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STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

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OFC. OF ENVIRONMENTAL
QUALITY CONTROL

MEMORANDUM

TO: Mr. Scott Glenn, Interim Director
Office of Environmental Quality Control
Department of Health

FROM: Christine Kinimaka
Acting Public Works Administrator

SUBJECT: Final Environmental Assessment for the
Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter
DAGS Job No. 12-21-7550

The Department of Accounting and General Services, State of Hawaii, hereby transmits the final environmental assessment and finding of no significant impact (FEA-FONSI) for the Joint Development of Affordable Rental Housing and Juvenile Services Center/Shelter, situated at 902 Alder Street, TMK: (1)2-3-012:019, in the Honolulu District, on the island of Oahu, for publication in the next available edition of the Environmental Notice.

The public comments and corresponding responses that were received during the 30-day public comment period on the draft environmental assessment are included in the FEA-FONSI.

We have enclosed a completed OEQC Publication Form, one printed copy of the FEA-FONSI, and a CD containing these documents in electronic form.

If you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:mo
Attachments
c: Ms. DeeDee Letts – Judiciary without attachments
Ms. Janice Takahashi - HHFDC without attachments
Mr. Donald Clifford – SSFM without attachments
Mr. Jared Chang – SSFM without attachments

-17-018

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AGENCY PUBLICATION FORM

Project Name:	Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter
Project Short Name:	(please use no more than five succinct words; count not to include document status, e.g., EA)
HRS §343-5 Trigger(s):	Use of State land, Use of State funds
Island(s):	Oahu
Judicial District(s):	Honolulu
TMK(s):	(1) 2-3-012:019
Permit(s)/Approval(s):	201H Application, NPDES, Community Noise Permit, Construction (including Building, Electrical, Plumbing; Grading/ Trenching Permit, Grubbing, Stockpiling Permit, Sidewalk/Driveway Permit, Demolition Permit, Street Usage), Sewer Connection, Water Connection, Water System approval, HFD Plan Review
Proposing/Determining Agency:	Department of Accounting and General Services
Contact Name, Email, Telephone, Address	Lance Maja lance.y.maja@hawaii.gov (808) 586-0483 Department of Accounting and General Services Public Works Division, Planning Branch 1151 Punchbowl Street, Room 430 Honolulu, HI 96810
Accepting Authority:	(for EIS submittals only)
Contact Name, Email, Telephone, Address	
Consultant:	SSFM International, Inc.
Contact Name, Email, Telephone, Address	Jared Chang jchang@ssfm.com (808) 356-1242 SSFM International, Inc. 501 Sumner Street, Suite 620 Honolulu, HI 96817

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Status (select one)	**Submittal Requirements**
____ DEA-AFNSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.
__X__ FEA-FONSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.
____ FEA-EISPN	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.
____ Act 172-12 EISPN ("Direct to EIS")	Submit 1) the proposing agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.
____ DEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.

____ FEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.
____ FEIS Acceptance Determination	The accepting authority simultaneously transmits to both the OEQC and the proposing agency a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
FEIS Statutory Acceptance	Timely statutory acceptance of the FEIS under Section 343-5(c), HRS, is not applicable to agency actions.
____ Supplemental EIS Determination	The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.
____ Withdrawal	Identify the specific document(s) to withdraw and explain in the project summary section.
____ Other	Contact the OEQC if your action is not one of the above items.

Project Summary
Provide a description of the proposed action and purpose and need in 200 words or less.

The Judiciary and the Hawai'i Housing Finance and Development Corporation (HHFDC) are proposing to jointly redevelop the 1.45-acre parcel located at 902 Alder Street in Honolulu. There are currently two buildings on the site. The proposed project involves demolishing the buildings and replacing them with two new structures. A new juvenile services center/shelter and rental housing complex, and a parking structure. The project includes a combination of approximately 180 affordable rental housing units, therapeutic counseling and rehabilitative services for juveniles, short term shelter services for juveniles, parking, and incidental community uses.

The Judiciary and HHFDC are proactively responding to the needs of the State's working families and most vulnerable youth. This project:

- Introduces innovation and enhances national best practices to reduce the involvement of youth and families in the juvenile justice system, thus enhancing public safety;
- Creates affordable rental housing in a central location within Honolulu's urban core;
- Promotes dense, mixed-use, transit-oriented development in proximity to a future rail station and existing transit hub; and,
- Optimizes State lands on an underutilized parcel in the Primary Urban Center.



JOINT DEVELOPMENT FOR AFFORDABLE RENTAL HOUSING AND JUVENILE SERVICES CENTER/SHELTER

Honolulu, Hawai'i

TMK: (1) 2-3-012: 019

FINAL ENVIRONMENTAL ASSESSMENT

Prepared Pursuant to:
Chapter 343, Hawai'i Revised Statutes and
Title 11, Chapter 200, Hawai'i Department of Health Administrative Rules

Proposing Agency:
State of Hawai'i, Department of Accounting and General Services

Prepared by:
SSFM International, Inc.

July 2016

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TABLE OF CONTENTS

PREFACE **1**

1.0 INTRODUCTION **3**
1.1 Project Information Summary 3

2.0 PROJECT DESCRIPTION **9**
2.1 Project Location 9
2.2 Existing and Surrounding Uses 9
2.3 Proposed Action 13
2.4 Description of the Development 13
2.5 Alternatives Considered 21
2.6 Project Phasing, Financing, Estimated Costs & Development Schedule 22
2.7 Required Permits and Approvals 23

3.0 EXISTING ENVIRONMENT, PROJECT IMPACTS, & MITIGATION MEASURES **25**
3.1 Climate 25
3.2 Flora and Fauna 25
3.3 Geography, Topography, and Soils 27
3.4 Hydrology 30
3.5 Flood and Tsunami Hazard 30
3.6 Noise 33
3.7 Air Quality 35
3.8 Historic, Archaeological, and Cultural Resources 37
3.9 Visual Resources 44
3.10 Roadways and Traffic 46
3.11 Water System 55
3.12 Wastewater Disposal 57
3.13 Drainage System 58
3.14 Electric and Communications Facilities 59
3.15 Community Facilities 60
3.16 Socioeconomic Environment 62
3.17 Potential Cumulative and Secondary Impacts 65

4.0 CONFORMANCE WITH PLANS AND POLICIES **67**
4.1 Hawai‘i State Plan 67
4.2 Hawai‘i Revised Statutes Chapter 343 91
4.3 Hawai‘i Revised Statues Chapter 201H 91
4.4 Hawai‘i Revised Statues Chapter 205A 91
4.5 State Land Use Law 98
4.6 City and County of Honolulu General Plan 98
4.7 City and County of Honolulu Land Use Ordinance 101
4.8 Primary Urban Center Development Plan 102
4.9 Ala Moana Neighborhood Transit-Oriented Development Plan 104
4.10 Kaka`ako Community Development District TOD Overlay Plan 107
4.11 Oahu Bike Plan: A Bicycle Master Plan 107

4.12 City and County of Honolulu Special Management Area 107

5.0 CHAPTER 201H APPLICATION AND REQUESTED EXEMPTIONS & DEFERRALS 109
5.1 Introduction 109
5.2 Requested Exemptions and Deferrals 109

6.0 FINDINGS AND DETERMINATION 115
6.1 Findings 115
6.2 Determination 120

7.0 AGENCY AND PUBLIC CONSULTATION 121
7.1 Ala Moana / Kaka'ako Neighborhood Board Meeting 121
7.2 Pre-Assessment and Draft EA Consultations 121

8.0 LIST OF REFERENCES 125

LIST OF TABLES

Table 1: Construction Noise Source Control Methods 34
Table 2: Surrounding Street Cross Section Summary 46
Table 3: Existing Roadway ADT 48
Table 4: Intersection Peak Hours 48
Table 5: Intersection Peak Hour Pedestrian Volumes 49
Table 6: Intersection Peak Hour Bicycle Volumes 49
Table 7: Intersection Peak Hour Heavy Vehicle Volumes and Percentage 49
Table 8: TheBus Daily Ridership 50
Table 9: Existing (2015) Unsignalized Intersection Level of Service 51
Table 10: Existing (2015) Signalized Intersection Level of Service 51
Table 11: Development Trip Generation Rates 52
Table 12: Development Trip Generation Volumes 52
Table 13: Project Related Transportation Mode 53
Table 14: Future (2022) With Project Unsignalized Intersection Level of Service 53
Table 15: Future (2022) With Project Signalized Intersection Level of Service 54
Table 16: Projected Water Demand 56
Table 17: Projected Wastewater Flow 58
Table 18: Existing HECO Service 59
Table 19: Selected Population and Housing Characteristics 63
Table 20: Summary of Requested Exemptions and Deferrals 112

LIST OF FIGURES

Figure 1: Project Location Map 4
Figure 2: Tax Map 5
Figure 3: City and County of Honolulu Zoning 6
Figure 4: PUC DP Land Use Map 7
Figure 5: Existing Site Plan 10
Figure 6: Conceptual Site Plan 17
Figure 7: Conceptual Building Massing Plan 18
Figure 8: Conceptual Floor Plan 19
Figure 9: Conceptual Elevations 20
Figure 10: Natural Resources Conservation Service Soils Map 29
Figure 11: Flood Insurance Rate Map (FIRM) 31
Figure 12: Tsunami Evacuation Zone 32
Figure 13: Sanborn Fire Insurance Map (1914) 39
Figure 14: Sanborn Fire Insurance Map (1950) 40
Figure 15: USGS Topographic Map (1953) 41
Figure 16: Ala Moana Neighborhood TOD Plan Special District Boundary 106

LIST OF IMAGES

Image 1: Entrance to the Home Maluhia from Alder Street 9
Image 2: Residential Uses on Alder Street Across from the Facility 11
Image 3: Residential Uses on Pi‘ikoi Street Across from the Facility 11
Image 4: Commercial Uses on King Street, Abutting the Mauka Side of the Facility 12
Image 5: Sheridan District Park from Elm Street ..... **Error! Bookmark not defined.**
Image 6: Wall enclosing the Home Maluhia on Alder Street 44
Image 7: Views makai and mauka along Pi‘ikoi Streets 45

LIST OF APPENDICES

Appendix A-1: Pre-Assessment Consultation Comments and Responses
Appendix A-2: Draft EA Consultation Comments and Responses
Appendix B: Biological Resource Survey Report
Appendix C: Environmental Noise Assessment Report
Appendix D: Air Quality Impact Assessment
Appendix E: Historic Resource Inventory Form & SHPD Correspondence
Appendix F: Archaeological Inventory Survey Report
Appendix G: Cultural Impact Assessment
Appendix H: Traffic Impact Assessment
Appendix I: Preliminary Engineering Report
Appendix J: Electrical Power and Communications Report
Appendix K: Population, Economic and Fiscal Impacts

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PREFACE

The Hawai‘i Housing Finance Development Corporation (HHFDC) and the Judiciary of the State of Hawai‘i (Judiciary) are proposing to jointly redevelop a 1.45-acre parcel located at 902 Alder Street in Honolulu, Hawai‘i.

There are currently two buildings on the site. The small building is occupied by the Home Maluhia shelter facility for youth. The large building consists of a main structure and three wings that previously housed juvenile detention facilities. The boys' dormitory part of the building has been vacant since 2010 when the detention facilities were relocated to Kapolei. The girl's side of the building was remediated by the Judiciary and is currently used for juvenile programming, education and the accountability unit. The proposed project involves demolishing the buildings and replacing them with two new structures, a juvenile shelter/services center and rental housing complex; and a parking garage. The proposed mixed-use project entails a combination of affordable rental housing; therapeutic counseling and rehabilitative services for juveniles; short-term shelter services; parking; and incidental community uses.

This partnership between the HHFDC and Judiciary is evidence of the State's creative and proactive response to the needs of its most vulnerable youth and working families. This project: Introduces innovation and enhances national best practices to reduce the involvement of youth and families in the juvenile justice system thus enhancing public safety; Creates affordable rental housing in a central location within Honolulu's urban core; Promotes dense, mixed-use, transit-oriented development in proximity to a future rail station and existing transit hub; and Optimizes State lands on an underutilized parcel in the Primary Urban Center.

The proposed action involves the use of State land and funds. Therefore, this Final Environmental Assessment (EA) was prepared in accordance with Chapter 343 of the Hawai‘i Revised Statutes (HRS) and Title 11, Chapter 200 of the State Department of Health's Hawai‘i Administrative Rules (HAR). This project will also be processed under Chapter 201H HRS, which offers flexibility in design and permitting requirements to projects created for lower and moderate income households. In addition to presenting known environmental factors pertinent to the site and proposed project, this environmental assessment also serves as the Chapter 201H application agency/public comment document.

Approvals associated with Chapters 343 and 201H, HRS are being sought in advance of securing a developer for the project. This approach is being taken to reduce project costs and stimulate developer interest. As a result of not having a developer on board, certain details associated with the project – such as its exterior and interior design, plans and specifications, and operational requirements - are not yet available.

The proposed action is consistent with the community vision, policies and guidelines set forth by the Primary Urban Center Development Plan and results in a Finding of No Significant Impact (FONSI).

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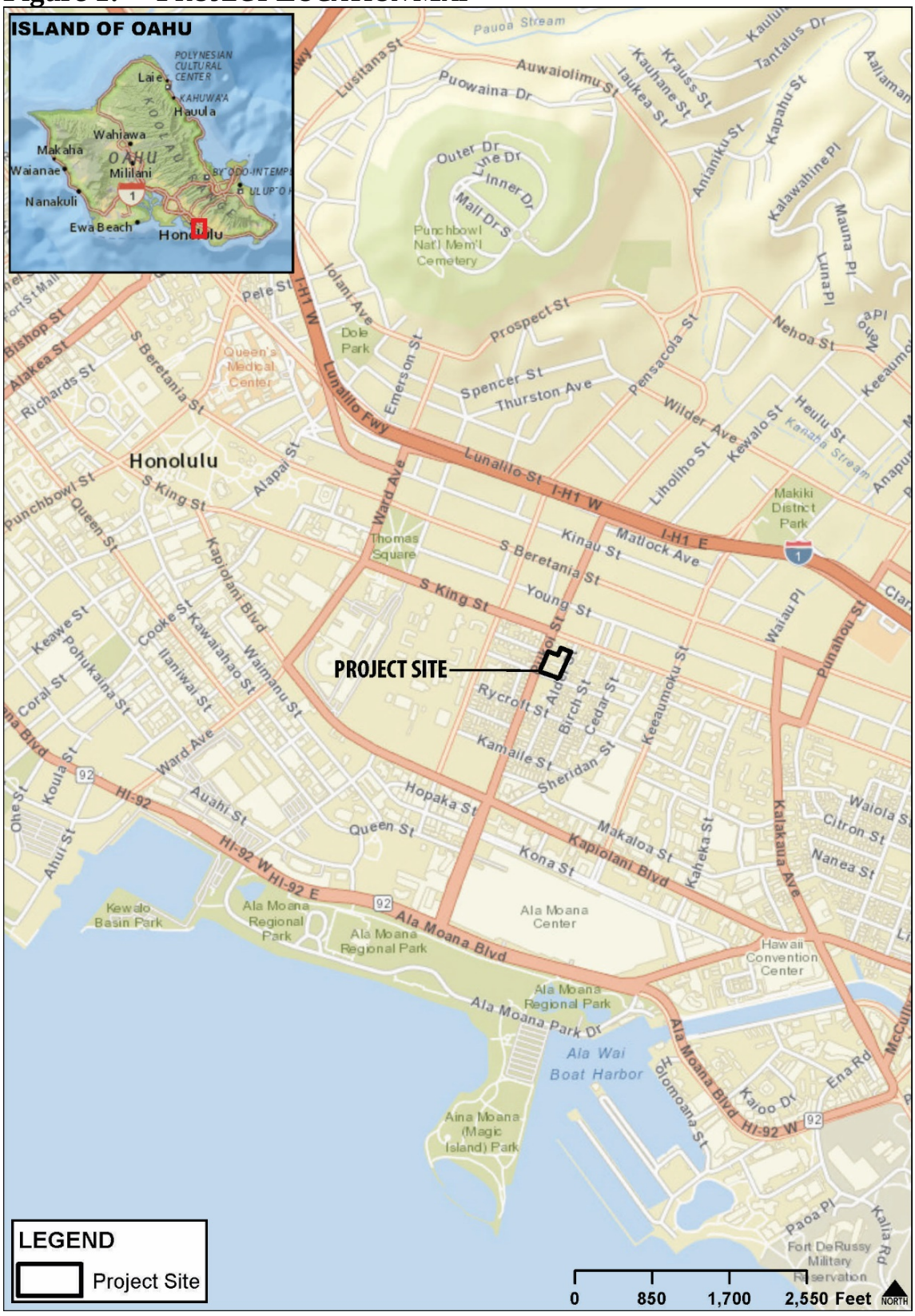
1.0 INTRODUCTION

The State of Hawai‘i Housing Finance Development Corporation (HHFDC) and the Judiciary of the State of Hawai’i (Judiciary) are proposing to jointly redevelop a 1.45 acre parcel, identified as Tax Map Key (1) 2-3-012: 019, located at 902 Alder Street in Honolulu, Hawai‘i. The proposed action as described in this Final EA must satisfy the requirements of Chapter 343 of the Hawai‘i Revised Statutes (HRS).

1.1 PROJECT INFORMATION SUMMARY

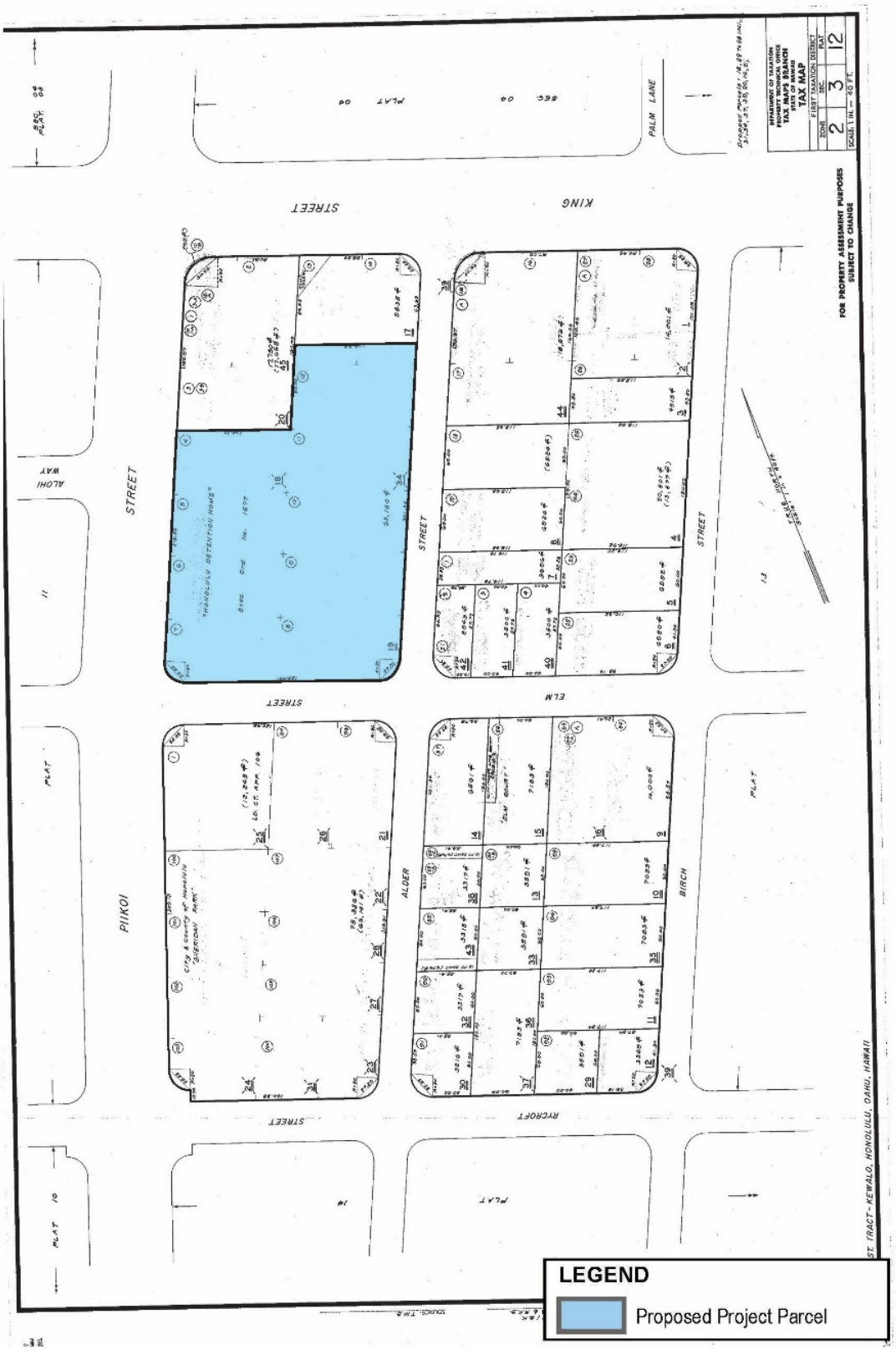
Name:	Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter
Project Location:	Honolulu, O‘ahu, Hawai‘i (See Figure 1)
Tax Map Key:	(1) 2-3-012: 019 (See Figure 2)
Land Area:	1.45 acres (63,180 square feet)
Landowner:	Judiciary, State of Hawai’i via Executive Orders No. 1577 and No. 2484, dated September 5, 1953, and December 3, 1969, respectively.
Proposing Agency:	State of Hawai‘i, Department of Accounting and General Services
State Land Use Classification:	Urban
City and County Zoning:	A-2 Medium Density Apartments (See Figure 3)
Development Plan:	Primary Urban Center Development Plan
Development Plan Land Use Map:	Medium and Higher-density Residential/Mixed Use and within the Urban Community Boundary(See Figure 4)
Special District:	None; however, within Special District-Transit proposed by County and County of Honolulu
Special Management Area:	Not within SMA
Existing Use:	Juvenile Services Center and Shelter
Proposed Action:	1) Use of State Lands 2) Use of State Funds

