
**Final
Archaeological Inventory Survey Plan
For the City Center (Construction Phase 4) of the
Honolulu High-Capacity Transit Corridor Project,
Kalihi, Kapālama, and Honolulu Ahupua‘a,
Honolulu District, Island of O‘ahu
TMK: [1] 1-2, 1-5, 1-7, 2-1, 2-3 (Various Plats and Parcels)
Volume I: Plan and Appendices F, G, and H**

**Prepared for
The City and County of Honolulu
and
The Federal Transit Administration**

**On Behalf of
PB Americas, Inc.**

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(Job Code: KALIHI 17)**

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Management Summary

Reference	Archaeological Inventory Survey Plan for the City Center (Construction Phase 4) of the Honolulu High-Capacity Transit Corridor Project, Kalihi, Kapālama, and Honolulu Ahupua'a, Honolulu District, Island of O'ahu, TMK: [1] 1-2, 1-5, 1-7, 2-1, 2-3 (Various Plats and Parcels) (Hammatt et al. 2011)
Date	September 2011
Project Number(s)	Cultural Surveys Hawai'i, Inc. (CSH) Job Code: KALIHI 17
Investigation Permit Number	The fieldwork proposed in this archaeological inventory survey plan (AISP) will likely begin under CSH's archaeological permit number 11-17, issued by the Hawai'i State Historic Preservation Division/Department of Land and Natural Resources (SHPD/DLNR), per Hawai'i Administrative Rules (HAR) Chapter 13-282.
Project Location and Planned AIS Study Area	The proposed Honolulu High-Capacity Transit Corridor Project (HHCTCP) extends approximately 23 miles (37.0 km) from Kapolei in the west to Ala Moana Center in the east. The focus of this AISP is the eastern-most 4.3 miles (6.9 km) of the overall HHCTC project area. This AISP study area includes all of Construction Phase 4 (City Center) and the eastern-most portion of Phase 3 (Airport) of the HHCTCP. This study area extends east along the southern coast of O'ahu from Kalihi Stream on Dillingham Boulevard to Ala Moana Center on Kona Street. The AISP study area is depicted on the U.S. Geological Survey 7.5-Minute Series Topographic Map, Honolulu (1998) Quadrangle.
Land Jurisdiction	The study area, constituting all of the HHCTCP Construction Phase 4 (City Center) and the eastern portion of HHCTCP Construction Phase 3 (Airport), is primarily located within existing road rights-of-way owned by the State of Hawai'i or the City and County of Honolulu, including Dillingham Boulevard, Ka'aahi Street, Nimitz Highway, Halekauwila Street, Queen Street, and Kona Street. Many of the support facilities along the project corridor are located on adjacent privately-owned lands.
Agencies	City and County of Honolulu (City); SHPD; Federal Transit Administration (FTA)
Funding	FTA, City
Project Description and Related Ground Disturbance	The project purpose is to provide high-capacity rapid transit in the highly congested east-west transportation corridor between Kapolei and Ala Moana Center via a fixed guideway rail transit system. In addition to the guideway, the project will require construction of transit stations and ancillary support facilities. Nine proposed transit stations are within the City Center AISP study area, including: 1) Middle Street Transit Center Station; 2) Kalihi Station; 3) Kapālama Station; 4) Iwilei Station; 5) Chinatown Station; 6) Downtown Station; 7) Civic Center Station; 8) Kaka'ako Station; and 9) Ala Moana Center Station. Project construction will also require relocation of

	<p>existing utility lines within the project corridor that conflict with the proposed project design. Minimally, land-disturbing activities would include grading of facility locations and excavations for guideway column foundations, subsurface utility relocation and installation, and station and ancillary facility foundation construction. The vast majority of the area of disturbance will be due to utility relocation and road widening.</p>
<p>Area of Potential Effect and Survey Acreage</p>	<p>The HHCTCP area of potential effect for archaeological cultural resources is defined in the HHCTCP final Programmatic Agreement (Stipulation II.A.1.) as all areas of direct ground disturbance. For the City Center AISP survey area (all of Construction Phase 4 and the eastern portion of Construction Phase 3), HHCTCP project engineers estimate that the project's area of direct ground disturbance is approximately 604,289 square feet (or 13.87 acres). These 13.87 acres are the survey area for this AISP investigation.</p>
<p>Historic Preservation Regulatory Context</p>	<p>Due to federal (FTA) funding, this project is a federal undertaking, requiring compliance with Section 106 of the National Historic Preservation Act, the National Environmental Policy Act, and Section 4(f) of the Department of Transportation Act. Through the Section 106 historic preservation review process, the project's lead federal agency, FTA, has determined that the project will have an adverse effect on historic properties currently listed, or eligible for listing, on the National Register of Historic Places. The Hawai'i State Historic Preservation Officer (SHPO) concurred with this undertaking effect determination. To address the undertaking's adverse effect, a Programmatic Agreement (PA) was executed January 18, 2011, with FTA, Hawai'i SHPO, the United States Navy, and the Advisory Council on Historic Preservation as signatories. This AISP was prepared to fulfill PA Stipulation III, which requires that an AISP be prepared and reviewed and approved by the SHPD for each HHCTCP construction phase. This AISP was also prepared in compliance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and is intended to support the project's PA and Section 106 compliance.</p> <p>This document was also prepared to support the proposed project's historic preservation review under Hawai'i Revised Statutes (HRS) Chapter 6E-8 and HAR Chapter 13-275. This plan defines the scope of work and details the proposed methods and sampling strategy of the AIS, in accordance with the requirements for an AISP stated in HAR Chapter 13-275-5(c). The AIS investigation described in this AISP will comply with HAR Chapter 13-276 "Rules Governing Standards for Archaeological Inventory Surveys and Reports."</p> <p>In addition, identification and National/Hawai'i Register eligibility recommendations for the project area's architectural cultural resources, including historic roads, bridges, and structures, was conducted by historic architectural firm Mason Architects, Inc., in association with the project's Environmental Impact Statement (USDOT/FTA and C&C/DTS 2008).</p>

