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CHAPTER

Section 4(f) Evaluation

This chapter provides documentation necessary to support determinations required to comply with the provisions of 23 USC 138 and 49 USC 303 (hereinafter referred to as "Section 4(f)") and its implementing regulations codified at 23 CFR 774.

5.1 Changes to this Chapter since the Draft Environmental Impact Statement

This chapter has been revised since the Draft Environmental Impact Statement (EIS) to respond to public comments; to reflect the identification of the Airport Alternative as the Preferred Alternative—herein identified as the "Project"; and to address changes resulting from continued consultation between the U.S. Department of Transportation (USDOT) Federal Transit Administration (FTA), the State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation (ACHP), and the agencies having jurisdiction over Section 4(f) park properties. A more comprehensive constructive use evaluation was conducted for this Final EIS that analyzed historic properties determined to have an adverse effect under Section 106 (16 USC 470) and no direct use of the property.

While this Final EIS evaluates the effects of the Airport Alternative and the No Build Alternative, this chapter also assesses the Salt Lake Alternative as a potentially prudent and feasible alternative to avoiding use of Section 4(f) properties in the portion of the study corridor where the two alignments diverge (Section 5.8, Least Overall Harm). In addition, ongoing agency consultation resulted in the refinement of measures to minimize harm and mitigation for the use of public recreation and historic properties. Further consultation with the SHPO subsequent to the Draft EIS resulted in revised Section 106 effects determinations for several historic properties (see Section 4.16, Archaeological, Cultural, and Historic Resources), which then influenced the number of Section 4(f) properties evaluated and the use determinations made in this chapter. The SHPO determined that one historic property identified in the Draft EIS (Solmirin House) was not eligible for inclusion in the National Register of Historic Places (NRHP). Consequently, it was removed from consideration

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in the Final EIS and this Section 4(f) evaluation. Note: In the State of Hawai'i, the governor appoints the SHPO. The SHPO is the Chairperson of the Department of Land and Natural Resources (DLNR). The State Historic Preservation Division (SHPD) is a division within DLNR, and it is also where the deputy SHPO is located. In fulfilling Federal and State historic preservation requirements, the Project consulted with the SHPO through the SHPD. SHPD and SHPO are used interchangeably throughout this chapter unless otherwise indicated.

In the Draft EIS, it was determined that the Airport Alternative would result in a direct use of six historic properties and one park property (Ke'ehi Lagoon Beach Park), *de minimis* impacts to four historic properties and two park properties (Aloha Stadium and the future Queen Street Park), and no temporary occupancy of Section 4(f) properties. Consultation with the SHPO subsequent to the Draft EIS resulted in revised Section 106 effects determinations to four properties from no adverse effect to adverse effect—United States Naval Base Pearl Harbor National Historic Landmark (NHL), Six Quonset Huts, Chinatown Historic District, and HECO Downtown Plant and Leslie A. Hicks Building. The Draft EIS stated that the impact to these properties would be *de minimis*. Since *de minimis* impact applies to historic properties that have a no adverse effect determination under Section 106, avoidance alternatives are included in this Final EIS for these properties, except for the United States Naval Base Pearl Harbor NHL. For this historic property, the makai station entrance of the Pearl Harbor Naval Base Station was eliminated from the Project to avoid the direct use of this property. Similarly, the makai station entrance of the Aloha Stadium Station was also eliminated from the Project to minimize use of the property. Therefore, there is no direct use of the Pearl Harbor NHL, as documented in this Final EIS Section 4(f) Evaluation.

In this Final EIS, the Section 4(f) evaluation concludes that the Project will result in direct use to 11 historic properties, *de minimis* impacts to 2 historic properties, and *de minimis* impacts to 2 park and recreational properties (Aloha Stadium and Ke'ehi Lagoon Beach Park). The Pacific War Memorial Site is a multi-use property on which the Project is expected to have *de minimis* impact.

Pursuant to 23 CFR 774.5(b)(1), FTA has notified ACHP and the SHPO of its intent to make a *de minimis* impact determination on the two historic properties that were determined to have a no adverse effect under Section 106 (Boulevard Saimin and O'ahu Railway & Land Company Basalt Paving Blocks and Former Filling Station).

Following publication of the Draft EIS, the Hawai'i Community Development Authority (HCDA) expressed concern about the Project's direct use of the future Queen Street Park. In response, to avoid direct use of the park, the design of the guideway was shifted away from the park and will be constructed in the median of Queen Street. As a result, there will be no use of the park, as documented in this Final EIS Section 4(f) evaluation.

Since publication of the Draft EIS, the City has furthered its preliminary design of the preferred site for the maintenance and storage facility near Leeward Community College, which includes the construction of an underground stormwater outfall drainage pipe. The Project will result in the temporary occupancy of two recreational properties during installation of this underground pipe through the future Middle Loch Park and the Pearl Harbor Bike Path (Section 5.7, Temporary Occupancy of Section 4(f) Properties). Additionally, to avoid impacts to airport operations within the runway protection zone, the project alignment was refined to transition from Aolele Street to Ualena Street to Waiwai Loop, where it enters Ke'ehi Lagoon Beach Park mauka of the main entrance. There will be less use of this recreational

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property than was presented in the Draft EIS but the refined alignment is closer to one historic property (Hawai'i Employers Council). This Final EIS Section 4(f) evaluation includes the refined alignment in the discussion of least overall harm in Section 5.8.

Following the public comment period on the Draft EIS, FTA subsequently determined that the use of Ke'ehi Lagoon Beach Park, along with the City's commitment to measures to minimize harm and mitigation of impacts as discussed in Section 5.5.1, will have a *de minimis* impact to the park. The City and County of Honolulu (City) Department of Parks and Recreation (DPR), the agency with jurisdiction over this property, has been informed of FTA's intent to make a *de minimis* impact finding. DPR concurs that after mitigation, the Project will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection.

Based on Draft EIS comments from DLNR, the City reevaluated the use of the Pacific War Memorial Site. The DLNR Division of State Parks (DLNR-Parks) oversees the Ke'ehi Memorial Organization and the Hawaii Disabled American Veterans (KMO-DAV) who maintain the property. KMO-DAV manages the property for multiple uses, including memorial and recreational uses. The Project will be constructed on the mauka edge of this property. FTA determined that the use of the Pacific War Memorial Site along with the City's commitments to measures to minimize harm and mitigation of impacts as discussed in Section 5.5.1, will have a *de minimis* impact to the property. DLNR-Parks, the agency with jurisdiction over this property, has been informed of FTA's intent to make a *de minimis* impact finding. DLNR-Parks concurs that after mitigation, the Project will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection.

Notice is hereby provided for public review and comment concerning the effects of the Project on the activities, features, and attributes of Ke'ehi Lagoon Beach Park and Pacific War Memorial Site. Section 4(f) *de minimis* comments may be submitted to FTA and the City Department of Transportation Services (DTS) during the 30 days following the Federal Register Notice of Availability for this Final EIS. FTA will make a final determination in the Record of Decision after reviewing the public comments submitted.

5.2 Introduction

The Project, as described in Chapter 2, Alternatives Considered, is a transit project that may receive Federal funding and/or discretionary approvals through the FTA; therefore, compliance with Section 4(f) is required. Section 4(f) protects publicly owned land of parks, recreational areas, and wildlife refuges. Section 4(f) also protects historic sites of National, State, or Local significance located on public or private land. These are commonly referred to as Section 4(f) properties. Federal regulations that implement Section 4(f) are found in 23 CFR 774.

5.2.1 Section 4(f) Determinations

FTA may not approve the use of a Section 4(f) property, as defined in 23 CFR 774.17, unless it determines the following:

- There is no feasible and prudent avoidance alternative, as defined in Section 774.17, to the use of land from the property.
- The action includes all possible planning, as defined in Section 774.17, to minimize harm to the property resulting from such use.

Section 4(f) regulations further require consultation with the Department of the Interior and, as appropriate, the involved offices of the Department of Agriculture (USDA) and the Department of Housing and Urban Development (HUD), as well as relevant State and Local officials, in developing

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transportation projects and programs that use lands protected by Section 4(f). Consultation with the USDA would occur whenever a project uses Section 4(f) land from the National Forest System. Consultation with HUD would occur whenever a project uses Section 4(f) land for/on which certain HUD funding had been used. Since neither of these conditions apply to the Project, consultation with the USDA and HUD is not required.

5.2.2 *De minimis* Impact Determinations

Alternatively, FTA may determine that the use of a Section 4(f) property is *de minimis*.

Section 4(f) regulations are satisfied if it is determined that a transportation project would have a "*de minimis* impact" on the Section 4(f) property. The provision allows avoidance, minimization, mitigation, and enhancement measures to be considered in making the *de minimis* determination. The agencies with jurisdiction must concur in writing with the determination. *De minimis* impact is defined in 23 CFR 774.17 as follows:

- For historic sites, *de minimis* impact means that the FTA has determined, in accordance with 36 CFR 800, that no historic property is affected by the project or the project would have "no adverse effect" on the property in question. The SHPO and Advisory Council on Historic Preservation (ACHP), if involved, must be notified that the FTA intends to enter a *de minimis* finding for properties where the project results in "no adverse effect."
- For parks, recreational areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

For historic sites, consultation with the SHPO is required. For recreational properties, consultation with the agency having jurisdiction over the properties is required. For sites that are part of a National Historic Landmark, consultation with the Department of the Interior's National Park Service (NPS) is required. This Section 4(f) evaluation has been prepared in accordance with 49 USC 303 and the joint Federal Highway Administration (FHWA)/FTA regulations for Section 4(f) compliance codified as 23 CFR 774. Additional guidance has been obtained from FHWA Technical Advisory T6640.8A (FHWA 1987b) and the revised *FHWA Section 4(f) Policy Paper* (FHWA 2005).

5.2.3 Section 4(f) "Use" Definitions

As defined in 23 CFR 774.17, the "use" of a protected Section 4(f) property occurs when any of the conditions discussed below are met.

Direct Use

A direct use of a Section 4(f) property occurs when property is permanently incorporated into a proposed transportation project. This may occur as a result of partial or full acquisition of a fee simple interest, permanent easement, or temporary easement that exceed regulatory limits noted below.

Constructive Use

A constructive use of a Section 4(f) property occurs when a transportation project does not permanently incorporate land from the property, but the proximity of the project results in impacts (e.g., noise, vibration, visual, and property access) so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only if the protected activities, features, or attributes of the property are substantially diminished (23 CFR 774.15).

Temporary Occupancy

A temporary use of a Section 4(f) property occurs when there is a temporary occupancy of property that is considered adverse in terms of the preservationist purpose of the Section 4(f) statute. Under the FHWA/FTA regulations (23 CFR 774.13), a temporary occupancy of property does not consti-

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tute a use of a Section 4(f) property when all the following conditions are satisfied:

- Duration is temporary (i.e., less than the time needed for construction of the project), and there is no change in ownership of the land
- Scope of work is minor (i.e., both the nature and magnitude of the changes to the Section 4(f) property are minimal)
- There are no anticipated permanent adverse physical impacts, nor is there interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis
- The land being used will be fully restored (i.e., the property must be returned to a condition that is at least as good as that which existed prior to the project)
- There is a documented agreement of the official(s) having jurisdiction over the Section 4(f) property regarding the above conditions

5.3 Alternatives Evaluation and Description of the Project

5.3.1 Alternatives Evaluation

Chapter 2 of this Final EIS documents how alternatives were developed, evaluated, and refined. During the Alternatives Analysis process, alternative corridors and modal alternatives were considered to identify transportation solutions to meet the Project's Purpose and Need. No alternative was identified that would completely avoid Section 4(f) properties while meeting the Project's Purpose and Need. As discussed in Chapter 2, while the No Build and Transportation System Management Alternatives would not use any Section 4(f) properties, these Alternatives would compromise the Project to the degree that it would not meet the Project's Purpose and Need. Therefore, these Alternatives would not be prudent as defined under 23 CFR 774.17.

As discussed in Section 2.2, Alternatives Screening and Selection Process, of this Final EIS, a range of modal options, transit technologies, and alternative alignments were considered and eliminated during the Alternatives Analysis phase for a variety of transportation, operational, cost, and environmental reasons. The Alternatives Analysis concluded that only the Fixed Guideway Alternative met the Project's Purpose and Need and, therefore, the Build Alternatives for this alternative were further evaluated in the Draft EIS and this Final EIS.

In the Alternatives Analysis, the project was divided into five sections. Within each section, several alternative alignments were considered. In addition to transportation operations, the evaluation criteria included consideration of potential environmental consequences, including an evaluation of impacts to archaeological, cultural, historic resources; parklands; displacements of businesses and residences; and impacts to waters of the United States.

As described in Section 5.8, both the Salt Lake Alternative and the Airport Alternative would result in use of Section 4(f) properties. Based on an assessment of the transportation benefits, public comments, and environmental analysis, this Section 4(f) evaluation documents that the Airport Alternative would result in the least overall harm and greatest improvement to corridor mobility. This chapter documents that there is no prudent and feasible alternative, as defined in 23 CFR 774.17, to the use of land from Section 4(f) properties, and the Project includes all possible planning, as defined in 23 CFR 774.17, to minimize harm to the use of Section 4(f) properties.

The avoidance of Section 4(f) properties was an important consideration in designing and screening the alternatives under consideration. As a result of this approach, the majority of public parks, recreational properties, and historic properties

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identified within the study corridor are avoided by the Project's design and location.

In the Draft EIS and this Final EIS, the Build Alternatives were refined as the design phase evolved, with site-specific shifts occurring in the alignment or placement of individual station elements to avoid, where feasible, Section 4(f) properties. Through this iterative process, the number of Section 4(f) properties affected by the Project includes all possible measures to reduce harm and minimize the use of Section 4(f) properties (see Appendix B, Preliminary Alignment Plans and Profiles).

5.3.2 Description of the Project

The Project is the construction and operation of a 20-mile, elevated fixed guideway transit system along the Airport Alignment, extending from East Kapolei to Ala Moana Center. The Project will begin in East Kapolei by following North-South Road and other future roadways to Farrington Highway. The guideway will follow Farrington Highway Koko Head on an elevated structure and continue along Kamehameha Highway to the vicinity of Aloha Stadium.

The Project will continue along Kamehameha Highway makai past Aloha Stadium to Nimitz Highway and turn makai onto Aolele Street and then follow Aolele Street, Ualena Street, and Waiwai Loop Koko Head to reconnect to Nimitz Highway near Moanalua Stream and continue to the Middle Street Transit Center. From Middle Street, the guideway will follow Dillingham Boulevard Koko Head to the vicinity of Ka'aahi Street and then turn makai to connect to Nimitz Highway in the vicinity of Iwilei Road.

The alignment will follow Nimitz Highway Koko Head to Halekauwila Street and then proceed along Halekauwila Street past Ward Avenue, where it will transition to Queen Street and Kona Street. The guideway will run above Kona Street through Ala Moana Center.

The Project includes 21 stations and supporting facilities, including a maintenance and storage facility (preferred site option near Leeward Community College), transit centers, park-and-ride lots, a parking structure, and traction power substations.

5.4 Description of Section 4(f) Properties

Properties subject to Section 4(f) evaluation include publicly owned parks; recreational areas; wildlife refuges of National, State, or Local significance; and historic properties of National, State, or Local significance, either privately or publicly owned. Figures 5-1 through 5-4 show the location of Section 4(f) and historic properties along the project alignment and the Salt Lake Alternative alignment that are discussed in this evaluation in the analysis of least overall harm (Section 5.8).

As described in Section 4.5, Community Services and Facilities, 11 public parks and recreational properties and the Pacific War Memorial Site, which is a multi-use property that is being considered a park for this Section 4(f) evaluation, are adjacent to the project alignment (Table 5-1).

Public school playgrounds, ball fields, and recreational areas are potential Section 4(f) properties if they are open to the public for recreational use. The nine public school recreational areas adjacent to the Project are not open to the public for general recreational use and, therefore, have not been included in this Section 4(f) evaluation.

FTA, in consultation with SHPO, has determined the Area of Potential Effects (APE) and effect of the Project on historic properties listed in the NRHP or eligible for listing in the NRHP for the purposes of compliance with Section 106 of the National

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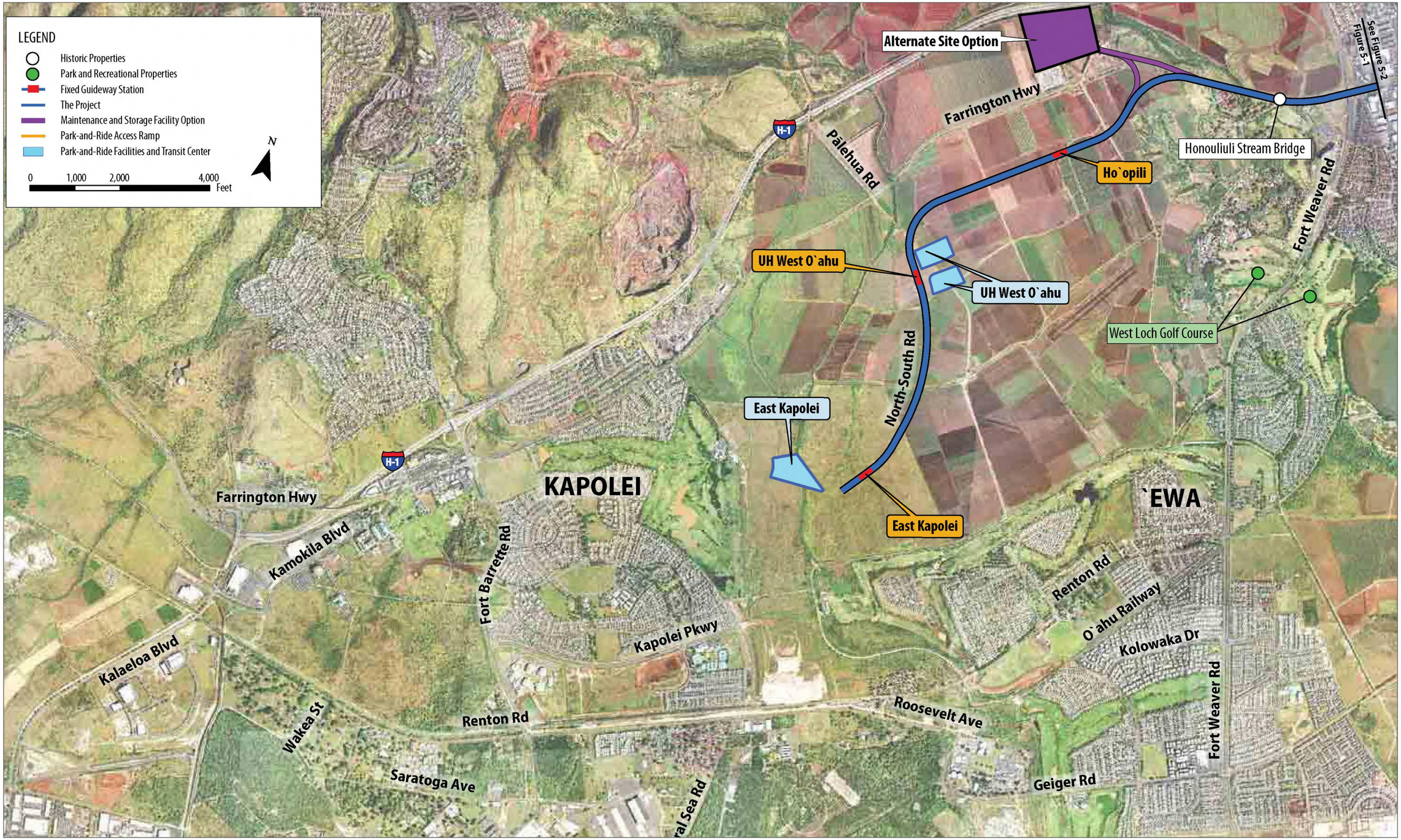

Figure 5-1 Historic, Park and Recreational Properties (East Kapolei to Fort Weaver Road)

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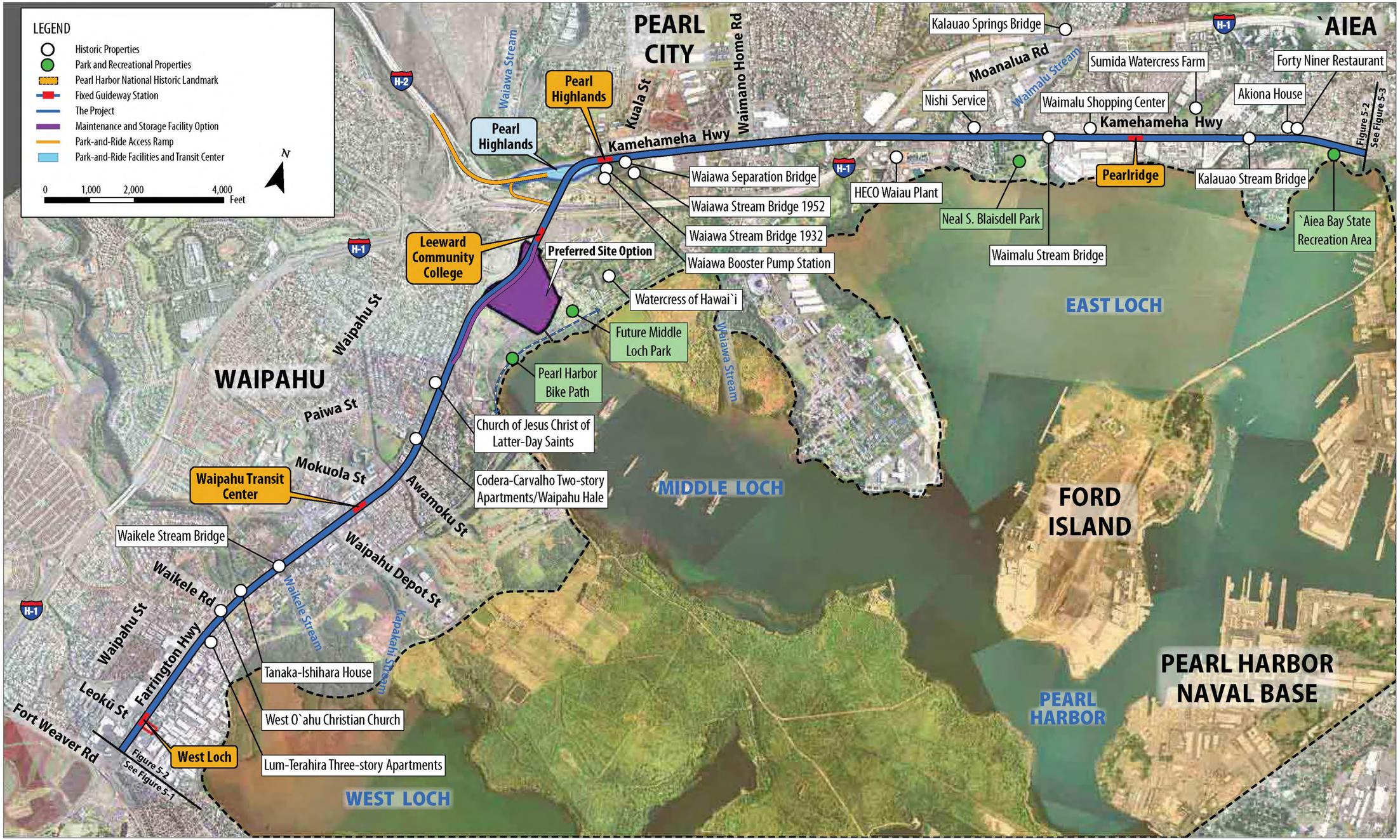

Figure 5-2 Historic, Park and Recreational Properties (Fort Weaver Road to Aloha Stadium)

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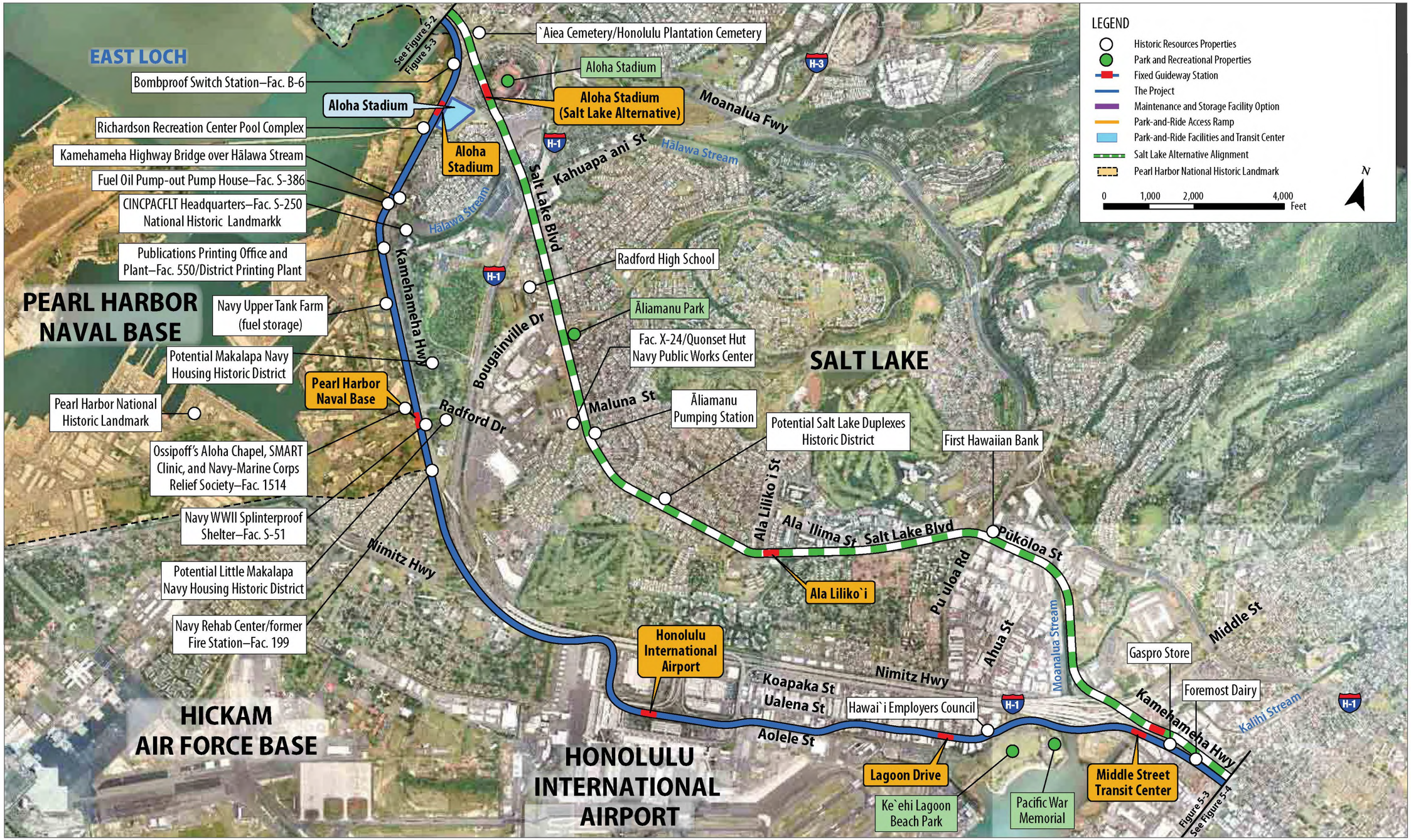