Figure 1: PROJECT LOCATION MAP



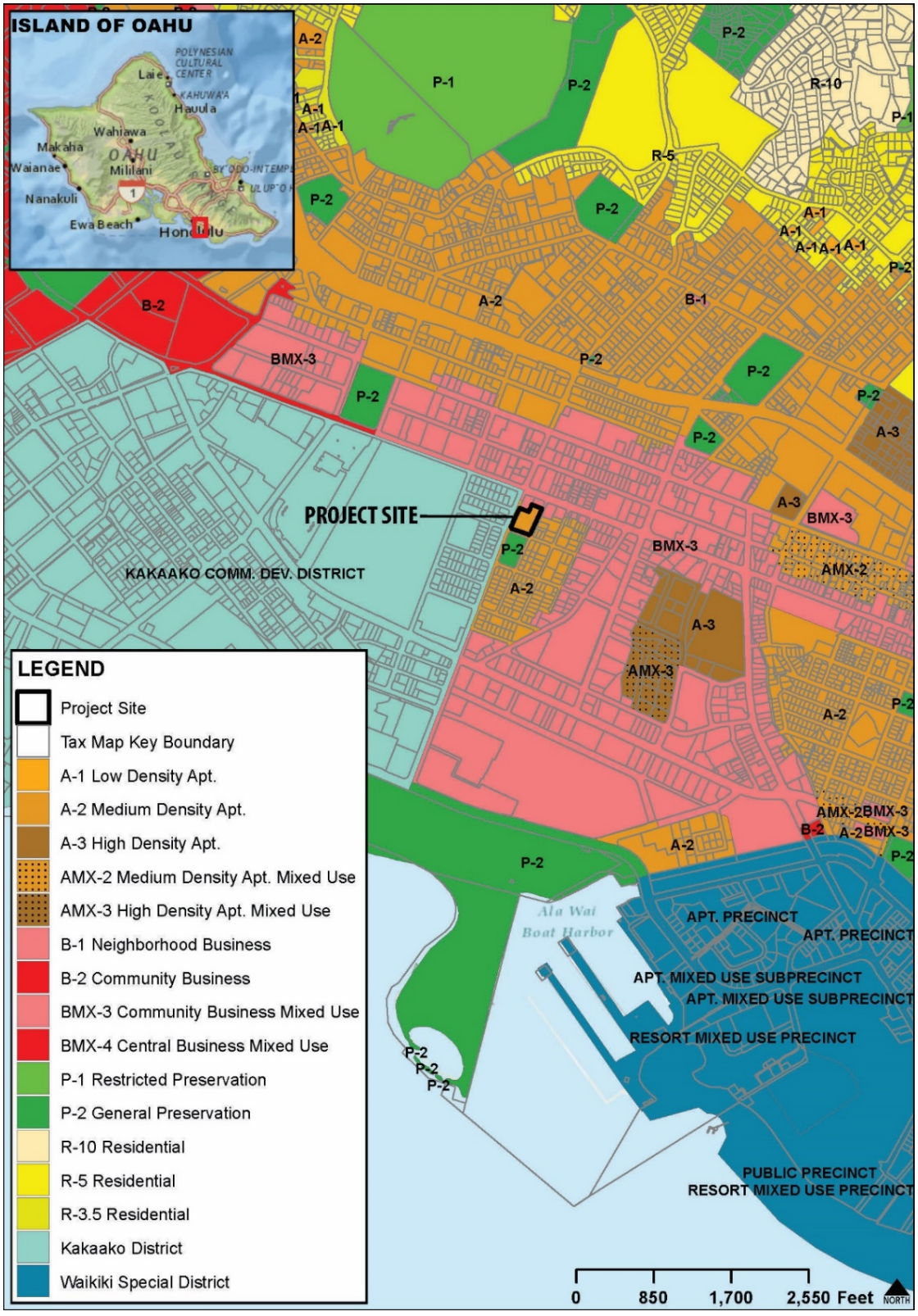
Source: Google Maps (2015)

Figure 2: TAX MAP



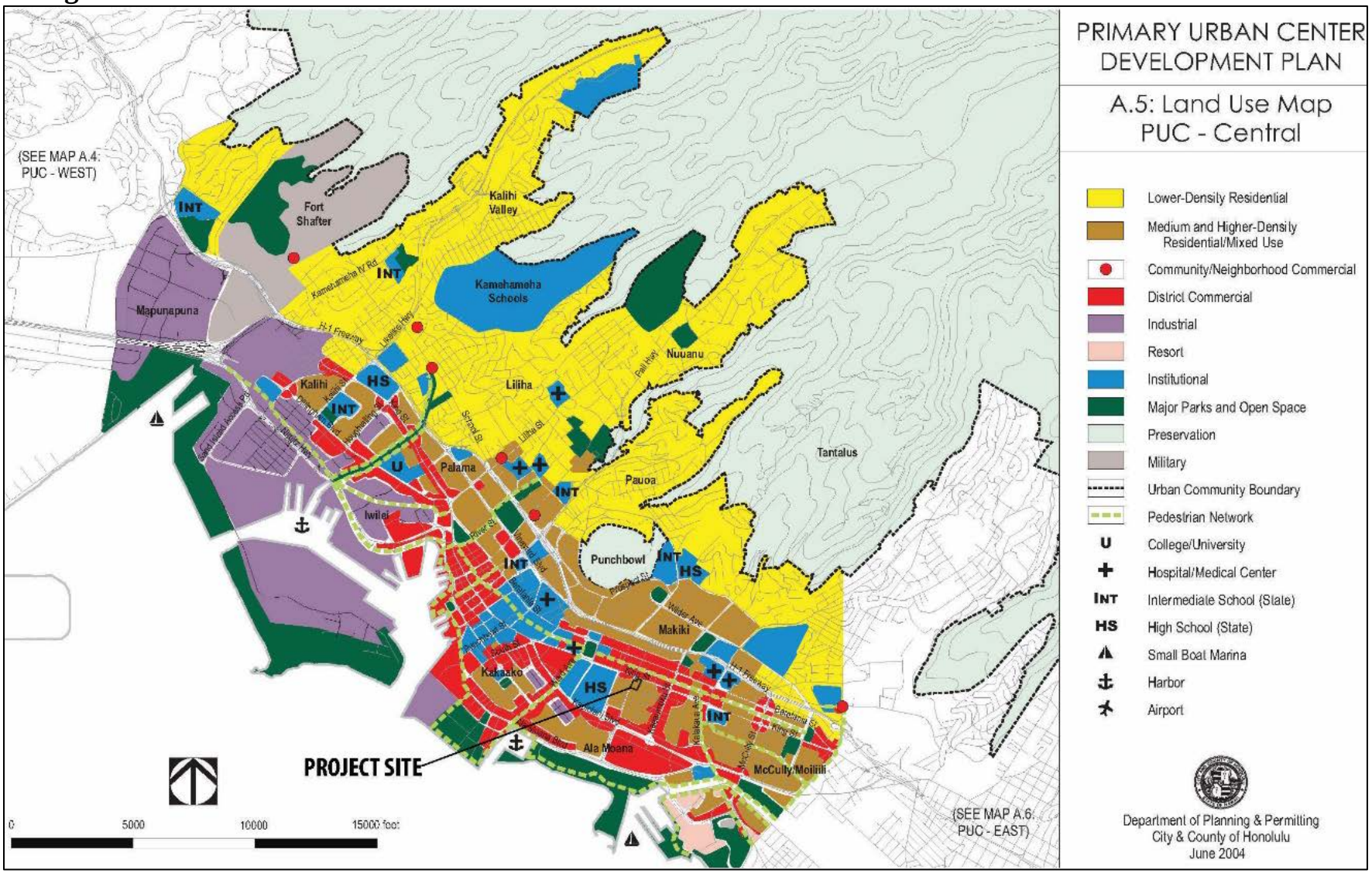
Source: City and County of Honolulu, HoLIS (2015)

Figure 3: CITY AND COUNTY OF HONOLULU ZONING



Source: City and County of Honolulu, HoLIS (2015)

Figure 4: PUC DP LAND USE MAP



Source: City and County of Honolulu, Department of Planning and Permitting (2004)

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2.0 PROJECT DESCRIPTION

This section provides an overview of the proposed action and development.

2.1 PROJECT LOCATION

The State of Hawai‘i owns the land at 902 Alder Street in the Ala Moana - Kaka’ako District of Honolulu, O‘ahu, Hawai‘i. The property is bound by Alder Street to the east, Elm Street to the makai direction, Pi’ikoi Street to the west, and a service station and restaurant to the mauka direction. The project site is outside of the Kaka’ako Community Development District, but borders the Hawai‘i Community Development Authority’s Mauka Area Sheridan Zone. The yards on Elm Street and Pi’ikoi Street are fenced. A gate and driveway on Pi’ikoi Street allows service access and an entry on Alder Street provides employee parking and access. Along the mauka property line, a chain link fence separates the service station from the property boundary and a wall separates the subject property from the adjacent restaurant. The wall wraps around along the east side of the property on Elm Street to partially enclose the front of the Home Maluhia shelter facility.

2.2 EXISTING AND SURROUNDING USES

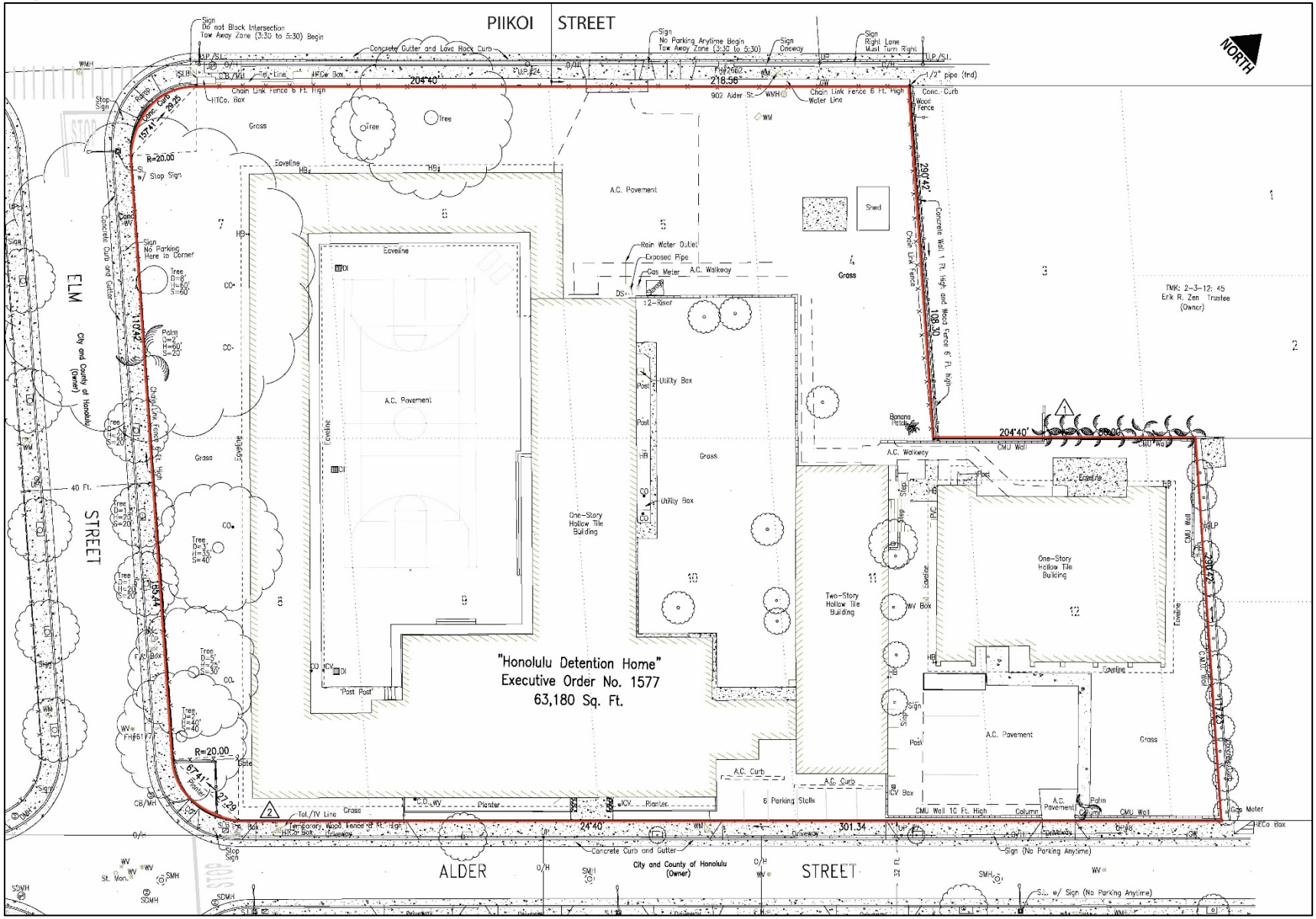
There are two buildings, paved parking area, paved recreational facilities, and landscaped yards on the property. Figure 5 shows the Existing Site Plan. One of the buildings, the Detention Home (Hale Ho‘omalu) for boys and girls, was vacated in 2010 and relocated to the Kapolei Judiciary Complex. Currently, the boy’s side of the Alder Street facility is vacant. The girl’s side is used for juvenile services programming functions. The second building, Home Maluhia juvenile shelter, continues to operate on the site.



Image 1: Entrance to the Home Maluhia from Alder Street (K. Balassiano, 9/20/15)

A driveway and opening in the wall on Alder Street allows four vehicles to park near the entrance to the Home Maluhia shelter facility and up to six to park on the grassed area. Beyond the wall, and closer to the facility’s actual entrance, are accommodations for 11 parking stalls. When additional parking is needed, vehicles park on the grass. The service area from Pi’ikoi Street is gated; however, there is yard space and a paved loading area that is also used for parking, if necessary.

Figure 5: EXISTING SITE PLAN



Source: ALTA/ACSM (2014)

Within the facility there are courtyards. The boy's courtyard is an open, paved rectangular space with a full-size basketball court. The courtyard is old and has numerous cracks in the pavement. The girl's courtyard is a landscaped area between the kitchen and the girl's dormitory which has been planted and refurbished by the juveniles being served at the facility into a meditation garden. This garden includes a mature Ohi'a tree among the other plants.

The subject property has several mature trees, particularly on the Elm Street and Pi'ikoi Street sides of the vacant facility. There is minimal landscaping along the front of the vacant facility and around the Home Maluhia.

Across from the property on Alder Street are apartment buildings ranging from three to eight stories tall.



Image 2: Residential Uses on Alder Street Across from the Facility (K. Balassiano, 9/21/15)

Across from the property on Pi'ikoi are single family homes and apartment buildings.



Image 3: Residential Uses on Pi'ikoi Street Across from the Facility (K. Balassiano, 9/21/15)

Adjacent to the property in the mauka direction is a restaurant and gas station that both have frontage on King Street. See image 4.



Image 4: Commercial Uses on King Street, Abutting the Mauka Side of the Facility (K. Balassiano, 9/21/15)

The restaurant allows Home Maluhia to use its parking spaces whenever the restaurant is not open. Otherwise, visitors need to find on-street parking, which is not convenient as the limited on-street parking is heavily used by the surrounding residential uses.

Sheridan District Park is located on the makai side of the facility across Elm Street. It is a public park with a grassed field, basketball court and a small community center. The residents of the Home Maluhia shelter use the park for recreational purposes.



Image 5: Sheridan District Park from Elm Street (K. Balassiano, 9/21/15)

2.3 PROPOSED ACTION

The proposed action involves the use of State lands and funds. The 902 Alder Street property is set aside by the State of Hawai‘i to the Judiciary of the State of Hawai‘i (Judiciary) pursuant to Executive Orders No. 1577 and No. 2484, dated September 5, 1953, and December 3, 1969, respectively. The Hawai‘i Housing Finance Development Corporation’s (HHFDC’s) financing programs and legislative appropriations will likely be used as sources of construction financing. State funds will be used for the Judiciary component of the project. These actions trigger the requirements of Chapter 343, Hawai’i Revised Statutes (HRS). This Final EA was prepared in accordance with Chapter 343,HRS and Title 11, Chapter 200 of the Hawai‘i Administrative Rules (HAR).

The HHFDC intends to process approvals and entitlements for 902 Alder Street under Chapter 201H, HRS, which offers flexibility in design and permitting requirements to projects developed for lower and moderate income households. Therefore, in addition to satisfying the requirements of Chapter 343, the environmental assessment also serves as the Chapter 201H, HRS application agency/public comment document.

2.4 DESCRIPTION OF THE DEVELOPMENT

The Judiciary and HHFDC recognize the need for affordable housing in the urban core as well as the need for services to youth and families involved in the justice system, and thus are pioneering this first ever partnership between the Judicial and Executive branches of government. The HHFDC and the Judiciary are partnering to redevelop the underutilized State-owned property at 902 Alder Street into a mixed-use development that will simultaneously help to address the State’s affordable rental housing and juvenile justice needs.

The proposed project would result in the construction of approximately 265,000 square feet of floor area for approximately 180 affordable rental housing units targeted for working individuals and families. The housing would be located in a 19-story building, of which the Judiciary would occupy approximately 35,000 square feet on the first three floors. Parking for residents, employees, and visitors would be located in an adjacent structure. The parking structure will be four stories tall. Part of the roof of the parking structure may be used as a recreational deck for residents. The structure will contain approximately 290 vehicular parking stalls. Because the Judiciary will be operating on a 24/7 basis, the available parking will accommodate the overlapping shifts for staff. Another recreational area is proposed to be located outdoors, adjacent to Pi‘ikoi Street. The conceptual site plan is shown in Figure 6.

The conceptual plan was configured to maximize the use of the property for both the Judiciary and the housing component and identify the most efficient use of the property. The final design and construction of the project would be undertaken by a private development entity selected through a Request for Proposals (RFP) process conducted by HHFDC and Judiciary and may incorporate the following urban design concepts that enhance the development or contribute to the walkability of the residential neighborhood.

- Build-to line and ground floor uses providing active ground floor uses (e.g.,

reception areas, meeting rooms, etc.) close to the property line with transparent windows and pedestrian entrances directly from the sidewalk, to create an engaging ground-level environment for pedestrians.

- Consideration of fronting Sheridan Community Park with a lowrise element - housing component, neighborhood uses, and/or the Judiciary component – to provide "eyes on the park" and improve security and surveillance. Another option would be to locate the community recreation area across from Sheridan Community Park where it will be better protected from the impacts of heavy traffic on Pi‘ikoi Street.

- Design treatments to minimize the impact of the 4-story parking structure on surrounding neighbors, such as height setbacks, active ground floor uses and screening.

Affordable Rental Units

A variety of rental housing units are proposed to be developed, with unit types ranging from studios to three-bedroom units. The units will be available to households earning 60% and below of the U.S. Department of Housing and Urban Development (HUD) Area Median Income (AMI). The diversity of household sizes will contribute to a lively social environment and off-set pedestrian and vehicular traffic. Families with children will benefit from the proximity of Sheridan Park and schools in walking distance.

