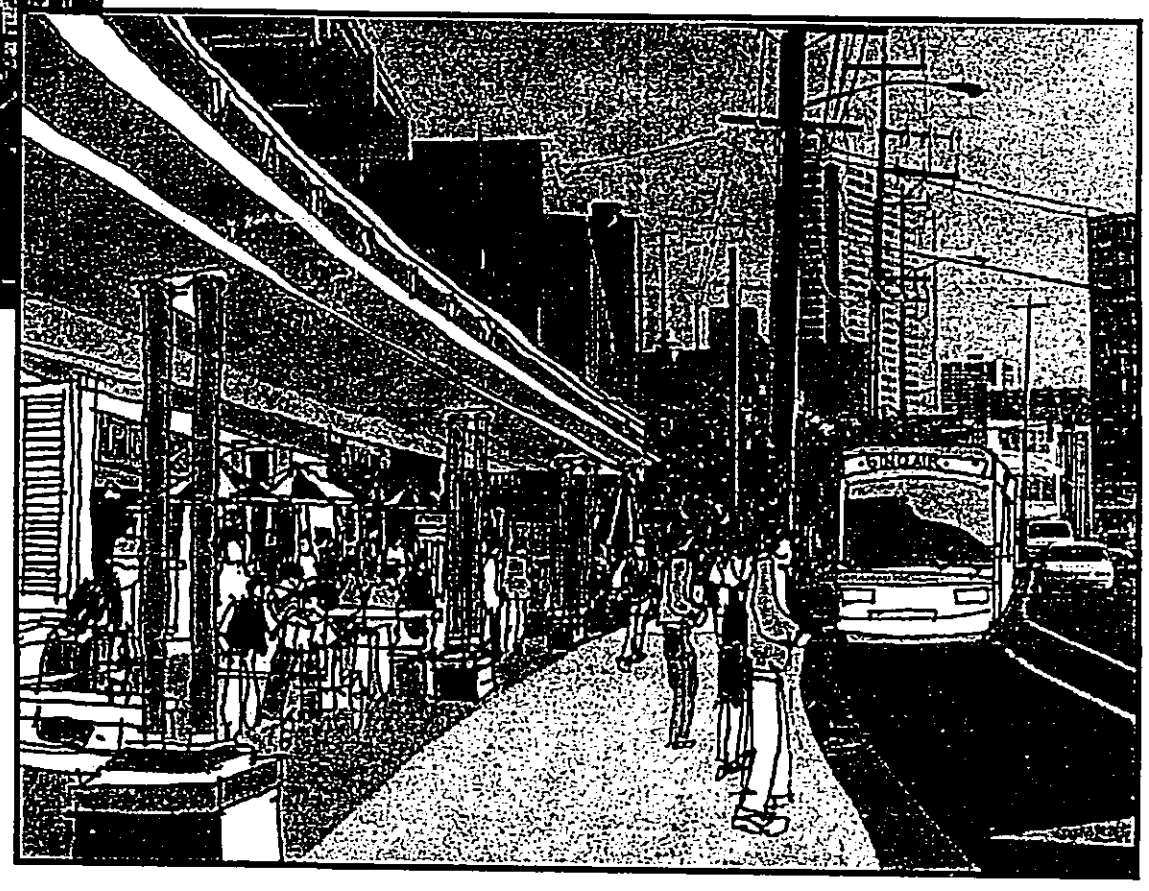
SOURCE:
Urban Works, 2001.

Ala Moana/Keeaumoku Transit Stop Concept

Figure 5.4-5



UH-bound curb-side station at Puck's Alley retail.

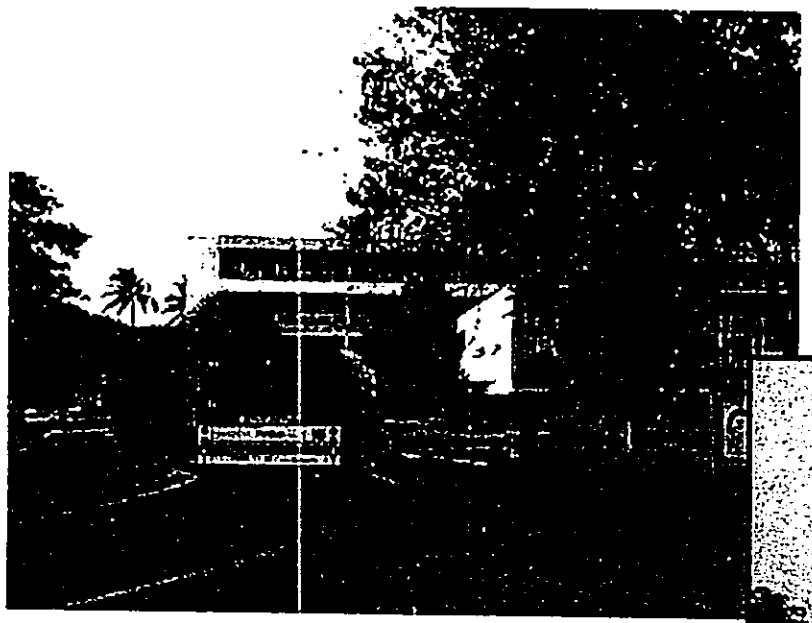


BRT canopy integrated with adjacent uses to provide a shaded arcade that fronts shops and eateries and creates a gathering place for pedestrians as well as transit riders.

SOURCE:
Urban Works, 2001.

University/King (Puck's Alley) Transit Stop Concept

Figure 5.4-6



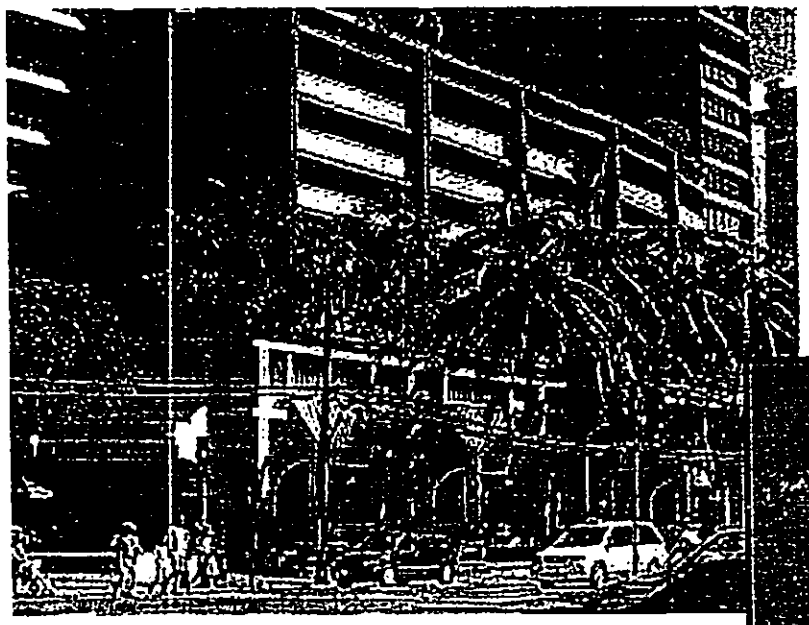
The Sinclair Circle BRT stop is located along the edge of the existing "half circle" drive.

Roof canopy attached to a curving and continuous screen wall, connected to student gathering places beyond station.

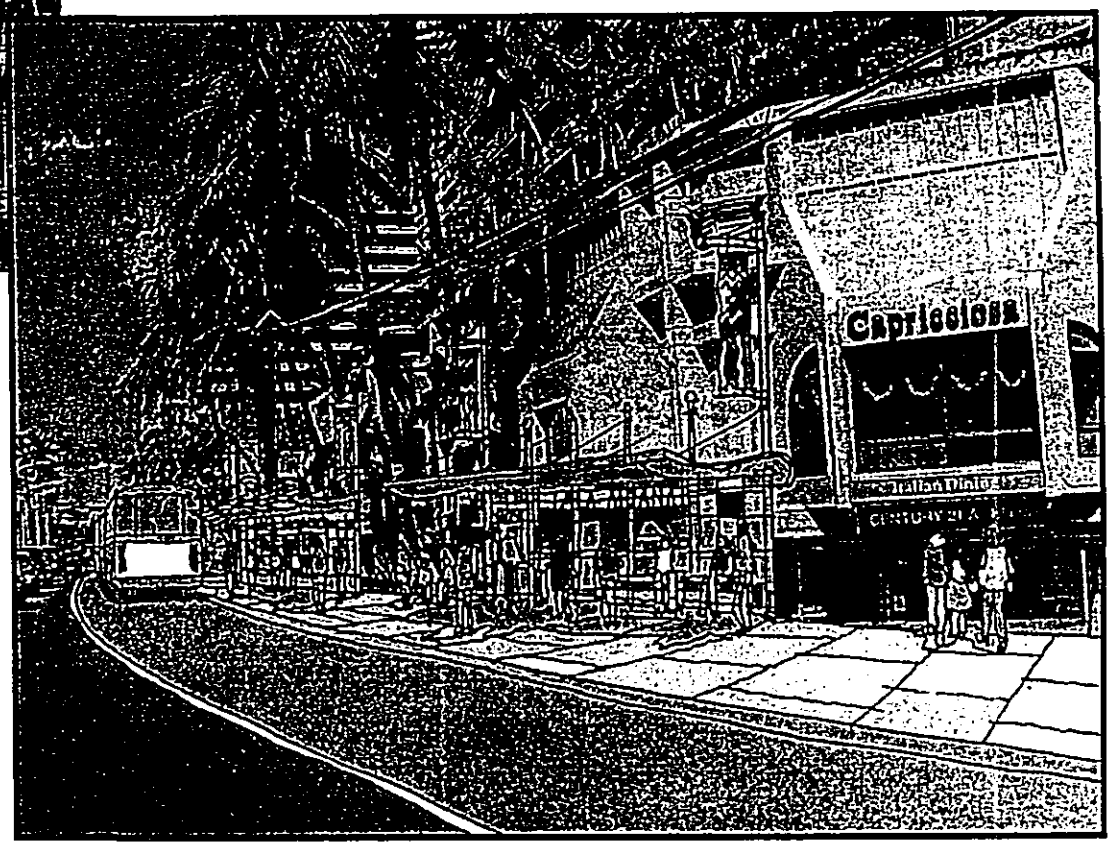
SOURCE:
Urban Works, 2001.

UH-Manoa (Sinclair Circle) Transit Stop Concept

Figure 5.4-7



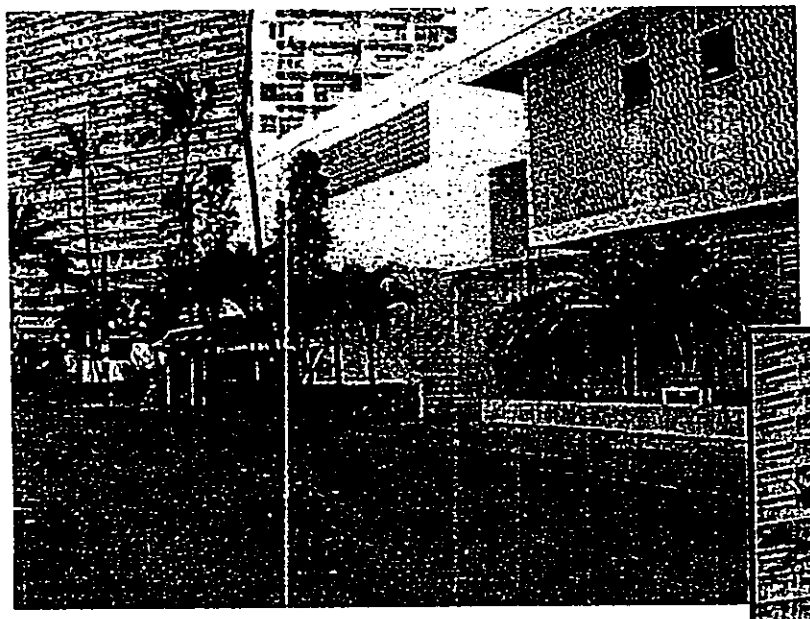
View of Discovery Bay at Ala Moana Blvd. and Hobron Lane.



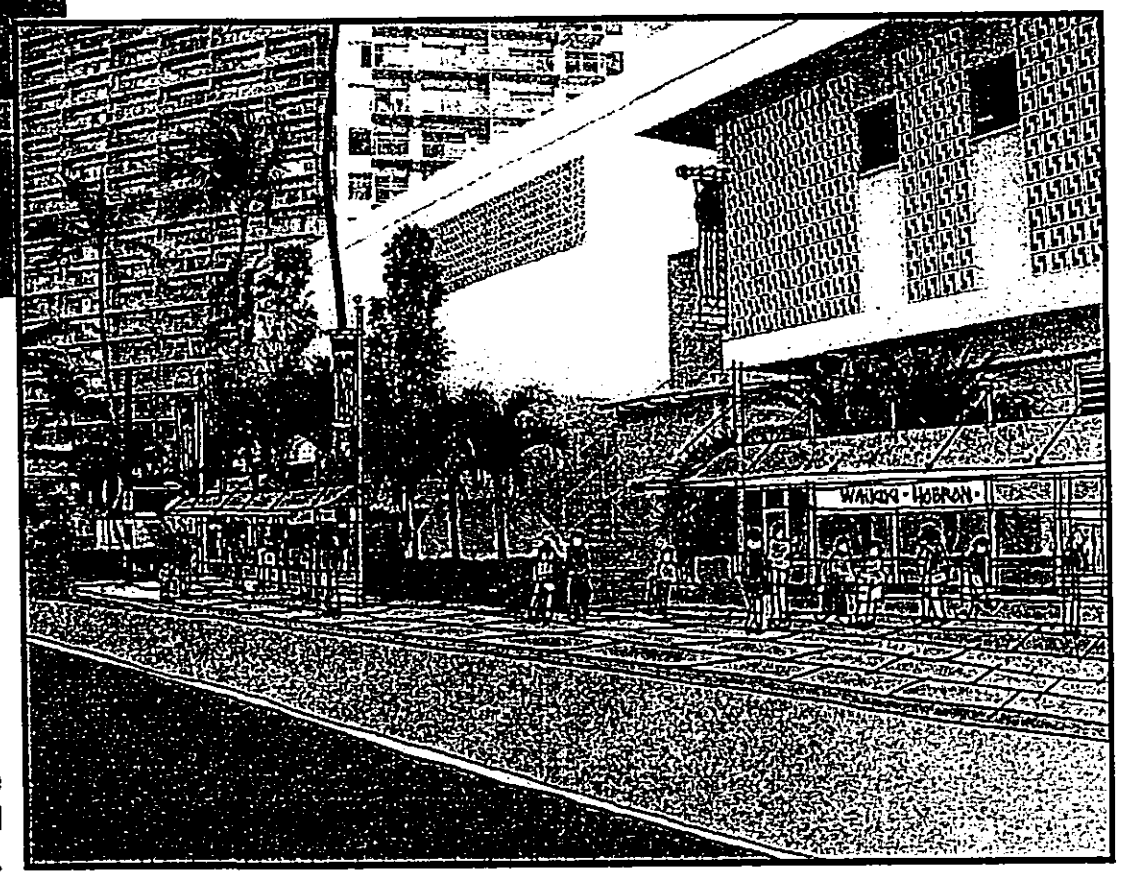
BRT canopies fronting the Discovery Bay retail facade would be located to work with entrances and allow visual connections.

SOURCE:
Urban Works, 2001.

Hobron (Ilikai) Transit Stop Concept | **Figure 5.4-8**



View of Ilikai at Ala Moana Blvd. and Hobron Lane.

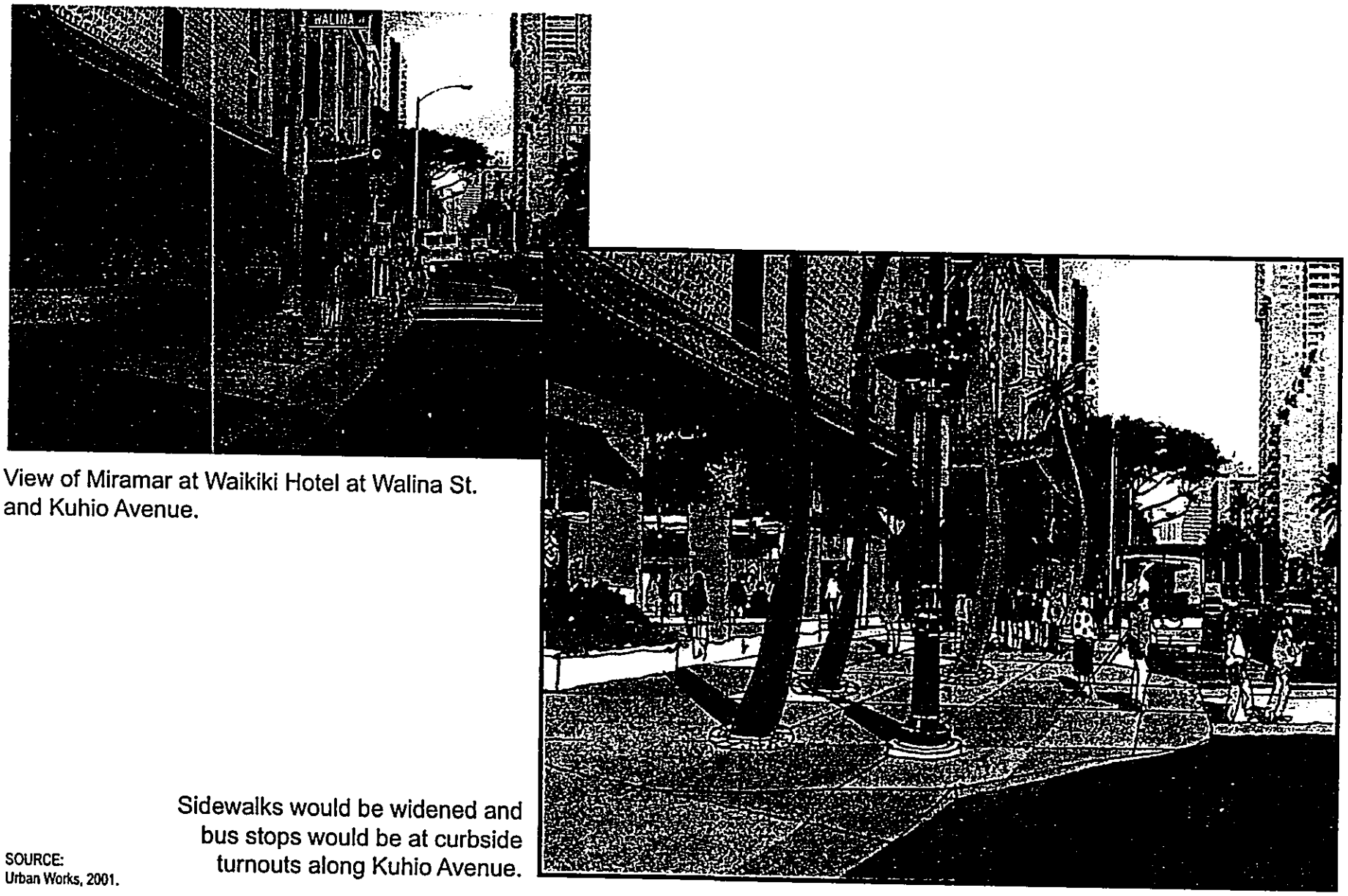


BRT canopies fronting the Ilikai Hotel may be recessed against the setback building faces.

SOURCE:
Urban Works, 2001.

Hobron (Ilikai) Transit Stop Concept

Figure 5.4-9



View of Miramar at Waikiki Hotel at Walina St. and Kuhio Avenue.

Sidewalks would be widened and bus stops would be at curbside turnouts along Kuhio Avenue.

SOURCE:
Urban Works, 2001.

Kuhio Avenue Transit Stop Concept

Figure 5.4-10

Existing

With Proposed Sound Wall

SOURCE:
Urban Works, 2002.

	Visual Rendering of Sound Wall at Puuwai Momi Apartments (View From Salt Lake Boulevard)	Figure 5.4-11

5.5 AIR QUALITY

This section describes the potential air quality impacts of the No-Build and TSM Alternatives and the Refined LPA. Sections 5.5.1 and 5.5.2 provide descriptions of both the regional (i.e., Honolulu-wide) and microscale, or "hotspot," air quality impacts of the alternatives, respectively. The analytical methods used to predict the impacts described in these sections are accepted by the U.S. Environmental Protection Agency (EPA) and the State of Hawaii Department of Health (HDOH). Section 5.5.3 discusses project conformity with the Statewide Implementation Plan.

The results of the regional analysis indicate that the No-Build Alternative would be expected to worsen regional air quality by approximately 12 percent as a result of more vehicles using the roadway system and increasing congestion. However, this impact would be partially offset by reductions in vehicle emissions per vehicle over time. The Refined LPA would improve regional air quality over the No-Build Alternative by about 21 percent.

At the microscale level, selected intersections representative of the primary transportation corridor were analyzed based on current and future No-Build and TSM Alternatives and the Refined LPA. Under current traffic and worst case meteorological conditions, carbon monoxide (CO) concentrations at most of these intersections are estimated to exceed the State Ambient Air Quality Standards. Under the No-Build Alternative, TSM Alternative, and the Refined LPA, most of the intersections are also predicted to experience higher CO concentrations. In comparing these future scenarios, CO concentrations would be better at some intersections and worse at others. On average, the TSM and Refined LPA Alternatives would not worsen air quality conditions compared to the No-Build Alternative, and there would be little difference between the build alternatives.

Section 5.5.4, discusses how the use of low or zero emission vehicles by the In-Town BRT under the Refined LPA would represent an improvement in terms of microscale air quality over the use of conventional diesel buses under the No-Build and TSM Alternatives for many of the urban core routes.

5.5.1 Regional (Mesoscale) Analysis

It is estimated that the daily total vehicle miles traveled (VMT) would increase from approximately 12.9 million in 2000 to approximately 17.6 million by the year 2025 under the No-Build Alternative. This represents a VMT increase of about 36 percent. Since the roadway network capacity in the project study area with all of the alternatives is not expected to increase at the same growth rate as VMT, it is expected that average travel speeds will decrease as a result of the added VMT and traffic congestion. Therefore, daily vehicle hours of delay (VHD) is estimated to increase from approximately 202,400 hours in 2000 to approximately 451,700 hours by the year 2025 under the No-Build Alternative, which is about a 123 percent increase. Average travel speeds are projected to drop from 25.7 mph in 2000 to 20.6 mph in 2025 with the No-Build Alternative. As shown in Table 5.5-1, the composite emission factors increase substantially with decreasing vehicle travel speed. The increase in emissions that would be expected from the decrease in travel speed would be partially offset by a reduction in emissions per vehicle over time.

As was presented in Chapter 4, total VMT estimates for the Refined LPA are 4.1 percent lower than the estimated total VMT for the No-Build Alternative. The 2025 VHD estimate for the Refined LPA is about 17 percent lower than the No-Build Alternative VHD. As a result, mesoscale emissions for the Refined LPA are expected to be substantially less than for the No-Build Alternative. Average speeds are projected to be lower and VHD is projected to be even higher with the TSM Alternative than with the No-Build Alternative, which means that mesoscale emissions would be higher than the No-Build Alternative and Refined LPA as well.

TABLE 5.5-1
COMPOSITE EMISSION FACTORS FOR
PRIMARY CORRIDOR TRANSPORTATION PROJECT

Vehicle Travel Speed (mph)	Composite Emission Factor (grams per vehicle mile)					
	2000			2025		
	Hydro-carbons	Carbon Monoxide	Nitrogen Oxides	Hydro-carbons	Carbon Monoxide	Nitrogen Oxides
10	5.6	48.6	2.6	4.5	44.2	2.2
15	4.2	36.6	2.4	3.5	34.6	2.0
20	3.4	30.2	2.3	2.9	29.2	1.9
25	2.9	24.1	2.3	2.4	22.5	1.9

Source: U.S. EPA MOBILE5A Emission Factor Model.

5.5.2 Microscale Analysis

Microscale, or "hot spot", air quality impact analyses of the present conditions and year 2025 conditions under the No-Build Alternative, TSM Alternative, and the Refined LPA were performed at 23 intersections. These intersections, which were selected for analysis because they generally represent all intersections that would be affected by the project, are expected to experience peak carbon monoxide (CO) concentrations. The microscale impact analyses involved assessing worst-case CO concentrations near all 23 selected intersections within the project area for both 1-hour and 8-hour averaging periods. These averaging periods correspond to the averaging times included in the State and the national AAQS.

The CO concentrations estimated for the present or existing condition shown on Table 5.5-2 represent the results of quantitative analysis, not actual air quality monitoring. Six of the locations were not analyzed under the existing condition. The highest analyzed worst-case 1-hour concentration for the existing scenario is 21.7 mg/m^3 during the morning peak-traffic hour near the intersection of South King Street and Punchbowl Street. One-hour values for other locations and times under the existing condition range from 3.6 mg/m^3 during the afternoon at the intersection of Hotel Street and Bishop Street to 19.6 mg/m^3 during the morning near the intersection of Nimitz Highway and Sand Island Access Road. While the estimated worst-case concentrations for all locations and periods under the 1999 scenario are in compliance with the national 1-hour AAQS of 40 mg/m^3, the analyzed values exceed the more stringent State 1-hour AAQS of 10 mg/ m^3, except at the intersections of Hotel Street and Bishop Street, Kalakaua Avenue and Kaiulani Avenue, Kuhio Avenue and Kapahulu Avenue, and Kuhio Avenue and Seaside Avenue.

Under the No-Build Alternative, worst-case 1-hour concentrations are predicted to increase at eight locations analyzed under the existing condition. Under this alternative, the highest worst-case 1-hour value (26.1 mg/m^3) is predicted to occur near the intersection of South King Street and Bishop Street during the morning. Concentrations at other locations and times range between 3.4 mg/m^3 and 20.4 mg/m^3. Eighteen of the 23 locations studied are predicted to potentially exceed the State AAQS. However, none are predicted to exceed the national AAQS.

Under the TSM Alternative, worst-case 1-hour concentrations are predicted to remain relatively unchanged, when compared to the No-Build Alternative. Similar to the No-Build Alternative, the highest worst-case 1-hour concentration is predicted to occur near the intersection of South King Street and Bishop Street during the morning, at 28.9 mg/m^3. This is predicted to be the highest 1-hour value amongst all of the alternatives and locations studied. Eighteen of the 23 locations studied are predicted to potentially exceed the State AAQS. However, none are predicted to exceed the national AAQS.

TABLE 5.5-2
ESTIMATED WORST-CASE 1-HOUR CARBON MONOXIDE CONCENTRATIONS NEAR SELECTED INTERSECTIONS WITHIN THE PROJECT AREA
(milligrams per cubic meter)

Roadway Intersection	Present (1999)		Year 2025 Alternative					
			No-Build		TSM		Refined LPA	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
Kahuapaani Street / Salt Lake Blvd.	NA	NA	12.6	14.4	12.6	14.4	12.0	14.2
Luapele Drive / Salt Lake Boulevard	NA	NA	9.2	9.8	9.2	9.8	9.1	9.3
N. King Street / Kalihi Street	15.4	14.6	16.7	17.4	16.2	15.6	17.2	17.9
Dillingham Boulevard / Kalihi Street	11.3	11.7	14.7	14.4	14.7	14.4	13.3	12.9
S. King Street / Bishop Street	17.6	13.8	26.1	19.3	28.9	20.4	23.9	17.7
Hotel Street / Bishop Street	6.1	3.6	8.3	4.7	7.1	5.0	14.2	9.0
S. King Street / Punchbowl Street	21.7	15.0	19.1	16.7	17.9	16.9	16.9	17.9
S. King Street / Ward Avenue	NA	NA	12.3	12.9	12.3	12.9	11.2	13.9
S. King Street / Pensacola Street	NA	NA	12.9	14.3	12.9	14.3	12.2	11.8
Kapiolani Boulevard / Pensacola Street	NA	NA	10.3	11.0	11.6	10.7	11.7	10.6
Kapiolani Boulevard / Kalakaua Avenue	18.8	13.3	20.4	16.4	19.6	16.4	25.1	20.7
S. King Street / Beretania Street / University Avenue	18.8	17.1	18.4	15.5	17.4	15.0	19.1	18.5
Dole Street / University Avenue	19.1	14.4	12.6	12.1	12.9	12.1	13.0	11.6
Nimitz Hwy. / Sand Island Access Road	19.6	16.8	20.0	16.8	19.9	16.8	15.4	13.6
Nimitz Highway / Waiakamilo Rd.	15.2	15.0	17.0	13.1	17.0	13.3	12.9	10.6
Ala Moana Blvd. / Richards Street	NA	NA	10.0	12.3	10.0	12.3	8.9	10.2
Ala Moana Boulevard / South Street	12.3	10.2	11.3	10.4	13.0	10.1	11.3	9.2
Ala Moana Boulevard / Atkinson Drive	17.1	15.4	17.8	19.7	17.8	19.7	16.1	17.8
Ala Moana Boulevard / Kalia Road	13.5	13.0	13.1	12.8	13.1	12.8	12.6	15.4
Kalakaua Avenue / Kaiulani Avenue	5.1	5.0	6.6	7.1	7.1	7.5	5.4	5.6
Kalakaua Avenue / Kapahulu Avenue	10.4	9.1	3.6	3.4	3.4	3.4	3.4	3.4
Kuhio Avenue / Kapahulu Avenue	9.0	6.2	7.7	7.9	7.7	7.9	7.2	7.7
Kuhio Avenue / Seaside Avenue	7.7	7.0	11.4	12.3	11.4	12.3	10.6	9.6

Source: B.D. Neal & Associates, 1999, 2001, and 2002.

Notes: NA: Not Analyzed
Hawaii AAQS: 10 mg/m^3 (9.5 ppm).
National AAQS: 40 mg/m^3 (35 ppm).
Underline indicates worst-case condition exceeds Hawaii AAQS.

Under the Refined LPA, worst-case 1-hour concentrations at most of the locations studied are predicted to be about the same as those under either the No-Build or the TSM Alternatives. Although CO 1-hour concentrations at four of the 23 locations studied are predicted to be greater under the Refined LPA than under either the No-Build or TSM Alternatives, the differences at two of the intersections are small and within the accuracy limits of the model. The differences between the Refined LPA and the No-Build or TSM Alternatives reflect some additional queuing that would occur under the Refined LPA. The highest worst-case 1-hour concentration is predicted to occur near the intersection of Kapiolani Boulevard and Kalakaua Avenue during the morning, at 25.1 mg/m^3. Eighteen of the 23 locations studied are predicted to potentially exceed the State AAQS. None of the locations are predicted to exceed the national AAQS.

The estimated worst-case 8-hour concentrations at the 23 study locations under the four scenarios are shown in Table 5.5-3. Under existing conditions, modeled worst-case 8-hour concentrations range from 2.6 to 10.8 mg/m^3, with the highest value occurring at the intersection of South King Street and Punchbowl Street. As noted above, the existing condition concentrations represent the results of a quantitative analysis, not actual monitoring, and six of the locations were not analyzed. Thirteen of the locations were estimated to exceed the State AAQS. One of the locations (South King Street at Punchbowl) was estimated to exceed the national AAQS, but other locations are in compliance with the national AAQS by a small margin.

Under the No-Build Alternative, concentrations are predicted to increase at 10 locations analyzed under the existing condition. The predicted worst-case concentrations range from 1.8 to 13 mg/m^3. The predicted concentrations at 18 of the 23 locations studied would exceed the State AAQS, and predicted concentrations at three locations would exceed the national AAQS.

Under the TSM Alternative, the predicted worst-case 8-hour concentrations would remain about the same as the No-Build Alternative. The highest worst-case concentration would be 14.4 mg/m^3, which would occur at the intersection of South King Street and Bishop Street. Predicted concentrations would exceed the State AAQS at 18 of the 23 locations studied, and predicted concentrations at two locations would exceed the national AAQS.

Under the Refined LPA, the predicted worst-case 8-hour concentrations at the 23 representative locations would remain about the same as either the No-Build or TSM Alternatives. However, CO 8-hour concentrations at six locations are predicted to be higher under the Refined LPA than under either the No-Build or TSM Alternatives. The differences at five of the intersections are small and within the accuracy limits of the model. The differences between the Refined LPA and the No-Build or TSM Alternatives reflect some additional queuing that would result with the Refined LPA. The highest worst-case concentration would be 12.6 mg/m^3, which would occur at the intersection of Kapiolani Boulevard and Kalakaua Avenue. Predicted concentrations would exceed the State AAQS at 19 of the 23 study locations, and predicted concentrations at two locations would exceed the national AAQS.

Under worst-case meteorology conditions, CO concentrations are predicted to exceed both the State and national standards at various locations under existing conditions and all of the future alternatives. Concentrations under the TSM Alternative and Refined LPA would be worse than under the No-Build Alternative at some locations and better at others. On average, the TSM Alternative and Refined LPA would not worsen air quality concentrations compared to the No-Build Alternative.
The EPA computer model MOBILE5A was used for the microscale analyses, with the results provided in Tables 5.5-2 and 5.5-3. EPA has developed an updated model, MOBILE6, and a preliminary assessment of the analyzed intersections using this would result in lower concentrations for all three alternatives. Therefore, the predicted impacts of the alternatives presented above are probably conservatively high. Nevertheless, the differences among the alternatives would generally remain the same regardless of the model.

TABLE 5.5-3
ESTIMATED WORST-CASE 8-HOUR CARBON MONOXIDE CONCENTRATIONS NEAR SELECTED INTERSECTIONS WITHIN THE PROJECT AREA
(milligrams per cubic meter)

Roadway Intersection	Present (1999)	Year 2025 Alternative		
		No-Build	TSM	Refined LPA
Kahuapaani Street / Salt Lake Boulevard	NA	7.2	7.2	7.1
Luapele Drive / Salt Lake Boulevard	NA	4.9	4.9	4.6
N. King Street / Kalihi Street	7.7	8.7	8.1	9.0
Dillingham Boulevard / Kalihi Street	5.8	7.4	7.4	6.6
S. King Street / Bishop Street	8.8	13.0*	14.4*	12.0*
Hotel Street / Bishop Street	3.0	4.2	3.6	7.1
S. King Street / Punchbowl Street	10.8*	9.6	9.0	9.0
S. King Street / Ward Avenue	NA	6.4	6.4	7.0
S. King Street / Pensacola Street	NA	7.2	7.2	6.1
Kapiolani Boulevard / Pensacola Street	NA	5.5	5.8	5.8
Kapiolani Boulevard / Kalakaua Avenue	9.4	10.2*	9.8	12.6*
S. King Street / Beretania Street / University Avenue	9.4	9.2	8.7	9.6
Dole Street / University Avenue	9.6	6.3	6.4	6.5
Nimitz Highway / Sand Island Access Road	9.8	10.0*	10.0*	7.7
Nimitz Highway / Waiakamilo Road	7.6	8.5	8.5	6.4
Ala Moana Boulevard / Richards Street	NA	6.2	6.2	5.1
Ala Moana Blvd. / South St.	6.2	5.6	6.5	5.6
Ala Moana Boulevard / Atkinson Drive	8.6	9.8	9.8	8.9
Ala Moana Boulevard / Kalia Road	6.8	6.6	6.6	7.7
Kalakaua Avenue / Kaiulani Avenue	2.6	3.6	3.8	2.8
Kalakaua Avenue / Kapahulu Avenue	5.2	1.8	1.7	1.7
Kuhio Avenue / Kapahulu Avenue	4.5	4.0	4.0	3.8
Kuhio Avenue / Seaside Avenue	3.8	6.2	6.2	5.3

Source: B.D. Neal & Associates, 1999, 2001, and 2002.
Notes: NA: Not Analyzed
Hawaii AAQS: 5 mg/m^3 (4.5 ppm).
National AAQS: 10 mg/m^3 (9 ppm).
Underline indicates worst-case condition exceeds Hawaii AAQS.
Asterisk indicates worst-case condition exceeds National AAQS.

5.5.3 Conformity with Statewide Implementation Plan

The Regional and In-Town BRT are included in the Oahu regional transportation plan (TOP 2025). The Oahu Metropolitan Planning Organization adopted the TOP 2025 on April 6, 2001. The projects listed in the TOP 2025 have been evaluated for regional effects. The Primary Corridor Transportation Project is also included in the current Statewide Transportation Improvement Program (STIP) for Fiscal Years 2000-2002, approved in September 2001. As a result, this project is in conformance with the Statewide Implementation Plan (SIP). Oahu is a region that meets the standards for all air quality criteria.

5.5.4 Quality of Life

Air quality often affects the quality of urban life. In urban areas, emissions from motor vehicles, industrial facilities, and construction sites are the primary sources of air pollution. Motor vehicles in particular are the primary causes of poor air quality in many cities because they emit such pollutants as carbon monoxide, nitrogen oxides, and hydrocarbons.

Conventional diesel buses emit higher levels of particulate matter (black smoke) than gasoline-powered motor vehicles. While the total amount of particulate matter generated by buses is a small percentage of the total generated on a regional scale, it does contribute to the nuisance of smoke and soot along the curbside. Despite recent reductions in particulate levels from diesel buses, and the fact that emissions are exhausted at roof level rather than at street level, these particulate emissions can still be very annoying to people. In addition, the California Air Resources Board has identified diesel soot as a potential carcinogen. Diesel exhaust most easily enters the body by breathing, but may also cling to skin or hair and thereafter may be ingested as a consequence of hand-to-mouth activity. Therefore, since pedestrians utilizing the same streetscape as the transit system would be exposed to particulate matter emitted by passing buses, there is some level of health risk from the pedestrian perspective.

Technologies proposed for the Refined LPA include electric vehicles powered by a wayside traction power delivery system (embedded plate technology) or hybrid electric vehicles where the energy for the traction power is carried on-board the vehicle. The EPT vehicles would emit zero emissions. The hybrid electric vehicles would be low-emission vehicles because their diesel engines would always be operating at efficient levels. (The black smoke coming from the exhaust of a diesel bus typically occurs when the bus is accelerating and under slow-speed high-load conditions - non-optimal operating conditions). The No-Build and TSM Alternatives would use conventional diesel-powered buses, at least for the immediate future.

Since the Refined LPA would utilize either zero or low-emission vehicles, it would substantially reduce the level of particulate emissions (black smoke and soot) at certain intersections and street level locations in comparison to the No-Build and TSM Alternatives, which would continue to utilize conventional diesel buses. Unfortunately, there is no acceptable method or model to estimate the microscale impacts of particulate matter. There are accepted methods to estimate particulate matter on a regional scale. However, it is likely that the regional difference between the Refined LPA, and the No-Build and TSM Alternatives would be very small or non-existent because the reduction in particulate matter due to the replacement of some of the transit diesel buses with zero or low-emission vehicles would represent a very small percentage of the total particulate emissions in the region. However, the replacement of diesel buses with zero or low-emission vehicles would certainly reduce smoke and soot at the street level along the transit alignment, which would improve the pedestrian experience. Therefore, the Refined LPA would contribute more to improving the quality of urban life than the No-Build and TSM Alternatives.

5.6 NOISE AND VIBRATION

This section covers the noise and vibration impacts of the proposed alternatives including measures to mitigate noise impacts. Section 5.6.1 provides the methodology of the noise impact evaluation performed in

conformance with the requirements of FTA and FHWA. Sections 5.6.2 and 5.6.3 disclose the noise and vibration impacts of the alternatives and proposed mitigation measures. Section 5.6.4 provides a discussion of noise levels in relation to the quality of urban life, with particular reference to the difference between conventional diesel buses and electric or hybrid buses with diesel/electric propulsion.

In general, the future noise levels along the alignment of the In-Town BRT would be lower than under the TSM or No-Build Alternatives because many of the future transit operations will use electric or hybrid electric vehicles, which produce substantially less noise than standard diesel buses. The amount of vibration produced by these vehicles is lower but not much different than standard diesel buses.

5.6.1 Methodology for Impact Evaluation

This section describes the methodology used for impact evaluation, in accordance with Federal and State requirements.

1) Transit Noise

The proposedBRT vehicles will be a single-articulated, low-floor electrically powered or hybrid electric buses. No overhead catenary or steel rail would be required. Electric powered vehicles would be supplied power from a wayside system referred to as an embedded plate system. Hybrid electric buses would be electrically propelled vehicles in which the electricity is produced by an on-board generator (alternator) powered by a diesel engine; electric propulsion would be provided by on-board batteries.

Noise levels from transit vehicle operations are typically a function of the speed, number of vehicles in the daytime and nighttime hours, and the distance from the transit lane to sensitive receptors. Because noise measurement data for the hybrid bus was not available at the time of this analysis, an estimated emission level was developed for the hybrid vehicle based on the FTA city bus reference sound levels. This estimate was used to model the potential noise impact of operating the hybrid vehicle in the Refined BRT Alternative. The FTA city bus reference level was reduced by 3 dBA to account for the constant speed operation of the diesel engine, which would be used to charge the alternator/batteries and not to power the vehicle directly. During acceleration and deceleration operations, diesel engine vehicles generate 5 dBA to 6 dBA higher noise levels than during passby operations when the engine is not operating under a sustained load. The other vehicle proposed is a wayside powered electric bus that would be similar to a rubber-tired Automated Guideway Transit (AGT) vehicle. The FTA noise reference level of an AGT was used to represent the operating noise levels of this type of vehicle.

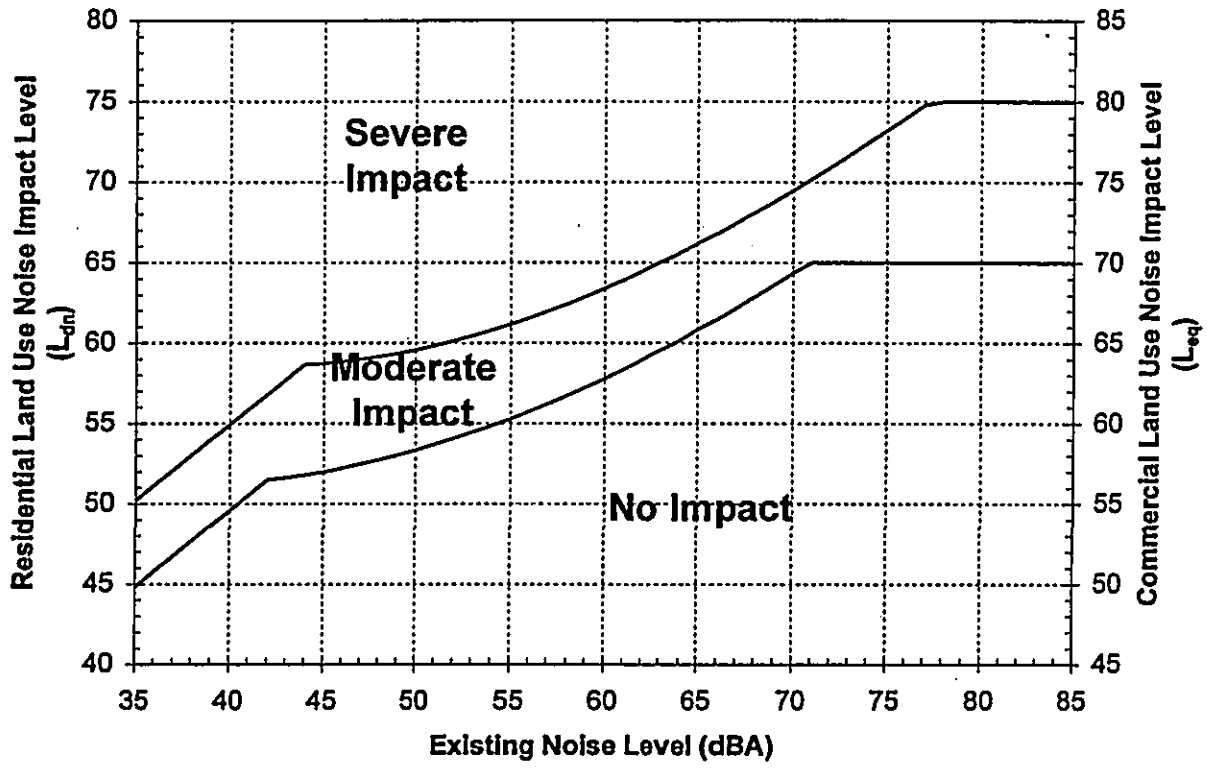
The transit noise analysis for this project was performed in six steps:

- Inspect project area and categorize existing land use;
- Measure the existing area noise levels;
- Calculate the project-related noise levels;
- Combine the project related noise levels with the existing noise levels;
- Compare the change in noise levels to the FTA criteria; and
- Identify impacts and investigate mitigation measures.

The In-Town BRT transit noise levels were compared to the impact thresholds of the FTA criteria. The FTA criteria for residential land use and other uses with nighttime sleep activities are presented in Figure 5.6-1, which identifies the ranges of no impact, moderate impact, and severe impact for varying levels of existing and project-created noise. The criteria are based on either a 24-hour Ldn noise level for residences and buildings where people normally sleep, or a one-hour Leq noise level for land uses and buildings with primarily daytime activities. FTA requires that mitigation be evaluated for all areas where moderate impacts are projected, although consideration of factors such as cost-effectiveness can be incorporated into the

decision about whether to specify mitigation for a particular area. FTA considers a severe impact to be a "significant adverse effect" under NEPA. Noise mitigation will normally be specified for severe impact areas, unless there is no practical method of achieving a reduction in noise level.

FIGURE 5.6-1
FTA NOISE IMPACT CRITERIA



2) Transit Vibration

As a rubber tired vehicle, ground vibration levels from the electric or hybrid electric buses would be minimal, and would not exceed the FTA criteria of 72 VdB for residential buildings and other structures where people normally sleep (Category 2) (see Table 5.6-1). There is no known land use along the alignment that has vibration-sensitive equipment and would be subject to lower vibration impact criteria.

5.6.2 Noise Impacts

The following discussion analyzes the noise impacts that would arise from the transit elements of the proposed project for both the hybrid electric bus and the wayside-powered electric bus. Only those monitoring sites that lie on the proposed alignment are included in the discussion below.

TABLE 5.6-1
FTA GROUND-BORNE VIBRATION IMPACT CRITERIA

Land Use Category	Ground-borne Vibration Impact levels (VdB re 1 micro inch/sec)	
	Frequent Events[1]	Infrequent Events[2]
Category 1: Buildings where low ambient vibration is essential for interior operations.	65VdB[3]	65VdB[3]
Category 2: Residences and buildings where people normally sleep.	72 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	83 VdB

Source: Transit Noise and Vibration Impact Assessment, FTA, April, 1995.
Notes: [1] "Frequent Events" is defined as more than 70 vibration events per day.
[2] "Infrequent Events" is defined as fewer than 70 vibration events per day.
[3] This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes.

Table 5.6-2 summarizes existing and projected transit noise levels for both the electric and hybrid electric vehicles at 31 noise monitoring locations along the In-Town BRT alignment (see Figures 3.6-3A and 3.6-3B). Noise impacts discussed below are defined by the FTA as either no impact, moderate, or severe.

1) No-Build Alternative

The only source of future noise levels would be traffic movements on the local arterials in the project area. Changes in 2025 automobile traffic are expected to result in no change to a one dBA increase in the existing 24-hour (Ldn) and peak hour (Leq) noise levels at each of the 31 noise measurement sites.

Under the No-Build Alternative, future local bus volumes would be different from existing local bus volumes. Increases in local bus volumes under the No-Build Alternative would raise existing noise levels by 1 to 2 dBA at noise measurement locations 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 17, 18, D, E, F, G, I, J, K and M. Decreases in local bus volumes under the No-Build Alternative would lower existing noise levels by 1 to 3 dBA at noise measurement locations 1, 13, 16, A, B, and L. These changes in noise level would be barely perceptible to most people. At the remaining noise measurement locations – sites 2, 14, 15, C, and H – there would be no change in noise levels associated with changes in local bus volumes.

2) TSM Alternative

The proposed improvements under this alternative would only affect the peak hours of traffic activities. The overall change in traffic noise level would be similar to the future No-Build noise levels. Therefore, no impact is expected under the TSM Alternative.

3) Refined LPA Alternative

Severe noise impacts are not projected for any sites along the Refined LPA alignment. There would be a moderate noise impact at one location, Bishop Garden Apartments (Site 1), with the hybrid electric vehicle. No impacts are projected with the EPT vehicles.

TABLE 5.6-2
REFINED LPA
ESTIMATED FUTURE NOISE LEVELS AT REPRESENTATIVE SENSITIVE LAND USES

						REFINED LPA		
Site No.	Location	FTA Land Use Category (1,2,3)	Existing Noise Level[1] (dBA)	No-Build Noise Level (dBA)	TSM Noise Level[2] (dBA)	Project Generated Noise (dBA)	Combined Noise Level – Existing + Project Generated (dBA)	FTA Level of Noise Impact[5]
1	Bishop Garden Apartments at 1470 Dillingham Boulevard	2	66	66	67	65[3]/59[4]	68[3]/67[4]	Moderate/ No Impact
2	2386 Kapiolani Boulevard	2	74	74	75	52/46	74/74	No impact
3	845 University Avenue	2	69	70	70	52/46	69/69	No impact
4	Apartment Building, 1720 Ala Moana Boulevard	2	77	78	78	56/50	77/77	No impact
5	Saratoga Road at Post Office	2	66	67	67	57/51	67/66	No impact
6	Apartments on Kuhio Avenue between Launiu & Kaiolu Streets	2	76	78	77	59/53	76/76	No impact
7	Outrigger Waikiki Islander Hotel	2	70	71	71	55/49	70/70	No impact
8	Waikiki Banyan Hotel	2	72	74	73	62/56	72/72	No impact
9	Queen Kapiolani Hotel on Kapahulu Avenue at Cartwright Road	2	70	72	71	55/49	70/70	No impact
10	Apartment Building, 1350 Ala Moana Boulevard	2	73	74	74	60/54	73/73	No impact
11	Executive Center at Hotel and Bishop Streets	2	77	78	78	57/51	77/77	No impact
12	Residences on King Street	2	66	68	67	56/50	66/66	No impact
13	1122 Elm Street Apartment on Pensacola Street	2	74	71	75	53/47	74/74	No impact
14	Harbor Square Condominiums – Ala Moana Boulevard side	2	76	76	77	59/53	76/76	No impact
15	Harbor Square Condominiums – Alakea Street side	2	73	73	74	55/49	73/73	No impact
16	Nakama Residence (near Blood Bank)	2	77	76	78	63/57	77/77	No impact
17	Chinatown Gateway Apartments	2	73	74	74	57/51	73/73	No impact
18	Straub Hospital	2	75	77	76	56/50	75/75	No impact
A	Kalihi Kai Elementary School	3	69	68	70	58/52	69/69	No impact
B	Honolulu Community College	3	72	71	73	60/54	72/72	No impact
C	Aala Park on King Street	3	68	68	69	61/55	69/68	No impact
D	Chinatown Gateway Park at Hotel and Bethel Streets	3	73	74	74	65/59	74/73	No impact
E	YWCA on Richards Street	3	68	69	69	58/52	68/68	No impact
F	Iolani Palace, on Richards Street	3	68	69	69	56/50	68/68	No impact
G	Iolani Palace, on King Street	3	75	77	76	53/47	75/75	No impact
H	Ala Wai Community Park	3	67	67	68	54/48	67/67	No impact

TABLE 5.6-2 (CONT.)
REFINED LPA
ESTIMATED FUTURE NOISE LEVELS AT REPRESENTATIVE SENSITIVE LAND USES

						REFINED LPA		
Site No.	Location	FTA Land Use Category (1,2,3)	Existing Noise Level[1] (dBA)	No-Build Noise Level (dBA)	TSM Noise Level[2] (dBA)	Project Generated Noise (dBA)	Combined Noise Level – Existing + Project Generated (dBA)	FTA Level of Noise Impact[5]
I	Buddhist Study Center (University of H) on University Avenue	3	70	71	71	56/50	70/70	No impact
J	Fort DeRussy, on mauka side of Kalia Road	3	66	67	67	58/52	67/66	No impact
K	Thomas Square on King Street	3	62	64	63	54/48	63/62	No impact
L	McKinley High School classroom building on Pensacola Street	3	61	58	62	56/50	62/61	No impact
M	McKinley High School building on South King Street	3	62	64	63	49/43	62/62	No impact

Source: Parsons Brinckerhoff Quade & Douglas, Inc, January 2002.
Notes: [1]FTA Category 2 existing noise levels are 24-hour Ldn levels. Category 3 existing noise levels are short-term one-hour Leq levels.
[2] Based upon future traffic projections, noise levels under the TSM Alternative are expected to be roughly 1 dBA higher than existing noise levels.
[3] Noise levels for a hybrid diesel/electric bus.
[4] *Noise levels for a wayside-powered EPT bus.*
[5] The level of impact is defined by the FTA as the comparison between existing and project-generated noise.

Aloha Stadium Transit Center

The transit center operations and their potential noise impact on the nearby Puuwai Momi and Halawa Valley residential communities have been assessed. The noise sources associated with the transit center are: (1) on-site BRT vehicles idling within the Transit Center; and (2) the off-site movement of BRT vehicles and autos traveling to the Transit Center. Table 5.6-3 summarizes existing and projected transit center noise levels for both the diesel and hybrid electric vehicles at ten noise monitoring locations (see Figure 3.6-3B). There would be no severe noise impacts associated with the Aloha Stadium Transit Center. Moderate noise impacts would occur at the Puuwai Momi Apartments, Buildings 1, 3, 4 and 5, and at least one single-family residence on Luaole Place (Sites AS-1, AS-2, AS-3, and AS-10) using the diesel and hybrid electric technologies. The extent of potential noise impacts to other residences near the Luapele Ramp will be studied in the final design phase.

Park-and-Rides

The following four park-and-ride locations along the Refined LPA alignment have also been analyzed to assess any possible noise impacts to the surrounding community.

- North-South Road Park-and-Ride: The 590-space North-South Road park-and-ride is surrounded by agricultural land. There are no noise-sensitive receptors located in the vicinity of this site. Therefore, no noise impacts are projected here.
- Kapolei Transit Center/Park-and-Ride: The 470-space Kapolei Transit Center/Park-and-Ride is surrounded by currently undeveloped land. There are currently no noise-sensitive receptors located in the vicinity of this site. Therefore, no noise impacts are projected here.

TABLE 5.6-3
ALOHA STADIUM TRANSIT CENTER
ESTIMATED FUTURE NOISE LEVELS AT REPRESENTATIVE SENSITIVE RECEPTORS

						TRANSIT CENTERS & REFINED LPA		
Site No.	Location	FTA Land Use Category (1,2,3)	Existing Noise Level - Ldn (dBA)	No-Build Noise Level[1] (dBA)	TSM Noise Level[1] (dBA)	Project Generated Noise Level (dBA)	Combined Noise Level – Existing + Project Generated (dBA)	FTA Level of Noise Impact[4]
AS-1	Puuwai Momi Apartments – Building 1	2	67	68	68	66[2]/65[3]	69[2]/69[3]	Moderate/ Moderate
AS-2	Puuwai Momi Apartments – Building 3	2	67	68	68	66/65	69/69	Moderate/ Moderate
AS-3	Puuwai Momi Apartments – Buildings 4 and 5	2	62	63	63	61/61	65/64	Moderate/ Moderate
AS-4	Single-family residence on Ohenana Loop, Halawa Valley Estates	2	55	56	56	55/55	58/58	No Impact/No Impact
AS-5	Single-family residence on Ohenana Loop, Halawa Valley Estates	2	60	61	61	57/56	62/61	No Impact/No Impact
AS-6	Single-family residence on Ohenana Loop, Halawa Valley Estates	2	60	61	61	56/55	62/61	No Impact/No Impact
AS-7	Single-family residence on Ohenana Loop, Halawa Valley Estates	2	69	70	70	59/56	69/69	No Impact/No Impact
AS-8	Single-family residence on Ohenana Loop, Halawa Valley Estates	2	69	70	70	59/56	69/69	No Impact/No Impact
AS-9	Single-family residence on Ohialomi Place, Halawa Valley Estates	2	72	73	73	61/58	72/72	No Impact/No Impact
AS-10	Single-family residence on Luaole Place	2	69	70	70	67/64	71/70	Moderate/ Moderate

Source: Parsons Brinckerhoff Quade & Douglas, Inc, July 2002.
Notes: [1] Based upon future traffic projections, noise level under the No-Build and TSM Alternatives are expected to be roughly 1 dBA higher than existing noise levels.
[2] Noise levels for a diesel bus.
[3] Noise levels for a hybrid diesel/electric bus.
[4] The level of impact is defined by the FTA as the comparison between existing and project-generated noise.

Vehicular Traffic

In-Town

Future In-Town traffic volumes under the Refined LPA are projected to decrease at all but one of the noise measurement locations. Future noise levels, therefore, would be 1 to 3 dBA lower than existing noise levels at sites 1, 5, 7, 8, 12, 13, 16, A, B, C, G, I and M. Due to a slight increase in future traffic volumes at site 9, noise levels would increase 1 dBA at this location. These changes in noise level would be barely perceptible to most people. At the remaining noise measurement locations – sites 2, 3, 4, 6, 9, 10, 11, 14, 15, 17, 18, D, E, F, H, J, K, and L – there would be no change in noise levels associated with changes in future traffic volumes.

Regional

Under the No-Build and TSM Alternatives and the Refined LPA, traffic on the H-1 Freeway is expected to increase roughly 50% by the year 2025. This will increase noise levels along the H-1 Corridor by 1 to 2 dBA, which is barely perceptible to most people.

5.6.3 Mitigation

This section addresses mitigation measures for transit-related noise impacts.

For this analysis, sound walls were evaluated as mitigation for the In-Town BRT and Aloha Stadium Transit Center noise impacts. Sound walls are considered the most effective noise control measure for at-grade transit systems. To be effective, the walls must block the direct view of the noise source and must be solid with minimal openings. The use of sound walls along at-grade segments where transit is in the median of a street would not be feasible since it would affect normal traffic and pedestrian movements, and would restrict emergency vehicle access. The use of noise mitigation for the moderately affected Bishop Garden Apartments in Kalihi (Site 1) is not deemed to be feasible and will not be included as part of this project, because a wall at this location would impair driver visibility and interfere with pedestrian and traffic movements. Interior sound insulation of the affected apartment units could be a reasonable alternative to a noise barrier, including air-conditioning installation and replacement of windows and doors facing the BRT alignment.

Property line noise barriers would be effective in mitigating the noise impacts from the Aloha Stadium Transit Center to the Puuwai Momi Apartments. The noise barrier would be located at the rear of Buildings 1, 3, 4, and 5 and could incorporate doors to allow continued access from Salt Lake Boulevard to the rear of these buildings. (See discussion and visual renderings in Section 5.4.)

In accordance with FTA guidelines, a 10-foot high property line noise barrier wall is a feasible and reasonable mitigation measure that would provide 5 dBA or more noise reduction to the outdoor area and ground floor units of the Puuwai Momi Apartments. The wall would not provide noise abatement for the second or third floor apartment balconies. To provide noise abatement to these upper floors, the noise barrier height would have to be raised to 24 feet.

Noise barriers would not be feasible in mitigating noise impacts at any of the single-family residences in the vicinity of the Luapele Ramp (represented by Site AS-10), because the barrier would likely interfere with traffic and pedestrian movements. The final design phase will include studies to determine more specific noise impacts. Interior sound insulation and installation of air-conditioning in affected homes could be a reasonable alternative to a noise barrier for this area also.

5.6.4 Noise and Quality of Urban Life

The level of noise, defined as unwanted sound, greatly affects quality of life. This includes people using the transit system and those walking to work, shopping, eating, at play, and so forth along the alignment.

The average pedestrian is exposed to two different types of noise generated from vehicles: noise generated when the vehicle passes by at a constant speed and noise generated upon vehicle acceleration from a standing position.

The passby noise of a diesel bus operating at 30 mph at a distance of 50 feet is 81 dBA, in comparison to a rubber tired electric vehicle which has a passby level of 75 dBA. This is a difference of 6 dBA, which is a noticeable change in noise level that humans can hear. The hybrid diesel/electric vehicles would have a passby noise level midway between the diesel and electric powered vehicles.

There are also differences between acceleration noises for conventional diesel buses in the No-Build and TSM Alternatives and the electric or hybrid electric buses in the Refined LPA. Accelerating diesel buses are typically 3 to 6 dBA noisier than non-accelerating buses, which subjectively ranges from perceptible to clearly noticeable. For comparison, the hybrid electric buses would have acceleration noise levels that are comparable to the passby noise levels of diesel buses. Since the diesel engine in a hybrid electric bus operates at a constant, optimum rpm, its noise level would be substantially less than noise levels generated by a diesel engine when accelerating from a standing position. The all-electric vehicle would be 3 dBA to 6 dBA quieter than the hybrid electric bus during acceleration.

Thus, at the street level, a person's environment along the transit spine would be less noisy with the Refined LPA than with the TSM and No-Build Alternatives. This difference is due to the use of the quieter electric or hybrid electric vehicles in the Refined LPA, versus the diesel buses operating in the TSM and No-Build Alternatives.

5.7 ECOSYSTEMS

5.7.1 Ecosystem Impacts

Natural habitat is very limited along the roadways and at the sites that would be affected by any of the alternatives. The sites do not represent unique or special habitat within the project area. The TSM Alternative and the Refined LPA would have no effect on the characteristics or size of populations of the resident wildlife or plant species in the area. The Refined LPA would include new landscaping in areas affected by construction.

A) Impacts on Protected Species

No State or federally listed, proposed, or candidate threatened or endangered plant or animal species described in Chapter 3, except for the white tern, is likely to be affected within areas proposed for construction. The State of Hawaii lists the Oahu population of the white tern (*Gygis alba*) as endangered. White terns are also federally protected species under the Migratory Bird Treaty Act.

DTS has conducted interagency coordination with the State Department of Land and Natural Resources Division of Forestry and Wildlife (DLNR-DOFAW) and the U.S. Fish and Wildlife Service (USFWS). Sites currently used by white terns on Oahu include Kapiolani Park, Thomas Square, Fort DeRussy, Iolani Palace, and parts of downtown and the Capital District. These areas are on the Refined LPA alignment, but white terns are well-adapted to urban environments, and no interaction with adults of this species is anticipated. The primary concern regarding white terns is to avoid disturbing their eggs, which are laid on bare tree branches. Most white terns typically nest from February to September when they are in Hawaii, but some pairs are resident year-round and nest multiple times a year.

The kooloaula *(Abutilon menziesii)*, an endangered plant, is found along the proposed alignment of North-South Road, but much further makai of the proposed Regional BRT park-and-ride site, which is mauka of Farrington Highway. Moreover, the proposed park-and-ride site is on actively cultivated farmland, making it unlikely that this endangered plant would be found on this site. Therefore, no impact is expected on the population of kooloaula in this area.

B) Tree Impacts

Preliminary engineering performed subsequent to publication of the MIS/DEIS indicated that there could have been a number of impacts on urban street trees. Because of concerns about the magnitude of tree impacts initially identified, DTS undertook concerted efforts to redesign portions of the In-Town BRT in ways that would minimize impacts to trees. Redesign efforts in various locations included shifting or eliminating bus

stops, reducing the number or size of traffic and BRT lanes, converting some exclusive BRT lanes to semi-exclusive or mixed-traffic lanes, and designing bus stops around existing trees, among others. While there will still be tree impacts, the number of trees affected will be substantially less as a result of these redesign measures. No tree impacts are expected in the Regional BRT section.

Some trees and shrubs would be relocated or removed to allow the transit stops to be built or the roadway to be modified for the Refined LPA by the project's qualified, certified arborist. A tree survey and impact analysis identified 154 tree impacts, of which 34 were determined to be "notable" trees (Table 5.7-1). A "notable" tree is defined as a tree deemed to be important to the urban landscape character. This category includes individual trees or tree types, as well as groups of trees that together comprise a recognized and important element of the visual landscape. This number does not include those trees that will need pruning.Of particular concern were the monkeypods on Kapiolani Boulevard, which are part of the historic landscape of Kapiolani Boulevard, as identified by the State Department of Land and Natural Resources, Historic Preservation Division (SHPD, MIS/DEIS comment letter, Nov. 22, 2000). DTS also worked closely with The Outdoor Circle and the City's Department of Parks and Recreation to minimize and mitigate tree impacts. Three field visits were conducted with these stakeholders in November 2001 and January and February 2002 to review potential impacts and discuss mitigation measures. These mitigation measures are incorporated into this FEIS. A tree preservation program will be developed by a qualified certified arborist.

The project will make every effort to save all notable and healthy trees. It should be noted that even trees initially assessed to be "not transplantable" because of size or age were ultimately considered for relocation, if it is physically possible to transplant the tree. Original field assessments of the transplantability of trees had assumed that relocation is not a possibility if a tree was too large, over mature, or unhealthy.

The Refined LPA may also require tree trimming where the transit stops are located or the road needs to be widened to accommodate the transit vehicles. For example, several trees on the Ewa side of Pensacola Street and the mauka side of Kuhio Avenue will be trimmed to allow BRT vehicles to pass in the curbside lane, since these trees abut the curb and have very low branches or leaning trunks. The few trees in these areas for which the qualified certified arborist deemed that pruning was not a viable option are included in Table 5.7-1 as "remove/replace."

C) Other Ecosystem Impacts

The amount of undeveloped land required for both the TSM Alternative and the Refined LPA is minimal. Bus ramps, park-and-ride facilities, and transit centers will be built adjacent to current roadways for both alternatives. These sites are all near current transportation facilities, and no agricultural operations would be displaced by any of the proposed alternatives. Only the North-South Road Park-and-Ride will affect roughly four acres of agricultural land. This park-and-ride is proposed under all three alternatives, and the partial displacement of the farming business on this site is described in Section 5.2.

However, comments received and concerns about project costs led to a re-evaluation of this park-and-ride site. Instead, the North-South Road site was selected because it could be constructed adjacent to the proposed North-South Road, eliminating the need for a costly access road and special freeway ramps. This proposed site will allow utilization of the North-South Road ramps onto and off of H-1, rather than constructing a special access ramp as would have been required at the Kunia Road site. Moreover, although the North-South Road site will still affect agricultural land, the acreage impact will be less than it would have been at Kunia Road.

Under the Federal Farmland Protection Policy Act (FPPA), federal agencies must formally assess their projects' impact on agriculture. The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) has determined that the land located at the proposed North-South Road Park-and-Ride site consists of prime, unique farmland of statewide or local importance. In accordance with 7 CFR 658.4(a), Form AD-1006, "Farmland Conversion Impact Rating" was submitted to NRCS and a Farmland

TABLE 5.7-1
NOTABLE TREE IMPACTS

BRT SEGMENT	TREE TYPE	RELOCATE On-Site	RELOCATE Off-Site	REMOVE/ REPLACE	TOTAL
Kalihi	Kamani Trees (*Callophylum inophyllum*) on Dillingham Blvd. (all w/poor canopies)	8	0	2	10
	Not Notable	11	12	3	26
	Sub-Total	*19*	*12*	*5*	*36*
Kakaako Mauka	Monkeypods (*Samanea saman*) on Ala Moana Blvd.	5	0	0	5
	Not Notable	3	7	0	10
	Sub-Total	*8*	*7*	*0*	*15*
Kakaako Makai	Not Notable	13	0	0	13
	Sub-Total	*13*	*0*	*0*	*13*
UH-Midtown	Monkeypods (*Samanea saman*) on Kapiolani Blvd.	10	0	0	10
	Not Notable	16	6	6	28
	Sub-Total	*26*	*6*	*6*	*38*
Waikiki	Cluster of Date Palms (*Phoenix dactylatra*) and Royal Palms (*Roystonea regia*) on Saratoga Road (healthy palms only)	7	0	0	7
	Banyans (*Ficus spp.*) on Kalia Road	2	0	0	2
	Not Notable	25	0	18	43
	Sub-Total	*34*	*0*	*18*	*52*
TOTALS	**Notable Trees**	32	0	2	34
	Not Notable Trees	68	25	27	120
	All Trees	100	25	29	154

Source: The Tree People, SSFM, and Parsons Brinckerhoff, July 2002.

Conversion Impact Rating score was determined. If a project receives a score equal to or greater than 160 points, alternatives that avoid farmland impacts must be evaluated.

The Combined Land Evaluation and Site Assessment Score for the North-South Road Park-and-Ride site is 194, which exceeds the 160 point threshold. Therefore, alternatives that do not affect farmlands were also evaluated.

In addition to the H-1/Kunia site which would have affected another farm, non-farm alternative sites considered included the mauka side of the H-1 Freeway near Kunia Road, the Koko Head side of the H-1/Kunia Interchange, and the existing Royal Kunia Park-and-Ride. The topography of the mauka side of the freeway made it impractical for a park-and-ride site. The lands to the Koko Head side of the interchange are highly developed and no parcels large enough to accommodate the land requirement of a park-and-ride were identified. The existing Royal Kunia Park-and-Ride was also considered, but was deemed to be too small to operate a park-and-ride of the scale required for the Refined LPA Alternative. Also, providing direct ramps to-and-from the H-1 express lanes would be very difficult from the existing Royal Kunia Park-and-Ride.

5.7.2 Aquatic Ecosystems

No adverse impacts on aquatic ecosystems would result from the proposed action. If more people were to ride transit and reduce VMT, as forecasted for the Refined LPA, less pollutants from roadway runoff would enter freshwater and marine ecosystems. Therefore, no mitigation is necessary for aquatic ecosystems.

5.7.3 Protected Species Mitigation

A survey of the project area will be conducted for white terns and their nests prior to final design. Sensitive trees and areas will also be monitored immediately prior to and/or during construction activities that involve tree relocation, removal, and/or trimming. All monitoring will be coordinated with the USFWS. DTS will also coordinate tree trimming with the Department of Parks and Recreation, which has standard procedures to avoid impacts to white terns and their eggs.

5.7.4 Mitigation Measures for Tree Impacts

Mitigation for landscaping impacts will consist of revegetation and landscape redesign along the alignment where possible. Although detailed planting plans will not be prepared until later stages of final design, desirable locations for special landscaping treatment include areas where (1) existing landscaping has been lost; (2) substantial opportunities exist for enhancement of existing streetscapes; (3) joint use is possible; (4) stops, transit centers, park-and-ride lots are proposed; (5) mitigation of specific impacts can be accomplished, such as adjacent to parks or historic sites; and (6) specific relevant goals have been established, such as within special districts.

Despite efforts made to minimize impacts on street trees, some trees will have to be relocated or removed/replaced to allow for necessary road widening, as shown in Table 5.7-1. A tree preservation program will be developed in conjunction with a "qualified arborist" to mitigate these unavoidable impacts. The City defines a "qualified certified arborist" as an arborist approved by the Department of Parks and Recreation (DPR), having at least three years of work experience. The tree preservation program will be in accordance with standard procedures used by the DPR in similar City contracts for tree maintenance. Community input will also play a role in identifying key components of the program. The working group concept will be carried out through the final design phase to ensure community input. A Street Tree Review will also be conducted by the Department of Planning and Permitting (DPP) as part of the construction plan review by the City. The DPP's Street Tree Review applies only to those trees not located within a Special Design District; affected trees inside designated Special Design Districts will be addressed in the Special Design District Permit.

On-site relocation is the preferred mitigation option wherever possible, especially for notable trees. Those trees to be relocated on-site will be kept on the same street, but moved back farther from the curb to accommodate road widening. On-site relocation may require some pruning to prepare the tree for transplanting, but the canopy of even mature trees will be kept largely intact. Root balls of appropriate sizes will be contained to move each tree. Whether or not a tree can be relocated on-site was determined by assessing if there is enough space within or adjacent to the existing right of way. In the case of on-site relocation, land acquisition by the City may be necessary.

Trees to be relocated off-site are those trees in areas where on-site relocation does not appear to be a viable option, due to proximity to buildings or other barriers for street widening and tree planting. If a tree must be relocated off-site, the project team under direction from DTS and input from the appropriate working groups will identify suitable sites for relocating each individual tree. Sites to be considered include parks, schools, and other public areas, although private property owners may also have the opportunity to replant these displaced trees.

In some cases, relocating a tree is not advisable because the tree is too old, decayed, damaged, or otherwise inappropriate for successful transplantation. Such trees will be removed and replaced. The replacement tree will be replanted on the same section of the alignment when possible. If replacing the tree is not possible on that section of the alignment, the newer tree will be planted in one of the off-site relocation areas. A qualified certified arborist will work with a landscape architect on a case-by-case basis to determine the best available field stock material appropriate to replace each affected tree. The tree preservation program will contain mitigation measures determined in consultation with The Outdoor Circle. For example, for every Kamani tree removed from the makai side of Dillingham Boulevard, two 10 to 12-inch Kamani trees will be planted on the mauka side to infill existing gaps. Also, of the six Kamani trees on the makai side of Dillingham Boulevard Koko Head of Alakawa Street that would be impacted, three trees are proposed for replanting in the property at the makai Koko Head corner of Dillingham Boulevard and Alakawa Street.

Other trees that are removed will be replaced at a one for one ratio with trees of a similar caliper, if feasible, or trees will otherwise be replaced so as to maintain the appearance of the landscape as much as possible. Trees that are relocated on-site or off-site will be monitored for a year. If relocated trees do not survive the transplanting process, they will also be replaced at a one for one ratio with trees of a similar caliper, if feasible. Because tree impacts will be mitigated by relocation and/or replacement, there will be no net loss of trees resulting from this project. Therefore, there will be no cumulative impact on trees.

The monkeypod trees on Kapiolani Boulevard will be relocated on-site. This approach means that the trees will remain in the same general vicinity from which it came, such that the tree will remain visibly on Kapiolani Boulevard, but placed farther from the curb. The trees will be pruned minimally during the transplanting process, but their canopies will be kept largely intact. Therefore, because these tree impacts will be mitigated in this manner, the visual character of Kapiolani Boulevard will not be affected.

Generally, monkeypod trees pruned for replanting will take about one year to grow back their canopies, with full recovery in three to five years' time. The Kamani trees on Dillingham Boulevard will take a little longer to recover fully, about four to eight years.

The tree preservation program will also address methods to minimize tree trimming impacts. A qualified arborist will determine the appropriate amount of trimming with the least impact on each tree. The plan will also serve as a tree protection plan to be used during construction. Section 5.12 also addresses the tree protection plan to be implemented during construction and the Street Tree Review by DPP.

5.7.5 Mitigation Measures for Agricultural Impacts

The North-South Road Park-and-Ride will cause an unavoidable impact to agricultural land and an operating agricultural business. Mitigation measures to compensate for loss of land and revenue to the business on site are described in Section 5.2. The loss of agricultural land in this area is deemed necessary to the success of the Refined LPA, and represents a policy decision by the City to allow some agricultural lands to be used to promote transit ridership in the Ewa region.

It is expected that the farm on this site would be able to continue operating after construction of the park-and-ride. Any haul roads on the farm property affected by the park-and-ride's access road will be maintained or realigned to allow continued use.

5.8 WATER

No major impacts on water resources are expected for any of the proposed alternatives.

5.8.1 Surface Water

Any additional impervious surface from roadway pavement under all alternatives will increase runoff and associated contaminants discharged to storm-water systems and surface waters. However, with the Refined LPA, much of the proposed new or widened pavement would be located along existing streets. Dillingham Boulevard will be widened over the Kapalama Stream bridge by reinforcing the bridge with a new bridge beam. This work will be accomplished without modifying or altering the stream.

The incremental increase in impervious surface and associated contaminants resulting from implementation of the Regional and In-Town BRT systems will be minor in comparison to the total existing drainage area and pollutant loading to storm-water systems and surface waterways from Honolulu's urban core. Nonetheless, specific control measures will be resolved during final design, and a best management plan will be developed to minimize or control surface water runoff, especially at the North-South Road Park-and-Ride, which will be located adjacent to Kaloi Gulch.

No long-term effect on surface water quality of area streams, lagoons, or harbors would be expected. Increasing transit patronage (with the Refined LPA) will reduce the non-point source pollution created by automobiles.

Moreover, the project should not increase demand for water resources. All landscaping will be selected to match environmental conditions and avoid unnecessary water use.

5.8.2 Groundwater

Because the Southern Oahu Basal Aquifer (SOBA) is a designated sole-source aquifer, EPA requires a Ground Water Impact Assessment (under Section 1424(e) of the Safe Drinking Water Act) to determine the project's impact on the quality of the groundwater in the SOBA. DTS is coordinating with EPA to complete the Ground Water Impact Assessment.

No long-term impacts on groundwater quality, quantity, or flow characteristics are anticipated. The Refined LPA would provide a clean, convenient public transportation alternative to single-occupant automobiles. By replacing single-occupant vehicles with electric and conventional buses and reducing total regional vehicle-miles traveled (VMT), the overall pollutant loading of roadway runoff would be reduced.

The In-Town BRT is not located in a recharge area for the SOBA. The potential for contamination of the SOBA from the In-Town BRT would be low due to the artesian conditions in the SOBA created by the great thickness and relative impermeability of the caprock.

The Regional BRT will run along the H-1 Freeway over some areas where the basalt containing the SOBA is not covered by a thick layer of caprock and surface waters can percolate into the SOBA. In these areas, there is the potential for contamination of the SOBA from roadway drainage and hazardous spills. Since the Refined LPA will reduce total regional VMT, the amount of roadway runoff and the risk of accidental spills will be reduced. Any new construction will be tied into the existing drainage system.

The alluvial cover on the SOBA is thin or nonexistent at the Luapele Drive Ramp. The Luapele Drive Ramp has been designed with a short tunnel necessary to bring the BRT vehicles back onto the H-1. Although borings have not been initiated (and are not anticipated to be initiated until the final design phase), it appears that the tunnel will be excavated in rock. A lined drainage channel will intercept runoff from inside the tunnel.

Drainage systems at the park-and-ride facility at North-South Road would collect stormwater runoff and inadvertent material releases and convey them outside the SOBA recharge area via Kaloi Gulch.

The small amount of impervious surface constructed as part of the Regional BRT will not measurably reduce the recharge of the SOBA.

No major disruption of groundwater flow will occur. The only tunnel or other underground structure is the short bus tunnel associated with the Luapele Drive ramp.

5.8.3 Floodplains

No adverse impacts are expected in the 100- or 500-year base floodplains. The proposed TSM Alternative and Refined LPA alignments will traverse some floodplains, but the transit systems will largely utilize existing or planned roadways and will not require any changes that may affect the potential for flooding. Any necessary construction will comply with the rules and regulations of the National Flood Insurance Program (NFIP) and all applicable ordinances for flood hazard districts, as stated in the City of Honolulu's Land Use Ordinance.

5.8.4 Wetlands

It is anticipated that no wetlands will be affected by any of the project alternatives, because the project area is highly urbanized and transit lanes will occur mostly within existing roadways. The Refined LPA alignment will traverse streams using existing bridges. It is expected that bridge modifications to accommodate the Regional and In-Town BRT will not involve dredging or filling any waters of the U.S., including wetlands. However, there is a possibility that new piers may be necessary for a bridge widening at the Waiawa Interchange, but the need for new piers will not be determined until the final design phase. Construction of any piers would be in association with pre-existing bridges, and additional foundations or piers in the streams would be avoided wherever possible. The U.S. Environmental Protection Agency's Section 404(b)(1) *Guidelines* (40 CFR 230) are the substantive environmental criteria used to protect the waters of the U.S. through the control of discharges of dredged or fill material under Section 404 of the Clean Water Act. A Section 404 permit will be obtained from the U.S. Army Corps of Engineers (ACOE), if necessary. Based on field reconnaissance, one potential wetland area has been identified just to the south of the Luapele Drive ramp. Although in the project area, this wetland appears to be outside of the construction limits. In order to define the boundaries of this wetland, a wetland delineation will be conducted during the final design phase. At this time, no wetland impacts are anticipated.

5.8.5 Navigable Waters

It is anticipated that no navigable waters will be affected by the proposed alternatives, because the project area is highly urbanized and transit lanes will occur mostly within existing roadways. The Refined LPA alignment will traverse streams using existing bridges, which will necessitate alterations to some of the bridge structures. Appropriate best management practices (BMPs) will be implemented to ensure adherence to standards set forth under Section 404 of the Clean Water Act. A Section 404 permit will be obtained from the ACOE for bridge widening, if necessary (See Section 5.8.4). Otherwise, dredging or filling of waters of the U.S. is not expected to occur.

5.8.6 Coastal Zone Management (CZM) Areas

Because the proposed project is a federally-funded activity, it must receive a consistency determination from the State CZM program to assure that the project meets the guidelines in the State policy. Coordination to receive the required consistency determination will occur concurrent with the public and agency review of this document.

5.8.7 Water Recreation

The proposed project is not expected to affect any water recreation activities within or adjacent to the project area. No impact on water quality that could affect recreational uses will occur from any of the alternatives, and no restriction of access to water recreation activities will occur.

5.9 ENERGY

This section provides estimates of the energy that would be consumed under each alternative in the design year 2025. The analysis considers direct (operational) and indirect energy requirements. Direct energy consumption includes the fuel required for passenger vehicles (automobiles, vans, light trucks) and transit buses. It also includes the electrical power needed to power the In-Town BRT vehicles if an EPT system is selected. Indirect energy consumption includes what is required to construct any capital improvements, and to manufacture and maintain passenger vehicles and transit buses.

The Refined LPA would result in the least amount of direct energy consumption because it would lead to a substantial decrease in the vehicle miles traveled (VMT) for passenger vehicles, and a substantial increase in VMT for transit buses (and In-Town BRT vehicles). Although the per unit energy requirements of a transit bus (or In-Town BRT vehicle) are greater than an individual passenger vehicle, the greater passenger capacity of these vehicles makes them more energy efficient on a per person basis. The Refined LPA is estimated to consume up to 215,000 fewer barrels of oil than the No-Build Alternative, and up to 249,000 fewer barrels than the TSM Alternative in the design year 2025. If EPT is used as the In-Town BRT technology, these savings would be slightly less.

The Refined LPA would require the most indirect energy because it requires the most construction. The TSM and No-Build Alternatives would also consume indirect energy because they also include some construction activities. The Refined LPA would produce maintenance energy savings because it would lead to less use of passenger vehicles. Maintenance costs under the TSM Alternative are not anticipated to increase over the No-Build Alternative because of the increase in maintenance energy for transit buses. The Refined LPA would produce a savings of approximately 44,000 barrels of oil for maintenance over the No-Build Alternative and 55,000 barrels of oil over the TSM Alternative.

5.9.1 Analysis Methodology

1) Direct Energy (Operational)

The method used to estimate the direct energy consumption for the alternatives is outlined in the Reporting Instructions for the Section 5309 New Starts Criteria (FTA, June 2002). Direct energy consumption involves the fuel needed by the vehicles (automobile, truck, bus, or transitway vehicle) on the island. In assessing the direct energy impact, the following factors were used:

- Annual vehicle miles traveled (VMT) for automobiles, trucks, buses, and In-Town BRT vehicles.
- Fuel consumption rates by vehicle type.

Daily traffic volumes and the projected 2025 VMT were used in the direct energy analysis for each alternative. The 2025 daily traffic volumes for the island were developed as part of the traffic modeling process. The daily VMT was annualized using a factor of 308 days/year. Table 5.9-1 shows the fuel consumption rates, as measured in British thermal units (BTUs), that were used in the analysis. One BTU is the quantity of energy necessary to raise one pound of water one degree Fahrenheit. These rates were developed by Oak Ridge Laboratory and published in the 2001 Transportation Energy Book: Edition 21.

TABLE 5.9-1
1999 ENERGY CONSUMPTION RATES

Vehicle Type	Energy Consumption/Vehicle Mile
Passenger Vehicles (auto, van, light truck)	6,225 BTU/Vehicle Mile*
Transit Bus (all vehicle types)	42,955 BTU/Vehicle Mile

Source: U.S. Department of Energy, Office of Transportation Technologies, 2001.
*This is a weighted average.

A slight adjustment was made in calculating the direct energy consumption of the Refined LPA because it includes the In-Town BRT, a system that could potentially be exclusively electric. If so, the In-Town BRT vehicle would use a touchable surface contact system (embedded plate) (see Section 2.2.3). Unfortunately, there is no existing data on the electrical demand of an all-electric In-Town BRT vehicle. However, there is data on the electrical demand of light rail transit (LRT) systems. Since the In-Town BRT vehicle would require less electricity than a typical LRT vehicle, slight adjustments were made to this information, which resulted in an estimate of 11,300 kilowatts per day for the entire system. Hybrid- electric In-Town BRT vehicles could be used as an alternative to an EPT vehicle (see Section 2.2.3). The fuel consumption of the hybrid vehicle would be similar yet slightly less than for the standard diesel buses shown in Table 5.9-1.

2) Indirect Energy

Indirect energy involves the one-time, non-recoverable energy consumption associated with construction activities. In addition to fuel consumption of vehicles involved in the actual construction of different elements of the alternatives, construction energy consumption also includes the energy needed to produce construction materials. An Input-Output method was used to estimate construction energy consumption for the alternatives. Under this method, the construction cost for each alternative is converted into energy consumption based on 1998 base data on the construction of similar transportation systems in the U.S.

Indirect energy also involves the manufacturing and maintenance of vehicles. This includes passenger vehicles and transit buses.

5.9.2 Energy Impacts

1) Direct Energy (Operational)

Annual direct energy consumption estimates, in BTUs, in the year 2025 under the No-Build, TSM and Refined LPA Alternatives are provided in Table 5.9-2. This table also shows the BTU-equivalent barrels of crude oil. A discussion of the direct energy consumption impacts of each alternative is provided below.

No-Build Alternative

Under the No-Build Alternative, the year 2025 Oahu VMT for passenger vehicles (automobiles, vans and light trucks) is projected to be approximately 6,050 million miles and approximately 19.3 million miles for transit buses. Based on fuel consumption rates provided on Table 5.9-1, these vehicles would consume approximately 38,492 billion BTUs, or approximately 6.63 million barrels of oil, in the year 2025.

TSM Alternative

Under the TSM Alternative, the year 2025 Oahu VMT for passenger vehicles is projected to be approximately 6,050 million miles and approximately 24 million miles for buses. Overall, the islandwide passenger vehicles VMT under the TSM Alternative is projected to be almost the same as the passenger vehicles VMT under the

TABLE 5.9-2
ESTIMATES OF ANNUAL DIRECT ENERGY CONSUMPTION IN YEAR 2025

	Alternative		
	No-Build	TSM	Refined LPA
PROJECTED VEHICLES MILES TRAVELED (in Millions)			
Daily Passenger Vehicle	19.64	19.64	18.84
Annual Passenger Vehicle	6,050.43	6,050.16	5,803.26
Daily Transit Bus	.063	.078	.084
Annual Transit Bus	19.3	24.0	26.0
ESTIMATED BTUs (in Billions)			
Passenger Vehicle	37,664	37,662	36,125
Transit Bus	829.0	1,030.9	1,116.8
SUMMARY			
Total BTUs (in Billions)	38,492	38,692	37,242[2]
Total Barrels of Oil (in Thousands)[1]	6,636	6,671	6,421[2]
Change in Barrels of Oil from No-Build Alternative (in Thousands)	N/A	35	-215

Source: Parsons Brinckerhoff, Inc., October 2002.
Note: [1] Barrel of Oil = 5.8 million BTUs (from U.S. Department of Energy, Office of Transportation Technologies, Transportation Energy Data Book: Edition 18 –1998).
[2] For Hybrid diesel/electric vehicles.

No-Build Alternative. Improved transit service would create additional transit trips under the TSM Alternative; therefore, the VMT for buses would be approximately 4.7 million miles higher under the TSM Alternative. Based on these VMT projections, passenger vehicles and transit buses would consume approximately 38,692 billion BTUs, or 6.67 million barrels of oil, in the year 2025. This is about 200 billion BTUs, or 34,000 barrels of oil more than what would be consumed under the No-Build Alternative.

Refined LPA

Under the Refined LPA, the year 2025 Oahu VMT for passenger vehicles is projected to be 5,803 million miles, and approximately 26 million miles for transit buses. Compared to the No-Build and TSM Alternatives, the VMT for buses would be approximately 6.7 million and two million miles higher under the Refined LPA, respectively. However, the VMT for passenger vehicles would be approximately 247 million miles lower under the Refined LPA. Based on projected VMT for the Refined LPA, approximately 37,242 billion BTUs, or about 6.4 million barrels of oil would be consumed in the year 2025. This estimate assumes that hybrid electric In-Town BRT vehicles would be used.

If an all-electric In-Town BRT system (i.e. EPT) is used, the fuel consumption indicated on Table 5.9-2 would be lower under the Refined LPA. Furthermore, an EPT system would require approximately 11,300 kilowatts per day, which can be provided within the reserve capacity of existing electric power plants according to Hawaiian Electric Company. Nevertheless, an EPT system overall would consume a slightly greater amount of energy, estimated at 38.5 million BTUs per day on average, which is the equivalent to 6.6 barrels of oil. It should be noted that this modest additional energy demand of an EPT In-Town BRT would be offset by other advantages of such a system, such as the vehicle's zero air pollutant emissions and its lower noise levels.

In summary, operational energy consumption under the Refined LPA would be the lowest among the three alternatives. The Refined LPA would annually consume up to 215,000 fewer barrels of oil than the No-Build Alternative, and up to 250,000 fewer barrels than the TSM Alternative in the year 2025.

2) Indirect Energy (Construction)

Indirect energy consumption estimates under each alternative are provided in Table 5.9-3. This table also shows the BTU-equivalent barrels of crude oil. The energy consumption estimates under construction

represents a one-time expenditure of energy. The indirect energy consumption impacts discussion for each alternative is provided below.

TABLE 5.9-3
ESTIMATES OF INDIRECT ENERGY CONSUMPTION IN YEAR 2025

	Alternative		
	No-Build	TSM	Refined LPA
CONSTRUCTION[1] (in Billions BTU)			
Passenger Vehicle- Manufacturing	8,531	8,531	8,183
Transit Bus Manufacturing	67.0	83.3	90.2
Roadway	0	400.4	2,904
Parking	98.2	336.1	512.4
Structures	5.1	17.6	991.1
Maintenance Facility	0	234.8	235
Total Construction	8,701	9,603	12,916
Total Construction in Barrels of Oil (in Thousands)	1,500	1,656	2,227
Change in Barrels of Oil from No-Build Alternative (in Thousands)	N/A	155	727
MAINTENANCE[2](in Billions BTU)			
Passenger Vehicle	8,471	8,471	8,125
Transit Bus	253	315	342
Total Maintenance	8,724	8,785	8,466
Total Maintenance in Barrels of Oil (in Thousands)	1,504	1,515	1,460
Change in Barrels of Oil from No-Build Alternative (in Thousands)	N/A	11	-44
Total Indirect Energy Consumption (in Billions of BTUs)	17,425	18,388	21,382
Total Indirect Energy Consumption (in thousands of Barrels Of Oil)	3,004	3,170	3,687

Source: Parsons Brinckerhoff, Inc., October 2002.
Notes:
1 Construction Energy Conversions (Caltrans, 1983):
Vehicle construction energy:
- Passenger vehicles – 1,410 BTUs/VMT
- Transit bus - 3,470 BTUs/VMT
Roadway – 27,500 BTUs/1977$
Parking – 61,615 BTU/1973$
Structures – 50,100 BTUs/1973$
Maintenance facility – 50,100 BTUs/1973$
2 Maintenance conversions (Caltrans, 1983).
- Passenger vehicles – 1,400 BTUs/VMT
- Transit bus - 13,142 BTUs/VMT

No-Build Alternative

The indirect energy consumption of the No-Build Alternative would include the manufacturing and maintenance of passenger vehicles and transit buses plus construction costs associated with programmed improvements to Oahu's transit center network. The construction and manufacturing activities required under the No-Build Alternative would consume approximately 1.5 million barrels of oil, and maintenance would require approximately 1.5 million barrels of oil in the forecast year 2025.

TSM Alternative

Under the TSM Alternative, construction activities would substantially increase the construction sub-total of the indirect energy consumption over the No-Build Alternative. It is estimated that such activities, in addition

to the manufacturing of passenger vehicles and transit buses, would require 1.66 million barrels of oil, about 156,000 barrels more than what would be required under the No-Build Alternative. The energy required for the maintenance of passenger vehicles and transit buses would be slightly higher than what would be required under the No-Build Alternative because this alternative would result in greater use of transit vehicles.

Refined LPA

Construction of the Refined LPA would result in the greatest indirect consumption of energy compared to the other alternatives. Overall, it would require 727,000 and 571,000 barrels of oil more than the No-Build and TSM Alternatives, respectively. However, since the Refined LPA would result in less use of passenger vehicles compared to the other alternatives, energy consumption for maintenance under this alternative would be approximately 44,000 barrels of oil less than the No-Build Alternative.

5.10 HISTORIC AND ARCHAEOLOGICAL RESOURCES

This section discusses the potential impacts of the No-Build Alternative, TSM Alternative and the Refined LPA on the historic and archaeological resources in the study area. Consultation with the State Historic Preservation Division (SHPD) and other organizations interested in historic and cultural preservation was conducted throughout project planning in accordance with Section 106 of the National Historic Preservation Act (NHPA).

This section provides a summary of the Section 106 process conducted for this project. Effect determinations were rendered for the Refined LPA, and a Memorandum of Agreement (MOA) will be prepared because the FTA rendered "adverse effects".

5.10.1 Regulatory Context

Because of potential federal participation, this project is required to be in compliance with Section 106 of the NHPA. In accordance with Section 106, the "effect" of the project on historic or archaeological resources must be determined by the federal agency proposing or regulating the project. There are three possible "effect" findings:

- No historic properties affected;
- No adverse effect; and
- Adverse effect.

"No historic properties affected" means that either there are no historic properties present or there are historic properties present but the undertaking will have no effect upon them of any kind (that is, neither harmful nor beneficial). An "effect" means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register of Historic Places (NRHP).

"No adverse effect" means that there could be an effect, but the effect would not be harmful to those characteristics that qualify the property for inclusion in the NRHP. In other words, it would not diminish or adversely affect the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

An "adverse effect" means an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration is given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther

removed in distance or be cumulative. If an "adverse effect" is determined, a MOA between the federal agency and the State Historic Preservation Officer (SHPO) is prepared. Other parties are allowed to be MOA signatories.

5.10.2 Archaeological Resources

SHPD staff has indicated that because most of the project area is urban, with ground conditions consisting of fill and top soil that has already been highly disturbed by agriculture and construction, it is unlikely that the Refined LPA project area contains archaeological resources, such as archaeological and cultural remains, artifacts or sites, and Kupuna Iwi (ancestral native-Hawaiian burial site), at or near the ground surface.

No-Build Alternative

Under the No-Build Alternative, adverse effects to archaeological sites are not expected because no transit-related construction is proposed.

TSM Alternative

Like the No-Build Alternative, adverse effects to archaeological sites are not expected under the TSM Alternative because no transit-related construction is proposed.

Refined LPA

Construction of various elements of the Refined LPA, particularly certain segments of the In-Town BRT, could uncover subsurface archaeological resources.

Regional BRT elements will be constructed on existing roadways and rights-of-way with the exception of the Kapolei Transit Center and the North-South Road park-and-ride facility. The transit center and park-and-ride facility will be located on properties that have undergone substantial ground disturbance from past and present agricultural activities. Therefore, the probability of encountering archaeological resources would be very low.

Like the Regional BRT, the In-Town BRT will be constructed on existing roadways and rights-of-way, but may use embedded plate technology (see Section 2.2.3), which would require excavation along the alignments to install embedded plate modules and underground power cables. Off-street elements of the In-Town BRT include the TPSS at various locations.

Installing embedded plate modules and power cables would require excavation of about two to three feet deep along the corridor. This activity would have a moderate to high probability of uncovering subsurface archaeological resources along the following segments:

- Kamehameha Highway and Dillingham Boulevard in Kalihi;
- Chinatown, the Financial District and the Capital District in Downtown Honolulu;
- Kakaako;
- University of Hawaii; and
- Ala Moana and Waikiki.

Construction of the TPSSs along the above segments may also uncover subsurface archaeological resources.

5.10.3 Historic-Period Resources

There are no historic-period resources (historic buildings, structures and objects constructed or erected after western contact) within the Area of Potential Effect (APE) of the TSM Alternative.

As described in Section 3.10, the Refined LPA's APE for historic-period resources includes the non-street properties being used for transit stops, transit centers and park-and-rides, the Regional and In-Town BRT transitways (street and highway lanes), additional rights-of-way needed for the transitway and parcels directly adjacent to transit stops or transit centers. Table 5.10-1 lists the historic districts and historic-period resources within the APE of the In-Town BRT element of the Refined LPA. There are no historic-period resources within the APE of other elements of the Refined LPA. The transitway of the Regional BRT would only affect existing rights-of-way, and future transit centers and park-and-ride lots of the Regional BRT would be placed on vacant land (Kapolei Transit Center and North-South Road Park-and-Ride Lot).

As shown on Table 5.10-1, the Federal Transit Administration (FTA), through the City of Honolulu, Department of Transportation Services (DTS), has determined that the Refined LPA will have "no adverse effect" on many of the resources in the APE because they will not be affected by right-of-way acquisition, nor will they be affected by being in proximity to transit stops. Discussion of these historic-period resources, and why right-of-way impacts or being in proximity to transit stops will not cause them to be adversely affected by the project is provided below:

- The Fort Street Mall (Ewa Bound) Transit Stop will be located next to the Portland Building. However, the building will not be directly affected. The transit stop will not be substantially different from the existing Union Mall bus stop, which has sheltered benches. Therefore, the stop was evaluated as having "no adverse effect" on the Portland Building.
- The UH-Manoa branch alignment on Kapiolani Boulevard near Sheridan Street will require a small amount of right-of-way on the property with a building containing the Blue Cross Animal Hospital. The building was constructed in 1938, and has maintained its architectural integrity. The FTA rendered a "no adverse effect" determination because the right-of-way take will not affect the building.
- The University/King Transit Stop will be located near Varsity Theater. Since right-of-way will not be required from the building property and the transit stop will not use the sidewalk fronting the theater, a "no adverse effect" determination was rendered.
- The UH-Manoa Transit Stop will be within the University of Hawaii Historic District (State Site 80-14-1352), which contains several listed individually historic buildings and structures, such as Founders Gate and Hawaii Hall, as well as eligible buildings, such as Bachman Hall. Since the transit stop will be located at Sinclair Circle, which is already used as a bus terminus for the City Express route, providing a transit stop, even with sheltered benches and other furnishings, will not affect the historic integrity of the University, including the nearby Bachman Hall.
- The Bishop Transit Stop will be located near the Dillingham Transportation Building. The transit stop will be located on the opposite sidewalk from the historic structure, fronting the AMFAC center. Therefore, a "no adverse effect" determination was rendered.
- The Ala Moana Park Transit Stop will be on the sidewalk next to Ala Moana Park (State Site 80-14-1388), but will not require any park property, and will not affect the value of the property as a major regional park. The FTA rendered a "no adverse effect" determination because a relatively large bus shelter already occupies the site and has no effect on the historic characteristics of the park.
- The proposed Kapahulu Transit Stop was originally located on the sidewalk next to Kapiolani Park (State Site 80-14-9758) on the block between Kalakaua Avenue and the makai driveway of the Honolulu Zoo parking lot. Although no park property would have been acquired and use of the park would not have been affected, the FTA rendered an "adverse effect" determination because the stop's furnishings would have the potential to adversely affect the property's visual integrity (see Section 5.11). Since the July 2002 effect determinations, the Kapahulu Transit Stop was moved to a location on the mauka side of the

TABLE 5.10-1
EFFECT DETERMINATION ON HISTORIC PERIOD RESOURCES

Location	Resource	FTA/DTS Determination
Chinatown Transit Stop	Chinatown Historic District	Adverse Effect
	--Lung Doo Benevolent Society*	No Adverse Effect
	--Yew Char Building*	No Adverse Effect
	--Hotel Street Sidewalk Features	Adverse Effect
Fort Street Mall Transit Stop	Portland Building	No Adverse Effect
Iolani Palace Transit Stop	Hawaii Capital Historic District	Adverse Effect
	--U.S. Post Office, Custom House and Court House (Federal Building)	Adverse Effect
	--Hawaii State Library	Adverse Effect
Thomas Square/NBC Transit Stop	Thomas Square	Adverse Effect
UH-Manoa transitway on Kapiolani Boulevard in the vicinity of Piikoi Street and Ala Moana/Keeaumoku Transit Stop	Kapiolani Boulevard historic landscape	Adverse Effect
	Blue Cross Animal Hospital*	No Adverse Effect
University/King Transit Stop	Varsity Theater*	No Adverse Effect
UH-Manoa Transit Stop	University of Hawaii Historic District	No Adverse Effect
	--Bachman Hall	No Adverse Effect
Bishop Transit Stop	Dillingham Transportation Building	No Adverse Effect
Coral Street Transit Stop	City and County Corporation Yard	No Adverse Effect
Ala Moana Park Transit Stop	Ala Moana Park	No Adverse Effect
Kapahulu Transit Stop	Kapiolani Park	No Adverse Effect[1]
Historic Sidewalk and Curb Elements		
Alakea Transit Stop	Lava curbs: Alakea Street between Queen Street and Nimitz Highway.	Adverse Effect
Thomas Square/ Neal Blaisdell Center Transit Stop	Lava curbs: South King Street in front of Thomas Square and Neal Blaisdell Center	Adverse Effect
King/Pensacola Transit Stop	Lava curbs: South King Street in front of Kaiser Honolulu Clinic	Adverse Effect
Saratoga Transit Stop	Lava curbs: Saratoga Road, Ewa sidewalk	Adverse Effect

Source: Federal Transit Administration (FTA), through the City and County of Honolulu, Department of Transportation Services, July 2002.
Notes: * Preliminary assessment of historic based on consultation with the SHPD.
NBC: Neal Blaisdell Center
[1] The July 2002 effect determination rendered an "adverse effect" on Kapiolani Park, but due to the relocation of the Kapahulu Transit Stop, it was changed to a "no adverse effect".

parking lot driveway, but still within the roadway right-of-way. The backdrop of the relocated stop would be the landscaped zoo parking lot. Although the parking lot is part of the historic Kapiolani Park, it does not have nearly the same visual value or integrity as the park proper. Therefore, the effect determination regarding Kapiolani Park was changed to a "no adverse effect".

FTA, through DTS, rendered "adverse effect" determinations regarding two of the historic districts in the APE, Chinatown and the Capital District, and other historic-period resources that have visually integrity (i.e., views of the property are an important historic characteristic). The transit stops at or near these resources will include reconstruction of curbs and sidewalks and include benches, shelters, signage and other furnishings. Therefore, the transit stops have the potential to adversely affect the visual integrity of these properties. Discussion of the potential impacts to these historic-period resources is provided below.

Chinatown Historic District

The Chinatown Transit Stop will be located in the Chinatown Historic District (State Site 80-14-9986), which contains a large number of small businesses that utilize the street-level frontage of buildings for entrances and retail activities. Many shop owners utilize the sidewalk area for additional product displays, creating an outdoor street market atmosphere that contributes to the historic character of the district. The addition of a transit stop at the Hotel Street and Kekaulike Mall intersection could affect existing activities fronting a number of small street-level shops. In addition, Chinatown has a distinct architectural style, which will need to be reflected in the transit stop.

Hotel Street Sidewalk Features, which include granite paving blocks and lava rock curbs, were determined eligible for the NRHP in 1980 because of their contribution to the Chinatown Historic District. Since these curbs will be temporarily removed during construction of the transit stop, an "adverse effect" assessment was made regarding this specific historic property.

Although an "adverse effect" was rendered for the Chinatown district, the FTA determined that the transit stop will have "no adverse effect" on two nearby Chinatown buildings (see Table 5.10-1), Lung Doo Benevolent Society and Yew Char Buildings. Although both buildings will be adjacent to the stop, neither will be affected in a manner that will change their historic integrity.

Hawaii Capital Historic District

The Iolani Palace Transit Stop will be within the Hawaii Capital Historic District (State Site 80-14-1321), which includes numerous individual historic properties, such as Iolani Palace and Grounds, State Capitol, Honolulu Hale, and King Kamehameha Statue. The Koko-Head bound stop will be in front of the U.S. Post Office, Custom House and Court House (State Site 80-14-9952), and the Ewa-bound stop will be in front of the Hawaii State Library (State Site 80-14-1307). The transit stops have the potential to adversely affect the district's visual integrity. The stops may also adversely affect the visual integrity of the U.S. Post Office, Custom House and Court House and the Hawaii State Library, even though a landscaped parking lot is in between the former and the Koko-Head bound stop and the Ewa bound stop will be set back from the sidewalk so as not to cause pedestrian congestion in front of the library (See Figure 5.4-4.).

Other Areas

The Thomas Square/NBC (Ewa Bound) Transit Stop will be on the sidewalk next to Thomas Square (State Site 80-14-9990). Although no park property will be acquired and the value of the property as an urban park will not be affected (see Section 5.11), the FTA rendered an "adverse effect" determination because the transit stop's furnishings may adversely affect the visual integrity of the property.

The transitway along Kapiolani Boulevard and the Ala Moana/Keeaumoku Transit Stop will displace some of the monkeypod trees that are part of the Kapiolani Boulevard historic landscape. Although the project has committed to relocating all affected notable and healthy trees, the FTA rendered an "adverse effect" determination because of the tree displacements (see Section 5.7.1).

The FTA has determined that the Alakea Street, Thomas Square/NBC, King/Pensacola and Saratoga Transit Stops will "adversely affect" lava rock curbs, which are considered "historic" by the SHPD, because they will be temporarily removed during construction, similar to the impacts described above regarding the Hotel Street Sidewalk Features.

5.10.4 Traditional Cultural Properties

Traditional cultural properties (TCPs), like archaeological and historic-period resources, are another type of historic properties that are afforded protection under Section 106. Some of the identified TCPs in the study area are from the many ethnicities and cultures of Hawaii that have adapted to the urbanized environment of Honolulu. The TCPs within the APE affected by the Refined LPA are Chinatown and Kupuna Iwi. Potential impacts to Chinatown are discussed in Section 5.10.3. Potential impacts to Kupuna Iwi are discussed in Section 5.10.2, and may be an issue during construction in certain areas.

5.10.5 Mitigation Measures

1) Construction

The project's MOA will specify that archaeological monitoring will be conducted during excavation in areas along the In-Town BRT alignment with moderate to high levels of probability of uncovering archaeological resources. The MOA monitoring stipulations for the In-Town BRT would only apply if the embedded plate technology were used.

If a burial or archaeological artifact is uncovered during construction, regardless of archaeological monitoring, work will stop and the SHPD will be notified immediately. Should Kupuna Iwi be found during construction, specific legal procedures and cultural practices, such as involvement by the Oahu Island Burial Council, will need to be performed as specified in the MOA. Construction would resume upon approval of the appropriate authorities.

2) Historic Districts and Historic-Period Resources

The design of the transit stops in historic districts or near historic buildings with high visual integrity will be developed so that they are compatible with the surrounding area.

The project's MOA will contain stipulations that require consultation with the SHPD and other stakeholders on the design of those transit stops that may adversely affect historic properties. The consultation will focus on the type, number and size of structures, architectural style, and protection of important viewsheds and historic characteristics of affected properties. DTS has agreed to conduct a good faith effort to consider and understand the historic preservation concerns communicated by the SHPD and other stakeholders, and to reflect these concerns in its plans and design of affected transit stops. Meanwhile, SHPD has agreed to conduct a good faith effort to consider and understand the service needs of future In-Town BRT riders, such as compliance with the Americans with Disabilities Act and protection from the elements.

5.10.6 Coordination

Consultation with the SHPD and stakeholders will continue as additional project details are developed and studies continue, as will be specified in the MOA.

5.11 PARKLANDS AND SECTION 4(f) EVALUATION

This section discusses potential impacts to parks and recreational resources in the project area. None of the alternatives would change the character, function or use of any park or recreational resource in the study area, although the two build alternatives will use the Aloha Stadium Kamehameha Highway (overflow) parking lot as a transit center/park-and-ride lot. The TSM Alternative and the Refined LPA would enhance transit access to parks and recreational resources in the project area by improving the level of transit service to parks along the alignments of these alternatives.

Vehicular access to Ala Moana Regional Park would be adversely affected under the Refined LPA because of the conversion of two general-purpose lanes to transit lanes on both Ala Moana and Kapiolani Boulevards.

5.11.1 Impacts to Parks and Recreation Areas

With the exception of the Aloha Stadium overflow parking lot, none of the alternatives would require land from or cause proximity impacts to any existing park or recreational resource. In general, the Refined LPA, and to a lesser extent the TSM Alternative, would enhance the value of the park and recreational resources in the study area by improving their accessibility for transit users. However, there is the potential for indirect impacts because of changes proposed to certain roadways and the proposed locations of certain transit stops near visually important parks.

The In-Town BRT element of the Refined LPA would reprioritize general-purpose lanes on major arterials in Honolulu. As a result, automobile access to Ala Moana Regional Park would be reduced. On-street parking along Ala Moana Boulevard near the park, which is allowed on most weekends and holidays, would be eliminated. The TSM Alternative would convert certain general-purpose lanes to semi-exclusive bus lanes, which would also require the removal of on-street parking. There would not be any impacts under the No-Build Alternative because roadway capacity for automobiles and parking would not change.

As noted in Section 5.4, Visual and Aesthetic Resources, proposed transit stops adjacent to Thomas Square, Ala Moana Park and Kapiolani Park have the potential to adversely affect the aesthetic characteristics of these parks, even though these transit stops will not use park property. Therefore, these transit stops will require special design treatment because of their proximity to these parks. Please see Sections 5.4.2 and 5.10.5 for proposed mitigation.

5.11.2 Section 4(f) Evaluation

Section 4(f) of the Department of Transportation Act, 49 U.S.C. 303 and 23 U.S.C. 138 (referred to hereafter as "Section 4(f)"), permits the use of land for a transportation project from a significant publicly-owned public park, recreation area, wildlife and waterfowl refuge, or a historic site only when it has been determined that there is no feasible and prudent alternative to such use; and the project includes all possible planning to minimize harm to the property resulting from such use. The purpose of Section 4(f) is to limit the circumstances under which such land can be "used" for transportation projects. The word "use" in this case means:

- land is permanently incorporated into a transportation facility;
- there is a temporary occupancy of land that is adverse in terms of preservation of the resource; or
- the project's proximity to the site substantially impairs those functions that qualify the site as a Section 4(f) resource even though no land is permanently or temporarily acquired. This is called "constructive use."

The avoidance of Section 4(f) resources was an important consideration in developing and screening the alternatives. Therefore, of the many existing and planned public parks and recreational resources and historic properties in the project area identified in Sections 3.11 and 3.10, respectively, none will be affected by the alternatives such that there would be a Section 4(f) use. Although elements of the Refined LPA will traverse historic districts, no buildings important to the integrity of these districts will experience a Section 4(f) use. In addition, there will be no cases of constructive use. For example, the loss of weekend/holiday parking on Ala Moana Boulevard would not be a constructive use because this would not cause Ala Moana Park's value in terms of public enjoyment to be substantially reduced. Park users will still be able to access the park by private vehicle, by buses or by BRT. In addition, transit stops in proximity to Thomas Square, Ala Moana Park and Kapiolani Park will not in any way affect park usage or the recreational value of these parks.

5.12 IMPACTS OF CONSTRUCTION ACTIVITIES

5.12.1 Overview

This section presents an assessment of the temporary impacts of construction and mitigation related to those impacts. A more detailed discussion of construction techniques for the various project elements is in the Construction Technical Memorandum (March 2000). The Refined LPA along with many of the other transit facilities related to the Refined LPA would be placed within the same rights-of-way as the existing surface roadway system, which must remain operational throughout construction. The project is being planned, designed and scheduled to meet this challenge with minimal disruption. However, some effects on the environment, nearby facilities, and established patterns of activity are inevitable. These effects would be temporary, and their severity would depend largely on the type of construction methods employed, how it would be carried out, and what controls are exercised.

The No-Build Alternative has the fewest impacts. The TSM Alternative has slightly more. The TSM Alternative mainly involves operational changes to the bus system and these changes in themselves are not considered in this document. The Refined LPA incorporates the TSM Alternative but includes additional new construction and therefore has a greater impact.

5.12.2 Transportation and Circulation

Most of the impacts to land-based transportation are associated with the Refined LPA. The No-Build and TSM Alternatives would have little impact on traffic during implementation.

The Construction Management Program would include development of a "Maintenance of Traffic Plan". This plan, which will be reviewed and approved by the Department of Planning and Permitting (DPP), would include systemwide as well as subarea consideration of the most important traffic and transportation issues and mitigation measures. Specifically, the plan would include:

- Overall maintenance of traffic and transportation goals, project commitments, and identification of key project elements which have been specifically designed to meet maintenance of traffic objectives;
- The systemwide maintenance of traffic program to maintain mobility and accessibility and address project-wide issues such as parking, commuter transportation systems and traffic system management;
- Project subarea maintenance of traffic measures focused on the specific detours, disruptions, problems, and issues expected in each subarea during each stage of construction;
- Coordination program for continued development of the Maintenance of Traffic Plan, including provisions for interaction with public agencies, local communities and the private sector; and
- Procedures for finalizing, monitoring, and implementing the Maintenance of Traffic Plan during construction, as a part of the Construction Management Program.

The Plan would include such policies as:

- Construction activities which would close traffic lanes would be restricted to off-peak hours whenever feasible;
- Construction activities would be phased so as to minimize traffic impacts to any one area;
- During final design, detailed Work Zone Traffic Control Plans, which would include detour plans, would be formulated in cooperation with all affected jurisdictions;
- Existing bus service would be maintained, as well as vehicle and pedestrian movements;
- Unless unforeseen circumstances dictate, no designated major or secondary highway would be closed to vehicular or pedestrian traffic. No local street or alley would be completely closed, preventing vehicular or pedestrian access to residences, businesses or other establishments; and

- An extensive public information program would be implemented which would provide motorists, residents and businesses with information on the location and duration of construction activities, and anticipated traffic conditions.

Truck traffic will be using existing routes except for near construction areas. Signage and traffic cones would be provided to re-route truck traffic around construction zones where necessary.

Bus routes and stops would generally be maintained, although buses may be re-routed over temporary detours and bus stops may be temporarily relocated. Moreover, public transportation facilities and services would be expanded during project construction as part of the Maintenance of Traffic Plan.

Bicycle routes would be included in the rerouting of surface transportation systems. Signage would be provided re-routing established bicycle facilities around construction zones.

Local access to residences and businesses would be maintained during all phases of the construction work. Pedestrian movements would be maintained, but may be temporarily relocated to provide safe passage through work areas. Alternative pedestrian routes, including attractive, well-lighted, safe walkways, would be provided around or through construction areas.

Measures to minimize the impact of loss of parking during construction would be implemented, including temporary parking facilities, staging of construction to minimize parking loss, and remote parking for project construction workers.

In most cases, the nature of the construction for the In-Town BRT would not require street closures or detours because much of the work would occur in the median or curb lanes of the roadway, allowing vehicles to pass the construction zone using the remaining lanes. Although there would be localized lane reductions in the construction area, curb parking would be temporarily and/or permanently eliminated in many places, so that traffic flow using the remaining lanes would be maintained under most situations. (Parking losses and mitigation measures are discussed more fully in Section 4.2.4). Some presently allowable turning movements could be restricted when construction is occurring within an intersection.

The Refined LPA (and to a very minor extent, the TSM Alternative) would create truck traffic associated with the transport of construction materials and wastes. Times and routes of construction vehicles would be planned as part of the development of the Maintenance of Traffic Plan. Planning would occur with the intent of minimizing the effect of construction traffic.

5.12.3 Displacements, Relocation and Restricted Access for Existing Uses

Section 5.2 discusses permanent displacements and relocations that could be necessary for the project. The discussion in this section is limited to only those areas that would be needed temporarily during construction.

The Refined LPA would require temporary areas for construction staging of the In-Town BRT transitways. There are a number of vacant sites along the alignment that could serve as construction staging areas.

Staging areas would also be necessary for construction of the Regional BRT ramp and zipper lane improvements.

5.12.4 Neighborhoods and Businesses

Adverse impacts to neighborhoods and businesses near construction sites would be related primarily to disruptions to local transportation and circulation patterns, and air and noise emissions caused by

construction vehicles and equipment and vehicles delayed by construction. Air quality and noise impacts during construction and proposed mitigation measures are discussed in Sections 5.12.5 and 5.12.6.

Although a maintenance of traffic plan will be prepared and implemented (see Section 5.12.2), construction will cause motorists, bicyclists and pedestrians to experience delay and inconvenience when traveling on affected streets undergoing construction activities. Bus routes on or crossing affected streets will generally be maintained throughout the construction period, but they may be routed over localized, temporary detours, and bus stops may be temporarily relocated.

Local access to residences, businesses, and nearby parks, such as Thomas Square and Ala Moana Park, will be maintained when construction is conducted on adjacent roadways. However, travel to and from these destinations may be delayed as a result of increased congestion levels. Pedestrian movements will be maintained, but may be temporarily relocated to provide safe passage through work areas. Existing bike lanes, such as those along University Avenue, will be temporarily closed when construction is conducted on affected streets.

Even with an effective maintenance of traffic plan (see Section 5.12.2), construction-related traffic disruptions will cause inconveniences to residents living near construction sites, and may cause certain businesses to lose revenue, especially those that rely on drive-by customers. These types of businesses include fast-food restaurants and convenience stores. Construction on a particular street would cause some motorists to choose alternate routes bypassing those businesses along affected streets.

5.12.5 Air Quality

Contractors would be required to comply with all applicable air quality laws to limit adverse effects on air quality from demolition, clearing, material processing and construction activities, as well as from construction vehicles.

Construction would cause emissions of fugitive dust, airborne particulate matter of relatively large size. Fugitive dust would be generated by particulate matter being kicked up by such activities as excavation, demolition, clearing, stockpiling, hauling, vehicle movement, and dirt tracked onto paved surfaces at access points. Fugitive dust also would be generated from the material processing and storage that would occur at the stockpile areas associated with recycling usable portions of excavated material.

To minimize the amount of construction-generated fugitive dust, the following measures would be followed:

- minimize land disturbance;
- apply water or other environmentally acceptable material to control dust generation;
- cover trucks when hauling dirt or other dust-generating materials;
- stabilize the surface of dirt piles if not removed immediately or other material storage areas;
- use windbreaks;
- limit vehicular paths and stabilize temporary roads;
- pave all unpaved construction roads and parking areas to road grade for a length no less than 50 feet where such roads and parking areas exit the construction site;
- use dust suppressants on traveled paths that are not paved;
- apply dust control and suppression techniques to the material processing activities at the stockpile sites;
- remove unused material and dirt piles when they are no longer needed; and
- revegetate areas where existing landscaping was removed for construction.

As discussed in Section 3.5, carbon monoxide (CO) is the principal pollutant of concern in localized areas. Since emissions of CO from motor vehicles increase with decreasing vehicle speed, disruption of traffic during

construction could result in short-term elevated concentrations of CO. To minimize CO emissions, efforts would be made during construction to limit disruptions to traffic through prior planning of alternate routing, traffic control, and public notices, especially during peak travel periods.

5.12.6 Noise and Vibration

Construction noise would adversely affect nearby residences, schools, office buildings, and other noise-sensitive activities.

Table 5.12-1 presents typical maximum noise levels (Lmax) of heavy mobile construction equipment and compressors measured at a distance of 50 feet. Since construction activities would take place within 50 feet of noise sensitive receptors, the values in Table 5.12-1 would be representative of the noise levels to be expected during various stages of construction.

TABLE 5.12-1
CONSTRUCTION EQUIPMENT NOISE EMISSION LEVELS

Equipment	Typical Noise Level (dBA) 50 feet from Source
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	85
Paver	89
Pile Driver (Impact)	101
Pile Driver (Sonic)	96
Pneumatic Tool	85
Pump	76
Rock Drill	98
Roller	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Truck	88

Source: *Transit Noise and Vibration Impact Assessment*, Federal Transit Administration (FTA), 1995.

To minimize the level of impact, a specification for noise and vibration limits from construction activities would be developed and enforced. The specification would be submitted to Hawaii Dept. of Health (HDOH) for their review. An industrial hygienist would monitor compliance with the specification during construction through on-site noise and vibration monitoring during various stages of construction.

The HDOH also has Community Noise Control requirements, which apply to construction noise. The project cannot exceed the noise levels stipulated by these requirements unless a variance (Construction Noise Permit) is granted by HDOH. Such variances are only granted if they are in the public interest and the construction noise would not substantially endanger human health and safety.

The Construction Management Program would explicitly address the minimization of noise levels generated during construction, and would include the following mitigation measures:

- Design Considerations: during the early stages of Construction Management Plan development, the deployment of noisy equipment would be considered. For example, no stationary equipment would be located near schools or hospitals;
- Sequence of Operations: noisy operations would be scheduled to occur at the same time (as opposed to being spread throughout the day), and, as feasible, noisy operations would be scheduled to occur when schools are not in session or other noise sensitive activities are not occurring;
- Noise barriers would be employed where feasible;
- Source Control: many types of noise emissions can be controlled at the source and in such cases, noise reduction would be employed. For example, noise reducing muffler systems lower exhaust noise by at least 10 dBA; and
- Time and Activity Constraints: as much as possible, noisier activities would be limited to daytime hours.

Vibration levels at adjacent structures would be monitored and the structures protected from vibration impacts, as necessary.

5.12.7 Water Quality

During construction, impacts to surface and groundwater resources potentially could occur. Impacts to surface water would be associated with point and non-point source stormwater discharges and dewatering discharges. These discharges could include particulate (sediment) and chemical contaminants. Potential sediment sources include unstabilized, exposed soil at excavations; drainage from material stockpiles; discharges from haul trucks; and dewatering activities.

Sediment and Erosion Control

Erosion and sediment discharges would be minimized through the application of Best Management Practices (BMPs) techniques designed to minimize erosion and capture sediment prior to discharge. Examples of BMPs include:

- chemical crusting agents or other stockpile coverings;
- planting of vegetation and/or mulching on highly erodible or critically eroding areas;
- temporary landscaping;
- silt fences;
- sediment control traps,
- straw bale filters,
- proper design and construction of access roads;
- use of inlet system sediment control traps;
- installation of debris basins;
- use of stilling basins to reduce the levels of sediments and other pollutants entering surface and coastal waters;
- construction of dikes or diversions to avoid runoff across erodible areas; and
- monitoring of sediment discharge.

Together, the BMPs would effectively minimize the potential for water quality impacts or off-site impacts from eroded material. Important BMPs would include maintenance of the sediment and erosion control systems, an ongoing monitoring program to determine the effectiveness of the BMPs, and adjusting the sediment and erosion control program as required.

Details of the BMPs would be developed during final design stages and detailed erosion and sedimentation control plans would be included in the final construction plans for the project. Through the agency reviews conducted as part of the permit process, the installation of proper sedimentation control techniques would be assured.

Studies at specific locations to identify potential chemical contaminants in dewatering and stormwater discharges and stockpile drainage would be performed during later design phases, and appropriate treatment measures would be employed based on the character of the discharge and the water quality standards of the receiving water body.

Potential spills associated with construction activities pose a potential threat to water resources. Development of a Spill Containment Control and Countermeasure Plan, including maintenance of clean-up equipment on-site, along with detailed spill prevention measures, would mitigate the impact of inadvertent releases.

Dewatering Discharges

For most construction operations, groundwater encountered during excavations would need to be removed during construction (dewatering), and groundwater disposal and ground subsidence would have to be considered. Such dewatering would be temporary, limited to the time required for excavation and construction.

The water removed from excavations must be returned to the groundwater system, added to the stormwater drainage system or discharged to adjacent surface waters. The groundwater would contain suspended sediment and possibly chemical contaminants, and could adversely affect the water quality of receiving surface water bodies by increasing their turbidity and sedimentation rates.

Any dewatering discharge would require a dewatering permit that could only be obtained after designing an appropriate treatment process to ensure that the discharge meets water quality standards. For example, sediment would be removed prior to discharge through a sedimentation or filtering system. A monitoring program would assure compliance with water quality standards.

The groundwater could be contaminated (e.g., petroleum product) at several locations where excavations are required. The contamination potential would be studied in subsequent stages of project planning. Contaminants would be removed in accordance with standards established by the State of Hawaii Department of Health. For example, removal of petroleum products might require the use of oil water separators, strippers or other remediation techniques. Additional studies would be required during the final design phase to determine the precise methods to be employed.

Depression of the natural groundwater table caused by dewatering can induce consolidation of subsoil and subsequent ground settlement (subsidence). Subsidence can cause cracking and other damage to buildings and facilities. To mitigate the potential impacts of subsidence, a structural survey of buildings, roadways and other facilities adjacent to dewatering sites would be performed prior to construction. During construction, a monitoring program would be conducted that would include such techniques as inclinometers to measure relative lateral movement of soil at different elevations, settlement points, and observation wells to study groundwater draw down. Monitoring data would be reviewed immediately to ensure minimal disturbance to existing facilities. Recharging the groundwater outside the excavation and other measures could be utilized to help minimize the effects of dewatering.

The project area is underlain by the Southern Oahu Basal Aquifer (SOBA). Mitigation measures, as discussed above, would be implemented during construction to ensure that no sedimentation or chemical quality effects on the aquifer would occur.

Construction Equipment Use and Maintenance

Since many of the proposed facilities would be built using cast-in-place concrete construction, large amounts of concrete would be transported to the construction site. Each time concrete is transported, residue remaining in the concrete truck must be washed out before it hardens. This wastewater contains fine particles and could cause sedimentation and turbidity if discharged to surface waters.

Concrete trucks would be washed out in accordance with procedures to ensure that water quality standards are not violated. Project specifications would prohibit the washing out of concrete trucks at the project site, or a filtration or settling system would be constructed to prevent fine material from being discharged into surface waters.

The use and maintenance of construction equipment can pose a threat to surface and ground waters. Potential spills associated with vehicle maintenance, such as changing oil and refueling equipment, can introduce new contaminants into the environment at the construction staging area. The servicing and maintenance of construction equipment would be restricted to the base yards of the mobile equipment. At these vehicle maintenance areas, strict enforcement of BMPs would be required. Clean up equipment would be maintained on site and clean up response plans would contain detailed spill response measures.

5.12.8 Ecosystems

Wildlife habitat is very limited along the transitways and at other sites proposed for road, ramp and transit center construction. Construction would directly affect individuals of species inhabiting the construction area that are relatively immobile or have small home ranges. The removal of this habitat would have little overall effect on wildlife populations. The sites do not represent unique or special habitats within the project area. The proposed build alternatives would have no major effect on the characteristics or size of populations of the resident wildlife species in the area.

The Regional and In-Town BRT alignments of the Refined LPA will cross streams in the study area on existing structures (bridges). Some of these bridges will require widening, but most of them, if not all, will not require new or reconstructed bridge piers within the streams. New piers may be necessary for a bridge widening at the Waiawa Interchange, but the need for new piers will not be determined until the final design phase. Construction of any piers would be in association with pre-existing bridges. Wherever possible, additional foundations or piers in the streams would be avoided. Construction impacts to water quality that may affect aquatic wildlife would be avoided through mitigation measures agreed to by the ACOE, the HDOH, and the DLNR during final design.

Every precaution possible will be taken during construction to protect street trees. The tree impacts of the Refined LPA are described in Section 5.7. The construction impacts will consist of permanent removals and/or relocations of trees that are not compatible with the road widening requirements of the project, as well as tree trimming. Mitigation is addressed in Section 5.7 and will be described in detail in the tree preservation plan to be developed with a qualified certified arborist. A qualified certified arborist will also prepare a tree protection plan to be used during construction. The plan will specify precautionary measures to be taken to protect trees that are being relocated, as well as measures to protect other nearby trees during construction. Community input will be a component in preparing the tree protection plan. Construction mitigation measures will include tree protection zones that will be observed, except in cases where earthwork at or near the base of a tree is necessary, construction watering of trees, and prohibiting construction vehicles from being parked under trees to avoid soil compaction. A Street Tree Review will also be conducted by the Department of

Planning and Permitting (DPP) as part of the construction plan review by the City. The DPP's Street Tree Review applies only to those trees not located within a Special Design District.

In general, monkeypod trees pruned for replanting will take about one year to grow back their canopies, with full recovery expected in three to five years. The Kamani trees on Dillingham Boulevard will take a little longer to recover fully, about four to eight years.

5.12.9 Solid and Hazardous Wastes

1) Solid Waste

The volumes of solid waste that would be generated with all of the alternatives are not anticipated to be beyond the ability of existing landfills to handle. Coordination would be conducted with the City Department of Planning and Permitting for a grubbing, grading, and stockpiling permit. Waste generated by grubbing of the sites and all wastes generated during construction will be disposed of properly. Waste will not be burned.

2) Contaminated Materials

While chemicals would not contaminate much of the solid waste that would be generated by construction, portions of the solid waste would likely be contaminated. Contaminants that could exist in solid wastes generated by construction include petroleum hydrocarbons, pesticides, herbicides, organic solvents, metals, PCBs, corrosives, organic lead, contaminants contained in landfill leachate, and other parameters. For these contaminated fractions of the solid waste stream, the level of impact would depend upon:

- the type of contamination;
- location of the area generating the contaminated wastes;
- proximity to surface waters;
- groundwater flow direction and depth relative to site;
- whether a contaminant release has occurred on the property;
- status of the release;
- the nature and extent of such release;
- the proximity of the release to the alignment; and
- the nature of project construction activities near a potentially contaminated area.

A hazardous materials study was conducted in order to help identify potentially contaminated sites that would have an adverse impact on the project. Section 3.9 discusses the relationship of the Refined LPA to potentially contaminated sites.

The information provided for this study phase is not detailed enough to make an exact determination of potential impacts. It is merely an identification of sites where a potential source of contamination may exist. Contamination can only be positively identified by sampling and laboratory analysis. There is the possibility that the project could affect sites that were not identified in the study or that sites identified as potential sources of contamination would not have an adverse impact on the project. During future phases of the project, additional evaluation would be required to provide more information on construction activities of the Refined LPA. The additional evaluations could include, but not necessarily be limited to: additional record review, agency consultation, and soil, surface water, and groundwater sampling and analysis. For example, additional Phase I investigations of hazardous material sites would be completed where appropriate during the design phase. Specific recommendations, which could include Phase II sampling, would be prepared.

The presence of asbestos-containing material and lead-based paint must be assessed for buildings, which would be razed as part of project construction. As part of assembling the right-of-way for the project,

buildings that would be acquired would be evaluated for hazardous materials and possible additional demolition costs.

The Refined LPA bus routes themselves are not expected to involve contamination, because the transit vehicles will travel on existing roadways. As discussed in Section 3.9, only off street transit facilities such as transit centers and traction power supply stations (TPSS) may have the potential for petroleum, PCB, or other hazardous material contamination. The approximately 15 TPSS sites to be located intermittently along the In-Town BRT alignment would each have a roughly 500 square-foot footprint. In most cases, they would be located inside existing or proposed buildings. Potential TPSS locations are designated on the preliminary engineering drawings provided in Appendix B (see Volume 3). However, since it would be 8 to 14 years before the EPT is installed depending on the segment, the locations shown on the design drawings are not site specific; each notation is intended only to indicate the general vicinity in which a TPSS would be placed. Site specific environmental assessments of each TPSS would be prepared prior to proceeding with implementation of EPT. Locations and design treatments would be established with community input.

The selection of mitigation measures would consider avoidance of exposure, minimizing impacts through redesign, and remediation. The need for and type of mitigation measure that would be required would depend on the nature of the contamination, the construction methods and the development plans (i.e. where structures and pavements will be located). The information collected during additional evaluations would be used to define the impacts and develop appropriate measures to minimize or eliminate any adverse impacts from site contamination.

In addition, issues relating to worker health and safety would have to be considered during construction because the health and safety of on-site personnel could be affected if they are exposed to contaminants. When contaminants are identified, the level of Personal Protective Equipment (PPE) that may be required and/or the need for special handling procedures would be assessed. However, it is likely that many types of contaminants that would be encountered would not require special protective equipment, but would require special handling to reduce potential exposure. A Contaminant Management Plan (CMP) detailing contaminant handling procedures and remedial response action would be prepared.

Project specifications should note the potential presence of methane at certain sites and at certain areas along the In-Town BRT route, and should require the contractor to take appropriate measures to protect workers.

Next steps would depend on whether the contaminated site was already owned by a government agency or whether site acquisition from a private owner is contemplated. If the site was to be acquired, necessary remediation activities would become a factor in the real estate negotiations. Often, the present owner is required to remediate the site before transfer to government ownership. Tenants should be required to remove all their equipment and materials when they vacate the properties.