<p>Summary of the Planned AIS Research Design [per HRS Chapter 13-275-5(c)(2)]</p>	<p>A. CSH principal investigators Matt McDermott, M.A. and Hallett H. Hammatt, Ph.D. will direct the City Center AIS.</p> <p>B. An anticipated field crew of eight to fourteen archaeologists, including two field directors, two GPS/GIS specialists, and two GPR specialists will complete the AIS investigation under the direction of the principal investigators. Detailed sample analysis will be provided by International Archaeological Research Associates (wood/charcoal speciation), PaleoResearch, Inc. (pollen speciation), and Beta Analytic, Inc. (radiocarbon dating).</p> <p>C. Six to ten months are estimated to complete AIS fieldwork.</p> <p>D. Fieldwork will include 100 percent pedestrian inspection of the study area; global positioning system (GPS) data collection; ground penetrating radar (GPR) survey; and subsurface testing. All areas selected for subsurface testing will be surveyed with a Geophysical Survey Systems, Inc. SIR-3000 GPR unit equipped with a 400 MHz antenna. The planned subsurface testing program will be backhoe-assisted. In general, linear trenches measuring approximately 3 m or 6 m (10 ft or 20 ft) long and 0.6 or 0.9 m (2 ft or 3 ft) wide will be excavated within the project footprint (based on preliminary engineering) at selected station locations, guideway column locations, and utility relocation areas. Two hundred and thirty two (232) test excavations are proposed, with provisions for additional testing to refine the boundaries and further investigate subsurface archaeological deposits. This additional testing will be designed in consultation with project engineers to seek ways for project construction to avoid significant archaeological cultural resources.</p> <p>The subsurface testing sampling strategy was developed giving consideration to: sediment types; natural geographic features, such as streams and ponds; background research, including information from historic maps and Land Commission Award (LCA) documents; the results of previous archaeological studies in the vicinity; the results of consultation with the Native Hawaiian community; an assessment of the impact of prior land development; and a consideration of safety concerns for actually carrying out the archaeological work.</p> <p>E. The greatest factors limiting the survey effort include: 1) the survey area's large (13.87 acres), dispersed (4.3 miles) area; 2) the survey area's highly developed and highly active setting (in-use city streets, sidewalks, and buildings); and 3) the dense, complex array of existing subsurface utilities in the survey area.</p> <p>F. Test excavations will be the primary means of identifying and documenting archaeological cultural resources.</p> <p>G. AIS documentation of observed archaeological cultural resources will include stratigraphic profiles and plan views, available cultural resource</p>
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	<p>boundary information based on additional testing, sample collection and analysis, written descriptions, photographs, and artifact analysis.</p> <p>H. All identified archaeological historic properties will be documented and located with a Trimble ProXH mapping-grade GPS unit (sub-foot accuracy).</p>
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Note: The AISP is divided into two volumes: Volume I is the plan itself and supporting Appendices F, G, and H; Volume II consists of supporting Appendices A through E.

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Section 1 Introduction

1.1 Project Background

Cultural Surveys Hawai'i, Inc. (CSH) completed this archaeological inventory survey plan (AISP) for the Honolulu High-Capacity Transit Corridor Project's (HHCTCP) Construction Phase 4 (City Center) for the City and County of Honolulu (City) and the Federal Transit Administration (FTA), and on behalf of PB Americas, Inc. (PB). The AISP City Center study area extends from Kalihi Stream to Ala Moana Center, located within Kalihi, Kapālama, and Honolulu Ahupua'a, Honolulu District, Island of O'ahu, Tax Map Key (TMK): [1] 1-2, 1-5, 1-7, 2-1, 2-3 (Various Plats and Parcels).

The entire project corridor extends approximately 23 miles (37 km) from Kapolei in the west to Ala Moana Center in the east. The focus of this AISP is the easternmost 4.3 miles (6.9 km) of the overall project corridor. This AISP study area includes all of HHCTCP Construction Phase 4, and, in order to provide continuity, the easternmost portion of Construction Phase 3, which collectively extend east along the southern coast of O'ahu from Kalihi Stream on Dillingham Boulevard and ending at Ala Moana Center on Kona Street. The AISP study area is depicted on a U.S. Geological Survey 7.5-Minute Series Topographic Map, Honolulu (1998) Quadrangle, an aerial photograph, and on various TMKs (Figure 1 to Figure 7).

The AISP City Center study area, constituting all of the HHCTCP Construction Phase 4 (City Center) and the eastern portion of HHCTCP Construction Phase 3 (Airport), is primarily located within existing road rights-of-way owned by the State of Hawai'i or the City and County of Honolulu, including Dillingham Boulevard, Ka'aahi Street, Nimitz Highway, Halekauwila Street, Queen Street, and Kona Street. Many of the support facilities along the project corridor are located on adjacent privately owned lands.

The purpose of the project is to provide high-capacity rapid transit in the highly congested east-west transportation corridor between Kapolei and Ala Moana Center via a fixed guideway rail transit system. FTA and the City will fund project construction. In addition to the guideway, the project will require construction of transit stations and ancillary support facilities. Nine proposed transit stations are within the current AISP study area: Middle Street Transit Center Station; Kalihi Station; Kapālama Station; Iwilei Station; Chinatown Station; Downtown Station; Civic Center Station; Kaka'ako Station; and Ala Moana Center Station (Figure 1). Project construction will also require relocation of existing utility lines within the project corridor that conflict with the project design. Minimally, land-disturbing activities will include grading of facility locations and excavations for guideway column foundations, subsurface utility relocation and installation, and construction of foundations for stations and ancillary facilities.

The project's area of potential effect (APE) for archaeological cultural resources is defined in the HHCTCP's Final Programmatic Agreement (Stipulation II.A.1.) as all areas of direct ground disturbance. For the City Center AISP survey area (all of Construction Phase 4 and the eastern portion of Construction Phase 3), project engineers estimate that the project's area of direct ground disturbance is approximately 604,289 square feet (or 13.87 acres). These 13.87 acres are the survey area for this City Center AISP investigation.