Residents will have multi-modal opportunities to get to work and around Honolulu. Parking requirements were determined based on the proposed operation and anticipated needs of the project. A reduction in the number of parking stalls - from that required by the Land Use Ordinance (LUO) is reasonable because the property is within half a mile from the proposed Ala Moana transit station. Each unit will be provided with one parking stall in the adjacent parking structure. There are several bus stops in close proximity to 902 Alder Street. Buses run frequently along South King Street. The site plan is designed with pedestrian paths that connect the property with public sidewalks. The project will have secure, on-site bicycle parking.

The intention is to reduce both housing and transportation costs in one of the more centrally located neighborhoods within Honolulu’s urban core. Gentrification of this parcel will be avoided. The affordable rental housing located in close proximity to employment, shopping, and public services/amenities is intended to meet local needs.

Judiciary Facility

The conceptual site plan (Figure 6) shows the Judiciary component located on the first three floors of the high-rise building. The total of approximately 35,000 square feet of floor space will allow for administrative functions, offices, client assessment intake, meeting rooms, a recreational and visitation space, and shelter services.

The proposed juvenile services/shelter center will provide approximately the same number of shelter beds as in the current facility and will allow space to implement programs and services to assist youth and families at risk of entering the Juvenile Justice

system. It will provide space for expanded programming to implement and enhance current national best practices that places emphasis on services for youth and families at risk, of entering, or progressing further into the juvenile justice system. These services would include but not be limited to education, pro-social activity, counseling, accountability through restitution, etc. The center will also provide for improved shelter services for youth at risk who are not able to reside with their families in the short-term for safety or other concerns.

Community Amenities

The perimeter of the property will be landscaped with trees, shrubs and grass. The shade trees on Elm Street will be preserved to the extent possible. The recreation deck – located on top of the parking structure and open to the apartment buildings' residents - will be visually attractive. Trees, shrubs, vegetated trellis, shade structures, seating, and picnic areas are contemplated for the recreation deck. A landscaped outdoor recreation area facing Piʻikoi will be available to the youths in the shelter and residents of the rental housing complex.

The location of this property is itself an amenity. From the Alder Street location, future residents will have convenient access to employment, shopping, dining, and family services. They will have access to multiple forms of transportation with which to reach other destinations. In accordance with the Ala Moana Neighborhood TOD Plan, many residents and employees will choose to use the rail and bus system, and walk along nearby streets to their destinations.

On-site parking will be sized to reflect the needs of residents, juvenile service providers/users, and Judiciary employees. Parking stalls may be uncoupled from the housing units. That is, parking may be leased separately to those who need it. This will encourage residents to use public transit. The size of the parking structure may be significantly reduced by the reduction of required parking stalls. The parking structure will accommodate approximately 290 parking stalls. In conformance with ADA requirements, approximately eight stalls will be ADA accessible (six stalls for vehicles and two for vans). Approximately three loading stalls will be provided. As necessary, the number of accessible parking to be provided will be determined based on the number of "facilities" served or how the stalls are managed and operated per Disability and Communication Access Board Interpretive Opinion 2014-05.

Secured, long-term bicycle storage within the parking structure will be available to residents.

The property will include safety measures, such as well-lit common areas, key card access for secure entry, private security service, and a camera surveillance system. Ingress and egress to the residential and Judiciary components will be separated.

Accessibility Compliance

This project will comply with HRS §103-50. All buildings, facilities, and sites will conform to applicable federal, state, and county accessibility guidelines and standards. HRS §103-50 requires all State of Hawaiʻi or County government buildings, facilities,

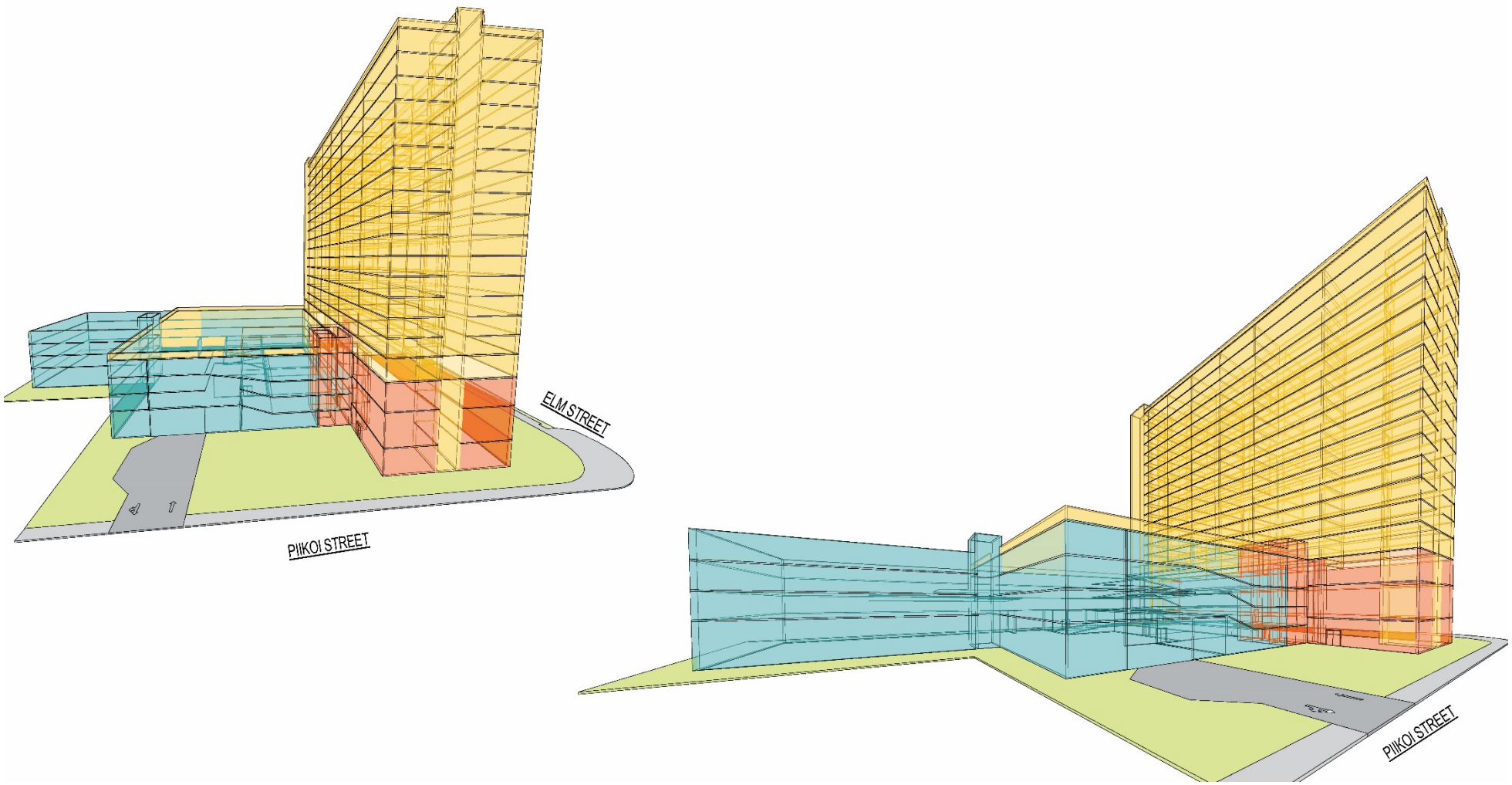
and sites to be designed and constructed to conform to the Americans with Disabilities Act Accessibility Guidelines, the Federal Fair Housing Amendments Act, and other applicable design standards as adopted and amended by the Disability and Communication Access Board. The law further requires all plans and specifications prepared for the construction of State of Hawai‘i or County government buildings, facilities, and sites to be reviewed by the Disability and Communication Access Board for conformance to those guidelines and standards. In addition, the State will consider use of the U.S. Access Board’s proposed *Guidelines for Pedestrian Facilities in the Public Right-of-Way*.

Figure 6: CONCEPTUAL SITE PLAN



Source: RMA Architects (2016)

Figure 7: CONCEPTUAL BUILDING MASSING PLAN



Source: RMA Architects (2016)

Figure 8: CONCEPTUAL FLOOR PLAN



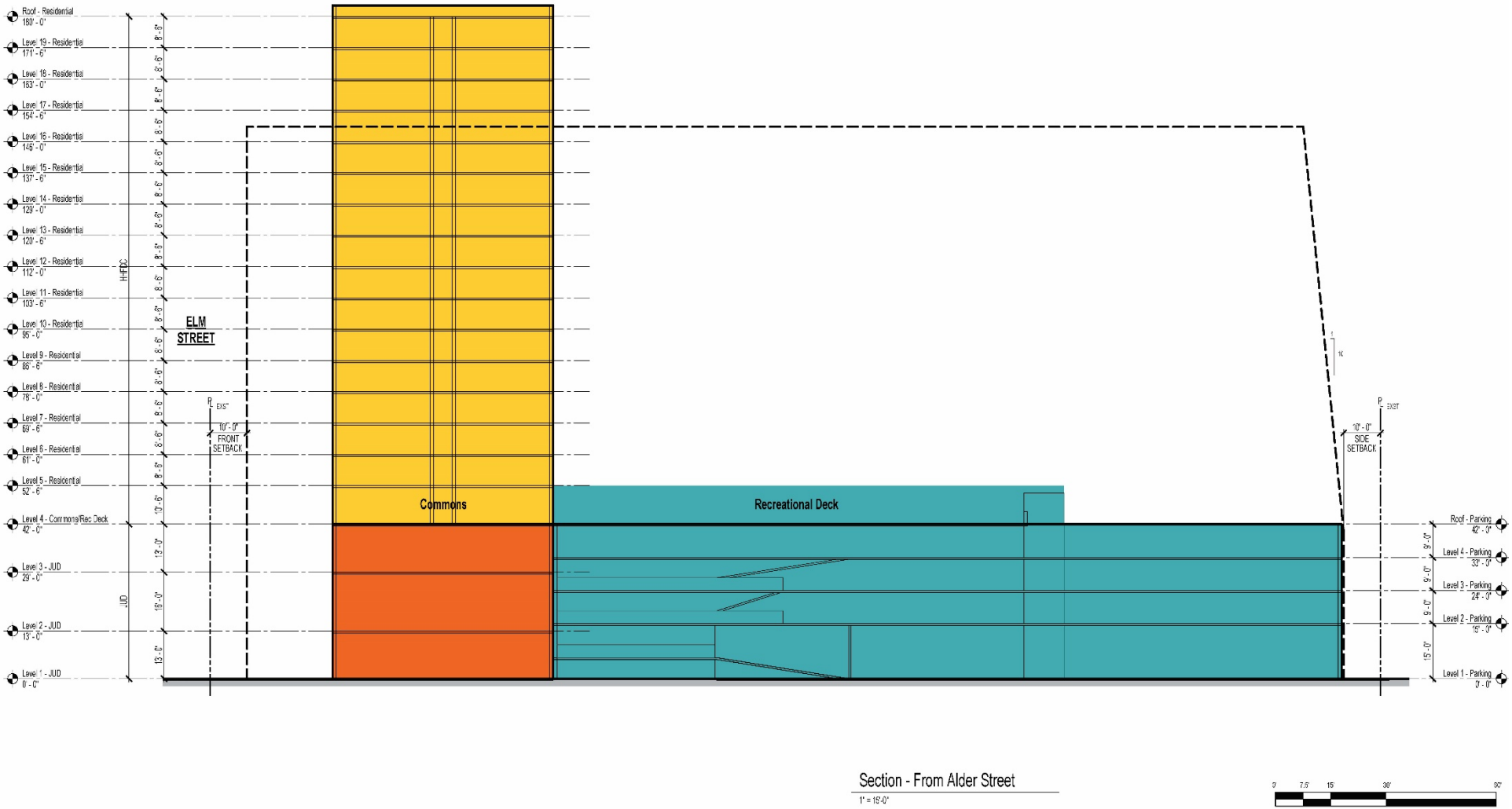
NOTE:
Level 4 is dedicated to HHFDC Commons Area and Recreational Deck. The Commons Area can be split to various size and number of multi-purpose rooms.

HHFDC - Typical Living Level
1" = 15'-0"

01_Level 4 - HHFDC Commons & Rec Deck
1" = 15'-0"

Source: RMA Architects (2016)

Figure 9: CONCEPTUAL ELEVATIONS



Source: RMA Architects (2015)

2.5 ALTERNATIVES CONSIDERED

No Action Alternative

Under the no-action alternative, no site disturbance or construction impacts would occur. However, in this alternative, the property would remain underutilized with aging, partially vacant buildings. The property would remain inconsistent with the PUC DP and draft Neighborhood TOD Plan, which prescribe full development of the Primary Urban Center and compact, affordable housing around transit stations. The approximately 180 affordable housing units for low income working families would not be constructed. Services and shelter for court involved youth aimed at increasing youth and family success without further court involvement would not be available to youth and families in the urban core. The availability of these services will decrease the number of youth in expensive detention alternatives and increase public safety. It is important that these types of services be easily accessible by alternative forms of transportation and minimize travel time in order to be successful. The current buildings would not be able to provide these services in a family friendly manner.

Upgrade the Existing Facility Alternative

The analysis of alternatives to "no action" began with the upgrading of existing buildings. The Home Maluhia shelter is in relatively good condition and is currently in use. The Home could remain operational. However, the Judiciary has determined that the future functions of the Home Maluhia are limited because of its current size and configuration. Home Maluhia is already utilizing space in the remediated building for its educational functions as there is not sufficient space within the structure as it is currently built and no further programming can be developed due to lack of space.

Due to the age and condition of the former Detention Facility, the hazardous materials, building and zoning code deficiencies, and ADA deficiencies, the facility is not worth renovating. It is becoming a safety hazard and will eventually need to be removed. Additionally, the building's design as a Detention Facility would be impracticable to renovate for other uses.

Maintaining only half of the property, while allowing the other half to deteriorate or remain vacant is undesirable. Given the property's location in the urban core of Honolulu near mass transit, the well-documented need for affordable housing, and the property's development potential (based on existing zoning) - simply upgrading the existing facility was not deemed to be in the best interest of the County especially considering the need for affordable rental units. Thus the partnership between the Judiciary and HHFDC came about.

Alternative Redevelopment Options

Two redevelopment concepts were considered. They included:

1. Building three separate structures for housing, the judiciary functions, and a shared parking structure.

2. Co-locating the affordable housing and judiciary components in the same building, with parking for both components in a separate structure.

The first redevelopment option was discarded because the stand-alone construction of uses would leave no room for an outdoor recreation area or landscaping. The first option is also more expensive to build and maintain, and would have resulted in fewer affordable housing units and shared amenities.

The second redevelopment option is preferred. The second option allows for optimizing the number of affordable housing units, maximizes proposed amenities, creates a rational flow of pedestrian and vehicle traffic through the property, minimizes the impacts on neighbors, allows for more open space, and is cost efficient.

2.6 PROJECT PHASING, FINANCING, ESTIMATED COSTS & DEVELOPMENT SCHEDULE

The project will be constructed by a private development entity selected through a Request for Proposals (RFP) process in accordance with the terms of a Memorandum of Agreement (MOA), effective on September 11, 2014, and amended on September 2, 2015, between the HHFDC and the Judiciary. Under the MOA, the project will be constructed in two or more phases. As proposed, Phase 1 will involve the construction of two buildings, one of which will include all affordable rental housing units and incidental uses in approximately 265,000 square feet; approximately 24,000 square feet of finished space for the juvenile shelter and drop off/triage center with an ingress and egress that is separate from the residential component; and an incomplete "shell" of approximately 10,000 square feet with utilities "roughed-in". The second building to be constructed in Phase 1 will be a parking structure for the entire project which will include parking for residents, stalls set aside for the Judiciary, a reserved parking space for the Honolulu Police Department, and possible recreation space for residents on the top level. The Judiciary and HHFDC will work with the selected developer to refine Phase 1, including such items as exterior and interior design, outdoor landscaping and recreation areas, Common Area Maintenance (CAM) charges, and parking costs.

Phase 2, or subsequent phases of the project, will complete the Judiciary component with the build-out of the "shell" that was constructed in Phase 1 and the assignment of approximately twenty-one additional parking stalls to the Judiciary.

The project will be financed with Legislative appropriations for: 1) plans and designs; and 2) construction of the Judiciary component and its associated parking in two or more phases. The developer will separately finance the residential component and associated parking in Phase 1, using typical low income rental housing financing sources, such as multi-family tax-exempt revenue bonds, Low-Income Housing Tax Credits (LIHTC), and Rental Housing Revolving Funds (RHRF). No construction will commence unless a legislative appropriation for the Phase 1 component of the juvenile services/shelter space is available.

Project costs will be finalized in coordination with the selected developer. The estimated total project cost is approximately $88.4 million at full buildout. The total project cost includes construction expenditures[1] and other development costs for both the residential and judiciary components (see Appendix K for more details). Approximately 90% of the estimated costs associated with furniture, fixtures and equipment will be allocated to the Judiciary; the remaining 10% will be allocated to the residential component for the recreation deck, and furniture in the lobby and common areas.

The estimated Phase 1 development schedule is as follows:

Milestone	**Estimated Date**
State Legislature approves CIP funds for Phase 1	TBD
Issue RFP to Solicit a Developer	2-3 months after funding for Phase 1 is approved
Contract Awarded to Developer	5-6 months after RFP
Negotiate/Execute Development Agreement	8 months after award
Developer Prepares Plans; Secures Financing; Obtains Permit Approvals	12-14 months after development agreement
Construction Begins	1 month after financing, plans and approvals secured
Construction Completed (HHFDC and Phase 1 Judiciary)	2 years

Following publication of the Draft EA, the 2016 State Legislature did not approve funding for Phase 1 and therefore the estimated development schedule will be readjusted according to funding availability for the project. The estimated dates of milestones above are approximate and subject to change.

2.7 REQUIRED PERMITS AND APPROVALS

The following is a list of permits and approvals that may be required:

Permit or Approval	**Responsible Agency / Organization**
Chapter 343, HRS	State of Hawai‘i, Housing Finance and Development Corporation & State of Hawai‘i, Office of Environmental Quality Control
Chapter 201H, HRS Application	State of Hawai‘i, Housing Finance and Development Corporation & City and County of Honolulu City Council

[1] Estimates based on 2016 dollars.

Permit or Approval	**Responsible Agency / Organization**
Executive Order No. 1577 will need to be cancelled; a new Executive Order will be required to allow for the mixed use project	Board of Land and Natural Resources
National Pollutant Discharge Elimination System (NPDES) permit for construction activities and storm water discharge	State of Hawai'i, Department of Health
Community Noise Permit	State of Hawai'i, Department of Health
Park Dedication Requirement (Revised Ordinances of Honolulu, 1990, Chapter 22, Article 7, Parks and Playgrounds)	City and County of Honolulu, Department of Planning and Permitting
Permits for Construction, including Building, Electrical, Plumbing; Grading/ Trenching Permit; Grubbing; Stockpiling Permit; Sidewalk/Driveway Permit; Demolition Permit, Street Usage Permit	City and County of Honolulu, Department of Planning and Permitting
Sewer Connection Permit	City and County of Honolulu, Department of Planning and Permitting
Water Connection	Honolulu Board of Water Supply
Water System Approval	State of Hawai'i, Department of Health
Plan Review	Honolulu Fire Department
Certificate of Occupancy	City and County of Honolulu, Department of Planning and Permitting
HRS §103-50 Accessibility Compliance	State of Hawai'i, Disability and Communication Access Board

The City and County of Honolulu's Department of Planning and Permitting (DPP) was consulted regarding this project. The DPP was also included in the standard Chapter 343, HRS pre-assessment consultation. All comments and responses associated with the pre-assessment consultation may be found in Appendix A-1 of this document. All comments and responses associated with the Draft EA consultation are provided in Appendix A-2.

3.0 EXISTING ENVIRONMENT, PROJECT IMPACTS, & MITIGATION MEASURES

This section describes the surrounding environment in the vicinity of the subject property, the probable environmental impacts associated with its development for affordable housing and judiciary uses, and identifies mitigating measures, as necessary.

3.1 CLIMATE

The climate of the Honolulu District is typically warm and dry. Prevailing trade winds arrive from the northeast. According to the National Weather Service Honolulu Office, over a period of 30 years, normal monthly high temperatures range from 80 degrees in January to a high of 89 degrees in August for an annual average of 84 degrees. Normal month low temperatures range from a low of 65 degrees in February and a high of 74 degrees in August for a monthly average of 70 degrees. Precipitation typically ranges from 0.44 inches in August to a high of 3.8 inches in December. The annual average rainfall in Honolulu is 70 inches per year.