Any site remediation would be performed in accordance with applicable State and federal laws. Required monitoring and remediation plans would be designed in coordination with the HDOH and other agencies, and the plans would be implemented prior to construction. Both soil and groundwater contamination would be addressed. In addition, the contractor would develop an Emergency Response Plan in coordination with the HDOH and other agencies to establish procedures should hazardous materials be encountered during construction. The handling, treatment, and disposal of any contaminated materials encountered would occur in full compliance with all appropriate requirements.

5.12.10 Utility Service

The Refined LPA would affect few major utilities but many minor ones, particularly if the embedded-plate traction power system is selected. Substantial planning would occur so that interruptions in utility service to customers are minimized. Coordination with utility providers during planning, final design, and construction

would identify problems and provide opportunities to resolve them prior to construction. Replacement and/or relocation of utilities would be closely coordinated with roadwork and stop construction to minimize disruption to adjacent properties and traffic. Disruptions to utility service, if necessary, would be restricted to short-term localized events. Careful scheduling of these disruptions and prior notification of adjacent properties that would be affected by temporary service cut-off would mitigate some of the utility relocation impacts.

Many of the utilities that are to be buried underground or moved to another underground location could be relocated simultaneously with existing utilities to minimize the need for multiple excavations. As much as possible, relocated utilities would be buried together or coordinated with infrastructure improvements already planned by the City or other agencies.

A preliminary review of the Refined LPA alignment, stops, and transit centers in relation to siren locations for the Civil Defense Warning System indicate that no significant impact will occur. Coordination with Oahu Civil Defense will continue. If sirens need to be relocated as a result of the project, they would remain in the same vicinity and be placed and designed to maintain comprehensive emergency warning coverage. Locations would be coordinated with Oahu Civil Defense during final design.

Coordination of utility relocations would be scheduled, programmed, and monitored as a part of the Construction Management Plan and Public Participation Program.

5.12.11 Economic

Construction activities associated with the Refined LPA would result in over 9,400 person-year jobs generated (see Section 5.1.5). During construction of the Refined LPA, local businesses could be negatively affected by increased congestion in front of their properties or by reduced access. Location-specific measures, including access, safety, noise and aesthetic requirements of adjacent businesses, would be identified during final design and incorporated into construction contracts. A public information program for commuters, tourists, local residents and the business community would be sustained. A community and government agency mitigation involvement program would be initiated to allow for the exchange of information and ideas.

5.12.12 Aesthetic and Visual

The construction work for the Refined LPA would occur in highly visible and traveled areas. Therefore, orderly and clean work sites would be required and enforced throughout construction. Landscaping would be left in place and protected for as long as possible and replaced as soon after construction as possible. Plans for re-landscaping the impacted areas will be reviewed by DPP to maintain cohesive visual corridors.

5.12.13 Historic Resources and Archaeology

Discussion of the potential impacts on historic properties is provided in Section 5.10. Historic-period resources will not be affected by construction because these properties will not be in the construction area, nor will they be used to store equipment and vehicles or used as staging areas. There is a chance that construction along certain sections of the study area, such as Waikiki, would uncover Kupuna Iwi (ancestral bones) or other archaeological artifacts. However, the project area is mostly urban and has been substantially altered for many years. In addition, most of the project requires little excavation. The project's MOA will provide procedures in the unlikely event that unanticipated resources are encountered during construction. The SHPO would be notified immediately if any bones, artifacts or other signs of historic occupation are observed.

5.13 OTHER ENVIRONMENTAL CONSIDERATIONS

5.13.1 Cumulative Impacts

A cumulative impact is an "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions...." (40 CFR 1508.7).

The cumulative impacts of an investment in transportation infrastructure in the primary transportation corridor would stem from urban development and re-development. Since a key purpose of this project is to focus future development in the urban core and Kapolei, the cumulative impacts of the project are viewed as positive. Investment in other infrastructure systems will be necessary to support the increase in development density. Without the project, urban living would be less attractive, and low density and sprawl development would continue. Continuation of current low density development patterns is inconsistent with the vision for Oahu that was articulated by the public during the Oahu Trans 2K community involvement activities, and is inconsistent with the project purpose of concentrating development. Further discussion of possible cumulative impacts resulting from the project is provided below.

1) Land Use

The No-Build Alternative would result in deterioration in current levels of mobility as existing suburban growth patterns continue along with an increase in vehicles on the roadways. In the absence of sufficient people-carrying capacity, it would be more difficult to achieve the desired concentrated growth pattern. The No-Build Alternative would encourage suburban growth patterns and the conversion of open space to low density subdivisions.

With the TSM Alternative, people-carrying capacity would be increased, but not to a degree sufficient to encourage the types of transit-oriented developments that would arise with the Refined LPA.

The Refined LPA would substantially enhance mobility by increasing people-carrying capacity. Growth would be attracted to locations along the alignment of the In-Town BRT system in the urban core.

Higher density redevelopment in a transit-supportive manner, particularly at transit centers and transit stops, would be encouraged. The Refined LPA would be more effective than the TSM and No-Build Alternatives in supporting an urban growth strategy that integrates land use and infrastructure planning. It would help facilitate desired land use development patterns consistent with the vision for the island.

2) Farmland

Agricultural activities occur in Ewa and Central Oahu. State and City policies encourage urban development, particularly in Ewa. Consistent with State and City policies, urban development would convert some open space to urban land uses.

3) Displacements and Relocations

Subsequent urban development and redevelopment projects and those associated with the Refined LPA could displace existing land uses temporarily as well as permanently. These displacements would be specified and analyzed during the environmental review of the subsequent development projects.

4) Socioeconomic

After the transportation investment is made, subsequent developments would enhance short- and long-term employment. Economic efficiency would increase through the improvement of transportation service and mobility.

5) Transportation

Planned transportation projects, including the alternatives addressed in this document, would enhance transportation service and mobility.

6) Air Quality and Noise

The project area has good ambient air quality conditions (see Section 3.5), and planned projects or developments would not substantially change air quality.

As urban development proceeds and density increases, ambient noise levels from various human activities may be expected to rise.

7) Water Resources

Impacts on water resources are highly regulated. As urban development proceeds, water quality impacts of each project would be assessed during the environmental review and permitting processes.

8) Biological

Subsequent development would affect ecosystems in the primary transportation corridor, but such ecosystems are already highly modified by human activity. Existing ecosystems would be replaced by incorporating appropriate landscaping into each development project. The biological impacts of each project would be assessed through its environmental review process

9) Historic and Archaeological

Historic buildings and structures are protected under federal and State law. As subsequent development proceeds, project proponents are required to coordinate with the SHPD before construction affects an historic property. Impacts to archaeological sites are not expected because the primary transportation corridor is largely urban or previously disturbed open space. However, should there be inadvertent encounters with burials, the SHPD must be informed, and appropriate actions taken.

10) Parklands

The parklands of Oahu are publicly owned. Development associated with the Refined LPA would not affect parklands except to provide for greater access. Subsequent developments would not encroach on parks. Any potential impacts on parklands would be assessed during the environmental review process for each subsequent development.

11) Visual and Aesthetic

Visual conditions would change as urban development proceeds. Visual impacts associated with the Refined LPA would be positive since the vehicles would be operating on existing roadways and transit stops would be designed to be visually compatible with and where possible enhance the surrounding land uses. Visual

resource impacts associated with other development would be assessed during the environmental review process for specific projects.

12) Infrastructure and Utilities

A transportation infrastructure investment in the primary transportation corridor would increase people-carrying capacity and mobility, and facilitate higher density development. Therefore, as development density increases, more demand would be placed on other infrastructure and utility systems such as water supply, sewage systems, and electric distribution. Investments in these other infrastructure systems would be necessary to accommodate increased development density.

5.13.2 Relationship Between Local Short-Term Uses Versus Long-Term Productivity

Short-term uses of the environment versus long-term productivity refers to the interplay between typically adverse, short-term, construction-phase impacts, and the benefits of the project upon completion. The relative balance between these factors must be disclosed.

A transportation infrastructure investment in the primary transportation corridor would create short-term, confined adverse impacts during construction. These impacts are discussed in more detail in Section 5.12, but include temporary, localized increases in fugitive dust emissions, noise, and traffic congestion. Utility services could be temporarily affected, and erosion from exposed areas would need to be prevented. Construction-phase impacts would be mitigated, as described in Section 5.12.

A transportation infrastructure investment would counterbalance the temporary, construction-phase impacts. The investment would promote long-term productivity, and improve the quality of life for Oahu residents and visitors. Specifically, transportation improvements would:

- Improve public transportation service on Oahu, especially within the urban core of Honolulu—Kalihi-Palama to the University of Hawaii/Waikiki, and to and from the Kapolei/Ewa region.
- Support and encourage desired land use development patterns, such as higher density development in the urban core and in Kapolei.
- Provide improved travel time for transit patrons, thereby providing an attractive alternative to the private automobile.

The long-term productive uses listed above outweigh the temporary nature of the adverse construction-phase impacts of the project, which would be mitigated. The No-Build Alternative would not achieve the long-term productivity enhancements listed above.

5.13.3 Commitments of Resources

Given the urban setting of the primary transportation corridor, irreversible commitments of resources would be those associated with the construction process, such as use of energy, construction materials, and labor. Once applied to this project, these resources would not be available for other projects. This commitment of energy, materials and labor is not a drawback since these resources would otherwise be committed to a different construction project.

5.13.4 Unresolved Issues

The extensive public involvement, coordination, and consultation that have occurred during the project has resulted in substantial input on issues and concerns relative to the proposed project. Most issues raised have been addressed in this FEIS, although some issues remain unresolved. The unresolved issues are presented below with a brief discussion regarding resolution of the issue.

1. BRT Vehicle Technology. Two electric propulsion technologies are being considered for the In-Town BRT vehicles, embedded plate and hybrid-electric. Because the embedded plate technology is still in the final stages of development prior to commercial availability, the City is proposing to use hybrid-electric buses initially along the In-Town BRT alignment. In 2008 a decision will be made whether to switch to an embedded plate technology, and conversion would happen starting in the year 2010 and be completed in 2016. This EIS discloses the known impacts of both hybrid and embedded plate technology, with the exception of impacts from traction power supply stations (TPSS) associated with embedded plate technology. If embedded plate technology is selected, the locations of TPSS will need to be identified and their impacts disclosed in a separate document prior to its implementation.

2. BRT Stop Design. The design of the BRT stops will be completed during the next project phase, final design. The final design of BRT stops will involve public and agency input.

3. Noise Wall Design. The design of the noise walls required at the Puuwai Momi Apartments will be completed during the next project phase, final design. The final design of the noise walls will involve public input.

4. Tree Relocations. The exact locations where affected trees will be replanted will be determined during final design.

5. Ground Water Impacts. Ground Water Impact Assessment (under Section 1424(e) of the Safe Drinking Water Act) and coordination with the EPA to address potential impacts to the Southern Oahu Basal Aquifer (SOBA) is being completed by DTS.

6. Historic/Archaeological Resources Memorandum of Agreement (MOA). The MOA between the City and the SHPD will be completed prior to the final design phase. It will incorporate specific procedures to be followed, if Kupuna Iwi is found during construction, and stipulations regarding consultation with the SHPD and other stakeholders on the design of transit stops that may adversely affect historic properties.

7. Hazardous Materials. Phase I investigations of hazardous material sites will be completed where appropriate during the next project phase, final design. As a result of that investigation, specific recommendations, which could include Phase II sampling would be prepared and executed.

8. Parking and Loading Zone Mitigation. In areas where a large concentration of on-street parking spaces will be affected, replacement parking in new off-street parking facilities will be considered during final design, but only if they meet other livable community objectives and are the result of community-based planning. Likewise, loading zone impact mitigation will be considered during final design and community-based planning will be an integral part of the design phase to address mitigation measures for loading zone impacts.

9. Section 404 permit (Nationwide). New piers may be necessary for a bridge widening at the Waiawa Interchange, but the need for new piers will not be determined until the final design phase. If necessary, a Clean Water Act Section 404 permit will be obtained from the U.S. Army Corps of Engineers (ACOE).

Chapter 6.0
Financial Analysis and Evaluation

CHAPTER 6 FINANCIAL ANALYSIS AND EVALUATION

6.0 OVERVIEW AND ORGANIZATION

This chapter presents the financial analysis for the No-Build Alternative, Transportation Systems Management (TSM) Alternative, and Refined Locally Preferred Alternative (LPA) described in Chapter 2. This chapter also presents the alternatives' comparison, which were in Chapter 7 in the Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS) and Supplementary Draft Environmental Impact Statement (SDEIS).

The proposed financial plans for capital and for operations and maintenance (O&M) of the Refined LPA are presented within the context of the comparative costs and revenues associated with each alternative.

The Bus Rapid Transit (BRT) systems in the Refined LPA will be implemented over Fiscal Years (FYs) 2003-2016. As defined in the City and County of Honolulu's Revised Charter, fiscal years extend from July 1 through June 30. Over the 14-year implementation period, the capital cost of the Refined LPA BRT Program is projected to be $616.7 million in Year of Expenditure dollars (YOE $). Of this total, $243.2 million will be for the In-Town BRT system, $129.1 million will be for adding Embedded Plate Technology (EPT) to the In-Town BRT system, and $244.4 million will be for the Regional BRT system.

Also included in the Refined LPA's financial analysis are the capital costs required for the acquisition and replacement of the entire bus and TheHandi-Van fleet and other system-wide improvements. These amount to $426.0 million (in YOE $) over the 2003 - 2016 period in which the Refined LPA BRT Program is implemented. For the 2003 through 2025 forecasting period used for environmental analyses in this Final Environmental Impact Statement (FEIS) the capital cost of the bus and TheHandi-Van acquisition and replacement program and other system-wide improvements is projected to be $723.3 million (in YOE $). The total estimated capital cost for the Refined LPA including vehicle acquisition and systemwide improvements is therefore $1.04 billion for the period 2003 through 2016, and $1.34 billion for the period 2003 through 2025. These are in YOE dollars

The FEIS financial analysis for the Refined LPA differs from the MIS/DEIS and SDEIS financial analyses in four primary ways:

- Refined LPA capital costs reflect additional refinements made to the proposed project, including alignment modifications. These have lowered the cost;
- State highway funding has been removed as a capital revenue source;
- City highway funding has been removed as a capital revenue source; and
- The implementation phasing plan for the Refined LPA has been adjusted to accommodate a conservative estimate of revenues over the 14-year period extending from FY 2003 to FY 2016.

The financial analysis concludes that the Refined LPA, along with the system-wide bus and TheHandi-Van replacement and expansion program, can be funded without adding new taxes or raising taxes using the following revenue sources:

Capital Funding for the Refined LPA Program	
FTA Section 5307 Urbanized Area Formula (UZA) Funds	22%
FTA Section 5309 Fixed Guideway Modernization (FGM) Funds	2%
FTA Section 5309 Bus Capital Funds	5%
FTA Section 5309 New Starts Funds	23%

Federal Highway Administration (FHWA) Funds	13%
City General Obligation (GO) Bonds	35%
TOTAL	100%

System-Wide Operations & Maintenance Funding	
Passenger Fares	26%
FTA Section 5307 UZA Funds	7%
City Operating Support	67%
TOTAL	100%

With respect to capital costs, the Refined LPA calls for expenditure of $731.07 million over the No-Build Alternative and $589.2 million over the TSM Alternative between FYs 2003 and 2016. With respect to system-wide operations and maintenance and debt service, the average annual increase in the City contribution for the Refined LPA over the No-Build Alternative would be $ 25.0 million between FYs 2003 and 2016. Of this total, $17.3 million would be for incremental annual O&M funding support and $7.7 million for incremental annual debt service payment. During the same period, the average annual increase in the total City contribution for the Refined LPA over the TSM Alternative would be $15.8 million. Of this total, $11.9 million would be for incremental annual O&M funding support and $3.9 million for incremental annual debt service payment.

In comparing the alternatives, the Refined LPA will provide the greatest increase in ridership within the Primary Corridor with an increase of over 13 percent. The Refined LPA will help achieve a more balanced transportation infrastructure in the Primary Transportation Corridor compared to the No-Build and TSM Alternatives. *Compared to the No-Build and TSM Alternatives, the Refined LPA will result in higher islandwide* and commuter transit ridership; carry more people during the morning peak hour, and improve the transportation linkage between Downtown Honolulu and Kapolei, Waikiki, UH-Manoa, and Kalihi. The $5.01 and $4.52 incremental cost per new transit rider for the Refined LPA over the No-Build and TSM Alternatives respectively is very favorable compared to the $6.25 incremental cost per new transit rider for the TSM Alternative over the No-Build.

6.1 FINANCIAL ANALYSIS

The Honolulu City Council has supported the financial approach to funding this project with primarily Federal funds and City GO Bonds. Resolution No. 99-338 adopted in December 1999, stated, in part, that "Be it further resolved that the Council strongly supports a preliminary financial approach to include phased use of federal transportation funds, local highway funds and City GO Bonds to provide the necessary funding;..." The Council's intentions are incorporated in the key elements and assumptions of this financial analysis.

This section summarizes the financial implications by presenting the capital and operating financial plans for each alternative. The financing plans are constructed to be affordable on an annual basis. A description is provided of the assumed revenue sources, commitment of these sources, and schedule of annual outlays planned.

Major existing sources of revenues were examined to determine the adequacy of sources of funds for the capital and operating requirements of the alternatives. Costs were then compared to the revenues projected to be available from these sources over the fourteen-year period of FYs 2003 to 2016, the years in which the projects would be implemented. Costs and revenues were also compared over the 23-year period of FYs 2003 to 2025.

The financial analysis is presented in year-of-expenditure (YOE) dollars. This provides a better understanding of the actual funds that would need to be expended and of the relative effect of inflation on costs and revenues. A

baseline rate of inflation of 2.5 percent has been assumed. The 2.5 percent rate is consistent with recent trends in the U.S. national inflation rate and one percent higher than Hawaii's inflation rate of 1.5 percent per year for the past five years. Year-of-expenditure dollar values are computed by multiplying 2002 dollar values by the compounded escalation factor for the relevant year. For example, in year-of-expenditure dollars, $1.00 in 2002 is equivalent to $1.025 in 2003 and $1.051 in 2004, using the assumed baseline inflation rate of 2.5 percent.

The financial analyses have been prepared on the basis of the information and assumptions set forth in this chapter. The projections may be affected by fluctuating economic conditions and are dependent on the occurrence of future events. Therefore, future financial requirements may vary from the projections and such variations could be material. These financial plans are based on specific implementation schedules and estimates of capital costs made during preliminary engineering which will be refined during final design. If available funding, construction costs, planning issues or other factors impact the schedule or the ability of the City to secure financing, the implementation schedules will need to be adjusted to accommodate the changed conditions. The financial plans for the alternatives assume that responsibility for funding and implementation will be shared among the City and federal transit and highway agencies. After environmental clearance is achieved, the respective roles and responsibilities of the various involved parties will be further clarified and their respective commitments of funding confirmed.

6.1.1 Key Measures of Financial Performance

The financial assessment uses a cash flow analysis to evaluate the ability of the various sources of capital and operating revenues to fund the estimated annual capital and O&M costs of the alternatives over the FYs 2003-2016 implementation period and over the FYs 2003 – 2025 period. The sources and uses cash flow analysis consists of four basic components: Capital Costs, O&M Costs, Capital Revenues, and Operating Revenues.

Key measures have been used to assess the financial performance of the alternatives and to contrast the Refined LPA to the No-Build and TSM Alternatives. These measures are:

CAPITAL PERFORMANCE MEASURES

- Total Capital Cost;
- GO Bonds Issued by the City;
- FTA New Starts Funding Required;
- FHWA Funding Required;
- Average Annual Debt Service Payment (Post-2003 Debt);
- Ratio of Debt Service on GO Bonds (including Self-Supporting Bonds) to the City's Total Operating Budget: Maximum Ratio Reached; and
- Ratio of Debt Service on Direct Debt (excluding Self-Supporting Bonds) to General Fund revenues: Maximum Ratio Reached.

OPERATING PERFORMANCE MEASURES (FY 2007-2016)

- Average Annual O&M Costs;
- Average Annual City Operating Support for Transit O&M;

CAPITAL AND O&M PERFORMANCE MEASURES (FY 2007-2016)

- Average Annual Total City Contribution Required for Debt Service and O&M;
- Average Annual Increase in Total City Contribution Over the No-Build Alternative; and
- Average Annual Increase in Total City Contribution Over the TSM Alternative.

The results associated with these measures are discussed in Section 6.1.5.

6.1.2 Costs

The capital and O&M costs of the alternatives were computed in 2002 dollars over the FYs 2003–2025 period. These costs were then inflated to reflect year-of-expenditure dollars based on the proposed implementation schedule for each alternative. The financial analyses and tables focus on the first fourteen years, which is the implementation period for the Refined LPA. The sections below summarize the capital and O&M costs of the alternatives.

1) Capital Costs

Table 6.1-1 summarizes the capital cost estimates for the No-Build Alternative, TSM Alternative, and Refined LPA in YOE dollars, by major cost component, over the fourteen-year implementation period of FYs 2003-2016. The capital cost estimates include construction costs and soft-costs such as final design and construction management costs, as well as set-asides for contingencies. To assure consistency, the implementation schedules used in the financial analyses are consistent with the schedules shown in Chapter 2.

TABLE 6.1-1
CAPITAL COSTS, BY ALTERNATIVE
FISCAL YEARS 2003 – 2016
(YOE $, 000)

	No-Build	TSM	Refined LPA
SYSTEM-WIDE IMPROVEMENTS			
Bus Acquisitions	$267,755	$296,837	$356,426
TheHandi-Van Vehicle Acquisitions	$22,905	$22,905	$22,905
Bus Maintenance Facility Expansion	–	$35,668	$35,668
Transit Centers and Parking	$10,061	$31,702	–
Kamehameha Highway Corridor and Transit Centers	$10,882	$10,882	$10,982
Park-and-Ride	–	$6,076	–
Bus Priority Treatment	–	$34,434	–
Zipper Lane	–	$14,982	–
Subtotal, System-Wide Improvements	***$311,602***	***$453,486***	***$425,982***
IN-TOWN BRT COMPONENT			
In-Town BRT Fixed Facilities	–	– –	$227,793
Net Cost of In-Town BRT Vehicles	–	– –	$15,446
Subtotal, In-Town BRT Component	–	– –	***$243,239***
EMBEDDED PLATE TECHNOLOGY (EPT) COMPONENT			
EPT Fixed Facilities	–	–	$97,826
Net Cost of EPT Vehicles	–	–	$31,246
Subtotal, EPT Component	–	–	***$129,072***
Subtotal, In-Town BRT and EPT Components			***$372,310***
REGIONAL BRT COMPONENT			
BRT Transit Centers and /Parking	–	–	$31,744
BRT Zipper Lanes	–	–	$142,410
BRT Priority Ramp Improvements	–	–	$70,225
Subtotal, Regional BRT Component	–	–	***$244,379***
Subtotal, In-Town BRT, EPT, and Regional BRT	–	–	***$616,689***
TOTAL CAPITAL COSTS	**$311,602**	**$453,486**	**$1,042,671**

Source: Sharon Greene & Associates, November 2002.
Note: Rounding of numbers may affect subtotals and totals.

2) Operating and Maintenance (O&M) Costs

The O&M costs for the No-Build Alternative, TSM Alternative, and Refined LPA include some or all of the following:

- Bus O&M;
- TheHandi-Van O&M; and
- In-Town BRT System O&M.

Tables 6.1-2A and 6.1-2B summarize O&M costs of the alternatives for two fiscal years in FY 2002 constant dollars. The fiscal years selected are FY 2007, at completion of In-Town BRT System's fixed facilities (in the Refined LPA) and FY 2017 when the Refined LPA is fully operational using Embedded Plate Technology. To facilitate comparison with current costs for transit operation, these costs are presented in 2002 constant dollars and compared to the budgeted O&M costs for FY 2002 in Table 6.1-2A and 6.1-2B, respectively. Annual O&M costs for each alternative through FY 2025 are reported in Year of Expenditure dollars in the Appendix C cash flow tables.

TABLE 6.1-2A
COMPARISON OF FY 2007 ESTIMATED OPERATING AND MAINTENANCE COSTS, BY ALTERNATIVE, TO FY 2002 O&M BUDGET (IN 2002 CONSTANT $, 000)

	FY 2002 Budget	FY 2007		
		No-Build	TSM	Refined LPA
Bus	$117,582	$119,653	$121,579	$126,808
TheHandi-Van	$12,688	$14,067	$14,067	$14,067
TOTAL	$130,270	$133,720	$135,646	$140,875

Source: Sharon Greene & Associates, November 2002.
Note: At completion of In-Town BRT System fixed faculties.

TABLE 6.1-2B
COMPARISON OF FY 2017 ESTIMATED OPERATING AND MAINTENANCE COSTS BY ALTERNATIVE TO FY 2002 O&M BUDGET (IN 2002 CONSTANT $, 000)

	FY 2002 Budget	FY 2017		
		No-Build	TSM	Refined LPA
Bus	$117,582	$120,233	$130,699	$142,286
TheHandi-Van	$12,688	$15,129	$15,129	$15,129
TOTAL	$130,270	$135,362	$145,828	$157,415

Source: Sharon Greene & Associates, November 2002.
Note: At first year of operation of the Refined LPA using Embedded Plate Technology.

In addition to O&M costs for bus and TheHandi-Van service, an estimated $798,500 (in 2002 constant dollars) will be needed for Zipper lane O&M costs attributable to the Regional BRT system in the Refined LPA from the beginning of their use to FY 2025. Additional funds will also be needed for O&M costs attributable to Zipper lane improvements in the TSM Alternative. Since the zipper lane project elements in these alternatives are part of the Interstate highway system, the financial plans assume that the costs will be borne by the State of Hawaii Department of Transportation (SDOT) as part of their annual O&M costs. Therefore, O&M costs associated with the Zipper lanes are not included in the financial analyses for the TSM Alternative and the Refined LPA.

6.1.3 Revenue Sources

The City's conceptual funding plans propose six revenue sources to fund the capital costs associated with the various cost elements comprising the alternatives. These sources consist of four specific Federal Transit Administration grant programs, Federal Highway Administration funds from various potential sources, and City general obligation bond funds. Three revenue sources are proposed to fund operating and maintenance costs.

1) Revenue Sources for Capital Costs

Revenue sources for the capital costs associated with the alternatives include the following proposed FTA and City sources and potential FHWA sources from a combination of FHWA programs:

Federal Transit Administration (FTA) Funds

- FTA Section 5307 Urbanized Area (UZA) Formula Grants;
- FTA Section 5309(m)(1)(A), Capital Investment Grants and Loans - Fixed Guideway Modernization Formula Grants;
- FTA Section 5309(m)(1)(B) Capital Investment Grants and Loans - New Starts Discretionary Grants; and
- FTA Section 5309 (m)(1)(C) Capital Investment Grants and Loans - Bus Capital Discretionary Grants.

Federal Highway Administration (FHWA)

- Surface Transportation Program (STP) 23 U.S.C. Section 133;
- Congestion Mitigation and Air Quality Program (CMAQ) 23 U.S.C. Section 149;
- *Interstate Maintenance Program (IM) 23 U.S.C. Section 119*; and
- National Highway System Program (NHS) 23 U.S.C. Section 103(b).

City GO Bond Proceeds

Tables 6.1-3A through 6.1-3C identify the potential capital sources assumed to fund the annual capital costs of the program elements over the FYs 2003-2016 period for each alternative. Costs are presented in year of expenditure dollars. The conceptual funding plans for the FEIS differ from those shown in the MIS/DEIS and SDEIS in four primary ways:

- Refined LPA capital costs reflect additional refinements made to the proposed project, including alignment modifications. These have lowered the cost;
- State highway funding has been removed as a capital revenue source and replaced with City GO bond proceeds and FTA Section 5309 New Start grant funds;
- City highway funding has been removed as a capital revenue source and replaced with City GO bond proceeds; and
- The implementation phasing plan for the Refined LPA has been adjusted to accommodate a conservative estimate of revenues over the 14-year period extending from FY 2003 to FY 2016

Federal Transit Administration (FTA) Funds

FTA currently provides federal assistance for the City's mass transit program under the Transportation Equity Act for the 21st Century (TEA-21), as amended, which authorizes FTA programs from Federal Fiscal Year (FFY) 1998 through FFY 2003. New legislation is presently being developed that will authorize FTA's continued operation for another four to six years.

TABLE 6.1-3A
NO-BUILD ALTERNATIVE
CAPITAL FUNDING PLAN
FISCAL YEARS 2003 – 2016 (IN YOE $, 000)

Description *	Costs 2003-2016	UZA	FTA FGM	Bus Discr	City GO Bonds	FHWA	Total Revenue
Transit Centers	$10,061	$0	$0	$0	$10,061	$0	$10,061
Bus Acquisitions	$267,755	$129,584	$20,839	$0	$117,332	$0	$267,755
TheHandi-Van Vehicle Acquisitions	$22,905	$13,616	$0	$0	$9,289	$0	$22,905
Kamehameha Hwy Corridor and Transit Ctrs	$10,882	$0	$0	$8,664	$2,218	$0	$10,882
TOTAL NO-BUILD ALTERNATIVE	$311,602	$143,200	$20,839	$8,665	$138,899	$0	$311,602
% OF TOTAL NO-BUILD ALTERNATIVE		45%	7%	3%	45%	0%	100%

Source: Sharon Greene & Associates, November 2002.
* See Chapter 2 for a detailed description of the project elements in the No-Build Alternative.

TABLE 6.1-3B
TRANSPORTATION SYSTEMS MANAGEMENT ALTERNATIVE
CAPITAL FUNDING PLAN
FISCAL YEARS 2003 – 2016 (IN YOE $, 000)

Description *	Cost 2003-2016		*FTA*		*City*		Total Revenue
		UZA	FGM	Bus Discr	GO Bonds	FHWA	
CAPITAL COSTS							
Transit Centers & Parking	**$31,702**	$3,405	$0	$0	$28,297	$0	**$31,702**
Bus Acquisitions	**$296,837**	$132,336	$20,839	$0	$143,661	$0	**$296,837**
TheHandi-Van Vehicle Acquisitions	**$22,905**	$12,077	$0	$0	$10,829	$0	**$22,905**
Expansion of Bus Maintenance Facility	**$35,668**	$4,695	$0	$0	$30,973	$0	**$35,668**
Park-And-Ride	**$6,076**	$0	$0	$0	$6,076	$0	**$6,076**
Bus Priority Treatment	**$34,434**	$0	$0	$0	$34,433	$0	**$34,434**
Zipper Lane	**$14,982**	$0	$0	$0	$2,998	$11,985	**$14,982**
Kamehameha Hwy Corridor &Transit Ctrs	**$10,882**	$0	$0	$8,665	$2,216	$0	**$10,882**
TOTAL TSM ALTERNATIVE	**$453,486**	**$152,513**	**$20,839**	**$8,665**	**$259,484**	**$11,985**	**$453,486**
% OF TOTAL TSM ALTERNATIVE		**34%**	**5%**	**2%**	**56%**	**3%**	**100%**

Source: Sharon Greene & Associates, November 2002.

* See Chapter 2 for a detailed description of the project elements in the TSM Alternative.

TABLE 6.1-3C
REFINED LOCALLY PREFERRED ALTERNATIVE
CAPITAL FUNDING PLAN
FISCAL YEARS 2003 – 2016 (YOE $, 000)

Description *	Cost 2003-2016	FTA UZA	FTA FGM	FTA Bus Discr	New Start In-Town	New Start Regional	City GO	FHWA	Total Revenue
CAPITAL COSTS									
IN-TOWN BRT PROGRAM									
Fixed Facilities	$227,793	$0	$0	$0	$113,896	$0	$113,897	$0	$227,793
Net Cost for Hybrid-Electric Vehicles	$15,446	$0	$0	$2,345	$7,723	$0	$5,378	$0	$15,446
SUBTOTAL, IN-TOWN BRT COMPONENT	$243,239	$0	$0	$2,345	$121,619	$0	$119,275	$0	$243,239
% OF IN-TOWN BRT COMPONENT		0%	0%	1%	50%	0%	49%	0%	100%
EMBEDDED PLATE TECHNOLOGY									
Fixed Facilities	$97,826	$0	$0	$0	$48,913	$0	$48,913	$0	$97,826
Net Cost of EPT Vehicles	$31,246	$0	$0	$9,374	$15,623	$0	$6,249	$0	$31,246
SUBTOTAL, EMBEDDED PLATE TECHNOLOGY	$129,072	$0	$0	$9,374	$64,536	$0	$55,162	$0	$129,072
% OF EMBEDDED PLATE TECHNOLOGY		0%	0%	7%	50%	0%	43%	0%	100%
TOTAL, IN-TOWN BRT COMPONENT AND EPT	$372,310	$0	$0	$11,719	$186,155	$0	$174,437	$0	$372,310
% OF IN-TOWN COMPONENT AND EPT		0%	0%	3%	50%	0%	47%	0%	100%
REGIONAL BRT PROGRAM									
BRT Transit Centers and Parking	$31,744	$0	$0	$0	$0	$14,818	$6,349	$10,577	$31,744
BRT Zipper Lanes	$142,410	$0	$0	$0	$0	$15,540	$28,482	$98,388	$142,410
BRT Priority Ramp Improvements	$70,225	$0	$0	$0	$0	$25,487	$14,045	$30,693	$70,225
SUBTOTAL, REGIONAL BRT COMPONENT	$244,379	$0	$0	$0	$0	$55,845	$48,876	$139,658	$244,379
% OF REGIONAL BRT COMPONENT		0%	0%	0%	0%	23%	20%	57%	100%
SUBTOTAL, IN-TOWN, EPT, AND REGIONAL BRT	$616,689	$0	$0	$11,719	$186,155	$55,845	$223,313	$139,658	$616,689
% OF IN-TOWN, EPT, AND REGIONAL BRT		0%	0%	2%	30%	9%	36%	23%	100%
SYSTEM-WIDE IMPROVEMENTS									
Bus Acquisitions	$356,426	$185,056	$20,839	$27,281	$0	$0	$123,250	$0	$356,426
Handi-Van Vehicle Acquisitions	$22,905	$14,656	$0	$0	$0	$0	$8,249	$0	$22,905
Bus Maintenance Facility	$35,668	$22,801	$0	$0	$0	$0	$12,867	$0	$35,668
Kamehameha Highway Corridor and Transit Centers	$10,982	$0	$0	$8,745	$0	$0	$2,237	$0	$10,982
SUBTOTAL, SYSTEM-WIDE IMPROVEMENTS	$425,982	$222,514	$20,839	$36,026	$0	$0	$146,603	$0	$425,982
% OF SYSTEM-WIDE IMPROVEMENTS		52%	5%	8%	0%	0%	35%	0%	100%
TOTAL, BRT ALTERNATIVE	$1,042,671	$222,514	$20,839	$47,744	$186,155	$55,845	$369,917	$139,658	$1,042,671
% OF TOTAL BRT ALTERNATIVE		22%	2%	5%	18%	5%	35%	13%	100%

Source: Sharon Greene and Associates, November 2002.

* See Chapter 2 for a detailed description of the project elements in the Refined LPA.

The statute related to transit laws is codified in Title 49 United States Code (U.S.C.) Chapter 53. The various FTA funding sources identified in the financial analyses are described below. The term "apportionment" refers to a statutorily prescribed division or assignment of funds based on formulas in the law. The term "allocation" refers to an administrative or Congressional distribution of those funds that do not have statutory distribution formulas.

While the guaranteed transit funding levels in TEA-21 provide greater certainty about the annual flow of federal transit monies, FTA funds are appropriated on a yearly basis by Congress. Some level of uncertainty remains regarding the amount and timing of the discretionary and formula funds assumed for the alternatives. The conceptual Capital Financial Plans assume an annual apportionment of FTA Section 5307 Urbanized Area formula funds and $242.0 million in FTA Section 5309 New Starts funds for the BRT component. The continued authorization of FTA grant programs is assumed through FY 2025.

Urbanized Area (UZA) Formula Program, 49 U.S.C. Section 5307

The UZA Formula Program provides FTA funds for transit capital (including preventative maintenance) and planning. The term "preventive maintenance" is defined as all maintenance costs. The federal share for capital and planning assistance projects under the UZA Formula Program is up to 80 percent of the net project cost. The City is the direct recipient of Section 5307 funds.

A total of $25.3 million is assumed as the City's FY 2003 Section 5307 apportionment amount. This aggregated amount for the Honolulu and Kaneohe urbanized areas was calculated by FTA using the U.S. Department of Transportation's proposed FFY 2003 budget. From this total, $1.7 million will be transferred to FHWA in 2003 for the State's vanpool program, with $1.0 million assumed to be transferred annually thereafter. The City's annual Section 5307 apportionments are projected to increase 2.3 percent per year, consistent with the forecast assumptions of the General Accounting Office.[1]

The financial analyses allocate $20.0 million in Section 5307 funds for preventive maintenance in 2003 and 2004. Beginning in 2005, 30 percent of the City's annual Section 5307 apportionments are earmarked for preventive maintenance, up to the maximum statutory limit. The remaining 70 percent is used for other capital and planning activities. In years in which the entire 70 percent is not required for capital or planning activities, the remaining amounts are used for preventive maintenance. The Section 5307 assistance for preventive maintenance reduces the City's annual subsidy for transit operating and maintenance (O&M) costs. Section 5307 funds are used for all alternatives. Over the FY 2003-2016 period, a total of $730.5 million is projected to be received.

Capital Investment Grants and Loans, 49 U.S.C. Section 5309

Under 49 U.S.C. Section 5309, FTA makes grants to assist in financing capital projects under the following three categories of projects:

- Modernization of fixed guideway systems, 49 U.S.C. Section 5309(m)(1)(A);
- Construction of new fixed guideway systems and extensions (New Starts), 49 U.S.C. Section 5309(m)(1)(B); and
- Bus and bus-related facilities, 49 U.S.C. Section 5309(m)(1)(C).

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[1] "Budget of the United States Government, Analytical Perspectives, Fiscal Year 2003," Chapter 7. Table 7-3: Federal Investment Spending and Capital Budgeting. Federal Investment Budget Authority and Outlays: Grant and Direct Federal Funds, page 137.

Fixed Guideway Modernization (FGM)

Capital projects to modernize or improve fixed guideway systems are eligible for Fixed Guideway Modernization assistance. The term "fixed guideway" refers to any transit service that uses exclusive or controlled rights-of-way or rails, entirely or in part. The term includes the portion of motor bus service operated on exclusive or controlled rights-of-way, and high occupancy vehicle (HOV) lanes. Eligible projects include, but are not limited to, the purchase of rolling stock, signals and communications, operational support equipment, and preventive maintenance. This funding source is used for bus acquisition in the capital financing plans for each alternative.

The City is the direct recipient of Section 5309 FGM funds. Approximately $1.3 million is assumed as the City's FY 2003 Section 5309 FGM apportionment amount. The amount was calculated by FTA using the US Department of Transportation's proposed FFY 2003 budget. The City's annual FGM apportionments are projected to increase two percent per year. A total of $20.8 million is Section 5309 FGM funding is projected over the FY 2003-2016 period. The City would qualify for higher levels of FGM funding when the BRT fixed guideway systems in the Refined LPA are at least seven years old. The potential increases in future FGM funding are not included in the financial analyses and result in a conservative estimate of future funding levels from this source.

New Starts

The term "New Starts" refers to a project that involves building a new fixed guideway system or extending an *existing fixed guideway. Projects become candidates for funding by successfully completing the appropriate* steps in FTA's major capital investment planning and project development process. Capital projects under this category include, but are limited to, preliminary engineering, acquisition of real property (including relocation costs), final design, construction, and initial acquisition of rolling stock for the system.

FTA Section 5309 New Starts funding is proposed only for the Refined LPA. New Starts funds are assumed to pay for 39 percent of the BRT systems in the Refined LPA. By BRT system component, New Start monies will fund 50 percent of the cost of the In-Town BRT system, 50 percent of the cost of the EPT, and 23 percent of the cost of the Regional BRT system, with FTA Bus Capital, FHWA, and local funds paying the balance. A total of $242.0 million in FTA New Starts funding is proposed. The City would be the direct recipient of FTA New Starts funding allocations for the Refined LPA.

Bus and Bus-related Facilities (Bus Capital)

The major eligible items under this category are buses and other rolling stock, ancillary equipment, and the construction of bus facilities. This category also includes bus rehabilitation and leasing, park-and-ride facilities, parking lots associated with transit facilities, and bus passenger shelters.

Section 5309 Bus Capital funds are assumed in the financial analysis of all alternatives. Over the FY 2003-2016 period, a total of $8.7 million in Section 5309 Bus Capital funding is proposed for the No-Build and TSM Alternatives and $47.7 million for the Refined LPA. Funding for Bus Capital projects is at the discretion of Congress or the Secretary of Transportation, and is not allocated using a statutory formula. The City would be the direct recipient of Section 5309 Bus Capital funds allocated for its bus and bus-related facility projects.

Federal Highway Administration (FHWA) Funds

Like FTA, FHWA is authorized to provide federal aid under TEA-21 until FFY 2003. The next surface transportation authorization act will also include FHWA programs. The State of Hawaii Department of Transportation is the direct recipient of FHWA funds and currently receives between $116.0 million to $120.0 million each year. Funding for the Refined LPA is projected to use about 17 percent of the total FHWA funds available for transportation projects, not including any formula increases after the TEA-21 authorization period. The funding plan for the Refined LPA is included in the Transportation for Oahu Plan (TOP) 2025, approved by Oahu Metropolitan Planning Organization (OMPO) on April 6, 2001.

Federal highway law is codified in Title 23 U.S.C. The FHWA programs that are potential sources of funds are described below. The funds under these programs are all apportionment funds. The financial analyses assume that the FHWA program funds would provide up to 80 percent of the eligible costs with City general obligation bonds providing a local match of at least 20 percent. Approximately $12.0 million in FHWA funds is assumed in the financial analysis for the TSM Alternative. For the Refined LPA, a total of $139.6 million is assumed, with a $20.0 million annual maximum during the FYs 2003-2016 period. The annual levels of FHWA funding proposed in the financial analysis will require the City to utilize GO bond proceeds and/or short-term financing in advance of receiving FHWA funds to pay for the transit-related highway capital elements in certain years. These advances will be reimbursed after FHWA funds are received and are credited back to the City in the cash flow analysis.

Surface Transportation Program (STP), 23 U.S.C. Section 133

The STP provides funding that may be used by states and localities for projects on any Federal-aid highway, bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities. Zipper Lane enhancements proposed in the TSM Alternative and Refined LPA are eligible for STP funding. Costs of the regional transit centers and park-and-ride lots, and BRT priority ramp improvements associated with the Refined LPA are also eligible for STP funding.

Congestion Mitigation and Air Quality Improvement (CMAQ) Program, 23 U.S.C. Section 149

The primary purpose of the CMAQ Program is to fund projects and programs in air quality non-attainment and maintenance areas for ozone, carbon monoxide, and small particulate matter which reduce transportation-related emissions. As a state that does not have and never has had a non-attainment area under the Clean Air Act, Hawaii is authorized to use its annual CMAQ apportionment for any project eligible for STP funds.

Interstate Maintenance (IM) Program, 23 U.S.C. Section 199

The Interstate Maintenance Program provides funding for resurfacing, restoring, rehabilitation and reconstructing most routes on the Interstate System. Costs associated with the H-1 Zipper Lane and direct access ramps are eligible under the Interstate Maintenance Program.

National Highway System (NHS) Program, 23 U.S.C. Section 103(b)

This program provides funding for improvements to rural and urban roads that are part of the National Highway System, including the Interstate System and designated connections to major intermodal terminals. Under certain circumstances, NHS funds may also be used to fund transit improvements in NHS corridors.

The TSM Alternative and Refined LPA incorporate transit-related highway improvements on portions of the State and federal highway system. In the TSM Alternative, FHWA funds are assumed to pay 80 percent of the cost of proposed improvements to the zipper lane. In the Refined LPA, FHWA funds are proposed to be used for a portion of the cost of the regional transit centers and park-and-ride lots, zipper lane enhancements, and BRT priority ramp improvements. These projects are eligible for funding from one or more of the federal highway sources described above. All of the projects are eligible for Surface Transportation Program (STP) and Congestion Mitigation and Air Quality (CMAQ) funds. The H-1 Zipper Lane and access ramp improvements are eligible for receipt of Interstate Maintenance (IM) funds. Most of the projects are on the National Highway System and are therefore eligible for National Highway System (NHS) High Priority Project funds. The financial analyses do not identify revenues from definitive FHWA sources because programming of FHWA funds for specific projects is done through joint FTA/FHWA regulatory planning processes.

General Obligation Bonds

The City issues general obligation (GO) bonds for the construction of major capital facilities. GO bonds are direct obligations of the City for which its full faith and credit are pledged.

City GO Bonds are proposed to finance the local funding share required for transit capital improvements. Proceeds from the GO Bonds will be used for on-going system-wide bus and TheHandi-Van vehicle acquisitions and replacements and other capital projects proposed in the City's annual Six-Year Capital Improvement Program, as well as for the In-Town and Regional BRT systems in the Refined LPA. Issuance of GO Bonds will be required to meet annual cash flow requirements during the FYs 2003-2016 capital project implementation period for all alternatives. Due to limitations assumed on the annual levels of FHWA highway funds received over this period, the City will also need to issue bonds in order to advance funds in place of the federal highway monies to be received in subsequent years for the Refined LPA.

To accommodate the annual levels of capital funding required through FY 2016, a total of $259.5 million and $369.9 million in bonds would be needed for the TSM Alternative and Refined LPA respectively with $138.9 million in bonds required for the No-Build Alternative. Over the FY 2017 to 2025 period, an additional $84.3 million and $92.6 million in bonds will also need to be issued to assist in funding the annual costs of bus and TheHandi-Van vehicle replacements of the TSM Alternative and Refined LPA, respectively, with an additional $64.9 million in bonds needed for the No-Build Alternative.

There are several policy criteria assumed in the use of GO Bonds. First, the annual level of outstanding bond indebtedness is assumed to be capped relative to projected City revenues. The assumption is that property values will remain flat and that the City will maintain the current property tax rate. This creates a ceiling on the amount of GO Bonds the City would be able to issue because it limits the City's debt service payment capacity to the current level of property tax revenues. Second, and related to the first criterion, is the assumption that the City will retain its AA-/Aa3 Credit Rating for GO Bonds and its associated discounted cost of borrowing.

With regard to the first criterion, the Council of the City and County of Honolulu adopted Resolution No. 02-140, CD1. This resolution enunciates the Debt and Financial Policies under which the City manages its operating and capital programs and budgets and its debt program. In accordance with the Debt Policies contained in the resolution, the City has established affordability guidelines in order to preserve credit quality. The affordability guidelines, "which may be suspended for emergency purposes or because of unusual circumstances," are as follows:

a) Debt service for GO bonds as a percentage of the City's total operating budget should not exceed 20 percent; and

b) Debt service on direct debt, excluding self-supporting bonds, as a percentage of General Fund revenues should not exceed 20 percent.

An analysis was conducted to assure compliance with the City's Debt and Financial Policies, which included debt service payments on outstanding bonds issued before FY 2003, planned future notes and bonds as projected by the City, and additional bonds required as a result of this project. The analysis shows that there is additional bonding capacity in each of the project years. The second criterion assumes that the City will retain its GO Bond Rating (Aa3 from Moody's and AA- from Standard & Poor's) throughout the plan period. The City's high credit quality allows it to borrow at a lower cost than if it had a lesser credit rating. Therefore, the level of GO Bonds that are outstanding in any given year is assumed not to increase to an extent that will threaten the City's credit rating. There are many other factors that are included in a GO Bond credit rating in

addition to the amount of outstanding direct bonded debt.[2] Broadly speaking, these are the socioeconomic and assessed property value base that generates tax revenues, the City's financial operations (current account and budget balances), legal bond considerations, financial management and other factors.

Consistent with current City practice, the financial terms and conditions of the GO Bonds assumed in the financial analyses are a 25-year maturity with a 5.5 percent interest rate and interest-only payments in the first three years. The interest rate reflects the Bond Buyer 11 High Grade GO Bond Index. The annual level of bonding for all Alternatives was capped so as not to exceed $50.0 million in bonds issued in any one year.

While prudent relative to current market conditions, the financing costs associated with the GO Bonds assumed in this analysis are subject to potential fluctuations in the market. These assumptions should be periodically reviewed and updated, as required. It should be noted that financing costs associated with New Starts projects are eligible for New Starts and other FTA funding. While no such funding has been assumed in the financial plans for this purpose at this time, the availability of such funding would serve to reimburse the City for up to 50 percent of the financing costs on GO bonds associated with the New Starts BRT systems within the Refined LPA.

City Highway Fund

The City Highway Fund is earmarked by State law for highway and related activities. Major revenue sources include the City fuel tax, vehicle weight tax, and public utility franchise tax. While there have been fluctuations in the annual rate of growth of the Highway Fund, over the most recent ten year period Highway Fund revenues increased at a compound annual growth rate of 0.62 percent, with the major revenue sources in the Fund projected by the City to increase 1.6 percent annually over the next five years. For purposes of the *financial analysis*, the City Highway Fund was projected to increase 0.5 percent per year. Thus, to provide a conservative estimate, the assumed annual growth rate of the Highway Fund is below that of the past ten years and is one-third the rate of the City's projections.

City Highway Fund revenues are used to pay highway-related expenses of executive agencies. In addition, portions of the Highway Fund are transferred annually to the City General Fund for payment of transportation-related debt service and to the City Bus Transportation Fund for partial payment of bus transportation operating costs. In projecting the level of funds available for debt service in a particular year, the non-debt service expenditures made from the Fund were assumed to grow 1.0 percent annually, or at twice the rate of growth of the Fund itself. The balance remaining in the Fund after deduction of these other expenses was assumed to be the maximum amount of City Highway Fund revenues that would be available for debt service payments in that year.

2) O&M Funding Sources

O&M funding for the alternatives is derived from three main sources:

- Fare box revenues;
- FTA Section 5307 funds for preventive maintenance; and
- City Operating Support for Transit O&M.

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[2] The most important factor is the value of property. Honolulu has experienced a decline in property values since the early 1990s and has also seen an increase in appeals by homeowners to reassess the value of their property. The City has processed the majority of these requests and has stabilized the decline in property tax revenues.

Fare box Revenues

Fare box revenue projections for each of the three alternatives were developed in conjunction with the ridership forecasting process, and reflect current fare levels and an adopted City Council policy requiring the bus fare box recovery ratio to not fall below 27 percent nor exceed 33 percent. This fare box recovery ratio policy does not apply to TheHandi-Van. Based on the analysis results, bus fares including fares for BRT service are expected to cover roughly 27 percent of bus O&M costs over the FYs 2003 - 2025 period. TheHandi-Van fares are projected to cover roughly 11 percent of TheHandi-Van O&M costs. Together, bus and TheHandi-Van fare revenues are projected to provide 26 percent of transit O&M costs. These projected fare box recovery levels are consistent with historical levels.

FTA Section 5307 Urbanized Area (UZA) Formula Funds For Preventive Maintenance

As noted earlier, FTA Section 5307 UZA formula funds for capital assistance can also be used for preventive maintenance costs associated with the transit system. The financial plan proposes that $20.0 million in FTA Section 5307 funds be reserved for preventive maintenance in FYs 2003 and 2004. In other years, a target level of at least 30 percent of the formula funds is used for preventive maintenance. Over the FY 2003-2016 period, the total level of FTA Section 5307 funds projected to be used for preventive maintenance purposes is $253.6 million for the No-Build Alternative, $244.3 million for the TSM Alternative, and $174.3 million for the Refined LPA. FTA Section 5307 UZA funds used for preventive maintenance are projected to cover 11, 10, and 7 percent of O&M costs in the No-Build Alternative, TSM Alternative, and Refined LPA, respectively. This decrease in the share of FTA Section 5307 UZA funds used for preventive maintenance is attributable to the larger share of such funds used for capital in the more capital-intensive alternatives.

Use of FTA Section 5307 funds for preventive maintenance serves to reduce the level of City operating support required.

City Operating Support

The City provides annual funding support for transit O&M. This operating support is provided chiefly through transfers from the City Highway Fund and the City General Fund to the Bus Transportation Fund. These transfers supplement fare revenues and prior year carryover monies in the Bus Transportation Fund. The City Highway and General Fund transfers to the Bus Transportation Fund provide the largest source of O&M funding and cover 63, 65, and 67 percent of the O&M costs of the No-Build Alternative, TSM Alternative, and Refined LPA, respectively. The City's FY 2003 Operating Budget Ordinance (Ordinance 02-26) identifies approximately $75.8 million to be transferred from the City Highway Fund ($35.1 million) and the City General Fund ($40.7 million) to the Bus Transportation Fund.

Within the financial analyses, the FY 2003 level of City operating support for all alternatives was estimated to be $81.9 million, or higher than the FY 2003 Budget. Over the FY 2003 – 2016 period for completing the In-Town and Regional BRT systems in the Refined LPA, the level of City operating support transfers into the Bus Transportation Fund is projected to increase (in Year of Expenditure dollars) to $124.4 million for the No-Build Alternative, $136.3 million for the TSM Alternative, and $152.3 million for the Refined LPA. In 2002 constant dollars, the equivalent levels of operating support are projected to be $88.0 million, $96.3 million, and $107.8 million for the alternatives respectively. For all three alternatives, the increased levels of City operating support are required to offset annual increases in O&M costs attributable to inflation. For the TSM Alternative and the Refined LPA, the increases are also attributable to the incremental O&M costs associated with the higher levels of service.

Noted in the discussion of the City Highway Fund above, the funds transferred from the City Highway Fund to the Bus Transportation Fund are assumed to grow at 1 percent per year, or below the rate of growth in O&M costs. As a result, the share of City operating support derived from the City Highway Fund is projected to

decrease annually while the share derived from the City General Fund increases annually. By 2016, the share of City operating support from the Highway Fund and General Fund respectively are projected to be 25 percent and 75 percent.

6.1.4 Cash Flow Requirements

Tables 6.1-4 and 6.1-5 summarize the capital and O&M funding required by source for the No-Build Alternative, TSM Alternative, and Refined LPA. Table 6.1-4 compares the levels of capital funding required by source for each alternative over the fourteen-year implementation period of FYs 2003-2016. Table 6.1-5 contrasts the levels of O&M funding required, by source, for the representative years of FY 2007 and FY 2016.

TABLE 6.1-4
FUNDING SOURCES FOR CAPITAL COSTS, BY ALTERNATIVE
FISCAL YEARS 2003- 2016 (YOE $, 000)

	NO-BUILD	TSM	Refined LPA
CAPITAL SOURCES			
Federal Transit Administration			
Sec. 5307 UZA Formula	$143,200	$152,513	$222,514
Sec. 5309 FGM	$20,839	$20,839	$20,839
Sec 5309 Bus Capital	$8,665	$8,665	$47,744
Sec. 5309 New Starts	–	–	$242,000
Federal Highway Funds			
FHWA	–	$11,985	$139,659
Local Funds			
G.O. Bonds	$138,899	$259,48	$369,917
TOTAL CAPITAL FUNDS	**$311,602**	**$453,486**	**$1,042,671**

Source: Sharon Greene & Associates, November 2002.
Note: Totals may differ due to rounding.

The alternatives differ with regard to their relative levels of reliance on individual funding sources. With regard to capital revenues, sources such as FTA Section 5307 UZA and FTA Section 5309 FGM grants are common to all alternatives. While the two sources assume the same annual apportionment levels for each alternative, the alternatives differ with respect to the amount of FTA Section 5307 UZA funds used as capital sources. FTA Section 5309 Bus Capital grants and GO Bond proceeds are common to all alternatives but provide different levels of funds. FHWA funds are common to the TSM Alternative and Refined LPA, but at different levels of funding. FTA Section 5309 New Starts grant funds are unique to the Refined LPA.

As indicated in Table 6.1-5, the differences in annual O&M revenues for the alternatives increase over time, from a differential when comparing the Refined LPA to the No-Build Alternative of approximately $8 million in FY 2007 with completion of the In-Town BRT system's fixed facilities, to a differential of approximately $32 million in FY 2017 when the Refined LPA is fully operational using embedded plate technology.

1) Annual Cash Flow Requirements: FYs 2003 to 2016

Tables 6.1-3A through 6.1-3C presented earlier summarized the capital funding that would be required by source over the FYs 2003-2016 implementation period for the Alternatives as a whole and for the major project elements comprising them. In the absence of a major capital investment, the transit capital program represented by the No-Build Alternative would consist primarily of bus and TheHandi-Van vehicle acquisition

TABLE 6.1-5
FUNDING SOURCES FOR O&M COSTS, BY ALTERNATIVE
FISCAL YEARS 2007 AND 2017 (YOE $, 000)

	NO-BUILD	TSM	Refined LPA
FY 2007 OPERATING REVENUES			
Passenger Fares (Bus)	$37,195	$37,252	$39,199
TheHandi-Van Fares	$1,705	$1,705	$1,705
FTA Sec. 5307 UZA Funds (Preventive Mtnce)	$18,760	$19,995	$12,838
General Fund Revenues (for transit support)	$93,632	$94,519	$105,645
TOTAL O&M REVENUES	$151,292	$153,471	$159,387
FY 2017 OPERATING REVENUES			
Passenger Fares (Bus)	$49,976	$51,649	$57,621
TheHandi-Van Fares	$2,346	$2,346	$2,346
FTA Sec. 5307 UZA Funds (Preventive Mtnce)	$16,114	$16,114	$11,133
General Fund Revenues (for transit support)	$127,608	$141,093	$156,885
TOTAL O&M REVENUES	$196,045	$211,202	$227,984

Source: Sharon Greene & Associates, November 2002.
Note: Totals may differ due to rounding.

and replacement costs. These would be funded chiefly with FTA Section 5307 Urbanized Area Formula Grant funds, supplemented with FTA Section 5309 Fixed Guideway Modernization, FTA Section 5309 Bus Capital funding, and City GO bond proceeds. Beyond the No-Build Alternative level, the capital program additions included in the TSM Alternative and the Refined LPA will require utilization of higher levels of City bonding to provide annual revenues sufficient to meet capital expenditure levels concentrated over the 14-year implementation period. While the Refined LPA assumes FTA Section 5309 New Starts funding and funding from FHWA highway sources, additional City short or long term bonding will also be required as a result of the $20 million cap on the annual level of FHWA funding. In the years in which the deferred FHWA funds are received, they are treated as reimbursements within the cash flow analysis.

Funding Plan for In-Town Bus Rapid Transit

As shown in Table 6.1-6, the capital cost of the In-Town BRT project element of the Refined LPA is $243.2 million (in YOE $). This amount includes $227.8 million in cost for the In-Town BRT fixed facilities and $15.4 million for the net cost of acquiring 30 hybrid-electric vehicles to operate In-Town BRT service prior to adding EPT. "Net cost" refers to the incremental cost for acquiring low-emission, environmentally-friendly hybrid-electric vehicles to operate the In-Town BRT fixed facilities relative to the base cost of similarly sized conventional diesel-powered buses that would be acquired for initial In-Town BRT service. While the incremental cost of the hybrid-electric vehicles is considered part of the In-Town BRT program, the base cost of $ 16.5 million (YOE $) for these vehicles is included in the System-Wide capital cost component of the Refined LPA.

The In-Town BRT component is proposed to be funded with 50 percent FTA Section 5309 New Starts funds, matched with 49 percent in local capital funds in the form of City GO Bonds. FTA Section 5309 Bus Capital Funds would contribute the remaining one percent.

TABLE 6.1-6
CAPITAL FUNDING SOURCES FOR IN-TOWN BUS RAPID TRANSIT SYSTEM
FISCAL YEARS 2003 – 2016 (YOE $, 000)
(REFINED LPA)

Source	Total $ (%)	In-Town BRT Elements
FTA Sec. 5309 New Starts	$121,619 (50%)	• In-Town BRT fixed facilities • Net cost of hybrid-electric vehicles
FTA Sec. 5309 Bus Capital	$2,345 (1%)	• Net cost of hybrid-electric vehicles
City GO Bonds	$119,275 (49%)	• In-Town BRT fixed facilities • Net cost of hybrid-electric vehicles
TOTAL	**$243,239 (100%)**	

Source: Sharon Greene & Associates, November 2002.

Funding Plan for Embedded Plate Technology (EPT)

As shown in Table 6.1-7, the capital cost of the EPT project element of the Refined LPA is $129.1 million (YOE $). This amount includes the cost of EPT fixed facilities and the net cost of the EPT vehicles. The incremental cost of the EPT components of the vehicles is considered part of the EPT component. The base cost for these vehicles is included in the System-Wide capital cost component of the Refined LPA.

TABLE 6.1-7
CAPITAL FUNDING SOURCES FOR EMBEDDED PLATE TECHNOLOGY SYSTEM
FISCAL YEARS 2010 - 2016 (YOE $, 000)
(REFINED LPA)

Source	Total $ (%)	EPT Elements
FTA Sec. 5309 New Starts	$64,536 (50%)	• EPT fixed facilities • Net cost of EPT vehicles
FTA Sec. 5309 Bus Capital	$9,374 (7%)	• EPT fixed facilities • Net cost of EPT vehicles
City GO Bonds	$55,162 (43%)	• EPT fixed facilities • Net cost of EPT vehicles
Total	**$129,072 (100%)**	

Source: Sharon Greene & Associates, November 2002.

The EPT component is assumed to be funded with 50 percent FTA Section 5309 New Starts funds matched with 43 percent in local capital funds in the form of City GO Bonds. FTA Section 5309 Bus Capital funds would contribute the remaining seven percent.

Funding Plan for Regional Bus Rapid Transit (BRT)

As shown in Table 6.1-8, the total capital cost of the Regional BRT element of the Refined LPA is projected to be approximately $244.4 million (in YOE $). This total includes the cost of the Regional BRT transit centers and parking facilities, Zipper lane, and BRT priority ramp improvements. Many of the Regional BRT components are improvements to provide dedicated or priority treatment on portions of the Interstate system, including construction of bus-only access ramp improvements. Therefore, the conceptual financial plan calls

for 57 percent of the cost of the Regional BRT to be paid for with FHWA funds. Project elements such as the transit centers and parking, Zipper lanes and priority ramp improvements are also eligible for FTA Section 5309 New Starts funds, shown in this plan to provide 23 percent of the funding for the Regional BRT, with City funds in the form of GO Bonds contributing the remaining 20.

TABLE 6.1-8
CAPITAL FUNDING SOURCES FOR REGIONAL BUS RAPID TRANSIT SYSTEM
FISCAL YEARS 2003 - 2016 (YOE $, 000)
(REFINED LPA)

Source	Total $ (%)	Regional BRT Elements
FTA Sec. 5309 New Starts	$55,845 (23%)	• BRT transit centers and parking • Zipper lane • BRT priority ramp
FHWA	$139,658 (57%)	• BRT transit centers and parking • Zipper lane • BRT priority ramp improvements
City GO Bonds	$48,876 (20%)	• BRT transit centers and parking • Zipper lane • BRT priority ramp improvements
Total	**$244,379 (100%)**	

Source: Sharon Greene & Associates, November 2002.

Funding Plan for Combined In-Town BRT, EPT, and Regional BRT Systems

Table 6.1-9 summarizes the funding plan for the combined In-Town, EPT, and Regional BRT systems in the Refined LPA over the FYs 2003–2016 implementation period. As shown in the table, the total cost of the combined In-Town, EPT, and Regional BRT Program is projected to be $616.7 million (YOE $).

TABLE 6.1-9
CAPITAL FUNDING SOURCES IN-TOWN, EPT, AND REGIONAL BRT SYSTEMS
FISCAL YEARS 2003 – 2016 (YOE $, 000)
REFINED LPA

Source	Total $ (%)	Project Element
FTA Sec. 5309 New Starts	$242,000 (39%)	• All project elements
FTA Sec. 5309 Bus Capital	$11,719 (2%)	• Regional BRT transit centers and parking • Zipper lane • BRT priority ramp improvements
FHWA	$139,658 (23%)	• Regional BRT transit centers and parking • Zipper lane • BRT priority ramp improvements
City GO Bonds	$223,313 (36%)	• All project elements
TOTAL	**$616,689 (100%)**	

Source: Sharon Greene & Associates, November 2002.
Note: Totals may differ due to rounding.

As shown in the table, the combined BRT components are proposed to be funded with approximately 39 percent FTA New Starts funds, 36 percent City GO Bonds, 23 percent FHWA highway funds, and two percent FTA Section 5309 Bus Capital funds.

2) Funding Plan for Operating and Maintenance

Table 6.1-10 compares the TSM Alternative and Refined LPA to the No-Build Alternative with regard to the average annual O&M cost over the FY 2007-2016 period in which BRT service would be fully operational. As shown in the table, the alternatives differ by over 12 percent with regard to projected average annual O&M costs. The projected average annual O&M costs of the Refined LPA are 12.2 percent higher than the No-Build Alternative and 7.9 percent higher than the TSM Alternative.

TABLE 6.1-10
ESTIMATED AVERAGE ANNUAL OPERATING AND MAINTENANCE COSTS OVER FISCAL YEARS 2007 – 2016 (YOE $, 000)

Alternative	Average Annual O&M Cost	% Increase Over No-Build
NO-BUILD	$170,469	
TSM	$177,280	4.0%
Refined LPA	$191,263	12.2%

Source: Sharon Greene & Associates, November 2002.

As the projected average annual O&M costs in the Table 6.1-10 are in year of expenditure dollars, a comparison to current O&M costs requires presentation of the data in constant dollars. Table 6.1-11 compares O&M costs for the bus and TheHandi-Van service components of the alternatives to the estimated 2003 O&M costs using 2002 constant dollars.

TABLE 6.1-11
ESTIMATED AVERAGE ANNUAL OPERATING AND MAINTENANCE COSTS OVER FISCAL YEARS 2007 – 2016 (CONSTANT 2002 $, 000)

Alternative	Bus	TheHandi-Van	Total
FY 2003 Estimated	$119,421	$13,663	$133,084
NO-BUILD	$119,914	$14,539	$134,453
TSM	$125,111	$14,539	$139,650
Refined LPA	$136,047	$14,539	$150,586

Source: Sharon Greene & Associates, November 2002.

As shown in Table 6.1-11, expressed in 2002 constant dollars, the average annual O&M cost of the alternatives range from $134.5 million for the No-Build to $150.6 million for the Refined LPA. In comparison to the estimated FY 2003 O&M cost of $133.1 million, the No-Build Alternative, TSM Alternative, and Refined LPA are within 1 percent, 5 percent, and 13 percent of the FY 2003 estimated O&M cost. In addition to bus and TheHandi-Van O&M costs, the Refined LPA includes the cost of providing and maintaining the Regional and In-Town BRT service within the bus costs.

With respect to vanpool service, the cost of administering the Vanpool Hawaii program is assumed to equal the direct revenues received plus federal funding. None of the alternatives include the cost of the vanpool program currently borne by the SDOT. These costs would be common to all alternatives in the event the City assumed the vanpool program. If that were to occur, the City would receive an additional $1 million annually

in FTA Section 5307 UZA funds that are assumed to be transferred to FHWA for SDOT operation of the program.

Revenues for the O&M costs associated with the alternatives would come from the following sources:

- Bus fares: these would cover a minimum of 27 percent of bus O&M costs;
- TheHandi-Van fares: these would cover roughly 11 percent of TheHandi-Van O&M costs;
- City Operating Support; and
- FTA Section 5307 Urbanized Area formula grant funds used for bus preventive maintenance.

In the absence of any new revenues to fund the higher local operating subsidy required, the financial analysis indicates that the City will have the financial capacity to fund the increased level of subsidy using existing sources of revenue through appropriations from the City's General Fund.

6.1.5 Financial Performance Measures

The results of the financial analyses are summarized in Tables 6.1-12 through 6.1-15 and are discussed below. The financial analyses focus on the performance of the Refined LPA relative to the No-Build and TSM Alternatives with respect to the following key measures:

Capital Funding and Debt Service Requirements, FYs 2003 – 2016[3]

- Total and Annual Capital Funding Required;
- Level of City GO Bonding Required;
- FTA Section 5309 New Starts Funding Required;
- FHWA Funding Required;
- Average Annual Debt Service Payment Required (Post-2003 Debt);
- Ratio of Debt Service on GO Bonds (including Self-Supporting Bonds) as a Percentage of the City's Total Operating Budget (By policy, should not exceed 20 percent); and
- Ratio of Debt Service on Direct Debt (excluding Self-Supporting Bonds) as a Percentage of General Fund Revenues (By policy, should not exceed 20 percent).

Operating And Maintenance Funding Requirements, FYs 2007 - 2016

- Average Annual Operations and Maintenance Costs; and
- Average Annual City Operating Support for Transit O&M.

Capital, Debt Service, and Operating Funding Requirements, FYs 2007 – 2016

- Average Annual Total City Contribution Required for Debt Service and Operating Support;
- Average Annual Increase in Total City Contribution over No-Build; and
- Average Annual Increase in Total City Contribution over TSM.

Detailed cash flow analyses were conducted for each alternative to assess total and annual financial requirements over the 2003 -2025 period. The analyses were performed using year of expenditure dollars inclusive of inflation. The detailed cash flow analyses are provided in Appendix C.

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[3] FTA Section 5307 funding is not included as a key measure since the City's annual apportionment would be the same for all alternatives.

1) Capital Funding Requirements

The sections below summarize the key findings related to the seven capital funding evaluation measures:

- Total and Annual Capital Funding Required;
- Level of City GO Bonding Required;
- FTA Section 5309 New Starts Funding Required;
- FHWA Funding Required;
- Average Annual Debt Service Payment Required (Post-2003 Debt);
- Ratio of Debt Service on GO Bonds (including Self-Supporting Bonds) to the City's Total Operating Budget (Maximum Ratio Reached); and
- Ratio of Debt Service on Direct Debt (excluding Self-Supporting Bonds) to General Fund revenues (Maximum Ratio Reached).

Total and Annual Capital Funding Required, FYs 2003 - 2016

Table 6.1-12 summarizes the total annual capital funding required for the No-Build Alternative, TSM Alternative, and Refined LPA over the 14-year implementation period. The capital costs of the Alternatives increase with the level of service being proposed. To an extent, the alternatives represent a spectrum,

TABLE 6.1-12
SUMMARY OF KEY FINANCIAL MEASURES BY ALTERNATIVE
OVER FYs 2003 - 2016 (YOE $, 000)

	No-Build	TSM	Refined LPA
CAPITAL PERFORMANCE MEASURES: FY 2003–2016			
Total Capital Cost	$311,602	$453,486	$1,042,671
GO Bonds Issued		$259,484	$369,916
FTA New Starts Funding Required	--	--	$242,000
FHWA Funding Required	--	$11,985	$139,659
Average Annual Debt Service Payment (Post-2003 Debt)	$9,986	$13,800	$17,664
Ratio of Debt Service on GO Bonds (including Self-Supporting Bonds) to the City's Total Operating Budget: Maximum Ratio Reached	19.09% (FY 2004)	19.24% (FY 2004)	19.05% (FY 2004)
Ratio of Debt Service on Direct Debt (excluding Self-Supporting Bonds) to General Fund revenues: Maximum Ratio Reached	15.49% (FY 2011)	15.61% (FY 2011)	15.70% (FY 2011)
OPERATING PERFORMANCE MEASURES: FY 2007-2016			
Average Annual Operations and Maintenance Costs	$170,469	$177,280	$191,263
Average Annual City Operating Support for Transit O&M	$108,328	$115,540	$129,240
CAPITAL AND OPERATING PERFORMANCE MEASURES: FY 2007- 2016			
Average Annual Total City Contribution Required for Debt Service and O&M	$139,897	$152,183	$171,118
Average Annual Increase in Total City Contribution Over No-Build		$12,286	$31,220
Average Annual Increase in Total City Contribution Over TSM			$18,935

Source: Sharon Greene & Associates, November 2002.

ranging from the No-Build Alternative, to the introduction of BRT-type elements in the TSM Alternative, to a high level of service provided by the In-Town and Regional BRT components in the Refined LPA. The spectrum of costs ranges from $311.6 million for the No-Build Alternative to $453.5 million for the TSM Alternative, to $1.04 billion for the Refined LPA.

Tables 6.1-3A through 6.1-3C presented earlier summarize the capital funding requirements for the alternatives over the FYs 2003 -2016 implementation period. As shown in the tables, different levels of GO bonding, FTA Section 5309 New Starts funding, and FHWA funding are required to provide adequate funding during this period.

Level Of City GO Bonding Required, FYs 2003 - 2016

The financing plans for the No-Build Alternative, TSM Alternative, and Refined LPA assume that the City would use a portion of its GO bonding capacity. Table 6.1-13 summarizes the annual level of GO bonding required for each alternative. As shown in Table 6.1-13, the level of GO bonding required corresponds to the relative capital cost of the alternative. The highest cost alternative (Refined LPA) would have the greatest need for bonding ($369.9 million) compared with $138.9 million and $259.5 million for the No-Build and TSM Alternatives respectively. A portion of the GO bonding required in the Refined LPA would be to provide capital funding in advance of receipt of FHWA federal grant funds. Table 6.1-13 summarizes the annual bonding that would be required for the Refined LPA over the FYs 2003-2016 period.

TABLE 6.1-13
ANNUAL GENERAL OBLIGATION BONDING REQUIRED BY ALTERNATIVE OVER FISCAL YEARS 2003 – 2016 (YOE $, 000)

Fiscal Year	NO-BUILD	TSM	REFINED LPA
2003	$20,437	$22,181	$23,232
2004	$21,642	$33,882	$45,712
2005	$26,497	$44,776	$49,984
2006	$18,994	$30,240	$46,589
2007	$11,365	$19,649	$16,384
2008	$5,754	$7,162	$21,276
2009	$1,025	$1,548	$28,977
2010	$844	$3,315	$16,265
2011	$1,955	$12,817	$24,508
2012	$80	$10,318	$5,299
2013	$3,618	$7,673	$12,003
2014	$1,396	$17,780	$20,258
2015	$8,584	$30,076	$28,673
2016	$16,758	$18,068	$30,756
TOTAL	**$138,899**	**$259,484**	**$369,916**

Source: Sharon Greene & Associates, November 2002.

FTA Section 5309 New Starts Funding

Table 6.1-14 summarizes the level of FTA Section 5309 New Starts funding required for the Refined LPA. On an annual basis, the financial plan assumes availability of New Starts funding for the Refined LPA at the expenditure levels presented in the table.

TABLE 6.1-14
FTA SECTION 5309 NEW STARTS FUNDING
ANNUAL EXPENDITURE LEVELS
FOR THE REFINED LPA
FISCAL YEARS 2003 – 2016 (YOE $, 000)

Fiscal Year	Amount
2003	$3,515
2004	$25,028
2005	$45,000
2006	$39,745
2007	$12,507
2008	$0
2009	$3,711
2010	$19,109
2011	$30,170
2012	$17,646
2013	$19,604
2014	$12,830
2015	$5,331
2016	$7,803
TOTAL	**$242,000**

Source: Sharon Greene & Associates, November 2002.

As shown in Table 6.1-14 and earlier in Table 6.1-3C, New Starts funding would provide approximately 39 percent for the total BRT Program. New Starts funding would constitute 50 percent of the capital revenues for the In-Town BRT related components, 50 percent for the EPT component, and 23 percent for the Regional BRT, with revenues received over the FYs 2003-2016 period. A total of $242.0 million in New Starts funding would be used for the Refined LPA.

FHWA Funding Required

The financial plan proposes that FHWA funding would be available for eligible projects components in the TSM Alternative and Refined LPA, up to an annual ceiling. The total level of FHWA funding over the FYs 2003-2014 periods is proposed not to exceed $20.0 million per year. FHWA funds are assumed to provide 80 percent of capital costs for eligible projects, with a 20 percent match coming from City GO Bonds. Actual annual Federal highway funding levels and the relative shares from each FHWA program source would be determined through the federal programming process.

Table 6.1-15 summarizes the schedule assumed for receiving FHWA highway funds through the State of Hawaii for the TSM Alternative and Refined LPA. Even with the higher levels of FHWA funding required for the Refined LPA, less than 50 percent of the funds from eligible categories (IM, NHS, STP and CMAQ) and 13 percent of the total FHWA funding received by the State would be used over the 12-year period.

The financial analysis in the MIS/DEIS and SDEIS called for a total of $160.0 million in FHWA funding. This amount has been reduced by $20.4 million in the FEIS as a result of additional refinements made to the proposed project, including alignment modifications.

TABLE 6.1-15
ANNUAL FEDERAL HIGHWAY FUNDING REQUIRED
FOR THE TSM ALTERNATIVE AND REFINED LPA
FISCAL YEARS 2003-2016 (YOE $, 000)

Fiscal Year	TSM Alternative	Refined LPA	Amount Available for Other Statewide Projects with Refined LPA
2003	$0	$0	$86,327
2004	$0	$0	$87,190
2005	$0	$0	$88,062
2006	$858	$1,207	$87,736
2007	$5,495	$11,587	$78,245
2008	$5,632	$20,000	$70,730
2009	$0	$20,000	$71,639
2010	$0	$20,000	$72,555
2011	$0	$20,000	$73,480
2012	$0	$20,000	$79,361
2013	$0	$20,000	$75,358
2014	$0	$6,865	$84,587
TOTAL	**$11,985**	**$139,659**	**$955,270**
	1%	**13%**	**87%**

Source: Sharon Greene & Associates, November 2002.
Note: Includes NHS, STP, CMAQ, and IM funding categories only. FY 2003 amount is from the estimated TEA-21 apportionment, as provided by the State Department of Transportation. Estimates for FY 2004 and beyond are calculated at a conservative 1.00% increase per year. Funding for FHWA Bridge Rehabilitation and Replacement, Metropolitan Planning, Innovative Projects / Rec. Trails, High Priority Projects, and Minimum Guarantee categories are not included in the total.

Average Annual Debt Service Payment Required

Table 6.1-12 summarizes the average annual debt service payment on post-2003 bond issues required for the alternatives. In comparison to the $10.0 million and $13.8 million in additional average annual debt service payments required for the No-Build and TSM Alternatives respectively, the additional average annual debt service payment required for the Refined LPA is $17.7 million.

2) O&M Funding Requirements

Two comparative measures have been used to evaluate the Alternatives:

- Average Annual Operating and Maintenance Costs; and
- Average Annual Operating Support for Transit O&M.

Average Annual Operating and Maintenance Costs: FY 2007-2016

As shown in Table 6.1-12, over the FY 2007-2016 period in which the BRT program becomes fully operational, the average annual O&M cost for bus and TheHandi-Van service is projected to range from $170.5 million for the No-Build Alternative to $177.3 million and $191.3 for the TSM Alternative and Refined LPA respectively. The percentage difference between the TSM and No-Build Alternatives is 4 percent, with a 12 percent

difference between the Refined LPA and the No-Build. Between the Refined LPA and the TSM Alternative, the percentage difference is 8 percent.

Average Annual City Operating Support for Transit O&M: FY 2007-2016

All of the alternatives would require City operating support to supplement fares and FTA Section 5307 UZA funds for the O&M costs of the bus and TheHandi-Van services. As shown in Table 6.1-12, over the FY 2007-2016 period in which the BRT program becomes fully operational, the average annual City operating support for O&M would be $108.3 million for the No-Build Alternative, $115.5 million for the TSM Alternative, and $129.2 million for the Refined LPA. The difference between the lowest (No-Build) and highest (Refined LPA) average annual level of City operating support would be $20.9 million.

The Operating and Maintenance Financial Plans reflect an 11.9 percent increase over the TSM in the annual level of local operating support for the Refined LPA. If actual O&M costs are higher than the projections, or if actual fare revenues are lower, there still remain a variety of means for the needed level of support to be met. For example, changes in the fare structure could be made that would minimize impacts on transit dependents yet maintain or increase revenues. As another example, increases in the "cap" within which employers may fund employee transit expenses without these being considered "income" for Internal Revenue Service reporting purposes would also enhance transit's ability to increase operating revenue from the fare box. Thus, many ways exist to meet the levels of operating support assumed in this analysis.

3) Capital and Operating Performance Measures

Three comparative measures have been used to evaluate the alternatives with respect to total City contribution required for both capital and for O&M funding:

- Average Annual Total City Funding Support Required for Debt Service and O&M;
- Average Annual Increase in Total City Contribution over the No-Build Alternative; and
- Average Annual Increase in Total City Contribution over the TSM Alternative.

Average Annual Total City Funding Support Required for Debt Service and O&M

As shown in Table 6-1.12, higher levels of City financial support would be required for the TSM Alternative and Refined LPA relative to the No-Build Alternative. The average annual level of City contribution required for debt service and operating support would be $139.9 million for the No-Build Alternative, $152.2 million for the TSM Alternative, and $171.1 million for the Refined LPA.

Average Annual Increase in Total City Funding Support over the No-Build Alternative

Relative to the No-Build Alternative, the average annual incremental level of City contribution required would range from an additional $12.3 million per year for the TSM Alternative to $31.2 million for the Refined LPA.

Average Annual Increase in Total City Funding Support over the TSM Alternative

Relative to the TSM Alternative, the average annual incremental level of City contribution would be $18.9 million per year for the Refined LPA.

6.2 ALTERNATIVES COMPARISON

In the MIS/DEIS and SDEIS, the alternatives comparison was presented in Chapter 7. This discussion is being presented in this chapter. Chapter 7 presents the responses to comments received in response to the MIS/DEIS and SDEIS. This section compares how and the degree to which the alternatives satisfy the project purposes and needs presented in Chapter 1. It discusses the financial and environmental costs of satisfying these needs. Finally, this section reports the cost-effectiveness and equity (distribution of benefits) of each alternative; these are two criteria that the Federal Transit Administration (FTA) considers in deciding whether to qualify a new transit system for federal funding.

The alternatives are compared using cost, mobility, growth-shaping, land use, quality of life, environmental impact, cost-effectiveness, and equity criteria. Table 6.2-1 summarizes the evaluation findings for those criteria. This analysis is meant only to reconfirm selecting the BRT as the Locally Preferred Alternative (LPA).

6.2.1 Comparison of Alternatives Against Project Purposes and Needs

The purposes and needs to be addressed by a major transportation investment in the primary transportation corridor are listed below (from Chapter 1):

1. Increase the people-carrying capacity of the transportation system in the primary transportation corridor by providing attractive alternatives to the private automobile;
2. Support desired development patterns;
3. Improve the transportation linkage between Kapolei and Honolulu's Urban Core; and
4. Improve the transportation linkages between communities in the Primary Urban Center (PUC).

Increase The People-Carrying Capacity Of The Transportation System In The Primary Transportation Corridor by Providing Attractive Alternatives to the Private Automobile

Detailed mobility analyses are presented in Chapter 4. The following enhanced mobility measures are used to compare the alternatives:

1. Person-carrying capacity of the roadway system;
2. Increased transit usage islandwide;
3. Reduced traffic congestion; and
4. Improvement to other level of service indicators.

1) Person-Carrying Capacity of the Existing Roadway System

The TSM Alternative and Refined LPA would increase person-carrying capacity by enhancing the level of transit service. Additionally, roadway lanes would become more efficient by reallocating them from general-purpose use to transit or ride-share use. The Refined LPA would provide substantially more person-carrying capacity within the Urban Core than the TSM Alternative, because of its superior level of transit priority.

Table 6.2-2 compares the A.M. peak hour person throughput for selected screenlines within the Urban Core for each of the alternatives. Table 6.2-2 shows that the Refined LPA would improve person-carrying ability within key corridors within the Urban Core by a range of 8 to 18 percent over the No-Build Alternative. To get an equivalent increase in person-carrying capacity through road construction alone, the roadway lanes in the Urban Core would need to be increased by almost two lanes in each direction (four lanes total). This is not feasible without major displacement of existing land uses and the accompanying adverse social and environmental impacts.

TABLE 6.2-1
SUMMARY OF KEY EVALUATION MEASURES

Measures	No-Build	TSM	Refined LPA
CAPITAL AND O&M COSTS			
Total Capital Cost (FY2003-2025) (Millions of 2002 $)	$404.4	$540.8	$954.9-$1,038.2*
Annual Operating and Maintenance Cost at Full System Operation (Millions of 1998 $)	$120.7	$139.8	$151.2
Impact on City Budget (Average Annual Costs for Debt Service and O&M Net of Fare Revenue) FY 2003-2016 (YOE)	$118.3 million	$129.3 million	$146.9 million
MOBILITY			
Daily Transit Trips Within the Primary Transportation Corridor (2025) (Daily Linked Trips)	261,130	279,400	312,570
Increase in Transit Trips Over the No-Build Within the Primary Transportation Corridor (2025)	N.A.	18,270	51,440
Daily Transit Mode Share Within the Primary Transportation Corridor (2025) (Work Trips)	19.2%	19.5%	22.6%
Daily Revenue Bus Miles (2025)	62,560	77,790	84,450
Comfort Level (Passengers Per Transit Seat) (2025)	1.31	1.01	0.90
Daily Reduction in Vehicle Miles of Travel (Compared to No-Build) (2025)	N.A.	1,080	718,530
Daily Reduction in Vehicle Hours of Delay (2025) (Compared to No-Build)	N.A.	13,285	78,080
Projected Transit Travel Time Between Downtown and Kapolei (2025)	83.1 minutes	78.0 minutes	58.2 minutes
Projected Transit Travel Time between Downtown and Waikiki (2025)	24.4 minutes	25.0 minutes	23.1 minutes
Projected Transit Travel Time between Downtown and UH-Manoa (2025)	24.4 minutes	23.3 minutes	22.6 minutes
Projected Transit Travel Time between Downtown and Kalihi (2025)	17.6 minutes	16.3 minutes	13.3 minutes
Typical Levels of Service on In-Town Roads (Transit)	E/F	E/F	B/C
Typical Levels of Service on In-Town Roads (Autos)	E/F	E/F	E/F
New Parking Spaces Provided at Transit Centers/Park-and-Rides	0	2,700	3,620
On-Street Parking Spaces Removed (Unrestricted/Restricted) (U/R)	0	166 (U) / 0 (R)	373 (U) / 533 (R)
Number of Loading Zones to be Mitigated	0	14	24
LAND USE DEVELOPMENT			
Support of transit-oriented development	Not supportive	Somewhat supportive	Most supportive
ECONOMIC IMPACT			
Employment (direct and indirect person-years jobs)	704	1,797	9,418

TABLE 6.2-1 (CONTINUED)
SUMMARY OF KEY EVALUATION MEASURES

Measures	No-Build	TSM	Refined LPA
QUALITY OF LIFE AND LIVABILITY			
In-Town Transit Technology	Diesel Buses	Diesel Buses	Hybrid diesel/electric or EPT for In-Town BRT
Visual Character	No Changes	Development of transit centers provide opportunities to improve the visual environment	Development of transit centers and In-Town BRT stops provide opportunities to improve the visual environment. Sound barrier near future Aloha Stadium Transit Center will cause visual impact.
Noise/Vibration (In-Town)	No or very little perceptible difference from existing conditions	Similar to the No-Build Alternative	Moderate noise impacts at residences from In-Town BRT operations on Dillingham Boulevard, using the hybrid-diesel vehicle. Use of hybrid diesel/electric or electric In-Town BRT vehicles generally less noisy than diesel buses.
Noise/Vibration (Regional)	No Impacts	No Impacts	Moderate noise impacts to nearby residences from increase in bus operations at future Aloha Stadium Transit Center and associated Luapele Ramp.
ENVIRONMENTAL IMPACTS			
Number of Business and Residential Displacements	Loss of four acres of agricultural land.	Loss of four acres of agricultural land.	Removal of two parking spaces at an apartment complex. Displacement of parking stalls, landscaping, and/or driveway effects on 29 businesses. Loss of four acres of agricultural land.

TABLE 6.2-1 (CONTINUED)
SUMMARY OF KEY EVALUATION MEASURES

Measures	No-Build	TSM	Refined LPA
Street Trees	No Impact	No Impact	Some tree trimming will be required. 32 "notable" and 68 non-notable trees will be relocated near their original locations. Roughly 50 other trees will be replaced. No designated exceptional trees will be affected.
Change in Energy Consumption Compared to No-Build (in thousands of barrels of oil)	N/A	35	-215
Historical Resources	No Impacts	No Impacts	Construction of an EPT system may uncover archaeological resources or native-Hawaiian ancestral burial sites along certain segments. In-Town BRT stops located within or near historic districts or properties with high visual integrity have the potential to affect historic characteristics.
Parkland Impacts	Joint-use of Aloha Stadium Kamehameha Highway parking lot as a transit center/park-and-ride	Same as No-Build Alternative	Same as No-Build Alternative
COST-EFFECTIVENESS			
Incremental Cost Per New Rider (compared to No-Build Alternative)	N/A	$6.25	$5.01
EQUITY			
Impacts/benefits to minority or low-income populations	No adverse impacts/ No increased benefits	No adverse impacts/ Some improvement in transit service	No adverse impacts/ Substantial improvement in transit service

Source: Parsons Brinckerhoff, Inc., November 2002.
Note: *If hybrid diesel/electric vehicles are used, the estimated cost is $954.9 million. If EPT vehicles are used, the estimated cost is $1,038.2 million.

TABLE 6.2-2
PROJECTED 2025 A.M. PEAK HOUR PERSON-CARRYING CAPACITY AT SELECTED SCREENLINE LOCATIONS (PERSONS/HOUR)

Screenline Location	Alternative		
	No-Build	TSM	Refined LPA
Ewa-bound at Ward Avenue	21,120	20,600	24,940
Ewa-bound at Punchbowl Street	21,105	20,520	22,865
Koko Head-bound at Liliha Street	24,310	22,825	28,760
Koko Head-bound at Bishop Street	24,665	23,765	27,920

Source: Parsons Brinckerhoff, Inc., October 2002.
Note: Capacity can be increased through using larger vehicles or providing more frequent service.

The TSM Alternative would not improve person-carrying capacity over the Refined LPA.

Transit systems have the additional advantage of being able to provide still further person-carrying capacity and expansion potential. Each In-Town BRT vehicle has an assumed capacity of 120 persons, corresponding to a vehicle with a single articulation joint. Using higher capacity vehicles (bi-articulated vehicles) or a further increase in the BRT frequency service would add more person-carrying capacity, without the need for additional roadway construction. Therefore, the Refined LPA further increases the person-carrying capacity beyond that provided by the No-Build and TSM Alternatives. The Regional and In-Town BRT systems are investments that would efficiently serve growth in travel demand well into the future, beyond the 2025 planning horizon.

2) Increased Transit Usage Islandwide

Transit ridership is trips taken on transit (not counting transfers). The measure "ridership" addresses key goals of increasing the people using transit, decreasing the number using individually driven automobiles, and increasing the patrons paying fares. Higher ridership indicates increased attractiveness of a transit system, otherwise transit patrons would choose another mode. Increased transit ridership amplifies the secondary benefits already enumerated for transit, such as reduced energy consumption, enhanced air quality, and support for desired land use development patterns.

Table 6.2-3 compares total daily transit ridership among the alternatives. The Refined LPA, with the highest level of transit service, is forecast to attract the most transit ridership.

TABLE 6.2-3
RIDERSHIP FORECASTS ISLANDWIDE (FORECAST YEAR 2025)

	No-Build	TSM	Refined LPA
Total Transit Trips (Daily Linked Trips)	261,130	279,400	312,570
New Transit Trips compared with No-Build	Not Applicable	18,270	51,440
New Transit Trips compared with TSM	Not Applicable	Not Applicable	33,170
Transit Mode Share:			
All Trip Purposes	6.6%	6.9%	7.9%
Work Trips	14.7%	15.7%	18.4%

Source: Parsons Brinckerhoff, Inc., October 2002.

Transit mode share is the proportion of total trips taken on the transit system, indicating the contribution of the transit system towards satisfying total travel demand. The higher the transit mode share, the fewer the automobiles that will be on the roads. The Refined LPA would result in increased transit mode share, compared to the other alternatives. As shown in Table 6.2-4, the advantages of improved transit service with the Refined LPA are even more pronounced within the primary transportation corridor, as evidenced by the even higher transit mode split within the corridor compared to islandwide.

TABLE 6.2-4
TRANSIT RIDERSHIP WITHIN THE PRIMARY TRANSPORTATION CORRIDOR
(DAILY LINKED TRIPS IN 2025)

	No-Build	TSM	Refined LPA
Total Transit Trips	202,000	216,130	234,390
Transit Mode Share:			
All Trip Purposes	8.5%	8.7%	10.0%
Work Trips	19.2%	19.5%	22.6%

Source: Parsons Brinckerhoff, Inc., October 2002.

3) Reduced Traffic Congestion

Restoring a balance between automobile, transit, pedestrian and bicycle modes is a prime objective within the primary transportation corridor. Transit improvements would encourage some people to modify their travel behavior by switching from private automobiles to transit, thereby decreasing traffic congestion. Vehicle Miles of Travel (VMT) is a measure of roadway congestion. Higher VMT reflects more vehicle trips made (higher roadway demand and more congestion), and more circuitous travel as drivers "hunt" for less congested routes. The search for less congested routes affects neighborhoods, as streets meant to accommodate local traffic become through traffic routes as drivers seek ways to avoid congestion on major arterial roadways. Table 6.2-5 shows that in 2025, the Refined LPA (which would provide the highest level of transit service) is projected to have the lowest peak period VMT compared to the other alternatives.

TABLE 6.2-5
PROJECTED YEAR 2025 PEAK PERIOD VMT AND VHD

Measure	Time Period	Alternative		
		No-Build	TSM	Refined LPA
VMT	A.M.	5,145,570	5,133,800	4,893,630
	P.M.	5,596,345	5,587,195	5,361,660
	Total Peak	10,741,915	10,720,995	10,255,290
VHD	A.M.	177,750	173,015	145,470
	P.M.	192,890	184,155	156,020
	Total Peak	370,640	357,140	301,760
Vehicle Trips Assigned	A.M.	555,140	554,970	535,040
	P.M.	660,150	660,250	641,125
	Total Peak	1,215,290	1,215,220	1,176,165

Source: Parsons Brinckerhoff, Inc. October 2002.
Notes: VMT = vehicle miles of travel
VHD = vehicle hours of delay

Lower peak period VMT for the Refined LPA reflects increased use of travel modes such as transit as opposed to single-occupant vehicles (SOVs), and less congestion on roadways. This finding is consistent with the fewer vehicle trips projected to occur with the Refined LPA (because there are more transit trips) than with the TSM or No-Build Alternatives.

Another indicator of regional roadway performance is Vehicle Hours of Delay (VHD), which is the difference in hours of travel between that associated with free-flow traffic conditions, and that associated with projected roadway congestion levels (see Table 6.2-5). Lower VHD indicates that the roadway network is handling travel demand more efficiently, with less aggravation and frustration for travelers. The Refined LPA and TSM Alternative are projected to have lower daily VHD than the No-Build Alternative in 2025. While the Refined LPA would provide a greater person-carrying capacity than the TSM or No-Build Alternatives, it would also result in less VHD for motorists than the TSM Alternative since some general-purpose traffic lanes would be converted to provide priority for transit vehicles.

4) Improvement to Other Level of Service Indicators

The ridership forecasting results can be used to compute several other indicators of the level of service provided by each alternative. These measures are presented in Table 6.2-6 and discussed below.

TABLE 6.2-6
OTHER MEASURES OF SERVICE
(FORECAST YEAR 2025)

Measure	No-Build	TSM	Refined LPA
Boardings per Linked Trip (Transfer Rates)	1.29	1.33	1.38
Passenger per Seat at Peak Load Point (Comfort)	1.31	1.01	0.90

Source: Parsons Brinckerhoff, Inc., October 2002.

One level of service indicator is the transfers a typical rider must make to complete a trip. Riders prefer not to transfer, unless transferring produces a shorter total travel time. In Table 6.2-6, the transfers are reflected by the boardings per linked transit trip. The Refined LPA would require the greatest amount of transferring because many riders would access the BRT systems by feeder bus. In the No-Build and TSM Alternatives, more riders would have a one-seat ride from origin to destination. The additional transferring in the Refined LPA would be offset, however, by the more frequent, more comfortable, and more reliable service provided, and in many cases, by a shorter total travel time. The Refined LPA would provide the most travel time savings for transit patrons.

Since transit service in mixed traffic is subject to delays caused by traffic congestion, transit service reliability is correlated to the extent the system utilizes exclusive travel lanes (which would not be affected by the congestion in general purpose lanes). Since the Refined LPA would provide substantially more priority transit lanes, it would offer the most reliable service.

One measure of comfort is the probability of getting a seat on a transit vehicle during the peak hour. As shown in Table 6.2-6, the projected ridership in 2025 will exceed available seats by over 30 percent under the No-Build Alternative. Over 30 percent of all riders would be required to stand, sacrificing comfort and decreasing the attractiveness of travel by transit. Worse, buses would be full and pass by riders waiting at stops in some instances.

The available seats under the TSM Alternative would be about equal to the demand. On an average weekday, there would typically be a seat for every rider, even at the most heavily used parts of the system.

The available seats under the Refined LPA would be slightly greater than the demand, increasing the probability that a rider would find a seat and have a comfortable ride. The availability of surplus seats also reflects the ability of the Refined LPA to accommodate even further increases in ridership growth without having to increase the number of vehicles.

Support Desired Development Patterns

Chapter 5 provides detailed information on the growth-shaping attributes of the alternatives analyzed. The No-Build and TSM Alternatives would not encourage land use development in desired patterns or support implementation of an urban growth strategy that integrates land use and transportation elements.

The Refined LPA would substantially increase the people-carrying capacity within the corridor and help focus growth along the alignment of the In-Town BRT system. Because of the permanency of the fixed facilities that would be constructed under this Alternative, it would be highly effective in supporting implementation of an urban growth strategy that integrates land use and infrastructure planning. It would help facilitate desired land use development patterns consistent with the vision for the island. Transit centers and transit stops would serve as focal points for transit-oriented development and would be designed to maintain or improve visual conditions through cohesively designed structures, street furniture, landscaping and lighting. The Refined LPA would improve the quality of urban living by enhancing transportation service within the Urban Core, and by reducing air and noise emissions in comparison to the diesel buses in the No-Build and TSM Alternatives. Because the Refined LPA would reduce automobile travel, regional air emissions would be less.

Improve the Transportation Linkage Between Kapolei and Honolulu's Urban Core

Improving connections within the primary transportation corridor, including the key linkage between Kapolei and Honolulu's Urban Core, is a principal project goal.

The Refined LPA would provide priority treatments in the H-1 Corridor, which would be used by vehicles with two or more occupants in addition to Regional BRT vehicles. This would enhance the linkage between Kapolei and the Urban Core for all higher occupancy vehicles. The benefits of the P.M. zipper lane, express lanes, and exclusive bus ramps with the Refined LPA are reflected in the reduced travel time for transit riders shown in Table 6.2-7.

TABLE 6.2-7
PROJECTED 2025 TRANSIT TRAVEL TIME FROM DOWNTOWN TO KAPOLEI

	No-Build	TSM	Refined LPA
Travel Time (minutes)	83.1	78.0	58.2

Source: Parsons Brinckerhoff, Inc., October 2002.

Improve the Transportation Linkages Between Communities in the PUC

Another project goal is to improve mobility within the PUC through enhanced transit service. The Refined LPA would attract additional transit riders by improving mobility within the PUC and strengthening the connections between the PUC and the rest of Oahu. This ridership increase reflects the service benefits -- particularly reduced travel time – that such a system would provide in the primary transportation corridor. While the TSM Alternative would achieve some benefits, the benefits of a high capacity BRT system would be substantially greater, especially for travel within the PUC.

As shown by the travel times in Table 6.2-8, due to the provision of exclusive transit lanes, the Refined LPA would provide faster transit travel times (and more reliable service) within the PUC than either the TSM or No-Build Alternatives.

TABLE 6.2-8
PROJECTED 2025 TRANSIT TRAVEL TIME WITHIN THE PRIMARY URBAN CENTER

	No-Build Travel Time (minutes)	TSM Travel Time (minutes)	Refined LPA Travel Time (minutes)
Downtown - Waikiki	25.0	25.0	23.1
Downtown - UH-Manoa	24.4	23.3	22.6
Downtown - Kalihi	17.6	16.3	13.3

Source: Parsons Brinckerhoff, Inc., October 2002.

6.2.2 Impacts of Alternatives

This section summarizes the environmental consequences associated with the alternatives analyzed. Chapter 3 describes the existing environmental conditions and Chapter 5 provides more detailed information on the environmental impacts of the alternatives.

No-Build Alternative

The No-Build Alternative would rely on conventional diesel buses, at least for the immediate future, and continue the present focus on automobiles for transportation. Consequently, congestion would be the worst of any of the alternatives and regional air pollutant emissions would increase about 15-30 percent by 2025. Localized air quality (worst-case 1-hour microscale concentrations) would deteriorate at all six locations studied in the a.m. and three of the six locations studied in the p.m. Noise levels along streets would remain similar to present levels, even with an increase in the number of diesel buses and vehicles, because the vehicles would be moving more slowly ("passby" noise increases with speed).

The No-Build Alternative would not adequately support the purposes and needs of the project. It would not provide a transportation system that would effectively handle present or future levels of travel demand. It would not even maintain current mobility levels. It would not develop attractive travel alternatives to the private automobile, encourage land use development in desired patterns, support implementation of an urban growth strategy that integrates land use and infrastructure planning, nor maintain the existing quality of life. It would only minimally increase the linkage between Kapolei and the Urban Core, and would not improve mobility within the Urban Core. Impacts to ecosystems and visual, historic, water and park resources would generally be limited to localized impacts associated with the construction of roadway and other transportation improvements anticipated over the next 23 years. The No-Build Alternative would not require any business or residential displacements, although it would entail the displacement of four acres of farmland.

Because there would be no new federal construction funds beyond those already expected to be received through formula programs, the No-Build Alternative would produce no additional jobs.

TSM Alternative

Compared to the No-Build Alternative, the TSM Alternative, with its emphasis on enhancing and restructuring bus service, would provide some support to the project's purposes and needs in terms of enhancing people-carrying capacity within the corridor. However, this alternative would not go far in providing an attractive alternative to the private automobile, nor in enhancing desired land use development patterns or the City's urban growth strategy that integrates land use and infrastructure planning. There would be some improvement in the linkage between Kapolei and the Urban Core, but it would not significantly improve mobility within the Urban Core.

Without the implementation of significant transit-oriented infrastructures, transit operation under the TSM Alternative would not be able to maintain current mobility levels. Travel delays would be lengthy, and air pollution emissions would increase about 20 percent as a result of the increased diesel buses and private vehicle congestion associated with the TSM Alternative.

Impacts to neighborhoods, historic resources, ecosystems, noise levels, water resources, and parklands would be similar to those under the No-Build Alternative. The TSM Alternative would entail the displacement of up to four acres of agricultural land. Under the TSM Alternative, approximately 166 unrestricted parking spaces that are currently available during peak and off-peak hours would be eliminated. The TSM Alternative would not affect on-street restricted parking spaces. Fourteen (14) loading zones would be adversely affected.

Since there would be no FTA discretionary (New Starts) funding available for use with the TSM Alternative, there would be no additional jobs created beyond those that would occur with the normal in-flow of federal formula funds to the State.

Refined LPA

The Refined LPA would do the most to better serve existing transit riders and attract people out of their autos. Because the Refined LPA would reduce automobile travel, congestion and regional air emissions would be less. Also, the electric buses that will be used on the In-Town BRT would generally be quieter than conventional diesel buses. The Refined LPA represents a major improvement over the No-Build and TSM Alternatives in meeting the project purposes and needs. It would substantially increase people-carrying capacity within the corridor and help focus growth along the alignment of the In-Town BRT. Higher density redevelopment in a transit-supportive manner, particularly at transit centers and transit stops, would be encouraged. This alternative would be more effective than the TSM and No-Build Alternatives in supporting implementation of an urban growth strategy that integrates land use and infrastructure planning. It would help facilitate desired land use development patterns consistent with the vision for the island.

This alternative would establish transit as an attractive, viable alternative to the automobile. Transit patrons would reap travel time savings. The Refined LPA would cause less motorist delay than either the TSM or No-Build Alternative. The Refined LPA would establish an attractive, high capacity linkage between Kapolei and the Urban Core. It would improve mobility within the Urban Core by improving linkages between key destinations such as Downtown, Kakaako, Kalihi, UH-Manoa, and Waikiki, and would decrease transit travel times between these key destinations.

There would be no relocations of businesses or residents with the Refined LPA, though some partial displacements of driveways, parking, and/or landscaping will be necessary. Parking provided at transit centers and park-and-ride lots would be greater than with the TSM Alternative, as would the loss of on-street parking spaces and loading zones. Impacts on historic resources would be minor.

As part of the Refined LPA, transit centers, transit stops, and other project elements would be designed to maintain or improve visual conditions through cohesively designed structures, street furniture, landscaping and lighting. The quality of urban living would improve. Impacts to ecosystems, and water resources would be similar to that attributable to the No-Build and TSM Alternatives. Some trees will need to be relocated or replaced, but no exceptional trees will be affected.

The construction-phase impacts of the Refined LPA would be greater than those of the TSM Alternative because of the larger scale of construction. Construction impacts would be temporary and detailed mitigation plans will be developed, including a maintenance of traffic plan during the final design phase. The additional federal discretionary funds that would be provided under this alternative would create an estimated 2,787 person-years of new jobs during construction of which 1,106 would be for construction workers.

6.2.3 Cost-Effectiveness and Equity of Alternatives

Capital and operating/maintenance costs are addressed in Chapter 2 and earlier in this chapter. Cost-effectiveness, the measure used by FTA to compare the cost of a transit investment in relation to its ability to attract new riders to transit, is discussed in this section. This section also addresses equity, which is the distribution of costs, impacts and benefits.

Cost-Effectiveness Analysis

Cost-effectiveness relates the ability of an alternative to attract new riders to its costs. The FTA has established a cost-effectiveness index (CEI) for evaluating the relative merits of fixed guideway or transit lane alternatives within a corridor. The FTA also uses the index as input into its rating system, which compares projects across the country, and identifies those most worthy of federal funding. The CEI analysis is used by FTA for comparative purposes. It is not an absolute indicator of costs and benefits because of its narrow focus on projected new ridership. The index measures the additional cost of proposed transit investments, using the cost per additional rider projected under the No-Build and TSM Alternatives as the measure against which the Refined LPA is compared.

The cost-effectiveness analysis translates the capital costs of the alternatives into equivalent uniform annual costs. These uniform annual capital costs reflect assumptions about the economic life of the capital components of each alternative (based on federal guidelines) and the cost of capital (i.e., the discount rate). Uniform annual capital costs are combined with annual O&M expenses and then compared to additional transit patronage to arrive at a CEI for the alternatives.

Because all costs used in the analysis are in constant dollars, the effects of inflation are already taken into account; the discount rate used in the analysis is a "real" discount rate that reflects prevailing interest rates net of the effect of inflation. A real discount rate of 7 percent was used, which is FTA recommended practice.

Assumptions about the effective useful lives of major cost components correspond to the economic lives of the major categories of capital cost. The economic life of heavy construction items, for instance, is assumed to be 50 years, while buses and BRT vehicles are assumed to have a service life of 12 years before needing replacement.

When alternatives are compared using the CEI parameter, the one with the lower cost per new rider represents the more cost-effective alternative. As shown in Tables 6.2-9A and 6.2-9B, compared to the transit ridership that would be achieved with the No-Build Alternative, the incremental cost per new rider for the TSM Alternative is $6.25, which is greater than the cost per new rider for the Refined LPA of $5.01, also compared to the No-Build Alternative. Therefore, the Refined LPA is more cost-effective than the TSM Alternative in increasing transit ridership over the No-Build Alternative. Compared to the transit ridership that would be achieved with the TSM Alternative, the CEI of further boosting transit ridership to the level forecast to occur with the Refined LPA would be $4.52.

Equity/Environmental Justice

Equity is defined as the fairness of the distribution of costs, benefits, and impacts across various population subgroups. Fairness is determined by the extent to which the costs and impacts are distributed in a way that is consistent with regional goals.

TABLE 6.2-9A
FACTORS USED TO DEVELOP FTA COST-EFFECTIVENESS INDEX

Factor	Alternative		
	No-Build	TSM	Refined LPA
Annualized Capital Cost (2002 dollars)	$ 28,760,000	$ 37,910,000	$ 78,400,000
Total Systemwide Annual Operating and Maintenance Cost (2002 dollars)	$ 120,700,000	$ 139,800,000	$ 151,200,000
Total Annualized Cost in Forecast Year (2002 dollars)	$149,460,000	$ 177,710,000	$ 229,600,000
Total Annual Ridership (forecast year)	80,428,040	86,055,200	96,271,560

Source: Parsons Brinckerhoff, Inc., October 2002.

TABLE 6.2-9B
FTA COST-EFFECTIVENESS INDEX

Factor	Comparison		
	TSM vs. No-Build	Refined LPA vs. No-Build	Refined LPA vs. TSM
Incremental Annualized Cost	$ 28,000,000	$80,000,000	$ 52,000,000
Incremental Annual Ridership	6,000,000	16,000,000	10,000,000
Cost-Effectiveness (*incremental cost per new rider*)	$ 6.25	$ 5.01	$ 4.52

Source: Parsons Brinckerhoff, Inc., October 2002.

1) Impact on Low Income Areas

Certain areas within the primary transportation corridor contain concentrations of minority and low-income populations (see Section 5.3 which discusses the project's Environmental Justice compliance in more detail). Input from community residents and business owners serving the minority and low-income populations has been actively solicited throughout project planning through the community based planning program (see Appendix A). None of the alternatives would cause a disproportionately high and adverse health or environmental effect on any population group, including minority and low-income populations. Benefits to these groups would be substantial.

2) Environmental/Socioeconomic Equity and Benefit

An analysis of equity and benefit from an environmental and socioeconomic perspective was developed based on the relative balance between environmental and/or socioeconomic impacts and change in transit accessibility. The Refined LPA would result in improved transit accessibility islandwide relative to the No-Build and TSM Alternatives. The Refined LPA would increase daily transit trips by 19.7 percent over the No-Build Alternative. The Refined LPA is projected to produce a 10.6 percent increase in daily transit trips over the TSM Alternative.

The Refined LPA would provide greater support for desired land use development patterns in comparison to the No-Build and TSM Alternatives.

CORRECTION

THE PRECEDING DOCUMENT(S) HAS BEEN REPHOTOGRAPHED TO ASSURE LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

6.2.3 Cost-Effectiveness and Equity of Alternatives

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Because all costs used in the analysis are in constant dollars, the effects of inflation are already taken into account; the discount rate used in the analysis is a "real" discount rate that reflects prevailing interest rates net of the effect of inflation. A real discount rate of 7 percent was used, which is FTA recommended practice.

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	TSM vs. No-Build	Refined LPA vs. No-Build	Refined LPA vs. TSM
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Incremental Annual Ridership	6,000,000	16,000,000	10,000,000
Cost-Effectiveness (incremental cost per new rider)	$ 6.25	$ 5.01	$ 4.52

Source: Parsons Brinckerhoff, Inc., October 2002.

1) Impact on Low Income Areas

Certain areas within the primary transportation corridor contain concentrations of minority and low-income populations (see Section 5.3 which discusses the project's Environmental Justice compliance in more detail). Input from community residents and business owners serving the minority and low-income populations has been actively solicited throughout project planning through the community based planning program (see Appendix A). None of the alternatives would cause a disproportionately high and adverse health or environmental effect on any population group, including minority and low-income populations. Benefits to these groups would be substantial.

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An analysis of equity and benefit from an environmental and socioeconomic perspective was developed based on the relative balance between environmental and/or socioeconomic impacts and change in transit accessibility. The Refined LPA would result in improved transit accessibility islandwide relative to the No-Build and TSM Alternatives. The Refined LPA would increase daily transit trips by 19.7 percent over the No-Build Alternative. The Refined LPA is projected to produce a 10.6 percent increase in daily transit trips over the TSM Alternative.

The Refined LPA would provide greater support for desired land use development patterns in comparison to the No-Build and TSM Alternatives.

3) Local Financing Options Equity and Burden

Earlier in this chapter the financing plans for the alternatives were discussed. No new local revenue sources or tax increases would be required for any alternative. The City would provide its portion of the local funding with existing City funding lines and General Obligation (GO) bonds. FTA formula and discretionary grants also would be used. Transit related components on State highway facilities would be funded with federal highway funds and a local city match.

No geographic or socioeconomic group would pay a disproportionate share of the project's costs.

6.3 REQUIRED PERMITS AND APPROVALS

Table 6.3-1 lists the permits or approvals that may be required by alternative. On-going permits and approvals are denoted by an asterisk (*) in the table. At this point in project planning, the permit applications have not been completed or submitted to the appropriate agencies. Permit applications will be completed during the project's final design phase.

TABLE 6.3-1
PERMITS POTENTIALLY REQUIRED

PERMIT	ALTERNATIVE		
	No-Build	TSM	Refined LPA
Federal			
U.S. Environmental Protection Agency Section 1424(e) Approval (Sole Source Aquifer)	X	X	X*
U.S. Department of Transportation Notice of Proposed Construction Near Airports			X
U.S. Department of Transportation FHWA Approval of Modifications Within Limits of Interstate Highways			X
U.S. Army Corps of Engineers – Clean Water Act Section 404 permit (Nationwide)			X
State			
State Department of Land and Natural Resources, National Historic Preservation Act, Section 106 and HRS Chapter 6E review	X	X	X*
Hawaii Community Development Authority – Kakaako			X
State Department of Transportation Permit to Perform Work Upon a State Highway			X
Hawaii Coastal Zone Management Program – Federal Consistency Determination	X	X	X*
State Department of Health Noise Permit	X	X	X
National Pollutant Discharge Elimination System (NPDES) Permit	X	X	X
Disability and Communication Access Board Approval		X	X

TABLE 6.3-1 (CONTINUED)
PERMITS POTENTIALLY REQUIRED

PERMIT	ALTERNATIVE		
	No-Build	TSM	Refined LPA
County			
Development Plan Public Facilities Map Amendment			X*
Special Design District Permit			X
Zoning Waivers for Public Uses, Public Utilities and Walls			X
Sewer Connection Permits	X	X	X
Water and Water System Requirements for Developments		X	X
Building Permit		X	X
Certificate of Occupancy		X	X
Combustible and Flammable Liquids Tank Installation		X	X
Liquefied Petroleum Gases Permit		X	X
Development Application in Flood Hazard Districts			X
Special Management Area Use Permit			X
Construction Dewatering Permit (Temporary)	X	X	X
Grubbing, Grading, Excavation, and Stockpiling Permit		X	X
Street Tree Review	X	X	X
Trenching Permits		X	X
Street Usage Permit	X	X	X
Discharge of Water Permit	X	X	X

Source: Parsons Brinckerhoff, Inc., November 2002.
Note: * = On-going permits or approvals.

Chapter 7.0

Comments and Responses (Separate) Volume 2

CHAPTER 7 COMMENTS AND RESPONSES

Chapter 7 is published under separate cover as Volume 2.

Appendix A
Coordination and Consultation

APPENDIX A
COORDINATION AND CONSULTATION

This appendix summarizes the public and agency coordination and consultation activities that have been conducted for the Primary Corridor Transportation Project (PCTP) throughout the MIS/DEIS, SDEIS, and FEIS processes. Exhibits A-1 through A-5 include comment letters and responses regarding the EISPN and NOI, SDEISPN and NOI, and agency correspondence.

A.1 PUBLIC WORKSHOPS PRIOR TO THE MIS/DEIS

Public participation activities for the Primary Corridor Transportation Project started with gathering public input to create and refine the Islandwide Mobility Concept Plan (March 1999) (Mobility Plan). From September 1998 through November 1999, rounds of public workshops were held throughout Oahu. These workshops were called Oahu Trans.2K meetings. Each round served a different purpose. The meetings were well advertised, highly participatory, and structured to facilitate public input into the transportation planning process. Total attendance at these four rounds of meetings was over 1,250 individuals (with many attending more than one meeting), and the project mailing list included over 9,000 names.

A project website, <www.oahutrans2k.com>, was established and used to disseminate information. Public input received through the website was tabulated and distributed to agency and project planners. A project hotline was established, which provided information on the public workshops, and solicited public input. Comments received on the hotline were recorded and answered. A brochure was distributed at the public workshops with a tear card for public comments.

A.1.1 Round One Public Workshops

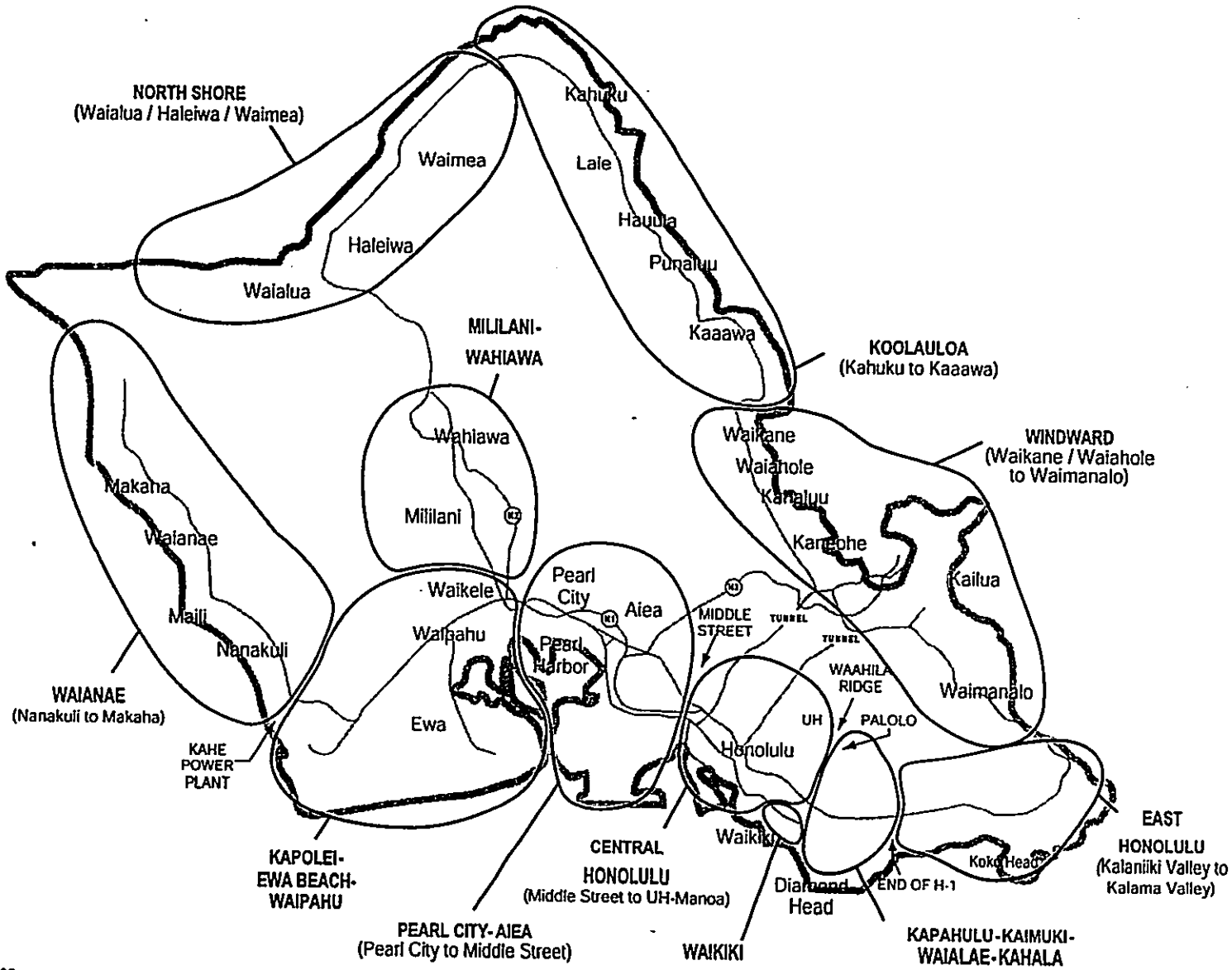
Round One was held in early fall 1998. For this round, Oahu was divided into 11 transportation planning zones (see Figure A.1-1). One workshop was held in each zone according to the schedule in Table A.1-1.

TABLE A.1-1
ROUND ONE SCHEDULE

Transportation Zone	Date	Location
Central Honolulu	September 28, 1998	Ala Moana Hotel
Pearl City-Aiea	September 29, 1998	Aiea High School
East Honolulu	September 30, 1998	Koko Head Elementary
Kapahulu-Kaimuki-Waialae-Kahala	October 1, 1998	Kahala Elementary
Waianae	October 5, 1998	Waianae High School
Kapolei-Ewa Beach-Waipahu	October 6, 1998	Campbell High School
Koolauloa	October 7, 1998	Laie Elementary
Windward	October 8, 1998	Castle High School
North Shore	October 13, 1998	Haleiwa Elementary
Mililani-Wahiawa	October 14, 1998	Mililani High School
Waikiki	November 5, 1998	Jefferson Elementary School

Source: City and County of Honolulu, Department of Transportation Services.

The purpose of Round One was to obtain input from the community on issues of greatest importance to them. Participants actively participate in the transportation planning process. The input from these workshops was used to:



SOURCE:
City & County of Honolulu, 2002.

N

Scale: 0 2 4 mi

Transportation Zones

Figure A.1-1

1. Develop a transportation vision for Oahu;
2. Determine how transportation fits within the Mayor's 21st Century Oahu Vision project;
3. Verify possible transportation improvements and projects for each transportation project zone;
4. Invite participants to share transportation ideas for their community, region and the island; and
5. Provide participants an opportunity to collectively mark down their ideas on a map.

The Round One workshops consisted of an open house, group table design sessions, and group report-back. The open house portion of the program consisted of booths providing information on current SDOT and DTS transportation programs. The SDOT booths included freeway management and ride share programs. The DTS booths included bike plan and traffic calming programs. Other booths showed Federal Transit Administration videos about transit in Portland, Oregon and Curitiba, Brazil, and information about the Primary Corridor Transportation project. The booths remained open throughout the workshop.

The workshop opened with an introductory video specifically produced for the Round One workshops. After that was the interactive portion of the program. Participants joined breakout sessions of about ten people each. A facilitator, whose job was to encourage participation and comments, and help move the process from complaints to proactive suggestions, led each breakout table. The breakout tables were organized by neighborhoods.

Following the interactive session, a spokesperson selected by each breakout group reported back to the larger group.

The comments from the Round One workshops were analyzed, and used to develop a Draft Mobility Plan.

A.1.2 Round Two Public Workshops

The Round Two workshops were conducted over a four-week period from November 16, 1998 to December 8, 1998 (see Table A.1-2). The schedule was designed so that at least a month would have passed between a Round One workshop and a Round Two workshop in a particular zone.

TABLE A.1-2
ROUND TWO SCHEDULE

Transportation Zone	Date	Location
Central Honolulu	November 16, 1998	Ala Moana Hotel
Kapahulu-Kaimuki-Waialae-Kahala	November 18, 1998	Kaimuki Intermediate School
East Honolulu	November 19, 1998	Kalani High School
Waianae	November 23, 1998	Waianae High School
Kapolei-Ewa Beach-Waipahu	November 24, 1998	Waipahu Intermediate School
Koolauloa	November 30, 1998	Kahuku High School
Windward	December 1, 1998	Castle High School
North Shore	December 2, 1998	Waialua High School
Mililani-Wahiawa	December 3, 1998	Leilehua High School
Pearl City-Aiea	December 7, 1998	Pearl City High School
Waikiki	December 8, 1998	Jefferson Elementary School

Source: City and County of Honolulu, Department of Transportation Services.

The Round Two workshops reported the results of the Round One workshops, and how the ideas collected fit together to make a Draft Mobility Plan. The Round Two workshops were also used to obtain feedback on certain elements of the Draft Mobility Plan. To accomplish this, the Round Two workshops were designed to:

1. Describe the Round One workshop process;
2. Describe the data analysis effort and how the mobility concepts were generated;
3. Outline changes to suggested transportation improvements and projects based on Round One input;
4. Explain how ideas generated by each zone fit together into a Draft Mobility Plan;
5. Maintain a climate of interaction and positive dialogue;
6. Solicit additional input on transportation improvements and projects; and
7. Organize feedback for ease of review by the technical team.

To accomplish these goals, a custom-designed workbook was created for each zone. These workbooks contained maps and text outlining islandwide mobility concepts, along with exercises and questions designed to stimulate group interaction during participatory table sessions.

The Round Two program was similar in format to Round One, but included new materials. It began with a shorter open house portion and a new five-minute introductory video. The open house included new display boards outlining the 21st Century Oahu Vision Program, the data analysis process, and the Draft Mobility Plan. A laptop computer was available to introduce participants to the project website, <www.oahutrans2k.com>.

The interactive part of the program consisted of breakout sessions organized by neighborhoods, with participants completing the workbook exercises. Facilitators helped explain the concepts and group exercises. As in Round One, participants were encouraged to write down their ideas and mark up the workbooks.

Fifty-nine marked-up workbooks were produced during the Round Two workshops. The comments on these workbooks were used to refine the Draft Mobility Plan and produce a final plan.

A.1.3 Round Three Public Workshops

The Round Three meetings served primarily as a 'report-back' session, targeting the attendees of the Rounds One and Two Oahu Trans 2K meetings, as well as participants in the 21st Century Oahu Vision Program team members who were by then 6-7 months into the Vision Process. Since the Primary Corridor Transportation Project was part of the 21st Century Vision program, the Round Three meetings were conducted in the 19 vision team districts across Oahu, as opposed to the 11 transportation districts that formed the basis of the Rounds One and Two meetings (see Table A.1-3).

Round Three meetings had multiple objectives, including:

1. Present and distribute the Final Islandwide Mobility Concept Plan (March 1999) (Final Mobility Plan), a document based on the ideas from Rounds One and Two;
2. Explain the components of the Final Mobility Plan and how they coordinate;
3. Explain the transit alternatives being proposed for study in the upcoming MIS/EIS process;
4. Invite active participation in the upcoming formal scoping meeting that would kick off the MIS/EIS process; and
5. Obtain feedback on the components of the Final Mobility Plan.

Since the Round Three meetings were combined with meetings of the vision teams, meeting agendas varied to address issues relevant to each vision team. Presentation boards were displayed showing the proposed transit alternatives, the Final Mobility Plan, and the Sand Island Scenic Parkway/Nimitz Parkway plan. Most participants were supportive of and encouraged by the comprehensive nature of the Final Mobility Plan.

TABLE A.1-3
ROUND THREE SCHEDULE

Vision Team	Date	Location
Aina Haina/ Hawaii Kai	March 25,1999	Hahaione Elementary School
Makiki/McCully-Moiliili/Manoa	March 27, 1999	Ala Wai School
Ewa/Kapolei	March 29, 1999	Ewa Beach Elementary School
Mililani	March 30, 1999	Mililani District Park Multi-Purpose Room
Waipahu	April 1, 1999	Waipahu YMCA
Waialae-Kahala	April 5, 1999	Kapiolani Community College
Waimanalo	April 6, 1999	Waimanalo District Park Multi-Purpose Room
Kaneohe/Kahaluu	April 8, 1996	Kaneohe Senior Center
Kalihi-Palama	April 10, 1999	Mayor's Conference Room
Salt Lake/Moanalua	April 12, 1999	Alvah Scott Elementary School
Ala Moana/Kakaako/ Chinatown/Downtown	April 13, 1999	Blaisdell Center Oahu Room
Waikiki/Kapahulu/ Diamond Head	April 15, 1999	Ala Wai Golf Course Clubhouse
Nuuanu/Alewa	April 17, 1999	Mayor's Conference Room
Kailua	April 19, 1999	Kailua District Park Multi-Purpose Room
Waianae	April 20, 1999	Waianae District Park Multi-Purpose Building
North Shore	April 22, 1999	Haleiwa Alii Surf Center
Aiea/Pearl City	April 23, 1999	Waiau District Park
Wahiawa	April 26, 1999	Wahiawa District Park Recreation Center
Koolau Loa	April 27, 1999	Kahuku High School

Source: City and County of Honolulu, Department of Transportation Services.

A.1.4 Round Four Public Workshops

The Round Four meetings were held in the original 11 transportation zones, except East Honolulu was combined with Kapahulu-Kaimuki-Waialae-Kahala, decreasing the number of meetings to ten. Meetings were held over a three-week period from October 25, 1999 to November 9, 1999 (see Table A.1-4). Invitation letters and advertisements encouraged participants to review the Final Mobility Plan prior to attending the meetings.

TABLE A.1-4
ROUND FOUR SCHEDULE

Transportation Zone	Date	Location
Honolulu	October 25, 1999.	Washington Intermediate School
Waikiki	October 26, 1999	Jefferson Elementary School
Pearl City/Aiea/Salt Lake	October 27, 1999	Aiea Elementary School
Kaimuki/Kapahulu/ Waialae/Kahala & East Honolulu	October 28, 1999	Kaimuki Intermediate School
Waianae	November 1, 1999	Waianae District Park
Kapolei/Ewa/Waipahu	November 2, 1999	James Campbell Building
Windward	November 3, 1999	Castle High School
Mililani/Wahiawa	November 4, 1999	Mililani Middle School
North Shore	November 8, 1999	Waialua Elementary School
Koolau Loa	November 9, 1999	Laie Elementary School

Source: City and County of Honolulu, Department of Transportation Services.

The objectives of Round Four included:

1. Present an update of the project and explain the components of the transit program as reported in the Detailed Progress Report to City Council (November 1999);
2. Explain the Sand Island Scenic Parkway element of the project;
3. Review the financial plan of the project;
4. Review the project schedule; and
5. Provide participants the opportunity to question or comment on aspects of the project.

The Detailed Progress Report was well received by the meeting participants. Most of the questions and comments involved details of the In-town BRT.

A.2 FORMAL SCOPING ACTIVITIES PRIOR TO THE MIS/DEIS

The project's formal scoping process was initiated in March 1999, following completion and distribution of the final Islandwide Mobility Concept Plan (IMCP) (March 1999). Meetings were held with more than 100 governmental agencies, elected officials, businesses, and business, community and civic organizations to present the elements of the final IMCP and gather information and comments. Table A.2-1 lists scoping meetings held prior to the MIS/DEIS.

In accordance with the IMCP and Chapter 343 (the State EIS law) of the Hawaii Revised Statutes, an Environmental Impact Statement Preparation Notice (EISPN) for the Primary Corridor Transportation Project was published in the April 23, 1999 edition of the State Environmental Notice. Because this project anticipated using federal-aid, the Federal Transit Administration published a Notice of Intent to Prepare an EIS (NOI) in the April 27, 1999 edition of the Federal Register. The EISPN stated that an EIS would be prepared, described the alternatives under consideration at that time, and described the environmental studies to be conducted to evaluate the project alternatives in the DEIS. The EISPN was distributed to the federal, State and City and County of Honolulu agencies in Table A.2-2. In addition, the EISPN was sent to utility companies; transportation, business, environmental and neighborhood organizations; and elected officials.

The public review period for the EISPN and NOI closed on May 28, 1999, more than two weeks after the public scoping meeting. However, written comments were accepted by DTS beyond this review period. Table A.2-2 indicates the agencies, organizations and individuals that submitted written comments on the EISPN and NOI. Letters received in response to the EISPN and NOI are reproduced in Exhibit A-1, and Table A.2-3 summarizes these written comments. Responses were mailed to the commentors. Copies of these letters are also in Exhibit A-1.

An agency information meeting was held on March 11, 1999 to brief government agencies on the project, and to solicit relevant project information and agency concerns. The EISPN recipients shown on Table A.2-2 were invited to this meeting. The comments provided by the agencies that attended the meeting are summarized in Table A.2-4. The summaries on Table A.2-4 are meant to be brief, with no intention of obscuring the content of any comment received. The comments are followed by a written response.

A public scoping meeting was held on May 11, 1999 to invite public comment on the purpose of and need for the project, the alternatives under consideration and the environmental studies to be conducted. Following the presentation, oral comments were recorded and written comments were accepted. Table A.2-4 provide summaries of these comments. Additional comments were mailed to DTS after the scoping meeting and are also included in Table A.2-4. To reiterate, the summaries on Table A.2-4 are meant to be brief, with no intention of obscuring the content of any comment received. The comments are followed by a written response.