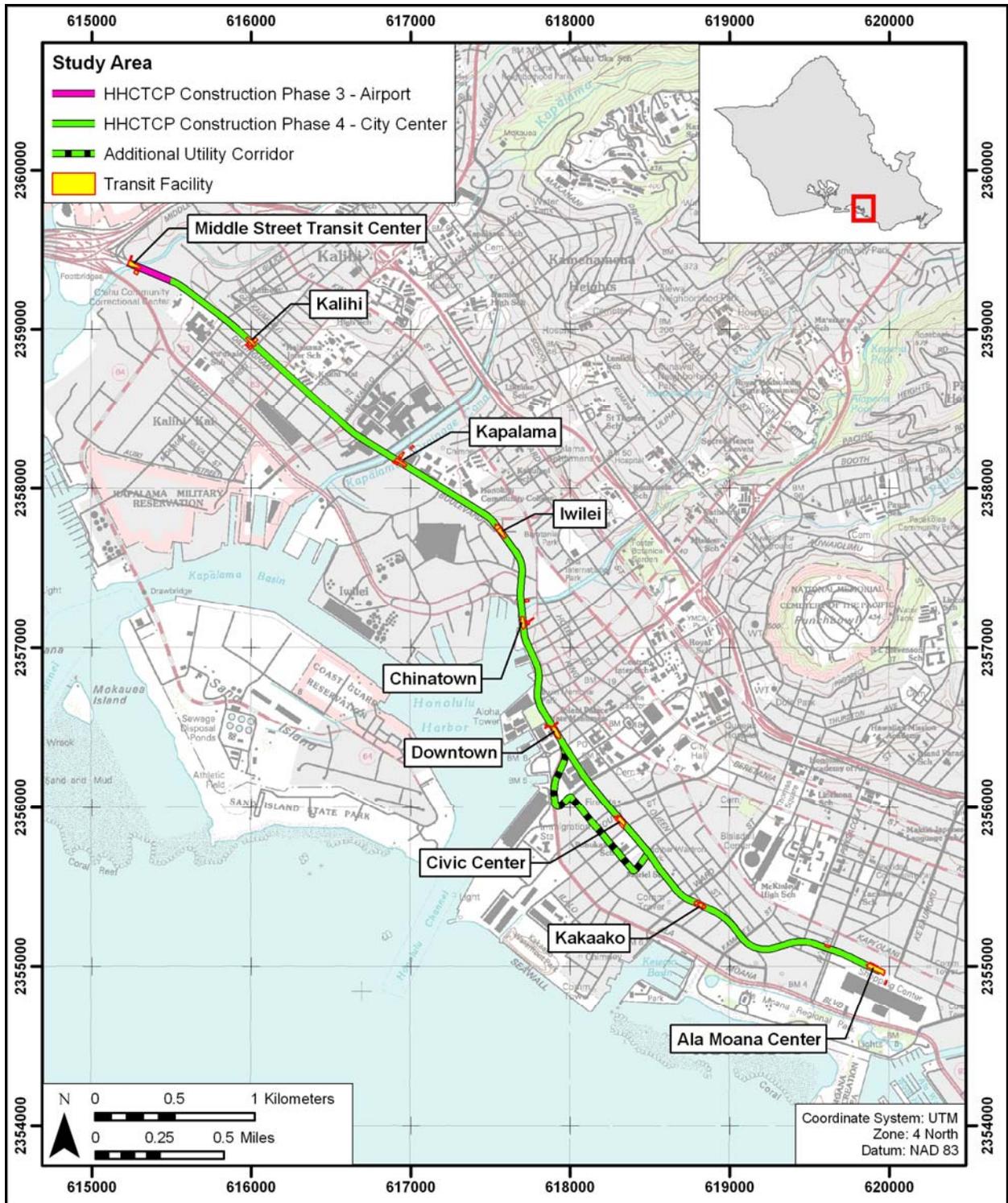


Figure 1. U.S. Geological Survey 7.5-Minute Series Topographic Map, Honolulu (1998) Quadrangle, showing the location of the study area

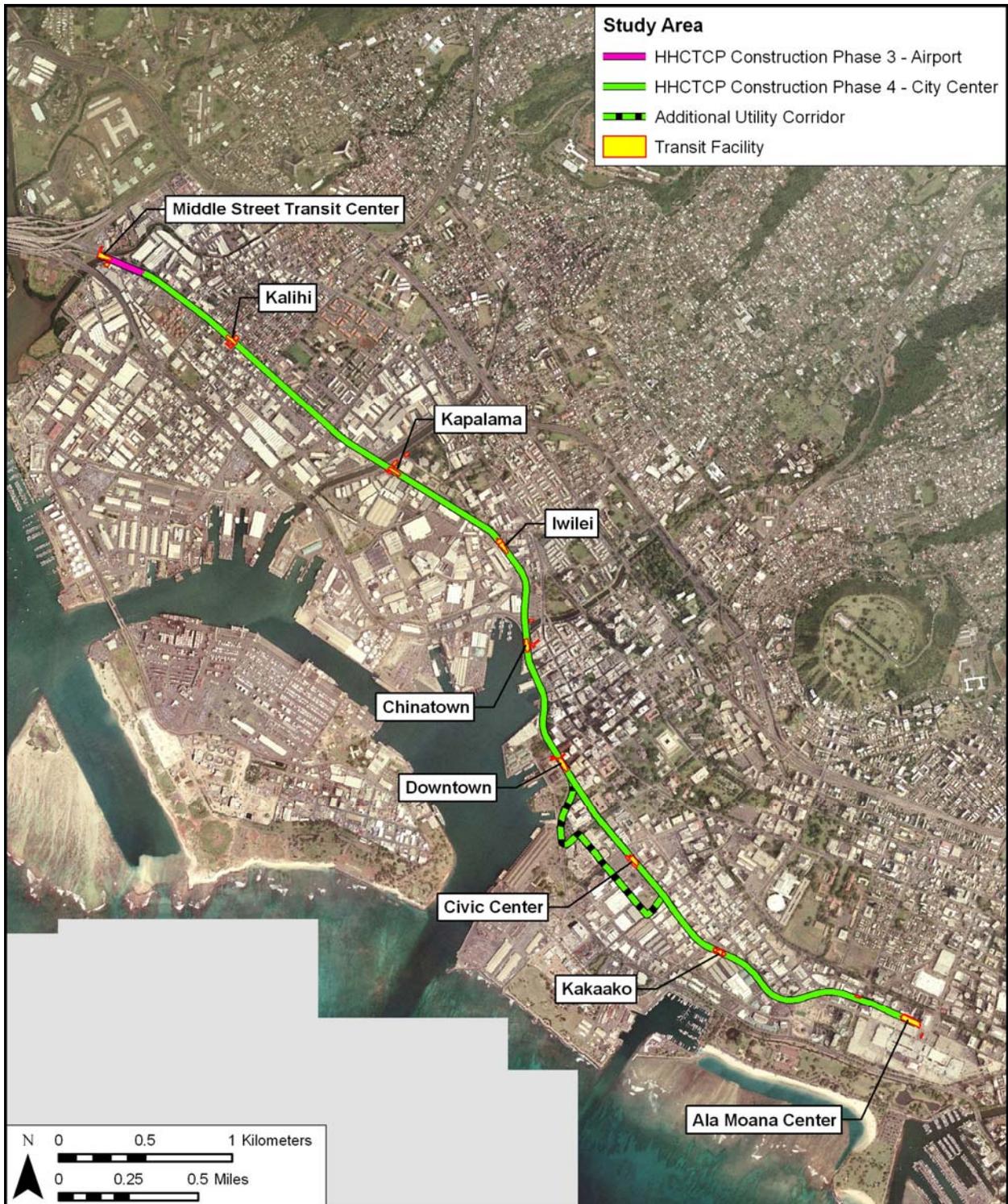


Figure 2. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005), showing the location of the study area