Figure 5-3 Historic, Park and Recreational Properties (Aloha Stadium to Kalihi)

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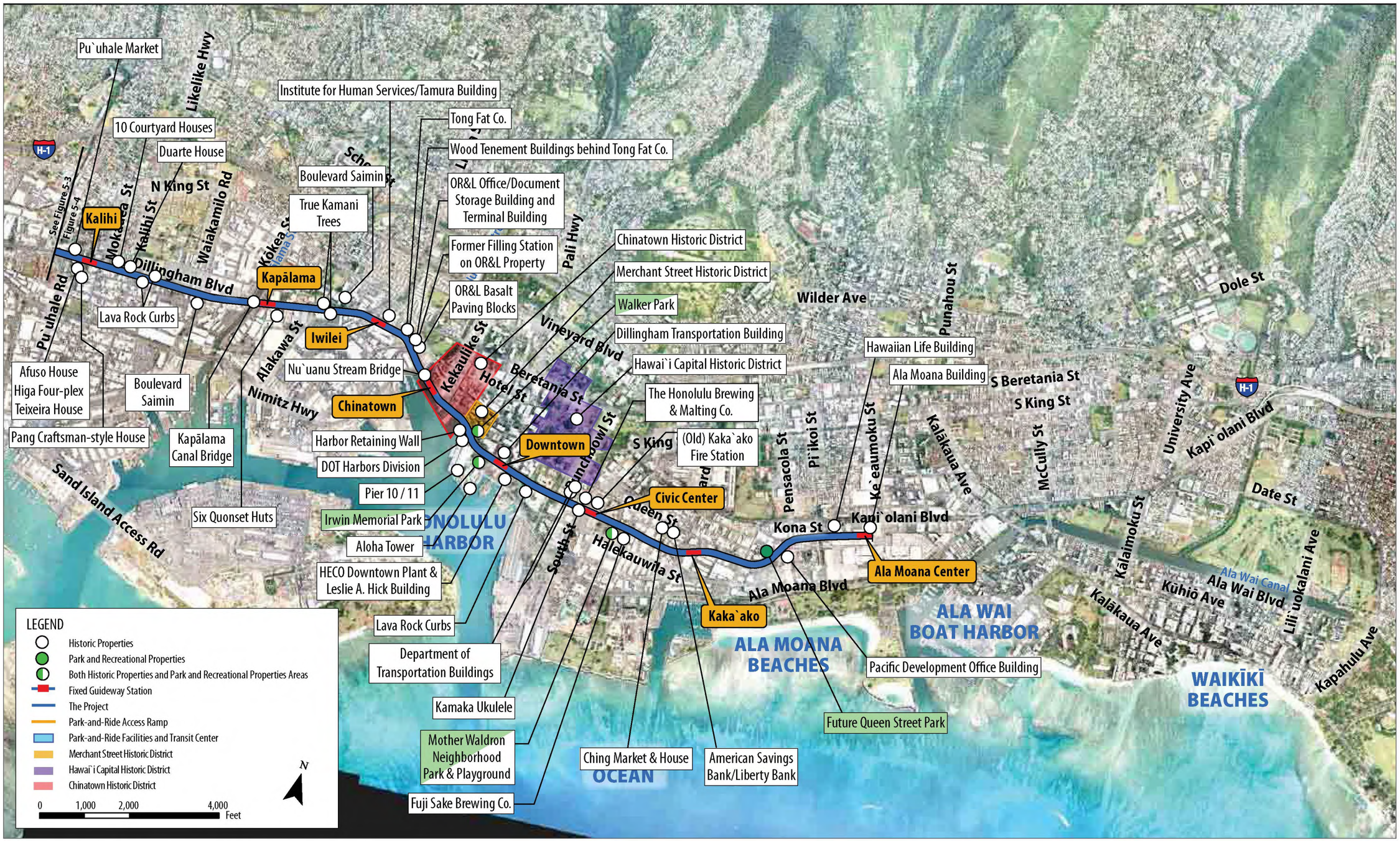

Figure 5-4 Historic, Park and Recreational Properties (Kalihi to Ala Moana Center)

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Table 5-1 Publicly Owned Park and Recreational Properties Adjacent to the Project (continued on next page)

Property	Description	Section 4(f) Use
West Loch Golf Course	West Loch Golf Course is located off Fort Weaver Road. The parcel is a 94-acre municipal golf course owned by the City and County of Honolulu. It extends across Fort Weaver Road, Honouliuli (Village), and Hawai`i Medical Center. The golf course is generally a quiet setting but bounded on one end by Farrington Highway, a major transportation corridor. Scenic views are in the background, mauka toward the mountains.	No use
Pearl Harbor Bike Path	The Pearl Harbor Bike Path is approximately 40 feet wide and is under the jurisdiction of the City Department of Transportation Services. It extends from the Admiral's Boat House in `Aiea to Waipi`o Point Access Road.	Temporary occupancy
Future Middle Loch Park	The City and County of Honolulu has set aside land for a new 12.8-acre park mauka of Middle Loch, adjacent to the Pearl Harbor Bike Path. The future Middle Loch Park is planned as a passive recreational area with benches and restrooms.	Temporary occupancy
Neal S. Blaisdell Park	The park is approximately 26 acres and is owned by the City and County of Honolulu. The park consists primarily of open space but also supports amenities, such as trails and exercise areas. It is located immediately makai of Kamehameha Highway, a major transportation corridor. The most scenic views are makai, toward the ocean.	No use
`Aiea Bay State Recreation Area	`Aiea Bay State Recreation Area encompasses approximately 8 acres. The recreational area is owned by the State and is under the jurisdiction of the Hawai`i Department of Land and Natural Resources. The area is used for general recreation and picnicking. It is located immediately makai of Kamehameha Highway, a major transportation corridor. All views are makai, toward the ocean.	No use
Walker Park	This small urban park provides shade in a busy downtown area. It is primarily used by pedestrians walking through downtown. It does not provide any benches, picnic tables, or other amenities.	No use
Irwin Memorial Park	Irwin Memorial Park is at the `Ewa-makai corner of the Bishop Street and Nimitz Highway intersection. The park is approximately 2 acres and can be accessed from Aloha Tower Drive. Irwin Memorial Park is primarily used as a parking lot for surrounding office buildings. Amenities include sitting areas and tables near the corner of Bishop Street and Nimitz Highway. The property is owned by the State Department of Transportation Harbors Division and is part of the Aloha Tower Project administered by the Aloha Tower Development Corporation. The most scenic views are makai, toward the harbor and Aloha Tower.	No use
Mother Waldron Neighborhood Park	This 1-acre park is located at 525 Coral Street in a predominantly commercial/industrial area; one side is bordered by a residential area in Kaka`ako. It features a children's play structure and unlit basketball courts. The park also hosts the People's Open Market Program, which offers local agriculture and aquaculture products. The park is owned by the State.	No use
Aloha Stadium	This 50,000-seat stadium occupies a 99-acre property owned by the State, under the jurisdiction of the State of Hawai`i Department of Accounting and General Services, in the `Aiea neighborhood. It is situated between two major arterials—Kamehameha Highway and the H-1 Freeway. Aloha Stadium is primarily used for major athletic competitions, such as professional football and University of Hawai`i football games. Other recreational uses include hosting various concerts and family-oriented fairs.	Direct use *(de minimis)*
Ke`ehi Lagoon Beach Park	Ke`ehi Lagoon Beach Park is an approximately 70-acre community park located near Lagoon Drive and Aolele and Ualena Streets Koko Head of the airport. Recreational amenities include boating facilities, 12 tennis courts, 1 baseball diamond, walking trails, and picnic areas. The park is operated and maintained by the City and County of Honolulu Department of Parks and Recreation. The most scenic views are makai, toward the lagoon.	Direct use *(de minimis)*

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Table 5-1 Publicly Owned Park and Recreational Properties Adjacent to the Project (continued from previous page)

Property	Description	Section 4(f) Use
Pacific War Memorial Site	Pacific War Memorial Site property is approximately 11 acres Koko Head of Ke`ehi Lagoon Beach Park. The property is a multi-use area, including memorial and recreational uses and a rehabilitation center. The property is under the jurisdiction of Department of Land and Natural Resources Division of State Parks and managed by Ke`ehi Memorial Organization and Hawaii Disabled American Veterans.	Direct use (*de minimis*)
Future Queen Street Park	Queen Street Park is a proposed 2-acre passive recreational area. It will feature a children's playground and other limited amenities. The land is owned by Hawai`i Community Development Authority and is surrounded by mixed-use commercial and high-rise residential development.	No use

Historic Preservation Act (Appendix F, Record of Agency Correspondence and Coordination). Section 4.16 describes effects to these 81 historic properties, as established through consultation. Section 4.16 of this Final EIS documents the effects to these properties under Section 106. The historic properties included in this Section 4(f) evaluation include those where there is a direct use of the property and/or where there is an adverse effect determination under Section 106. Each NRHP-eligible historic property that was evaluated for Section 4(f) use is listed in Table 5-2 with its Section 4(f) use determination.

The Project's APE was reviewed to identify potential archaeological Section 4(f) resources. The APE was divided into subareas and evaluated for potential archaeological impacts based upon a rating system of Low, Moderate, and High, as discussed in Section 4.16. Based on this review, the subareas of Dillingham, Downtown, and Kaka'ako have a High potential for effects on potential burials, pre-contact resources, and post-contact resources.

An archaeological inventory survey (AIS) will be completed for each construction phase prior to final design and construction, as stipulated in the Project's Section 106 draft Programmatic Agreement (PA). An AIS completed for the first construction phase area between East Kapolei and Pearl Highlands identified a subsurface deposit. The AIS concluded that SIHP 50-80-9-7751, subsurface cultural deposit (lo'i sediments), has integrity of location and materials but not integrity of design, setting, workmanship, feeling, or association. Based on the AIS, the FTA concludes that this archaeological resource is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place. Therefore, SIHP 50-80-9-7751 is exempt from Section 4(f) approval under 23 CFR 774.13(b). The SHPO has been consulted, and DTS has received no objections to the findings. Therefore, the property is exempt from Section 4(f) approval under 23 CFR 774.13(b). AIS plans for the remainder of the corridor are being developed using preliminary engineering design as discussed in the draft PA. By using preliminary engineering plans, the area of investigation is being constrained to locations that would be affected by project construction.

If archaeological resources either are encountered during the AIS or inadvertently during construction and are determined to be eligible for the NRHP and warrant preservation in place, the City will prepare separate Section 4(f) evaluations for such resources. State laws specific to Native Hawaiian burials are discussed in Section 4-16.

The following sections describe use of Section 4(f) properties. An assessment has been made as to whether any permanent or temporary occupancy of a property will occur and whether the proximity of the Project will cause any access disruption or noise, vibration, or aesthetic impacts that will

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Table 5-2 Historic Properties Evaluated for Section 4(f) Use

Tax Map Key	Resource Name	Section 4(f) Use
12009017	Afuso House	Direct use
12009017	Higa Four-Plex	Direct use
12009018	Teixeira House	Direct use
None	Lava Rock Curbs	Direct use
15029060	Boulevard Saimin	Direct use (*de minimis*)
None	Kapālama Canal Bridge	Direct use
15015008	Six Quonset Huts	Direct use
None	True Kamani Trees	Direct use
15007001 & 15007002	O`ahu Railway & Land Company Terminal Building O`ahu Railway & Land Company Office/Document Storage Building	Direct use
15007001 & 15007002	O`ahu Railway & Land Company basalt paving blocks O`ahu Railway & Land Company former filling station	Direct use (*de minimis*)
17002, 17003, & 17004 plats	Chinatown Historic District	Direct use
21014003	Dillingham Transportation Building	Direct use
21014006	HECO Downtown Plant and Leslie A. Hicks Building	Direct use
None	Honouliuli Stream Bridge	No use
None	Waikele Stream Bridge, eastbound span and bridge over OR&L spur	No use
None	Waiawa Stream Bridge 1932 (westbound lanes)	No use
None	Waimalu Stream Bridge	No use
None	Kalauao Springs Bridge	No use
None	Kalauao Stream Bridge	No use
various	United States Naval Base Pearl Harbor National Historic Landmark	No use
	CINCPACFLT Headquarters, Facility 250, National Historic Landmark	No use
99002004	Potential Makalapa Navy Housing Historic District	No use
99001008	Ossipoff's Aloha Chapel, SMART Clinic, and Navy-Marine Corps Relief Society, Facility 1514	No use
11016004	Hawai`i Employers Council	No use
15007033	Institute for Human Services/Tamura Building	No use
15007003	Tong Fat Co.	No use
15007003	Wood Tenement Buildings behind Tong Fat Co.	No use
None	Nu`uanu Stream Bridge	No use
	Merchant Street Historic District	No use
	Walker Park	No use
	DOT Harbors Division Building	No use
	Pier 10/11	No use
	Aloha Tower	No use
	Irwin Memorial Park	No use
21051006 & 21051005	Mother Waldron Neighborhood Playground	No use

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substantially impair the features or attributes that qualify the property for protection under Section 4(f).

5.5 Direct Use of Section 4(f) Properties

Sections 5.5.1 and 5.5.2 describe the Section 4(f) properties that will have direct uses as a result of the Project. Properties having *de minimis* impacts are noted in these sections as well.

5.5.1 Park and Recreational Properties

As described in Section 4.5, 11 public park and recreational properties are adjacent to the Project. Table 5-1 lists these publicly owned parks and their Section 4(f) use. The Project will use property at Ke'ehi Lagoon Beach Park and Aloha Stadium, as well as the Pacific War Memorial Site, which is a multi-use property that is being considered a park for this Section 4(f) evaluation, all of which will result in a de minimis impact. The Project will also require temporary occupancy at the future Middle Loch Park and Pearl Harbor Bike Path to construct an underground stormwater outfall drainage pipe (Section 5.7).

In most cases, the alignment runs within or near major highways and thoroughfares. Since substantial elements of urban development already exist, the Project will not impair or diminish the activities, features, or attributes that qualify properties in these areas for protection under Section 4(f). Potential proximity-related use is discussed in Section 5.6, Evaluation of Constructive Use of Section 4(f) Properties.

Aloha Stadium (De minimis Impact)

Description and Significance of Property

Aloha Stadium is situated between Salt Lake Boulevard, the H-1 Freeway, and Kamehameha Highway, (Figures 5-5 and 5-6). The 50,000-seat stadium is situated on 99 acres, most of which are used for event parking. It is owned by the State but is under the jurisdiction of the Department of Accounting and General Services (DAGS). Land use for the Aloha Stadium property is designated as a General Preservation District (P2) under the City's land use ordinance. Aloha Stadium is primarily used for athletic competitions, such as professional football and University of Hawai'i football games. Other recreational uses include hosting various concerts and family-oriented events.

Figure 5-5 Aloha Stadium

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The use of Aloha Stadium involves construction of an elevated guideway through a portion of its parking lot along the 'Ewa edge of the property for a rail transit station and bus transit center, as well as a paved and striped shared-use parking lot. The elevated guideway will be about 28 to 30 feet wide and supported by columns that are about 6 to 8 feet in diameter, placed about 120 feet apart.

The base of each of the columns will use approximately 100 square feet. The guideway will carry electrically powered trains and will be about 35 to 40 feet aboveground through this area. The amount of area that will be used by the Project is approximately 2 acres, including land under the guideway that may continue to be used for parking. In addition, the area for the shared park-and-ride lot and bus transit center will use approximately 4.2 additional acres (Figure 5-6).

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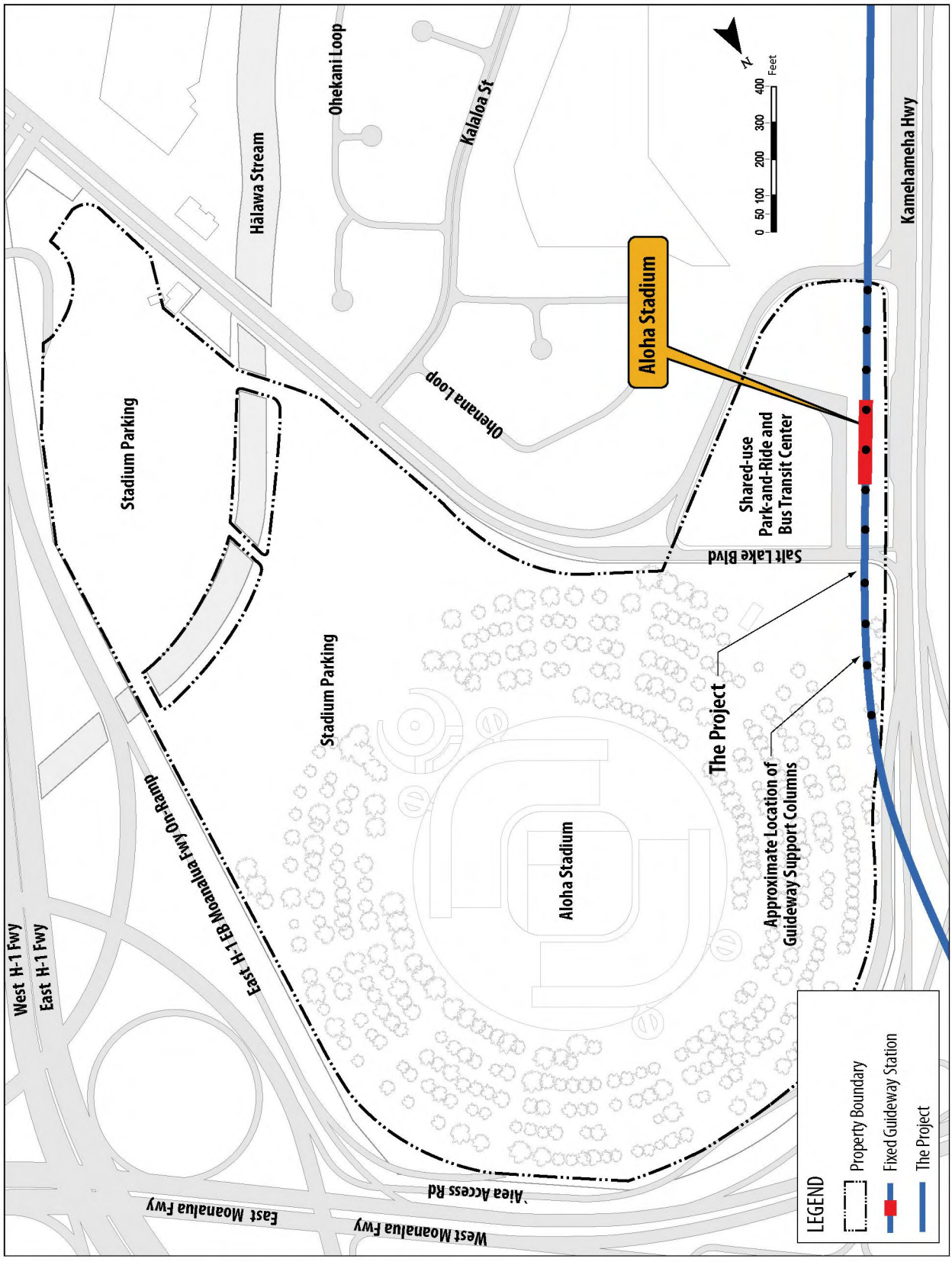

Figure 5-6 Aloha Stadium—Project and Features

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The elevated guideway will pass over a small portion of the main parking lot next to Kamehameha Highway. Approximately four columns will be placed in the main parking lot to support the guideway, requiring removal of approximately four parking spaces. The guideway will cross over Salt Lake Boulevard at Kamehameha Highway, continuing above the existing gravel overflow parking lot, supported by six columns. In the overflow lot, the City will construct a rail station and bus transit center to serve the stadium and will pave and stripe the gravel lot creating about 600 parking spaces that also will be used by patrons during stadium events. Approximately six guideway support columns will be located on Aloha Stadium property south of the overflow parking lot next to Kamehameha Highway. The guideway in this area will be wider than 30 feet to accommodate a third track for additional trains during stadium events. Because the Project will permanently incorporate land from the Aloha Stadium parcel into a transportation facility, this will be a direct use.

The Project will provide transportation benefits to Aloha Stadium that will enhance its ability to provide recreational opportunities to users, offering a choice of transportation modes, greater capacity, and improved service. The use of the site will not change with the Project. However, it will provide an additional form of access to Aloha Stadium via the new fixed guideway system. The operation of the Project will not interfere with the features, attributes, or activities of the property.

Minimization of Harm and Mitigation

The direct use of the Aloha Stadium property will be due to the guideway, station, bus transit center, park-and-ride lot, and support columns within the stadium parking lots. The support columns have been designed to minimize the use of the property and maintain safety and access to the parking lots. The Project will provide additional access to events at Aloha Stadium. Measures to minimize harm were considered in the Project's design in coordination with DAGS. To minimize the Project's use of the stadium property, the guideway and supporting columns were designed to be as close to Kamehameha Highway as possible and still be consistent with operational and engineering constraints.

During Final Design, the City will coordinate with DAGS regarding the design of the guideway, station, bus transit center, and the area's parking lots. Access to the main parking lots will be maintained during construction in accordance with the Project's maintenance of traffic and safety plans developed in coordination with DAGS. There will be areas closed to the public temporarily during construction, primarily in the overflow parking area. The City will coordinate with DAGS to minimize construction during major events as practicable. If major events occur during construction, the City will temporarily provide additional bus service and/or shuttle bus service to the stadium from existing City transit centers or parking lots. After construction, the main parking lot will be restored and a new shared-use paved parking lot will be created.

Agency Coordination and Consultation

The Aloha Stadium Authority, Aloha Stadium Manager, and DAGS have participated in the planning of the alignment, the station location, and the park-and-ride lot within the boundaries of Aloha Stadium. Coordination included meetings on March 14, March 25, and October 20, 2008, and February 24, May 1, and May 15, 2009, as well as telephone discussions about the Project in January, February, and June 2010. Coordination will continue during Final Design and construction to ensure that the Project will result in a net benefit, in terms of both enhanced access and parking.

Preliminary Section 4(f) Finding

Therefore, a preliminary finding has been made, and it is anticipated the Project will have a *de minimis* impact as defined in 23 CFR 774.17. DAGS,

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the agency with jurisdiction over Aloha Stadium, has concurred with the *de minimis* impact finding (Appendix F).

Ke`ehi Lagoon Beach Park (De minimis Impact)

Description and Significance of Property

Ke`ehi Lagoon Beach Park is an approximately 70-acre community park at Lagoon Drive and Aolele Street (Figures 5-7 and 5-8). It is bounded on the makai side by Ke`ehi Lagoon and on the mauka side by mixed industrial developments and the H-1 Freeway, which at that point is on a viaduct above the park just outside its mauka border. The park is Koko Head of Lagoon Drive and `Ewa of the Disabled American Veterans Ke`ehi Lagoon Memorial. It is operated and maintained by DPR. There are two parking areas—the smaller one (53 spaces) is near the lagoon, and the larger one (421 spaces) is adjacent to the park's access road near the mauka border of the park. The recreational use of the park is primarily for daytime activity, with limited use of four lighted tennis courts in the evening.

Recreational amenities include 12 tennis courts, 1 baseball diamond, an open field, a paved walking path, picnic areas, a pavilion, and access to the water. Cultural events are held in the picnic area and the field. The baseball diamond is makai of the Project and mauka of Ke`ehi Lagoon. Eight of the tennis courts are near Lagoon Drive and the entrance of the park, while the other four mauka courts are near Nimitz Highway. The four mauka courts near Nimitz Highway are the only courts with lighting to facilitate nighttime use. The open field is makai of the access road. Primarily local residents use the field for cricket, soccer, and softball practice and games, as well as other team and individual sports. Canoe clubs engage in active practice sessions and events at the park, including the State Canoe Regatta. The beach area is primarily used for boating or outrigger canoes.

Figure 5-7 Ke`ehi Lagoon Beach Park

Section 4(f) Evaluation

All of the recreational features, attributes, and activities of the park, other than the four lighted mauka tennis courts, are located makai and away from the Project. The Project will traverse the park near its mauka property line, generally following the alignment of the park's access road until it leaves the park, where it continues on an elevated guideway within the right-of-way of Nimitz Highway. In the park, the Project guideway will be approximately 30 feet wide, between 30 to 35 feet high, and will be elevated above approximately 1 acre of land within the park, primarily in the parking lot and the park access road. Within the park, the guideway will be constructed on approximately 10 columns that will be about 6 feet in diameter, which will result in the use of approximately 280 square feet of park land for the placement of columns.