The EISPN and NOI included a Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP) Alternative. Based on input gathered during Rounds 3 and 4 of the Oahu Trans 2K meetings and agency consultation prior to the issuance of the MIS/DEIS, it was decided to move the Sand Island Scenic Parkway element forward apart from the transit alternatives. Agencies, stakeholders, and the public were informed of this change through letters and project Progress Reports (newsletters).

TABLE A.2-1
PROJECT SCOPING AND COORDINATION MEETINGS

Date	Organization or Agency	Date	Organization or Agency
January 13, 1999	Kalihi Business Association	February 1, 1999	Kalihi Community Council
March 17, 1999	OMPO CAC	March 18, 1999	Mobility Coalition Working Group
March 23, 1999	Outreach Breakfast Group w/Prof. Fielding	March 25, 1999	State Department of Transportation (HDOT), Harbors Division
April 5, 1999	City Council Transportation Committee	April 9, 1999	Hawaii Community Development Authority
April 8, 1999	Estate of James Campbell	April 8, 1999	State Department of Land and Natural Resources (DLNR), Historic Preservation Division
April 12, 1999	Federal Highway Administration (FHWA)	April 13, 1999	Presentation by Mayor to small business group at Oahu Country Club
April 14, 1999	State Department of Health (SDOH), Noise Branch	April 14, 1999	Maritime Subcommittee of the Hawaii Chamber of Commerce
April 16, 1999	DURP Students/Faculty	April 20, 1999	Senator Inouye's Office
April 22, 1999	DLNR	April 26, 1999	U.S. Army Corps of Engineers (USACE)
April 27, 1999	SDOT Highways Division and FHWA	April 28, 1999	DLNR
April 28, 1999	Hawaii Transportation Association	April 30, 1999	Cement and Concrete products Industry
May 6, 1999	Downtown Neighborhood Board No. 13	May 7, 1999	SDOT Highways Division
May 10, 1999	State Senator Cal Kawamoto	May 12, 1999	Mobility Coalition
May 17, 1999	*OMPO Policy Committee*	May 18, 1999	*State Senator Norman Sakamoto*
May 19, 1999	Mobility Coalition Working Group	May 20, 1999	Campbell Estate
May 27, 1999	State Department of Business, Economic Development and Foreign Trade Zone No. 9	June 4, 1999	US Coast Guard
June 8, 1999	Airport Group International	June 9, 1999	Chevron USA
June 10, 1999	Hawaii Stevedores, Inc.	June 15, 1999	Joint Waikiki Transportation Committee
June 15, 1999	US Department of Army	June 15, 1999	Prof. Karl Kim, University of Hawaii Department of Urban and Regional Planning
June 16, 1999	Malama o Manoa	June 16, 1999	City and County of Honolulu, Transportation Commission
June 16, 1999	Inchscape Shipping Services	June 17, 1999	DLNR Historic Preservation Division
June 17, 1999	Hawaii Pilots Association	June 21, 1999	Sand Island Business Association
June 29, 1999	U.S. Department of Navy	June 30, 1999	McCabe, Hamilton & Renny, Co., Ltd.
July 6, 1999	Atlantis Adventures	July 12, 1999	Sierra Club and local environmental organizations
July 7, 1999	Congressman Neil Abercrombie	July 13, 1999	DLNR
July 19, 1999	Young Brothers, Limited	July 21, 1999	Building and labor organizations
July 26, 1999	Waldren Steamship Company	July 29, 1999	Hawaii Business Roundtable and Oahu Economic Development Board
July 28, 1999	Aloha Cargo Transport	August 2, 1999	Tesoro, Ltd.
August 3, 1999	City and County of Honolulu, Department Design and Construction	August 4, 1999	USACE and the SDOT Harbors Division

TABLE A.2-1 (CONTINUED)
PROJECT SCOPING AND COORDINATION MEETINGS

Date	Organization or Agency	Date	Organization or Agency
August 6, 1999	City and County of Honolulu, Department of Environmental Services	August 12, 1999	Resource Agencies (U.S. Environmental Protection Agency, National Marine Fisheries Service, USACE, SDOH, DLNR)
August 13, 1999	HDOT Highways Division	August 17, 1999	Filipino community group
August 17, 1999	City and County of Honolulu, Board of Water Supply	August 18, 1999	State House of Representatives, Transportation Committee
August 23, 1999	HDOT Harbors Division	August 24, 1999	Hawaii Hotel Association
August 24, 1999	SDOT Highways Division	August 26, 1999	Land Use Research Foundation
August 27, 1999	SDOT Highways Division	August 27, 1999	Hawaii Transportation Association
September 1, 1999	SDOT Highways Division	September 1, 1999	Senator Inouye and Mayor
September 3, 1999	Jacob Kamhis, Pacific Business News	September 9, 1999	Nautilus Subsea Adventures, Inc.
September 30, 1999	Waikiki Improvement Association's Board of Directors	October 13, 1999	Kalihi Business Association
October 27, 1999	Chinatown Task Force	November 3, 1999	Department Design and Construction
November 3, 1999	Sand Island Businesses	November 3, 1999	Department of Planning and Permitting
November 5, 1999	Mortgage Investors	November 8, 1999	GasCo
November 10, 1999	City Council Transportation Committee	November 10, 1999	Congressional Staff: Aaron Leong (Senator Inouye's Office), Alan Yamamoto (Representative Abercrombe's Office), Mike Kitamura (Senator Akaka's Office), Joan Menke (Representative Mink's Office)
November 15, 1999	Governor Cayetano	November 16, 1999	Oceanic Cable
November 16, 1999	Advertiser and Star-Bulletin Board	November 18, 1999	Oahu Transit Services
November 19, 1999	Committee for Accessible Transportation	November 22, 1999	Mayor's Maritime Task Force
November 24, 1999	Mobility Coalition Working Group	November 29, 1999	Iwilei Business Association
December 2, 1999	DLNR	December 2, 1999	Downtown Neighborhood Board No. 13
December 3, 1999	Neil Abercrombie	December 3, 1999	Campbell Estate
December 8, 1999	Aloha Stadium	December 10, 1999	Suzanne Chun Oakland
December 15, 1999	Native Hawaiian Fishermen's Association	December 13, 1999	Hawaiian Dredging
January 4, 2000	Mayor's Maritime Task Force	January 5, 2000	Moanalua Lions
January 6, 2000	Consulting Engineers Council of Hawaii	January 11, 2000	Army Civilian Engineers
January 13, 2000	Senator Inouye's Staff: Jennifer Sabas and Margaret Cumminsky (Legislative Director)	January 21, 2000	Waikiki Ohana Workforce
January 25, 2000	City Council Transportation Committee	February 2, 2000	City Council Transportation Committee
February 16, 2000	Oahu Metropolitan Planning Commission -- Citizen's Advisory Committee	February 17, 2000	Meeting with Wally Burnett, Appropriations Committee, Majority Staff, and Aaron Leong, Senator Inouye's staff
February 17, 2000	Waialae Kahala Neighborhood Board Meeting	February 23, 2000	City Council Transportation Committee
March 3, 2000	HCDA	March 6, 2000	Hawaiian Electric Company
March 6, 2000	DLNR	March 7, 2000	Waikiki Ohana Workforce (WOW) Executive Committee

TABLE A.2-1 (CONTINUED)
PROJECT SCOPING AND COORDINATION MEETINGS

Date	Organization or Agency	Date	Organization or Agency
March 9, 2000	Eileen Mortenson, State Director, AARP	March 11, 2000	Vision Teams (19) at Hawaii Convention Center
March 21, 2000	Oahu Fleet Safety Organization	March 21, 2000	Waikiki Neighborhood Board
April 5, 2000	Waikiki Ohana Workforce Focus Group #1 (hotel employees)	April 7, 2000	Kalihi District Park - Meals on Wheels Senior Citizen group
April 10, 2000	Palama Settlement - Senior Citizens group	April 13, 2000	Mayor's Maritime Task Force
April 16, 2000	Mayor, Rep. Hiraki, Sen. Bunda, and Councilmember Duke Bainum	April 17, 2000	PCTP presentation for delegation from Socialist Democratic Party of Germany
April 18, 2000	SDOT - Financial Plan	April 20, 2000	American Society of Civil Engineers
April 20, 2000	General Kenneth R. Wykle, Administrator, Federal Highway Administration	April 24, 2000	Arcadia Retirement Residence
April 26, 2000	Waikiki Ohana Workforce Focus Group #2 (hotel employees)	April 26, 2000	Representative Neil Abercrombe's staff
May 3, 2000	Chamber of Commerce Maritime Committee	May 10, 2000	Kulana Hale (senior citizens residence
May 15, 2000	Wahiawa Rainbow Club	May 15, 2000	Lanakila Senior Citizens
May 24, 2000	One Kalakaua (senior citizens residence)	May 26, 2000	Iwilei Business Community Association
April 27, 2000	SDOT - In-Town BRT	May 30, 2000	National Association of Retired Federal Employees
May 31, 2000	Congressional Delegation staff	June 5, 2000	City Department Brown Bag presentation

Source: *Parsons Brinckerhoff, Inc.*

TABLE A.2-2
EISPN RECIPIENTS AND COMMENTORS

Agency or Organization	Received Copy of EISPN	Date of Comment Letter
FEDERAL AGENCIES		
Department of Agriculture, Natural Resources Conservation Service	O	May 6, 1999
Department of Defense		
Army Corps of Engineers	O	
U.S. Naval Base Pearl Harbor	O	May 26, 1999
U.S. Army Garrison-Hawaii	O	
15th CES – Hickam AFB	O	
Department of the Interior		
U.S. Fish & Wildlife Service	O	May 24, 1999
U.S. Geological Survey	O	May 5, 1999
National Park Service	O	
Department of Transportation		
Federal Highway Administration[1]	O	June 14, 1999
Federal Transit Administration	O	
Federal Aviation Administration	O	May 5, 1999
Coast Guard	O	
Environmental Protection Agency	O	
Federal Emergency Management Agency	O	
STATE OF HAWAII AGENCIES		
Aloha Tower Development Corporation	O	
Department of Accounting and General Services	O	
Department of Agriculture	O	
Department of Business, Economic Development & Tourism	O	
Energy, Resources & Technology Division	O	
Land Use Commission	O	April 29, 1999
Office of Planning	O	May 24, 1999
Department of Defense	O	June 24, 1999
Department of Education	O	May 6, 1999
Main Library and all libraries within the corridor	O	May 24, 1999
Department of Hawaiian Home Lands	O	
Department of Health	O	May 26, 1999
Clean Water Branch	O	
Clean Air Branch	O	
Solid and Hazardous Waste Branch	O	
Noise and Radiation Branch	O	
Department of Land and Natural Resources	O	
Commission on Water Resource Management	O	May 3, 1999
Historic Preservation Division	O	May 4, 1999 and June 3, 1999
Land Division	O	May 20, 1999
Parks Division	O	
Department of Transportation		
Airports Division	O	May 18, 1999
Harbors Division	O	May 6, 1999
Highways Division	O	June 9, 1999

TABLE A.2-2 (CONTINUED)
EISPN RECIPIENTS AND COMMENTORS

Agency or Organization	Received Copy of EISPN	Date of Comment Letter
Hawaii Community Development Authority	O	
Legislative Reference Bureau	O	
Office of Environmental Quality Control	O	May 13, 1999
Office of Hawaiian Affairs	O	May 28, 1999
University of Hawaii		
Environmental Center	O	
Water Resources Research Center	O	
Facilities Planning and Management Office	O	
Hamilton Library	O	
CITY AND COUNTY OF HONOLULU AGENCIES		
Board of Water Supply	O	May 13, 1999
Department of Design and Construction	O	
Department of Environmental Services	O	April 30, 1999
Department of Parks and Recreation	O	May 24, 1999
Department of Planning and Permitting	O	May 26, 1999
Fire Department	O	May 13, 1999
Honolulu Municipal Reference and Records Center	O	
Police Department	O	May 18, 1999
OTHER INDIVIDUALS AND ORGANIZATIONS		
Hawaii Bicycling League	O	May 24, 1999
Hawaiian Electric Company	O	
Verizon Hawaii	O	
Leeward Oahu Transportation Management Association	O	May 24, 1999
Life of the Land	O	May 22, 1999
Oahu Metropolitan Planning Organization	O	May 24, 1999
The Outdoor Circle	O	May 18, 1999
The Gas Company	O	
Douglas Meller		May 24, 1999
Patricia Tummons		May 3, 1999
Decision Analysts Hawaii[2]		June 8, 1999

Source: City and County of Honolulu, Department of Transportation Services, June 1999.
Note: Business, environmental and neighborhood organizations, elected officials, and news media who received copies of the EISPN are not indicated on this table if they did not submit comments.
[1] Comment letter from Federal Highway Administration was in response to a May 5, 1999 letter from the Federal Transit Administration, requesting that the FHWA elect to be a cooperating agency on the Primary Corridor Transportation Project (PCTP).
[2] Comment letter from Decision Analysts Hawaii was in response to the Islandwide Mobility Concept Plan (March 1999).

TABLE A.2-3
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE EISPN AND NOI AS OF JUNE 14, 1999
(RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-1)

Name	Organization	Comment
FEDERAL AGENCIES		
Daniel Matsumoto	USDOT, FAA	No comments. Request to be included in scoping process because proposed project is adjacent to airport.
Kenneth Kaneshiro	USDA, Natural Resources Conservation Service	None
William Meyer	USGS, Water Resources Division	None
Robert Smith	USFWS	Endangered bat, waterbird, and plant species within project limits; plant species of concern in Ewa area; recommend avoiding unnecessary destruction of vegetated areas containing species Should address impacts and propose mitigation
C. K. Yokota	Department of the Navy, Pearl Harbor	None
Abraham Wong	FHWA	Preparation of the DEIS/MIS must be coordinated with OMPO Assumptions and data in DEIS must match OMPO's and those in ORTP Cost for alternatives must be determined on a regional basis LPA must be included in ORTP update or amendment Funds must be reasonably available and project must be considered with respect to other transportation priorities Tradeoffs between priority projects must be presented to stakeholders and public Highway options and all other reasonable alternatives should be included in MIS HDOT and OMPO should ensure that the study includes multi-modal alternatives that support their transportation plans for the corridor
STATE AGENCIES		
Esther Ueda	DBEDT, Land Use Commission	Include map of project areas in relation to State land use districts – project areas are designated within State Land Use Urban and Agricultural districts
Edwin Sakoda	DLNR, Commission on Water Resource Management	Stream channel alteration permits (SCAP) needed Avoid adverse impacts on streams and disclose impacts as much as possible
Thomas Fujikawa	SDOT Harbors Division	Traffic studies associated with Sand Island needed especially at interchanges Several permits required, including those requiring BLNR approval Time required for permitting process may impact Harbors Division tenants Coordinate with HCDA Need more detailed plans for impacts to sewer lines Harbor operations could be disrupted during construction Coordinate with DLNR on Sand Island Access Road maintenance issues Coordinate with Sand Island Business Association – container yard impacts and land impacts may require amendment of several subleases and General Lease from Harbors Division

TABLE A.2-3 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE EISPN AND NOI AS OF JUNE 14, 1999
(RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-1)

Name	Organization	Comment
STATE AGENCIES (CONTINUED)		
Thomas Fujikawa (continued)	SDOT Harbors Division	Impacts to Harbor facilities; traffic flow may affect Harbors Division and shipping lanes Coordinate with Harbors Division
Paul LeMahieu	State of Hawaii Department of Education	None
Genevieve Salmonson	OEQC	Format issues – two-sided, acronym list, color figures Include close-up neighborhood maps Endangered species – need detail and mitigation Summarize Trans2K meetings Discuss secondary impacts Mitigation measures in State final EIS must be implemented also
Don Hibbard	DLNR, Historic Preservation	Historic sites and issues – Section 106 and 4(f) treatments necessary Supply information to SHPD, then SHPD will be able to advise better on sites, significance, adverse-effect determinations, and needed mitigation Acknowledges intent to consult with OHA on Traditional/Cultural Properties Use SHPD's or City and County's GIS for historic sites locations Understands need for further work on area of potential effect (APE)
Kazu Hayashida	SDOT Airports Division	Integration with Honolulu International Airport plans/ traffic on airport access roads Suggested coordinating with Airports Division Impacts possible on Honolulu International Airport and existing utilities
Kazu Hayashida	SDOT Highways Division	Identify "stand-alone" components of Alternatives Need two Enhanced Bus/TSM Alternatives – one using city Buses, other using chartered/subsidized buses and ferries for peak periods Clarify proposed "local street bus priority measures" Address potential conflict with signal pre-emption by emergency vehicles Describe and justify project in existing Highway ROW based on benefits, costs, traffic impacts, operational requirements, and safety How will Sand Island Bypass and narrowing Nimitz affect vehicular access and harbor operations in Kewalo Basin and Honolulu Harbor? Need to preserve bicycle routes and safety What are assumptions about effect of travel time and fares on transit use (peak and off-peak)? Use constant transit fares when evaluating alternatives Compare alternatives based on following: peak/off-peak travel times of transit and private vehicles; loss of vehicular capacity; cumulative effects on traffic congestion; cumulative effects on peak vehicular trips and person-trips; transit costs not covered by fares and FTA grants; transit use by low income and elderly; land use and demographic impacts; impacts on Airport and utilities

TABLE A.2-3 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE EISPN AND NOI AS OF JUNE 14, 1999
(RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-1)

Name	Organization	Comment
STATE AGENCIES (CONTINUED)		
Kazu Hayashida (continued)	SDOT Highways Division	Consult Highways Division on improvements in highway ROW Include Highway Alternative Please send 10 copies in future
Dean Uchida	DLNR, Land Division	Improvements in flood zone should be designed with LUO Tenants on State lands should be involved in planning Suggested coordination with other agencies – SHPD, Parks, CWRM
Keith Fujio	DOE, State Library	None
Gary Gill	Department of Health	Address noise and fugitive dust during construction
David Blane	DBEDT, Office of Planning	Need comparison of ridership relative to cost projections, considering population and economic growth Identify costs of self-sustaining or subsidized bus/light rail system Consider multi-modal options, *i.e.* Bike and ferry alternatives Sand Island/Nimitz could include bike/ferry system Note wetlands in vicinity of Sand Island (map included) BMP for non-point source pollution should be discussed Consider TDM policies (reduce parking, use tolls, land use policies) Need for park-and-rides and other support facilities for transit in residential areas Redevelopment potential around transit stops
C. Sebastian Aloot	Office of Hawaiian Affairs	Need detailed archaeological/cultural info near coastal areas and appropriate mitigation Conduct Archaeological survey of area Determine eligibility of sites for NHR register Urge consultation with OHA Study gathering and religious rights in corridor Work with cultural expert rather than just archaeologist/anthropologist
Roy Price	DOD, Civil Defense	Impacts to siren warning system (there are one to five existing sirens on alignment, depending on exact infrastructure placement) Siren relocations must be planned into project
CITY AND COUNTY AGENCIES		
Kenneth Sprague	Department of Environmental Services	None
Attilio Leonardi	Honolulu Fire Department	None
Eugene Uemura	Honolulu Police Department	None
William Balfour	Department of Parks & Recreation	None
Jan Naoe Sullivan	Department of Planning & Permitting	Provide a matrix of alternatives and options being considered
Clifford Jamile	Board of Water Supply	Submit construction plans for review
Gordon Lum	OMPO	Consistency with ORTP – ORTP assumed exclusive ROW and high-capacity transit system. Does LRT have as much capacity as assumed by ORTP for rapid transit? Is it City policy to center growth in Downtown? All Oahu highway projects within ORTP must be prioritized, including those in this project

TABLE A.2-3 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE EISPN AND NOI AS OF JUNE 14, 1999
(RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-1)

Name	Organization	Comment
PUBLIC ORGANIZATIONS		
Gordon Lum (continued)	OMPO	Will project use horizon year of 2020 or coordinate with new ORTP (updated to 2025)?
Darrlyn Bunda	Leeward Oahu Transportation Management Association (LOTMA)	Segments of previously-indicated roadways for priority treatments do not appear to be included – Kamehameha Highway from Wahiawa to Radford Costs/benefits of proposed BRT alignments BRT Alternative unclear, confusing. Is there an LRT for Waikiki? Emphasis seems to be on accessing PUC. Need to serve reverse commute market to get to Leeward area also BRT should have a defined route similar to LRT #1, at least west of Pearlridge, and serve several termini Sand Island should not be studied. Too capital intensive Why are bus ramps not included in LRT Alternatives? Is it possible to mix and match portions of alternatives?
PRIVATE ORGANIZATIONS		
Mary Steiner	The Outdoor Circle	Why is Visioning Program used as justification for transportation study? Did not like format of scoping meeting Process/schedule concerns – when will LPA be announced? What if it is not best alternative based on engineering? If PUC is the origin of most trips, why study Kapolei to *University? Why is Kahala not included?* What impact on street trees (from project in general, from catenaries)? How will efforts to underground wires be affected?
Robin Brandt	Hawaii Bicycling League	Public participation, notification of the public – need additional opportunities for participation Access to report – publish report on Internet; use larger text and map fonts Process/schedule needs clarification What is the involvement of those outside PUC in scoping? In addition to comparing buses against cars, pedestrians, bikes, and the disabled should be considered; use disincentives & education programs on alternative transportation Make pedestrians first priority and cars last priority Discuss measures to make streets more pedestrian, bike, and disabled friendly Discuss car disincentives New transit system, including transit centers and tunnels. should include services/facilities for pedestrians, bikes, and disabled, and be accessible to all Try double-decker buses Promote bikes as circulators New freeway should not impinge on bikes and pedestrians Do not create alternate freeway routes out of local streets Need to coordinate with advocacy groups Should provide funds for studies on transportation alternatives Traffic modeling assumptions are not sufficient; assumed VMT reduction is not proven

TABLE A.2-3 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE EISPN AND NOI AS OF JUNE 14, 1999
(RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-1)

Name	Organization	Comment
PRIVATE ORGANIZATIONS (CONTINUED)		
Robin Brandt (continued)	Hawaii Bicycling League	Air quality impacts depends on VMT Social and economic issues – potential concentration of growth in primary corridor leads to environmental justice issues; who will suffer impacts of project? Natural resource issues – water use, impact on indigenous plants; do not reduce green spaces for high-density residential areas Consistency with bike plans – project boundaries are confusing because they do not match
Henry Curtis	Life of the Land	All reasonable alternatives must be considered under NEPA. Therefore, the DEIS must look at full range of alternatives possible. Add Enhanced Bus & Commuter-Based Dedicated Bicycle Lane Alternatives There should be two Enhanced Bus scenarios; one to increase efficiency for both buses and cars; one to encourage buses by developing a more efficient bus system without decreasing the level of congestion Bike Lane Alternative would use different classifications of bike lanes. Bike lanes should connect residential areas with downtown and university, such as Young Street. Reduction of lanes on Nimitz is also an opportunity. Proposes a specific dedicated bike lane route from University using Dole Street, H-1, Isenberg, Young Street, Thomas Square, Hotel Street, Capitol District, Richards, and Nimitz. Documents/sources quoted/referenced: OMPO Policy Committee; OMPO Technical Advisory Committee; OMPO Citizen Advisory Committee; OMPO Overall Work Program; Oahu Regional Transportation Plan; TEA 21; TIP; Mayor's State of the City Address (1/26/99); Oahu Trans 2K City Blueprints; Oahu Trans 2K; 21st Century Oahu; CEQ's Top 40 Questions Asked About NEPA; Major Investment Study guidelines; HRS 343; HAR 11-200 (Implementation of HRS 343); FHWA/FTA Question and Answers on Public Involvement in Transportation Decisionmaking; other documents such as Islandwide Mobility Concept Plan; among others Rather than increase the joy of driving, by having congestion, people will prefer bus. Enhanced Bus System is reasonable, viable, practical, feasible from technical and economic standpoint; it is environmentally preferable Express Bus headway should be every 15-20 min at peak, 30-45 min at non-peak Suggests two separate, linked Express Bus systems: one to Honolulu and one to Kapolei, with circulator buses Enforce 2-person HOV at $250/violation, making them more efficient, decreasing congestion Increase safety for bicycle traffic; make bicycle planning routine; install bicycle parking in activity centers. Traffic modeling considerations

TABLE A.2-3 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE EISPN AND NOI AS OF JUNE 14, 1999
(RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-1)

Name	Organization	Comment
PRIVATE ORGANIZATIONS (CONTINUED)		
Henry Curtis (continued)	Life of the Land	VMT and other assumptions may change due to changes in road networks and travel demand, shift in destinations (Kapolei), increased transit service may increase VMT, population growth Choice of traffic models and measures of success should be explained Account for sensitivity of models, and elasticity of demand What unusual impacts may result from project? Address cumulative and secondary impacts Air quality – primary and secondary impacts, including induced growth from all alternatives Water Resources – primary and secondary impacts, including induced growth from all alternatives What is Public Policy? – preference for mass transit, increased reliance on autos, or expensive all-encompassing system? Need a thorough community impact assessment Include redevelopment incentive for Kakaako as secondary impact of transit Will transit hubs spur nearby development? Will improvements follow same pace as growth in population and tourism? Who pays for new infrastructure – residents, new arrivals? Will project strengthen or divide communities? Will rebuilding Natatorium, cruise ship berths & associated parking encourage vehicle use? Will improvements spur growth along corridor? Secondary impacts to PUC EIS due to Sand Island/Nimitz waterfront development Will increase in tourism encourage more vehicle use? How do Enhanced Bus and Dedicated Bike Alternatives compare to other alternatives in terms of air quality, noise, water resources, aesthetics, etc? Will project increase noise in suburbs/agricultural lands Will water quality change due to secondary growth? Are visual impacts afterthoughts or part of planning process? How? What are gridlock effects from all alternatives, and what policies will reduce gridlock? Can trolley be expanded to elevated rail (1992 plan)? Would privatization of bus system reduce congestion? Would using Dillingham or Nimitz for one-way during peak period reduce congestion? Would Employer Trip Reduction (ETR) plans reduce congestion? Process/procedure – explain timing of project Address how to get people to carpool/use zipper lane Will federal money be available for Sand Island? Why does City's plan include a state highway financed by federal money? Also, City versus State plans raise jurisdictional questions. How can state's Zipper Lane be part of City's Plan? City plans include state programs and enforcement plans.

TABLE A.2-3 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE EISPN AND NOI AS OF JUNE 14, 1999
(RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-1)

Name	Organization	Comment
PRIVATE ORGANIZATIONS (CONTINUED)		
Henry Curtis (continued)	Life of the Land	Would Sand Island/Nimitz increase vehicle use? Does PUC plan include express buses outside PUC? Waiawa and Iroquois Point are included in PUC – why not Kahala? Why does MIS study express from suburbs outside PUC? (beyond scope) What are acceptance criteria of FHWA/FTA for NEPA document? Does plan conform with DOT plans? Include ideas from 21st Century Vision, Oahu Trans 2K, and related scoping - how ideas were utilized/screened Explain weighting of different proposals Include baseline plans for rail/trolley Explain effects on residential/business communities of transit Consider economic justice (commercialization of poorer neighborhoods) in siting transmission facilities Is the following a positive statement about rural lifestyles: "Even something relatively simple like having streets without sidewalks can affect community character." Islandwide Mobility Concept Plan. page 4 (What is assumption about sidewalks?) Will there be opportunities for public participation in preparation of MIS? What is source of growth projections? Why move people into Downtown rather than Second City (Kapolei)? Use of overhead lines should be rejected Can electric vehicles be used? Does federal matching funds depend on LPA selected? What is definition of sustainability?
Patricia Tummons		Consider scenic viewplanes Urban sprawl, encroachment into rural areas Emissions from alternatives Traffic modeling necessary
Douglas Meller		Eliminate some bus stops to make routes more efficient Charter private vehicles for peak hour Regulate parking fees Separate Sand Island from project Traffic modeling necessary – travel times, trip generation
Bruce Plasch	Decision Analysts Hawaii, Inc.	Document contains many assumptions about sprawl Define "sprawl" Document indicates contradiction of/one-sided view of sprawl and centralized development. It says Oahu has both widespread sprawl and centralized development. What are benefits and costs of sprawl versus compact development Discussion is moot: many key development decisions have been made by government already Economic decline of commercial areas – which communities? Disputes claim that autos cause economic decline in some areas

TABLE A.2-3 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE EISPN AND NOI AS OF JUNE 14, 1999
(RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-1)

Name	Organization	Comment
PRIVATE ORGANIZATIONS (CONTINUED)		
Bruce Plasch (continued)	Decision Analysts Hawaii, Inc.	Development and service costs -- sprawl is costly, but higher residential density is not as attractive to buyers; suburban development is not as costly as PUC redevelopment and is easier to locate than PUC in-fill development. Infrastructure planning -- document relies on unsubstantiated claim that sprawl is costly and must be subsidized by other neighborhoods. Recommends reading on sprawl and infrastructure financing Contradiction between City policy on urbanizing agricultural lands (in Ewa DP) and protecting prime agricultural lands from sprawl, as stated in document. Economic and environmental costs of agriculture are not any less than that of urban sprawl Factors affecting suburban growth are not limited to transportation policies. Includes development policies and consumer preferences Ewa and Central Oahu would have lower housing prices even without government intervention, due to lack of established communities and services Strategy for the PUC -- assumed number of new PUC homes is too high; regardless, PUC should be redeveloped Need to clarify to the public that transportation has land-use development implications, due to mobility issues Implementation of the plan must be realistic Computers and electronic communications may change travel demand and development patterns Extensive network of freeways should include highways Discussion of benefits & costs of automobile travel is biased; does not address benefits of auto travel Is it accurate to use 350 ft/auto as estimated area required for home-based vehicles? Parking area is often shared use. Marginal, sunk, and total costs associated with auto travel should be recognized Use unused equipment and capacity (including carpooling) during peak periods Use road pricing - economic incentives/disincentives to use scarce highway capacity

Source: Parsons Brinckerhoff, Inc., August 2000.

TABLE A.2-4
SUMMARY OF COMMENTS RECEIVED AT THE AGENCY INFORMATION AND SCOPING MEETINGS

Name and Organization	Comment	Response *
Darrlyn Bunda, Leeward Oahu Transportation Management Association	Favored extending the LRT alignment to Waiawa Interchange.	The BRT Alternative, which has since replaced the LRT Alternative, has an In-Town component that goes as far as the Middle Street Interchange. There is an additional Regional BRT component that would service riders as far as Ewa/Kapolei.
	Waiawa Interchange needs to be reconfigured to serve buses/HOVs and to provide better access to the community, such as Leeward Community College.	Under the BRT Alternative, H-1 around the Waiawa Interchange would be widened and improved with a PM zipper lane. Section 2.2.3 discusses this and other improvements to the existing freeway system in detail.
Todd Boulanger, Na Kama Hele	Requested analysis of how the alternatives integrate bicycling and pedestrian trips.	Both SDOT and DTS have developed master plans to enhance the network of bicycle facilities and increase bicycling as a serious transportation mode for some travel markets. Improvement of bicycle facilities is included in all of the alternatives, although the BRT Alternative would do the most to improve bicycle facilities. However, pedestrians and bikes alone cannot satisfy all of the travel markets that must be accommodated. Chapter 1 discusses the project's purposes and needs, which include making the PUC more pedestrian friendly, and Chapter 4 discusses all modes of transportation. Investments in transit systems promote the pedestrian and bicycles modes as viable modes of travel. DTS will also continue to support programs to foster alternative transportation, such as the hub-and-spoke bus system and traffic calming, and Vanpool.
	Requested consideration of biking as a low cost area circulator.	Both SDOT and DTS have developed master plans to enhance the network of bicycle facilities and increase bicycling as a serious transportation mode for some travel markets. Improvement of bicycle facilities is included in all of the alternatives. Pedestrians and bikes are very much a part of the TSM and BRT Alternatives, but they alone cannot satisfy all of the travel markets that must be accommodated.
	Requested analysis of bikes and pedestrian access impacts along certain corridors, such as the tunnel, King Street and Kapiolani Boulevard.	Bicycle and pedestrian access is described in Sections 4.5 and 4.6.
	Requested analysis of impacts to the safety of pedestrians and cyclists from articulated buses as opposed to shorter or double deck buses.	Bicycle and pedestrian access is described in Sections 4.5 and 4.6.
	Questioned predicted reduction of regional vehicle miles traveled (VMT) from the project.	Extensive traffic modeling was done as part of the planning process. See Chapter 4 for details.
	Requested that disincentives to driving (e.g., road pricing, etc.) be included as alternatives, as well as measures to make walking as the preferred mode within the city.	Travel Demand Management (TDM) programs are included in the alternatives, but they are not expected to fully address projected increases in travel demand in the primary transportation corridor. Improved transit service would encourage people to use their cars less. The use of specific travel disincentives is a policy decision to be made by the City Council.

TABLE A.2-4 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED AT THE AGENCY INFORMATION AND SCOPING MEETINGS

Name and Organization	Comment	Response *
Todd Boulanger, Na Kama Hele	Requested analysis of air and water quality impacts.	Impacts to air quality and water quality are discussed in Sections 5.5 and 5.8, respectively.
	Requested analysis of the socio-economic and environmental impacts on poor families having to depend on automobiles for their transportation.	Environmental justice issues are addressed in Section 5.3.
	Requested that the project conducts a more extensive and diverse public outreach program for scoping, and gave suggestions on how this can be accomplished.	Appendix A summarizes the efforts that have been made to provide opportunities for public participation. Comments from the public are welcome at any point. However, to be part of the official record, comments on the Draft EIS need to be made by the close of the comment period on the Draft EIS.
	Requested analysis of how bus fare increases affect future ridership, road congestion, land use, pollution, parking demand and the success the alternatives.	Financial plans are discussed in Chapter 6, and travel demand is discussed in Chapter 4.
Donald Lubitz	Suggested that right-of-way or corridor be reserved now in anticipation that an expanded transit system would be needed in the future.	Because of existing development patterns in the PUC, the rights-of-way of future transportation systems are primarily the existing transportation rights-of-way. This is why the need is to increase people-carrying capacity within the existing transportation rights-of-way.
	Suggested that the City transit system be used to support education programs for visitors and residents (e.g., provide transportation to education sites).	The PCTP would serve several travel markets, including students and visitors.
W-K Luke	Requested that public places of the project (e.g., transit centers) include amenities for socializing, and cultural elements consistent with area (e.g., Chinatown).	Transit centers and other public spaces included in the project would be designed to be pedestrian-friendly and contribute to a sense of community. Transit centers and stops in special districts such as Chinatown would be designed to blend in and enhance the existing cultural setting.
	Requested spot improvements to improve bus service.	Refinements to the existing bus system are made on an ongoing basis as the need arises.
Wendell Lum	Requested cost and funding information and analysis of impacts to the economy.	A financial analysis is provided in Chapter 6. Impacts on the economy are discussed in Section 5.1.
	Suggested that transportation investment be in the Central and Leeward areas where residential growth is occurring.	Transportation investments will be made throughout the primary transportation corridor. These investments are intended to help facilitate growth in Ewa and the PUC.
Christen Mitchell	As part of the No-Build, suggested a mixed-use land use pattern, and a continuous bikeway through the corridor.	The transportation improvements contained in the No-Build Alternative would do less than the other alternatives to help foster a mixed land use pattern. The transportation improvements in the No-Build would encourage continued suburbanization and loss of open space. The bicycle facilities in the existing State and County Bicycle Master Plans are included in the No-Build Alternative.
	Suggested private-public partnerships for mixed-use development at transit stations.	There are several ways to encourage "joint development" at transit centers and transit stops. Public-private partnerships are certainly being considered.

TABLE A.2-4 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED AT THE AGENCY INFORMATION AND SCOPING MEETINGS

Name and Organization	Comment	Response *
Christen Mitchell	Requested analysis of transportation malls' impact on the surrounding community, pedestrian access, safety and crime, and landscaping.	The social impacts of the project on the neighborhoods is discussed Section 5.3. Pedestrian access issues are addressed in Section 4.6. Landscaping issues are addressed in Section 5.7. In general, transit centers and transit stops are intended to help focus growth along the alignment and help develop a pedestrian and transit-oriented setting.
	Criticized advertising for the scoping meeting.	Appendix A summarizes the efforts that have been made to provide opportunities for public participation, including comments from the business community.
	Critical of overhead wires and motorized ferries on the Ala Wai.	Neither overhead lines nor ferries on the Ala Wai are proposed as elements of the PCTP.
Michelle Matson	Requested that potential impacts to businesses be considered in planning the project.	General economic impacts are discussed in Section 5.1. Chapter 4 discusses impacts on parking areas and loading zones.
	Supports Sand Island Bypass and Nimitz Parkway elements of the project for waterfront development.	The Sand Island component of this project is being addressed in the current update to the Regional Transportation Plan. It is not part of this project at the current time.
Lynne Matusow	Requested deleting the LRT and Ala Moana Waterfront Loop elements from the alternatives.	The LRT Alternative has been replaced by the BRT Alternative. The Ala Moana Waterfront Loop is no longer part of the project.
	Suggested a transit system similar to Curitiba, Brazil.	The In-Town BRT system would be a transit system similar to Curitiba, Brazil, adapted to local conditions. The Curitiba situation is in some ways simpler because more space is available to construct new transportation systems.
	Project should consider that certain streets are used for parades and block parties.	The route of the In-Town BRT system would be modified to accommodate special events. This topic is discussed in more detail in Section 4.6.
	Does not favor the use of overhead wires for the LRT.	Overhead lines are not proposed as a part of the PCTP. The LRT Alternative has been replaced by the BRT Alternative.
	Transit improvements should be extended into Waikiki.	The In-Town BRT would extend throughout Waikiki.
Dick Poirier	Supported congestion pricing and other types of user fees, such as charging for accessing the HOV lanes, as a viable alternative.	Travel Demand Management (TDM) programs are included in the alternatives, but they are not expected to fully address projected increases in travel demand in the primary transportation corridor. Improved transit service would encourage people to use their cars less. The use of specific travel disincentives is a policy decision to be made by the City Council.
	Requested the Ewa terminus of LRT Alternative be extended to the Waiawa Interchange area.	The BRT Alternative would accommodate future phased extensions of the system if viable.
	Requested that alternatives for road pricing be studied.	Travel Demand Management (TDM) programs are included in the alternatives, but they are not expected to fully address projected increases in travel demand in the primary transportation corridor. Improved transit service would encourage people to use their cars less. The use of specific travel disincentives is a policy decision to be made by the City Council.

TABLE A.2-4 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED AT THE AGENCY INFORMATION AND SCOPING MEETINGS

Name and Organization	Comment	Response *
Richard Port	Expressed concern about the cost of the alternatives, noting that revenues do not cover operating costs and that the transit system would compete with private operators.	Methods of financing the construction and operation of the alternatives are discussed in Chapter 6.
	Favors expanding the existing bus system, including use of articulated buses.	All of the alternatives would expand the bus system and use articulated vehicles. They vary by the degree and means that they would use to improve transit service.
Richard Quinn	Suggested decentralized transportation systems geared to individual neighborhoods because advances in technology would result in a greater degree of trips within the neighborhood for working and shopping.	While land use changes that would improve the ability of walking to satisfy more trip purposes are desired, walking alone is not expected to address all of the expected increase in travel demand.
Milton Ragsdale	Suggested new alternatives and modifications to certain elements of proposed alternatives - fixed rail along H-1 median from Pearlridge Shopping Center to Kahala Mall, with a subway from Middle Street Transit Center to Ala Moana, and a BRT connecting University/King Transit Center to Manoa Recreation Center or UH quarry area.	These suggestions would be less cost-effective than the alternatives currently under study. Chapter 2 discusses the evolution of the alternatives that receive detailed assessment.
	All BRTs and LRTs should have space or racks for bicycles.	Bicycles will be accommodated on the BRT vehicles.
William Rosa	Requested bus service be more frequent, and that traffic calming be used in downtown areas.	Chapter 2 describes the frequency of bus services for each of the proposed alternatives. The BRT Alternative would provide the greatest frequency of transit service. Traffic calming would continue to be an option wherever an opportunity for implementation is identified.
Linda Starr, Neighborhood Board #2, Kuliouou Kalani Iki	Does not favor special bus ramps- because it would waste resources.	Special bus ramps have been included in the BRT Alternative to decrease travel times for transit patrons.
	Requested studying metering at freeway on ramps.	The Hawaii Department of Transportation has been studying ramp metering.
	Feels that people from Kapolei to Pearlridge would not want to change modes, and that they would want the convenience of riding an express bus into town.	All of the alternatives include selected express routes. Some degree of transfers and modal switches would be necessary for the system to work cost-effectively.
Mary Steiner, The Outdoor Circle	Requested clarification on certain elements of the project, such as details of the transit centers, landscape plans, impact to street trees, and project limits.	Project elements are described in Chapter 2. Landscaping and impacts to trees would be minimized to the extent practicable, and are described in Section 5.7. Further details would be developed in subsequent planning after City Council selects an LPA.
	Criticized lack of public participation.	Appendix A details the extent of efforts made to solicit public participation.

TABLE A.2-4 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED AT THE AGENCY INFORMATION AND SCOPING MEETINGS

Name and Organization	Comment	Response *
Clifton Takamura	Provided suggestions on how to improve existing bus system.	Improvements to the bus system occur on an ongoing basis.
	Suggested using the old OR&L right-of-way as an alignment..	The alignment of the OR&L right-of-way is not appropriate for modern, high-speed transit vehicles. Some of the right-of-way is being proposed for bicycle use.
	Asked whether the proposed transit system will be a moneymaker, and whether it will be used by visitors.	Publicly-funded transit systems are not intended to made a profit. Creation of a profit is not one of the project purposes. Both visitors and residents are expected to use transit under any of the alternatives.
	Favored a system that uses a combination of LRT and buses.	The LRT has been replaced by the BRT Alternative, which would have In-Town and Regional systems that combine traditional buses and more technologically advanced energy-efficient vehicles.
Shannon Wood	Suggested expansion of alternatives to include more freeways, water-based transportation, and expansion of LRT system to Mililani, Hawaii Kai and Waikiki.	Chapter 2 describes the evolution of the alternatives that receive detailed treatment in the MIS/DEIS.
	Requested impacts analysis in the event of a natural disaster, and if the price of fossil fuel rises substantially.	Improved transit would enhance mobility during a natural disaster and if fossil fuel prices rise substantially.
Jim Yamamoto	LRT system should serve Bethel Street.	The LRT has been replaced by the BRT Alternative. There would be a transit stop in the vicinity of Bethel Street.
	Requested analysis of why people drive.	People travel for many reasons, and these factors have been included in the travel demand forecasts prepared for this project.
	Suggested multi-modal efforts to address transportation issues.	The TSM and BRT Alternatives are multi-modal alternatives, as described in Chapter 2.
Brian Yoshida, Moanalua Community Association	Supported the LRT alternative, but would also like to see the project include roadway widening on the H1 Freeway, and extending the Nimitz viaduct to Downtown.	The LRT Alternative has been replaced by the BRT Alternative. The H1 Freeway widening and Nimitz viaduct have been or are being considered under separate projects.
	Requested analysis of disruption of traffic during construction, projected ridership of different alternatives, and projected fares for the LRT.	Construction-phase impacts, including impacts on traffic, are discussed in Section 5.12. Ridership projections are presented in Chapter 4. Fares and project financing plans are presented in Chapter 6.
Pamela Young	Additional right-of-way requirements should be disclosed.	Right-of-way requirements are discussed in Section 5.2.
	Questioned the need for LRT, especially since the Leeward and Central Oahu areas contain a third of Oahu's population.	The LRT Alternative has been replaced by the BRT Alternative. Chapter 1 discusses the need for the project. There is a substantial imbalance now and in the future between travel demand and transportation system capacity for travelers in the Primary Transportation Corridor, which includes Leeward and the southern portion of the Central District.

TABLE A.2-4 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED AT THE AGENCY INFORMATION AND SCOPING MEETINGS

Name and Organization	Comment	Response *
Anonymous	Criticized the lack of opportunity for exchange of comments, questions and answers before the whole audience.	Comment noted.
	Expressed frustration on the lack of progress on needed transportation improvements.	DTS shares the commentors frustration about the lack of progress on this important quality of life issue.
	Supports a "traditional" looking LRT system rather than a "modern" looking LRT system.	The LRT Alternative has been replaced by the BRT Alternative. The final look of the BRT vehicles, if this alternative is selected, has not yet been selected.
Unknown, Agency	Will project be used to assist in urban planning?	Yes. Project is coordinating with current planning efforts to update the PUC DP, sustainability plans of other DP areas and the recently completed Ewa DP. Overall land use objectives are to encourage urban growth in the PUC and Ewa, and discourage suburban sprawl in other areas. Transportation is one tool to help facilitate these land use objectives. Improved transit service will make in-town living more attractive.
	Need land use controls to discourage/prevent gentrification around future transit stations	Will ensure that future development is consistent with community visions and desires.
	Is the third light rail transit LRT Alternative a first phase of the first and second LRT Alternatives?	The LRT Alternative has been replaced by the BRT Alternative.
	Does BRT Alternative include LRT from downtown to Waikiki?	None of the alternatives moving forward include LRT technology.
	Do any of the alternatives include service between the airport and Waikiki?	Ridership estimates will include all travel markets, including demand between the airport and Waikiki. However, addressing the airport/Waikiki travel market is not a major purpose of this project. Airport travelers would need to get to the Middle Street Transit Center to access the system.
	Is modifying the H-1 Zipper Lane to carry P.M. peak traffic possible?	Yes. The BRT Alternative includes a PM zipper lane.
	Is it possible to come up with defensible ridership projections?	Ridership projections are described in Chapter 4.
	Is there a cost per new rider threshold for receiving federal funds as a transit "new start"?	To receive federal funding, a project must be on the federal "new start" list. There are many rating criteria that score projects on the "new start" list, including cost per new rider. The FTA will use many other criteria, such as ridership, to evaluate the project. After determining eligibility, the project would compete with other transit projects across the nation for federal funds.
	Transit center locations in Waipahu should follow the Waipahu Special Area Plan.	There are no site-specific locations for the Waipahu transit centers. However, they will be located strategically to serve BRT treatments on Fort Weaver Road and other roadways.
	Has a site for the LRT maintenance yard for the Waikiki/Downtown line been selected?	The LRT Alternative has been replaced by the BRT Alternative. In-Town BRT vehicles would be maintained at the Middle Street Transit Center.

TABLE A.2-4 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED AT THE AGENCY INFORMATION AND SCOPING MEETINGS

Name and Organization	Comment	Response *
Unknown, Agency	Will lanes be used exclusively for the LRT?	The LRT Alternative has been replaced by the BRT Alternative. The In-Town BRT would use both exclusive and semi-exclusive lanes.
	Disagreed that communities do not want more lanes for automobiles.	Comment noted.
	Will there be any grade-separated sections for the LRT?	The LRT Alternative has been replaced by the BRT Alternative. No grade-separations are proposed.
	People are asking for a more balanced transportation system.	That is what this project is trying to accomplish. Chapter 1 describes the project purposes and needs in more detail.
	Will this project do anything to alleviate the problem of motorists using residential side streets to avoid congestion on the main arterial streets?	By enhancing transit service, more people would be encouraged to use transit instead of private automobiles.
	What are bus ramps?	Ramps that are restricted to buses and certain vehicles, such as vanpools. Their objective is to provide transit priority, thereby rewarding transit patrons with shorter travel times.
	The DPs contain lists of cultural assets and resources, and important viewplanes and visual resources.	The information in the DP's was used in the preparation of the MIS/DEIS.
	What are the costs of the alternatives?	Cost estimates are discussed in Chapter 2.
	What are committed projects?	Projects that are listed in the Oahu Regional Transportation Plan as proposed for completion by the year 2005.
	What is the time horizon for this project?	Planning is based on travel demand forecasts and land use projected for 2025.

Source: Parsons Brinckerhoff, Inc., August 2000.

* Section numbers in responses refer to sections in the MIS/DEIS.

A.3 MIS/DEIS REVIEW PERIOD

The FTA approved the MIS/DEIS for public circulation on August 16, 2000. The Hawaii Office of Environmental Quality Control (OEQC) also approved the document for public distribution. Printed copies of the document were distributed to the public, libraries, community groups, and local, State and federal agencies for review. A separate volume of technical drawings was available for public examination at libraries and the DTS, and was also available upon request. The document, including the technical drawings, was also available on CD-ROM upon request. Those who submitted comments on the Notice of Intent to Prepare an EIS (NOI), published in accordance with the National Environmental Policy Act, or the Environmental Impact Statement Preparation Notice (EISPN), published in accordance with Chapter 343, Hawaii Revised Statutes, were also sent printed copies. Table A.3-1 summarizes the MIS/DEIS review process.

TABLE A.3-1
MIS/DEIS REVIEW PROCESS

Activity	Date	
MIS/DEIS approved for circulation by FTA	August 16, 2000	
Distribution of MIS/DEIS	August 23, 2000	
Notice of MIS/DEIS availability in the Federal Register (public review period officially starts)	September 8, 2000	
Notice of MIS/DEIS availability in the OEQC, The Environmental Notice	September 8, 2000	
Legal notice of MIS/DEIS availability and public hearing in Midweek	September 13, 2000 and September 27, 2000	
Distribution of notice of availability of MIS/DEIS and public hearing to project mailing list	September 11-13, 2000	
Meetings of the City Council's Transportation Committee	September 25, 2000	Kapolei
	October 5, 2000	Waikiki
	October 19, 2000	Waimalu
	October 26, 2000	Downtown
Newspaper display ads for public hearing	October 4, 2000	Midweek
	October 9, 2000	Advertiser
	October 10, 2000	Star-Bulletin
Formal Public Hearing, Neal Blaisdell Center	October 12, 2000	
Close of the public review period	November 6, 2000	
Resolution selecting LPA introduced at City Council	November 8, 2000	
Resolution selecting LPA reported out of City Council Transportation Committee	November 14, 2000	
Resolution selecting LPA adopted by full City Council	November 29, 2000	

Source: Parsons Brinckerhoff Quade & Douglas, Inc., January 2001.

Notices of the availability (NOA) of the MIS/DEIS and information on the public hearing were provided through direct mailings (about 10,000 addresses); a legal notice in Midweek; and display advertisements in Midweek, the Honolulu Advertiser, and the Honolulu Star-Bulletin. The document availability was also given substantial media coverage including coverage by local television stations. The public notice procedures complied with "The Oahu Metropolitan Planning Organization (OMPO) Guide to Public Involvement, Appendix E," adopted on April 2, 1997 by the OMPO Policy Committee; Title 23 Code of Federal Regulations, Section 771 (23CFR771); and Hawaii Revised Statutes Chapter 343.

The Transportation Committee of the Honolulu City Council sponsored four public hearings across the project's study area after the MIS/DEIS was issued. These Committee meetings enhanced the public's ability to provide comments directly to the City Council pertaining to the pending selection of a Locally Preferred Alternative (LPA). The City Council's task in selecting an LPA was to decide between a No-Build Alternative, a

Transportation System Management (TSM) Alternative, and a Bus Rapid Transit Alternative. The full City Council selected the BRT Alternative as the LPA on November 29, 2000, by adopting Resolution No. 00-249 at a special City Council meeting.

A.4 COMMUNITY INVOLVEMENT ACTIVITIES PRIOR TO THE SDEIS

During the LPA discussions, the City Council directed the DTS to continue public dialogue on the project. Community working groups were formed to provide a forum for open dialogue between project sponsors and neighborhood, civic, business and other organizations so that environmental and transportation issues, and refinements to project proposals could be discussed. Section A.4.1 discusses the working group process in detail.

A Round Five Oahu Trans 2K meeting was held on August 14, 2001. The meeting included a community open house and an informational briefing on the working group process and BRT project refinements.

In addition to the working group process, the project team members conducted nearly 200 meetings with numerous individuals, agencies, and organizations between January 2001 and the publication of the SDEIS.

A project website, <www.oahutrans2k.com>, is used to disseminate information. It is updated to provide the public with the current project status.

During the period between the publication of the MIS/DEIS and SDEIS documents, three Oahu Trans 2K Progress Reports (newsletters) were published and distributed. These progress reports were distributed to over 10,000 individuals via the mail and its availability at public hearings and working group meetings.

A.4.1 Working Groups

Working groups were formed in 2001, and provided a forum for open dialogue between project sponsors and neighborhood, civic, business and other organizations. They provided a constructive forum in specific geographic areas along the corridor, where specific opportunities were discussed while simultaneously providing a greater in-depth understanding about BRT and what it means for the community. Environmental and transportation issues and refinements to project proposals were discussed. Five Working Groups were formulated based on geographic area. In addition to the original five working groups, a sixth working group was formed in July 2002 for the Aliamanu/Salt Lake/Foster Village area in response to concerns that arose within that community. The Working Groups and their associated areas are presented below.

1. **Pearl City/Aiea** - Waiawa Interchange to Aloha Stadium/Pearl Harbor
2. **Kalihi** - Middle Street to River Street
3. **Downtown/Kakaako** - River Street to Ala Wai Canal
4. **Mid-Town/University** - Richards Street to UH-Manoa
5. **Waikiki** - Ala Wai Canal to Kapahulu Avenue
6. **Aliamanu/Salt Lake/Foster Village** – Aloha Stadium/Pearl Harbor to Middle Street

Working group members were responsible for attending meetings, reporting back to their representative organizations, and bringing resulting feedback to the working group meetings. The working group process resulted in project changes that were presented in the SDEIS. The following sections briefly describe the participants, process, and issues resolved at each of the six working groups.

A.4.1.1 Pearl City/Aiea Working Group

Participants in this Pearl City/Aiea Working Group included representatives from: Aiea Community Association, Aiea Neighborhood Board #20, Aloha Stadium Authority, Hawaii Transportation Association,

Leeward Oahu Transportation Management Association, Newtown Estates Community Association, Oahu Transit Services, Pearl City Neighborhood Board #21, St. Timothy's Episcopal Church, State Department of Transportation, US Navy, and Councilmembers Duke Bainum and Gary Okino. This working group met five times during March – May 2001.

The discussions of this working group resulted in major changes to the locations for transit centers and BRT ramps. Instead of locating a transit center at the Kamehameha Drive-In site, a new plan for an Aloha Stadium transit center was chosen. The two proposed BRT ramps at Kaonohi Street and Radford Drive were eliminated and the Luapele Drive ramp was added. Another idea from this working group was to create a reversible contra-flow bus lane along Kamehameha Highway to provide service to Aiea and Pearl City, along with two community oriented transit centers. The Kamehameha Highway contra-flow lane and community transit centers are being advanced as projects separate from the PCTP.

A.4.1.2 Kalihi Working Group

Participants in the Kalihi Working Group included representatives from the following businesses, organizations, and agencies: Blood Bank of Hawaii, Bob's Bar-B-Que, Castle & Cooke Properties, City Square Management, Eki Cyclery, FALEA, Hawaii Construction Industry Association, Hawaii Teamsters & Allied Workers, Hawaii Transportation Association, Honolulu Community College, Kalihi-Palama Neighborhood Board #15, Kalihi-Palama Vision Team, Kamehameha Schools, Lanakila Health Center, Marukai Corporation, New Hope All Nations, Oahu Transit Services, Popeye's Chicken, State Department of Transportation, York & Company, and Councilmembers Duke Bainum, Jon Yoshimura, and Romy Cachola. This group met seven times during March – June 2001.

Several significant refinements were adopted in response to the working group's concerns about vehicular access. Traffic lanes on Dillingham Boulevard will be widened to 18 feet between Puuhale Road and Waiakamilo Road, and bus pullouts will be built between Waiakamilo Road and Kaaahi Street. Left turns and U-turns will be permitted at signalized intersections, and parallel streets such as Colburn and Kaumualii Streets will be improved for alternate access. Construction mitigation plans will be developed in coordination with the community and will be implemented to minimize the impact on drivers and businesses.

A.4.1.3 Downtown/Kakaako Working Group

Participants included representatives from the following organizations and agencies: Ala Moana-Kakaako Neighborhood Board #11, Ala Moana Center, Aloha Tower Development Corporation, American Institute of Architects, AM Partners, Chinatown Merchants Association, Downtown Neighborhood Board #13, Hawaii Bicycling League, Hawaii Community Development Authority, Hawaii Children's Discovery Center, Hawaii State Federal Credit Union, Hawaii Teamsters & Allied Workers, Hawaii Transportation Association, Iolani Palace, Kalihi Business Association, Kakaako Improvement Association, Kamehameha Schools, Land Use Research Foundation, Oahu Metropolitan Planning Organization - Citizen Advisory Committee, Oahu Transit Services, Pacific Resource Partnership, Scenic Hawaii, Sierra Club Hawaii Chapter, State Department of Accounting and General Services, State Department of Transportation, Straub Clinic & Hospital, Outdoor Circle, Victoria Ward Centers, and Councilmembers Duke Bainum and Jon Yoshimura. This group met seven times during February – June 2001.

Working group discussions led to several changes in this area of the In-town BRT's alignment. An entirely new branch, the Kakaako Makai branch along Ilalo Street, was created to accommodate the growing demands in this developing waterfront area. Additionally, the BRT route was realigned to use Pensacola Street instead of Ward Avenue.

A.4.1.4 Mid-town/University Working Group

Participants in the Mid-town/University Working Group meetings included representatives from: Ala Moana-Kakaako Neighborhood Board #11, Ala Moana Center, Convention Center Authority/Hawaii Tourism Authority,

Diamond Head/Kapahulu/St. Louis Neighborhood Board #5, Hawaii Bicycle League, Hawaii Community Development Authority, Hawaii Transportation Association, Iolani Palace, Kamehameha Schools, Keeaumoku Super Block - Little Britain Holdings, Makiki-Tantalus Neighborhood Board #11, Manoa Neighborhood Board #7, McCully-Moiliili Neighborhood Board #8, Neal Blaisdell Center, Our Redeemer Lutheran Church, Straub Clinic & Hospital, Outdoor Circle, UH Facilities Planning & Management, UH Lab School, and Councilmembers Duke Bainum, Andy Mirikitani, and Jon Yoshimura. This working group met seven times during March – July 2001.

The discussions of this working group resulted in realignment of a section of the UH Manoa branch from Ward Avenue to Pensacola Street, and affirmation of the location of the terminus at Sinclair Circle. Additional discussions focused on station designs and on-street parking spaces throughout this area's neighborhoods.

A.4.1.5 Waikiki Working Group

Participants in this working group included representatives from: American Institute of Architects, ENOA Tours, Hale Koa Hotel/Fort DeRussy, Hawaii Hotel Association, Hawaii Teamsters & Allied Workers, Hawaii Transportation Association, HERE Local 5 AFL-CIO, Hilton Hawaiian Village Beach Resort & Spa, Honu Group, Hyatt Regency Waikiki Hotel, Kamehameha Schools, Oahu Transit Services, Outrigger Enterprises, Pauahi Management Corporation, Renaissance Ilikai Waikiki Hotel, Sheraton Hotels & Resorts/Kyo-ya Co., State Department of Transportation, State Department of Business, Economic Development and Tourism, SUPERSTAR Hawaii Transit Service, Tiffany & Company, United Laundry Service, Waikiki Beach Marriott Resort Hotel, Waikiki Improvement Association, Waikiki Livable Community Project, Waikiki Neighborhood Board, Waikiki Residents Association, Waikiki Trade Center, and Councilmember Duke Bainum. This group met six times during August 2001 – April 2002.

Several refinements to the project resulted from the discussions of this working group, including changes in lane configurations, ideas for pedestrian enhancements, and consideration of freight and passenger loading. Refinements incorporated into the project include: semi-exclusive curbside lanes throughout Waikiki, most of which will be shared with private buses and shuttles; sidewalk widening, landscaping and loading bays added to Kuhio Avenue; and re-striping and median modifications to provide an additional lane in each direction for the BRT on Ala Moana Boulevard.

A.4.1.6 Aiamanu/Salt Lake/Foster Village Working Group

The sixth working group was formed in response to concerns from the community regarding the proposed Aloha Stadium Transit Center and Luapele Drive BRT ramp. One meeting was held on July 24, 2002 at Makalapa Elementary School. Those represented at the meeting included: Aiea Neighborhood Board #20, Aloha Stadium Authority, East Foster Village Community Association, Foster Village Community Association, Oahu Transit Services, Protect the Planet, State Department of Transportation, US Navy, and Councilmembers Romy Cachola and Gary Okino.

Discussion focused on the design and operation of the Luapele Drive ramp and Aloha Stadium Transit Center, plus the project schedule. No specific refinements to the project were required as a result of this working group meeting. Ongoing coordination with stakeholders and residents will be maintained.

A.4.2 SDEISPN and NOI

The project refinements from the working group process and comments received on the MIS/DEIS resulted in the City initiating an SDEIS process. The DTS proposed to refine the LPA to include new and modified components, which the City Council endorsed on August 1, 2001 via City Council Resolution No. 01-208.

The DTS prepared a SDEISPN that was published in the August 23, 2001 The Environmental Notice, an OEQC publication. The SDEISPN for the SDEIS was also distributed to the same individuals and entities that

received the MIS/DEIS. The SDEIS NOI was published in the September 26, 2001 Federal Register. Table A.4-1 lists the agencies/individuals that have commented on the SDEISPN. Table A.4-2 summarizes the comments received. Exhibit A-2 includes reproductions of the original letters.

In addition to the working group meetings, the project team members have met with numerous individuals, agencies, and organizations. Nearly 200 meetings were conducted from January 2001 to March 2002 (see Table A.4-3).

TABLE A.4-1
SDEISPN COMMENTORS

Elected Official, Agency, or Organization	Comment Letter Date
UNITED STATES	
Senator Daniel Akaka, United States Senate	September 7, 2001
Department of the Army	August 30, 2001
Federal Aviation Administration	September 14, 2001
STATE OF HAWAII	
Office of Environmental Quality Control	August 22, 2001
Hawaii Community Development Authority	August 24, 2001
Commission on Water Resource Management	August 24, 2001
Department of Health	August 28, 2001and October 2, 2001
Department of Education	August 31, 2001
Land Use Commission	September 4, 2001
Department of Land and Natural Resources, State Historic Preservation Division	September 7, 2001and September 19, 2001
Department of Land and Natural Resources, State Parks Division	September 10, 2001
Housing and Community Development Corporation of Hawaii	September 12, 2001
Aloha Tower Development Corporation	September 21, 2001
Department of Accounting and General Services	September 21, 2001
University of Hawaii	September 21, 2001
CITY AND COUNTY OF HONOLULU	
Gary Okino, City Council	September 19, 2001
Police Department	September 12, 2001
Fire Department	September 13, 2001
Board of Water Supply	September 14, 2001
Department of Planning and Permitting	September 19, 2001
ORGANIZATIONS	
Harbor Square Condominium Association	September 21, 2001
Kakaako Improvement Association	September 21, 2001
Hawaiian Electric Company	October 4, 2001
COMMUNITY GROUPS	
Downtown Neighborhood Board	August 22, 2001
Waialae-Kahala Neighborhood Board	September 21, 2001
PRIVATE CITIZENS	
Wendell Lum	September 7, 2001
Charles Ferrell	September 13, 2001
Frederick Gross	September 18, 2001
P. Pasha Baker	September 21, 2001
Doug Meller	September 21, 2001

Source: City and County of Honolulu Department of Transportation Services and Parsons Brinckerhoff, March 2002.

TABLE A.4-2
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
United States			
Daniel K. Akaka, United States Senator	9/7/01	1	I appreciate receiving this information and look forward to reviewing the Final Environmental Impact Statement.
George P. Young, P.E., Chief, Regulatory Branch Department of the Army U.S. Army Engineer District, Honolulu	8/30/01	1	The comments contained in my letter to you dated September 13, 2000 are still appropriate, and we have no additional comments.
	9/13/00	1	It is possible that some of the components of the project may require a Department of the Army (DA) permit; however, since the information provided is not sufficiently detailed to determine specific permit requirements. As the project elements progress to final design stages, we will be better able to advise you concerning permit requirements
Darice B. N. Young, Realty Contracting Officer Federal Aviation Administration	9/14/01	1	The Federal Aviation Administration has no comments regarding your Supplemental DEIS.
State of Hawaii			
Genevieve Salmonson, Director State Office of Environmental Quality Control	8/22/01	1	If you have received any comments during the consultation stage, please include them with their responses in the draft EIS.
		2	Also include synopses of the community working group meetings that dealt with the proposed changes.
		3	Please consider including a list of acronyms and abbreviations in the draft EIS.
		4	In the draft EIS indicate the status of each of the listed permits and approvals for this project.
Teney K. Takahashi, Director of Planning and Development Hawaii Community Development Authority	8/24/01	1	As you know, the Hawaii Community Development Authority development agenda calls for the development of several major public and private projects over the near future. These projects could add over 30,000 automobile trips per day at full build out. The traffic strategy for the Makai Plan called in part for the design of a "walkable community", one in which people could live, work and play without having to depend on an automobile. However, the key to success for such a community would be an efficient and affordable public transit system. BRT service for this area would provide the necessary public transit.
		2	We therefore support your proposed additional alignment through Kakaako Makai.
Linnel T. Nishioka, Deputy Director State Commission on Water Resource Management	8/24/01	1	We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
		2	If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
Denis R. Lau, Chief Clean Water Branch State Department of Health	8/28/01	1	The applicant should contact the Army Corps of Engineers to identify whether a Federal permit (including a Department of Army permit) is required for this project.
		2	A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for each of the following activities which discharges into State Waters: a. Discharge of storm water runoff associated with construction activities that involve the disturbance of five acres or greater, including clearing, grading, and excavation; b. Discharge of hydrotesting water; and c. Discharge of construction denaturing effluent. If any construction activities will take place after March 10, 2003, discharge of storm water runoff associated with construction activities that involve the disturbance of one acre or greater, including clearing, grading, and excavation shall require coverage under the NPDES general permit.
		3	The applicant may be required to apply for an Individual NPDES Permit if there is any type of process wastewater discharge from the project into State Waters.
Paul G. LeMahieu, Ph.D., Superintendent of Education State of Hawaii, Department of Education	8/31/01	1	The Department of Education has no comment on the subject supplemental draft environmental impact statement preparation notice.
Anthony J. H. Ching, Executive Officer State of Hawaii Department of Business, Economic Development & Tourism, Land Use Commission	9/4/01	1	We have no comments to offer.
Don Hibbard, Administrator, State Historic Preservation Division, State of Hawaii, Department of Land and Natural Resources	9/7/01	1	Since the preferred alternative includes new routes, we would like a windshield level survey done along these new routes to identify historic sites that may be affected.
		2	Of concern to our office, in addition to the underground archaeological resources that may be uncovered, are the historic sites along the route. We would like to ensure that road widening, ramps, transit stations and any other structures necessary to operate the BRT system does not adversely impact these historic sites.
		3	Please note, in the permits and approvals section that while our approval is not necessary to proceed under Section 106 of the National Historic Preservation Act, the responsible federal agency will need to document its consultation with our office.
		4	Also, our written concurrence for projects by the state or its political subdivisions is required under Chapter 6E-8, Hawaii Revised Statutes.

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
Daniel S. Quinn, State Parks Administrator State Department of Land and Natural Resources	9/10/01	1	We appreciate the opportunity to review the Supplemental Draft EIS Preparation Notice for the subject project and would like to request to be a consulted party.
Sharyn L. Miyashiro, Executive Director State Department of Business, Economic Development & Tourism Housing and Community Development Corporation of Hawaii	9/12/01	1	At this point in time, we have no additional comments
Gilbert Coloma-Agaran, State Historic Preservation Officer State Department of Land and Natural Resources Historic Preservation Division	9/19/01	1	In general, we will need to have more specific information on what historic properties are present within the Area of Potential Effect (APE) as well as more details on any ground disturbing activities required to construct portions of the project
Ronald Hirano, Executive Director Aloha Tower Development Corporation	9/21/01	1	We are supportive of these revisions to your project.
		2	What is the timetable for completion of the Kakaako Makai Branch?
		3	Where will the terminus be placed for the Aloha Tower stops?
Gordon Matsuoka, Public Works Administrator, State of Hawaii, Department of Accounting and General Services	9/21/01	1	We are currently working with the Housing and Community Development Corporation of Hawaii (HCDCH) to plan the development of our portion of the area located at and around the old OR&L Building near the intersection of King Street and Iwilei Road. Our intent is to construct a Liliha Civic Center to provide office space for State agencies to service the public. As such, we believe: The proposed plan extending Kaaahi Street (at grade) toward Diamond Head to Iwilei Road would result in maximum disruption to the planned civic center site. It nearly bisects the property with a roadway that we do not intend to utilize. We question if a Bus Rapid Transit (BRT) easement is required to traverse the site at all (as opposed to remaining on Dillingham Boulevard to and from King Street, for example, since the plans for the BRT already take away two of the five lanes on Dillingham one block away). In lieu of an easement for the roadway, we propose an exchange of road Right-of-Way for county-owned school land.
		2	The proposed BRT station and any BRT parking structure on site would also adversely affect the development of the civic center, by increasing traffic around our site and taking up valuable property.
		3	That if the city still plans to go ahead with items 1 and 2 above, then the City should consider purchasing the adjacent Ohtani property to execute a land swap plus purchase of all improvements with the State. This would provide us with adequate property free of the disruption from increased vehicular traffic.
		4	Further, we request additional information about the proposed extension. What is the anticipated volume and type of traffic?
		5	Will private vehicles be permitted to use Kaaahi Street to cross through the site to Iwilei Road?

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
Gordon Matsuoka, Public Works Administrator, State of Hawaii, Department of Accounting and General Services	9/21/01	6	Nearly ten years ago, the previous professionally-planned rapid transit project (unfortunately now defunct), was conceived to be above grade in this area, with a station located Ewa off-site, makai of Kaaahi Street to serve this neighborhood. The transit easement alignment would have been much closer to the makai boundary than, for example, an extension of Kaaahi Street provides, and would therefore have less of an impact on our portion of the site.
Allan Ah San, Associate Vice President University of Hawaii	9/21/01	1	We have reviewed the Supplemental DEIS Preparation Notice and have no comments to offer at this time.
Gary Gill, Deputy Director State Department of Health	10/2/01	1	Wastewater Branch - All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We reserve the right to review the detailed wastewater plans for conformance to applicable rules.
		2	Clean Air Branch - The Department of Health, Clean Air Branch, has concerns on construction activities where potential dust problems may arise. There is a significant potential for fugitive dust to be generated during the various phases of the project, including clearing and removal of debris, grubbing, grading, and excavation.
		3	Implementation of adequate dust control measures during all phases of construction is warranted. Construction activities must comply with provisions of Chapter 11-60, Hawaii Administrative Rules, section 11-60.1-33 on Fugitive Dust
		4	The contractor should provide adequate means to control dust from road areas and during various phases of construction activities. These means include, but are not limited to: Control of Fugitive Dust.
		5	Clean Water Branch - The applicant should contact the Army Corps of Engineers to identify whether a federal permit (including a Department of the Army permit) is required for this project.
		6	A National Pollutant Discharge Elimination System (NPDES) general permit is required for the following discharges to waters of the State: (conditions listed). Any person requesting to be covered by a NPDES general permit for any of the above activities should file Notice of Intent with the Department's Clean Water Branch at least 30 days prior to commencement of any discharge to waters of the State.
		7	After construction of the proposed facility is completed, an NPDES individual permit will be required if the operation of the facility involves any wastewater discharge into State waters.

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
City and County of Honolulu			
Gary H. Okino, Councilmember District 8	9/19/01	1	A. Inclusion of the Kamehameha Highway Transit Corridor/BRT SPUR and Transit Stations in the SDEIS Analysis. 1. In lieu of the originally proposed Kaonohi Street BRT ramps and Kamehameha Drive-In location of a transit center, the Pearl City-Aiea working group recommended the following transportation elements: 1) Establishment of a transit corridor or "BRT spur" along Kamehameha Highway; 2) Development of two community transit centers along Kamehameha Highway, one at the site of the former Jim Slemmons auto dealership, the other on the site of the old Hale Mohalu Hospital; 3) Development of a major transit center with park-and-ride facilities at the Aloha Stadium overflow parking lot; and Construction of a new BRT on/off ram near Luapele Street to connect the Aloha Stadium Transit Center with the H-1 zipper lanes. It appears from the SDEIS Preparation Notice that the only element of the working group's recommendation to be included in the SDEIS is the construction of the new BRT on/off ramp near Luapele Street. This is a serious omission since the Kamehameha Highway transit corridor and transit stations are intended to service BRT vehicles that will directly enter and run along the Regional BRT H-1 corridor.
		2	Why is this integral part of the system being carved or parceled out of the SDEIS analysis? Does this limited review comply with the intent and legal requirements of the Environmental Impact Statement process? I believe that it is imperative that the SDEIS ascertain the impacts of the system as a whole not just a few selected parts!
		3	Since all elements of the Pearl City-Aiea working group's recommendation will be directly contributing to the BRT system's overall patronage and ridership estimates, revenue projects, and construction and operational expenses, it is only reasonable and logical that all elements likewise be included in the SDEIS analysis of impacts. Moreover, since these new elements will likely alter the results of the existing system-level analysis and findings provided in the MIS/DEIS, these additional elements must be included within the SDEIS to assure reliable, complete, up-to-date, and accurate system-wide projections and estimates.
		4	The amended LPA (reference Resolution 01-208, CD1, FD1) specifically provides that the Kamehameha Highway contra-flow transit corridor and the Pearl City and Aiea transit centers be projects separate from, but complementary to, the amended LPA. Accordingly, this is to request, and strongly urge, that all elements recommended by the Pearl City-Aiea working group identified above, not just the replacement of the Kaonohi Street BRT ramp with one at Luapele Street, be included as part of the SDEIS analysis.

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
Gary H. Okino, Councilmember District 8	9/19/01	5	1. Farrington Highway Transit Corridor and BRT Spur It has recently been brought to my attention that the Department of Transportation Services is also considering developing a portion of Farrington Highway into a transit corridor/BRT spur similar to that proposed for Kamehameha Highway in the Pearl City-Aiea area. For all of the same reason identified above, I strongly urge that this proposed Farrington Highway transit corridor/BRT spur, and its related transit components, be included as part of the SDEIS analysis.
		6	2. Agreement of Participation by State and Federal Agencies A major factor in the success of the overall BRT system is the use of state and federal government infrastructure. For example, the Regional BRT route proposes to utilize the State Department of Transportation's Zipper Lane as a transit corridor, and the Luapele Drive BRT ramp will be connected to and accessible via the Navy-owned portion of Luapele Street. Has the City received assurances from the appropriate agencies that it will be allowed to utilize the aforementioned as well as any other State- and Federally-controlled properties for the BRT system? If not, how will this affect the BRT project where specific locations/elements are identified in the SDEIS? What will be the result of a worst-case scenario where permission is not granted by either or both governments?
		7	3. Mixed Traffic Impediments to Efficient Regional and In-Town BRT Vehicular Movement The key to efficient and effective movement of the BRT vehicles is their use of exclusive right-of-ways or traffic lanes to by-pass the normal congestion of our streets and highways. Unfortunately, there are several segments along the BRT route where the BRT vehicles must operate in mixed- or shared-use lanes with normal traffic. This is potentially a fatal flaw to the entire system.
		8	If the BRT is forced to compete with and operate in existing traffic flow, bottlenecks will surely develop, resulting in greatly diminished speed and possibly even gridlock.
		9	While most of these shared-use segments are within the "In-Town" portion of the project (i.e. Kapiolani Boulevard between Atkinson and Kalakaua, Kapiolani Boulevard between Isenberg and University, along Richards Street, along King Street, etc.), it appears that some shared-use segments may also exist, at least temporarily, along the "Regional" portion as well.

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
Gary H. Okino, Councilmember District 8	9/19/01	10	To assure that we do not construct a system which simply moves commuters quickly to the next bottleneck, where it will stall in existing traffic, I strongly recommend that the SDEIS: 1) Identify all segments of BRT (both Regional and In-Town) where vehicles will be forced to use, share, or transition across mixed-use traffic lanes; 2) Analyze possible alternatives to such mixed-use; and 3) Develop and recommend a set of alternatives that assure BRT vehicles exclusive right-of-way from one end of the system to the other.
		11	E) Impact of New Developments on the BRT System There are locations along or in close proximity to the BRT route where major new developments and land uses have been proposed. While it may be impossible to anticipate all of the potential development or redevelopment sites; the SDEIS should identify and consider the impacts upon the BRT system (both positive and negative) of those developments for which preliminary plans have at least been proposed.
		12	A.5 UPDATE OF FINANCIAL ANALYSIS It is unclear from the language of the Preparation Notice whether or not a full update of the BRT Financial Analysis is proposed as part of the SDEIS. Clearly, given the additional costs associated with the added In-Town and Regional routing, as well as changes to the location and basic designs of the Regional on/off ramps, the overall cost and financial impact of the system will change significantly. Moreover, the additional In-Town routing and the inclusion of the Kamehameha Highway and Farrington Highway transit corridor/BRT spurs will significantly impact estimates of overall system ridership, revenue, and operating costs. Moreover, the State of Hawaii has recently stated (reference attached State DOT letter of September 18, 2001) that, "It is not our intent or expectation to provide funding for the BRT project; and have developed our capital improvement programs accordingly. Accordingly, if the financial analysis of the Primary Corridor Transportation Project is to be complete and accurate, it must be thoroughly updated to reflect all the changes and additions to the system that are currently being proposed, as well as review and revise the entire funding scheme based upon the State's non-participation.
Lee D. Donohue, Chief of Police City and County of Honolulu Police Department	9/12/01	1	The Honolulu Police Department has no comment to offer at this time.
Attilio K. Leonardi, Fire Chief City and County of Honolulu Fire Department	9/13/01	1	The proposed changes will not have an adverse impact on the services provided by the Honolulu Fire Department.

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
Clifford S. Jamile, Manager and Chief Engineer City and County of Honolulu Board of Water Supply	9/14/01	1	We have no objections to the proposed modifications to the locally preferred alternative. We reserve further comments until the Supplemental Draft Environmental Impact Statement is submitted for our review.
Randall K. Fujiki, AIA Director of Planning and Permitting City and County of Honolulu Department of Planning and Permitting	9/19/01	1	As indicated in our November 16, 2000 memo on the Draft Environmental Impact Statement, the revisions should be coordinated with proposed revisions to the Primary Urban Center and the Central Oahu Development Plans which are presently undergoing major revisions.
		2	Information on relevant alignment and station descriptions, estimated costs and CIP schedules, and implementation schedules for both the In-Town and Regional BRTs should be included where appropriate to determine if Development Plan Public Facilities Map or Public Infrastructure Map amendments will be required before CIP monies for construction and land acquisition are budgeted.
		3	The proposed In-Town BRT Branch Alignment includes five proposed stations located in the Chinatown, Hawaii Capital, and the Thomas Square/Honolulu Academy of Arts Special Districts. In Section 3.2.1 – Land Use and Relocation, there should be discussions about any consistency and/or impacts the proposed stations and BRT alignment will have on these special districts regarding their respective district objectives, historic architectural character, landscaping, pedestrian linkages, and view corridors.
		4	In Section 3.2.3 – Parks and Recreation Areas, Section 3.2.4 – Archaeological, Historic and Cultural Resources and Section 3.2.5 – Visual and Aesthetic, of the DEIS, there should be discussion regarding any impacts of the proposed stations and alignments on existing parks, streetscape improvements (i.e. curbs, gutters, sidewalks, planting strips, street trees, light standards, and signage), historic structures, and significant sites.
		5	In those areas not included in the special districts, it would be helpful to us to have a discussion on impacts the proposed In-Town Branch Alignment will have on existing street trees.
		6	Additional permits and/or approvals, other than Special Management Area permits, should be disclosed, i.e., the need for special district permits, waivers, and exemptions as a "public use," and Trenching Permits.

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
Organizations			
J.T. Miller, Chairman Resident Committee to Address Honolulu SDEIS Harbor Square Condominium Association	9/21/01	1	The routes directed both mauka and makai upon Richards Street, from King Street to Halekauwila Street/Ala Moana Boulevard are judged ill conceived as to functional operation and adherence within the framework of impact upon the environment..
		2	There are also major unaddressed issues which require total clarification for a comprehensive and acceptable final DEIS.
		3	3.1.1 Air Quality. As stated "Mesoscale impacts resulting from the proposed modifications are not expected to be different from what was disclosed in the MIS/DEIS." How can that be determined, when there has been no determination/selection as to the device of transportation, i.e. bus/train. Testing could not be completed until such vehicles are in place, especially on the heavily frequented segment of Richards Street between Queen Street and Ala Moana Blvd., which is lined with tall buildings, (one of which being residential).
		4	Utilizing the diesel powered articulated tractor type buses now in use with three lines operating one bus every three minutes, (or 60 buses per hour, or 1 per minute) air quality in this downtown canyon would definitely be required data. It is absent.
		5	Section 3.1.2 Noise and Vibration The opening statement of this section states there are no land uses along the proposed In-Town BRT alignment that are sensitive to excess noise such as residences. Located at the corner of Richards and Halekauwila Street, (the bottleneck which the three Kakaako lines intersect), stands a 27 story residential building. All three lines of his reference BRT pass directly beneath the windows of eighty (80) bedrooms, where working people will be trying to sleep at night, so as to be rested for the coming day.
		6	Because this bottleneck in the route structure, requiring right angle turns of the hinged buses, it will necessitate braking, then powering up again to regain speed, a very noise-generating procedure, which will occur, electric powered or diesel driven.
		7	Due to the narrow width of Richards Street (44ft), all on street parking will be removed to accommodate the makai/mauka bus lanes and yet include vehicular traffic entering and exiting the parking structures of the following business buildings between King Street and Halekauwila Street. (Buildings listed)....
		8	Located on the Diamond Head side of Richards Street, Below Merchant Street, is the U.S. Postal Service marshaling yard, facilitating over 150 mail trucks per day throughout the work week, commencing with a lineup each morning from 8:00 to 9:00 am of postal vehicles awaiting the deliveries to be dispensed, and at times blocking two lanes.
		9	Because of multiple and varied business utilization on Richards Street, it's narrow width, and the absence of loading docks for both the Melim Building and the Ocean View Center, the open street is often utilized for on street garbage pickup, moving trucks, courier deliveries, tree trimming, and other business requirements.

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
J.T. Miller, Chairman Resident Committee to Address Honolulu SDEIS Harbor Square Condominium Association	9/21/01	10	In the meeting of the DTS Bus Rapid Transit team, moderated by City Council Chairman Yoshimura, with the residents of Harbor Square Condominiums, held at Maritime Museum on 17 September 2001, it was made adamantly clear that the addition of sixty double carred transit buses, (one per minute), to the existing traffic from parking garages on Richards Street would cause insoluble gridlock for area workers and residents.
		11	This radical redesign of the Ala Moana Boulevard/Halekauwila Street/Richards Street juncture is fraught with dysfunction. Beneath the street and islands in this area lies a veritable labyrinth of conduits for: The Honolulu Electric Company (HECO), the Board of Water Supply, and the runoff drainage system for downtown Honolulu.
		12	Within a 100 ft. radius at this intersection, are situated fifteen manholes, accessing these vital (and aging) service tunnels beneath the streets. These manholes are utilized regularly, and nearly always requiring the coning of one or two lanes of Ewa bound traffic on Ala Moana Blvd., choking traffic to a crawl. Yet this will be the triangular apex of the Kakaako routing.
		13	As all Waikiki routing must pass through this bottleneck, either outbound or inbound, it is foreseeable that the Rapid Bus Transit System servicing Waikiki could be brought to a virtual halt.
		14	Unaddressed here is the environmental disfigurement in creating this intersection by the removal of eight 30 ft. palm trees and three plumeria trees, the area to be paved over for double car bus transit.
		15	As presented, the subject Supplemental DEIS will have enormous detrimental environmental impact upon the segment of Richards Street discussed. It will produce traffic congestion, air pollution, noise pollution, and finally, unreliable transit service, due primarily to route selection.
		16	There are at least four alternatives that would better serve this purpose than Richards Street. They are: South Street, Punchbowl Street, Mililani Street, and Bishop Street.
		17	The Downtown Neighborhood Board, a representative body elected by the people, has voted unanimously against the use of Richards Street as a route for the proposed transit plan. And the majority of residents and businessmen of this area are opposed as well.
Beverly W. Harbin, President Kakaako Improvement Association	9/21/01	1	We are in agreement that the three planned routes will effectively service our community. However, if the Kakaako Makai route is at any time deleted from existing plans, we would like to suggest the following changes:
		2	BRT Kakaako-Mauka Branch: KIA proposes to locate the route more in the center of this "critical mass" and provide a more efficient and direct route through Kakaako as follows: to continue makai on South St. to Auahi St. turning left on Auahi and traveling straight on Auahi all the way to the Queen Street stub off Ala Moana. In this closer proximity to the "critical mass" of the Ala Moana Boulevard area and in providing a straighter route through Kakaako (thus utilizing fewer individual streets), this proposed route reduces the environmental impact of the project.

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
Beverly W. Harbin, President Kakaako Improvement Association	9/21/01	3	BRT Kakaako-UH-Manoa Branch: KIA proposes that the route continue on King Street to Pensacola, then turn right and make a left turn onto Kapiolani Boulevard at Pensacola. This would avoid potential traffic congestion at Ward and Kapiolani.
Kirk Tomita, Senior Environmental Scientist, Hawaiian Electric Company, Inc.	10/4/01	1	HECO shall reserve further comments pertaining to the protection of existing powerlines bordering the project area until construction plans are finalized.
Community Groups			
Lynne Matusow, Chair Downtown Neighborhood Board, No. 13	08/22/0`	1	The SDEIS Preparation Notice, Section 2.1 – describing the Kakaako Makai Bus Rapid Transit alignment - stated that the alignment currently travels on the Hotel Street Mall until the split at North King Street and Richards Street. Advised that King Street in this area is South King Street.
Lee Manfredi, Secretary Board of Directors Waialae-Kahala Neighborhood Board, No. 3	9/21/01	1	I have reviewed the proposed modifications and impact studies and find the proposals acceptable. I have no recommendations for changes to the proposals at this time.
		2	Where the project involved utilizing arterial streets, those streets have speed limits that are out of date with the current use and design of those streets. There are speed limits set at 25 or 30 MPH on streets and roadways that should be upped to at least 35 to 40 MPH, and 40 that should be upped to 45 MPH. These roadways with the low speed limits appear before or after a freeway entry or exit, i.e. Kalanianaole Highway east bound toward Aina Haina.
		3	The intersection traffic lights are not synchronized at all anywhere. Huge traffic jams are further exasperated when the traffic lights run independently of each other, i.e. Beretania Street westbound toward downtown.
Private Citizens			
Wendell Lum, Member Kaneohe Neighborhood Board No. 30 and the Citizen Advisory Committee of the Oahu Metropolitan Planning Organization	9/7/01	1	After Rounds 1 and 2 of the Oahu Trans 2K meeting, public and agency input was combined with technical analysis to define an initial set of alternatives. Only No-Build, Enhanced Bus/Transportation System Management (TSM), Bus Rapid Transit (BRT), and Light Rail Transit (LRT) were considered. A cost-effective shorter grade-separated light rail alternative most over existing street rights-of-way was not included to be an alternative for the In-Town portion. As the chosen Locally Preferred Alternative (LPA) the last time and within the last ten years it should have been again naturally included, for comparison, once and for all to see and comment on.
		2	The process should ensure that critical community concerns and technical issues are identified early in the study and addressed in the engineering, environmental, economic, and financial analyses...
		3	Was it a done deal to guide the process from the beginning by the City's Department of Transportation and its hired consultants to put the Bus Rapid Transit (BRT) as a preferred final choice somehow by eliminating a superior grade-separated light rail alternative?
		4	According to the U.S. Department of Transportation website: http://www.fta.dot.gov/research/pdf/iibrt.pdf there are problems of arterial bus priority treatments (Bus Rapid Transit).

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
Wendell Lum, Member Kaneohe Neighborhood Board No. 30 and the Citizen Advisory Committee of the Oahu Metropolitan Planning Organization	9/7/01	5	Providing high quality service within the downtown sections of metropolitan areas like Honolulu which is the key to the Bus Rapid Transit concept has not been the subject of a comparable effort in the rest of the U.S.
		6	The most basic obstacle to creating bus lanes in Honolulu is the lack of adequate cross section to separate buses from general purpose traffic.
		7	The need to allow general purpose traffic to use a bus lane for turning interferes with bus operations, increasing travel times and adding to problems of enforcing the restriction of the lane to buses under all other circumstances.
		8	Curbside parking by emergency, delivery, and service vehicles also obstructs bus movements and is particularly disruptive if the bus lane is restricted to a single lane width.
		9	A drawback of median bus lanes is that passengers must walk across general purpose traffic lanes to reach the bus stop.
		10	The constraints imposed by traffic signal progression will limit effective application of signal preemption along the In-Town portion of the corridor.
		11	Because of the use of narrow platforms because of very narrow street rights-of-way the so-called transit stations will not eliminate the need to restrict boarding to the front door of the bus which takes additional time.
		12	System integration becomes an issue when the need to provide transfers between routes and other forms of public transportation where passengers pay fares at these transfer points with on board payment.
		13	The DEIS does not give details on the impact with the loss of one and in most cases two lanes of multi-purpose traffic lanes within the proposed corridor.
		14	Giving priority to the proposed BRT will cause additional delays at cross streets and pedestrian cross-walks creating additional traffic congestion at these locations?
		15	A grade-separated light rail system would do the most to improve the capacity of the transportation system to carry people through Honolulu as the population thrives through 2025.
		16	Because of its exclusive guideway would increase the mode share of transit more than any other alternative travel time savings for transit patrons, providing most reliable service that would be buffered from traffic delays, improving in-town mobility and strengthening the connections throughout the island of Oahu.
		17	The nature of the exclusive right-of-way for the grade-separated light rail would provide significantly faster travel times within Honolulu.
		18	The constant at-grade situations of pedestrians, automobile traffic, traffic lights, emergency vehicles, construction and repairs of underground utilities below the exclusive lanes of the BRT, traffic accidents, long stops because of passenger loading limitations, exceptional narrow bus stops, and more time between vehicles don't help the situation.

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
Wendell Lum, member Kaneohe Neighborhood Board No. 30 and the Citizen Advisory Committee of the Oahu Metropolitan Planning Organization	9/7/01	19	Additionally monitoring of both exclusive and shared lanes with the BRT will be a problem and more adjustments to satisfy problems with the communities nearby, currently going on, will cause additional mediation with a Bus Rapid Transit System to further deteriorate the word "rapid."
		20	Lack of sufficient cross-section of streets of the corridor creates very narrow bus stops, which also prevent faster on-board loading of passengers with a single front entry for verification of fares paid providing further deterioration of transit travel times.
		21	Maintenance and construction projects under our streets within the proposed BRT corridor has potential of nearly shutting down the system sometime in the future if implemented.
		22	Under the Bus Rapid Transit (BRT) alternative because there has been lack of the subject of comparable effort in North America this newer transit alternative application for success is not really known except in Curitiba, Brazil which is very different being under the control of a dictatorship.
		23	Narrow bus stops and limited availability of park and ride facilities are not better able to handle surges in ridership due to possible changes in land use policies in central Oahu, special events and sporting events easily.
		24	More transfers would be needed for both the In-town BRT and a grade-separated light rail system due to the proposed hub-and *spoke-bus network*
		25	Today's grade-separated light rail vehicles have noise emissions comparable to those of an electric trolley bus.
		26	Today's grade-separated light rail vehicles use far less power than other rapid transit systems and releases no harmful chemicals into our atmosphere.
		27	Fully automated and driveless grade-separated light rail vehicles can run more frequently than any BRT vehicle peak and non-peak hours.
		28	Because of lack of a comparable effort for a Bus Rapid Transit System on the mainland and even in Europe I see a missing alternative that should have been considered fairly for all taxpayers.
		29	A grade-separated light rail can be fast, convenient, reliable, and the right choice among all other alternatives.
		30	Building a grade-separated line for the In-Town portion will create many jobs and is a good investment in our city's future.
		31	Because it runs on its own tracks, separated from roads this transit system eliminates conflicts that are frequent on the road system.
		32	A grade-separated light rail system costs less in the long term and offers greater benefits.
Charles M. Ferrell Harbor Square	9/13/01	1	As proposed, traffic on Richards Street will be greatly increased by the addition of 2 BRT routes mauka and makai as well as the inclusion of a major intersection at Richards, Halekauwila, and Ala Moana Boulevard. In addition to the 2 BRT routes, a new mauka lane will be created which will introduce additional traffic on Richards street flowing from Halekauwila and Ala Moana Boulevard.
		2	Since BRT buses are projected to run at 4 minute intervals (30 buses/hour) at peak travel times, turning vehicles will have to not only compete with buses for access to the appropriate travel lanes but with vehicles already in these lanes.

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
Charles M. Ferrell Harbor Square	9/13/01	3	The creation of a traffic lane along the Ewa curb will eliminate a section of curb adjacent to Harbor Tower currently available for pickup and/or discharge of passengers. This area represents the only handicap accessible entry for residents or visitors to the front entrance. The loss of use of this facility will have a detrimental effect on the social conditions of residents and visitors.
		4	The use of Richard Street for 2 BRT routes as well as two traffic lanes will curtail the beneficial uses of the environment for residents and businesses located along the route as follows: 1. Increased noise, vibration and diminution of air quality from vehicular pollutants resulting forma significant increase in traffic. This will be a major problem for the parking garages from the back-up of vehicles waiting to enter or exit during peak travel times.
		5	2. Significant social effects from the loss of quality of living brought about by stresses engendered from increases in the density of detrimental environmental factors, such as those mentioned above. Additionally, the construction of a major intersection as well as 2 BRT and traffic lanes with its attendant disruption of the peace and tranquility of residents will be inevitable.
		6	3. Significant economic impact due to the reduction in value of properties resulting from the decrease in desirability of Harbor Square as a place to live or do business. Additionally, the city will have a loss of property tax revenues as a result.
		7	4. These factors will cumulatively have an effect upon the health and welfare of residents and business employees as a result of the introduction of significant traffic congestion in their living and working environments. Nor will they benefit from the BRT since there will be no access to busses along Richards Street.
		8	The use of Richards Street for 2 BRT routes as well as the introduction of traffic lanes which do not presently exist will have a major environmental impact upon the residents and businesses located in the area.
Federick C. Gross	9/18/01	1	The routing described in Par. 2.1 is circuitous at best, and the turn from Richards to Halekauwila exists but the entrance to Bishop Street does not exist. At best, all these streets are narrow and hardly suitable for buses even without any street parking. I believe that a better solution to the movement of bus traffic in this area should be found.
		2	Both King Street and Pensacola Street are one-way roads, and now are selected for two-way bus routes. This appears unsatisfactory.
		3	BRT Exclusive Ramp on the H-1 Freeway near Aloha Stadium: I am not familiar with the proposed ramp, but it would be most useful if it could be built with two lanes each on a divided road; thus, it could be used for inbound and outbound traffic at the same time.
Ms. P. Pasha Baker, Resident Harbor Tower	9/21/01	1	We already have buses on three sides of our complex – Nimitz Highway, Alakea Street, and Queen Street. Fortunately these three streets are able to accommodate this load, however we have three sides our building that we cannot stop alongside of, park, or load and unload passengers. If the new system is allowed to take over our tiny Richards Street we will be made an island.

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
Ms. P. Pasha Baker, Resident Harbor Tower	9/21/01	2	It has been with shock and disbelief that we were suddenly notified that these meager remnants on Richard Street are now planning to be eliminated and that this has been in the planning stages for three years without any of us (some 2000 of us in the residential and commercial towers) being advised and/or consulted of the plans to punish us with a complete strangle on us and create hardships beyond measure.
		3	We would like to know - why are we being punished like this?
		4	Why has Mililani Street not been considered for this purpose? Why has Punchbowl Street not been considered for this? Why has South Street not been considered for this?
		5	Who do we turn to for help and answers to this matter?
		6	How can we get some consideration and at least a hearing with your office to address our problems?
Doug Meller	9/21/01	1	I would like to be a formally consulted party and be provided with a paper copy of the Supplemental DEIS, the Final EIS, and future BRT-related environmental documents.
		2	Adding a new BRT route means revising the BRT Alternative to attract more riders. How many daily transit trips would the No Build and the TSM Alternatives generate assuming the same total number of buses as the revised BRT Alternative in 2025? It seems obvious that fewer buses will result in fewer routes, reduced frequency of bus service, longer waits at bus stops, longer boarding times at bus stops, increased crowding of buses, fewer express buses, and fewer bus riders. Assuming the No Build and the TSM Alternative have fewer buses than the BRT Alternative will prevent a fair comparison.
		3	When does the City plan to convert existing traffic lanes east of Middle Street to exclusive use of the BRT route which will serve the UH? At that time, • which intersections will experience significantly reduced levels of service? • how many bus riders will be better off and how much reduction in travel time will they experience? • how many drivers will be worse off and how much more travel delay will they experience?
		4	When does the City plan to convert existing traffic lanes east of Middle Street to exclusive use of the BRT route which will serve Waikiki? At that time, • which intersections will experience significantly reduced levels of service? • how many bus riders will be better off and how much reduction in travel time will they experience? • how many drivers will be worse off and how much more travel delay will they experience?
		5	Am I correct in assuming that the proposed BRT route with stops at Aloha Tower and Kewalo Basin is contingent on the HCDA extending Ilalo Street to Punchbowl Street, and that extension of Ilalo Street may not occur within the next decade?
		6	When will the proposed BRT freeway-access ramp at Luapele Street, associated freeway widening, and the associated park-and-ride lot be constructed and what will each of these improvements costs?

TABLE A.4-2 (CONTINUED)
SUMMARY OF COMMENTS RECEIVED IN RESPONSE TO THE SDEISPN AND NOI
AS OF OCTOBER 4, 2001 (RESPONSES TO THE COMMENTS APPEAR IN EXHIBIT A-2)

Commentor	Letter Date	No.	Comments
Doug Meller	9/21/01	7	Each day, how many buses and bus rider will use the proposed BRT freeway access ramp at Luapele Street: • when it is first constructed? • in 2025?
		8	When the zipper lane is normally not deployed, and during peak traffic when the zipper lane cannot be deployed because of an incident or mechanical problems, the BRT will not be able to use the proposed Luapele ramp. What route will the BRT take when the proposed Luapele ramp cannot be used?
		9	If the proposed Luapelel ramp were not built, what is the projected drop in daily bus ridership?
		10	If the proposed park-and-ride lot were not built near the proposed Luapele ramp, what is the projected drop in daily bus ridership?
		11	In general, how large an expenditure does the City consider justified to attract a single additional daily bus rider? Will proposed expenditures to construct a BRT freeway-access ramp at Luapele Street, associated freeway widening, and the associated park-and-ride lot meet this standard?

Source: City and County of Honolulu Department of Transportation Services and Parsons Brinckerhoff, March 2002.

TABLE A.4-3
PUBLIC OUTREACH ACTIVITIES, JANUARY 2001 TO MARCH 2002

Date	Organization	Date	Organization
January 11, 2001	Hawaii Council of AOAO	April 26, 2001	Pearl City Neighborhood Board
January 17, 2001	HCDCH	April 26, 2001	OHA and OEQC
January 19, 2001	State Department of Transportation (SDOT)	April 27-29, 2001	Spring New Products Show
January 30, 2001	Hawaii Developers' Council	April 30, 2001	Kakaako Improvement Association
February 7, 2001	Ron Lim, Spec. Asst. to Governor	May 1, 2001	City Square & Drywall Taper, Finishers & Allied Workers Union
February 13, 2001	Rae Loui, DDC	May 2, 2001	Hawaii Bicycling League
February 15, 2001	Zhuhai Transportation Committee	May 3, 2001	McCully/Moiliili Neighborhood Board
Feb. 16-18, 2001	Great Aloha Run Fitness EXPO	May 4-5, 2001	Mayor's Asia/Pacific Environmental Summit
February 22, 2001	Pearl City Neighborhood Board	May 8, 2001	Hilton Hawaiian Village
February 26, 2001	Kamehameha Schools	May 16, 2001	DLNR
February 27, 2001	Ala Moana/Kakaako NB	May 20, 2001	Hawaii Bicycling League – Bike Ride
February 28, 2001	American Institute of Architects	May 21, 2001	The Estate of James Campbell
March 1, 2001	Downtown Neighborhood Board	May 24, 2001	Councilmember Gary Okino
March 13, 2001	OMPO TOP 2025 Islandwide Meeting	May 24, 2001	Cultural Resources Expert Panel
March 15, 2001	CH2M Hill	May 31, 2001	University of Hawaii – Manoa
March 22, 2001	University of Hawaii – Manoa	June 8, 2001	Committee for Accessible Transit
March 27, 2001	Ala Moana/Kakaako NB	June 13, 2001	Honolulu Community College
March 28, 2001	Aiea/Pearl City Town Meeting	June 13-17, 2001	Home and Garden Show
March 29, 2001	GCA/AIA Joint Event	June 14, 2001	Ala Moana Center
March 30, 2001	Ala Moana Center	June 18, 2001	Wahiawa Neighborhood Board
April 4, 2001	Aloha Stadium Authority	June 19, 2001	Hawaii Transportation Association
April 5, 2001	Downtown Neighborhood Board	June 23, 2001	PUC Development Plan
April 6, 2001	Livable Waikiki Project (Planning)	June 26, 2001	Blood Bank of Hawaii
April 6, 2001	AARP	June 26, 2001	PUC Development Plan
April 9, 2001	DCS – Elderly Affairs Division	June 27, 2001	Honolulu Community College
April 9, 2001	Liliha/Kapalama NB	June 27, 2001	Waipahu Community Meeting
April 10, 2001	Hui Aikane (Sr. Citizen Group)	July 3, 2001	U.S. Army
April 10-11, 2001	CCH – Small Business on the Move	July 5, 2001	Downtown Neighborhood Board
April 16, 2001	Aloha Stadium Authority	July 5, 2001	McCully/Moiliili Neighborhood Board
April 19, 2001	AIA –Speakers Forum	July 9, 2001	Makiki Christian Church
April 21, 2001	Mayor's Vision Team Meeting	July 10, 2001	Iolani Palace
April 24, 2001	Hawaii Bicycling League	July 10. 2001	Senator Norman Sakamoto

TABLE A.4-3 (CONTINUED)
PUBLIC OUTREACH ACTIVITIES, JANUARY 2001 TO MARCH 2002

Date	Organization	Date	Organization
July 16, 2001	Kaiser-Permanente Honolulu Clinic	September 13, 2001	Department of Lands and Natural Resources – State Historic Preservation Division
July 24, 2001	Mayor's Maritime Advisory Committee	September 14, 2001	OMPO Policy Committee
July 24, 2001	Larry Hurst	September 17, 2001	Harbor Square Condominium
July 24, 2001	Ala Moana/Kakaako Neighborhood Board	September 19, 2001	OMPO Policy Committee
July 25, 2001	City Council Transportation Committee	September 21-23, 2001	17th Annual Senior's Fair
July 31, 2001	Aloha Tower Development Corporation	September 25, 2001	FHWA
July 31, 2001	SUPERSTAR Hawaii	October 1, 2001	U.S. Navy
July 31, 2001	Aloha Tower Marketplace	October 2, 2001	Waikiki Working Group
July 31, 2001	Waipahu Town Meeting	October 3, 2001	Marco Polo
August 2, 2001	McCully/Moiliili Neighborhood Board	October 4, 2001	Ala Moana Neighborhood Board
August 2, 2001	OEQC	October 5, 2001	Kakaako Improvement Association
August 4, 2001	Pearl City Neighborhood Board	October 8, 2001	Outrigger Hotels and Resorts
August 4, 2001	Mayor's Vision Team Meeting	October 10, 2001	State Department of Transportation
August 8, 2001	Councilmember Romy Cachola & Kalihi Businesses	October 10, 2001	Department of Parks and Recreation
August 9, 2001	University of Hawaii – Manoa	October 12, 2001	U.S. Navy
August 14, 2001	Oahu Trans 2K Open House	October 15, 2001	Planning Session Meeting
August 15, 2001	FHWA NHPA Workshop	October 15, 2001	Ilikai Hotel and Condominiums
August 15, 2001	Belt Collins Hawaii	October 16, 2001	Harbor Square
August 16, 2001	Makiki Neighborhood Board	October 18, 2001	Hawaii Prince Hotel
August 22, 2001	State Department of Transportation	October 19, 2001	Cement & Concrete Products Industry
August 27, 2001	Vehicle Tech. Advisory Committee	October 21, 2001	Livable Waikiki Consultant Group
August 27, 2001	Department of Design and Construction	October 23, 2001	Waikiki Working Group
August 27, 2001	U.S. Army	October 23, 2001	Ala Moana/Kakaako Neighborhood Board
August 30, 2001	Car & Truck Rental & Leasing Assn.	October 24, 2001	Outdoor Circle
September 5, 2001	Kaimuki Neighborhood Board	October 24, 2001	City Council-Transportation Committee
September 6, 2001	McCully/Moiliili Neighborhood Board	October 26, 2001	Vehicle Technology Advisory Committee
September 7, 2001	McKinley High School	October 29, 2001	Land Use Research Foundation of Hawaii/ Leeward Oahu Transportation Management Association
September 9, 2001	Liliha Neighborhood Board	November 3, 2001	Pearl City Bus Facility Open House
September 12, 2001	Hawaii Hotel Association	November 6, 2001	Puck's Alley Businesses

TABLE A.4-3 (CONTINUED)
PUBLIC OUTREACH ACTIVITIES, JANUARY 2001 TO MARCH 2002

Date	Organization	Date	Organization
November 7, 2001	State Department of Transportation's Kapolei and Makakilo Town Meeting	January 3, 2002	Peter Rogoff, Senate Majority Counsel
November 8, 2001	World Town Planning Event at University of Hawaii - Manoa	January 3, 2002	Kamehameha Highway Businesses
November 10, 2001	Pearl City Benchmarking Conference at Leeward Community College	January 9, 2002	Ala Moana Center
November 13, 2001	University Square Businesses	January 9, 2002	Kalihi Business Association
November 15, 2001	Government and Public Utilities Task Force	January 10, 2002	Department of Parks and Recreation, Senior Citizens Advisory Committee
November 15, 2001	McCully/Moiliili Neighborhood Board Planning Committee Meeting	January 10, 2002	Viet Cafe
November 15, 2001	City Council-Transportation Committee	January 10, 2002	Consulting Engineers Council of Hawaii
November 16, 2001	Marukai Corporation	January 11, 2002	Outdoor Circle
November 20, 2001	Hawaii Congress of Planning Officials Conference	January 14, 2002	Auahi Street Businesses
November 21, 2001	University of Hawaii and Tokai University Student Organizations	January 15, 2002	Hawaiian Electric Company, Corporate Excellence Department
November 26, 2001	Marukai Corporation	January 16, 2002	Community Leaders Forum at the University of Hawaii School of Architecture
November 26, 2001	Kamehameha Highway Businesses	January 16, 2002	City Councilmember Gary Okino
November 28, 2001	Castle & Cooke	January 17, 2002	Waipahu Neighborhood Board
November 28, 2001	Outdoor Circle	January 22, 2002	U.S. Army
November 30, 2001	University of Hawaii and Tokai University Student Organizations	January 23, 2002	Hawaii Visitors and Convention Bureau
December 3, 2001	University of Hawaii, "Town and Gown" Meeting	January 24, 2002	State Department of Transportation
December 4, 2001	American Association of Retired Persons	January 25, 2002	Final Candidates Forum for City Council
December 4, 2001	Associated Students of the University of Hawaii (ASUH)	January 31, 2002	Outdoor Circle
December 4, 2001	GASPRO and First Hawaiian Bank	February 1, 2002	Defining our Destiny: UH-Manoa – A Strategic Planning Event
December 5, 2001	Department of Parks and Recreation – Senior Citizens Advisory Committee (SCAC)	February 6, 2002	Coffee Partners Hawaii
December 13, 2001	Community Meeting sponsored by Representative Galen Fox	February 6, 2002	Kalmuki Neighborhood Board Meeting
December 18, 2001	Hawaii Pacific University and Education America	February 7, 2002	McCully/Moiliili Neighborhood Board Meeting
December 20, 2001	Verizon Hawaii, Inc.	February 8, 2002	Urban Land Institute Conference

TABLE A.4-3 (CONTINUED)
PUBLIC OUTREACH ACTIVITIES, JANUARY 2001 TO MARCH 2002

Date	Organization	Date	Organization
February 9, 2002	Mathcounts	February 21, 2002	Waialae/Kahala Neighborhood Board Meeting
February 13, 2002	Palolo Neighborhood Board Meeting	February 26, 2002	Central Oahu Sustainable communities Plan Meeting
February 14, 2002	Diamond Head/Kapahulu Neighborhood Board Meeting	February 26, 2002	Hawaii Kai Neighborhood Board Meeting
February 14 - 16, 2002	16th Annual Great Aloha Run Health and Fitness Expo	February 26, 2002	Ala Moana/Kakaako Neighborhood Board Meeting
February 19, 2002	Nuuanu/Punchbowl Neighborhood Board Meeting	February 28, 2002	Pearl City Neighborhood Board Meeting
February 20, 2002	Oahu Metropolitan Planning Organization, Citizens Advisory Committee Meeting	March 1, 2002	OahuTrans4All
February 20, 2002	Kalihi/Palama Neighborhood Board Meeting	March 6, 2002	Manoa Neighborhood Board Meeting
February 21, 2002	Waikiki Improvement Association	March 7, 2002	Kuliouou-Kalani Iki Neighborhood Board Meeting
February 21, 2002	Makiki/Lower Punchbowl Neighborhood Board Meeting		

Source: City and County of Honolulu, Department of Transportation Services, March 2002.

A.5 PUBLIC INVOLVEMENT SINCE THE SDEIS

Since the publication of the SDEIS, the public outreach and involvement program has involved a wide variety of forums and tools to increase public awareness about the project and gather community input. The SDEIS public hearing, City Council committee meetings, working group meetings, informational briefings, and other tools have allowed the project to reach out to and hear from thousands of Honolulu's citizens.

A.5.1 SDEIS Review Period and Public Hearing

This section summarizes the SDEIS review period and public hearing. Table A.5-1 summarizes the SDEIS review process.

The FTA approved the SDEIS for public circulation on March 5, 2002. The State of Hawaii, Office of Environmental Quality Control (OEQC) approved the SDEIS for distribution on March 12, 2002. SDEIS printed copies were distributed to the public, libraries, community groups, and local, State, and federal agencies for review and comment. The SDEIS was also available on CD-ROM upon request and posted on the project website (www.oahutrans2k.com). People and agencies who submitted comments on the MIS/DEIS and the Notice of Intent to Prepare a SDEIS, published in accordance with the National Environmental Policy Act (NEPA), and the Environmental Impact Statement Preparation Notice (EISPN), published in accordance with Chapter 343, Hawaii Revised Statutes, were also sent printed copies.

The SDEIS Notice of Availability (NOA) was published in the March 22, 2002 Federal Register and March 23, 2002 The Environmental Notice. The SDEIS NOA and public hearing information were advertised in the Honolulu Star-Bulletin and the project newsletter (Progress Report No. 7). Also, between April 12, 2002 and April 19, 2002 several advertisements were published in The Honolulu Advertiser, and Honolulu Star-Bulletin. The SDEIS availability was given substantial media coverage particularly in local newspapers.

TABLE A.5-1
SDEIS REVIEW PROCESS

Activity	Date
SDEIS approved for circulation by FTA	March 5, 2002
Distribution of SDEIS	March 15, 2002
Notice of SDEIS availability in the Federal Register (public review period officially begins)	March 22, 2002
Notice of SDEIS availability in the OEQC, The Environmental Notice	March 23, 2002
Legal notice of SDEIS availability and public hearing in Honolulu Star-Bulletin	March 23, 2002 and April 1, 2002
Distribution of Progress Report No. 7 announcing availability of SDEIS and public hearing to project mailing list	April 15-17, 2002
Newspaper display ads for public hearing in Honolulu Advertiser and Honolulu Star-Bulletin	April 12-19, 2002
Formal public hearing at Hawaii Convention Center	April 20, 2002
Close of the public review period	May 7, 2002

Source: Parsons Brinckerhoff Quade & Douglas, Inc., November 2002.

The SDEIS public hearing was held on Saturday, April 20, 2002 at the Hawaii Convention Center, from 9 a.m. until approximately 3 p.m. From approximately 9:00 a.m. until 10:00 a.m., there was an "open house" where attendees could review display boards. Project staff was available at that time to discuss the project and answer questions.

There were two registration areas for meeting guests to sign-in and receive comment forms. One hundred sixty-one (161) people registered. In addition, there were 32 project personnel at the public hearing to help register meeting attendees, staff the display board areas where they answered questions plus discussed the project components with meeting attendees, and register people that wanted to testify. In addition, there was a court reporter at the public hearing.

Meeting attendees were provided the following three means to comment on the project while at the public hearing:

- At the registration table, meeting attendees were given comment forms and pencils. Attendees were invited to complete the comment forms at the meeting and deposit them in a box; however; they were also advised they could complete the comment forms and mail them in by the May 7, 2002 comment period close date.
- Attendees wishing to give oral testimony were directed to the testimony sign-up table. Seventy-one (71) people signed-up to testify although not all 71 testified because some had left prior to their names being called.
- Attendees who wanted to give oral testimony but were not comfortable speaking in front of an audience were directed to the court reporter to record their comments. This option was only available between 9:00 a.m. and 10:00 a.m., during the "open house".

At around 10:00 a.m., the public hearing began. A project team member, using PowerPoint slides, briefly presented a project overview which included a discussion of the period from the MIS/DEIS to the SDEIS, purpose and need, alternatives, impacts, funding, etc. After the presentation, registered speakers were invited to speak. Except for elected officials who were allowed to speak first, the speakers spoke in the order that they registered. The court reporter recorded the public hearing proceedings. Chapter 7 presents the written and oral comments and response letters received after the MIS/DEIS and SDEIS were published.

A.5.2 Meetings with City Council and Other Elected Officials

Since the SDEIS was published, project team members have been regularly meeting with the City Council and other elected officials to keep them apprised of the project.

On April 10, 2002, the project team gave a presentation to the City Council Transportation Committee to brief the Councilmembers about the project effects documented in the SDEIS.

City Council Bills 20 and 34 were introduced and passed relating to the funding and permitting for PCTP Phase 1, bus rapid transit service from Iwilei to Waikiki via Kakaako Makai.

Bill 20, the City's CIP budget for FY 2003, ultimately included $31 million in construction funding for the PCTP Phase 1. After numerous committee hearings and three Council readings, Bill 20 was passed by the City Council on May 29, 2002.

In order for public infrastructure facilities to be funded and constructed, they must first be recognized by placing a symbol on the Development Plan Public Facilities Map (DP PFM) for the specific Development Plan area. Bill 34 amended a portion of the DP PFM for the Primary Urban Center by adding a publicly funded transit corridor symbol for the proposed PCTP Phase 1. The project team gave a presentation to the City Council Planning and Transportation Committees explaining Bill 34 on May 14, 2002. Additional committee meetings allowed for questions to the project team and public testimony on the bill. After three joint committee hearings and three Council readings, Bill 34 was passed by the City Council on June 26, 2002.

The project team also held meetings with elected officials and/or staff who requested project updates. These included State Senator Norman Sakamoto, State Senator Suzanne Chun-Oakland, State Representative Jun Abinsay, State Representative Ben Cabreros, State Representative Charles Djou, State Representative Willie Espero, State Representative Nestor Garcia, State Senator Rod Tam, Councilmember Romy Cachola, Councilmember Duke Bainum. Councilmember Gary Okino, and Councilmember Jon Yoshimura.

A.5.3 Outreach Meetings

The continued involvement of individuals from businesses, organizations, and institutions will continue to play an important role as the PCTP moves forward into final design and implementation. Since the SDEIS was published, project representatives have met with numerous individuals and groups in the community. Table A.5-2 summarizes the outreach meetings held since the SDEIS.

The project team carried out meetings and presentations in order to provide project updates to private firms and businesses, universities and colleges, major landowners, professional and business associations, and small businesses along the BRT alignment especially in the areas of the University, Kakaako, and Kalihi. The project team also worked with individuals and groups with specific interests and issues relevant to the transportation system through personal meetings, group briefings, and member communications.

The project team attended numerous neighborhood board and other community meetings throughout Oahu. At these meetings, DTS representatives and consultants were on hand either to give a presentation, to provide information, or to respond to comments and questions.

Comments and questions received at the many outreach meetings primarily focused on the following topics: cost of the project, traffic and transportation issues, community and social concerns, environmental issues, and anticipated ridership.

TABLE A.5-2
OUTREACH MEETINGS SINCE THE SDEIS

March 11, 2002	ASUH Senate Meeting	March 11, 2002	McCully/Moiliili Planning Committee Meeting
March 12, 2002	Waikiki Neighborhood Board Meeting	March 13, 2002	Palolo Neighborhood Board Meeting
March 14, 2002	Diamond Head/Kapahulu Neighborhood Board Meeting	March 16-17, 2002	Sunset on the Beach
March 19, 2002	Ala Moana/Kakaako Neighborhood Board Meeting	March 21, 2002	Waialae/Kahala Neighborhood Board Meeting
March 21, 2002	Makiki/Lower Punchbowl Neighborhood Board Meeting	March 28, 2002	Pearl City Neighborhood Board Meeting
April 3, 3003	Kaimuki Neighborhood Board Meeting	April 4, 2002	Kuliouou-Kalani Iki Neighborhood Board Meeting
April 4, 2002	Downtown Neighborhood Board Meeting	April 4, 2002	McCully/Moiliili Neighborhood Board Meeting
April 8, 2002	McCully/Moiliili Planning Committee Meeting	April 9, 2002	Waikiki Working Group Meeting
April 10, 2002	City Council Transportation Committee Meeting	April 10, 2002	Palolo Neighborhood Board Meeting
April 11, 2002	Diamond Head/Kapahulu Neighborhood Board Meeting	April12, 2002	Hui Lokahi O Aina Haina
April 15, 2002	Waiau Seniors	April 16, 2002	Waikiki Working Group Meeting
April 18, 2002	Makiki Neighborhood Board Meeting	April 19, 2002	Honolulu Board of Realtors
April 20, 2002	SDEIS Public Hearing	April 23, 2002	Waikiki Working Group Meeting
April 23, 2002	Ala Moana/Kakaako Neighborhood Board Meeting	April 24, 2002	Bill 34, Public Facilities Map amendment, first reading
April 24, 2002	Bill 20, CIP Budget, first hearing	April 27, 2002	League of Women Voters, Transportation Committee Meeting
April 29, 2002	East Honolulu Rotary Club	May 1, 2002	Altres Staffing
May 1, 2002	Destiny Defined: Manoa Strategic Planning	May 1, 2002	Kaimuki Neighborhood Board Meeting
May 1, 2002	Manoa Neighborhood Board Meeting	May 2, 2002	League of Women Voters Board Meeting
May 2, 2002	Downtown Neighborhood Board Meeting	May 2, 2002	Kuliouou/Kalani Iki Neighborhood Board Meeting
May 2, 2002	McCully/Moiliili Neighborhood Board Meeting	May 3, 2002	Historic Hawaii Foundation
May 6, 2002	Representative Charles Djou	May 9, 2002	Diamond Head/Kapahulu Neighborhood Board Meeting

May 9, 2002	Salt Lake/Aliamanu Neighborhood Board Meeting	May 14, 2002	Bill 34, City Council Planning and Transportation Committee Meeting
May 15, 2002	Oahu Metropolitan Planning Organization Citizens Advisory Committee Meeting	May 16, 2002	Bill 20, City Council Special Budget Committee Meeting
May 20, 2002	Department of Design and Construction Briefing	May 20, 2002	BRT Display at Kahala Mall for American Public Works Association
May 29, 2002	Bill 20, City Council Meeting, third reading	May 29, 2002	Vehicle Technology Group Meeting
May 29, 2002	Bill 34, City Council Meeting, second reading	June 3, 2002	Pu'uwai 'Opiopio Seniors Club
June 5, 2002	Hui Hau'oli O Aina Haina Senior Club	June 5, 2002	Bill 34, City Council Planning and Transportation Committee Meeting
June 6, 2002	Kuliouou/Kalani Iki Neighborhood Board Meeting	June 12, 2002	Helber, Hastert & Fee
June 13, 2002	Diamond Head/Kapahulu Neighborhood Board Meeting	June 18, 2002	4th Japan –U.S. Seminar on Sustainable Communities and Sustainable Society
June 18, 2002	Councilmember Romy Cachola	June 18, 2002	ASUH Senate Meeting
June 19, 2002	Oahu Metropolitan Planning Organization Citizens Advisory Committee Meeting	June 20, 2002	Honolulu Board of Realtors – East Honolulu Region
June 24, 2002	State Historic *Preservation Division*	June 25, 2002	Ala Moana/Kakaako *Neighborhood Board Meeting*
June 26, 2002	Bill 34, City Council, third and final reading	June 27, 2002	Pearl City Neighborhood Board Meeting
July 10, 2002	Kalihi Business Association	July 16, 2002	SDOT Meeting
July 17, 2002	Oahu Metropolitan Planning Organization Citizens Advisory Committee Meeting	July 23, 2002	Ala Moana Lions Club
July 24, 2002	Salt Lake/Aliamanu/ Foster Village Working Group	July 26, 2002	Department of Accounting and General Services
July 29, 2002	Honolulu Board of Realtors	August 1, 2002	Kuliouou/Kalani Iki Neighborhood Board Meeting
August 7, 2002	Office Visits on Dillingham Boulevard	August 8, 2002	Office Visits on Dillingham Boulevard
August 9, 2002	Pacific Gateway Center	August 10, 2002	Kalmuki Kanikapila
August 14, 2002	Office Visits on Dillingham Boulevard	August 19, 2002	Diamond Head/Kapahulu/St. Louis Heights Neighborhood Board Planning Committee
August 21, 2002	OMPO Citizens Advisory Committee	August 23, 2002	Office Visits on Dillingham Boulevard
August 26, 2002	Home Depot	August 26, 2002	Planning/Zoning Committees of various Neighborhood Boards
August 27, 2002	Primary Urban Center Development Plan Public Meeting	August 27, 2002	Office Visits on Dillingham Boulevard
August 29, 2002	Primary Urban Center Development Plan Public Meeting	September 6, 2002	Kapiolani Park Preservation Society

September 9, 2002	Kalihi Palama Community Council	September 9, 2002	Blood Bank
September 12, 2002	Diamond Head/Kapahulu/St. Louis Neighborhood Board	September 18, 2002	OMPO Citizens Advisory Committee
September 24, 2002	Field Visit with Kapiolani Park Preservation Society	September 25, 2002	Diamond Head/Kapahulu/St. Louis Neighborhood Board Special Meeting
October 1, 2002	Home Depot	October 2, 2002	Waikiki Vision Meeting
October 3, 2002	Hale Koa Hotel/U.S. Army	October 4, 2002	Outdoor Circle
October 4, 2002	Hawaii State Federal Credit Union	October 15-25, 2002	Transit Display at City Hall

Source: Parsons Brinckerhoff, Inc., November 2002.

A.5.4 Other Public Outreach Activities and Tools

In addition to the meetings described above, public outreach efforts since the SDEIS has included various other activities and tools, including public displays, newspaper advertisements, project website, Progress Report newsletters, and informational handouts.

The project team reached out to new audiences through informational displays at special events open to the public and targeted audiences. Since the SDEIS, BRT displays were featured at the "Mayor's Mini City Hall," at large special events, and other public locations.

To increase awareness of the project among the public, a series of paid newspaper advertisements were developed. These advertisements aimed to briefly explain the project and to invite the public to the upcoming public hearing. To publicize the SDEIS public hearing in April 2002, a series of advertisements appeared in the Honolulu Advertiser and Honolulu Star-Bulletin over a four-day period.

The project website, <www.oahutrans2k.com>, continues to provide the public with the current project status. The website has provided BRT news, background information, route maps, PDF files of the SDEIS and other publications, announcements of upcoming events, and links to other relevant websites.

Progress Report No. 7 was published at the time the SDEIS was released. This newsletter included a description of the SDEIS, highlights from the Waikiki Working Group, responses to common questions, and an update on hub-and-spoke bus routes. 12,000 copies of Progress Report No. 7 were printed and distributed to the Oahu Trans 2K mailing list or passed out to participants at outreach meetings.

Numerous informational handouts were published and distributed to the public. These included basic fact sheets about BRT, "frequently asked questions," and material created for specific audiences such as small businesses, senior citizens, and students.

Final Environmental Impact Statement

Primary Corridor Transportation Project

Appendix A

Exhibit A-1

EXHIBIT A-1. COMMENTS AND RESPONSES REGARDING EISPN AND NOI

This exhibit includes the letters received in response to the Environmental Impact Statement Preparation Notice published in the April 23, 1999 The Environmental Notice. Each comment letter is followed by a response letter from the Department of Transportation Services.

Agency or Organization	Comment Letter Date
UNITED STATES	
Federal Aviation Administration	May 5, 1999
USDA - Natural Resources Conservation Service	May 6, 1999
U.S. Geological Survey	May 5, 1999
U.S. Fish & Wildlife Service	May 24, 1999
U.S. Naval Base Pearl Harbor	May 26, 1999
Federal Highway Administration[1]	June 14, 1999
STATE OF HAWAII	
DBEDT - Land Use Commission	April 29, 1999
DLNR - Commission on Water Resource Management	May 3, 1999
DLNR - Historic Preservation Division	May 4, 1999 and June 3, 1999
DOT - Harbors Division	May 6, 1999
Department of Education	May 6, 1999
Office of Environmental Quality Control	May 13, 1999
DOT - Airports Division	May 18, 1999
DOT - Highways Division	June 9, 1999
DLNR - Land Division	May 20, 1999
DOE - Hawaii State Public Library System	*May 24, 1999*
Department of Health	May 26, 1999
DBEDT - Office of Planning	May 24, 1999
Office of Hawaiian Affairs	May 28, 1999
Department of Defense – Civil Defense	June 24, 1999
CITY AND COUNTY OF HONOLULU	
Department of Environmental Services	April 30, 1999
Fire Department	May 13, 1999
Police Department	May 18, 1999
Department of Parks and Recreation	May 24, 1999
Department of Planning and Permitting	May 26, 1999
Board of Water Supply	May 13, 1999
OTHER INDIVIDUALS AND ORGANIZATIONS	
Oahu Metropolitan Planning Organization	May 24, 1999
Leeward Oahu Transportation Management Association	May 24, 1999
The Outdoor Circle	May 18, 1999
Hawaii Bicycling League	May 24, 1999
Life of the Land	May 22, 1999
Patricia Tummons	May 3, 1999

Douglas Meller	May 24, 1999
Decision Analysts Hawaii[2]	June 8, 1999

Note:

[1] Comment letter from Federal Highway Administration was in response to a May 5, 1999 letter from the Federal Transit Administration, requesting that the FHWA elect to be a cooperating agency on the Primary Corridor Transportation Project (PCTP).

[2] Comment letter from Decision Analysts Hawaii was in response to the Islandwide Mobility Concept Plan (March 1999).

U.S Department of Transportation
Federal Aviation Administration

Western-Pacific Region
Airports District Office

300 Ala Moana Blvd., Room 7-128
Honolulu, Hawaii 96813
MAIL: Box 50244
Honolulu, Hawaii 96850-0001
Phone: (808) 541-1232
FAX: (808) 541-3462

May 5, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

We have reviewed the Primary Corridor Transportation Project Environmental Assessment (Environmental Impact Statement Preparation Notice) dated April 1999.

Although we have no comments on the EA/EISPN, we request that our office be included in the scoping process because some of the proposed alternatives are adjacent to Honolulu International Airport. These alternatives, with readily accessible links to airport transportation systems, could improve access for passengers, employees, and other users of the airport. We also suggest coordination with the State Airports Division.

If you have any questions, please call David Welhouse at 541-1243.

Sincerely,

Daniel S. Matsumoto

Daniel S. Matsumoto
Civil Engineer

cc: Ben Schlapak, DOTA
Office of Environmental Quality Control

RECEIVED
00 MAY 9 AM 11:55

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4525 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 16, 2000

TPD5/99-02229R

Mr. Daniel S. Matsumoto, Civil Engineer
U. S. Department of Transportation
Federal Aviation Administration
Western-Pacific Region, Airports District Office
Box 50244
Honolulu, Hawaii 96850-0001

Dear Mr. Matsumoto:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 5, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

cc: Parsons Brinkerhoff Quade & Douglas, Inc.

United States
Department of
Agriculture

Natural
Resources
Conservation
Service

P.O. Box 50004
Honolulu, HI
96850

USDA

Our People...Our Islands...In Harmony

May 6, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

RECEIVED
'99 MAY 10 A8:17

Dear Ms. Soon:

Subject: Primary Cooridor Transportation Project

We have reviewed the above mentioned document and have no comments to offer at this time.

Thank you for the opportunity to review this document.

Sincerely,

KENNETH M. KANESHIRO
State Conservationist

cc:
Office of Environmental Quality Control, 235 South Beretania Street, Suite 702,
Honolulu, Hawaii 96813

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPDS/99-02275R

August 16, 2000

Mr. Kenneth M. Kaneshiro, State Conservationist
U. S. Department of Agriculture
Natural Resources Conservation Service
P.O. Box 50004
Honolulu, Hawaii 96850

Dear Mr. Kaneshiro:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 6, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project. We understand that you have no comments at this time. Your letter will be included in the Major Investment Study/Draft Environmental Impact Statement.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

United States Department of the Interior

U.S. GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

May 5, 1999

RECEIVED
'99 MAY 6 AM 11:55

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Primary Corridor Transportation Project Environmental Impact Statement Preparation Notice

The staff of the U.S. Geological Survey, Water Resources Division, Hawaii District Office, has reviewed the subject Environmental Assessment (EIS Preparation Notice) and we have no comments to offer at this time.

Thank you for allowing us the opportunity to review and comment on this document.

Sincerely,

William Meyer
District Chief

cc: Office of Environmental Quality Control
235 South Beretania St., Suite 702
Honolulu, Hawaii 96813

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 16, 2000

TPD5/99-02235R

Mr. William Meyer, District Chief
U. S. Department of the Interior
U. S. Geological Survey
Water Resources Division
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

Dear Mr. Meyer:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 5, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project. We understand that you have no comments at this time. Your letter will be included in the Major Investment Study/Draft Environmental Impact Statement.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

RECEIVED

MAY 25 12:16

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3122
Box 50088
Honolulu, Hawaii 96850

In Reply Refer To: LTG

MAY 24 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, HI 96813

Re: Notice to Prepare Draft Environmental Impact Statement and Request for a Species List for the Primary Corridor Transportation Project, Oahu, Hawaii (ER 99/397)

Dear Ms. Soon:

The U.S. Fish and Wildlife Service (Service) has reviewed your April 21, 1999, letter notifying us that you intend to prepare a Draft Environmental Impact Statement (DEIS) for the proposed project referenced above. We have also reviewed a letter received from the Federal Transit Administration (FTA), dated May 12, 1999, requesting a list of endangered and threatened species found within the proposed project area. The proposed project is sponsored by the City and County of Honolulu Department of Transportation Services (DTS) and the U. S. Department of Transportation, FTA. This letter has been prepared under the authority of and in accordance with provisions of the National Environmental Policy Act of 1969 [42 U.S.C. 4321 *et seq.*; 83 Stat. 852], as amended, the Fish and Wildlife Coordination Act of 1934 [16 U.S.C. 661 *et seq.*; 48 Stat. 401], as amended, the Endangered Species Act of 1973 [16 U.S.C. 1531 *et seq.*; 87 Stat. 884], as amended, and other authorities mandating Department of the Interior concern for environmental values. Based on these authorities, the Service offers the following comments for your consideration.

The proposed project involves improving Oahu's primary transportation corridor, which extends from Kapolei in the Ewa District, past Pearl Harbor, Honolulu International Airport, downtown Honolulu, and continues eastward to the University of Hawaii at Manoa. The corridor is approximately 27 miles in length and at most 4 miles in width. The alternatives currently being considered include a No-Build Alternative, Enhanced Bus/Transportation System Management Alternative, a Bus Rapid Transit, and a Light Rail Transit alternative.