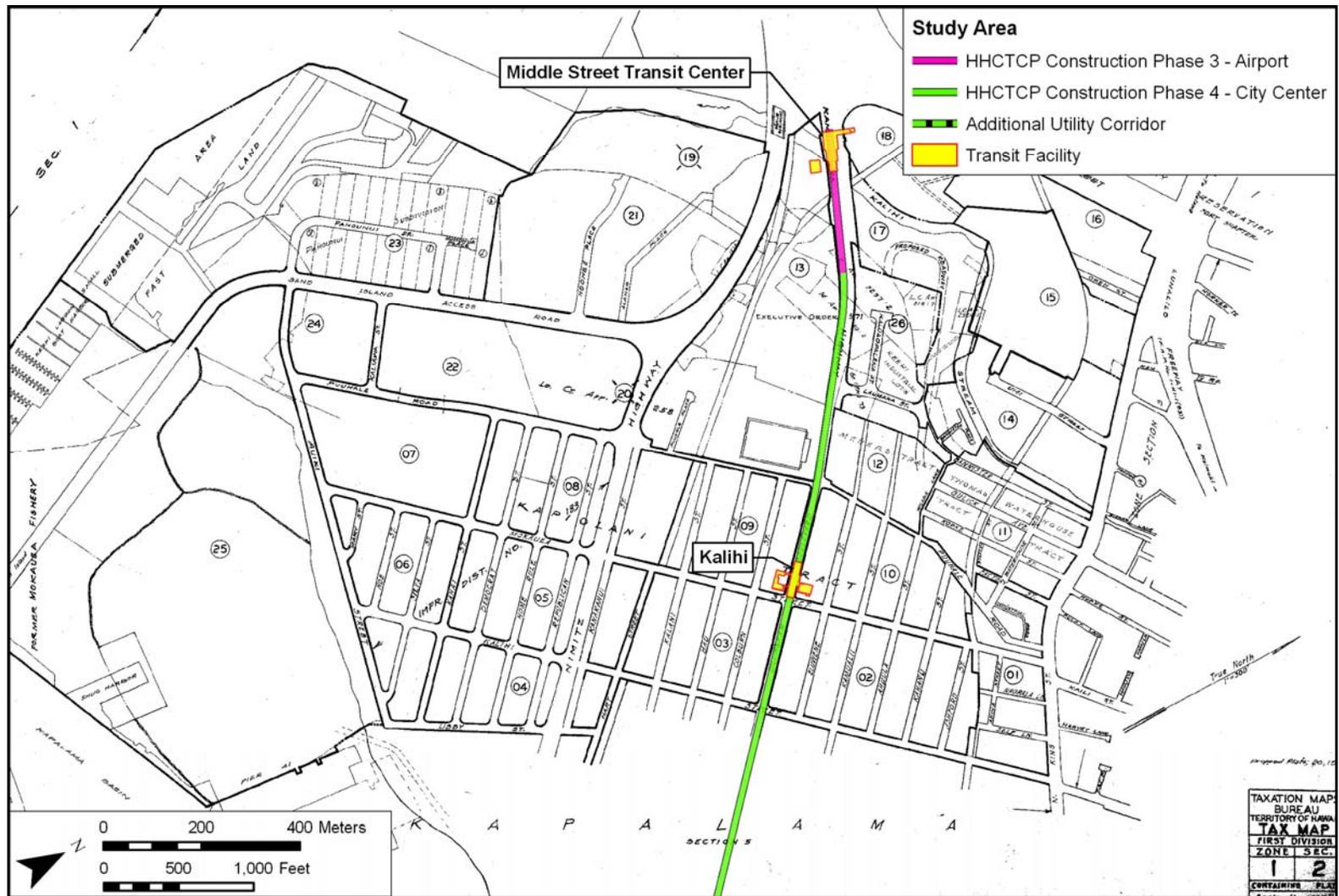


Figure 3. Tax Map Key 1-2, showing the western portion of the study area

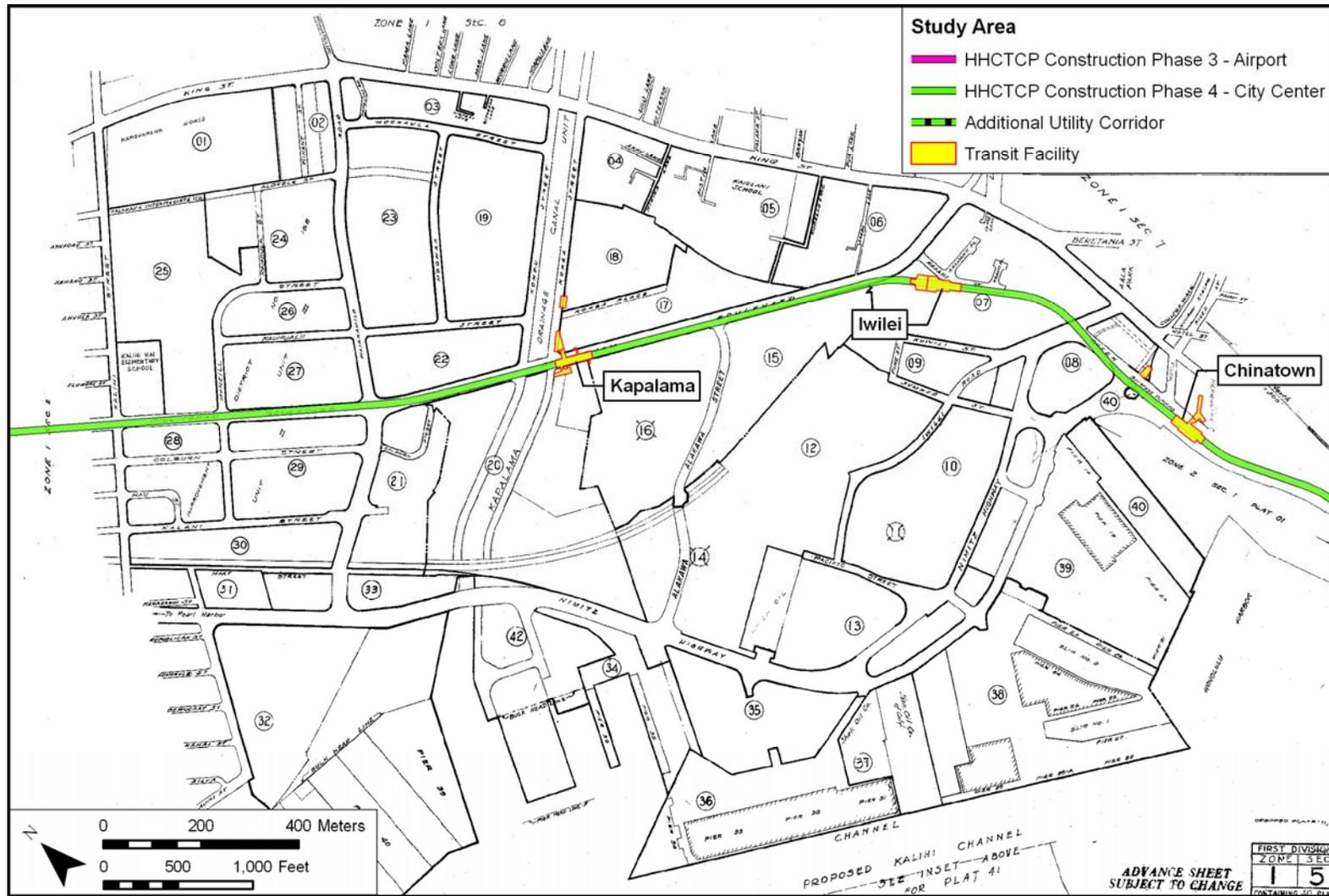


Figure 4. Tax Map Key 1-5, showing the central portion of the study area

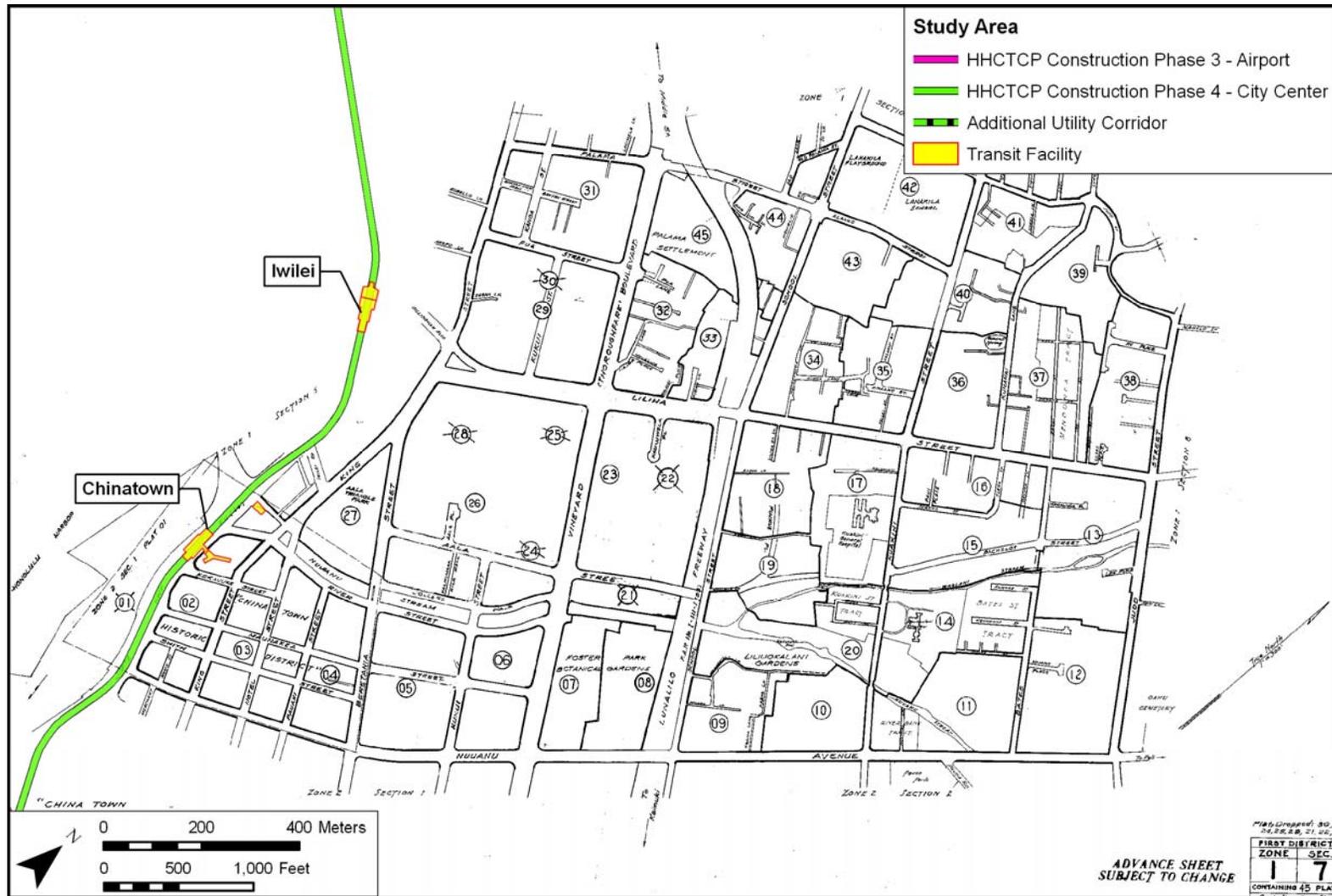


Figure 5. Tax Map Key 1-7, showing the central portion of the study area

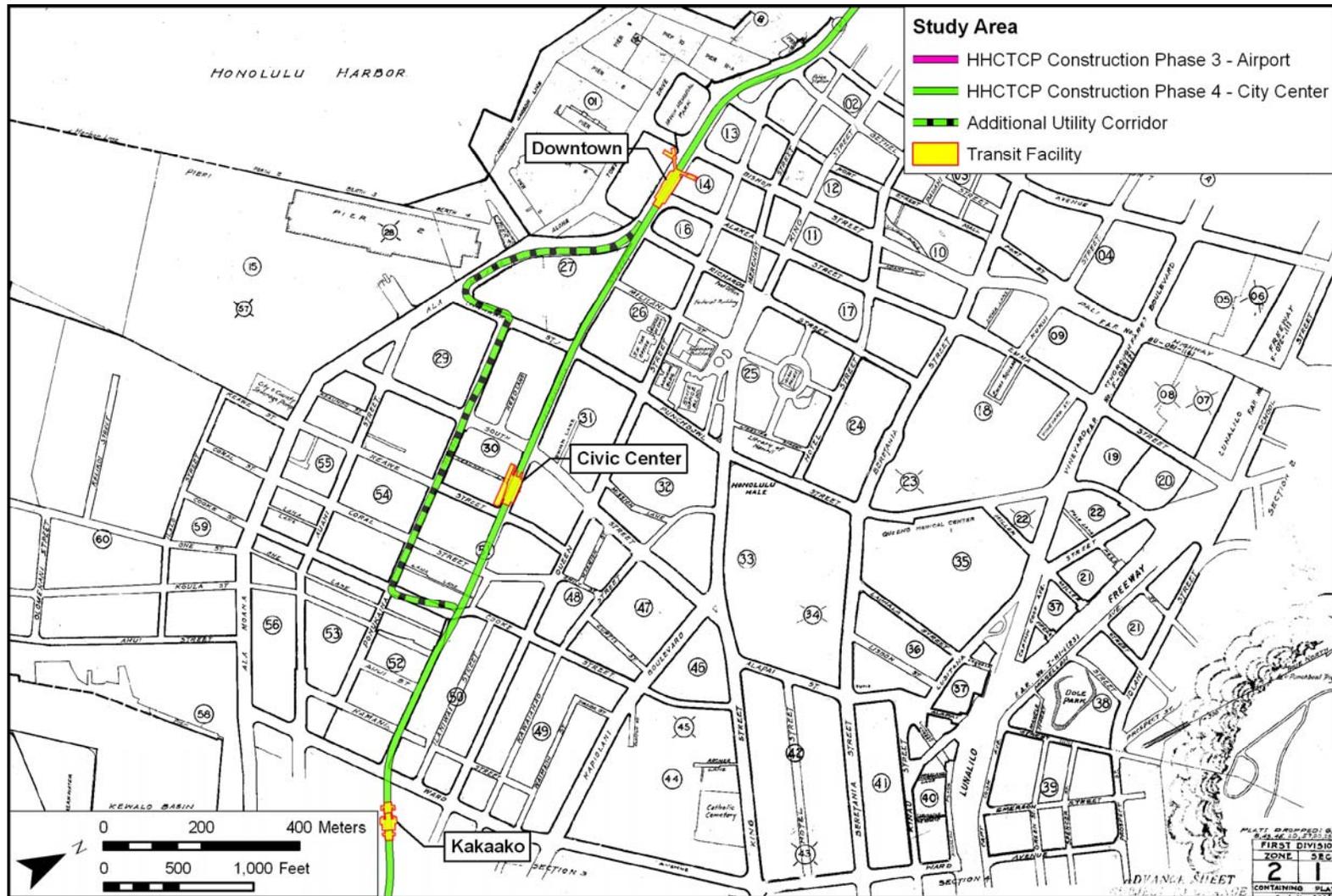


Figure 6. Tax Map Key 2-1, showing the central portion of the study area

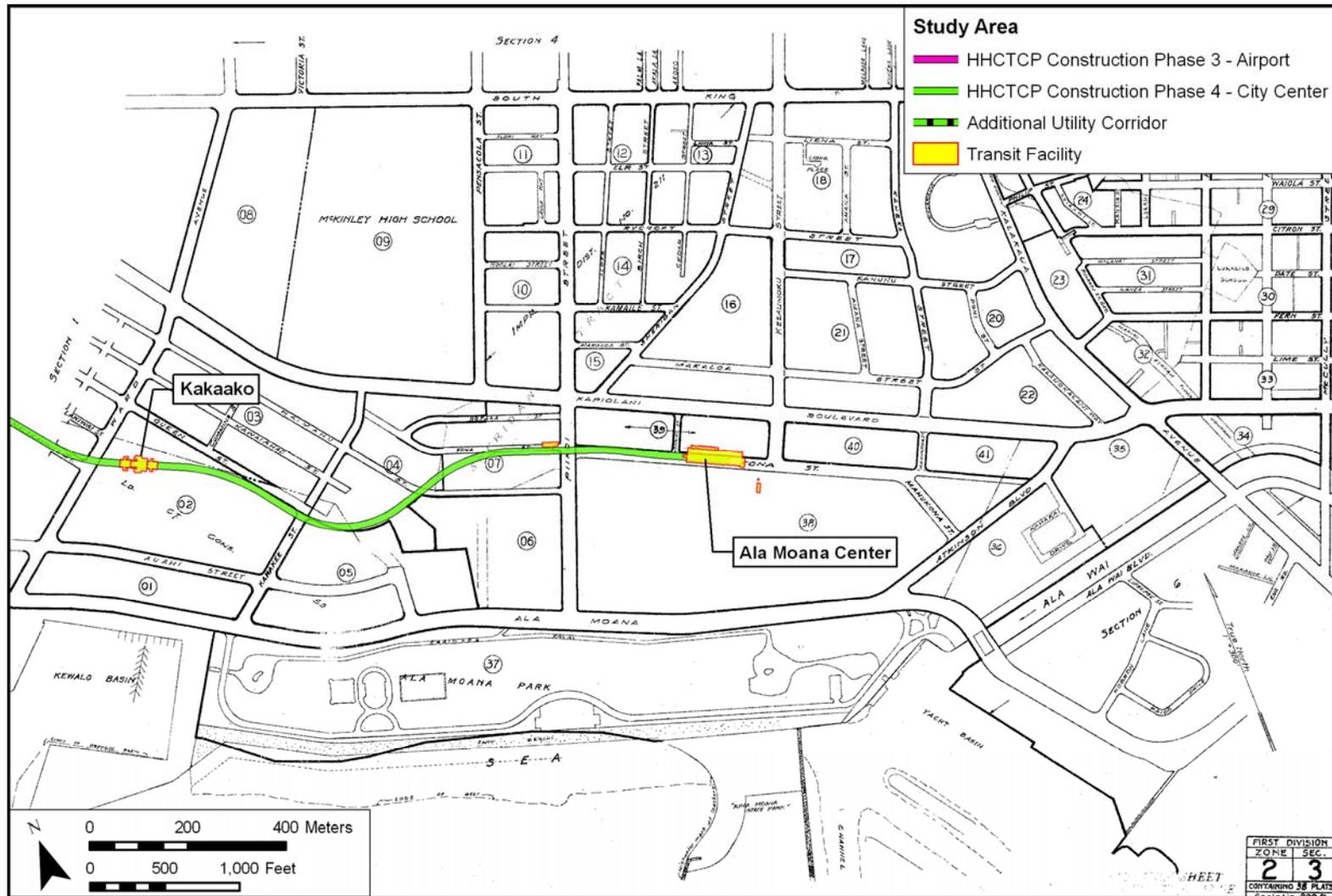


Figure 7. Tax Map Key 2-3, showing the eastern portion of the study area

1.2 Historic Preservation Regulatory Context

Because this project will receive federal (FTA) funding, it is a federal undertaking that requires compliance with Section 106 of the National Historic Preservation Act (NHPA), the National Environmental Policy Act (NEPA), and Section 4(f) of the Department of Transportation Act. Through the Section 106 historic preservation review process, the project's lead federal agency, FTA, has determined that the project will have an adverse effect on historic properties currently listed, or eligible for listing, on the National Register of Historic Places (NRHP). The Hawai'i State Historic Preservation