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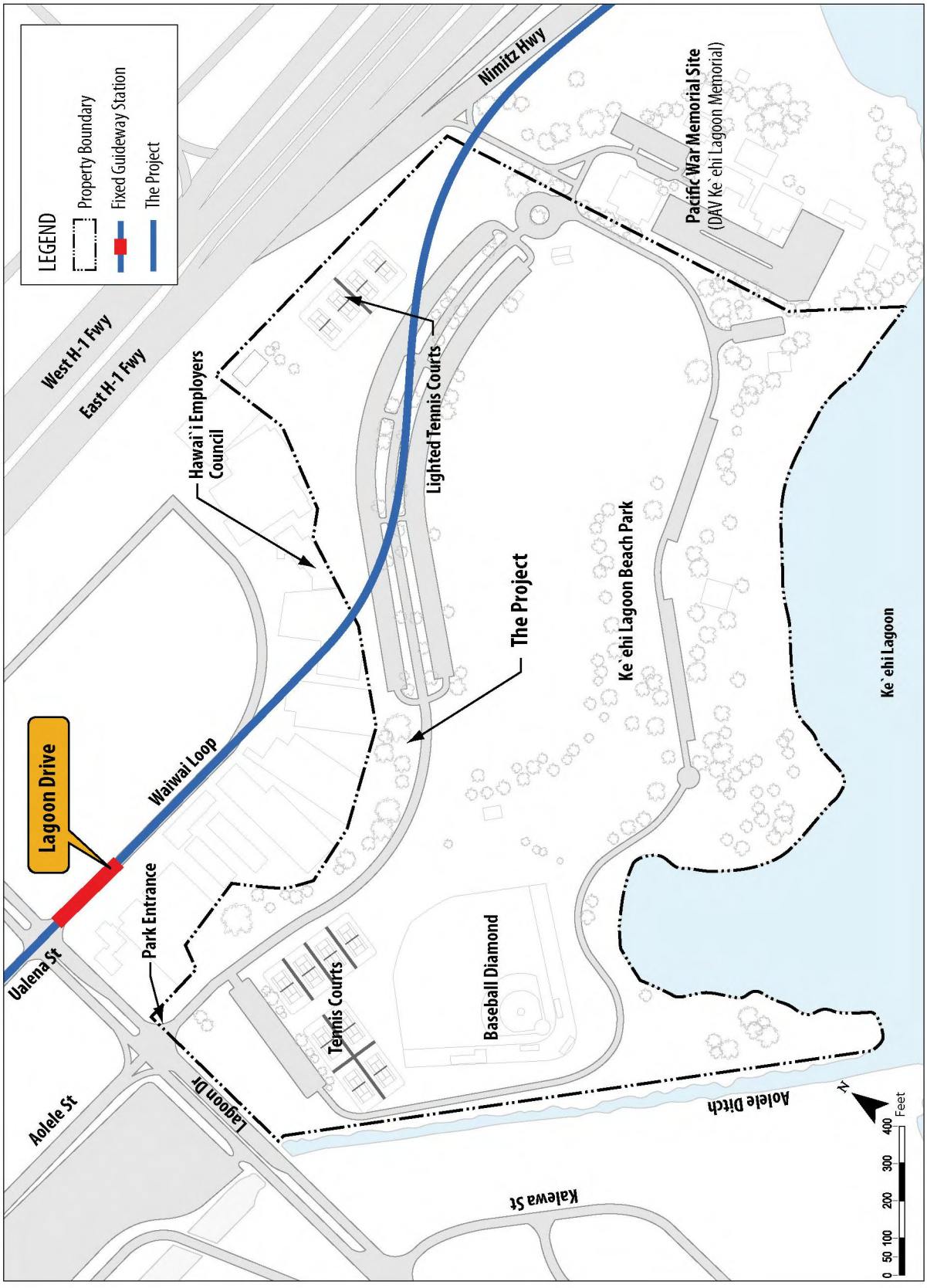

Figure 5-8 Ke`ehi Lagoon Beach Park

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Lagoon Drive Station will be located outside the park, approximately 350 feet `Ewa and one block mauka of the park entrance on Lagoon Drive and Ualena Street. The Project will provide transportation benefits to park users since the station will be located within walking distance. Hence, the Project will offer another transportation option for recreation users and spectators of events to access the park.

Minimization of Harm and Mitigation

Measures to minimize harm were considered in the Project's design in coordination with DPR. To minimize project use of the park, the project guideway was designed as close to the mauka boundary as possible, consistent with operational and engineering constraints, and to be away from the recreational activities and facilities, including the baseball diamond, open field, paved walking path, picnic areas, pavilion, and access to the water where canoeing events occur and most of the tennis courts are located. The views of the water by park users will not change with the Project. Looking mauka, near the water, the Project will be slightly more visible than the H-1 Freeway in the background and will not noticeably change the character of the landscape (Figure 4-27 in Chapter 4 of this Final EIS).

The Project guideway was designed with the minimal curve radius needed to maintain efficient system operation to serve the Lagoon Drive Station, while minimizing impacts to the park. The support columns have been designed to use as little park land as practicable, be located in areas away from recreational activities, and accommodate access to the park by recreational users. The alignment is designed to be elevated above the parking area, and there will be no net loss of parking spaces.

None of the 12 tennis courts will be permanently used by the Project. The guideway will cross above the park, just makai of the four lighted mauka tennis courts near Nimitz Highway, as shown in Figure 5-8. Given their proximity to the guideway, these tennis courts will be closed during construction and reopened as unlighted tennis courts when this portion of the Project is completed. DPR's desire is to have lighted tennis courts available for evening use. To accomplish this and mitigate temporary impacts to these lighted mauka tennis courts, DTS will coordinate with DPR during Final Design to provide lighting and associated resurfacing for four of the tennis courts near the park entrance prior to construction so that nighttime tennis court use will be maintained during construction and after project completion. The lighting will be designed and constructed in accordance with regulatory requirements.

During Final Design, DTS will coordinate with DPR to restore the area around the four mauka tennis courts to provide recreational benefit to park users including, but not limited to, restoring the four mauka tennis courts to their original condition for daytime use, planting grass, and installing landscaping and picnic tables.

DTS will coordinate with DPR to develop a planting plan for trees that will be removed during construction and a landscaping plan within the park. DTS will replant new trees in accordance with the City's requirements for street tree planting. DPR will maintain new landscaping as part of its regular park operation and maintenance.

Access to the park will be maintained during construction in accordance with project maintenance of traffic and safety plans. During construction, there will be a temporary loss of approximately 10 percent of the parking spaces. DTS will coordinate with DPR to identify and implement alternate access to the park to mitigate for parking that will be temporarily closed during construction. For major events held during construction of the Project, park users may park on streets near the park. Based on park user demand during major events,

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DTS will temporarily provide additional bus service and/or shuttle bus service to the park from existing City transit centers or parking lots. After construction, the parking area will be restored and there will be no net loss of parking.

Agency Coordination and Consultation

DPR officials who operate and maintain Ke'ehi Lagoon Beach Park have been involved in the project planning and design process within the boundaries of the park. Meetings were held with DPR in May 2008, September 2009, and December 2009 to discuss use of the park to ensure that the Project will result in a net benefit with regard to recreational use. DPR provided a letter to DTS on September 25, 2008, stating that the Project's use of the park is considered a *de minimis* impact (Appendix F). DPR concurs that after mitigation, the Project will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection. Notice is hereby provided for public review and comment concerning the effects of the Project on the activities, features, and attributes of Ke'ehi Lagoon Beach Park. Section 4(f) *de minimis* comments may be submitted to FTA and DTS 30 days following the Federal Register Notice of Availability for this Final EIS. FTA will make a final determination in the Record of Decision after reviewing the public comments submitted. Coordination will continue during Final Design and construction.

Preliminary Section 4(f) Finding

With the measures to minimize harm and mitigation described above, DPR has reiterated its concurrence at its meeting with DTS in December 2009 that the Project's use of the park would have a *de minimis* impact on the park since it would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

Pacific War Memorial Site (DAV Ke`ehi Lagoon Memorial) (De minimis Impact)

Description and Significance of Property

Although loosely referred to as a park in various planning documents prepared by the Ke'ehi Memorial Organization and Hawai'i Disabled American Veterans (KMO-DAV), which manage the property for DLNR-Parks, the Pacific War Memorial Site property has not been designated for park or recreational uses by the governor of the State of Hawai'i, nor is it listed on the State's inventory of parks. In addition, the Project does not use portions of the property currently used or planned for memorial or recreational uses. Although the property could be viewed as a non-Section 4(f) property, the property is evaluated below as if it were a Section 4(f) property using a *de minimis* analysis.

The property comprises approximately 11 acres and is located between Ke'ehi Lagoon Beach Park ('Ewa boundary), Moanalua Stream (Koko Head boundary), Nimitz Highway (mauka boundary), and Ke'ehi Lagoon (makai boundary) (Figure 5-9).

Pursuant to Governor's Executive Order (GEO) 3967, February 19, 2003, the property was "set aside for the following public purposes: FOR PACIFIC WAR MEMORIAL PROPERTY PURPOSES[.]" GEO 3967 cancelled GEOs 1534 and 1550 and transferred jurisdiction from the abolished Pacific War Memorial Commission of Hawaii to DLNR-Parks. DLNR-Parks oversees the KMO-DAV, which has been maintaining the property.

KMO-DAV manages the property for multiple uses, including memorial and recreational uses. Facilities on the property include a rental office, memorial obelisk, several community centers and meeting rooms, Disabled American Veterans Headquarters, a storage building, a rehabilitation facility, and two chapels. The property also has a basketball/volleyball court, a grass field with a baseball backstop, small pavilions, and a picnic

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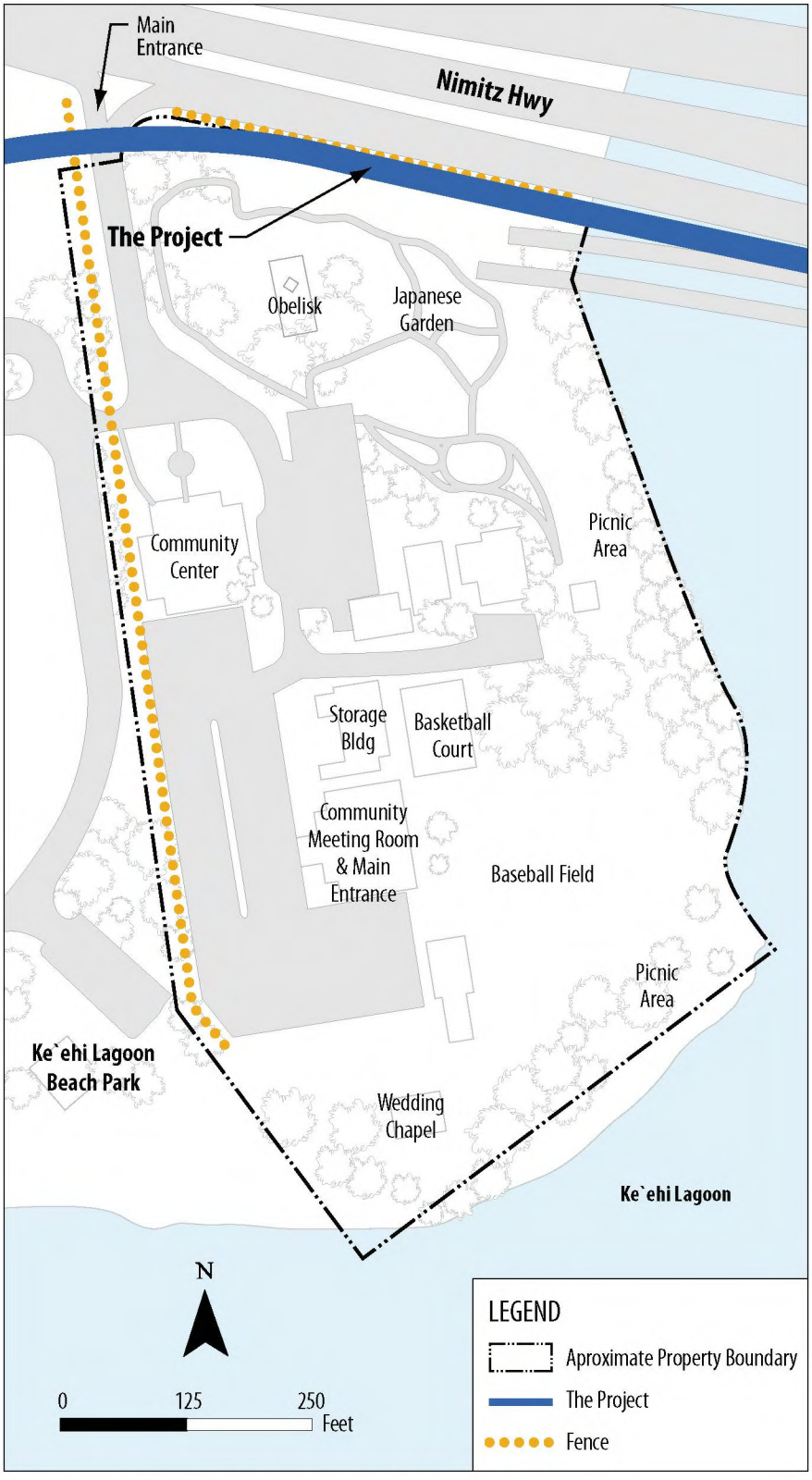

Figure 5-9 Pacific War Memorial Site (DAV Ke`ehi Lagoon Memorial)

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area. It is fenced-in along its perimeter and has a lockable gate at its entrance for security at night. The property is closed between the hours of 10:00 p.m. and 6:00 a.m., except by permit.

In 2005, KMO-DAV prepared the *Ke'ehi Lagoon Memorial Master Plan Update*. The Plan included four goals: (1) Maintain the park for use by veterans and their families, youth groups, and the community and complement Ke'ehi Lagoon Beach Park; (2) maintain the integrity of the obelisk; (3) provide a rehabilitation center for disabled veterans; and (4) maintain the park property "as self-sustaining so that the public may not be asked constantly for support."

Section 4(f) Evaluation

As shown in Figure 5-9, all of the memorial and recreational features, attributes, and activities of the property are located makai of the Project. The Project will traverse the property near the mauka property line next to Nimitz Highway and grade-separated ramps for the H-1 Freeway. On the property, the Project guideway will be approximately 30 feet wide, between 30 to 35 feet high, and will be elevated above approximately 0.5 acre of land. The guideway will be constructed on approximately three columns that will be about 6 feet in diameter each, which will result in the use of approximately 150 square feet of the property. The area where the three guideway columns will be constructed is generally where the elevated guideway will pass over the property. This area is not used for memorial or recreational activities and is in an area where there are existing utility easements.

The views of the water by property users will not change with the Project. Looking mauka from the area of the property near the water, the Project will be slightly more visible than Nimitz Highway and H-1 Freeway ramps in the background and will not noticeably change the character of the landscape (Figure 4-22 in Chapter 4 of this Final EIS shows a visual simulation of the guideway from a similar view point within Ke'ehi Lagoon Beach Park).

Since most of the recreational features are on the portion of the property near the water, the Project will not change them or the use of these recreational areas. Closer to the Project are the obelisk, Japanese Garden, and gazebo. Because the guideway is located adjacent to Nimitz Highway and grade-separated ramps for the H-1 Freeway, which is already a prominent feature when looking mauka, views will not change. The noise analysis at Ke'ehi Lagoon Beach Park is also representative of the memorial and demonstrates that the Project will not result in a noise impact on this property, as discussed in Section 4.10 of this Final EIS. The Project will not adversely affect the activities, features, or attributes of the memorial or recreational areas on this property.

Minimization of Harm and Mitigation

Measures to minimize harm were considered in the Project's design in coordination with DLNR-Parks and KMO-DAV. To minimize Project use of the property, the Project's guideway was located as close to the mauka boundary as possible, consistent with operational and engineering constraints, and to be away from the memorial and recreational activities and facilities, such as the memorial obelisk, rehabilitation center, chapels, basketball/volleyball court, small pavilions, and picnic area. The guideway support columns have been designed to use as little of the property as practicable, be located in areas away from memorial and recreational activities, and accommodate access to the property by users. Based on the existing use of the property, the area where the three guideway columns will be constructed and where the elevated guideway will pass over the property is not used for memorials or recreational activities and is in an area where there are utility easements.

During final design, DTS will coordinate with KMO-DAV to replant and relocate any affected

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trees and to landscape the area near the columns. In addition, the fence will be replaced with "security fencing" on the mauka property line and the utility bridges, as feasible. The area where the columns will be constructed is not in an area that would change KMO-DAV's future plans for the property.

Access to the property will be maintained during construction in accordance with the Project's maintenance of traffic and safety plans. During construction, the work area generally will be limited to the area under the guideway. After construction, the property will be restored in consultation with KMO-DAV. DTS will coordinate with KMO-DAV to develop a landscaping and planting plan to replace vegetation and trees disturbed during construction. KMO-DAV agrees with the mitigation measures. Coordination with KMO-DAV will continue during final design and construction.

Agency Coordination and Consultation

KMO-DAV officials who operate and maintain the property have been involved in the planning and design process for the portion of the Project within the boundaries of the property. Meetings were held with KMO-DAV on November 21, 2009, and June 4, 2010, to discuss the use of the property and to ensure that the Project will result in a net benefit regarding access to this multi-use memorial and recreational property. On June 2, 2010, DTS met with DLNR-Parks, the agency that owns the property. DLNR provided correspondence to DTS stating that the Project's use of the property is considered a *de minimis* impact since it will not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f). Notice is hereby provided for public review and comment concerning the effects of the Project on the activities, features, and attributes of the property. Section 4(f) *de minimis* comments may be submitted to FTA and DTS 30 days following the Federal Register Notice of Availability for this Final EIS. FTA will make a final determination in the Record of Decision after reviewing the public comments submitted.

Preliminary Section 4(f) Finding

With the measures to minimize harm and mitigation described above, DLNR/KMO-DAV has stated its concurrence that the Project's use of the property would have a *de minimis* impact on the property since it would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

5.5.2 Historic Sites

The historic sites considered in the Section 4(f) evaluation include the 81 historic properties identified near the project alignment in Section 4.16.

The Project will have a direct use of 13 historic properties with 2 of those considered a *de minimis* impact. The use of the properties with a *de minimis* impact will be small enough that the historic properties will not be adversely affected, as described in 36 CFR 800.5. Avoidance alternatives and measures to minimize harm are described for groups of geographically proximate Section 4(f) properties that will be used by the Project.

Agency Coordination and Consultation

Since consultation and coordination throughout the Section 106 process was common for all historic properties, the process described here is applicable to all the historic properties discussed in the Section 4(f) evaluation and, therefore, are not repeated individually under each historic property evaluation.

Consultation among FTA, ACHP, the SHPO, and other Section 106 consulting parties is described in Section 4.16 of this Final EIS. The historic properties evaluated in this Section 4(f) evaluation were determined to be eligible for listing on the NRHP with the concurrence of the SHPO. To mitigate adverse effects on historic properties identified

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during the Section 106 review, a draft PA was developed with input from all of the Section 106 consulting parties. The draft PA stipulates a variety of actions to be taken prior to Final Design and construction activities.

FTA, the City, ACHP, and the SHPO have agreed to the stipulations described in the draft PA to mitigate adverse effects to historic properties along the project alignment, including preparation of the Historic American Building Survey and the Historic American Landscape Survey documentation, professional photography of affected properties, professional videography of the study corridor, and digital photography that documents affected properties and viewsheds within the APE.

Additional measures within the draft PA highlight specific actions to be taken by the City and include preservation of lava rock curbstones along Dillingham Boulevard and Halekauwila Street; completion of Cultural Landscape Reports, Historic Context Studies, NRHP Multiple Property Submissions, and NRHP nominations; and development of an interpretive plan for the project area with interpretive signage to be installed. Appendix H, Section 106 of the National Historic Preservation Act Draft Programmatic Agreement, details the mitigation, consultation, and review process for use of historic properties impacted by the Project.

Dillingham Boulevard Houses (Direct Use)

The Afuso House, Higa Four-plex, and Teixeira House, located along Dillingham Boulevard between Pu'uhale Road and Waiakamilo Road, will experience the same direct use by the Project as a result of the widening of Dillingham Boulevard. Since they are on the same side of the street (makai), avoidance alternatives and measures to minimize harm are common to these three properties. Other Section 4(f) properties located on Dillingham Boulevard are discussed separately due to their unique characteristics.

Description and Significance of Property

Afuso House (Direct Use)

Fronting Dillingham Boulevard, this single-story plantation-style privately owned residence is associated with the residential development of the Kalihi Kai neighborhood in the early 1900s. This structure embodies the distinctive characteristics of a type and period of construction and retains a high degree of integrity of location, design, materials, workmanship, feeling, and association. The integrity of its original setting has changed substantially, as there are now adjacent vacant lots on one side and a convenience store across the street. Several other historic residential buildings are present in the immediate area, also on Dillingham Boulevard. The added carport and jalousie windows are apparent non-historic alterations; most of the other features are historic and part of the design history of the house (Figure 5-10).

Higa Four-plex (Direct Use)

This two-story plantation-style privately owned four-plex residence (Figure 5-10) is associated with intense residential development around Dillingham Boulevard in the early 1940s. This structure is also associated with Dillingham Boulevard's historic development and its effect on the Kalihi Kai neighborhood, which originally consisted of mostly single-family residences. The building has a high degree of integrity, and all alterations

Figure 5-10 Higa Four-plex (left) and Afuso House (right)

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appear to be historic and are considered part of the building's design history.

Teixeira House (Direct Use)

This single-story plantation-style privately owned residence is associated with the residential development of the Kalihi Kai neighborhood in the first half of the 20th century, before North Queen Street was renamed Dillingham Boulevard. This structure embodies the distinctive characteristics of a type, period, and method of construction and is a good example of a 1940s, single-wall, plantation-style house. There have been some changes made to the structure, but it retains sufficient integrity to qualify for the NRHP. Integrity of setting is compromised from its historic dense residential character due to a new, large commercial building on the adjacent lot; historic setting remains apparent due to the presence of other historic residential buildings in the immediate area. There have been some non-historic design changes made to the structure, including installation of jalousies and removal of a rock wall fronting the lot (Figure 5-11).

Section 4(f) Evaluation for Afuso House, Higa Four-plex, and Teixeira House

As a result of the 10-foot widening of Dillingham Boulevard to accommodate the fixed guideway, the Project will require acquisition of the properties (including demolition of the buildings on these properties).

Figure 5-11 Teixeira House

Avoidance Alternatives for Afuso House, Higa Four-plex, and Teixeira House

To avoid use of these Section 4(f) historic properties on Dillingham Boulevard in this area, several alternatives were evaluated to determine if any were feasible and prudent, as defined under 23 CFR 774.17.

Dillingham Boulevard—Maintain Existing Width

One avoidance alternative considered would be to accommodate the guideway within Dillingham Boulevard's existing right-of-way and not widen the roadway. While this alternative would avoid all Section 4(f) properties on both sides of the street in this area of Dillingham Boulevard, it would not be prudent, since one travel lane would need to be eliminated to accommodate the Project. Removal of a travel lane on Dillingham Boulevard would result in highly congested conditions for vehicles, which is inconsistent with the Project's Purpose and Need to improve mobility. (Chapter 3, Transportation, of this Final EIS documents the travel demand information for Dillingham Boulevard).

Dillingham Boulevard is a critical link in Honolulu's street and highway network. Where Dillingham Boulevard crosses Kapālama Canal (Koko Head of these properties), the existing and future traffic conditions show that the road carries up to 10 percent of the vehicles crossing the Kapālama Canal in the 'Ewa-bound direction during the p.m. peak hours. Redistributing traffic to parallel roadways, including the H-1 Freeway, King Street, and Nimitz Highway, is also inconsistent with the Project's Purpose and Need to improve mobility, since these roadways are already highly congested and currently operate above capacity during peak times of travel during the day. Traffic on these roadways is anticipated to worsen in the future.

In addition, Dillingham Boulevard is a primary bus route with a direct connection to the Middle Street bus facility. Four bus routes currently

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operate on Dillingham Boulevard. If Dillingham Boulevard were not widened, there would be limited space for bus pullouts within the current right-of-way. Therefore, under this alternative, vehicles would be required to follow buses and stop at regular intervals along Dillingham Boulevard from Middle Street to Iwilei. Removal of a lane to avoid widening the street (and avoid use of these properties) would not meet the Project's stated goal of improving mobility. This avoidance alternative is not prudent since it would compromise the Project to such a degree that it would be unreasonable to proceed with the Project in light of its stated Purpose and Need and would result in unacceptable operational problems for the reasons stated above, as defined under 23 CFR 774.17.

Dillingham Boulevard—Extend the Downtown Tunnel

Another alternative to avoid the use of Section 4(f) properties on Dillingham Boulevard is to extend the Downtown tunnel option that is discussed as an avoidance alternative to the use of Section 4(f) properties in Chinatown and Downtown between Nu'uanu Stream and South Street farther 'Ewa. As documented in the Alternatives Analysis, a tunnel in the Downtown area alone would have increased the cost of the Project by an extraordinary magnitude of more than $650 million (2006 dollars). Extending the tunnel `Ewa to include Dillingham Boulevard to avoid these Section 4(f) properties would increase the cost of the tunnel to more than $1 billion (2006 dollars), which would result in additional construction costs of an extraordinary magnitude beyond what could be funded within the Project's financial plan. This avoidance alternative is not prudent because of its extraordinary cost.