Project Impacts

The project is not anticipated to have any effect on the region's climate.

3.2 FLORA AND FAUNA

A biological survey report and assessment was prepared for the project area in July 2015 by SWCA Environmental Consultants and is provided as Appendix B in this document. Two federally endangered plant species—ʻohai and maʻo hau hele—were observed during the surveys in the landscaped yard areas. However, they are not federally protected because they appear to have been cultivated. No water features or designated critical habitat for threatened or endangered species is in or near the project area.

Flora

In all, 82 plant species were recorded in the project area during the survey. Of these, six species are native to the Hawaiian Islands:

1. ʻohai (*Sesbania tomentosa*),
2. maʻo hau hele (*Hibiscus brackenridgei*),
3. milo (*Thespesia populnea*),
4. ʻōhiʻa lehua (*Metrosideros polymorpha*),
5. ʻuhaloa (*Waltheria indica*), and
6. kupukupu fern (*Nephrolepis cordifolia*).

Two of these species, ʻohai and maʻo hau hele, are endangered, but they were observed in a maintained garden courtyard area and appear to be cultivated stock. Federal protection is not extended to endangered species that are cultivated, do not originate directly from wild populations, or are not naturally occurring wild populations. Four species observed are considered to be of Polynesian introduction: ʻuala or sweet potato (*Ipomoea batatas*),

yellow wood sorrel (*Oxalis corniculata*), banana (*Musa x paradisiaca*), and kalo (*Colocasia esculenta*). These were also cultivated as part of the on-site vegetable garden.

The vegetation types and species identified during the surveys are not unique. Most of the plant species observed are not native to Hawai'i, and the native species present were only a few individuals (with the exception of 'uhaloa, which is weedy and was found in several locations). No threatened or endangered plants, other than the cultivated species previously discussed, were found. No designated plant critical habitat was found in or near the project area. Therefore, the proposed project is not expected to have a significant, adverse impact on botanical resources. Weedy non-native plant species are common throughout the project area. Most of these weedy species are widespread on the island of O'ahu, and their control is not expected to result in a significant decrease in their number or distribution.

Fauna

Bird species observed in the project area are species commonly found in Hawai'i's urban areas and gardens. Of the nine bird species documented, eight species are non-native introductions and one species, the white tern (*Gygis alba*), is indigenous, state-threatened, and protected under the Migratory Bird Treaty Act (MBTA). No suitable nesting sites for Hawaiian waterbirds or Hawaiian seabird species are present in the project area; however it is possible that seabirds, such as the Hawaiian petrel and Newell's shearwater, may fly over the project area at night while travelling to and from their upland nesting sites to the ocean.

The project area is bordered by residential areas, where it is common to find people walking pet dogs (*Canis familiaris*). No other mammals were observed during the pedestrian surveys. Mammals that could be expected in the project area include cats (*Felis catus*), mongooses (*Herpestes javanicus*), rats (*Rattus* spp.) and mice (*Mus musculus*).

The federally endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) is the only native terrestrial mammal that is still extant within the Hawaiian Islands (U.S. Fish and Wildlife Service [USFWS] 1998). Acoustic surveys for the Hawaiian hoary bat were not conducted, but any areas of suitable habitat for roosting and foraging were noted. Hawaiian hoary bats forage in open, wooded, and linear habitats within a wide range of vegetation types. These animals are insectivores and are regularly observed foraging over streams, reservoirs, and wetlands up to 300 feet (100 meters) offshore (U.S. Department of Agriculture [USDA] 2009). Hawaiian hoary bats require open access for launching into flight and typically roost in dense canopy foliage or in the subcanopy when canopy foliage is sparse (USDA 2009). Several of the tree species in the project area—Chinese banyan, mango (*Mangifera* sp.), royal palm, and mahogany—could be used by Hawaiian hoary bats for foraging and roosting.

The brown anole (*Anolis sagrei*) was frequently observed during the pedestrian survey; individuals were foraging or basking in the sun throughout the project area. No other reptiles or amphibians were seen during the survey. None of the terrestrial reptiles and amphibians on the Hawaiian Islands are native to the islands.

Project Impacts and Mitigation

No native invertebrate species were recorded during the survey of fauna.

The white tern (*Gygis alba*) was observed during the survey. This species is indigenous, state-threatened, and protected under the Migratory Bird Treaty Act. It may be temporarily displaced during construction; however, it will likely find suitable habitat nearby, and the displacement is not expected to affect survival of the overall species' populations. To further minimize risks, tree removal and trimming will be conducted in the fall and early winter, when white tern breeding is at its lowest, and trees will be inspected for white tern eggs or chicks before trees are removed.

Potential habitat for the Hawaiian hoary bat (*Lasiurus cinereus semotus*) was present at the project area. This species is federally endangered and is the only native land mammal in Hawai'i. To minimize potential impacts to this species, the following conservation measures are recommended:

- Any fences that are erected as part of the project should have barbless top-strand wire to prevent entanglements of the Hawaiian hoary bat on barbed wire.
- No trees taller than 15 feet (4.6 meters) should be trimmed or removed as a result of this project between June 1 and September 15, when juvenile bats that are not yet capable of flying may be roosting in the trees.

The proposed project is not likely to have any long-term adverse impacts on any state or federally listed threatened or endangered species if the recommended mitigation measures listed above are used.

3.3 GEOGRAPHY, TOPOGRAPHY, AND SOILS

The project area is located on the central/east Honolulu coastal plain, approximately three-quarters of a mile inland from today's coast at Ala Moana Beach Park. The natural coastline in this area would have been approximately 820 feet makai from its current location. The project area lies in an area known as Kulaokahu'a, "The Plains." This seems to have consisted of area in the 'ili (land division, smaller than an ahupua'a) of Kaka'ako, Kewalo, Makiki, Pāwa'a, and Kamō'ili'ili (Fitzpatrick 1989:25). The project area is in the mauka (toward the mountains, inland) section of Kewalo, as can be seen on Bishop's 1884 map and Wall's 1887 map of Honolulu, and thus would have been a part of Kulaokahu'a. This flat land was often identified as the Makiki Plains (Fitzpatrick 1989:26).

Based on its distance from the ocean, it is anticipated that sea level rise will not impact the site in the foreseeable future. Furthermore, between the project site and the ocean are a number of major structures and features that serve as buffers to the effects of sea level rise.

According to the U.S. Department of Agriculture (USDA) Soil Survey Geographic database (2001) and soil survey data gathered by Foote et al. (1972), the project area's soils consist of Makiki Clay loam, 0 to 2% slopes (MkA). See Figure 10, Natural

Resources Conservation Service Soils Survey Map. Makiki soils are described as follows:

> This series consists of well-drained soils on alluvial fans and terraces in the city of Honolulu on the island of Oahu. These soils formed in alluvium mixed with volcanic ash and cinders. They are nearly level. Elevations range from 20 to 200 feet. The annual rainfall amounts to 30 to 60 inches. Most of it falls between November and April. The mean annual soil temperature is 73° F. Makiki soils are geographically associated with Kaena and Tantalus soils. [Foote et al. 1972:91]

Makiki Clay Loam soils are generally described as well-drained soils on alluvial fans and terraces and are nearly level. Permeability is moderately rapid, and runoff is slow with an erosion hazard no more than slight. The hydrologic soil group is B. .

A topographic survey is not yet available for the site, however it is evident from site observations that the parcel and vicinity lie on relatively flat terrain. The City's 5 foot topographic contour layer shows overland slopes of approximately 1% in the vicinity.

Grading operations will be in conformance with the Revised Ordinances of the City and County of Honolulu 1990 (ROH); however, it is not anticipated that site earthwork will be a major component of construction.

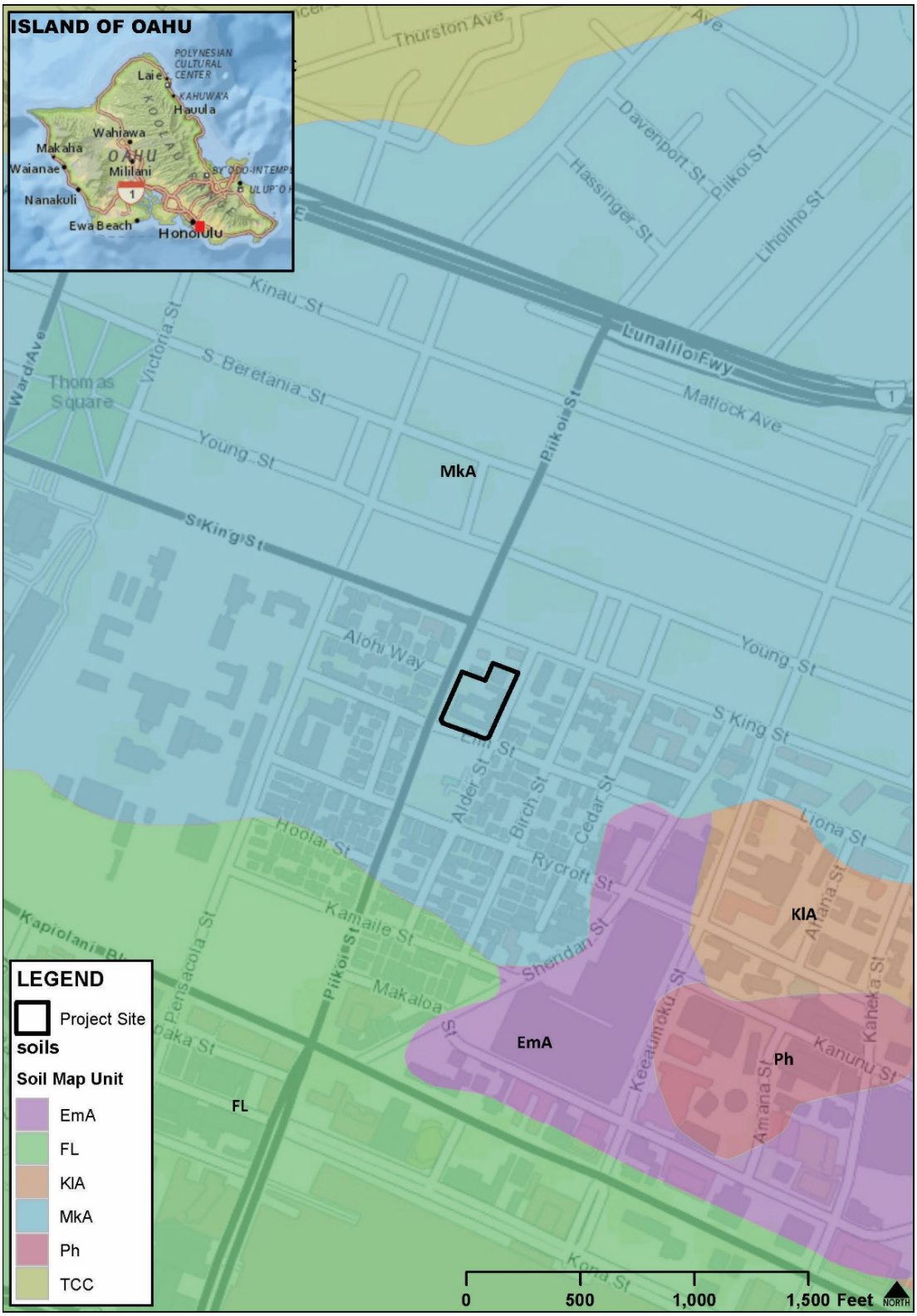
The site shall be graded for accessibility in accordance with the Americans with Disabilities Accessibility Act Guidelines (ADAAG). Requirements include, in part, providing at least one accessible route from public transportation stops, accessible parking spaces, passenger loading zones, if provided, and public streets or sidewalks, to an accessible building entrance. Given the gentle terrain at the site it is anticipated that the site design would be able to comply with ADAAG with little difficulty.

Project Impacts and Mitigation

No significant impact to topographic landforms or soils at the subject property is anticipated. Detailed design of the site will take into consideration the groundwater level and the potential for its rise. It is anticipated that the new underground water, sewer, and drainage systems will not be impacted by sea level rise, due to the design of finished grades and topography and the inland location of the site. All grading operations will be conducted in full compliance with dust, erosion control, and other requirements of the City and County Grading Ordinance and the State of Hawai‘i Administrative Rules, Section 11-60, 1-33 applicable to fugitive dust. A construction grading permit will be required. Best management practices will be included in construction plans to mitigate dust and/or silt emissions.

A detailed soil analysis will be performed as planning of the project proceeds. Mitigative measures, if required, will be recommended by the project's soils engineers as building design and final locations are further defined. Mitigative measures may include removal of unsuitable soils under foundations and/or special foundation design.

Figure 10: NATURAL RESOURCES CONSERVATION SERVICE SOILS MAP



Source: U.S. Department of Agriculture Soils Survey Geographic Database (2001)

3.4 HYDROLOGY

According to the *Aquifer Identification and Classification for O'ahu*, the subject property overlies the Nu'uanu aquifer system of the Honolulu aquifer sector. The system contains groundwater that is basal and unconfined and found in horizontally extensive lava-type (flank-type) geology. Water from this aquifer can be used for drinking purposes, has a low salinity of less than 250 mg/l of chloride, is irreplaceable, and has a high vulnerability to contamination. Makiki Stream is the closest stream to the subject property; it is located approximately one-half mile east of the subject property. Makiki Stream runs mauka-makai along Kalakaua Avenue. There are no wetlands in proximity to the property.

Project Impacts and Mitigation

No long-term impacts to groundwater aquifers or surface waters are expected to result from the property's redevelopment and its use for residential and judiciary purposes. Potable water for the on-site judiciary and residential uses will be secured from the Honolulu Board of Water Supply. Best management practices will be implemented to minimize risk of siltation and pollution through construction related stormwater runoff. The project will comply with HAR, Sections 11-54-1.1, and 4 through 8. A National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55) will be secured. The project does not involve work in, over, or under waters of the United States. All discharges related to the project construction and operation activities will comply with the State's Water Quality Standards.

3.5 FLOOD AND TSUNAMI HAZARD

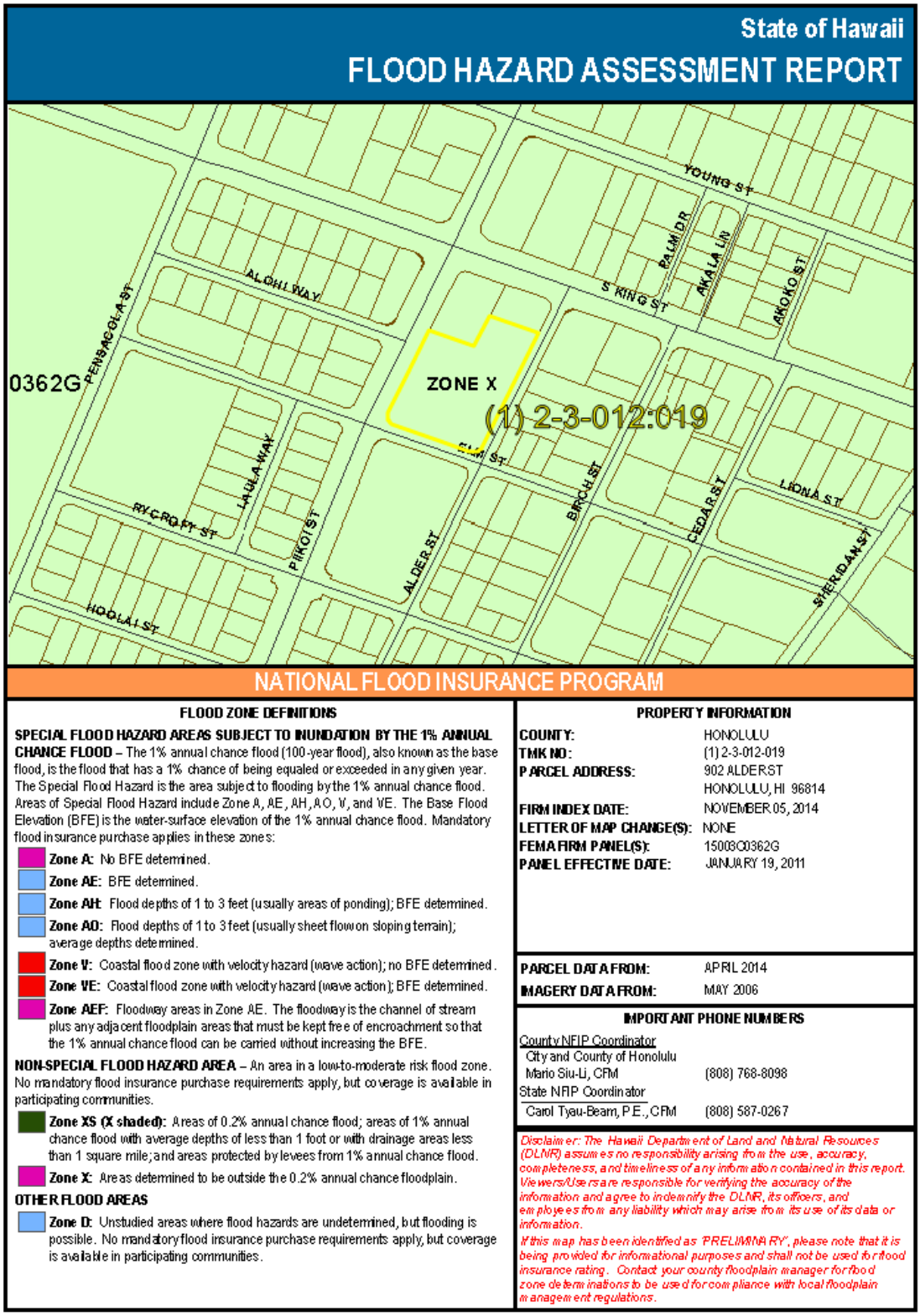
According to the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency, the subject property is located in Zone "X" which is an area that has been determined to be outside the 0.2% annual chance floodplain and outside of the 500 year floodplain (see Figure 11).

According to the State Civil Defense Tsunami Evacuation Zone maps (panel 19, inset 2), the subject property is within an "Extreme Tsunami Evacuation Zone" (XTEZ) (see Figure 12). Since the 2011 Tohoku tsunami in Japan, there is a newly recognized risk of tsunami from a very large Aleutian event. The new set of tsunami evacuation zones are called Extreme Tsunami Evacuation Zone (XTEZ). The XTEZ does not replace the current tsunami evacuation zone; it adds a second zone for a potential extreme tsunami event. The XTEZ is for events with low probability, but that have high impact "worst-case" inundations.