The Service has reviewed the information that was provided in your letter and pertinent information in our files, including maps and records prepared by the Hawaii Heritage Program of The Nature Conservancy. The Hawaiian hoary bat (*Lasiurus cinereus semotus*), federally listed as endangered, has been sporadically sighted within the metropolitan area of the proposed project. The following waterbird species, federally listed as endangered, have been observed in wetland areas within the project area:

a. Hawaiian coot (*Fulica americana alai*);
b. Hawaiian duck (*Anas wyvilliana*);
c. Hawaiian common moorhen (*Gallinula chloropus sandvicensis*); and
d. Hawaiian stilt (*Himantopus mexicanus knudseni*).

1 The following federally endangered plant species have been observed within the Ewa area of the Primary Transportation Corridor (refer to Figure 1.1 of the DEIS Preparation Notice):

a. *Abutilon menziesii* (ko`oloa`ula);
b. *Centaurium sebaeoides* (`awiwi); and
c. *Marsilea villosa* (`ihi`ihi).

In addition, the plant *Torulinium odoratum* subsp. *auriculatum* (pu`uka`a), a Species of Concern, has been reported within the Ewa area of the Primary Transportation Corridor. However, it has not been observed there since 1916. The term "Species of Concern" describes species that are of concern to the Service, but require further biological research and field study to resolve their conservation status. These species are not currently federally protected.

2 The DEIS should address any potential project-related impacts to these and other native Hawaiian species and propose mitigation measures that avoid unnecessary impacts and minimize unavoidable impacts. For example, we recommend that these measures include avoidance of unnecessary destruction of vegetated areas containing ko`oloa`ula or any other federally listed plant species.

The Service appreciates the opportunity to provide this technical assistance, and we look forward to reviewing a copy of the DEIS when it is available. If you have questions regarding these comments, please contact Fish and Wildlife Biologist Leila Gibson by telephone at (808) 541-3441 or by facsimile transmission at (808) 541-3470.

Sincerely,

Robert P. Smith
Pacific Islands Manager

cc: FWS - Region 1, Portland
OEPC, Washington, D.C.
FTA, San Francisco
USEPA, Honolulu
DOFAW, Hawaii
CZMP, Hawaii

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD5/99-02582R

August 16, 2000

Mr. Paul Henson, Field Supervisor
U. S. Department of the Interior
U. S. Fish and Wildlife Service
Pacific Islands Ecoregion, Ecological Services
Box 50088
Honolulu, Hawaii 96850

Dear Mr. Henson:

Subject: Primary Corridor Transportation Project

Thank you for the letter dated May 24, 1999, from Mr. Robert P. Smith regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided.

1. The endangered species that may be found within the project area are described in Section 3.7 of the MIS/DEIS.
2. Potential impacts on endangered species and proposed mitigation measures are addressed in Sections 5.7 and 5.12.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

DEPARTMENT OF THE NAVY
COMMANDER
NAVAL BASE PEARL HARBOR
517 RUSSELL AVENUE
PEARL HARBOR, HAWAII 96860-5020

IN REPLY REFER TO:
5090
Ser N465/10075
May 26, 1999

RECEIVED
00 JUN 2 P1:30

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Primary Corridor Transportation Project

Thank you for affording the Navy an opportunity to comment. As requested, we have reviewed the Environmental Assessment (EIS Preparation Notice) for the subject project and do not have comments pertaining to the environmental review process at this time.

We look forward to participating in the environmental review processes and discussing relevant issues should specific projects impacting our property be proposed. If we can be of further assistance, please do not hesitate to contact me at 471-1171 (Ext. 229).

Sincerely,

C. K. YOKOTA
Director
Regional Environmental Department
By direction of
Commander, Navy Region Hawaii

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4525 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD6/99-02735R

August 16, 2000

Mr. C. K. Yokota, Director
Regional Environmental Department
U. S. Department of the Navy
Commander, Naval Base Pearl Harbor
517 Russell Avenue
Pearl Harbor, Hawaii 96860-5020

Dear Mr. Yokota:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 26, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project. We understand that you have no comments at this time. Your letter will be included in the Major Investment Study/Draft Environmental Impact Statement.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Hawaii Division
Box 50206
300 Ala Moana Blvd., Room 3-306
Honolulu, HI 96850
June 14, 1999

IN REPLY REFER TO
HPR-HI
[720]200]

RECEIVED
JUN 16 P12:04

Leslie Rogers, Regional Administrator
Federal Transit Administration
201 Mission Street
Suite 2210
San Francisco, CA 94105

Subject: Primary Corridor Transportation Project: Cooperating Agency Decision and Comments

In response to your letter of May 5, 1999, we elect to be a cooperating agency on the Primary Corridor Transportation Project (PCTP) proposed by the City and County of Honolulu. Alternatives presented by the City are primarily transit options. We understand that if future conditions warrant, our role could be changed to joint lead agency, and that change can readily be accommodated. We agree with your understanding stated in the May 5 letter that the EIS will enable FHWA to discharge its jurisdictional responsibilities and that the EIS will satisfy our NEPA requirements including those related to project alternatives, environmental consequences and mitigation. Please keep this office fully informed about any highway related impacts or improvements for the PCTP. We are committed to being involved and responsive to FTA, our State, City, and MPO partners, and the public throughout the study effort.

1 We would like to take this opportunity to remind you that the DEIS/MIS must be fully coordinated with the Oahu Metropolitan Planning Organization (OMPO.) Assumptions on land-use, demographics, traffic, and other data must be consistent between the PCTP and the OMPO planning process, including the Oahu Regional Transportation Plan (ORTP) update. OMPO is responsible for regional transportation planning on Oahu, and the MIS is really a subarea or corridor planning study that is of regional nature, so it should be carried out in the OMPO forum.

2 The cost for the PCTP alternatives must be determined and considered on a regional basis. The PCTP preferred alternative and all of its transit and highway elements must be fully incorporated into the ORTP by including it in the ORTP update or a plan amendment. Funds for the project must be reasonably available, and as part of the ORTP , the project must be considered with respect to all other transportation priorities in the ORTP to determine its priority and validity in the regional perspective. The project as a whole could consume funding for other priority projects included or being considered for inclusion in the ORTP and the tradeoffs must be presented to the stakeholders and the public for their consideration.

3 Alternatives presented by the City thus far are primarily transit options. While this focus is due to the high capacity transit placeholder in the existing ORTP, the MIS requirements call for all reasonable alternatives to be considered within the MIS, therefore highway options should be considered now rather than after the MIS is completed by the City. The HDOT and OMPO should ensure that the study includes multi-modal alternatives that support their transportation plans for the corridor.

Please feel free to contact Jonathan Young at (808) 541-2700, ext. 325, if you have any questions.

Sincerely yours,

Abraham Wong
Division Administrator

cc: Toru Hamayasu (DTS)
[redacted] (HDOT)
Gordon Lum (OMPO)
Pericles Manthos (HWY)
Julia Tsumoto (STP)

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 16, 2000

TPD00-00406
TPD6/99-02967

Mr. Abraham Wong, Division Administrator
U. S. Department of Transportation
Federal Highway Administration
Hawaii Division
Box 50206
Honolulu, Hawaii 96850

Dear Mr. Wong:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated June 14, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS). Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided.

1. Coordination with the Oahu Metropolitan Planning Organization is ongoing. Section 4.2.5 discusses differences in data used for the MIS/DEIS and the Oahu Regional Transportation Plan analyses. A sensitivity analysis concluded that the difference is not significant enough to alter the analysis and conclusions in the MIS/DEIS.

2. The costs of the alternatives are provided in Section 2.3. A full financial analysis of the project is in Chapter 6.

3. Project alternatives are discussed in Chapter 2. Section 2.1 discusses the evolution of alternatives. The Transportation System Management and Bus Rapid Transit Alternatives are multi-modal alternatives. A highway alternative alone is not sufficient to satisfy project purposes and needs, and is addressed in Section 2.6. A highway alternative is inconsistent with the public's visions for the island's transportation system, as documented through the Oahu Trans 2K process.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

ESTHER UEDA
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, HI 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

April 29, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Environmental Impact Statement Preparation Notice (EISPN) for the Primary Corridor Transportation Project

1 We have reviewed the EISPN for the subject project and find that the project areas, as represented on Figures 2.1 through 2.6, are designated within the State Land Use Urban and Agricultural Districts. We suggest that the Draft EIS include a map showing the project areas under the different alternatives in relation to the State land use districts.

We have no further comments to offer at this time. We appreciate the opportunity to comment on the subject EISPN.

Should you have any questions, please feel free to call me or Bert Saruwatari of our office at 587-3822.

Sincerely,

ESTHER UEDA
Executive Officer

EU:th

cc: OEQC

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 16, 2000

TPDS/99-02130R

Ms. Esther Ueda, Executive Officer
State of Hawaii
Department of Business, Economic Development and Tourism
Land Use Commission
P. O. Box 2359
Honolulu, Hawaii 96804-2359

Dear Ms. Ueda:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated April 29, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following response to your comment is provided.

1. Land use is addressed in Sections 3.1 and 5.1. With the exception of a small area in Ewa, the entire primary transportation corridor is designated as Urban by the State Land Use Commission.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

TIMOTHY E. JOHNS
CHAIRPERSON

BRUCE S. ANDERSON
RICHARD N. COX
ROBERT G. GRALLO
DAVID A. NOBRIGA
HERBERT M. RICHARDS, JR.

EDWIN T. SAKODA
ACTING DEPUTY DIRECTOR

MAY -3 1999

Honorable Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

RECEIVED
'99 MAY 7 A9:30
DEPT. OF TRANSPORTATION SERVICES

Dear Ms. Soon:

EIS Preparation Notice for the Primary Corridor Transportation

Thank you for allowing us to review and comment on the subject document.

1 Page 19 of the document acknowledges the requirement for stream channel alteration permits (SCAP). Stream Channel Alteration permits, pursuant to Hawaii Revised Statutes §174C-71, will be required for projects which modify the bed or banks of streams.

2 As much as possible, plans for future public transportation alternatives should avoid adverse impacts to streams, and the draft environmental impact statement should properly disclose impacts.

We look forward to reviewing future documents relating to the Primary Corridor Transportation project.

If you have any questions regarding this letter, please contact Roy Hardy at 587-0274.

Sincerely,

Edwin T. Sakoda

EDWIN T. SAKODA
Acting Deputy Director

DH:ss

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPDS/99-02252R

August 16, 2000

Ms. Linnel Nishioka, Deputy Director
State of Hawaii
Department of Land and Natural Resources
Commission on Water Resource Management
P. O. Box 621
Honolulu, Hawaii 96809

Dear Ms. Nishioka:

Subject: Primary Corridor Transportation Project

Thank you for the letter dated May 3, 1999, from Mr. Edwin T. Sakoda regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided:

1. Chapter 7 includes a list of potential permits and approvals needed by the project. A stream channel alteration permit may be needed.
2. Potential impacts on streams are discussed in Section 5.8.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
JANET E. KAWELO

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS
WATER RESOURCE MANAGEMENT

May 4, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

LOG NO: 23324
DOC NO: 9904SC14

Dear Ms. Soon:

SUBJECT: Chapter 6E-8 Historic Preservation Comment on an Environmental Impact Statement Preparation Notice (EISPN) for the Primary Corridor Transportation Project
Honolulu and 'Ewa Districts, O'ahu
TMK: Zones 1 - 3, 9

Thank you for the opportunity to comment on the EISPN for the proposed Primary Corridor Transportation Project. According to your materials, the proposed action addresses existing and future transportation demands and capacity needs on the island of O'ahu in conjunction with the following goals: support of socioeconomic growth on the island and in the corridor; improvement of public transit services; facilitate land use development in the central urban core consistent with the vision for Oahu being developed at community meetings; support of current planning activities and policies. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspections were made in conjunction with this review. Sara Collins and Tonia Moy of my staff recently met with Ms. Faith Miyamoto of your office and representatives of Parsons, Brinckerhoff, Quade, and Douglas, the consultant hired to prepare the EISPN, in order to review the proposed improvements.

Section 3.2.4 correctly summarizes the results of our meeting with your project staff and consultant. The parties agreed that the identification, assessment, and any needed treatment of significant historic sites found to be directly or indirectly affected by the undertaking will be carried out pursuant to Section 106 of the National Historic Preservation Act and Section 4(f) of the US Department of Transportation Act. When we receive the pertinent information, we shall be better able to advise you on the following matters: (1) the presence or absence of historic sites within the areas of potential effect and project areas; (2) whether or not any of the identified historic sites

1

are significant; (3) whether or not the proposed undertaking(s) will have an "adverse effect" on significant historic sites; (4) what actions will be need to mitigate any adverse effects.

With regard to traditional cultural properties and any traditional practices associated with affected properties, your project staff and consultant indicated that they would be consulting with the Office of Hawaiian Affairs and interested parties identified during the scoping process.

2

Should you have any questions about archaeology, please feel free to call Sara Collins at 692-8026. Should you have any questions about architecture, please feel free to call Tonia Moy at 692-8030.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

SC:jk

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

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JANET E. KAWELO

AQUATIC RESOURCES
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RECEIVED
99 JUN 14 A10:1

LOG NO: 23537
DOC NO: 9905SC22

June 3, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
Pacific Park Plaza
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

SUBJECT: Chapter 6E-8 Historic Preservation Response to a Request for Information on Historic Sites in the Vicinity of the Primary Corridor Transportation Project
'Ewa and Kona, O'ahu

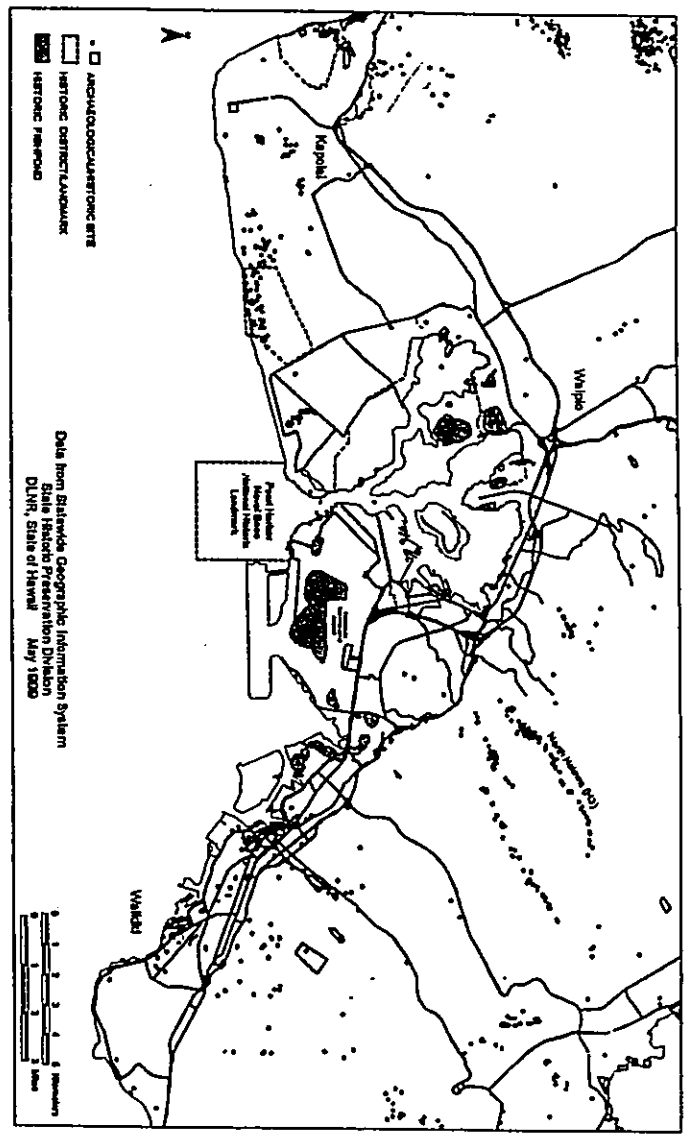
Thank you for your letter of May 7, 1999, in which you request preliminary information on the presence of significant historic sites known to be in the vicinity of the proposed Primary Corridor Transportation Project (PCTP) area. We have attached a map of southern O'ahu, including the PCTP corridor, which shows the general locations of significant historic sites or site districts (e.g., the Pearl Harbor Naval Base National Historic Landmark). At this preliminary stage of investigation, prior to issuing
3 the Draft Environmental Impact Statement, we understand that further work in defining the alternatives and the areas of potential effect (APEs) needs to be done. We further understand that the City and County of Honolulu has resident on its Geographic Information System most if not all of these same site data, including site
4 numbers. As your project progresses, should you or your consultant wish to consult our files for further information on specific sites or site districts, please let us know, and we can arrange a mutually convenient time to meet.

Should you have any questions, please feel free to call Sara Collins at 692-8026.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

SC:jk



DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 16, 2000

TPD5/99-02355R/
TPD6/99-02900R

Mr. Don J. Hibbard, Administrator
State of Hawaii
Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Dear Mr. Hibbard:

Subject: Primary Corridor Transportation Project

Thank you for your letters dated May 4, 1999 and June 3, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided:

1. Historic sites issues and Section 106 are discussed in Sections 3.10 and 5.10. Section 106 coordination with SHPD has been initiated and is continuing. Parkland issues and Section 4(f) are discussed in Sections 3.11 and 5.11.
2. Coordination with OHA has occurred, as documented in Section 5.10 and Appendix D.
3. The status of coordination with SHPD is described in Section 5.10 and Appendix D.
4. The approach for studying historic sites is described in Sections 3.10 and 5.10.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HARBORS DIVISION
79 SO. NIMITZ HWY. • HONOLULU, HAWAII 96813-4898

IN REPLY REFER TO:
HAR-PM
5990.99

May 6, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, 12th Floor
Honolulu, Hawaii 96813

Dear Ms. Soon:

SUBJECT: Comments on The Primary Transportation Corridor as Proposed by the City and County of Honolulu at a Meeting Held on March 25, 1999, on a Corridor Traversing Through Fort Armstrong And Sand Island at Honolulu Harbor, Honolulu, Oahu

We would like to thank you for meeting with us on March 25, 1999 regarding the subject traffic corridor. We are in receipt of the April 16, 1999 memorandum from Mr. Bob Bramen, and we offer the following preliminary comments. This is a project of great magnitude, and as the Draft Environmental Impact Statement (DEIS) has not been published, we are offering comments on the project as discussed at the subject meeting.

1. We request that close scrutiny be given to the traffic studies that are to take place by the applicant, especially where the project intersects with Ala Moana Boulevard near South Street, and where Sand Island Access Road intersects with Nimitz Highway. We are concerned with the large tractor trailer traffic on this corridor as the corridor is proposed to tunnel under the entrance channel to Honolulu Harbor and the tunnel proposed by the Harbors Division under Kalihi Channel. We request that these issues be fully discussed in the DEIS in order to justify this project.

2. There are a multitude of permits required for this project. The acceptance of the Final Impact Statement by the State, together with a Conservation District Use Permit, as approved by the Board of Land and Natural Resources (BLNR), is a portion of the permitting process for the project. The U.S. Army Corps of Engineers and various State entities would have to give their concurrence to the project. As of the meeting date, the City and County of Honolulu (City) had stated they had not, as yet, approached the Department of Land and Natural Resources (DLNR), a key governmental agency in this project. Approval of the project by the Harbors Division is a necessity, but it appears that most of the land dispositions required for the project are public lands and will require approval by the BLNR. The permitting process should be clearly defined in the DEIS.

3. Concurrence by the Department of Business, Economic Development and Tourism, Hawaii Community Development Authority (HCDA) is necessary. The project would have to comply with HCDA's plans for the area since HCDA is planning the Ilalo Street extension in Kaakaukukui

4. The City stated that the Sand Island/Kakaako sewer line would probably have to be relocated, but details were not clear. We are concerned about this rerouting and request that it be implemented in the DEIS.

5. We are concerned with the City's ability to construct the tunnel under the entrance channel of Honolulu Harbor without disrupting harbor operations, and request that this issue be addressed in the DEIS.

6. The permitting process for the environmental issues is susceptible to massive public and governmental input, which may severely hinder the City's lead time for the project and subsequently impact the tenants of the Harbors Division.

7. The City stated that they would be applying for Federal funds for the project. As such, the City would have to acquire the fee title to the lands or perpetual easements to the lands required for the project. We would like to bring up three points here:

   a. We understand that the City has long disclaimed ownership, maintenance and responsibility of Sand Island Access Road, and the DLNR was forced to take responsibility for this access road for many years. Although the roads dispute between the City and the State was purportedly solved by Act 288, Session Laws of Hawaii, 1993, and the City Council Resolution No. 93-287, we are not sure how the DLNR will react to this project.

   b. The lands at Fort Armstrong, Piers 1 and 2, and the Foreign Trade Zone, legally described as the filled lands of Kaakaukukui, have been conveyed to the HCDA by the DLNR. Pursuant to 171-2, HRS, these are privately owned lands and fall under the jurisdiction of the Board of the HCDA, an important entity in this project considering HCDA's proposed Ilalo Street extension and how it may conflict with the proposed corridor.

   c. The City stated at the meeting that Sand Island Access Road would have to be widened, and lands (an undetermined amount, as presented) would have to be taken

from the container yard under the Harbors Division and lands encumbered by General Lease (GL) No. S-5261 issued to Sand Island Business Association (SIBA). We are concerned that the lands required by the City may have an adverse impact on the users of the container yard, together with additional lands required for construction activities. Additionally, the City should meet with Mr. Walter Arakaki, President of the SIBA, as the road widening would affect the amendment of numerous subleases issued by SIBA to its tenants, and also require an amendment to GL No. S-5261 (requiring BLNR approval).

9 8. It is imperative that our Oahu District Office be included in any discussions regarding traffic flow that may affect our harbor facilities and shipping lanes. They may be contacted at 587-2050.

Our Engineering Branch has made comments on the project, and has forwarded them to the Highways Division for inclusion with Highways Division's comments.

Should your staff have any questions regarding this matter, they may contact Mr. John Dooling, Property Manager, at 587-1943.

Very truly yours,

Thomas T. Fujikawa
Harbors Administrator

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD5/99-02276R

August 16, 2000

Mr. Thomas T. Fujikawa
Harbors Administrator
State of Hawaii
Department of Transportation
Harbors Division
79 S. Nimitz Highway
Honolulu, Hawaii 96813-4898

Dear Mr. Fujikawa:

Subject: Primary Corridor Transportation Project

Thank you for your letter (HAR-PM 5990.99) dated May 6, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided.

1. The Sand Island analysis has been shifted to the Oahu Regional Transportation Plan (ORTP). Traffic impacts are discussed in Section 4.2.
2. Chapter 7 includes a list of potential permits and approvals needed by the project. Further coordination with all affected landowners will occur during subsequent planning.
3. Coordination with HCDA is ongoing.
4. The Sand Island analysis has been shifted to the ORTP. Potential impacts to sewer lines are addressed in Section 5.12.10.
5. The Sand Island analysis has been shifted to the ORTP.
6. The project schedules for the various alternatives are provided in Section 2.5. The Locally Preferred Alternative (LPA) has not been selected. Once the LPA is selected, the project schedule including the permit requirements will be refined.
7. Coordination with DLNR is ongoing, but the Sand Island analysis has been shifted to the ORTP.

8. The Sand Island analysis has been shifted to the ORTP.
9. The Sand Island analysis has been shifted to the ORTP. Coordination with the Harbors Division is ongoing. No impact on harbor facilities and shipping lanes would occur.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

PAUL G. LAMAHIEU, Ph.D.
SUPERINTENDENT

STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

May 6, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Primary Corridor Transportation Project - EISPN

The Department of Education has no comment on the proposed project at this time. Please continue to keep us informed as the project progresses.

Very truly yours,

Paul G. LeMahieu, Ph.D.
Superintendent of Education

PLeM:hy

cc: A. Suga, OBS
G. Gill, OEQC

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99 MAY 18 AM 8:32
DEPT. OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 16, 2000

TPDS/99-02424R

Paul G. LeMahieu, Ph. D.
Superintendent of Education
State of Hawaii
Department of Education
P. O. Box 2360
Honolulu, Hawaii 96804

Dear Dr. LeMahieu:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 6, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project. We understand that you have no comments at this time. Your letter will be included in the Major Investment Study/Draft Environmental Impact Statement.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

GENEVIEVE SALMONSON
DIRECTOR

MAY 14 1999

May 13, 1999

Cheryl D. Soon
Department of Transportation Services
711 Kapiolani Blvd., #1200
Honolulu, HI 96813

Attn: Kenneth Hamayasu

Dear Ms. Soon:

Subject: Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project

We offer the following comments:

1. Two-sided pages: In order to reduce bulk and conserve paper, we recommend printing on both sides of the pages in the draft EIS.

2. Maps and figures:

   ▸ *Site maps*: Close-up neighborhood maps for each area of each alternative will be required.
   ▸ *Figures*: The use of color to distinguish between the various alignments in the figures would be extremely helpful.

1

3. Acronyms: In the draft EIS please include a list of acronyms found throughout the text.

4. Flora and Fauna: Section 3.1.4, *Ecosystem*, notes that some species in the corridor are classified as threatened or endangered. In the draft EIS please include a thorough discussion of impacts to threatened or endangered species and related mitigation measures.

2

5. Community consultation: Include synopses of the Trans 2K meetings held in the latter part of 1998 since they were preparatory to the development of this EIS.

3

6. Secondary Impacts: Be sure to include a full discussion of secondary or indirect impacts, such as growth or shifts in population, for each of the alternatives under consideration.

4

7. Mitigation commitments: The last paragraph of Section 1.3, *Planning Process*, states that the federal Record of Decision will document the Locally Preferred Alternative and environmental mitigation commitments. Please bear in mind that the mitigation measures listed in the state final EIS also constitute mitigation commitments which must be implemented.

5

If you have any questions call Nancy Heinrich at 586-4185.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON
Director

c: Robert Bramen, Parsons Brinckerhoff

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPDS/99-02425R

August 16, 2000

Ms. Genevieve Salmonson, Director
State of Hawaii
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 13, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS). Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided.

1. The MIS/DEIS will be double-sided and will include an acronym list. Copies of the MIS/DEIS with color figures will be available at public libraries and on CD-ROM. Section 3.3 discusses neighborhoods, with maps delineating the neighborhoods in the area.
2. Section 5.7 discusses the impacts on endangered species.
3. The Oahu Trans 2K meetings have been summarized and those summaries are included in Appendix A.
4. Secondary impacts are discussed in Section 5.13.1.
5. Comment noted.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
AIR-P
99.0323

May 18, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Primary Corridor Transportation Project

Thank you for the opportunity to review the Primary Corridor Transportation Project Environmental Assessment (Environmental Impact Statement Preparation Notice), (EA/EISPN) dated April 1999.

1 In Figure 2.4, Year 2020 Light Rail Transit (LRT) Alternative 1 of the EA/EISPN, the LRT is in close proximity to Honolulu International Airport (HIA). This may have an impact on the future projects planned in the Honolulu International Airport Master Plan. Also, we are concerned about the LRT's impact on the traffic on the access roads to HIA. We request that the Department of Transportation, Airports Division be involved in your scoping process for this project.

If you have any questions, please call Stephen Takashima, Planner, of the Airports Division at 838-8810.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

c: Office of Environmental Quality Control

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD5/99-02508R

August 16, 2000

Mr. Kazu Hayashida, Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Hayashida:

Subject: Primary Corridor Transportation Project

Thank you for your letter (AIR-p99.0323) dated May 18, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which has been numbered. The following response to your comment is provided:

1. The project is being planned to be consistent with other plans, including those of the Airports Division to improve traffic on Honolulu's airport access roads. Coordination with the Airports Division is ongoing. Section 5.1.3 discusses consistency with land use plans. Potential impacts to utilities are addressed in Section 5.12.10.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN H. MINAAI
GLENN M. OKIMOTO

JUN 17 1999

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097
JUN -9 1999

'99 JUN 15 A8:16

IN REPLY REFER TO:
HWY-PS
2.4081

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Primary Corridor Transportation Project
Environmental Impact Statement (EIS) Preparation Notice

Thank you for consulting us. We have the following comments on the scope of alternatives and impacts to be considered:

1 | 1. The Draft EIS should identify "stand-alone" components of alternatives which could be implemented even if other components are not pursued.

2 | 2. There should be two Enhanced Bus/TSM Alternatives. One should only assume expanded use of City buses. The other should assume expanded use of chartered/subsidized private buses and ferries for peak period transit. Findings from our experimental ferry demonstration project may be applicable.

3 | 3. The Draft EIS should clarify proposed "local street bus priority measures" and address any potential for conflict with signal preemption by emergency vehicles.

4 | 4. The Draft EIS should clearly describe and justify proposed improvements/alterations within the existing State highway right-of-way in terms of benefits, costs, traffic impacts, operational requirements, and safety. The full range of environmental impacts, including cumulative, regional and secondary impacts, must be addressed.

5 | 5. The Draft EIS needs to describe how the proposed Sand Island Bypass and narrowing of Nimitz Highway will accommodate vehicular access and space requirements for future Kewalo Basin and Honolulu Harbor operations. So that you understand the importance of harbor operations, our Harbors Division has provided the enclosed Economic Impact Assessment of Hawaii's Harbors.

6 | 6. The Draft EIS needs to describe how proposed alternatives will preserve bicycle routes and bicycle safety.

7 | 7. The Draft EIS should state its assumptions about how travel time and fares affect peak- and off-peak transit use. As one test of these assumptions, the Draft EIS should report the former travel mode of passengers on the experimental limited-stop "City Express". The Draft EIS also should report effects of future fare changes on multi-stop, limited-stop, and express bus ridership.

8 | 8. The Draft EIS should assume the same transit fares when evaluating alternatives. Alternatives should be compared in terms of:

- Peak and off-peak travel times of transit and private vehicles between screenlines;
- loss of vehicular capacity on highways and arterial streets;
- cumulative effects on the location and duration of traffic congestion;
- cumulative effects on peak vehicular trips and peak person-trips across screenlines;
- costs that will not be covered by transit fares or Federal Transit Administration grants;
- transit use by low income and elderly households;
- impacts on land use and demographics; and
- impacts on our Honolulu International Airport and existing utilities.

9 | 9. Please consult with us when more details are available regarding proposed improvements within our highway right-of-way.

10 | 10. As a part of your M.I.S., a highway alternative should be discussed or considered.

11 | 11. In the future, it would expedite our review of your Draft EIS/MIS if you could send us at least 10 copies of the document.

HWY-PS 2.4081

If you have any questions, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Director of Transportation

Enclosure

/ c: Office of Environmental Quality Control

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALOS, JR.
DEPUTY DIRECTOR

TPD6/99-02879R

August 16, 2000

Mr. Kazu Hayashida, Director
State of Hawaii
Department of Transportation
Highways Division
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Hayashida:

Subject: Primary Corridor Transportation Project

Thank you for your letter (HWY-PS 2.4081) dated June 9, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided.

1. All alternatives are discussed in detail in Chapter 2. Each alternative is a network of projects with many of the discrete elements serving functions on their own. Benefits are increased as these individual elements are combined. Project components are not assessed individually and are not necessarily interchangeable.
2. All alternatives are discussed in detail in Chapter 2. Transportation Demand Management measures, such as those proposed, are incorporated in all alternatives. For example, all of the alternatives include a vanpool component (use of subsidized vehicles at peak hours).
3. Bus priority measures for the TSM Alternative are described in Section 2.2.2, and in Section 2.2.3 for the BRT Alternative.
4. Project alternatives are discussed in Chapter 2. Chapter 2 discusses how existing transportation right-of-ways (ROWs) are the most feasible for transit system enhancements because of high existing land use densities and limited space in the Primary Urban Center. Costs and adverse impacts are minimized when people-moving capacity can be enhanced within existing transportation ROWs.

5. The Sand Island analysis has been shifted to the Oahu Regional Transportation Plan. Potential vehicular traffic impacts are addressed in Section 4.2.
6. Project impacts on bicycle routes and safety are discussed in Section 4.5. Both SDOT and DTS have developed master plans to enhance the network of bicycle facilities and increase bicycling as a serious transportation mode for some travel markets. Improvement of bicycle facilities is included in only the BRT Alternative. However, bicycles alone cannot accommodate the existing and projected travel demand, and are not appropriate for all travel markets. The use of bicycles would be encouraged by the BRT Alternative, but circulator buses are necessary to reach the large service area and the different types of patrons that use the bus.
7. Financial plans are discussed in Chapter 6.
8. Project alternatives are defined in Chapter 2. Their transportation performance is compared in Chapter 4. Their financial aspects are compared in Chapter 6, including transit fare options. Their impacts on and benefits to low income communities, airports, and utilities are all discussed in Chapter 5.
9. Coordination with the Highways Division is ongoing.
10. All alternatives considered are discussed in Chapter 2. Section 2.1 discusses the evolution of alternatives. A highway alternative alone is not sufficient to satisfy project purposes and needs, and is addressed in Section 2.6. A highway alternative is inconsistent with the public's visions for the island's transportation system, as documented through the Oahu Trans 2K process.
11. Comment noted. The requested number of copies will be provided.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

MAY 20 1999

Ref:PS:EH

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Primary Corridor Transportation Project

We have reviewed the subject report and offer the following comments for your consideration.

Engineering Branch:

1 We recommend that the proposed improvements located in the flood zone be designed in accordance with Section 7.10-4 Development Standards, Article 7 Special District Regulations of the City and County of Honolulu Land Use Ordinance, latest edition.

Oahu District Land Office:

2 If State lands are impacted, tenants should be involved in the planning process. Compensation should be considered, if applicable.

3 Our understanding is that the DLNR State Historic Preservation Division, State Parks Division and the Commission on Water Resource Management were contacted directly regarding the proposed project.

Thank you for the opportunity to review the subject document. If you have any questions or require further assistance, please contact staff planner Ed Henry at 5787-0380.

Very truly yours,

Dean Y. Uchida,
Administrator

c.c. OEQC
Engineering Branch
ODLO

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4328 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPDS/99-02513R

August 16, 2000

Mr. Dean Y. Uchida, Administrator
State of Hawaii
Department of Land and Natural Resources
Land Division
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Uchida:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 20, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided.

1. The proposed transitways will use existing roadways with minimal improvements required, such that there would be no impacts within the flood zone, as discussed in Section 5.8.
2. Coordination with tenants on State lands will continue during subsequent planning.
3. Coordination with these and other agencies is continuing, as described in Appendices A and D.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

BENJAMIN J. CAYETANO
[redacted]

VIRGINIA LOVELL
[illegible]
STATE LIBRARIAN

STATE OF HAWAII
DEPARTMENT OF EDUCATION
HAWAII STATE PUBLIC LIBRARY SYSTEM
ADMINISTRATIVE SERVICES BRANCH
KEKUANAOA BUILDING, ROOM 6-1
465 SOUTH KING STREET
HONOLULU, HAWAII 96813

RECEIVED
'99 MAY 25 P2:16

May 24, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, HI 96813

Dear Ms. Soon:

Thank you for allowing the Hawaii State Public Library System to review the Primary Corridor Transportation Project.

The HSPLS has no comments at this time.

Thank you.

Sincerely,

Keith Fujio
Admin. Svcs. Officer

cc: Office of Environmental
Quality Control

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 16, 2000

TPDS/99-02581R

Mr. Keith Fujio
Administrative Services Officer
State of Hawaii
Department of Education
Hawaii State Public Library System
Kekuanaoa Building, Room B-1
465 South King Street
Honolulu, Hawaii 96813

Dear Mr. Fujio:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 24, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project. We understand that you have no comments at this time. Your letter will be included in the Major Investment Study/Draft Environmental Impact Statement.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
File:

May 26, 1999

99-082/epo

Ms. Cheryl D. Soon
Director, Department of
Transportation Services
City and County of Honolulu
Pacific Park Plaza, Suite 1200
711 Kapiolani Boulevard
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Environmental Impact State Preparation Notice
(EISPN)
Primary Corridor Transportation Project

1 Thank you for allowing us to review and comment on the subject project. We would like to see addressed in the Draft EIS potential fugitive dust and noise problems during construction activities.

Sincerely,

GARY GILL
Deputy Director for
Environmental Health

c: OEQC

RECEIVED
99 MAY 27 AM 9:46

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 16, 2000

TPDS/99-02635R

Mr. Gary Gill
Deputy Director for Environmental Health
State of Hawaii
Department of Health
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Gill:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 26, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following response to your comment is provided:

1. Fugitive dust is addressed in Section 5.12.5 and construction noise impacts are addressed in Section 5.12.6.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

BENJAMIN J. CAYETANO
GOVERNOR
SEIJI F. NAYA
DIRECTOR
BRADLEY J. MOSSMAN
DEPUTY DIRECTOR
David W. Blane
DIRECTOR, OFFICE OF PLANNING

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

OFFICE OF PLANNING
235 South Beretania Street, 6th Flr., Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Tel.: (808) 587-2841
Fax: (808) 587-2824

Ref. No. P-8093

May 24, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

We have reviewed the April 21, 1999, Primary Corridor Transportation Project Environmental Impact Statement Preparation Notice (EISPN) and have the following comments. The primary transportation corridor extends from Kapolei in the Ewa District to the University of Hawaii at Manoa. The corridor alternatives are a No-Build Alternative, an Enhanced Bus/Transportation System Management (TSM) Alternative, a Bus Rapid Transit (BRT) Alternative and a Light Rail Transit (LRT) Alternative. General alignments and other options within each of the alternatives were briefly addressed in the EISPN.

1 The draft EIS should indicate how each alternative would meet ridership demand based on projected population and economic growth for the region relative to the cost of the alternative.
2 The discussion should include ridership projections and identify the costs for a self-sustaining or subsidized bus and/or light rail system.

3 Multi-modal options that might be employed separately or in concert with proposed alternatives, such as increased bikeway infrastructure or a ferry system, are additional alternatives that should be discussed. For example, an exclusive bus or rail system could share the right of way with bicycles if the corridor is planned well. Similarly, the proposed Send
4 Island Bypass Road and the conversion of Nimitz Highway to a parkway could also incorporate a bike and/or ferry system.

5 Potential impacts to the waterfront and Kakaako Waterfront Park due to the proposed Sand Island Bypass Road should be discussed. Page 17 of the EISPN indicates that there are no extensive wetlands in the corridor. Enclosed is a wetland map of the entire corridor. Please note the extensive wetland in the vicinity of the proposed Sand Island Bypass Road.

6 Best management practices to control non-point source pollution should be discussed in the draft EIS. For more information, consult our Coastal Non-Point Pollution Control Program Management Plan.

Other issues which should be further discussed in the draft EIS include:

7 • Transportation system management (TSM) policies such as downtown parking rate strategies, reduction of parking downtown, peak time tolls and land use policies that could reduce traffic.
8 • The need for supportive facilities, such as park and ride facilities in residential areas, and
9 • The redevelopment potential for areas around transit stops.

If you have any questions, please contact Christina Meller at 587-2845.

Sincerely,

David W. Blane
Director
Office of Planning

Enclosure

c: Ms. Genevieve Salmonson, OEQC

CORRECTION

THE PRECEDING DOCUMENT(S) HAS BEEN REPHOTOGRAPHED TO ASSURE LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

BENJAMIN J. CAYETANO
GOVERNOR
SELJA R. NAVA
DIRECTOR
BRADLEY J. MOSSMAN
DEPUTY DIRECTOR
David W. Blane
DIRECTOR, OFFICE OF PLANNING

OFFICE OF PLANNING
235 South Beretania Street, 6th Flr., Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Tel.: (808) 587-284
Fax: (808) 587-282

Ref. No. P-8093

May 24, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

We have reviewed the April 21, 1999, Primary Corridor Transportation Project Environmental Impact Statement Preparation Notice (EISPN) and have the following comments. The primary transportation corridor extends from Kapolei in the Ewa District to the University of Hawaii at Manoa. The corridor alternatives are a No-Build Alternative, an Enhanced Bus/Transportation System Management (TSM) Alternative, a Bus Rapid Transit (BRT) Alternative and a Light Rail Transit (LRT) Alternative. General alignments and other options within each of the alternatives were briefly addressed in the EISPN.

1 The draft EIS should indicate how each alternative would meet ridership demand based on projected population and economic growth for the region relative to the cost of the alternative.
2 The discussion should include ridership projections and identify the costs for a self-sustaining or subsidized bus and/or light rail system.

3 Multi-modal options that might be employed separately or in concert with proposed alternatives, such as increased bikeway infrastructure or a ferry system, are additional alternatives that should be discussed. For example, an exclusive bus or rail system could share the right of way with bicycles if the corridor is planned well. Similarly, the proposed Sand
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5 Potential impacts to the waterfront and Kakaako Waterfront Park due to the proposed Sand Island Bypass Road should be discussed. Page 17 of the EISPN indicates that there are no extensive wetlands in the corridor. Enclosed is a wetland map of the entire corridor. Please note the extensive wetland in the vicinity of the proposed Sand Island Bypass Road.

6 Best management practices to control non-point source pollution should be discussed in the draft EIS. For more information, consult our Coastal Non-Point Pollution Control Program Management Plan.

Other issues which should be further discussed in the draft EIS include:

7 • Transportation system management (TSM) policies such as downtown parking rate strategies, reduction of parking downtown, peak time tolls and land use policies that could reduce traffic.
8 • The need for supportive facilities, such as park and ride facilities in residential areas, and
9 • The redevelopment potential for areas around transit stops.

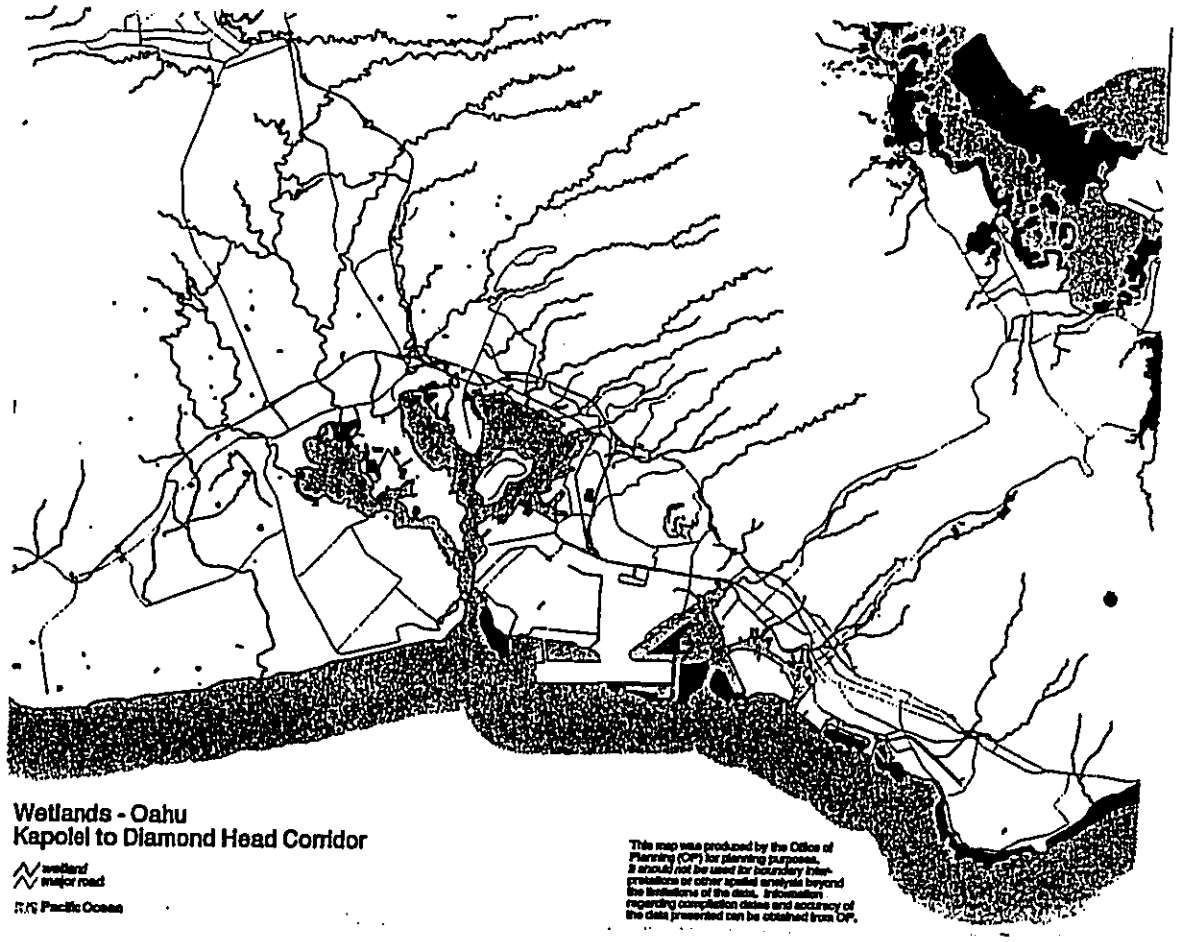
If you have any questions, please contact Christina Meller at 587-2845.

Sincerely,

David W. Blane
Director
Office of Planning

Enclosure

c: Ms. Genevieve Salmonson, OEQC



Wetlands - Oahu
Kapolei to Diamond Head Corridor

wetland
major road

R/R Pacific Ocean

This map was produced by the Office of Planning (OP) for planning purposes. It should not be used for boundary interpretations or other spatial analysis beyond the limitations of the data. Information regarding completion dates and accuracy of the data presented can be obtained from OP.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 16, 2000

TPD5/99-02650R

Mr. David W. Blane, Director
State of Hawaii
Department of Business, Economic Development and Tourism
Office of Planning
P. O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Blane:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 24, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided.

1. The financial plan is described in Chapter 6.
2. The costs of the alternatives are provided in Section 2.3.
3. Project alternatives are discussed in Chapter 2. An increased focus on bicycles as a serious transportation mode for some travel markets is included in all of the alternatives. An intra-island ferry system is currently being demonstrated.
4. The Sand Island analysis has been shifted to the Oahu Regional Transportation Plan (ORTP). Moreover, bicycles in combination with ferries could not accommodate the existing or future travel demand.
5. The Sand Island analysis has been shifted to the ORTP.
6. Water resource issues are addressed in Section 5.8.
7. Transportation Demand Management (TDM) programs are included in the build alternatives, but are not expected to address projected increases in travel demand fully in the primary transportation corridor. The advantages of efficient transit would encourage people to use their cars less. The use of specific disincentive and education programs on alternative transportation is a policy decision to be made by the City Council.

8. The project alternatives, including the use of park-and-rides and other transit support facilities are discussed in Chapter 2.
9. One of the purposes of the BRT Alternative is to establish future nodes of redevelopment within the Primary Urban Center.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

PHONE (808) 594-1888

FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

RECEIVED
99 JUN 1 P2:51
OFC. OF ENVIRONMENTAL QUALITY CONTROL

EIS (99) 298

May 28, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapi'olani Boulevard, Suite 1200
Honolulu, Hawai'i 96813

Re: Primary Corridor Transportation Project

Dear Ms. Soon:

Thank you for the opportunity to comment on the Notice of Intent to prepare and Environmental Impact Statement for the Primary Corridor Transportation Project. We would also like to thank Faith Miyamoto from your office for taking the time to review the project with us on May 21, 1999.

At our meeting, we discussed the possible routes and configurations of the system. Our main concern is for routes that will involve coastal or previously coastal areas. In those areas, the likelihood of finding burials, cultural or archaeological resources is much greater. When routes or configurations affect those areas we urge you to prepare detailed archaeological and cultural information and to address mitigation in a manner which will minimize the concerns of the native Hawaiian community.

1 In order to accomplish this task we suggest that:

- An archaeological survey of the project area must be completed.
- A determination of eligibility for the NHR register must be completed for cultural/archaeological sites found within the project area.
- Meaningful, pre-decision consultation with OHA, as required by the National Historic Preservation Law, must occur.

In addition, gathering and religious rights may exist within the project corridor in those areas which have not been previously used for transportation. It is essential that the existence of these rights be determined early. In order to accomplish this, we suggest that you work with

2 a Hawaiian cultural expert. We suggest that this person(s) should be recognized within the Hawaiian community for his/her cultural expertise. Hawaiian culture exists and is practiced every day in Hawaii. We caution that the concerns of the community will not be addressed if the cultural analysis is provided solely by an archeologist or anthropologist.

Again, thank you for the opportunity for early participation in this project. If you have any questions, please contact Lynn Lee, EIS Planner at 594-1936.

Sincerely,

C. Sebastian Aloot
Land and Natural Resources Division Officer

cc: Board of Trustees

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4928 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD6/99-02709R

August 16, 2000

Mr. C. Sebastian Aloot
Land and Natural Resources Division Officer
State of Hawaii
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Aloot:

Subject: Primary Corridor Transportation Project

Thank you for the letter dated May 28, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided:

1. Archaeological and cultural issues are addressed in Sections 3.10 and 5.10. Coordination with the SHPD is continuing on historic sites and sites eligible for the National Register.
2. Traditional cultural properties or practices are addressed in Sections 3.10.2.4 and 5.10.4.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

BENJAMIN J. CAYETANO
GOVERNOR

MAJOR GENERAL EDWARD W. RICHARDSON
DIRECTOR OF CIVIL DEFENSE

ROY C. PRICE, SR.
VICE DIRECTOR OF CIVIL DEFENSE

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

PHONE (808) 733-4300
FAX (808) 733-4287

June 24, 1999

JUN 28 3:41

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Primary Corridor Transportation Project

I The Primary Corridor Transportation Project could affect between one and five existing outdoor warning sirens currently in place along the corridor, depending upon the exact placement of the new infrastructure. When more detailed information is known as to routes and/or demolition and construction, more specific comments will be provided relating to siren warning infrastructure relocations which must be planned to support the project.

If there are any questions, please contact Mr. Ogasawara of my staff at (808) 733-4300.

Sincerely,

ROY C. PRICE, SR.
Vice Director of Civil Defense

c: Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

Oahu Civil Defense Agency

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4928 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 16, 2000

TPD6/99-03185R

Mr. Roy C. Price, Sr.
Vice Director of Civil Defense
State of Hawaii
Department of Defense
Office of the Director of Civil Defense
3949 Diamond Head Road
Honolulu, Hawaii 96816-4495

Dear Mr. Price:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated June 24, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following response to your comments is provided:

1. Potential impacts to the siren warning system are addressed in Section 5.12.10.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON

Enclosure

cc: Parsons Brinckerhoff Quade and Douglas, Inc.

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 32ND FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 527-6663 • FAX: (808) 527-6675

JEREMY HARRIS
Mayor

KENNETH E. SPRAGUE, P.E., Ph.D.
Director

BARRY FUKUNAGA
Deputy Director

ENV 99-54

APR 30 1999

MEMORANDUM

TO: CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISPN)
PRIMARY CORRIDOR TRANSPORTATION PROJECT

We have reviewed the subject EISPN and have no comments to offer at this time.

Should you have any questions, please contact Alex Ho at 523-4150.

cc: Office of Environmental Quality Control

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4929 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPDS/99-02143R

August 16, 2000

MEMORANDUM

TO: KENNETH E. SPRAGUE, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT

Thank you for your memorandum dated April 30, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project. We understand that you have no comments at this time. Your memorandum will be included in the Major Investment Study/Draft Environmental Impact Statement.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

CHERYL D. SOON

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H428
HONOLULU, HAWAII 96819-1898

JEREMY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

May 13, 1999

TO: CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: ATTILIO K. LEONARDI, FIRE CHIEF

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT
ENVIRONMENTAL ASSESSMENT (EIS PREPARATION NOTICE)

In response to your letter dated April 21, 1999, regarding the above subject matter, we have reviewed the Environmental Assessment (EIS Preparation Notice) and foresee no significant impact on the services we provide. We will maintain our current level of service.

Should you have any questions, please call Battalion Chief Peter Gaskell of our Administrative Services Bureau at 831-7735.

ATTILIO K. LEONARDI
Fire Chief

AKL/PHG:cn

RECEIVED
99 MAY 14 P3:01

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 16, 2000

TPD5/99-02379R

MEMORANDUM

TO: ATTILIO K. LEONARDI, FIRE CHIEF
FIRE DEPARTMENT

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT

Thank you for your memorandum dated May 13, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project. We understand that you foresee no significant impact on the services you provide. Your memorandum will be included in the Major Investment Study/Draft Environmental Impact Statement.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

CHERYL D. SOON

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
http://www.honolulupd.org

JEREMY HARRIS
MAYOR

LEE D. DONOHUE
CHIEF

WILLIAM B. CLARK
MICHAEL CARVALHO
DEPUTY CHIEFS

OUR REFERENCE CS-DL

May 18, 1999

TO: CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT

Thank you for the opportunity to review and comment on the subject document.

The Honolulu Police Department is in favor of and supports transportation improvements in the primary transportation corridor.

We have no comment to offer at this time relative to the proposed alternatives but may have as the plans are more defined.

If there are any questions, please call me at 529-3255.

LEE D. DONOHUE
Chief of Police

By
EUGENE UEMURA
Assistant Chief
Support Services Bureau

cc: Ofc. of Environmental Quality Control

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4039 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 16, 2000

TPD5/99-02475R

MEMORANDUM

TO: LEE D. DONOHUE, CHIEF OF POLICE
POLICE DEPARTMENT

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT

Thank you for your memorandum dated May 18, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project. We understand that you have no comments at this time. Your memorandum will be included in the Major Investment Study/Draft Environmental Impact Statement.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Cheryl D. Soon
CHERYL D. SOON

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 10TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4182 • FAX: (808) 523-4054

JEREMY HARRIS
MAYOR

WILLIAM D. BALFOUR, JR.
DIRECTOR

MICHAEL T. ANN
DEPUTY DIRECTOR

May 24, 1999

TO: CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: WILLIAM D. BALFOUR, JR., DIRECTOR

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT

We have reviewed the environmental assessment preparation notice and have no comment to offer at this time. However, we look forward to reviewing the Draft Environmental Impact Statement (DEIS).

Thank you for the opportunity to present comments for the DEIS. Should you need further information, please contact Mr. John Eveland, Executive Assistant, at 527-6038.

W.D. Balfour
WILLIAM D. BALFOUR, JR.
Director

WDB:cu
(99-097DC7)

cc: Office of Environmental Quality Control

RECEIVED
'99 MAY 25 P2:26

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPDS/99-02578R

August 16, 2000

MEMORANDUM

TO: WILLIAM D. BALFOUR, JR., DIRECTOR
DEPARTMENT OF PARKS AND RECREATION

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT

Thank you for your memorandum dated May 24, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project. We understand that you have no comments at this time. Your memorandum will be included in the Major Investment Study/Draft Environmental Impact Statement.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

CHERYL D. SOON

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743

JEREMY HARRIS
MAYOR

JAN NAOE SULLIVAN
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

1999/CLOG-2692(ASK)
'99 EA Comments - Various Zones
May 26, 1999

MEMORANDUM

TO: CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: JAN NAOE SULLIVAN, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISPN) FOR PRIMARY CORRIDOR TRANSPORTATION PROJECT

We have reviewed the above-referenced document and have no comments to offer at this time. We look forward to reviewing the draft environmental impact statement for this important and timely project.

1 A matrix of the alternatives and options being considered would help reviewers compare the similarities and differences of the different proposals.

Should you have any questions regarding the above, please contact Ardis Shaw-Kim of out staff at Extension 5349.

JAN NAOE SULLIVAN
Director of Planning
and Permitting

JNS:am

pcase doc: 4721
g:corridor.ask

RECEIVED
'99 MAY 27 A9:58

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD5/99-02628R

August 16, 2000

MEMORANDUM

TO: RANDALL K. FUJIKI, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT

Thank you for the memorandum dated May 26, 1999 from Ms. Jan Naoe Sullivan, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

The comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of the written comments, which have been numbered. The following response is provided:

1. Project alternatives are discussed in detail in Chapter 2.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

CHERYL D. SOON

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
FORREST C. MURPHY, Vice Chairman
KAZU HAYASHIDA
JAN M.L.Y. AMI
BARBARA KIM STANTON
CHARLES A. STED

CLIFFORD S. JAMILE
Manager and Chief Engineer

May 13, 1999

'99 MAY 24 A8:22

OFFICE OF ENVIRONMENTAL QUALITY CONTROL

TO: MS. CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: CLIFFORD S. JAMILE

SUBJECT: YOUR MEMORANDUM OF APRIL 21, 1999 REGARDING THE ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR THE PRIMARY CORRIDOR TRANSPORTATION PROJECT

Thank you for the opportunity to review and comment on the Environmental Impact Statement Preparation Notice (EISPN) for the proposed primary corridor transportation project.

1 We have no objections to the proposed transportation improvements in the primary transportation corridor of Oahu. The construction plans should be submitted for our review and approval. We reserve further comments until the infrastructure improvement plans are formalized.

If you have any questions, please contact Barry Usagawa at 527-5235.

cc: Office of Environmental Quality Control

Pure Water . . . many a greater need – use it wisely

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4638 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 16, 2000

TPD5/99-02459R

MEMORANDUM

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT

Thank you for your memorandum dated May 13, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which has been numbered. The following response to your comment is provided.

1. Potential construction impacts on utilities are addressed in Section 5.12.10.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

CHERYL D. SOON

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

OMPO

Oahu Metropolitan Planning Organization

Ocean View Center, Suite 200
707 Richards Street
Honolulu, Hawaii 96813-4623

(808) 587-2015
(808) 523-4179
FAX (808) 587-2018

May 24, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Primary Corridor Transportation Project

We have reviewed the Environmental Assessment (EIS Preparation Notice) for the above-mentioned project and offer the following comments.

1. The 2020 Oahu Regional Transportation Plan (2020 ORTP) identified a rapid transit system which extended from Pearl City to the University of Hawaii at Manoa. Although the plan did not specify or recommend a type of system, it assumed attributes of the Honolulu Rapid Transit Program's Locally Preferred Alternative rail rapid transit system. This system assumed that the rapid transit operated on exclusive right-of-way and was of a high-capacity.

   The Primary Corridor Transportation Project identified three Light Rail Transit (LRT) alternatives along a similar corridor with the 2020 ORTP, but with limited sections of exclusive bus lanes.

1

   How do these LRT alternatives compare against the person-carrying capacity of the rapid transit system identified in the 2020 ORTP? Will other transit and/or highway projects be needed if the person-carrying capacity of the proposed LRT alternatives identified in the Primary Corridor Study is less than what the rapid transit project assumed in the 2020 ORTP?

2. In Section 1.4.4 Land Use Development in the Central Urban Core, it mentioned that one of the major objectives of the 21st Century Oahu Vision was to concentrate new development within the established urban core of Honolulu. Is this an official City land use policy? If not, will the official City land use policy also be tested in the Primary Corridor Transportation Project?

2

3. The Primary Corridor Transportation Project identified many major roadway projects such as a Sand Island Bypass Road via a tunnel under Fort Armstrong Channel, a Nimitz Parkway, the closing of Nimitz Highway between Queen Street and South Street, redesigned freeway ramps, and improvements to H-1 to allow for the p.m. operation of the Zipper Lane.

   Many of the related highway projects being proposed in the Primary Corridor Transportation Project must be prioritized within the context of the ORTP. Although these projects may be important to the Primary Corridor Transportation Project, there may not be sufficient funds to implement these projects or there may be other higher priority projects on Oahu that deserve the limited funding resources. These priority decisions must be made in the larger context of the ORTP where all regional Oahu transportation projects are considered.

3

4. In Section 1.4.2 Socioeconomic Growth, the report talked about the projected population increase in 2020. Will the Primary Corridor Transportation Project use 2020 as its horizon year?

   OMPO is in the process of updating its 2020 ORTP to 2025 and is expecting to complete this plan in November 2000. DTS and the OMPO Policy Committee should discuss the requirements and analysis needed to ensure the smooth integration of the Primary Corridor Study results into the 2025 ORTP. The horizon year used may be just one of the many issues related to this concern.

4

Thank you for the opportunity to comment on your document. If you have any questions regarding this matter, please call me.

Sincerely,

Gordon G.W. Lum
Executive Director

c: Office of Environmental Quality Control

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD5/99-02554R

August 16, 2000

Mr. Gordon G. W. Lum, Executive Director
Oahu Metropolitan Planning Organization
Ocean View Center, Suite 200
707 Richards Street
Honolulu, Hawaii 96813-4623

Dear Mr. Lum:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 24, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided.

1. The proposed project is consistent with the Oahu Regional Transportation Plan (ORTP). As presently designed, the Bus Rapid Transit system proposed in this transit project would have less capacity than that designed in the early 90's.
2. It is City policy to focus growth in the Primary Urban Center and in Kapolei, thereby keeping the country country.
3. This project is one of the named high-priority projects in the ORTP.
4. The project's horizon year is 2025.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

Leeward Oahu Transportation Management Association

May 24, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
711 Kapiolani Boulevard, Suite 1200
Honolulu, HI 96813

Re: Environmental Impact Statement Preparation Notice (EISPN) for Primary Corridor Transportation Project

Dear Ms. Soon: Cheryl

After reviewing the EISPN, we offer the following comments and questions on the proposed study alternatives for your consideration:

1. **Sec. 2.2 Enhanced Bus/TSM Alternative** - According to Fig.2.2, this alternative proposes to include four (4) new park-and-rides, five (5) new transit centers, and two (2) special freeway ramps, in addition to bus priority treatments on various arterial streets from Kapolei to Waikiki. Surprisingly, major segments of a previously-indicated bus priority arterial (Kamehameha Highway from Wahiawa to Radford Dr.) are not indicated, such as 1) the portion from Wahiawa to its connection with Farrington Highway and on to what appears to be Kamehameha Highway at Waimano Home Road, and 2) from Pearlridge to Radford Dr. Hopefully, this was just an oversight. If not, what is the reason for the change? Since Kamehameha and Farrington Highways are the trunk line routes for buses serving West/ Central Oahu, bus priority treatments on these highways will be vital to improving the delivery of transit services and increasing ridership. 1

2. **Sec. 2.3 Bus Rapid Transit (BRT) Alternative** - A faster, more efficient bus service linkage between West Oahu and the PUC will be the key to making the use of transit an attractive and convenient alternative to driving and improving the accessibility to jobs in either direction. Therefore, the study of a bus rapid transit system should be as comprehensive and extensive as possible, in order to provide the community with a clear understanding of estimated costs and benefits of proposed BRT alignments. 2

Based on Fig. 2.3, however, it is not clear what the BRT alternative is, because it seems to involve a variety of proposals and only identifies one BRT alignment (Middle St. to the University of Hawaii). For the area between Kapolei and Middle Street, it only differs from the Enhanced Bus alternative by the addition of a transit center at the Waiawa Interchange and seven (7) special freeway ramps. Then, in addition to the Middle St.-U.H. arterial BRT, there is a light rail route to Waikiki, a Nimitz Parkway, and a Sand Island Bypass. What is interesting is that while this alternative contains an LRT route for Waikiki, none of the LRT alternatives propose LRT for Waikiki. 3

94-229 Waipahu Depot Road, #407 • Waipahu, Hawaii 96797
Telephone Number (808) 677-RIDE • Facsimile Number (808) 676-4741

The emphasis of this alternative seems to concentrate only on bus services during peak commute periods into and out of the PUC, relying on H-1 and H-2 HOV lanes and A.M./P.M. zipper lanes. The only identified "BRT" route on the map is from Middle Street to the U.H.

We would like to suggest that this alternative study a defined BRT route that replicates the Light Rail Alternative #1, extending the U.H.-Middle Street BRT westward to several termini, such as Pearlridge, Waiawa Interchange, Kunia/Ft. Weaver transit centers, and Kapolei? By doing so, a BRT alignment would be in place for later conversion to LRT, in the event it is not financially feasible to initially extend any LRT beyond Middle Street. Since LOTMA and many Leeward/Central Oahu communities have advocated the extension of an LRT alternative beyond Pearlridge, a defined BRT route would serve as a well-thought out intermediate alternative that will be useful in serving major activity and employment centers west of the PUC, including U.H.-West Oahu, Barbers Point Redevelopment, and the water park and sports complexes in Kapolei. It would also provide an effective means to serve the reverse commute market, which at this time must rely heavily on the automobile to get to Kapolei. 4

Because the Nimitz Parkway and Sand Island Bypass involves major capital improvements within the state's jurisdiction, we believe that these options should not be studied at this time. Time and resources could be more effectively spent on thoroughly developing the BRT and LRT alternatives. 5

3. **Light Rail Transit (LRT) Alternatives** - Since none of the LRT alternatives are proposed past Pearlridge, it is unclear why the special freeway ramps and Waiawa Transit Center (as proposed in the BRT alternative) are not included in this alternative. 6

4. During the conceptual engineering phase, will it be possible to mix and match portions of the BRT and LRT alternatives? 7

Thank you for the opportunity to offer these comments. We look forward to the opportunity to review the Draft EIS.

Sincerely,

Darrlyn T. Bunda
Executive Director

cc: Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 16, 2000

TPDS/99-02569R

Ms. Darrlyn T. Bunda, Executive Director
Leeward Oahu Transportation Management Association
94-229 Waipahu Depot Road, #407
Waipahu, Hawaii 96797

Dear Ms. Bunda:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 24, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided:

1. These measures are included in the No-Build Alternative and, therefore, all of the alternatives.
2. A cost-benefit analysis is provided in Chapter 7.
3. Project alternatives are discussed in Chapter 2. All alternatives under consideration include service to Waikiki.
4. Sections 4.1 and 4.2 address transportation impacts of the project. The proposed alternatives would improve transportation in both directions. All of the alternatives include provisions for enhancing mobility within the Ewa area through increasing roadway connectivity and capacity, and enhanced transit service. The Transportation System Management (TSM) and Bus Rapid Transit (BRT) Alternatives increase transit accessibility within and to Kapolei/Ewa, through the use of a "hub-and-spoke" bus network configuration. These alternatives support the development of Kapolei as both a residential and employment center. The TSM and BRT Alternatives would both improve transit service along the Waianae coast. Travel demand forecasting indicates that there will still be substantial travel between the Primary Urban Center (PUC) and other parts of the island, and within the PUC.

5. The Sand Island analysis has been shifted to the Oahu Regional Transportation Plan.
6. Project alternatives are described in detail in Chapter 2. The BRT Alternative, which has since replaced the Light Rail Transit Alternatives, does include bus ramps.
7. Project alternatives are discussed in detail in Chapter 2. Each alternative is analyzed as a package; project components are not assessed individually and are not necessarily interchangeable.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

THE OUTDOOR CIRCLE
1314 South King St., Suite 306 • Honolulu, HI 96814
Phone: 808-593-0300 Fax: 808-593-0525

May 18, 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Blvd, Ste. 1200
Honolulu, HI 96813

RE: Primary Corridor Transportation Project

Dear Ms. Soon:

Thank you for the opportunity to comment on the above referenced Environmental Impact Statement Preparation Notice (EISPN). We have reviewed the document and offer the following comments at this time:

The proposed action is intended to address existing and future transportation demand and capacity needs; support socioeconomic growth on the island and in the corridor; improve public transit services; facilitate land use development in the central urban core consistent with the vision for Oahu as being articulated at community meetings; and support current planning activities and policies.

1 We do not understand why the City is using the Visioning Program as justification and background for this transportation study. The community based visioning teams met separately from the Oahu Trans 2K meetings. Instead, thorough studies should be provided showing the need for this plan.

2 We hope that when the public hearing is held on the Draft Environmental Impact Statement (DEIS), it will be truly a public forum. The format at the public scoping meeting did not create an opportunity for the community to publicly ask questions and voice their concerns. By blocking communication, an atmosphere of secrecy prevails. It is important for participants and interested community members to hear what others are asking about the project.

3 We are interested in knowing when the Locally Preferred Alternative (LPA) will be announced to the public. What happens if the LPA is not the best alternative based on preliminary engineering? When will the public be notified and what changes will be made to accommodate this?

4 The Primary Urban Center is the origination point for close to 59% of all island wide travel, why does this project study begin in Kapolei and end at the University of Hawaii? Why doesn't this study continue to Kahala?

5 The DEIS must discuss in detail the fate of the street trees along the transit corridor. Also, if a
6 light rail system with overhead lines is proposed, what kinds of impacts would it make on street trees as well as community efforts to place all above ground wires underground?

Thank you for the opportunity to comment. I look forward to receiving a copy of the Draft Environmental Impact Statement and being kept informed as this project progresses.

Sincerely,

Mary Steiner
CEO

cc: Office of Environmental Quality Control
Parsons Brinckerhoff Quade & Douglas

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4525 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD5/99-02481R

August 16, 2000

Ms. Mary Steiner, CEO
The Outdoor Circle
1314 South King Street, Suite 306
Honolulu, Hawaii 96814

Dear Ms. Steiner:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 18, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided.

1. The project's purposes and needs are discussed in Chapter 1. The planning for this project has been coordinated with the visioning process because transportation plans address other quality of life issues, included in the visioning process.
2. Appendix A summarizes the efforts that have been made to provide opportunities for public participation. Comments from the public are welcome at any point.
3. It is expected that the City Council will select the Locally Preferred Alternative in late 2000. The City Council will weigh a variety of factors, including engineering, into its decision.
4. The imbalance between travel demand and system capacity is worse in the corridors Ewa of Downtown. While needed, improvements beyond Waikiki and UH-Manoa are lower priority. A circulator service has just begun between Waikiki and Kaimuki, which may help relieve some of the demand.
5. Potential impacts on street trees are addressed in Section 5.7. None of the proposed alternatives will require a catenary system.

6. No overhead lines would be required under any of the alternatives. Efforts to underground wires and other utilities are addressed in Section 5.12.10.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

Monday, May 24, 1999

Kenneth Hamayasu, Chief
Transportation Planning Division
Department of Transportation Services
City and County of Honolulu
711 Kapolei Boulevard, Suite 1200
Honolulu, Hawai'i 96813 FAX 527-6987

RE: Comments on Primary Corridor Transportation Project, Environmental Assessment (Environmental Impact Statement Preparation Notice); Scoping Activity

Dear Mr. Hamayasu,

I am writing to you on behalf of the Hawai'i Bicycling League (HBL). A letter in official stationary will follow in the mail. This letter addresses our concerns with regard to the document entitled, ": Comments on Primary Corridor Transportation Project, Environmental Assessment" (April 1999) connected to the scoping activity held in May 1999.

Access to the report , public input and planning process (for scoping)

1
- Is the report accessible to the public and particularly people with disabilities?
- Was the report available on the Internet in a text file format? People with disabilities were not noticeably participating in the O'ahu Trans 2K events. Lack of transportation alternatives is probably the number one reason why persons with disabilities cannot participate in community affairs. Was there electronic access to document and opportunities to provide feedback by May 24, 1999? There was no fax number available on the report to fax back comments – only an address.

2
- The report was produced in less than a 12 point font. Production of reports in at least a 12 point font makes it easier and slightly more accessible to an aging population. The maps were also difficult to read due to the very small print.

3
- There was only one meeting of which HBL was aware for public participation. Will there be any future meetings regarding scoping? The time was relatively limited for feedback – if HBL could request a slight extension of the feedback period (i.e., about two weeks beyond the May 24th deadline), there would be an opportunity to make members aware of this document and encourage our members to provide additional feedback.

4
- Are there any plans to include other scoping meetings available to other parts of the island not in the primary corridor? Persons living in outlying areas may not have been able to attend the meeting.

3
- The description of events that will coordinate federal and state requirements for movement on this plan (p. 4) was quite useful. It would be very helpful to have the report provide a estimated timeline for the various activities: the scoping activities, the Draft EIS and public hearing (or hearings??), the LPA (locally preferred alternative) will be determined and engineering will be performed during the final EIS. After this, the Governor may accept the final EIS and at the federal level a ROD (record of decision) will be prepared and signed by the Regional Administrator which details the LPA and any environmental mitigation commitments. The purpose of the scoping activity is still unclear.

Assumptions inherent in the planning

5
- All the plans still seem to focus on roads and cars in competition with buses on roads as opposed to planning options that would mindfully increase pedestrian and bicycling options. Any plans or mention of pedestrian, bicycling or access for persons with disabilities is glossed over.

6
- There are assumptions about the increase in population over time (p. 28) and the increase in the number of employees by 37%. There is an assumption or calculation that the speed of buses will be decreased while the number of buses on the road will increase from 525 to 800. There is no discussion about the number of cars increasing (which has been the trend) or that if the buses are slowing down, the cars will probably travel more slowly too.

7
- There is no discussion of the number of cars on the road, the number of persons per car on the road, or the speeds of cars using the road. Implicitly it appears that the number of car miles will be reduced – but there fails to be evidence of this from the information provided.
- Without better information on the decrease in miles traveled overall, there is some question about the air quality maintenance. Anyone who has bicycled or walked near our streets on a Kona wind or no wind day can tell you that the air is substantially dirtier and less hospital to those not driving around in an air conditioned unit (e.g., cars).

5
- There is no detail regarding pedestrian or bicycling access considerations.

8
- There is no discussion of an education process for the public about transportation alternatives and options during the planning, engineering, development and implementation process.

9
- The idea of concentrating growth density along this primary corridor may tend to make parts of the main streets or hubs for transit unliveable for all but the poorest in our communities who cannot afford to live elsewhere.

Attributes in planning that we prefer

5
- We would prefer, in order to make our communities liveable, to plan with the following priorities as objectives of any plan:
  - Pedestrian traffic is first priority
  - Alternative methods of transportation is second priority (buses, bikes, mass transit of other types), and finally,
  - Put the private automobile in third place priority.

This was presented in the vision-like process that was promoted during Mayor Harris's meetings. There was a video which described the traffic planning in Portland, Oregon and this was the premise of the planning there.

- Discuss in detail what facilities would make the streets less "mean" and more friendly to pedestrians, bicyclists and persons with disabilities. Consider:
  - Triggers or sensors on the streets that can be triggered by something as "light" as a bicycle (so we don't need to get off our bikes and push a button or ride up on the sidewalk to push the buttons to get the light to change).
  - Reduce and eliminate the triggers on street lamps for pedestrians to press in order to cross the streets. Many or most of these buttons are broken after a period of time and either are permanently pressed in or don't function when pressed so that the pedestrian can cross the street at all. These triggers effectively convey to pedestrians that they are second class citizens because automobile traffic is always given first priority.
  - Discuss disincentives that will cause people to leave their cars at home or not buy them in the first place. Many countries use disincentives effectively without major complaints from citizens. Many citizens suffer in countries were intelligent use of disincentives are not employed and the car remains king (i.e., Bangkok, Thailand). Disincentives are a legitimate policy alternatives and should go hand-in-hand with public education about broadly defined transportation system costs.
  - Assure that transit centers, park & ride facilities and all transportation projects include services to pedestrians, bicyclists and persons with disabilities.
  - Assure that all new transit equipment is accessible.
    - Bike racks should be available or bikes should be able to be brought aboard a light rail, trolleys, limited stop buses and ferries.
    - Do not move to the longer "unfriendly" buses – try double decker buses with the first floor accessible to persons with mobility challenges.
    - Promote bicycles as "circulators."
  - Assure that the Master Bike Plan that was developed previously and other information such as the City and County curb cut plan are available and participants are aware of these documents and their implications. (Help citizens connect the dots between these planning efforts.)
  - Assure that if a tunnel is part of the light rail system mentioned on page 13, that there is access to persons walking or bicycling through the tunnel that is clean of debris and sufficiemly wide to move along in safe distance from the traffic.
  - Assure that new or redeveloped freeways and freeway ramps improve and do not impinge on pedestrian and bicycling facilities. These are opportunities to make facilities MORE accessible to pedestrians and bicyclists and should be developed or redeveloped with that in mind.
  - Provide education about transportation alternatives and their costs. Most costs for pedestrian walkways and bicyclists are not necessarily capital intensive. Education for the public certainly is not. These costs should be put in a form that people can see the immediate and longer term maintenance costs for building parking lots and structures compared to facilities that improve mobility and assure safety for pedestrians and bicyclists.
- Do NOT create substitute or alternative freeway routes out of residential, business, commercial or mixed use streets (see 2.3). Current examples of this type of planning are Wai'alae Avenue, Kina'u Street, and Ward Avenue, to mention but a few.
- Water resource use is a concern. There should be a commitment made to use plants that are indigent to the area and reduce the need for further water consumption by choosing plants are salt water or brackish water tolerant and drought resistant (i.e., use of xeroscaping alternatives along the waterfront, along streets, etc. for beautification). Plans to use recycled and "gray" water to provide water for these spots would also be forward thinking.
- We strongly support that there is no reduction of green spaces for high density residential areas. During the vision-like process it was very clear that residents from neighborhoods such as Makiki and Moiliili suffer a decreased quality of life with very few green spaces available to densely populated areas.
- Social and economic impacts on people living in the most densely populated should be examined with respect to the amount of road dust and increases in heat and the need for air conditioning. Who are the people (i.e., demographics of the population, age, ethnicity, the number of people in a family unit and space) who are suffering these environmental impacts?

<u>Other problems with this discussion of transportation</u>

- The boundaries used in various reports are not consistent for planning purposes and in the planning documents. This is confusing for the lay person, even one who attempts to follow along and attend the many meetings related to various plans. This plan discusses the primary urban corridor. How does that relate to the bicycling plans taking place all over the island of O'ahu? How does that relate to the Master Bike Plan for O'ahu? In the longer run (say 20 years'time), wouldn't the primary corridor run from Hawai'i Kai to Kapolei? Making the boundaries consistent in these planning efforts:
  - Reduces confusion for citizens who want to be involved.
  - Decreases inconsistencies in planning efforts and trying to incorporate different planning efforts (i.e., achieving both the results of the Master Bike Plan and the visioning team efforts).
  - Could result in making the process of planning and the technologies used in the process more "transparent" (easily understood, mentally graspable) to the lay person.
- The planning process needs to be transparent. Citizens should be able to understand the need for coordination among neighborhoods, see evidence of coordination among state/county/other local agencies in the time lines, budgeting process, plan development and engineering, and implementation processes.
- In an effort to make planning transparent, there could be one page documents to be faxed on demand or available via a regularly updated accessible website.
- Provide funds for studies to determine what works and what doesn't work to promote cycling and walking locally as substitutes for personal cars.

17 • Focus on the need to make connections with advocacy groups for pedestrians and bicycling. There are few groups and the transportation departments should make an effort to acknowledge the importance of these groups and their activities.

Thank you for this opportunity to provide comments.

Robin Brandt
For Hawai'I Bicycling League
My address: 3227 Melemele Place, Honolulu, HI 96822
Phone (home): 988-5048
E-mail: rbrandt@lava.net

DEPARTMENT OF TRANSPORTATION SERVICES
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD00-00407

August 16, 2000

Ms. Robin Brandt
Hawaii Bicycling League
3227 Melemele Place
Honolulu, Hawaii 96822

Dear Ms. Brandt:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 24, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided:

1. Appendix A summarizes the efforts that have been made to provide opportunities for public participation. Comments on the Major Investment Study/Draft Environmental Impact Statement will be welcomed during the public comment period.
2. The method of disseminating the Major Investment Study/Draft Environmental Impact Statement is still under study. Large fonts were not used to comply with the Major Investment Study/Draft Environmental Impact Statement page limits. Please contact the department if you have difficulty reading the document.
3. The project schedule is provided in Section 2.5. The purpose of the scoping activity is to help focus the Major Investment Study/Draft Environmental Impact Statement on the important issues.
4. Appendix A summarizes the efforts that have been made to provide opportunities for public participation. Oahu Trans 2K meetings were held all around the island, not just in the PUC.
5. Chapter 1 discusses the project's purpose and need, one of which is to make the PUC much more pedestrian friendly. Investment in transit systems promote the pedestrian mode as a viable mode of travel. However, pedestrian travel alone cannot accommodate regional travel demands. Chapter 4 discusses transportation issues. DTS and SDOT will continue to promote alternative transportation (e.g. SDOT will continue to promote the

zipper lane and the Vanpool program, and DTS will continue to promote its limited stop transit services, City Express! and Country Express!). By using existing street capacity as a dedicated transitway, the BRT Alternative would create incentives for the increased use of multiple-occupant vehicles along the alignment of the In-Town BRT. Both SDOT and DTS have developed master plans to enhance the network of bicycle facilities and increase bicycling as a serious transportation mode for some travel markets. Improvement of bicycle facilities is included in the BRT Alternative. All transit facilities would be equipped for disabled access. Pedestrians and bikes are very much a part of the TSM and BRT Alternatives, but they alone cannot satisfy all of the travel markets that must be accommodated. The transit systems contained in all of the alternatives must be compatible with the Americans with Disabilities Act (ADA) requirements. DTS will continue to support programs to foster alternative transportation, such as the hub-and-spoke bus system and traffic calming, and Vanpool. Transportation Demand Management (TDM) programs are included in the alternatives, but are not expected to address projected increases in travel demand fully in the primary transportation corridor. The advantages of efficient transit would encourage people to use their cars less. The use of specific disincentives and education programs on alternative transportation is a policy decision to be made by the City Council.

6. Extensive traffic modeling was done as part of the planning process. See Chapter 4 for details.
7. Section 5.5 discusses potential air quality impacts, based on projected traffic information.
8. See Appendix A.
9. Environmental justice issues are addressed in Section 5.3.5.
10. Such plans are available with DTS and/or at major state libraries.
11. The highway alternative was considered and rejected, as discussed in Section 2.6.
12. Natural resource issues are addressed in Sections 5.7 and 5.8.
13. Land use issues are discussed in Sections 3.1 and 5.1. Neighborhood impacts and environmental justice are addressed in Section 5.3.
14. The discussion on bicycle plans is in Section 4.5. The primary transportation corridor is defined where most traffic occurs. Congestion problems Koko Head of Kahala are much less severe.
15. Appendix A describes the coordination and outreach efforts involving agencies and the public. A project schedule is provided in Section 2.5; the financial plan is in Chapter 6.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
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JOSEPH M. MAGALDI, JR.
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TPD00-00407

August 16, 2000

Ms. Robin Brandt
Hawaii Bicycling League
3227 Melemele Place
Honolulu, Hawaii 96822

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Subject: Primary Corridor Transportation Project

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zipper lane and the Vanpool program, and DTS will continue to promote its limited stop transit services, City Express! and Country Express!). By using existing street capacity as a dedicated transitway, the BRT Alternative would create incentives for the increased use of multiple-occupant vehicles along the alignment of the In-Town BRT. Both SDOT and DTS have developed master plans to enhance the network of bicycle facilities and increase bicycling as a serious transportation mode for some travel markets. Improvement of bicycle facilities is included in the BRT Alternative. All transit facilities would be equipped for disabled access. Pedestrians and bikes are very much a part of the TSM and BRT Alternatives, but they alone cannot satisfy all of the travel markets that must be accommodated. The transit systems contained in all of the alternatives must be compatible with the Americans with Disabilities Act (ADA) requirements. DTS will continue to support programs to foster alternative transportation, such as the hub-and-spoke bus system and traffic calming, and Vanpool. Transportation Demand Management (TDM) programs are included in the alternatives, but are not expected to address projected increases in travel demand fully in the primary transportation corridor. The advantages of efficient transit would encourage people to use their cars less. The use of specific disincentives and education programs on alternative transportation is a policy decision to be made by the City Council.

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14. The discussion on bicycle plans is in Section 4.5. The primary transportation corridor is defined where most traffic occurs. Congestion problems Koko Head of Kahala are much less severe.
15. Appendix A describes the coordination and outreach efforts involving agencies and the public. A project schedule is provided in Section 2.5; the financial plan is in Chapter 6.

16. Other programs within DTS are focusing on promoting bicycle and pedestrian improvements. However, bicycle and pedestrian modes cannot satisfy all travel markets, so other solutions need to be explored.
17. See Appendix A.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

LIFE OF THE LAND

Ua Mau Ke Ea O Ka 'Aina I Ka Pono
Hawai'i's own Community Action Group
Protecting our Fragile Environment through
Research, Education, Advocacy and Litigation

RECEIVED
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May 22, 1999

Kenneth Hamayasu
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, HI 96813

Robert Bramen
Parsons Brinkerhoff Quade & Douglas
1001 Bishop Street, Suite 3000
Honolulu, HI 96813

Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

re: Environmental Impact Statement Preparation Notice for the Primary Corridor Transportation Project

Aloha Kenneth Hamayasu and Robert Bramen,

Life of the Land is Hawai'i's own environmental and community action group serving Hawai'i since 1970. Our mission is to preserve and protect the life of the land, to promote sustainable land use and energy policies and open government through research, education, advocacy and litigation.

The following comments constitutes our position on the EIS preparation notice for the proposed project. We have included Enhanced Bus System & Commuter-Based Dedicated Bicycle Lane System Alternatives which are based on minimizing environmental impacts. They are practical, reasonable, and feasible and makes common sense. The alternatives conforms with alternatives that must be evaluated under both the National Environmental Policy Act (NEPA) and the Major Investment Study process.

Table of Contents

1111 Bishop Street * Suite 503 * Honolulu, Hawai'i 96813 * phone (808) 533-3454 * fax (808) 533-0993

Chapter 1: Summary

1.1 The Environmental Review Process

Status: Environmental Impact Statement Preparation Notice (EIS PN) First Notice pending public comment. Numerous meetings (50+) created numerous ideas (2000+) which led the consultant to publish a 44 page document called "Islandwide Mobility Concept Plan". The consultant also wrote 7 pages of text for the Environmental Impact Statement Preparation Notice.

Approving Agency/Accepting Authority: Governor, State of Hawaii * c/o OEQC * 235 S Beretania St. #702 * Honolulu, HI 96813 & US DOT * Federal Transportation Administration.

Consultant: Robert Bramen @ Parsons Brinkerhoff Quade & Douglas * 1001 Bishop Street, Suite 3000 * Honolulu, HI 96813

Public Comment Deadline: May 24, 1999

Permits Required: Sec. 404, 10, 142(e) (sole source aquifer), SCAD, State Historic Preservation Division (SHPD) Review, Coastal Zone Management (CZM) Consistency, National Pollution Discharge Elimination System (NPDES), Water Quality Criteria (WQC), Shoreline Management Area (SMA) Permit, Special Design District, Floodplain Variance, Building Permit, Grubbing Permit, Grading Permit

Description: The City and County of Honolulu Department of Transportation Services (DTS), in cooperation with the U.S. Department of Transportation, Federal Transportation Administration (FTA), will be preparing an

Environmental Impact Statement (EIS) for proposed transit improvements in the primary corridor of Oahu. The corridor extends from Kapolei in the Ewa District to the University of Hawaii at Manoa. Because the project may have substantial impacts, DTS is required by both State and Federal law (Chapter 343 of the Hawaii Revised Statutes and the National Environmental Policy Act) to prepare an Environmental Impact. The EIS will satisfy both State and federal requirements. A public scoping meeting will be held to allow for comment on the project, its impacts, and the technical evaluation.

The project is intended to address transportation requirements; improve public transit services; direct future land use development patterns; and implement existing transportation plans.

1 The alternatives must be considered include a No-Build Alternative, an Enhanced Bus / Transportation System Management (TSM) Alternative, a Super Enhanced Bus / Transportation System Management (TSM) Alternative, a Dedicated Bicycle Lane Alternative, a Bus Rapid Transit (BRT) Alternative, and a Light Rail Transit (LRT) Alternative. Variations on the alternatives are also being addressed, including a Sand Island Bypass Road and Nimitz Parkway.

Over ten detailed technical reports will be prepared on such topics as transportation, land use, social and economic impacts, finance and cost-effectiveness, visual and aesthetic impacts, noise and vibration, park and recreation areas, historic resources, air quality, and hazardous materials. The results of the detailed analysis will be summarized in the Draft EIS.

1.2 An Overview of the Transportation Planning Process

Oahu Metropolitan Planning Organization (OMPO)

The Oahu Metropolitan Planning Organization Policy Committee is the "heart" of the Oahu Metropolitan Planning Organization planning process. It determines the direction of the Oahu Metropolitan Planning Organization effort, considers and approves transportation planning issues, and makes the final approval for Oahu Metropolitan Planning Organization matters. The Policy Committee is made up of 13 members. Five members are from the including the chair of the Council's transportation committee. Three members are State senators, including the chair of the Senate's transportation committee. Three members are State representatives, including the chair of the House's transportation committee. One member is the Director of the State Department of Transportation (DOT) and one member is the Director of the City Department of Transportation Services (DTS). Although not a member of the Policy Committee, the Citizen Advisory Committee Chair has been invited to attend and take part in discussions at Policy Committee meetings.

The Oahu Metropolitan Planning Organization Technical Advisory Committee (OMPO TAC) provides the technical input to OMPO's planning process. The Technical Advisory Committee acts as the technical liaison between the Policy Committee and the OMPO Executive Director, provides advice to the Policy Committee and the OMPO Executive Director on technical matters, and insures the technical competence of the planning process. The Technical Advisory Committee has direct responsibility for land use, transportation-related planning, and transit management. The Technical Advisory Committee members include four directors of the City and the State planning and transportation departments. In addition, representatives of the Federal Highway Administration and Federal Aviation Administration attend TAC meetings as non-voting members.

Oahu Metropolitan Planning Organization Citizen Advisory Committee (OMPO CAC):

the Citizen Advisory Committee assists in developing public involvement programs to solicit general public input for the Policy Committee. Comments received from the Citizen Advisory Committee members and non-members are treated equally. The Citizen Advisory Committee meets about once a month. These meetings are open to the public and provide an opportunity for interested parties to hear and discuss transportation issues with the appropriate project administrators or decision-makers. The Citizen Advisory Committee members are organizations and groups interested in transportation planning on Oahu, representative of a broad range of interests. Citizen Advisory Committee members are appointed by the Policy Committee.

The OMPO Overall Work Program (OWP) serves as the key management tool for monitoring State and City transportation activities on Oahu. It describes transportation-related planning studies to be conducted in a given year. The Overall Work Program defines project objectives and tasks and identifies budgetary and staff requirements needed to carry out the projects. In addressing current transportation issues and problems, the Overall Work Program responds to local planning requirements, federal transportation priorities, and Transportation Equity Act for the 21st Century requirements. The Overall Work Program also includes land use studies as they relate to transportation needs. A draft Overall Work Program is prepared each winter and submitted for review in March. After considerable review and revision by citizens and Federal and local agencies, a final Overall Work Program is adopted in late spring for the next fiscal year.

The Oahu Regional Transportation Plan (ORTP) is a blueprint for identifying the development of future transportation improvements on Oahu. It should be noted, however, that the inclusion of a project into this plan does not guarantee its construction. Rather, it allows a project to begin a series of more detailed evaluations and to be eligible for federal funding. During these more detailed evaluations, a project could be postponed or terminated for any number of reasons, such as environmental impact, cost, or lack of public support.

Under the new Transportation Equity Act for the 21st Century (TEA 21), an area's regional transportation plan must have a minimum twenty year horizon, be fiscally-constrained, and be updated at least every five years. In order to conform to this requirement, the Oahu Metropolitan Planning Organization endorsed a year 2020 regional transportation plan in November 1995. This plan was forwarded to the State Department of Transportation and incorporated, intact, into the Statewide Transportation Plan.

The Transportation Improvement Program (TIP) is a programming document that lists transportation projects that will be undertaken by the State and City and funded in part by federal money. Projects identified in the TIP must not be inconsistent with the Oahu Regional Transportation Plan (ORTP).

The Transportation Improvement Program is closely related to the State's and City/County's Capital Improvement Programs and is prepared every other year in the spring. The Transportation Improvement Program identifies funding amounts by source of funding, jurisdictional responsibility, type of project, and year of funding for these projects. Thus, the Transportation Improvement Program is an important reference document of transportation projects.

The Oahu Transportation Improvement Program is the short-term three-year implementation program for federally-assisted surface transportation projects that support the Oahu Regional Transportation Plan. The Transportation Improvement Program describes and prioritizes federally-assisted and major locally-funded transportation programs and projects selected by the Oahu Metropolitan Planning Organization Policy Committee for implementation during the program period. An annual review and a major biennial update of the Transportation Improvement Program are scheduled, with off-schedule amendments considered as needed. The Transportation Improvement Program is adopted by the Oahu Metropolitan Planning Organization Policy Committee and sent to the Governor for approval. Upon his approval, the Transportation Improvement Program is incorporated as the Oahu element of the Statewide Transportation Improvement Program (STIP). The Statewide Transportation Improvement Program is the official document the U.S. Department of Transportation uses to authorize federal

funds for projects in Hawaii. * A Community-Based Transportation Visioning Process Managed by the City and County of Honolulu and the Hawaii Department of Transportation. Contact with questions or problems. Parsons Brinckerhoff 1998

Chapter 2 History

2.1 Jeremy Harris. State of the City Address. January 26, 1999

"Four months ago, as part of my vision we also laid out a conceptual plan for transportation improvements for the 21st century. That plan included improved bus service to Windward, Central, North Shore and Leeward to give better, quicker access to downtown Honolulu. It also included a light rail electric trolley system in the primary urban corridor from Pearl City to the University. It would provide mobility for our growing downtown population and it would be supplemented with parking lots just outside of town, circulator buses within the urban area, and water taxis across the waterfront. That was my vision ...

In the area of transportation a second alternative emerged. That alternative is a bus-rapid transit system that uses dedicated zipper lanes, circulator buses, and express buses in a network that could carry almost as many people as a more costly fixed rail system. Under this proposal, communities around the island from Waianae to Mililani would be served with circulator buses that would move around within their area - taking people to shops, schools and parks. These would connect, at several stops in each community, to bus-rapid transit stations.

Under the plan, the existing Zipper Lane would be reserved solely for bus-rapid transit and would be expanded to include an entry- and exit-way at Pearl City to connect with circulator buses in those surrounding communities.

The Zipper lane would be extended all the way to Nimitz Highway, and it would be made two-directional - carrying people into town in the morning, out of town at night. Using Zipper Lanes as exclusive bus rapid-transit lanes carrying new articulated buses at 90-second intervals, would give us almost the same carrying capacity as a rail system - without the high costs.

Express buses would travel to and from Oahu's communities, pick up their passengers, and travel into Honolulu on a dedicated lane - just as if they were moving on tracks. Our new articulated buses, which can carry more people in comfort, would then move onto Nimitz Highway, where the next segment of our transit plan takes shape.

We're proposing to re-route much of the traffic off Nimitz Highway onto a new Sand Island Parkway and a tunnel under Honolulu Harbor. It's an ambitious plan, but it meets several goals. It frees up the valuable Nimitz waterfront for economic redevelopment, allowing us to make Honolulu a true waterfront city. It also eliminates one of our City's worst traffic bottlenecks. Nimitz Highway can be made into a far more efficient way to get people into town. In our plan, two lanes of Nimitz will become dedicated bus-rapid transit lanes.

These dedicated lanes will carry passengers into town where they will be able to transfer to downtown circulator buses. Riders going to the Diamond Head side of town would go through the new tunnel to South Street or Waikiki. The next segment of this alternative would involve the development of a light rail system in the most heavily used corridor, from Kapolei to downtown. Under this plan a light rail electric trolley would run from the periphery of Waikiki along Ala Moana Boulevard, and connect Waikiki, the Convention Center, Ala Moana Shopping Center, Ward Warehouse, the State's Kakaako Makai redevelopment area, Aloha Tower and downtown with a clean and efficient transportation link. It would provide the impetus for the redevelopment of Kakaako and would increase business for merchants downtown.

This light rail electric trolley would link up with the bus-rapid transit system in the Aloha Tower area as well as with articulated buses that would be operating at short intervals providing convenient access to all areas of town. It's an exciting alternative.

I've given direction to the Department of Transportation Services to move forward with our transportation project to the next phase, the federally mandated environmental impact statement/alternative analysis. In that effort, we will evaluate the following three proposals and choose one for action:

1) A light rail electric trolley from Pearl City to UH with circulator buses in local communities.

2) A bus-rapid transit system from Waipahu to UH using dedicated zipper lanes, with a light rail electric trolley from Waikiki to downtown and local community connection through community circulator buses.

3) Expansion of our existing bus system.

As our Department and its consultants go through this federally mandated analysis, I will assemble a policy team of business, council, and vision team members to work with us throughout the evaluation process. Regardless of which technology we ultimately choose, I believe it's vital in our effort to protect our environment and our quality of life, that we position our City as the world leader in electric based transportation.

One new technology that would have applicability for either of the alternatives is the wireless plate system. With this new technology, light rail vehicles or electric trolley buses could be powered without the need for poles and overhead power lines. Instead, transit vehicles pick up their power from a plate imbedded in the roadway. To protect against electric shock the plate only turns "on" directly under the transit vehicle as it passes by. If such a system was determined to be feasible we might imagine a future time when even Honolulu's private vehicles were electric, picking up their power from the street itself."

2.2 City Blueprints for the Oahu Trans 2K (January - August 1998)

Harris to Unveil City Proposals, Seek Input for '21st Century Oahu' "At the urging of Mayor Jeremy Harris, city officials have spent the past nine months trying to envision and draft a blueprint for the kind of future Oahu could have." David Waite *Honolulu Advertiser*, September 25, 1998.

Mayor Unveils Land-Use Vision - Harris hopes to reduce urban sprawl by limiting growth in population and development to greater Honolulu and Kapolei "Harris first outlined his vision in his State of the City address in January. ... Harris' ideas also include a drive to revitalize the Honolulu waterfront as has been done in Portland, Boston and other major mainland cities. " Gordon Y. K. Pang *Honolulu Star Bulletin*, September 24, 1998.

2.3 Oahu Trans 2K

"The Chair introduced Joe Magaldi, Deputy Director of the City's Department of Transportation Services. He gave a presentation on the City's Vision for Oahu. Part of this vision is a study that the City had just begun. They will hold ten community meetings on Oahu to gather input on the type of transportation system people want. These meetings will also include the State's community outreach presentation on their Freeway Management System (FMS). The City Vision for Oahu includes five key elements: ...

As part of this study, the consultant will identify transit lines to increase capacity, look at high speed express service to/from the suburbs; ways to implement a central city trolley; determine initial routes and routes for future expansion; and study opportunities for historic trolley lines. ...

The City's Primary Corridor Transportation Plan (PCTP) will create a future transportation master plan that will support the Vision for Oahu. It involves community-base planning and will be implemented incrementally within our ability to pay. The study will look at areas such as Curitiba, Brazil and Portland Oregon as transit models." OMPO Community Advisory Committee ("OMPO CAC") Minutes September 16, 1998.

850 Meet to 'Vision' Oahu's Future - Concerns about the economy and the environment draw a big crowd: "Mayor Jeremy Harris this week announced the joint city-state effort to incorporate into one 'vision' all aspects of land use, reached through a community consensus. Further meetings will be held." Lori Tighe *Honolulu Star Bulletin*, September 26, 1998

Transportation Takes Input On Transit Plans: "Light-rail transit and other initiatives drew some 300 participants, and Mayor Jeremy Harris said intensive transportation planning will be a joint state and city undertaking between now and January, with many of the ideas coming from the community." Harold Morse *Honolulu Star Bulletin*, September 29, 1998

Editorial: Oahu's Future "The trolley idea is a scaled-down version of the elevated rail transit plan that was narrowly rejected by the City Council in 1992. Harris, as city managing director, was deeply involved in the planning for that project. A trolley might be less effective. The proposals also include diverting traffic from Nimitz Highway to tunnels under Sand Island and Honolulu harbor, building a highway through Waiawa mauka of Farrington Highway and creating a bikeway on Ala Wai Boulevard by eliminating the parking lane. All of this would cost money, and it's hard to see where it would come from. Certainly the city doesn't have it. But this would be a plan to be fulfilled over decades. It's never too soon to seek a consensus. Finding the money will have to come later." *Honolulu Star Bulletin*, September 26, 1998

Editorial: New Transit Plans Must Include Public Options: "This time around, city officials say they are determined to go only where the community wants them to go and in a form the community finds acceptable. ... If all this holds, it will mark a refreshing change in transportation planning for Oahu. We have learned one lesson: Any project of this magnitude imposed top-down by government will fail its basic political test." *Honolulu Advertiser*, September 29, 1998

Emotions High as Fight Resumes on Rail Transit: "Residents have a lot to say for and against light rail as the city's second round of meetings, aimed at getting public input, kick off by Gordon Y.K. Pang *Honolulu Star-Bulletin*, November 17, 1998

Opinion Divided on Light Rail -Some residents say planning biased toward popular proposal: "The light-rail proposal prompted the most debate, with some community representatives saying the planning process was weighted toward including light rail. 'They don't even assume that there's a possibility there won't be light rail,' said Richard Port, an Ala Moana area resident who was state Democratic Party chairman from 1994 to 1996. 'It's already a rigged decision.'" Jean Christensen Advertiser Staff Writer *Honolulu Advertiser*, November 17, 1998

Transportation Issues Addressed at Workshop: Light Rail System Urged by Residents: "The first series of workshops ended Oct. 14 ... Among the ideas being proposed is the need for a mass transit system, most likely in the form of a light rail system." Don Robbins *Kamapepa*, October 27, 1998

Parsons Brinckerhoff: "The City and County of Honolulu's Department of Transportation Services (DTS), with the cooperation of the Hawaii Department of Transportation (DOT), is undertaking a major study to examine the future transportation system for Oahu. The study, officially called the Oahu Primary Corridor Transportation Project began in August 1998. It focuses on improving circulation within communities and between them. Moreover, the study

focuses on public transit improvements and more efficient use of existing roads, both to enhance established communities. The study does not focus on building new highways in undeveloped areas.

The project consists of three tracks: community-based planning, project development and delivery-early-start projects and project development-primary corridor. Community outreach will be the first step of a public involvement process that will continue throughout the project; the community-based planning track will identify transportation improvements throughout the island that will improve mobility and enhance the livability of Oahu's communities. Early-start projects will be those that do not require detailed planning or complicated environmental clearances. Primary corridor (from Pearl City to the University of Hawaii Manoa projects will be examined and evaluated through an MIS that will define the characteristics of transit services in the corridor. The transit component will probably be divided into three major subsystems: fixed-route buses that provide local services throughout the communities; high-speed express service from suburbs; and the central city trolley, which will remain at-grade as much as possible to reduce construction costs." A Community-Based Transportation Visioning Process Managed by the City and County of Honolulu and the Hawaii Department of Transportation. Parsons Brinckerhoff 1998

Parsons Brinckerhoff: "The Islandwide Mobility Concept Plan which has emerged from Rounds 1 and 2 of Oahu Trans 2K, including the various public transit alternatives that are under active consideration. The third round of Oahu Trans 2K meetings will be jointly held with another community-based planning project known as 21st Century Oahu. Since last fall, vision teams from the 21st Century Oahu process have been working to develop community goals and prioritize capital improvement projects. The project consists of three tracks: community-based planning, project development and delivery-early-start projects and project development-primary corridor." A Community-Based Transportation Visioning Process Managed by the City and County of Honolulu and the Hawaii Department of Transportation. Parsons Brinckerhoff. 1998

2.4 Phase Three: 21st Century Oahu & Oahu Trans 2K

Mayor Jeremy Harris: "Dear Community Leader: The next phase in our grassroots effort to envision, plan, design and build a sustainable future for Oahu is about to begin with a round of community vision team meetings focusing primarily on transportation. These meetings will complete the integration of two related community-based planning projects known as 21st Century Oahu and Oahu Trans 2K. ... If you previously attended Oahu Trans 2K meetings, you will recognize this as Round 3 of that program. If you have previously participated in the 21st Century Oahu process, you understand how important transportation planning is to implementing your community vision. Please attend any sessions in which you are interested. The meetings will cover: The Islandwide Mobility Concept Plan that has emerged from Rounds 1 and 2 of Oahu Trans 2K, including the various public transit alternatives that are under active consideration; A report back and further refinement of community-specific mobility proposals that emerged from Rounds 1 and 2 of Oahu Trans 2K, which may include traffic calming measures, bikeways, bus stop improvements and neighborhood circulators; Discussion of pending city and state transportation projects; An update on vision team capital improvement requests included in the Mayor's FY 1999-2000 city budget; A look ahead to future planning efforts by the community vision teams. ... Yours truly, Jeremy Harris. Mayor"

Chapter 3 Scoping

3.1 The National Environmental Policy Act (NEPA)

Council on Environmental Quality: Top 40 Questions Asked about NEPA.
http://ceq.eh.doe.gov/nepa/regs/40/40p3.htm

1a. Range of Alternatives. What is meant by "range of alternatives" as referred to in Sec. 1505.1(e)?

The phrase "range of alternatives" refers to the alternatives discussed in environmental documents. It includes all reasonable alternatives, which must be rigorously explored and objectively evaluated, as well as those other alternatives, which are eliminated from detailed study with a brief discussion of the reasons for eliminating them. Section 1502.14. A decisionmaker must not consider alternatives beyond the range of alternatives discussed in the relevant environmental documents. Moreover, a decisionmaker must, in fact, consider all the alternatives discussed in an EIS. Section 1505.1(e).

1b. How many alternatives have to be discussed when there is an infinite number of possible alternatives?

A. For some proposals there may exist a very large or even an infinite number of possible reasonable alternatives. For example, a proposal to designate wilderness areas within a National Forest could be said to involve an infinite number of alternatives from 0 to 100 percent of the forest. When there are potentially a very large number of alternatives, only a reasonable number of examples, covering the full spectrum of alternatives, must be analyzed and compared in the EIS. An appropriate series of alternatives might include dedicating 0, 10, 30, 50, 70, 90, or 100 percent of the Forest to wilderness. What constitutes a reasonable range of alternatives depends on the nature of the proposal and the facts in each case.

2a. Alternatives Outside the Capability of Applicant or Jurisdiction of Agency. If an EIS is prepared in connection with an application for a permit or other federal approval, must the EIS rigorously analyze and discuss alternatives that are outside the capability of the applicant or can it be limited to reasonable alternatives that can be carried out by the applicant?

A. Section 1502.14 requires the EIS to examine all reasonable alternatives to the proposal. In determining the scope of alternatives to be considered, the emphasis is on what is "reasonable" rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant.

2b. Must the EIS analyze alternatives outside the jurisdiction or capability of the agency or beyond what Congress has authorized?

A. An alternative that is outside the legal jurisdiction of the lead agency must still be analyzed in the EIS if it is reasonable. A potential conflict with local or federal law does not necessarily render an alternative unreasonable, although such conflicts must be considered. Section 1506.2(d). Alternatives that are outside the scope of what Congress has approved or funded must still be evaluated in the EIS if they are reasonable, because the EIS may serve as the basis for modifying the Congressional approval or funding in light of NEPA's goals and policies. Section 1500.1(a).

3. No-Action Alternative. What does the "no action" alternative include? If an agency is under a court order or legislative command to act, must the EIS address the "no action" alternative?

A. Section 1502.14(d) requires the alternatives analysis in the EIS to "include the alternative of no action." There are two distinct interpretations of "no action" that must be considered, depending on the nature of the proposal being evaluated. The first situation might involve an action such as updating a land management plan where ongoing programs initiated under existing legislation and regulations will continue, even as new plans are developed. In these cases "no action" is "no change" from current management direction or level of management intensity. To construct

an alternative that is based on no management at all would be a useless academic exercise. Therefore, the "no action" alternative may be thought of in terms of continuing with the present course of action until that action is changed. Consequently, projected impacts of alternative management schemes would be compared in the EIS to those impacts projected for the existing plan. In this case, alternatives would include management plans of both greater and lesser intensity, especially greater and lesser levels of resource development.

The second interpretation of "no action" is illustrated in instances involving federal decisions on proposals for projects. "No action" in such cases would mean the proposed activity would not take place, and the resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity or an alternative activity to go forward.

Where a choice of "no action" by the agency would result in predictable actions by others, this consequence of the "no action" alternative should be included in the analysis. For example, if denial of permission to build a railroad to a facility would lead to construction of a road and increased truck traffic, the EIS should analyze this consequence of the "no action" alternative.

In light of the above, it is difficult to think of a situation where it would not be appropriate to address a "no action" alternative. Accordingly, the regulations require the analysis of the no action alternative even if the agency is under a court order or legislative command to act. This analysis provides a benchmark, enabling decisionmakers to compare the magnitude of environmental effects of the action alternatives. It is also an example of a reasonable alternative outside the jurisdiction of the agency which must be analyzed. Section 1502.14(c). See Question 2 above. Inclusion of such an analysis in the EIS is necessary to inform the Congress, the public, and the President as intended by NEPA. Section 1500.1(a).

4a. Agency's Preferred Alternative. What is the "agency's preferred alternative"?

A. The "agency's preferred alternative" is the alternative which the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors. The concept of the "agency's preferred alternative" is different from the "environmentally preferable alternative," although in some cases one alternative may be both. See Question 6 below. It is identified so that agencies and the public can understand the lead agency's orientation.

4b. Does the "preferred alternative" have to be identified in the Draft EIS and the Final EIS or just in the Final EIS?

A. Section 1502.14(e) requires the section of the EIS on alternatives to "identify the agency's preferred alternative if one or more exists, in the draft statement, and identify such alternative in the final statement . . ." This means that if the agency has a preferred alternative at the Draft EIS stage, that alternative must be labeled or identified as such in the Draft EIS. If the responsible federal official in fact has no preferred alternative at the Draft EIS stage, a preferred alternative need not be identified there. By the time the Final EIS is filed, Section 1502.14(e) presumes the existence of a preferred alternative and requires its identification in the Final EIS "unless another law prohibits the expression of such a preference."

4c. Who recommends or determines the "preferred alternative?"

A. The lead agency's official with line responsibility for preparing the EIS and assuring its adequacy is responsible for identifying the agency's preferred alternative(s). The NEPA regulations do not dictate which official in an agency shall be responsible for preparation of EISs, but agencies can identify this official in their implementing procedures, pursuant to Section 1507.3.

Even though the agency's preferred alternative is identified by the EIS preparer in the EIS, the statement must be objectively prepared and not slanted to support the choice of the agency's preferred alternative over the other reasonable and feasible alternatives.

5a. Proposed Action v. Preferred Alternative. Is the "proposed action" the same thing as the "preferred alternative"?

A. The "proposed action" may be, but is not necessarily, the agency's "preferred alternative." The proposed action may be a proposal in its initial form before undergoing analysis in the EIS process. If the proposed action is [46 FR 18028] internally generated, such as preparing a land management plan, the proposed action might end up as the agency's preferred alternative. On the other hand the proposed action may be granting an application to a non-federal entity for a permit. The agency may or may not have a "preferred alternative" at the Draft EIS stage (see Question 4 above). In that case the agency may decide at the Final EIS stage, on the basis of the Draft EIS and the public and agency comments, that an alternative other than the proposed action is the agency's "preferred alternative."

5b. Is the analysis of the "proposed action" in an EIS to be treated differently from the analysis of alternatives?

A. The degree of analysis devoted to each alternative in the EIS is to be substantially similar to that devoted to the "proposed action." Section 1502.14 is titled "Alternatives including the proposed action" to reflect such comparable treatment. Section 1502.14(b) specifically requires "substantial treatment" in the EIS of each alternative including the proposed action. This regulation does not dictate an amount of information to be provided, but rather, prescribes a level of treatment, which may in turn require varying amounts of information, to enable a reviewer to evaluate and compare alternatives.

6a. Environmentally Preferable Alternative. What is the meaning of the term "environmentally preferable alternative" as used in the regulations with reference to Records of Decision? How is the term "environment" used in the phrase?

A. Section 1505.2(b) requires that, in cases where an EIS has been prepared, the Record of Decision (ROD) must identify all alternatives that were considered, "... specifying the alternative or alternatives which were considered to be environmentally preferable." The environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in NEPA's Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources.

The Council recognizes that the identification of the environmentally preferable alternative may involve difficult judgments, particularly when one environmental value must be balanced against another. The public and other agencies reviewing a Draft EIS can assist the lead agency to develop and determine environmentally preferable alternatives by providing their views in comments on the Draft EIS. Through the identification of the environmentally preferable alternative, the decisionmaker is clearly faced with a choice between that alternative and others, and must consider whether the decision accords with the Congressionally declared policies of the Act.

6b. Who recommends or determines what is environmentally preferable?

A. The agency EIS staff is encouraged to make recommendations of the environmentally preferable alternative(s) during EIS preparation. In any event the lead agency official responsible for the EIS is encouraged to identify the environmentally preferable alternative(s) in the EIS. In all cases, commentors from other agencies and the public are

also encouraged to address this question. The agency must identify the environmentally preferable alternative in the ROD.

7. Difference Between Sections of EIS on Alternatives and Environmental Consequences. What is the difference between the sections in the EIS on "alternatives" and "environmental consequences"? How do you avoid duplicating the discussion of alternatives in preparing these two sections?

A. The "alternatives" section is the heart of the EIS. This section rigorously explores and objectively evaluates all reasonable alternatives including the proposed action. Section 1502.14. It should include relevant comparisons on environmental and other grounds. The "environmental consequences" section of the EIS discusses the specific environmental impacts or effects of each of the alternatives including the proposed action. Section 1502.16. In order to avoid duplication between these two sections, most of the "alternatives" section should be devoted to describing and comparing the alternatives. Discussion of the environmental impacts of these alternatives should be limited to a concise descriptive summary of such impacts in a comparative form, including charts or tables, thus sharply defining the issues and providing a clear basis for choice among options. Section 1502.14. The "environmental consequences" section should be devoted largely to a scientific analysis of the direct and indirect environmental effects of the proposed action and of each of the alternatives. It forms the analytic basis for the concise comparison in the "alternatives" section.

8. Early Application of NEPA. Section 1501.2(d) of the NEPA regulations requires agencies to provide for the early application of NEPA to cases where actions are planned by private applicants or non-Federal entities and are, at some stage, subject to federal approval of permits, loans, loan guarantees, insurance or other actions. What must and can agencies do to apply NEPA early in these cases?

A. Section 1501.2(d) requires federal agencies to take steps toward ensuring that private parties and state and local entities initiate environmental studies as soon as federal involvement in their proposals can be foreseen. This section is intended to ensure that environmental factors are considered at an early stage in the planning process and to avoid the situation where the applicant for a federal permit or approval has completed planning and eliminated all alternatives to the proposed action by the time the EIS process commences or before the EIS process has been completed.

Through early consultation, business applicants and approving agencies may gain better appreciation of each other's needs and foster a decisionmaking process which avoids later unexpected confrontations.

Federal agencies are required by Section 1507.3(b) to develop procedures to carry out Section 1501.2(d). The procedures should include an "outreach program", such as a means for prospective applicants to conduct pre-application consultations with the lead and cooperating agencies. Applicants need to find out, in advance of project planning, what environmental studies or other information will be required, and what mitigation requirements are likely, in connection with the later federal NEPA process. Agencies should designate staff to advise potential applicants of the agency's NEPA information requirements and should publicize their pre-application procedures and information requirements in newsletters or other media used by potential applicants.

Complementing Section 1501.2(d), Section 1506.5(a) requires agencies to assist applicants by outlining the types of information required in those cases where the agency requires the applicant to submit environmental data for possible use by the agency in preparing an EIS.

Section 1506.5(b) allows agencies to authorize preparation of environmental assessments by applicants. Thus, the procedures should also include a means for anticipating and utilizing applicants' environmental studies or "early

corporate environmental assessments" to fulfill some of the federal agency's NEPA obligations. However, in such cases the agency must still evaluate independently the environmental issues [46 FR 18029] and take responsibility for the environmental assessment.

These provisions are intended to encourage and enable private and other non-federal entities to build environmental considerations into their own planning processes in a way that facilitates the application of NEPA and avoids delay.

9. Applicant Who Needs Other Permits. To what extent must an agency inquire into whether an applicant for a federal permit, funding or other approval of a proposal will also need approval from another agency for the same proposal or some other related aspect of it?

A. Agencies must integrate the NEPA process into other planning at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts. Specifically, the agency must "provide for cases where actions are planned by . . . applicants," so that designated staff are available to advise potential applicants of studies or other information that will forseeable be required for the later federal action; the agency shall consult with the applicant if the agency foresees its own involvement in the proposal; and it shall insure that the NEPA process commences at the earliest possible time. Section 1501.2(d). (See Question 8.)

The regulations emphasize agency cooperation early in the NEPA process. Section 1501.6. Section 1501.7 on "scoping" also provides that all affected Federal agencies are to be invited to participate in scoping the environmental issues and to identify the various environmental review and consultation requirements that may apply to the proposed action. Further, Section 1502.25(b) requires that the draft EIS list all the federal permits, licenses and other entitlements that are needed to implement the proposal.

These provisions create an affirmative obligation on federal agencies to inquire early, and to the maximum degree possible, to ascertain whether an applicant is or will be seeking other federal assistance or approval, or whether the applicant is waiting until a proposal has been substantially developed before requesting federal aid or approval.

Thus, a federal agency receiving a request for approval or assistance should determine whether the applicant has filed separate requests for federal approval or assistance with other federal agencies. Other federal agencies that are likely to become involved should then be contacted, and the NEPA process coordinated, to insure an early and comprehensive analysis of the direct and indirect effects of the proposal and any related actions. The agency should inform the applicant that action on its application may be delayed unless it submits all other federal applications (where feasible to do so), so that all the relevant agencies can work together on the scoping process and preparation of the EIS.

10a. Limitations on Action During 30-Day Review Period for Final EIS. What actions by agencies and/or applicants are allowed during EIS preparation and during the 30-day review period after publication of a final EIS?

A. No federal decision on the proposed action shall be made or recorded until at least 30 days after the publication by EPA of notice that the particular EIS has been filed with EPA. Sections 1505.2 and 1506.10. Section 1505.2 requires this decision to be stated in a public Record of Decision.

Until the agency issues its Record of Decision, no action by an agency or an applicant concerning the proposal shall be taken which would have an adverse environmental impact or limit the choice of reasonable alternatives. Section 1506.1(a). But this does not preclude preliminary planning or design work which is needed to support an application for permits or assistance. Section 1506.1(d).

When the impact statement in question is a program EIS, no major action concerning the program may be taken which may significantly affect the quality of the human environment, unless the particular action is justified independently of the program, is accompanied by its own adequate environmental impact statement and will not prejudice the ultimate decision on the program. Section 1506.1(c).

10b. Do these limitations on action (described in Question 10a) apply to state or local agencies that have statutorily delegated responsibility for preparation of environmental documents required by NEPA, for example, under the HUD Block Grant program?

A. Yes, these limitations do apply, without any variation from their application to federal agencies.

11. Limitations on Actions by an Applicant During EIS Process. What actions must a lead agency take during the NEPA process when it becomes aware that a non-federal applicant is about to take an action within the agency's jurisdiction that would either have an adverse environmental impact or limit the choice of reasonable alternatives (e.g., prematurely commit money or other resources towards the completion of the proposal)?

A. The federal agency must notify the applicant that the agency will take strong affirmative steps to insure that the objectives and procedures of NEPA are fulfilled. Section 1506.1(b). These steps could include seeking injunctive measures under NEPA, or the use of sanctions available under either the agency's permitting authority or statutes setting forth the agency's statutory mission. For example, the agency might advise an applicant that if it takes such action the agency will not process its application.

13. Use of Scoping Before Notice of Intent to Prepare EIS. Can the scoping process be used in connection with preparation of an environmental assessment, i.e., before both the decision to proceed with an EIS and publication of a notice of intent?

A. Yes. Scoping can be a useful tool for discovering alternatives to a proposal, or significant impacts that may have been overlooked. In cases where an environmental assessment is being prepared to help an agency decide whether to prepare an EIS, useful information might result from early participation by other agencies and the public in a scoping process.

The regulations state that the scoping process is to be preceded by a Notice of Intent (NOI) to prepare an EIS. But that is only the minimum requirement. Scoping may be initiated earlier, as long as there is appropriate public notice and enough information available on the proposal so that the public and relevant agencies can participate effectively.

However, scoping that is done before the assessment, and in aid of its preparation, cannot substitute for the normal scoping process after publication of the NOI, unless the earlier public notice stated clearly that this possibility was under consideration, and the NOI expressly provides that written comments on the scope of alternatives and impacts will still be considered.

14a. Rights and Responsibilities of Lead and Cooperating Agencies. What are the respective rights and responsibilities of lead and cooperating agencies? What letters and memoranda must be prepared?

A. After a lead agency has been designated (Sec. 1501.5), that agency has the responsibility to solicit cooperation from other federal agencies that have jurisdiction by law or special expertise on any environmental issue that should be addressed in the EIS being prepared. Where appropriate, the lead agency should seek the cooperation of state or local agencies of similar qualifications. When the proposal may affect an Indian reservation, the agency should consult with the Indian tribe. Section 1508.5. The request for cooperation should come at the earliest possible time in the NEPA process.

After discussions with the candidate cooperating agencies, the lead agency and the cooperating agencies are to determine by letter or by memorandum which agencies will undertake cooperating responsibilities. To the extent possible at this stage, responsibilities for specific issues should be assigned. The allocation of responsibilities will be completed during scoping. Section 1501.7(a)(4).

Cooperating agencies must assume responsibility for the development of information and the preparation of environmental analyses at the request of the lead agency. Section 1501.6(b)(3). Cooperating agencies are now required by Section 1501.6 to devote staff resources that were normally primarily used to critique or comment on the Draft EIS after its preparation, much earlier in the NEPA process -- primarily at the scoping and Draft EIS preparation stages. If a cooperating agency determines that its resource limitations preclude any involvement, or the degree of involvement (amount of work) requested by the lead agency, it must so inform the lead agency in writing and submit a copy of this correspondence to the Council. Section 1501.6(c).

In other words, the potential cooperating agency must decide early if it is able to devote any of its resources to a particular proposal. For this reason the regulation states that an agency may reply to a request for cooperation that "other program commitments preclude any involvement or the degree of involvement requested in the action that is the subject of the environmental impact statement." (Emphasis added). The regulation refers to the "action," rather than to the EIS, to clarify that the agency is taking itself out of all phases of the federal action, not just draft EIS preparation. This means that the agency has determined that it cannot be involved in the later stages of EIS review and comment, as well as decisionmaking on the proposed action. For this reason, cooperating agencies with jurisdiction by law (those which have permitting or other approval authority) cannot opt out entirely of the duty to cooperate on the EIS. See also Question 15, relating specifically to the responsibility of EPA.

14b. How are disputes resolved between lead and cooperating agencies concerning the scope and level of detail of analysis and the quality of data in impact statements?

A. Such disputes are resolved by the agencies themselves. A lead agency, of course, has the ultimate responsibility for the content of an EIS. But it is supposed to use the environmental analysis and recommendations of cooperating agencies with jurisdiction by law or special expertise to the maximum extent possible, consistent with its own responsibilities as lead agency. Section 1501.6(a)(2).

If the lead agency leaves out a significant issue or ignores the advice and expertise of the cooperating agency, the EIS may be found later to be inadequate. Similarly, where cooperating agencies have their own decisions to make and they intend to adopt the environmental impact statement and base their decisions on it, one document should include all of the information necessary for the decisions by the cooperating agencies. Otherwise they may be forced to duplicate the EIS process by issuing a new, more complete EIS or Supplemental EIS, even though the original EIS could have sufficed if it had been properly done at the outset. Thus, both lead and cooperating agencies have a stake in producing a document of good quality. Cooperating agencies also have a duty to participate fully in the scoping process to ensure that the appropriate range of issues is determined early in the EIS process.

Because the EIS is not the Record of Decision, but instead constitutes the information and analysis on which to base a decision, disagreements about conclusions to be drawn from the EIS need not inhibit agencies from issuing a joint document, or adopting another agency's EIS, if the analysis is adequate. Thus, if each agency has its own "preferred alternative," both can be identified in the EIS. Similarly, a cooperating agency with jurisdiction by law may determine in its own ROD that alternative A is the environmentally preferable action, even though the lead agency has decided in its separate ROD that Alternative B is environmentally preferable.

14c. What are the specific responsibilities of federal and state cooperating agencies to review draft EISs?

A. Cooperating agencies (i.e., agencies with jurisdiction by law or special expertise) and agencies that are authorized to develop or enforce environmental standards, must comment on environmental impact statements within their jurisdiction, expertise or authority. Sections 1503.2, 1508.5. If a cooperating agency is satisfied that its views are adequately reflected in the environmental impact statement, it should simply comment accordingly. Conversely, if the cooperating agency determines that a draft EIS is incomplete, inadequate or inaccurate, or it has other comments, it should promptly make such comments, conforming to the requirements of specificity in section 1503.3.

14d. How is the lead agency to treat the comments of another agency with jurisdiction by law or special expertise which has failed or refused to cooperate or participate in scoping or EIS preparation?

A. A lead agency has the responsibility to respond to all substantive comments raising significant issues regarding a draft EIS. Section 1503.4. However, cooperating agencies are generally under an obligation to raise issues or otherwise participate in the EIS process during scoping and EIS preparation if they reasonably can do so. In practical terms, if a cooperating agency fails to cooperate at the outset, such as during scoping, it will find that its comments at a later stage will not be as persuasive to the lead agency.

15. Commenting Responsibilities of EPA. Are EPA's responsibilities to review and comment on the environmental effects of agency proposals under Section 309 of the Clean Air Act independent of its responsibility as a cooperating agency?

A. Yes. EPA has an obligation under Section 309 of the Clean Air Act to review and comment in writing on the environmental impact of any matter relating to the authority of the Administrator contained in proposed legislation, federal construction projects, other federal actions requiring EISs, and new regulations. 42 U.S.C. Sec. 7609. This obligation is independent of its role as a cooperating agency under the NEPA regulations.

16. Third Party Contracts. What is meant by the term "third party contracts" in connection with the preparation of an EIS? See Section 1506.5(c). When can "third party contracts" be used?

A. As used by EPA and other agencies, the term "third party contract" refers to the preparation of EISs by contractors paid by the applicant. In the case of an EIS for a National Pollution Discharge Elimination System (NPDES) permit, the applicant, aware in the early planning stages of the proposed project of the need for an EIS, contracts directly with a consulting firm for its preparation. See 40 C.F.R. 6.604(g). The "third party" is EPA which, under Section 1506.5(c), must select the consulting firm, even though the applicant pays for the cost of preparing the EIS. The consulting firm is responsible to EPA for preparing an EIS that meets the requirements of the NEPA regulations and EPA's NEPA procedures. It is in the applicant's interest that the EIS comply with the law so that EPA can take prompt action on the NPDES permit application. The "third party contract" method under EPA's NEPA procedures is purely voluntary, though most applicants have found it helpful in expediting compliance with NEPA.

If a federal agency uses "third party contracting," the applicant may undertake the necessary paperwork for the solicitation of a field of candidates under the agency's direction, so long as the agency complies with Section 1506.5(c). Federal procurement requirements do not apply to the agency because it incurs no obligations or costs under the contract, nor does the agency procure anything under the contract.

17a. Disclosure Statement to Avoid Conflict of Interest. If an EIS is prepared with the assistance of a consulting firm, the firm must execute a disclosure statement. What criteria must the firm follow in determining whether it has any "financial or other interest in the outcome of the project" which would cause a conflict of interest?

A. Section 1506.5(c), which specifies that a consulting firm preparing an EIS must execute a disclosure statement, does not define "financial or other interest in the outcome of the project." The Council interprets this term broadly to cover any known benefits other than general enhancement of professional reputation. This includes any financial benefit such as a promise of future construction or design work on the project, as well as indirect benefits the consultant is aware of (e.g., if the project would aid proposals sponsored by the firm's other clients). For example, completion of a highway project may encourage construction of a shopping center or industrial park from which the consultant stands to benefit. If a consulting firm is aware that it has such an interest in the decision on the proposal, it should be disqualified from preparing the EIS, to preserve the objectivity and integrity of the NEPA process.

When a consulting firm has been involved in developing initial data and plans for the project, but does not have any financial or other interest in the outcome of the decision, it need not be disqualified from preparing the EIS. However, a disclosure statement in the draft EIS should clearly state the scope and extent of the firm's prior involvement to expose any potential conflicts of interest that may exist.

17b. If the firm in fact has no promise of future work or other interest in the outcome of the proposal, may the firm later bid in competition with others for future work on the project if the proposed action is approved?

A. Yes.

18. Uncertainties About Indirect Effects of A Proposal. How should uncertainties about indirect effects of a proposal be addressed, for example, in cases of disposal of federal lands, when the identity or plans of future landowners is unknown?

A. The EIS must identify all the indirect effects that are known, and make a good faith effort to explain the effects that are not known but are "reasonably foreseeable." Section 1508.8(b). In the example, if there is total uncertainty about the identity of future land owners or the nature of future land uses, then of course, the agency is not required to engage in speculation or contemplation about their future plans. But, in the ordinary course of business, people do make judgments based upon reasonably foreseeable occurrences. It will often be possible to consider the likely purchasers and the development trends in that area or similar areas in recent years; or the likelihood that the land will be used for an energy project, shopping center, subdivision, farm or factory. The agency has the responsibility to make an informed judgment, and to estimate future impacts on that basis, especially if trends are ascertainable or potential purchasers have made themselves known. The agency cannot ignore these uncertain, but probable, effects of its decisions.

19a. Mitigation Measures. What is the scope of mitigation measures that must be discussed?

A. The mitigation measures discussed in an EIS must cover the range of impacts of the proposal. The measures must include such things as design alternatives that would decrease pollution emissions, construction impacts, esthetic intrusion, as well as relocation assistance, possible land use controls that could be enacted, and other possible efforts. Mitigation measures must be considered even for impacts that by themselves would not be considered "significant." Once the proposal itself is considered as a whole to have significant effects, all of its specific effects on the environment (whether or not "significant") must be considered, and mitigation measures must be developed where it is feasible to do so. Sections 1502.14(f), 1502.16(h), 1508.14.

19b. How should an EIS treat the subject of available mitigation measures that are (1) outside the jurisdiction of the lead or cooperating agencies, or (2) unlikely to be adopted or enforced by the responsible agency?

A. All relevant, reasonable mitigation measures that could improve the project are to be identified, even if they are outside the jurisdiction of the lead agency or the cooperating agencies, and thus would not be committed as part of the RODs of these agencies. Sections 1502.16(h), 1505.2(c). This will serve to [46 FR 18032] alert agencies or officials who can implement these extra measures, and will encourage them to do so. Because the EIS is the most comprehensive environmental document, it is an ideal vehicle in which to lay out not only the full range of environmental impacts but also the full spectrum of appropriate mitigation.

However, to ensure that environmental effects of a proposed action are fairly assessed, the probability of the mitigation measures being implemented must also be discussed. Thus the EIS and the Record of Decision should indicate the likelihood that such measures will be adopted or enforced by the responsible agencies. Sections 1502.16(h), 1505.2. If there is a history of nonenforcement or opposition to such measures, the EIS and Record of Decision should acknowledge such opposition or nonenforcement. If the necessary mitigation measures will not be ready for a long period of time, this fact, of course, should also be recognized.

21. Combining Environmental and Planning Documents. Where an EIS or an EA is combined with another project planning document (sometimes called "piggybacking"), to what degree may the EIS or EA refer to and rely upon information in the project document to satisfy NEPA's requirements?

A. Section 1502.25 of the regulations requires that draft EISs be prepared concurrently and integrated with environmental analyses and related surveys and studies required by other federal statutes. In addition, Section 1506.4 allows any environmental document prepared in compliance with NEPA to be combined with any other agency document to reduce duplication and paperwork. However, these provisions were not intended to authorize the preparation of a short summary or outline EIS, attached to a detailed project report or land use plan containing the required environmental impact data. In such circumstances, the reader would have to refer constantly to the detailed report to understand the environmental impacts and alternatives which should have been found in the EIS itself.

The EIS must stand on its own as an analytical document which fully informs decisionmakers and the public of the environmental effects of the proposal and those of the reasonable alternatives. Section 1502.1. But, as long as the EIS is clearly identified and is self-supporting, it can be physically included in or attached to the project report or land use plan, and may use attached report material as technical backup.

Forest Service environmental impact statements for forest management plans are handled in this manner. The EIS identifies the agency's preferred alternative, which is developed in detail as the proposed management plan. The detailed proposed plan accompanies the EIS through the review process, and the documents are appropriately cross-referenced. The proposed plan is useful for EIS readers as an example, to show how one choice of management options translates into effects on natural resources. This procedure permits initiation of the 90-day public review of proposed forest plans, which is required by the National Forest Management Act.

All the alternatives are discussed in the EIS, which can be read as an independent document. The details of the management plan are not repeated in the EIS, and vice versa. This is a reasonable functional separation of the documents: the EIS contains information relevant to the choice among alternatives; the plan is a detailed description of proposed management activities suitable for use by the land managers. This procedure provides for concurrent compliance with the public review requirements of both NEPA and the National Forest Management Act.

Under some circumstances, a project report or management plan may be totally merged with the EIS, and the one document labeled as both "EIS" and "management plan" or "project report." This may be reasonable where the documents are short, or where the EIS format and the regulations for clear, analytical EISs also satisfy the requirements for a project report.

22. State and Federal Agencies as Joint Lead Agencies. May state and federal agencies serve as joint lead agencies? If so, how do they resolve law, policy and resource conflicts under NEPA and the relevant state environmental policy act? How do they resolve differences in perspective where, for example, national and local needs may differ?