Minimization of Harm and Mitigation

Afuso House, Higa Four-plex, and Teixeira House

Dillingham Boulevard—Shift Alignment

Shifting the alignment from one side of Dillingham Boulevard to the other was also considered to avoid the use of Section 4(f) properties. While this alternative would eliminate use of some Section 4(f) properties, it would result in the use of other Section 4(f) properties on the other side of the street. Shifting the guideway to the mauka side of Dillingham Boulevard (Figure 5-12) would use more historic Section 4(f) properties, specifically, the Duarte House, 10 Courtyard Houses, Pu'uhale Market, and additional true kamani trees. This alternative would also require relocation of approximately 8,000 feet of an aboveground 138-kilovolt (kV) high-voltage electrical line and 20 steel poles underground (found on both sides of the street), which would cost over $12 million. In addition, trees on the makai side of the street have been severely trimmed to avoid the low voltage power lines, while the trees on the mauka side have been pruned less severely and retain more of their original shape and quality (because the power lines are much taller on the mauka side of the street). Therefore, a mauka shift would not avoid the use of Section 4(f) properties and would more severely impact trees that are in better condition. This alternative is not prudent since it would result in an extraordinary cost to relocate the power lines and would cause environmental impact to true kamani trees and other historic properties.

Dillingham Boulevard—Straddle Bents

Another option considered was to construct the Project on straddle bents instead of columns, which would avoid the use of the Afuso House, Higa Four-plex, and Teixeira House properties. Straddle bent columns would be placed on properties 'Ewa and Koko Head of these Section 4(f) properties and would not require widening of Dillingham Boulevard. This alternative would require the placement of a straddle bent column on the Section 4(f) property containing the 10 Courtyard Houses on the mauka side of Dillingham Boulevard. In addition to use of this Section 4(f) property, straddle bents would have greater right-of-way use of other Section 4(f) properties on the mauka side of Dillingham Boulevard and result in greater visual impacts as the straddle

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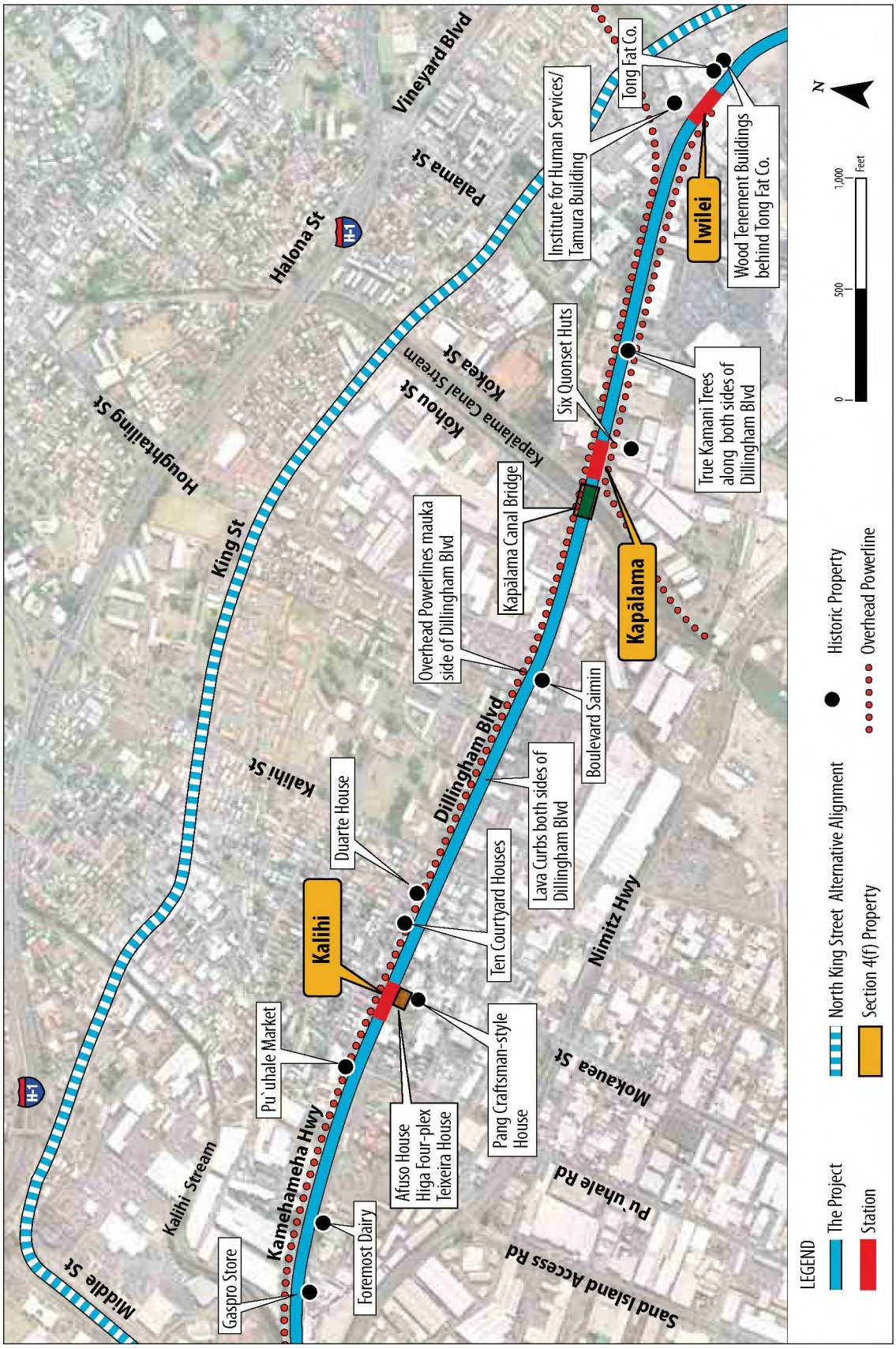

Figure 5-12 Dillingham Boulevard Historic Properties Alternative

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bent beams structure would straddle Dillingham Boulevard and result in a "tunnel like roadway." In addition, this alternative would require the relocation of Kalihi Station in order to avoid any 4(f) properties.

Dillingham Boulevard/North King Street Alignment

Several alternative alignments were considered during the Alternatives Analysis process to avoid use of these Section 4(f) properties, but given the dense and historic nature of this section of Honolulu, none of the alternatives avoids all Section 4(f) properties.

An alternative alignment on North King Street (Figure 5-12) was considered since it would avoid Dillingham Boulevard and its historic properties. This alternative would have had a substantially greater potential to adversely affect historic architectural properties and would not have avoided the use of Section 4(f) properties since many more were identified along that route. It would have caused greater harm on properties of equivalent value and was not considered a prudent alternative, as defined under 23 CFR 774.17. It also would result in a greater number of residential relocations, and the potential for noise impacts on the remaining properties would be greater because of more noise-sensitive uses. It also could affect the greatest number of hazardous materials sites. This alternative would not be prudent as it still would cause severe social, economic, or environmental impacts; severe disruption to established communities; and severe impacts to environmental properties protected under other Federal statutes.

Since the North King Street alignment would also serve fewer transit trips than the Dillingham Boulevard alignment, it would be less effective at meeting the stated Purpose and Need of improved mobility and improved transit service. Each of the above-described factors alone is sufficient to establish that this alternative is not prudent. However, even if the above factors were individually minor, cumulatively, they would cause unique problems and impacts of extraordinary magnitude.

Afuso House, Higa Four-plex, and Teixeira House Summary

Throughout the planning and design of the Project, the guideway has been designed to be as narrow as possible to minimize disturbance of historic properties. Nevertheless, the Project will still require demolition of the Afuso, Higa Four-plex, and Teixiera Houses.

A draft PA has been prepared, in accordance with Section 106, with detailed stipulations that mitigate adverse effects from the Project on these historic properties. After review of alternative measures to minimize harm, the project alignment on Dillingham Boulevard includes all possible planning to minimize harm.

Lava Rock Curbs (Direct Use)

Description and Significance of Property

Lava rock curbstones consist of dense pieces of basalt that are rough-hewn below grade but squared at their exposed surfaces. Lava rock curbs are an important and labor-intensive element in the history of Honolulu's street and road infrastructure. Some of the lava rock used for curbstones are from the Mō'ili'ili quarry, which operated from 1889 to 1949 and produced high-quality stones.

The lava rock curbs are eligible as a single property under Criterion A for their association with roadway infrastructure development in Honolulu. They also are eligible under Criterion C as examples of the distinctive method of street construction in Honolulu during the late 1800s and early 1900s. Although they are considered together in this analysis, curbs are located at various places along Dillingham Boulevard and Halekauwila Street (Figures 5-12 and 5-13).

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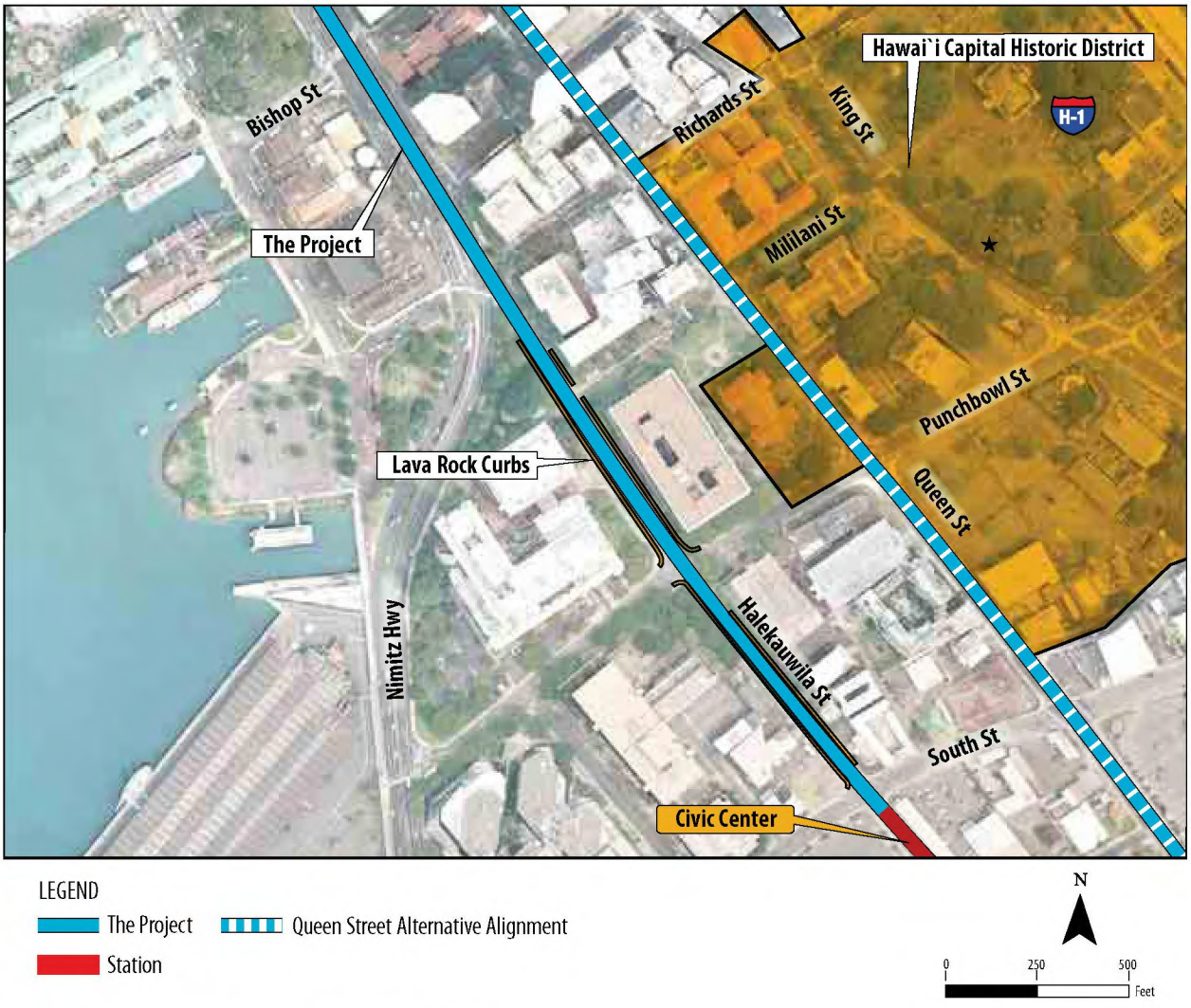

Figure 5-13 Lava Rock Curbs on Halekauwila Street Alternative

Section 4(f) Evaluation

The Project will require the use of lava rock curbs in two locations—on Dillingham Boulevard and Halekauwila Street. The widening of Dillingham Boulevard 10 feet to the makai side of the Kapālama Canal Bridge and the widening of Halekauwila Street will require the removal of curbs during construction, which constitutes use of a Section 4(f) property. After construction, the lava rock curbs will be replaced as practicable.

Avoidance Alternatives

Dillingham Boulevard Lava Rock Curbs

Extension of the tunnel that would extend from Downtown, as described above for the Dillingham Boulevard houses, would avoid the use of the Dillingham Boulevard Lava Rock Curbs. This alternative would not be prudent for the reasons described above.

Minimization of Harm and Mitigation

Dillingham Boulevard Lava Rock Curbs

If Dillingham Boulevard was not widened, the lava rock curbs still would be used since overhead utility lines would have to be relocated underground. Another alternative discussed above considered widening Dillingham Boulevard on the mauka side of the street. However, this would not avoid use of the historic lava rock curbs since they are present on both sides of the street.

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Dillingham Boulevard Lava Rock Curbs Summary

After review of alternative measures to minimize harm, there are no prudent alternatives to the Project's Dillingham Boulevard alignment, as defined under 23 CFR 774.17. The Dillingham Boulevard alignment in this segment was found to result in the least overall harm among the alternatives considered.

Avoidance, Minimization of Harm, and Mitigation

Halekauwila Street Lava Rock Curbs

Several alternative alignments were analyzed for the section of the Project in the Alternatives Analysis that includes the area along Halekauwila Street. Three alignments ranked poorly with regard to transportation benefits, environmental consequences, and cost. The Beretania Street/King Street alignment would provide poor transit benefits; the Hotel Street/Kawaiaha'o Street/Kapi'olani Boulevard alignment would create substantial environmental impacts compared to the other alignments (regarding the number of known hazardous waste/materials sites potentially affected, a greater number of residential displacements, and a greater potential to disturb Native Hawaiian burials than any other alignment); and the King Street/Waimanu Street/Kapi'olani Boulevard Tunnel alignment would cost over $500 million more than the other alignments. An elevated system on either Beretania or King Street would run in front of either the historic State Capitol or Iolani Palace and would require removal of traffic lanes in the area of the Civic Center.

Two similar alignments studied in the Alternatives Analysis included the Nimitz Highway/Queen Street/Kapi'olani Boulevard alignment and the Nimitz Highway/Halekauwila Street/Kapi'olani Boulevard alignment, which would have similar transportation benefits. The Queen Street alignment would have somewhat greater environmental impacts due to the narrow available right-of-way. It would use a greater area of lava rock curbs than the Halekauwila alignment. It would also be located between Hale Auhau and the rest of the Hawai'i Capital Historic District and, therefore, potentially use another Section 4(f) property (Figure 5-13).

Two alternatives on Halekauwila Street were considered for reconstruction of the roadway to minimize harm. The first would require paving over the historic curbs and the second would modify the location and structure of guideway support columns to avoid disturbing the lava rock curbs.

While paving over the curbs would preserve most of the curbs in-place on Halekauwila Street, it would require reconstruction of the stormwater drainage system to accommodate the higher roadway profile. As a result, this alternative would still require removal of lava rock curbs in several locations. There is a high potential for curb stones to be damaged during construction of the new roadway above, although measures would be taken to minimize this occurrence. In addition, the lava rock curbs would not be able to be seen by the public.

Relocating support columns would require eliminating parking on Halekauwila Street, altering the alignment of travel lanes, and relocating additional utilities. Altering the alignment of travel lanes would also require the removal of lava rock curbs in those locations to accommodate the alteration of return radii at intersections. Relocation of additional utilities would require removal of curbs in areas where utilities cross the roadway into sidewalk areas.

Halekauwila Street Lava Rock Curbs Summary

The alternatives evaluated for this section of the Project cannot avoid other Section 4(f) properties. Therefore, there is no avoidance alternative. They would not be prudent options since they would not meet the Project's Purpose and Need to improve mobility and would result in greater impacts to environmental resources protected under other

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Federal statutes, additional costs of an extraordinary magnitude, and additional adverse effects to other historic properties.

Lava Rock Curbs Summary

Neither of these options (paving over the lava rock curbs or relocating the guideway support columns) entirely avoids disturbance to the lava rock curbs. While fewer curbs may be affected, these options would not be considered prudent due to the high potential for damage to the properties. These alternatives would not completely avoid the use of Section 4(f) properties and, therefore, would not be considered prudent as defined in 23 CFR 774.17. Each of the above-described factors alone is sufficient to establish that the alternatives considered are not prudent. However, even if the above factors were individually minor, cumulatively they cause unique problems and impacts of extraordinary magnitude.

Throughout the planning and design of the Project, the guideway has been designed to be as narrow as possible to minimize disturbance of historic properties. Nevertheless, the Project will still require removal of lava rock curbs along the edges of the pavement of Dillingham Boulevard and Halekauwila Street.

In accordance with Section 106, a draft PA has been prepared that details measures to mitigate adverse effects to cultural properties, such as the lava rock curbs. All affected lava rock curbs will be marked prior to removal, stored securely, and replaced at their approximate original milepoint locations. Any stones that are damaged or destroyed during extraction or re-installation will be replaced with in-kind materials.

After review of alternative measures to minimize harm, the project alignment on Dillingham Boulevard and Halekauwila Street includes all possible planning to minimize harm.

Boulevard Saimin (De minimis Impact)

Description and Significance of Property

This two-story building fronting Dillingham Boulevard was built in 1960 and is of masonry construction with a stucco finish and flat roof. This building has a full-height section of decorative concrete grille on the side facing Dillingham Boulevard and contains multiple storefronts. This structure is associated with the commercialization of saimin (a noodle soup unique to Hawai'i). Boulevard Saimin has been in operation since 1956 and has since become an important and popular purveyor of saimin on O'ahu. This structure appears unaltered and retains a high level of integrity.

Section 4(f) Evaluation

The Boulevard Saimin parcel would be affected by the widening of Dillingham Boulevard (Figure 5-14) to accommodate the fixed guideway in the median, as common to all Build Alternatives. A total of 700 square feet of the property would be necessary. However, Section 106 consultation determined that the Project will have no adverse effect on this historic property. Therefore, while there will be a direct use, the impact will be *de minimis* and development of avoidance alternatives is not required.

Figure 5-14 Boulevard Saimin

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Kapālama Canal Bridge (Direct Use)

Description and Significance of Property

This 1930 bridge was an important transportation link between Kalihi and Downtown Honolulu and an important aspect of the construction of Dillingham Boulevard between Waiakamilo Road and King Street in the early 1930s. The bridge is eligible for nomination to the NRHP under Criterion A for its association with the transportation history of the area and the extension of Dillingham Boulevard. It is also eligible for nomination under Criterion C as an example of concrete bridge engineering and design in Hawai'i (Figure 5-15).

Figure 5-15 Kapālama Canal Bridge

Section 4(f) Evaluation

The Project will require construction of an elevated fixed guideway over the bridge. Consistent with the necessary widening of Dillingham Boulevard, the Project will require widening of the bridge on its makai side to accommodate a new median within which the guideway will be built. Two support columns will be placed in the roadway median beyond the bridge. The bridge will need to be upgraded to current standards, although it has previously been seismically retrofitted. Because widening of the bridge will permanently incorporate land into the transportation facility, this qualifies as a direct use that adversely affects the qualities of the bridge's design that make it eligible for listing on the NRHP.

Avoidance Alternatives

Similar to the other Dillingham Boulevard properties, there are two alternatives that avoid use of Section 4(f) properties on Dillingham Boulevard, including the Kapālama Canal Bridge—one that would not widen the roadway and one that tunnels underneath Dillingham Boulevard. Neither would be a prudent option for the reasons described above.

An alternative was considered that would not widen the Kapālama Canal Bridge. With this alternative, the guideway would be supported on straddle bents spanning Dillingham Boulevard adjacent to the bank's stream. The crossbeams that span between the straddle bent columns would be more than 100 feet long and approximately 10 feet deep. In addition to the visual impact of such large crossbeams, these straddle bents would result in extraordinary costs. The straddle bents would require two additional columns and drilled shafts beyond the traditional single-column substructures, and the larger loads from the crossbeams would require larger and deeper foundations. The additional cost of the two straddle bents would be approximately $750,000. In addition, the deep crossbeams would also require raising the guideway's vertical alignment to maintain the required vertical clearance over Dillingham Boulevard. At Kapālama Station, just east of the Kapālama Canal Bridge, the raised alignment would move the platform canopies within the safety envelope of the 138-kV electrical lines above the station on both sides of Dillingham Boulevard. To avoid violating the Hawaiian Electric Company (HECO) safety requirements, the electrical lines would need to be relocated underground at a minimum cost of $10 million. In addition, not widening the Kapālama Canal Bridge would require Koko Head-bound drivers to shift lanes quickly at each end of the bridge. This alternative is not prudent because it results in an unacceptable safety problem since it would require an unsafe lane shift for traffic that would be hazardous to drivers and result in

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additional construction costs of an extraordinary magnitude. Each of the above-described factors alone is sufficient to establish that the alternatives considered are not prudent. However, even if the above factors were individually minor, cumulatively they cause unique problems and impacts of extraordinary magnitude.

Minimization of Harm and Mitigation

In accordance with Section 106, a draft PA has been prepared that details measures to mitigate adverse effects to the Kapālama Canal Bridge. The City will maintain or replace the bridge rails to match the appearance of the historic rails. The City will consider the Secretary of Interior Standards for the Treatment of Historic Properties in developing these design plans and provide them to the SHPO for review, as stated in the draft PA.

Kapalama Canal Bridge Summary

After review of alternative measures to minimize harm, the project alignment on Dillingham Boulevard that requires the widening of Kapālama Canal Bridge includes all possible planning to minimize harm.

Six Quonset Huts (Direct Use)

Description and Significance of Property

This property is eligible for nomination to the NRHP under Criterion A for its association with the re-use of former military buildings by small businesses and other uses, as well as Criterion C because it embodies the distinctive characteristics of this Quonset building type (Figure 5-16). This is a relocated grouping of military Quonset huts, which were originally erected by the military on another site during WWII. According to aerial photos, they were re-erected on this site sometime between January 1953 and January 1963.

Section 4(f) Evaluation

The Project will require acquisition of an approximately 10-foot-wide strip of land within the Six Quonset Huts property boundary (but not touching the huts) along the makai edge of Dillingham Boulevard. In addition, a small area will also be acquired at the 'Ewa corner of the property, extending makai approximately 25 feet. A portion of this acquisition will be converted to roadway and sidewalk use to accommodate installation of the median and guideway on Dillingham Boulevard.

Figure 5-16 Six Quonset Huts

Avoidance Alternatives

The avoidance alternatives discussed above for other historic properties on Dillingham Boulevard and Lava Rock Curbs also apply to the Six Quonset Huts (Figure 5-12).

Minimization of Harm and Mitigation

The use of straddle bents to avoid the Six Quonset Huts would have similar consequences to the other Dillingham Boulevard properties. Instead of a direct use of 10 Courtyard Houses (as described with the Dillingham Boulevard Houses), additional true kamani trees on the mauka side of Dillingham Boulevard would be used and the Kapālama Station would need to be relocated if straddle bents were constructed to avoid the historic Quonset huts.

As discussed above for the other properties on Dillingham Boulevard, the use of straddle bents would not reduce the overall harm to Section 4(f) properties and would require acquisition of

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additional right-of-way, cause visual impacts, and result in unacceptable safety problems. Each of the above-described factors alone is sufficient to establish that the alternatives considered are not prudent. However, even if the above factors were individually minor, cumulatively they cause unique problems and impacts of extraordinary magnitude.

Throughout the planning and design of the Project, the guideway has been designed to be as narrow as possible to minimize the need for removal of any historic buildings. Nevertheless, the Project will still require removal of a small amount of land on the same parcel as the Six Quonset Huts.

Six Quonset Huts Summary

In accordance with Section 106, a draft PA has been prepared that details a variety of stipulations that must be followed to mitigate anticipated adverse effects on historic properties. One of these stipulations is the preparation of a Cultural Landscape Report for the Dillingham Boulevard corridor, which includes the Quonset Huts. After review of alternative measures to minimize harm, the project alignment on Dillingham Boulevard that requires the use of the Six Quonset Huts includes all possible planning to minimize harm.

True Kamani Trees (Direct Use)

Description and Significance of Property

Mature true kamani trees, planted in the mid-1930s, still line both sides of Dillingham Boulevard. They stand approximately 30 feet tall and are spaced about 55 to 75 feet apart. Many have asymmetrical canopies as a result of pruning to avoid nearby utility lines. The trees are associated with the 1930s roadway infrastructure development of Dillingham Boulevard and the history of street tree plantings in Honolulu. They remain unaltered, except for necessary maintenance pruning (Figure 5-17).

Figure 5-17 True Kamani Trees on Dillingham Boulevard

Section 4(f) Evaluation

The Project requires that Dillingham Boulevard be widened by 10 feet to accommodate a median within which the fixed guideway will be placed. As a result, approximately 28 true kamani trees will be removed from the makai side of the street, which constitutes a direct use pursuant to Section 4(f).

Avoidance Alternatives

The avoidance alternatives evaluated for the Dillingham Boulevard houses and lava rock curbs also apply to the true kamani trees (Figure 5-12). For the same reasons that they would not be prudent alternatives to avoid other Dillingham Boulevard Section 4(f) properties, they would not be prudent avoidance alternatives for the true kamani trees. Each of the factors described above under the other Dillingham Boulevard properties is sufficient to establish that the alternatives considered are not prudent. However, even if the factors were individually minor, cumulatively they cause unique problems and impacts of extraordinary magnitude.

Minimization of Harm and Mitigation

The Project will require removal of 28 true kamani trees. During Final Design and construction, the City landscape architect will develop a planting plan to mitigate effects to these and other street trees affected by the Project on Dillingham Boulevard. The City will replace the true kamani trees within the corridor as close as feasible to

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the current location of the trees to be removed on the makai side of Dillingham Boulevard. At that time, it may be determined that some can be transplanted.