Officer (SHPO) concurred with this undertaking effect determination. To address the undertaking's potential adverse effect, a Programmatic Agreement (PA) was executed on January 18, 2011, with FTA, the Hawai'i State Historic Preservation Officer (SHPO), the U.S. Navy, and the Advisory Council on Historic Preservation as signatories. This AISP was prepared to fulfill PA Stipulation III, which requires that an AISP be prepared, reviewed and approved by the SHPD for each HHCTCP construction phase. This AISP was also prepared in compliance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation and is intended to support the project's PA and Section 106 compliance.

This document was also prepared to support the project's historic preservation review under Hawai'i Revised Statutes (HRS) Chapter 6E-8 and Hawai'i Administrative Rules (HAR) Chapter 13-275. This plan defines the scope of work and details the proposed methods and sampling strategy of the AIS, in accordance with the requirements for an AISP stated in HAR Chapter 13-275-5(c). The AIS investigation described in this AISP will comply with HAR Chapter 13-276 "Rules Governing Standards for Archaeological Inventory Surveys and Reports."

An AIS of HHCTCP Construction Phase 1 (extending east from the East Kapolei Station to the Pearl Highlands Station) (Hammatt 2010) was completed by CSH in February 2010 and reviewed and approved by the State Historic Preservation Division (SHPD) on April 19, 2010 (SHPD correspondence LOG NO: 2010.1749/DOC NO: 1004MV01).

The AIS fieldwork for HHCTCP Construction Phase 2 (extending east from Waimano Home Road to Kalalua Street (just west of Hālawā Stream) (Sroat et al. 2011) was completed in August 2011 (following an SHPD reviewed and approved AISP for Phase 2—SHPD correspondence May 7, 2010, LOG NO: 2010.1748/DOC NO: 1005NM14).

Currently, the AIS Plan for Phase 3 is under SHPD review.

This document is the Final AISP for HHCTCP Construction Phase 4 (Hammatt et al. 2011). The SHPD reviewed and approved the AISP on October 25, 2011 (LOG NO: 2011.2379/DOC NO: 1110NN08) (see Appendix H).

Identification and National/Hawai'i Register eligibility recommendations for the project area's architectural cultural resources, including historic roads, bridges, and structures, was conducted by the historic architectural firm Mason Architects, Inc., in association with the project's Environmental Impact Statement (EIS) (USDOT/FTA and C&C/DTS 2008).