A. Under Section 1501.5(b), federal, state or local agencies, as long as they include at least one federal agency, may act as joint lead agencies to prepare an EIS. Section 1506.2 also strongly urges state and local agencies and the relevant federal agencies to cooperate fully with each other. This should cover joint research and studies, planning activities, public hearings, environmental assessments and the preparation of joint EISs under NEPA and the relevant "little NEPA" state laws, so that one document will satisfy both laws.

The regulations also recognize that certain inconsistencies may exist between the proposed federal action and any approved state or local plan or law. The joint document should discuss the extent to which the federal agency would reconcile its proposed action with such plan or law. Section 1506.2(d). (See Question 23).

Because there may be differences in perspective as well as conflicts among [46 FR 18033] federal, state and local goals for resources management, the Council has advised participating agencies to adopt a flexible, cooperative approach. The joint EIS should reflect all of their interests and missions, clearly identified as such. The final document would then indicate how state and local interests have been accommodated, or would identify conflicts in goals (e.g., how a hydroelectric project, which might induce second home development, would require new land use controls). The EIS must contain a complete discussion of scope and purpose of the proposal, alternatives, and impacts so that the discussion is adequate to meet the needs of local, state and federal decisionmakers.

23a. Conflicts of Federal Proposal With Land Use Plans, Policies or Controls. How should an agency handle potential conflicts between a proposal and the objectives of Federal, state or local land use plans, policies and controls for the area concerned? See Sec. 1502.16(c).

A. The agency should first inquire of other agencies whether there are any potential conflicts. If there would be immediate conflicts, or if conflicts could arise in the future when the plans are finished (see Question 23(b) below), the EIS must acknowledge and describe the extent of those conflicts. If there are any possibilities of resolving the conflicts, these should be explained as well. The EIS should also evaluate the seriousness of the impact of the proposal on the land use plans and policies, and whether, or how much, the proposal will impair the effectiveness of land use control mechanisms for the area. Comments from officials of the affected area should be solicited early and should be carefully acknowledged and answered in the EIS.

23b. What constitutes a "land use plan or policy" for purposes of this discussion?

A. The term "land use plans," includes all types of formally adopted documents for land use planning, zoning and related regulatory requirements. Local general plans are included, even though they are subject to future change. Proposed plans should also be addressed if they have been formally proposed by the appropriate government body in a written form, and are being actively pursued by officials of the jurisdiction. Staged plans, which must go through phases of development such as the Water Resources Council's Level A, B and C planning process should also be included even though they are incomplete.

The term "policies" includes formally adopted statements of land use policy as embodied in laws or regulations. It also includes proposals for action such as the initiation of a planning process, or a formally adopted policy statement of the local, regional or state executive branch, even if it has not yet been formally adopted by the local, regional or state legislative body.

23c. What options are available for the decisionmaker when conflicts with such plans or policies are identified?

A. After identifying any potential land use conflicts, the decisionmaker must weigh the significance of the conflicts, among all the other environmental and non-environmental factors that must be considered in reaching a rational and balanced decision. Unless precluded by other law from causing or contributing to any inconsistency with the land use plans, policies or controls, the decisionmaker retains the authority to go forward with the proposal, despite the potential conflict. In the Record of Decision, the decisionmaker must explain what the decision was, how it was made, and what mitigation measures are being imposed to lessen adverse environmental impacts of the proposal, among the other requirements of Section 1505.2. This provision would require the decisionmaker to explain any decision to override land use plans, policies or controls for the area.

24a. Environmental Impact Statements on Policies, Plans or Programs. When are EISs required on policies, plans or programs?

A. An EIS must be prepared if an agency proposes to implement a specific policy, to adopt a plan for a group of related actions, or to implement a specific statutory program or executive directive. Section 1508.18. In addition, the adoption of official policy in the form of rules, regulations and interpretations pursuant to the Administrative Procedure Act, treaties, conventions, or other formal documents establishing governmental or agency policy which will substantially alter agency programs, could require an EIS. Section 1508.18. In all cases, the policy, plan, or program must have the potential for significantly affecting the quality of the human environment in order to require an EIS. It should be noted that a proposal "may exist in fact as well as by agency declaration that one exists." Section 1508.23.

24b. When is an area-wide or overview EIS appropriate?

A. The preparation of an area-wide or overview EIS may be particularly useful when similar actions, viewed with other reasonably foreseeable or proposed agency actions, share common timing or geography. For example, when a variety of energy projects may be located in a single watershed, or when a series of new energy technologies may be developed through federal funding, the overview or area-wide EIS would serve as a valuable and necessary analysis of the affected environment and the potential cumulative impacts of the reasonably foreseeable actions under that program or within that geographical area.

24c. What is the function of tiering in such cases?

A. Tiering is a procedure which allows an agency to avoid duplication of paperwork through the incorporation by reference of the general discussions and relevant specific discussions from an environmental impact statement of broader scope into one of lesser scope or vice versa. In the example given in Question 24b, this would mean that an overview EIS would be prepared for all of the energy activities reasonably foreseeable in a particular geographic area or resulting from a particular development program. This impact statement would be followed by site-specific or project-specific EISs. The tiering process would make each EIS of greater use and meaning to the public as the plan or program develops, without duplication of the analysis prepared for the previous impact statement.

25a. Appendices and Incorporation by Reference. When is it appropriate to use appendices instead of including information in the body of an EIS?

A. The body of the EIS should be a succinct statement of all the information on environmental impacts and alternatives that the decisionmaker and the public need, in order to make the decision and to ascertain that every

significant factor has been examined. The EIS must explain or summarize methodologies of research and modeling, and the results of research that may have been conducted to analyze impacts and alternatives.

Lengthy technical discussions of modeling methodology, baseline studies, or other work are best reserved for the appendix. In other words, if only technically trained individuals are likely to understand a particular discussion then it should go in the appendix, and a plain language summary of the analysis and conclusions of that technical discussion should go in the text of the EIS.

The final statement must also contain the agency's responses to comments on the draft EIS. These responses will be primarily in the form of changes in the document itself, but specific answers to each significant comment should also be included. These specific responses may be placed in an appendix. If the comments are especially voluminous, summaries of the comments and responses will suffice. (See Question 29 regarding the level of detail required for responses to comments.)

25b. How does an appendix differ from incorporation by reference?

A. First, if at all possible, the appendix accompanies the EIS, whereas the material which is incorporated by reference does not accompany the EIS. Thus the appendix should contain information that reviewers will be likely to want to examine. The appendix should include material that pertains to preparation of a particular EIS. Research papers directly relevant to the proposal, lists of affected species, discussion of the methodology of models used in the analysis of impacts, extremely detailed responses to comments, or other information, would be placed in the appendix.

The appendix must be complete and available at the time the EIS is filed. Five copies of the appendix must be sent to EPA with five copies of the EIS for filing. If the appendix is too bulky to be circulated, it instead must be placed in conveniently accessible locations or furnished directly to commentors upon request. If it is not circulated with the EIS, the Notice of Availability published by EPA must so state, giving a telephone number to enable potential commentors to locate or request copies of the appendix promptly.

Material that is not directly related to preparation of the EIS should be incorporated by reference. This would include other EISs, research papers in the general literature, technical background papers or other material that someone with technical training could use to evaluate the analysis of the proposal. These must be made available, either by citing the literature, furnishing copies to central locations, or sending copies directly to commentors upon request.

Care must be taken in all cases to ensure that material incorporated by reference, and the occasional appendix that does not accompany the EIS, are in fact available for the full minimum public comment period.

26a. Index and Keyword Index in EISs. How detailed must an EIS index be?

A. The EIS index should have a level of detail sufficient to focus on areas of the EIS of reasonable interest to any reader. It cannot be restricted to the most important topics. On the other hand, it need not identify every conceivable term or phrase in the EIS. If an agency believes that the reader is reasonably likely to be interested in a topic, it should be included.

26b. Is a keyword index required?

A. No. A keyword index is a relatively short list of descriptive terms that identifies the key concepts or subject areas in a document. For example it could consist of 20 terms which describe the most significant aspects of an EIS that a future researcher would need: type of proposal, type of impacts, type of environment, geographical area, sampling or

modeling methodologies used. This technique permits the compilation of EIS data banks, by facilitating quick and inexpensive access to stored materials. While a keyword index is not required by the regulations, it could be a useful addition for several reasons. First, it can be useful as a quick index for reviewers of the EIS, helping to focus on areas of interest. Second, if an agency keeps a listing of the keyword indexes of the EISs it produces, the EIS preparers themselves will have quick access to similar research data and methodologies to aid their future EIS work. Third, a keyword index will be needed to make an EIS available to future researchers using EIS data banks that are being developed. Preparation of such an index now when the document is produced will save a later effort when the data banks become operational.

27a. List of Preparers. If a consultant is used in preparing an EIS, must the list of preparers identify members of the consulting firm as well as the agency NEPA staff who were primarily responsible?

A. Section 1502.17 requires identification of the names and qualifications of persons who were primarily responsible for preparing the EIS or significant background papers, including basic components of the statement. This means that members of a consulting firm preparing material that is to become part of the EIS must be identified. The EIS should identify these individuals even though the consultant's contribution may have been modified by the agency.

27b. Should agency staff involved in reviewing and editing the EIS also be included in the list of preparers?

A. Agency personnel who wrote basic components of the EIS or significant background papers must, of course, be identified. The EIS should also list the technical editors who reviewed or edited the statements.

27c. How much information should be included on each person listed?

A. The list of preparers should normally not exceed two pages. Therefore, agencies must determine which individuals had primary responsibility and need not identify individuals with minor involvement. The list of preparers should include a very brief identification of the individuals involved, their qualifications (expertise, professional disciplines) and the specific portion of the EIS for which they are responsible. This may be done in tabular form to cut down on length. A line or two for each person's qualifications should be sufficient.

28. Advance or Xerox Copies of EIS. May an agency file xerox copies of an EIS with EPA pending the completion of printing the document?

A. Xerox copies of an EIS may be filed with EPA prior to printing only if the xerox copies are simultaneously made available to other agencies and the public. Section 1506.9 of the regulations, which governs EIS filing, specifically requires Federal agencies to file EISs with EPA no earlier than the EIS is distributed to the public. However, this section does not prohibit xeroxing as a form of reproduction and distribution. When an agency chooses xeroxing as the reproduction method, the EIS must be clear and legible to permit ease of reading and ultimate microfiching of the EIS. Where color graphs are important to the EIS, they should be reproduced and circulated with the xeroxed copy.

29a. Responses to Comments. What response must an agency provide to a comment on a draft EIS which states that the EIS's methodology is inadequate or inadequately explained? For example, what level of detail must an agency include in its response to a simple postcard comment making such an allegation?

A. Appropriate responses to comments are described in Section 1503.4. Normally the responses should result in changes in the text of the EIS, not simply a separate answer at the back of the document. But, in addition, the agency

must state what its response was, and if the agency decides that no substantive response to a comment is necessary, it must explain briefly why.

An agency is not under an obligation to issue a lengthy reiteration of its methodology for any portion of an EIS if the only comment addressing the methodology is a simple complaint that the EIS methodology is inadequate. But agencies must respond to comments, however brief, which are specific in their criticism of agency methodology. For example, if a commentor on an EIS said that an agency's air quality dispersion analysis or methodology was inadequate, and the agency had included a discussion of that analysis in the EIS, little if anything need be added in response to such a comment. However, if the commentor said that the dispersion analysis was inadequate because of its use of a certain computational technique, or that a dispersion analysis was inadequately explained because computational techniques were not included or referenced, then the agency would have to respond in a substantive and meaningful way to such a comment.

If a number of comments are identical or very similar, agencies may group the comments and prepare a single answer for each group. Comments may be summarized if they are especially voluminous. The comments or summaries must be attached to the EIS regardless of whether the agency believes they merit individual discussion in the body of the final EIS.

29b. How must an agency respond to a comment on a draft EIS that raises a new alternative not previously considered in the draft EIS?

A. This question might arise in several possible situations. First, a commentor on a draft EIS may indicate that there is a possible alternative which, in the agency's view, is not a reasonable alternative. Section 1502.14(a). If that is the case, the agency must explain why the comment does not warrant further agency response, citing authorities or reasons that support the agency's position and, if appropriate, indicate those circumstances which would trigger agency reappraisal or further response. Section 1503.4(a). For example, a commentor on a draft EIS on a coal fired power plant may suggest the alternative of using synthetic fuel. The agency may reject the alternative with a brief discussion (with authorities) of the unavailability of synthetic fuel within the time frame necessary to meet the need and purpose of the proposed facility.

A second possibility is that an agency may receive a comment indicating that a particular alternative, while reasonable, should be modified somewhat, for example, to achieve certain mitigation benefits, or for other reasons. If the modification is reasonable, the agency should include a discussion of it in the final EIS. For example, a commentor on a draft EIS on a proposal for a pumped storage power facility might suggest that the applicant's proposed alternative should be enhanced by the addition of certain reasonable mitigation measures, including the purchase and setaside of a wildlife preserve to substitute for the tract to be destroyed by the project. The modified alternative including the additional mitigation measures should be discussed by the agency in the final EIS.

A third slightly different possibility is that a comment on a draft EIS will raise an alternative which is a minor variation of one of the alternatives discussed in the draft EIS, but this variation was not given any consideration by the agency. In such a case, the agency should develop and evaluate the new alternative, if it is reasonable, in the final EIS. If it is qualitatively within the spectrum of alternatives that were discussed in the draft, a supplemental draft will not be needed. For example, a commentor on a draft EIS to designate a wilderness area within a National Forest might reasonably identify a specific tract of the forest, and urge that it be considered for designation. If the draft EIS considered designation of a range of alternative tracts which encompassed forest area of similar quality and quantity, no supplemental EIS would have to be prepared. The agency could fulfill its obligation by addressing that specific alternative in the final EIS.

As another example, an EIS on an urban housing project may analyze the alternatives of constructing 2,000, 4,000, or 6,000 units. A commentor on the draft EIS might urge the consideration of constructing 5,000 units utilizing a different configuration of buildings. This alternative is within the spectrum of alternatives already considered, and, therefore, could be addressed in the final EIS.

A fourth possibility is that a commentor points out an alternative which is not a variation of the proposal or of any alternative discussed in the draft impact statement, and is a reasonable alternative that warrants serious agency response. In such a case, the agency must issue a supplement to the draft EIS that discusses this new alternative. For example, a commentor on a draft EIS on a nuclear power plant might suggest that a reasonable alternative for meeting the projected need for power would be through peak load management and energy conservation programs. If the permitting agency has failed to consider that approach in the Draft EIS, and the approach cannot be dismissed by the agency as unreasonable, a supplement to the Draft EIS, which discusses that alternative, must be prepared. (If necessary, the same supplement should also discuss substantial changes in the proposed action or significant new circumstances or information, as required by Section 1502.9(c)(1) of the Council's regulations.)

If the new alternative was not raised by the commentor during scoping, but could have been, commentors may find that they are unpersuasive in their efforts to have their suggested alternative analyzed in detail by the agency. However, if the new alternative is discovered or developed later, and it could not reasonably have been raised during the scoping process, then the agency must address it in a supplemental draft EIS. The agency is, in any case, ultimately responsible for preparing an adequate EIS that considers all alternatives.

30. Adoption of EISs. When a cooperating agency with jurisdiction by law intends to adopt a lead agency's EIS and it is not satisfied with the adequacy of the document, may the cooperating agency adopt only the part of the EIS with which it is satisfied? If so, would a cooperating agency with jurisdiction by law have to prepare a separate EIS or EIS supplement covering the areas of disagreement with the lead agency?

A. Generally, a cooperating agency may adopt a lead agency's EIS without recirculating it if it concludes that its NEPA requirements and its comments and suggestions have been satisfied. Section 1506.3(a), (c). If necessary, a cooperating agency may adopt only a portion of the lead agency's EIS and may reject that part of the EIS with which it disagrees, stating publicly why it did so. Section 1506.3(a).

A cooperating agency with jurisdiction by law (e.g., an agency with independent legal responsibilities with respect to the proposal) has an independent legal obligation to comply with NEPA. Therefore, if the cooperating agency determines that the EIS is wrong or inadequate, it must prepare a supplement to the EIS, replacing or adding any needed information, and must circulate the supplement as a draft for public and agency review and comment. A final supplemental EIS would be required before the agency could take action. The adopted portions of the lead agency EIS should be circulated with the supplement. Section 1506.3(b). A cooperating agency with jurisdiction by law will have to prepare its own Record of Decision for its action, in which it must explain how it reached its conclusions. Each agency should explain how and why its conclusions differ, if that is the case, from those of other agencies which issued their Records of Decision earlier.

An agency that did not cooperate in preparation of an EIS may also adopt an EIS or portion thereof. But this would arise only in rare instances, because an agency adopting an EIS for use in its own decision normally would have been a cooperating agency. If the proposed action for which the EIS was prepared is substantially the same as the proposed action of the adopting agency, the EIS may be adopted as long as it is recirculated as a final EIS and the agency announces what it is doing. This would be followed by the 30-day review period and issuance of a Record of Decision by the adopting agency. If the proposed action by the adopting agency is not substantially the same as that in [46 FR 18036] the EIS (i.e., if an EIS on one action is being adapted for use in a decision on another action), the

EIS would be treated as a draft and circulated for the normal public comment period and other procedures. Section 1506.3(b).

31a. Application of Regulations to Independent Regulatory Agencies. Do the Council's NEPA regulations apply to independent regulatory agencies like the Federal Energy Regulatory Commission (FERC) and the Nuclear Regulatory Commission?

A. The statutory requirements of NEPA's Section 102 apply to "all agencies of the federal government." The NEPA regulations implement the procedural provisions of NEPA as set forth in NEPA's Section 102(2) for all agencies of the federal government. The NEPA regulations apply to independent regulatory agencies, however, they do not direct independent regulatory agencies or other agencies to make decisions in any particular way or in a way inconsistent with an agency's statutory charter. Sections 1500.3, 1500.6, 1507.1, and 1507.3.

31b. Can an Executive Branch agency like the Department of the Interior adopt an EIS prepared by an independent regulatory agency such as FERC?

A. If an independent regulatory agency such as FERC has prepared an EIS in connection with its approval of a proposed project, an Executive Branch agency (e.g., the Bureau of Land Management in the Department of the Interior) may, in accordance with Section 1506.3, adopt the EIS or a portion thereof for its use in considering the same proposal. In such a case the EIS must, to the satisfaction of the adopting agency, meet the standards for an adequate statement under the NEPA regulations (including scope and quality of analysis of alternatives) and must satisfy the adopting agency's comments and suggestions. If the independent regulatory agency fails to comply with the NEPA regulations, the cooperating or adopting agency may find that it is unable to adopt the EIS, thus forcing the preparation of a new EIS or EIS Supplement for the same action. The NEPA regulations were made applicable to all federal agencies in order to avoid this result, and to achieve uniform application and efficiency of the NEPA process.

32. Supplements to Old EISs. Under what circumstances do old EISs have to be supplemented before taking action on a proposal?

A. As a rule of thumb, if the proposal has not yet been implemented, or if the EIS concerns an ongoing program, EISs that are more than 5 years old should be carefully reexamined to determine if the criteria in Section 1502.9 compel preparation of an EIS supplement.

If an agency has made a substantial change in a proposed action that is relevant to environmental concerns, or if there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts, a supplemental EIS must be prepared for an old EIS so that the agency has the best possible information to make any necessary substantive changes in its decisions regarding the proposal. Section 1502.9(c).

33a. Referrals. When must a referral of an interagency disagreement be made to the Council?

A. The Council's referral procedure is a pre-decision referral process for interagency disagreements. Hence, Section 1504.3 requires that a referring agency must deliver its referral to the Council not later than 25 days after publication by EPA of notice that the final EIS is available (unless the lead agency grants an extension of time under Section 1504.3(b)).

33b. May a referral be made after this issuance of a Record of Decision?

A. No, except for cases where agencies provide an internal appeal procedure which permits simultaneous filing of the final EIS and the record of decision (ROD). Section 1506.10(b)(2). Otherwise, as stated above, the process is a pre-decision referral process. Referrals must be made within 25 days after the notice of availability of the final EIS, whereas the final decision (ROD) may not be made or filed until after 30 days from the notice of availability of the EIS. Sections 1504.3(b), 1506.10(b). If a lead agency has granted an extension of time for another agency to take action on a referral, the ROD may not be issued until the extension has expired.

34a. Records of Decision. Must Records of Decision (RODs) be made public? How should they be made available?

A. Under the regulations, agencies must prepare a "concise public record of decision," which contains the elements specified in Section 1505.2. This public record may be integrated into any other decision record prepared by the agency, or it may be separate if decision documents are not normally made public. The Record of Decision is intended by the Council to be an environmental document (even though it is not explicitly mentioned in the definition of "environmental document" in Section 1508.10). Therefore, it must be made available to the public through appropriate public notice as required by Section 1506.6(b). However, there is no specific requirement for publication of the ROD itself, either in the Federal Register or elsewhere.

34b. May the summary section in the final Environmental Impact Statement substitute for or constitute an agency's Record of Decision?

A. No. An environmental impact statement is supposed to inform the decisionmaker before the decision is made. Sections 1502.1, 1505.2. The Council's regulations provide for a 30-day period after notice is published that the final EIS has been filed with EPA before the agency may take final action. During that period, in addition to the agency's own internal final review, the public and other agencies can comment on the final EIS prior to the agency's final action on the proposal. In addition, the Council's regulations make clear that the requirements for the summary in an EIS are not the same as the requirements for a ROD. Sections 1502.12 and 1505.2.

34c. What provisions should Records of Decision contain pertaining to mitigation and monitoring?

A. Lead agencies "shall include appropriate conditions [including mitigation measures and monitoring and enforcement programs] in grants, permits or other approvals" and shall "condition funding of actions on mitigation." Section 1505.3. Any such measures that are adopted must be explained and committed in the ROD.

The reasonable alternative mitigation measures and monitoring programs should have been addressed in the draft and final EIS. The discussion of mitigation and monitoring in a Record of Decision must be more detailed than a general statement that mitigation is being required, but not so detailed as to duplicate discussion of mitigation in the EIS. The Record of Decision should contain a concise summary identification of the mitigation measures which the agency has committed itself to adopt.

The Record of Decision must also state whether all practicable mitigation measures have been adopted, and if not, why not. Section 1505.2(c). The Record of Decision must identify the mitigation measures and monitoring and enforcement programs that have been selected and plainly indicate that they are adopted as part of the agency's decision. If the proposed action is the issuance of a permit or other approval, the specific details of the mitigation measures shall then be included as appropriate conditions in whatever grants, permits, funding or other approvals are being made by the federal agency. Section 1505.3 (a), (b). If the proposal is to be carried out by the [46 FR 18037] federal agency itself, the Record of Decision should delineate the mitigation and monitoring measures in sufficient detail to constitute an enforceable commitment, or incorporate by reference the portions of the EIS that do so.

34d. What is the enforceability of a Record of Decision?

A. Pursuant to generally recognized principles of federal administrative law, agencies will be held accountable for preparing Records of Decision that conform to the decisions actually made and for carrying out the actions set forth in the Records of Decision. This is based on the principle that an agency must comply with its own decisions and regulations once they are adopted. Thus, the terms of a Record of Decision are enforceable by agencies and private parties. A Record of Decision can be used to compel compliance with or execution of the mitigation measures identified therein.

35. Time Required for the NEPA Process. How long should the NEPA process take to complete?

A. When an EIS is required, the process obviously will take longer than when an EA is the only document prepared. But the Council's NEPA regulations encourage streamlined review, adoption of deadlines, elimination of duplicative work, eliciting suggested alternatives and other comments early through scoping, cooperation among agencies, and consultation with applicants during project planning. The Council has advised agencies that under the new NEPA regulations even large complex energy projects would require only about 12 months for the completion of the entire EIS process. For most major actions, this period is well within the planning time that is needed in any event, apart from NEPA.

The time required for the preparation of program EISs may be greater. The Council also recognizes that some projects will entail difficult long-term planning and/or the acquisition of certain data which of necessity will require more time for the preparation of the EIS. Indeed, some proposals should be given more time for the thoughtful preparation of an EIS and development of a decision which fulfills NEPA's substantive goals.

For cases in which only an environmental assessment will be prepared, the NEPA process should take no more than 3 months, and in many cases substantially less, as part of the normal analysis and approval process for the action.

36a. Environmental Assessments (EA). How long and detailed must an environmental assessment (EA) be?

A. The environmental assessment is a concise public document which has three defined functions. (1) It briefly provides sufficient evidence and analysis for determining whether to prepare an EIS; (2) it aids an agency's compliance with NEPA when no EIS is necessary, i.e., it helps to identify better alternatives and mitigation measures; and (3) it facilitates preparation of an EIS when one is necessary. Section 1508.9(a).

Since the EA is a concise document, it should not contain long descriptions or detailed data which the agency may have gathered. Rather, it should contain a brief discussion of the need for the proposal, alternatives to the proposal, the environmental impacts of the proposed action and alternatives, and a list of agencies and persons consulted. Section 1508.9(b).

While the regulations do not contain page limits for EA's, the Council has generally advised agencies to keep the length of EAs to not more than approximately 10-15 pages. Some agencies expressly provide page guidelines (e.g., 10-15 pages in the case of the Army Corps). To avoid undue length, the EA may incorporate by reference background data to support its concise discussion of the proposal and relevant issues.

36b. Under what circumstances is a lengthy EA appropriate?

A. Agencies should avoid preparing lengthy EAs except in unusual cases, where a proposal is so complex that a concise document cannot meet the goals of Section 1508.9 and where it is extremely difficult to determine whether

the proposal could have significant environmental effects. In most cases, however, a lengthy EA indicates that an EIS is needed.

37a. Findings of No Significant Impact (FONSI). What is the level of detail of information that must be included in a finding of no significant impact (FONSI)?

A. The FONSI is a document in which the agency briefly explains the reasons why an action will not have a significant effect on the human environment and, therefore, why an EIS will not be prepared. Section 1508.13. The finding itself need not be detailed, but must succinctly state the reasons for deciding that the action will have no significant environmental effects, and, if relevant, must show which factors were weighted most heavily in the determination. In addition to this statement, the FONSI must include, summarize, or attach and incorporate by reference, the environmental assessment.

37b. What are the criteria for deciding whether a FONSI should be made available for public review for 30 days before the agency's final determination whether to prepare an EIS?

A. Public review is necessary, for example, (a) if the proposal is a borderline case, i.e., when there is a reasonable argument for preparation of an EIS; (b) if it is an unusual case, a new kind of action, or a precedent setting case such as a first intrusion of even a minor development into a pristine area; (c) when there is either scientific or public controversy over the proposal; or (d) when it involves a proposal which is or is closely similar to one which normally requires preparation of an EIS. Sections 1501.4(e)(2), 1508.27. Agencies also must allow a period of public review of the FONSI if the proposed action would be located in a floodplain or wetland. E.O. 11988, Sec. 2(a)(4); E.O. 11990, Sec. 2(b).

38. Public Availability of EAs v. FONSIs. Must (EAs) and FONSIs be made public? If so, how should this be done?

A. Yes, they must be available to the public. Section 1506.6 requires agencies to involve the public in implementing their NEPA procedures, and this includes public involvement in the preparation of EAs and FONSIs. These are public "environmental documents" under Section 1506.6(b), and, therefore, agencies must give public notice of their availability. A combination of methods may be used to give notice, and the methods should be tailored to the needs of particular cases. Thus, a Federal Register notice of availability of the documents, coupled with notices in national publications and mailed to interested national groups might be appropriate for proposals that are national in scope. Local newspaper notices may be more appropriate for regional or site-specific proposals.

The objective, however, is to notify all interested or affected parties. If this is not being achieved, then the methods should be reevaluated and changed. Repeated failure to reach the interested or affected public would be interpreted as a violation of the regulations.

39. Mitigation Measures Imposed in EAs and FONSIs. Can an EA and FONSI be used to impose enforceable mitigation measures, monitoring programs, or other requirements, even though there is no requirement in the regulations in such cases for a formal Record of Decision?

A. Yes. In cases where an environmental assessment is the appropriate environmental document, there still may be mitigation measures or alternatives that would be desirable to consider and adopt even though the impacts of the proposal will not be "significant." In such cases, the EA should include a discussion of these measures or alternatives to "assist [46 FR 18038] agency planning and decisionmaking" and to "aid an agency's compliance with [NEPA] when no environmental impact statement is necessary." Section 1501.3(b), 1508.9(a)(2). The appropriate mitigation

measures can be imposed as enforceable permit conditions, or adopted as part of the agency final decision in the same manner mitigation measures are adopted in the formal Record of Decision that is required in EIS cases.

40. Propriety of Issuing EA When Mitigation Reduces Impacts. If an environmental assessment indicates that the environmental effects of a proposal are significant but that, with mitigation, those effects may be reduced to less than significant levels, may the agency make a finding of no significant impact rather than prepare an EIS? Is that a legitimate function of an EA and scoping?

[N.B.: Courts have disagreed with CEQ's position in Question 40. The 1987-88 CEQ Annual Report stated that CEQ intended to issue additional guidance on this topic. Ed. note.]

A. Mitigation measures may be relied upon to make a finding of no significant impact only if they are imposed by statute or regulation, or submitted by an applicant or agency as part of the original proposal. As a general rule, the regulations contemplate that agencies should use a broad approach in defining significance and should not rely on the possibility of mitigation as an excuse to avoid the EIS requirement. Sections 1508.8, 1508.27.

If a proposal appears to have adverse effects which would be significant, and certain mitigation measures are then developed during the scoping or EA stages, the existence of such possible mitigation does not obviate the need for an EIS. Therefore, if scoping or the EA identifies certain mitigation possibilities without altering the nature of the overall proposal itself, the agency should continue the EIS process and submit the proposal, and the potential mitigation, for public and agency review and comment. This is essential to ensure that the final decision is based on all the relevant factors and that the full NEPA process will result in enforceable mitigation measures through the Record of Decision.

In some instances, where the proposal itself so integrates mitigation from the beginning that it is impossible to define the proposal without including the mitigation, the agency may then rely on the mitigation measures in determining that the overall effects would not be significant (e.g., where an application for a permit for a small hydro dam is based on a binding commitment to build fish ladders, to permit adequate down stream flow, and to replace any lost wetlands, wildlife habitat and recreational potential). In those instances, agencies should make the FONSI and EA available for 30 days of public comment before taking action. Section 1501.4(e)(2).

Similarly, scoping may result in a redefinition of the entire project, as a result of mitigation proposals. In that case, the agency may alter its previous decision to do an EIS, as long as the agency or applicant resubmits the entire proposal and the EA and FONSI are available for 30 days of review and comment. One example of this would be where the size and location of a proposed industrial park are changed to avoid affecting a nearby wetland area.

3.2 The Major Investment Study (MIS)

The following is paraphrased from the Washington State Department of Transportation (WSDOT) Major Investment Study (MIS) Guidelines. September 1996 found at www.wsdot.wa.gov/ppse/planning/mis.htm

The Federal Highway Administration and Federal Transit Administration developed guidance based on ISTEA which included the requirements for Major Investment Studies (MIS) for Metropolitan Planning guidance. Major Investment Studies are tools to aid the decision making process by providing more complete information on the options for addressing transportation problems. Major Investment Studies can help to level the playing field among modal alternatives by providing a single integrated analysis process that looks at all modes equally.

The Major Investment Study is a sub-element of the Metropolitan Transportation Planning (MTP) process. It focuses on corridor or subarea transportation demand and other problems that may lead to transit or highway investments that have a substantial capital investment and impact on the metropolitan transportation system.

Flexibility is the key to the Major Investment Study process. The goal is to produce the information necessary to make the best investment decision, while minimizing the funding resources needed to produce that information. The guidelines are deliberately generalized to avoid specific recommendations that would not be applicable to all types of studies.

The Major Investment Study process is tied to the development of environmental documentation, so a determination of when to begin Major Investment Study development should be made to coincide with the environmental process. The environmental process will use Major Investment Study analysis as an input if the Major Investment Study is started during the planning process. The Major Investment Study should be concluded before including a project in the TIP. Major investment studies are aimed at deficiencies that have the following characteristics: major demand problem; on a corridor or subarea level; require a substantial capital investment; and have significant impact on the metropolitan transportation system.

Major Investment Study are designed to develop alternatives which represent the full range of modal solutions; to evaluate alternatives; to determine what information is required; and to identify what technical methods should be used. The statement should be based on underlying causes and should not be mode specific. The problem statement should describe the problem itself, not symptoms of the problem. The steering committee determines goals and objectives after the problem statement is completed.

A Major Investment Study should consider all reasonable alternatives, including demand and system management options when appropriate. No alternative should be analyzed after it has been determined to be unfeasible. A Major Investment Study alternative should be a design concept for a transportation mode, operations element, or demand management strategy. The location, general alignment and termini should be identified. Each alternative should be distinguished from other alternatives based on its performance, benefits, cost, and/or impacts. All alternatives should be sufficiently distinctive that they are not confused with other alternatives.

There are different methods for analyzing modal alternatives. While there is no one correct methodology, certain methods work better in certain areas, and the precision needed may differ by problem and by region. The goal is to perform the minimum amount of analysis needed to identify the preferred alternative. When the method of analysis is unclear, it should be determined by a consensus of the Scoping Committee.

After completion of MIS analysis, the findings should be documented. The documentation usually occurs either in the project's environmental document or in a separate report document. There is no formal approval of a Major Investment Study findings. After the lead agency prepares the documentation, it should be distributed to all stakeholders. After an agreed upon and brief period for comment and acceptance of the preferred alternative by the Major Investment Study steering committee, the Major Investment Study will be considered final.

Two options exist within Major Investment Study development for environmental documentation such as environmental impact statements. Table 1 shows the two options. In Option One, the Major Investment Study is completed before the environmental documentation. In Option Two, the Major Investment Study and environmental document are developed concurrently. The determination of which "option" to use is entirely dependent on what point in the project's life the Major Investment Study is started.

Requirements for analyzing alternatives to capacity expansion projects in the Congestion Management System (CMS) are similar to Major Investment Study requirements, however they are less rigorous. While a Congestion Management System requires some consideration of modal alternatives, a Major Investment Study will analyze

alternatives on a specific project/corridor/subarea level, while the Congestion Management System will analyze on more of a system wide level. Some deficiencies that do not require an Major Investment Study will require alternatives analysis under the Congestion Management System. Any deficiency that undergoes a Major Investment Study will meet analysis requirements of the Congestion Management System.

How do Major Investment Studies relate to Least Cost Planning? Least Cost Planning requires that Regional Transportation Plans undergo alternatives analysis. Least cost planning, as defined in Washington State law, will analyze the entire regional plan. Like the Congestion Management System, least cost planning will apply to more of a system level, and will be less rigorous than an Major Investment Study.

3.3 Hawai'i Revised Statutes (HRS 343)

§343-1 Findings and purpose. The legislature finds that the quality of humanity's environment is critical to humanity's well being, that humanity's activities have broad and profound effects upon the interrelations of all components of the environment, and that an environmental review process will integrate the review of environmental concerns with existing planning processes of the State and counties and alert decision makers to significant environmental effects which may result from the implementation of certain actions. The legislature further finds that the process of reviewing environmental effects is desirable because environmental consciousness is enhanced, cooperation and coordination are encouraged, and public participation during the review process benefits all parties involved and society as a whole.

3.4 Hawai'i Administrative Rules (HAR 11-200)

§11-200-1 Purpose. Chapter 343, HRS, establishes a system of environmental review at the state and county levels which shall ensure that environmental concerns are given appropriate consideration in decision making along with economic and technical considerations. The purpose of this chapter is to provide agencies and persons with procedures, specifications of contents of environmental assessments and environmental impact statements, and criteria and definitions of statewide application.

"Cumulative impact" means the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

"Primary impact" or "primary effect" or "direct impact" or "direct effect" means effects which are caused by the action and occur at the same time and place.

"Secondary impact" or "secondary effect" or "indirect impact" or "indirect effect" means effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

§11-200-7 Multiple or phased applicant or agency actions. A group of actions proposed by an agency or an applicant shall be treated as a single action when:

(1) The component actions are phases or increments of a larger total undertaking;

(2) An individual project is a necessary precedent for a larger project;

(3) An individual project represents a commitment to a larger project; or

(4) The actions in question are essentially identical and a single statement will adequately address the impacts of each individual action and those of the group of actions as a whole.

§11-200-14 General provisions. Chapter 343, HRS, directs that in both agency and applicant actions where statements are required, the preparing party shall prepare the EIS, submit it for review and comments, and revise it, taking into account all critiques and responses. Consequently, the EIS process involves more than the preparation of a document; it involves the entire process of research, discussion, preparation of a statement, and review. The EIS process shall involve at a minimum: identifying environmental concerns, obtaining various relevant data, conducting necessary studies, receiving public and agency input, evaluating alternatives, and proposing measures for avoiding, minimizing, rectifying or reducing adverse impacts. An EIS is meaningless without the conscientious application of the EIS process as a whole, and shall not be merely a self-serving recitation of benefits and a rationalization of the proposed action. Agencies shall ensure that statements are prepared at the earliest opportunity in the planning and decision-making process. This shall assure an early open forum for discussion of adverse effects and available alternatives, and that the decision-makers will be enlightened to any environmental consequences of the proposed action. [Eff 12/6/85; am and comp AUG 31 1996] (Auth: HRS §343-5, 343-6) (Imp: HRS §343-6)

§11-200-16 Content requirements. The environmental impact statement shall contain an explanation of the environmental consequences of the proposed action. The contents shall fully declare the environmental implications of the proposed action and shall discuss all relevant and feasible consequences of the action. In order that the public can be fully informed and that the agency can make a sound decision based upon the full range of responsible opinion on environmental effects, a statement shall include responsible opposing views, if any, on significant environmental issues raised by the proposal. [Eff 12/6/85; am and comp AUG 31 1996] (Auth: HRS §343-5, 343-6) (Imp: HRS §343-2, 343-5, 343-6)

§11-200-17 Content requirements: draft environmental impact statement. ... (f) The draft EIS shall describe in a separate and distinct section alternatives which could attain the objectives of the action, regardless of cost, in sufficient detail to explain why they were rejected. The section shall include a rigorous exploration and objective evaluation of the environmental impacts of all such alternative actions. Particular attention shall be given to alternatives that might enhance environmental quality or avoid, reduce, or minimize some or all of the adverse environmental effects, costs, and risks. Examples of alternatives include:

(1) The alternative of no action;

(2) Alternatives requiring actions of a significantly different nature which would provide similar benefits with different environmental impacts;

(3) Alternatives related to different designs or details of the proposed actions which would present different environmental impacts;

(4) The alternative of postponing action pending further study; and,

(5) Alternative locations for the proposed project.

In each case, the analysis shall be sufficiently detailed to allow the comparative evaluation of the environmental benefits, costs, and risks of the proposed action and each reasonable alternative. For any agency actions, the discussion of alternatives shall include, where relevant, those alternatives not within the existing authority of the agency. ...

(I) The draft EIS shall include a statement of the probable impact of the proposed action on the environment, and impacts of the natural or human environment on the project, which shall include consideration of all phases of the action and consideration of all consequences on the environment; direct and indirect effects shall be included. The interrelationships and cumulative environmental impacts of the proposed action and other related projects shall be discussed in the draft EIS. It should be realized that several actions, in particular those that involve the construction of public facilities or structures (e.g., highways, airports, sewer systems, water resource projects, etc.) may well stimulate or induce secondary effects. These secondary effects may be equally important as, or more important than, primary effects, and shall be thoroughly discussed to fully describe the probable impact of the proposed action on the environment. The population and growth impacts of an action shall be estimated if expected to be significant, and an evaluation made of the effects of any possible change in population patterns or growth upon the resource base, including but not limited to land use, water, and public services, of the area in question. Also, if the proposed action constitutes a direct or indirect source of pollution as determined by any governmental agency, necessary data shall be incorporated into the EIS.

§11-200-19 Environmental impact statement style. In developing the EIS, preparers shall make every effort to convey the required information succinctly in a form easily understood, both by members of the public and by public decision-makers, giving attention to the substance of the information conveyed rather than to the particular form, or length, or detail of the statement. The scope of the statement may vary with the scope of the proposed action and its impact. Data and analyses in a statement shall be commensurate with the importance of the impact, and less important material may be summarized, consolidated, or simply referenced. Statements shall indicate at appropriate points in the text any underlying studies, reports, and other information obtained and considered in preparing the statement, including cost benefit analyses and reports required under other legal authorities. Care shall be taken to concentrate on important issues and to ensure that the statement remains an essentially self-contained document, capable of being understood by the reader without the need for undue cross-reference.

3.5 Federal Highway Administration (FHWA)/ Federal Transportation Administration (FTA)

Public involvement in transportation investment decisionmaking is central. Transportation investment decisions have far-reaching effects. Public input is essential in adequately considering them. An effective public involvement process provides for an open exchange of information and ideas between the public and transportation decisionmakers. The overall objective of an area's public involvement process is that it be proactive, provide complete information, timely public notice, full public access to key decisions, and opportunities for early and continuing involvement. It also provides mechanisms for the agency or agencies to solicit public comments and ideas, identify circumstances and impacts which may not have been known or anticipated by public agencies, and, by doing so, to build support among the public who are stakeholders in transportation investments which impact their communities.
A good indicator of an effective public involvement process is a well informed public which feels it has opportunities to contribute input into transportation decisionmaking processes through a broad array of involvement opportunities at all stages of decisionmaking. In contrast, an ineffective process is one that relies on one or two

public meetings or hearings to obtain input immediately prior to decisionmaking on developed draft plans and programs.

"Six useful key elements in planning for effective public involvement are:

(1) Clearly-defined purpose and objectives for initiating a public dialogue on transportation plans, programs, and projects,

(2) Identification of specifically who the affected public and other stakeholder groups are with respect to the plan(s), program(s), and project(s) under development,

(3) Identification of techniques for engaging the public in the process,

(4) Notification procedures which effectively target affected groups,

(5) Education and assistance techniques which result in an accurate and full public understanding of the transportation problem, potential solutions, and obstacles and opportunities within various solutions to the problem, and,

(6) Follow through by public agencies demonstrating that decisionmakers seriously considered public input." [2]
What are some of the key considerations in planning for effective public involvement? *FHWA/FTA Questions and Answers on Public Involvement in Transportation Decisionmaking*

Technical Access "Under the ISTEA and related regulations, the public must have reasonable access to technical assumptions and specifications used in planning and emissions models. This includes access to input assumptions such as population projections, land use projections, fares, tolls, levels of service, the structure and specifications of travel demand and other evaluation tools. To the maximum extent possible, all technical information should be made available in formats which are easily accessible and understandable by the general public. *FHWA/FTA Questions and Answers on Public Involvement in Transportation Decisionmaking*

Chapter 4 Experiences of Other Communities

OMPO: "In Santa Clara, the light rail system really helped reduce traffic congestion by moving masses of people from residential areas to the work centers. In Portland, its fully integrated transportation system reduced traffic congestion, increased mobility, and lowered infrastructure costs. This integrated system even enabled them to convert a freeway into a park. Also, new land use laws helped them determine commuter packages. In both Santa Clara and Portland, transportation developments spurred retail and residential growth along transit lines and around transit malls. In Vancouver, ferries were incorporated as a transportation mode to move people from the residential areas to the downtown business areas. Retail malls developed around the ferry terminals." City and County of Honolulu Transportation Commissioner Paul Leong. OMPO Policy Committee ("OMPO-PC") Minutes. Tuesday, December 1, 1998, 10:30 a.m.

OMPO: "Councilmember Mansho noted that, for the financing of rail design and construction, Portland used local property taxes and a 0.6% payroll tax (like a sales tax on the operating expenses). The biggest difference discovered between Hawaii's initial attempt at acquiring rail and Portland's approach was that Portland's goals included planning livable communities and congestion management. All the statistics and data the Council has been receiving over the past years show that rail doesn't necessarily reduce all the congestion; it manages the congestion. Benefits of rail also include economic stimulus, land use planning, and urban growth boundary lines. These factors played a

bigger role in our current discussions on rail and the future." OMPO-PC Minutes. Tuesday, December 1, 1998, 10:30 a.m.

SmartGrowth: "As anyone who reads the fiction in The New Yorker knows, American mostly live in banal places with the souls of shopping malls, affording nowhere to mingle except traffic jams, nowhere to walk except in the health club. But economic unsustainability may carry more weight. A conference on 'Alternatives to Sprawl' at the Brookings Institution this year was electrified by a report from the Bank of America endorsing the formerly elitist view that sprawl in California has created 'enormous social, environmental and economic costs, which until now have been hidden, ignored, or quietly borne by society ... Businesses suffer from higher costs, a loss in worker productivity, and underutilized investments in older communities.' 'You can't keep spreading out,' says Mike Burton, executive director of Portland, Ore.'s metropolitan government, Metro. 'The cost to make roads and sewers gets to the point where it doesn't work.'" Paved Paradise By Jerry Adler *www.smartgrowth.org/*

Chapter 5 Alternatives

5.1 A Super Enhanced Bus System Management (TSM) Alternative

Parsons Brinkerhoff Quade & Douglas proposed two versions of the TSM Alternative for the Orange County, California Major Investment Study. One increased existing buses by approximately 49% the other by approximately 116%.

Honolulu should evaluate two different expanded bus-only scenarios. The first would encourage a "balanced" approach relying on increased efficiency for both buses and cars. The second would "encourage" people to take buses. The second approach, the "Enhanced Bus System (EBS) would not decrease the current level of congestion. It would instead focus on developing a highly efficient bus system. People would then face two options: car congestion and bus efficiency. This would cause people to shift from cars to buses which would indirectly reduce congestion while sharply reducing air pollution, non-point-source-pollution (oil, metals) and make the city more "sustainable."

"Any successful transportation plan will make it easier and more pleasant to drive, not more difficult" Islandwide Mobility Concept Plan, page 2. This point rather succinctly summarizes all the proposed plans by the consultant. They are designed to increase the joy of driving. A super enhanced bus system is based on the opposite. By having congestion, people find the bus to be more desirable. At the same time, the super-availability of the bus and the variety of routes offered, would lead to widespread enjoyment of the bus.

2 An Enhanced Bus System is a reasonable and viable alternative (CEQ Q1a,b). The alternative is "practical' and "feasible from the technical and economic standpoint and using common sense" (CEQ Q2a). It is an environmental preferable alternative (CEQ 6a) since it would result in less vehicular air pollution and oil/heavy metal non-point-source runoff than other alternatives listed in the Environmental Impact Statement Preparation Notice. It is "the alternative that causes less damage to the biological and physical environment" and it is "the alternative which greatly protects, preserves, and enhances historic, cultural, and natural resources." Furthermore the Enhanced Bus System is a viable option under the Major Investment Study process.

The Enhanced Bus System would further expand on the Express Bus & Circulator Bus System. The system would provide high capacity; frequent service; ziplane and busways; express routes from outer communities; bus priority measures on arterial routes; local bus routes; neighborhood circulators; transit centers to transfer between routes and modes.

Express Buses should run every 15-20 minutes during the full rush hour and every 30-45 minutes during the rest of the day. There should be two separate but linked Express Bus systems: one offering service to Honolulu and one

offering service to Kapolei (which is our "second city"). Circulator buses should offer more complete service to the military bases (including Helemano). Regional bus service should link neighboring communities (such as Wahiawa, Mililani, Waipio and Waikele).

2

The number of buses acquired by this alternative would be at least twice that of the regular bus expansion alternative.

At $250 a ticket, enforcement of the two-person HOV lane could initially finance a large part of this alternative. It has been alleged that there is no place to pull over vehicles who's occupant appears to be driving solo. It has also been alleged that it is inefficient to mail tickets to apparent violators because many people state that they had a hidden passenger. However, at $250 a ticket, it is profitable for the police to follow a car for up to 20 miles and pull the car over somewhere else. If tickets led to drivers obeying the HOV lanes, then the lanes would suddenly lose 30% of the vehicles currently occupying them. The HOV lanes would move faster, appear to be more appealing than the regular lanes, and lead to greater carpooling.

3

As drivers shifted to HOV lanes and buses, congestion would decrease. The expansion of the zipper lane to Middle Street would make transit more efficient.

5.2 A Commuter-Based Dedicated Bicycle Lane System Alternative

"A successful Transportation Demand Management (TDM) must evaluate all forms of alternative modes of transportation designed to reduce the use of single occupant vehicles. This includes buses, carpools, vans and bicycles. The bicycle component of TDM must include bicycle use for recreation and business commutes as well as bicycle parking." San Francisco Bicycle Plan

A Commuter-Based Dedicated Bicycle Lane System Alternative is a reasonable and viable alternative (CEQ Q1a,b). The alternative is "practical' and "feasible from the technical and economic standpoint and using common sense" (CEQ Q2a). It is the most environmental preferable alternative (CEQ 6a) since it would result the least vehicular air pollution and oil/heavy metal non-point-source runoff than other alternatives listed in the Environmental Impact Statement Preparation Notice. It is "the alternative that causes the least damage to the biological and physical environment" and it is "the alternative which greatly protects, preserves, and enhances historic, cultural, and natural resources." Furthermore the Commuter-Based Dedicated Bicycle Lane System Alternative is a viable option under the Major Investment Study process.

4 "Honolulu is already a great city for bicycles - and it has a potential to be one of the best! It has physical beauty, mild year-around climate, relatively flat coastal plain and a compact form making it ideal for bicycle transportation." The Honolulu Bikeway System Master Plan (www.co.honolulu.hi.us/dts/)

"The potential is great for bicycles to become a significant transportation mode in urban Honolulu. Already, more than three times as many commuters use bicycles to get to work as the national average, despite a scarcity of well located bikeways and sufficient end-of-transit facilities" The Honolulu Bikeway System Master

"Bicycling is a very popular form of recreation for Honolulu residents." The Honolulu Bikeway System Master

"Bicycling is a pollution-free, economical and healthy alternative transportation mode for many work, shopping and recreational trips in Honolulu. The limited supply and high cost of parking as well as traffic congestion and the City's compactness make bicycling an attractive option for many."

"The key to a successful implementation strategy, as evidenced by the experience of other cities, has been the routinization of bicycle planning considerations in the on-going planning and design phases of a capital construction project. In particular, the inclusion of bicycle design standards must be at a phase sufficiently early in the project's development that there are no adverse cost implications that might curtail their inclusion." San Francisco Bicycle Plan

Bicycle Lanes can be classified by the amount of multi-use activity: dedicated bike path; dedicated lane; dedicated half-lane; car/bike lane designated as a multiuse lane; and non-bike-designated car lane.

"Many parents prohibit their children from riding bicycles to school due to fears about safety on the streets." The Honolulu Bikeway System Master Plan

Currently, during the rush hour, residents of Palolo can travel to Hotel Street equally quickly by car or bike. Many chose cars because of the inherent danger associated with riding bicycles in a congested vehicle area.

Some of the members of Life of the Land have been injured while on their bicycles in the downtown area. Many of our members would chose to use bicycles some or all of the time if dedicated bicycle lanes provided a safe, convenient commute.

"The City should install on-street bicycle parking in retail districts, activity centers or developments in areas where businesses or landlords are not individually responsible for off-street parking. This program must include bicycle parking in both the public right-of-way and in the private off-street parking lots of existing businesses, including supermarkets, super drugstores, retail stores, shopping malls, and employment sites." San Francisco Bicycle Plan

4

California found the four most common forms of accidents caused by automobile drivers to bike riders were: Opening car door when unsafe; failure to yield when turning left; unsafe turn and/or without signaling; and unsafe speed.

"It should be noted at the outset that a wide spectrum of traditional funding sources is available for bicycle programs and projects. Following the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, several new funding opportunities became available for bicycle projects and programs. The opportunities to develop regional funding requests that included a greater emphasis on air quality, congestion mitigation, and balanced transportation systems allowed bicycle programs to be evaluated routinely along with highway and transit requests. These Surface Transportation Program (STP) and Congestion Mitigation and Air Quality (CMAQ) funds were further expanded via the federal government's annual consideration of worthy demonstration projects." San Francisco Bicycle Plan

Commuter biking will increase with the creation of dedicated bike lanes that connect residential areas with the downtown and with the university. The route most suggested by environmentalists has been Young Street. The proposal by the consultant in this study - to reduce the car lanes on the Nimitz - provides another opportunity. One possible dedicated bicycle route would be from the University area along (a) Dole Street; (b) a dedicated bike lane over the H-1; (c) a dedicated lane along Isenburg; (d) conversion of Young Street to five lanes (parking on each side; one-lane-one-way car traffic; and two-way bicycle traffic); (e) a dedicated bike path through or around the edge of Thomas Square; (f) Hotel Street; (g) a dedicated path paralleling the current pedestrian path by the City and State Governmental buildings; (h) dedicated lane on Richards; (i) dedicated lanes on Nimitz.

5.3 A Light Rail Transit (LRT) Alternative.

"DTS would like to lay out an entire system that doesn't require the whole system to be in place in order to be of value. DTS would develop a program that could be implemented incrementally, in phases, according to ability to pay. The policy makers will need to decide what the ability to pay is for each particular phase." Policy Committee Meeting OMPO Policy Committee. August 4, 1998, 10:30 a.m.

Chapter 6 Assumptions & Models Common to all Alternatives

6.1 Road Network Assumptions

There may be an increase in vehicle-miles due to the building of alternate routes (Sand Island Parkway; Nimitz Highway); providing radio coverage/electronic signs on traffic jams; and/or the ending of the Hawaii and/or Asian recessions;

6.2 Travel Demand Management Assumptions

There may be an decrease in vehicle-miles due to people shifting from one-person per vehicle to carpools, rail and/or buses, perhaps due to the availability of all-day express buses.

There may be a shift in destinations due to the development of the Second City; building the Natatorium; expanding the Aloha Tower Marketplace; development of cruise ship berths; and/or building the Waipio/Kalaeloa Sports Complexes.

5

There may be an increase in bus use with no decrease in vehicle-miles due to the availability of all-day express buses that will encourage people (elderly and youth) who would stay home without the service. This phenomena was written about regarding the Mililani Trolley in the latest issue of Ka Nupepa.

OMPO: "Gordon Lum explained that ... OMPO is also in the process of finalizing the development of new travel forecasting models. ... These models will also be more sensitive to some of our travel needs, including transit forecasts. In order to ensure that these models are used by OMPO staff as well as the agencies, OMPO requires this in-house capability. Otherwise, OMPO would have to continue to rely upon consultants to use these models." OMPO-PC Minutes Tuesday, September 1, 1998, 10:30 a.m

6.3 Population Growth Assumptions

There may be an increase in vehicle-miles and bus/train use due to population growth, tourism growth and/or the rejuvenation of Waikiki, since under the existing limits of the Waikiki Special District (WSD) the floor area of Waikiki has already been zoned to expand from the current 7M square feet to 14M square feet, in effect, doubling in size.

5

6.4 Models: Outcome Success vs. Failure

5 The model may measure success or failure through the use of indices such as the "Time Of Travel" (TOT) and/or the "Level Of Service" (LOS) or through some other means. The model should clearly identify why a particular measure of success was chosen.

Determining whether a project will be successful or not frequently boils down to the model chosen, the assumptions (often unstated) assumed and the data used. It sort of seems to make sense that if there are more buses and or trains, the number of vehicles on the role will decrease. But this does not necessarily follow.

6.5 Sensitivity Analysis of the Model

5 How dependent is the models solution on the model, assumptions and data used? When the data is chosen, the assumptions are assumed and the model is used, a result will follow. But how will the result change under minimal alterations of the given?

Chapter 7 Environmental Consequences

7.1 Unusual Impacts?

"Cities like Honolulu have grown up next to deep harbors and at the intersections of railroads and rivers." Islandwide Mobility Concept Plan, page 10

6 "Freeway ramps have attracted development of shopping malls and 'big box' stores. Neighborhood shopping districts have thrived where pedestrians walk. Islandwide Mobility Concept Plan, page 10. Perhaps that is why Office Depot is arriving, they will be next to a not-yet-publicly-announced freeway ramp. We thought it was because of the million dollar financial package.

7.2 Cumulative and Secondary Impacts

"Cumulative impact" means the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (HAR §11-200-1)

"Primary impact" or "primary effect" or "direct impact" or "direct effect" means effects which are caused by the
7 action and occur at the same time and place. (HAR §11-200-1)

"Secondary impact" or "secondary effect" or "indirect impact" or "indirect effect" means effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. (HAR §11-200-1)

A group of actions proposed by an agency or an applicant shall be treated as a single action when: (1) The component actions are phases or increments of a larger total undertaking; (2) An individual project is a necessary precedent for a larger project; (3) An individual project represents a commitment to a larger project; or (4) The actions in question are essentially identical and a single statement will adequately address the impacts of each individual action and those of the group of actions as a whole. (HAR §11-200-7)

7 "Promoting economic development is also critical to maintaining the health of our island communities." Islandwide Mobility Concept Plan, page vi. "Honolulu must find a way to preserve, maintain, and protect the quality of life of its people and the health of its environment, while providing for the growth necessary for prosperity." Islandwide Mobility Concept Plan, page 2. (Are they stating that: "stability requires growth")

7.3 Air Quality Impacts

8 How will air quality change as a result of secondary growth resulting from the new bus and/or bus/rail system? It should be realized that several actions, in particular those that involve the construction of public facilities ... may well stimulate or induce secondary effects. These secondary effects may be equally important as, or more important than, primary effects, and shall be thoroughly discussed ... and an evaluation made of the effects of any possible change in population patterns or growth upon the resource base" (HAR §11-200-17(i))

7.4 Water Resources Impacts

9 It should be realized that several actions, in particular those that involve the construction of public facilities ... may well stimulate or induce secondary effects. These secondary effects may be equally important as, or more important than, primary effects, and shall be thoroughly discussed ... and an evaluation made of the effects of any possible change in population patterns or growth upon the resource base, including ... water" (HAR §11-200-17(i))

7.5 Transportation Model Impacts

10 Should we be moving toward greater use of mass transit OR greater use of cars OR be designing a system that has something for everything and has a huge price tag for our recession-based economy? "Road building and automobile use have a synergistic relationship that is ultimately unsustainable, since it leads to ever more road building, cars, congestion, and reduction in the quality of the environment. Islandwide Mobility Concept Plan, page 10. Dedicated Ramps provide direct access to and from zipper lanes, busways, and HOV lanes. ...Oahu has an extensive network of freeways ... some physical modifications will help to maintain the effectiveness of the overall system. Also, the expansion of the Zipper Lane ... Interchange improvements and selective widenings will also help to alleviate bottlenecks and improve freeway safety. ... The feasibility of using a zipper lane for the afternoon rush hour out of town is being studied. ... Kamehameha Highway to be widened from two to four lanes from Ka Uka Boulevard to Mililani ... Kunia Road ... plans to extend this widening to Anonui Road in the near future. ... widen Puuloa Road" Islandwide Mobility Concept Plan, page 30, 34, 35

7.6 Community Impacts

11 The Draft EIS needs a thorough Community Impact Assessment which includes supporting sustainable livable communities; promoting community values and thriving neighborhoods; contributing to general well-being; embracing the concerns of neighborhoods and communities.

Chapter 8 Questions

8.1 Cumulative and Secondary Impacts

12 Q1. The redevelopment of Kakaako would be much easier if a trolley were built. Therefore it must be included as a secondary impact. "a light rail electric trolley ... would provide the impetus for the redevelopment of Kakaako" Mayor Jeremy Harris State of the City 1998.

8.2 Social and Economic Impacts

Q1. Will the development of transportation hubs (buses, light and/or heavy rail) lead to greater development near the hubs? Q2. Will the transportation improvements occur faster, keep pace with, or trail the expected growth in population and tourism? Q3. If the improvements exactly matches the growth in population, will the new arrivals pay for the needed infrastructural changes or will the existing residents pay for system improvements that will benefit the new arrivals? Q4. Will the project strengthen communities/ohana or will it divide poor communities for the benefit of richer communities? Q5. Will the building of the Natatorium encourage greater vehicle use? Q6. Will the building of cruise ship berths at or near the Aloha Tower Marketplace encourage more vehicle use? Q7. Will the building parking structures near the proposed cruise ship berths at or near the Aloha Tower Marketplace encourage more vehicle use? Q8. Will "transportation developments spurred retail and residential growth along transit lines and around transit malls"? Q9. Some of the proposed transportation plans are designed to free up valuable waterfront for development. Such development would constitute a secondary or indirect impact to the PUC EIS and to the PUC NEPA right? Q10. Will the desired increase in tourism encourage greater vehicular use?

8.3 Air Quality Impacts

Q1. How will air quality change as a result of secondary growth resulting from the new bus and/or bus/rail system? Q2. How do the Enhanced Bus Alternative and the Commuter-Based Dedicated Bicycle Lane System Alternative compare to the other alternatives?

8.4 Noise Impacts

Q1. Bus stop announcements can be heard at a 1000 feet. Is the City planning to introduce noise pollution to the quiet suburbs and agricultural lands? "increase access to information through audible 'next stop' announcers" Islandwide Mobility Concept Plan, page v. Q2. How do the Enhanced Bus Alternative and the Commuter-Based Dedicated Bicycle Lane System Alternative compare to the other alternatives?

8.5 Water Resources Impacts

Q1. How will water quality change as a result of secondary growth resulting from the new bus and/or bus/rail system? Q2. How do the Enhanced Bus Alternative and the Commuter-Based Dedicated Bicycle Lane System Alternative compare to the other alternatives?

8.6 Aesthetic Impacts

Q1. Are visual impacts afterthoughts or are they part of the planning process? If so, how? Q2. How do the Enhanced Bus Alternative and the Commuter-Based Dedicated Bicycle Lane System Alternative compare to the other alternatives?

8.7 Transportation Impacts

Q1. Will each alternative (the Enhanced Bus Alternative and the Commuter-Based Dedicated Bicycle Lane System) proposed increase/decrease mass transit system gridlock? Q2. How can we adopt transportation policies that will decrease gridlock? Q3. Can the proposed trolley (1998-99) be expanded into the elevated rail transit plan (1992)? Q4. Will privatization of the bus service into one or more separate competing companies (as in done in Queens, New York) help or hinder services on Oahu? Q5. How significant would the use of one-way rush-hour traffic on Dillingham be on congestion? Q6. How significant would the use of one-way rush-hour traffic on Nimitz be on congestion? see Tim Tucker's column in Island Voices (Honolulu Advertiser, May 18, 1999, page A-6). Q7. How significant would Employer Trip Reduction (ETR) Plans be in reducing congestion? Q8. The Draft Environmental Impact Statement may need to include an explanation of the timing for the proposal. Q9. What will the secondary impact be? Q10. If the Zipper Lane has not convinced enough people to carpool, how will each proposal solve that? Q11. The Coast Guard held a meeting regarding the Sand Island Parkway and the Truman-Hobbs Act. The census was that federal money would not be available. Has anything changed? Q12. Is a state highway financed by federal $ part of the City plan? Q13. Is there a reasonable chance that the building of the Sand Island Parkway increase vehicle use? Q14. Is there a reasonable chance that the alteration of the Nimitz Highway increase vehicle use.

8.8 Scoping Impacts

Q1 How can alterations to the Zipper Lane be part of the City Plan when it is totally under State control? Q2. Does the PUC plan include Express Buses which operate partially outside of the PUC? Q3. The map of the PUC includes Waiawa and Iroquois Point but not Kahala Mall. Is that correct? Q4. How can the MIS analyze "high-speed express service from suburbs" if that is beyond the scope of the PUC? Q5. How can the contractor for the City state that the City plan includes three state programs, one of which is enforcement? "Specific elements include ... AHI ... ITS ... enforcement activities in State DOT's Safe Communities program." Islandwide Mobility Concept Plan, page v. Q6. What are the acceptance criteria of the FHWA/FTA for the NEPA document? Does this plan conform to State DOT plans? Q7. Inclusion of the ideas generated from the 21st Century Vision, Oahu Trans 2K, and related scoping meetings. Q8. Explanation of how ideas were filtered from the meetings to determination inclusion/exclusion from the proposal. Q9. Explanation of how the weight of different proposals was determined. Q10. The baseline plans for rail/trolley must be included, at least in the appendix.

8.9 Transportation Model Impacts

Q1. Which Travel Forecast models are used? Why? Q2. How sensitive are the models to changes in input? Which variables have the highest elasticity (smallest change in output, largest change in output, greatest chance the "desired plan" is the wrong plan)?

8.10 Community Impacts

Q1 How will the residential and business communities be affected by the building and operation of buses/rails traveling through their communities? Q2. Will the need for new transmission facilities result in commercialization of poorer neighborhoods (Economic Justice)? Q3. This following statement is a positive statement about rural lifestyles, right?? "Even something relatively simple like having streets without sidewalks can affect community character." Islandwide Mobility Concept Plan, page v. Q4. Can the public participate in the Draft/Final MIS?

8.11 Population Impacts

43 | Q1. What are the source of the growth projections? Q2. If the purpose of the Second City was to move people out of
44 | downtown, why are we trying to move more people into downtown?

8.12 Energy Impacts

45 | Q1. Shouldn't any project which would require new overhead lines automatically be rejected? Q2. Can electric buses be used?

8.13 Funding Impacts

46 | Q1 Does the amount of federal matching funds vary depending on the option chosen? Please elaborate.

8.14 Sustainability Impacts

47 | Q1. How do you define "sustainability"? "This Mobility Concept plan ... is not only sustainable over the long run, but absolutely necessary to shape an economically robust future for Oahu." Islandwide Mobility Concept Plan, page iv.

Mahalo for this opportunity to comment on this EISPN.

Henry Curtis

Henry Curtis
Executive Director
Life of the Land

DEPARTMENT OF TRANSPORTATION SERVICES
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD5/99-02555R

August 16, 2000

Mr. Henry Curtis, Executive Director
Life of the Land
1111 Bishop Street, Suite 503
Honolulu, Hawaii 96813

Dear Mr. Curtis:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 22, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided:

1. Chapter 2 discusses the full range of alternatives that have been considered. The build alternatives incorporate the use of bus priority lanes. They also include implementation of the State and County bicycle master plans. A bicycle lane alternative would not satisfy all of the travel markets and growth in travel demand that is expected through the year 2025.
2. Chapter 2 discusses the full range of alternatives that have been considered. The TSM and BRT Alternatives enhance bus and automobile efficiency to varying degrees. The features you suggest are included in the TSM and BRT Alternatives. Headways are described for each alternative in Chapter 2.
3. HOV enforcement is increasing.
4. Both SDOT and DTS have developed master plans to enhance the network of bicycle facilities and increase bicycling as a serious transportation mode for some travel markets. Improvement of bicycle facilities is included in all of the alternatives. However, bicycles alone cannot accommodate the existing and projected travel demand, and are not appropriate for all travel markets. The TSM and BRT Alternatives are multimodal alternatives that increase pedestrian, bicycle and disabled access to transit and other alternative modes.

5. The project planning was based on assumptions about future growth, as detailed in Chapter 4, which discusses the traffic modeling.
6. Impacts are discussed in Chapter 4 and 5, and are summarized in the Executive Summary.
7. Cumulative impacts are addressed in Section 5.13.1.
8. Air quality impacts are discussed in Section 5.5. Cumulative impacts are discussed in Section 5.13.1.
9. Water resource issues are addressed in Section 5.8. Cumulative issues are addressed in Section 5.13.1.
10. This document describes three reasonable transportation alternatives. The City Council will consider various factors in selecting the Locally Preferred Alternative (LPA).
11. Sections 3.3 and 5.3 discuss the communities in the Primary Urban Center (PUC) and how they may be affected by the project.
12. Section 5.1 discusses redevelopment potential for Kakaako and other areas.
13. One of the purposes of transit is to focus growth by encouraging increased density. Total growth would be constant across all alternatives. The project schedule is provided in Section 2.5.
14. The financing plans for the alternatives are described in Chapter 6. Financing comes from a variety of sources, including federal and State grants, user fees, and proceeds from municipal bonds.
15. Potential impacts on communities are addressed in Sections 3.3 and 5.3, and also in Section 5.13.
16. Future levels of travel activity have been predicted based on accepted government projections that included the development projects you named.
17. Redevelopment of waterfront areas is not included in the alternatives discussed.
18. Yes. Predictions of future travel activity levels included assumptions about increases in tourism and other economic activities.
19. The following sections describe various types of impacts: Section 5.5 discusses air quality impacts, Section 5.6 discusses noise impacts, Section 5.8 discusses water quality, and Section 5.4 discusses visual impacts. The Enhanced Bus Alternative is similar to the TSM Alternative.
20. Potential noise impacts are addressed in Section 5.6.
21. The visual environment and potential impacts are addressed in Sections 3.4 and 5.4.
22. Chapter 4 discusses the potential traffic impacts of each of the proposed alternatives, including vehicle hours of delay (VHD). The project itself is intended to help alleviate the traffic problems of the island, especially in the PUC. Increasing the people-carrying capacity of existing roadway lanes is a policy that would reduce gridlock.
23. A fully grade-separated transit system was considered but rejected, as discussed in Section 2.6.

24. Privatization speaks to how bus service is provided, not the level of bus service, per se. Privatization alone would not be expected to affect levels of roadway congestion. However, the TSM and BRT Alternatives provide for the privatization of selected bus services.
25. The commercial uses along Nimitz Highway and Dillingham Boulevard require two-directional vehicular access. If these roads were converted to one-way access, the circuitous routes that would be required would increase regional levels of congestion.
26. These and other Transportation Demand Management (TDM) measures are included in all of the alternatives.
27. Section 2.5 discusses the project timeline.
28. By rewarding people with travel time savings, parking discounts, and subsidized vehicles, programs such as Vanpool are expected to induce ridesharing. The intent of the zipper lane is also to reward people who rideshare with travel time savings. We hope that the travel time savings will induce people to use the zipper lane.
29. The Sand Island analysis has been shifted to the Oahu Regional Transportation Plan (ORTP).
30. Once the City Council selects the LPA, the State and the City will work together to implement the different elements of the preferred alternative.
31. The Sand Island analysis has been shifted to the ORTP.
32. Yes.
33. The analysis of future travel demand and existing infrastructure capacity indicates that the major shortfall in transportation capacity extends from the PUC to the Ewa area.
34. The PUC is so important in terms of islandwide trip generation and trip attraction that transportation planning for the PUC cannot be limited to only the PUC. Connections between the PUC and other parts of the island must also be considered.
35. The acceptance criteria are described in various rules, regulations, and guidances. Plan conformance is addressed in Section 5.1.3.
36. The Oahu Trans 2K meetings have been summarized and those summaries are included in Appendix A. Chapter 2 discusses how these ideas were screened and utilized.
37. The evaluation of the alternatives is provided in Chapter 7.
38. Rail is not an alternative considered under this Major Investment Study/Draft Environmental Impact Statement. The alternatives are described in Chapter 2. Conceptual plans are provided in Appendix B.
39. Potential impacts on communities are addressed in Sections 3.3 and 5.3, and also in Section 5.13.
40. Environmental justice issues are addressed in Section 5.3.5.
41. The statement is neither positive nor negative.
42. Appendix A summarizes the efforts that have been made to provide opportunities for public participation.

43. As described in Chapter 1, Section 3.1, and Section 4.2.5, the Department of Business, Economic Development, and Tourism (DBEDT) is the source of the growth projections.
44. The project does both. The project will improve transportation connections between Downtown and Kapolei. It is both State and City policy to direct growth to both cities.
45. No overhead lines would be required under any of the alternatives. The BRT Alternative includes the use of electric vehicles.
46. Yes, different federal funding lines have different restrictions, as described in Chapter 6.
47. There are many definitions, but applying that to a transportation project means saving energy and encouraging compact land use development patterns.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

May 3, 1999

City and County of Honolulu
Department of Transportation Services
711 Kapiolani Blvd., Suite 1200
Honolulu HI 96813

Attn: Kenneth Hamayasu

Dear Mr. Hamayasu:

Subject: EISPN for Honolulu Primary Transportation Corridor Improvements

In response to the notice of preparation of an EIS that appeared in the April 23, 1999, Environmental Notice, I have the following comments.

In developing plans for transporation improvements, I believe the following should be taken into account:

1 | 1) Scenic viewplanes;
2 | 2) Whether the improvements will encourage or discourage urban sprawl and encroachments into rural areas;
3 | 3) Emissions produced by the various options;
4 | 4) Whether the improvements will encourage more vehicular traffic (as, say, road improvements tend to do) or will discourage use of automobiles for commuting.

Thank you for your attention to my concerns.

Sincerely,

Patricia Tummons

Patricia Tummons

187-C Hokulani Street
Hilo HI 96720

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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD5/99-02206R

August 16, 2000

Ms. Patricia Tummons
187-C Hokulani Street
Hilo, Hawaii 96720

Dear Ms. Tummons:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 3, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided.

1. The visual environment and potential impacts on scenic viewplanes are addressed in Sections 3.4 and 5.4.
2. Potential impacts on communities are addressed in Sections 5.3 and 5.13.
3. Air quality impacts are discussed in Section 5.5.
4. Chapter 4 discusses traffic modeling.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

Douglas Meller
2749 Rooke Avenue
Honolulu, HI 96817

email: meller@hgea.org

RECEIVED
'99 MAY 25 P2:06

May 24, 1999

Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard Suite 1200
Honolulu, Hawaii 96813

Subject: Primary Corridor Transportation Project
Environmental Impact Statement (EIS) Preparation Notice

Dear Mrs. Soon:

These are personal comments. They have not been encouraged, reviewed, or approved by my employer.

I request that the Draft EIS consider the following alternatives:

1 | 1. Eliminating bus stops to improve bus operating speeds. (It is inefficient to have bus stops a few hundred feet apart.)

2 | 2. Chartering and/or subsidizing private buses and ferries for peak period transit. (The City's current private bus charters and the State DOT's proposed ferry demonstration project will provide useful data.)

3 | 3. Regulating public and private parking charges to encourage car-pooling and use of public transit. (Other cities regulate parking charges to reduce traffic.)

4 | 4. Providing light rail and/or bus rapid transit without a Sand Island Bypass. (Because of cost and impacts, decisions about a Sand Island Bypass should be "uncoupled" from decisions on transit alternatives.)

I also request that the Draft EIS compare the various alternatives in terms of the following impacts:

5 |
1. peak and off-peak transit/bus travel time between several screenlines.
2. peak and off-peak private vehicle travel time between several screenlines.
3. peak and daily vehicle trips across several screenlines.
4. peak and daily person-trips across several screenlines.
5. per cent of Oahu voters who will rida public transit.

Sincerely,

Doug Meller

Douglas Meller

cc: Office of Environmental Quality Control

a:\PCOR1

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPDS/99-02583R

August 16, 2000

Mr. Douglas Meller
2749 Rooke Avenue
Honolulu, Hawaii 96817

Dear Mr. Meller:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated May 24, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS). Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided:

1. All alternatives and the proposed stops are described in Chapter 2. Both the City Express! and the Country Express! Services are limited-stop bus services, and more limited stop services will be provided under the Transportation System Management (TSM) and Bus Rapid Transit (BRT) Alternatives.
2. All alternatives are discussed in detail in Chapter 2. The TSM and BRT Alternatives include incentives for HOV vehicles (carpooling), and other measures to enhance the operational efficiency of the existing transportation network including private sector transit services (using unused equipment and capacity).
3. Project alternatives are defined in Chapter 2. At this point, regulation of parking fees are not included in the alternatives that received detailed analysis in the MIS/DEIS.
4. The Sand Island analysis has been shifted to the Oahu Regional Transportation Plan.

5. Chapter 4 discusses traffic modeling.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

DECISION ANALYSTS HAWAII, INC.
BRUCE STEVEN PLASCH, President

QUANTITATIVE CONSULTING SERVICES: Economic • Financial • Demographic • Statistical

JUN – 9 :::

June 8, 1999

Ms. Cheryl Soon, Director
Department of Transportation Services
CITY & COUNTY OF HONOLULU
711 Kapiolani Boulevard
Honolulu, HI 96813

Re: "O'ahu Transit 2K, Islandwide Mobility Concept Plan"

Dear Cheryl:

I am sending the following suggestions and comments on "O'ahu Transit 2K, Islandwide Mobility Concept Plan" in response to a recent presentation by the Parsons Brinckerhoff/Carter & Burgess Team to the Land Use and Transportation Committee of the Chamber of Commerce.

For the most part, this is an excellent and informative document. However, some of the assertions which are made to support arguments are inaccurate or overstate the situation, thereby undermining the credibility of the report and the overall planning effort. My comments focus on the shortcomings within the document, rather than on the "good" parts. As such, these critical comments and suggested additions do not reflect my overall impression of the document, which is favorable.

Many of my comments address assertions made in the Concept Plan about the economic, social, and environmental costs of sprawl and our reliance on automobiles. While I am not advocating an increased reliance on automobiles or increased sprawl, it is important, for the sake of good planning, to prevent half-truths and fiction from becoming accepted as fact.

- **Definition of "Sprawl"**

  In view of the extensive use of the term "sprawl" in the report, a clear definition of it is in order. For example, is Mililani an example of suburban sprawl which should be discouraged, or is it the type of compact development which should be encouraged? 1

1655 Kamole Street • Honolulu, HI 96821 • Office: (808) 373-9364 • Fax: (808) 373-9590 • E-mail: bplasch@hawaii.rr.com

- **Sprawl vs. Centralized Development**

  On page 2, the observation that "widespread urban and suburban sprawl" seems to be contradicted by the more accurate statement on page 9, "O'ahu's development pattern is highly centralized." This compactness is the result of deliberate land-use policies originated in the 1960s and 1970s—policies which were designed to protect the lands farmed by O'ahu Sugar Co., Ltd., limit growth in rural communities, and protect environmentally sensitive areas. 2

- **Benefits and Costs of Sprawl vs. Compact Development**

  The discussions in various sections on the benefits and costs of sprawl versus compact development present only one side of an ongoing and as-yet-unresolved debate. A cogent summary of the issues is provided by Dowell Myers and Alicia Kitsue, "The Debate Over Future Density of Development: An Interpretive Review," 1999. This paper can be downloaded from the Lincoln Institute (www.lincolninst.edu). 3

  Also, much of this discussion seems academic in that many key development decisions have already been made by the City and the State.

- **Economic Decline of Commercial Areas**

  On page 2, the following statement is made: "The economic patterns generated by automobile dependence contributes [sic] to the decline of neighborhood retail and office districts and the small businesses that formerly thrived in them." Which communities have suffered a decline because of dependence on the automobile? If, from page 10, Kaimuki is the example, I disagree; local businesses adjusted to the development of the H-1, and the area exhibits considerable economic health. 4

- **Development and Service Costs**

  The statement on page 2 that "sprawl has resulted in extremely high costs to provide streets, utilities, schools, parks, police and fire protection, and other services to a far-flung population." While this is true, two comments are in order. First, *suburban* development of densities significantly higher than the housing densities which are selling in 'Ewa and Central O'ahu risk rejection by potential homebuyers. 5

  Second, as a general rule, the overall cost of suburban development falls between the costs of urban in-fill and urban redevelopment.

  In-fill development is generally the least expensive form of development, provided that: large vacant parcels are available in sufficient size to allow economies of scale, the terrain is relatively level, soils can accommodate foundations, access is adequate, existing infrastructure is relatively new and has excess capacity, restrictive building practices will not be imposed (e.g., restricted hours to protect neighbors from noise), etc. Based on my work, the supply of such land within the Primary Urban Center (PUC) is quite limited.

On the other hand, redevelopment within the PUC can be quite expensive, particularly when: a premium must be paid to assemble small parcels, usable structures must be purchased then torn down and removed, infrastructure must be replaced due to age and/or inadequate capacity, and construction practices must minimize adverse impacts to neighbors. 5

- **Infrastructure Financing**

On page 8, it is stated that older established neighborhoods must subsidize the high cost of infrastructure development in outlying (i.e., suburban) areas because "...sprawl does not support itself through the additional [tax] revenue it generates..."

To the best of my knowledge, no in-depth study exists to support this claim. The studies which do exist are for mainland communities, the findings of which cannot be safely generalized to Hawai'i because of different financing approaches and tax structures.

Furthermore, the argument is open to challenge based on the fact that developers in 'Ewa and Central O'ahu, and in turn new home buyers, are financing most of the required infrastructure development—either directly or through various charges. In addition, the State receives the equivalent of a large up-front exaction in the form of excise taxes on the sales of homes and on construction expenditures. Also, much of the City's CIP funding has been for projects in *established* neighborhoods and for projects which serve residents islandwide. Although my findings on this subject are limited somewhat by data shortcomings, they are summarized in "Cost to Government of Supporting New Development in 'Ewa and Central O'ahu," May 1995, which is on file with the City. 6

- **City Policy on Urbanizing Agricultural Lands**

The statements on pages 8 and 13 regarding the need to protect prime agricultural land from residential sprawl appears hypocritical in view of recent City actions. Past government policy has been to direct development to the marginal agricultural lands in 'Ewa while protecting 'Ewa's "Golden Triangle," which encompasses some of the best farm land in the State. Rather than continuing the policy of protecting this prime agricultural land, the City's most recent Development Plan for 'Ewa supports urbanizing this land. 7

- **Economic and Environmental Costs of Urbanizing Agricultural Lands**

On page 8, the following statement is made: "If left unchallenged, this trend towards 'residential sprawl' [onto agricultural lands] could create serious economic and environmental problems."

While prime agricultural land should be protected, the reality is that urbanization of agricultural land results in a relatively small economic loss for two reasons. First, ample land is available for agriculture due to the enormous contraction of plantation agriculture—even with extensive urbanization, the supply of agricultural land would 8

still exceed the demand. Second, per acre returns and employment from agriculture are small compared to most urban uses of land.

Furthermore, farming is not free of adverse environmental impacts. Typically, suburban development of farm land results in less pollution, not more.

- **Factors Affecting Suburban Growth**

The fifth paragraph on page 9 attributes growth in Central, Windward, and East O'ahu "...at least partially to transportation policies that favored the automobile over other forms of transportation." To be fair, growth in these areas also reflected deliberate State and City development policies from the 1960s to the present, as well as strong consumer preferences for single-family homes. 9

- **Credit for Affordable Housing**

On page 10, the following statement is made: "Due to prior government policies, most new affordable for-sale housing is found in 'Ewa and Central O'ahu." The second part of this sentence would have been true even without government intervention. Lower housing prices are required to attract a large number of new home buyers in outlying areas which typically lack the full complement of jobs, stores, services, recreational opportunities, etc. However, government intervention did change the *mix* of housing in 'Ewa and Central O'ahu, but this change in mix occurred at the cost of slowing development of these projects and increasing the price of market housing islandwide.

- **Strategy for the PUC**

On page 10, a statement is made to the effect that approximately 44,000 new homes will have to be developed in the PUC over the next 20 years (about 2,200 new homes per year). This number of new homes within the PUC, plus homes to replace those which will be lost to redevelopment, appears somewhat high for the following reasons: 10

- — O'ahu has yet to break out of its anemic economic growth
- — The PUC appears to lack sufficient vacant land that is suitable for substantial new development.
- — Redevelopment will be slow and costly, and is likely to be opposed by many residents in the affected communities.

Regardless of the number of homes planned for development in the PUC, many neighborhoods are in very poor condition and should be redeveloped. The challenge will be to redevelop to higher densities with attractive projects that preserve ocean and mountain views; this has not been the case with a great many past projects.

- **Land-Use Implications**

The document correctly argues that transportation has had a profound impact on the form and type of development on O'ahu. Presumably, the analysis of transporta- 11

tion alternatives will address the likely impacts on future development patterns, including impacts on both residential development and job creation in the PUC and outlying areas. Depending upon the transportation alternative selected, increased mobility could accelerate residential development in outlying areas while concentrating job creation in the PUC, thereby thwarting the balanced development planned for 'Ewa.

12

Along these same lines, it should be made very clear to residents that they are choosing far more than a transportation system: they are also choosing a related land-use development scheme. Such clarification is particularly important for those communities which will experience extensive changes, possibly because they are to be redeveloped to higher densities.

- **Implementation of the Plan**

As the consulting team is surely aware, it is important to go beyond the desires of the community to dispassionately and realistically assess what can actually be implemented successfully. For example, major components of land-use and transportation plans from the 1960s, 1970s, and 1980s were eventually abandoned or reversed as a result of changing values, unacceptable costs, market rejection, and/or community opposition—thereby contributing to some of today's problems. Examples of government plans which were ultimately rejected or reversed include:

12

— land use plans to direct residential, resort and commercial development to East Honolulu, Windward O'ahu, the North Shore and Wai'anae in order to preserve low-rise development in the PUC and to protect agricultural lands in 'Ewa and Central O'ahu;
— redevelopment of the PUC with low-rise garden apartments so as to protect rural communities and prime agricultural lands;
— development of the marginal agricultural lands in 'Ewa while protecting the prime agricultural lands;
— a second cross-town freeway;
— a highway around Kaena Point; and
— a mass transit system.

- **Implications of Computers and Electronic Communications**

Continuing rapid advances in computers and electronic communications are likely to have significant and possibly profound implications on travel and development patterns. Regardless of location, current technology allows near instantaneous exchanges of documents, inexpensive video conferencing, access to research materials, etc. As a result, many workers are being freed from spending long hours in town, and so may choose to live in suburban and rural communities.

13

The implications of how this technology will affect travel and development patterns should be addressed.

- **Extensive Network of Freeways**

For accuracy, the statement on page 34 regarding the existence of an extensive network of freeways should be written to include highways. Most people would not regard three freeways as an "extensive network."

14

- **Benefits and Costs of Automobile Travel**

On pages 2 and 3, the material on the benefits and costs of automobiles comes across as biased, since it recognizes the high costs associated with automobiles but does not acknowledge the many personal benefits which may justify the high costs, such as: faster door-to-door travel, travel to destinations not served by transit systems, fast and convenient travel to multiple destinations, the ability to transport large items safely (e.g., groceries and recreational equipment on weekends), etc. Personal time saved and increased mobility can translate into a more productive workforce.

15

A balanced transportation plan must take into account the benefits and the costs of various alternatives, not just the cost of one and the benefits of another.

- **Area Required for Home-Based Vehicles**

On page 11, it is stated that 350 square feet are required to accommodate each home-based vehicle, for a total of 2,800 acres of space needed for all the home-based vehicles in the PUC.

The requirement of 350 square feet per automobile corresponds to a two-car garage for each vehicle. Is this correct? Is this based on one parking space at home and a second one at a destination?

16

Even if this figure is correct, it should be made clear that the 2,800 acres of space does not correspond to 2,800 acres of land used only for parking. Because of shared use, the effective land area is much smaller. For example, many homes have rooms or decks over garages, and many parking structures feature multiple stories.

- **Marginal vs. Sunk Costs Associated with Automobile Travel**

Because of their many benefits, most families will choose to own one or more automobiles. Once ownership occurs, many of the costs associated with car ownership are "sunk" costs which will have no bearing on the decision to commute to work by car or by some other mode of transportation because they must be paid regardless. Sunk costs include the cost of the car itself, automobile insurance, the cost of the home garage, the cost of roads, etc. These last two costs occur even without automobile ownership.

17

The automobile costs which affect one's choice of transportation mode are the much lower marginal costs, including the dollar cost of fuel and parking, and the time cost of door-to-door travel.

The analysis should address both the total costs and the marginal costs of the various transportation alternatives.

- **Unused Equipment and Capacity**

  Greater effort should be expended on using Honolulu's unused transportation equipment and capacity to help resolve transportation problems. This might include some of the tourist buses and vans which go unused during peak commuter periods, particularly in the early morning. 18

  Also, most cars travel during rush hour with three empty seats. Theoretically, capacity exists for over a three-fold increase in the number of commuters with no increase in the number of automobiles on the road.

- **Road Pricing**

  Highway capacity is a scarce resource which, in congested areas, is allocated to those commuters willing to suffer travel delays while other commuters adjust their schedules to travel before or after rush hour in order to avoid the delays.

  Like other scarce resources, most economists would argue that sensible road pricing during rush hour would be a better approach to allocating scarce highway capacity. The objective would be to maintain a good flow of traffic at all times by providing an *economic* incentive designed to induce commuters to (1) double up, thereby reducing the cost to these commuters while also reducing the number of cars on the road; (2) travel by express bus; (3) avoid the trip by using electronic communications; (4) travel at a different time; etc. Such an economic solution, in combination with other transportation alternatives, may be more effective and far less expensive than a purely engineering solution. 19

  This alternative should be presented, along with an honest assessment of its merits. The challenge will be to design an approach that is *politically* acceptable because it works better than other alternatives, and is regarded as fair.

I hope that these comments are helpful.

Yours truly,

Bruce

Bruce S. Plasch
President

cc: R. Bramen, Parsons Brinckerhoff/Carter & Burgess Team
D. Bunda, Leeward Oahu Transportation Management Association

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD6/99-02858R

August 16, 2000

Mr. Bruce S. Plasch, President
Decisions Analysts Hawaii, Inc.
1655 Kamole Street
Honolulu, Hawaii 96821

Dear Mr. Plasch:

Subject: Primary Corridor Transportation Project

Thank you for your letter dated June 8, 1999, regarding the Environmental Impact Statement (EIS) Preparation Notice, Primary Corridor Transportation Project.

Your comments are appreciated and will be included in the Major Investment Study/Draft Environmental Impact Statement. Enclosed is a copy of your written comments, which have been numbered. The following responses to your comments are provided.

1. Sprawl typically means land-intensive, low-density, single-family, unattached, residential developments that are located far from employment centers.
2. The current land use patterns on Oahu contain elements of both sprawl and centralized development. There is no contradiction.
3. If present patterns of sprawl continue, Oahu's open green spaces would all be converted to low-density residential developments. Therefore, in order to keep the country country, more compact forms of land development are necessary.
4. Socio-economic data is provided in Section 3.3. Comment noted.
5. Higher density developments can be affordable and attractive, as has been demonstrated many times on the mainland and throughout the world. Oahu is not large enough to accommodate unconstrained growth, while still preserving the natural values treasured by residents and visitors.
6. The outreach conducted for this project demonstrated widespread public support for the preservation of Oahu's natural values, which can occur only if sprawl is contained.
7. It is the desire to preserve prime agricultural lands that motivates the City to try to focus growth in designated areas such as Kapolei. If growth can be focused at Oahu's first and second cities, substantial prime agricultural land will remain on Oahu.
8. Continued agriculture on Oahu is part of the vision for the island articulated by the public in the Oahu Trans 2K outreach process.
9. The City is working with the State to develop consistent policies and investments that encourage concentrating growth in Oahu's first and second cities.

10. The vision for the PUC is being developed through the PUC DP update process now underway.
11. Sections 3.1 and 5.1 discuss the land use implications of the proposed project.
12. Section 2.5 provides the implementation schedule, and Chapter 6 provides the financing methods for all alternatives.
13. Experience to date has not shown a substantial impact of telecommunications on travel demand on Oahu.
14. Section 3.2 describes the existing transportation network in the study area.
15. The elements of benefits and costs, that are included in the cost-benefit analysis, are defined in Chapter 7. There are benefits and costs of automobile and transit travel that are not included in the cost-benefit analysis. There are multiple criteria upon which to evaluate the alternatives, and combining them all into a quantitative cost-benefit analysis is not appropriate.
16. Parking spaces per automobile typically range from 300 to 400 square feet, according to the Urban Land Institute and the National Parking Association's The Dimensions of Parking.
17. It is agreed that these costs should be recognized. However, continuing policies that facilitate automobile travel benefit only one segment of the population and have impacts on society at large and the environment that need to be considered.
18. Project alternatives are discussed in detail in Chapter 2. The TSM and BRT Alternatives include incentives for HOV vehicles (carpooling), and other measures to enhance the operational efficiency of the existing transportation network including private sector transit services (using unused equipment and capacity).
19. Transportation Demand Management (TDM) programs are included in the alternatives, but are not expected to address projected increases in travel demand fully in the primary transportation corridor. The advantages of efficient transit would encourage people to use their cars less. The use of specific disincentives and education programs on alternative transportation is a policy decision to be made by the City Council.

Should you have any questions regarding the project, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

Enclosure

cc: Parsons Brinckerhoff Quade & Douglas, Inc.

A copy of the following August 21, 2000 letter from the Department of Transportation Services to participants at the May 11, 1999 scoping meeting letter was sent to the following on August 22, 2000:

Mr. W. K. Luke
1848 Puowaina Drive, Suite F
Honolulu, Hawaii 96813-1706

Ms. Darrlyn Bunda
95-1523 Ainamakua St., #95
Mililani, Hawaii 96789

Ms. Linda Starr
Kuilouou/Kalani Iki N.B. No. 2
P.O. Box 240310
Honolulu, Hawaii 96824

Mr. Dick Poirier
95-584 Naholoholo Street
Mililani, Hawaii 96789

Mr. Clifton Takamura
2249 Date Street, #3
Honolulu, Hawaii 96826

Mr. Richard Port
1600 Ala Moana Boulevard, #3100
Honolulu, Hawaii 96815

Mr. Jim Yamamoto
R.M. Towill Corp.
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii 96817

Ms. Michelle Matson
3230 Collins Street
Honolulu, Hawaii 96815

Ms. Mary Steiner
The Outdoor Circle
1314 S. King Street, Suite 306
Honolulu, Hawaii 96814

Mr. Wendell Lum
45-135 Liilipuna Road
Kaneohe, Hawaii 96744

Ms. Shannon Wood
P.O. Box 1013
Kailua, Hawaii 96734

Ms. Lynne Matusow
60 N. Beretania Street, #1604
Honolulu, Hawaii 96817

Ms. Pamela Young
P.O. Box 4444
Honolulu, Hawaii 96812

Mr. Richard Quinn
1133 Waimanu Street, #1104
Honolulu, Hawaii 96814

Ms. Christen Mitchell
3071 Pualei Circle, #104
Honolulu, Hawaii 96815

Mr. William Rosa
3578 Alohea Avenue
Honolulu, Hawaii 96816-2261

Mr. Todd Boulanger
Na Kama Hele
P.O. Box 22424
Honolulu, Hawaii 96823-2424

Mr. Brian Yoshida
Moanalua Valley Community Association
1425 Ala Aolani Street
Honolulu, Hawaii 96819

Mr. Donald Lubitz
P.O. Box 418
Honolulu, Hawaii 96809-0418

Mr. Milton Ragsdale
2426 Armstrong Street
Honolulu, Hawaii 96822

DEPARTMENT OF TRANSPORTATION SERVICES
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD00-00414

August 21, 2000

Dear Participant:

Subject: Primary Corridor Transportation Project

On May 11, 1999, you participated in a public scoping meeting on the Primary Corridor Transportation Project at Washington Middle School. The function of the scoping meeting was to invite public comment on the purpose of and need for the project, the alternatives under consideration and the environmental studies to be conducted.

The oral and written comments we received that evening or shortly thereafter are summarized in the attached table along with responses to the issues raised. Many of the responses reference further information that is provided in the Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS) for the project, which will be released shortly. Your comments were important input to the development of the MIS/DEIS.

The MIS/DEIS document will be available for your review at various libaries and at the Department of Transportation Services after August 23, 2000. Should you have comments on the MIS/DEIS, please submit them by November 6, 2000.

Thank you for working with us to develop transportation solutions for our island. Should you have any questions regarding the Primary Corridor Transportation Project, please contact Faith Miyamoto at (808) 527-6976.

Sincerely,

CHERYL D. SOON
Director

Attachment

SUMMARY OF COMMENTS RECEIVED AT THE AGENCY INFORMATION AND SCOPING MEETINGS

Name and Organization	Comment	Response
Darrlyn Bunda, Leeward Oahu Transportation Management Association	Favored extending the LRT alignment to Waiawa Interchange.	The BRT Alternative, which has since replaced the LRT Alternative, has an In-Town component that goes as far as the Middle Street Interchange. There is an additional Regional BRT component that would service riders as far as Ewa/Kapolei.
	Waiawa Interchange needs to be reconfigured to serve buses/HOVs and to provide better access to the community, such as Leeward Community College.	Under the BRT Alternative, H-1 around the Waiawa Interchange would be widened and improved with a PM zipper lane. Section 2.2.3 discusses this and other improvements to the existing freeway system in detail.
Todd Boulanger, Na Kama Hele	Requested analysis of how the alternatives integrate bicycling and pedestrian trips.	Both SDOT and DTS have developed master plans to enhance the network of bicycle facilities and increase bicycling as a serious transportation mode for some travel markets. Improvement of bicycle facilities is included in all of the alternatives, although the BRT Alternative would do the most to improve bicycle facilities. However, pedestrians and bikes alone cannot satisfy all of the travel markets that must be accommodated. Chapter 1 discusses the project's purposes and needs, which include making the PUC more pedestrian friendly, and Chapter 4 discusses all modes of transportation. Investments in transit systems promote the pedestrian and bicycles modes as viable modes of travel. DTS will also continue to support programs to foster alternative transportation, such as the hub-and-spoke bus system and traffic calming, and Vanpool.
	Requested consideration of biking as a low cost area circulator.	Both SDOT and DTS have developed master plans to enhance the network of bicycle facilities and increase bicycling as a serious transportation mode for some travel markets. Improvement of bicycle facilities is included in all of the alternatives. Pedestrians and bikes are very much a part of the TSM and BRT Alternatives, but they alone cannot satisfy all of the travel markets that must be accommodated.
	Requested analysis of bikes and pedestrian access impacts along certain corridors, such as the tunnel, King Street and Kapiolani Boulevard.	Bicycle and pedestrian access is described in Sections 4.5 and 4.6.
	Requested analysis of impacts to the safety of pedestrians and cyclists from articulated buses as opposed to shorter or double deck buses.	Bicycle and pedestrian access is described in Sections 4.5 and 4.6.
	Questioned predicted reduction of regional vehicle miles traveled (VMT) from the project.	Extensive traffic modeling was done as part of the planning process. See Chapter 4 for details.
	Requested that disincentives to driving (e.g., road pricing, etc.) be included as alternatives, as well as measures to make walking as the preferred mode within the city.	Travel Demand Management (TDM) programs are included in the alternatives, but they are not expected to fully address projected increases in travel demand in the primary transportation corridor. Improved transit service would encourage people to use their cars less. The use of specific travel disincentives is a policy decision to be made by the City Council.

Name and Organization	Comment	Response
Todd Boulanger, Na Kama Hele	Requested analysis of air and water quality impacts.	Impacts to air quality and water quality are discussed in Sections 5.5 and 5.8, respectively.
	Requested analysis of the socio-economic and environmental impacts on poor families having to depend on automobiles for their transportation.	Environmental justice issues are addressed in Section 5.3.
	Requested that the project conducts a more extensive and diverse public outreach program for scoping, and gave suggestions on how this can be accomplished.	Appendix A summarizes the efforts that have been made to provide opportunities for public participation. Comments from the public are welcome at any point. However, to be part of the official record, comments on the Draft EIS need to be made by the close of the comment period on the Draft EIS.
	Requested analysis of how bus fare increases affect future ridership, road congestion, land use, pollution, parking demand and the success the alternatives.	Financial plans are discussed in Chapter 6, and travel demand is discussed in Chapter 4.
Donald Lubitz	Suggested that right-of-way or corridor be reserved now in anticipation that an expanded transit system would be needed in the future.	Because of existing development patterns in the PUC, the rights-of-way of future transportation systems are primarily the existing transportation rights-of-way. This is why the need is to increase people-carrying capacity within the existing transportation rights-of-way.
	Suggested that the City transit system be used to support education programs for visitors and residents (e.g., provide transportation to education sites).	The PCTP would serve several travel markets, including students and visitors.
W-K Luke	Requested that public places of the project (e.g., transit centers) include amenities for socializing, and cultural elements consistent with area (e.g., Chinatown).	Transit centers and other public spaces included in the project would be designed to be pedestrian-friendly and contribute to a sense of community. Transit centers and stops in special districts such as Chinatown would be designed to blend in and enhance the existing cultural setting.
	Requested spot improvements to improve bus service.	Refinements to the existing bus system are made on an ongoing basis as the need arises.
Wendell Lum	Requested cost and funding information and analysis of impacts to the economy.	A financial analysis is provided in Chapter 6. Impacts on the economy are discussed in Section 5.1.
	Suggested that transportation investment be in the Central and Leeward areas where residential growth is occurring.	Transportation investments will be made throughout the primary transportation corridor. These investments are intended to help facilitate growth in Ewa and the PUC.
Christen Mitchell	As part of the No-Build, suggested a mixed-use land use pattern, and a continuous bikeway through the corridor.	The transportation improvements contained in the No-Build Alternative would do less than the other alternatives to help foster a mixed land use pattern. The transportation improvements in the No-Build would encourage continued suburbanization and loss of open space. The bicycle facilities in the existing State and County Bicycle Master Plans are included in the No-Build Alternative.
	Suggested private-public partnerships for mixed-use development at transit stations.	There are several ways to encourage "joint development" at transit centers and transit stops. Public-private partnerships are certainly being considered.

Name and Organization	Comment	Response
Christen Mitchell	Requested analysis of transportation malls' impact on the surrounding community, pedestrian access, safety and crime, and landscaping.	The social impacts of the project on the neighborhoods is discussed Section 5.3. Pedestrian access issues are addressed in Section 4.6. Landscaping issues are addressed in Section 5.7. In general, transit centers and transit stops are intended to help focus growth along the alignment and help develop a pedestrian and transit-oriented setting.
	Criticized advertising for the scoping meeting.	Appendix A summarizes the efforts that have been made to provide opportunities for public participation, including comments from the business community.
	Critical of overhead wires and motorized ferries on the Ala Wai.	Neither overhead lines nor ferries on the Ala Wai are proposed as elements of the PCTP.
Michelle Matson	Requested that potential impacts to businesses be considered in planning the project.	General economic impacts are discussed in Section 5.1. Chapter 4 discusses impacts on parking areas and loading zones.
	Supports Sand Island Bypass and Nimitz Parkway elements of the project for waterfront development.	The Sand Island component of this project is being addressed in the current update to the Regional Transportation Plan. It is not part of this project at the current time.
Lynne Matusow	Requested deleting the LRT and Ala Moana Waterfront Loop elements from the alternatives.	The LRT Alternative has been replaced by the BRT Alternative. The Ala Moana Waterfront Loop is no longer part of the project.
	Suggested a transit system similar to Curitiba, Brazil.	The In-Town BRT system would be a transit system similar to Curitiba, Brazil, adapted to local conditions. The Curitiba situation is in some ways simpler because more space is available to construct new transportation systems.
	Project should consider that certain streets are used for parades and block parties.	The route of the In-Town BRT system would be modified to accommodate special events. This topic is discussed in more detail in Section 4.6.
	Does not favor the use of overhead wires for the LRT.	Overhead lines are not proposed as a part of the PCTP. The LRT Alternative has been replaced by the BRT Alternative.
	Transit improvements should be extended into Waikiki.	The In-Town BRT would extend throughout Waikiki.
Dick Poirier	Supported congestion pricing and other types of user fees, such as charging for accessing the HOV lanes, as a viable alternative.	Travel Demand Management (TDM) programs are included in the alternatives, but they are not expected to fully address projected increases in travel demand in the primary transportation corridor. Improved transit service would encourage people to use their cars less. The use of specific travel disincentives is a policy decision to be made by the City Council.
	Requested the Ewa terminus of LRT Alternative be extended to the Waiawa Interchange area.	The BRT Alternative would accommodate future phased extensions of the system if viable.
	Requested that alternatives for road pricing be studied.	Travel Demand Management (TDM) programs are included in the alternatives, but they are not expected to fully address projected increases in travel demand in the primary transportation corridor. Improved transit service would encourage people to use their cars less. The use of specific travel disincentives is a policy decision to be made by the City Council.

Comment	Response	Comment
Richard Port	Expressed concern about the cost of the alternatives, noting that revenues do not cover operating costs and that the transit system would compete with private operators.	Methods of financing the construction and operation of the alternatives are discussed in Chapter 6.
	Favors expanding the existing bus system, including use of articulated buses.	All of the alternatives would expand the bus system and use articulated vehicles. They vary by the degree and means that they would use to improve transit service.
Richard Quinn	Suggested decentralized transportation systems geared to individual neighborhoods because advances in technology would result in a greater degree of trips within the neighborhood for working and shopping.	While land use changes that would improve the ability of walking to satisfy more trip purposes are desired, walking alone is not expected to address all of the expected increase in travel demand.
Milton Ragsdale	Suggested new alternatives and modifications to certain elements of proposed alternatives - fixed rail along H-1 median from Pearlridge Shopping Center to Kahala Mall, with a subway from Middle Street Transit Center to Ala Moana, and a BRT connecting University/King Transit Center to Manoa Recreation Center or UH quarry area.	These suggestions would be less cost-effective than the alternatives currently under study. Chapter 2 discusses the evolution of the alternatives that receive detailed assessment.
	All BRTs and LRTs should have space or racks for bicycles.	Bicycles will be accommodated on the BRT vehicles.
William Rosa	Requested bus service be more frequent, and that traffic calming be used in downtown areas.	Chapter 2 describes the frequency of bus services for each of the proposed alternatives. The BRT Alternative would provide the greatest frequency of transit service. Traffic calming would continue to be an option wherever an opportunity for implementation is identified.
Linda Starr, Neighborhood Board #2, Kuliouou Kalani Iki	Does not favor special bus ramps- because it would waste resources.	Special bus ramps have been included in the BRT Alternative to decrease travel times for transit patrons.
	Requested studying metering at freeway on ramps.	The Hawaii Department of Transportation has been studying ramp metering.
	Feels that people from Kapolei to Pearlridge would not want to change modes, and that they would want the convenience of riding an express bus into town.	All of the alternatives include selected express routes. Some degree of transfers and modal switches would be necessary for the system to work cost-effectively.
Mary Steiner, The Outdoor Circle	Requested clarification on certain elements of the project, such as details of the transit centers, landscape plans, impact to street trees, and project limits.	Project elements are described in Chapter 2. Landscaping and impacts to trees would be minimized to the extent practicable, and are described in Section 5.7. Further details would be developed in subsequent planning after City Council selects an LPA.
	Criticized lack of public participation.	Appendix A details the extent of efforts made to solicit public participation.

Comment	Response	Comment
Clifton Takamura	Provided suggestions on how to improve existing bus system.	Improvements to the bus system occur on an ongoing basis.
	Suggested using the old OR&L right-of-way as an alignment..	The alignment of the OR&L right-of-way is not appropriate for modern, high-speed transit vehicles. Some of the right-of-way is being proposed for bicycle use.
	Asked whether the proposed transit system will be a moneymaker, and whether it will be used by visitors.	Publicly-funded transit systems are not intended to made a profit. Creation of a profit is not one of the project purposes. Both visitors and residents are expected to use transit under any of the alternatives.
	Favored a system that uses a combination of LRT and buses.	The LRT has been replaced by the BRT Alternative, which would have In-Town and Regional systems that combine traditional buses and more technologically advanced energy-efficient vehicles.
Shannon Wood	Suggested expansion of alternatives to include more freeways, water-based transportation, and expansion of LRT system to Mililani, Hawaii Kai and Waikiki.	Chapter 2 describes the evolution of the alternatives that receive detailed treatment in the MIS/DEIS.
	Requested impacts analysis in the event of a natural disaster, and if the price of fossil fuel rises substantially.	Improved transit would enhance mobility during a natural disaster and if fossil fuel prices rise substantially.
Jim Yamamoto	LRT system should serve Bethel Street.	The LRT has been replaced by the BRT Alternative. There would be a transit stop in the vicinity of Bethel Street.
	Requested analysis of why people drive.	People travel for many reasons, and these factors have been included in the travel demand forecasts prepared for this project.
	Suggested multi-modal efforts to address transportation issues.	The TSM and BRT Alternatives are multi-modal alternatives, as described in Chapter 2.
Brian Yoshida, Moanalua Community Association	Supported the LRT alternative, but would also like to see the project include roadway widening on the H1 Freeway, and extending the Nimitz viaduct to Downtown.	The LRT Alternative has been replaced by the BRT Alternative. The H1 Freeway widening and Nimitz viaduct have been or are being considered under separate projects.
	Requested analysis of disruption of traffic during construction, projected ridership of different alternatives, and projected fares for the LRT.	Construction-phase impacts, including impacts on traffic, are discussed in Section 5.12. Ridership projections are presented in Chapter 4. Fares and project financing plans are presented in Chapter 6.
Pamela Young	Additional right-of-way requirements should be disclosed.	Right-of-way requirements are discussed in Section 5.2.
	Questioned the need for LRT, especially since the Leeward and Central Oahu areas contain a third of Oahu's population.	The LRT Alternative has been replaced by the BRT Alternative. Chapter 1 discusses the need for the project. There is a substantial imbalance now and in the future between travel demand and transportation system capacity for travelers in the Primary Transportation Corridor, which includes Leeward and the southern portion of the Central District.

Comment	Response	Comment
Anonymous	Criticized the lack of opportunity for exchange of comments, questions and answers before the whole audience.	Comment noted.
	Expressed frustration on the lack of progress on needed transportation improvements.	DTS shares the commentors frustration about the lack of progress on this important quality of life issue.
	Supports a "traditional" looking LRT system rather than a "modern" looking LRT system.	The LRT Alternative has been replaced by the BRT Alternative. The final look of the BRT vehicles, if this alternative is selected, has not yet been selected.
Unknown, Agency	Will project be used to assist in urban planning?	Yes. Project is coordinating with current planning efforts to update the PUC DP, sustainability plans of other DP areas and the recently completed Ewa DP. Overall land use objectives are to encourage urban growth in the PUC and Ewa, and discourage suburban sprawl in other areas. Transportation is one tool to help facilitate these land use objectives. Improved transit service will make in-town living more attractive.
	Need land use controls to discourage/prevent gentrification around future transit stations	Will ensure that future development is consistent with community visions and desires.
	Is the third light rail transit LRT Alternative a first phase of the first and second LRT Alternatives?	The LRT Alternative has been replaced by the BRT Alternative.
	Does BRT Alternative include LRT from downtown to Waikiki?	None of the alternatives moving forward include LRT technology.
	Do any of the alternatives include service between the airport and Waikiki?	Ridership estimates will include all travel markets, including demand between the airport and Waikiki. However, addressing the airport/Waikiki travel market is not a major purpose of this project. Airport travelers would need to get to the Middle Street Transit Center to access the system.
	Is modifying the H-1 Zipper Lane to carry P.M. peak traffic possible?	Yes. The BRT Alternative includes a PM zipper lane.
	Is it possible to come up with defensible ridership projections?	Ridership projections are described in Chapter 4.
	Is there a cost per new rider threshold for receiving federal funds as a transit "new start"?	To receive federal funding, a project must be on the federal "new start" list. There are many rating criteria that score projects on the "new start" list, including cost per new rider. The FTA will use many other criteria, such as ridership, to evaluate the project. After determining eligibility, the project would compete with other transit projects across the nation for federal funds.
	Transit center locations in Waipahu should follow the Waipahu Special Area Plan.	There are no site-specific locations for the Waipahu transit centers. However, they will be located strategically to serve BRT treatments on Fort Weaver Road and other roadways.
	Has a site for the LRT maintenance yard for the Waikiki/Downtown line been selected?	The LRT Alternative has been replaced by the BRT Alternative. In-Town BRT vehicles would be maintained at the Middle Street Transit Center.

SUMMARY OF COMMENTS RECEIVED AT THE AGENCY INFORMATION AND SCOPING MEETINGS (CONTINUED)

Comment	Response	Comment
Unknown, Agency	Will lanes be used exclusively for the LRT?	The LRT Alternative has been replaced by the BRT Alternative. The In-Town BRT would use both exclusive and semi-exclusive lanes.
	Disagreed that communities do not want more lanes for automobiles.	Comment noted.
	Will there be any grade-separated sections for the LRT?	The LRT Alternative has been replaced by the BRT Alternative. No grade-separations are proposed.
	People are asking for a more balanced transportation system.	That is what this project is trying to accomplish. Chapter 1 describes the project purposes and needs in more detail.
	Will this project do anything to alleviate the problem of motorists using residential side streets to avoid congestion on the main arterial streets?	By enhancing transit service, more people would be encouraged to use transit instead of private automobiles.
	What are bus ramps?	Ramps that are restricted to buses and certain vehicles, such as vanpools. Their objective is to provide transit priority, thereby rewarding transit patrons with shorter travel times.
	The DPs contain lists of cultural assets and resources, and important viewplanes and visual resources.	The information in the DP's was used in the preparation of the MIS/DEIS.
	What are the costs of the alternatives?	Cost estimates are discussed in Chapter 2.
	What are committed projects?	Projects that are listed in the Oahu Regional Transportation Plan as proposed for completion by the year 2005.
	What is the time horizon for this project?	Planning is based on travel demand forecasts and land use projected for 2025.

Appendix A

Exhibit A-2

EXHIBIT A-2. COMMENTS AND RESPONSES REGARDING SDEISPN AND NOI

This exhibit includes the letters received in response to the Supplemental Draft Environmental Impact Statement Preparation Notice published in the August 23, 2001 The Environmental Notice. Each comment letter is followed by a response letter from the Department of Transportation Services.

Elected Official, Agency, or Organization	Comment Letter Date
UNITED STATES	
Senator Daniel Akaka, United States Senate	September 7, 2001
Department of the Army	August 30, 2001
Federal Aviation Administration	September 14, 2001
STATE OF HAWAII	
Office of Environmental Quality Control	August 22, 2001
Hawaii Community Development Authority	August 24, 2001
Commission on Water Resource Management	August 24, 2001
Department of Health	August 28, 2001and October 2, 2001
Department of Education	August 31, 2001
Land Use Commission	September 4, 2001
Department of Land and Natural Resources, State Historic Preservation Division	September 7, 2001and September 19, 2001
Department of Land and Natural Resources, State Parks Division	September 10, 2001
Housing and Community Development Corporation	September 12, 2001
Aloha Tower Development Corporation	September 21, 2001
Department of Accounting and General Services	September 21, 2001
University of Hawaii	September 21, 2001
CITY AND COUNTY OF HONOLULU	
Gary Okino, City Council	September 19, 2001
Police Department	September 12, 2001
Fire Department	September 13, 2001
Board of Water Supply	September 14, 2001
Department of Planning and Permitting	September 19, 2001
ORGANIZATIONS	
Harbor Square Condominium Association	September 21, 2001
Kakaako Improvement Association	September 21, 2001
Hawaiian Electric Company	October 4, 2001
COMMUNITY GROUPS	
Downtown Neighborhood Board	August 22, 2001
Waialae-Kahala Neighborhood Board	September 21, 2001
PRIVATE CITIZENS	
Wendell Lum	September 7, 2001
Charles Ferrell	September 13, 2001
Frederick Gross	September 18, 2001
P. Pasha Baker	September 21, 2001
Doug Meller	September 21, 2001

20 Sub St.

DANIEL K. AKAKA
HAWAII

WASHINGTON OFFICE
141 HART SENATE OFFICE BUILDING
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United States Senate

WASHINGTON, DC 20510-1103

MEMBER:
COMMITTEES:
ARMED SERVICES
ENERGY AND NATURAL RESOURCES
GOVERNMENTAL AFFAIRS
INDIAN AFFAIRS
VETERANS' AFFAIRS
SELECT COMMITTEE ON ETHICS

September 7, 2001

Ms. Cheryl D. Soon
Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, #1200
Honolulu, HI 96813

Dear Ms. Soon:

Thank you for providing me a copy of the City and County of Honolulu Department of Transportation Services' notification that it will be preparing a Supplemental Draft Environmental Impact Statement (DEIS) for the Primary Corridor Transportation Project.

I appreciate receiving this information and look forward to reviewing the final Environmental Impact Statement for this project.

Once again, mahalo for taking the time to share the Supplemental DEIS with me.

Aloha pumehana,

Daniel K. Akaka

DANIEL K. AKAKA
U.S. Senator

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "REDAY" MIYAMOTO
DEPUTY DIRECTOR

TP10/01-04519R

March 8, 2002

The Honorable Daniel K. Akaka
U. S. Senator
P. O. Box 50144
Honolulu, Hawaii 96850

Dear Senator Akaka:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 7, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO ATTENTION OF

August 30, 2001

Regulatory Branch

Ms. Cheryl D. Soon, Director
Department of Transjportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Thank you for the opportunity to review the Preparation Notice for the Supplemental Draft Environmental Impact Statement for the Primary Corridor Transportation Project, dated August 2001. The comments contained in my letter to you dated September 13, 2000 are still appropriate, and we have no additional comments.

If you have any questions concerning this matter, please contact William Lennan of my staff at 438-6986 or FAX 438-4060, and reference File No. 990000338.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP9/01-03889R

March 8, 2002

Mr. George P. Young, P. E.
Department of the Army
U. S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Dear Mr. Young:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your August 30, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter referred us to your September 13, 2000 letter, which had the following comment:

> "It is possible that some of the components of the project may require a Department of the Army (DA) permit; however, since the information provided is not sufficiently detailed to determine specific permit requirements. As the project elements progress to final design stages, we will be better able to advise you concerning permit requirements."

Coordination with the Army is continuing and at this time we do not believe the project will require a DA permit. The SDEIS does identify the required permits.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

U.S. Department of Transportation
Federal Aviation Administration

Western-Pacific Region
Property and Services Branch

P. O. Box 50109
Honolulu, Hawaii 96850-5000

September 14, 2001

Ms. Cheryl D. Soon
Director, Department of
Transportation Services
City and County of Honolulu
Pacific Park Plaza
711 Kapiolani Boulevard, Suite
1200
Honolulu, HI 96813

Dear Ms. Soon:

Your letter of August 16, 2001, requested our review of your Supplemental Draft Environmental Impact Statement (DEIS) for the Primary Corridor Transportation Project.

The Federal Aviation Administration has no comments regarding your Supplemental DEIS.

We appreciate this opportunity to review and comment on this project. Please contact me at 541-1236, if there are any questions.

Sincerely,

Darice B. N. Young
Realty Contracting Officer,
AHNL-54B

cc: Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

March 8, 2002

TP9/01-04114R

Ms. Darice B.N. Young
Realty Contracting Officer, AHNL-54B
Western Pacific Region
Federal Aviation Administration
U. S. Department of Transportation
P. O. Box 50109
Honolulu, Hawaii 96850-5000

Dear Ms. Young:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 14, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

GENEVIEVE SALMONSON
DIRECTOR

August 22, 2001

Cheryl Soon
Department of Transportation Services
711 Kapiolani Blvd., #1200
Honolulu, Hawaii 96813

Attn: Kenneth Hayamasu

Dear Ms. Soon:

Subject: Supplemental Environmental Impact Statement (EIS) Preparation Notice
Primary Corridor Transportation Project

We have the following comments to offer:

1. Pre-consultation comments: If you have received any comments during the pre-consultation stage, please include them with their responses in the draft EIS. Also include *synopses* of the community working group meetings that dealt with the proposed changes.

2. Acronyms: Please consider including a list of acronyms and abbreviations in the draft EIS. Such a list would be useful for the reviewer.

3. Permits and approvals: In the draft EIS indicate the status of each of the listed permits and approvals for this project. If a permit has not been applied for, give the expected date of application.

If you have any questions call Nancy Heinrich at 586-4185.

Sincerely,

GENEVIEVE SALMONSON
Director

c: Robert Bramen, Parsons Brinckerhoff

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TPD8/01-03722R

March 8, 2002

Ms. Genevieve Salmonson
Director
State of Hawaii
Office of Environmental Quality Control
235 South Beretania Street
Suite 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your August 22, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
If you have received any comments during the consultation stage, please include them with their responses in the draft EIS.	All comments and responses will be included in the SDEIS.
Also include synopses of the community working group meetings that dealt with the proposed changes.	A synopsis of the community working group meetings and resulting project refinements and proposed modifications will be included in the SDEIS.
Please consider including a list of acronyms and abbreviations in the draft EIS.	A list of acronyms and abbreviations will be included in the Appendix of the SDEIS.
In the draft EIS indicate the status of each of the listed permits and approvals for this project.	A list of permits and approvals and their status will be included in the SDEIS.

We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

Cheryl D. Soon
Director

HAWAII COMMUNITY DEVELOPMENT AUTHORITY

KAKAAKO

Benjamin J. Cayetano
Governor

Lori Ann C. Lum
Chair

Jan S. Yokota
Executive Director

File Nos.: GF COUN 5.17
PL TRANS 7.14

August 24, 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Thank you for transmitting the Supplemental Draft Environment Impact Statement of the Primary Corridor Transportation Project for our review and comment.

As you know, the Hawaii Community Development Authority development agenda calls for the development of several major public and private projects over the near future. These projects could add over 30,000 automobile trips per day at full build out. The traffic strategy for the Makai Plan called in part for the design of a "walkable community", one in which people could live, work and play without having to depend on an automobile. However, the key to success for such a community would be an efficient and affordable public transit system. BRT service for this area would provide that necessary public transit.

We therefore support your proposed additional alignment through Kakaako Makai.

Please feel free to call me if you have any questions.

Sincerely,

Teney K. Takahashi
Director of Planning and Development

TKT:gst
c: Office of Environment Quality Control

677 Ala Moana Boulevard
Suite 1001
Honolulu, Hawaii
96813

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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TPD8/01-03845R

March 8, 2002

Mr. Teney K. Takahashi
Director of Planning and Development
Hawaii Community Development Authority
State of Hawaii
677 Ala Moana Boulevard, Suite 1001
Honolulu, Hawaii 96813

Dear Mr. Takahashi:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your August 24, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
As you know, the Hawaii Community Development Authority development agenda calls for the development of several major public and private projects over the near future. These projects could add over 30,000 automobile trips per day at full build out. The traffic strategy for the Makai Plan called in part for the design of a "walkable community", one in which people could live, work and play without having to depend on an automobile. However, the key to success for such a community would be an efficient and affordable public transit system. BRT service for this area would provide the necessary public transit.	The BRT project would provide a transportation alternative to the automobile and would be affordable.
We therefore support your proposed additional alignment through Kakaako Makai.	Support for the Kakaako Makai alignment noted.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

Cheryl D. Soon
Director

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

AUG 24 2001

GILBERT S. COLOMA-AGARAN
CHAIRPERSON

BRUCE S. ANDERSON
ROBERT G. GIRALD
BRIAN C. NISHIDA
DAVID A. NOBRIGA
HERBERT M. RICHARDS, JR.

LINNEL T. NISHIOKA
DEPUTY DIRECTOR

TPD01-00500

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City & County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, HI 96813

Dear Ms. Soon:

Supplemental Draft EIS for Primary Corridor Transportation Project

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas, which are important for the maintenance of streams and the replenishment of aquifers.

[ ] We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.

[ ] We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

[X] We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

[ ] A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.

[ ] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.

[ ] Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

[ ] We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approvals for this project be conditioned upon a review by the corresponding county's Building Department and the developer's acceptance of any resulting requirements related to erosion control.

[ ] If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).

[X] If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.

[ ] OTHER:

If there are any questions, please contact Roy Hardy at 587-0274.

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

c. OEQC

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KIYOKI" MIYAMOTO
DEPUTY DIRECTOR

TP8/01-03793R

March 8, 2002

Ms. Linnel T. Nishioka, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Ms. Nishioka:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your August 24, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.	The proposed project will comply with all appropriate local, state, and federal regulations and will obtain all necessary permits.
If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.	The proposed project would not alter the bed or banks of any stream channels; therefore, a stream channel alteration permit would not be necessary.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801-3378

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
EMD/CWB
08088PSS.01

August 28, 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: **Comments on Supplemental Draft Environmental Impact Statement (DEIS) Preparation Notice for Primary Corridor Transportation Project Honolulu, Oahu, Hawaii**

The Department of Health, Clean Water Branch (CWB) acknowledges receipt of your Supplemental DEIS Preparation Notice and has the following comments:

1. The applicant should contact the Army Corps of Engineers to identify whether a Federal permit (including a Department of Army permit) is required for this project. A Section 401 Water Quality Certification is required for "Any applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters...," pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act").

2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for each of the following activities which discharges into State Waters:

   a. Discharge of storm water runoff associated with construction activities that involve the disturbance of five acres or greater, including clearing, grading, and excavation;
   b. Discharge of hydrotesting water; and
   c. Discharge of construction dewatering effluent.

   If any construction activities will take place after March 10, 2003, discharge of storm water runoff associated with construction activities that involve the disturbance of one acre or greater, including clearing, grading, and excavation shall require coverage under the NPDES general permit.

3. The applicant may be required to apply for an Individual NPDES Permit if there is any type of process wastewater discharge from the project into State Waters.

Should you have any further questions regarding this matter, please contact Mr. Shane Sumida of the Engineering Section , CWB, at 586-4309.

Sincerely,

DENIS R. LAU, P.E., CHIEF
Clean Water Branch

SS/cr

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730 • INTERNET: www.honolulu.gov

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP9/01-03963R

March 8, 2002

Mr. Denis R. Lau, P.E, Chief
Clean Water Branch
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, HI 96801-3378

Dear Mr. Lau:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your August 28, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
The applicant should contact the Army Corps of Engineers to identify whether a Federal permit (including a Department of Army permit) is required for this project.	The ACOE will be contacted about permit requirements.
A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for each of the following activities which discharges into State Waters: a. Discharge of storm water runoff associated with construction activities that involve the disturbance of five acres or greater, including clearing, grading, and excavation; b. Discharge of hydrotesting water; and c. Discharge of construction dewatering effluent. If any construction activities will take place after March 10, 2003, discharge of storm water runoff associated with construction activities that involve the disturbance of one acre or greater, including clearing, grading, and excavation shall require coverage under the NPDES general permit.	The ACOE will be contacted about permit requirements. A NPDES permit will be obtained prior to construction.

The applicant may be required to apply for an Individual NPDES Permit if there is any type of process wastewater discharge from the project into State Waters.	An Individual NPDES Permit will be obtained if necessary.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

CORRECTION

THE PRECEDING DOCUMENT(S) HAS BEEN REPHOTOGRAPHED TO ASSURE LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801-3378

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
EMD/CWB

08088PSS.01

August 28, 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: **Comments on Supplemental Draft Environmental Impact Statement (DEIS) Preparation Notice for Primary Corridor Transportation Project Honolulu, Oahu, Hawaii**

The Department of Health, Clean Water Branch (CWB) acknowledges receipt of your Supplemental DEIS Preparation Notice and has the following comments:

1. The applicant should contact the Army Corps of Engineers to identify whether a Federal permit (including a Department of Army permit) is required for this project. A Section 401 Water Quality Certification is required for "Any applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters...," pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act").

2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for each of the following activities which discharges into State Waters:

   a. Discharge of storm water runoff associated with construction activities that involve the disturbance of five acres or greater, including clearing, grading, and excavation;
   b. Discharge of hydrotesting water; and
   c. Discharge of construction dewatering effluent.

   If any construction activities will take place after March 10, 2003, discharge of storm water runoff associated with construction activities that involve the disturbance of one acre or greater, including clearing, grading, and excavation shall require coverage under the NPDES general permit.

3. The applicant may be required to apply for an Individual NPDES Permit if there is any type of process wastewater discharge from the project into State Waters.

Should you have any further questions regarding this matter, please contact Mr. Shane Sumida of the Engineering Section , CWB, at 586-4309.

Sincerely,

DENIS R. LAU, P.E., CHIEF
Clean Water Branch

SS/cr

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP9/01-03963R

March 8, 2002

Mr. Denis R. Lau, P.E, Chief
Clean Water Branch
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, HI 96801-3378

Dear Mr. Lau:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your August 28, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
The applicant should contact the Army Corps of Engineers to identify whether a Federal permit (including a Department of Army permit) is required for this project.	The ACOE will be contacted about permit requirements.
A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for each of the following activities which discharges into State Waters: a. Discharge of storm water runoff associated with construction activities that involve the disturbance of five acres or greater, including clearing, grading, and excavation; b. Discharge of hydrotesting water; and c. Discharge of construction denaturing effluent. If any construction activities will take place after March 10, 2003, discharge of storm water runoff associated with construction activities that involve the disturbance of one acre or greater, including clearing, grading, and excavation shall require coverage under the NPDES general permit.	The ACOE will be contacted about permit requirements. A NPDES permit will be obtained prior to construction.

The applicant may be required to apply for an Individual NPDES Permit if there is any type of process wastewater discharge from the project into State Waters.	An Individual NPDES Permit will be obtained if necessary.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

BRUCE B. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
File:

01-104/epo

October 2, 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Primary Corridor Transportation Project

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer at this time:

Wastewater Branch

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We reserve the right to review the detailed wastewater plans for conformance to applicable rules.

Should you have any questions, please contact the Planning/Design section of the Wastewater Branch at 586-4294.

Clean Air Branch

Control of Fugitive Dust:

A Supplemental Draft Environmental Impact Statement was submitted to the Department of Health for the proposed changes to the Primary Corridor Transportation Project. The applicant, Department of Transportation Services, City & County of Honolulu, proposes to add an In-Town Bus Rapid Transit (BRT) branch to serve Aloha Tower Marketplace and Kakaako Makai; realign a section of the U.H. In-Town BRT alignment from Ward Avenue to Pensacola Street; and replace the Kaonohi Street BRT ramp with one at Luapele Drive. The Department of Health, Clean Air Branch, has concerns on construction activities where potential dust problems may arise. There is a significant potential for fugitive dust to be generated during the various phases of the project, including clearing and removal of debris, grubbing, grading, and excavation.

Implementation of adequate dust control measures during all phases of construction is warranted. Construction activities must comply with provisions of Chapter 11-60.1, Hawaii Administrative Rules, section 11-60.1-33 on Fugitive Dust.

The contractor should provide adequate means to control dust from road areas and during the various phases of construction activities. These means include, but are not limited to: Control of Fugitive Dust:

A Supplemental Draft Environmental Impact Statement was submitted to the Department of Health for the proposed changes to the Primary Corridor Transportation Project. The applicant, Department of Transportation Services, City & County of Honolulu, proposes to add an In-Town Bus Rapid Transit (BRT) branch to serve Aloha Tower Marketplace and Kakaako Makai; realign a section of the U.H. In-Town BRT alignment from Ward Avenue to Pensacola Street; and replace the Kaonohi Street BRT ramp with one at Luapele Drive. The Department of Health, Clean Air Branch, has concerns on construction activities where potential dust problems may arise. There is a significant potential for fugitive dust to be generated during the various phases of the project, including clearing and removal of debris, grubbing, grading, and excavation. Implementation of adequate dust control measures during all phases of construction is warranted. Construction activities must comply with provisions of Chapter 11-60.1, Hawaii Administrative Rules, section 11-60.1-33 on Fugitive Dust.

The contractor should provide adequate means to control dust from road areas and during the various phases of construction activities. These means include, but are not limited to:

a. Planning the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potentially dusty equipment in areas of the least impact;

b. Providing an adequate water source at site prior to start-up of construction activities;

c. Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;

d. Controlling of dust from shoulders, and access roads;

e. Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and

f. Controlling of dust from debris being hauled away from project site.

If you have any questions on fugitive dust issues, please contact Ms. Crystal Peltier at 586-4200.

Clean Water Branch

1. The applicant should contact the Army Corps of Engineers to identify whether a federal permit (including a Department of Army permit) is required for this project. If a federal permit is required, then a Section 401 Water Quality Certification is require from the State Department of Health, Clean Water Branch.

2. A National Pollutant Discharge Elimination System (NPDES) general permit is required for the following discharges to waters of the State:

   a. Storm water discharges relating to construction activities, such as clearing, grading, and excavation for projects equal to or greater than five acres;

   b. Storm water discharges from industrial activities;

   c. Construction dewatering activities;

   d. Noncontact cooling water discharges less than one million gallons per day;

   e. Treated groundwater from underground storage tank remedial activities;

   f. Hydro testing water;

   g. Treated effluent from petroleum bulk stations and terminals; and

   h. Treated effluent from well drilling activities.

   Any person requesting to be covered by a NPDES general permit for any of the above activities should file a Notice of Intent with the Department's Clean Water Branch at least 30 days prior to commencement of any discharge to waters of the State.

3. After construction of the proposed facility is completed, an NPDES individual permit will be required if the operation of the facility involves any wastewater discharge into State waters.