True Kamani Trees Summary

A draft PA has been prepared in accordance with Section 106 that contains detailed stipulations that mitigate adverse effects from the Project on cultural properties. After review of alternative measures to minimize harm, the project alignment on Dillingham Boulevard that requires the removal of true kamani trees includes all possible planning to minimize harm.

O`ahu Railway & Land Company Terminal Building and Office/Document Storage Building (Direct Use)

Description and Significance of Properties

The 1925 two-story terminal building is located on North King Street near Iwilei Road. It was designed by Honolulu architect Guy N. Rothwell and embodies the distinctive characteristics of public buildings during the 1920s in Honolulu.

The O'ahu Railway & Land Company (OR&L) Office and Document Storage Building is a two-story, Colonial Revival-style building constructed in 1914. It is set back from North King Street, about 75 feet mauka of the Terminal Building. Both buildings are associated with OR&L, which was an important transportation network serving the sugar and pineapple plantations, the military, and residents of O'ahu until it discontinued service in December 1947. These properties are eligible under Criterion A for their association with the railway.

The terminal building is also eligible under Criterion C as an example of Spanish Mission Revival Style with high artistic value. Both are now office buildings with associated parking lots and open areas in back (Figure 5-18).

Figure 5-18 O`ahu Railway & Land Company Terminal Building

Section 4(f) Evaluation

The Project includes construction of an elevated guideway on a planned access easement that crosses the back section of this large parcel. The alignment is on the site of the former OR&L rail yard, an area behind the buildings and their associated parking lots that has been cleared and paved. The City Department of Planning and Permitting (DPP) approved an easement for utility and access purposes through this property. The Project will use approximately 0.75 acre within this easement. The alignment will be approximately 150 feet makai from the Office and Document Storage Building, 100 to 150 feet makai from the Terminal Building, and approximately 45 feet aboveground. Approximately five guideway support columns will be located in this segment of the alignment. The structure will be taller than both buildings, and the visibility and connection to the former rail yard area will be maintained.

Avoidance Alternatives, Minimization of Harm, and Mitigation

North King Street Alignment

The guideway follows this access easement to connect Dillingham Boulevard to Nimitz Highway. The North King Street alignment would avoid this property but would have resulted in the use of as many as 36 historic Section 4(f) properties, a greater number of residential relocations, and more noise-sensitive properties compared to the

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Project alignment. It is also adjacent to the A'ala International Park, which is a public park. This park (Section 4(f) property) would be used for the Project by the North King Street alternative as well as the alternative that shifts the alignment from King Street to Beretania Street mauka of the OR&L property. It also would serve fewer transit trips than the Project alignment and would not satisfy the stated Purpose and Need of improved mobility. For these reasons, it would not be considered prudent since it would compromise the Project in such a way that it would be unreasonable to proceed with it in light of its stated Purpose and Need and cause social, economic, and environmental impacts (Figure 5-19).

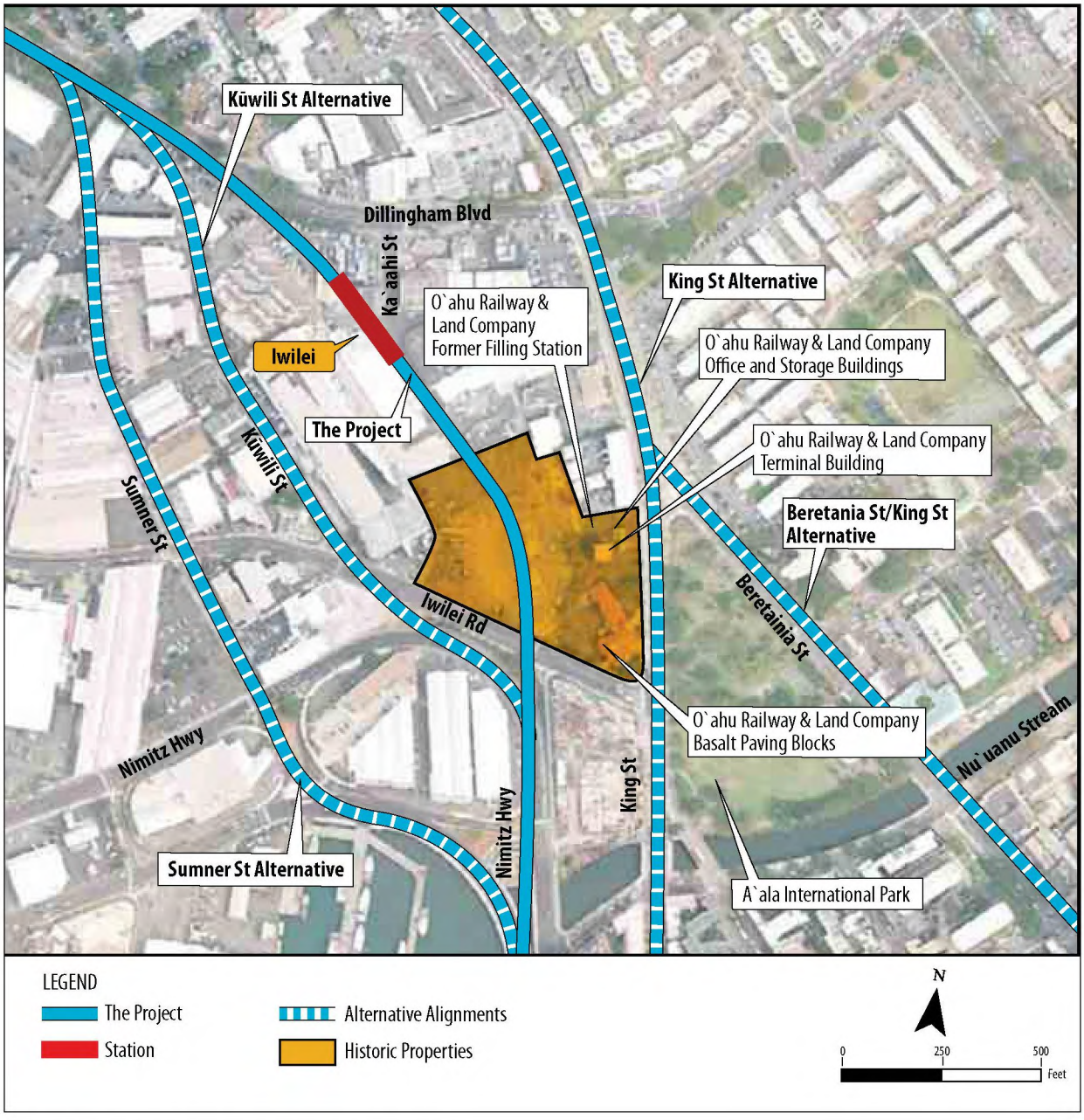

Figure 5-19 O`ahu Railway & Land Company Alternative

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Kūwili and Sumner Streets Alignment

Other alternatives were considered to avoid the OR&L property that included different alignment connections between Dillingham Boulevard and Nimitz Highway instead of Ka'aahi Street. An alignment that follows Kūwili or Sumner Streets and then crosses private property would require additional acquisitions and business displacements. Given that the Project uses an existing transportation access easement through the historic OR&L parcel, acquisition and displacement is minimized, although some properties will be displaced in the vicinity of Iwilei Station.

Right-of-way along Kūwili Street is narrower than Ka'aahi Street, and large buildings are located on both sides of the street. In addition, two separate electric substations are located on both sides of Kūwili Street making this alignment difficult to construct without relocating some electrical equipment. An alignment running along Kūwili Street would be positioned on the makai side of the street since the electrical substation on the mauka side is large. Right-of-way would be acquired from six parcels on the makai side, and it is likely that four buildings on these parcels would need to be modified to accommodate the guideway. In addition, Kūwili Street does not connect to Dillingham Boulevard, and right-of-way would also be needed from three additional parcels, all of which are owned by the same owner. One building would need to be demolished and another reconstructed on one of these parcels. The transition from Kūwili Street to Nimitz Highway would also require the renovation of an additional building on the mauka side of Kūwili Street. Overall, the alignment between Dillingham Boulevard and Nimitz Highway would require two sets of reverse curves within a segment about 2,300 feet long, require right-of-way from 10 parcels and reconstruction of five buildings. According to 23 CFR 774.17, this alternative would not be considered prudent since it would cause severe economic impacts after mitigation.

Sumner Street is also narrow and contains buildings on both sides of the street. As with Kūwili Street, Sumner Street does not connect to Dillingham Boulevard. An alignment on Sumner Street that connects to northbound Nimitz Highway would have greater right-of-way impacts than a Kūwili Street alignment and would require demolition of four fairly large buildings and the renovation of three additional buildings. A Sumner Street alignment that connects to the southbound lanes of Nimitz Highway would have fewer impacts but would still require demolition of a fairly large building and the renovation of four additional buildings. The Chinatown Station would need to be relocated farther Koko Head with this alignment to a location that would displace contributing properties to the Chinatown Historic District. Similarly, this alternative would cause even more severe economic impacts given the greater number of property takings.

The alignments for both the Kūwili Street and the Sumner Street alternatives have closely spaced horizontal curves that would preclude construction of Iwilei Station. If the alignment were straightened to provide sufficient tangent for a station, then the right-of-way impacts (economic impacts) would be even greater. With either alternative, the location of the station would be at least 400 feet farther from where most walking patrons would originate (the mauka side of King Street). The bus interface would also be more cumbersome and would add an addition 3 to 5 minutes of travel time to each bus route to access this station. The increased distance from where pedestrians would access the station in addition to the longer bus route will discourage ridership at this station. For all of the reasons noted above, these alternatives would not meet the Project's stated Purpose and Need of improving transit mobility and access to transit.

The alternatives evaluated for this section of the Project cannot avoid other Section 4(f) resources. Therefore, there is no avoidance alternative.

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O`ahu Railway & Land Company Terminal Building and Office/Document Storage Building Summary

As described above, there are no prudent alternatives to the alignment location through the OR&L property. The alternatives would require acquisition of additional right-of-way and result in unacceptable operational changes associated with moving and/or eliminating stations. Each of the factors described above under the rest of the Dillingham Boulevard properties is sufficient to establish that the alternatives considered are not prudent. However, even if the factors were individually minor, cumulatively they cause unique problems and impacts of extraordinary magnitude.

Throughout the planning and design of the Project, the guideway has been designed to be as narrow as possible to minimize disturbance of historic properties. Since the Project is located on an existing access easement through the OR&L property, the Terminal and Office/Storage Buildings will not be physically altered. The Project was designed to minimize its footprint on the property by reducing column size and maximizing column spacing.

A draft PA has been prepared in accordance with Section 106 with detailed stipulations that mitigate adverse effects from the Project on historic properties. After review of alternative measures to minimize harm, the project alignment through the OR&L property includes all possible planning to minimize harm.

O`ahu Railway & Land Company Basalt Paving Blocks and Former Filling Station (De minimis Impact)

Description and Significance of Property

The former filling station on the OR&L property is a one-story, flat-roofed masonry building constructed in 1940. It is set back from North King Street, just Koko Head of the Document Storage Building. It is significant for its association with the development of the ʻAʻala neighborhood. Although it is on the OR&L property, it is not believed to be related to the other OR&L buildings and is not part of that historic complex (Figure 5-20).

The historic basalt paving stones are set within Iwilei Road at the makai edge of the OR&L property boundary. They date from 1914 and represent a rare example of extant basalt street paving remaining in situ on Oʻahu. The paving stones are historically significant for their association with roadway infrastructure development in the early 20th century (Criterion A), the distinctive method of using basalt in road construction in Honolulu (Criterion C), and as a rare source of information on the technology of street paving in early Honolulu (Criterion D) (Figure 5-21).

Figure 5-20 O`ahu Railway & Land Company Former Filling Station

Figure 5-21 O`ahu Railway & Land Company Basalt Paving Blocks

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Section 4(f) Evaluation

The Project includes construction of an elevated guideway on a planned access easement through this large OR&L parcel as it extends from Dillingham Boulevard to Nimitz Highway (Figure 5-19). While the Project will require the permanent incorporation of 0.75 acre of the site for columns and easement, these two properties will not be affected by this acquisition, given their distance and non-relation to this portion of the property and because the alignment will completely span and not touch the basalt paving blocks. Section 106 consultation determined that the Project will have no adverse effect on these historic properties. Therefore, while there will be a direct use, the impact will be *de minimis* and development of avoidance alternatives is not required.

Chinatown Historic District (Direct Use)

Description and Significance of Property

This 36-acre historic district was listed on the NRHP on January 17, 1973. Its boundaries run in a line 50 feet 'Ewa of Nu'uanu Stream, along the mauka side of Beretania Street, 50 feet Koko Head of Nu'uanu Avenue, and extend into the waters of Honolulu Harbor 50 feet makai of the longest pier. The makai boundary of the district expresses the importance of Chinatown's connection with the harbor and its historic ties to the waterfront, a factor of great importance in its origin and evolution. It is recognized as a place of cultural importance to the City's Asian community since the early 20th century, which retains its distinctive cultural surroundings and architectural character (Figure 5-22).

Section 4(f) Evaluation

The Project includes construction of an elevated guideway within a reconstructed median on Nimitz Highway and a station Koko Head of Nu'uanu Stream at the 'Ewa edge of the district. The station entrance will touch down in a parking lot that is on a parcel containing properties that are contributing elements to the Chinatown Historic District associated with the non-historic Chinatown Marketplace. The Project will require acquisition of 0.3 acre, which will result in a direct use.

Figure 5-22 Chinatown Historic District

The Chinatown Station is set in the least sensitive location on the 'Ewa edge of the district, beside non-contributing modern buildings in a parking lot. The 30- to 42-foot-high guideway will pass between contributing pier buildings along the waterfront (Figure 5-23) and the harbor. The primary view of these structures is from a ground-level perspective from the mauka side of Nimitz Highway, three lanes removed from the structures. Thus, the guideway and station will be behind and above the viewer and will not block or obstruct primary views of any architecturally significant buildings or substantially impair the characteristics of its National Register eligibility. Predicted noise levels do not exceed FTA criteria.

The district's NRHP eligibility includes the relationship between the district's elements, including architecture, and Honolulu Harbor within the district. The Project will not substantially impair the physical connection to the waterfront. The Project will be a dominant visual element that contrasts in scale with the pedestrian environment and substantially changes makai views of Honolulu Harbor from Chinatown.

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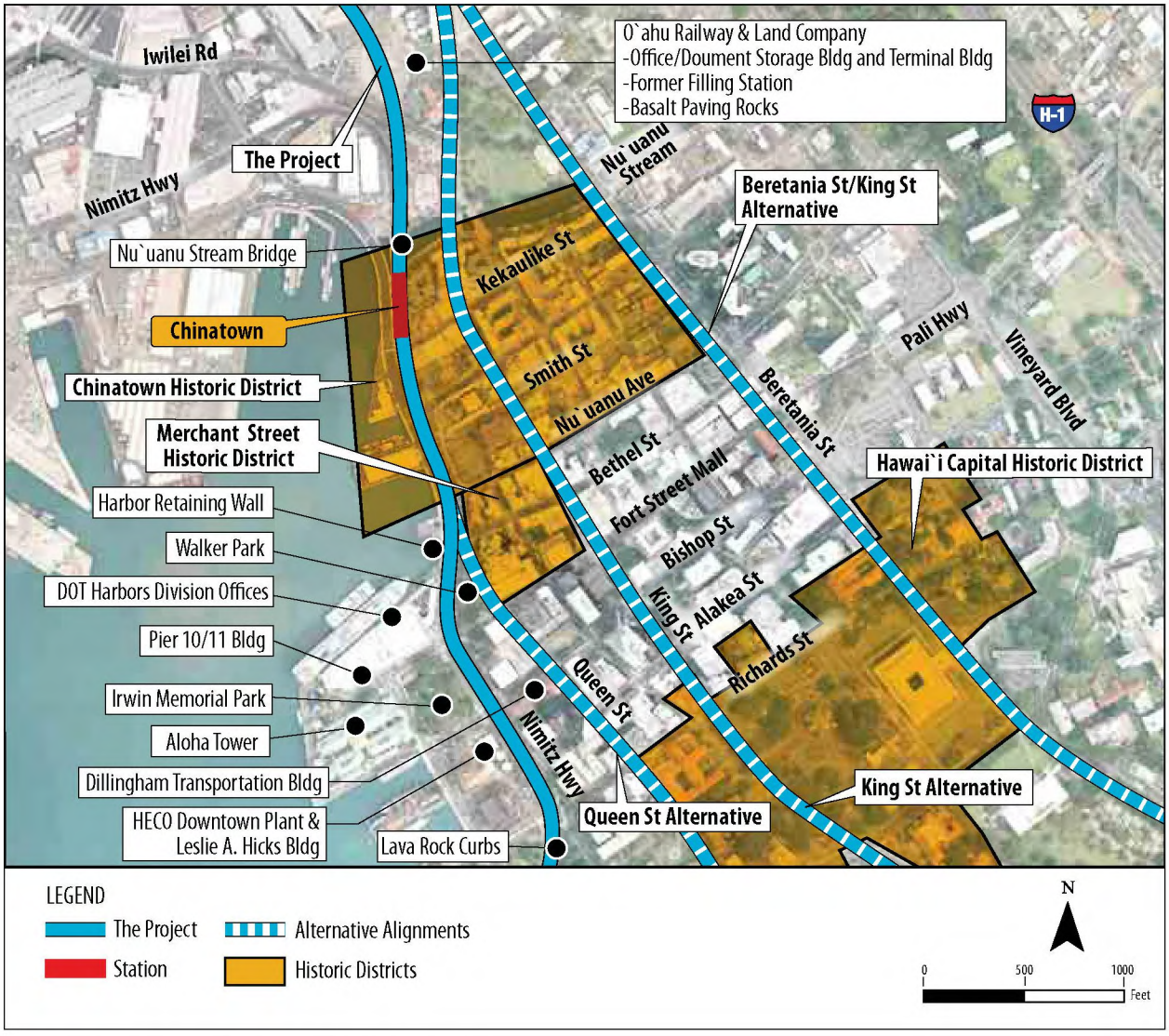

Figure 5-23 Chinatown/Downtown Area Alternatives

Avoidance Alternatives, Minimization of Harm, and Mitigation

As described above, there are no prudent or feasible avoidance alternatives to the Nimitz Highway alignment that passes through the edge of the Chinatown Historic District. The only alternatives that would completely avoid the Chinatown Historic District would be the Downtown area tunnel alternatives (Figure 5-24). A tunnel would increase the cost of the Project by more than $650 million (2006 dollars), which is beyond the funding provided in the financial plan. Therefore, this would not be considered a prudent alternative as defined under 23 CFR 774.17, as it would result in additional construction cost of an extraordinary magnitude.

Chinatown Historic District Summary

Throughout the planning and design of the Project, the guideway has been designed to be as narrow as possible to minimize potential use of the Chinatown Historic District. The guideway will follow Nimitz Highway along the makai edge of Chinatown, and a station entrance will be placed on a parking lot on the edge of the historic district. The public, including the Section 106 consulting

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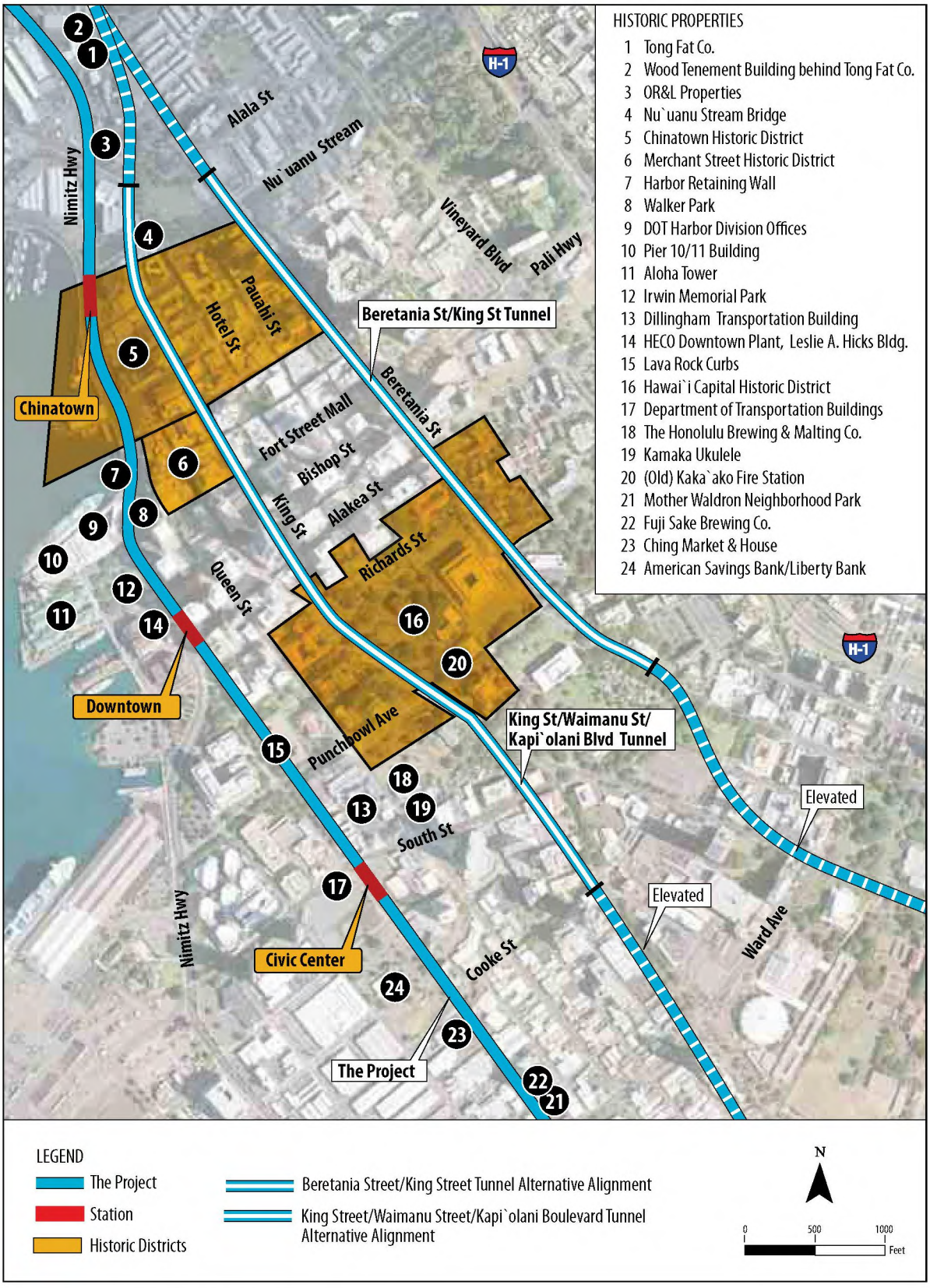

Figure 5-24 Downtown Area Tunnel Alternatives

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parties, will be offered the opportunity to provide comments on station design at neighborhood design workshops during the Final Design process.

A draft PA has been prepared in accordance with Section 106, with detailed stipulations that mitigate adverse effects from the Project on cultural properties. Specific measures are outlined related to station design proposed within, or adjacent to, the boundaries of properties eligible for or listed on the NRHP, such as this property. The City will consider *The Secretary of Interior's Standards for the Treatment of Historic Properties* (USDOI 1995) in developing these designs, and the Section 106 consulting parties will be provided with the opportunity to comment on the design plans for stations. After review of alternative measures to minimize harm, the project alignment through the Chinatown Historic District property includes all possible planning to minimize harm.

Figure 5-25 Dillingham Transportation Building, looking Mauka from Nimitz Highway

Dillingham Transportation Building (Direct Use)

Description and Significance of Property

This monumental four-story Italian Renaissance Revival-style building was constructed in 1930 when the territory was developing quickly and Bishop Street was becoming the main commercial street in Honolulu. It fronts Bishop Street the entire block between Nimitz Highway and Queen Street, one block mauka of the harbor. The NRHP-listed building is significant for its association with commercial development of the time and the Dillingham family's business empire (which included the OR&L and various agricultural and industrial ventures), as well as for its architectural design. While changes have been made to the structure, particularly on the ground floor, to create storefronts and an arcade, the building maintains much of its original integrity (Figure 5-25).

Section 4(f) Evaluation

The elevated guideway will run down Nimitz Highway, approximately 40 feet makai of the building. The Downtown Station entrance will be sited on a modern plaza next to the Dillingham Transportation Building on the same parcel. The Downtown Station is projected to be the second highest volume station in the system and will be the only station to serve the Central Business District.

Approximately 3,000 square feet of the plaza will be used by the Project for the station entrance. This landscaped plaza is not a contributing element to the NRHP-listed building but is part of the parcel listed on the NRHP, which extends into the Nimitz Highway roadbed. The plaza is privately owned and currently used as an open space for neighboring office buildings, featuring tables, chairs, and walkways (Figure 5-26). The station entrance will be situated at the makai end of the plaza in the area where the existing fountain and trash dumpster storage area are located. It will not eliminate the open space or alter its use. The station entrance will be designed to be compatible with the use of the open space. Because the Project will permanently incorporate land from within the boundaries of a historic property into the transportation facility, it will result in a Section 4(f) use.

Avoidance Alternatives

Downtown Tunnel

The Downtown area tunnel alternative discussed for Chinatown would also avoid the Dillingham

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Figure 5-26 Plaza at Planned Downtown Station Entrance; Dillingham Transportation Building on right

Transportation Building. For the reasons discussed under the Chinatown Avoidance Alternatives section, this alternative is not prudent.

Dillingham Transportation Building Alakea Street Alternative

An alternative was evaluated that moved the station Koko Head shifting the entrance to Alakea Street (Figure 5-27). To avoid the historic Dillingham Transportation Building property, two options exist for the station entrance on Alakea Street. One option would locate the entrance on the 'Ewa side of the street, adjacent to the Pacific Guardian Center. The other would place the entrance on the Koko Head side of Alakea Street, adjacent to the Harbor Square Building. Neither alternative is considered prudent for the reasons discussed below.