Project Impacts and Mitigation

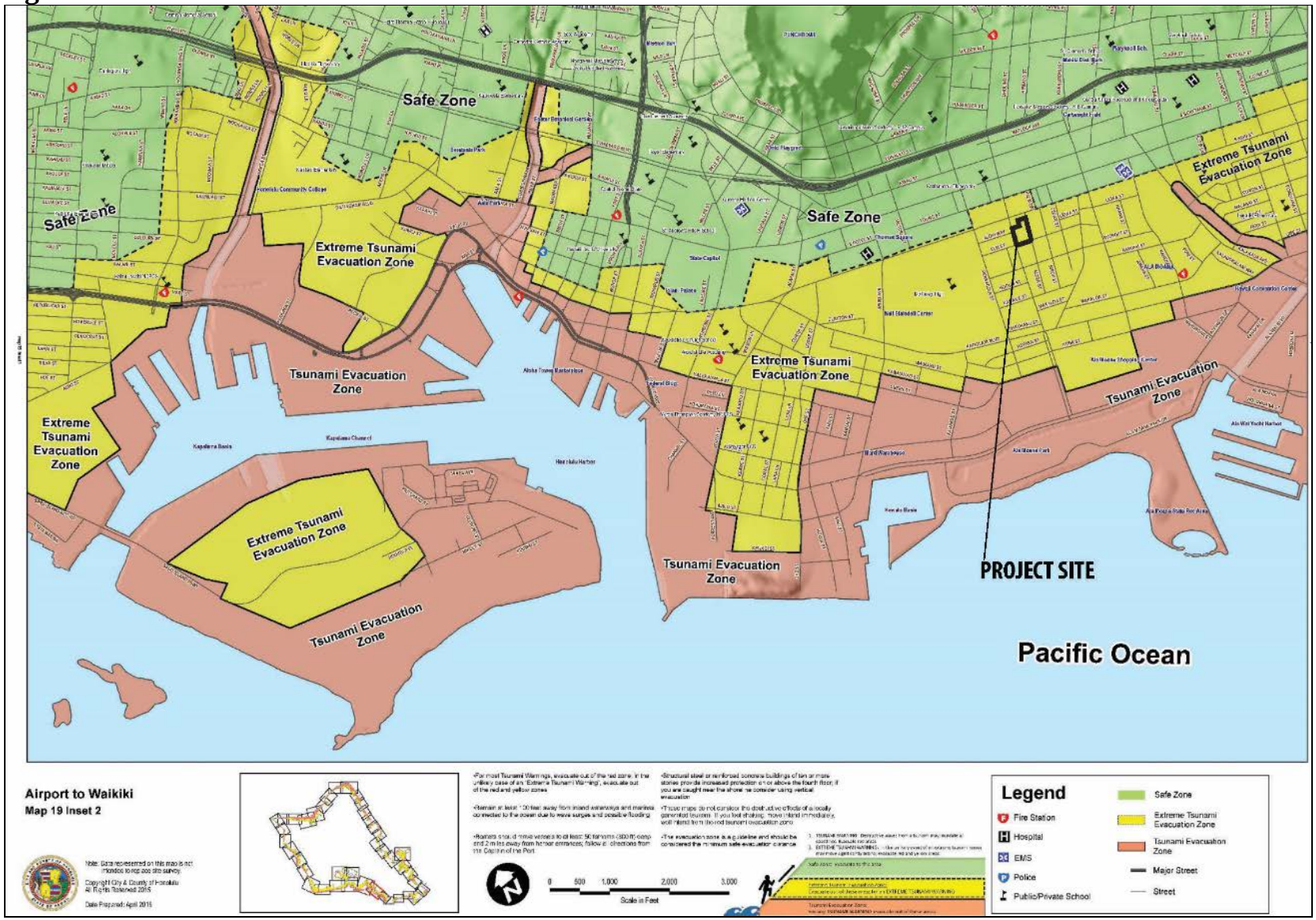
The chance of flooding is minimal. The National Flood Insurance Program (NFIP) does not regulate developments within Zone X of the Flood Insurance Rate Maps. In the event of an extreme tsunami, residents, employees and visitors will be able to take shelter in the upper floors of the proposed structures.

Figure 11: FLOOD INSURANCE RATE MAP (FIRM)



Source: Hawai'i – National Flood Insurance Program, Flood Hazard Assessment Tool (2015)

Figure 12: TSUNAMI EVACUATION ZONE



Source: City and County of Honolulu, excerpt from "Airport to Waikiki, Map 19 Inset 2" (April 2015)

3.6 NOISE

The project area is currently exposed to varying daytime and nighttime ambient noise levels, typical of an urban environment. D.L. Adams Associates assessed current and future noise on the proposed project in December 2015. Their report is included in Appendix C of this document.

The dominant noise source is vehicular traffic noise from Pi'ikoi Street. Daytime noise levels ranges from 61 to 67 dBA. Nighttime noise levels are slightly less and range from 58 to 62 dBA. Noise measurements taken on the project site show a day-night level (Ldn) of 68 dBA. The Ldn is the noise level taken from the logarithmic average of each individual hour's equivalent noise level. Before they are summed for the average, each hourly noise level from night time hours (10:00 PM – 7:00 AM) has a 10 dB penalty added to it to account for increased sensitivity to noise during those hours.

During project construction, the dominant noise sources will likely be earth moving equipment, such as bulldozers and diesel powered trucks. Noise from construction activities should be short term and will comply with State Department of Health noise regulations, and a construction noise permit.

After construction is complete, noise generated from any stationary mechanical equipment on the project site will comply with the Hawai'i Department of Health property line noise regulations. Noise mitigation for stationary mechanical equipment will be considered during the design of the project.

To evaluate existing vehicular traffic noise levels from traffic on the project site, traffic noise was calculated in the occupied areas and compared to both the FHWA/HDOT and HUD noise level criteria. Per the traffic report for the project site (see Appendix H), future traffic with and without the project is expected to be the same as the currently existing traffic level. Traffic noise was projected on the proposed full elevation façade of the building and on the exterior area at ground level. The exterior façade of the apartment units directly overlooking Pi'ikoi Streets are expected to be exposed to noise levels in excess of the HUD site acceptability standards and the FHWA noise abatement criteria. In order to comply with the HUD noise criteria inside the units, exterior façade elements such as glazing and wall construction will be considered during the design of the project. A noise impact is not expected for the Alder Street facing side of the housing section of the building or the housing sections of the Elm Street and South King Street facing sides not in the immediate vicinity of Pi'ikoi Street.

Design of the exterior elements of the building may incorporate features that reduce noise levels to the interior spaces of the apartment unit. These features include concrete exterior walls, minimum STC 35 rated windows, and no window or wall mounted AC or PTAC units installed in the exterior shell of the building.

Project Impacts and Mitigation

Construction Noise

Mitigating construction noise at the source is the most effective form of noise control. The source control methods listed in Table 1 below can be applied to most construction equipment.

Table 1: Construction Noise Source Control Methods

Scheduling	Limit activities that generate the most noise to less sensitive time periods (e.g. daytime hours).
Substitution	Use quieter methods/equipment when possible (e.g. low noise generators, smaller excavators, etc.).
Exhaust Mufflers	Install quality mufflers on equipment.
Reduced Power Options	Use smallest size and/or lowest power as required.
Quieter Backup Alarms	Install manual adjustable or ambient sensitive alarms. Do not use backup alarms during night work.
Motors	Insulate or enclose motors.
Equipment Selection	Electric equipment is quieter than pneumatic equipment.
Equipment Retrofit	Rubber chucks in jackhammers.
Equipment Maintenance	Sharpen and balance tools, repair silencing equipment, replace worn parts and open airways.
Staging Area	Maximize the distance between the construction staging areas and nearby receptors to the greatest extent possible.

In general, a majority of the construction noise mitigation is in the form of scheduling, specifically, limiting the construction hours to the time frame specified by the HDOH.

When source control measures are not sufficient to avoid a noise impact, path control measures must be considered. Non-permanent noise barriers or curtains and equipment enclosures could be installed at the construction site to reduce construction noise in noise sensitive locations. The general contractor could also conduct noise monitoring of construction during noisy or extensive activities at locations close to residential properties.

It does not appear that a noise variance for construction in the evenings or weekends will be necessary at this time. However, in order to complete the work to coincide with the

opening of the Ala Moana Transit Station and access all the available funds, a noise variance may be needed.

Development Noise

The design of the project will give consideration to controlling the noise emanating from all stationary mechanical equipment such as air-cooled chillers, cooling towers, air-handling units, condensing units, emergency generators, etc. so as to comply with the State of Hawai‘i Community Noise Control rules. Noisy equipment will be located away from neighboring properties and residential units as much as possible. Enclosed mechanical rooms may be required for some equipment.

Noise emanating from the parking garage to the neighboring buildings may be audible and cause complaints. Noise reduction measures such as rough, non-painted driving surfaces and acoustical absorption on the ceiling may be considered during the project's design phase.

Traffic Noise

HHFDC housing units overlooking Pi'ikoi Street will experience relatively high noise levels due to vehicular traffic. The exterior wall will have a minimum rating of STC 50, which is typical of poured concrete in any thickness greater than 4 inches. In addition, a minimum STC 35 rated window assembly, typical of a ½ inch laminated glass or various IGU assemblies, will be considered to comply with the HUD interior noise design criteria for these units.

To reduce the noise impact to the interior of the JUD spaces on the lower floors, acoustical consideration will be given to space planning. For example, noise sensitive spaces should not be located at the Pi'ikoi end of the building. If this is not possible, improved exterior façade elements (as discussed above) may be provided.

The outdoor recreation area immediately adjacent to Pi'ikoi Street may be exposed to noise levels that are higher than the established HUD site acceptability standards for exterior noise. A noise barrier wall along the Pi'ikoi Street side of the project may be considered to reduce noise levels by 5 to 10 dBA.

3.7 AIR QUALITY

Air quality in the vicinity of the project presently is mostly affected by emissions from vehicular sources which emit carbon monoxide, nitrogen oxides, hydrocarbons and other air pollutants. Air quality data from the nearest monitoring stations operated by the Hawai‘i Department of Health suggest that all state and national air quality standards are currently being met in the project area. B.D. Neal and Associates examined the potential air quality impacts related to the proposed project in December 2015. Their report is included in Appendix D of this document.

Short-term direct and indirect impacts on air quality could potentially occur during project redevelopment activities. There are two potential types of air pollution emissions that could directly result in short-term air quality impacts during project demolition and

construction phases: (1) fugitive dust from building demolition, soil excavation, aggregate processing and vehicle movement; and (2) exhaust emissions from on-site construction equipment. Indirectly, there also could be short-term air quality impacts from the disruption of traffic on nearby roadways, from slow moving construction equipment traveling to and from the project site, and from a temporary increase in local traffic caused by commuting construction workers.

Fugitive dust emissions from demolition and construction activities are difficult to estimate accurately because of their elusive nature of emission and because the potential for dust generation varies greatly depending upon the type of soil at the construction site, the amount and type of dirt-disturbing activity taking place, the moisture content of exposed soil in work areas, and the wind speed. The U.S. EPA has provided a rough estimate for uncontrolled fugitive dust emissions from construction activity of 1.2 tons per acre per month under conditions of "medium" activity, moderate soil silt content (30%), and precipitation/evaporation (P/E) index of 50. Uncontrolled fugitive dust emissions from project demolition and construction work would likely be somewhere near this level. In any case, State of Hawai‘i Air Pollution Control Regulations prohibit visible emissions of fugitive dust from construction activities at the project property line.

On-site mobile and stationary construction equipment also will emit air pollutants from engine exhausts. The largest of this equipment is usually diesel-powered. Nitrogen oxides emissions from diesel engines can be relatively high compared to gasoline powered equipment, but the standards for nitrogen dioxide are set on an annual basis and are not likely to be violated by short term construction equipment emissions. Also, the short-term (1- hour) standard for nitrogen dioxide is based on a three-year average; thus it is unlikely that relatively short-term construction emissions would exceed the standard. Carbon monoxide emissions from diesel engines, on the other hand, are low and should be relatively insignificant compared to vehicular emissions on nearby roadways. Indirectly, slow-moving construction vehicles on roadways leading to and from the project site could obstruct the normal flow of traffic to such an extent that overall vehicular emissions increase.

After the period of construction, long-term impacts on air quality from motor vehicle exhausts can potentially occur at or near any location that attracts large volumes of motor vehicle traffic. Carbon monoxide emissions are usually the primary issue, and public areas near traffic-congested intersections are the main concern. The proposed project will be accessed from two driveways: one off Alder Street and one off Pi‘ikoi Street. The project traffic impact analysis report (TIAR) examined four existing nearby roadway intersections. These included Pi‘ikoi Street and King Street, King Street and Alder Street, Alder Street and Elm Street, and Elm Street and Pi‘ikoi Street. The project TIAR indicates that the existing traffic level-of-service at these intersections is reasonably good, and in the year 2022, it was found that with the project this would continue to be the case. The TIAR estimates that project traffic in the year 2022 would account for less than about a two percent increase in traffic at the nearby intersections studied.

Traffic volume increases of less than about 5 percent or less than about 100 vehicles per hour or traffic approach volumes of less than about 1,000 vehicles per hour do not cause any significant impacts on air quality if adequate traffic level-of-service is provided.

Considering the small project-related traffic volumes that are expected and the reasonably good traffic level-of-service that is forecast, traffic from the proposed project should have no measurable long term impacts on air pollution levels in the project area.

Project Impacts and Mitigation

In summary, short-term impacts from fugitive dust during project demolition and construction phases may potentially occur. Because of this, an effective dust control plan for the period of construction should be prepared and implemented. After construction, any long-term impacts on air quality from motor vehicle traffic related to this project will likely be negligible.

Adequate fugitive dust control can usually be accomplished by the establishment of a frequent watering program to keep bare-dirt surfaces in active construction areas from becoming significant sources of dust. On days without rainfall, construction areas will be watered at least twice during the workday to help keep dust to a minimum. Control regulations will further stipulate that open-bodied trucks be covered at all times when in motion if they are transporting materials likely to give rise to airborne dust. Haul trucks tracking dirt onto paved streets from unpaved areas are oftentimes a significant source of dust in construction areas. Some means to alleviate this problem, such as tire washing or road cleaning, may be appropriate. Dust monitoring will be considered as a means to quantitatively evaluate the effectiveness of dust control measures.

On-site mobile and stationary construction equipment air pollutants impact will be mitigated by moving heavy construction equipment during periods of low traffic volume. Likewise, the schedules of commuting construction workers may be adjusted as needed to avoid peak hours in the project vicinity.

3.8 HISTORIC, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

Historic Resources

The Honolulu Juvenile Detention Center is eligible for listing on the Hawai‘i and National Registers of Historic Places for its association with the development of Hawai‘i’s treatment of juvenile delinquents and as an intact example of Mid-Century Modern architecture. The Historic Resource Inventory Form – Reconnaissance Level prepared by Fung Associates, Inc. on July 10, 2015 is included in Appendix E. The State Historic Preservation Division concurred with Fung’s findings.

A Sanborn Fire Insurance Map (see Figure 13) indicates a building existed on-site by 1914. Staff working within the project area indicated their belief that some buildings of the current facility pre-date World War II. Fung Associates, Inc. reports that “sometime between 1917 and 1923 a detention home was constructed at the corner of King and Alder streets, as the law prohibited the confinement of juveniles in a prison or police station.” By the late 1930s the original single story wood detention home was deemed inadequate and in 1944 a concrete, two story building was constructed to replace the earlier structure. In 1949 a U-shaped, single story addition was added to the 1944 building and included a kitchen, laundry facilities, dining rooms, recreational lounges,

and additional dormitory space. The 1944 building became the girl's dormitory and the new dormitory wing was used to house the boys. Figures 14 and 15 show the buildings' footprint in 1950 and 1953. In 1952, the boy's dormitory wing was extended, and in 1958 further expanded to form a courtyard space. In addition, in 1958, administrative offices were added to the Alder Street elevation of the 1949 addition. In 1961 a concrete masonry unit (cmu) wall replaced a wood fence between the girl's dormitory and the kitchen wing to provide a play space for the girls. Also at this time the basketball court was built in the boy's courtyard.

In 1989, the Home Maluhia shelter facility was constructed on the mauka end of the property. The Home Maluhia is not over fifty years of age and does not appear to meet the criteria for listing in the Hawai'i or National Registers of Historic Places.

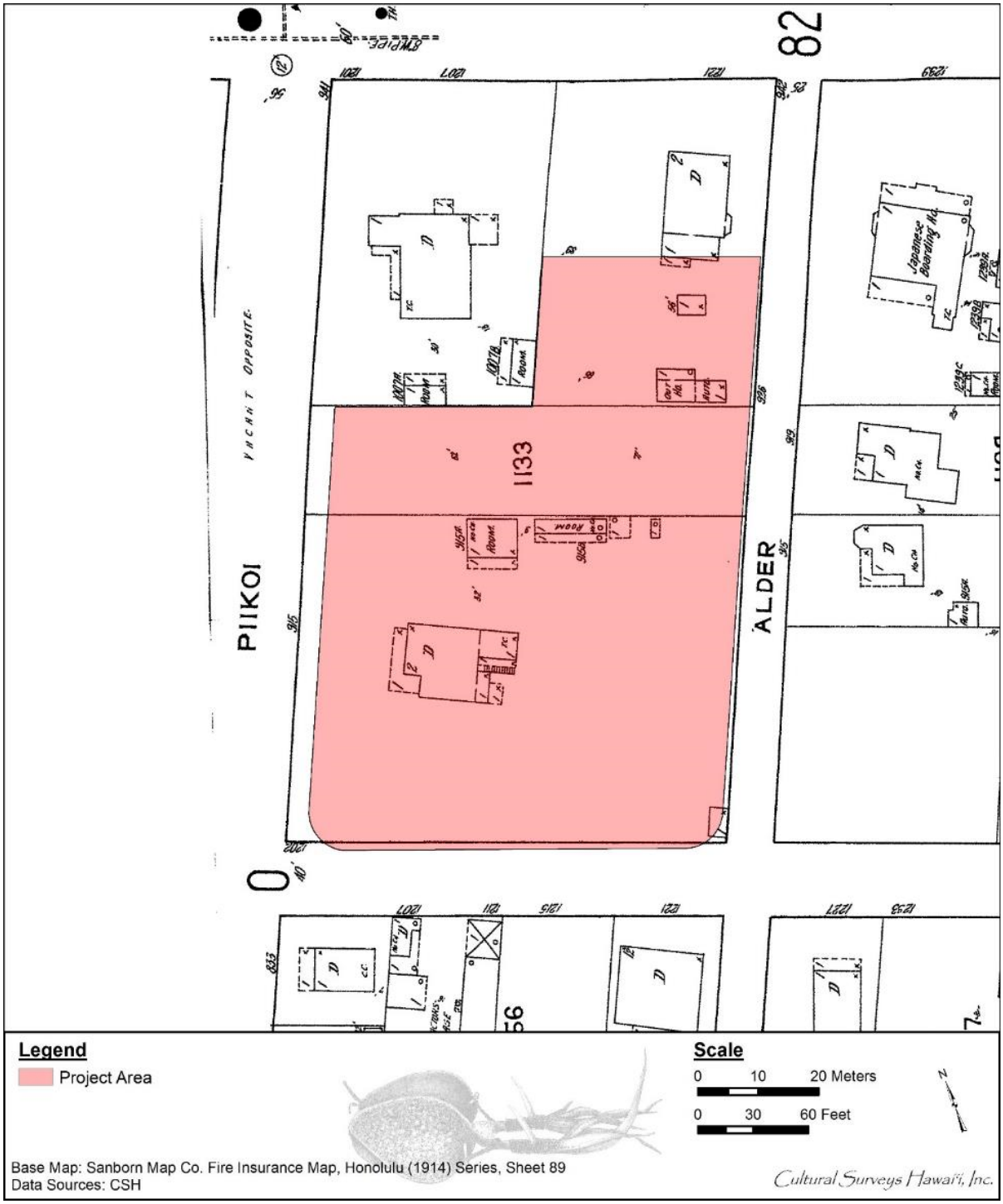
Archeological Resources

Cultural Surveys Hawai'i, Inc. conducted an Archeological Inventory Survey in August 2015. Their report is included in Appendix F. Two significant finds were made during the subsurface testing, identified as SIHP # 50-80-14-7817 and SIHP # 50-80-14-7818. The artifacts recovered from SIHP # 50-80-14-7817 likely relate to the domestic use of the project area by Catherine and Henry Martin Whitney (1824-1904), before the property was used as a detention home. Specifically, fragments of eight glass bottles, a ceramic plate, a ceramic bowl, and a ceramic pitcher were recovered with dates of manufacture from 1800 to 1920. Henry Martyn Whitney, Sr., was born in Hawai'i in 1824, moved to the Alder Street house sometime between 1880 and 1884, and lived there until his death in 1904. His only surviving son, Henry Martyn Whitney, Jr., lived in the house until at least 1924; he died in 1936. The Juvenile Detention Center was built in 1944. It is therefore possible that the only household structure on this property in the nineteenth to early twentieth century was the Whitney house, inhabited by at least two generations of the family.

Whitney, Sr. was a prominent member of the Honolulu community, served as first postmaster general in Hawai'i in 1870, was elected to the house of representatives of the legislature of the Hawaiian Kingdom in 1875 and may have entertained the young Samuel Clements at this house. In 1876, Whitney produced the first issue of the Pacific Commercial Advertiser and in 1861 he established Ka Nupepa Kū'oko'a, a Hawaiian language newspaper. Whitney began publishing the Marine Bulletin in 1882 which was eventually purchased by James Robison and became the Honolulu Star-Bulletin. The Star-Bulletin, merged with the Honolulu Advertiser in 2010 to become the Honolulu Star-Advertiser.