Generally, under both Hawai'i state and federal historic preservation legislation, archaeological inventory surveys are designed to identify, document, and make significance recommendations for "historic properties." As discussed in the paragraphs below, there are

important distinctions between the Federal and Hawai'i State definitions of "historic property." To alleviate any confusion these different definitions might cause, CSH has opted in this document to use the more generic term "cultural resources," as defined below, in its discussion of the cultural remains within the current study area. The use of the term cultural resources in these instances is common practice in cultural resource management and is in keeping with the historic preservation requirements/definitions of both 36 CFR 800 and HAR Chapter 13-275.

In historic preservation parlance, cultural resources are the physical remains and/or geographic locations that reflect the activity, heritage, and/or beliefs of ethnic groups, local communities, states, and/or nations. Generally, they are at least 50 years old, although there are exceptions, and include: buildings and structures; groupings of buildings or structures (historic districts); certain objects; archaeological artifacts, features, sites, and/or deposits; groupings of archaeological sites (archaeological districts); and, in some instances, natural landscape features and/or geographic locations of cultural significance.

Historic properties, as defined in 36 CFR 800.16, are any prehistoric or historic districts, sites, buildings, structures, or objects included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This includes artifacts, records, and remains that are related to and located within such properties, as well as properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria. Determinations of eligibility are generally made by a federal agency official in consultation with the SHPO. Under federal legislation, a project's (undertaking's) potential effect on historic properties must be evaluated and potentially mitigated.

Under Hawai'i State historic preservation legislation, historic properties are defined as any cultural resources that are 50 years old, regardless of their significance under state law, and a project's effect and potential mitigation measures are evaluated based on the project's potential impact to "significant" historic properties (those historic properties determined eligible, based on established significance criteria, for inclusion in the Hawai'i Register). Determinations of eligibility to the Hawai'i Register result when a state agency official's historic property "significance assessment" is approved by the SHPD, or when the SHPD itself makes an eligibility determination for a historic property.

1.3 Overview of Proposed Project Construction

The design, method of construction, and timeline of the project continue to be refined. This overview of proposed project construction is a synopsis of the information provided in Appendix E—Construction Approach of the HHCTCP EIS (USDOT/FTA and C&C/DTS 2008).

1.3.1 Fixed Guideway and Transit Stations

The HHCTCP involves construction of a fixed guideway rail transit system that will consist primarily of elevated structures. The main components of the fixed guideway system are the elevated guideway structure, guideway foundation columns, and transit stations. The guideway foundation columns generally consist of a single 8-foot diameter column spaced, on average, about every 120 feet, with shorter or longer spans used where needed. Transit stations generally consist of elevated platform structures with ground-level entrance buildings. The subsurface

impacts associated with the fixed guideway and transit stations will be primarily associated with excavations for the guideway foundation columns and excavations associated with construction of ground-level station buildings, including subsurface utilities, elevator shafts, etc.

Two methods will be used to construct the guideway foundations, dictated by structural demands and existing subsurface conditions. Drilled shafts are the preferred foundation excavation method, which involves drilling with a 6- to 10-foot diameter auger to depths of 50 to 150 feet; installation of a rebar cage in the shaft; and filling the shaft with concrete. Driven-pile foundations will be constructed where lateral loads, geotechnical, or other site conditions prohibit the use of drilled shafts. Construction of driven-pile foundations involves excavations to accommodate the pile cap, pile driving by striking the pile with a heavy weight, vibrating the pile or jacking the pile into the ground, and forming and casting the pile cap with concrete.

1.3.2 Support Facilities

Ancillary support facilities for the transit system include maintenance and storage facilities and traction power substations. These facilities will be constructed at ground level, adjacent to the transit corridor. Subsurface impacts will include grading of the facility locations and excavations for building foundations, subsurface utility installation or relocation, and landscaping.

1.3.3 Ancillary Impacts

Project construction will require relocation of existing utility lines within the project corridor that conflict with the project design. The nature and extent of utility relocations, based on preliminary engineering, are shown in Table 1. Current estimates are that the vast majority of subsurface impacts will be ancillary (particularly for utility relocation, roadway widening, and building demolition, refer to Table 1).

Guideway foundation excavations will extend below the water table, potentially creating significant need for the management of displaced water and/or drilling slurry. De-watering pits may be excavated to temporarily collect and treat wastewater and drilling slurry prior to reuse or disposal.

Construction staging areas will be needed to provide adequate space for construction equipment, stockpiling and transfer of construction materials, parking, and other construction-related activities. The proposed ancillary maintenance and storage facility areas and transit stations have been identified as potential staging areas. Grading of the construction staging areas may be necessary.

1.3.4 Summary of Subsurface Impacts

While construction of the “touch down” facilities of the transit stations (the portions of the mostly elevated transit stations that are at ground/street level) and the excavations for the column foundations for the fixed guideway may be the most obvious project-related subsurface impacts, according to available data (Table 1) collectively these will only account for an estimated 3.9 percent of the area of project-related subsurface impacts.

The utility relocations needed for this project are considerable. The “dry” utilities, including electric and gas line relocations, are estimated to account for nearly half (46.4 percent) of the project-related subsurface impacts.

The “wet” utility relocations, including water, sewer, and storm sewer improvements, are anticipated to account for approximately 14 percent of the project-related subsurface impacts.

Road widening work will largely occur on the *makai* side of Dillingham Boulevard and this is anticipated to account for approximately 17 percent of the project-related subsurface impacts. Because of the medial placement of column foundations along much of the Dillingham Boulevard alignment, the thoroughfare will effectively become largely divided with the *makai* lanes needing to be widened approximately 10 feet farther *makai* (the actual extent of the widening will vary).

Current plans call for demolition of existing buildings in a number of areas, including: Iwilei, the area between the intersection of Halekauwila Street and Ward Avenue and the intersection of Queen and Kamake'e Streets, and between the intersection of Queen and Waimanu Streets and the vicinity of the intersection of Pensacola and Kona Streets. Demolition is anticipated to account for approximately 11 percent of project-related subsurface impacts. Existing building demolition will include excavations to remove building foundations and associated utilities and grading of the cleared land surface once demolition is done.

Table 1. Summary of Total Area of Disturbance Anticipated for Different Aspects of the Transit City Center Phase Project

City Center AIS Summary of Anticipated Ground Disturbance (Est. 604,289 ft² Total)		
Components	Area (ft²)	Percent of Project-related Ground Disturbance
Utilities (wet)	86,597	14.3
Utilities (dry)	280,210	46.4
Traction Power Substation	20,916	3.5
Fiber Optic Cables	20,100	3.3
Building Demolition	68,851	11.4
Roadway Widening	103,410	17.1
Traffic Signals	1,179	0.2
Stations	11,222	1.9
Columns	11,804	2.0

1.4 Environmental Setting

1.4.1 Natural Environment

The study area is situated along the low-lying coastal flats immediately inland of Kapālama Basin, Honolulu Harbor, and Kewalo Basin, generally within 1 km of the shoreline. The study area traverses Kalihi Stream, Kapālama Stream, and Nu'uaniu Stream. Elevations in the study area range from approximately 3 to 10 feet above mean sea level. The study area receives an average of approximately 23 to 39 inches of annual rainfall (Giambelluca et al. 1986). As the study area traverses a predominantly urban landscape, vegetation in the study area and immediate vicinity consists primarily of introduced (non-indigenous) landscaping trees, shrubs, and ground covers.