Any questions regarding these comments can de directed to the Clean Water Branch at 586-4309.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP10/01-04403R

March 8, 2002

Mr. Gary Gill, Deputy Director
Environmental Health Administration
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Mr. Gill:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your October 2, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
Wastewater Branch - All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems." We reserve the right to review the detailed wastewater plans for conformance to applicable rules.	If wastewater plans are required, they will conform to the Department of Health's (DOH) Administrative Rules, Chapter 11-62, "Wastewater Systems" and be submitted to DOH for review.
Clean Air Branch - The Department of Health, Clean Air Branch, has concerns on construction activities where potential dust problems may arise. There is a significant potential for fugitive dust to be generated during the various phases of the project, including clearing and removal of debris, grubbing, grading, and excavation.	Appropriate dust control measures would be implemented during construction.

Implementation of adequate dust control measures during all phases of construction is warranted. Construction activities must comply with provisions of Chapter 11-60, Hawaii Administrative Rules, section 11-60.1-33 on Fugitive Dust	All construction activities for the project will comply with appropriate Hawaii Administrative Rules.
The contractor should provide adequate means to control dust from road areas and during various phases of construction activities. These means include, but are not limited to: Control of Fugitive Dust.	Appropriate dust control measures would be implemented during construction.
Clean Water Branch - The applicant should contact the Army Corps of Engineers to identify whether a federal permit (including a Department of the Army permit) is required for this project.	All necessary agencies will be contacted and required permits obtained.
A National Pollutant Discharge Elimination System (NPDES) general permit is required for the following discharges to waters of the State: (conditions listed). Any person requesting to be covered by a NPDES general permit for any of the above activities should file Notice of Intent with the Department's Clean Water Branch at least 30 days prior to commencement of any discharge to waters of the State.	Thank you for this information, all necessary agencies will be contacted and required permits obtained.
After construction of the proposed facility is completed, an NPDES individual permit will be required if the operation of the facility involves any wastewater discharge into State waters.	Thank you for this information, all necessary agencies will be contacted and required permits obtained.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

BENJAMIN J. CAYETANO
GOVERNOR

PAUL G. LaMAHIEU, Ph.D.
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

August 31, 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawai'i 96813

Dear Ms. Soon:

Subject: Primary Corridor Supplemental DEISPN

The Department of Education has no comment on the subject supplemental draft environmental impact statement preparation notice.

Thank you for the opportunity to respond.

Very truly yours,

Paul G. LeMahieu, Ph.D.
Superintendent of Education

PLeM:hy

cc: A. Suga, DAS
G. Salmonson, OEQC

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP9/01-03921R

March 8, 2002

Ms. Patricia Hamamoto
Superintendent of Education
Department of Education
State of Hawaii
P. O. Box 2360
Honolulu, HI 96804

Dear Ms. Hamamoto:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your August 31, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

BENJAMIN J. CAYETANO
GOVERNOR

ANTHONY J.H. CHING
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, HI 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

September 4, 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Supplemental Draft Environment Impact Statement
Preparation Notice
Project Name: Primary Corridor Transportation Project
Applicant: City and County of Honolulu, Department of
Transportation Services
TMK Nos.: Various

This to acknowledge receipt of the subject Supplemental Draft Environmental Impact Statement Preparation Notice ("SDEISPN") for improvements to the transportation system and linkages of the Primary Corridor as transmitted by your letter dated August 16, 2001.

We have no comments to offer. Thank you for the opportunity to review and provide comment on the SDEISPN. Should you require clarification or further assistance in this matter, please contact Russell Kumabe of my staff at (808) 587-3822.

Sincerely,

ANTHONY J.H. CHING
Executive Officer

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE TEKOHI MIYAMOTO
DEPUTY DIRECTOR

TP9/01-04027R

March 8, 2002

Mr. Anthony J. H. Ching, Executive Officer
Land Use Commission
State of Hawaii
Department of Business, Economic
Development & Tourism
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

Dear Mr. Ching:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 4, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT S. COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DEPUTIES
JANET E. KAWELO
UNDER, HISTORIC

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

September 7, 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

LOG NO: 28142
DOC NO: 0109tm01

Dear Ms. Soon:

SUBJECT: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for transmitting the Supplemental Draft Environmental Impact Statement for the Primary Corridor Transportation Project. Since the preferred alternative includes new routes, we would like a windshield level survey done along these new routes to identify historic sites that may be affected. Of concern to our office, in addition to the underground archaeological resources that may be uncovered, are the historic sites along the route. We would like to ensure that road widening, ramps, transit stations and any other structures necessary to operate the BRT system does not adversely impact these historic sites.

Please note, in the permits and approvals section, that while our approval is not necessary to proceed under Section 106 of the National Historic Preservation Act, the responsible federal agency will need to document its consultation with our office. Also, our written concurrence for projects by the state or its political subdivisions is required under Chapter 6E-8, Hawaii Revised Statutes.

Thank you for the opportunity to comment. Should you have further questions regarding the historic sites survey, please call Tonia Moy at (808)692-8030.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

TM:jk

c: Office of Environmental Quality Control

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP9/01-04138R

March 8, 2002

Mr. Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Hibbard:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 7, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
Since the preferred alternative includes new routes, we would like a windshield level survey done along these new routes to identify historic sites that may be affected.	The SDEIS will include a windshield survey of the potential historic sites along the alignments.
Of concern to our office, in addition to the underground archaeological resources that may be uncovered, are the historic sites along the route. We would like to ensure that road widening, ramps, transit stations and any other structures necessary to operate the BRT system does not adversely impact these historic sites.	The SDEIS will address any impacts to historic sites.

Please note, in the permits and approvals section, that while our approval is not necessary to proceed under Section 106 of the National Historic Preservation Act, the responsible federal agency will need to document its consultation with our office.	Consultation with the SHPD is an integral part of the coordination process and will continue throughout the project development process.
Also, our written concurrence for projects by the state or its political subdivisions is required under Chapter 6E-8, Hawaii Revised Statutes.	Chapter 6-E, Hawaii Revised Statues will be followed and SHPD written concurrence will be obtained.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

EDUARDO J. CAYETANO
GOVERNOR OF HAWAII

GILBERT S. COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DEPUTIES
JANET E. KAWELO
LINNEL NISHIOKA

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

September 19, 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

LOG NO: 28221
DOC NO: 0109SC09

Dear Ms. Soon:

SUBJECT: National Historic Preservation Act, Section 106 Compliance – Comment on Preparation Notice (PN) for a Supplemental Draft Environmental Impact Statement (SDEIS) for the Proposed Primary Corridor Transportation Project
Island of O`ahu

Thank you for the opportunity to comment on the SDEISPN issued for the proposed Primary Corridor Transportation Project. The City and County of Honolulu Department of Transportation Services (DTS) is carrying out the subject project with the assistance of the US Department of Transportation, Federal Transit Administration, and the Federal Highway Administration. We received notice of the subject undertaking on or about August 22, 2001. In addition, Sara Collins, Elaine Jourdane, and Tonia Moy of our office met with Faith Miyamoto of DTS and Ann Koby of PB Consult on September 13, 2001, in order to review aspects of the SDEISPN. We provide the following comments.

In general, we will need to have more specific information on what historic properties are present within the Area of Potential Effect (APE) as well as more details on any ground disturbing activities required to construct portions of the project. Once we have the data on historic sites, we shall be better able to determine what, if any, effects the proposed undertaking will have on significant historic sites. We thus look forward to receiving more detailed information from your agency as it becomes available.

Should you have any questions about archaeology, please feel free to contact Sara Collins at 692-8026. Should you have any questions about architecture, please feel free to contact Tonia Moy at 692-8030. Should you have any questions about burial matters, please feel free to contact Kai Markell at 587-0008.

Aloha,

Gilbert Coloma-Agaran
State Historic Preservation Officer

SC:jk

c: Mr. A. Van Horn Diamond, Chair, O`ahu Island Burial Council
Mr. Kai Markell, Burial Sites Program

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP10/01-04426R

March 8, 2002

Mr. Gilbert Coloma-Agaran
State Historic Preservation Officer
State Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Mr. Coloma-Agaran:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 19, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comment:

> "In general, we will need to have more specific information on what historic properties are present within the Area of Potential Effect (APE) as well as more details on any ground disturbing activities required to construct portions of the project."

More specific information about historic properties and construction activities is provided in the SDEIS. Also, we have been meeting with you staff regarding the historic and archaeological aspects of the project.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS
P.O. BOX 621
HONOLULU, HAWAII 96809

GILBERT S. COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

JANET T. KAWELO
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

September 10, 2001

REF:PPB:LT

File No.: 00-90

Ms. Cheryl Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Re: Primary Corridor Transportation Project

We appreciate the opportunity to review the Supplemental Draft EIS Preparation Notice for the subject project and would like to request to be a consulted party.

Very truly yours,

Daniel S. Quinn
State Parks Administrator

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

March 8, 2002

TP9/01-04095R

Mr. Daniel S. Quinn, State Parks Administrator
Division of State Parks
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Quinn:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 10, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

BENJAMIN J. CAYETANO
GOVERNOR

SHARYN L. MIYASHIRO
EXECUTIVE DIRECTOR

ROBERT J. HALL
EXECUTIVE ASSISTANT

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
HONOLULU, HAWAII 96813
FAX (808) 587-0600

01/PEO-2044

September 12, 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Re: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Dear Ms. Soon:

Thank you for the opportunity to review the Supplemental DEIS Preparation Notice for the Primary Corridor Transportation Project.

At this point in time, we have no additional comments.

Sincerely,

Sharyn L. Miyashiro
Executive Director

c: Office of Environmental Quality Control

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD SUITE 1200 • HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TPD9/01-04105R

March 8, 2002

Ms. Sharyn L. Miyashiro, Executive Director
Housing and Community Development
Corporation of Hawaii
Department of Business, Economic Development
and Tourism
State of Hawaii
677 Queen Street, Suite 300
Honolulu, Hawaii 96813

Dear Ms. Miyashiro:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 12, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

BENJAMIN J. CAYETANO
GOVERNOR
DAVID LOUIE
CHAIRMAN
RONALD HIRANO
EXECUTIVE DIRECTOR

ALOHA TOWER DEVELOPMENT CORPORATION

600 Fort Street, Pier 10 Terminal, Second Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804
Website: www.alohatower.org

Telephone: (808) 586-2530
Fax: (808) 586-3046
E-mail: adc@alohatower.org

September 21, 2001

Ms. Cheryl D. Soon
Director, Department of Transportation Services
City and County of Honolulu
711 Kapiolani Blvd., Suite 1200
Honolulu, HI 96813

Dear Ms. Soon:

Subject: Supplemental Draft Environmental Impact Statement for the Primary Corridor Transportation Project /Bus Rapid Transit System

A stop at the Aloha Tower Marketplace has been planned for the Kakaako Makai branch of this route. This new BRT line will serve the Marketplace, the many shops restaurants and attractions in the area, as well as new projects proposed for the area known as Kakaako Makai. It will also provide a convenient transportation alternative for the hundreds of employees that work at the Marketplace and surrounding businesses.

The Aloha Tower Marketplace currently serves over 2 million patrons annually, both residents and visitors. A large number of these visitors are currently served by dedicated trolleys that take them from Waikiki to the Marketplace. While the Marketplace is also served by The Bus, this added route would greatly enhance the appeal of the Marketplace to local patrons as the BRT should be more convenient and accessible to the general public. ATDC is committed to its mission of creating opportunities for local residents to visit and enjoy the downtown waterfront, and to support any endeavors that accomplishes that goal. The Kakaako Makai branch of the BRT as designed, will take ATDC another step closer to fulfilling that goal.

While we are supportive of these revisions to your project, we do have the following questions: What is the timetable for completion of the Kakaako Makai Branch? Where will the terminus be placed for the Aloha Tower stops?

Thank you for allowing ATDC to provide comments to the SDEIS for the Primary Corridor Transportation Project.

Sincerely,

Ronald Hirano
Executive Director

c: Mr. Bob Bramen
Parsons Brinkerhoff

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "RECKY" MIYAMOTO
DEPUTY DIRECTOR

TP9/01-04254R

March 8, 2002

Mr. Ronald Hirano
Executive Director
Aloha Tower Development Corporation
P. O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Hirano:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 21, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
We are supportive of these revisions to your project.	Support for the proposed modifications to the BRT Alternative noted.
What is the timetable for completion of the Kakaako Makai Branch?	The Kakaako Makai Branch will be implemented in 2006.
Where will the terminus be placed for the Aloha Tower stops?	The proposed Aloha Tower Transit Stop will be located along Aloha Tower Drive just Koko Head of Bishop Street. The stop for the Ewa direction will be located along the mauka curb between two existing driveways servicing the HECO facility. The stop for vehicles traveling in the Koko Head direction would also be located on Aloha Tower Drive but on the makai curb just to the Koko Head side of Pier 7.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO. (P)1617.1

SEP 21 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for the opportunity to review the Supplemental Draft Environmental Impact Statement for the subject project. We do have concerns about the negative impacts on a portion of the subject project, and we offer the following comments.

We are currently working with the Housing and Community Development Corporation of Hawaii (HCDCH) to plan the development of our portion of the area located at and around the old OR&L Building near the intersection of King Street and Iwilei Road. Our intent is to construct a Liliha Civic Center to provide office space for State agencies to service the public. As such, we believe:

1. The proposed plan extending Kaaahi Street (at grade) toward Diamond Head to Iwilei Road would result in maximum disruption to the planned civic center site. It nearly bisects the property with a roadway that we do not intend to utilize. We question if a Bus Rapid Transit (BRT) easement is required to traverse the site at all (as opposed to remaining on Dillingham Boulevard to and from King Street, for example, since the plans for the BRT already take away two of the five lanes on Dillingham one block away). In lieu of an easement for the roadway, we propose an exchange of road Right-of-Way for county-owned school land.

2. The proposed BRT station and any BRT parking structure on site would also adversely affect the development of the civic center, by increasing traffic around our site and taking up valuable property.

3. That if the city still plans to go ahead with items 1 and 2 above, then the City should consider purchasing the adjacent Ohtani property to execute a land swap plus purchase of all improvements with the State. This would provide us with adequate property free of the disruption from increased vehicular traffic.

Further, we request additional information about the proposed extension. What is the anticipated volume and type of traffic? Will private vehicles be permitted to use Kaaahi Street to cross through the site to Iwilei Road?

Nearly ten years ago, the previous professionally-planned rapid transit project (unfortunately now defunct), was conceived to be above grade in this area, with a station located Ewa off-site, makai of Kaaahi Street to serve this neighborhood. The transit easement alignment would have been much closer to the makai boundary than, for example, an extension of Kaaahi Street provides, and would therefore have less of an impact on our portion of the site.

Should there be any questions, please have your staff call Mr. Bruce Bennett of the Planning Branch at 586-0491.

Sincerely,

GORDON MATSUOKA
Public Works Administrator

BB:mo

c: Mr. Neal Wu, HCDCH
Ms. Charlene Unoki, DLNR
Ms. Genevieve Salmonson, OEQC

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP9/01-04214R

March 8, 2002

Mr. Gordon Matsuoka, Public Works Administrator
State of Hawaii
Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Matsuoka:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 21, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
We are currently working with the Housing and Community Development Corporation of Hawaii (HCDCH) to plan the development of our portion of the area located at and around the old OR&L Building near the intersection of King Street and Iwilei Road. Our intent is to construct a Liliha Civic Center to provide office space for State agencies to service the public. As such, we believe:	The DTS is committed to coordinating with DAGS to ensure that the two projects proceed in a timely manner.
The proposed plan extending Kaaahi Street (at grade) toward Diamond Head to Iwilei Road would result in maximum disruption to the planned civic center site. It nearly bisects the property with a roadway that we do not intend to utilize. We question if a Bus Rapid Transit (BRT) easement is required to traverse the site at all (as opposed to remaining on Dillingham Boulevard to and from King Street, for example, since the plans for the BRT already take away two of the five lanes on Dillingham one block away). In lieu of an easement for the roadway, we propose an exchange of road Right-of-Way for county-owned school land.	

The proposed BRT station and any BRT parking structure on site would also adversely affect the development of the civic center, by increasing traffic around our site and taking up valuable property.	Chapter 4 of the DEIS presents the traffic impacts associated with the BRT project.
That if the city still plans to go ahead with items 1 and 2 above, then the City should consider purchasing the adjacent Ohtani property to execute a land swap plus purchase of all improvements with the State. This would provide us with adequate property free of the disruption from increased vehicular traffic.	The DTS is committed to coordinating with DAGS to ensure that the two projects proceed in a timely manner.
Further, we request additional information about the proposed extension. What is the anticipated volume and type of traffic?	The FEIS will refine the traffic conditions associated with implementing the BRT in this location.
Will private vehicles be permitted to use Kaaahi Street to cross through the site to Iwilei Road?	At this point in project development, private vehicles will not be permitted to use Kaaahi Street to access Iwilei Road.
Nearly ten years ago, the previous professionally-planned rapid transit project (unfortunately now defunct), was conceived to be above grade in this area, with a station located Ewa off-site, makai of Kaaahi Street to serve this neighborhood. The transit easement alignment would have been much closer to the makai boundary than, for example, an extension of Kaaahi Street provides, and would therefore have less of an impact on our portion of the site.	The FEIS will refine the benefits and impacts associated with implementing the BRT as discussed in the DEIS.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

UNIVERSITY OF HAWAI'I

SENIOR VICE PRESIDENT FOR ADMINISTRATION

September 21, 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, HI 96813

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Dear Ms. Soon:

We have reviewed the Supplemental DEIS Preparation Notice and have no comments to offer at this time. Thank you for the opportunity to review this document.

Sincerely,

Allan Ah San
Associate Vice President for Administration

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DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP9/01-04272R

March 8, 2002

Mr. Allan Ah San
Associate Vice President for Administration
University of Hawaii
2444 Dole Street
Bachman Hall
Honolulu, Hawaii 96822

Dear Mr. Ah San:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 21, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

CITY COUNCIL
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII 96813-3065 / TELEPHONE 547-7000

GARY H. OKINO
COUNCILMEMBER, DISTRICT
CHAIR, PARKS & PUBLIC WORKS COMMITTEE
TELEPHONE (808) 547-7008
FACSIMILE (808) 523-4210

MANAGING DIRECTOR'S OFFICE

September 19, 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City & County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Re: **Comments and Concerns**
Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement Preparation Notice

In response to the Primary Corridor Transportation Project Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice dated August 2001, I wish to raise the following questions and concerns, and request that they be fully addressed in the SDEIS.

A. **Inclusion of the Kamehameha Highway Transit Corridor/BRT Spur and Transit Stations in the SDEIS Analysis.**

In lieu of the originally proposed Kaonohi Street BRT ramps and Kamehameha Drive-in location of a transit center, the Pearl City-Aiea working group recommended the following transportation elements:

1) Establishment of a transit corridor or "BRT spur" along Kamehameha Highway;
2) Development of two community transit centers along Kamehameha Highway, one at the site of the former Jim Siemmons auto dealership, the other on the site of the old Hale Mohalu Hospital;
3) Development of a major transit center with park-and-ride facilities at the Aloha Stadium overflow parking lot; and
4) Construction of a new BRT on/off ramp near Luapele Street to connect the Aloha Stadium Transit Center with the H-1 zipper lanes.

It appears from the SDEIS Preparation Notice that the only element of the working group's recommendation to be included in the SDEIS is the construction of the new BRT on/off ramp near Luapele Street. This is a serious omission since the Kamehameha Highway transit corridor and transit stations are intended to service BRT vehicles that will directly enter and run along the Regional BRT H-1 corridor.

Why is this integral part of the system being carved or parceled out of the SDEIS analysis? Does this limited review comply with the intent and legal requirements of the Environmental Impact Statement process? I believe that it is imperative that the SDEIS ascertain the impacts of the system as a whole not just a few selected parts!

Since all elements of the Pearl City-Aiea working group's recommendation will be directly contributing to the BRT system's overall patronage and ridership estimates, revenue projections, and construction and operational expenses, it is only reasonable and logical that all elements likewise be included in the SDEIS analysis of impacts. Moreover, since these new elements will likely alter the results of the existing system-level analysis and findings provided in the MIS/DEIS, these additional elements must be included within the SDEIS to assure reliable, complete, up-to-date, and accurate system-wide projections and estimates.

The amended LPA (reference Resolution 01-208, CD1, FD1) specifically provides that the Kamehameha Highway contra-flow transit corridor and the Pearl City and Aiea transit centers be projects separate from, but complementary to, the amended LPA. Accordingly, this is to request, and strongly urge, that all elements recommended by the Pearl City-Aiea working group identified above, not just the replacement of the Kaonohi Street BRT ramp with one at Luapele Drive, be included as part of the SDEIS analysis.

B. **Farrington Highway Transit Corridor and BRT Spur**

It has recently been brought to my attention that the Department of Transportation Services is also considering developing a portion of Farrington Highway into a transit corridor/BRT spur similar to that proposed for Kamehameha Highway in the Pearl City-Aiea area. For all of the same reason identified above, I strongly urge that this proposed Farrington Highway transit corridor/BRT spur, and its related transit components, be included as part of the SDEIS analysis.

C. **Agreement of Participation by State and Federal Agencies**

A major factor in the success of the overall BRT system is the use of state and federal government infrastructure. For example, the Regional BRT route proposes to utilize the State Department of Transportation's Zipper Lane as a transit corridor, and the Luapele Drive BRT ramp will be connected to and accessible via the Navy-owned portion of Luapele Street.

Has the City received assurances from the appropriate agencies that it will be allowed to utilize the aforementioned as well as any other State- and Federally-controlled properties for the BRT system? If not, how will this affect the BRT project where specific locations/elements are identified in the SDEIS? What will be the result of a worst-case scenario where permission is not granted by either or both governments?

D. Mixed Traffic Impediments to Efficient Regional and In-Town BRT Vehicular Movement.

The key to efficient and effective movement of the BRT vehicles is their use of exclusive right-of-ways or traffic lanes to by-pass the normal congestion of our streets and highways. Unfortunately, there are several segments along the BRT route where the BRT vehicles must operate in mixed- or shared-use lanes with normal traffic. This is potentially a fatal flaw to the entire system.

If the BRT is forced to compete with and operate in existing traffic flow, bottlenecks will surely develop, resulting in greatly diminished speed and possibly even gridlock. While most of these shared-use segments are within the "In-Town" portion of the project (i.e. Kapiolani Boulevard between Atkinson and Kalakaua, Kapiolani Boulevard between Isenberg and University, along Richards Street, along King Street, etc), it appears that some shared-use segments may also exist, at least temporarily, along the "Regional" portion as well.

To assure that we do not construct a system which simply moves commuters quickly to the next bottleneck, where it will stall in existing traffic, I strongly recommend that the SDEIS:

1) Identify all segments of the BRT (both Regional and In-Town) where the BRT vehicles will be forced to use, share or transition across mixed-use traffic lanes;

2) Analyze possible alternatives to such mixed-use; and

3) Develop and recommend a set of alternatives that assure BRT vehicles an exclusive right-of-way from one end of the system to the other.

E. Impact of New Developments on the BRT System

There are locations along or in close proximity to the BRT route where major new developments and land uses have been proposed. While it may be impossible to anticipate all of the potential development or redevelopment sites, the SDEIS should identify and consider the impacts upon the BRT system (both positive and negative) of those developments for which preliminary plans have at least been proposed. Examples of such major projects include the redevelopment of Ford Island and the proposed Outrigger Beachwalk redevelopment.

F. Update of Financial Analysis

It is unclear from the language of the Preparation Notice whether or not a full update of the BRT Financial Analysis is proposed as part of the SDEIS. Clearly, given the additional costs associated with the added In-Town and Regional routing, as well as changes to the location and basic designs of the Regional on/off ramps, the overall cost and financial impact of the system will change significantly. Moreover, the additional In-Town routing and the inclusion of the Kamehameha Highway and Farrington Highway transit corridor/BRT spurs will significantly impact estimates of overall system ridership, revenue, and operating costs.

Moreover, the State of Hawaii has recently stated (reference attached State DOT letter of September 18, 2001) that, "*It is not our intent or expectation to provide funding for the BRT project; and have developed our capital improvement programs accordingly.*"

Accordingly, if the Financial Analysis of the Primary Corridor Transportation Project is to be complete and accurate, it must be thoroughly updated to reflect all of the changes and additions to the system that are currently being proposed, as well as review and revise the entire funding scheme based upon the State's non-participation.

I thank you for the opportunity to submit these comments and concerns, and trust that they will be included and appropriately analyzed in the forthcoming SDEIS.

Sincerely,

Gary H. Okino
Councilmember, District VIII

Attachment

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

IN REPLY REFER TO:
DIR 1.042

September 18, 2001

Ms. Cheryl Soon
Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Funding for the Bus Rapid Transit Project (BRT)

This is a follow-up to the Policy Committee meeting of September 14, 2001, where we were requested to submit, in writing, our understanding of the funding for the Bus Rapid Transit Project.

We have from the onset expressed our reservations on being able to fund this project, as the statewide needs far exceed our limited resources. More recently, in meetings on the project, we were advised that alternative funding strategies were in place, where Federal Highways (FHWA) and State funds would not be required.

As such, it is not our intent or expectation to provide funding for the BRT project; and have developed our capital improvement programs accordingly.

Very truly yours,

BRIAN K. MINAAI
Director of Transportation

c: Hon. Calvin Kawamoto, Chair
Hon. Duke Bainum, Vice Chair
Hon. Brian Kanno
Hon. Fred Hemmings
Hon. Joseph Souki
Hon. Willie Espero
Hon. Mark Moses
Hon. John Henry Felix
Hon. John DeSoto
Hon. Steve Holmes
Hon. Gary Okino
Mr. Gordon Lum
FHWA
FTA

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

BERNICE "BERNIE" MIHANOTO
DEPUTY DIRECTOR

March 5, 2002

TPD9/01-04219R
DART 8080R

The Honorable Gary H. Okino
Member, City Council
City and County of Honolulu
Honolulu, Hawaii 96813-3065

Dear Councilmember Okino:

Subject: Primary Corridor Transportation Project

Thank you for your letter of September 19, 2001, regarding the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice for the subject project.

The following responses to your comments are provided by section.

A. Inclusion of the Kamehameha Highway Transit Corridor/BRT Spur and Transit Stations in the SDEIS Analysis

We agree with the working group that establishing preferred transit treatment on Kamehameha Highway is an excellent idea, with or without BRT. Therefore, we are proposing it as a project for concept planning, and future design and construction. We recommend this be done jointly with the transit centers tentatively proposed by the working group. Because these projects have independent utility from the BRT system and can proceed using City CIP funds, it is advantageous for them to proceed into formal planning now.

The Luapele ramp is a recommendation integrally tied to the BRT and, therefore, we have included it in the SDEIS. This approach not only fully complies with the EIS process but is advantageous to accelerating the implementation of the various recommendations.

Having said this, all components of the BRT system are being treated as a whole in the environmental documentation that is being prepared. The FEIS ridership forecasts will reflect the complementary projects recommended by the Pearl City-Aiea working group. Likewise the cumulative impacts of these complementary improvements will be discussed in the FEIS.

B. Farrington Highway Transit Corridor and BRT Spur

A number of possible transit improvements have been offered for Waipahu. One of these would give priority to buses on Farrington Highway. Once a decision is reached on the type of improvement needed, a separate environmental analysis will be done.

C. Agreement of Participation by State and Federal Agencies

Coordination has been continuous and ongoing with the State Department of Transportation and the Navy regarding the zipper lanes, BRT ramps, and related improvements. The worst case scenario would be that we could not build sections where there is no agreement. This would be regrettable, and the public would suffer.

D. Mixed Traffic Impediments to Efficient Regional and In-Town BRT Vehicular Movement

Exclusive right-of-way for BRT vehicles would be ideal from the transit operational perspective. However, through our early outreach program that resulted in the evolution of the BRT project, the community participants provided very clear direction to us about not wanting the cost or the disruptions of the elevated structures that would provide the separate and exclusive right-of-way for transit. Therefore, we are not including an alternative that requires an exclusive/elevated right-of-way for the entire length of the alignment.

Exclusive lanes would be ideal, but are not imperative or even necessary at all times of the day, from initial implementation of the BRT project. This project will be in use for many years into the future. When and where exclusive rights-of-way can be created, including grade separations, travel times would further benefit. We look forward to working with you on any ideas you have for areas where exclusive right-of-way can be developed.

The BRT system strives to strike a balance between transit speed and impacts to general purpose traffic and the community. In segments where it was judged that roadway capacity was needed for general purpose traffic and the impacts to BRT operation would be tolerable, exclusive lanes were replaced by either semi-exclusive or mixed-flow operation. In areas of high BRT ridership volumes, exclusive transit lanes were retained such as through Kalihi and along Hotel Street in Downtown. We have also retained exclusive lanes where right-of-way is available, such as along Kalia Road.

Chapter 2 of the FEIS will identify where the In-Town BRT travels in exclusive, semi-exclusive and mixed-use lanes. Alternatives to mixed-use lanes have been analyzed. Based on consultation with the public and affected stakeholders, the currently proposed BRT configuration achieves the balance between transit speed and traffic impacts. Delays due to the BRT operating in mixed traffic have been reflected in the BRT operations plan, ridership forecasts, and cost estimates.

The only significant section of the Regional BRT where there will be temporary mixed traffic operations is between Kapolei and Managers Drive. In this section, ridership justifies express lanes. This could be changed at some future time if traffic conditions warrant installation of exclusive lanes.

E. Impact of New Developments on the BRT System

The discussion of land use impacts will be updated in Section 5.1, Land Use and Economic Activity, of both the SDEIS and FEIS. The proposed developments and redevelopments will be included in that discussion. It is true that new developments are constantly proposed, but we have been especially careful to identify all those known at the time of document preparation.

F. Update of Financial Analysis

Chapter 6 of the SDEIS will provide a discussion of the financial analysis for the Primary Corridor Transportation Project. The SDEIS will include costs at the same base year (1998) as the MIS/DEIS, so that the two can be adequately compared. The FEIS will update costs to a new base year (2001).

Councilmember Okino, I want you to know how much we appreciate your insight and support of BRT to ensure that it is of most value to our residents. After you have reviewed our response, we would be pleased to sit down together to discuss overall progress on implementation. I will call you to arrange a meeting.

FORWARDED:

Sincerely,

BENJAMIN B. LEE, FAIA
Managing Director

CHERYL D. SOON
Director

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 • AREA CODE (808) 529-3111
http://www.honolulupd.org
www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

LEE D. DONOHUE
CHIEF

MICHAEL CARVALHO
ROBERT AU
DEPUTY CHIEFS

OUR REFERENCE CS-KP

September 12, 2001

TO: CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: LEE D. DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT
SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT

Thank you for the opportunity to review and comment on the subject project.

The Honolulu Police Department has no comment to offer at this time.

If there are any questions, please call Ms. Carol Sodetani of the Support Services Bureau at 529-3658.

LEE D. DONOHUE
Chief of Police

By
EUGENE UEMURA
Assistant Chief of Police
Support Services Bureau

cc: OEQC

Serving and Protecting with Aloha

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

March 8, 2002

TP9/01-04110R

MEMORANDUM

TO: LEE DONOHUE, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT
SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT

Thank you for your September 12, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

CHERYL D. SOON

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H425 • HONOLULU, HAWAII 96819-1869
TELEPHONE: (808) 831-7761 • FAX: (808) 831-7750 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

September 13, 2001

TO: CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: ATTILIO K. LEONARDI, FIRE CHIEF

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT
SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT

We received your memorandum dated August 16, 2001, regarding your request to assess the proposed changes to the Primary Corridor Transportation Project. The proposed changes will not have an adverse impact on the services provided by the Honolulu Fire Department.

Should you have any questions, please call Acting Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 831-7778.

ATTILIO K. LEONARDI
Fire Chief

AKL/SK:jo

cc: Office of Environmental Quality Control

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP9/01-04119R

March 8, 2002

MEMORANDUM

TO: ATTILIO K. LEONARDI, FIRE CHIEF
HONOLULU FIRE DEPARTMENT

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT
SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT

Thank you for your September 13, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

CHERYL D. SOON

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

September 14, 2001

TO: CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: FOR CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER

SUBJECT: YOUR TRANSMITTAL OF AUGUST 16, 2001 OF THE SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR THE PRIMARY CORRIDOR TRANSPORTATION PROJECT

Thank you for the opportunity to review the subject document for the proposed transportation improvements in Oahu's primary transportation corridor.

We have no objections to the proposed modifications to the locally preferred alternative.

We reserve further comments until the Supplemental Draft Environmental Impact Statement is submitted for our review.

If you have any questions, please contact Scot Muraoka at 527-5221.

cc: Office of Environmental Quality Control

Pure Water . . . our greatest need – use it wisely

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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March 8, 2002

TP9/01-04147R

MEMORANDUM

TO: CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT
SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT

Thank you for your September 14, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

CHERYL D. SOON

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RANDALL K. FUJIKI, AIA
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

2001/CLOG-3535(RY)

September 19, 2001

TO: CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: RANDALL K. FUJIKI, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

SUBJECT: PREPARATION NOTICE FOR A SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PRIMARY CORRIDOR TRANSPORTATION PROJECT

Thank for providing the DPP the opportunity to comment on revisions to the proposed project. As indicated in our November 16, 2000 memo on the Draft Environmental Impact Statement, the revisions should be coordinated with proposed revisions to the Primary Urban Center and the Central Oahu Development Plans which are presently undergoing major revisions. We offer the following comments for your consideration:

1. Information on relevant alignment and station descriptions, estimated costs and CIP schedules, and implementation schedules for both the In-Town and Regional BRTs should be included where appropriate to determine if Development Plan Public Facilities Map or Public Infrastructure Map amendments will be required before CIP monies for construction and land acquisition are budgeted.

2. The proposed In-Town BRT Branch Alignment includes five proposed stations located in the Chinatown, Hawaii Capital, and the Thomas Square/Honolulu Academy of Arts Special Districts. In Section 3.2.1 - Land Use and Relocation, there should be discussions about any consistency and/or impacts the proposed stations and BRT alignment will have on these special districts regarding their respective district objectives, historic architectural character, landscaping, pedestrian linkages, and view corridors.

3. In Section 3.2.3 - Parks and Recreation Areas, Section 3.2.4 - Archaeological, Historic and Cultural Resources and Section 3.2.5 - Visual and Aesthetic, of the DEIS, there should be discussions regarding any impacts of the proposed stations and alignments on existing parks, streetscape improvements (i.e., curbs, gutters, sidewalks, planting strips, street trees, light standards, and signage), historic structures, and significant sites.

4. In those areas not included in the special districts, it would be helpful to us to have a discussion on impacts the proposed In-Town Branch Alignment will have on existing street trees.

5. Additional permits and/or approvals, other than Special Management Area permits, should be disclosed, i.e., the need for special district permits, waivers, and exemptions as a "public use," and Trenching Permits.

Should you have any questions regarding our comments, please contact Raymond Young of our staff at 527-5839.

Sincerely yours,

RANDALL K. FUJIKI, AIA
Director of Planning and Permitting

RKF:mo
Doc 116158

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

March 8, 2002

TP9/01-04210R

MEMORANDUM

TO: RANDALL K. FUJIKI, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PEMITTING

FROM: CHERYL D. SOON, DIRECTOR

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT
SUPPLEMENTAL, DRAFT ENVIRONMENTAL IMPACT STATEMENT

Thank you for your September 19, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
As indicated in our November 16, 2000 memo on the Draft Environmental Impact Statement, the revisions should be coordinated with proposed revisions to the Primary Urban Center and the Central Oahu Development Plans which are prepsently undergoing major revisions.	The project refinements will be coordinated with the Primary Urban Center and the Central Oahu Development Plan updates.
Information on relevant alignment and station descriptions, estimated costs and CIP schedules, and implementation schedules for both the In-Town and Regional BRTs should be included where appropriate to determine if Development Plan Public Facilities Map or Public Infrastructure Map amendments will be required before CIP monies for construction and land acquisition are budgeted.	Chapter 2 of the SDEIS provides alignment and station location descriptions. The Refined BRT Alignment plans are provided in Appendix B. The SDEIS Section 2.3 – Capital Costs and Section 2.4 - Operating and Maintenance Costs provide the cost estimates associated with the proposed project refinements. The SDEIS Section 2.5 Implementation Schedule includes Figure 2.5-1, which presents the proposed schedule for implementing the Refined BRT Alternative components.

The proposed In-Town BRT Branch Alignment includes five proposed stations located in the Chinatown, Hawaii Capital, and the Thomas Square/Honolulu Academy of Arts Special Districts. In Section 3.2.1 – Land Use and Relocation, there should be discussions about any consistency and/or impacts the proposed stations and BRT alignment will have on these special districts regarding their respective district objectives, historic architectural character, landscaping, pedestrian linkages, and view corridors.	Chapter 3 of the SDEIS presents the affected environment associated with the Refined BRT Alternative. The pedestrian discussion in presented in Section 4.6 of the SDEIS. Chapter 5 of the SDEIS discusses the environmental consequences associated with implementing the Refined BRT Alternative. Section 5.4 discusses the visual and aesthetic resources, Section 5.10 discusses the historic and archaeological resources, and Section 5.11 discusses parklands.
In Section 3.2.3 – Parks and Recreation Areas, Section 3.2.4 – Archaeological, Historic and Cultural Resources and Section 3.2.5 – Visual and Aesthetic, of the DEIS, there should be discussion regarding any impacts of the proposed stations and alignments on existing parks, streetscape improvements (i.e. curbs, gutters, sidewalks, planting strips, street trees, light standards, and signage), historic structures, and significant sites.	Chapter 5 of the SDEIS discusses the environmental consequences associated with implementing the Refined BRT Alternative. Section 5.4 discusses the visual and aesthetic resources, Section 5.10 discusses the historic and archaeological resources, and Section 5.11 discusses parklands.
In those areas not included in the special districts, it would be helpful to us to have a discussion on impacts the proposed In-Town Branch Alignment will have on existing street trees.	The SDEIS, Section 3.7.1 – Terrestrial Vegetation summarizes the results of the tree survey conducted since the MIS/DEIS was published. Section 5.7.1 – Impacts and Section 5.7.2 – Mitigation for Trees summarize the potential tree impacts and proposed mitigations for the Refined BRT Alternative.
Additional permits and/or approvals, other than Special Management Area permits, should be disclosed, i.e., the need for special district permits, waivers, and exemptions as a "public use," and Trenching Permits.	The SDEIS, Section 7.5 – Required Permits and Approvals presents the anticipated permits required for implementing the project.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

CHERYL D. SOON

Comments Regarding
Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

September 21, 2001

To: Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

From: J. T. Miller
700 Richards Street, #1909
Honolulu, Hawaii 96813

Subj: Primary Corridor Transportation Project,
Supplemental Draft Environmental Impact Statement

Dear Ms. Soon:

In response to your letter of August 16, 2001, (TPD01-00500), forwarding the subject Supplemental DEIS, the following comments are submitted.

These observations target one segment only of the Primary Corridor Transportation Project; that of:

The In-Town BRT branches serving the Kakaako Branches, both Mauka and Makai. In particular, the routes directed both Mauka and Makai upon Richards Street, from King Street to Halekauwila Street/Ala Moana Boulevard are judged ill conceived as to functional operation and adherence within the framework of impact upon the environment. There are also major unaddressed issues, which require total clarification for a comprehensive, acceptable final DEIS.

The following information is submitted for the review process of this project.

Sincerely,

J. T. Miller

J. T. Miller
Chairman, Resident Committee to Address Honolulu SDEIS
Harbor Square Condominium Association

Enclosures

Rebuttal to: Section 3, Proposed Impact Studies

3.1 Physical Environment

3.1.1 Air Quality As stated, "Mesoscale impacts resulting from the proposed modifications are not expected to be different from what was disclosed in the MIS/DEIS." How can that be determined, when there has been no determination/selection as to the device of transportation, i.e., bus/train. Testing could not be completed until such vehicles are in place, especially on the heavily frequented segment of Richards Street between Queen Street and Ala Moana Blvd, which is lined with tall buildings, (one of which being residential). Further, as stated in Oahu Trans 2K Progress Report #5:

> **Has the technology for the BRT system been selected?**
> Power technologies for the BRT system have not been chosen and will need to be service-proven before they are used in Honolulu. The existing articulated express buses will be able to use the In-Town BRT route until electric vehicles are acquired.

Therefore, utilizing the diesel powered, articulated tractor type buses now in use, with **three lines operating one bus every three minutes, (or 60 buses per hour, or 1 per minute)**, air quality in this downtown canyon would definitely be required data. It is absent.

3.1.2 Noise and Vibration The opening statement of this section states that there are no land uses along the proposed In-town BRT alignment that are sensitive to excess noise, "such as residences."

Located at the corner of Richards Street and Halekauwila Street, (the bottleneck in which the three Kakaako lines intersect), stands a 27 story residential building. **(Picture 1)**. All three lines of this referenced BRT pass directly beneath the windows of **EIGHTY (80) bedrooms**, where working people will be trying to sleep at night, so as to be rested for the coming day. **(Picture 2)**

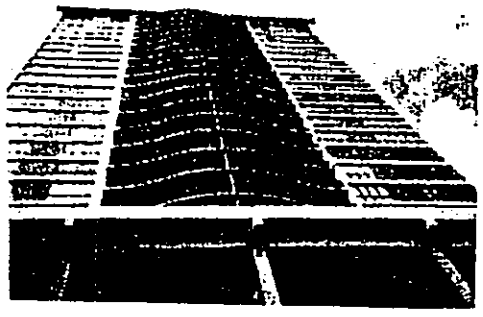
As there has not yet been a selection of the supposedly 'quiet' electric bus, the diesel/tractor buses will be utilized, which are NOTquiet. Because this bottleneck in the route structure, requiring right angle turns of the hinged buses, it will necessitate braking, then powering up again to regain speed, a very noise-generating procedure, which will occur, electric powered or diesel driven.

Picture 1

Photo was taken at the corner of Richards Street and Halekauwila Street, at the point where three instersecting BRT lines will come together, proceeding mauka and makai on Richards Street,

Picture 2 was taken from the centerline of Richards Street.

Eighty (80) bedrooms are forty five feet from this centerline.



Picture 2

3.2.1 Land use and Relocation "Partial or full displacements of businesses, public facilities, or local organizations would be described, if necessary."

Due to the narrow width of Richards Street, (44 ft.), all onstreet parking will be removed to to accommodate the makai/mauka bus lanes and yet include vehicular traffic entering and exiting the parking structures of the following business buildings between King Street and Halekauwila Street:

The City Bank Building	Six (6) stories of parking
The Melim Building	Five (5) stories of parking
Harbor Square Condominiums	Fourteen (14) levels of parking
Ocean View Center	Six (6) levels of parking
The Haseko Building	Five (5) floors of parking

Located on the Diamond Head side of Richards Street, below Merchant Street, is the U.S., Postal Service marshaling yard, facilitating over 150 mail trucks per day throughout the work week, commencing with a lineup each morning from 8:00 to 9:00 AM of postal vehicles awaiting the deliveries to be dispensed, and at times blocking two lanes, as seen in **Pictures 3 and 4.**

Picture 3

Picture 4

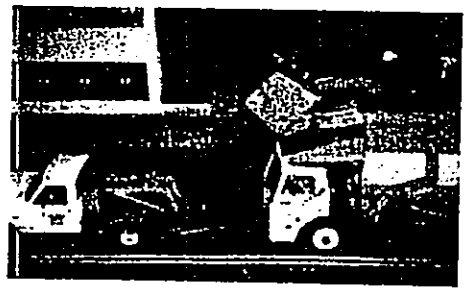
Because of the multiple and varied business utilization on Richards Street, it's narrow width, and the absence of loading docks for both The Melim Building and The OceanView Center, the open street is often utilized for onstreet garbage pickup, moving trucks, courier deliveries, tree trimming and other business requirements. **Pictures 5 thru 8** are examples of daily activity.

Picture 5

Early morning garbage truck pickup

Picture 6

Garbage pickup can close lanes for up to one half hour.



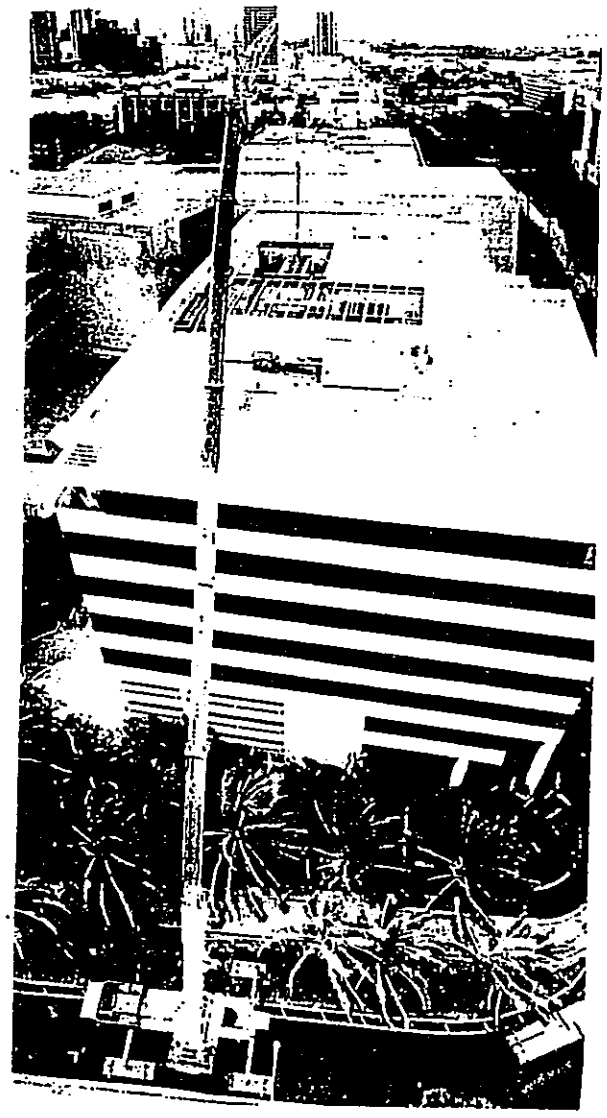
Picture 7

Moving vans can park for up to 6 hours.

Picture 8

A new necessity for busy offices: The shredder truck will usually park for one half hour.

Picture 9



Rooftop maintenance is periodically required on business buildings on this strip.

Richards Street is the only avenue in which large lifting cranes can be situated to facilitate this need.

On August 11th and 18, 2001, Richards Street was closed from Queen Street to Halekauwila St, from 7:00 AM to 4:00 PM, in order to change the air conditioning units atop the Ocean View Center.

4. Significance Evaluation

No. 6. "The proposed modifications are not expected to cause secondary impacts, such as triggering other actions that would cause environmental or social impacts."

In the meeting of the DTS Bus Rapid Transit team, moderated by City Council Chairman, Yoshimura, with the residents of Harbor Square Condominiums, held at Maritime Museum on 17 September 2001, it was made adamantly clear that the addition of SIXTY double carred transit buses, (ONE per minute!), to the exiting traffic from parking garages on Richards Street would cause insoluble gridlock for area workers and residents.

Further, the DTS BRT team also presented the massive, new intersection devised to handle the out going ridership to Waikiki, and the returning Kakaako Makai Alignment line from Aloha Tower, directed mauka up Richards Street. This radical redesign of the Ala Moana Boulevard/Halekauwila Street/Richards Street juncture is fraught with dysfunction. Beneath the street and islands in this area lies a veritable labyrinth of conduits for:

The Honolulu Electric Company (HECO)
The Board of Water Supply
The runoff drainage system for downtown Honolulu

Within a 100 ft. radius at this intersection, are situated **FIFTEEN** manholes, accessing these vital (and aging)service tunnels beneath the streets. (See below for only 3 of the 15.)

Picture 10

These manholes are utilized regularly, and nearly always requiring the coning of one or two lanes of Ewa bound traffic on Ala Moana Blvd., choking traffic to a crawl. Yet this will be the triangular apex of the Kakaako routing. As **ALL** Waikiki routing must pass through this bottleneck, either outbound or inbound, it is foreseeable that the Rapid Bus Transit System servicing Waikiki could be brought to a virtual halt.

Unaddressed here is the Environmental Disfigurement in creating this intersection by the removal of eight (8) 30 ft. palm trees and three plumeria trees, the area to be paved over for double car bus transit. The Outdoor Circle and The Sierra Club may find this of interest.

SUMMARY

As presented, the subject Supplemental DEIS will have enormous detrimental environmental impact upon the segment of Richards Street discussed. It will produce traffic congestion, air pollution, noise pollution and finally, unreliable transit service, due primarily to route selection.

The Bus Rapid Transit plan requires a 'slip,' (or connection) from it's main hub, (Hotel/King Streets) to the Waikiki routes. There are at least four alternatives that would better serve this purpose than Richards Street. They are:

- South Street, (an enormously wide avenue, with moderate traffic)
- Punchbowl Street (a wide street which could also service the Judicial District.)
- Mililani Street (literally unused except for skateboarders and hot dog stands)
- Bishop Street (remove onstreet parking/install dedicated RT lanes)

The Downtown Neighborhood Board, a representative body elected by the people, has voted unanimously against the use of Richards Street as a route for the proposed transit plan. And the majority of residents and businessmen of this area are opposed to it as well. It is our earnest hope that these objections to the degradation of our environment will be studied and incorporated into a more optimal routing of the Bus Rapid Transit plan.

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

March 8, 2002

TPD9/01-04205R

Mr. J. T. Miller
Chairman, Resident Committee to Address
Honolulu SDEIS
Harbor Square Condominium Association
700 Richards Street, #1909
Honolulu, Hawaii 96813

Dear Mr. Miller:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 21, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your comments and our responses are shown on the attached table.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

Attachment

Comment	Response
The routes directed both mauka and makai upon Richards Street, from King Street to Halekauwila Street/Ala Moana Boulevard are judged ill conceived as to functional operation and adherence within the framework of impact upon the environment.	The SDEIS will present the social, economic, and environmental impacts associated with the proposed project refinements. It should be noted that the Kakaako Makai alignment has been refined and will now use the Bishop/Alakea couplet instead of Bishop/Richards from S. King Street to Nimitz Highway.
There are also major unaddressed issues which require total clarification for a comprehensive and acceptable final DEIS.	The SDEIS will present the social, economic, and environmental impacts associated with the proposed project refinements.
3.1.1 Air Quality. As stated "Mesoscale impacts resulting from the proposed modifications are not expected to be different from what was disclosed in the MIS/DEIS." How can that be determined, when there has been no determination/selection as to the device of transportation, i.e. bus/train? Testing could not be completed until such vehicles are in place, especially on the heavily frequented segment of Richards Street between Queen Street and Ala Moana Blvd., which is lined with tall buildings, (one of which being residential).	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between S. King Street and Nimitz Highway. An air quality, microscale analysis will be done at various intersections, to model the anticipated emissions of the candidate technologies. The analysis will be included in the SDEIS.
Utilizing the diesel powered articulated tractor type buses now in use with three lines operating one bus every three minutes, (or 60 buses per hour, or 1 per minute) air quality in this downtown canyon would definitely be required data. It is absent.	Standard diesel buses are not considered a candidate technology for the In-Town BRT system. Technologies proposed for the BRT Alternative include the Embedded Plate technology which consists of electric vehicles powered by a wayside traction power delivery system or Hybrid Propulsion system where energy for the traction power is carried on-board the vehicle. The Embedded Plate technology vehicles would emit zero pollutants. The hybrid electric vehicles would be low-emission vehicles because their diesel engines would always be operating at

Comment	Response
	efficient levels. Since the BRT Alternative would use either zero or low-emission vehicles, it would substantially reduce the level of particulate emissions (black smoke and soot) at certain intersections and street level locations in comparison to the No-Build and TSM Alternatives, which would continue to use diesel buses. An air quality, microscale analysis will be included in the SDEIS at particular intersections.
Section 3.1.2 Noise and Vibration The opening statement of this section states there are no land uses along the proposed In-Town BRT alignment that are sensitive to excess noise such as residences. Located at the corner of Richards and Halekauwila Street, (the bottleneck which the three Kakaako lines intersect), stands a 27 story residential building. All three lines of his reference BRT pass directly beneath the windows of eighty (80) bedrooms, where working people will be trying to sleep at night, so as to be rested for the coming day.	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between S. King Street and Nimitz Highway. Existing noise measurements will be included in the SDEIS and Harbor Square because it includes residences has been included as a site for the noise measurements.
Because this bottleneck in the route structure, requiring right angle turns of the hinged buses, it will necessitate braking, then powering up again to regain speed, a very noise-generating procedure, which will occur, electric powered or diesel driven.	In general, the future noise levels would be lower with the BRT Alternative than with the TSM and No-Build Alternatives. This is due to the use of the quieter electric or hybrid diesel/electric vehicles in the In-Town portion of the BRT Alternative, versus diesel buses operating in the TSM and No-Build alternatives. No vibration impacts are expected. The Embedded Plate Technology would generate minimal noise because its source of energy would be the power strip embedded in the street. The Hybrid Propulsion system

Comment	Response
	vehicles would also be relatively quiet due to its efficient use of fuel. For example, the spurt of higher electric power needed for acceleration is taken mainly from the batteries.
Due to the narrow width of Richards Street (44ft), all on street parking will be removed to accommodate the makai/mauka bus lanes and yet include vehicular traffic entering and exiting the parking structures of the following business buildings between King Street and Halekauwila Street. (Buildings listed).	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between S. King Street and Nimitz Highway.
Located on the Diamond Head side of Richards Street, Below Merchant Street, is the U.S. Postal Service marshaling yard, facilitating over 150 mail trucks per day throughout the work week, commencing with a lineup each morning from 8:00 to 9:00 am of postal vehicles awaiting the deliveries to be dispensed, and at times blocking two lanes.	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between S. King Street and Nimitz Highway.
Because of multiple and varied business utilization on Richards Street, it's narrow width, and the absence of loading docks for both he Melim Building and the Ocean View Center, the open street is often utilized for on street garbage pickup, moving trucks, courier deliveries, tree trimming, and other business requirements.	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between S. King Street and Nimitz Highway.
In the meeting of the DTS Bus Rapid Transit team, moderated by City Council Chairman Yoshimura, with the residents of Harbor Square Condominiums, held at Maritime Museum on 17 September 2001, it was made adamantly clear that the addition of sixty double carred transit buses, (one per minute), to the existing traffic from parking garages	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between S. King Street and Nimitz Highway.

Comment	Response
on Richards Street would cause insoluble gridlock for area workers and residents.	
This radical redesign of the Ala Moana Boulevard/Halekauwila Street/Richards Street juncture is fraught with dysfunction. Beneath the street and islands in this area lies a veritable labyrinth of conduits for: The Honolulu Electric Company (HECO), the Board of Water Supply, and the runoff drainage system for downtown Honolulu.	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between S. King Street and Nimitz Highway. The two candidate technologies, the Embedded Plate System and the Hybrid Propulsion System, both provide the flexibility to operate outside of the designated BRT lanes and therefore can easily maneuver around construction areas, emergency vehicles, and traffic. The BRT Alternative itself would affect few major utilities but many minor ones, particularly if the embedded-plate technology is selected. Coordination with utility providers during planning, final design, and construction would identify problems and provide opportunities to resolve them prior to construction
Within a 100 ft. radius at this intersection, are situated fifteen manholes, accessing these vital (and aging) service tunnels beneath the streets. These manholes are utilized regularly, and nearly always requiring the coning of one or two lanes of Ewa bound traffic on Ala Moana Blvd., choking traffic to a crawl. Yet this will be the triangular apex of the Kakaako routing.	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between S. King Street and Nimitz Highway The two candidate technologies, the Embedded Plate System and the Hybrid Propulsion System, both provide the flexibility to operate outside of the designated BRT lanes and therefore can easily maneuver around construction areas, emergency vehicles, and traffic. The BRT Alternative itself would affect few major utilities but many minor ones, particularly if the embedded-plate technology is selected. Coordination with utility providers during planning, final design, and construction would identify problems and

Comment	Response
	provide opportunities to resolve them prior to construction.
As all Waikiki routing must pass through this bottleneck, either outbound or inbound, it is foreseeable that the Rapid Bus Transit System servicing Waikiki could be brought to a virtual halt.	The two candidate technologies, the Embedded Plate System and the Hybrid Propulsion System, both provide the flexibility to operate outside of the designated BRT lanes and therefore can easily maneuver around construction areas, emergency vehicles, and traffic.
Unaddressed here is the environmental disfigurement in creating this intersection by the removal of eight 30 ft. palm trees and three plumeria trees, the area to be paved over for double car bus transit.	If this comment is referring to the trees located at the juncture of Ala Moana Blvd./Halekauwila St./Richards St., these trees will not be affected since the BRT alignment has been revised to be on Alakea Street.
As presented, the subject Supplemental DEIS will have enormous detrimental environmental impact upon the segment of Richards Street discussed. It will produce traffic congestion, air pollution, noise pollution, and finally, unreliable transit service, due primarily to route selection.	The BRT alignment has been revised to travel on Richards Street between Hotel Street and S. King Street.
There are at least four alternatives that would better serve this purpose than Richards Street. They are: South Street, Punchbowl Street, Mililani Street, and Bishop Street.	The BRT alignment traverses Bishop Street makai-bound. Punchbowl Street and Mililani Street were previously considered and eliminated. South Street was not considered due to its far proximity to downtown.
The Downtown Neighborhood Board, a representative body elected by the people, has voted unanimously against the use of Richards Street as a route for the proposed transit plan. And the majority of residents and businessmen of this area are opposed as well.	Objections to the BRT alignment on Richards Street are noted. The alignment has been refined to operate on Alakea Street between S. King Street and Ala Moana Blvd.

Kakaako Improvement Association

P.O. Box 3776 Honolulu, Hawai'i 96812

September 21, 2001

Mrs. Cheryl D. Soon, Director
Department of Transportation Services
City & County of Honolulu
711 Kapiolani Boulevard, Ste. 1200
Honolulu, Hawaii 96813

Re: Primary Corridor Transportation Project – Supplemental EIS Commentary

Dear Mrs. Soon:

The Kakaako Improvement Association submits the following comments for the supplemental EIS process for the Primary Corridor Transportation Project specifically concerning the BRT routes through Kakaako:

Referencing the presentation you made to KIA on June 13, 2001, we are in agreement that the 3 planned routes will effectively service our community. However, if the Kakaako Makai route is at any time deleted from existing plans, we would like to suggest the following changes:

a. BRT Kakaako – Mauka Branch: The originally proposed route travels east on Halekauwila, turns right on South St., turns left on Pohukaina, turns right on Kamani then turns left on Auahi and travels to the Queen St. stub off Ala Moana Boulevard. This turn-interrupted route would serve the proposed goals better if it used fewer streets and provided a more direct route through Kakaako. In addition, the route is on the perimeter of the "critical mass" that any transit line would service. KIA proposes to locate the route more in the center of this "critical mass" and provide a more efficient and direct route through Kakaako as follows: To continue makai on South St. to Auahi St. turning left on Auahi and traveling straight on Auahi all the way to the Queen St. stub off Ala Moana. In this closer proximity to the "critical mass" of the Ala Moana Boulevard area and in providing a straighter route through Kakaako (thus utilizing fewer individual streets), this proposed route reduces the environmental impact of the project.

b. BRT Kakaako-UH-Manoa Branch: To avoid possible congestion from putting the BRT on Ward Ave. (at King St.) and making a 90 degree turn at the busy intersection of Ward and Kapiolani, KIA proposes that the route continue on King St. to Pensacola, then turn right and make the left turn onto Kapiolani Boulevard at Pensacola. This would not only enhance the operation of the BRT, but would avoid potential traffic congestion at Ward and Kapiolani.

A sketch-map of the proposed new routing is enclosed.

Very truly yours,

Beverly W. Harbin
President

cc: OEQC
Parsons, Brinckerhoff Quade and Douglas, Inc.

DEPARTMENT OF TRANSPORTATION SERVICES
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TPD02-00132

March 8, 2002

Ms. Beverly W. Harbin
President
Kakaako Improvement Association
P. O. Box 3776
Honolulu, HI 96812

Dear Ms. Harbin:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 21, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
We are in agreement that the three planned routes will effectively service our community. However, if the Kakaako Makai route is at any time deleted from existing plans, we would like to suggest the following changes:	Thank you for your comment.
BRT Kakaako-Mauka Branch: KIA proposes to locate the route more in the center of this "critical mass" and provide a more efficient and direct route through Kakaako as follows: to continue makai on South St. to Auahi St. turning left on Auahi and traveling straight on Auahi all the way to the Queen Street stub off Ala Moana. In this closer proximity to the "critical mass" of the Ala Moana Boulevard area and in providing a straighter route through Kakaako (thus utilizing fewer individual streets), this proposed route reduces the environmental impact of the project.	The proposed Kakaako Makai Branch would provide convenient access to the "critical mass" area of Ala Moana Boulevard. The branch would operate along Ilalo Street, one block in the makai of Ala Moana Boulevard. Transit stops would be located at Coral Street and Ahui Street providing easy access to the businesses along Ala Moana Boulevard.

Comment	Response
BRT Kakaako-UH-Manoa Branch: KIA proposes that the route continue on King Street to Pensacola, then turn right and make a left turn onto Kapiolani Boulevard at Pensacola. This would avoid potential traffic congestion at Ward and Kapiolani.	One of the proposed modifications to the BRT Alternative is to realign a portion of the Kakaako-UH Manoa branch as suggested. The branch would continue along South King Street to Pensacola Street to Kapiolani.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

Cheryl D. Soon
Director

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0001

GEN-8 (EIS/EA)

October 4, 2001

Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Attention: Ms. Cheryl D. Soon

Subject: **Primary Corridor Transportation Project**

Thank you for the opportunity to comment on the August 2001 Supplemental DEIS for the Primary Corridor Transportation Project, as proposed by the Department of Transportation. We have reviewed the subject document and have no comments at this time.

HECO shall reserve further comments pertaining to the protection of existing powerlines bordering the project area until construction plans are finalized. Again, thank you for the opportunity to comment on this Supplemental DEIS.

Sincerely,

Kirk Tomita
Senior Environmental Scientist

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP10/01-04463R

March 8, 2002

Mr. Kirk Tomita
Senior Environmental Scientist
Hawaiian Electric Company, Inc.
P. O. Box 2750
Honolulu, Hawaii 96840-0001

Dear Mr. Tomita:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your October 4, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

Koby, Ann

From: Miyamoto, Faith [fmiyamoto@co.honolulu.hi.us]
Sent: Wednesday, August 22, 2001 6:57 PM
To: Ann Koby (E-mail); Susan Killen (E-mail)
Subject: SDEIS Preparation Notice

Hi Ann and Susan -

Received our first comment on the SDEIS Preparation Notice from Lynne Matusow. In Section 2.1, in the description of the Kakaako Makai alignment, we say that currently the alignment goes on the Hotel Street Mall until the split at North King Street and Richards Street. King Street in that area is South King Street. Please note this error. Thanks.

Faith Miyamoto
Department of Transportation Services
City & County of Honolulu
(808) 527-6976
fmiyamoto@co.honolulu.hi.us

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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TPD02-00131

March 8, 2002

Ms. Lynne Matusow, Chair
Downtown Neighborhood Board No. 13
Neighborhood Commission
Honolulu Hale
City Hall, Room 400
Honolulu, Hawaii 96813

Dear Ms. Matusow:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your August 22, 2001 phone call regarding the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. During that phone conversation with Faith Miyamoto, you advised that the Preparation Notice Section 2.1 – describing the Kakaako Makai Bus Rapid Transit alignment stated that the alignment currently travels on the Hotel Street Mall until the split at North King Street and Richards Street. You advised that King Street in this area is South King Street. This has been revised.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

From: Lee Manfredi, Secretary
Board of Directors
Waialae-Kahala Neighborhood Board, No.3
4134-1 Keanu Street
Honolulu, HI 96816
Tel./Fax: (808) 735-8466

To: Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, HI 96813
Tel.: (808) 523-4529 Fax: (808) 523-4730
Internet: www.co.honolulu.hi.us

Refer: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Dear Ms. Soon, September 21, 2001

On behalf of the Waialae-Kahala Neighborhood Board, I have reviewed the Supplemental DEIS Preparation Notice that was sent to the Waialae-Kahala Neighborhood Board, dated August 16, 2001. I have reviewed the proposed modifications and impact studies and find the proposals acceptable. I have no recommendations for changes to the proposals at this time.

There was a comment repeated by several residents: the projects seemed hopeful but there were some basic problems still unanswered; where the project involved utilizing arterial streets, those streets have speed limits that are out of date with the current use and design of those streets. There are speed limits set at 25 or 30 MPH on streets and roadways that should be upped to at least 35 to 40 MPH, and 40 that should be upped to 45 MPH. These roadways with the low speed limits appear before or after a freeway entry or exit, i.e., Kalanianaole Highway east bound toward Aina Haina.

Also, the intersection traffic lights are not synchronized at all anywhere. Huge traffic jams are further exasperated when the traffic lights run independently of each other, i.e., Beretania Street westbound toward downtown. In other cities like San Francisco and Chicago where mass transit is widely accepted and utilized, traffic lights are synchronized for efficient and expedient vehicular movement. Hawaii's traffic light management is a joke that some residents say, there isn't any, really. Why has there not been an attempt to address these two problems? These were comments that I thought I'd pass on to you.

Sincerely yours,

Lee Manfredi

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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP9/01-04229R

March 8, 2002

Ms. Lee Manfredi, Secretary
Waialae-Kahala Neighborhood Board No. 3
4134-1 Keanu Street
Honolulu, Hawaii 96816

Dear Ms. Manfredi:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 21, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
I have reviewed the proposed modifications and impact studies and find the proposals acceptable. I have no recommendations for changes to the proposals at this time.	Thank you for taking the time to review the SDEISPN.
Where the project involved utilizing arterial streets, those streets have speed limits that are out of date with the current use and design of those streets. There are speed limits set at 25 or 30 MPH on streets and roadways that should be upped to at least 35 to 40 MPH, and 40 that should be upped to 45 MPH. These roadways with the low speed limits appear before or after a freeway entry or exit, i.e. Kalanianaole Highway east bound toward Aina Haina.	It is not within the scope of the Primary Corridor Transportation Project to reset speed limits on arterial streets.

The intersection traffic lights are not synchronized at all anywhere. Huge traffic jams are further exasperated when the traffic lights run independently of each other, i.e. Beretania Street westbound toward downtown.	Signal coordination along the BRT alignments will be reviewed and optimized.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

September 7, 2001

Ms. Donna Turchie
Senior Transportation Representative
Region IX
Federal Transit Administration
U.S. Department of Transportation
201 Mission Street, Suite 2210
San Francisco, California 94105-1839

Dear Ms. Turchie:

Subject: Primary Corridor Transportation Project
Major Investment Study/Draft Environmental Impact Statement

S.1 NEED FOR ACTION

Every resident including participants of the Oahu Trans 2K workshops agree that Oahu's traffic is a problem. Most feel strongly that proposed improvements must be reasonably affordable and willingly to pay for an alternative that will work and help with the ever increasing traffic congestion. But significantly will say "no" if they really know that an In-Town alternative will increase traffic congestion. The purpose of the Primary Corridor Transportation Project Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS) is to examine a range of alternative investments and identify the one that would most efficiently and effectively improve both the transportation system in the primary transportation corridor and the connections between the corridor and the rest of the island.

1. Increase the people-carrying capacity of the transportation system in the primary transportation corridor by providing attractive alternatives to the private automobile

With the number of people living and working in Honolulu's urban core, a significant and key strategy is to get people out of their cars while they move around the city. It requires alternative modes such as walking, bicycling and using public transit that is "rapid" and to avoid "at-grade" traffic situations that are frequent on the road system. Reducing congestion will decrease the time transport trucks find themselves caught in traffic, which will in turn lower the cost of consumer goods they deliver. And keeping our vehicles moving instead of "traffic-jammed" means we'll spend less time fouling the air and wasting expensive fuel.

For many, the biggest bonus will be having no need to waste time looking for a parking spot. A "rapid" alternative transit system should never be stopped by traffic jams, accidents, pedestrians, emergencies or construction of infrastructure repairs below or at-grade of our street rights-of-way.
The transit system must be made convenient for the user, offering rapid and dependable travel times to effectively take more automobiles off our streets. If public transit is not "rapid" and convenient less cars will be taken off our streets and highways. It will not be an attractive alternative to automobile travel and the public will eventually roar with disapproval and complain to responsible City Council members and State officials to the chosen transit alternative.

S.2 ALTERNATIVES CONSIDERED and NOT CONSIDERED

S.2.1 Summary of Alternatives

The 21st Century Oahu Visioning process began in September 1998 and consisted of a series of neighborhood-based community meetings designed to enhance public input in planning the vision for Oahu communities.

After Rounds 1 and 2 of the Oahu Trans 2K meeting, public and agency input was combined with technical analysis to define an initial set of alternatives. Only No-Build, Enhanced Bus/Transportation System Management (TSM), Bus Rapid Transit (BRT), and Light Rail Transit (LRT) were considered. *A cost-effective shorter grade-separated light rail alternative most over existing street rights-of-way was not included* to be an alternative for the In-Town portion. A suggested grade-separated light rail alternative shorter than the proposed In-Town BRT with a length of approximately 7.70 miles from the proposed Middle Street Transit Station could have been included for the In-Town portion and terminating in the University of Hawaii Quarry. Light Rail Transit is defined as a transit mode characterized by its ability to operate in both at-grade and/or grade-separated environment, and usually operating in smaller trains consisting of 2, 4, or 6 vehicles. As the chosen Locally Preferred Alternative (LPA) the last time and within the last ten years it should have been again naturally included, for comparison, once and for all to see and comment on.

There was no actual vote taken for a choice of a public transit alternative among the participants at these Oahu Trans 2K meetings except for individuals who wanted to express, in their own words, at these meetings or chose to put their thoughts in written form, which were few, as public records will show if any were kept. Individuals representing several environmental and community organizations were at these meeting who spoke up quite a bit.

However, the amended locally preferred alternative (LPA) back in 1992 was for a grade-separated aerial structure with an alignment of 15.9 miles long with 22 transit stations. The State Legislature enabled the City Council to levy a 0.5% surcharge on the local General Excise and Use Tax. However, the City Council by a single vote did not enact this General Excise Tax surcharge to ensure the local share of funding for the project although City Council previous actions were favorable to implementation of the project. It would be built today and running if the vote was different.

Active public involvement is critical to the success of any project with significant impact on the community. The process should ensure that critical community concerns and technical issues are identified early in the study and addressed in the engineering, environmental, economic, and financial analyses, so alternatives and ultimately the locally preferred alternative effectively responded to community needs and preferences and satisfy local, State, and federal environmental clearance requirements. Was it a done deal to guide the process from the beginning by the city's Department of Transportation and its hired consultants to put the Bus Rapid Transit (BRT) as a preferred final choice somehow by eliminating a superior grade-separated light rail alternative?

So the grade-separated amended locally preferred alternative (LPA) which included a corridor for the Honolulu Rapid Transit Program began from the vicinity of Waiawa and follows Kamehameha Highway until passing Honolulu International Airport and follows Dillingham Boulevard into the Central Business District (CBD). The guideway then goes along Nimitz Highway, follows Halekauwila Street, Ward

Avenue, Waimanu Street, and Kona Street to the Ala Moana Center. The alignment continues along Kona Street, Atkinson Drive, and Kapiolani Boulevard to University Avenue, terminating at the University of Hawaii Quarry.

The Final Environmental Impact Statement (FEIS) will show local citizens significantly supported the rapid transit proposal as the locally preferred alternative (LPA). Chapter 7, Comments and Responses, within the document list the record of substantive comments received on the Alternative Analysis/Draft Environmental Impact Statement (AA/DEIS) and the Supplemental Draft Environmental Impact Statement (SDEIS) during the public comment period and responses to those concerns. Both written and oral comments provided at the public hearings are included.

S.3 IMPACTS AND MITIGATION

The transportation analyses indicated that major regional roadways would still have traffic bottlenecks in 2025 under any of the alternatives. According to a U.S. Department of Transportation, Federal Transit Administration website: http://www.fta.dot.gov/research/pdf/ibrt.pdf there are problems of arterial bus priority treatments (Bus Rapid Transit).

Extensive development of High Occupancy Vehicles (HOV) lanes in the case of busways to improve bus service on the highways connecting suburban and downtown areas represent a significant effort which is similarly proposed in our Primary Corridor Transportation Project. However, providing high quality service within the downtown sections of metropolitan areas like Honolulu which is the key to the Bus Rapid Transit concept has not been the subject of a comparable effort in the rest of the U.S. Mobility within congested urban centers like Honolulu is essential to support economic and social functions of the city and to sustain high levels of transit ridership.

In most cities including Honolulu, a number of factors can impede the upgrading of rights-of-way to provide for exclusive bus lanes on our local city streets. The most basic obstacle to creating a bus lane in Honolulu is the lack of an adequate cross section to separate buses from general-purpose traffic. At a minimum, bus lanes require an 11-foot cross section per direction. On most major two-way streets in Honolulu, the creation of even a single bus lane will limit at least one direction of general-purpose traffic to a single lane, likely producing serious adverse consequences for general-purpose traffic. Wide one-way streets, which we don't have, can provide opportunity to dedicate a lane for exclusive bus use although this too will produce adverse effects on general-purpose traffic flows and scarcity of on-street parking spaces.

Locating a bus lane along a curb or in the median of a two-way street conflicts are created with right- or left-turning vehicles. The need to allow general-purpose traffic to use a bus lane for turning interferes with bus operations, increasing travel time and adding to problems of enforcing the restriction of the lane to buses under all other circumstances. Curbside parking by emergency, delivery and service vehicles also obstructs bus movement and is particularly disruptive if the bus lane is restricted to a single lane width. Dual bus lanes are superior to single-width lanes but obviously require a wider cross-section (right-of-way) which Honolulu does not have in most cases. A drawback of median bus lanes is that passengers must walk across general-purpose traffic lanes to reach the bus stop.

Because of the existing cross-section of most streets (rights-of-way) are very narrow the geometry does not allow queue bypass lane segments. These "queue jumps" allow buses to circumvent traffic at an

intersection approach and thereby allow for faster average traveling times. A major limitation on bus signal preference is the adverse effect associated with reduction of green signal time for general-purpose traffic on the cross streets. Honolulu cross streets are much closer on the average in comparison with larger mainland cities. The constraints imposed by traffic signal progression will limit effective application of signal preemption along the In-Town portion of the corridor.

There is a trade-off between the improvement in travel times that can be achieved by reducing the number of bus stops in a BRT versus a conventional bus service with convenient access made possible by frequent stops. Because of the use of narrow platforms because of very narrow street rights-of-way the so-called transit stations will not eliminate the need to restrict boarding to the front door of the bus which takes additional time.

A potential option for doing away with a variety of physical constraints on boarding would be greater use of enclosed bus waiting transit facilities where passenger would be required to enter waiting areas in advance to allow boarding through all doors of the bus. All passengers could pay fares within the boarding areas before boarding the bus, thus reducing bus dwell times. However, because of the cross-section (rights-of-way) width of all our streets makes it rare and impractical. Enclosed boarding areas take up significant sidewalk space and capital, operating and maintenance cost. Thus conventional boarding procedures would continue at most stations which will increase bus travel times along the corridor.

System integration becomes an issue when the need to provide transfers between routes and other forms of public transportation where passengers pay fares at these transfer points with on board payment. Another concern is when specialized vehicle boarding features designed to be compatible with platforms in enclosed areas may impose constraints on the deployment of a transit system's vehicle fleet.

S.3.1 Transportation Impacts

The Draft Environmental Impact Statement (DEIS) does not give details on the impact with the loss of one and in most cases two lanes of multi-purpose traffic lanes within the proposed corridor. Giving priority to the proposed BRT will cause additional delays at cross streets and pedestrian cross-walks creating additional traffic congestion at these locations. With our cross streets at these intersections much closer than most other U.S. cities this problem is not addressed satisfactorily. If the existing rights-of-way could accommodate an additional BRT lane both ways to allow a minimum of two lanes of multi-purpose automobile traffic each way I would see much more success for the In-Town Bus Rapid Transit portion for the Primary Corridor Transportation Project for the City and County of Honolulu than currently.

Transit Supply

Further more a grade-separated light rail system would do the most to improve the capacity of the transportation system to carry people through Honolulu as the population thrives through 2025. Many of the factors that motivate consumer buying decisions also influence transportation choices. Improved access to a transit system (car or bus) combined with the knowledge that a grade-separated light rail system is always available and "rapid" with the capability of being available as much as one and a half minute apart during peak hours and also available as "rapid" during off-peak hours as fast as four to five minutes apart because of its own guideway and lowest operating cost of any transit alternative.

no moving parts and rarely need maintenance, and needing far less energy than other rapid transit systems making it one of the most relisble in the world. It can be far quieter than the system proposed as the locally preferred alternative (LPA) in the FEIS for the Honolulu Rapid Transit Program of July 1992. The frequency of the automated and driverless transit vehicles can run as frequently as one-and-a-half minutes apart. Special events within the CBD, Waikiki, University of Hawaii and other sites will be provided with a "rapid" transportation alternative unlike a BRT which is slow with an average of 8 minutes or more between vehicles during peak times with the necessity of drivers for each vehicle and thereby added labor cost.

Instead of waiting on platforms, this "rapid" transit alternative gets moving quickly, especially at night, when we don't want to wait a long time to get on the train. It can run about every five minutes at night, and do so without significant added costs or faster if needed.

A grade-separated light rail system cost less in the long term and offers great benefits. It will require a larger initial investment, but benefits are well worth it: speed, reliability, capacity and comfort. It can move more people than competing technologies due to these benefits the operating costs are lower than other rapid transit systems and that mean lower costs well into the future. Because of a shorter grade-separated light rail transit system than previously suggested in 1992 will make this In-Town portion much more an affordable one and the best choice to make more people use this "rapid" alternative than a much slower bus rapid transit system alternative.

By not being part of the problems on the streets is most assured than the proposed In-Town BRT which hasn't really addressed the additional traffic congestion it will create due to the loss of one and most cases two multi-purpose traffic lanes and proposed shorter green light times for the cross streets along the proposed corridor. The lack of a sufficient cross-section width of most of our existing street rights-of-way will contribute significantly, when implemented, to our traffic congestion almost immediately rather than help it.

Using Traffic Summary Information made available by the State of Hawaii, Department of Transportation, Highways Division, which was prepared by the Planning Branch in cooperation with the U.S. Department of Transportation, Federal Highway Administration will show immediate and additional traffic congestion where the In-Town BRT will have exclusive or near-exclusive use of lanes formerly used by multi-purpose traffic.

Screen lines properly selected along natural barriers to traffic within a city provide a means of checking the number and types of vehicles moving from one part of the city to the other across the screen lines.

To function properly, a screen line must extend entirely across the city. It should be reasonably straight or at least so located with respect to existing thoroughfares as to minimize the possibility of trips crossing the line twice. It should also intercept large volumes of traffic, but should not pass directly through the central business district.

There are four such screen lines in the city of Honolulu: *Selected

1. *Kalihi Stream Screen Line
2. *Kapalama Drainage Canal Screen Line
3. Nuuanu-Waolani Streams Screen Line

4. *Manoa-Palolo Drainage Canal Screen Line

Their vehicular records are shown in the following page(s) on a CD-Rom disc which is powered by an included software program called PaperVision ER, Version 9.0. For simplicity only some the facilities are used and listed which will show that existing multi-purpose traffic in the proposed BRT corridor, as well as around and near the same, will be changed significantly because of the loss of one or more multi-purpose traffic lanes and the action will be cumulative.

Using Dillingham Boulevard, as an example, in the years of 1998 and 1999, you can see the 24-Hour Traffic Volumes, as shown below, from Traffic Summaries. What will the loss of 50% of the multi-purpose traffic lanes on Dillingham Boulevard create as a result? Obviously major streets nearby have to make up the loss like School Street, King Street, and Nimitz Highway. We will see increase in multi-purpose traffic volume in both easterly and westerly directions as well as nearby northerly and southerly directions and additional traffic congestion. Existing cross streets within and around the Central Business District (CBD) will also be significantly affected by shorter green light times and more traffic and pedestrian congestion.

Also from the same source of information, available only on a CD-ROM disc, beginning this year for years 1998 and 1999 Traffic Summaries, Island of Oahu, are Traffic Counts for the Manoa-Palolo Drainage Canal - Ala Wai Canal Screen Line Counts - 24-Hour Traffic Volumes. What will happen with the loss of multi-purpose traffic lanes in each direction on this portion of Ala Moana Boulevard at the Ala Wai Bridge to accommodate the BRT?

Obviously multi-purpose traffic lanes within the corridor here for the BRT as well as those nearby and adjacent will experience additional traffic congestion. With the loss of multi-purpose traffic lanes traffic volumes on nearby and adjacent major streets will increase to adjust to the current number of cars that use Ala Moana Boulevard. Constant monitoring of exclusive BRT lanes for compliance of non-use by multi-purpose traffic will be a continuing problem as well as respect by pedestrians to traffic signals when crossing multi-purpose traffic lanes to get to bus stops.

1998 and 1999 24-HOUR TRAFFIC COUNT- STATION SUMMARY
Source: Traffic Summary, Island of Oahu
State of Hawaii, Department of Transportation, Highways Division
Prepared By The PLANNING BRANCH in cooperation with the
U.S. Department of Transportation, Federal Highway Administration

Comparison of Kalihi Stream Screen line Counts -- 24-Hour Traffic Volumes. *Selected

Station Number	Facility	1998 Total	1998 East	1998 West	1999 Total	1999 East	1999 West
SL-10	* Nimitz Highway	79,733	41,245	38,488	84,160	43,950	40,210
SL-11	* Dillingham Blvd.	39,828	22,785	17,043	38,943	20,734	18,209
SL-12	* King Street	26,127	15,427	10,700	24,321	14,186	10,135

no moving parts and rarely need maintenance, and needing far less energy than other rapid transit systems making it one of the most reliable in the world. It can be far quieter than the system proposed as the locally preferred alternative (LPA) in the FEIS for the Honolulu Rapid Transit Program of July 1992. The frequency of the automated and driverless transit vehicles can run as frequently as one-and-a-half minutes apart. Special events within the CBD, Waikiki, University of Hawaii and other sites will be provided with a "rapid" transportation alternative unlike a BRT which is slow with an average of 8 minutes or more between vehicles during peak times with the necessity of drivers for each vehicle and thereby added labor cost.

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Obviously multi-purpose traffic lanes within the corridor here for the BRT as well as those nearby and adjacent will experience additional traffic congestion. With the loss of multi-purpose traffic lanes traffic volumes on nearby and adjacent major streets will increase to adjust to the current number of cars that use Ala Moana Boulevard. Constant monitoring of exclusive BRT lanes for compliance of non-use by multi-purpose traffic will be a continuing problem as well as respect by pedestrians to traffic signals when crossing multi-purpose traffic lanes to get to bus stops.

1998 and 1999 24-HOUR TRAFFIC COUNT- STATION SUMMARY
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SL-12	* King Street	26,127	15,427	10,700	24,321	14,186	10,135

SL-13	* School Street	17,081	8,920	8,161	16,461	7,756	8,705

Note: Dillingham Boulevard, next to Nimitz Highway, has the second largest 24-Hour Traffic Volume in 1998 and 1999 of all Facilities selected for the Kalihi Stream Screen line Counts. Dillingham Boulevard is portion of the corridor selected for the In-Town BRT.

1998 and 1999 24-HOUR TRAFFIC COUNT - STATION SUMMARY
Source: Traffic Summary, Island of Oahu
State of Hawaii, Department of Transportation, Highways Division

Comparison of Kapalama Drainage Canal Screen line Counts -- 24-Hour Traffic Volumes, *Selected

Station Number	Facility	1998 Total	1998 East	1998 West	1999 Total	1999 East	1999 West
SL-20	*Nimitz Highway	71,277	35,945	35,332	75,545	37,290	38,255
SL-21	*Dillingham Blvd	29,039	15,705	13,334	26,084	14,397	11,687
SL-22	*King Street	26,902	14,766	12,136	24,717	12,581	12,136
SL-24	*School Street	18,854	11,056	7,798	19,470	11,778	7,692

Note: *Dillingham Boulevard, next to Nimitz Highway, has the second largest 24-Hour Traffic Volume in 1998 and 1999 of all Facilities selected for Kapalama Drainage Canal Screen line Counts. Dillingham Boulevard is portion of corridor designated for the In-Town BRT.

1998 and 1999 24-HOUR TRAFFIC COUNT - STATION SUMMARY
Comparison of Manoa-Palolo Drainage Canal - Ala Wai Canal Screen line Counts -- 24-Hour Traffic Volumes, *Selected

Station Number	Facility	1998 Total	1998 East	1998 West	1999 Total	1999 East	1999 West
SL-50	*Ala Moana Blvd	45,254	21,975	23,279	45,392	21,345	24,047
SL-51	*Kalakaua Ave.	50,784	23,963	26,821	40,356	22,728	17,628
SL-54	*Kapiolani Blvd	19,866	6,740	13,126	17,744	6,563	11,181
SL-55	*King Street	28,784	28,784	--	29,416	29,416	--

Note: *Ala Moana Blvd. at Ala Wai Canal Bridge has largest 24-Hour Traffic Volume in 1999 of all Facilities selected for Manoa-Palolo Drainage Canal-Ala Wai Screen Line Counts. Ala Moana Boulevard is portion of the corridor selected for the In-Town BRT.

Prepared by: Wendell Lum

Note: 1998 and 1999 24-HOUR TRAFFIC COUNT compiled from CD-ROM disc available from Hawaii State Library and State of Hawaii, PLANNING BRANCH, Department of Transportation, Highway Division

Mahalo,

Wendell Lum
(member, Kaneohe Neighborhood Board, No. 30)
(member, Citizen Advisory Committee of the Oahu Metropolitan Planning Organization

cc: Office of Environmental Quality Control, State of Hawaii
Honorable Benjamin Cayetano, Governor, State of Hawaii
Ms. Cheryl Soon, Director, Department of Transportation Services

DEPARTMENT OF TRANSPORTATION SERVICES
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

March 8, 2002

TP9/01-04066R

Mr. Wendell Lum
45-135 Lilipuna Road
Kaneohe, Hawaii 96744-3022

Dear Mr. Lum:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 7, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your comments and our responses are shown on the attached table.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

Attachment

Comments	Response
After Rounds 1 and 2 of the Oahu Trans 2K meeting, public and agency input was combined with technical analysis to define an initial set of alternatives. Only No-Build, Enhanced Bus/Transportation System Management (TSM), Bus Rapid Transit (BRT), and Light Rail Transit (LRT) were considered. A cost-effective shorter grade-separated light rail alternative most over existing street rights-of-way was not included to be an alternative for the In-Town portion. As the chosen Locally Preferred Alternative (LPA) the last time and within the last ten years it should have been again naturally included, for comparison, once and for all to see and comment on.	A fully grade-separated transit system was considered and rejected since it was determined that the public was not in favor of an elevated transit system because of its high cost and its physical and visual impacts. This is discussed in Chapter 2.6.1 of the MIS/DEIS.
The process should ensure that critical community concerns and technical issues are identified early in the study and addressed in the engineering, environmental, economic, and financial analyses...	The Primary Corridor Transportation Project is following the requirements of the National Environmental Policy Act (NEPA) and Chapter 343 of the Hawaii Revised Statutes (HRS), as amended. The purpose of the NEPA and HRS processes is to ensure that accurate environmental studies are performed, that they are done with public involvement, and that public officials make decisions based on an understanding of environmental consequences. For the past two years the City and County of Honolulu (City) has conducted the 21st Century Oahu visioning process including its transportation component, Oahu Trans 2K. It has been the most extensive community-based transportation planning effort in the City's history and it is the principal public outreach medium for the Primary Corridor Transportation Project. During the DEIS process, in addition to the required scoping meetings, meetings with over 100 governmental agencies, elected officials, businesses, and business, community, and civic organizations to present the elements of the Final Mobility Plan and gather information and comments.

Comments	Response
	Over 70 presentations were made at community-sponsored meetings that were held prior to issuance of the MIS/DEIS. The formal public hearing was held on October 12, 2000. The City Council Transportation Committee has been continuously briefed on the project status since inception. In anticipation of the LPA decision, the City Council Transportation Committee conducted a series of public hearings out in the districts throughout the primary transportation corridor after the MIS/DEIS was distributed. After the LPA was selected, the City Council asked the DTS to continue public dialogue on the project. Community working groups were formed to provide a forum for open dialogue between project sponsors and neighborhood, civic, business and other organizations so that environmental and transportation issues and refinements to project proposals could be discussed. Five working groups were formed and several meetings held with each group regarding the project. As a result of the working groups, this SDEIS has resulted to address the project refinements resulting from the working groups' efforts. In addition to the working groups, the project team members have been meeting with numerous individuals, agencies, and organizations. Over 100 meetings have been conducted since January 2001.
Was it a done deal to guide the process from the beginning by the City's Department of Transportation and its hired consultants to put the Bus Rapid Transit (BRT) as a preferred final choice somehow by eliminating a superior grade-separated light rail alternative?	It is a federal requirement that all alternatives be treated in a balanced manner and the DEIS has been reviewed to ensure that this "balanced treatment" requirement is met. Even at this point in the process, there is no foregone conclusion that the BRT Alternative would be implemented. Until there is a completed Record of Decision (ROD), the preferred alternative is not for certain. After the ROD is issued, construction funding will be procured to implement the

Comments	Response
	project. A fully grade-separated transit system was considered and rejected since it was determined at the outset that the public was not in favor of an elevated transit system because of its high cost and its physical and visual impacts. This is discussed in Chapter 2.6.1 of the MIS/DEIS.
According to the U.S. Department of Transportation website: http://www.fta.dot.gov/research/pdf/iibrt.pdf there are problems of arterial bus priority treatments (Bus Rapid Transit).	Although there are obstacles to successful implementation of a BRT system, it can provide a flexible and cost-effective method of public transportation. When properly developed in conjunction with land use policies and development plans, the BRT system can provide fast, reliable, and convenient transit service to cities and suburbs. It can also lead to compact, pedestrian-oriented, and environmentally sensitive development that preserves neighborhoods and open space.
Providing high quality service within the downtown sections of metropolitan areas like Honolulu which is the key to the Bus Rapid Transit concept has not been the subject of a comparable effort in the rest of the U.S.	The BRT is based on the most ubiquitous technology around the world - the bus. It has been continually improved and updated with BRT being the most recent application of this proven technology. The key BRT features being proposed in Honolulu have been tested and proven in cities throughout the world including Curitiba and Sao Paolo, Brazil; Brisbane and Adelaide, Australia; Auckland, New Zealand: Vancouver and Ottawa, Canada; Dublin Ireland; Nagoya, Japan; New York City, Los Angeles, Pittsburgh, and Orlando in the U.S.
The most basic obstacle to creating bus lanes in Honolulu is the lack of adequate cross section to separate buses from general purpose traffic.	The BRT Alternative is comprised of a mix of exclusive BRT, semi-exclusive BRT and mixed-use lanes. The BRT system strives to strike a balance between transit speed and impacts to general traffic. In segments where it was judged that roadway capacity was needed for general traffic and the BRT operation would not be significantly affected, exclusive lanes were replaced by either semi-exclusive or mixed-flow operation. In areas of high BRT ridership volumes, exclusive transit lanes were retained such as on Dillingham and through Downtown.

Comments	Responses
The need to allow general purpose traffic to use a bus lane for turning interferes with bus operations, increasing travel times and adding to problems of enforcing the restriction of the lane to buses under all other circumstances.	The BRT system strives to strike a balance between transit speed and impacts to general traffic. In segments where it was judged that roadway capacity was needed for general traffic and the BRT operation would not be significantly impacted exclusive lanes were replaced by either semi-exclusive or mixed-flow operation. In areas of high BRT ridership volumes, exclusive transit lanes were retained such as on Kapiolani and through Downtown. The BRT lanes will be clearly delineated and signed. Since large, specially marked BRT vehicles will be utilizing these lanes it will be obvious which vehicles are violators and therefore it will not take much law enforcement manpower to monitor and enforce the lane designation. There will be an enforcement mechanism developed to discourage private vehicles from entering BRT-exclusive lanes. These enforcement mechanisms may be in the form of a fine for entering a BRT-exclusive lane, similar to the fines imposed on the existing HOV lanes.
Curbside parking by emergency, delivery, and service vehicles also obstructs bus movements and is particularly disruptive if the bus lane is restricted to a single lane width.	The two technologies under consideration, the Embedded Plate System and the Hybrid Propulsion System both provide the flexibility to operate outside of the designated BRT lanes. Therefore, the BRT vehicles would bypass the vehicle that is parked along the curve by maneuvering around the vehicle.
A drawback of median bus lanes is that passengers must walk across general purpose traffic lanes to reach the bus stop.	The conceptual design of transit stops located in the median includes features such as railings to discourage transit patrons from exiting the platform except at designated locations. Traffic signals and crosswalks will be provided at BRT stations to allow pedestrians to safely cross the street.
The constraints imposed by traffic signal progression will limit effective application of signal preemption along the In-Town	Traffic signals will utilize prioritization for BRT vehicles not pre-emption. At certain intersections, BRT vehicles approaching a green

Comments	Responses
portion of the corridor.	signal will activate an extension of the green indication for that cycle only. BRT vehicles stopped at a red signal will move concurrently with the through traffic in the same direction, unless the BRT vehicle must turn or change lanes, in which case it will be given a green signal in advance of the general purpose traffic lanes. All traffic signal extensions and advance indications will be timed in the field during actual operation to minimize effects on general traffic flow.
Because of the use of narrow platforms because of very narrow street rights-of-way the so-called transit stations will not eliminate the need to restrict boarding to the front door of the bus which takes additional time.	The transit stops will be designed to efficiently handle the expected volume of passengers.
System integration becomes an issue when the need to provide transfers between routes and other forms of public transportation where passengers pay fares at these transfer points with on board payment.	The BRT system will be seamlessly integrated into the hub-and-spoke bus network by implementing well-planned stops, efficient dwell times and a stream-lined fare collection and transfer system to provide convenient and cost-effective service for potential users.
The DEIS does not give details on the impact with the loss of one and in most cases two lanes of multi-purpose traffic lanes within the proposed corridor.	See Chapter 4 of the MIS/DEIS for the discussion of traffic related impacts.
Giving priority to the proposed BRT will cause additional delays at cross streets and pedestrian cross-walks creating additional traffic congestion at these locations.	Traffic signals will not be pre-empted by the BRT. At certain intersections, BRT vehicles approaching a green signal will activate an extension of the green indication for that cycle only. BRT vehicles stopped at a red signal will move concurrently with the through traffic in the same direction, unless the BRT vehicle must turn or change lanes, in which case it will be given a green signal in advance of the general purpose traffic lanes. All traffic signal extensions and advance indications will be timed in the field during actual operation to minimize effects on general traffic flow.
A grade-separated light rail system would do the most to improve the capacity of the transportation system to carry people through Honolulu as the population thrives through 2025.	A fully grade-separated transit system was considered and rejected since it was determined at the outset that the public was not in favor of an elevated transit system due to its high cost and its physical and visual impacts. This is

Comments	Responses
	discussed in Chapter 2.6.1 of the MIS/DEIS.
Because of its exclusive guideway would increase the mode share of transit more than any other alternative travel time savings for transit patrons, providing most reliable service that would be buffered from traffic delays, improving in-town mobility and strengthening the connections throughout the island of Oahu.	A fully grade-separated transit system was considered and rejected since it was determined at the outset that the public was not in favor of an elevated transit system due to its high cost and its physical and visual impacts. This is discussed in Chapter 2.6.1 of the MIS/DEIS.
The nature of the exclusive right-of-way for the grade-separated light rail would provide significantly faster travel times within Honolulu.	A fully grade-separated transit system was considered and rejected since it was determined at the outset that the public was not in favor of an elevated transit system due to its high cost and its physical and visual impacts. This is discussed in Chapter 2.6.1 of the MIS/DEIS.
The constant at-grade situations of pedestrians, automobile traffic, traffic lights, emergency vehicles, construction and repairs of underground utilities below the exclusive lanes of the BRT, traffic accidents, long stops because of passenger loading limitations, exceptional narrow bus stops, and more time between vehicles don't help the situation.	The BRT system is an at-grade system and as such does interface with other features at that level. However, the two candidate technologies, the Embedded Plate System and the Hybrid Propulsion System, both provide the flexibility to operate outside of the designated BRT lanes and therefore can easily maneuver around construction areas, emergency vehicles, and traffic.
Additionally monitoring of both exclusive and shared lanes with the BRT will be a problem and more adjustments to satisfy problems with the communities nearby, currently going on, will cause additional mediation with a Bus Rapid Transit System to further deteriorate the word "rapid."	The BRT lanes will be clearly delineated and signed. Since large, specially marked BRT vehicles will be utilizing these lanes it will be obvious which vehicles are violators and therefore it will not take much law enforcement manpower to monitor and enforce the lane designation. There will be some enforcement mechanism developed to discourage private vehicles from entering BRT-exclusive lanes. These enforcement mechanisms may be in the form of a fine for entering a BRT-exclusive lane, similar to the fines imposed on the existing HOV lanes.
Lack of sufficient cross-section of streets of the corridor creates very narrow bus stops which also prevent faster on-board loading of passengers with a single front entry for verification of fares paid providing further	The transit stops will be designed to efficiently handle the expected volume of passengers.

Comments	Responses
deterioration of transit travel times.	
Maintenance and construction projects under our streets within the proposed BRT corridor has potential of nearly shutting down the system sometime in the future if implemented.	The provisions to accommodate maintenance and construction projects within the BRT corridor will be similar to how construction projects within a lane are handled currently – the traffic will be detoured around the construction/maintenance area. The two technologies under consideration the Embedded Plate System, and the Hybrid Propulsion System both provide the flexibility to operate outside of the designated BRT lanes.
Under the Bus Rapid Transit (BRT) alternative because there has been lack of the subject of comparable effort in North America this newer transit alternative application for success is not really known except in Curitiba, Brazil which is very different being under the control of a dictatorship.	The BRT is based on the most ubiquitous technology around the world, -the bus. It has been continually improved and updated with BRT being the most recent application of this proven technology. The key BRT features being proposed in Honolulu have been tested and proven in cities throughout the world including Curitiba and Sao Paolo, Brazil; Brisbane and Adelaide, Australia; Auckland, New Zealand: Vancouver and Ottawa, Canada; Dublin Ireland; Nagoya, Japan; New York City, Los Angeles, Pittsburgh, and Orlando in the U.S.
Narrow bus stops and limited availability of park and ride facilities are not better able to handle surges in ridership due to possible changes in land use policies in central Oahu, special events and sporting events easily.	The design of the BRT system and transit stops will be able to accommodate peaks in ridership due to special events. For example, to accommodate transit patrons attending a UH football game at Aloha Stadium, the City would coordinate with the Stadium Authority prior to the event to identify alternative parking sites where fans could park and utilize the BRT to attend the game. The current land use plans for Central Oahu and resulting increase in transit ridership was taken into account in the planning of the BRT project.
More transfers would be needed for both the In-town BRT and a grade-separated light rail system due to the proposed hub-and spoke-bus network	The BRT system will be seamlessly integrated into the hub-and-spoke bus network by implementing well-planned stops, efficient dwell times and a stream-lined fare collection and transfer system to provide convenient and cost-effective service for potential users.
Today's grade-separated light rail vehicles have noise emissions comparable to those of an electric trolley bus.	There are still many noise factors to be considered associated when designing a rail system. Steel wheels on steel rails require

Comments	Responses
	mitigation for brake squeals, vehicle vibration, and electronic propulsion tones. The noise severity will be dependent on the speed of the vehicles, the weight of the vehicles, the type of suspension used in the vehicles, and the track foundation. The costs associated with mitigation can be substantial. The two candidate technologies, the Embedded Plate and Hybrid Propulsion Systems are quieter than the diesel buses currently used.
Today's grade-separated light rail vehicles use far less power than other rapid transit systems and releases no harmful chemicals into our atmosphere.	Technologies proposed for the BRT Alternative include the embedded plate technology which consists of electric vehicles powered by a wayside traction power delivery system or hybrid propulsion system where energy for the traction power is carried on-board the vehicle. The Embedded Plate technology vehicles would emit zero pollutants. The hybrid electric vehicles would be low-emission vehicles because their diesel engines would always be operating at efficient levels. Since the BRT Alternative would utilize either zero or low-emission vehicles, it would substantially reduce the level of particulate emissions (black smoke and soot) at certain intersections and street level locations in comparison to the No-Build and TSM Alternatives, which would continue to use diesel buses.
Fully automated and driverless grade-separated light rail vehicles can run more frequently than any BRT vehicle peak and non-peak hours.	A fully grade-separated transit system was considered and rejected since it was determined at the outset that the public was not in favor of an elevated transit system due to its high cost and its physical and visual impacts. This is discussed in Chapter 2.6.1 of the MIS/DEIS.
Because of lack of a comparable effort for a Bus Rapid Transit System on the mainland and even in Europe I see a missing alternative that should have been considered fairly for all taxpayers.	The key BRT features being proposed in Honolulu have been tested and proven in cities throughout the world including Curitiba and Sao Paolo, Brazil; Brisbane and Adelaide, Australia; Auckland, New Zealand: Vancouver and Ottawa, Canada; Dublin Ireland; Nagoya, Japan;

Comments	Responses
	New York City, Los Angeles, Pittsburgh, and Orlando in the U.S. If you are referring to the "missing alternative" being the consideration of the a grade-separated light rail system, fully grade-separated transit system was considered and rejected since it was determined at the outset that the public was not in favor of an elevated transit system due to its high cost and its physical and visual impacts. This is discussed in Chapter 2.6.1 of the MIS/DEIS.
A grade-separated light rail can be fast, convenient, reliable, and the right choice among all other alternatives.	A fully grade-separated transit system was considered and rejected since it was determined at the outset that the public was not in favor of an elevated transit system due to its high cost and its physical and visual impacts. This is discussed in Chapter 2.6.1 of the MIS/DEIS.
Building a grade-separated line for the In-Town portion will create many jobs and is a good investment in our city's future.	A fully grade-separated transit system was considered and rejected since it was determined at the outset that the public was not in favor of an elevated transit system due to its high cost and its physical and visual impacts. This is discussed in Chapter 2.6.1 of the MIS/DEIS. The BRT Alternative will generate jobs related to the operations of the BRT system such as transit drivers and operations and maintenance personnel. Along with transit needs, one of the other goals of the PCTP is to help shape growth in the corridor. The large, underdeveloped parcels along the alignment present opportunities for transit oriented development at these sites, which will result in the creation of jobs.
Because it runs on its own tracks, separated from roads this transit system eliminates conflicts that are frequent on the road system.	A fully grade-separated transit system was considered and rejected since it was determined at the outset that the public was not in favor of an elevated transit system due to its high cost and its physical and visual impacts. This is discussed in Chapter 2.6.1 of the MIS/DEIS.

Comments	Responses
A grade-separated light rail system costs less in the long term and offers greater benefits.	A fully grade-separated transit system was considered and rejected since it was determined at the outset that the public was not in favor of an elevated transit system due to its high cost and its physical and visual impacts. This is discussed in Chapter 2.6.1 of the MIS/DEIS.

700 Richards Street, #2103
Honolulu, HI 96813-4621
13 September 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapi'olani Blvd., Suite 1200
Honolulu, HI 96813

RE: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Dear Ms. Soon:

After an analysis of the proposed traffic patterns on Richards Street as presented in the August 2000 DEIS and the subsequent addition of an In-Town BRT branch to serve Aloha Tower Marketplace and Kaka'ako Makai, I wish to express my concerns about the impact of these BRT routes on the residents of Harbor Square, 700 Richards Street.

As proposed, traffic on Richards Street will be greatly increased by the addition of 2 BRT routes mauka and makai as well as the inclusion of a major intersection at Richards, Halekauwila and Ala Moana Boulevard. In addition to the 2 BRT routes, a new mauka lane will be created which will introduce additional traffic on Richards street flowing from Halekauwila and Ala Moana Boulevard.

As a result of these new traffic patterns, between S. King street and Ala Moana Boulevard, Richards street will have 4 lanes of traffic with 2 BRT lanes in the middle between a traffic lane mauka on the Diamond Head side and a traffic lane makai on the Ewa side.

Consequently, vehicles entering or exiting parking garages or the post office loading dock located on this section of Richards Street will have to cross 3 lanes of traffic to make a left turn to reach appropriate traffic lanes. Since BRT busses are projected to run at 4 minute intervals (30 busses/hour) at peak travel times, turning vehicles will have to not only compete with busses for access to the appropriate travel lanes but with vehicles already in these lanes.

Harbor Square consists of 360 residential apartments, 10 commercial apartments, a 14-story commercial parking garage with 507 parking stalls and a 6-story residential parking garage with 201 parking stalls. Anyone using these parking garages can attest to the current difficulty of getting in or out at peak travel times.

The creation of a traffic lane along the Ewa curb will eliminate a section of curb adjacent to Harbor Tower currently available for pickup and/or discharge of passengers. This area represents the only handicap accessible entry for residents or visitors to the front entrance. The loss of use of this facility will have a detrimental effect on the social conditions of residents and visitors.

As proposed, the use of Richards Street for 2 BRT routes as well as two traffic lanes will curtail the beneficial uses of the environment for residents and businesses located along the route as follows:

1. Increased noise, vibration and diminution of air quality from vehicular pollutants resulting from a significant increase in traffic. This will be a major problem for the parking garages from the back-up of vehicles waiting to enter or exit during peak travel times.

2. Significant social effects from the loss of quality of living brought about by stresses engendered from increases in the density of detrimental environmental factors, such as those mentioned above. Additionally, the construction of a major intersection as well as 2 BRT and traffic lanes with its attendant disruption of the peace and tranquility of residents will be inevitable.

3. Significant economic impact due to the reduction in value of properties resulting from the decrease in the desirability of Harbor Square as a place to live or do business. Additionally, the city will have a loss of property tax revenues as a result.

4. These factors will cumulatively have an effect upon the health and welfare of residents and business employees as a result of the introduction of significant traffic congestion in their living and working environments. Nor will they benefit from the BRT since there will be no access to busses along Richards street.

Consequently, the use of Richards Street for 2 BRT routes as well as the introduction of traffic lanes which do not presently exist will have a major environmental impact upon the residents and businesses located in the area.

Sincerely yours,

Charles M. Ferrell

cc: Office of Environmental Quality Control

DEPARTMENT OF TRANSPORTATION SERVICES
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP9/01-04106R

March 8, 2002

Mr. Charles Ferrell
700 Richards Street, #2103
Honolulu, Hawaii 96813-4621

Dear Mr. Ferrell:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 13, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
As proposed, traffic on Richards Street will be greatly increased by the addition of 2 BRT routes mauka and makai as well as the inclusion of a major intersection at Richards, Halekauwila, and Ala Moana Boulevard. In addition to the 2 BRT routes, a new mauka lane will be created which will introduce additional traffic on Richards street flowing from Halekauwila and Ala Moana Boulevard.	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between South King Street and Nimitz Highway.
Since BRT buses are projected to run at 4 minute intervals (30 buses/hour) at peak travel times, turning vehicles will have to not only compete with buses for access to the appropriate travel lanes but with vehicles already in these lanes.	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between South King Street and Nimitz Highway

The creation of a traffic lane along the Ewa curb will eliminate a section of curb adjacent to Harbor Tower currently available for pickup and/or discharge of passengers. This area represents the only handicap accessible entry for residents or visitors to the front entrance. The loss of use of this facility will have a detrimental effect on the social conditions of residents and visitors.	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between South King Street and Nimitz Highway.
The use of Richard Street for 2 BRT routes as well as two traffic lanes will curtail the beneficial uses of the environment for residents and businesses located along the route as follows: 1. Increased noise, vibration and diminution of air quality from vehicular pollutants resulting form a significant increase in traffic. This will be a major problem for the parking garages from the back-up of vehicles waiting to enter or exit during peak travel times.	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between South King Street and Nimitz Highway.
2. Significant social effects from the loss of quality of living brought about by stresses engendered from increases in the density of detrimental environmental factors, such as those mentioned above. Additionally, the construction of a major intersection as well as 2 BRT and traffic lanes with its attendant disruption of the peace and tranquility of residents will be inevitable.	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between South King Street and Nimitz Highway.
3. Significant economic impact due to the reduction in value of properties resulting from the decrease in desirability of Harbor Square as a place to live or do business. Additionally, the city will have a loss of property tax revenues as a result.	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between South King Street and Nimitz Highway.

4. These factors will cumulatively have an effect upon the health and welfare of residents and business employees as a result of the introduction of significant traffic congestion in their living and working environments. Nor will they benefit from the BRT since there will be no access to busses along Richards Street.	The BRT alignment has been revised to travel on Alakea Street and will not travel on Richards Street between South King Street and Nimitz Highway.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

1434 Punahou St., Apt. #837
Honolulu, HI 96822
September 18, 2001

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

In response to your letter on this subject dated August 16, 2001, the following is submitted:

Section 1: Introduction. No comments.

Section 2: Proposed Modifications to the locally preferred alternative.

2.1 Kakaako Makai Alignment.

The routing described in Par. 2.1 is circuitous at best, and the turn from Richards to Halekauwila exists but the entrance to Bishop Street does not exist. At best, all these streets are narrow and hardly suitable for buses even without any street parking. I believe that a better solution to the movement of bus traffic in this area should be found.

2.2 Modification of the U.H. In-town Branch.

Both King Street and Pensacola Street are one-way roads, and now are selected for two-way bus routes. This appears unsatisfactory.

2.3 BRT Exclusive Ramp on the H-1 Freeway near Aloha Stadium.

I am not familiar with the proposed ramp, but it would be most useful if it could be built with two lanes each on a divided road; thus, it could be used for inbound and outbound traffic at the same time.

Section 3: Proposed Impact Studies. No comments.

These remarks are made in my sincerest interest in improving the traffic problems.

Sincerely,

Frederick C. Gross

Frederick C. Gross

xc: Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP9/01-04162R

March 8, 2002

Mr. Frederick C. Gross
1434 Punahou Street, Apt. #837
Honolulu, Hawaii 96822

Dear Mr. Gross:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 18, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
The routing described in Par. 2.1 is circuitous at best, and the turn from Richards to Halekauwila exists but the entrance to Bishop Street does not exist. At best, all these streets are narrow and hardly suitable for buses even without any street parking. I believe that a better solution to the movement of bus traffic in this area should be found.	The Kakaako Makai alignment was determined using current and projected land uses and employment information to ensure that the BRT will serve transit patrons' origins and destinations. Buses currently operate on these city streets.
Both King Street and Pensacola Street are one-way roads, and now are selected for two-way bus routes. This appears unsatisfactory.	Thank you for your comment. The two directional BRT operating on one-way streets has proven very effective because the BRT design incorporates features to ensure that automobile, truck, etc. drivers are aware of the BRT.
BRT Exclusive Ramp on the H-1 Freeway near Aloha Stadium: I am not familiar with the proposed ramp, but it would be most useful if it could be built with two lanes each on a divided road; thus, it could be used for inbound and outbound traffic at the same time.	The Luapele Drive ramp will be a one-way, reversible ramp. This will allow buses to use the ramp in the peak direction -- Koko Head in the morning and Ewa in the afternoon.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

Ms. P.PASHA BAKER
Post Office Box 3919
Honolulu,Hawaii 96812-3919
Phone/Fax: 808-533-7171

21 September 2001

To: Ms. Cheryl D. Soon, Director
Department of Transportation Services
City & County of Honolulu
711 Kapiolani Blvd.,#1200
Honolulu, Hawaii 96813
Fax# 808-523-4730

RE: Primary Corridor Transportation Project
Supplemental Draft Enviornmental Impact Statement

Dear Ms. Soon,

It is my understanding that the subject EIS is now in preparation for final submittal for approval, & that comments so concerning are to be filed with you office by 9-21-01. It is in that regard that the following comments, made by me are forwarded herewith.

I am a civic & community minded individual, involved in numerous organizations both in Hawaii & the mainland which include:
The Navy League of the United States, Employer Support of the Guard & Reserve, Salvation Army Auxiliary, Paul Harris Fellow, Honolulu Rotary Club, Armed Service Comm. Chamber of Commerce of Hawaii(to name only a few).
Along with my volunteer involvement, I am a Honolulu business woman dealing in fiscial services.

It's been almost 13 years since I moved into Harbor Square(#2209 Harbor Tower - no mail is rec'd there - only at adress as above).
When we first moved there we were able to entertain a great deal as there was ample street parking - if not on Richards, then on Hakaweila, & lots of parking across Nimitz at the public parking lot or on the streets around HECO power plant.
Then Aloha Market place was allowed to buy not only the public parking lot - but also the street parking all around the power plant. Then after the Oklahoma bombing of the federal building - all the parking on the streets around our neighboring Federal building was taken away - And - Mililani Street by the downtown post office is pretty much limited to mostly tour buses -
THUS - There is basically only a few spots let on the street for our complex, & thus an end to our entertaining at home - no place to park!!!

A Bus Rapid Transit System is, in my view, a worthy idea, PROVIDED that is does not impact the community adversely. We ALREADY have buses on THREE sides of our complex - Nimitz Hgy, Alakea Street, & Queen Street.

Fortunately - these 3 streets are able to accomadate this load - HOWEVER - We have 3 sides of our building that we cannot stop alongside of, park or load & unload passengers.
IP - THE NEW SYSTEM IS ALLOWED TO TAKE OVER OUR TINY RICHARDS STREET - WE WILL BE MADE AN ISLAND !!!!!!!

WHY ARE WE BEING PUNISHED LIKE THIS !?!?!?!?!?

It is now difficult for folks waiting to be picked up or dropped off at Harbor Square as is so often the case - one has to double park to be able to do so as sooooo many of us who live there are also being dropped off or picked up.

Ithas been with Shock & Disbelief that we were suddenly notified that these meager remants on Richard Street are now planning to be eliminated! AND THAT THIS HAS BEEN IN THE PLANNING stages for THREE YEARS without any of us (some 2000 of us in the residentail & commercial towers)being advised & or consulted of the plans to punish us with a complete strangle on us & create hardships beyond measure.

We would like to know - WHY are we being PUNISHED like this!?!?!?!?!
Why has Mililani Street not been Considered for this purpose!?!?!?!
Why Has Punchbowl Street NOT been considered for this !?!?!?!?!
Why has South Street Not Been Considered for this !?!?!?!?!?!

WHO DO WE TURN TO FOR HELP & ANSWERS TO THIS MATTER?!?!?
How Can We Get some Consideration & at least a hearing with your office to address our problems!?!?!?!?!

Your time and consideration would be greatly appreciated as soon as possible.

Sincerely,

P.Pasha Baker
Resident #2209

cc: R. Bruce Graham,Fr., Esq.
President - AOAO

523-7430
available Today
Not in service

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

March 8, 2002

TP9/01-04232R

Ms. Pasha Baker
P. O. Box 3919
Honolulu, Hawaii 96812-3919

Dear Ms. Baker:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 21, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
We already have buses on three sides of our complex – Nimitz Highway, Alakea Street, and Queen Street. Fortunately these three streets are able to accommodate this load, however we have three sides our building that we cannot stop alongside of, park, or load and unload passengers. If the new system is allowed to take over our tiny Richards Street we will be made an island.	The BRT alignment has been revised to travel on Alakea Street instead of Richards Street between S. King Street and Nimitz Highway.
It has been with shock and disbelief that we were suddenly notified that these meager remnants on Richard Street are now planning to be eliminated and that this has been in the planning stages for three years without any of us (some 2000 of us in the residential and commercial towers) being advised and/or consulted of the plans to punish us with a complete strangle on us and create hardships beyond measure.	For the past two years the City and County of Honolulu (City) has conducted the 21st Century Oahu visioning process including its transportation component, Oahu Trans 2K. It has been the most extensive community-based transportation planning effort in the City's history and it is the principal public outreach medium for the Primary Corridor Transportation Project. More than 44 public workshops were held to allow the public an opportunity to work on solutions to the mobility problems facing Oahu. There also was newspaper coverage and neighborhood presentations, all with open debate.

Comment	Response
	An outcome of the process was the Primary Corridor Transportation Project, Major Investment Study/Draft Environmental Impact Statement [DEIS] (August 2000) which was distributed the to agencies and the public in August 2000 for a 45 day review period. During the DEIS process, in addition to the required scoping meetings, meetings were held with over 100 governmental agencies, elected officials, businesses, and business, community, and civic organizations to present the elements of the Final Mobility Plan and gather information and comments. Over 70 presentations were made at community-sponsored meetings that were held prior to issuance of the MIS/DEIS. The formal public hearing was held on October 12, 2000. The Honolulu City Council selected the BRT Alternative as the Locally Preferred Alternative. Based on comments received on the DEIS, the Department of Transportation Services proposed to amend this alternative to include new and modified components which were approved by the City Council on August 1, 2001.
Why has Mililani Street not been considered for this purpose? Why has Punchbowl Street not been considered for this? Why has South Street not been considered for this?	The BRT alignment traverses Bishop Street makai-bound. Punchbowl Street and Mililani Street were previously considered and eliminated. South Street was not considered because it is too far from downtown.
Who do we turn to for help and answers to this matter?	Council Chair Yoshimura sponsored special meetings that resulted in the change requested by residents of Harbor

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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "GEORI" MITSUMOTO
DEPUTY DIRECTOR

March 8, 2002

TP9/01-04232R

Ms. Pasha Baker
P. O. Box 3919
Honolulu, Hawaii 96812-3919

Dear Ms. Baker:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 21, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
We already have buses on three sides of our complex – Nimitz Highway, Alakea Street, and Queen Street. Fortunately these three streets are able to accommodate this load, however we have three sides our building that we cannot stop alongside of, park, or load and unload passengers. If the new system is allowed to take over our tiny Richards Street we will be made an island.	The BRT alignment has been revised to travel on Alakea Street instead of Richards Street between S. King Street and Nimitz Highway.
It has been with shock and disbelief that we were suddenly notified that these meager remnants on Richard Street are now planning to be eliminated and that this has been in the planning stages for three years without any of us (some 2000 of us in the residential and commercial towers) being advised and/or consulted of the plans to punish us with a complete strangle on us and create hardships beyond measure.	For the past two years the City and County of Honolulu (City) has conducted the 21st Century Oahu visioning process including its transportation component, Oahu Trans 2K. It has been the most extensive community-based transportation planning effort in the City's history and it is the principal public outreach medium for the Primary Corridor Transportation Project. More than 44 public workshops were held to allow the public an opportunity to work on solutions to the mobility problems facing Oahu. There also was newspaper coverage and neighborhood presentations, all with open debate.

Comment	Response
	An outcome of the process was the Primary Corridor Transportation Project, Major Investment Study/Draft Environmental Impact Statement [DEIS] (August 2000) which was distributed the to agencies and the public in August 2000 for a 45 day review period. During the DEIS process, in addition to the required scoping meetings, meetings were held with over 100 governmental agencies, elected officials, businesses, and business, community, and civic organizations to present the elements of the Final Mobility Plan and gather information and comments. Over 70 presentations were made at community-sponsored meetings that were held prior to issuance of the MIS/DEIS. The formal public hearing was held on October 12, 2000. The Honolulu City Council selected the BRT Alternative as the Locally Preferred Alternative. Based on comments received on the DEIS, the Department of Transportation Services proposed to amend this alternative to include new and modified components which were approved by the City Council on August 1, 2001.
Why has Mililani Street not been considered for this purpose? Why has Punchbowl Street not been considered for this? Why has South Street not been considered for this?	The BRT alignment traverses Bishop Street makai-bound. Punchbowl Street and Mililani Street were previously considered and eliminated. South Street was not considered because it is too far from downtown.
Who do we turn to for help and answers to this matter?	Council Chair Yoshimura sponsored special meetings that resulted in the change requested by residents of Harbor

Comment	Response
	Square on September 17, 2001 and October 16, 2001.
How can we get some consideration and at least a hearing with your office to address our problems?	At a meeting arranged by Council Chair Yoshimura, the City's Department of Transportation Services (DTS) met with the residents of Harbor Square on September 17, 2001 to gather input on the proposed alignment and to provide a project status. Council Chair Yoshimura met again with the Harbor Square residents on October 16, 2001 to advise the Harbor Square residents of the proposed changes in the alignment through Downtown.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

D. Meller
2749 Rooke Avenue
Honolulu, HI 96817

September 21, 2001

Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 702
Honolulu, HI 96813

Dear Ms. Soon:

Subject: Supplemental DEIS for the Primary Corridor Transportation Project

I would like to be a formally consulted party and be provided with a paper copy of the Supplemental DEIS, the Final EIS, and future BRT-related environmental documents. I do not have access at home or at work to a computer with the right software to read the CD prepared for the previous DEIS.

I would appreciate a response to the following questions and concerns.

1. Adding a new BRT route means revising the BRT Alternative to attract more riders. How many daily transit trips would the No Build and the TSM Alternatives generate assuming the same total number of buses as the revised BRT Alternative in 2025? It seems obvious that fewer buses will result in fewer routes, reduced frequency of bus service, longer waits at bus stops, longer boarding times at bus stops, increased crowding of buses, fewer express buses, and fewer bus riders. Assuming the No Build and the TSM Alternative have fewer buses than the BRT Alternative will prevent a fair comparison.

2. When does the City plan to convert existing traffic lanes east of Middle Street to exclusive use of the BRT route which will serve the UH? At that time,

- which intersections will experience significantly reduced levels of service?
- how many bus riders will be better off and how much reduction in travel time will they experience?
- how many drivers will be worse off and how much more travel delay will they experience?

3. When does the City plan to convert existing traffic lanes east of Middle Street to exclusive use of the BRT route which will serve Waikiki? At that time,

- which intersections will experience significantly reduced levels of service?
- how many bus riders will be better off and how much reduction in travel time will they experience?
- how many drivers will be worse off and how much more travel delay will they experience?

4. Am I correct in assuming that the proposed BRT route with stops at Aloha Tower and Kewalo Basin is contingent on the HCDA extending Ilalo Street to Punchbowl Street, and that extension of Ilalo Street may not occur within the next decade?

5. When will the proposed BRT freeway-access ramp at Luapele Street, associated freeway widening, and the associated park-and-ride lot be constructed and what will each of these improvements cost?

6. Each day, how many buses and bus rider will use the proposed BRT freeway access ramp at Luapele Street:

- when it is first constructed?
- in 2025?

7. When the zipper lane is normally not deployed, and during peak traffic when the zipper lane cannot be deployed because of an incident or mechanical problems, the BRT will not be able to use the proposed Luapele ramp. What route will the BRT take when the proposed Luapele ramp cannot be used?

8. If the proposed Luapele ramp were not built, what is the projected drop in daily bus ridership?

9. If the proposed park-and-ride lot were not built near the proposed Luapele ramp, what is the projected drop in daily bus ridership?

10. In general, how large an expenditure does the City consider justified to attract a single additional daily bus rider? Will proposed expenditures to construct a BRT freeway-access ramp at Luapele Street, associated freeway widening, and the associated park-and-ride lot meet this standard?

It is my hope that your answers to these questions will improve future decisions about Oahu transit improvements.

Sincerely,

Doug Meller

D. Meller

c: OEQC
FHWA
FTA
Councilmember Duke Bainum
Senator Cal Kawamoto

DEPARTMENT OF TRANSPORTATION SERVICES
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JEREMY HARRIS
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DEPUTY DIRECTOR

TP9/01-04231R

March 8, 2002

Mr. Doug Meller
2748 Rooke Avenue
Honolulu, Hawaii 96817

Dear Mr. Meller:

Subject: Primary Corridor Transportation Project
Supplemental Draft Environmental Impact Statement

Thank you for your September 21, 2001 letter responding to the Supplemental Draft Environmental Impact Statement (SDEIS) Preparation Notice. Your letter provided us with the following comments for which we have prepared responses.

Comment	Response
I would like to be a formally consulted party and be provided with a paper copy of the Supplemental DEIS, the Final EIS, and future BRT-related environmental documents.	You are included as a SDEIS recipient.
Adding a new BRT route means revising the BRT Alternative to attract more riders. How many daily transit trips would the No Build and the TSM Alternatives generate assuming the same total number of buses as the revised BRT Alternative in 2025? It seems obvious that fewer buses will result in fewer routes, reduced frequency of bus service, longer waits at bus stops, longer boarding times at bus stops, increased crowding of buses, fewer express buses, and fewer bus riders. Assuming the No Build and the TSM Alternative have fewer buses than the BRT Alternative will prevent a fair comparison.	The No-Build, TSM, and Refined BRT Alternatives reflect three possible levels of transit investment. Having three levels of service provided consistent with the level of investment does indeed allow for a fair comparison.

When does the City plan to convert existing traffic lanes east of Middle Street to exclusive use of the BRT route which will serve the UH? At that time, • which intersections will experience significantly reduced levels of service? • how many bus riders will be better off and how much reduction in travel time will they experience? • how many drivers will be worse off and how much more travel delay will they experience?	Converting existing traffic lanes from general-purpose traffic use to exclusive BRT use is projected to occur by 2006 for the UH BRT Branch. Analyzed intersections projected to operate with greater delay in the BRT Alternative than in the No Build Alternative are: South King Street/ Pensacola Street, Kapiolani Boulevard/ Pensacola Street, Kapiolani Boulevard/Piikoi Street, and University Avenue/South King Street. Overall, 2025 peak period vehicle hours of delay are projected to decrease from 251,970 for the No Build Alternative to 243,261 for the BRT Alternative. Although peak period vehicle hours of delay was not calculated for 2006, systemwide vehicle hours of delay is also expected to decrease. Transit passenger benefits would accrue mainly from increased service reliability.
When does the City plan to convert existing traffic lanes east of Middle Street to exclusive use of the BRT route which will serve Waikiki? At that time, • which intersections will experience significantly reduced levels of service? • how many bus riders will be better off and how much reduction in travel time will they experience? • how many drivers will be worse off and how much more travel delay will they experience?	Converting existing traffic lanes form general-purpose traffic use to exclusive BRT use is projected to occur by 2005 for the Kakaako Mauka BRT Branch. Analyzed intersections projected to operate with greater delay in the BRT Alternative than in the No Build Alternative are: Ala Moana Boulevard/Piikoi Street, Ala Moana Boulevard/ Atkinson Drive, and Ala Moana Boulevard/Kalia Road. Overall, 2025 peak period vehicle hours of delay are projected to decrease from 251,970 for the No Build Alternative to 243,261 for the BRT Alternative. Although peak period vehicle hours of delay was not calculated for 2006, systemwide vehicle hours of delay is also expected to decrease. Transit passenger benefits would accrue mainly from increased service reliability.
Am I correct in assuming that the proposed BRT route with stops at Aloha Tower and Kewalo Basin is contingent on the HCDA extending Ilalo Street to Punchbowl Street, and that extension of Ilalo Street may not occur within the next decade?	The BRT Kakaako Mauka Branch is proposed to use Channel Street to get to Ilalo Street, not Punchbowl Street.

When will the proposed BRT freeway-access ramp at Luapele Street, associated freeway widening, and the associated park-and-ride lot be constructed and what will each of these improvements costs?	The Luapele BRT Ramp will be open in 2010 and cost $32.8 M in 1998 dollars. The Aloha Stadium Park-and-Ride will open in 2007 and cost $1.7 M in 1998 dollars.
Each day, how many buses and bus rider will use the proposed BRT freeway access ramp at Luapele Street: • when it is first constructed? • in 2025?	The Luapele Ramp is forecasted to carry 23 transit vehicles per hour in 2004 and 35 transit vehicles per hour in 2025 during a peak hour. The projected number of transit riders for the same two planning years is 2,300 transit riders per hour and 3,500 transit riders per hour, respectively.
When the zipper lane is normally not deployed, and during peak traffic when the zipper lane cannot be deployed because of an incident or mechanical problems, the BRT will not be able to use the proposed Luapele ramp. What route will the BRT take when the proposed Luapele ramp cannot be used?	When the Zipper Lane is not deployed, the BRT would use one of two routes: 1) Kamehameha Highway to Aiea Interchange with eastbound Moanalua Freeway, eastbound Moanalua Freeway to eastbound H-1 Freeway, eastbound H-1 Freeway to eastbound shoulder lane on H-1 Airport Viaduct; 2) Kamehameha Highway to Pearl Harbor Interchange, eastbound H-1 Freeway to eastbound shoulder lane on H-1 Airport Viaduct.
If the proposed Luapelel ramp were not built, what is the projected drop in daily bus ridership?	There would be a daily drop in projected year 2025 transit riders of approximately 3,000 transit riders per day.
If the proposed park-and-ride lot were not built near the proposed Luapele ramp, what is the projected drop in daily bus ridership?	A park and ride facility would normally be constructed so as to have a strong relationship with major transit lines. If a park and ride facility is not constructed near Luapele Ramp, it would still be constructed in a manner to foster this relationship. Therefore, the drop in daily transit riders would be negligible.

In general, how large an expenditure does the City consider justified to attract a single additional daily bus rider? Will proposed expenditures to construct a BRT freeway-access ramp at Luapele Street, associated freeway widening, and the associated park-and-ride lot meet this standard?	The SDEIS, Chapter 7 – Comparison of Alternatives includes a cost-effectiveness analysis, which relates the ability of an alternative to attract new riders to its costs. The FTA also uses the cost-effectiveness index (CEI) as input into its rating system, which compares projects across the country, and identifies those most worthy of federal funding. The CEI analysis indicates that the TSM Alternative would have a CEI (or incremental cost per new rider) of $9.74. The Refined BRT Alternative would have a $7.42 CEI compared to the No-Build Alternative and a $6.82 CEI compared to the TSM Alternative. The costs and ridership used in the analysis are for the whole project and not each project component separately or several project components together.

You will be receiving a copy of the SDEIS under separate cover. We appreciate your interest in this important transportation project and look forward to receiving your comments on the SDEIS.

Sincerely,

CHERYL D. SOON
Director

Final Environmental Impact Statement

Primary Corridor Transportation Project

Appendix A

Exhibit A-3

EXHIBIT A-3. AGENCY COORDINATION UP TO MIS/DEIS

Exhibits A-3 through A-5 contains a record of all the agency correspondence regarding the following regulations:

- Cooperating agencies as required in the Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act
- Section 106 of the National Historic Preservation Act
- Section 7 of the Endangered Species Act
- Section 404 of the Clean Water Act
- Section 4(f) of the U.S. Department of Transportation Act
- Section 6(f) of the Land and Water Conservation Fund
- Use of Conservation District under Chapter 205 of the Hawaii Revised Statutes
- Farmland Protection Policy Act

A summary of the correspondence and consultation activities is provided below. Copies of these documents are provided in this exhibit.