To accommodate a new station entrance building on either side of Alakea Street and maintain adequate sidewalk space for pedestrians and building code requirements for distance between the buildings and station entrances and features, two of the street's five traffic lanes would require removal (Figure 5-28). Narrowing Alakea Street would have a detrimental effect on traffic conditions that would affect traffic flow on Ala Moana Boulevard, as the high volume of traffic would back up trying to enter Alakea Street. This would result in an unacceptable safety and congestion problem and, therefore, is not a prudent alternative.

In addition, a station entrance adjacent to the Pacific Guardian Center on the 'Ewa side of the street would force pedestrians to walk past the entrance to the office building's 760-space garage (Figure 5-29). The 760-space garage is a busy facility for downtown commuters. This alternative would create an unsafe conflict between pedestrians and automobiles, which currently sees an average of 16 pedestrians crossing and 4 automobiles using the entrance each minute of the peak hour. A station entrance in this location would generate an additional 28 pedestrians every minute during the two-hour peak travel period, almost tripling current pedestrian activity. Moving the Pacific Guardian Center garage entrance off Alakea Street is not possible without reconstructing the high-rise building. Therefore, a station entrance adjacent to the Pacific Guardian Center is not considered prudent because of the unacceptable safety problems from pedestrian and automobile conflicts and the additional construction cost to reconstruct the building to move the parking entrance from Alakea Street.

Placing the station entrance on the Koko Head side of Alakea Street presents the same problem (Figures 5-27 and 5-28). The Harbor Square building is a residential high-rise with a parking garage below (Figure 5-30). As with the 'Ewa side of the street, a station entrance at this location would create an unsafe conflict between pedestrians and automobiles using the parking garage. The intersection of Nimitz Highway and Alakea Street carries high traffic volumes. Turning movements from Nimitz Highway are high with over 1,300 turning vehicles (450 right turns and 850 left turns) in the AM peak hour and over 1,000 (325 right turns and 700 left turns) in the PM peak hour. The high number of vehicles traveling from Nimitz Highway to Alakea Street, the narrow sidewalk, and driveway access to the parking garage create an undesirable condition

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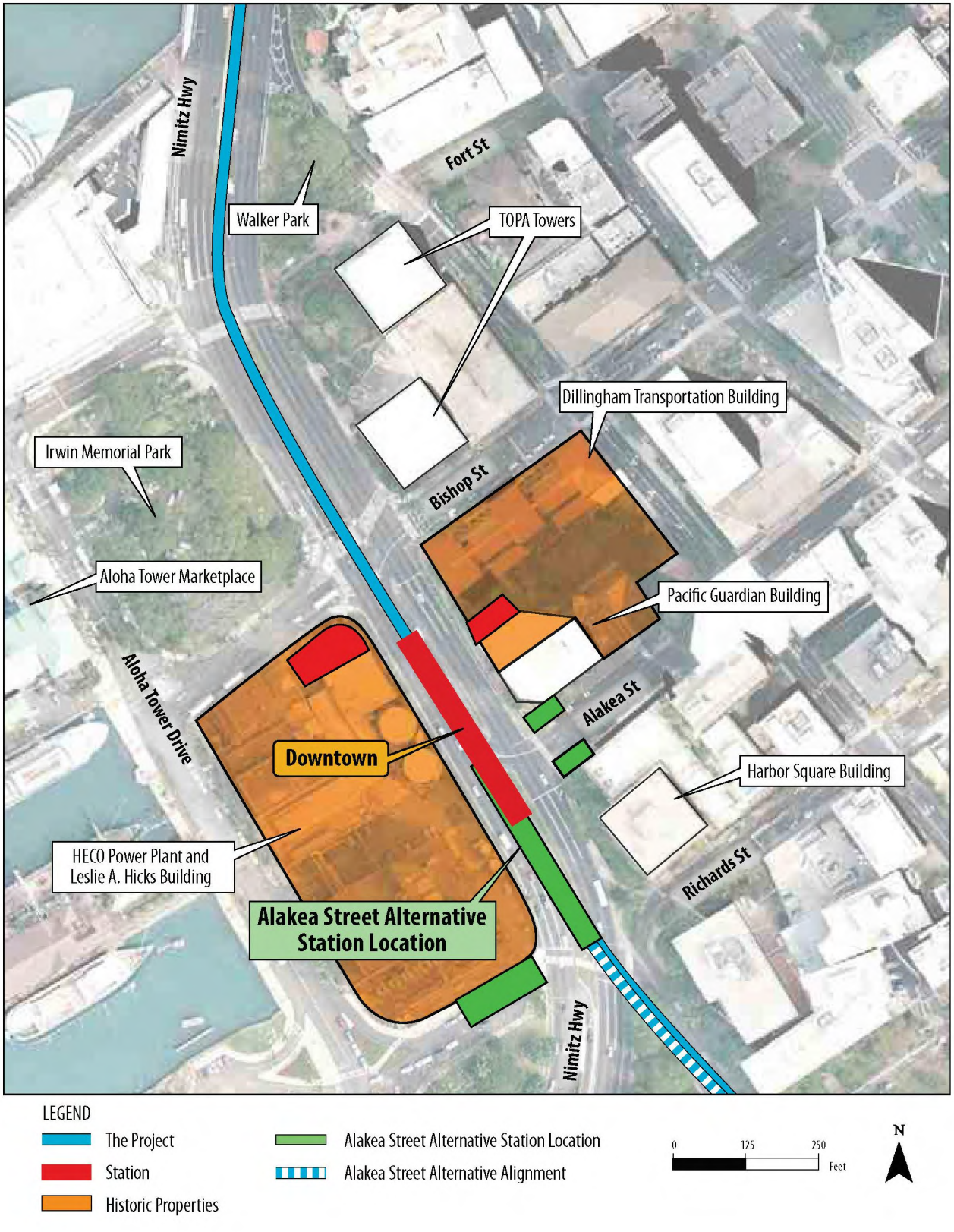

Figure 5-27 Dillingham Transportation Building, HECO Power Plant, and Leslie A. Hicks Building and Alternatives—Alakea Street Alternative Alignment

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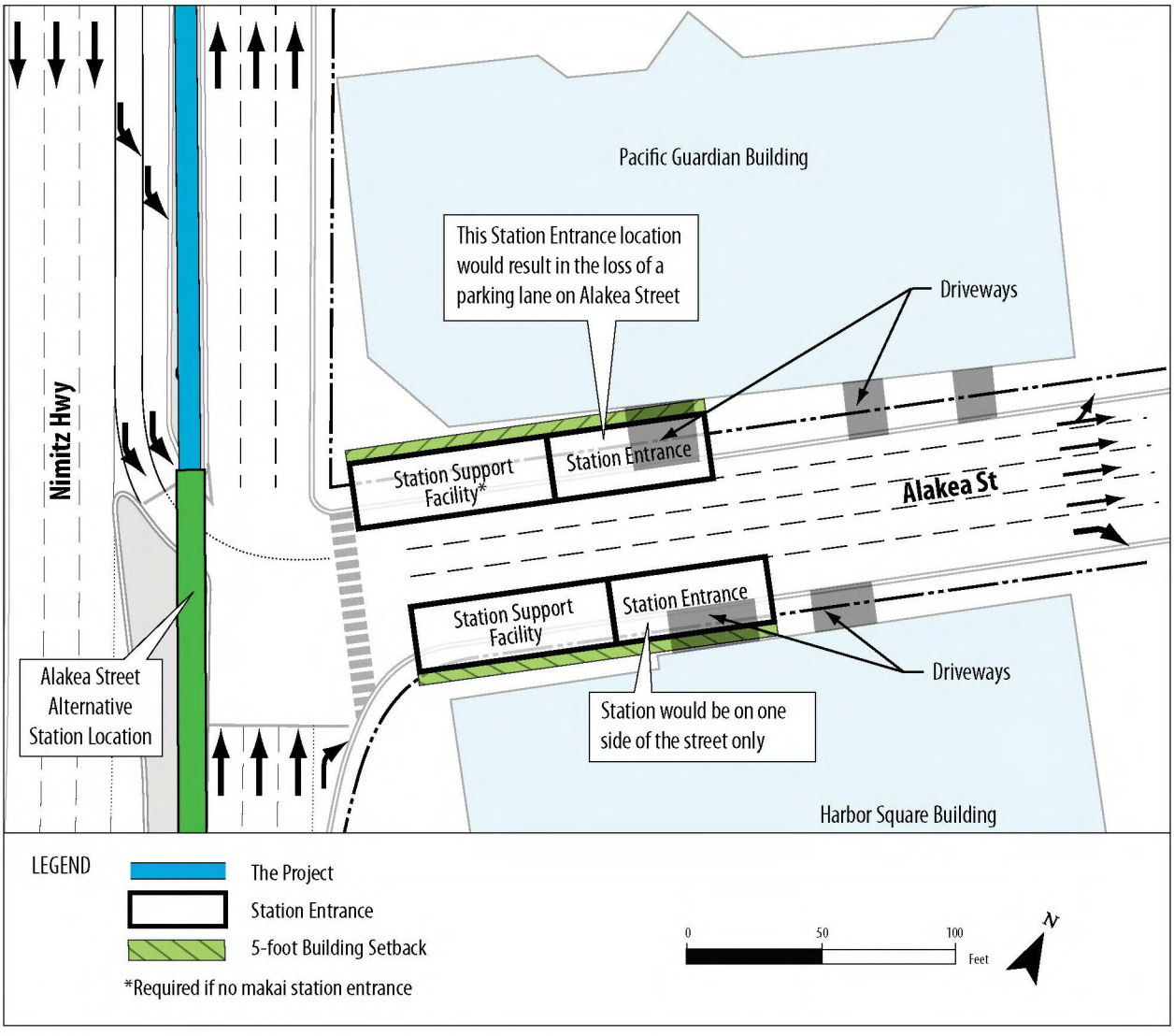

Figure 5-28 Alakea Street/Dillingham Boulevard Alternative

Figure 5-29 Entrance to Pacific Guardian Center

Figure 5-30 Parking Entrance at Harbor Square Building

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for pedestrians that would be exacerbated with a station touchdown for the heavily used Downtown Station. Therefore, this option is also not prudent for the reasons discussed above for the station entrance on the 'Ewa side of Alakea Street.

If the Downtown Station were located on Alakea Street, it could be constructed with or without a makai station entrance. A makai station entrance would enable the station support features to be located on the makai side of Nimitz Highway and not next to either of the station entrances on Alakea Street. This would shorten the length of the station and its features on Alakea Street. If the station support features were located on Alakea Street on either side of the street, they would block the parking garage entrances. The construction costs associated with relocating the parking-structure entrances would result in an impact of extraordinary magnitude. In addition, the makai station entrance would place transit users farther from the primary destinations of the Waterfront and Aloha Tower Marketplace and would result in higher pedestrian traffic along Nimitz Highway, which is currently not a pedestrian-friendly environment due to the high-speed, high-volume traffic and inadequate pedestrian facilities. This location does not meet the Project's stated Purpose and Need of improving transit mobility.

Minimization of Harm and Mitigation

Several alternative alignments were considered during the Alternatives Analysis phase, one of which included Queen Street. While this alternative would avoid this historic property, it was determined that it would also result in a direct use of properties within the Hawai'i Capital Historic District, including the Post Office, Ali'iōlani Hale, and Hale Auhau. It would also result in a direct use of three properties on the NRHP along Queen Street (the C. Brewer, Alexander and Baldwin, and Royal Brewery Buildings). Therefore, it does not represent a prudent Section 4(f) avoidance alternative because it does not avoid using other Section 4(f) properties.

Dillingham Transportation Building Fort Street Alternative

An alternative was considered that would move the station 'Ewa to Fort Street (Figure 5-31). Under this alternative, the station entrances would be located in Irwin Memorial Park on the makai side and either Walker Park or the Fort Street Mall on the mauka side. This station location would require a 250-foot-curve radius to maintain a minimum distance between the edge of the station platform and the end of the horizontal curve. A 250-foot-curve radius is substantially less than the Project's design criteria of a minimum of 500 feet. Such a tight radius would necessitate reducing speeds to 5 to 10 miles per hour, which is substantially below the Project's minimum design speed of 30 miles per hour. This would result in increased travel time and noise. Additionally, placing an entrance makai of Nimitz Highway would impact Irwin Memorial Park, a Section 4(f) property, and a mauka entrance would block either the Fort Street Mall or Walker Park, other Section 4(f) properties.

Each of the factors described above is sufficient to establish that the alternatives considered are not prudent. However, even if the factors were individually minor, cumulatively they cause unique problems and impacts of extraordinary magnitude.

Dillingham Transportation Building Summary

Throughout the planning and design of the Project, the guideway has been designed to be as narrow as possible to minimize the need for removal of any historic buildings. The station has been placed Koko Head of the Dillingham Transportation Building façade to minimize the guideway structure in front of the building. As a result, the Project will not physically alter the building. A draft PA, in accordance with Section 106, has been prepared that details mitigation measures. The City will research, photograph, and record the history of this property. After review of alternative measures

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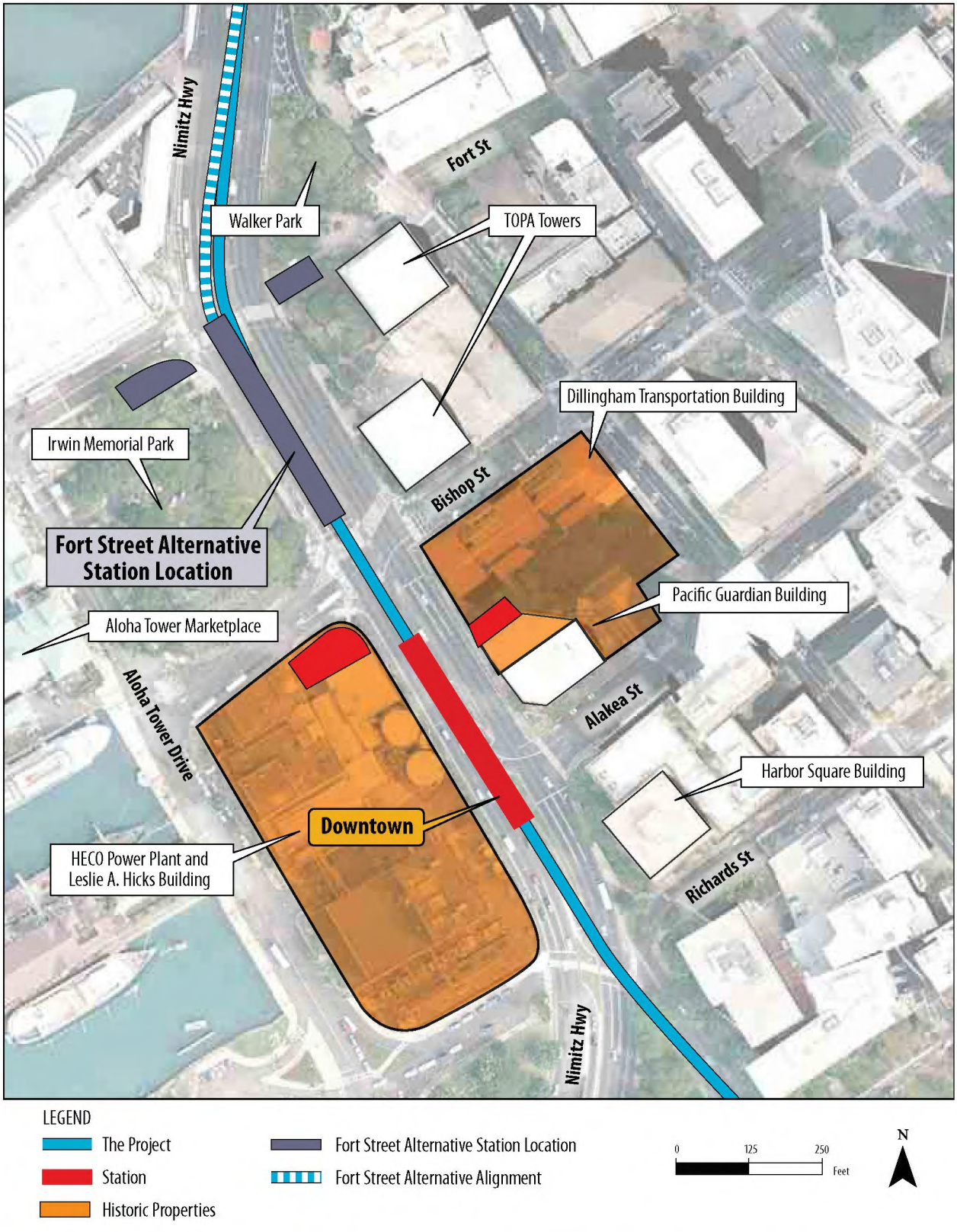

Figure 5-31 Dillingham Transportation Building, HECO Power Plant, and Leslie A. Hicks Building Alternatives—Fort Street Alternative Alignment

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to minimize harm, the project alignment through the Dillingham Transportation Building property includes all possible planning to minimize harm.

HECO Downtown Plant and Leslie A. Hicks Building (Direct Use)

Description and Significance of Property

This two-building property is eligible for nomination to the NRHP under Criterion A for its association with the history of electric power in Honolulu. The power plants built in 1929 (designed by Dwight P. Robinson Co. of New York) and 1955 (designed by Merrill, Simms & Roehrig of Honolulu) are important for their associations with the history of electric power generation and the development of Honolulu (Figure 5-32).

Figure 5-32 HECO Downtown Plant and Leslie A. Hicks Building

Section 4(f) Evaluation

Associated features of the transit station, including an at-grade-level entry, escalator, and elevator shaft, as well as electrical, mechanical, and security components, will be located immediately mauka of and in the location of a small addition to the 1929 building at its 'Ewa/mauka corner and within its NRHP boundary. These features require that approximately 7,900 square feet of area within the NRHP boundary be acquired and that the metal roof of this extension be demolished. This extension is not a contributing element that makes this property eligible for the NRHP; however, it is a use of land from a Section 4(f) property and, therefore, evaluation of avoidance alternatives is required.

Avoidance, Minimization of Harm, and Mitigation

The Downtown Station entrance and support features were designed to be located on the HECO property to minimize harm to the Dillingham Transportation Building. The station support features were located on the HECO property because the relative value of the HECO property in the area where the station entrance and support features will be located is not as valuable as the area next to the Dillingham Transportation Building with regard to preservation of historic resources. Therefore, with the current location of the Downtown Station, it is not prudent to avoid the HECO property.

The same avoidance alternatives described for the Dillingham Transportation Building to shift the station entrances to Fort Street or Alakea Street would apply to this property as well (Figure 5-31).

HECO Downtown Plant Summary

Throughout the planning and design of the Project, the guideway has been designed to be as narrow as possible to minimize the need for removal of any historic buildings. The station entrance and other station components have been placed 'Ewa of the historic power plant building near Bishop Street and require only demolition of an extension to the building (HECO Downtown Plant and Leslie A. Hicks Building). This location will also avoid the use of Irwin Memorial Park (a recreational property and a historic property).

In accordance with Section 106, a draft PA has been prepared that details a variety of stipulations that must be followed to mitigate projected adverse effects on historic properties. One of these stipulations is the preparation of historic context studies, including the history of Honolulu's infrastructure, which would likely include the history of power generation and document this historic property.

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Other types of measures to mitigate or minimize harm are described in Section 5.5.2 under Agency Coordination and Consultation. After review of alternative measures to minimize harm, the project alignment on HECO property includes all possible planning to minimize harm.

5.6 Evaluation of Constructive Use of Section 4(f) Properties

23 CFR 774.15(a) states that "A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the Project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the property are substantially diminished."

NRHP eligibility criteria discussed in this Chapter refer to 36 CFR 60.4. The *National Historic Preservation Act* (NHPA) is an entirely separate statute from Section 4(f) with its own implementing regulation promulgated by another Federal agency. Therefore, a finding of "adverse effect" under Section 106 of the NHPA does not automatically equate to constructive use under Section 4(f). Moreover, an adverse effect finding does not create a presumption of constructive use.

The FHWA Section 4(f) Policy Paper states: "If a project does not physically take (permanently incorporate) historic property but causes an adverse effect, one must assess the proximity impacts of the Project in terms of the potential for 'constructive use.' This analysis must determine if the proximity impact(s) will substantially impair the features or attributes that contribute to the National Register eligibility of the historic site or district. If there is no substantial impairment, not withstanding an adverse effect determination, there is no constructive use and Section 4(f) requirements do not apply."

23 CFR 774.15 provides the following direction for considering constructive use: "(a) A constructive use occurs when the transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the property are substantially diminished."

> "(d) When a constructive use determination is made, it will be based upon the following:
>
> (1) Identification of the current activities, features, or attributes of the property which qualify for protection under Section 4(f) and which may be sensitive to proximity impacts;
>
> (2) An analysis of the proximity impacts of the proposed project on the Section 4(f) property. If any of the proximity impacts will be mitigated, only the net impact need be considered in this analysis. The analysis should also describe and consider the impacts which could reasonably be expected if the proposed project were not implemented, since such impacts should not be attributed to the proposed project; and
>
> (3) Consultation, on the foregoing identification and analysis, with the official(s) with jurisdiction over the Section 4(f) property."

The Section 4(f) regulations provide additional guidance for analyzing constructive use of historic properties under 23 CFR 774.15(e) as follows:

- The projected noise-level increase attributable to the project substantially interferes with the use and enjoyment of a noise-sensitive facility

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of a property protected by Section 4(f), such as enjoyment of a historic site where a quiet setting is a generally recognized feature or attribute of the site.

- The proximity of the proposed project substantially impairs esthetic features or attributes of a property protected by Section 4(f), where such features or attributes are considered important contributing elements to the value of the property. Examples of substantial impairment to visual or esthetic qualities would be the location of a proposed transportation facility in such proximity that it obstructs or eliminates the primary views of an architecturally significant historical building, or substantially detracts from the setting of a Section 4(f) property which derives its value in substantial part due to its setting.
- The Project results in a restriction of access which substantially diminishes the utility of a significant publicly owned park, recreational area, or historic site.
- The vibration impact from construction or operation of the Project substantially impairs the use of a Section 4(f) property, such as projected vibration levels that are great enough to physically damage a historic building or substantially diminish the utility of the building, unless the damage is repaired and fully restored consistent with *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (USDOI 1995), i.e., the integrity of the contributing features must be returned to a condition which is substantially similar to that which existed prior to the Project.
- The ecological intrusion of the project substantially diminishes the value of wildlife habitat in a wildlife and waterfowl refuge adjacent to the project, substantially interferes with the access to a wildlife and waterfowl refuge when such access is necessary for established wildlife migration or critical life cycle processes, or substantially reduces the wildlife use of a wildlife and waterfowl refuge.

None of the Section 4(f) properties discussed below that are within proximity to the Project were determined to have a constructive use after a constructive use evaluation was completed. As documented in Chapter 4, Environmental Analysis, Consequences, and Mitigation, of this Final EIS, the Project will not restrict access to historic properties, will have no adverse noise and vibration impacts in accordance with FTA standards, and will result in no ecological intrusions at these Section 4(f) properties. Therefore, the discussion below focuses on whether visual impacts are so severe as to substantially impair the historic value of the sites.

5.6.1 Parks and Recreational Properties

Table 5-1 lists the 12 publicly owned parks and recreational areas adjacent to the alignment considered for Section 4(f) use and identifies the current activities, features, and attributes that qualify them for protection under Section 4(f).

The Project will have a *de minimis* impact on two of these properties—Ke'ehi Lagoon Beach Park and Aloha Stadium. The Pacific War Memorial Site is discussed in Section 5.5, Direct Use of Section 4(f) Properties, and evaluated for *de minimis* impacts. Two park and recreational areas (future Middle Loch Park and Pearl Harbor Bike Path) are discussed in Section 5.7, Temporary Occupancy. The remaining seven park and recreational areas are evaluated in this section for constructive use.

These park properties are located within urban or semi-urban settings where major transportation facilities or commercial/industrial developments are dominant visual features. Visual quality is not generally high, though makai views from the waterfront properties are. While setting has

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some importance to these properties, they do not substantially derive their value from their setting.

Because many of these properties are located within developing urban or commercial areas, it is reasonable to expect intensifying development will alter the existing visual setting of many of these properties by 2030. In particular, the HCDA's *Kaka'ako Community Development District Mauka Area Plan* (HCDA 2005) calls for redevelopment of the Kaka'ako neighborhood surrounding Mother Waldron Neighborhood Park into a mid- and high-rise mixed-use district.

West Loch Golf Course

West Loch Golf Course is a 94-acre municipal golf course located in the 'Ewa district, extending from Farrington Highway to the West Loch of Pearl Harbor (Figure 5-33). The Project will be constructed approximately 160 feet from the edge of the 18-hole golf course, in the median of Farrington Highway. Due to its distance from the Project, and topography that slopes makai, golfing activities and panoramic views from or across the golf course will not be affected. There will be no noise or vibration impacts from the Project. Therefore, the Project will not substantially impair any of the activities, features, or attributes of the property that qualify it for protection under Section 4(f) and will not result in a constructive use of the property.

Figure 5-33 West Loch Golf Course

Neal S. Blaisdell Park

Neal S. Blaisdell Park is a 26-acre park on the East Loch of Pearl Harbor, about 60 feet makai of Kamehameha Highway (Figure 5-34). It is owned by the City and features primarily passive open space and trails and unobstructed views of the harbor. The elevated guideway will be located mauka of the park, within the median of the adjacent highway. Mature trees provide a visual buffer between the mauka border of the park and the highway. The Project will not substantially impair park activities or makai views of the open lawn areas that comprise its setting. There also will be no noise or vibration impacts from the Project. Since the park is already bordered by a busy highway and its significant attributes (makai views), recreational activities, and features will not be substantially impaired, the Project will not result in a constructive use of the property.