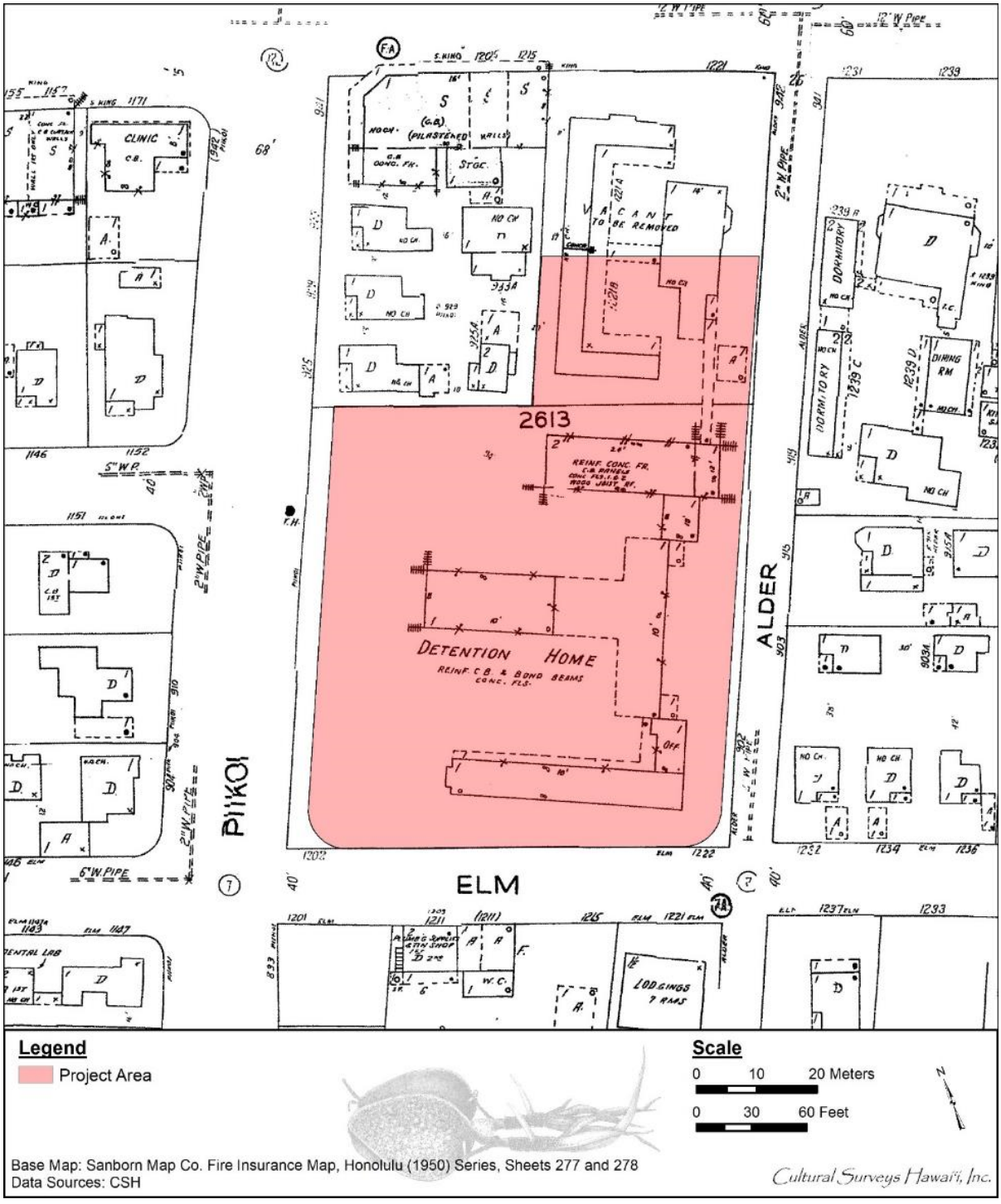
The artifacts recovered from SIHP # 50-80-14-7818 represent possible early post-Contact traditional Hawaiian settlement within the project area. Specifically, a fire-cracked rock fragment and faunal material representing fragments of *Bos taurus* (cow) tibia, *Sus scrofa* (pig) rib, and *Gallus* (chicken) tibiotarsus were recovered from a highly organic sediment matrix partially submerged in the fresh water table at approximately 150 to 165 cmbs. Analysis of a bulk matrix sample from this location also revealed fresh water snails and marine snails.

Figure 13: SANBORN FIRE INSURANCE MAP (1914)



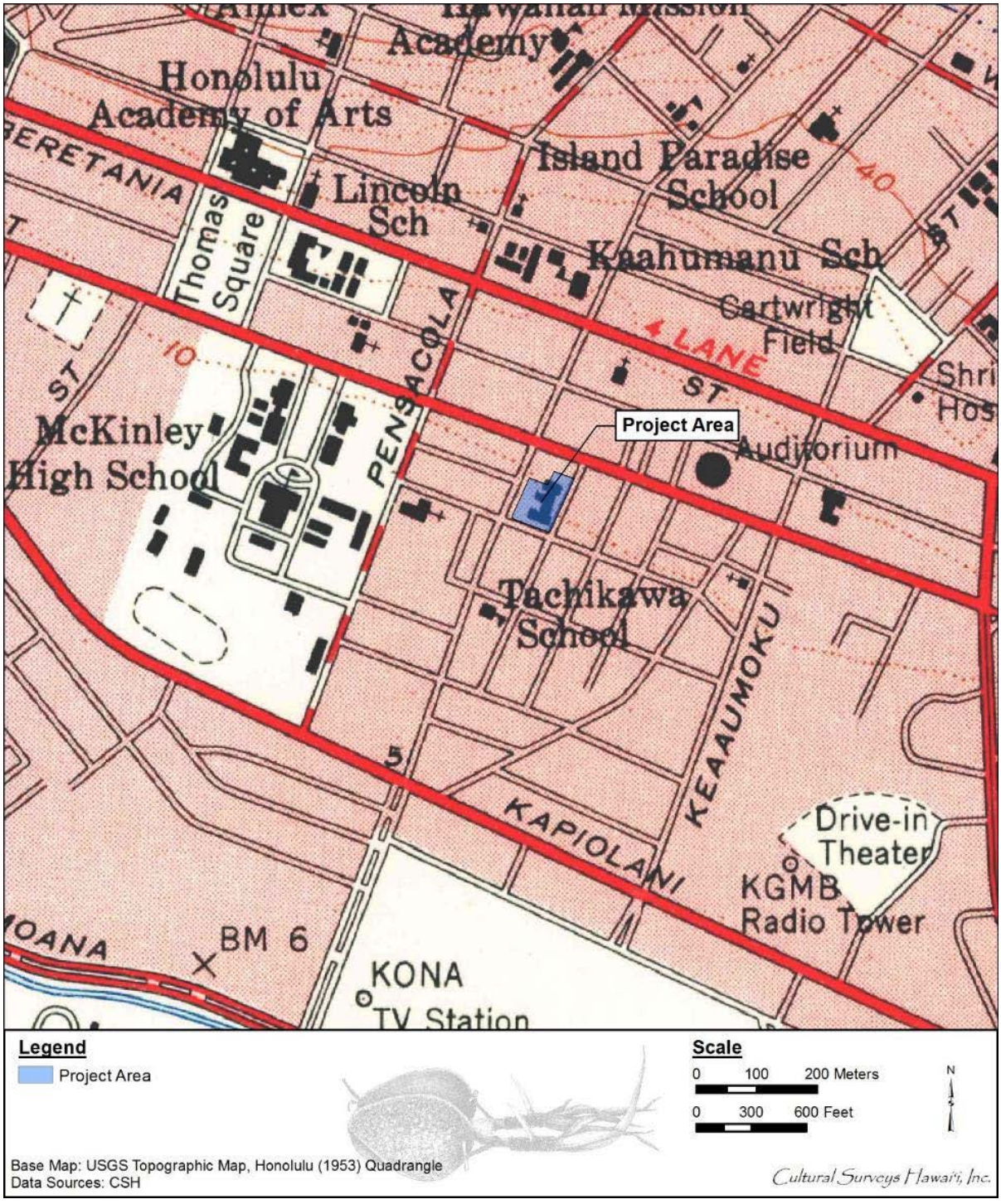
Source: Sanborn Map Company Fire Insurance map, Honolulu Series Sheet 89 (1914)

Figure 14: SANBORN FIRE INSURANCE MAP (1950)



Source: Sanborn Map Company Fire Insurance map, Honolulu Series Sheets 277 and 278 (1950)

Figure 15: USGS TOPOGRAPHIC MAP (1953)



Source: Honolulu USGS topographic quadrangle, portion (1953).

Cultural Resources

Cultural Surveys Hawai‘i, Inc. conducted a Cultural Impact Assessment in October 2015. Their report is included in Appendix G. It provides information compiled to date pertinent to the assessment of the proposed project’s potential impacts on cultural beliefs, practices, and resources.

CSH contacted Hawaiian organizations, agencies, and community members as well as cultural and lineal descendants of Kaka‘ako in order to identify individuals with cultural expertise and/or knowledge of the project area and vicinity.

Mr. Jan Becket, a retired Kamehameha Schools teacher who is well recognized for his photographic documentation of *wahi pana* (storied places), escorted CSH to 28 cultural sites from October 2014 to September 2015 within Honolulu Ahupua‘a. None of the sites visited were in the vicinity of the project area.

Paulette Ka‘anohi Kaleikini, State of Hawai‘i recognized lineal descendant, indicated that her *kūpuna* (elders) once lived in this area. She adds the project area is within the urban corridor and is in the vicinity of Walmart on Ke‘eaumoku Street “where a cemetery was found.” Ms. Kaleikini states that “chances of impacting a cultural layer or historic property at this project site is high.” Ms. Kaleikini points out that this area was favored by *ali‘i* (chiefs) but also by the *lāhui* (nation, race, people).

Project Impacts and Mitigation

Historic Impacts and Mitigation

The Honolulu Juvenile Detention Center is eligible for listing on the Hawai‘i and National Registers of Historic Places for its association with the development of Hawai‘i’s treatment of juvenile delinquents and as an intact example of Mid-Century Modern architecture. The building maintains its historic integrity as the additions have the same association to the judicial system with the original building. However, the building is physically deteriorated. Structural surveys conducted by Pacific Architects, Inc. in 2014 suggest that the Detention Facility has numerous deficiencies. The presence of hazardous materials, extensive termite damage, and antiquated plumbing, electrical, and fire protections systems were noted. The facility lacked sufficient mechanical ventilation, air conditioning systems, and parking. The facility was significantly deteriorated due to its age. Numerous building and zoning code violations and ADA accessibility non-compliance issues were cited.

Historic property significance is evaluated and assessed based on the five State of Hawai‘i historic property significance criteria. To be considered significant, a historic property must possess integrity of location, design, setting, materials, workmanship, feeling, and/or association and meet one or more of the following broad cultural/historic significance criteria (in accordance with HAR §13-13-275-6):

a. Be associated with events that have made an important contribution to the broad patterns of our history;

b. Be associated with the lives of persons important in our past;

c. Embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, or possess high artistic value;

d. Have yielded, or is likely to yield, information important for research on prehistory or history; or

e. Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

The Historic Resource Inventory Form – Reconnaissance Level prepared by Fung Associates, Inc. and proposed mitigation were sent to State Historic Preservation Division (SHPD) on August 24, 2015. The State Historic Preservation Division concurred with Fung's findings in a letter dated November 6, 2015. Both letters are included in Appendix E.

Since the proposed project involves demolishing the building, Fung Associates, Inc., has recommended that the project would be determined "effect with agreed upon mitigation measures." Mitigation measures will include:

1. Historic American Buildings Survey (HABS) Level III, with archival photography and copies of all available original drawings.

2. Two interpretive panels utilizing the HABS photographs and historic information to be placed in the future Juvenile Counseling office located at Alder Street.

Archeological Impacts and Mitigation

The Archeological Inventory Survey indicates the project area contains SIHP # 50-80-14-7817 and SIHP # 50-80- 14-7818. Through this report, information now has been documented regarding the location, extent, function, and age of SIHP # 50-80-14-7817 and SIHP # 50-80-14-7818. SIHP # 50- 80-14-7817 is considered significant under historic significance criterion "b" only, as it is associated with the lives of persons important in our past. SIHP # 50-80-14-7818 is considered significant under significance criterion "d" only. In accordance with Hawai'i State historic preservation review legislation, HAR §13-13-275-7, the project's effect recommendation is "effect, with proposed mitigation commitments."

The information included in the report is the primary effort to mitigate the effect of the planned developments within the project area. Secondarily, future archaeological monitoring is recommended for these cultural resources, SIHP # 50-80-14-7817 and SIHP # 50-80-14-7818, during the planned development of the project area.

The Archeological Inventory Survey plus archaeological monitoring with detailed documentation of the historic properties is recommended as sufficient to satisfy the

requirements to mitigate any adverse effect caused by the proposed development activities within the project area. The indicated archaeological monitoring program would begin with the preparation of an archaeological monitoring plan for the review and acceptance of the SHPD.

Cultural Impacts and Mitigation

Based on the information gathered from the cultural and historic background and community consultation detailed in this CIA report, the proposed project may have potential impacts. To avoid these:

1. Personnel involved in the construction activities should exercise caution due to the culturally sensitive nature of the proposed project area as indicated by a community participant.

2. Personnel involved in the construction activities of the project will be informed of the possibility of inadvertent cultural finds, including human remains. Should burials or other cultural finds be encountered during ground disturbance, the construction contractor will immediately cease work and the appropriate agencies will be notified pursuant to applicable law.

3. If any iwi kūpuna or other inadvertent cultural finds are found during ground disturbance, the project developer in conjunction with the State Historic Preservation Division and the Oʻahu Island Burial Council should consult with lineal and cultural descendants of Honolulu (including Kakaʻako) to develop a reinternment plan, as well as a cultural preservation plan.

3.9 VISUAL RESOURCES

The project site is clearly visible from Piʻikoi, Elm and Alder Streets. The existing buildings on Alder Street are close to the already narrow sidewalk. The eight foot tall concrete wall that encloses portions of the property on Alder Street is nonconforming in regards to its height and location.



Image 6: Wall enclosing the Home Maluhia on Alder Street (K. Balassiano, 9/19/15)

The existing buildings are set further back from Pi‘ikoi and Elm Streets. A chain link fence demarcates the property boundary along the Pi‘ikoi and Elm Streets.





Image 7: Views makai (left image) and mauka (right image) along Pi‘ikoi Streets (K. Balassiano, 9/19/15)

On a large scale, the parcel - in its current or future condition - does not interfere with the Significant Panoramic Views, including East-West Views, mauka-makai Views or Continuous Views, shown on Map A.1 of the PUC DP. The proposed development will not visually impact important vistas and focused views of significant natural and urban features and skyline profiles that make up or frame the PUC from publicly accessible places. Current zoning allows building heights of up to 150 feet. Several buildings in close proximity achieve or exceed these heights. In order to maximize the number of affordable units constructed, the project will exceed permitted building heights by approximately 35 to 40 feet. However, the higher height is in keeping with transit-oriented development policy.

Project Impacts and Mitigations

The project is not anticipated to have a significant adverse impact on scenic viewplanes or scenic resources in the Ala Moana area. The property will be more visible than it is now because the buildings will be taller. The buildings will not, however, interfere with scenic views specified in the PUC DP. The more densely developed parcel will be better integrated with the urban fabric. No further mitigation is necessary, however the final design and construction of the project would be undertaken by a private development entity and may incorporate the following urban design concepts to further minimize the visual impacts of the development.

Realignment of the tower to a mauka-makai orientation could be considered in final design to preserve public view corridors. Design treatments to minimize the impact of the 4-story parking structure on surrounding neighbors, such as height setbacks, active ground floor uses and screening should also be considered in subsequent design activities.

3.10 ROADWAYS AND TRAFFIC

The property is fronted by three streets owned by the City, Alder Street on the east, Elm Street in the makai direction, and Pi‘ikoi Street on the west. The property is also fronted by a T-intersection on the west side, where Alohi Way, a City-owned street, meets Pi‘ikoi Street. Table 2 summarizes the cross sectional elements of the surrounding streets.

Table 2: Surrounding Street Cross Section Summary

	Pi‘ikoi Street	Elm Street	Alder Street
Width	64 ft.	28 ft.	20 ft.
# lanes	4	2	1
Direction	one-way (northbound)	two-way	one-way (southbound)
Street Parking (parallel)	115 ft. unmetered (except no parking 3:30 pm - 5:30 pm)	130 ft. unmetered	40 ft. unmetered, 50 ft. restricted for police use only
Curb & Gutter	Lava rock curb, Concrete gutter	Concrete curb & gutter	Concrete curb & gutter
Sidewalk	4 ft. concrete sidewalk 1 ½ ft. landscape strip	5 ½ ft. concrete	5 ½ ft. concrete
Ownership	City and County of Honolulu	City and County of Honolulu	City and County of Honolulu

The property has four driveway aprons, three on Alder Street and one on Pi‘ikoi Street. A gate and driveway on Pi‘ikoi Street allows service access. One of the driveways on Alder provides access to a small parking lot. Another driveway apron provides access to a pad of illegal parking stalls that encroach onto the sidewalk. The third Alder driveway apron presently provides no vehicle access to the property.

A traffic study was conducted for the proposed project by SSFM International, Inc. in December 2015 and is included in Appendix H. The traffic study analyzed existing conditions and impacts in the surrounding area as a result of the full build-out of the proposed development. Two driveway accesses are being proposed to this joint mixed-use facility. One will be from a driveway off of Alder Street at the location of an existing curb-cut. The other will be from a driveway off of Pi‘ikoi Street, directly across from Alohi Street. Future conditions were evaluated for the year 2022 for determination of project impact as well as the completion of the Honolulu Rail Transit project.

Vehicular and Transit Access

The surrounding transportation network consists of a grid network of streets. The block in which the project is located in is approximately 450 feet by 250 feet in size. There are some “superblocks” (large blocks that interrupt the street grid) in the area which include the Neal S. Blaisdell Center/Blaisdell Concert Hall/McKinley High School to the west and Walmart/Sams Club to the east. These superblocks concentrate vehicular volumes at

major intersections resulting in multiple travel lanes, long signal timing cycle lengths, and strained capacity.

There are no bus stops directly adjacent to the project site. However, Stop 138 is at the corner of King Street and Pi'ikoi Street and there are several other stops within a ¼- mile of 902 Alder Street. Buses that service this area include Routes: 17, 18, 1, 1L, 2 and 2L. Bus routes that fall within ½-mile from the project site include Routes: 3, 5, 6, 9, 13, 40, 52, 53, and 62.

Pedestrian Facilities

Sidewalks line both sides of Alder Street, Elm Street, Pi'ikoi Street, and King Street. Sidewalks widths in the surrounding project area range from six-feet on Alder Street to four to eight-feet on Pi'ikoi Street and King Street. The City and County of Honolulu's *Traffic Standards Manual* (C&C, 1979) states that in most cases, concrete sidewalks shall be at least four feet wide in residential districts. However, wider sidewalks are recommended in commercial areas. Along Alder Street, Pi'ikoi Street and King Street adjacent to the project area, there are frequent driveway locations that interrupt the sidewalks along both sides of the street.

Marked crosswalks exist at the intersection of King Street and Pi'ikoi Street with pedestrian signal heads and push-buttons. Marked crosswalks also exist at the two-way stop sign controlled (TWSC) intersection of Pi'ikoi Street and Elm Street on the south leg (unprotected), east leg and west leg. An additional unprotected marked crosswalk exists across Pi'ikoi Street at the TWSC intersection with Alohi Way, approximately 230 feet from the intersection with King Street.

Bicycle Facilities

There is a two-way protected bike lane (i.e., bike lanes that are physically separated from traffic) along King Street between Alapai Street and Isenberg Street. An additional bike route exists along Young Street which is comprised of signage and sharrows. Ease of biking in the surrounding project area is not optimal because of the lack of designated bikeway connectivity and the presence of heavy vehicle traffic. There are no existing designated mauka-makai bicycle facilities in the surrounding area. Proposed mauka-makai bikeways on Pi'ikoi Street and Ke'eaumoku Street are recommended in in the *Oahu Bike Plan, A Bicycle Master Plan* (HHF, August 2012).

Existing Roadway Volumes

Average daily traffic (ADT) along Pi'ikoi Street and King Street are shown in Table 3. The 2011 ADT along Pi'ikoi Street, adjacent to the project site, is approximately 27,700 vehicles per day (vpd). The 2013 ADT along Pi'ikoi Street between King Street and Young Street is approximately 31,500 vpd. The 2011 ADT along King Street, east of Pi'ikoi Street is approximately 33,000 vpd.