According to U.S. Department of Agriculture soil survey data (Figure 8), sediment types in the study area include exclusively: Fill Land (FL) and 'Ewa Silty Clay Loam (EmA) (Foote et al. 1972).

Fill Land is described as follows:

This land type occurs mostly near Pearl Harbor and in Honolulu, adjacent to the ocean. It consists of areas filled with material dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources. Included in mapping were a few areas that have been excavated. This land type is used for urban development including airports, housing areas, and industrial facilities [Foote et al. 1972:31].

'Ewa Silty Clay Loam soils are described as follows:

This soil occurs on alluvial fans and terraces...Permeability is moderate. Runoff is slow, and the erosion hazard is slight...The depth to coral limestone or gravelly alluvium ranges from 50 to more than 60 inches. In some areas cobble stones and stones occur on the surface and in the surface layer. This soil is used for sugarcane, truck crops and pasture [Foote et al. 1972:29-30].

1.4.2 Built Environment

The study area traverses a predominantly urban environment, through the neighborhoods of Kalihi, Kapālama, Iwilei, Chinatown, Downtown Honolulu, and Kaka'ako. The centerline of the project alignment is generally within the median or shoulder of various roads and highways, including: Kamehameha Highway, Dillingham Boulevard, Ka'aahi Street, Nimitz Highway, Halekauwila Street, Queen Street, and Kona Street. Parcels bordering the roads and highways include a mix of commercial, industrial, and residential developments. Large developments in the vicinity of the study area include Honolulu Community College, the Aloha Tower Marketplace, and Ala Moana Center.

1.5 Document Structure and Appendices

The AISP is divided into two volumes: Volume I is the plan itself and supporting Appendices F, G, and H. Volume II consists of supporting Appendices A through E. In this first volume,

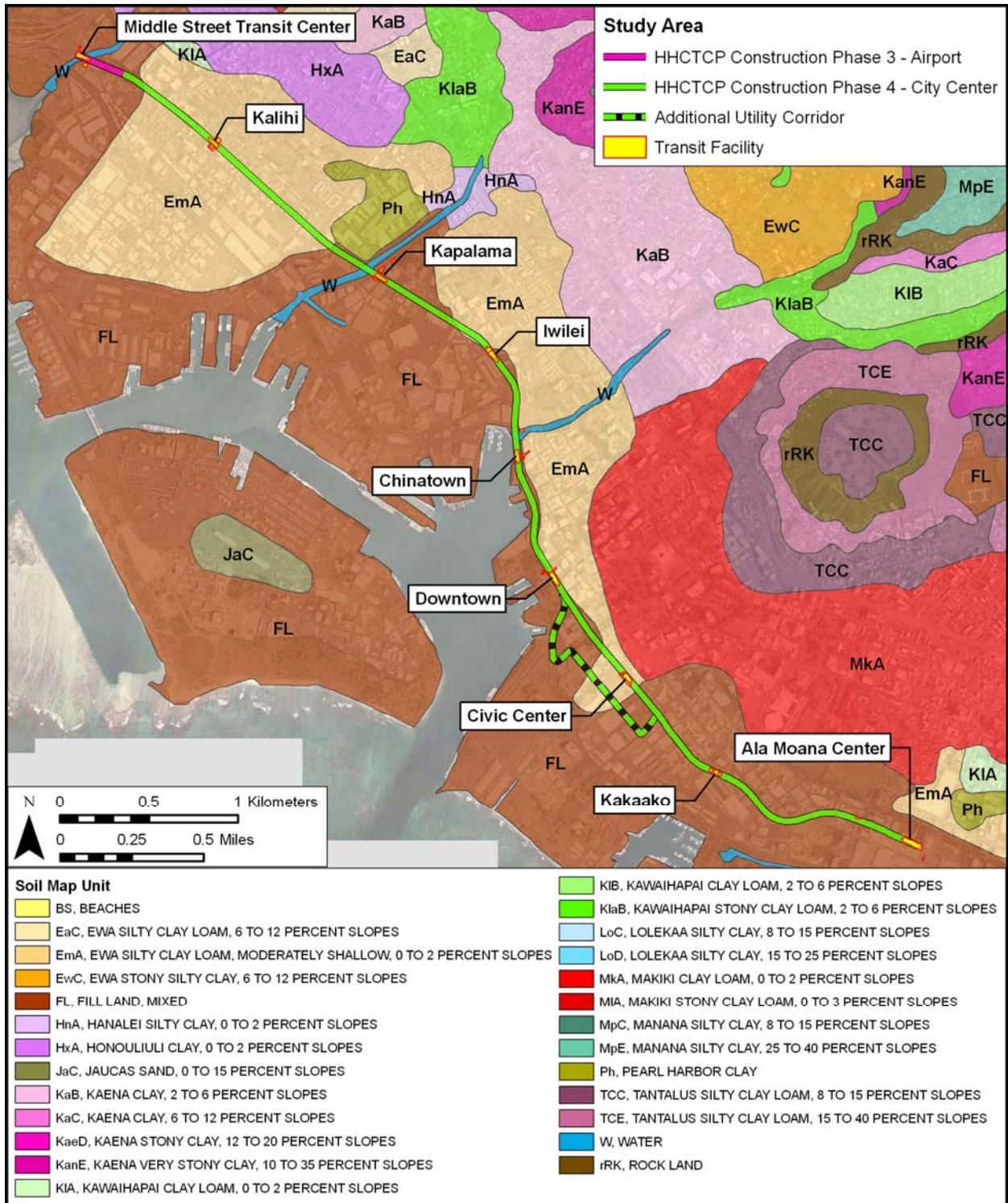


Figure 8. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005) with overlay of the Soil Survey of Hawai'i (Foote et al. 1972), showing sediment types in the vicinity of the project area

Appendix F is a summary of the historical human remains detection dogs methods investigation that CSH conducted as part of the AISP preparation. Appendix G is a summary of the ground penetrating radar methods investigation that CSH completed for this AISP. Appendix H is the SHPD review letter, and associated correspondence and meeting notes, of the May 2011 draft of this AISP.

Volume II comprises Appendices A through E. These appendices all pertain to 19th Century land court documents. These documents are discussed in the AISP and are shown on AISP figures. The full text of these documents is included as the Volume II appendices to provide the reader with the most specific information possible. Appendix A summarizes the different sources and history for the land court documents and defines the common terms that are used.

Appendices B through E present land documents for Land Commission Awards (LCA) adjacent to the project area. For each LCA, there are at least three documents. The first is an English translation and transcription from the Waihona 'āina database (<www.waihona.com>) of the LCA claim in the Native Register, the Foreign Register, and supporting documents for the claims, the Native Testimony, and the Foreign Testimony. This is followed by the original Award—in Hawaiian—printed from microfilm archived at the Bureau of Conveyances Research Room in Honolulu. The third document is the Royal Patent for the LCA for the specific *'āpana* (lot) adjacent to the project area. There may be more than one Royal Patent issued for each *'āpana*.