Figure 5-34 Neal S. Blaisdell Park

`Aiea Bay State Recreation Area

'Aiea Bay State Recreation Area is a 7.75-acre park also situated on the East Loch of Pearl Harbor, about 130 feet makai of Kamehameha Highway (Figure 5-35). It is owned by the State, under the jurisdiction of DLNR. It features primarily passive recreational activities and unobstructed views of the harbor. The park is at a lower elevation than the tree-lined highway, so park activities, such as picnicking, will be separated from the Project by topography and existing vegetation. The guideway

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Figure 5-35 `Aiea Bay State Recreation Area

Figure 5-36 Walker Park

will be about 260 feet away from the picnic area. The elevated guideway will be located mauka of the park, within the median of the adjacent highway and, as a result, will not obstruct the makai views. There will be no noise or vibration impacts from the Project. Since the park is already bordered by a busy highway and its attributes (makai views), recreational activities, and features will not be substantially impaired, the Project will not result in a constructive use of the property.

Walker Park

Walker Park is a small triangular urban park located in Downtown Honolulu, about 150 feet mauka of Nimitz Highway at Fort Street (Figure 5-36). It is surrounded by high-rise buildings and the highway. The park provides shade in a busy downtown district and is primarily used by pedestrians walking through the area.

It does not derive a substantial part of its value from its visual setting. However, a fountain and seating area are at its core, and the area is surrounded by mature palm trees. The trees will soften views of the guideway and provide a visual buffer. While the elevated guideway will be located in the median of the highway makai of the park, the Project will not change the views from within the park, given its location beside the highway in Downtown's dense urban core. The Project will not substantially impair the park's features that qualify the property for protection under Section 4(f). Therefore, the Project will not result in a constructive use of this property.

Irwin Memorial Park

Irwin Memorial Park is a 2-acre park (owned by the Hawai'i Department of Transportation-Harbors Division) located south of Nimitz Highway in Downtown Honolulu (Figure 5-37). It is primarily used as a parking lot for nearby office buildings and the Aloha Tower Marketplace but also features seating and tables that are heavily used at lunchtime by workers. Parking areas comprise most of the park, with seating and tables oriented mauka-makai along the 'Ewa periphery. This area is buffered visually from the highway by mature trees. The park provides visitors with high-quality makai views toward Honolulu Harbor and

Figure 5-37 Irwin Memorial Park

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the Aloha Tower. The elevated guideway will be located within the median of the adjacent highway, which is about 70 feet makai of the park and about 200 feet mauka of the park's main seating area. As as a result, the excellent makai views will not be obstructed (Figure 5-38). There will be no noise or vibration impacts from the Project. Views mauka toward the office buildings will be partially obstructed by the guideway, although these are not particularly sensitive. Since the park is already bordered by the busy highway and its attributes (makai views), activities, and features will not be substantially impaired, the Project will not result in a constructive use of the property.

Mother Waldron Neighborhood Park

Mother Waldron Neighborhood Park is in a mixed commercial and industrial area and not a residential neighborhood, as its name implies. The park is surrounded by vacant lots, warehouses, commercial buildings, and an apartment building. It does not derive a substantial part of its value from its visual setting (Figure 5-39). The guideway will be about 20 feet makai of the park, about 70 feet from the playground, and about 290 feet from the volleyball court. The Project will not substantially impair any visual or aesthetic features that contribute to the park's use and enjoyment. Therefore, the Project will not result in a constructive use of this property.

Queen Street Park

The HCDA has set aside public funding for a new 2-acre park on the Queen Street extension near the Kaka'ako Station. It is planned as a passive recreational area with a children's playground and other amenities, on both the mauka and makai sides of the street (Figure 5-40). The elevated guideway

Figure 5-38 Nimitz Highway/Fort Street Intersection `Ewa of Irwin Memorial Park and Aloha Tower Marketplace, looking Koko Head

Figure 5-39 Halekauwila Street/Cooke Street Intersection, looking Mauka past Mother Waldron Neighborhood Park

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Figure 5-40 Future Queen Street Park Site

will be constructed in the median of Queen Street about 30 feet from the park's boundaries. While the guideway will be located in Queen Street, the Project will have nominal impact on views from this property given its location in the urban area of Kaka'ako, which includes an array of multistory buildings, commerical signage, and overhead utility lines. The Project will not substantially impair the park's features that qualify the property for protection under Section 4(f). Therefore, the Project will not result in a constructive use of this property.

5.6.2 Historic Section 4(f) Properties

This section evaluates historic sites on or eligible for inclusion on the National Register near the Project for potential treatment as a constructive use under Section 4(f). As noted above, the FHWA Section 4(f) Policy Paper states constructive use of an historic site occurs when "the proximity impact(s) will substantially impair the features or attributes that contribute to the National Register eligibility of the historic site or district." Eligibility for the National Register is based on specific criteria, and not every proximity effect substantially impairs these feature and attributes. Near proximity to a resource is not enough for a constructive use to be present; there must be a showing that any protected land or resources will be substantially impaired as a result of the Project. For example, several bridges discussed below are eligible for the National Register based on their long association with Farrington Highway and their structural features. While the Project would alter views from these bridges and may also change their surroundings to some extent, the association with Farrington Highway and the structural features of the bridges are not affected by the Project. Thus, while there are environmental impacts, which are described in Chapter 4, and to a more limited extent here, these impacts do not result in a constructive use. Because impacts resulting in constructive use must be both "substantial" and focused on "impairing" a specific set of features or attributes, the FHWA Section 4(f) Policy Paper notes that constructive uses are rare and different from generalized environmental impacts.

Honouliuli Stream Bridge

This bridge was built in 1939 to carry Farrington Highway across Honouliuli Stream, thereby improving transportation for the entire Leeward community. It is a single-span, reinforced-concrete T-beam structure with a span length of 54 feet and a width of 32 feet (Thompson 1983). It stands about 10 feet above the stream bed (Figure 5-41).

Under Section 106 of the NHPA, the decorative railings, with elongated Greek-cross voids, are typical of the period and qualify the bridge as eligible under Criterion C. This bridge is also eligible for the NRHP under Criterion A because

Figure 5-41 Honouliuli Stream Bridge

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of its association with construction of Farrington Highway, which straightened this part of Wai'anae Road and provided a new transportation corridor through Waipahu. The current activities, features, or attributes of the bridge that qualify for protection under Section 4(f) are its design elements and historic association.

The Project entails the construction of an elevated guideway mauka and about 40 feet above the existing bridge. The guideway support columns will be on each side of the stream.

The elevated guideway will not eliminate primary views of the architectural features of this historic bridge nor alter its relationship to the existing transportation corridor. Farrington Highway is a major transportation corridor, and the Project's visual elements will be in character with the surrounding area.

The bridge is eligible for inclusion in the NRHP for its design and its historic association with the development of an important transportation corridor in the late 1930s. The Project will not substantially impair the bridge's relationship to the existing transportation corridor or views of its design elements, which are the features and attributes that contribute to its NRHP eligibility. Therefore, there will be no constructive use of this property.

Waikele Stream Bridge Eastbound Span and Bridge over OR&L Spur

This pair of vehicular bridges is a good example of a late 1930s continuous deck girder bridge design. The span's relatively long length indicates the importance of this transportation link in the circle-island main road system (Figure 5-42).

The Waikele Stream Bridge is eligible for nomination to the NRHP under Criterion A, for its association with the development of the Waipahu community and the transportation history of the area and Criterion C for its design. The current activities, features, or attributes of the property that qualify for protection under Section 4(f) are its design elements and historic association.

Figure 5-42 Waikele Stream Bridge, Koko Head Span

The Project entails the construction of an elevated guideway along Farrington Highway, which is between the two bridges and in the median area 10 feet mauka of the Koko Head-bound span. It will be approximately 40 feet above the roadway, and there will be no use of the bridges.

The elevated guideway will not eliminate primary views of the design elements or alter their relationship to the existing transportation corridor. Farrington Highway is a major transportation corridor, and the Project's visual elements will be in character with the surrounding area.

The bridge is eligible for inclusion in the NRHP for its design elements and its historic association with the development of an important transportation corridor in the late 1930s. The Project will not substantially impair the features or attributes that contribute to its NRHP eligibility. Therefore, there will be no constructive use of this property.

Waiawa Stream Bridge 1932 (westbound lanes)

This bridge was built during a road straightening project that replaced an earlier road segment and smaller bridge across Waiawa Stream. The Waiawa

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Stream Bridge is considered eligible for nomination to the NRHP for its association with the history of transportation in the area (Criterion A). The bridge is also an example of concrete bridge engineering and design in Hawai'i, designed by Merritt A. Trease (Criterion C). The current activities, features, or attributes of the property that qualify it for protection under Section 4(f) are its historic associations and design (Figure 5-43).

Figure 5-43 Waiawa Stream Bridge

The Project entails the construction of an elevated guideway and station (Pearl Highlands) about 20 feet mauka and 65 feet above the Koko Head bridge approach.

The elevated guideway will not eliminate primary views of the bridge's design elements nor alter its relationship to the existing transportation corridor since Farrington Highway is a major transportation corridor and the Project's visual elements will be in character with the surrounding area. Appearances of the bridge design elements will not be substantially impaired.

The bridge is eligible for inclusion in the NRHP for its design and its historic association with the development of an important transportation corridor in the late 1930s. The Project will not substantially impair the features or attributes that contribute to its NRHP eligibility. Therefore, there will be no constructive use of this property.

Waimalu Stream Bridge

The Waimalu Stream Bridge (originally built in 1936 and modified in 1945) is considered eligible for nomination to the NRHP for its association with the roadway infrastructure development of Kamehameha Highway in the Pearl City and 'Aiea areas (Criterion A). Kamehameha Highway is a six-lane highway in this location and has been a major transportation route through the area since the early 20th century. The crossing was integral to the development of this transportation route and has contributed to the development of the area. It also is representative of important public works projects initiated by the Territorial and State governments. The current activities, features, or attributes of the bridge that qualify it for protection under Section 4(f) are its historic associations (Figure 5-44).

The Project entails the construction of an elevated guideway in the median of Kamehameha Highway over Waimalu Stream, whose supports would be placed on both sides of the bridge approaches, not within the bridge structure. The guideway will be approximately 30 feet above the bridge and overhang portions of each interior lane.

The elevated guideway will not eliminate primary views of the bridge nor alter its relationship to the existing transportation corridor. Farrington Highway is a major transportation corridor and the Project's visual elements will be in character with the surrounding area.

Figure 5-44 Waimalu Stream Bridge

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The bridge is eligible for inclusion in the NRHP for its design and its historic association with the development of an important transportation corridor in the late 1930s. The Project will not substantially impair the features or attributes that contribute to its NRHP eligibility. Therefore, there will be no constructive use of this property.

Kalauao Springs Bridge

The Kalauao Springs Bridge is considered eligible for nomination to the NRHP for its association with the roadway infrastructure development of Kamehameha Highway in the Pearl City and 'Aiea areas (Criterion A). Kamehameha Highway has been a major transportation route through the area since the early 20th century. This crossing at Kalauao Springs was integral to developing the highway as an effective transportation route and has contributed to the development of this area. It is representative of important public works projects initiated by the Territorial and State governments. The current activities, features, or attributes of the bridge that qualify for protection under Section 4(f) are its historic associations (Figure 5-45).

The Project entails the construction of an elevated guideway in the median of Kamehameha Highway whose supports will be beyond each side of the stream and not within the bridge structure. The guideway will be approximately 30 feet above the bridge. The area is surrounded by shopping malls and other urban development.

The elevated guideway will not eliminate primary views of this bridge nor alter its relationship to the existing transportation corridor.

Kamehameha Highway is a major transportation corridor, and the Project's visual elements will be in character with the surrounding area.

The bridge is eligible for inclusion in the NRHP for its design and its historic association with the development of an important transportation corridor in the late 1930's. The Project will not substantially impair the features or attributes that contribute to its NRHP eligibility. Therefore, there will be no constructive use of this property.

Kalauao Stream Bridge

The Kalauao Stream Bridge is considered eligible for nomination to the NRHP for its association with the roadway infrastructure development of Kamehameha Highway in the Pearl City and 'Aiea area (Criterion A). Kamehameha Highway has been a major transportation route through the area since the early 20th century. This crossing at Kalauao Stream was integral to developing the highway as an effective transportation route and has contributed to the development of this area. It is representative of important public works projects initiated by the Territorial and State governments. The current activities, features, or attributes of the bridge that qualify for protection under Section 4(f) are its historic association (Figure 5-46).

Figure 5-45 Kalauao Springs Bridge

Figure 5-46 Kalauao Stream Bridge

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The Project entails the construction of an elevated guideway in the median of Kamehameha Highway whose supports will be beyond each side of the stream and not within the bridge structure. The guideway will be approximately 30 feet above the bridge. The area is surrounded by shopping malls and other urban development.

The elevated guideway will not alter its relationship to the existing transportation corridor.

Farrington Highway is a major transportation corridor, and the Project's visual elements will be in character with the surrounding area. The bridge is eligible for inclusion in the NRHP for its design and its historic association with the development of an important transportation corridor in the late 1930s. The Project will not substantially impair the features or attributes that contribute to its NRHP eligibility. Therefore, there will be no constructive use of this property.

United States Naval Base Pearl Harbor National Historic Landmark

The U.S. Naval Base Pearl Harbor NHL was listed in the NRHP in 1974 (with boundaries accepted in 1978) and designated as an NHL in 1964. This property includes the USS Arizona Memorial and the USS Bowfin. Portions of Pearl Harbor were designated as part of the World War II Valor in the Pacific National Monument in 2008. These designations attest to Pearl Harbor's national significance, its critical support of the U.S. Navy fleet, and establishment of the United States as a major power in the Pacific (Figure 5-47).

The NRHP Inventory–Nomination Form for the U.S. Naval Base Pearl Harbor NHL defines the boundary of the national historic landmark. The boundaries of the landmark include those water and land areas historically, intimately, and directly associated with the property's use as a historic naval base, with mission to support the U.S. fleet, and the attack on December 7, 1941. The boundary

Figure 5-47 U.S. Naval Base Pearl Harbor National Historic Landmark

excludes much of the land areas added during World War II. Portions of land areas added during World War II are now being diverted piecemeal to civilian or non-governmental uses, but all or parts of these land areas may lie within the setting of the landmark. All of the water areas of Pearl Harbor are included within the boundaries along with certain adjacent lands.

The Project will be located on Kamehameha Highway, which is adjacent to the U.S. Naval Base Pearl Harbor NHL. The Pearl Harbor NHL is primarily in and surrounding the South Channel area of Pearl Harbor. The guideway will be a minimum of 30 feet from the mauka edge of the property's boundary. The entrances to the elevated Aloha Stadium Station and the Pearl Harbor Naval Base Station (Figure 5-48) were designed to touch down on the mauka side of the highway to avoid taking any of the Pearl Harbor NHL property.

At the request of NPS, additional noise analyses were conducted and visual simulations were created for the Pearl Harbor sites to further clarify potential impacts from the Project. The noise analysis found that there would be no adverse noise impacts at the World War II Valor in the Pacific National Monument, per FTA impact criteria (see Section 4.10 for more information). The visual

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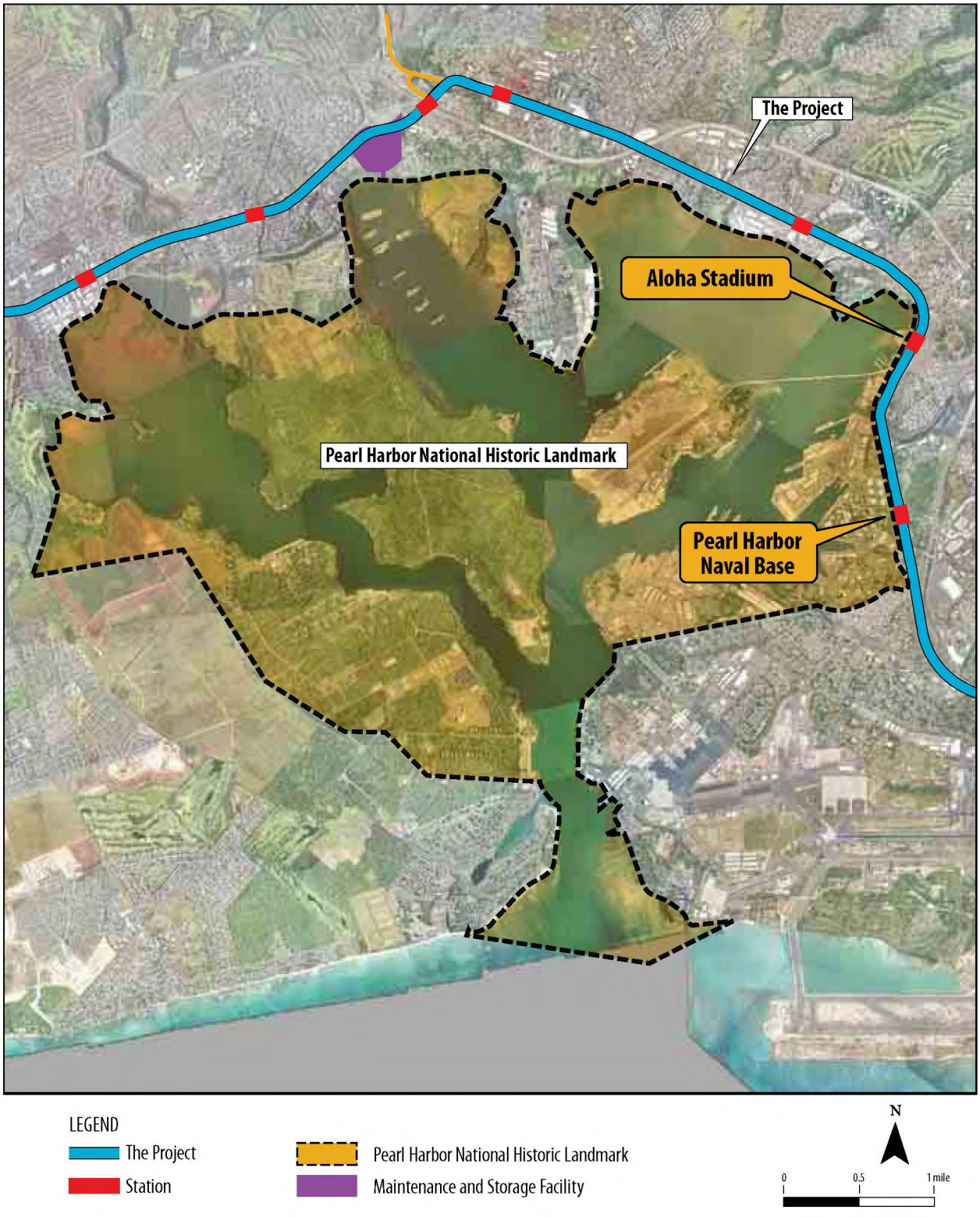

Figure 5-48 U.S. Naval Base Pearl Harbor National Historic Landmark—Project and Features

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simulations illustrated that the Project will be barely visible in mauka views from the harbor (Section 4.8, Visual and Aesthetic Conditions). As a result, the Project will not adversely affect Pearl Harbor NHL's visual integrity.

In addition, the elevated guideway will not eliminate primary views of this historic district nor alter its relationship to the water since the guideway and stations will be on the mauka side of the busy highway. This analysis addresses Pearl Harbor NHL as a whole and any buildings individually listed on or eligible for inclusion in the NRHP. The Project will not substantially impair the visual and aesthetic qualities of the Pearl Harbor NHL property that qualify it for protection under Section 4(f). As a result, there will be no constructive use of this property.

CINCPACFLT Headquarters National Historic Landmark

The Commander-in-Chief of the Pacific Fleet (CINCPACFLT) Headquarters was built in 1942 on Makalapa Hill (mauka of the potential Makalapa Navy Housing Historic District). Originally constructed of reinforced concrete, a third story was added in 1945. The building is individually listed in the NRHP, although the NRHP documentation does not address eligibility criteria. It is also individually designated as an NHL. The features and attributes of this property that qualify for protection under Section 4(f) are assumed to be its historic association with the nearby Pearl Harbor Naval Base.

The elevated guideway will be approximately 650 feet makai from the building and approximately 40 to 45 feet above grade. Due to topography and vegetation, the Project will be minimally visible from select vantage points from within the property boundary. The historic setting of the property consists of its immediate surroundings, which include the drive from Kamehameha Highway (which is not part of the NHL) and the surrounding plantings. The rather dense vegetation will screen the Project from the CINCPACFLT Headquarters.

The elevated guideway will be a substantial distance away, the Project will not eliminate primary views of this historically significant building. The building is eligible for inclusion in the NRHP for its association with the development of Pearl Harbor Naval Base. The Project will not substantially impair the features or attributes that contribute to its NRHP eligibility. Therefore, there will be no constructive use of this property.

Potential Makalapa Navy Housing Historic District

In 1939, the Navy purchased the Makalapa Crater land and designated the site for officers' quarters, complete with recreational facilities overlooking the naval base. Most of the 89 houses were completed in 1941 and constructed of prefabricated units. Admiral Chester Nimitz lived at 37 Makalapa Drive, which is at the highest point of the crater rim. He and the other officers were within walking distance of the CINCPACFLT administration buildings (Figure 5-49).

This housing area is significant under several National Register criteria—under Criterion A for its association with the build up of officers' housing

Figure 5-49 Potential Makalapa Navy Housing Historic District

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just prior to World War II; under Criterion B for its association with Admiral Chester Nimitz, CINCPACFLT, who lived in the neighborhood for most of the war; and under Criterion C, both for its association with the firm of master architect C.W. Dickey, designer of the houses and the neighborhood, and as an example of military residential planning in Hawai'i, which followed the "Garden City" concept prevalent at the time. This district is eligible for nomination to the NRHP under Criteria A, B, and C. The current activities, features, or attributes of the property that qualify for protection under Section 4(f) are its architectural elements and historic associations.

This analysis addresses the potential district as a whole and any buildings individually listed in or eligible for inclusion in the NRHP.

The Project entails the construction of an elevated guideway along the median of the multiple-lane Kamehameha Highway approximately 10 to 25 feet makai from the district. The elevated guideway will be approximately 30 to 45 feet above grade, and the Pearl Harbor Naval Base Station will be located at the intersection of the highway with Radford Drive. The station entrance will be approximately 25 feet Koko Head from the district boundary on the mauka side of the highway.

The elevated guideway will not substantially affect primary views of this architectural features complex. The property is eligible for inclusion in the NRHP for its design and its historic association.

The Project will not substantially impair the features or attributes that contribute to its NRHP eligibility. Therefore, there will be no constructive use of this property.

Ossipoff's Aloha Chapel, SMART Clinic, and Navy-Marine Corps Relief Society, Facility 1514

Facility 1514 was built in 1975 and is constructed of split concrete and brick. It is an excellent example of architect Vladimir Ossipoff's modern architecture. It consists of three roughly rectangular single-story sections, two of which include courtyards. These sections have flat roofs except for the northernmost portion of their roofs where two sections incorporate a row of 12 barrel vaults that are visible from Kamehameha Highway and Radford Drive. The six northernmost vaults cover the Aloha Jewish Chapel, which is believed to be the first chapel built on a military base specifically as a Jewish place of worship. The flat-roofed southern section houses the Navy-Marine Corps Relief Society, which shares the second courtyard with the clinic (Figure 5-50).

Figure 5-50 Ossipoff's Aloha Chapel

The building is a landmark at Makalapa Gate. Although this building is less than 50 years old, it meets National Register Criteria Consideration G (Sherfy 1998) for properties of exceptional importance built within the last 50 years. The current activities, features, or attributes of the property that qualify for protection under Section 4(f) are its architectural elements and associations with Vladimir Ossipoff.

The Project entails construction of an elevated guideway in the median of Kamehameha Highway. The guideway will be approximately 100 feet makai from the structure (approximately 45 feet above grade), and the station will be about 40 feet away

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(on the mauka side of the highway). Facility 1514 was built out-of-period for the Pearl Harbor NHL, is not associated with the historic events there, and is not considered a contributing element. It is located within the Pearl Harbor Naval Base, diagonally at the corner of Kamehameha Highway and Radford Drive.

The elevated guideway will not eliminate primary views of the architectural features of this historic building.

The building is eligible for inclusion in the NRHP for its design and its association with a prominent local architect. The Project will not substantially impair the features or attributes that contribute to its NRHP eligibility. Therefore, there will be no constructive use of this property.

Hawai`i Employers Council

The Hawai'i Employers Council building on Waiwai Loop, adjacent to Ke'ehi Lagoon Beach Park, was built in 1961. While it fronts the loop, it is set back and separated from it by auxiliary parking. The council was founded in 1943 in response to the National Labor Relations Act of 1935, which guaranteed the rights of workers to organize. The council was formed to organize employers, bring unions to the table, and stabilize relations between the groups through wages and working conditions fair to both sides. By February 1962, when the Council moved to its new offices, it had more than 300 members (Figure 5-51).

This property is eligible for nomination to the NRHP and is significant under Criterion A for its association with the history of labor relations in Hawai'i and under Criterion C for its association with the architectural firm of Wimberly and Cook. In addition, its successor firm, Wimberly, Allison, Tong & Goo, had a major influence on Hawaiian architecture in this period. The current activities, features, or attributes of this property that qualify it for protection under Section 4(f) are its

Figure 5-51 Hawai`i Employers Council

architectural elements and historic associations. While it was not evaluated under Criterion G, which indicates it is not considered exceptionally important, it is considered eligible because it will be 50 years old before project completion.

The two-story building is oriented makai toward Ke'ehi Lagoon Beach Park, and other industrial and light industrial type properties surround the other building sides. The Project entails construction of an elevated guideway and support columns though the mauka perimeter of Ke'ehi Lagoon Beach Park. These elements will be about 40 feet makai of the building, with the bottom of the guideway about 22 feet above ground level. Views of the architectural elements and historic associations that qualify the building for protection under Section 4(f) will not be substantially impaired. As a result, there will be no constructive use of this property.

Institute for Human Services /Tamura Building

This three-story concrete International-Style building was built in 1968. It features a prominent rounded corner where its two street-facing sides join at Ka'aahi Street and Ka'amahu Place. Given the angle of Ka'aahi Street, the distinctive curved front facade is primarily visible from the intersection at which it sits. The privately owned building is currently occupied by 10 stores on the ground floor and 13 apartment units on each of the

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second and third floors. This property is eligible for nomination to the NRHP as an example of an International-Style building (Criterion C). The features and attributes of the property that qualify for protection under Section 4(f) are its architectural elements (Figure 5-52).