Table 3: Existing Roadway ADT

Roadway	Station	Location	Year	ADT
Pi'ikoi Street	B727 513 00027	Between Alohi Way and King Street	2011	27,700
	B727 503 00153	Between King Street and Young Street	2013	31,500
King Street	B727 402 00310	Between Akala Lane and Cedar Street	2011	33,000

Source: *Historical Traffic Station Maps* (HDOT)

The 24-hour traffic volume distribution along Pi'ikoi Street and King Street at the traffic count stations shows the variation in travel patterns in the project area. AM and PM peak hours for Pi'ikoi Street between Alohi Way and King Street are 7:00-8:00 AM and 2:00-3:00 PM. The AM and PM peak hour volumes are about 1,500 vehicles per hour (vph) and 2,200 vph respectively.

There is no discernible morning peak hour along Pi'ikoi Street between King Street and Young Street. The peak hour occurs in the afternoon from 3:30-4:30 PM with around 2,500 vph.

The AM and PM peak hour along King Street between Akala Lane and Cedar Street is 7:00-8:00 AM and 4:45-5:45 PM. The AM and PM peak hour volume has about 2,100 vph and about 3,200 vph, respectively.

Intersection Peak Hour Volumes

Intersection peak period turning movement traffic counts were taken on Wednesday, September 16, 2015. These counts also included the tabulation of heavy vehicles, bicycles, and pedestrian movements at all intersections. Counts were taken during the AM and PM peak periods from 6:30–8:30 AM and 3:45–5:45 PM. Peak hours varied per intersection (see Table 4).

Table 4: Intersection Peak Hours

Intersection	AM Peak Hour	PM Peak Hour
King Street and Pi'ikoi Street	7:15 – 8:15 AM	4:45 – 5:45 PM
King Street and Alder Street	7:00 – 8:00 AM	4:45 – 5:45 PM
Alder Street and Elm Street	7:00 – 8:00 AM	3:45 – 4:45 PM
Elm Street and Pi'ikoi Street	7:15 – 8:15 AM	4:45 – 5:45 PM

Pedestrians and Bicycle Volumes

Large pedestrian volumes were counted crossing at the study intersections during the AM and PM peak hours (see Table 5). This is a result of the neighborhood being an urban district with high employment, commercial, and residential accessibility.

Table 5: Intersection Peak Hour Pedestrian Volumes

Intersection	AM Peak Hour	PM Peak Hour
King Street and Pi'ikoi Street	236	217
King Street and Alder Street	78	112
Alder Street and Elm Street	25	38
Elm Street and Pi'ikoi Street	104	59

High bicycle volumes were counted on King Street during the AM and PM peak hours (see Table 6) near the project area. Most of these were in the two-way protected bike lane; however these volumes were not differentiated. Some bicyclists rode outside of the bike lane; some rode on the sidewalks. Table 6 identifies all bicycles counted during the peak hours, regardless of where they were riding.

Table 6: Intersection Peak Hour Bicycle Volumes

Intersection	AM Peak Hour	PM Peak Hour
King Street and Pi'ikoi Street*	105	156
King Street and Alder Street *	104	78
Alder Street and Elm Street	3	15
Elm Street and Pi'ikoi Street	10	25
*- Bicycles using protected bike lane included in this count.		

Bus and Heavy Vehicle Volumes

Tabulated heavy vehicles include TheBus transit service, tourist bus/trolleys, and delivery trucks. Table 7 provides the peak hour volumes and percentage of heavy vehicles as compared to the total vehicles counted. These heavy vehicle percent are relatively small.

Table 7: Intersection Peak Hour Heavy Vehicle Volumes and Percentage

Intersection	AM Peak Hour		PM Peak Hour	
	Volumes	Percent	Volumes	Percent
King Street and Pi'ikoi Street	94	2.6	29	0.6
King Street and Alder Street	62	2.8	7	0.3
Alder Street and Elm Street	2	1.3	2	1.2
Elm Street and Pi'ikoi Street	42	2.8	11	0.6

Daily total TheBus ridership at Stop 138 for boarding and alighting passengers was 250 and 396 riders respectively. Stops in the area include transit centers which range up to 1,000 boarding and alighting passengers (see Table 8). Data was provided by the City and County of Honolulu, O'ahu Transit Services.

Table 8: TheBus Daily Ridership

Stop #	TheBus Stop	Daily Totals	
		On	Off
138	King Street, at Pi'ikoi Street	250	396
139	King Street, at Cedar Street	82	199
140	King Street at Ke'eaumoku Street	561	679
2098	Pensacola Street, at Young Street	132	48
2099	Pensacola Street, at King Street	42	38
1375	Pensacola Street, Opposite Elm Street	2	4
1376	Pensacola Street, Opposite Hoolai Street	20	34
4404	Kapi'olani Boulevard at Pi'ikoi Street	343	246
603	Kapi'olani Boulevard at Kona Iki Street	955	983
2084	Rycroft Street, at Ke'eaumoku Street	64	50
819	Ke'eaumoku Street, at Rycroft Street	46	62
2085	Ke'eaumoku Street at King Street	62	42
	Daily Totals	2,559	2,781

Source: *The Bus, City and County of Honolulu*

Existing Intersection Level of Service (LOS) Conditions

Existing (2015) unsignalized and signalized intersection Level of service (LOS), volume to capacity (v/c) ratio, and delay were determined for the AM and PM peak hours (see Table 9 and Table 10). Three of the four study intersections were able to be analyzed for delay in their current configuration. The intersection of King Street and Alder Street has no conflict between vehicles and therefore no vehicular delay can be calculated using traffic signal software.

The unsignalized intersection of Alder Street and Elm Street resulted in LOS A for all movements. At the intersection of Pi'ikoi Street and Elm Street, Pi'ikoi has four lanes in one direction. HCM 2010 states that analysis can only be done for a maximum of three lanes in one direction. Since there are four one-way lanes along Pi'ikoi Street, the analysis cannot be completed for the existing configuration. So as to evaluate worst case conditions, the intersection was reconfigured in the traffic model to show three lanes, thereby reducing the intersection capacity. Even with this reduction in capacity, the intersection resulted in LOS D or better.

The signalized intersection of King Street and Pi'ikoi Street resulted in LOS C or better.

Table 9: Existing (2015) Unsignalized Intersection Level of Service

Unsignalized Intersection	Approach	Movement	AM Peak Hour			PM Peak Hour		
			Delay (s/veh)	v/c	LOS	Delay (s/veh)	v/c	LOS
Alder Street and Elm Street	Eastbound	L	-	-	A	-	-	A
	Westbound	LT	7.2	0.01	A	7.2	0.01	A
	Southbound	LTR	9.0	0.06	A	9.0	0.05	A
Pi'ikoi Street and Elm Street*	Westbound	TR	20.6	0.27	C	27.1	0.37	D
* - Model limitations required that three lanes be analyzed instead of four lanes.								

Table 10: Existing (2015) Signalized Intersection Level of Service

Signalized Intersection		AM Peak Hour			PM Peak Hour		
Approach	Movement	Delay (s/veh)	v/c	LOS	Delay (s/veh)	v/c	LOS
Pi'ikoi Street and King Street		20.1	-	C	22.2	-	C
Eastbound	TL	24.6	0.70	C	27.0	0.81	C
	T	22.7	0.72	C	22.4	0.83	C
Northbound	T	15.2	0.37	B	19.6	0.49	B
	R	15.4	0.31	B	20.9	0.46	C

Future (2022) Conditions

Full build-out and occupancy of this project is planned for 2022. Plans for final construction of the Honolulu Rail Transit guideway and rail station estimate full-build out and operation by 2019 or 2020 and, therefore, were included in the analysis of Future (2022) conditions. Changes are expected for bus routes in advance of the Honolulu Rail Transit system opening. Such changes may include alterations of available routes, the location of the bus stops, and queuing. It is not expected that this will have a significant effect on this project. The Ala Moana Neighborhood TOD Plan (C&C DPP, 2014) calls for improving pedestrian facilities. These improvements provide additional width and buffer from traffic with the redevelopment of parcels in the area to improve walkability. Priority 1 bikeway projects in the project area anticipated to be built in the next five to ten years include a bike route along Pi'ikoi Street. It is expected that this could be in the form of standard or protected bike lanes. The lack of mauka-makai bike facilities, and forthcoming installation of bike stations with Bikeshare Hawai'i, increases the desirability and likely use of a bikeway facility.

Project Related Traffic Volumes

Changes in traffic volume along roadways in the surrounding area over the past ten years have been mixed. Despite large scale development and increased density from high-rise condominiums, vehicular traffic volumes have not grown. A decrease in ADT is noted

for some roadway segments while there are slight increases for others. Increases in redevelopment and added density will be offset by a transition towards multi-modal mobility due to the existing urban nature and future TOD zone. Therefore, it is likely that more people moving into this area will look towards walking, biking, and taking transit as opposed to making personal vehicle trips. Pi'ikoi Street provides this access to/from the Ala Moana Rail Station while the rail guideway parallels King Street and therefore should absorb trips. Therefore, it was assumed there will be no surrounding area vehicular growth in Future (2022) conditions and Future (2022) Without Project Volumes will be similar to Existing (2015) conditions.

The addition of trips resulting from the project was calculated using the four step trip generation methodology: trip generation, trip distribution, modal choice, route assignment. Resulting trip generation for the proposed development was calculated using *Trip Generation, 8th Edition* (ITE, 2008) and related trip generation rates are shown in Table 11. The juvenile services center was assumed to be similar to the "single tenant office building" land use while the affordable apartment units was similar to the "high rise apartment". Resulting trip generation volumes for the AM and PM peak hours are shown in Table 12.

Table 11: Development Trip Generation Rates

Land Use [ITE Code]	Quantity	Units	Trip Generation Average Rate		
			AM Peak Hour	PM Peak Hour	Daily
High Rise Apartment [222]	187	Dwelling Units	0.30	0.35	4.20
Single Tenant Office Building [715]	35,452	1,000 Square Feet	1.80	1.73	11.57

Table 12: Development Trip Generation Volumes

Land Use [ITE Code]	Project Related Trips						
	AM Peak Hour			PM Peak Hour			Daily
	In	Out	Total	In	Out	Total	
High Rise Apartment [222]	14	42	56	40	25	65	785
Single Tenant Office Building [715]	57	7	64	9	52	61	410

The project site is in proximity to existing transit and rail options; therefore, a high degree of alternative travel modes exist. The Kaka'ako Mauka Area Plan Transportation Analysis (AECOM, April 2009) states that because of the difficulty in estimating

ongoing redevelopment and TOD elements on travel behavior, existing modal split is still deemed appropriate for use in the near term. The proposed housing development involves affordable housing. It can be assumed that there will be a lower use of personal vehicles and higher use of other transportation modes as compared to a similarly sized market-priced development. However, as a "worst case" scenario (highest volume of vehicle trips) the existing modal split percentage was used to calculate project related trips (see Table 13).

Table 13: Project Related Transportation Mode

Transportation Mode	Percentage*	Project Related Trips	
		AM Peak Hour	PM Peak Hour
Private Vehicle	76.9%	92	99
Transit (Bus and Rail)	12.8%	15	15
Bike	2.3%	3	3
Walk	8.0%	10	9

* Source: *Kaka'ako Mauka Area Plan Transportation Analysis* (AECOM, April 2009)

Future (2022) With Project LOS, v/c ratios and delay for the study intersections are shown in Table 14 and **Error! Reference source not found.**. As with Existing conditions, at the intersection of Pi'ikoi Street and Elm Street, a lane configuration was used that has three lanes along Pi'ikoi Street. For Future (2022) With Project conditions, the intersections operated at acceptable LOS D or better.

Table 14: Future (2022) With Project Unsignalized Intersection Level of Service

Unsignalized Intersection	Approach	Movement	AM Peak Hour			PM Peak Hour		
			Delay (s/veh)	v/c	LOS	Delay (s/veh)	v/c	LOS
Alder Street and Elm Street	Eastbound	L	-	-	A	-	-	A
	Westbound	LT	7.2	0.01	A	7.2	0.01	A
	Southbound	LTR	9.1	0.07	A	9.1	0.08	A
Pi'ikoi Street and Elm Street*	Westbound	TR	21.2	0.27	C	27.8	0.37	D
* - Model limitations required that three lanes be analyzed instead of four lanes.								

Table 15: Future (2022) With Project Signalized Intersection Level of Service

Signalized Intersection		AM Peak Hour			PM Peak Hour		
Approach	Movement	Delay (s/veh)	v/c	LOS	Delay (s/veh)	v/c	LOS
Pi'ikoi Street and King Street		20.2	-	C	22.4	-	C
Eastbound	TL	24.7	0.70	C	27.3	0.81	C
	T	22.7	0.73	C	22.6	0.83	C
Northbound	T	15.4	0.38	B	19.8	0.50	B
	R	15.7	0.32	B	21.4	0.48	C

Existing (2015) conditions resulted in appropriate LOS conditions for King Street and Pi'ikoi Street intersection and at Alder Street and Elm Street. With the development of the Honolulu Rail Transit and the resulting redevelopment in the TOD areas, including associated multi-modal infrastructure, more travelers will utilize alternative modes of transportation. This includes walking, bicycling, bus, and rail transit. With the addition of project related traffic volumes, Future (2022) With Project conditions resulted in appropriate intersection operations.

Project Impacts and Mitigations

The proposed Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter will have minimal impact on the transportation network. With the proposed redevelopment of the project site, the following best practices for multi-modal access are recommended to improve access and reduce the demand for passenger vehicle use:

- Pedestrians should have wide sidewalks separated from vehicular travel ways with landscaped buffers and street trees to provide shade. At corners, curb extensions are proposed to be added where possible to shorten the distance for pedestrian crossings. The marked crosswalk across Pi'ikoi Street at the intersection with Alohi Way should be considered for removal due to it being located less than 300 feet from the intersection (and crosswalk) at King Street. Due to the 60-foot crossing distance, the marked crosswalk across Pi'ikoi Street at Elm Street should be studied for potential improved protection by adding beacons or other pedestrian safety measures.

- With the possibility of future bike lanes on Pi'ikoi Street, the curb line should remain along the east side of Pi'ikoi Street, for the possible removal or relocation of on-street parking and installation of bike lanes. To improve accessibility and access, the development will ensure ease of access to the building as well as provide on-site bike storage.

- The proposed vehicular access locations are over 150 feet from adjacent intersections on Alder Street and across from the intersection with Alohi Way on Pi'ikoi Street so as to reduce conflicts. This also results in a reduction in the number of access points to the project site. As shown with the acceptable LOS at all intersections, a reduction of one travel lane along Pi'ikoi Street would likely not result in unacceptable operations. Therefore, the ability to remove one travel

lane in favor of a dedicated bikeway appears feasible. The vehicle volume able to travel through the intersections is actually constrained by the lack of capacity at intersections further mauka. Therefore, vehicle demand is likely greater than actual volume counted. The limiting factor is in the ability to process vehicles at the H-1 entrance mauka on Pi'ikoi Street.

The project will modify the layout of roadways, sidewalks and driveways. Modifications are subject to approval by the City Department of Planning and Permitting (DPP), and shall be in accordance with the Revised Ordinances of Honolulu and Hawai'i Administrative Rules. Generally, designs will conform to the City standard details and specifications, and AASHTO design guides. Through an informal preliminary review, the DPP Traffic Review Branch did not see any immediate concerns regarding the proposed layout of the driveways. The Pi'ikoi Street driveway apron may conflict or not meet clearance requirements with existing utilities, specifically a fire hydrant, a utility pole and a water meter. This may require a variance from the City and/or utility relocations. Geometric design of the driveways should be straightforward with minimal challenges, given the gentle site grades and long frontage of the property.

The proposed site plan shows bulb outs on the mauka side of Elm Street at both ends of the block between Pi'ikoi Street and Alder Street. Bulb outs generally provide increased safety to pedestrians, creating a reduced crosswalk length. Construction of the bulb outs will also have impacts to various existing infrastructure features, such as curb ramps, utility structures, and traffic striping and signage. These features will need to be relocated and constructed in accordance with City standards.

Segments of sidewalk, curb and gutter will be restored where existing driveway aprons are abandoned. The Pi'ikoi Street driveway improvements may disturb existing lava rock curb. Disruption of these curbs will require special handling. In some cases they are embedded deeper than standard curbs. Below grade the finish may be found to be roughhewn rather than squared off. Mitigations will need to be coordinated with the City and may include reusing the lava rock curbs, or salvaging the curb and replacing with a new curb of similar finish.

3.11 WATER SYSTEM

A preliminary engineering report – including an assessment of water, wastewater, and drainage - was conducted for the proposed project by SSFM International, Inc. in January 2015. The report is located in Appendix I. The Honolulu Board of Water Supply (BWS) provides water service to the existing project site. Based on BWS system as-built plans, domestic water service is currently provided by a 4-inch lateral (3-inch compound meter no. 04094081) connected to an existing 6-inch water main along Alohi Way.

The total existing plumbing fixture units (FU) are estimated to be 251.5 FU. The fixture count is based on an existing floor plan from the 2012 Assessment Survey Report by Pacific Architects, Inc. The fixture counts will need to be confirmed during the construction document phase. Per the 2012 Assessment Report, all the existing plumbing fixtures are non-low flow.

Three existing fire hydrants are located within the parcel frontage. FH M02662 is located on the near side of Pi'ikoi; FH M06177 is located on the near side of Elm: and FH M06176 is located across Alder. Additionally, FH M03919 is located within the next block makai on Pi'ikoi and is closer to portions of the parcel than the other fire hydrants.

Calculated flow data obtained from BWS for the three hydrants within the parcel frontage indicates static pressures ranging 74-75 psi, residual pressures ranging 55-56 psi and flows of 2000 gpm. The data are based on BWS models of the existing water system and assumptions of a full reservoir and no demands on the water system. The static pressure represents the theoretical pressure based on the assumptions. To determine flow available at the site, on-site pressure readings will need to be taken and correlated to the provided data. See Appendix I for the December 28, 2015 letter from BWS which provided the pressure and flow data.

Domestic water, irrigation and fire sprinkler line connections will be supplied by the BWS system. The proposed project development will create significant additional water demands on the BWS system. Domestic water demand planning estimates for this project, based upon BWS Water System Standards 2002, are summarized in Table 16.

Table 16: Projected Water Demand

Zoning Designation	Demand Rate	Quantity	Domestic Consumption gal/day
Multi-Family High Rise (HHFDC Housing)	300 gal/unit	187 units	56,100
Commercial/Residential Mix (Juvenile Services Center and Shelter)	120 gals/1000 sf	35,452 sf	4,254
Total Average Daily Demand			**60,354**
Maximum Daily Demand (1.5x factor)			**90,531**
Peak Hour Demand (3x factor)			**181,063**

The preliminary estimated total proposed fixture units is 2,036.3 FU, broken down into 1,814.7 FU for the rental housing, and 221.6 FU for the juvenile services center and shelter. See the Appendix I for a breakdown of proposed fixture unit estimates.

All existing fixtures will be demolished. These existing fixture units to be removed will be taken into account by BWS when determining water charges and capacity of the system to accommodate the redevelopment.

Project Impacts and Mitigation

According to Draft EA comments provided by the BWS, the existing 3-inch meter may be sufficient to service the estimated total flow of 315 gpm. However, due to the close values for flow requirement and capacity, it is possible the meter will need to be upsized to a 4-inch meter when fixture unit counts are finalized.

The BWS recommends water conservation measures for all proposed developments. These measures may include low flow plumbing fixtures, utilization of non-potable water for irrigation using rain catchment and chiller/air handler condensate, cooling tower conductivity meters and water softening recycling systems, drought tolerant plants, xeriscape landscaping, efficient irrigation systems and the use of Water Sense labeled ultra-low-flow water fixtures and toilets. Further, high-rise buildings with booster pumps will be required to install water hammer arrestors or expansion tanks to reduce pressure spikes and potential main breaks in the BWS water system.

Fire protection will be in accordance with BWS standards and the National Fire Protection Association Fire Code. For high rise apartments, BWS standards require a fire hydrant flow capacity of 2000 gpm for 2 hours, and a maximum hydrant spacing of 250 feet. The existing fire hydrant spacing does not appear to meet the maximum spacing requirements. Additional hydrants may need to be added for the project.

The location of the existing fire hydrants in relation to the proposed building meets the 400 ft. maximum distance to the closest point on a structure requirement of the NFPA 1 Fire Code. The hydrant on Piʻikoi Street may be in conflict with the location of the proposed driveway, and therefore may need to be relocated. A new fire sprinkler water service connection and DC meter will be required.