COOPERATING AGENCY LETTERS

May 5, 1999 letter from the Federal Highway Administration (FTA) to the Federal Highway Administration (FHWA) inviting them to be a cooperating agency

June 14, 1999 letter from the FHWA to the FTA accepting invitation to be a cooperating agency

May 5, 1999 letter from the FTA to the U.S. Army Corps of Engineers (USACE) inviting them to be a cooperating agency

June 16, 1999 letter from USACE to FTA accepting invitation to be a cooperating agency

July 27, 2000 letter from the State of Hawaii Department of Transportation (SDOT) to City and County of Honolulu, Department of Transportation Services (DTS) requesting to be a cooperating agency

SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

Minutes of April 8, 1999 meeting with State Historic Preservation Division (SHPD) to discuss definition of the project's Area of Potential Effect (APE) and the methods to identify potential historic properties within the APE

May 7, 1999 letter from the DTS to the SHPD confirming the agreements made during the April 8, 1999 meeting

Minutes of May 21, 1999 meeting with the Office of Hawaiian Affairs to discuss potential archaeological and cultural issues of the project

Minutes of June 17, 1999 meeting with the SHPD to discuss the results of the project's first phase to identify potential historic properties

Minutes of September 28, 1999 meeting with the SHPD to discuss the list of potential historic properties in the APE

Minutes of November 12, 1999 meeting with the SHPD to discuss changes that were made to the project, and how these changes would affect the identification of potential historic properties

February 8, 2000 letter from the DTS to the SHPD submitting the results of the inventory survey

February 25, 2000 letter from the DTS to the SHPD requesting concurrence that the APE be reduced because of changes made to the project

March 8, 2000 letter from the State Historic Preservation Officer (SHPO) concurring with the reduction of the APE

SECTION 7 OF THE ENDANGERED SPECIES ACT

May 12, 1999 letter from the FTA to the U.S. Fish and Wildlife Service (USFWS) requesting a list of potential Federal Trust species that may be in the project area

May 24, 1999 letter from the USFWS to the DTS providing a list of Federal Trust species that may potentially be in the project area

SECTION 404 OF THE CLEAN WATER ACT

May 4, 2000 letter from DTS to FHWA requesting concurrence with project purpose and need and alternatives per the Memorandum of Understanding (MOU) that integrates the National Environmental Policy Act (NEPA) and Clean Water Act Section 404 processes for surface transportation projects in the State of Hawaii

June 26, 2000 letter from FHWA to DTS informing DTS that they intend to contact FTA directly if they have any recommendations or concerns

August 17, 2000 letter from DTS to FHWA informing FHWA that the Bus Rapid Transit (BRT)/Sand Island Scenic Parkway (SISP) Alternative is no longer being considered in the MIS/DEIS, and the Section 404/NEPA MOU no longer applies to the project

May 4, 2000 letter from DTS to the U.S. Army Corps of Engineers (ACOE) requesting concurrence with project purpose and need and alternatives per the Section 404/NEPA MOU

June 8, 2000 letter from ACOE to DTS stating concurrence with project purpose and need and alternatives per the Section 404/NEPA MOU

July 19, 2000 letter from DTS to ACOE informing ACOE that the BRT/SISP Alternative is no longer being considered in the MIS/DEIS, and the Section 404/NEPA MOU no longer applies to the project

May 4, 2000 letter from DTS to the National Marine Fisheries Service (NMFS) requesting concurrence with project purpose and need and alternatives per the Section 404/NEPA MOU

June 9, 2000 letter from NMFS to DTS stating concurrence with project purpose and need and alternatives per the Section 404/NEPA MOU

July 19, 2000 letter from DTS to NMFS informing NMFS that the BRT/SISP Alternative is no longer being considered in the MIS/DEIS, and the Section 404/NEPA MOU no longer applies to the project

May 4, 2000 letter from DTS to USFWS requesting concurrence with project purpose and need and alternatives per the Section 404/NEPA MOU

June 12, 2000 letter from USFWS to DTS stating concurrence with project purpose and need and alternatives per the Section 404/NEPA MOU

July 19, 2000 letter from DTS to USFWS informing USFWS that the BRT/SISP Alternative is no longer being considered in the MIS/DEIS, and the Section 404/NEPA MOU no longer applies to the project

May 4, 2000 letter from DTS to the U.S. Environmental Projection Agency (USEPA) requesting concurrence with project purpose and need and alternatives per the Section 404/NEPA MOU

June 14, 2000 letter from USEPA to DTS stating non-concurrence with the project purpose and need and alternatives per the Section 404/NEPA MOU

August 17, 2000 letter from DTS to USEPA informing USEPA that the BRT/SISP Alternative is no longer being considered in the MIS/DEIS, and the Section 404/NEPA MOU no longer applies to the project

May 4, 2000 letter from DTS to the SDOT requesting concurrence with project purpose and need and alternatives per the Section 404/NEPA MOU

June 22, 2000 letter from SDOT to DTS stating non-concurrence with the project purpose and need and alternatives per the Section 404/NEPA MOU

August 17, 2000 letter from DTS to SDOT informing SDOT that the BRT/SISP Alternative is no longer being considered in the MIS/DEIS, and the Section 404/NEPA MOU no longer applies to the project

SECTION 4(F) OF THE U.S. DEPARTMENT OF TRANSPORTATION ACT

November 10, 1999 letter from DTS to the Aloha Stadium manager requesting Section 4(f) coordination regarding the use of the Aloha Stadium overflow parking lot as a park-and-ride facility

August 21, 2000 letter from Aloha Stadium manager to DTS concurring with the assessment of the impact of the proposed facilities as stated in the MIS/DEIS

SECTION 6(F) OF THE LAND AND WATER CONSERVATION FUND

August 21, 2000 letter from DTS to the U.S. Department of the Interior, National Park Service requesting concurrence that the use of the Aloha Stadium overflow parking lot as a park-and-ride facility is consistent with the provisions of Section 6(f)

USE OF CONSERVATION DISTRICT

September 28, 1999 letter from DTS to the State of Hawaii Department of Land and Natural Resources, Land Division (DLNR-LD) regarding the need for a Conservation District Use Permit (CDUP) for the project

October 19, 1999 from DLNR-LD to DTS stating that a CDUP would be required if a tunnel is constructed under Fort Armstrong Channel, the proposal under the SISP, which has since been dropped as an alternative in the MIS/DEIS

U.S. Department
of Transportation
Federal Transit
Administration

REGION IX
Arizona, California,
Hawaii, Nevada, Guam

201 Mission Street
Suite 2210
San Francisco, CA 94105-1839
415-744-3133
415-744-2726 (fax)

MAY 5 1999

Mr. Abraham Wong, Division Administrator
Federal Highway Administration, Hawaii Division
U. S. Department of Transportation
P. O. Box 50206
Honolulu, Hawaii 96850

Dear Mr. Wong:

Re: Primary Corridor Transportation Project

The Federal Transit Administration (FTA), in cooperation with the City and County of Honolulu Department of Transportation Services (DTS) is initiating an environmental impact statement (EIS) for proposed transportation improvements in the Primary Transportation Corridor of the City and County of Honolulu. Since some of the proposed improvements may require Federal Highway Administration (FHWA) approval, we are requesting FHWA to be a joint lead agency.

The Primary Corridor Transportation Project proposes transportation improvements in the primary transportation corridor of Oahu. The corridor extends from Kapolei in the Ewa District to the University of Hawaii at Manoa. The proposed action is intended to address existing and future transportation demand and capacity needs; support socioeconomic growth on the island and in the corridor; improve public transit services; facilitate land use development in the central urban core consistent with the vision for Oahu; and support current planning activities and policies. The alternatives under consideration include a No-Build and several build alternatives that would include an Enhanced Bus/Transportation System Management (TSM) Alternative, a Bus Rapid Transit Alternative, and a Light Rail Transit Alternative. The build alternatives include highway improvements, such as modified freeway ramps and other roadway improvements to provide priority treatment for buses, and transit centers. A Sand Island Bypass Road, including a tunnel from Sand Island to Kakaako, and a conversion of a portion of the existing Nimitz Highway to a parkway, could be part of the build alternatives. Detailed technical reports will be prepared on topics such as transportation, land use, social and economic impacts, finance and cost-effectiveness, visual and aesthetic impacts, noise and vibration, parks and recreation areas, historic resources, air quality and hazardous materials.

Your agency's involvement should entail those areas under its jurisdiction and no direct writing or analysis will be necessary for the document's preparation. The following are activities we will take to maximize interagency cooperation:

1. Invite you to coordination meetings;
2. Consult with you on any relevant technical studies that will be required for the project;
3. Organize joint field reviews with you;
4. Provide you with project information, including study results;
5. Encourage your agency to use the above documents to express your views on subjects within your jurisdiction or expertise; and
6. Include information in the project environmental documents that joint lead and cooperating agencies need to discharge their National Environmental Policy Act (NEPA) responsibilities and any other requirements regarding jurisdictional approvals, permits, licenses, and/or clearances.

You have the right to expect that the EIS will enable you to discharge your jurisdictional responsibilities. Likewise you have the obligation to tell us if, at any point in the process, your needs are not being met. We expect that at the end of the process the EIS will satisfy your NEPA requirements including those related to project alternatives, environmental consequences and mitigation. Further, we intend to utilize the EIS and our subsequent record of decision as our decision-making documents and as the basis for permit applications.

We look forward to your response to this request and your role as a joint lead agency on this project. If you have any questions or would like to discuss in more detail the project or our agencies' respective roles and responsibilities during the preparation of this EIS, please contact Mr. Robert Hom, Director, Office of Planning and Program Development, at (415) 744-3116.

Sincerely,

Leslie T. Rogers
Regional Administrator

cc:
Kenneth Hamayasu
City & County of Honolulu, DTS

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Hawaii Division
Box 50206
300 Ala Moana Blvd., Room 3-306
Honolulu, HI 96850
June 14, 1999

IN REPLY REFER TO
HPR-HI
[720]3200]

RECEIVED
JUN 16 P12:04

Leslie Rogers, Regional Administrator
Federal Transit Administration
201 Mission Street
Suite 2210
San Francisco, CA 94105

Subject: Primary Corridor Transportation Project: Cooperating Agency Decision and Comments

In response to your letter of May 5, 1999, we elect to be a cooperating agency on the Primary Corridor Transportation Project (PCTP) proposed by the City and County of Honolulu. Alternatives presented by the City are primarily transit options. We understand that if future conditions warrant, our role could be changed to joint lead agency, and that change can readily be accommodated. We agree with your understanding stated in the May 5 letter that the EIS will enable FHWA to discharge its jurisdictional responsibilities and that the EIS will satisfy our NEPA requirements including those related to project alternatives, environmental consequences and mitigation. Please keep this office fully informed about any highway related impacts or improvements for the PCTP. We are committed to being involved and responsive to FTA, our State, City, and MPO partners, and the public throughout the study effort.

We would like to take this opportunity to remind you that the DEIS/MIS must be fully coordinated with the Oahu Metropolitan Planning Organization (OMPO.) Assumptions on land-use, demographics, traffic, and other data must be consistent between the PCTP and the OMPO planning process, including the Oahu Regional Transportation Plan (ORTP) update. OMPO is responsible for regional transportation planning on Oahu, and the MIS is really a subarea or corridor planning study that is of regional nature, so it should be carried out in the OMPO forum.

The cost for the PCTP alternatives must be determined and considered on a regional basis. The PCTP preferred alternative and all of its transit and highway elements must be fully incorporated into the ORTP by including it in the ORTP update or a plan amendment. Funds for the project must be reasonably available, and as part of the ORTP , the project must be considered with respect to all other transportation priorities in the ORTP to determine its priority and validity in the regional perspective. The project as a whole could consume funding for other priority projects included or being considered for inclusion in the ORTP and the tradeoffs must be presented to the stakeholders and the public for their consideration.

Alternatives presented by the City thus far are primarily transit options. While this focus is due to the high capacity transit placeholder in the existing ORTP, the MIS requirements call for all reasonable alternatives to be considered within the MIS, therefore highway options should be considered now rather than after the MIS is completed by the City. The HDOT and OMPO should ensure that the study includes multi-modal alternatives that support their transportation plans for the corridor.

Please feel free to contact Jonathan Young at (808) 541-2700, ext. 325, if you have any questions.

Sincerely yours,

Abraham Wong
Division Administrator

cc: Toru Hamayasu (DTS)
Kazu Hayashida (HDOT)
Gordon Lum (OMPO)
Pericles Manthos (HWY)
Julia Tsumoto (STP)

U.S. Department
of Transportation
Federal Transit
Administration

REGION IX
Arizona, California,
Hawaii, Nevada, Guam

201 Mission Street
Suite 2210
San Francisco, CA 94105-1839
415-744-3133
415-744-2726 (fax)

MAY 5 1999

Lieutenant Colonel Wally Z. Walters
District Engineer
Honolulu Engineer District
U.S. Army Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858-5440

Dear Lieutenant Colonel Walters:

Re: Primary Corridor Transportation Project

The Federal Transit Administration (FTA), in cooperation with the City and County of Honolulu Department of Transportation Services (DTS) is initiating an environmental impact statement (EIS) for proposed transportation improvements in the Primary Transportation Corridor of the City and County of Honolulu. Since the project will almost certainly require a Section 404 permit and because of your agency's legal jurisdiction over such permits, we are requesting the Corp of Engineers to be a cooperating agency.

The Primary Corridor Transportation Project proposes transportation improvements in the primary transportation corridor of Oahu. The corridor extends from Kapolei in the Ewa District to the University of Hawaii at Manoa. The proposed action is intended to address existing and future transportation demand and capacity needs; support socioeconomic growth on the island and in the corridor; improve public transit services; facilitate land use development in the central urban core consistent with the vision for Oahu; and support current planning activities and policies. The alternatives under consideration include a No-Build and several build alternatives that would include an Enhanced Bus/Transportation System Management (TSM) Alternative, a Bus Rapid Transit Alternative, and a Light Rail Transit Alternative. The build alternatives include highway improvements, such as modified freeway ramps and other roadway improvements to provide priority treatment for buses, and transit centers. A Sand Island Bypass Road, including a tunnel from Sand Island to Kakaako, and a conversion of a portion of the existing Nimitz Highway to a parkway, could be part of the build alternatives. Detailed technical reports will be prepared on topics such as transportation, land use, social and economic impacts, finance and cost-effectiveness, visual and aesthetic impacts, noise and vibration, parks and recreation areas, historic resources, air quality and hazardous materials.

Your agency's involvement should entail those areas under its jurisdiction and no direct writing or analysis will be necessary for the document's preparation. The following are activities we will take to maximize interagency cooperation:

1. Invite you to coordination meetings;
2. Consult with you on any relevant technical studies that will be required for the project;
3. Organize joint field reviews with you;
4. Provide you with project information, including study results;
5. Encourage your agency to use the above documents to express your views on subjects within your jurisdiction or expertise; and
6. Include information in the project environmental documents that cooperating agencies need to discharge their National Environmental Policy Act (NEPA) responsibilities and any other requirements regarding jurisdictional approvals, permits, licenses, and/or clearances.

You have the right to expect that the EIS will enable you to discharge your jurisdictional responsibilities. Likewise you have the obligation to tell us if, at any point in the process, your needs are not being met. We expect that at the end of the process the EIS will satisfy your NEPA requirements including those related to project alternatives, environmental consequences and mitigation. Further, we intend to utilize the EIS and our subsequent record of decision as our decision-making documents and as the basis for permit applications.

We look forward to your response to this request and your role as a cooperating agency on this project. If you have any questions or would like to discuss in more detail the project or our agencies' respective roles and responsibilities during the preparation of this EIS, please contact Mr. Robert Hom, Director, Office of Planning and Program Development, at (415) 744-3116.

Sincerely,

for Leslie T. Rogers
Regional Administrator

cc:
Kenneth Hamayasu
City & County of Honolulu, DTS

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO ATTENTION OF

June 16, 1999

Regulatory Branch

COPY

RECEIVED
99 JUN 17 12:26

Mr. Leslie T. Rogers
Regional Administrator
U.S. Department of Transportation
Federal Transit Administration, Region IX
201 Mission Street, Suite 2210
San Francisco, California 94105-1839

Dear Mr. Rogers:

This is in response to your request that the U.S. Army Corps of Engineers participate as a cooperating agency in preparation of the environmental documents for the proposed Primary Corridor Transportation project. Our understanding is that the Federal Transit Administration will act as the lead federal agency.

Under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, the Corps has jurisdiction over waters of the U.S. that may be impacted by the proposed project. Therefore, the Corps will participate as a cooperating agency as provided by 40 CFR 1501.6.

If you have any further questions, please contact Mr. Alan Everson of my staff at (808) 438-9258 ext. 11.

Sincerely,

Wally Z. Walters
Lieutenant Colonel, U.S. Army
District Engineer

Copy Furnished:

City and County of Honolulu, Department of Transportation Services, 650 South King St., Honolulu, Hawaii 98813

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

July 27, 2000

LEADING HAWAII INTO THE NEW MILLENNIUM
1959 2000+

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

IN REPLY REFER TO:
STP 8.9624

Ms. Cheryl Soon
Director
Department of Transportation Services
City and County of Honolulu
Pacific Park Plaza, Suite 1200
711 Kapiolani Boulevard
Honolulu, Hawaii 96813

AUG 1 2 29

Dear Ms. Soon:

Subject: Primary Corridor Transportation Study (PCTS), Cooperating Agency

In accordance with the recommendations from the meeting held on July 17, 2000, with our staffs and the Federal Highway Administration, we are requesting that the Hawaii Department of Transportation (HDOT) be designated as a cooperating agency for the PCTS.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Director of Transportation

c: Mr. Leslie T. Rogers, Federal Transit Administration, Region IX
Mr. Abraham Wong, Federal Highway Administration
Mr. Gordon G.W. Lum, Oahu Metropolitan Planning Organization

PB

Memorandum

DRAFT

To: File

From: Jason Yazawa

Date: April 30, 1999

Subject: Primary Corridor Transportation Project
Meeting with State Historic Preservation Division (SHPD)
Held on April 8, 1999

In Attendance: Sara Collins, SHPD
Tonia Moy, SHPD
Faith Miyamoto, DTS
David Atkin, PB
Jason Yazawa, PB

Meeting Summary

DTS and PB provided a briefing on the proposed project (status, purpose and need, alternatives, etc.)

DTS and PB proposed that the method of identifying historic buildings, in accordance with Section 106 of the National Historic Preservation Act, be the following:

- secondary data search (previous transit report, Registers, etc.);
- windshield survey to develop a "long list" of possible eligible sites;
- consultation with SHPD to screen the long list and develop a "short list";
- inventory survey the screened short list to evaluate significance (eligibility for the National Register); and
- SHPD agreement on significance evaluations.

DTS and PB proposed that the Area of Potential Effect (APE) for historic buildings be one lot deep from the transit (LRT or BRT) corridor because improvements will be at-grade.

SHPD agreed with the approach above to identify historic buildings. SHPD also generally agreed with the dimensions of the APE along the transit corridor. However, the APE around new ramps, park-and-ride lots or transit centers where such facilities might rise above the grade would be determined on a case-by-case basis.

With regards to archaeological sites, DTS and PB will request SHPD to provide a list of known archaeological sites in the corridor. DTS and PB believe this should suffice with regards to Section 106 requirements because the corridor is generally a built-up, urban

environment and most improvements would be done on existing streets and highways. SHPD agreed, and commented that a more detailed study could be done at a later time if needed. SHPD has GIS records of archaeological sites, which they would share with DTS and PB.

With regards to traditional cultural practices, SHPD recommended that DTS and PB consult with the Office of Hawaiian Affairs (OHA).

Once all historic properties are identified, the Federal Transit Administration will make an effect determination, which would be submitted to the State Historic Preservation Officer for concurrence.

SHPD stated that project compliance with Section 106 would cover State requirements as specified in Chapter 6E of the Hawaii Revised Statutes.

Action Items:

1. PB team to conduct windshield survey to develop "long list" of buildings that could potentially be eligible for the National Register.
2. PB team to coordinate with SHPD to screen "long list" to develop a "short list" of potential sites.
3. PB team to conduct additional studies of "short list" with scope to be determined in consultation with SHPD.
4. PB team to request from SHPD a list of known archaeological sites in the project area that are on or eligible for the National Register.
5. PB team and DTS to meet with OHA to discuss traditional cultural properties in the project area.

cc. Attendees
Susan Killen, PB
Robert Bramen, PB
Ann Yoklavich, Mason Architects
Glenn Mason, Mason Architects

DEPAR ENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD99-00292

May 7, 1999

Dr. Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Attention: Ms. Sara Collins

Dear Dr. Hibbard:

Subject: Primary Corridor Transportation Project

This letter is to follow up on the April 8, 1999 meeting with your staff regarding compliance with Section 106 of the National Historic Preservation Act and Chapter 6E of the Hawaii Revised Statutes.

At that meeting, the approach to identify historic properties (i.e., sites on or eligible for the National Register) that could potentially be affected by the subject project was proposed. Your staff agreed with the approach presented to identify historic buildings, and recommended consultation with the Office of Hawaiian Affairs to identify traditional cultural properties in the project area. I have enclosed for your review and comment draft minutes of the meeting.

With regard to archaeological sites, your staff agreed to provide a list of known archaeological sites in the project area (see enclosed project area map) that are on or eligible for the National Register as well as other pertinent information, such as GIS mapping and files. This information is now formally requested. We would appreciate receiving this information as soon as possible so we can determine whether the proposed project would affect these sites.

If you have any questions, please feel free to contact Faith Miyamoto of the Transportation Planning Division, at 527-6976.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosures

PB

Memorandum

DRAFT

To: File

From: Jason Yazawa

Date: June 11, 1999

Subject: Primary Corridor Transportation Project
Scoping Meeting with the Office of Hawaiian Affairs (OHA)
Held on May 21, 1999

In Attendance: Faith Miyamoto, DTS
C. Sebastian Aloot, OHA
Lynn Lee, OHA
Susan Killen, PB
Jason Yazawa, PB

Meeting Summary

Ms. Miyamoto provided a short briefing on the status of the project, noting that an Environmental Impact Statement (EIS) Preparation Notice and a Notice of Intent were recently issued, and that a public scoping meeting was held. Ms. Miyamoto indicated that the comment period ends on May 24th, but we would work with OHA to get their comments incorporated into the Draft EIS. As background for the discussion, Ms. Killen provided a briefing on the alternatives currently being considered.

Ms. Lee questioned why transportation improvements between Kapolei and Honolulu were being proposed when the vision for Kapolei is to develop a city where people live and work. Ms. Lee thought that the proposed improvements were inconsistent with this vision. Ms. Killen stated that there would still be a need for people to travel between Kapolei and Honolulu. However, the proposed transportation improvements for Kapolei are transit-related, and are meant to provide people with transportation options to driving their cars. Ms. Lee was in agreement with providing transit priority improvements. It was suggested that a glossary would be useful as a guide to the project maps provided.

The Sand Island Bypass / Nimitz Parkway improvements, which are included as part of the BRT and LRT Alternatives, were discussed. Ms. Lee stated that OHA would have concerns about impacts to burials, archaeology and water quality. Mr. Aloot stated that the Sand Island property is categorized as 5A lands, meaning that it was obtained by the State from the federal government before Statehood, and is, therefore, not part of the public land trust (5F lands) for which OHA is entitled to 20

percent revenues. The status of the Sand Island property is in dispute. Therefore, Mr. Aloot stated that this issue would likely be raised (maybe by OHA) during the planning of this project.

Ms. Lee asked what kind of land uses would be expected on Sand Island after the bypass is completed. Ms. Killen answered that Matson and SeaLand would probably remain. However, more commercial uses and greenways along the waterfront would be expected.

Ms. Lee recommended that a cultural impact assessment be conducted for the Sand Island project. The assessment should include fishing practices, burials and archaeological resources. Ms. Lee noted that the manner in which Sand Island was filled might be important in determining the extent of any burials, and that many families still have strong connections to Sand Island. Ms. Lee stated that Mokauea Island contains about a half-dozen houses on leases from the Department of Land and Natural Resources.

Ms. Lee noted that the Burial Council will not be handling all the burial issues associated with Sand Island. Ms. Lee recommended that consultants from the Hawaiian community be used to help the project resolve issues of handling burials and other artifacts. Mr. Aloot stated that OHA has a Cultural Rights Specialist who could help link the project with the proper community groups.

In response to a question from Ms. Lee regarding the inclusion of the Bypass in the BRT and LRT Alternatives, Ms. Killen stated that for the EIS, the alternatives will include a scenario without the Sand Island Bypass / Nimitz Parkway improvements.

Ms. Lee did not know of any cultural/traditional practices in other parts of the project. Generally, the mauka areas (say areas mauka of Queen Street) are less likely to contain burials. Ms. Lee suggested that there be a check for sinkholes in the Fort Weaver Road area.

For compliance with Section 106 of the National Historic Preservation Act, Ms. Lee recommended consultation with Hui Malama o Kapuna and the Pearl Harbor Hawaiian Civic Club. Ms. Lee agreed to provide contact names and telephone numbers.

The meeting concluded with an agreement to continue to coordinate throughout the duration the project.

Distribution: Meeting participants
Bob Bramen, PB
David Atkin, PB

Memorandum

To: File

From: Jason Yazawa

Date: June 17, 1999

Subject: Primary Corridor Transportation Project
Meeting regarding historic resources held on June 17, 1999

In Attendance: Faith Miyamoto, DTS
Don Hibbard, State Historic Preservation Division (SHPD)
Tonia Moy, SHPD
Glenn Mason, Mason Architects Inc.
Ann Yaklovich, Mason Architects Inc.
Susan Killen, PBQD
Jason Yazawa, PBQD

Meeting Summary

The purpose of this meeting was to discuss the screening of the windshield survey list. In a meeting with SHPD staff on April 8, 1999, it was agreed that a windshield survey be conducted to identify potential historic resources, apart from known resources that were identified from previous reports and listing in the National and Hawaii Registers of Historic Places.

Ms. Killen and Mr. Yazawa provided a short briefing on the status of the project and the alternatives currently being considered. Included in this discussion was an explanation on the possible appearance of the catenaries (poles and overhead wires) under the LRT Alternative.

Ms. Yaklovich provided a briefing on the screening of the initial windshield survey list. The initial survey, conducted on all the affected roadways (LRT, BRT, etc.) of the alternatives, identified 242 sites. In consultation with SHPD, the area of potential effect (APE) of any BRT improvement (e.g., semi-exclusive and exclusive bus lanes: but excluding ramps) would be limited to the roadway. By only including sites along the LRT alignments, 187 sites remained on the list. The second screening involved eliminating sites that are younger than 50 years. In consultation with SHPD, 1952 was set as the cut-off year. After the date research, 112 sites remained. These sites were evaluated on whether they have integrity (a criterion for eligibility to the National Register). Although some of the sites had integrity, Mason Architects judged them not likely to be eligible for the National Register for other reasons. Mason Architects

produced assessment sheets of the sites, which included photography. Copies of the sheets were submitted to SHPD. After evaluating the integrity and potential eligibility the 112 sites, 32 sites remained, which represent sites recommended for an inventory survey.

SHPD staff agreed to review the screening of the windshield survey, which produced the list of sites recommended for further study. Mr. Hibbard stated that they can respond in writing in a couple of weeks.

Mr. Hibbard had the following concerns or provided the following information regarding historic resources:

- changes in curb heights at transit stations should be minimized or be consistent with surrounding curb heights if they are at or adjacent to an historic property;
- all lava rock curbs and sidewalks should be retained;
- check whether there are any 50+ year old traffic signals along the project, since they may be considered historic;
- Bachman Hall and Sinclair Library at the University of Hawaii may be eligible properties;
- the trees along Kapiolani Boulevard are considered an historic landscape; and
- catenaries in the Capitol District may not be a concern because there are already street lamps in the district (response to a PBQD question).

A list of known sites within the project's APE was submitted to SHPD. SHPD staff agreed to review the list, and to alert DTS if there are known sites missing other than those above.

Distribution: meeting participants
Bob Bramen, PB
David Atkin, PB

Over a Century of Engineering Excellence

Memorandum

DRAFT

To: File

From: Jason Yazawa

Date: October 13, 1999

Subject: Primary Corridor Transportation Project
Meeting with State Historic Preservation Division (SHPD)
Held on September 28, 1999

In Attendance: Don Hibbard, SHPD
Sara Collins, SHPD
Tonia Moy, SHPD
Faith Miyamoto, DTS
Ann Yoklavich, Mason
David Atkin, PB
Jason Yazawa, PB

Meeting Summary

Mr. Jason Yazawa, of Parsons Brinckerhoff (PB), provided a briefing on the changes made to the proposed project since the last meeting with staff from the State Historic Preservation Division (SHPD) held on June 17, 1999.

Mr. Yazawa also briefed SHPD staff on the upcoming historic building survey work for the CityTram Waikiki Branch and Sand Island Bypass/Nimitz Parkway elements of the project. Mason Architects will conduct a windshield survey and screening, the same methods used in the previous survey work. SHPD staff agreed with this work.

The archaeological and cultural survey work on the Sand Island Bypass portion of the project was discussed. Mr. Yazawa informed SHPD staff that during a consultation meeting with the Office of Hawaiian Affairs held on May 21, 1999, project staff were informed about native Hawaiians who reside on Mokauea Island under lease from the State Department of Land and Natural Resources. Ms. Sara Collins, an archaeologist with SHPD, was not aware of any other archaeological or cultural resources on or near Sand Island mainly because most, if not all, the island was created by fill material from Honolulu Harbor and Keehi Lagoon. Mr. Don Hibbard, the administrator of SHPD, recalled a report about Sand Island. Ms. Collins said she would try to find it.

Ms. Collins stated that the natural shoreline in the vicinity of Sand Island Bypass/Nimitz Parkway is along Nimitz Highway. The area makai of Nimitz Highway is fill material. Ms. Collins stated that construction at Pier 39-40 (Young Brothers terminal) uncovered

a burial, but this discovery is unusual because the current Pier 39-40 is beyond the natural shoreline. A known archaeological resource in the project area is a buried fishpond in the vicinity of Nimitz Highway near Keehi Interchange. Mr. Yazawa stated that the unstable soil conditions in this area might require deep foundations for the alternative alignment of the Bypass near Nimitz Highway. Ms. Collins stated that during construction monitoring would be needed in this area if this alignment is selected.

With regards to the Waikiki Branch of the CityTram, Ms. Collins stated that there could be potential burials along Richards and Kamakee Streets. Mr. David Atkin noted, however, that construction on city streets for CityTram would only involve repavement, and that deep excavation would not be necessary. Ms. Collins is also aware of burials in the Fort DeRussy area, along Kalia Road. These burials are only 4 to 6 feet below the surface. The recent Hale Koa Hotel construction uncovered many burials. However, Ms. Collins said that no burials have been uncovered so far at the Hilton Hawaiian Village construction site (old dome).

Ms. Collins is mindful that archaeological surveys would not be possible because any resource in the project area would be buried. The use of existing data, such as the City's Geographic Information System, would be acceptable to identify archaeological sites. However, Ms. Collins raised the possibility of an "adverse effect" on unknown burials because monitoring (arguably a form of data recovery) would be required along certain sections and stations of the CityTram. The new Section 106 regulations require an "adverse effect" determination if data recovery is required, even though the resource does not have to be preserved (under the old regulations, this would be a "no adverse effect" determination). Ms. Collins raised the possibility of conducting a phased Section 106 process to address the problem of unknown archaeological sites. Ms. Collins was not sure if a phased Section 106 process is applicable to the project. Mr. Hibbard questioned how such a process could be used since Section 106 is used in the National Environmental Policy Act process to select the preferred alternative. Mr. Yazawa said he would research into the new regulations to see if a phased Section 106 process makes sense for the project.

The group discussed reconciling the "Mason list" of 32 potential historic building sites within the Area of Potential Effect (APE) and the "SHPD list" of approximately 80 potential sites. The goal of this discussion is to come up with one list of potential historic sites (excluding the CityTram Waikiki Branch and Sand Island Bypass, which will be discussed at a later date), which will be the subject of further research (i.e., inventory survey). The following was agreed to by the group to reconcile the lists:

- Despite changes made to the proposed project (see above), alternative corridors for the CityTram have not been eliminated (e.g., North and South King Streets), and these corridors may be used as alternatives in the upcoming draft environmental impact statement (EIS). Therefore, no historic resource within these corridors' APE can be eliminated at this time.
- The 50-year cut-off used to produce the Mason list was set at 1952. The SHPD list contains many buildings constructed in the late 1950s and early 1960s. It was agreed that the cut-off year be moved to 1959, except in cases where a building

DRAFT

may be exceptionally important, such as the old Kamehameha Drive-In Theater (the last of its kind). Some of the buildings identified by SHPD staff require date research.

- Some of the sites on the SHPD list were included in the 1989 inventory survey report prepared for the Honolulu Rapid Transit Project. SHPD staff agreed that the information provided in the 1989 report is acceptable for the current project.
- Ms. Ann Yoklavich, of Mason Architects, questioned the integrity of some of the buildings on the SHPD list because she felt that they were altered too much. SHPD staff requested that most of these buildings remain on the list.

Ms. Yoklavich will prepare a new list combining the Mason and SHPD lists, and taking into account the discussion above. SHPD suggested that the project use a "Kauai-inventory-type form" in conducting the inventory survey.

Mr. Yazawa informed SHPD staff that the project plans to secure the State Historic Preservation Officer's (SHPO) concurrence on the National Register eligible properties in the APE prior to public release of the Draft EIS. Since the current schedule has the Draft EIS completed in early 2000. The concurrence request letter to the SHPO would be submitted in November or December.

Action Items:

1. Ms. Collins to find a report about archaeological resources on Sand Island.
2. Mr. Yazawa to research the possibility of using a phased Section 106 process.
3. Mason Architects to conduct windshield survey and screening of the CityTram Waikiki Branch and Sand Island Bypass elements of the project.
4. PB, DTS, SHPD and Mason Architects to discuss results of Mason Architect's windshield survey and screening.
5. Ms. Yaklovich to prepare a new list of potential historic buildings requiring an inventory survey.
6. Mason Architects to conduct inventory survey.

cc. Attendees
Susan Killen, PB
Robert Bramen, PB

Memorandum

To: Attendees

From: Colette Sakoda

Date: November 12, 1999

Subject: Primary Corridor Transportation Project
Meeting with State Historic Preservation Division
Held on November 8, 1999

In Attendance: Don Hibbard, SHPD
Tonia Moy, SHPD
Faith Miyamoto, DTS
Barbara Shideler, Mason Architects
Glenn Mason, Mason Architects
Susan Killen, PB
Colette Sakoda, PB

Meeting Summary

Susan Killen provided a briefing on the changes made to the proposed project that consists of the Sand Island Parkway and Waikiki extension alternatives appended to the CityTram route. Also discussed was the technology update in that there will be no overhead catenary; instead the vehicle will be electrically powered through a power strip embedded at surface level in the street pavement.

Barbara Shideler reviewed the supplemental list of properties located within the expanded project alignments with the group. Criteria utilized in the selection of the sites were:

1. Properties and buildings with dates before 1960
2. Area of Potential Effects (APE) for historic buildings would be one lot deep from an affected roadway
3. Records research of the National Register and Hawaii Register, review of Historic Sites Inventory Report for the Honolulu Rapid Transit Development Project (1989), and windshield survey

The supplemental list geographically consisted of potential sites along the Sand Island Parkway, Waikiki, and Kakaako extensions of the CityTram route. This list will be combined with the original list contained in the Historical/Cultural Resources Impacts Technical Report, May 1999.

Potential impacts on trees on Kapiolani Boulevard are still an issue for further evaluation. It may in part depend on whether the CityTram is curb side running or requiring taking the median within the Kapiolani Boulevard right-of-way, both of which are possible locations of some significant trees. Another issue that is being investigated by PB is the potential impact

on existing curbs. Depending again on the location, some curbs may require section 106 review due to historic significance.

Don Hibbard reviewed and approved the inventory survey form proposed for use by Mason Architects. The format is the same that was utilized for a Kauai project previously reviewed and approved by the State Historic Preservation Division.

Susan Killen recommended that for the next phase of the evaluation, priority be placed on properties most vulnerable due to proposed transit station locations, park and ride facilities, and stops. Properties that would not be affected should be looked at to possibly shorten the list.

Our target is to submit the Draft EIS to the Federal Transit Administration (FTA) in January, 2000. The APE list with a preliminary determination of potential effects will be included in the document.

Action Items:

1. Mason Architects will proceed with inventory survey with priority on properties that would be most vulnerable due to proximity to proposed transit stations, park and ride facilities, and stops.
2. PB will continue research on proposed locations of trees on Kapiolani Boulevard relative to the CityTram use of right-of-way; research will also continue on potential effects on existing curbs by the alignment.

cc: Attendees
Susan Killen
Robert Bramen

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DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD00-00058

February 8, 2000

Don J. Hibbard, Ph.D.
Administrator, State Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Attention: Ms. Tonia Moy

Dear Dr. Hibbard:

Subject: Primary Corridor Transportation Project

As part of the ongoing Section 106 consultation process for the subject project, under separate cover, the following was transmitted for your information:

1. One (1) set of completed inventory survey cards for sites built prior to 1960 in the area of potential effect (APE)
2. List of Potential and Known Historic Resources
3. Preliminary Effect Assessment of Historic Period Resources

Should you have any questions regarding this matter, please contact Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosures

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

February 25, 2000

TPD00-00090

Don J. Hibbard, Ph.D.
Administrator, State Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Attention: Ms. Tonia Moy

Dear Dr. Hibbard:

Subject: Primary Corridor Transportation Project

The purpose of this letter is to request the reduction of the Area of Potential Effect (APE) agreed upon during discussions held in April, 1999.

At the November 18, 1999 coordination meeting, the following major changes to the proposed in-town transit alignment and technology were discussed:

1. Figure 1 illustrates the revised transit alignment. Figures 2 and 3 are artist's renderings of what a transit stop at a median and at curbside would look like. North King, South Beretania, and South King Streets are no longer being considered as parts of the transit alignment. A Waikiki branch has now been added to the alignment.

2. The system alternatives currently under consideration do not include overhead catenary, as the previous alternatives did. Potential vehicle technologies include Tram-on-Tires, hybrid powered, fuel cell or embedded power collection system, Articulated Electric Hybrid (diesel, propane, or fuel cell), and Articulated Electric Bus powered by touchable embedded power collection system.

We believe that the above provides justification for the reduction of the APE from one parcel deep along the current in-town transit alignment to only the road right-of-way. Please advise us of your decision in this matter.

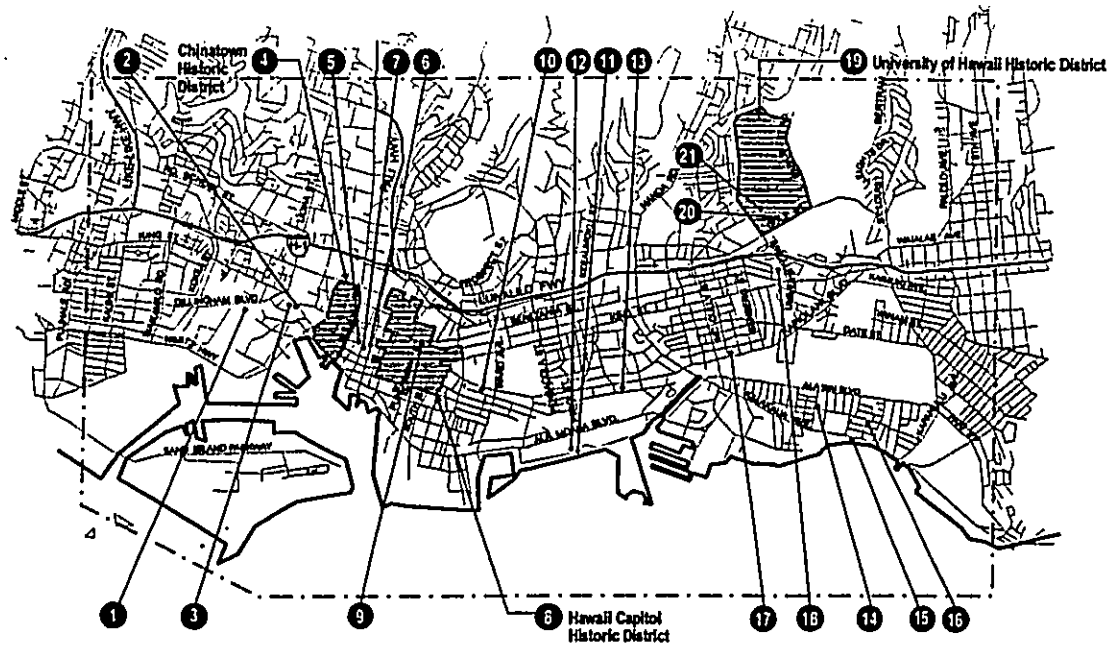
Should you have any questions or wish to discuss this matter further, please contact Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosures



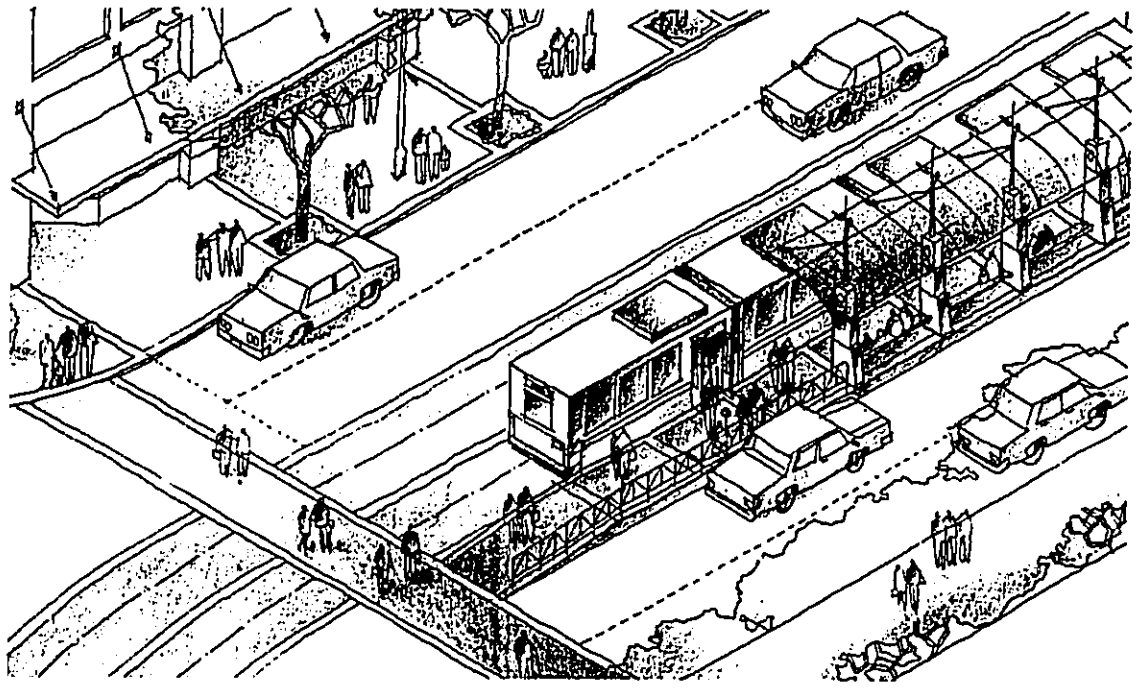
SOURCES:
ESRI Atlas GIS v4.0 1998; Information Delivery System (IDS), March 1998; City and County of Honolulu, October 1998; Mason Architects Inc., May 1998.

* Numbers correspond to Historic-Period Resources listed on Table 3.10-1

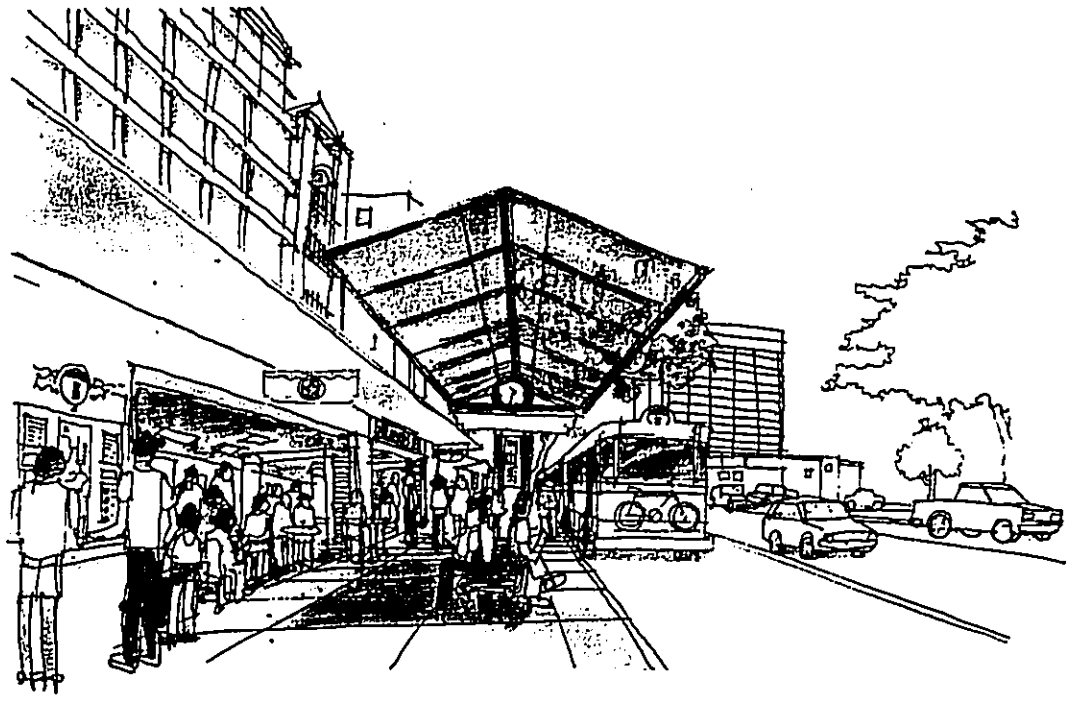
N

Scale: 0 .25 .50 mi
Scale: 0 .5 1 km

Historic-Period Resources; Kalihi To University Of Hawaii — **Figure 1**



Typical In-Town BRT Median Stop — **Figure 2**



	Typical In-Town BRT Curb Transit Stop	Figure 3

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
JANET E. KAWELO

AQUATIC RESOURCES
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS
WATER RESOURCE MANAGEMENT

March 8, 2000

LOG NO: 25048
DOC NO: 0003tm03
Architecture

Ms. Cheryl D. Soon
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

SUBJECT: Section 106 Consultation
Primary Corridor Transportation
TMK: Various, Oahu

Thank you for your letter regarding the reduction of the Area of Potential Effect (APE) for the Primary Corridor Transportation Project (PCTP). Since the new proposed system no longer utilizes overhead catenary, we concur that the APE may be reduced to road right-of-way along the in-town transit alignment for most of the project. However, wherever there will be a transit station or special ramp or park-and-ride facility, we believe the APE should include the neighboring parcels.

Thank you for the opportunity to comment. Should you have further questions, please call Tonia Moy at 692-8030.

Aloha,

TIMOTHY E. JOHNS
State Historic Preservation Officer

TM:jk

U.S. Department
of Transportation
Federal Transit
Administration

REGION IX
Arizona, California,
Hawaii, Nevada, Guam

201 Mission Street
Suite 2210
San Francisco, CA 94105-1839
415-744-3133
415-744-2726 (fax)

MAY 12 1999

Mr. Robert Smith
Ecological Region Manager
Fish & Wildlife Service
U.S. Department of the Interior
300 Ala Moana Boulevard, Suite 3108
Honolulu, Hawaii 96850

Dear Mr. Smith:

Subject: Primary Corridor Transportation Project
Section 7 Consultation

The Federal Transit Administration and the City & County of Honolulu are currently preparing a National Environmental Policy Act environmental impact statement (EIS) for the subject project. As shown on Figure 1.1 of the enclosed EIS Preparation Notice, the study area is from Kapolei to Kahala. The alternatives currently being considered for analysis in the Draft EIS include an Enhanced Bus/Transportation System Management (TSM) Alternative, Bus Rapid Transit (BRT) Alternative and Light Rail Transit (LRT) Alternative.

To be in compliance with Section 7 of the Endangered Species Act, we request that the U.S. Fish & Wildlife Service identify the listed and proposed to be listed endangered and threatened species in the project area.

If you have any questions or need additional information, please call Kenneth Hamayasu of the City and County of Honolulu Department of Transportation Services at 527-6978.

Sincerely,

Leslie T. Rogers
Regional Administrator

Enclosure
cc:
Kenneth Hamayasu
City & County of Honolulu, DTS

RECEIVED

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3122
Box 50088
Honolulu, Hawaii 96850

In Reply Refer To: LTG

MAY 24 1999

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, HI 96813

Re: Notice to Prepare Draft Environmental Impact Statement and Request for a Species List for the Primary Corridor Transportation Project, Oahu, Hawaii (ER 99/397)

Dear Ms. Soon:

The U.S. Fish and Wildlife Service (Service) has reviewed your April 21, 1999, letter notifying us that you intend to prepare a Draft Environmental Impact Statement (DEIS) for the proposed project referenced above. We have also reviewed a letter received from the Federal Transit Administration (FTA), dated May 12, 1999, requesting a list of endangered and threatened species found within the proposed project area. The proposed project is sponsored by the City and County of Honolulu Department of Transportation Services (DTS) and the U. S. Department of Transportation, FTA. This letter has been prepared under the authority of and in accordance with provisions of the National Environmental Policy Act of 1969 [42 U.S.C. 4321 *et seq.*; 83 Stat. 852], as amended, the Fish and Wildlife Coordination Act of 1934 [16 U.S.C. 661 *et seq.*; 48 Stat. 401], as amended, the Endangered Species Act of 1973 [16 U.S.C. 1531 *et seq.*; 87 Stat. 884], as amended, and other authorities mandating Department of the Interior concern for environmental values. Based on these authorities, the Service offers the following comments for your consideration.

The proposed project involves improving Oahu's primary transportation corridor, which extends from Kapolei in the Ewa District, past Pearl Harbor, Honolulu International Airport, downtown Honolulu, and continues eastward to the University of Hawaii at Manoa. The corridor is approximately 27 miles in length and at most 4 miles in width. The alternatives currently being considered include a No-Build Alternative, Enhanced Bus/Transportation System Management Alternative, a Bus Rapid Transit, and a Light Rail Transit alternative.

The Service has reviewed the information that was provided in your letter and pertinent information in our files, including maps and records prepared by the Hawaii Heritage Program of The Nature Conservancy. The Hawaiian hoary bat (*Lasiurus cinereus semotus*), federally listed as endangered, has been sporadically sighted within the metropolitan area of the proposed project. The following waterbird species, federally listed as endangered, have been observed in wetland areas within the project area:

a. Hawaiian coot (*Fulica americana alai*);
b. Hawaiian duck (*Anas wyvilliana*);
c. Hawaiian common moorhen (*Gallinula chloropus sandvicensis*); and
d. Hawaiian stilt (*Himantopus mexicanus knudseni*).

The following federally endangered plant species have been observed within the Ewa area of the Primary Transportation Corridor (refer to Figure 1.1 of the DEIS Preparation Notice):

a. *Abutilon menziesii* (ko`oloa`ula);
b. *Centaurium sebaeoides* (`awiwi); and
c. *Marsilea villosa* (`ihi`ihi).

In addition, the plant *Torulinium odoratum* subsp. *auriculatum* (pu`uka`a), a Species of Concern, has been reported within the Ewa area of the Primary Transportation Corridor. However, it has not been observed there since 1916. The term "Species of Concern" describes species that are of concern to the Service, but require further biological research and field study to resolve their conservation status. These species are not currently federally protected.

The DEIS should address any potential project-related impacts to these and other native Hawaiian species and propose mitigation measures that avoid unnecessary impacts and minimize unavoidable impacts. For example, we recommend that these measures include avoidance of unnecessary destruction of vegetated areas containing ko`oloa`ula or any other federally listed plant species.

The Service appreciates the opportunity to provide this technical assistance, and we look forward to reviewing a copy of the DEIS when it is available. If you have questions regarding these comments, please contact Fish and Wildlife Biologist Leila Gibson by telephone at (808) 541-3441 or by facsimile transmission at (808) 541-3470.

Sincerely,

Robert P. Smith

Robert P. Smith
Pacific Islands Manager

cc: FWS - Region 1, Portland
OEPC, Washington, D.C.
FTA, San Francisco
USEPA, Honolulu
DOFAW, Hawaii
CZMP, Hawaii

DEPARTMENT OF TRANSPORTATION SERVICES
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD00-00243

May 4, 2000

Mr. Abraham Wong, Division Administrator
Hawaii Division
Federal Highway Administration
U.S. Department of Transportation
Box 50206
Honolulu, Hawaii 96850

Dear Mr. Wong:

Subject: Primary Corridor Transportation Project

We are writing to request your assistance and formal participation in an important transportation project in the City and County of Honolulu known as the Primary Corridor Transportation Project. We understand that the "Memorandum of Understanding (MOU), National Environmental Policy Act (NEPA) and Clean Water Act Section 404, Integration Process for Surface Transportation Projects in the State of Hawaii" (copy enclosed), looks towards consultation in the project development process.

The Federal Transit Administration and the City and County of Honolulu are currently preparing a NEPA environmental impact statement (EIS) for the subject project. Transportation improvements are being proposed for the primary transportation corridor, which stretches from Kapolei to Kahala. One of the alternatives being considered (Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP)) includes an approximately one kilometer (0.6 mile) tunnel under the Fort Armstrong Channel of Honolulu Harbor and improvements to the Kalihi Channel crossing. These actions would require an individual permit from the U.S. Army Corps of Engineers. The NEPA EIS that is being prepared for the subject project proposes increasing bridge capacity across Kalihi Channel. However, the preferred option is a tunnel to replace the Kalihi Channel Bridge, as recommended in the State of Hawaii's long-range harbor master plan. Initial studies of this tunnel are currently being conducted and its impacts will be documented in a separate environmental document by the State of Hawaii Department of Transportation.

As set forth in the MOU, the involvement of the signatory agencies would be limited to issues pertaining to waters of the United States, including wetlands, and associated sensitive species,

including threatened and endangered species, regarding the BRT/SISP Alternative. Although the SISP component would not have any long-term impacts, construction related impacts are anticipated. The impacts to water quality from the dredging of the Fort Armstrong Channel would be similar in many respects to the water quality impacts of normal maintenance dredging in Honolulu Harbor. Widening of the existing Kalihi Channel Bridge and construction of a new bridge would require pile driving and demolition, which may result in increased turbidity. The impacts of the proposed construction in the Fort Armstrong and Kalihi Channels would be mostly indirect and limited to those associated with increased suspended solids and turbidity loads. The project should not impact any sensitive species.

Enclosed are copies of the following components of the Draft EIS that is being prepared:

Chapter 1 Purpose and Need
Chapter 2 Alternatives Considered
Appendix B Conceptual Design Drawings, Bus Rapid Transit
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Your expeditious review of these documents and concurrence on the NEPA purpose and need, Section 404 basic and overall project purpose, criteria for alternative selection and project alternatives to be evaluated in the Draft EIS will be greatly appreciated.

The MOU states that concurrence or non-concurrence must be a written determination that either the information to date is adequate for this stage and the project may proceed to the next stage without modification, that the information to date is not adequate for this stage, or that the potential adverse impacts of the project are severe.

We ask for your attention to this matter to expedite the concurrence process. In order to facilitate your review, Ms. Faith Miyamoto of the Transportation Planning Division will be contacting you to schedule a meeting where we can discuss your input and review.

Should you have any questions regarding this matter, please contact Kenneth Hamayasu at (808) 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosures

cc: Mr. Leslie Rogers, Federal Transit Administration (without enclosures)

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
Hawaii Division
300 Ala Moana Blvd., Room 3-306
Box 50206
Honolulu, HI 96850
June 26, 2000

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
Pacific Park Plaza
711 Kapiolani Boulevard, Suite 1200
Honolulu, HI 96813

Dear Ms. Soon:

Thank you for the opportunity to participate in the Primary Corridor Transportation Project during the project development process under the National Environmental Policy Act and Clean Water Act Section 404 Memorandum of Understanding. As a Federal cooperating agency to the Federal Transit Administration, we will be communicating our recommendations and concerns directly to our Federal transportation partner.

We believe the multi-modal framework proposed for this important transportation project is unique in terms of its potential mobility benefits and project development challenges. We look forward to working with you on this innovative corridor project. Laura Kong will be our point of contact for this project. If you have any questions or need assistance, please do not hesitate to call her at (808) 541-2700, extension 328 (Email: laura.kong@fhwa.dot.gov).

Sincerely,

Abraham Wong
Division Administrator

cc: Leslie Rodgers, FTA
Robert Hom, FHWA, Western Resource Center

AWong:di

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4432 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 17, 2000

TPD6/00-03037R

Mr. Abraham Wong, Division Administrator
Hawaii Division
Federal Highway Administration
U.S. Department of Transportation
Box 50206
Honolulu, Hawaii 96850

Dear Mr. Wong:

Subject: Primary Corridor Transportation Project

Thank you for your June 26, 2000 letter regarding participation during the project development process under the "Memorandum of Understanding (MOU), National Environmental Policy Act (NEPA) and Clean Water Act Section 404, Integration Process for Surface Transportation Projects in the State of Hawaii." The Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP) Alternative, which included a tunnel under the Fort Armstrong Channel of Honolulu Harbor and improvements to the Kalihi Channel crossing, was the trigger for the MOU coordination. As the agency review of and consultation on the project progressed, it was agreed that the Sand Island Scenic Parkway would best be reviewed in the context of the Oahu Regional Transportation Plan. Therefore, this letter is to inform you that the discussion of Sand Island Scenic Parkway will continue in that arena and that it will be separated from the Primary Corridor Transportation Project Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS).

The time and effort expended to review the project documents are greatly appreciated. The comments and recommendations included in your June 26, 2000 letter to Leslie Rogers, Regional Administrator, Federal Transit Administration have been reviewed. Close coordination will continue to ensure that the comments and concerns that were not addressed by the elimination of the BRT/SISP Alternative are resolved.

Should you have any questions regarding this matter, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

cc: Ms. Donna Turchie
Federal Transit Administration -Region IX

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TFD00-00240

May 4, 2000

Mr. George Young
Chief, Regulatory Branch
U. S. Army Engineer District, Honolulu
Building 230
Fort Shafter, Hawaii 96858-5440

Dear Mr. Young:

Subject: Primary Corridor Transportation Project

We are writing to request your assistance and formal participation in an important transportation project in the City and County of Honolulu known as the Primary Corridor Transportation Project. We understand that the "Memorandum of Understanding (MOU), National Environmental Policy Act (NEPA) and Clean Water Act Section 404, Integration Process for Surface Transportation Projects in the State of Hawaii" (copy enclosed), looks towards consultation in the project development process. Initial discussions regarding this project have taken place with members of your staff.

The Federal Transit Administration and the City and County of Honolulu are currently preparing a NEPA environmental impact statement (EIS) for the subject project. Transportation improvements are being proposed for the primary transportation corridor, which stretches from Kapolei to Kahala. One of the alternatives being considered (Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP)) includes an approximately one kilometer (0.6 mile) tunnel under the Fort Armstrong Channel of Honolulu Harbor and improvements to the Kalihi Channel crossing. These actions would require an individual permit from the U.S. Army Corps of Engineers. The NEPA EIS that is being prepared for the subject project proposes increasing bridge capacity across Kalihi Channel. However, the preferred option is a tunnel to replace the Kalihi Channel Bridge, as recommended in the State of Hawaii's long-range harbor master plan. Initial studies of this tunnel are currently being conducted and its impacts will be documented in a separate environmental document by the State of Hawaii Department of Transportation.

As set forth in the MOU, the involvement of the signatory agencies would be limited to issues pertaining to waters of the United States, including wetlands, and associated sensitive species, including threatened and endangered species, regarding the BRT/SISP Alternative. Although the

SISP component would not have any long-term impacts, construction related impacts are anticipated. The impacts to water quality from the dredging of the Fort Armstrong Channel would be similar in many respects to the water quality impacts of normal maintenance dredging in Honolulu Harbor. Widening of the existing Kalihi Channel Bridge and construction of a new bridge would require pile driving and demolition, which may result in increased turbidity. The impacts of the proposed construction in the Fort Armstrong and Kalihi Channels would be mostly indirect and limited to those associated with increased suspended solids and turbidity loads. The project should not impact any sensitive species.

Enclosed are copies of the following components of the Draft EIS that is being prepared:

- Chapter 1 Purpose and Need
- Chapter 2 Alternatives Considered
- Appendix B Conceptual Design Drawings, Bus Rapid Transit
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- Appendix D Screening of Alternatives

Your expeditious review of these documents and concurrence on the NEPA purpose and need, Section 404 basic and overall project purpose, criteria for alternative selection and project alternatives to be evaluated in the Draft EIS will be greatly appreciated.

The MOU states that concurrence or non-concurrence must be a written determination that either the information to date is adequate for this stage and the project may proceed to the next stage without modification, that the information to date is not adequate for this stage, or that the potential adverse impacts of the project are severe.

We ask for your attention to this matter to expedite the concurrence process. In order to facilitate your review, Ms. Faith Miyamoto of the Transportation Planning Division will be contacting you to schedule a meeting where we can discuss your input and review.

Should you have any questions regarding this matter, please contact Kenneth Hamayasu at (808) 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosures

cc: Mr. Leslie Rogers, Federal Transit Administration (without enclosures)

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO ATTENTION OF

June 8, 2000

Regulatory Branch

00 JUN 13 A 8:47

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

This letter responds to your request, dated May 4, 2000, for our participation in the Primary Corridor Transportation Project under the Memorandum of Understanding (MOU), National Environmental Policy Act (NEPA) and Clean Water Act Section 404, Integration Process for Surface Transportation Projects in the State of Hawaii.

We have reviewed the preliminary draft chapters and appendices you provided and concur that the information to date is adequate for this stage and the project may proceed to the next stage without modification.

If you have any questions concerning this matter, please contact William Lennan of my staff at 438-6986, and reference File No. 990000338.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

July 19, 2000

TPD00-00368

Mr. George P. Young, P.E.
Chief, Regulatory Branch
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

Attention: Mr. William Lennan
File No. 990000338

Dear Mr. Young:

Subject: Primary Corridor Transportation Project

In May of this year, your assistance and formal participation was requested in the project development process for the Primary Corridor Transportation Project. This was done pursuant to the "Memorandum of Understanding (MOU), National Environmental Policy Act and Clean Water Act Section 404, Integration Process for Surface Transportation Projects in the State of Hawaii." The Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP) Alternative, which included a tunnel under the Fort Armstrong Channel of Honolulu Harbor and improvements to the Kalihi Channel crossing, was the trigger for the MOU coordination. As the agency review of the project progressed, concerns were expressed regarding SISP's role. Therefore, this letter is to inform you that the SISP portion of the subject project will not be pursued at this time. The BRT/SISP Alternative will be deleted from consideration in the Major Investment Study/Draft Environmental Impact Statement that is being prepared.

We thank you for the time and effort expended to review the project documents in a timely manner. Although the decision to defer SISP will annul the MOU process, we will continue to keep you informed about the subject project.

Should you have any questions concerning this matter, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

cc: Ms. Donna Turchie
Federal Transit Administration – Region IX

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4525 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

May 4, 2000

TPD00-00242

Mr. John Naughton
Pacific Islands Area Office
National Marine Fisheries Service
1601 Kapiolani Boulevard, Suite 1110
Honolulu, Hawaii 96814-4700

Dear Mr. Naughton:

Subject: Primary Corridor Transportation Project

We are writing to request your assistance and formal participation in an important transportation project in the City and County of Honolulu known as the Primary Corridor Transportation Project. We understand that the "Memorandum of Understanding (MOU), National Environmental Policy Act (NEPA) and Clean Water Act Section 404, Integration Process for Surface Transportation Projects in the State of Hawaii" (copy enclosed), looks towards consultation in the project development process. Initial discussions regarding this project occurred at an agency coordination meeting held in August 1999.

The Federal Transit Administration and the City and County of Honolulu are currently preparing a NEPA environmental impact statement (EIS) for the subject project. Transportation improvements are being proposed for the primary transportation corridor, which stretches from Kapolei to Kahala. One of the alternatives being considered (Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP)) includes an approximately one kilometer (0.6 mile) tunnel under the Fort Armstrong Channel of Honolulu Harbor and improvements to the Kalihi Channel crossing. These actions would require an individual permit from the U.S. Army Corps of Engineers. The NEPA EIS that is being prepared for the subject project proposes increasing bridge capacity across Kalihi Channel. However, the preferred option is a tunnel to replace the Kalihi Channel Bridge, as recommended in the State of Hawaii's long-range harbor master plan. Initial studies of this tunnel are currently being conducted and its impacts will be documented in a separate environmental document by the State of Hawaii Department of Transportation.

As set forth in the MOU, the involvement of the signatory agencies would be limited to issues pertaining to waters of the United States, including wetlands, and associated sensitive species, including threatened and endangered species, regarding the BRT/SISP Alternative. Although the

SISP component would not have any long-term impacts, construction related impacts are anticipated. The impacts to water quality from the dredging of the Fort Armstrong Channel would be similar in many respects to the water quality impacts of normal maintenance dredging in Honolulu Harbor. Widening of the existing Kalihi Channel Bridge and construction of a new bridge would require pile driving and demolition, which may result in increased turbidity. The impacts of the proposed construction in the Fort Armstrong and Kalihi Channels would be mostly indirect and limited to those associated with increased suspended solids and turbidity loads. The project should not impact any sensitive species.

Enclosed are copies of the following components of the Draft EIS that is being prepared:

Chapter 1 Purpose and Need
Chapter 2 Alternatives Considered
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Appendix D Screening of Alternatives

Your expeditious review of these documents and concurrence on the NEPA purpose and need, Section 404 basic and overall project purpose, criteria for alternative selection and project alternatives to be evaluated in the Draft EIS will be greatly appreciated.

The MOU states that concurrence or non-concurrence must be a written determination that either the information to date is adequate for this stage and the project may proceed to the next stage without modification, that the information to date is not adequate for this stage, or that the potential adverse impacts of the project are severe.

We ask for your attention to this matter to expedite the concurrence process. In order to facilitate your review, Ms. Faith Miyamoto of the Transportation Planning Division will be contacting you to schedule a meeting where we can discuss your input and review.

Should you have any questions regarding this matter, please contact Kenneth Hamayasu at (808) 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosures

cc: Mr. Leslie Rogers, Federal Transit Administration (without enclosures)

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
Pacific Island Area Office
1601 Kapiolani Boulevard, Suite 1110
Honolulu, Hawaii 96814-0047

June 9, 2000

Cheryl D. Soon
Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Blvd., Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

The National Marine Fisheries Service (NMFS) has received the information sent by you on the Primary Corridor Transportation Project, City and County of Honolulu, dated May 4, 2000. We have reviewed the components of the Draft EIS for the project under the multi-agency Memorandum of Understanding (MOU), Integration Process for Surface Transportation in the State of Hawaii. We offer the following comments for your consideration concerning the adequacy of the information provided to date.

NMFS believes that the majority of the proposed Primary Corridor Project will have minimal impacts on those resources and habitats for which we have a responsibility. The exception will be the alternative which includes the proposed tunnel under the Fort Armstrong Channel of Honolulu Harbor and the proposed improvements to the Kalihi Channel crossing. However, we have reviewed the information submitted and concur that it is adequate for this early stage of the project. We have no objection with the project proceeding to the next stage, as presented in the components of the Draft EIS.

We appreciate the opportunity to review the project at this early stage under the MOU. Should you have any questions please contact John Naughton (973-2935x211) of my staff at our Pacific Islands Area Office in Honolulu.

Sincerely,

Charles Kamelia
Administrator
Pacific Islands Area Office

cc: Federal Transit Administration, Region 9

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

July 19, 2000

TPD00-00364

Mr. Charles Karnella, Administrator
Pacific Islands Area Office
Southwest Region
National Marine Fisheries Service
1601 Kapiolani Boulevard, Suite 1110
Honolulu, Hawaii 96814-0047

Attention: Mr. John Naughton

Dear Mr. Karnella:

Subject: Primary Corridor Transportation Project

In May of this year, your assistance and formal participation was requested in the project development process for the Primary Corridor Transportation Project. This was done pursuant to the "Memorandum of Understanding (MOU), National Environmental Policy Act and Clean Water Act Section 404, Integration Process for Surface Transportation Projects in the State of Hawaii." The Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP) Alternative, which included a tunnel under the Fort Armstrong Channel of Honolulu Harbor and improvements to the Kalihi Channel crossing, was the trigger for the MOU coordination. As the agency review of the project progressed, concerns were expressed regarding SISP's role. Therefore, this letter is to inform you that the SISP portion of the subject project will not be pursued at this time. The BRT/SISP Alternative will be deleted from consideration in the Major Investment Study/Draft Environmental Impact Statement that is being prepared.

We thank you for the time and effort expended to review the project documents in a timely manner. Although the decision to defer SISP will annul the MOU process, we will continue to keep you informed about the subject project.

Should you have any questions concerning this matter, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

cc: Ms. Donna Turchie
Federal Transit Administration

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4525 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD00-00241

May 4, 2000

Mr. Paul Henson, Field Supervisor
Division of Ecological Services
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

Dear Mr. Henson:

Subject: Primary Corridor Transportation Project

We are writing to request your assistance and formal participation in an important transportation project in the City and County of Honolulu known as the Primary Corridor Transportation Project. We understand that the "Memorandum of Understanding (MOU), National Environmental Policy Act (NEPA) and Clean Water Act Section 404, Integration Process for Surface Transportation Projects in the State of Hawaii" (copy enclosed), looks towards consultation in the project development process. Initial discussions regarding this project occurred at an agency coordination meeting held in August 1999.

The Federal Transit Administration and the City and County of Honolulu are currently preparing a NEPA environmental impact statement (EIS) for the subject project. Transportation improvements are being proposed for the primary transportation corridor, which stretches from Kapolei to Kahala. One of the alternatives being considered (Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP)) includes an approximately one kilometer (0.6 mile) tunnel under the Fort Armstrong Channel of Honolulu Harbor and improvements to the Kalihi Channel crossing. These actions would require an individual permit from the U.S. Army Corps of Engineers. The NEPA EIS that is being prepared for the subject project proposes increasing bridge capacity across Kalihi Channel. However, the preferred option is a tunnel to replace the Kalihi Channel Bridge, as recommended in the State of Hawaii's long-range harbor master plan. Initial studies of this tunnel are currently being conducted and its impacts will be documented in a separate environmental document by the State of Hawaii Department of Transportation.

As set forth in the MOU, the involvement of the signatory agencies would be limited to issues pertaining to waters of the United States, including wetlands, and associated sensitive species, including threatened and endangered species, regarding the BRT/SISP Alternative. Although the

SISP component would not have any long-term impacts, construction related impacts are anticipated. The impacts to water quality from the dredging of the Fort Armstrong Channel would be similar in many respects to the water quality impacts of normal maintenance dredging in Honolulu Harbor. Widening of the existing Kalihi Channel Bridge and construction of a new bridge would require pile driving and demolition, which may result in increased turbidity. The impacts of the proposed construction in the Fort Armstrong and Kalihi Channels would be mostly indirect and limited to those associated with increased suspended solids and turbidity loads. The project should not impact any sensitive species.

Enclosed are copies of the following components of the Draft EIS that is being prepared:

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Chapter 2 Alternatives Considered
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Appendix C Conceptual Design Drawings, Sand Island Scenic Parkway and Marina Road
Appendix D Screening of Alternatives

Your expeditious review of these documents and concurrence on the NEPA purpose and need, Section 404 basic and overall project purpose, criteria for alternative selection and project alternatives to be evaluated in the Draft EIS will be greatly appreciated.

The MOU states that concurrence or non-concurrence must be a written determination that either the information to date is adequate for this stage and the project may proceed to the next stage without modification, that the information to date is not adequate for this stage, or that the potential adverse impacts of the project are severe.

We ask for your attention to this matter to expedite the concurrence process. In order to facilitate your review, Ms. Faith Miyamoto of the Transportation Planning Division will be contacting you to schedule a meeting where we can discuss your input and review.

Should you have any questions regarding this matter, please contact Kenneth Hamayasu at (808) 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosures

cc: Mr. Leslie Rogers, Federal Transit Administration (without enclosures)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3-122
Box 50088
Honolulu, Hawaii 96850

JUN 12 2000

In Reply Refer To: OCS

Cheryl Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Blvd. Suite 1200
Honolulu HI 96813

Re: Primary Corridor Transportation Project

Dear Ms. Soon:

The U.S. Fish and Wildlife Service (Service) has reviewed the portions of the Draft Environmental Impact Statement (DEIS) sent to us for early participation in the environmental review process of the Primary Corridor Transportation Project. The project sponsors are the Federal Transit Administration and the City and County of Honolulu. A variety of transportation improvements are proposed that would result in a one kilometer long tunnel under the Fort Armstrong Channel of Honolulu Harbor and replacement of the existing Kalihi Channel Bridge with either an enlarged new bridge or a tunnel under the Kalihi Channel.

The Service is a signatory agency to the 1995 Memorandum of Understanding (MOU) that integrates the environmental review process of the National Environmental Policy Act (NEPA) and the Clean Water Act (CWA) section 404 for transportation projects in the State of Hawaii. This MOU provides structured coordination for resources agencies, including the Service, to participate in the project development and review process when aquatic resource impacts may be substantial. The MOU also requires that the Service provide written concurrence or non-concurrence on: NEPA-defined purpose and need, CWA section 404 basic and overall project purpose, criteria for alternative selection, project alternatives to be considered in the draft EIS, and the preferred alternative.

The Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP) alternative, which includes a tunnel under the entrance to Honolulu Harbor, will substantially impact aquatic resources; especially during the construction phase of the project. These impacts will require careful review by the Service as specific construction plans are developed, and in coordination with other federal environmental review agencies, such as the National Marine Fisheries Service, U.S.

Environmental Protection Agency, and the U.S. Army Corps of Engineers. Based upon the documents we have reviewed, the Service concurs that the information presented to us is adequate in describing NEPA project purpose and need, CWA section 404 basic and overall purpose, criteria for alternative selection, criteria to be considered in the DEIS, and the preferred alternative.

As described in the MOU, participation by the Service in the coordinated environmental review of this transportation project does not imply endorsement of all aspects of the plan. The Service will work with all federal and state agencies involved to place a high priority on the avoidance of adverse impacts to waters of the US, coral reef ecosystems, associated sensitive species, and threatened and endangered species.

The Service appreciates the opportunity to provide comments on the proposed project. If you have questions regarding these comments, please contact Fish and Wildlife Biologist Gordon Smith at 808/541-3441.

Sincerely,

for Paul Henson
Field Supervisor
Ecological Services

CC: NMFS-PAIO
USEPA, Honolulu
DLNR-DAR, Honolulu
DOH-CWB, Honolulu
DBEDT-CZM, Honolulu
FTA, San Francisco

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALOS, JR.
DEPUTY DIRECTOR

July 19, 2000

TPD 00-00367

Mr. Paul Henson, Field Supervisor
Ecological Services
Pacific Islands Ecoregion
Fish and Wildlife Service
U.S. Department of the Interior
Box 50088
Honolulu, Hawaii 96850

Attention: Mr. Gordon Smith

Dear Mr. Henson:

Subject: Primary Corridor Transportation Project

In May of this year, your assistance and formal participation was requested in the project development process for the Primary Corridor Transportation Project. This was done pursuant to the "Memorandum of Understanding (MOU), National Environmental Policy Act and Clean Water Act Section 404, Integration Process for Surface Transportation Projects in the State of Hawaii". The Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP) Alternative, which included a tunnel under the Fort Armstrong Channel of Honolulu Harbor and improvements to the Kalihi Channel crossing, was the trigger for the MOU coordination. As the agency review of the project progressed, concerns were expressed regarding SISP's role. Therefore, this letter is to inform you that the SISP portion of the subject project will not be pursued at this time. The BRT/SISP Alternative will be deleted from consideration in the Major Investment Study/Draft Environmental Impact Statement that is being prepared.

We thank you for the time and effort expended to review the project documents in a timely manner. Although the decision to defer SISP will annul the MOU process, we will continue to keep you informed about the subject project.

Should you have any questions concerning this matter, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

cc: Ms. Donna Turchie
Federal Transit Administration – Region IX

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4525 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD00-00239

May 4, 2000

Mr. David J. Farrel, Chief (CMD-2)
Federal Activities Office
Region IX
U. S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, California 94105

Dear Mr. Farrel:

Subject: Primary Corridor Transportation Project

We are writing to request your assistance and formal participation in an important transportation project in the City and County of Honolulu known as the Primary Corridor Transportation Project. We understand that the "Memorandum of Understanding (MOU), National Environmental Policy Act (NEPA) and Clean Water Act Section 404, Integration Process for Surface Transportation Projects in the State of Hawaii" (copy enclosed), looks towards consultation in the project development process. Initial discussions regarding this project have taken place with Dr. Wendy Wiltse of your Honolulu office.

The Federal Transit Administration and the City and County of Honolulu are currently preparing a NEPA environmental impact statement (EIS) for the subject project. Transportation improvements are being proposed for the primary transportation corridor, which stretches from Kapolei to Kahala. One of the alternatives being considered (Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP)) includes an approximately one kilometer (0.6 mile) tunnel under the Fort Armstrong Channel of Honolulu Harbor and improvements to the Kalihi Channel crossing. These actions would require an individual permit from the U.S. Army Corps of Engineers. The NEPA EIS that is being prepared for the subject project proposes increasing bridge capacity across Kalihi Channel. However, the preferred option is a tunnel to replace the Kalihi Channel Bridge, as recommended in the State of Hawaii's long-range harbor master plan. Initial studies of this tunnel are currently being conducted and its impacts will be documented in a separate environmental document by the State of Hawaii Department of Transportation.

As set forth in the MOU, the involvement of the signatory agencies would be limited to issues pertaining to waters of the United States, including wetlands, and associated sensitive species, including threatened and endangered species, regarding the BRT/SISP Alternative. Although the SISP component would not have any long-term impacts, construction related impacts are

anticipated. The impacts to water quality from the dredging of the Fort Armstrong Channel would be similar in many respects to the water quality impacts of normal maintenance dredging in Honolulu Harbor. Widening of the existing Kalihi Channel Bridge and construction of a new bridge would require pile driving and demolition, which may result in increased turbidity. The impacts of the proposed construction in the Fort Armstrong and Kalihi Channels would be mostly indirect and limited to those associated with increased suspended solids and turbidity loads. The project should not impact any sensitive species.

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Appendix D Screening of Alternatives

Your expeditious review of these documents and concurrence on the NEPA purpose and need, Section 404 basic and overall project purpose, criteria for alternative selection and project alternatives to be evaluated in the Draft EIS will be greatly appreciated.

- The MOU states that concurrence or non-concurrence must be a written determination that either the information to date is adequate for this stage and the project may proceed to the next stage without modification, that the information to date is not adequate for this stage, or that the potential adverse impacts of the project are severe.

We ask for your attention to this matter to expedite the concurrence process. In order to facilitate your review, Ms. Faith Miyamoto of the Transportation Planning Division will be contacting you to schedule a meeting where we can discuss your input and review.

Should you have any questions regarding this matter, please contact Kenneth Hamayasu at (808) 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosures

cc: Mr. Leslie Rogers, Federal Transit Administration (without enclosures)
Dr. Wendy Wiltse, U. S. Environmental Protection Agency (with enclosures)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

June 14, 2000

Cheryl Soon, Director
Department of Transportation Services
City and County of Honolulu
Pacific Park Plaza
711 Kapiolani Boulevard, Suite 1200
Honolulu, HI 96813

Dear Ms. Soon:

The Environmental Protection Agency (EPA) has reviewed the City and County of Honolulu's Purpose & Need statement, Range of Alternatives, and associated materials for the Primary Corridor Transportation Project. Our review is pursuant to the Memorandum of Understanding (MOU), National Environmental Policy Act (NEPA) and Clean Water Act Section 404, Integration Process for Surface Transportation Projects in the State of Hawaii. Wendy Wiltse of our Honolulu office has also participated in this review.

Chapter 1: Purpose & Need and *Chapter 2: Alternatives Considered* do an excellent job of explaining the extensive public participation process that has contributed to this project. In addition, we are particularly pleased with the goals of the *Islandwide Mobility Concept Plan*, which focuses on improved transit, strengthened connections between communities, and fostering livable communities. It appears that this project will provide significant long-term benefits to both the residents of and visitors to Oahu.

While we support the purpose and need of this project in concept, we have significant concerns about the details of both the Purpose & Need statement and the Range of Alternatives. For this reason, the intent of this letter is to state our non-concurrence on both the Purpose & Need statement and the Range of Alternatives. We would be pleased to work with you to resolve these issues. Our concerns and recommendations are stated below:

Purpose & Need Statement #5: "Improve access to Sand Island and to the Koko Head end of the PUC, including Waikiki." This statement is very broad and includes five "sub-objectives": 1) improve access to Sand Island to increase the efficiency of the movement of goods, 2) open up the use of Sand Island's recreational resources, 3) rejuvenate the urban waterfront of Sand Island, 4) improve the entryway and access to and from Waikiki along a scenic coastal route, and 5) provide a Downtown bypass for those travelers who travel between Keehi Interchange and Kakaako/Waikiki.

We have two main concerns. First, this Purpose & Need statement is far too broad, and second, only the Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP) Alternative fully meets the five "sub-objectives" laid out in the Purpose & Need statement #5. Neither of the other alternatives fully meet the purposes of Purpose & Need statement #5. The Transportation System Management (TSM) Alternative does not address any of the issues laid out in Purpose & Need statement #5, and the Bus Rapid Transit (BRT) Alternative only partially fulfills the "sub-objectives" laid out in Purpose & Need statement #5.

Recommendation: Re-draft a more concise Purpose & Need statement #5 that focuses on supportable community needs, which are clearly laid out in the "Need" section of the Purpose & Need statement.

Range of Alternatives: The BRT/SISP Alternative is the only alternative that currently meets all of the Purpose & Need statements. Our concern is that the range of alternatives is much too narrow. In addition, the BRT/SISP Alternative includes a major highway component, which could have significant environmental impacts as a result of creek crossings, proximity to fragile, coastal ecosystems, road runoff, beach erosion, etc.

Recommendation: Once the Purpose & Need statement is re-drafted, re-visit each alternative to ensure that they all meet Purpose & Need. In addition, any significant highway component under consideration should analyze the potential environmental impacts, and an appropriate number of alternatives should be developed accordingly.

Bus Priority/Express Improvements: The TSM Alternative, BRT Alternative, and BRT/SISP Alternative all call for bus priority/express improvements. Our concern is that these improvements may impact curbside parking.

Recommendation: Address the impacts to parking, including a demonstration of how the park and ride stations will accommodate both lost curbside parking spaces, as well as increased park and ride demand.

Transit Technology for the In-Town BRT System: Embedded plate technology is being considered for the In-Town BRT system. Our concern is for the environmental consequences of the additional electricity demanded by this system.

Recommendation: Describe the source of electricity for the embedded plate technology system, and discuss any environmental impacts that may be associated with the generation of the additional electricity needed to operate the embedded plate system.

BRT/SISP Induced Demand: The BRT/SISP Alternative will increase road capacity relative to the BRT Alternative, reducing the level of BRT service needed. Our concern is that the BRT/SISP Alternative will result in more cars entering Kakaako at Ala Moana and South Street, as well as Waikiki.

Recommendation: Analyze the ability of Ala Moana Blvd. to handle increased traffic between South Street and Waikiki, especially with the BRT in operation.

BRT/SISP Lane Numbers & Traffic Flow: The BRT/SISP Alternative calls for a four lane tunnel under the Fort Armstrong Channel and an eight lane bridge over the Kalihi Channel. Hawaii Department of Transportation (HDOT) and the Corps of Engineers (COE) are currently working on initial studies of the development of a tunnel under Kalihi Channel. Our concern is that the BRT/SISP Alternative does not specify the number of lanes contemplated by HDOT and COE for the Kalihi tunnel.

Recommendation: Clarify the number of lanes planned by HDOT and COE for the Kalihi tunnel to demonstrate the compatibility of the BRT/SISP Alternative and the HDOT/COE Kalihi tunnel project.

Thank you for this opportunity to comment. Again, we are happy to work with you to modify the Purpose & Need statement and Range of Alternatives so that EPA can concur on this stage of the project. Please have your staff contact Nova Blazej, our principal reviewer on this project, should you have any questions concerning our comments or recommendations. Nova can be reached at 415-744-2089 or *blazej.nova@epa.gov*.

Sincerely,

Dave Farrel, Chief
Federal Activities Office

cc: Leslie Rogers, FTA
Donna Turchie, FTA
Laura Kong, FHWA

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4525 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 17, 2000

TPD6/00-02880R

Mr. Dave Farrel, Chief
Federal Activities Office
Region IX
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, California 94105-3901

Dear Mr. Farrel:

Subject: Primary Corridor Transportation Project

Thank you for your June 14, 2000 letter that provided comments on the Purpose and Need statement, Range of Alternatives, and associated materials for the subject project. This was done pursuant to the "Memorandum of Understanding (MOU), National Environmental Policy Act (NEPA) and Clean Water Act Section 404, Integration Process for Surface Transportation Projects in the State of Hawaii." The Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP) Alternative, which included a tunnel under the Fort Armstrong Channel of Honolulu Harbor and improvements to the Kalihi Channel crossing, was the trigger for the MOU coordination. As the agency review of and consultation on the project progressed, it was agreed that the Sand Island Scenic Parkway would best be reviewed in the context of the Oahu Regional Transportation Plan. Therefore, this letter is to inform you that the discussion of Sand Island Scenic Parkway will continue in that arena and that it will be separated from the Primary Corridor Transportation Project Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS).

The time and effort expended to review the project documents in a timely manner are greatly appreciated. In order to bring closure to the MOU process, the following responses to your comments are provided:

Purpose and Need Statement #5 - As a result of the decision to separate Sand Island Scenic Parkway from the MIS/DEIS for the subject project, this statement has been eliminated.

Range of Alternatives - The BRT/SISP Alternative is no longer being considered in the MIS/DEIS. Chapter 2 of the MIS/DEIS includes a description of the alternatives evaluated and a discussion of the alternatives that were considered and eliminated.

Bus Priority/Express Improvements - The parking impacts are discussed in Section 4.3 of the MIS/DEIS.

Transit Technology for the In-Town BRT System - The additional electricity demanded by the embedded plate technology is discussed in Section 5.9 of the MIS/DEIS.

BRT/SISP Induced Demand - The BRT/SISP Alternative is no longer being considered in the MIS/DEIS.

BRT/SISP Lane Numbers and Traffic Flow - The BRT/SISP Alternative is no longer being considered in the MIS/DEIS.

A copy of the MIS/DEIS will be transmitted for your review.

Should you have any questions regarding this matter, please contact Kenneth Hamayasu at (808) 527-6978.

Sincerely,

CHERYL D. SOON
Director

cc: Wendy Wiltse
Environmental Protection Agency - Honolulu

Donna Turchie
Fedral Transit Administration - Region IX

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4432 • FAX: (808) 523-4730

May 4, 2000

TPD00-00244

Mr. Kazu Hayashida, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

Subject: Primary Corridor Transportation Project

We are writing to request your assistance and formal participation in an important transportation project in the City and County of Honolulu known as the Primary Corridor Transportation Project. We understand that the "Memorandum of Understanding (MOU), National Environmental Policy Act (NEPA) and Clean Water Act Section 404, Integration Process for Surface Transportation Projects in the State of Hawaii" (copy enclosed), looks towards consultation in the project development process.

The Federal Transit Administration and the City and County of Honolulu are currently preparing a NEPA environmental impact statement (EIS) for the subject project. Transportation improvements are being proposed for the primary transportation corridor, which stretches from Kapolei to Kahala. One of the alternatives being considered (Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP)) includes an approximately one kilometer (0.6 mile) tunnel under the Fort Armstrong Channel of Honolulu Harbor and improvements to the Kalihi Channel crossing. These actions would require an individual permit from the U.S. Army Corps of Engineers. The NEPA EIS that is being prepared for the subject project proposes increasing bridge capacity across Kalihi Channel. However, the preferred option is a tunnel to replace the Kalihi Channel Bridge, as recommended in the State of Hawaii's long-range harbor master plan. Initial studies of this tunnel are currently being conducted and its impacts will be documented in a separate environmental document by the State of Hawaii Department of Transportation.

As set forth in the MOU, the involvement of the signatory agencies would be limited to issues pertaining to waters of the United States, including wetlands, and associated sensitive species, including threatened and endangered species, regarding the BRT/SISP Alternative. Although the

SISP component would not have any long-term impacts, construction related impacts are anticipated. The impacts to water quality from the dredging of the Fort Armstrong Channel would be similar in many respects to the water quality impacts of normal maintenance dredging in Honolulu Harbor. Widening of the existing Kalihi Channel Bridge and construction of a new bridge would require pile driving and demolition, which may result in increased turbidity. The impacts of the proposed construction in the Fort Armstrong and Kalihi Channels would be mostly indirect and limited to those associated with increased suspended solids and turbidity loads. The project should not impact any sensitive species.

Enclosed are copies of the following components of the Draft EIS that is being prepared:

Chapter 1 Purpose and Need
Chapter 2 Alternatives Considered
Appendix B Conceptual Design Drawings, Bus Rapid Transit
Appendix C Conceptual Design Drawings, Sand Island Scenic Parkway and Marina Road
Appendix D Screening of Alternatives

Your expeditious review of these documents and concurrence on the NEPA purpose and need, Section 404 basic and overall project purpose, criteria for alternative selection and project alternatives to be evaluated in the Draft EIS will be greatly appreciated.

The MOU states that concurrence or non-concurrence must be a written determination that either the information to date is adequate for this stage and the project may proceed to the next stage without modification, that the information to date is not adequate for this stage, or that the potential adverse impacts of the project are severe.

We ask for your attention to this matter to expedite the concurrence process. In order to facilitate your review, Ms. Faith Miyamoto of the Transportation Planning Division will be contacting you to schedule a meeting where we can discuss your input and review.

Should you have any questions regarding this matter, please contact Kenneth Hamayasu at (808) 527-6978.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosures

cc: Mr. Leslie Rogers, Federal Transit Administration (without enclosures)

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

Leading Hawaii Into The New Millennium
1959 2000+

KAZU HAYASHIDA
DIRECTOR

DEPUTY DIRECTORS
BRIAN K. MINAAI
GLENN M. OKIMOTO

IN REPLY REFER TO:
STP 8.9581

June 22, 2000

Ms. Cheryl Soon
Director
Department of Transportation Services
City and County of Honolulu
Pacific Park Plaza, Suite 1200
711 Kapiolani Boulevard
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Primary Corridor Transportation Project

Thank you for your letter of May 4, 2000, requesting our participation as a consulting agency under the "Memorandum of Understanding (MOU), National Environmental Policy Act (NEPA) and Clean Water Act Section 404 Integration Process for Surface Transportation Projects in the State of Hawaii."

We are pleased with the City's initiative in developing an islandwide mobility concept. However, we cannot concur at this stage because we believe that there are other transportation alternatives and needs which should be considered.

Some of our specific concerns include:

1. Purpose No. 5, regarding improved access to Sand Island is inconsistent with the other purposes as it relates to the performance of the proposed alternatives. Only one alternative, the BRT/SISP, seems to fully satisfy this purpose; and thus, the project presentations are biased toward that alternative.

2. We have serious concerns with the BRT/SISP alternative. These would include the right-of-way requirements and its impact on the planned surface facilities for our harbor operations; potential conflicts of the landside access to Fort Armstrong with our passenger and cargo movements in the Pier 1 and 2 areas; and the loss of lands and the loss of best use revenues which could be generated through the development of these lands (e.g., KIPA, Kapalama storage areas, Keehi Industrial Lots project).

3. The goals and objectives of our 2020 Commercial Harbor Plan, which addresses the efficient movement of goods and freight in the area, should be recognized. Aside from accommodating the stakeholders' needs, the harbor plans address safety concerns, and call for the separation of cargo and cruise ship movements. We do not want to compromise our harbor requirements.

4. There would be a significant impact of the Project's funding requirements on the rest of the transportation program. Also, it would appear that the requirements are understated in that it assumes certain improvements to be part of the state's program. HDOT has not committed to implement or fund any proposal or component at this time.

5. The impact of the reduction of lanes on Nimitz Highway/Ala Moana Boulevard, and the reduced capacity on other highway facilities have not been adequately addressed.

6. The purpose is too narrow, pre-empting the consideration of even those roadway improvements which have been identified in the Oahu Regional Transportation Plan (e.g., Nimitz Viaduct project).

We strongly recommend that joint meetings with all affected agencies be held to facilitate coordination. We are aware that there have been briefings held on the various components of the project, but an overview of all the impacts and concerns related to the entire project would be most helpful. We look forward to working with you to resolve these issues so that we can concur on this stage of the project.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Director of Transportation

c: Hon. Calvin K. Kawamoto
Hon. Kenneth T. Hiraki
Hon. Sam Callejo, Office of the Governor
Mr. Abraham Wong, Federal Highway Administration
Mr. Leslie T. Rogers, Federal Transit Administration
Mr. Gordon G. W. Lum, Oahu Metropolitan Planning Organization

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
PHONE: (808) 523-4529 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI JR.
DEPUTY DIRECTOR

November 10, 1999

TPD99-00647

Mr. Edwin Hayashi, Stadium Manager
Aloha Stadium
State of Hawaii
P. O. Box 30666
Honolulu, Hawaii 96820

Dear Mr. Hayashi:

Subject: Primary Corridor Transportation Project

The Federal Transit Administration and the City and County of Honolulu are currently preparing an Environmental Impact Statement (EIS) for the subject project.

The purpose of this letter is to initiate Section 4(f) coordination regarding the potential use of the Aloha Stadium parking lot by the subject project. We would like to meet with you to discuss our preliminary plans and issues of concern to your agency.

Ms. Faith Miyamoto of the Transportation Planning Division will be contacting you to schedule a convenient time for this meeting. We look forward to working together on this project.

Sincerely,

CHERYL D. SOON
Director

cc: Mr. Robert Hom, Federal Transit Administration, Region IX

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI JR.
DEPUTY DIRECTOR

August 17, 2000

TPD6/00-03050R

Mr. Kazu Hayashida
Director of Transportation
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Hayashida:

Subject: Primary Corridor Transportation Project

Thank you for your June 22, 2000 letter regarding participation during the project development process under the "Memorandum of Understanding (MOU), National Environmental Policy Act (NEPA) and Clean Water Act Section 404, Integration Process for Surface Transportation Projects in the State of Hawaii." The Bus Rapid Transit/Sand Island Scenic Parkway (BRT/SISP) Alternative, which included a tunnel under the Fort Armstrong Channel of Honolulu Harbor and improvements to the Kalihi Channel crossing, was the trigger for the MOU coordination. As the agency review of and consultation on the project progressed, it was agreed that the Sand Island Scenic Parkway would best be reviewed in the context of the Oahu Regional Transportation Plan. Therefore, this letter is to inform you that the discussion of Sand Island Scenic Parkway will continue in that arena and that it will be separated from the Primary Corridor Transportation Project Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS).

The time and effort expended to review the project documents are greatly appreciated. Close coordination will continue to ensure that the comments and concerns that were not addressed by the elimination of the BRT/SISP Alternative are resolved.

Should you have any questions regarding this matter, please contact Kenneth Hamayasu at 527-6978.

Sincerely,

CHERYL D. SOON
Director

cc: Ms. Donna Turchie
Federal Transit Administration -Region IX

BENJAMIN J. CAYETANO
Governor

ALOHA STADIUM
An Agency of the State of Hawaii

EDWIN K. HAYASHI
Stadium Manager

MILTON HIROHATA
Deputy Manager

August 21, 2000

Ms. Cheryl D. Soon, Director
Department of Transportation Services
CITY AND COUNTY OF HONOLULU
711 Kapiolani Boulevard, Suite 1200
Honolulu, HI 96813

Dear Ms. Soon:

Subject: Primary Corridor Transportation Project

We have reviewed the updated information on the proposed transit facilities at Aloha Stadium provided in the Major Investment Study/Draft Environmental Impact Statement for the Primary Corridor Transportation Project, and concur with the assessment of the impact of the proposed facilities as stated in the document.

Continued coordination will be imperative to ensuring that both our goals are realized. We look forward to working together with you.

Sincerely,

Edwin K. Hayashi
Stadium Manager

EKH:dh

P.O. Box 30666 • Honolulu, Hawaii 96820-0666 • Tel: 808.486.9555 • Fax 808.486.9520

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

August 21, 2000

TPD00-00397

Mr. Gary Munsterman
Western Region
National Park Service
U. S. Department of Interior
600 Harrison Street, Suite 600
San Francisco, California 94107-1372

Dear Mr. Munsterman:

Subject: Primary Corridor Transportation Project

In its May 25, 2000 letter, the Federal Transit Administration (FTA) initiated coordination with the National Park Service regarding the subject project. The focus of the letter was the possible project impact on Sand Island State Recreation Area, a Section 6(f) property. Sand Island State Recreation Area would be impacted only if the Bus Rapid Transit/Sand Island Scenic Parkway Alternative is implemented. Subsequent to the May 25, 2000 FTA letter, continued agency review of and consultation on the project progressed, resulting in agreement that Sand Island Scenic Parkway would best be reviewed in the context of the Oahu Regional Transportation Plan. Therefore, this letter is to inform you that the discussion of Sand Island Scenic Parkway will continue in that arena and that it will be separated from the Primary Corridor Transportation Project Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS). This action will eliminate the need to discuss the project impact on Sand Island State Recreation Area.

The only other Section 6(f) property that would be affected by the subject project is Aloha Stadium. Both of the build alternatives evaluated in the MIS/DEIS include a park-and-ride lot at the site of the overflow parking lot. Presently, the existing overflow parking lot has space for about 1,000 cars. It is estimated that up to 500 spaces would be needed to service existing and potential transit patrons in the Pearl City to Foster Village region. The improved transit service that would be provided by both build alternatives would, in turn, improve transit access to the Stadium.

In terms of the possible impact of the proposed park-and-ride facility, the Aloha Stadium overflow parking lot would function both as a park-and-ride lot for the proposed transit system and as an overflow lot for Stadium activities. Because the times of use would be different for transit commuters and stadium patrons, both of these uses could be accommodated with little overlap. Continued coordination will be necessary to ensure that parking in the lot is available to Stadium patrons on those occasions when the Stadium activities overlap with the park-and-ride hours.

The Aloha Stadium property, which is a portion of the former Halawa/Aiea Veterans Housing Area, G.S.A. No. N-Haw-495A, was originally owned by the Department of the Interior and was transferred to the City and County of Honolulu with a reversionary clause that in the event of any breach of certain use conditions or covenants stated in the Quitclaim Deed dated June 30, 1967, the property would revert to the United States. Subsequently and with the approval of the Department of the Interior, the property was transferred on October 27, 1970 to the State of Hawaii with similar use provisions.

We are, therefore, requesting your concurrence that the use being proposed is consistent with the provision under which this property was acquired from the Federal government. Previously, by letter dated July 15, 1992, the National Park Service found that a similar proposed use (transit station, aerial guideway structure and park-and-ride facility) at the same location would be compatible with the terms of the transfer. We are hoping for a favorable response to the current request. Your immediate attention to this matter would be greatly appreciated.

Should you have any questions regarding this matter, please contact Kenneth Hamayasu at (808) 527-6978.

Sincerely,

CHERYL D. SOON
Director

cc: Mr. Edwin Hayashi, Stadium Manager
Aloha Stadium

Ms. Donna Turchie
Federal Transit Administration, Region IX

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
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TELEPHONE: (808) 523-4329 • FAX: (808) 523-4730

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TPD99-00563

September 28, 1999

Mr. Dean Y. Uchida, Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Uchida:

Subject: Primary Corridor Transportation Project

As part of the subject project, the City and County of Honolulu Department of Transportation Services is studying the possibility of constructing a downtown bypass road on Sand Island, which would include a tunnel beneath the Fort Armstrong Entrance Channel to Honolulu Harbor. Members of your staff have attended meetings at which preliminary plans were presented. At one meeting, it was suggested that a boundary interpretation be requested to determine the potential involvement of conservation lands.

Enclosed is a map showing the proposed bypass road and tunnel. Although the precise roadway alignment has not yet been selected, all of the options include a tunnel beneath the Fort Armstrong Channel. Most of the options also involve an easement or other conveyance along the portion of the alignment that would extend through Sand Island State Recreation Area, with restoration of the park after completion of tunnel construction.

We therefore formally request a determination of the possible involvement of the project with conservation lands, and the need for a Conservation District Use Application.

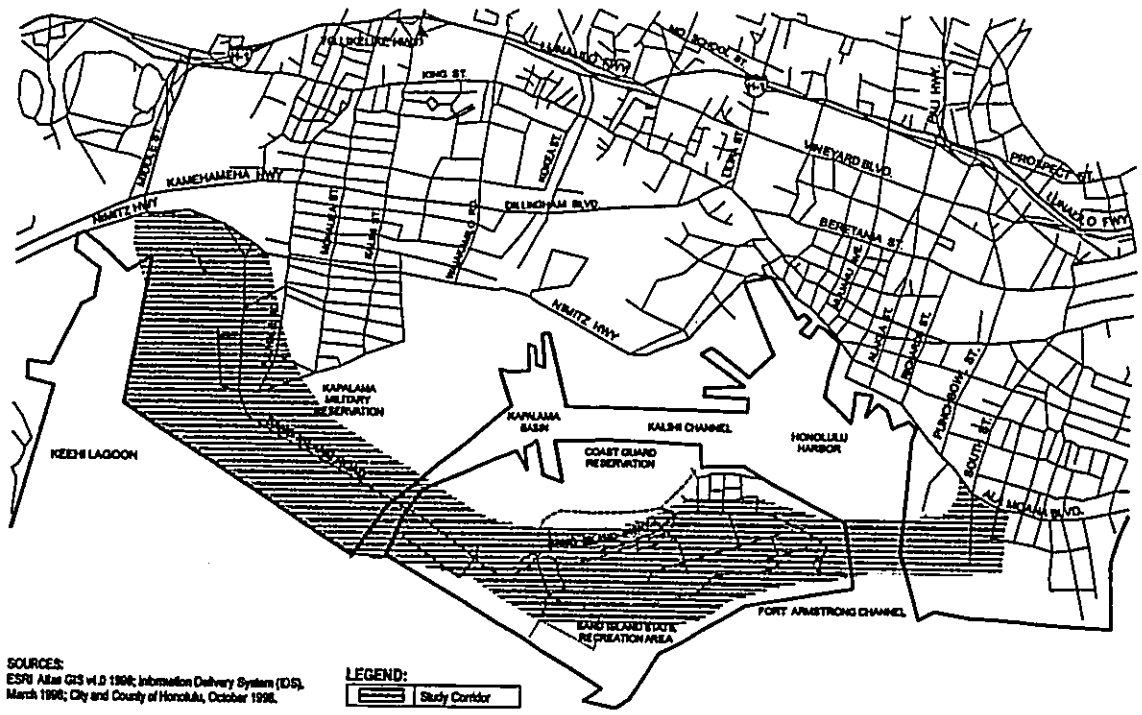
Please call Faith Miyamoto of the Transportation Planning Division at 527-6976 with any questions. We look forward to working together on this project.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosure



Sand Island Bypass

Figure 1

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

OCT 19 1999

Ref.: PB: SL

The Honorable Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
Pacific Park Plaza
711 Kapiolani Blvd., Suite 1200
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Primary Corridor Transportation Project

Thank you for your September 28, 1999 letter regarding the need for a Conservation District Use Application. It is our understanding that the proposed bypass road would extend under the Fort Armstrong Channel. Construction methods would involve excavation of the seabed and placement of reinforced concrete tunnel segments followed by backfilling. Since this project would cause substantial disturbance of the seabed, it meets the definition of land use under Title 13-5, Hawaii Administrative Rules. Therefore, a Conservation District Use Application would be required.

Please feel free to call Sam Lemmo of the Planning Branch at 587-0381, should you have any questions on this matter.

Aloha,

Dean Y. Uchida, Administrator
Land Division

cc: Chairperson's Office
Oahu Board Member

Appendix A

Exhibit A-4

EXHIBIT A-4. AGENCY COORDINATION UP TO SDEIS

This exhibit contains a record of agency correspondence and consultation regarding the Refined BRT Alternative. A summary of the correspondence and consultation activities is provided below. Copies of these documents are also provided in this exhibit.

SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

Minutes of the September 13, 2001 meeting with the State Historic Preservation Division regarding the SDEIS, archaeology, and historic properties

Minutes of January 22, 2002 meeting with the State Historic Preservation Division regarding the archaeological survey

OTHER CORRESPONDENCE

Minutes of April 26, 2001 meeting with State of Hawaii Office of Hawaiian Affairs and Office of Environmental Quality Control regarding compliance with Act 50

August 2, 2001 meeting with State of Hawaii Office of Environmental Quality Control regarding the SDEISPN preparation. No minutes were prepared for this meeting.

Minutes of August 22, 2001 meeting with the Hawaii Department of Transportation regarding the Middle Street Transit Center ramp

Minutes of October 1, 2001 meeting with the U.S. Navy regarding the Luapele Drive ramp

Minutes of October 10, 2001 meeting with the Hawaii Department of Transportation regarding Middle Street ramp

Minutes of October 12, 2001 meeting with the U.S. Navy regarding the project, with emphasis on the Luapele Drive ramp access and impact of the Kamehameha Highway contra-flow lane on the Ford Island access

October 24, 2001 Hawaii Department of Transportation letter responding to the SDEISPN

November 6, 2001 U.S. Fish and Wildlife Service letter responding to the SDEIS NOI

Minutes of February 11, 2002 meeting with State of Hawaii Office of Environmental Quality Control regarding the SDEIS/FEIS process issues related to appendices and responses to comments

March 16, 2001 Hawaii Department of Transportation memo to the OMPO Policy Committee regarding the Oahu Regional Transportation Plan

PRIMARY CORRIDOR TRANSPORTATION PROJECT
STATE HISTORIC PRESERVATION DIVISION (SHPD) MEETING
THURSDAY, SEPTEMBER 13, 2001
9:00 A.M.
SHPD CONFERENCE ROOM

Attendees: Elaine "Muffet" Jourdane, SHPD Archaeologist
Sara L. Collins, SHPD Archaeologist
Tonia Moy, SHPD
Faith Miyamoto, Department of Transportation Services
Ann Koby, Parsons Brinckerhoff

Purpose: Discuss the potential bus rapid transit (BRT) archaeological component.

Summary: Faith Miyamoto gave a brief overview of the BRT project and the project refinements since the Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS) was published and the SHPD reviewed the MIS/DEIS and submitted comments. The project refinements are:

- Kamehameha Drive-In is no longer being considered as a transit center site. The Aloha Stadium/Luapele Ramp has replaced the ramp from the Kamehameha Drive-In site (Kaonohi ramp).
- The BRT alignment will now use Pensacola Street instead of Ward Avenue between S. King Street and Kapiolani Blvd.
- A new BRT alignment is being included. It is the Kakaako makai alignment operating from the Iwilei Transit Center on Iwilei Road, continuing on S. King Street, Hotel Street Transit Mall, Bishop Street, Richards Street, Aloha Tower Drive, Ala Moana Boulevard, Channel Street, Illalo Street, and Ward Avenue before connecting with the Waikiki alignment.

Ms. Miyamoto passed out the Regional and In-Town BRT alignment maps, including the Kakaako makai alignment map.

The SHPD personnel advised the following:

1. The potential underground sites should be "scoped out." The "old shoreline" should be used as a guideline as to where potential archaeological sites may occur. Typically, archaeological sites are more prevalent in the vicinity of fishponds and the late 19th Century Oahu coastline.
2. The area makai of Ala Moana Blvd. is typically a "high sensitivity area" where archaeological sites are encountered.
3. If fishponds are involved, core samples will need to be taken.

4. Recommend a two-step archaeological process: (a) collect data using secondary sources and field review (b) once this data is compiled, then the SHPD should be contacted regarding the next appropriate action.
5. A burial treatment plan will be required.
6. If the project is in a "high" sensitivity area in Waikiki, then the family group with ancestors buried in the area will need to be contacted. Michelle Bradley or –Van Diamond, SHPD, can set-up the meeting.
7. If the lava rock curbs are disturbed, then will need to be replaced.
8. If the project is taking land from Fort DeRussy, it is a "double" Section 106 because NAGPRA is invoked.
9. Recommend not widening on the makai side of Kalia Road in the Hale Koa vicinity because 40 graves were exhumed in this area and they had to be reinterred.
10. It is believed that the Ala Moana Regional Park wall was constructed in the 1930's.

The SHPD staff loaned Parsons Brinckerhoff a map of Oahu's sensitive archaeological areas to have reproduced and returned. They also gave Faith Miyamoto and Ann Koby a list of potential archaeological survey contractors.

The SHPD staff agreed to review the archaeological scope of work prior to it being sent to potential archaeological survey contractors.

PRIMARY CORRIDOR TRANSPORTATION PROJECT
State Historic Preservation Division (SHPD) Meeting
Tuesday, January 22, 2002

Attendees: Elaine "Muffet" Jourdane, SHPD Archaeologist
Sara L. Collins, SHPD Archaeologist
Faith Miyamoto, Department of Transportation Services (DTS)
Ann Koby, Parsons Brinckerhoff
Bob Spear, SCS
Bert Davis, SCS
Leann McGerty, SCS

Purpose: Discuss the PRIMCOR archaeological survey progress, report format, and SHPD guidance on interviews.

Summary: Bert Davis gave a brief review of what SCS has accomplished to date regarding the archaeological survey. The SHPD personnel were advised of the following:

- The Kapolei project components will not result in any archaeological effects.
- There appears to be nothing significant at the Aloha Stadium, but need to review the fire maps. The area was naval housing closer to the stadium, but there is a fishpond plus Halawa Stream in the vicinity.
- The Middle Street area contained over two dozen fishponds and a leprosarium. There are several named historic house sites in the area.
- Iwilei area appears to be fill over the Kuwili fishpond.
- The Waikiki area is of primary concern because project involves widening along Kalia Road, where archaeological resources are known to exist.

SHPD personnel responded positively to the above discussion and the report format, which Bert shared with them.

Leann McGerty requested guidance regarding who the SHPD personnel would like interviewed in conjunction with the archaeological survey. It was noted that extensive interviews were conducted as part of the Act 50 analysis. The SHPD felt that those interviews would probably be sufficient, but felt that the project team should coordinate with the Burial Council and possibly the Waikiki families.

The SHPD personnel also advised that they were not the entity responsible for Act 50 compliance. The OEQC was responsible.

The SHPD would review and comment on the Act 50 report, but only if requested to do so in writing. Also, it would not be a priority to complete such a request, since Act 50 compliance is not in their purview.

The SHPD reminded the project team that consultation should occur with the Office of Hawaiian Affairs and Hui Malama I Na Kupuna O Hawaii Nei. It was also suggested that the Historic Hawaii Foundation be consulted.

April 27, 2001

To: Pua Aiu, Office of Hawaiian Affairs
Wayne Kawamura, Office of Hawaiian Affairs
Nancy Heinrich, Office of Environmental Quality Control

Re: Act 50 and the Primary Corridor Transportation Project (PRIMCOR)

Mahalo for taking the time yesterday to consult with Faith Miyamoto (City Department of Transportation Services), Ann Koby (PB Consulting) and me on the proposed process to implement a cultural practices assessment for PRIMCOR.

As discussed, we plan to proceed in a three-step process. First, a panel of experts/scholars will be convened to develop a working definition of "cultural practice", and develop criteria that will establish the affected "study area". Second, individuals knowledgeable about cultural practices within geographic areas, ethnicities, and/or cultural categories will be brought together to talk story and describe cultural practices in the study area. Third, practices potentially "adversely affected" would be identified and measures developed to lessen any adverse impacts.

On OHA's part, you emphasized areas that may be built out, such as substations, access ramps, and street widening. OHA is particularly concerned about potentially sensitive areas that may contain burials, mentioning Waikiki, Pearl Harbor, and the Kakaako area near Queen Street and Pohukaina Street.

In our discussion of what might constitute a cultural practice, Nancy suggested that the emphasis be placed on traditional cultural practices that arise from traditional cultures; i.e., the anthropological view rather than the sociological view. While we understand that the legal definition in Act 50 is not conclusive, we appreciate this guidance in proceeding with this assessment.

Nancy requested that an effort be made to include small cultural groups that may not be as outspoken about the protection of their practices; Laotians and Vietnamese, for example. OHA emphasized the need to be as broad-based as possible in our consultation.

Are there are any other issues that you would like us to be aware of as we begin this process? In particular, please let us know as soon as possible if there are any people and/or groups that we should consider in comprising the panel of experts, as well as people that would be good resources on the cultural practices along the urban corridor.

We will, of course, keep you advised as we proceed. Mahalo again for your time and consideration.

PRIMARY CORRIDOR TRANSPORTATION PROJECT
HAWAII DEPARTMENT OF TRANSPORTATION (HDOT) MEETING
WEDNESDAY, AUGUST 22, 2001
1:30 P.M.
HDOT 5TH FLOOR CONFERENCE ROOM

Attendees: Brian Minaai, HDOT
Toru Hamayasu, Department of Transportation Services (DTS)
Norman Kawachika, DTS
Bob Bramen, PB Consult
Clyde Shimizu, PBQD
Greg Hiyakumoto, RM Towill
Warren Sato, SSFM

Purpose: Discuss ramp to the Middle Street Transit Center

Summary: HDOT expressed the following concerns:

- Ramp exiting on left-hand side
- Did not like freeway ramp going directly into a facility
- Poor soil conditions in area of proposed ramp
- Potential queuing back onto ramp if robotic parking facility cannot process arriving autos quickly enough
- Middle Street driveways for buses and autos too close to one another

PRIMARY CORRIDOR TRANSPORTATION PROJECT
US NAVY MEETING
MONDAY, OCTOBER 1, 2001
9:30 A.M.
NAVY PUBLIC WORKS CENTER CONFERENCE ROOM

Attendees: Art Antolin, PACDIV PLN 215
Connie Chang, PACDIV PLN 23
Lansing Sugita, PWF 400 – Engineering
Melvin Kaku, PACDIV PLN 23
Faith Miyamoto, Department of Transportation Services (DTS)
Ann Koby, Parsons Brinckerhoff
Lydia Yee, RM Towill
Greg Hiyakumoto, RM Towill

Purpose: Discuss the bus rapid transit (BRT) project, including the Luapele ramp and Aloha Stadium overflow parking facility.

Summary: Faith Miyamoto gave a brief overview of the BRT project as presented in the Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS). She explained that the Regional BRT component includes express bus service, extending the AM zipper lane, a PM zipper lane, transit centers and access ramps. Ms. Miyamoto briefly presented the In-Town BRT alignments to Waikiki and the University of Hawaii – Manoa. Ms. Miyamoto then explained that since the MIS/DEIS was released for review and comment, the DTS formulated working groups in several of the areas along the alignments. She explained that the Navy – Lansing Sugita – participated in the Pearl City/Aiea Working Group. The working groups resulted in several project refinements, as follows:

- Kamehameha Drive-In is no longer being considered as a transit center site. The Aloha Stadium/Luapele Ramp has replaced the ramp from the Kamehameha Drive-In site (Kaonohi Ramp).
- The BRT alignment will now use Pensacola Street instead of Ward Avenue between S. King Street and Kapiolani Blvd.
- A new BRT alignment is being included. It is the Kakaako makai alignment operating from the Iwilei Transit Center on Iwilei Road, continuing on S. King Street, Hotel Street Transit Mall, Bishop Street, Richards Street, Aloha Tower Drive, Ala Moana Boulevard, Channel Street, Ilialo Street, and Ward Avenue before connecting with the Waikiki alignment.

Ms. Miyamoto passed out the Regional and In-Town BRT alignment maps, including the Kakaako makai alignment map. She explained that a Supplemental Draft Environmental Impact

Statement (SDEIS) was being prepared and gave the Navy personnel copies of the SDEIS Environmental Impact Statement Preparation Notice (EISPN), published in the August 23, 2001 The Environmental Notice and a copy of the Notice of Intent (NOI) published in the September 26, 2001 Federal Register. One of the Navy personnel asked if the DTS had received any response on the EISPN from the neighborhood. Ms. Miyamoto replied that they had not.

Greg Hiyakumoto then presented the proposed Luapele ramp design. He explained that the ramp would be a single lane, reversible ramp that would feed the buses into the H-1 median.

The Navy personnel had following comments:

1. The Navy intends to deed Luapele Road to either the State or City.
2. The queue at the gates is relatively short and since there are lots of people trying to access the base during peak hours this results in long traffic queues.
3. The queue at St. Elizabeth School is ten cars and that is not long enough and this results in traffic problems.
4. The traffic queues at the gates are worse since the September 11, 2001 terrorist attacks because security has been heightened. The Navy personnel believe that the heightened security will be in place for an indefinite time period and should be considered in the traffic analysis.
5. The Luapele gate is open from 5-8 a.m. and 3-6 p.m. and traffic queues onto Salt Lake Blvd.
6. Navy personnel wanted to know how the buses are going to integrate/affect Navy traffic.
7. Are any other alternatives being considered for the Luapele ramp? Faith Miyamoto explained that during the Pearl City/Aiea Working Group meetings several options were analyzed and Luapele was the preferred site.
8. The DTS should contact the area residents regarding the proposed Luapele ramp/BRT project.
9. There is Navy housing in the area where numerous admirals and other high-ranking Navy personnel live and they can be very vocal.
10. How recent are the traffic counts? If the traffic analysis uses traffic counts taken before September 11, 2001, the information will not be valid as the traffic patterns have changed.
11. City Councilmember Gary Okino has sent the Navy a letter regarding his concerns that the proposed Ford Island Development would have an adverse effect on the BRT

project and the bus priority lanes proposed on Kamehameha Highway. Councilmember Okino recently presented his objections at a neighborhood board meeting. The Navy personnel indicated that a BRT alignment on Kamehameha Highway was news to them. They also indicated that the Hawaii Department of Transportation indicated their concern regarding through traffic on Kamehameha Highway with BRT.

12. The Navy personnel advised that they have met with Wayne Yoshioka and Cheryl Yoshida, Parsons Brinckerhoff, regarding traffic movements at intersections near Pearl Harbor.
13. There is a proposed Veteran's Center on Kamehameha Highway.
14. The Navy's tunnel is active. Ideally the Luapele ramp should be designed to go over the tunnel. The tunnel is very old and carries fuel from Red Hill to the Navy yards. The tunnel goes under the Navy's main buildings.
15. Connie Chang will be reviewing the BRT environmental documents for NEPA compliance.
16. The Navy needs to determine whether or not they want to be a co-lead on the EIS.
17. Stanford Yuen at the Navy is the intergovernmental liaison.
18. Commander Summer is responsible for environmental issues.

Since traffic is one of the Navy's concerns, it was agreed that once the traffic analysis for the Luapele ramp area was completed an additional meeting would be scheduled to review the analysis.

PRIMARY CORRIDOR TRANSPORTATION PROJECT
HAWAII DEPARTMENT OF TRANSPORTATION (HDOT) MEETING
WEDNESDAY, OCTOBER 10, 2001
9:00 P.M.
HDOT 5TH FLOOR CONFERENCE ROOM

Attendees: Brian Minaai, HDOT
Glenn Yasui, HDOT
Toru Hamayasu, Department of Transportation Services (DTS)
Norman Kawachika, DTS

Purpose: Discuss alternative to proposed Middle Street ramp

Summary: BRT project team presented an alternative to the proposed Middle Street ramp. This alternative was proposed by HDOT during a previous meeting to mitigate some of HDOT's concerns, such as the left-hand exit and the need for a major flyover structure. Some design concerns associated with the ramp, such as requiring buses to weave across three highly congested lanes to exit and sight distance restrictions, were discussed and G. Yasui stated that he would review the design in detail.

B. Minaai expressed his support for the proposed transit improvements, but cautioned that the project should not impact capacity on State facilities.

The revised Kakaako alignment was also discussed in detail. HDOT expressed concern about BRT vehicles blocking Nimitz Highway after leaving Aloha Tower Marketplace to go mauka on Alakea Street. G. Yasui was also concerned about the reduction of intersection capacity, if signal preference was given to transit. B. Minaai mentioned the future State plans, but did not elaborate. The Kakaako Makai alignment needs to be further coordinated with the HDOT-Harbors Division regarding the Channel Street land acquisition.

PRIMARY CORRIDOR TRANSPORTATION PROJECT
U.S. NAVY MEETING
FRIDAY, OCTOBER 12, 2001
2:30 P.M.
NAVY PUBLIC WORKS CENTER CONFERENCE ROOM

Attendees: Captain Jennifer Mustain, Commanding Officer, Navy PWC and Facilities Engineer for Commander Navy Region Hawaii
Becky Hommon, Navy Region Hawaii Counsel
Melvin Kaku, PACDIV PLN 23
Connie Chang, PACDIV PLN 23
Lansing Sugita, PWF 400 – Engineering
Toru Hamayasu, Department of Transportation Services (DTS)
Norman Kawachika, DTS

Purpose: Discuss project with Navy Public Works staff

Summary: An overview of the project was presented.

The Luapele ramp access was specifically discussed. Luapele Road is used as the primary access to the facility from the north. New security measures and transit use of the road as the ramp access must be coordinated with the Navy.

The Navy expressed concern regarding the impact of the proposed Kamehameha Highway contra-flow lane on the Ford Island access. The proposed BRT project does not impact the causeway traffic operation at Salt Lake Boulevard. A follow-up meeting will be scheduled when the Navy completes the Ford Island EIS.

BENJAMIN J. CAYETANO
GOVERNOR

BRYAN K. MINAI
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:
HWY-PS
2.4594

OCT 2 4 2001

Ms. Cheryl D. Soon
Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Primary Corridor Transportation Project, Supplemental Draft Environmental Statement (DEIS) Preparation Notice

Thank you for the opportunity to review the Preparation Notice for the Supplemental DEIS.

We request that you respond to our previous comments (DIR 1.110300, dated 11/3/00) on the Draft EIS and (DIR 1.015, dated 3/16/01), which includes further comments regarding the Primary Corridor Transportation project. Further comments are listed below:

1. Because our statewide needs far exceed our limited resources, we cannot commit State highway funds for the Bus Rapid Transit (BRT)project.

2. The Supplemental DEIS needs to update previous information about where and when the City proposes to convert existing traffic lanes to contra-flow and/or to BRT use.

3. At the time traffic lanes are initially converted to exclusive use of the proposed In-Town BRT:
   - Which intersections and roadways will have reduced levels of service?
   - What will be the cumulative impacts on the duration and severity of traffic congestion at screenlines?
   - How many drivers will be worse off and how much more travel delay will they experience?
   - How many bus riders will be better off and how much less travel delay will they experience?

4. The Supplemental DEIS needs to address the impacts of the proposed makai Kakaako BRT route on cargo and cruise ship operations at Pier 2.

5. At the westbound approach to the Waiawa Interchange, deployment of the eastbound zipperlane reduces Interstate H-1 to a single westbound lane. The Supplemental DEIS should determine necessary improvements so that deployment of the eastbound zipperlane does not cause a bottleneck for morning westbound traffic in 2025. Proposed improvements also must not preclude construction of an additional lane to off-ramp 8-B to Waipahu.

6. Please describe the timing and nature of improvements needed on Nimitz Highway to accommodate the proposed extension of the eastbound zipperlane into Keehi Interchange.

7. Please evaluate the noise impacts resulting from increased peak afternoon traffic volumes when the proposed westbound zipperlane is deployed on Interstate H-1.

8. Within the existing Waiawa and Waiau Interchanges, where there is no shoulder lane, deployment of the proposed westbound zipperlane would narrow Interstate H-1 to three eastbound lanes. Please verify that there will be acceptable levels of service for eastbound traffic through these interchanges when the proposed westbound zipperlane is initially deployed. We also request that you evaluate when and how these Interchanges will need to be widened so that deployment of the proposed westbound zipperlane will not cause a bottleneck for increasing eastbound traffic volumes.

9. Full compliance with Interstate Standards is normally a reasonable alternative to Design Exceptions. Hence, you need to compare the benefits, costs, and drawbacks of full compliance with Interstate Standards with the benefits, costs, and drawbacks for each proposed Design Exception. Unless compelling justification is provided, we may not support and FHWA may not grant even a temporary Design Exception for substandard at-grade highway shoulders.

10. According to the Preparation Notice, new ramps and freeway widening are proposed for exclusive BRT access to Interstate Route H-1 from a proposed Kapolei Interchange, a proposed transit center near the Kunia Interchange, Luapele Drive near the Stadium, and the Radford Drive overpass. According to the Preparation Notice, a new ramp is also proposed for unrestricted vehicular access from Interstate Route H-1 to a proposed City transit center near Middle Street.

For each of these locations, we request that the Supplemental DEIS separately:

- provide updated plans showing proximity to other ramps.
- provide updated cost estimates.
- describe temporary construction-related impacts to freeway traffic and what mitigation measures are proposed.
- describe long-term environmental impacts and mitigation measures.
- describe what traffic movements would be allowed on the proposed ramp.
- explain how the BRT would be rerouted if no zipperlane were deployed and/or the proposed ramp were temporarily unusable.
- estimate daily bus riders using the proposed ramp, both when initially constructed and in 2025.
- estimate the drop in projected daily bus ridership if the proposed ramp were not constructed.
- estimate peak traffic volume on the proposed ramp and the lane into which the ramp would merge in 2025.
- assess design features and traffic controls necessary for articulated buses to safely enter and exit the proposed ramp.

Much of this information will also be needed for a formal Justification Report which must be submitted for our concurrence and FHWA approval before new access is allowed to our Interstate system.

If you have any questions, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours;

BRIAN K. MINAAI
Director of Transportation

Enclosures (DIR 1.110300 and DIR 1.015)

c: Office of Environmental Quality Control (w/attach.), FHWA (w/attach.)

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
300 Ala Moana Boulevard, Room 3122
Box 50088
Honolulu, Hawaii 96850

In Reply Refer To ER-01-915

NOV - 6 2001

Dr. Laura Kong
Environmental Specialist
Federal Highway Administration
300 Ala Moana Boulevard
Box 50206, Room 3-306
Honolulu, HI 96850

Re: Notice of Intent to Prepare a Supplemental Draft Environmental Impact Statement on Transportation Improvements in the Primary Transportation Corridor of the City and County of Honolulu, Hawaii

Dear Dr. Kong:

The U.S. Fish and Wildlife Service (Service) has reviewed the September 26, 2001, Federal Register notice that a Supplemental Draft Environmental Impact Statement (SDEIS) will be prepared for the proposed project referenced above. The proposed project is sponsored by the Federal Transit Administration, Federal Highway Administration, and the Hawaii Department of Transportation. This letter has been prepared under the authority of and in accordance with provisions of the National Environmental Policy Act of 1969 [42 U.S.C. 4321 *et seq.*; 83 Stat. 852], as amended, the Fish and Wildlife Coordination Act of 1934 [16 U.S.C. 661 *et seq.*; 48 Stat. 401], as amended, the Endangered Species Act of 1973 [16 USC 1531 *et seq.*; 87 Stat. 884], as amended, and other authorities mandating Department of the Interior concern for environmental values. Based on these authorities, the Service offers the following comments for your consideration.

The proposed project has been modified since the Draft EIS. The SDEIS will address the following proposed changes to the Bus Rapid Transit (BRT) Alternative selected as the Locally Preferred Alternative by the City and County of Honolulu on November 29, 2000: (1) addition of an In-Town BRT branch to serve Aloha Tower Marketplace and Kakaako Makai, (2) realignment of a section of the In-Town BRT alignment from Ward Avenue to Pensacola Street, and (3) relocate the H-1 BRT freeway ramp from the Kaonohi Street overpass to a section of the freeway near Aloha Stadium.

The Service has reviewed the information that was provided in the Federal Register Notice and pertinent information in our files. Federally listed species are not known to occur at the sites of the proposed modifications.

Nevertheless, the Service recommends that the SDEIS address potential project-related impacts to native Hawaiian marine species known to exist adjacent to the Kakaakao Makai area and native aquatic life known to occur in streams near the Aloha Stadium. Measures to avoid unnecessary impacts and Best Management Practices to minimize unavoidable impacts to native organisms and habitat should be incorporated into the project. For example, we recommend that these measures include the use of effective sediment containment devices and the revegetation of cleared ground as quickly as possible to minimize project-related sedimentation of stream and coastal waters.

The Service appreciates the opportunity to comment on the Notice of Intent. If you have questions regarding these comments, please contact my Environmental Review Coordinator, Michael Molina, by telephone at (808) 541-3441 or by facsimile transmission at (808) 541-3470.

Sincerely,

Paul Henson
Field Supervisor

cc: ACOE-HED, Fort Shafter
USEPA-Region IX, Honolulu
NMFS-PIAO, Honolulu
DAR, Hawaii
CZMP, Hawaii
CWB, Hawaii

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PRIMARY CORRIDOR TRANSPORTATION PROJECT
OFFICE OF ENVIRONMENTAL QUALITY CONTROL (OEQC) MEETING
MONDAY, FEBRUARY 11, 2002
9:30 A.M.
PARSONS BRINCKERHOFF CONFERENCE ROOM

Attendees: Nancy Heinrich, Office of Environmental Quality Control (OEQC)
Faith Miyamoto, Department of Transportation Services (DTS)
Ann Koby, Parsons Brinckerhoff

Purpose: Discuss SDEIS/FEIS process issues related to appendices, responses to comments, etc.

Summary: Nancy Heinrich gave a brief overview of OEQC's standards for voluminous environmental impact statements (EISs). She used the Hawaiian Electric Company's (HECO's) Kamoku-Pukele Transmission Line Project as an example. For that EIS, the consultant sent letters to the EIS recipients asking them if they wanted all ten volumes, did not want to receive the EIS, or options to receive certain EIS volumes.

A discussion ensued regarding the numerous reports associated with the PRIMCOR project. The data in the technical reports has been superseded in many cases since the Draft EIS (DEIS) was published and the technical reports have not been redone to reflect the project changes. The public is apt to compare the technical report data to the Supplemental DEIS (SDEIS), and/or Final EIS (FEIS) and the information will not match.

At a minimum, OEQC requires that the reports are made available to the public. Faith Miyamoto explained that in the past, the DTS has placed the EIS and relevant technical reports in the libraries along the project corridor. DTS has made available the technical reports so that people can call and get copies.

Another option discussed was posting the EIS and supporting technical reports on the project website. Ms. Heinrich suggested a CD. Ms. Miyamoto stated that the Major Investment Study (MIS)/DEIS was reproduced onto CDs, but that people had problems being able to access the plans and profiles because they did not have the appropriate software available.

It was agreed that a list of PRIMCOR technical reports would be compiled for Nancy Heinrich's review.

Ms. Heinrich also stated that everyone who sent a substantive comment on the DEIS and/or SDEIS needed to receive a letter restating their comment(s), the responses as they appear in the FEIS, and the exact FEIS text changes that relate to the comment and response. When asked if a matrix with the comments and responses would suffice, Ms. Heinrich indicated it would not.

Ms. Heinrich also reminded attendees that the OEQC must approve the SDEIS and FEIS distribution lists and not to forget the signature sheet.

Action Items: The meeting resulted in the following action items.

1. Prepare a list of the PRIMCOR technical reports that will be made available to the public for OEQC review.
2. Discuss options for the comments/responses/FEIS text changes with OEQC and agree upon the format.

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

IN REPLY REFER TO:

DIR 1.015

March 16, 2001

MEMORANDUM

TO: OMPO Policy Committee

Councilmember Duke Bainum, Chair	Senator Cal Kawamoto, Vice-Chair
Councilmember John DeSoto	Senator Fred Hemmings
Councilmember John Henry Felix	Senator Brian Kanno
Councilmember Steve Holmes	Representative Willie Espero
Councilmember Rene Mansho	Representative Mark Moses
Cheryl Soon, DTS Director	Representative Joseph Souki

FROM: Brian K. Minaai, Director of Transportation

SUBJECT: Oahu Regional Transportation Plan

As the OMPO Policy Committee begins to finalize the Oahu Regional Transportation Plan, (ORTP), it is important that Department of Transportation (DOT) identify its priority projects that must be included in the ORTP. These priorities include the following project categories: System preservation projects, safety projects, and highway system congestion relief projects.

First, funding of system preservation projects is vital in preserving and maintaining DOT's entire highway system. Projects in this category are not specifically identified in the draft ORTP, but adequate levels of funding for our aging highway system must be budgeted for.

Secondly, the following major safety projects must be included:

1. Farrington Highway Safety Improvements, Nanakuli to Makaha, Project No. W-8 is an important safety project for an area that has experienced many vehicular and pedestrian incidents.

2. Kalanianaole Highway, Rockfall Protection at Makapuu, Project No. U-1 is an extremely important safety project to prevent a closure of the highway similar to what occurred at Waimea Bay last year.

3. Kamehameha Highway Widening, Ka Uka to Lanikuhana, Project No. C-7 is urgently needed not only for congestion relief, but more importantly for safety purposes, as this area is the location of many major traffic incidents.

4. Kamehameha Highway Safety Improvements, Kahaluu to Waimea Bay, Modified Project No. K-9, is another much needed project to address the many vehicular and pedestrian incidents that have occurred along this coastal highway

5. Sand Island Bridge (replace with a tunnel), Project No. P-35 is vital in providing the State's primary harbor a needed second harbor entrance in case of a major accident blocking the present harbor channel. This project will remove the existing bridge and replace it with a tunnel to allow larger ships to utilize Honolulu Harbor, translating into lower cargo costs to our residents.

And finally, the Department of Transportation's congestion relief priority on Oahu is the H-1 corridor system from Urban Honolulu to the Leeward Oahu and up H-2 to Central Oahu.

1. H-1, Waiawa Interchange to Halawa Interchange:

   a. Project No. P-6, H-1 Widening, Waimalu Viaduct to Pearl City Viaduct.
   b. Project No. P-7, H-1 Widening (EB), Waiawa to Halawa. (white funding category)
   c. Project No. P42, H-1 Widen Waipahu Off-Ramp.
   d. Project No. U-2, H-1 Widening (WB) through Waiawa Interchange.
   e. Project No. U-3, H-1 Widening (WB), Waiau to Waiawa Interchange.
   f. Project No. U-4, Waiawa Interchange, Missing Ramp Movements.