Figure 5-52 Institute for Human Services/Tamura Building

The Project entails the construction of an elevated guideway that will run on a diagonal at this point between Dillingham Boulevard and Nimitz Highway, and the Iwilei Station is 20 feet makai from the building at Ka'amahu Place. The station will be the most prominent feature of the Project for this property, although it will not substantially affect views.

The Project entails construction of an elevated guideway and the Iwilei Station makai of Ka'aahi Place and about 50 feet makai of the building and 35 to 40 feet above grade. Since the surrounding area is an urban environment with many other buildings that block longer range views. Project will not substantially impair the visual and architectural elements of the building that qualify it for protection under Section 4(f). As a result, there will be no constructive use of this property.

Tong Fat Co. Wood Tenement Buildings

The Wood Tenement Buildings behind the Tong Fat Co. are a group of three two-story four-plex residential buildings and one single-story duplex constructed in 1914. The property was determined eligible for the NRHP under Criterion A for its association with the development of the 'A'ala neighborhood and under Criterion C as an example of the typical grouping and construction of early 20th-century tenement buildings in Honolulu. The buildings overlook the cleared, former OR&L rail yard on a parcel immediately mauka of the former filling station. The features and attributes of these properties that qualify for protection under Section 4(f) are their design elements and historic associations (Figure 5-53).

Figure 5-53 Wood Tenement Buildings behind Tong Fat Co.

The Project entails the construction of an elevated guideway that will run behind this parcel on a planned access easement through the OR&L property, 190 feet 'Ewa of the buildings. The alignment will cross through this block diagonally and connect with Nimitz Highway at Iwilei Road.

No significant viewsheds were identified from this property since non-historic industrial buildings are located 'Ewa of the cleared area and constitute the buildings' viewshed. Therefore, the guideway will have no impact to existing views of or from the historic tenement grouping. Primary views of the buildings are from behind the Tong Fat Co. building, and the elevated guideway will not interfere with these since it is 'Ewa of the tenement buildings. The Project will not substantially impair the architectural elements and historic associations

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that qualify them for protection under Section 4(f). As a result, there will be no constructive use of this property.

Nu`uanu Stream Bridge

Nu'uanu Stream Bridge is eligible for nomination to the NRHP for its association with the history of transportation along the Honolulu waterfront and Queen Street before it was renamed Nimitz Highway (Criterion A). This bridge carries the 'Ewa-bound traffic of Ala Moana Boulevard/ Nimitz Highway out of Downtown and is an important transportation link between Iwilei and Downtown. It is also significant as a late example of a concrete bridge with solid parapet design, incorporating unusual molded detailing and a rounded top rail (Criterion C). The solid parapet is somewhat unusual for its 1932 construction date since most bridges constructed in that period by the Territory had balustrades pierced with vertically oriented openings. The features and attributes of this property that qualify for protection under Section 4(f) are its design elements and its historic associations (Figure 5-54).

The Project entails the construction of an elevated guideway in the median of Nimitz Highway makai of the Chinatown Station, 250 feet Koko Head of the bridge. The bridge is in Downtown Honolulu and is surrounded by major urban highways. The guideway elevation at about 35 feet above the bridge will not eliminate the appearance of its design elements nor alter its relationship to the existing transportation corridor (Figure 5-55).

Figure 5-54 Nu`uanu Stream Bridge

Figure 5-55 Nimitz Highway at Maunakea Street, looking `Ewa and Makai toward Chinatown

Nimitz Highway is a major transportation corridor, and the Project's visual elements will be in character with the surrounding area.

The bridge is eligible for inclusion in the NRHP for its design and its historic association with the development of an important transportation corridor in the late 1930s. The Project will not substantially impair the features or attributes that contribute to its NRHP eligibility. Therefore, there will be no constructive use of this property.

Merchant Street Historic District

The Merchant Street Historic District covers a four-block area in Downtown Honolulu directly Koko

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Head of Chinatown. The only contributing property in this commercial district within the Project's APE is the Walter Murray Gibson Building/ Honolulu Police Station (on Merchant Street near Nu'uanu Avenue). The building is approximately 150 feet mauka from the Project, which runs down the center of Nimitz Highway.

While the historic district extends to Nimitz Highway, these buildings are non-historic and do not contribute to the district's significance. The four-story Gibson Building/Honolulu Police Station was built in 1930 and 1939. It was individually evaluated and found to be eligible for the NRHP under Criterion A for its association with the history of the City's police department and under Criterion C as an excellent example of Hawaiian Mediterranean-style architecture of the 1930s. The features and attributes of this property that qualify for protection under Section 4(f) are its design elements and its historic association (Figure 5-56).

Figure 5-56 Merchant Street Historic District

The Project entails the construction of an elevated guideway (40 feet above grade) in the median of the six-lane Nimitz Highway approximately 150 feet makai of the Gibson/Honolulu Police Station Building. As the primary views of the building are from Merchant Street, Nu'uanu Avenue, and North Bethel Street, the elevated guideway will not affect them. The contemporary high-rise buildings on the mauka side of Nimitz Highway stand between the historic building and the Project; therefore, the alignment will be visible from the building only in the distance from North Bethel Street and Nu'uanu Avenue. The Project will not substantially impair the historic associations and architectural elements, which are the features or attributes that contribute to its NRHP eligibility. Therefore, there will be no constructive use of this property.

Walker Park

Walker Park is a small park set among tall office buildings. It was developed circa 1951 and is eligible for listing on the NRHP under Criterion A for its association with the development of the Downtown Honolulu waterfront and Central Business District and under Criterion C as an "early example of a created greenspace in the Central Business District." The park is also a recreational facility and subject to Section 4(f) protection independent of this evaluation (see Section 5.6.1 and Figure 5-36).

The Project will entail construction of an elevated guideway about 50 feet makai of the park within the median of Nimitz Highway. As a result, the Project will nominally affect makai views from the park but not views of the park from the Central Business District it serves.

Walker Park is eligible for inclusion in the NRHP for its historic associations and as an early example of greenspace in the Central Business District. The Project will not substantially impair the park's historic associations, which are the features and attributes that contribute to its NRHP eligibility; therefore, there will be no constructive use of Walker Park.

DOT Harbors Division Building

The DOT Harbors Division Building is a three-story structure set on Pier 10/11, built in 1952 (Figure 5-57). It is an example of the streamlined International Style of architecture common in that period. The building is eligible for the NRHP

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Figure 5-57 DOT Harbors Division Building

Figure 5-58 Pier 10/11

under Criterion A for its association with the Harbor Commission of the Territory of Hawai'i and for its primary relationship with the water. The features and attributes of this property that qualify for protection under Section 4(f) is its historic association.

The Project entails the construction of an elevated guideway in the median of the six-lane Nimitz Highway approximately 70 feet mauka of the building. Views of the building from Nimitz Highway and farther mauka will be partially obstructed by the 40-foot-tall alignment; the building will still be visible from the makai side of the highway and through the columns farther mauka.

Most importantly, the property's historically important 'Ewa/makai viewshed toward Honolulu Harbor will not be affected. The Project will not substantially impair its association with the Harbor Commission of the Territory of Hawai'i and for its primary relationship with the water, which are the features and attributes that contribute to its NRHP eligibility and protection under Section 4(f). Therefore, there will be no constructive use of this property.

Pier 10/11

The Pier 10/11 building is a single-story passenger terminal, built in 1926, that covers most of the pier structure and is approximately 550 feet long (Figure 5-58). The building is eligible for the NRHP under Criterion A for its association with the maritime passenger industry and under Criterion C as an example of neo-classical architecture of the 1920s in Honolulu. This building derives its significance from its relationship to the harbor. The features and attributes of this property that qualify for protection under Section 4(f) are its design elements and its historic association.

The Project entails the construction of an elevated guideway (40 feet above grade) in the median of the six-lane Nimitz Highway approximately 140 feet mauka of the building (at its closest).

Since the triangular DOT Harbors Division Building is adjacent (makai) to the passenger terminal building, largely obscuring it from mauka views, the only view that will be partially affected as a result of the Project will be the view from Fort Street Mall. Views from Irwin Park, across the street, will not be affected nor will the building's visual and physical connection to the harbor. The Project will not substantially impair views of the building's design elements and historic associations, which are the features and attributes that contribute to its NRHP eligibility. Therefore, there will be no constructive use of this property.

Aloha Tower

Aloha Tower is a 184-foot-tall Art Deco tower constructed in 1926 (Figure 5-59). The tower is eligible for the NRHP under Criterion A for its association

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Figure 5-59 Aloha Tower

with the development of Hawai'i as a tourist destination for travelers from the mainland and for its role as a harbor-control tower during World War II. It is also eligible under Criterion C as an example of 1920s Art Deco architecture in Hawai'i. As planned, Aloha Tower was intended to serve as a landmark for those arriving by boat; therefore, its connection to the harbor is historically important. The features and attributes of this property that qualify for protection under Section 4(f) are its design elements and its historic associations.

The Project entails the construction of an elevated guideway in the median of the six-lane Nimitz Highway approximately 420 feet mauka of the tower. While the tower is a local landmark from the inland area, the Project will not block views, although some will be altered. Aloha Tower has only marginal integrity of setting, with downtown high-rises, proximate recently constructed buildings, and a modern shopping mall surrounding it. Although certain important buildings can be viewed from Aloha Tower, there are no identified viewsheds with integrity from the tower, as Downtown Honolulu has become densely built up with tall buildings and busy roadways. Aloha Tower will still be able to be viewed from many vantage points without seeing the Project. The tower's visual setting is dominated by the surrounding marketplace and less by the highway, which is already a major transportation corridor. The Project will be visible in views from the observation deck, but it will not substantially impair views of the tower's design elements nor alter its historic setting, which are the features and attributes that qualify the property for protection under Section 4(f). There will be no constructive use of this property.

Irwin Memorial Park

Irwin Memorial Park is a 2-acre park, located south of Nimitz Highway in Downtown Honolulu. It was originally developed around 1930 (Figures 5-37 and 5-38). The park is eligible for listing on the NRHP under Criterion A for its association with the history of beautification efforts in the Honolulu waterfront passenger terminal area; under Criterion B for its association with William G. Irwin, a noted Hawaiian businessman and philanthropist; and under Criterion C for representing the work of leading Honolulu landscape architect Robert O. Thompson. The park is also a recreational facility and subject to Section 4(f) protection independent of this evaluation (Section 5.6.1). The Project will entail construction of an elevated guideway mauka of the park, within the median of the adjacent highway. As a result, the Project will not obstruct the excellent makai views from the park or views of the park from the harbor and Aloha Tower. The Project will also have no adverse noise or vibration impacts at the park.

Irwin Memorial Park is eligible for inclusion in the NRHP for its various historic associations with

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the beautification of the waterfront in the 1930s, with the noted local philanthropist for whom it is named, and as an example of the work of a leading local landscape architect. The Project will not substantially impair these features or attributes, which contribute to its NRHP eligibility; therefore, there will be no constructive use of Irwin Memorial Park.

Mother Waldron Neighborhood Playground

Mother Waldron Neighborhood Playground is located in Mother Waldron Neighborhood Park, a 1-acre park located in the mixed-use area of Kaka'ako. It is surrounded by open lots, a large surface parking lot, warehouses, and taller apartment buildings. It was listed on the Hawai'i Register of Historic Places on June 9, 1988, as an element of the thematic group "City & County of Honolulu Art Deco Parks." It is also significant for its associations with the playground movement, both nationally and locally, as well as its architectural and landscape design by Harry Sims Bent (Criterion A of the NRHP). This park is considered one of Bent's best playground designs and a good example of Art Deco/Art Moderne styles in hardscape (Criterion C). The park is also a recreational facility and subject to Section 4(f) protection independent of this evaluation (Section 5.6.1) (Figure 5-39).

The Project entails the construction of an elevated guideway along Halekauwila Street approximately 10 feet mauka of the park's edge and will be approximately 35 to 40 feet high. The park's Art Deco/Art Moderne-style comfort station is more than 150 feet makai of the alignment.

The Project will not eliminate primary views of the historic playground, but it will introduce a new visual element to this corridor, and there will be changes to some makai views of the playground. Views of the playground from the apartment buildings on the mauka side of Halekauwila Street will be partially obstructed.

Mother Waldron Neighborhood Playground is eligible for inclusion in the NRHP for its design. The Project will not substantially impair the park's design elements, which are the features or attributes that contribute to NRHP eligibility and protection under Section 4(f). As a result, there will be no constructive use of Mother Waldron Neighborhood Playground.

5.6.3 Summary of Evaluation of Constructive Use of Section 4(f) Properties

In summary, there will be no constructive use of Section 4(f) properties. The constructive use analysis considers all historic properties with an adverse effect Section 106 finding, where the Project will not directly use the property. The Project will not substantially impair the features or attributes of the historic properties that contribute to NRHP eligibility. There are no wildlife or waterfowl refuges along the study corridor and, therefore, there will be no proximity impacts from ecological intrusion.

Vibration and noise impacts along the corridor range from negligible to moderate and do not rise to the level of "substantial impairment." Few, if any, of the Section 4(f) parks and recreational areas derive a substantial part of their value through their visual setting. Rather, they are used for games and sports, picnics, and parking, and the Project will not substantially impair those activities. While visual impacts will occur, the Project's proximity impacts are not so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired.

In conclusion, the Project will not result in a constructive use of any Section 4(f) park, recreational, or historic property.

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5.7 Temporary Occupancy of Section 4(f) Properties

Two properties will experience a temporary occupancy under Section 4(f) (23 CFR 774.13) during construction of the Project—the future Middle Loch Park and the Pearl Harbor Bike Path. The maintenance and storage facility near Leeward Community College (preferred site option) will be located mauka of the Middle Loch of Pearl Harbor and will require construction of a new 280-foot-long stormwater outfall that will drain into Pearl Harbor. This pipe will be laid in a trench and buried under the future Middle Loch Park (DPR is the official with jurisdiction) and the existing Pearl Harbor Bike Path (under the jurisdiction of DTS). The agencies with jurisdiction (DPR and DTS) agree that the City's use of the property is temporary; the scope of the work on the property is minor; there are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis; and the City will fully restore the property.

The City will maintain public access to and use of the bike path during construction, and once construction is complete, the bike path will be repaved in the affected area and any plantings disturbed by construction will be restored. The future Middle Loch Park is currently vacant land. The area disturbed during construction of the underground pipe will be restored and vegetated similar to existing conditions.

As defined in 23 CFR 774.13, this would constitute a temporary occupancy of the two Section 4(f) properties and does not constitute a use of a Section 4(f) property since all the following conditions will be satisfied:

- Duration is temporary (i.e., less than the time needed for construction of the project), and there is no change in ownership of the land
- Scope of work is minor (i.e., both the nature and magnitude of the changes to the Section 4(f) property are minimal)
- There are no anticipated permanent adverse physical impacts, nor is there interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis
- The land being used will be fully restored (i.e., the property must be returned to a condition that is at least as good as that which existed prior to the project)
- There is a documented agreement of the official(s) having jurisdiction over the Section 4(f) property regarding the above conditions

In addition, the Project will not result in permanent proximity impacts (e.g., noise, vibration, visual, and property access) so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) will be substantially impaired. Noise analysis conducted at Leeward Community College, adjacent to the alignment and maintenance storage facility, found that project-generated noise levels (59 dBA Leq) will not exceed the applicable FTA impact threshold of 65 dBA Leq at that site; therefore, noise from the Project will not affect the two Section 4(f) resources since they are located more than 1,000 feet makai of the alignment. Noise generated by the maintenance and storage facility operations will also not result in impacts; therefore, noise will not substantially diminish the future park or bike path's features and attributes that are protected under Section 4(f). The maximum noise exposure level from the maintenance and storage facility at the Pearl Harbor Bike Path will be 52 dBA Leq and between 52 and 55dBA Leq at the park, which is less than the lowest FTA impact criteria of 57 dBA Leq (applicable to quiet sites). There will be no vibration impacts on the park and bike path from any of the Project elements.

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The visual character and quality of both Section 4(f) resources is defined by their location along the shoreline with unobstructed harbor views. Given that, the location of the Project elements are mauka of the future park and bike path, they would not change makai views nor cause adverse visual impacts or diminish the Section 4(f) resources' features or attributes. Use of and access to the future park and bike path will be maintained during construction of the maintenance and storage facility. Therefore, temporary impacts during construction will be minimal, no permanent adverse physical impact will occur, and there will be no use under Section 4(f).

5.8 Least Overall Harm

The FTA may approve only the feasible and prudent alternative that causes the least overall harm in light of the statute's preservation purpose. Two feasible and prudent alternatives (Airport Alternative alignment and Salt Lake Alternative alignment) that were evaluated in the Draft EIS are assessed in this section to determine which one results in least overall harm. The least overall harm is determined by balancing the following factors:

- Ability to mitigate adverse impacts to each Section 4(f) property
- Relative severity of harm, after reasonable mitigation to the Section 4(f) qualities
- Relative significance of each Section 4(f) property
- Views of officials with jurisdiction of each Section 4(f) property
- Degree that Purpose and Need is met
- Magnitude of adverse impacts, after reasonable mitigation, to non-Section 4(f) properties
- Substantial differences in costs

5.8.1 Least Overall Harm Evaluation of the Airport and Salt Lake Alternative Alignments

Through analysis presented in the Draft EIS and Section 4(f) evaluation, it was found that there were few differences between the Airport Alternative and the Salt Lake Alternative alignments in terms of uses of Section 4(f) properties (after mitigation measures were identified and incorporated into the preliminary design). Section 4(f) use would be identical, except where the two alignments diverge in the center of the corridor between Aloha Stadium and Kalihi. In this segment of the corridor, it was determined that the Airport Alternative will result in the least overall harm in light of the statute's preservation purpose. It will result in a *de minimis* impact at two recreational properties—Ke'ehi Lagoon Beach Park and Aloha Stadium. The Pacific War Memorial Site is a multi-use property that is being considered as a park with ***de minimis*** impact, and there will be no other uses of Section 4(f) historic, park, or recreational properties. The Salt Lake Alternative would require substantially more land at Aloha Stadium, resulting in a direct use (not *de minimis* impact) and either direct or *de minimis* impact use at Radford High School.

The constructive use evaluation for the Airport Alternative, described in Section 5.6, determined that none of the other Section 4(f) properties in this segment will experience impairment severe enough to constitute constructive use from the Project.

Aloha Stadium

The Salt Lake Alternative would more severely affect Aloha Stadium. This alternative would use approximately 4.8 acres within two of the stadium's parking lots as well as adjacent land for the elevated guideway's easement, the station plaza, and the connective concourse. Even with mitigation measures in place to reduce the size of the easement and station areas, this design would result in more than twice the amount of property taken than will result with the *de minimis* impact of the Airport Alternative. Under the Airport Alternative, approximately 2 acres will be required for the station and guideway on the 'Ewa edge of

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the parking areas, as well as a strip of land along Kamehameha Highway. This will use less of the stadium's parking facilities. In accordance with 23 CFR 774.3(c)(1), the Salt Lake Alternative would not be considered to have least overall harm.

The views of officials with jurisdiction over the Section 4(f) property were also considered. In a letter dated September 8, 2008, DAGS, the agency with jurisdiction over Aloha Stadium, considered both alignments and indicated a preference for the Airport Alternative, noting that "the impact on the stadium would be further mitigated if the system ran past the airport…"

Ke`ehi Lagoon Beach Park

While the Airport Alternative will require the use of a small area of Ke'ehi Lagoon Beach Park, the value of the park will be enhanced through mitigation proposed by the City and approved by DPR, the agency with jurisdiction over the property.

The Project will pass above approximately 1 acre of park land. As described in Section 5.5.1, DTS has designed the Project to minimize use and with mitigation there will be a *de minimis* impact on this park. After mitigation, the Project will not harm the attributes and features that qualify the park for protection under Section 4(f) 23 CFR 774.3.

Pacific War Memorial Site

The Airport Alternative will require the use of a small area of this multi-use property, considered a park in this Section 4(f) evaluation. The Project will pass above approximately 0.5 acre of parkland. As described in Section 5.5.1, the City has designed the Project to minimize use, and with mitigation there will be a *de minimis* impact on this property. With mitigation, the Project will not harm the attributes and features that qualify the park for protection under Section 4(f) 23 CFR 774.3.

Historic Properties on the Salt Lake Alternative

The Salt Lake Alternative would also require minor property acquisition (0.01 acre) along the edge of the NRHP-eligible Radford High School property (from an existing parking lot) to accommodate widening of Salt Lake Boulevard for the guideway median. The school complex consists of several one- and two-story masonry buildings constructed between 1957 and 1968, some of which are oriented toward Salt Lake Boulevard and others that face inward toward the campus. The alignment would be located approximately 25 feet mauka of the property boundary and would be approximately 20 to 25 feet high.

The Salt Lake Alternative in this segment would likely have an adverse effect under Section 106 based on impacts to the setting and feeling of the potential Salt Lake Duplexes Historic District on the mauka side of the roadway. The wood-frame houses were built in the 1950s as military residences, and many feature hipped roofs. The district is eligible for NRHP listing under Criterion A (for its role in the early development of Title IX housing and subsequent real estate development on O'ahu) and Criterion C (as the largest concentration of duplexes in Honolulu). Since the alignment would be approximately 75 feet makai of the district and be elevated 35 to 50 feet, visibility of the low-scale buildings would be maintained at ground level under the guideway structure. The guideway would be higher than most of the nearby trees and about as tall as the utility poles lining the street. This would not be considered a constructive use of this property as the features that qualify for protection under Section 4(f) would not be substantially impaired.

The other historic properties along this segment of the Salt Lake Alternative were found to have no adverse effect as a result of this alignment ('Aiea Cemetery, Āliamanu Pumping Station–Facility X-24/Quonset Hut Navy Public Works Center, and

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First Hawaiian Bank). As a result, they were not evaluated for Section 4(f) use.

5.8.2 Differences in Environmental Impacts between Airport and Salt Lake Alternatives

According to 23 CFR 774.3, the alternative having the least overall harm includes balancing the magnitude of any adverse impacts to properties not protected by Section 4(f). The Draft EIS had previously determined that adverse impacts to other sensitive non-Section 4(f) properties would be slightly greater with the Salt Lake Alternative than with the Airport Alternative with respect to hazardous materials and noise.

The Airport Alternative, as documented in this Final EIS, will have slightly more displacements and acquisitions than the Airport Alternative discussed in the Draft EIS. Some of these are the result of the refined alignment near the airport as described above. Overall, for the entire Project there are two additional business displacements. There will be slightly less air pollution, energy consumption, and water pollution because it will have the greatest reduction in vehicle miles traveled than the Salt Lake Alternative.

The Salt Lake Alternative would block protected views and vistas along Bougainville Drive, Maluna Street, Wanaka Street, and Ala Liliko'i Street where they intersect with Salt Lake Boulevard. From the Ala Liliko'i Station to Pu'uloa Road, the guideway would also block views from fourth- and fifth-floor windows of businesses and multi-story apartments and condominiums mauka of Salt Lake Boulevard. The locations of the protected views and vistas in the Salt Lake neighborhood area are shown on Figure 4-18 (in Chapter 4 of this Final EIS).

With the Airport Alternative, views of East Loch and the Pearl Harbor NHL makai of the alignment will be partially obstructed by the guideway and columns in the residential area near Kohomua Street. The visual integrity of the NHL will not be adversely affected, and the project elements will barely be visible in mauka views from the harbor (Figure 4-42 in Chapter 4 of this Final EIS). The Kamehameha Highway Bridge over Hālawa Stream is historic, and its appearance will be changed by the guideway and support columns. The contrast in scale and character of the guideway and columns will be a noticeable change, and visual effects are expected to range from moderate to significant (noted as a "high" level of visual impact in the Draft EIS). In the area of Ke'ehi Lagoon Beach Park, the alignment will run along the periphery of the park and closely follow the elevated Nimitz Highway and the H-1 Freeway. Views of Honolulu Harbor and the park are already obstructed by these elevated highways and will not be substantially affected. The Airport Alternative will not block any protected views or vistas, although the Project will be visible in distant views of Pearl Harbor, the Wai'anae Mountain Range, and Downtown. The overall visual effects for the Airport Alternative are expected to be of a lower magnitude than with the Salt Lake Alternative.

5.8.3 Purpose and Need

The Draft EIS documented that of the three Build Alternatives evaluated, the Airport Alternative will carry the most passengers, with 95,000 daily passengers and 249,200 daily transit trips in 2030, and provide the greatest transit-user benefits (Table 2-6 in Chapter 2 of this Final EIS). While these numbers have increased since the Draft EIS was published, the relative differences among the alternatives would remain similar. The Airport Alternative also will result in the fewest vehicle miles traveled and vehicle hours of delay. It will provide access to employment centers at Pearl Harbor Naval Base and Honolulu International Airport and will have substantially greater ridership to those areas than the Salt Lake Alternative. Therefore, the Airport Alternative better meets the Purpose and Need for the Project than the Salt Lake Alternative [23 CFR 774.3 (c)(1)].

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5.9 Determination of Section 4(f) Use

Considering the foregoing discussion of the Project's use of Section 4(f) properties, there is no prudent avoidance alternative to the use of land from 12 historic properties. As described, the Project includes all possible planning to minimize harm to Section 4(f) properties resulting from use.

In addition, the Project will have a *de minimis* impact on two historic and three recreational Section 4(f) properties. Measures to minimize harm, such as avoidance, minimization, mitigation, and enhancement measures, were committed to by the agencies with jurisdiction over these properties. FTA has coordinated with these agencies prior to making its *de minimis* determination.

Finally, balancing all the factors discussed in Section 5.8, the Airport Alternative has been determined to cause the least overall harm in light of Section 4(f)'s preservation purpose.

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