All of these projects are part of a total system improvement. These projects are complementary and should be treated as a single project to improve an existing system. Deletion of any one of these projects would cause a system dysfunction.

2. H-1, Middle Street to Kapiolani Interchange and Nimtz Highway:

   a. Project No. P-8, H-1 WB Widening, Vineyard to Middle. (white funding category)
   b. Project No. P-9, H-1 WB Weave Modification, Lunalilo to Vineyard. (white funding category)
   c. Project No. P-10, H-1 EB Widening, Ward to Punahou, Close Piikoi On-Ramp.(white funding category)
   d. Project No. P-11, H-1 University Interchange Modifications. (white funding category)
   e. Project No. P-23, Nimitz Highway Improvements, Keehi to Pacific Street.

All of these projects are complementary and are elements of a systemwide improvement to make our oldest section of the H-1 Freeway operate more efficiently and safely. Deletion of any of these projects would hamper our efforts to improve traffic flow and safety. These projects should be treated as a single project to improve an existing system. Deletion of any one of these projects would cause a system dysfunction.

3. Kahekili Highway Widening, Project No. K-2 is badly needed to address the congestion that occurs daily. This project was originally in the dark blue funding category for deletion, but OMPO Policy Committee in the last meeting agreed at DOT's request to place the project in thewhite/yellow category. Further, this project should be redescribed to end at Ahuimanu (rather than Kamehameha Highway).

4. Intelligent Transportation Systems, Project No. I-3 is important because it allows DOT to operate our existing highway system more efficiently to provide critical congestion relief (white funding category).

At the next OMPO Policy Committee meeting on Monday, March 19, 2001, the Oahu Regional Transportation Plan (ORTP) will be financially constrained. Towards that end, the following are DOT's recommendations.

1. Include in the ORTP, and shift from the white funding category to the yellow funding category those previously identified DOT high priority projects which include modified K-9, P-7, P-8, P-9, P-10, P-11, K-12, I-3, and K-2, totaling approximately $730 million.

2. Delete Project No. W-1, Waianae Second Access across the Waianae Range - $515 million for the following reasons:

   a. High cost (which is underestimated - this project is comparable to another H-3 project, which cost more than a billion dollars), due to its steep and rough topography.
   b. Adverse environmental impacts on endangered species, streams, Kamaili Punanaula Heiaus, residences, farm lots and Hawaiian Homelands.
   c. Increased congestion on Kunia Road and Kunia Interchange may require improvements to those two facilities and add to the total project cost.

3. Delete Project No. P-30, Sand Island Scenic Parkway plus Marina Road plus Fort Armstrong Tunnel -$615 million for the following reasons:

   a. The proposed project severely conflicts with DOT Harbors development plans, which are designed for the efficient, economical and optimal use of the area.
   b. The widening of the Kalihi Channel Bridge will directly conflict with DOT's proposal to replace the existing bridge with a new, much needed DOT Harbors' tunnel (Project No. P-35).
   c. The Fort Armstrong Tunnel portal directly conflicts with the DOT Harbors Division's planned use in the vicinity of Piers 1 and 2.
   d. The Fort Armstrong Tunnel portal also conflicts with the Hawaii Community Development Authority's (HCDA) proposed Punchbowl Street Extension project and its Makai District development plans. HCDA has expressed strong opposition to the Sand Island Scenic Parkway project.
   e. DOT's project to replace the existing Sand Island Bridge with a new tunnel (Project No. P-35) will probably compete with the Sand Island Scenic Parkway for the same discretionary federal funds, which are limited. Funding of both projects is highly unlikely.

   DOT strongly opposes this project.

4. Delete Project No. P-33, Nimitz Highway Lane Reduction - $36.4 million for the following reasons:

a. This project is intended to be developed in conjunction with the Sand Island Scenic Parkway, which DOT opposes.

b. This project directly conflicts with our proposed congestion relief improvements to Nimitz Highway (Project No. P-23).

c. The proposed reduction in lanes on Nimitz Highway will have a tremendous adverse impact on our cargo and maritime operations along the Honolulu Harbor waterfront. The resulting increased congestion on Nimitz Highway will adversely impact all of the maritime users of Pier 10/11 through Piers 40, as well as the local circulation in the area.

DOT strongly opposes this project.

5. The following are comments regarding the Bus Rapid Transit (BRT) project – Regional Highway Portion, Project No. P2a:

a. DOT cannot commit funding for this project because our limited resources far exceed the statewide needs.

b. Wherever the BRT project causes a reduction in interstate standards, the project cost must include work to restore these standards. Therefore, the BRT project cost is grossly underestimated.

6. As for the Bus Rapid Transit project – In-town BRT, Project No. P-2b, DOT is very concerned about the congestion impact that will be caused by the reduction of roadway lanes and the resulting reduction in roadway capacity. The City's Draft Environmental Impact Study does not adequately disclose this impact nor does it identify any mitigation measures to address this impact. DOT will scrutinize any proposed reduction of roadway lanes, especially on State highways, such as on Ala Moana Boulevard. Satisfactory mitigation measures must be implemented before the proposed project can be constructed.

The tremendous number of transportation projects that have been identified which far exceed our limited financial resources many times over; DOT must balance the transportation priorities statewide, including needs for the neighboring counties of Maui, Kauai, and the Big Island.

I hope this serves to clarify the State Department of Transportation's priorities regarding the formulation of OMPO's Oahu Regional Transportation Plan.

c: The Honorable Benjamin J. Cayetano, Governor
Mr. Gordon Lum, OMPO Executive Director
Mr. Abe Wong, FHWA Administrator
Ms. Jan Yokota, HCDA Executive Director
DOT, Harbors Division
DOT, Highways Division
DOT, Statewide Transportation Planning Office
Ms. Jennifer Goto-Sabas, Chief of Staff
Office of The Honorable Daniel K. Inouye, Congressmember
Mr. Alan Furuno, District Director
Office of The Honorable Neil Abercrombie, Congressmember

Final Environmental Impact Statement

Primary Corridor Transportation Project

Appendix A

Exhibit A-5

EXHIBIT A-5. AGENCY COORDINATION SINCE THE SDEIS

This exhibit contains a record of agency correspondence and consultation since the issuance of the SDEIS. A list of the correspondence and consultation activities is provided below. Copies of these documents are provided in this exhibit.

SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT

Minutes of May 3, 2002 meeting with Historic Hawaii Foundation

Minutes of June 24, 2002 meeting with the State Historic Preservation Division

FARMLAND PROTECTION POLICY ACT

July 17, 2002 letter from DTS to U.S. Department of Agriculture regarding Farmland Protection Policy Act Form AD-1006

OTHER CORRESPONDENCE

October 24, 2001 letter from Hawaii Department of Transportation to DTS regarding SDEISPN

April 15, 2002 letter from Hawaii Department of Transportation regarding Development Plan Public Facilities Map Amendment

April 29, 2002 letter from the State of Hawaii Department of Land and Natural Resources to DTS regarding Historic Preservation Review – Cultural Practices Assessment

May 7, 2002 memorandum from Department of Environmental Services to DTS regarding the SDEIS

May 24, 2002 letter from U.S. Army to DTS regarding the SDEIS

PRIMARY CORRIDOR TRANSPORTATION PROJECT [POP8]
HISTORIC HAWAII FOUNDATION (HHF) MEETING
Friday, May 03, 2002 9:00 A.M. at HHF Offices

Attendees: David Scott, HHF Executive Director
Faith Miyamoto, Department of Transportation Services
Ann Koby, Parsons Brinckerhoff

Purpose: Discuss the potential bus rapid transit (BRT) historic/cultural resources components.

Summary: Faith Miyamoto gave a brief overview of the BRT project and the project refinements since the Major Investment Study/Draft Environmental Impact Statement (MIS/DEIS) was published. She advised Mr. Scott that the HHF received the MIS/DEIS, but did not receive a copy of the Supplemental DEIS (SDEIS).

Ms. Miyamoto passed out the Regional and In-Town BRT alignment maps, including the Kakaako Ma Kai Alignment Map.

Ms. Miyamoto discussed the historic effects associated with the proposed project. These effects are limited to the BRT stops in the Capitol, Chinatown and University Historic Districts. She explained that the Area of Potential Effect (APE) includes the streets where the BRT is operating and one building around the stops and stations. She told Mr. Scott that the goal is to have no adverse effects and that this is to be accomplished using sensitive design features in those areas.

Ms. Miyamoto also explained that a Draft - Act 50 Report was completed and gave Mr. Scott a copy. Mr. Scott also received copies of the MIS/DEIS and SDEIS Executive Summaries, Sections 3.10-Historic and Archaeological Resources, and Sections 5.10-Historic and Archaeological Resources Effects.

Mr. Scott advised the following:

1. The HHF is a nonregulatory entity that is funded from private donations. He gave Ms. Miyamoto and Ms. Koby brochures about the HHF.
2. The HHF's focus is primarily historic structures, but has broadened to traditional cultural practices and view planes.
3. His areas of concern are maintaining the coral curbs and that the BRT stop designs do not affect historic properties and are compatible with their surrounding environment.
4. He prefers electric BRT vehicles.
5. He feels a mass transit system for Honolulu is long overdue and that taking a traffic lane will entice folks to use mass transit instead of cars.
6. If the HHF does not have a problem with a project, they will not write a letter.

Faith Miyamoto and Ann Koby committed to send Mr. Scott copies of the BRT stop concepts that Urban Works developed. (These concepts were mailed to Mr. Scott on May 3, 2002.)

PRIMARY CORRIDOR TRANSPORTATION PROJECT [POP11]
MEETING WITH THE STATE HISTORIC PRESERVATION DIVISION (SHPD)
MONDAY, JUNE 24, 2002 @ 9:45AM

Attendees: Don Hibbard, SHPD
Tonia Moy, SHPD
Faith Miyamoto, DTS
Ann Koby, PB
Jason Yazawa, PB

Purpose: Brief the staff of the State Historic Preservation Division on the project status and continue consultation pursuant to Section 106 of the Natural Historic Preservation Act.

Summary: Highlights for this meeting follow, but this consultation did not include discussion of archaeological sites and resources, which will be held on a later date.

Ms. Miyamoto described the following changes to the project definition that were made following public release of the Supplement Draft Environmental Impact Statement (SDEIS):

- Eliminating the Kapolei, Kunia, and Middle Street bus ramps and the H-1 Express Lanes.
- Relocating the Ewa Park-and-Ride Facility from Kunia to a site near the future North-South Road, and
- Shifting the Kaka'ako Ma Kai Branch from Channel Street to Forrest Avenue.

Mr. Yazawa reminded the SHPD Staff that the project's Area of Potential Effect (APE) is limited to the streets that BRT would use. At transit centers or stop locations, the APE would extend to lots immediately adjacent to the facility because of potential visual impacts. The SHPD was previously consulted regarding this APE definition and concurred.

Enclosed with these minutes are historic and potentially historic properties within the APE preliminary effect determinations summary, excluding archaeological sites, which were presented to the SHPD Staff. The SHPD Staff agreed with the summary contents, including historic eligibility; except the following:

- The transit stops fronting the U.S. Post Office, Custom House and Court House Building, and the Hawaii State Library would cause adverse effects if structures (e.g. shelters) are used. SHPD asked for an explanation of why the segment near the S. King Street and Punchbowl Street intersection (existing bus stop) is not suitable for the Koko Head bound stop.
- The transit stop at Thomas Square would cause an adverse effect if structures are used; even though no park property would be affected. SHPD asked for an explanation of why the stop could not be placed at a different location.
- The transit stop at Sinclair Circle would not cause an adverse effect on the University of Hawaii Historic District.
- SHPD will field check the City & County of Honolulu Corporation Yard in Kaka'ako to determine its potential historic status.
- The Kapahulu transit stop may cause an adverse effect on Kapiolani Park due to its visual impact. SHPD asked that the Kapiolani Park Preservation Society be consulted with and for an explanation of why the stop could not be located in front of the Honolulu Zoo Parking Lot, which would not result in an adverse effect.

For the letter requesting State Historic Preservation Officer (SHPO) concurrence on effect determinations, Mr. Hibbard suggested that the letter list only those properties with adverse effect determinations. However, the letter could also provide the total number of historic properties along the BRT alignment(s) without having to name them all. Ms. Koby suggested that the SHPO concurrence request be a set of duplicate letters where the SHPO would counter-sign one of them to be returned to DTS. Mr. Hibbard stated that this process would be acceptable, but does not preclude the need for a Memorandum Of Agreement (MOA).

Action Items:

1. DTS to advise the SHPD on why there are no feasible alternatives to transit stops fronting the Downtown U. S. Post Office, Custom House and Court House Building (and not at the existing bus stop near Punchbowl Street), Thomas Square and Kapiolani Park (and not the Honolulu Zoo Parking Lot).
2. SHPD to determine historic eligibility of the City & County of Honolulu Corporation Yard in Kaka'ako.
3. DTS to submit request for SHPD concurrence on adverse effect determinations.

Distribution: Meeting Participants
Toru Hamayasu, DTS
Norman Kawachika, DTS
Bob Bramen, PB

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

July 17, 2002

TPD02-00327

Mr. Saku Nakamura
Soil Scientist
Natural Resources Conservation Service
U.S. Department of Agriculture
P.O. Box 50004
Honolulu, Hawaii 96850

Dear Mr. Nakamura:

Subject: Revised Site for City and County of Honolulu, Primary Corridor Transportation Project, Farmland Protection Policy Act, Form AD-1006

The City and County of Honolulu, Department of Transportation Services, in cooperation with the U.S. Department of Transportation, Federal Transit Administration, is proposing to construct a park-and-ride facility on the proposed North-South Road, between Farrington Highway and Interstate Route H-1. The proposed park-and-ride is part of the Primary Corridor Transportation Project. The facility would require the use of approximately four acres of agriculturally-zoned land.

In compliance with the Farmland Protection Policy Act, we need to determine the Farmland Conversion Impact Ratings for the project alternatives. Please find enclosed a revised Farmland Conversion Impact Rating form (AD-1006), with Parts I and III completed, per instructions. The attached maps indicate the location of the proposed park-and-ride facility.

The Primary Corridor Transportation Project proposes two build alternatives, both of which require the park-and-ride facility: the Bus Rapid Transit (BRT) and the Transportation System Management (TSM) Alternatives. The City and County of Honolulu zoning designation for this area is Restricted Agricultural (AG1). The No-Build Alternative would not require the use of farmland.

Please note that in September 2000, our consultant, Parsons Brinckerhoff, submitted an AD-1006 form for a transit center planned in the Waipahu area (on Kunia Road) as part of this project. That previously proposed site is no longer a part of the project and has since been replaced by the North-South Road park-and-ride now proposed.

We would appreciate your completing the appropriate parts of Form AD-1006 and returning it to us at your earliest convenience. If you should have any questions, please call Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

Cheryl D. Soon

CHERYL D. SOON
Director

Enclosures:
1) Form AD-1006 with Parts I and III completed
2) Project location maps (two 11x17 sheets)

cc: Ann Koby, PB Consult, Inc.

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 7/8/02
Name Of Project [illegible]	Federal Agency Involved [illegible]
Proposed Land Use Parking Lot	County And State Honolulu HI
PART II *(To be completed by SCS)*	Date Request Received By SCS

Does the site contain prime, unique, statewide or local important farmland? Yes ☐ No ☐ (If no, the FPPA does not apply – do not complete additional parts of this form)

Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %	Amount Of Farmland As Defined In FPPA Acres: %	Acres Irrigated / Average Farm Size
Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Date Land Evaluation Returned By SCS	

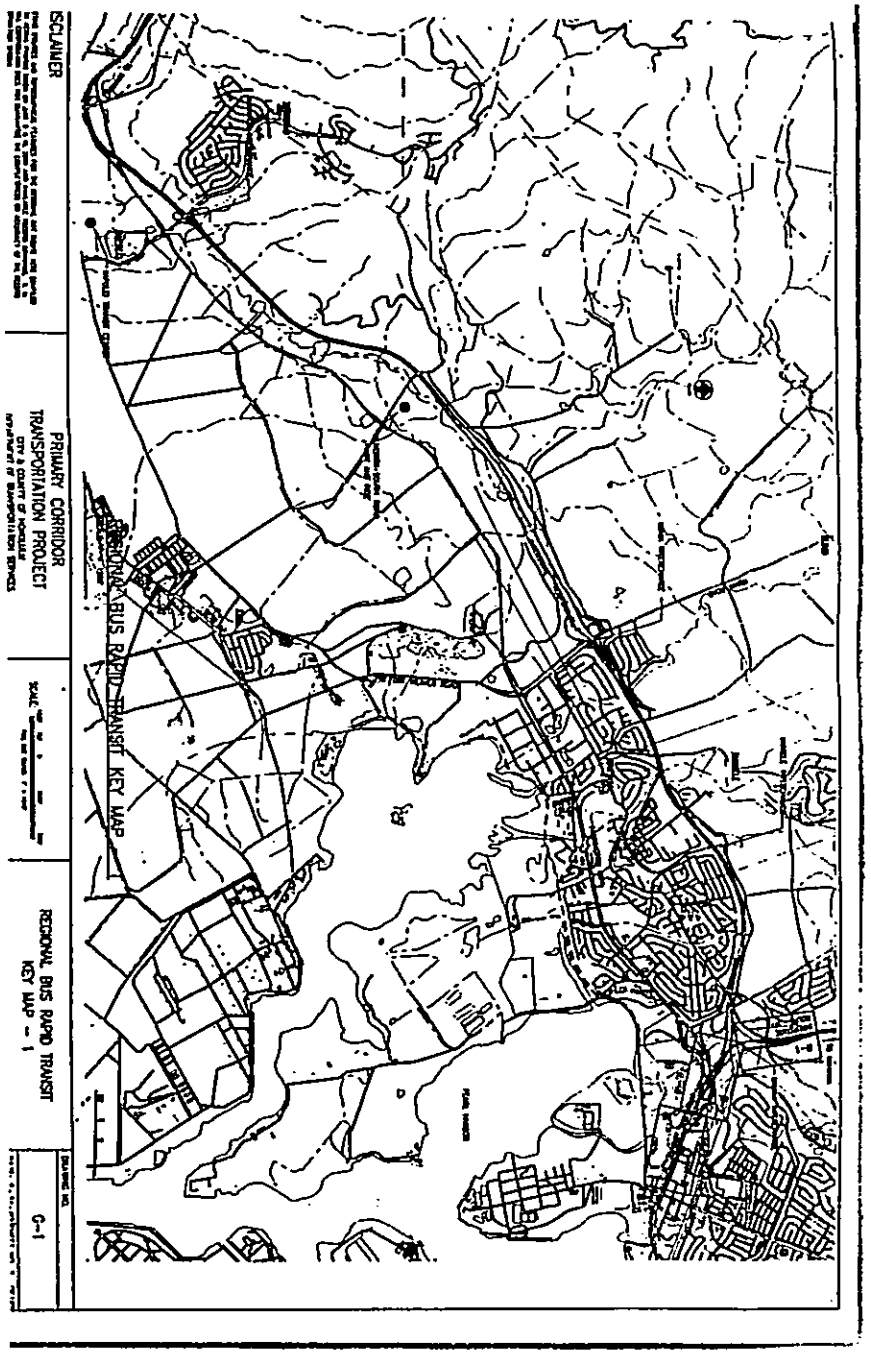
PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	4			
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	4			
PART IV *(To be completed by SCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by SCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*				

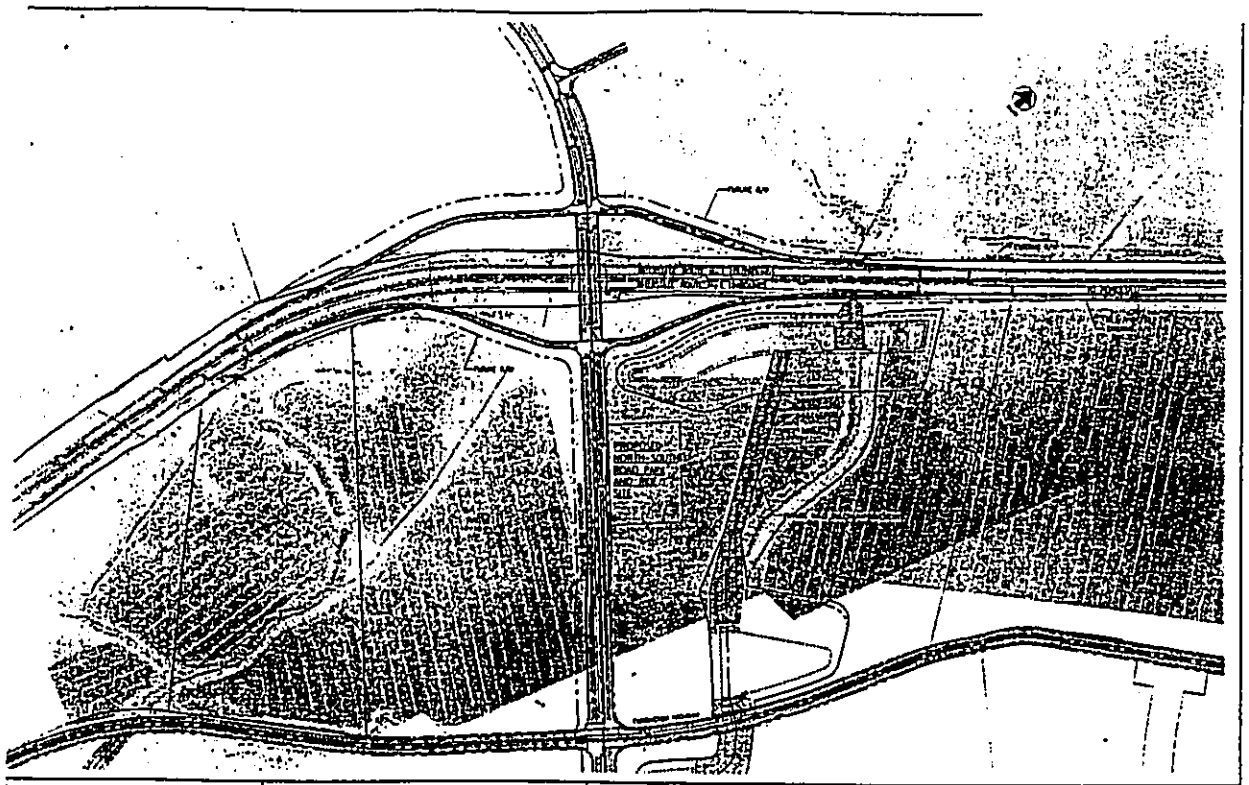
PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points	Site A	Site B	Site C	Site D
1. Area In Nonurban Use					
2. Perimeter In Nonurban Use					
3. Percent Of Site Being Farmed					
4. Protection Provided By State And Local Government					
5. Distance From Urban Builtup Area					
6. Distance To Urban Support Services					
7. Size Of Present Farm Unit Compared To Average					
8. Creation Of Nonfarmable Farmland					
9. Availability Of Farm Support Services					
10. On-Farm Investments					
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
TOTAL SITE ASSESSMENT POINTS	160				
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100				
Total Site Assessment *(From Part VI above or a local site assessment)*	160				
TOTAL POINTS *(Total of above 2 lines)*	260				

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

(See Instructions on reverse side) Form AD-1006 (10-83)





	PRIMARY CORRIDOR TRANSPORTATION PROJECT CITY & COUNTY OF HONOLULU DEPARTMENT OF TRANSPORTATION SERVICES		NORTH-SOUTH ROAD PARK AND RIDE LOCATION PLAN	DRAWING NO. R-41

OCT 2 4 2001

DIR 1442
HWY-PS
2.4594

Ms. Cheryl D. Soon
Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 702
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Primary Corridor Transportation Project, Supplemental Draft Environmental Statement (DEIS) Preparation Notice

Thank you for the opportunity to review the Preparation Notice for the Supplemental DEIS.

We request that you respond to our previous comments (DIR 1.110300, dated 11/3/00) on the Draft EIS and (DIR 1.015, dated 3/16/01), which includes further comments regarding the Primary Corridor Transportation project. Further comments are listed below:

1. Because our statewide needs far exceed our limited resources, we cannot commit State highway funds for the Bus Rapid Transit (BRT)project.

2. The Supplemental DEIS needs to update previous information about where and when the City proposes to convert existing traffic lanes to contra-flow and/or to BRT use.

3. At the time traffic lanes are initially converted to exclusive use of the proposed In-Town BRT:
   - Which intersections and roadways will have reduced levels of service?
   - What will be the cumulative impacts on the duration and severity of traffic congestion at screenlines?
   - How many drivers will be worse off and how much more travel delay will they experience?
   - How many bus riders will be better off and how much less travel delay will they experience?

4. The Supplemental DEIS needs to address the impacts of the proposed makai Kakaako BRT route on cargo and cruise ship operations at Pier 2.

5. At the westbound approach to the Waiawa Interchange, deployment of the eastbound zipperlane reduces Interstate H-1 to a single westbound lane. The Supplemental DEIS should determine necessary improvements so that deployment of the eastbound zipperlane does not cause a bottleneck for morning westbound traffic in 2025. Proposed improvements also must not preclude construction of an additional lane to off-ramp 8-B to Waipahu.

6. Please describe the timing and nature of improvements needed on Nimitz Highway to accommodate the proposed extension of the eastbound zipperlane into Keehi Interchange.

7. Please evaluate the noise impacts resulting from increased peak afternoon traffic volumes when the proposed westbound zipperlane is deployed on Interstate H-1.

8. Within the existing Waiawa and Waiau Interchanges, where there is no shoulder lane, deployment of the proposed westbound zipperlane would narrow Interstate H-1 to three eastbound lanes. Please verify that there will be acceptable levels of service for eastbound traffic through these interchanges when the proposed westbound zipperlane is initially deployed. We also request that you evaluate when and how these Interchanges will need to be widened so that deployment of the proposed westbound zipperlane will not cause a bottleneck for increasing eastbound traffic volumes.

9. Full compliance with Interstate Standards is normally a reasonable alternative to Design Exceptions. Hence, you need to compare the benefits, costs, and drawbacks of full compliance with Interstate Standards with the benefits, costs, and drawbacks for each proposed Design Exception. Unless compelling justification is provided, we may not support and FHWA may not grant even a temporary Design Exception for substandard at-grade highway shoulders.

10. According to the Preparation Notice, new ramps and freeway widening are proposed for exclusive BRT access to Interstate Route H-1 from a proposed Kapolei Interchange, a proposed transit center near the Kunia Interchange, Luapele Drive near the Stadium, and the Radford Drive overpass. According to the Preparation Notice, a new ramp is also proposed for unrestricted vehicular access from Interstate Route H-1 to a proposed City transit center near Middle Street.

For each of these locations, we request that the Supplemental DEIS separately:

- provide updated plans showing proximity to other ramps.
- provide updated cost estimates.
- describe temporary construction-related impacts to freeway traffic and what mitigation measures are proposed.
- describe long-term environmental impacts and mitigation measures.
- describe what traffic movements would be allowed on the proposed ramp.
- explain how the BRT would be rerouted if no zipperlane were deployed and/or the proposed ramp were temporarily unusable.
- estimate daily bus riders using the proposed ramp, both when initially constructed and in 2025.
- estimate the drop in projected daily bus ridership if the proposed ramp were not constructed.
- estimate peak traffic volume on the proposed ramp and the lane into which the ramp would merge in 2025.
- assess design features and traffic controls necessary for articulated buses to safely enter and exit the proposed ramp.

Much of this information will also be needed for a formal Justification Report which must be submitted for our concurrence and FHWA approval before new access is allowed to our Interstate system.

If you have any questions, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours;

Brian Minaai

BRIAN K. MINAAI
Director of Transportation

Enclosures (DIR 1.110300 and DIR 1.015)

c: Office of Environmental Quality Control (w/attach.), FHWA (w/attach.)

DM:mm

bc: DEP-J, PPB, STP, HWY, -T, -D, -PA, -PS (01-233) all w/attach.
DIR,HAR,HWY-O,-R w/attach

DIR 0518
HWY-PS
2.6197

APR 1 5 2002

The Honorable John DeSoto
Chair and Members
Honolulu City Council
City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Dear Chairman DeSoto and Members:

Subject: Development Plan Public Facilities Map Amendment (2002/DPPFM-5) for the Primary Urban Center Bus Rapid Transit (BRT) Iwilei to Waikiki Alignment, Honolulu, Oahu

Thank you for consulting us concerning the proposed Development Plan Facilities Map Amendment.

We support expanded provision of limited-stop bus service and conversion of overlapping bus routes to a hub-and-spoke system. However, before the City decides to take away traffic lanes from existing motorists, the City needs to fully disclose, and the public needs to be adequately informed of, traffic impacts which will occur at the time traffic lanes are initially converted to exclusive use by the proposed BRT. To date, this information has not been provided in the City's EIS documents.

All plans for work within the State highway right-of-way must be coordinated and submitted to our Highways Division for our review and approval. The proposed BRT alignment uses portions of Nimitz Highway and Ala Moana Boulevard—which are both State highways.

We consulted the Hawaii Community Development Authority (HCDA) and our Harbors Division concerning proposed BRT use of their property makai of Ala Moana Boulevard. The HCDA will not consent to the City proposal to extend Ilalo Street to Channel Street because the alignment would not be consistent with their adopted plan. However, they probably would welcome City assistance to implement their plan to extend Ilalo Street to Punchbowl Street. Our Harbors Division wishes to minimize constraints on container yard and cruise ship operations. Although the proposed Pier 2 Cruise Ship Terminal has been postponed, the City needs to consult the U.S. Coast Guard concerning design requirements, access limitations, and parking restrictions necessary to maintain security between the proposed Terminal and Ilalo Street.

If you have any questions, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

BRIAN K. MINAAI
Director of Transportation

c: City Department of Planning and Permitting
City Department of Transportation Services
Hawaii Community Development Authority

DM: mm

bc: DEP-P, -S, STP, PPB, HAR, HWY, -O, -T, -D, -C, -R, -S, -PA, -PS (02-076)

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT S. COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DEPUTIES
ERIC T. HIRANO
LINNEL NISHIOKA

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

MAY 6 2002

April 29, 2002

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
411 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

LOG NO: 29753
DOC NO: 0204hm05

Attention: Ms. Faith Miyamoto

Dear Ms. Soon:

Subject: Historic Preservation Review (Chapter 6E, HRS) - Cultural Practices Assessment for the Primary Corridor Transportation Project (City and County of Honolulu)
Ewa to Waikiki, Oahu Island
TMK: Zones 1, 2, 3 and 9

Thank you for submitting for our review the draft report entitled *Act 50 - Cultural Practices Assessment Project Report* (PB Consult Inc. with N. Wong, December 2001). This study was undertaken to assess the potential impacts of the Primary Corridor Transportation Project on cultural practices as required under Chapter 343. We apologize for the delay in our review.

As you are probably aware, we limit our reviews of cultural practices assessments to those components which potentially fall within the jurisdiction of the historic preservation process as defined in Chapter 6E (HRS). Generally this means that we comment on three major components that have a bearing on the adequate identification, evaluation, and treatment of historic properties which are associated with traditions or practices. These include the methods used to identify individuals who are potentially knowledgeable of the project area's past; the description and assessment of any historic properties identified (i.e., those generally called traditional cultural properties); and the proposed treatment of identified properties. We do not, for example, comment on the adequacy with which studies assess a project's impacts on broadly based customary practices or native rights that are not associated with specific sites, places, or landscape features.

In this case, we appreciate the conceptual and methodological efforts made during the study to identify cultural practices within such a large and highly urbanized area and one in which multiple ethnic groups live or participate in activities. The approaches chosen to identify the study area, the kinds of practices to be considered, and the individuals or groups to be consulted is very clearly described and well reasoned. The information compiled and presented in the report is, however, still too general for us to determine if the identified practices contribute to the significance of particular historic properties or if the corridor project will specifically affect any these properties. We are hoping that the authors will be able to apply this study's results or methods to the more detailed historic property reports being prepared for the archaeological or architectural assessments.

If you have any questions, please call Nathan Napoka (587-0040) or Holly McEldowney (692-8028) of our History and Culture Branch.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

HM:jk

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HI 96707
(808) 692-5159, fax: (808) 692-5113

Jeremy Harris
Mayor

Timothy E. Steinberger, P.E.
Director

Frank J. Doyle, P.E.
Deputy Director

FRO 02-25

May 7, 2002

MEMORANDUM

TO: CHERYL D. SOON, DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM: TIMOTHY E. STEINBERGER, DIRECTOR
DEPARTMENT OF ENVIRONMENTAL SERVICES

SUBJECT: PRIMARY CORRIDOR TRANSPORTATION PROJECT
SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT (SDEIS)

RECEIVED
02 MAY 13 A8:58
DIRECTOR'S OFFICE
DEPT. OF
TRANSPORTATION SERVICES

We have reviewed the subject SDEIS, and have the following comments:

The project may potentially have an impact on the City's sewer lines that are located in the same alignment as the bus lanes, both during the construction phase and during future sewer maintenance activities. We are concerned about the potential impacts of nearby excavations, vibrations, and dewatering on the structural integrity of the sewer lines, especially the older ones. The design and construction of the subject project should be closely coordinated with the Department of Environmental Services, wherever the City's sewer lines may be impacted.

Should you have any questions, please call me at 692-5159, or Jack Pobuk, Program Coordinator, at 692-5727.

cc: OEQC

DEPARTMENT OF THE ARMY
HEADQUARTERS, UNITED STATES ARMY GARRISON, HAWAII
SCHOFIELD BARRACKS, HAWAII 96857-5013

REPLY TO
ATTENTION OF:

May 24, 2002

Office of the Garrison Commander

RECEIVED
02 JUN 7 P12:54
DIRECTOR'S OFFICE
DEPT. OF
TRANSPORTATION SERVICES

Ms. Cheryl D. Soon
Director, Department of Transportation Services
City and County of Honolulu
650 South King Street, Third Floor
Honolulu, Hawaii 96813

Dear Ms. Soon:

The Primary Corridor Transportation Project, sponsored by the City and County of Honolulu Department of Transportation Services, released its Supplemental Draft Environmental Impact Statement (SDEIS) on March 13, 2002. The Army, as represented by the U.S. Army Garrison, Hawaii (USAG-HI) and the Hale Koa Hotel (a major Army tenant at Fort DeRussy), appreciates the opportunity to review and provide comments on the SDEIS.

After reviewing this document, I would like to have further consultations concerning the portion of the proposed Revised Bus Rapid Transit (BRT) Alternative relating to Fort DeRussy and Kalia Road, as I believe the SDEIS must provide more information to the Army for us[illegible] adequately assess the impacts, if any, the project would have on the operations involving the Hale Koa Hotel. I am also concerned about the increase of vehicular and pedestrian traffic this project could cause[illegible] as well as incorporating the unique military force protection requirements we now must consider and the potential negative impact they may have on our efforts to preserve open, green space at the entrance to Waikiki.

The Army is very interested in partnering with the City and County of Honolulu and the Department of Transportation Services to resolve our traffic problems in the most cost and effective manner while, at the same time, minimizing any potential adverse impacts[illegible] result. To this end, Colonel William E. Ryan III, my Director of Public Works, and his staff is ready to work with you in developing viable and mutually agreeable solutions to Honolulu's [illegible] problems.

Please feel free to contact Colonel Ryan at 656-1289. Together, we can make a difference.

Sincerely,

William R. Puttman[illegible]
Colonel, U.S. Army
Commanding

Final Environmental Impact Statement

Primary Corridor Transportation Project

APPENDIX B

Appendix B

Refined Locally Preferred Alternative

Preliminary Engineering Drawings (Separate) Volume 3

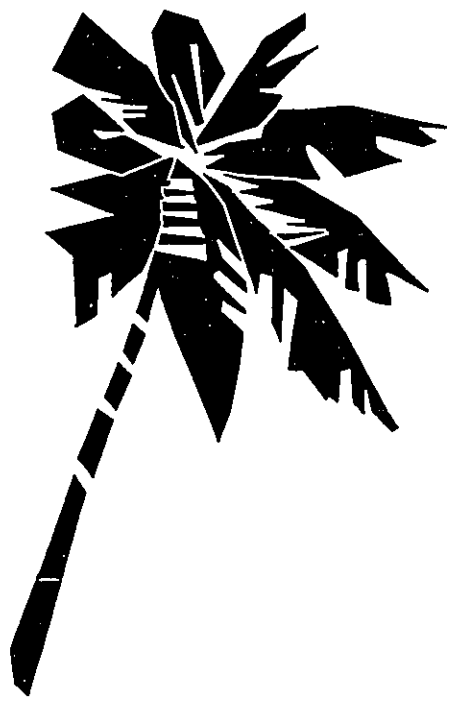
PRIMARY CORRIDOR TRANSPORTATION PROJECT
PRELIMINARY ENGINEERING DRAWINGS

The locations and extent of the No-Build and TSM Alternatives and the Refined LPA are shown on figures in Chapter 2. In addition, large-format preliminary engineering drawings of the Refined LPA are available for public review at the following locations. The drawings are also available in a "pdf" file format on a CD-ROM, which has been provided as part of this FEIS.

- University of Hawaii Hamilton Library, Hawaiian Collection
- Legislative Reference Bureau
- DBEDT Library
- Honolulu Municipal Reference and Records Center
- State Main Library
- Kaimuki Regional Library
- Hilo Regional Library
- Maui Regional Library - Kahului
- Lihue Regional Library
- Kaneohe Regional Library
- Pearl City Regional Library
- Hawaii Kai Regional Library
- Aiea Library
- Aina Haina Library
- Ewa Beach Community-School Library
- Kahuku Community-School Library
- Kailua Library
- Kalihi-Palama Library
- Library for the Blind and Physically Handicapped
- Liliha Library
- Manoa Library
- McCully-Moiliili Library
- Mililani Library
- Salt Lake-Moanalua Public Library
- Wahiawa Library
- Waialua Library
- Waianae Library
- Waikiki-Kapahulu Library
- Waimanalo Community-School Library
- Waipahu Library

Appendix C

Cash Flow Analysis



NO-BUILD ALTERNATIVE
CASH FLOW ANALYSIS ($ YOE, 000)

PRIMARY CORRIDOR TRANSPORTATION PROJECT NO-BUILD ALTERNATIVE	14 YR TOTAL 2003-2016	23 YR TOTAL 2003-2025	2003	2004	2005	2006	2007	20
CAPITAL COSTS								
Transit Centers	$10,061	$10,061	$720	$4,613	$4,728	$0	$0	
Bus Acquisitions	$267,755	$482,850	$23,194	$23,020	$25,378	$26,013	$19,045	$1
TheHandi-Van Vehicle Acquisitions	$22,905	$43,817	$1,324	$0	$1,545	$1,663	$1,624	$
Kamehameha Highway Corridor and Transit Centers	$10,882	$10,882	$51	$842	$9,989	$0	$0	
Total Capital Costs	***$311,602***	***$547,610***	***$25,289***	***$28,474***	***$41,641***	***$27,676***	***$20,669***	***$2***
DEBT SERVICE PAYMENTS								
Debt Service on Highway Fund Bonds Issued before 2003	$279,823	$365,265	$19,568	$21,454	$22,324	$24,288	$22,577	$
Debt Service on Planned City Highway Fund Future Notes & Bonds	$139,804	$298,741	$1,777	$2,969	$4,210	$7,345	$9,765	$
Debt Service on Additional Primary Corridor Bonds	$0	$4,796	$0	$0	$0	$0	$0	
Total Debt Service Costs	***$419,627***	***$668,802***	***$21,345***	***$24,423***	***$26,535***	***$31,634***	***$32,342***	***$3***
TOTAL CAPITAL AND DEBT SERVICE COSTS	***$731,229***	$1,216,412	$46,634	$52,897	$68,175	$59,310	$53,010	$5
OPERATING COSTS								
Bus O&M	$2,028,801	$3,765,719	$122,407	$125,528	$128,728	$132,011	$135,376	$13
TheHandi-Van O&M	$243,369	$468,249	$14,005	$14,460	$14,929	$15,415	$15,916	$1
Total O&M Costs	***$2,272,170***	***$4,233,968***	***$136,411***	***$139,987***	***$143,657***	***$147,425***	***$151,292***	***$15***
CAPITAL REVENUES								
FEDERAL TRANSIT ADMINISTRATION								
Section 5307 Urbanized Area Formula Funds	$143,200	$297,471	$3,547	$4,828	$5,796	$7,348	$7,891	$1
Section 5309 Fixed Guideway Modernization	$20,839	$37,629	$1,305	$1,331	$1,357	$1,384	$1,412	$
Section 5309 Bus Discretionary	$8,665	$8,665		$673	$7,991			
Subtotal Federal Transit Administration	***$172,704***	***$343,765***	***$4,852***	***$6,832***	***$15,144***	***$8,732***	***$9,303***	***$1***
FHWA/OTHER FEDERAL HIGHWAY REVENUE	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	
CITY GENERAL OBLIGATION BOND PROCEEDS FOR MASS TRANSIT PROGRAM								
CIP Bond Schedule (Within levels of 2003-2008 CIP)	$135,946	$194,665	$20,437	$21,642	$26,497	$18,944	$11,365	$
Additional Mass Transit Program Bonds	$2,953	$9,180						
Subtotal, City General Obligation Bonds Proceeds	***$138,899***	***$203,845***	***$20,437***	***$21,642***	***$26,497***	***$18,944***	***$11,365***	***$***
Total Capital Revenues	***$311,602***	***$547,610***	***$25,289***	***$28,474***	***$41,641***	***$27,676***	***$20,669***	***$2***
REVENUES REQUIRED FOR DEBT SERVICE PAYMENTS								
Highway Fund	$419,612	$668,787	$21,345	$24,423	$26,535	$31,634	$32,342	$3
Additional Revenue Required for Primary Corridor Bond Debt Service	$15	$15	$0	$0	$0	$0	$0	
Total Revenues Required for Debt Service Payments	***$419,627***	***$668,802***	***$21,345***	***$24,423***	***$26,535***	***$31,634***	***$32,342***	***$3***
TOTAL REVENUES FOR CAPITAL AND DEBT SERVICE PAYMENTS	$731,229	$1,216,412	$46,634	$52,897	$68,175	$59,310	$53,010	$5
OPERATING REVENUES								
Bus Passenger Fares	$564,618	$1,072,291	$33,050	$34,040	$35,061	$36,112	$37,195	$3
TheHandi-Van Fares	$26,068	$50,152	$1,500	$1,549	$1,599	$1,651	$1,705	$
FTA Section 5307 Urbanized Area Formula (Preventive Maintenance)	$253,591	$433,064	$20,000	$20,000	$19,627	$18,682	$18,760	$1
City Operating Support for Transit O&M	$1,427,893	$2,678,461	$81,861	$84,399	$87,370	$90,980	$93,632	$10
Total O&M Revenues	***$2,272,170***	***$4,233,968***	***$136,411***	***$139,987***	***$143,657***	***$147,425***	***$151,292***	***$15***
Changes to Cash	$0	$0	$0	$0	$0	$0	$0	
BEGINNING CASH BALANCE	$0	$0	$0	$0	$0	$0	$0	
CHANGES TO CASH BALANCE	$0	$0	$0	$0	$0	$0	$0	
ENDING CASH BALANCE	$0	$0	$0	$0	$0	$0	$0	

ALTERNATIVE
ALYSIS ($ YOE, 000)

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
$4,728	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$25,378	$26,013	$19,045	$18,350	$10,766	$9,878	$15,625	$6,358	$18,068	$13,064	$25,525	$33,470
$1,545	$1,663	$1,624	$1,664	$1,706	$1,836	$1,792	$1,837	$1,883	$2,026	$1,978	$2,028
$9,989	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$41,641	***$27,676***	***$20,669***	***$20,014***	***$12,471***	***$11,714***	***$17,417***	***$8,195***	***$19,950***	***$15,090***	***$27,503***	***$35,498***
$22,324	$24,288	$22,577	$22,225	$22,210	$21,406	$21,002	$19,154	$19,623	$16,560	$13,172	$14,260
$4,210	$7,345	$9,765	$10,854	$11,819	$12,339	$12,664	$12,912	$12,942	$13,161	$13,286	$13,760
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$26,535	***$31,634***	***$32,342***	***$33,080***	***$34,029***	***$33,745***	***$33,666***	***$32,066***	***$32,565***	***$29,721***	***$26,458***	***$28,020***
$68,175	$59,310	$53,010	$53,094	$46,501	$45,459	$51,083	$40,262	$52,515	$44,811	$53,961	$63,518
128,728	$132,011	$135,376	$138,827	$142,367	$145,996	$149,720	$153,537	$157,452	$161,466	$165,583	$169,804
$14,929	$15,415	$15,916	$16,433	$16,966	$17,518	$18,087	$18,674	$19,281	$19,908	$20,555	$21,223
143,657	***$147,425***	***$151,292***	***$155,260***	***$159,333***	***$163,515***	***$167,807***	***$172,211***	***$176,733***	***$181,374***	***$186,138***	***$191,027***
$5,796	$7,348	$7,891	$12,820	$9,977	$9,371	$13,934	$6,556	$14,742	$12,072	$17,265	$17,052
$1,357	$1,384	$1,412	$1,440	$1,469	$1,499	$1,528	$1,559	$1,590	$1,622	$1,654	$1,688
$7,991											
$15,144	***$8,732***	***$9,303***	***$14,260***	***$11,446***	***$10,870***	***$15,462***	***$8,115***	***$16,333***	***$13,694***	***$18,920***	***$18,739***
$0	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***
$26,497	$18,944	$11,365	$5,754	$1,025	$844	$1,955	$80	$3,618	$1,396	$8,584	$13,805
											$2,953
$26,497	***$18,944***	***$11,365***	***$5,754***	***$1,025***	***$844***	***$1,955***	***$80***	***$3,618***	***$1,396***	***$8,584***	***$16,758***
$41,641	***$27,676***	***$20,669***	***$20,014***	***$12,471***	***$11,714***	***$17,417***	***$8,195***	***$19,950***	***$15,090***	***$27,503***	***$35,498***
$26,535	$31,634	$32,342	$33,080	$34,014	$33,745	$33,666	$32,066	$32,565	$29,721	$26,458	$28,020
$0	$0	$0	$0	$15	$0	$0	$0	$0	$0	$0	$0
$26,535	***$31,634***	***$32,342***	***$33,080***	***$34,029***	***$33,745***	***$33,666***	***$32,066***	***$32,565***	***$29,721***	***$26,458***	***$28,020***
$68,175	$59,310	$53,010	$53,094	$46,501	$45,459	$51,083	$40,262	$52,515	$44,811	$53,961	$63,518
$35,061	$36,112	$37,195	$38,309	$39,458	$40,641	$41,859	$43,115	$44,408	$45,738	$47,109	$48,522
$1,599	$1,651	$1,705	$1,760	$1,818	$1,876	$1,937	$2,001	$2,065	$2,132	$2,201	$2,273
$19,627	$18,682	$18,760	$14,467	$17,961	$19,233	$15,351	$23,425	$15,951	$19,351	$14,903	$15,879
$87,370	$90,980	$93,632	$100,723	$100,096	$101,765	$108,660	$103,671	$114,309	$114,154	$121,924	$124,353
143,657	***$147,425***	***$151,292***	***$155,260***	***$159,333***	***$163,515***	***$167,807***	***$172,211***	***$176,733***	***$181,374***	***$186,138***	***$191,027***
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

11/6/02

NO-BUILD ALTERNATIVE
CASH FLOW ANALYSIS ($ YOE, 000)

PRIMARY CORRIDOR TRANSPORTATION PROJECT NO-BUILD ALTERNATIVE	2017	2018	2019	2020	202
CAPITAL COSTS					
Transit Centers	$0	$0	$0	$0	
Bus Acquisitions	$31,733	$34,984	$35,859	$26,254	$25,
TheHandi-Van Vehicle Acquisitions	$2,078	$2,237	$2,183	$2,238	$2,
Kamehameha Highway Corridor and Transit Centers	$0	$0	$0	$0	
Total Capital Costs	***$33,811***	***$37,221***	***$38,043***	***$28,492***	***$27***
DEBT SERVICE PAYMENTS					
Debt Service on Highway Fund Bonds Issued before 2003	$12,896	$12,789	$12,163	$12,061	$10
Debt Service on Planned City Highway Fund Future Notes & Bonds	$14,608	$15,401	$16,371	$17,468	$18
Debt Service on Additional Primary Corridor Bonds	$162	$200	$394	$577	
Total Debt Service Costs	***$27,666***	***$28,391***	***$28,927***	***$30,106***	***$29***
TOTAL CAPITAL AND DEBT SERVICE COSTS	**$61,477**	**$65,612**	**$66,970**	**$58,598**	**$56**
OPERATING COSTS					
Bus O&M	$174,133	$178,574	$183,127	$187,795	$192
TheHandi-Van O&M	$21,911	$22,624	$23,358	$24,119	$24
Total O&M Costs	***$196,045***	***$201,198***	***$206,485***	***$211,914***	***$217***
CAPITAL REVENUES					
FEDERAL TRANSIT ADMINISTRATION					
Section 5307 Urbanized Area Formula Funds	$17,598	$18,140	$20,427	$21,425	$19
Section 5309 Fixed Guideway Modernization	$1,721	$1,756	$1,791	$1,827	$1
Section 5309 Bus Discretionary					
Subtotal Federal Transit Administration	***$19,320***	***$19,896***	***$22,218***	***$23,252***	***$21,***
FHWA/OTHER FEDERAL HIGHWAY REVENUE	***$0***	***$0***	***$0***	***$0***	
CITY GENERAL OBLIGATION BOND PROCEEDS FOR MASS TRANSIT PROGRAM					
CIP Bond Schedule (Within levels of 2003-2008 CIP)	$13,805	$13,805	$13,805	$5,240	$5
Additional Mass Transit Program Bonds	$687	$3,520	$2,020		
Subtotal, City General Obligation Bonds Proceeds	***$14,492***	***$17,325***	***$15,825***	***$5,240***	***$5,***
Total Capital Revenues	***$33,811***	***$37,221***	***$38,043***	***$28,492***	***$27,***
REVENUES REQUIRED FOR DEBT SERVICE PAYMENTS					
Highway Fund	$27,666	$28,391	$28,927	$30,106	$29
Additional Revenue Required for Primary Corridor Bond Debt Service	$0	$0	$0	$0	
Total Revenues Required for Debt Service Payments	***$27,666***	***$28,391***	***$28,927***	***$30,106***	***$29,***
TOTAL REVENUES FOR CAPITAL AND DEBT SERVICE PAYMENTS	**$61,477**	**$65,612**	**$66,970**	**$58,598**	**$56,**
OPERATING REVENUES					
Bus Passenger Fares	$49,976	$51,475	$53,018	$54,607	$56,
TheHandi-Van Fares	$2,346	$2,423	$2,502	$2,583	$2,
FTA Section 5307 Urbanized Area Formula (Preventive Maintenance)	$16,114	$16,370	$14,900	$14,737	$17,
City Operating Support for Transit O&M	$127,608	$130,930	$138,066	$139,987	$141,
Total O&M Revenues	***$196,045***	***$201,198***	***$206,485***	***$211,914***	***$217,***
Changes to Cash	$0	$0	$0	$0	
BEGINNING CASH BALANCE	$0	$0	$0	$0	
CHANGES TO CASH BALANCE	$0	$0	$0	$0	
ENDING CASH BALANCE	$0	$0	$0	$0	

LTERNATIVE
LYSIS ($ YOE, 000)

18	2019	2020	2021	2022	2023	2024	2025	TOTAL
$0	$0	$0	$0	$0	$0	$0	$0	$10,061
,984	$35,859	$26,254	$25,296	$17,047	$13,617	$21,540	$8,765	$482,850
2,237	$2,183	$2,238	$2,294	$2,469	$2,410	$2,470	$2,532	$43,817
$0	$0	$0	$0	$0	$0	$0	$0	$10,882
7,221	*$38,043*	*$28,492*	*$27,590*	*$19,516*	*$16,027*	*$24,010*	*$11,297*	$547,610
2,789	$12,163	$12,061	$10,689	$6,214	$6,211	$7,796	$4,622	$365,265
5,401	$16,371	$17,468	$18,094	$18,747	$19,194	$19,392	$19,663	$298,741
$200	$394	$577	$594	$680	$730	$730	$730	$4,796
8,391	*$28,927*	*$30,106*	*$29,376*	*$25,641*	*$26,135*	*$27,918*	*$25,014*	$668,802
5,612	$66,970	$58,598	$56,966	$45,157	$42,162	$51,928	$36,311	$1,216,412
8,574	$183,127	$187,795	$192,583	$197,494	$202,529	$207,694	$212,989	$3,765,719
2,624	$23,358	$24,119	$24,902	$25,712	$26,546	$27,409	$28,299	$468,249
1,198	*$206,485*	*$211,914*	*$217,485*	*$223,206*	*$229,075*	*$235,103*	*$241,288*	$4,233,968
8,140	$20,427	$21,425	$19,999	$15,613	$12,822	$19,208	$9,038	$297,471
1,756	$1,791	$1,827	$1,863	$1,900	$1,938	$1,977	$2,017	$37,629
								$8,665
9,896	*$22,218*	*$23,252*	*$21,863*	*$17,513*	*$14,760*	*$21,185*	*$11,055*	$343,765
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	$0
3,805	$13,805	$5,240	$5,727	$2,003	$1,267	$2,825	$243	$194,665
3,520	$2,020							$9,180
7,325	*$15,825*	*$5,240*	*$5,727*	*$2,003*	*$1,267*	*$2,825*	*$243*	$203,845
7,221	*$38,043*	*$28,492*	*$27,590*	*$19,516*	*$16,027*	*$24,010*	*$11,297*	$547,610
8,391	$28,927	$30,106	$29,376	$25,641	$26,135	$27,918	$25,014	$668,787
$0	$0	$0	$0	$0	$0	$0	$0	$15
8,391	*$28,927*	*$30,106*	*$29,376*	*$25,641*	*$26,135*	*$27,918*	*$25,014*	$668,802
5,612	$66,970	$58,598	$56,966	$45,157	$42,162	$51,928	$36,311	$1,216,412
1,475	$53,018	$54,607	$56,244	$57,930	$59,667	$61,457	$63,298	$1,072,291
2,423	$2,502	$2,583	$2,667	$2,755	$2,844	$2,935	$3,032	$50,152
6,370	$14,900	$14,737	$17,018	$22,279	$25,964	$20,493	$31,599	$433,064
0,930	$136,066	$139,987	$141,557	$140,243	$140,600	$150,218	$143,358	$2,678,461
1,198	*$206,485*	*$211,914*	*$217,485*	*$223,206*	*$229,075*	*$235,103*	*$241,288*	$4,233,968
$0	$0	$0	$0	$0	$0	$0	$0	
$0	$0	$0	$0	$0	$0	$0	$0	
$0	$0	$0	$0	$0	$0	$0	$0	
$0	$0	$0	$0	$0	$0	$0	$0	

11/6/02

TRANSPORTATION SYSTEMS MANAGEMENT ALTERNATIVE
CASH FLOW ANALYSIS ($ YOE, 000)

PRIMARY CORRIDOR TRANSPORTATION PROJECT TSM ALTERNATIVE	14 YR TOTAL 2003-2016	23 YR TOTAL 2003-2025	2003	2004	2005	2006	2007
CAPITAL COSTS							
Transit Centers & Parking	$31,702	$31,702	$0	$1,065	$6,825	$11,082	$4,188
Bus Acquisitions	$296,837	$543,588	$23,194	$23,020	$25,378	$26,013	$20,531
TheHandi-Van Vehicle Acquisitions	$22,905	$43,817	$1,324	$0	$1,545	$1,663	$1,624
Expansion of Bus Maintenance Facility	$35,668	$35,668	$0	$0	$0	$0	$0
Park-And-Ride	$6,076	$6,076	$0	$0	$0	$0	$0
Bus Priority Treatment	$34,434	$34,434	$2,464	$15,787	$16,182	$0	$0
Zipper Lane	$14,982	$14,982	$0	$0	$0	$1,072	$6,869
Kamehameha Highway Corridor and Transit Centers	$10,882	$10,882	$51	$842	$9,989	$0	$0
Total Capital Costs	***$453,486***	***$721,148***	***$27,033***	***$40,714***	***$59,920***	***$39,830***	***$33,212***
DEBT SERVICE PAYMENTS							
Debt Service on Highway Fund Bonds Issued before 2003	$279,823	$365,265	$19,568	$21,454	$22,324	$24,288	$22,577
Debt Service on Planned City Highway Fund Future Notes & Bonds	$191,863	$426,470	$1,777	$3,068	$4,982	$9,122	$12,206
Debt Service on Additional Primary Corridor Bonds	$1,332	$20,556	$0	$0	$0	$0	$0
Total Debt Service Costs	***$473,018***	***$812,291***	***$21,345***	***$24,522***	***$27,306***	***$33,411***	***$34,783***
TOTAL CAPITAL AND DEBT SERVICE COSTS	$926,504	$1,533,439	$48,378	$65,236	$87,226	$73,240	$67,995
OPERATING COSTS							
Bus O&M	$2,100,033	$4,051,994	$122,407	$126,030	$129,760	$133,601	$137,555
TheHandi-Van O&M	$243,369	$468,249	$14,005	$14,460	$14,929	$15,415	$15,916
Total O&M Costs	***$2,343,403***	***$4,520,243***	***$136,411***	***$140,490***	***$144,689***	***$149,016***	***$153,471***
CAPITAL REVENUES							
FEDERAL TRANSIT ADMINISTRATION							
Section 5307 Urbanized Area Formula Funds	$152,513	$319,083	$3,547	$4,828	$5,796	$7,348	$6,656
Section 5309 Fixed Guideway Modernization	$20,839	$37,629	$1,305	$1,331	$1,357	$1,384	$1,412
Section 5309 Bus Discretionary	$8,665	$8,665		$673	$7,991		
Subtotal Federal Transit Administration	***$182,016***	***$365,377***	***$4,852***	***$6,832***	***$15,144***	***$8,732***	***$8,068***
FHWA/OTHER FEDERAL HIGHWAY REVENUE	***$11,985***	***$11,985***	***$0***	***$0***	***$0***	***$858***	***$5,495***
CITY GENERAL OBLIGATION BOND PROCEEDS FOR MASS TRANSIT PROGRAM							
CIP Bond Schedule (Within levels of 2003-2008 CIP)	$234,975	$313,050	$22,181	$33,882	$44,776	$30,240	$19,649
Additional Mass Transit Program Bonds	$24,509	$30,736					
Subtotal, City General Obligation Bonds Proceeds	$259,484	$343,786	***$22,181***	***$33,882***	***$44,776***	***$30,240***	***$19,649***
Total Capital Revenues	***$453,486***	***$721,148***	***$27,033***	***$40,714***	***$59,920***	***$39,830***	***$33,212***
REVENUES REQUIRED FOR DEBT SERVICE PAYMENTS							
Highway Fund	$449,901	$772,787	$21,345	$24,522	$27,306	$33,411	$33,676
Additional Revenue Required for Debt Service	$23,117	$39,504	$0	$0	$0	$0	$1,107
Total Revenues Required for Debt Service Payments	***$473,018***	***$812,291***	***$21,345***	***$24,522***	***$27,306***	***$33,411***	***$34,783***
TOTAL REVENUES FOR CAPITAL AND DEBT SERVICE PAYMENTS	$926,504	$1,533,439	$48,378	$65,236	$87,226	$73,240	$67,995
OPERATING REVENUES							
Bus Passenger Fares	$570,008	$1,104,303	$33,050	$34,054	$35,088	$36,154	$37,252
TheHandi-Van Fares	$26,068	$50,152	$1,500	$1,549	$1,599	$1,651	$1,705
FTA Section 5307 Urbanized Area Formula (Preventive Maintenance)	$244,278	$411,452	$20,000	$20,000	$19,627	$18,682	$19,995
City Operating Support for Transit O&M	$1,503,049	$2,954,336	$81,861	$84,887	$88,375	$92,528	$94,519
Total O&M Revenues	***$2,343,403***	***$4,520,243***	***$136,411***	***$140,490***	***$144,689***	***$149,016***	***$153,471***
Changes to Cash	$0	$0	$0	$0	$0	$0	$0
BEGINNING CASH BALANCE	$0	$0	$0	$0	$0	$0	$0
CHANGES TO CASH BALANCE	$0	$0	$0	$0	$0	$0	$0
ENDING CASH BALANCE	$0	$0	$0	$0	$0	$0	$0

MANAGEMENT ALTERNATIVE
LYSIS ($ YOE, 000)

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
$6,825	$11,082	$4,188	$0	$611	$3,916	$4,014	$0	$0	$0	$0	$0
$25,378	$26,013	$20,531	$18,350	$12,767	$13,086	$19,037	$15,083	$22,123	$15,758	$27,716	$34,780
$1,545	$1,663	$1,624	$1,664	$1,706	$1,836	$1,792	$1,837	$1,883	$2,026	$1,978	$2,028
$0	$0	$0	$0	$0	$0	$0	$0	$0	$17,614	$18,054	$0
$0	$0	$0	$0	$0	$0	$3,001	$3,076	$0	$0	$0	$0
$16,182	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$1,072	$6,869	$7,041	$0	$0	$0	$0	$0	$0	$0	$0
$9,989	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$59,920	***$39,830***	***$33,212***	***$27,055***	***$15,084***	***$18,838***	***$27,844***	***$19,996***	***$24,006***	***$35,398***	***$47,748***	***$36,808***
$22,324	$24,288	$22,577	$22,225	$22,210	$21,406	$21,002	$19,154	$19,623	$16,560	$13,172	$14,260
$4,982	$9,122	$12,206	$14,051	$15,232	$16,154	$17,340	$17,946	$18,449	$19,522	$20,533	$21,480
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$219	$1,114
$27,306	***$33,411***	***$34,783***	***$36,276***	***$37,442***	***$37,560***	***$38,342***	***$37,100***	***$38,072***	***$36,081***	***$33,924***	***$36,854***
$87,226	$73,240	$67,995	$63,331	$52,526	$56,398	$66,186	$57,096	$62,077	$71,480	$81,672	$73,662
$129,760	$133,601	$137,555	$141,628	$145,820	$150,135	$155,189	$160,413	$165,812	$171,394	$177,163	$183,127
$14,929	$15,415	$15,916	$16,433	$16,966	$17,516	$18,087	$18,674	$19,281	$19,908	$20,555	$21,223
$144,689	***$149,016***	***$153,471***	***$158,060***	***$162,786***	***$167,653***	***$173,276***	***$179,086***	***$185,093***	***$191,302***	***$197,718***	***$204,350***
$5,796	$7,348	$6,656	$12,820	$12,067	$14,025	$13,499	$8,118	$14,742	$15,996	$16,018	$17,052
$1,357	$1,384	$1,412	$1,440	$1,469	$1,499	$1,528	$1,559	$1,590	$1,622	$1,654	$1,688
$7,991											
$15,144	***$8,732***	***$8,068***	***$14,260***	***$13,536***	***$15,523***	***$15,028***	***$9,677***	***$16,333***	***$17,618***	***$17,672***	***$18,739***
$0	***$858***	***$5,495***	***$5,632***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***
$44,776	$30,240	$19,649	$7,162	$1,548	$3,315	$12,817	$10,318	$7,673	$13,805	$13,805	$13,805
									$3,975	$16,271	$4,263
$44,776	***$30,240***	***$19,649***	***$7,162***	***$1,548***	***$3,315***	***$12,817***	***$10,318***	***$7,673***	***$17,780***	***$30,076***	***$18,068***
$59,920	***$39,830***	***$33,212***	***$27,055***	***$15,084***	***$18,838***	***$27,844***	***$19,996***	***$24,006***	***$35,398***	***$47,748***	***$36,808***
$27,306	$33,411	$33,676	$33,845	$34,014	$34,184	$34,355	$34,527	$34,699	$34,873	$33,924	$35,222
$0	$0	$1,107	$2,432	$3,428	$3,376	$3,987	$2,573	$3,373	$1,209	$0	$1,632
$27,306	***$33,411***	***$34,783***	***$36,276***	***$37,442***	***$37,560***	***$38,342***	***$37,100***	***$38,072***	***$36,081***	***$33,924***	***$36,854***
$87,226	$73,240	$67,995	$63,331	$52,526	$56,398	$66,186	$57,096	$62,077	$71,480	$81,672	$73,662
$35,088	$36,154	$37,252	$38,384	$39,550	$40,751	$42,154	$43,606	$45,107	$46,661	$48,267	$49,930
$1,599	$1,651	$1,705	$1,760	$1,818	$1,876	$1,937	$2,001	$2,065	$2,132	$2,201	$2,273
$19,627	$18,682	$19,995	$14,467	$15,871	$14,579	$15,785	$21,863	$15,951	$15,427	$16,151	$15,879
$88,375	$92,528	$94,519	$103,449	$105,547	$110,447	$113,399	$111,617	$121,970	$127,083	$131,099	$136,267
$144,689	***$149,016***	***$153,471***	***$158,060***	***$162,786***	***$167,653***	***$173,276***	***$179,086***	***$185,093***	***$191,302***	***$197,718***	***$204,350***
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

11/6/02

TRANSPORTATION SYSTEMS MANAGEMENT ALTERNAT
CASH FLOW ANALYSIS ($ YOE, 000)

PRIMARY CORRIDOR TRANSPORTATION PROJECT TSM ALTERNATIVE	2017	2018	2019	2020
CAPITAL COSTS				
Transit Centers & Parking	$0	$0	$0	$0
Bus Acquisitions	$31,733	$34,984	$35,859	$29,852
TheHandi-Van Vehicle Acquisitions	$2,078	$2,237	$2,183	$2,238
Expansion of Bus Maintenance Facility	$0	$0	$0	$0
Park-And-Ride	$0	$0	$0	$0
Bus Priority Treatment	$0	$0	$0	$0
Zipper Lane	$0	$0	$0	$0
Kamehameha Highway Corridor and Transit Centers	$0	$0	$0	$0
Total Capital Costs	***$33,811***	***$37,221***	***$38,043***	***$32,090***
DEBT SERVICE PAYMENTS				
Debt Service on Highway Fund Bonds Issued before 2003	$12,896	$12,789	$12,163	$12,061
Debt Service on Planned City Highway Fund Future Notes & Bonds	$22,578	$23,675	$24,772	$25,615
Debt Service on Additional Primary Corridor Bonds	$1,348	$1,483	$2,075	$2,290
Total Debt Service Costs	***$36,821***	***$37,947***	***$39,010***	***$39,967***
TOTAL CAPITAL AND DEBT SERVICE COSTS	***$70,633***	***$75,168***	***$77,052***	***$72,057***
OPERATING COSTS				
Bus O&M	$189,291	$195,662	$202,249	$209,057
TheHandi-Van O&M	$21,911	$22,624	$23,358	$24,119
Total O&M Costs	***$211,202***	***$218,286***	***$225,607***	***$233,175***
CAPITAL REVENUES				
FEDERAL TRANSIT ADMINISTRATION				
Section 5307 Urbanized Area Formula Funds	$17,598	$18,140	$20,427	$21,067
Section 5309 Fixed Guideway Modernization	$1,721	$1,756	$1,791	$1,827
Section 5309 Bus Discretionary				
Subtotal Federal Transit Administration	***$19,320***	***$19,896***	***$22,218***	***$22,893***
FHWA/OTHER FEDERAL HIGHWAY REVENUE	***$0***	***$0***	***$0***	***$0***
CITY GENERAL OBLIGATION BOND PROCEEDS FOR MASS TRANSIT PROGRAM				
CIP Bond Schedule (Within levels of 2003-2008 CIP)	$13,805	$13,805	$13,805	$9,197
Additional Mass Transit Program Bonds	$687	$3,520	$2,020	
Subtotal, City General Obligation Bonds Proceeds	***$14,492***	***$17,325***	***$15,825***	***$9,197***
Total Capital Revenues	***$33,811***	***$37,221***	***$38,043***	***$32,090***
REVENUES REQUIRED FOR DEBT SERVICE PAYMENTS				
Highway Fund	$35,398	$35,575	$35,753	$35,932
Additional Revenue Required for Debt Service	$1,423	$2,372	$3,256	$4,035
Total Revenues Required for Debt Service Payments	***$36,821***	***$37,947***	***$39,010***	***$39,967***
TOTAL REVENUES FOR CAPITAL AND DEBT SERVICE PAYMENTS	***$70,633***	***$75,168***	***$77,052***	***$72,057***
OPERATING REVENUES				
Bus Passenger Fares	$51,649	$53,427	$55,268	$57,171
TheHandi-Van Fares	$2,346	$2,423	$2,502	$2,583
FTA Section 5307 Urbanized Area Formula (Preventive Maintenance)	$16,114	$16,370	$14,900	$15,096
City Operating Support for Transit O&M	$141,093	$146,066	$152,937	$158,326
Total O&M Revenues	***$211,202***	***$218,286***	***$225,607***	***$233,175***
Changes to Cash	$0	$0	$0	$0
BEGINNING CASH BALANCE	$0	$0	$0	$0
CHANGES TO CASH BALANCE	$0	$0	$0	$0
ENDING CASH BALANCE	$0	$0	$0	$0

MANAGEMENT ALTERNATIVE
LYSIS ($ YOE, 000)

018	2019	2020	2021	2022	2023	2024	2025	TOTAL
$0	$0	$0	$0	$0	$0	$0	$0	$31,702
34,984	$35,859	$29,852	$31,648	$17,599	$18,039	$26,243	$20,793	$543,588
$2,237	$2,183	$2,238	$2,294	$2,469	$2,410	$2,470	$2,532	$43,817
$0	$0	$0	$0	$0	$0	$0	$0	$35,668
$0	$0	$0	$0	$0	$0	$0	$0	$6,076
$0	$0	$0	$0	$0	$0	$0	$0	$34,434
$0	$0	$0	$0	$0	$0	$0	$0	$14,982
$0	$0	$0	$0	$0	$0	$0	$0	$10,882
37,221	*$38,043*	*$32,090*	*$33,942*	*$20,068*	*$20,449*	*$28,713*	*$23,325*	$721,148
12,789	$12,163	$12,061	$10,689	$6,214	$6,211	$7,796	$4,622	$365,265
23,675	$24,772	$25,615	$26,665	$27,119	$27,646	$28,169	$28,370	$426,470
$1,483	$2,075	$2,290	$2,307	$2,393	$2,443	$2,443	$2,443	$20,556
37,947	*$39,010*	*$39,967*	*$39,660*	*$35,726*	*$36,299*	*$38,408*	*$35,434*	$812,291
75,168	$77,052	$72,057	$73,603	$55,794	$56,748	$67,121	$58,759	$1,533,439
95,662	$202,249	$209,057	$216,094	$223,368	$230,887	$238,660	$246,693	$4,051,994
22,624	$23,358	$24,119	$24,902	$25,712	$26,546	$27,409	$28,299	$468,249
18,286	*$225,607*	*$233,175*	*$240,997*	*$249,080*	*$257,433*	*$266,069*	*$274,992*	$4,520,243
18,140	$20,427	$21,067	$19,148	$16,054	$13,019	$22,971	$18,147	$319,083
$1,756	$1,791	$1,827	$1,863	$1,900	$1,938	$1,977	$2,017	$37,629
19,896	*$22,218*	*$22,893*	*$21,011*	*$17,955*	*$14,958*	*$24,948*	*$20,163*	$8,665 $365,377
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	$11,985
13,805	$13,805	$9,197	$12,931	$2,113	$5,491	$3,765	$3,162	$313,050
$3,520	$2,020							$30,736
17,325	*$15,825*	*$9,197*	*$12,931*	*$2,113*	*$5,491*	*$3,765*	*$3,162*	$343,786
37,221	*$38,043*	*$32,090*	*$33,942*	*$20,068*	*$20,449*	*$28,713*	*$23,325*	$721,148
35,575	$35,753	$35,932	$36,112	$35,726	$36,299	$36,656	$35,434	$772,787
$2,372	$3,256	$4,035	$3,549	$0	$0	$1,752	$0	$39,504
37,947	*$39,010*	*$39,967*	*$39,660*	*$35,726*	*$36,299*	*$38,408*	*$35,434*	$812,291
75,168	$77,052	$72,057	$73,603	$55,794	$56,748	$67,121	$58,759	
53,427	$55,268	$57,171	$59,140	$61,176	$63,283	$65,463	$67,717	$1,104,303
$2,423	$2,502	$2,583	$2,667	$2,755	$2,844	$2,935	$3,032	$50,152
16,370	$14,900	$15,096	$17,869	$21,837	$25,767	$16,730	$22,491	$411,452
46,066	$152,937	$158,326	$161,320	$163,312	$165,539	$180,940	$181,752	$2,954,336
18,286	*$225,607*	*$233,175*	*$240,997*	*$249,080*	*$257,433*	*$266,069*	*$274,992*	$4,520,243
$0	$0	$0	$0	$0	$0	$0	$0	
$0	$0	$0	$0	$0	$0	$0	$0	
$0	$0	$0	$0	$0	$0	$0	$0	
$0	$0	$0	$0	$0	$0	$0	$0	

REFINED LOCALLY PREFERRED ALTERNATIVE
CASH FLOW ANALYSIS FY 2003 - 2025 ($ YOE, 000)

PRIMARY CORRIDOR TRANSPORTATION PROJECT REFINED LOCALLY PREFERRED ALTERNATIVE	14 YR TOTAL 2003-2016	23 YR TOTAL 2003-2025	2003	2004	2005	2006
CAPITAL COSTS						
IN-TOWN BRT PROGRAM						
Fixed Facilities						
Fixed Facilities (Iwilei-Waikiki Segment)	$72,690	$72,690	$7,030	$32,425	$33,235	
Fixed Facilities (Kalihi Segment)	$81,177	$81,177	$0	$7,851	$36,211	$37
Fixed Facilities (Downtown/University Segment)	$38,225	$38,225	$0	$0	$3,697	$17
Fixed Facilities (Kakaako Mauka)	$13,431	$13,431	$0	$0	$1,314	$12
Transit Centers (Iwilei and Middle St.)	$22,271	$22,271	$0	$2,154	$9,934	$10
Subtotal In-Town BRT Fixed Facilities	*$227,793*	*$227,793*	$7,030	$42,429	$84,390	$76
Net Cost for Hybrid-Electric Vehicles	*$15,446*	*$15,446*	$0	$7,628	$7,818	
Total In-Town BRT Program	*$243,239*	*$243,239*	*$7,030*	*$50,056*	*$92,209*	*$76,*
EMBEDDED PLATE TECHNOLOGY						
Fixed Facilities						
EPT (Iwilei-Waikiki)	$41,647	$41,647	$0	$0	$0	
EPT (Kalihi)	$16,865	$16,865	$0	$0	$0	
EPT (Downtown/University)	$33,481	$33,481	$0	$0	$0	
EPT (Kakaako Mauka)	$5,833	$5,833	$0	$0	$0	
Subtotal EPT Fixed Facilities	*$97,826*	*$97,826*	$0	$0	$0	
Net Cost of EPT Vehicles	*$31,246*	*$31,246*	$0	$0	$0	
Total Embedded Plate Technology	*$129,072*	*$129,072*	*$0*	*$0*	*$0*	
TOTAL IN TOWN AND EMBEDDED PLATE TECHNOLOGY	*$372,310*	*$372,310*	*$7,030*	*$50,056*	*$92,209*	*$76,*
REGIONAL BRT PROGRAM						
BRT Transit Centers and Parking	$31,744	$31,744	$0	$0	$0	$
BRT Zipper Lanes	$142,410	$142,410	$0	$0	$0	$1,
BRT Priority Ramp Improvements	$70,225	$70,225	$0	$0	$0	
Total Regional BRT Program	*$244,379*	*$244,379*	*$0*	*$0*	*$0*	*$2,*
TOTAL IN TOWN AND REGIONAL BRT PROGRAM	*$487,618*	*$487,618*	*$7,030*	*$50,056*	*$92,209*	*$78,*
TOTAL IN TOWN, EMBEDDED PLATE TECHNOLOGY, AND REGIONAL BRT PROGRAM	*$616,689*	*$616,689*	$7,030	$50,056	$92,209	$78,
SYSTEM-WIDE IMPROVEMENTS						
Bus Acquisitions	$356,426	$632,863	$23,194	$32,567	$31,931	$25,
TheHandi-Van Vehicle Acquisitions	$22,905	$43,817	$1,324	$0	$1,545	$1,
Bus Maintenance Facility	$35,668	$35,668	$0	$0	$0	
Kamehameha Highway Corridor and Transit Centers	$10,982	$10,982	$51	$3,907	$2,771	$4,
Subtotal System-Wide Improvements	*$425,982*	*$723,331*	*$24,569*	*$36,473*	*$36,247*	*$31,*
Total Capital Costs	*$1,042,671*	*$1,340,020*	*$31,599*	*$86,530*	*$128,456*	*$109,*
DEBT SERVICE PAYMENTS						
Debt Service Payments from Highway Fund on Bonds Issued before 2003	$279,823	$365,265	$19,568	$21,454	$22,324	$24,
Debt Service Payments from Highway Fund on Planned Future Notes & Bonds	$214,533	$473,533	$1,777	$3,127	$5,691	$10,
Debt Service Payments from Highway Fund on Additional Primary Corridor Bonds	$32,767	$104,159	$0	$0	$0	
Total Debt Service Payments from Highway Fund	*$527,123*	*$942,956*	*$21,345*	*$24,581*	*$28,016*	*$34,*
TOTAL CAPITAL AND DEBT SERVICE COSTS	*$1,569,794*	$2,282,976	$52,943	$111,110	$156,471	$144,
OPERATING COSTS						
Bus O&M	$2,244,369	$4,356,880	$122,407	$126,748	$131,245	$135,
TheHandi-Van O&M	$243,369	$468,249	$14,005	$14,460	$14,929	$15,
Total Operating Costs	*$2,487,738*	*$4,825,129*	*$136,411*	*$141,208*	*$146,174*	*$151,*

EFERRED ALTERNATIVE
FY 2003 - 2025 ($ YOE, 000)

3	2004	2005	2006	2007	2008	2009	2010	2011	2012
7,030	$32,425	$33,235	$0	$0	$0	$0	$0	$0	$0
$0	$7,851	$36,211	$37,116	$0	$0	$0	$0	$0	$0
$0	$0	$3,697	$17,051	$17,477	$0	$0	$0	$0	$0
$0	$0	$1,314	$12,117	$0	$0	$0	$0	$0	$0
$0	$2,154	$9,934	$10,183	$0	$0	$0	$0	$0	$0
7,030	$42,429	$84,390	$76,467	$17,477	$0	$0	$0	$0	$0
$0	$7,628	$7,818	$0	$0	$0	$0	$0	$0	$0
7,030	*$50,056*	*$92,209*	*$76,467*	*$17,477*	*$0*	*$0*	*$0*	*$0*	*$0*
$0	$0	$0	$0	$0	$0	$0	$3,983	$12,246	$12,552
$0	$0	$0	$0	$0	$0	$0	$0	$1,631	$7,523
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	$0	$0	$0	$0	$0	$0	$3,983	$13,877	$20,075
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$3,983*	*$13,877*	*$20,075*
7,030	$50,056	$92,209	$76,467	$17,477	$0	$0	$3,983	$13,877	$20,075
$0	$0	$0	$817	$7,536	$0	$826	$3,810	$5,358	$13,397
$0	$0	$0	$1,203	$11,658	$40,257	$48,528	$20,130	$20,634	$0
$0	$0	$0	$0	$0	$0	$6,596	$30,426	$31,384	$1,819
$0	*$0*	*$0*	*$2,020*	*$19,194*	*$40,257*	*$55,951*	*$54,367*	*$57,375*	*$15,216*
7,030	*$50,056*	*$92,209*	*$78,486*	*$36,671*	*$40,257*	*$55,951*	*$54,367*	*$57,375*	*$15,216*
7,030	$50,056	$92,209	$78,486	$36,671	$40,257	$55,951	$58,349	$71,253	$35,291
3,194	$32,567	$31,931	$25,270	$17,409	$18,350	$14,689	$11,815	$26,998	$16,447
1,324	$0	$1,545	$1,663	$1,624	$1,664	$1,706	$1,836	$1,792	$1,837
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$51	$3,907	$2,771	$4,253	$0	$0	$0	$0	$0	$0
4,569	*$36,473*	*$36,247*	*$31,186*	*$19,033*	*$20,014*	*$16,395*	*$13,651*	*$28,790*	*$18,284*
1,599	*$86,530*	*$128,456*	*$109,672*	*$55,703*	*$60,271*	*$72,345*	*$72,000*	*$100,043*	*$53,575*
9,568	$21,454	$22,324	$24,288	$22,577	$22,225	$22,210	$21,406	$21,002	$19,154
1,777	$3,127	$5,691	$10,119	$13,091	$14,904	$16,887	$18,325	$19,422	$20,519
$0	$0	$0	$0	$1,037	$1,179	$1,590	$2,885	$3,084	$3,855
1,345	*$24,581*	*$28,016*	*$34,407*	*$36,705*	*$38,308*	*$40,686*	*$42,616*	*$43,508*	*$43,529*
2,943	$111,110	$156,471	$144,079	$92,409	$98,580	$113,032	$114,616	$143,550	$97,103
2,407	$126,748	$131,245	$135,900	$143,472	$151,464	$159,902	$165,053	$170,371	$175,859
4,005	$14,460	$14,929	$15,415	$15,916	$16,433	$16,966	$17,518	$18,087	$18,674
5,411	*$141,208*	*$146,174*	*$151,315*	*$159,387*	*$167,897*	*$176,868*	*$182,572*	*$188,458*	*$194,533*

REFINED LOCALLY PREFERRED ALTERNATIVE
CASH FLOW ANALYSIS FY 2003 - 2025 ($ YOE, 000)

PRIMARY CORRIDOR TRANSPORTATION PROJECT REFINED LOCALLY PREFERRED ALTERNATIVE	14 YR TOTAL 2003-2016	23 YR TOTAL 2003-2025	2003	2004	2005
CAPITAL REVENUES					
FEDERAL TRANSIT ADMINISTRATION					
Section 5307 Urbanized Area Formula Funds	$222,514	$410,518	$3,547	$4,828	$23,229
Section 5309 Fixed Guideway Modernization	$20,839	$37,629	$1,305	$1,331	$1,357
Section 5309 Bus Discretionary	$47,744	$47,744		$9,631	$8,885
Section 5309 New Start - In-Town BRT	$186,155	$186,155	$3,515	$25,028	$45,000
Section 5309 New Start - Regional BRT	$55,845	$55,845	$0	$0	$0
Subtotal Federal Transit Administration	***$533,097***	***$737,891***	***$8,367***	***$40,818***	***$78,471***
FHWA/OTHER FEDERAL HIGHWAY REVENUE	***$139,659***	***$139,659***	***$0***	***$0***	***$0***
CITY GENERAL OBLIGATION BOND PROCEEDS FOR MASS TRANSIT PROGRAM					
CIP Bond Schedule (Within levels of 2003-2008 CIP)	$274,408	$364,395	$23,232	$45,712	$49,984
Additional Mass Transit Program Bonds	$95,508	$105,688			
Subtotal City General Obligation Bond Proceeds	***$369,916***	***$462,471***	***$23,232***	***$45,712***	***$49,984***
Total Capital Revenues	***$1,042,671***	***$1,340,020***	***$31,599***	***$86,530***	***$128,455***
REVENUES REQUIRED FOR DEBT SERVICE PAYMENTS					
Highway Fund	$451,891	$785,135	$21,345	$24,581	$28,016
Additional Revenue Required for Mass Transit Bond Debt Service	$75,232	$157,821	$0	$0	$0
Total Revenues Required for Debt Service Payments	***$527,123***	***$942,956***	***$21,345***	***$24,581***	***$28,016***
TOTAL REVENUES FOR CAPITAL AND DEBT SERVICE PAYMENTS	$1,569,794	$2,282,976	$52,944	$111,111	$156,471
OPERATING REVENUES					
Bus Passenger Fares	$617,204	$1,214,158	$33,050	$34,341	$35,681
TheHandi-Van Fares	$26,068	$50,152	$1,500	$1,549	$1,599
FTA Section 5307 Urbanized Area Formula (Preventive Maintenance)	$174,277	$320,017	$20,000	$20,000	$2,194
City Operating Support for Transit O&M	$1,670,190	$3,240,801	$81,861	$85,319	$106,701
Total O&M Revenues	***$2,487,738***	***$4,825,129***	***$136,411***	***$141,208***	***$146,174***
Changes to Cash	***$0***	***$0***	$0	$0	$0
BEGINNING CASH BALANCE	***$0***	***$0***	***$0***	***$0***	***$0***
CHANGES TO CASH BALANCE	***$0***	***$0***	***$0***	***$0***	***$0***
ENDING CASH BALANCE	***$0***	***$0***	***$0***	***$0***	***$0***

EFERRED ALTERNATIVE
FY 2003 - 2025 ($ YOE, 000)

3	2004	2005	2006	2007	2008	2009	2010	2011	2012
3,547	$4,828	$23,229	$17,344	$13,814	$17,555	$18,188	$15,127	$23,836	$9,072
1,305	$1,331	$1,357	$1,384	$1,412	$1,440	$1,469	$1,499	$1,528	$1,559
	$9,631	$8,885	$3,402						
3,515	$25,028	$45,000	$39,337	$8,739	$0	$0	$1,991	$6,939	$10,038
$0	$0	$0	$408	$3,768	$0	$3,711	$17,118	$23,231	$7,608
9,367	*$40,818*	*$78,471*	*$61,877*	*$27,732*	*$18,995*	*$23,368*	*$35,735*	*$55,535*	*$28,276*
$0	*$0*	*$0*	*$1,207*	*$11,587*	*$20,000*	*$20,000*	*$20,000*	*$20,000*	*$20,000*
3,232	$45,712	$49,984	$27,738	$13,805	$13,805	$13,805	$13,805	$13,805	$5,299
			$18,851	$2,579	$7,471	$15,172	$2,460	$10,703	
9,232	*$45,712*	*$49,984*	*$46,589*	*$16,384*	*$21,276*	*$28,977*	*$16,265*	*$24,508*	*$5,299*
1,599	*$86,530*	*$128,455*	*$109,673*	*$55,703*	*$60,271*	*$72,346*	*$72,000*	*$100,043*	*$53,575*
1,345	$24,581	$28,016	$33,509	$33,676	$33,845	$34,014	$34,184	$34,355	$34,527
$0	$0	$0	$898	$3,029	$4,464	$6,673	$8,432	$9,153	$9,002
1,345	*$24,581*	*$28,016*	*$34,407*	*$36,705*	*$38,308*	*$40,686*	*$42,616*	*$43,508*	*$43,529*
2,944	$111,111	$156,471	$144,080	$92,408	$98,579	$113,032	$114,616	$143,551	$97,104
3,050	$34,341	$35,681	$37,073	$39,199	$41,447	$43,826	$45,351	$46,929	$48,563
1,500	$1,549	$1,599	$1,651	$1,705	$1,760	$1,818	$1,876	$1,937	$2,001
0,000	$20,000	$2,194	$8,686	$12,838	$9,733	$9,750	$13,477	$5,448	$20,909
1,861	$85,319	$106,701	$103,905	$105,645	$114,956	$121,475	$121,867	$134,145	$123,060
5,411	*$141,208*	*$146,174*	*$151,315*	*$159,387*	*$167,897*	*$176,868*	*$182,572*	*$188,458*	*$194,533*
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*

REFINED LOCALLY PREFERRED ALTERNATIVE
CASH FLOW ANALYSIS FY 2003 - 2025 ($ YOE, 000)

PRIMARY CORRIDOR TRANSPORTATION PROJECT REFINED LOCALLY PREFERRED ALTERNATIVE	2013	2014	2015	2016	2017	2018	20
CAPITAL COSTS							
IN-TOWN BRT PROGRAM							
Fixed Facilities							
Fixed Facilities (Iwilei-Waikiki Segment)	$0	$0	$0	$0	$0	$0	
Fixed Facilities (Kalihi Segment)	$0	$0	$0	$0	$0	$0	
Fixed Facilities (Downtown/University Segment)	$0	$0	$0	$0	$0	$0	
Fixed Facilities (Kakaako Mauka)	$0	$0	$0	$0	$0	$0	
Transit Centers (Iwilei and Middle St.)	$0	$0	$0	$0	$0	$0	
Subtotal In-Town BRT Fixed Facilities	$0	$0	$0	$0	$0	$0	
Net Cost for Hybrid-Electric Vehicles	$0	$0	$0	$0	$0	$0	
Total In-Town BRT Program	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	
EMBEDDED PLATE TECHNOLOGY							
Fixed Facilities							
EPT (Iwilei-Waikiki)	$12,866	$0	$0	$0	$0	$0	
EPT (Kalihi)	$7,711	$0	$0	$0	$0	$0	
EPT (Downtown/University)	$3,202	$9,845	$10,091	$10,343	$0	$0	
EPT (Kakaako Mauka)	$0	$0	$570	$5,262	$0	$0	
Subtotal EPT Fixed Facilities	$23,779	$9,845	$10,661	$15,606	$0	$0	
Net Cost of EPT Vehicles	$15,430	$15,816	$0	$0	$0	$0	
Total Embedded Plate Technology	***$39,209***	***$25,661***	***$10,661***	***$15,606***	***$0***	***$0***	
TOTAL IN TOWN AND EMBEDDED PLATE TECHNOLOGY	$39,209	$25,661	$10,661	$15,606	$0	$0	
REGIONAL BRT PROGRAM							
BRT Transit Centers and Parking	$0	$0	$0	$0	$0	$0	
BRT Zipper Lanes	$0	$0	$0	$0	$0	$0	
BRT Priority Ramp Improvements	$0	$0	$0	$0	$0	$0	
Total Regional BRT Program	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	
TOTAL IN TOWN AND REGIONAL BRT PROGRAM	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	
TOTAL IN TOWN, EMBEDDED PLATE TECHNOLOGY, AND REGIONAL BRT PROGRAM	$39,209	$25,661	$10,661	$15,606	$0	$0	
SYSTEM-WIDE IMPROVEMENTS							
Bus Acquisitions	$32,278	$32,328	$28,264	$44,887	$45,194	$32,527	$34
TheHandi-Van Vehicle Acquisitions	$1,883	$2,026	$1,978	$2,028	$2,078	$2,237	$2
Bus Maintenance Facility	$0	$17,614	$18,054	$0	$0	$0	
Kamehameha Highway Corridor and Transit Centers	$0	$0	$0	$0	$0	$0	
Subtotal System-Wide Improvements	***$34,161***	***$51,969***	***$48,297***	***$46,915***	***$47,272***	***$34,763***	***$37,***
Total Capital Costs	***$73,370***	***$77,629***	***$58,958***	***$62,520***	***$47,272***	***$34,763***	***$37,***
DEBT SERVICE PAYMENTS							
Debt Service Payments from Highway Fund on Bonds Issued before 2003	$19,623	$16,560	$13,172	$14,260	$12,896	$12,789	$12,
Debt Service Payments from Highway Fund on Planned Future Notes & Bonds	$21,148	$22,146	$23,243	$24,132	$25,185	$26,283	$27,
Debt Service Payments from Highway Fund on Additional Primary Corridor Bonds	$4,227	$4,287	$4,904	$5,721	$6,654	$7,316	$7,
Total Debt Service Payments from Highway Fund	***$44,998***	***$42,993***	***$41,319***	***$44,114***	***$44,735***	***$46,387***	***$46,***
TOTAL CAPITAL AND DEBT SERVICE COSTS	$118,368	$120,622	$100,277	$106,634	$92,007	$81,151	$83,
OPERATING COSTS							
Bus O&M	$181,525	$187,373	$193,409	$199,640	$206,073	$212,710	$219,
TheHandi-Van O&M	$19,281	$19,908	$20,555	$21,223	$21,911	$22,624	$23,
Total Operating Costs	***$200,806***	***$207,281***	***$213,964***	***$220,863***	***$227,984***	***$235,334***	***$242,***

EFERRED ALTERNATIVE
FY 2003 - 2025 ($ YOE, 000)

	2017	2018	2019	2020	2021	2022	2023	2024	2025	TOTAL
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$72,690
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$81,177
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$38,225
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$13,431
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$22,271
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$227,793
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$15,446
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$243,239*
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$41,647
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$16,865
343	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33,481
262	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,833
506	$0	$0	$0	$0	$0	$0	$0	$0	$0	$97,826
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$31,246
506	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$129,072*
506	$0	$0	$0	$0	$0	$0	$0	$0	$0	$372,310
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$31,744
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$142,410
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$70,225
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$244,379*
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$487,618*
506	$0	$0	$0	$0	$0	$0	$0	$0	$0	$616,689
387	$45,194	$32,527	$34,835	$34,819	$30,034	$22,853	$16,287	$37,217	$22,672	$632,863
028	$2,078	$2,237	$2,183	$2,238	$2,294	$2,469	$2,410	$2,470	$2,532	$43,817
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$35,668
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$10,982
015	*$47,272*	*$34,763*	*$37,018*	*$37,057*	*$32,328*	*$25,322*	*$18,697*	*$39,688*	*$25,205*	*$723,331*
020	*$47,272*	*$34,763*	*$37,018*	*$37,057*	*$32,328*	*$25,322*	*$18,697*	*$39,688*	*$25,205*	$1,340,020
260	$12,896	$12,789	$12,163	$12,061	$10,689	$6,214	$6,211	$7,796	$4,622	$365,265
332	$25,185	$26,283	$27,122	$28,052	$28,953	$29,596	$30,619	$31,134	$32,055	$473,533
721	$6,654	$7,316	$7,679	$8,094	$8,319	$8,319	$8,319	$8,319	$8,374	$104,159
114	*$44,735*	*$46,387*	*$46,964*	*$48,208*	*$47,960*	*$44,129*	*$45,149*	*$47,249*	*$45,052*	$942,956
334	$92,007	$81,151	$83,982	$85,265	$80,288	$69,451	$63,846	$86,937	$70,256	$2,282,976
340	$206,073	$212,710	$219,563	$226,637	$233,938	$241,475	$249,255	$257,285	$265,574	$4,356,880
223	$21,911	$22,624	$23,358	$24,119	$24,902	$25,712	$26,546	$27,409	$28,299	$468,249
563	*$227,984*	*$235,334*	*$242,922*	*$250,756*	*$258,841*	*$267,186*	*$275,801*	*$284,695*	*$293,873*	*$4,825,129*

October 17, 2002

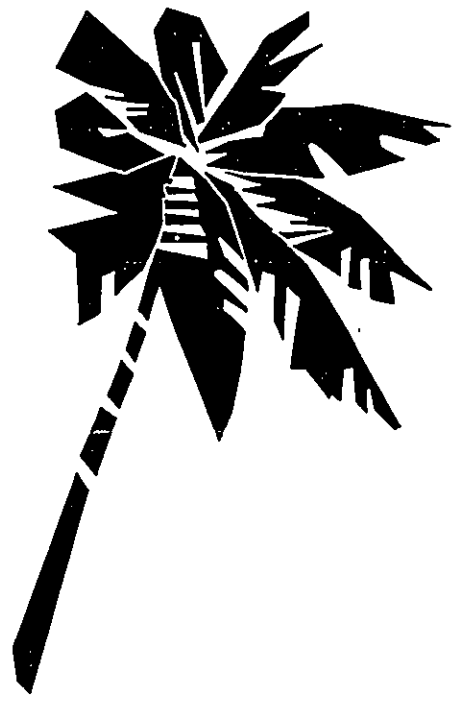
REFINED LOCALLY PREFERRED ALTERNATIVE
CASH FLOW ANALYSIS FY 2003 - 2025 ($ YOE, 000)

PRIMARY CORRIDOR TRANSPORTATION PROJECT REFINED LOCALLY PREFERRED ALTERNATIVE	2013	2014	2015	2016	2017	2018	20
CAPITAL REVENUES							
FEDERAL TRANSIT ADMINISTRATION							
Section 5307 Urbanized Area Formula Funds	$7,419	$22,983	$23,300	$22,274	$22,579	$23,894	
Section 5309 Fixed Guideway Modernization	$1,590	$1,622	$1,654	$1,688	$1,721	$1,756	
Section 5309 Bus Discretionary	$12,753	$13,072					
Section 5309 New Start - In-Town BRT	$19,604	$12,830	$5,331	$7,803	$0	$0	
Section 5309 New Start - Regional BRT	$0	$0	$0	$0	$0		
Subtotal Federal Transit Administration	***$41,367***	***$50,508***	***$30,285***	***$31,764***	***$24,301***	***$25,650***	
FHWA/OTHER FEDERAL HIGHWAY REVENUE	***$20,000***	***$6,864***	***$0***	***$0***	***$0***	***$0***	
CITY GENERAL OBLIGATION BOND PROCEEDS FOR MASS TRANSIT PROGRAM							
CIP Bond Schedule (Within levels of 2003-2008 CIP)	$12,003	$13,805	$13,805	$13,805	$13,805	$9,113	
Additional Mass Transit Program Bonds		$6,453	$14,868	$16,951	$9,167		
Subtotal City General Obligation Bond Proceeds	***$12,003***	***$20,258***	***$28,673***	***$30,756***	***$22,972***	***$9,113***	
Total Capital Revenues	***$73,370***	***$77,629***	***$58,958***	***$62,520***	***$47,272***	***$34,763***	
REVENUES REQUIRED FOR DEBT SERVICE PAYMENTS							
Highway Fund	$34,699	$34,873	$35,047	$35,222	$35,398	$35,575	
Additional Revenue Required for Mass Transit Bond Debt Service	$10,299	$8,120	$6,272	$8,891	$9,336	$10,812	
Total Revenues Required for Debt Service Payments	***$44,998***	***$42,993***	***$41,319***	***$44,114***	***$44,735***	***$46,387***	
TOTAL REVENUES FOR CAPITAL AND DEBT SERVICE PAYMENTS	**$118,368**	**$120,622**	**$100,277**	**$106,634**	**$92,007**	**$81,150**	
OPERATING REVENUES							
Bus Passenger Fares	$50,252	$52,001	$53,810	$55,682	$57,621	$59,627	
TheHandi-Van Fares	$2,065	$2,132	$2,201	$2,273	$2,346	$2,423	
FTA Section 5307 Urbanized Area Formula (Preventive Maintenance)	$23,275	$8,440	$8,869	$10,657	$11,133	$10,616	
City Operating Support for Transit O&M	$125,214	$144,708	$149,084	$152,251	$156,885	$162,669	
Total O&M Revenues	***$200,806***	***$207,281***	***$213,964***	***$220,863***	***$227,984***	***$235,334***	
Changes to Cash	$0	$0	$0	$0	$0	$0	
BEGINNING CASH BALANCE	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	
CHANGES TO CASH BALANCE	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	
ENDING CASH BALANCE	***$0***	***$0***	***$0***	***$0***	***$0***	***$0***	

FERRED ALTERNATIVE
Y 2003 - 2025 ($ YOE, 000)

	2017	2018	2019	2020	2021	2022	2023	2024	2025	TOTAL
274	$22,579	$23,894	$24,444	$25,006	$22,817	$17,229	$11,946	$22,892	$17,196	$410,518
388	$1,721	$1,756	$1,791	$1,827	$1,863	$1,900	$1,938	$1,977	$2,017	$37,629
003	$0	$0	$0	$0	$0	$0	$0	$0	$0	$47,744
$0	$0									$186,155
64	*$24,301*	*$25,650*	*$26,235*	*$26,832*	*$24,681*	*$19,130*	*$13,685*	*$24,869*	*$19,212*	$55,845
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$737,891*
										$139,659
305	$13,805	$9,113	$10,783	$10,225	$7,647	$13,805	$4,812	$13,805	$5,992	$364,395
951	$9,167							$1,014		$105,688
56	*$22,972*	*$9,113*	*$10,783*	*$10,225*	*$7,647*	*$6,193*	*$4,812*	*$14,819*	*$5,992*	*$470,083*
20	*$47,272*	*$34,763*	*$37,018*	*$37,057*	*$32,328*	*$25,323*	*$18,697*	*$39,687*	*$25,204*	*$1,347,632*
222	$35,399	$35,575	$35,753	$35,932	$36,112	$36,292	$36,474	$36,656	$45,052	$785,135
991	$9,336	$10,812	$11,211	$12,276	$11,848	$7,837	$8,675	$10,593	$0	$157,821
14	*$44,735*	*$46,387*	*$46,964*	*$48,208*	*$47,960*	*$44,129*	*$45,149*	*$47,249*	*$45,052*	*$942,956*
34	$92,007	$81,150	$83,982	$85,266	$80,288	$69,452	$63,846	$86,936	$70,256	$2,290,589
382	$57,621	$59,627	$61,702	$63,848	$66,071	$68,370	$70,749	$73,210	$75,758	$1,214,158
373	$2,346	$2,423	$2,502	$2,583	$2,667	$2,755	$2,844	$2,935	$3,032	$50,152
357	$11,133	$10,616	$10,883	$11,157	$14,200	$20,662	$26,840	$16,809	$23,442	$320,017
151	$156,885	$162,669	$167,836	$173,168	$175,904	$175,400	$175,368	$191,740	$191,641	$3,240,801
63	*$227,984*	*$235,334*	*$242,922*	*$250,756*	*$258,841*	*$267,186*	*$275,801*	*$284,695*	*$293,873*	*$4,825,129*
$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	
$0	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	

October 17, 2002



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Glossary

GLOSSARY

Arterial Roadway: A roadway with partial control of access, with some intersections at-grade and intended to move high volumes of traffic over long distances at high speed.

Articulated Vehicle: A vehicle, which is jointed in a fashion, which allows passenger access through the joint. Allows longer vehicles to turn at a shorter radius.

At-Grade: On the ground surface or that surface at which highest pedestrian and vehicular traffic occurs.

Below-Grade: Placed below the ground surface as with a subway.

Best Management Practices: Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce pollution. BMPs can also include treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Bus Lane: A lane of a road or street specifically designated for buses (may or may not be exclusive).

Bus Rapid Transit (BRT): BRT involves major investments in infrastructure, equipment, operational improvements, and technology that substantially upgrade bus system performance by providing faster operating speeds, greater reliability of service, and increased convenience and passenger amenities.

Capital Costs: Nonrecurring costs required to construct transit systems, including costs of right-of-way, facilities, rolling stock, power distribution, and the associated administrative and design costs, and financing charges during construction.

Carpool: A group of passengers and drivers organized to utilize one automobile on a regular basis, riding together, for the same trip purpose (generally the work trip).

Central Business District: The single business and commercial region, which dominates the financial life of an urban region and may also contain a very substantial portion of the specialty commercial activity.

Central Oahu: The DPA, which contains the wide plateau between the Waianae and Koolau Mountain ranges. It includes the more recently developed Mililani, Waipio, Waikele and Kunia. Portions within the primary transportation corridor include Waipahu, Kunia, Waikele and Waipahu.

Circulator: Circulator routes provide service within a neighborhood or activity center. These routes are designed to accommodate shorter passenger trips that either could not be served by line haul transit or would cause localized overcrowding on line haul routes. These routes typically connect to line haul routes at a commercial or activity center, and route alignment may be circuitous in order to provide more convenient passenger access and neighborhood coverage.

Collector: Collector routes provide service between residential areas and line haul routes. Some routes also operate through downtown Honolulu. Collector service often may be coordinated with a line haul route to reduce transfer wait time.

Consist: A make up of transit vehicles forming a train (e.g. 2, 4, 6, etc.)

Curb Lane: A road or street lane adjacent to the curb at its side.

DBA: Abbreviation for decibels of sound pressure as read on the "A" scale.

Development Plan Area (DPA): The City and County of Honolulu prepares a Development Plan (DP) for each of the eight DPAs on the island of Oahu, as defined by the General Plan. Each DPA has its own detailed land use and public facilities maps, as well as policies and conceptual schemes in line with the development objectives and policies in the General Plan.

Distribution: The process of letting passengers off at a number of different locations.

Elevated Guideway: A guideway, which is positioned above the normal activity level (e.g. elevated over a street).

Emissions: Particulate, gaseous, noise or electro-magnetic by-products of the transit system or vehicle.

Envelope: Definition of the vertical and horizontal space required for both the transit vehicle and/or the guideway.

Ewa: The DPA containing the second city of Kapolei, Barbers Point Naval Air Station, Campbell Industrial Park, and the Ewa villages. It is also used to indicate direction.

Express Service: Transit service where a very limited number of stops are made en route.

Fixed Guideway Modernization Program (FGM): Federal Transit Authority (FTA) 5309 Capital Investment Grants and Loans program used to help fund major transit capital improvement projects.

General Plan: The General Plan (revised 1992) of the City and County of Honolulu includes broad statements on the objectives and policies of the City and County with regard to overall physical and economic development of the island, as well as the health and safety of the island's residents.

General Obligation Bonds (G.O. Bonds or GO Bonds): Bonds the City and County of Honolulu issues to assist in paying for capital projects.

Grade-Separated: Crossing lines of traffic vertically separated from each other and do not share a common intersection.

Headway: The time interval between identical points on successive vehicles passing the same point along the way.

Heavy Rail Transit: *Rail transit mode characterized by exclusive grade-separated operation (aerial or* subway in many cases) and higher average operating speeds and passenger capacities. Usually heavy rail involves a higher degree of automation and central control than does light rail.

High-Occupancy Vehicle (HOV): Typically includes carpools with two or more people, vanpools, and buses.

Hub-and-Spoke Network: A transit structure, which is characterized by primary, or trunk, routes and collector routes that converge at transit centers throughout a service area. Collector, or feeder, routes serve residential areas or special generators and connect to trunk routes at transit centers. Hub-and-spoke represents an effective system design to minimize duplicative line haul service or connect relatively independent communities within a single metropolitan area.

Intelligent Transportation Systems (ITS): ITS are technologies that provide incident management, transit priority, and traveler information along major streets and highways.

Interchange: The system of interconnecting ramps between two or more intersecting roadways or guideways, which are grade-separated.

Koko Head: Geographical area in the southeast corner of Oahu. Used to indicate direction pointing to this area.

Kupuna Iwi: Ancestral native-Hawaiian burial site.

Level-of-Service (LOS): The LOS is an industry-accepted standard for measuring the efficiency of traffic conditions, with a LOS of A indicating the best traffic conditions and F indicating the worst.

Light Rail Transit (LRT): Transit mode characterized by its ability to operate in both at-grade and/or grade-separated environment, and usually operating in smaller trains consisting of 2, 4, or 6 vehicles.

Line Haul: A transit system, which offers service along a line or corridor.

Link: A representative portion of a transportation network, which joins two modes.

Linked Trip: Total passenger (fare-paying) trips. Linked trips exclude transfers; consequently, the number of linked trips must always be less than (or equal to) the number of unlinked (boarding) trips.

Local Service: A type of operation involving frequent stops and consequent low speeds, the purpose of which is to deliver and pick up transit passengers as close to their destinations or origins as possible.

Makai: Hawaiian terminology meaning direction pointing to the ocean.

Mauka: Hawaiian terminology meaning direction pointing to the mountains.

Mode: A particular form or method of travel.

Monorail: A guideway where vertical vehicle support and lateral guidance is provided by a single track or rail.

Network: A system of real or hypothetical interconnecting links that form the configuration of transit routes and stops, which constitute the total system.

No-Build Condition (No-Build): A project alternative, which includes the existing transportation system and conversion of the present predominately radial route structure to a hub-and-spoke configuration. Also included are highway improvement projects, which have been identified by OMPO I the TOP 2025. All elements of the No-Build Alternative also are part of each of the other alternatives. The No-Build Alternative also serves as the baseline for establishing environmental impacts of the other alternatives.

Off-Peak: Those periods of the day where demand for transit service is not at a maximum.

On-Demand: Transit service rendered upon the specific demand of a passenger

Operating Costs: Recurring costs incurred in operating transit systems, including wages and salaries, maintenance of facilities and equipment, fuel, supplies, employee benefits, insurance, taxes, and other administrative costs. Amortization of facilities and equipment is not included.

Park-and-Ride Facility: The transfer point of an intermodal trip where the driver of an automobile parks her or his automobile and changes to the transit mode.

Patronage: The number of person-trips carried by a transit system over a specified time period.

Peak Hour: The hour of the day in which the maximum demand for service is experienced.

Peak Period: A specified time period for which the volume of traffic is greater than that during other similar periods (i.e., peak hour, peak 5 minutes, etc.).

Person-trip: A trip made by a person by any travel mode.

Primary Transportation Corridor: The corridor extending from Kapolei to University of Hawaii at Manoa and Waikiki. The corridor is by far the most urban region on Oahu and in the State, encompassing more than 56 percent of the island's population and more than 80 percent of its employment.

Primary Urban Center (PUC): The DPA, which extends from Waialae-Kahala to Pearl City, and is bounded on the north (mauka) by the Koolau mountain range and on the south (makai) by the coastline. The PUC consists of 3 sub-regions: the Heart of Honolulu, the Salt Lake/Airport area, and the Heart of Pearl Harbor.

Queue jump lane: A queue jump lane is a short exclusive lane that allows buses to move to the head of a line of traffic.

Revenue Service: The time during which a transit vehicle is in service and available to passengers for transportation. This term also applies to revenue car-miles and to revenue car-hours. The time during which a vehicle is not available is deadheading time.

Right-of-Way (ROW): The corridor (horizontal and vertical space) occupied by the transportation way.

Route: The course followed by a transit vehicle as a part of the transit system.

Screenlines: Screenlines are imaginary lines or a distinct geographic features, such as a river, which cross transportation facilities being analyzed.

Section 4(f): Section 4(f) is from the U.S. Department of Transportation Act. It permits the use of land for a transportation project from a significant publicly-owned public park, recreation area, wildlife and waterfowl refuge, or a historic site, only when it has been determined that there is no feasible and prudent alternative to such use and the project includes all possible planning to minimize harm to the property resulting from such use.

Transfer: The portion of a trip between two connecting transit routes, both of which are used for completion of the trip.

Transit: A transportation system principally for moving people in an urban area and made available to the public usually through paying a fare.

Transitway: Specifically designed way traversed by transit vehicles constrained to the way.

Transit Center: Transit centers are transportation facilities also referred to as intermodal transfer facilities, transportation centers, stations, and terminals. They provide passengers access to the transportation system and are points of transfer between routes and/or modal interchange.

Transit Stop: The optional stop for a particular trip to leave the transit system.

Transportation Demand Measures (TDM): TDM elements include a variety of measures to reduce vehicle demands, including an integrated high-occupancy vehicle (HOV) lane system, park-and-ride lots, bicycle facilities, Transportation Management Associations (TMAs), and measures to encourage reductions in work trips.

Transportation System Management (TSM): TSM consists of transportation improvements designed to improve public transit service without major capital investments. TSM techniques include re-structuring of the bus route system, creation of transit centers and park-and-ride facilities, priority treatment for transit vehicles by signal control measures, and added service and/or frequency to major activity centers.

Travel Time: The time required to travel between two points, not including terminal or waiting time.

Trip: The one-way movement of one person between origin and destination, including the walk to and from the means of transportation.

Trips, Home-Based: Trips having either origin or destination at the home.

Trips, Non-Home Based: Trips having neither origin nor destination at the home.

Urban Core: The portion of the primary transportation corridor between Middle Street on the west and Waikiki/U.H. Manoa on the east.

Urbanized Area (UZA) Formula Grant Program: FTA Section 5307 grant program, which is a special program to fund capital improvement projects.

Zipper Lane: The zipper lane is a peak-period contraflow lane created by a movable barrier adjacent to the highway median. There is currently a zipper lane on a portion of H-1 to serve the Koko Head-bound peak morning traffic. Access is restricted to high-occupancy vehicles with either two or three or more occupants, depending on the time of operation, and motorcycles.

Acronyms

ACRONYMS

AAQS	-	Ambient Air Quality Standards
AASHTO	-	American Association of State Highway and Transportation Officials
ACHP	-	Advisory Council on Historic Preservation
ACOE	-	Army Corps of Engineers
ADA	-	Americans with Disabilities Act
AGT	-	Automated Guideway Transit
AMR	-	Aliamanu Military Reservation
APE	-	area of potential effect
ATDC	-	Aloha Tower Development Corporation
BMP	-	Best Management Practice
BRT	-	Bus Rapid Transit
BTU	-	British Thermal Units
CBD	-	Central Business District
CE	-	considered eligible
CERCLA	-	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	-	Comprehensive Environmental Response, Compensation, and Liability Information Systems
CFR	-	Code of Federal Regulations
CIP	-	Capital Improvement Program
CMP	-	Containment Management Plan
CO	-	carbon monoxide
CORRACTS	-	Corrective Action Reports
CZM	-	Coastal Zone Management
dB	-	decibels
dBA	-	decibels on A-weighted scale
DBEDT	-	State Department of Business, Economic Development, and Tourism
DE	-	determined eligible
DEIS	-	Draft Environmental Impact Statement
DHHL	-	Department of Hawaiian Home Lands
DLNR	-	Department of Land and Natural Resources
DOH	-	Department of Health
DOT	-	Department of Transportation
DP	-	Development Plan
DPA	-	Development Plan Area
DPP	-	Department of Planning and Permitting
DTS	-	Department of Transportation Services
EIS	-	Environmental Impact Statement
EISPN		Environmental Impact Statement Preparation Notice
EJC	-	Estate of James Campbell
EO	-	Executive Order
EPA	-	Environmental Protection Agency
ERNS	-	Emergency Response Notification System
FEIS	-	Final Environmental Impact Statement
FEMA	-	Federal Emergency Management Agency
FFPA	-	Federal Farmland Protection Act
FGM	-	Fixed Guideway Modernization
FHWA	-	Federal Highway Administration
FINDS	-	Facility Index System
FIRM	-	Flood Insurance Rate Maps
FTA	-	Federal Transit Administration

FWS	-	U.S. Fish & Wildlife Service
FY	-	Fiscal Year
GLA	-	Gross Leasable Area
GO	-	General Obligation
HAR	-	Hawaii Administrative Rules
HCC	-	Honolulu Community College
HCDA	-	Hawaii Community Development Authority
HCDCH	-	Housing and Community Development Corporation of Hawaii
HCHD	-	Hawaii Capitol Historic District
HDOH	-	Hawaii Department of Health
HDOT	-	Hawaii Department of Transportation
HECO	-	Hawaiian Electric Company
HIA	-	Honolulu International Airport
HOV	-	High Occupancy Vehicle
HR	-	Hawaii Register
HRS	-	Hawaii Revised Statutes
HMIRS	-	Hazardous Materials Incident Report System
HT	-	Heavy Trucks
HWMP	-	Honolulu Waterfront Master Plan
IMCP	-	Islandwide Mobility Concept Plan
IPT	-	Inductive Power Transfer
ITS	-	Intelligent Transportation Systems
KSBE	-	Kamehameha Schools / Bernice Pauahi Bishop Estate
Ldn	-	Day-Night equivalent sound level measured in dBA
LDV	-	Light-duty Vehicles
Leq	-	equivalent sound level measured in dBA
Lmax	-	maximum noise level measured in dBA
LOS	-	Level-of-Service
LOTMA	-	Leeward Oahu Transportation Management Association
LPA	-	Locally Preferred Alternative
LQG	-	large quantity generators
LRT	-	Light Rail Transit
LU	-	Landscape Units
LUO	-	Land Use Ordinance
LUST	-	Leaking Underground Storage Tank
MAGLEV	-	Magnetically Levitated Vehicles
MIS	-	Major Investment Study .
MLTS	-	Material Licensing Tracking System
MOA	-	Memorandum of Agreement
MOU	-	Memorandum of Understanding
MT	-	Medium Trucks
NAAQS	-	National Ambient Air Quality Standards
NAC	-	Noise Abatement Criteria
NASBP	-	Naval Air Station Barbers Point
NAS	-	Naval Air Station
NBC	-	Neal Blaisdell Center
NCHRP	-	National Cooperative Highway Research Program
NCP	-	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	-	National Environmental Policy Act
NFRAP	-	no further remedial action planned
NHL	-	National Historic Landmark
NHPA	-	National Historic Preservation Act
NMFS	-	National Marine Fisheries Service
NOA	-	Notice of Availability

NOI	-	Notice of Intent
NPL	-	National Priority List
NRC	-	Nuclear Regulatory Commission
NRCS	-	Natural Resources Conservation Service
NRHP	-	National Register of Historic Places
OCHMP	-	Oahu Commercial Harbors Master Plan
OHA	-	Office of Hawaiian Affairs
OMPO	-	Oahu Metropolitan Planning Organization
OR&L	-	Oahu Railway and Land Co.
ORTP	-	Oahu Regional Transportation Plan
OP	-	Office of Planning (formerly Office of State Planning)
PADS	-	PCB Activity Database System
PCB	-	polychlorinated biphenyls
PCTP	-	Primary Corridor Transportation Project
PE/FEIS		Preliminary Engineering/Final Environmental Impact Statement
PM	-	Particulate Matter
PPE	-	Personal Protective Equipment
PUC	-	Primary Urban Center
RAATS	-	RCRA Administration Action Tracking System
RCRA	-	Resource Conservation and Recovery Act
RCRIS	-	Resource Conservation and Recovery Information Systems
RCRIS-TSD	-	Resource Conservation and Recovery Information System (transport, store dispose)
ROD	-	Record of Decision
RORO	-	roll-on, roll-off
ROW	-	right-of-way
SCE	-	Southern California Edison
SCORP	-	State Comprehensive Outdoor Recreation Plan
SDEIS	-	Supplemental Draft Environmental Impact Statement
SDG&E	-	San Diego Gas and Electric
SDOH	-	See HDOH (Hawaii Department of Health)
SDOT	-	See HDOT (Hawaii Department of Transportation)
SHPD	-	State Historic Preservation Division
SHPO	-	State Historic Preservation Officer
SIAR	-	Sand Island Access Road
SIP	-	Statewide Implementation Plan
SLUC	-	State Land Use Commission
SMA	-	Special Management Area
SMF	-	Soil Management Facility
SOBA	-	Southern Oahu Basal Aquifer
SOODS	-	Southern Oahu Ocean Disposal Site
STIP	-	Statewide Transportation Improvement Plan
TAMC	-	Tripler Army Medical Center
TAZ	-	Transportation Analysis Zone
TBD	-	to be determined at a later date
TCP	-	traditional cultural properties
TDM	-	Transportation Demand Management
TIP	-	Transportation Improvement Program
TMA	-	Transportation Management Association
TMK	-	tax map key
TOD	-	transit oriented development
TOP	-	Transportation for Oahu Plan
TPSS	-	Traction Power Supply Station
TRI	-	Travel Rate Index

TRIS	-	Toxic Release Inventory System
TSCA	-	Toxic Substances Control Act
TSD	-	transport, store, dispose
TSM	-	Transportation System Management
UC	-	under construction
UH	-	University of Hawaii
UHHD	-	University of Hawaii Historic District
U.S.C.	-	United States Code
UST	-	underground storage tank
UZA	-	Urbanized Area
V/C	-	(traffic) Volume/Capacity Ratio
VHD	-	vehicle hours of delay
VHT	-	vehicle hours of travel
VMT	-	vehicle miles traveled
VPH	-	vehicles per hour

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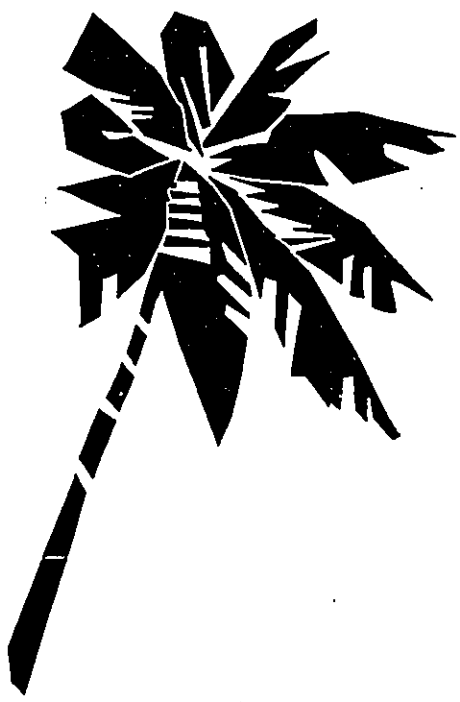
Final Environmental Impact Statement

Primary Corridor Transportation Project



List of Recipients

LIST OF FEIS RECIPIENTS

Federal Agencies

- Department of Agriculture, Natural Resources Conservation Service
- Department of Defense
  - Army Corps of Engineers
  - U.S. Department of the Navy
  - U.S. Naval Base Pearl Harbor
  - U.S. Army Garrison-Hawaii
  - 15th CES - Hickam AFB
- Department of the Interior
  - Fish & Wildlife Service
  - Geological Survey
  - National Park Service
- Department of Transportation
  - Federal Highway Administration (3)
  - Federal Transit Administration (3)
  - Federal Aviation Administration
  - Coast Guard
- Environmental Protection Agency (2)
- Federal Emergency Management Agency

State of Hawaii Agencies

- Aloha Tower Development Corporation
- Department of Agriculture
- Department of Accounting and General Services
- Department of Business, Economic Development & Tourism
  - Office of Planning
  - Housing and Community Development Corporation of Hawaii
  - Land Use Commission
  - Energy, Resources & Technology Division
  - Research and Economic Analysis Division
- Department of Defense
- Department of Education
- Department of Hawaiian Home Lands
- Department of Health, Environmental Planning Office (4)
- Department of Land and Natural Resources (5)
- Department of Transportation (10)
- Hawaii Community Development Authority
- Office of Environmental Quality Control (5)
- Office of Hawaiian Affairs
- University of Hawaii
  - Environmental Center (4)
  - Water Resources Research Center
  - Facilities Planning and Management Office
  - Hamilton Library

City and County of Honolulu Agencies

- Board of Water Supply
- Department of Design and Construction (3)
- Department of Environmental Services
- Department of Facility Maintenance
- Department of Parks and Recreation
- Department of Planning and Permitting (5)

- Department of Transportation Services, Committee for Accessible Transportation
- Fire Department
- Honolulu Municipal Reference and Records Center (3)
- Mayor's Advisory Committee on Bicycling
- Police Department
- Transportation Commission (7)

Elected Officials

- U.S. Congress
  - Honorable Daniel K. Akaka
  - Honorable Daniel K. Inouye
  - Honorable Neil Abercrombie
  - The Office of the late Patsy Mink
- State of Hawaii Legislature
  - Honorable Jan Buen, State Senator
  - Honorable Robert Bunda, State Senator
  - Honorable Suzanne Chun Oakland, State Senator
  - Honorable Carol Fukunaga, State Senator
  - Honorable Colleen Hanabusa, State Senator
  - Honorable Fred Hemmings, State Senator
  - Honorable Bob Hogue, State Senator
  - Honorable David Y. Ige, State Senator
  - Honorable Les Ihara, Jr., State Senator
  - Honorable Lorraine Inouye, State Senator
  - Honorable Brian Kanno, State Senator
  - Honorable Calvin K. Kawamoto, State Senator
  - Honorable Donna Mercado Kim, State Senator
  - Honorable Matt Matsunaga, State Senator
  - Honorable Ron Menor, State Senator
  - Honorable Bob Nakata, State Senator
  - Honorable Norman Sakamoto, State Senator
  - Honorable Sam Slom, State Senator
  - Honorable Rod Tam, State Senator
  - Honorable Brian Taniguchi, State Senator
  - Honorable Felipe Abinsay Jr., State Representative
  - Honorable Lei Ahu Isa, State Representative
  - Honorable Dennis Arakaki, State Representative
  - Honorable Emily Auwae, State Representative
  - Honorable Ben Cabreros, State Representative
  - Honorable Ed Case, State Representative
  - Honorable Charles Djou, State Representative
  - Honorable Willie C. Espero, State Representative
  - Honorable Galen Fox, State Representative
  - Honorable Nestor Garcia, State Representative
  - Honorable Joe Gomes, State Representative
  - Honorable Ken Hiraki, State Representative
  - Honorable Ken Ito, State Representative
  - Honorable Mindy Jaffe, State Representative
  - Honorable Michael P. Kahikina, State Representative
  - Honorable Marilyn Lee, State Representative
  - Honorable Bertha F.K. Leong, State Representative
  - Honorable Sylvia Luke, State Representative
  - Honorable Michael Magaoay, State Representative
  - Honorable Barbara Marumoto, State Representative

  - Honorable Bob McDermott, State Representative
  - Honorable Colleen Meyer, State Representative
  - Honorable Mark Moses, State Representative
  - Honorable Bob Nakasone, State Representative
  - Honorable Guy Ontai, State Representative
  - Honorable Blake Oshiro, State Representative
  - Honorable Marcus R. Oshiro, State Representative
  - Honorable David Pendleton, State Representative
  - Honorable Jim Rath, State Representative
  - Honorable Scott Saiki, State Representative
  - Honorable Calvin Say, State Representative
  - Honorable Brian Schatz, State Representative
  - Honorable Joseph Souki, State Representative
  - Honorable William Stonebraker, State Representative
  - Honorable Nathan Suzuki, State Representative
  - Honorable Mark Takai, State Representative
  - Honorable Roy Takumi, State Representative
  - Honorable Cynthia Thielen, State Representative
  - Honorable Noboru Yonamine, State Representative
  - Honorable Terry Nui Yoshinaga, State Representative
- City Council
  - Honorable Duke Bainum
  - Honorable Darrlyn Bunda
  - Honorable Romy Cachola
  - Honorable John DeSoto
  - *Honorable Steve Holmes*
  - Honorable John Henry Felix
  - Honorable Ann Kobayashi
  - Honorable Gary Okino
  - Honorable Jon Yoshimura

<u>Libraries</u>

- Legislative Reference Bureau
- DBEDT Library
- State Main Library
- Kaimuki Regional Library
- Hilo Regional Library
- Kahului Public Library (Maui Regional Library)
- Lihue Regional Library
- Kaneohe Regional Library
- Pearl City Regional Library
- Hawaii Kai Regional Library
- Aiea Library
- Aina Haina Library
- Ewa Beach Community – School Library
- Kahuku Community – School Library
- Kailua Library
- Kalihi-Palama Library
- Library for the Blind and Physically Handicapped
- Liliha Library
- Manoa Library
- McCully-Moiliili Library
- Mililani Library
- Salt Lake-Moanalua Public Library

- Wahiawa Library
- Waialua Library
- Waianae Library
- Waikiki-Kapahulu Library
- Waimanalo Community – School Library
- Waipahu Library

Neighborhood Boards and Community Groups

- Neighborhood Boards
  - Kaimuki Neighborhood Board No. 4
  - Diamond Head/Kapahulu/St. Louis Heights Neighborhood Board No. 5
  - Palolo Neighborhood Board No. 6
  - Manoa Neighborhood Board No. 7
  - McCully/Moiliili Neighborhood Board No. 8
  - Waikiki Neighborhood Board No. 9
  - Makiki/Lower Punchbowl/Tantalus Neighborhood Board No. 10
  - Ala Moana/Kakaako Neighborhood Board No. 11
  - Nuuanu/Punchbowl Neighborhood Board No. 12
  - Downtown Neighborhood Board No. 13
  - Liliha/Kapalama Neighborhood No. 14
  - Kalihi Palama Neighborhood Board No. 15
  - Kalihi Valley Neighborhood Board No. 16
  - Aliamanu/Salt Lake/Foster Village Neighborhood Board No. 18
  - Aiea Neighborhood Board No. 20
  - Pearl City Neighborhood Board No. 21
  - Waipahu Neighborhood Board No. 22
  - Ewa Neighborhood Board No. 23
  - Waianae Coast Neighborhood Board No. 24
  - Mililani/Waipio/Melemanu Neighborhood Board No. 25
  - Makakilo/Kapolei/Honokai Hale Neighborhood Board No. 34
- Harbor Square Condominium Association
- Kakaako Improvement Association
- Kalihi-Palama Community Council
- Waipahu Community Association

News Media

- Honolulu Advertiser
- Honolulu Star-Bulletin

Organizations

- American Public Works Association, Hawaii Chapter
- Building Industry Association of Hawaii
- C.A.R.E. (Citizens Advocating Responsible Education)
- Consulting Engineers Council of Hawaii (now American Council of Engineering Companies of Hawaii)
- General Contractors Association of Hawaii
- Hawaii Activities and Tours Association
- Hawaii Attractions Association
- Hawaii Bicycling League
- Hawaii Construction Industry Association
- Hawaii Hotel Association
- Hawaii Teamsters and Allied Workers, Local 996
  - Robert Costa, Sr.
  - T.K. Hanneman
  - Mel Kahele

  - Pat Kahele
- Hawaii's Thousand Friends
- Hawaii Transportation Association
- Iolani Palace
- Kapiolani Park Preservation Society
- Land Use Research Foundation of Hawaii
- The League of Women Voters of Honolulu
- Leeward Oahu Transportation Management Association (LOTMA)
- The Libertarian Party of Hawaii
- Life of the Land
- Na Leo Pohai, The Public Policy Affiliate of The Outdoor Circle
- Oahu Metropolitan Planning Organization
- The Outdoor Circle
- Sierra Club, Hawaii Chapter
- Waikiki Improvement Association

Businesses

- Ala Moana Center
- Architects Hawaii Limited
- Charley's Taxi
- E Noa Corporation
- Estate of James Campbell
- Hawaiian Electric Company
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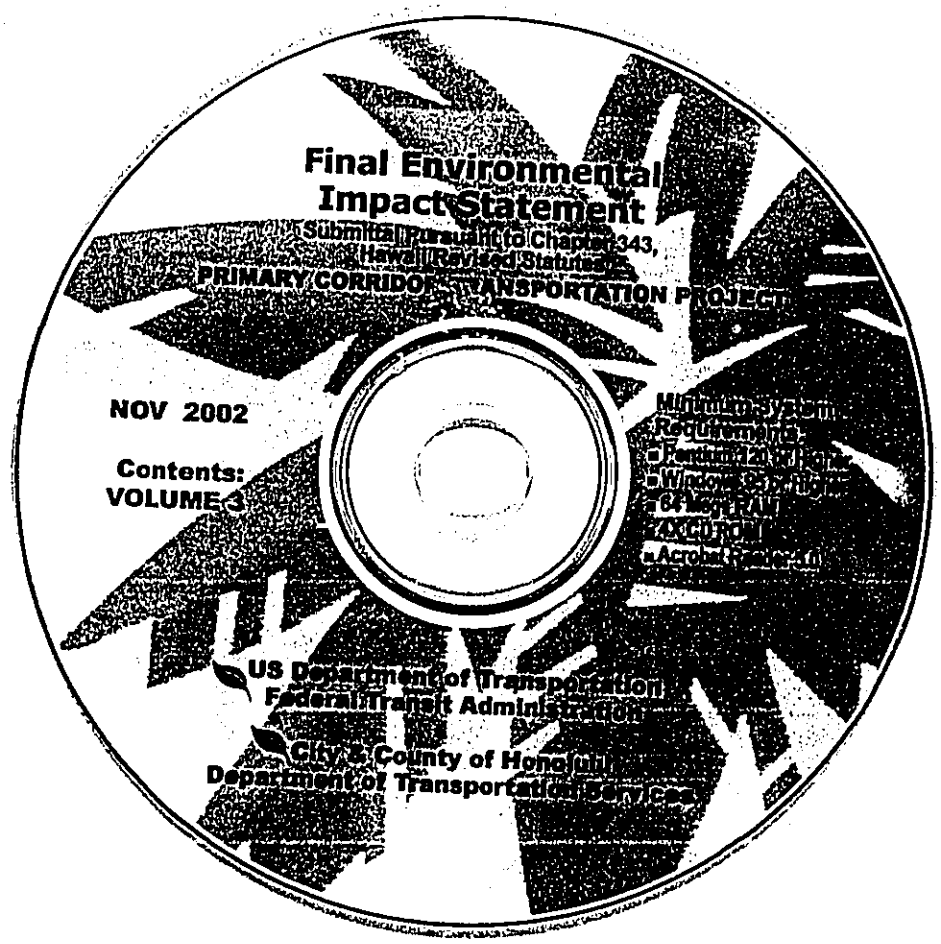
Final Environmental
Impact Statement
Submittal Pursuant to Chapter 343,
Hawai'i Revised Statutes, for
PRIMARY CORRIDOR TRANSPORTATION PROJECT
NOV 2002
Contents:
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US Department of Transportation
Federal Transit Administration
City & County of Honolulu
Department of Transportation Services

Final Environmental Impact Statement

Submittal Pursuant to
Chapter 343, Hawai'i Revised Statutes

Primary Corridor Transportation Project

City and County of Honolulu
Department of Transportation Services

NOVEMBER 2002