3.12 WASTEWATER DISPOSAL

The existing facility is serviced by at least one 6 inch sewer lateral. Limited as-built information shows one 6 inch lateral flowing south on the property adjacent to Alder Street. The City GIS sewer map shows multiple 6 inch laterals connecting to the property. One lateral connects on Elm near Alder to a manhole at the Elm/Alder intersection. Another lateral connects to an 8 inch main on Alder near Elm, with an assumed wye connection. The 8 inch main on Alder changes direction at Elm, continuing to the east on Elm, however at an apparently smaller diameter of 6 inches. The pipe diameters will need to be verified in the field. Two laterals connect to a 12 inch main on Piʻikoi, with an assumed wye connection.

The quantity of wastewater and design of the sewer system will be in accordance with the Design Standards of the Department of Wastewater Management, City and County of Honolulu, dated July 1993. The estimated quantity of wastewater from the proposed project is shown in Table 17.

Table 17: Projected Wastewater Flow

Category	Quantity of Wastewater (GPD)
HHFDC Housing (187 units)	43,424
Juvenile Shelter and Services Center (35,452 sf)	8,981
Average Wastewater Flow	52,405
Design Average Wastewater Flow	**75,332**
Design Maximum Flow	**284,951**
Design Peak Flow	**288,940**

Project Impacts and Mitigation

Reuse of the existing sewer laterals will be assessed during the design phase of the project. Where reuse of existing laterals is not feasible or insufficient, new sewer lateral(s) will be installed. Size and slope of the laterals will be based on meeting capacity and maximum velocity requirements for the Design Peak Flow, and minimum scouring velocity requirements for the Design Average Flow.

Preliminary approval to connect to the City wastewater system has been given by DPP Wastewater Branch in response to a Sewer Connection Application (SCA). The approval directs the project to connect to the 8-inch main on Alder Street. Wastewater system facility charges will be assessed during the design phase. The SCA will need to be updated and resubmitted if project parameters change, such as number of residential units, number of anticipated employees in the office space, number of shelter rooms, and water meter size. The approval is valid for two years. If construction plans are not completed and approved within this timeframe, the SCA will need to be resubmitted. See the Appendix I for the approval document.

3.13 DRAINAGE SYSTEM

City and County of Honolulu (City) drainage infrastructure is in place adjacent to the property. Catch basins are located at the intersections makai of the property. The catch basin at the southeast corner of the lot, at the intersection of Elm Street and Alder Street, connects to a 42 inch reinforced concrete pipe drain line that runs south on Alder from Elm. The catch basin near the southwest corner of the property discharges into the 36 inch x 96 inch box culvert flowing south under Pi‘ikoi Street. Overland flow is to the southwest on generally flat terrain. The existing site has approximately 60% impervious cover.

The drainage system shall be designed for both storm water quantity and quality in accordance with the Department of Planning and Permitting, City and County of Honolulu, Rules Relating to Storm Drainage Standards, amended June 1, 2013, hereinafter referred to as City Drainage Standards.

The proposed site will be approximately 65% impervious, an increase from the existing condition, which will likely cause a slight increase in runoff rates and volumes. The project may therefore be required to retain and/or detain the increase in peak storm water flows.

Project Impacts and Mitigations

The project will likely disturb more than one acre of area, therefore for water quality design, the project will be classified as Type A2, projects that disturb between one and five acres. Type A2 projects must implement the following practices to meet water quality criteria:

1. Incorporate appropriate Low Impact Development site design strategies. An example is incorporating landscaped areas into the site design.
2. Incorporate appropriate Source Control BMPs. An example is including drain inlet stencils that discourage illegal dumping into drain inlets.
3. Retain or biofilter the water quality volume with appropriate post construction treatment control BMPs. Examples include subsurface perforated chambers and vegetated swales. The water quality volume is calculated based on surface area, ground cover, a standard design storm (1 inch depth for retention facilities and 0.4 inches per hour for biofiltration facilities). Unlike storm water quantity, water quality design does not take into account the existing condition, therefore the design is not based on an increase in flow, but rather total flow from the developed condition.

Item 3, Treatment Control BMPs, will have the most impact in terms of design effort and construction and facility maintenance cost. Water quality facilities that are constructed on site, if any, will be maintained in compliance with City regulations.

3.14 ELECTRIC AND COMMUNICATIONS FACILITIES

Electrical service is available in the area. Table 18 summarizes the electrical services available to the property. Redevelopment of the site would require the existing incoming electrical service and distribution be upgraded or replaced to meet new electrical load requirements.

Table 18: Existing HECO Service

HECO Meter No.	Electrical Service
385291	120/240 volts, single phase, three wires for general lighting and receptacle loads for the vacant detention facility.
473366	240 volts, three phase, three wires for air conditioning and refrigeration loads for the vacant detention facility.

412101	100 ampere service. 120/208 volts, three phase, four wires for lighting and receptacle loads for the shelter facility.
487541	100 ampere service. Electrical service is 120/208 volts, three phase, four wires for air conditioning and heating/cooling type loads for the shelter facility.

Electric load calculations were determined per the 2008 National Electrical Code (NEC) and buildout assumptions associated with the residential and judiciary uses by Douglas Engineering in January 2016. A copy of that report may be found in Appendix J. Assuming all equipment will be electrical, which represents the high end of the estimate, the calculation yields an expected demand of 3910 kVA.

Gas service is available to a few properties on Alder Street. If that gas service can be extended to the proposed building, tenants could have the ranges, dryers, and water heating on gas. This reduces the expected electrical demand on the building by approximately 30%, which will also reduce the size of the service equipment and the HECO transformer.

Both options will require the installation of a large transformer by HECO, in a dedicated HECO vault. Inside, a transformer pad and underground ductbank, encased in concrete, from the transformer pad to the point of nearest utility power (likely the base of a power pole with overhead power lines) will be required by HECO, and provided by the Contractor during construction. Two medium-voltage lines will then be pulled directly into this vault. The size of the HECO transformer can be expected to be 2000 kVA. However, HECO will make the final determination as to transformer size. With gas service, the HECO transformer drops to 1500 kVA.

Communications service will be provided by either Hawaiian Telcom (HTEL) or Oceanic / Time Warner Cable (OTWC). Both HTEL and OTWC have handholes in the area. OTWC has a sizeable handhole on Piʻikoi Street. HTEL has at least two telephone lines, one at the corner of Alder Street and Elm Street, and one along Piʻikoi Street. These are the most likely points of connection, and underground infrastructure for the building will be laid in once the site prep work begins.

3.15 COMMUNITY FACILITIES

Major community facilities in the vicinity of 902 Alder Street are noted below.

Medical Facilities

There are three major medical facilities in close proximity to the subject property. The Queens Medical Center and Straub Clinic and Hospital offer emergency services and all levels of general acute patient care. The Straub Hospital is the closest facility, approximately .5 miles west of the subject property on South King Street. The Queens

Center is approximately one mile west of the subject property. The Kaiser Honolulu Clinic is approximately .25 miles west of the subject property on South King Street.

Educational Facilities

The Hawai‘i Department of Education oversees public schools in the Honolulu District of the McKinley Complex. There are eight public schools in the Complex, and three Charter Schools. The closest public schools include the Ka‘ahumanu Elementary school (Kindergarten – 5th grade), Central Middle School (grades 6 - 8), and the McKinley High School (grades 9 - 12) school. The proposed residential units will house an estimated 390 residents, including about 23 students who will attend nearby public schools. It may be assumed that the project will result in 11 elementary school students, 6 middle school students and 6 high school students. These numbers could be higher or lower, depending on (1) the mix of unit sizes (e.g., how many 1-bedroom, 2-bedroom, 3-bedroom units); and (2) the mix of tenants (e.g., how many young families versus individuals).

Emergency Responders

The Honolulu Police Department (HPD) District 1, Sector 4 covers Makiki, Kaka’ako, McCully and Mō‘ili‘ili. The Department's headquarters is located at 801 South Beretania Street, approximately one mile west of the subject property. District 1 has a community policing/weed and seed team comprised of volunteers who collaborate with law enforcement staff to reduce crime, create safer neighborhoods, and improve the quality of life for residents.

The closest Honolulu Fire Department station is the Pāwa’a Station at 1610 Makaloa Street approximately .75 miles southeast of the project site.

Emergency Shelters

The closest outdoor emergency shelter is the Sheridan Community Park located directly across from the subject property on Elm Street. The closest indoor Emergency Shelter is located one block west of the subject property, at McKinley High School. Just beyond the School is a larger facility that serves as a shelter for emergencies purposes, i.e., the Neal S. Blaisdell Center.

Community Parks and Recreational Resources

The City and County of Honolulu, Department of Parks and Recreation (DPR) manages and maintains a system of parks on the island of O‘ahu. 902 Alder Street is located within DPR’s District 2. The closest public park is Sheridan Community Park located directly across from the subject property on Elm Street. Other public parks in the vicinity include Cartwright Neighborhood Park, Pāwa’a Park, and Thomas Square. All three are less than .5 miles from the subject property. The closest regional park and beach is the Ala Moana Regional Park, which is approximately .65 miles from the subject property. The nearest public swimming pool is located at 1527 Ke‘eaumoku Street.

The City and County of Honolulu's Park Dedication Ordinance requires new residential projects to either dedicate land in perpetuity for park and playground purposes or to pay a fee in-lieu of dedication.

Project Impacts and Mitigation

The proposed project is not expected to have significant adverse impacts on community facilities. The Department of Parks and Recreation, in response to the pre-assessment consultation, indicated that the project would have no impact on any of their programs or facilities.

The project is requesting an exemption from Park Dedication requirements pursuant to Section 201H-38, Hawai'i Revised Statutes (HRS), as further discussed in Chapter 5 of this Final EA. The project may instead include a recreation deck on the roof of the parking structure. Juveniles, their visitors, and judiciary employees will have access to the on-site landscaped recreation area on Pi'ikoi Street.

The proposed residential development is anticipated to result in an additional 11 elementary school students, 6 middle school students and 6 high school students, depending on the mix of unit types. The DOE regularly updates enrollment projections for facilities and program planning based on current migration patterns, new housing developments, birth statistics, changes in service boundaries, changes in school organization, and attendance of students from outside the school service area by district exception.

3.16 SOCIOECONOMIC ENVIRONMENT

Plasch Econ Pacific LLC examined the population, economic, and fiscal benefits and impacts of the proposed joint development in March 2016. The population impacts address the number of people who will be living in the affordable units, as well as the changes in number of people supported by the increased economic activity associated with the project. The economic impacts cover expenditures and sales, profits, employment, and payroll related to (1) construction and related activities, and (2) operations and related activities. Fiscal impacts address the impact of the project on State and County revenues and expenditures. A full copy of the report can be found in Appendix K.

Demographics

The US Census compiles demographic information on population, housing and employment every 10 years, with the most recent data available from the year 2010. The proposed development is located within Census Tract 36.01 - Honolulu. An overview of 2010 demographic characteristics for the census tract and for Honolulu County, as a whole, is provided in Table 19.

Table 19: Selected Population and Housing Characteristics

Characteristic	Honolulu County	Census Tract 36.01 – Honolulu
Population	953,207	4,109
Median age	37.8	39.8
Population in households	917,907	4,096
Number of households	311,047	1,951
Average household size	2.95	2.10
Housing units	315,988	2,153
Occupied housing units	336,899	1,951
Percent of total housing units occupied	92.3%	90.6%
Renter occupied units	136,660	1,462
Population in renter-occupied units	376,015	3,028

Assuming an average household size similar to that of the census tract of approximately 2.10 persons, the proposed development (creation of +180 units) may be expected to increase the population in the area by approximately 380 people.

As described by the public review draft Ala Moana Neighborhood Transit-Oriented Development (TOD) Plan (2014), the Ala Moana neighborhood and environs is known for its commercial and civic uses of regional and statewide significance. In addition to being a high employment zone, it is also a major residential area which has seen several new high-rise condominiums constructed over the past ten years. Residents of the Ala Moana neighborhood are attracted to the area's convenient access to numerous public amenities, shopping, and services.

Beyond the demographics provided in Table 19, the 2010 Census data suggests that nearly half (47%) of the area's employed residents use a mode of travel other than driving alone for commuting to and from work (compared to the 36% for Oahu). Of this number, a relatively high percentage walks or uses transit. Additionally, most households are renters rather than owners, the reverse of the island-wide pattern.

Economic Impacts

Development of the project will provide an average of about 140 construction jobs over the two-year construction period, plus about 275 indirect jobs, for a total of about 410 direct-plus-indirect jobs. Construction activity is expected to generate a total payroll of about $22 million per year, of which about $8.7 million will be for construction workers, about $13.3 million for indirect employment. Annual wages will range from about $30,000 to over $100,000 per year, and are expected to average about $63,000 for construction jobs, and about $48,300 for indirect jobs.

In addition to construction expenditures, construction activity will generate indirect sales associated with supplying goods and services to construction companies and to the families of construction workers. In turn, the companies supplying goods and services, and the families of their employees, will purchase goods and services from other

companies, and so on. These indirect sales will include sales by companies that supply building materials (cement, steel, lumber, roofing materials, plumbing equipment, electrical equipment, hard-ware supplies, lighting, flooring, etc.); rent out construction equipment; repair equipment; provide warehousing services; provide shipping and trucking services; etc. Indirect sales also include sales by grocery stores, drugstores, restaurants, service stations, beauty salons, medical providers, accountants, attorneys, insurance agents, etc. Based on State economic multipliers, these indirect sales are expected to average about $48.8 million per year.

Once built out and occupied, operations will result in a negligible increase in regional employment because most workers are already at the existing site, or will relocate from nearby State offices.

Most of the tax revenues generated by development will be paid to the State, not the County. In total, the State will receive an estimated $5 million from excise taxes, corporate income taxes, and personal income taxes. The County will receive about $180,000 from the excise tax surcharge. Due to the exemption for qualifying low-income rental projects, this amount does not include any excise tax or surcharge on the construction costs of the residential portion of the project.

Project Impacts

As documented in the 2014 draft *Housing O'ahu: Islandwide Housing Strategy*, the production of rental housing is a top priority for the County. The Sheridan District within the Ala Moana area already has a large number of rental units. As such, neighbors are familiar with renter occupied units and another rental project will fit in to the existing neighborhood. Renters typically earn less than homeowners, in which case a rental project in proximity to a future transit station, will help households keep more of their incomes for uses other than commuting costs.

Housing unit sizes may range from studios to 3-bedroom units, benefiting diverse households.

For both the State and the County, expenditures for support services are expected to be negligible inasmuch as no expensive government infrastructure for the Project will be required, and State and County services are already provided to workers directly or indirectly involved with project development, and to the families of these workers.

Both the State and the County will receive negligible tax revenues from operations. This is because (1) the property will be exempt from paying property taxes; (2) rental income will be exempt from the excise tax and surcharge; (3) the rental units may likely be managed by a non-profit organization (such organizations do not pay income taxes); and (4) the regional increase in employment, payroll, and personal income taxes will be negligible.

The change in State and County support expenditures are expected to be negligible, given that both already provide services to the employees who will be working in the buildings, as well as to residents living in the rental units.

3.17 POTENTIAL CUMULATIVE AND SECONDARY IMPACTS

Cumulative impacts are impacts which result from the incremental effects of an activity when added to other past present, and reasonably foreseeable future actions, regardless of what agency or person undertake such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The 902 Alder Street joint development is not anticipated to generate substantial cumulative impacts. Short-term impacts to adjacent buildings and rights of way may occur during construction. These will be mitigated to the extent possible, as previously described. In the long-term, there will be no adverse cumulative impacts on traffic, noise, air quality, and the flora and fauna. Wastewater capacity has been confirmed by the County. The Preliminary Engineering Report suggests that the required water capacity is available. Post-development drainage flow quantity will not exceed the predevelopment quantity.

Secondary effects are impacts that are associated with, but do not result directly from, an activity. The environmental analysis of the proposed project addresses full development of the project in the context of known planned or approved land uses in the vicinity. Based on the approximately 180 units and diversity of unit types, it may be expected that 380 new residents will move into the neighborhood as a result of this proposed redevelopment. The Juvenile Center will provide an estimated 65.5 full-time equivalent jobs. Although this is a significant increase over the number of jobs at the existing facility, nearly all of the new jobs will relocate from other facilities in the area. Thus, the net change in regional employment is anticipated to be zero. As described in Section 3.16, the State and County tax revenues and support expenditures are expected to be negligible.

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4.0 CONFORMANCE WITH PLANS AND POLICIES

This section describes the degree to which the proposed project conforms to existing State and County plans and regulations.

4.1 HAWAIʻI STATE PLAN

The Hawaiʻi State Plan, codified as Chapter 226, Hawaiʻi Revised Statutes, serves as a guide for the future long-range development of the State; identifies goals, objectives, policies and priorities for the State; provides a basis for determining priorities and allocating resources; improves coordination of federal, state and county activities, and establishes a system to integrate major state and county activities.

The use of the subject property for residential and judiciary purposes would be consistent with Chapter 226, Hawaiʻi Revised Statutes.

§226-5 Objective and policies for population.

(a) It shall be the objective in planning for the State's population to guide population growth to be consistent with the achievement of physical, economic, and social objectives contained in this chapter.

(b) To achieve the population objective, it shall be the policy of this State to:

> *(1) Manage population growth statewide in a manner that provides increased opportunities for Hawaii's people to pursue their physical, social, and economic aspirations while recognizing the unique needs of each county.*
>
> *(2) Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs and desires.*
>
> *(3) Promote increased opportunities for Hawaii's people to pursue their socio-economic aspirations throughout the islands.*
>
> *(4) Encourage research activities and public awareness programs to foster an understanding of Hawaii's limited capacity to accommodate population needs and to address concerns resulting from an increase in Hawaii's population.*
>
> *(5) Encourage federal actions and coordination among major governmental agencies to promote a more balanced distribution of immigrants among the states, provided that such actions do not prevent the reunion of immediate family members.*
>
> *(6) Pursue an increase in federal assistance for states with a greater proportion of foreign immigrants relative to their state's population.*

(7) Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area.

Discussion: The proposed project is consistent with these policies. It advances, in particular, items (b)(1), (3), and (7). The project will create opportunities for households earning 60% AMI or less, and for youth and families involved in the justice system.

§226-6 Objectives and policies for the economy--in general.

(a) Planning for the State's economy in general shall be directed toward achievement of the following objectives:

(1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people, while at the same time stimulating the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited.

(2) A steadily growing and diversified economic base that is not overly dependent on a few industries, and includes the development and expansion of industries on the neighbor islands.

(b) To achieve the general economic objectives, it shall be the policy of this State to:

(1) Promote and encourage entrepreneurship within Hawaii by residents and non-residents of the State.

(2) Expand Hawaii's national and international marketing, communication, and organizational ties, to increase the State's capacity to adjust to and capitalize upon economic changes and opportunities occurring outside the State.

(3) Promote Hawaii as an attractive market for environmentally and socially sound investment activities that benefit Hawaii's people.

(4) Transform and maintain Hawaii as a place that welcomes and facilitates innovative activity that may lead to commercial opportunities.

(5) Promote innovative activity that may pose initial risks, but ultimately contribute to the economy of Hawaii.

(6) Seek broader outlets for new or expanded Hawaii business investments.

(7) Expand existing markets and penetrate new markets for Hawaii's products and services.

(8) Assure that the basic economic needs of Hawaii's people are maintained in the event of disruptions in overseas transportation.

(9) Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.

(10) Encourage the formation of cooperatives and other favorable marketing arrangements at the local or regional level to assist Hawaii's small scale producers, manufacturers, and distributors.

(11) Encourage labor-intensive activities that are economically satisfying and which offer opportunities for upward mobility.

(12) Encourage innovative activities that may not be labor-intensive, but may otherwise contribute to the economy of Hawaii.

(13) Foster greater cooperation and coordination between the government and private sectors in developing Hawaii's employment and economic growth opportunities.

(14) Stimulate the development and expansion of economic activities which will benefit areas with substantial or expected employment problems.

(15) Maintain acceptable working conditions and standards for Hawaii's workers.

(16) Provide equal employment opportunities for all segments of Hawaii's population through affirmative action and nondiscrimination measures.

(17) Stimulate the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited.

(18) Encourage businesses that have favorable financial multiplier effects within Hawaii's economy, particularly with respect to emerging industries in science and technology.

(19) Promote and protect intangible resources in Hawaii, such as scenic beauty and the aloha spirit, which are vital to a healthy economy.

(20) Increase effective communication between the educational community and the private sector to develop relevant curricula and training programs to meet future employment needs in general, and requirements of new or innovative potential growth industries in particular.

(21) Foster a business climate in Hawaii--including attitudes, tax and regulatory policies, and financial and technical assistance programs--that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.

Discussion: The objectives and policies are not applicable to this project.

§226-7 Objectives and policies for the economy--agriculture.

(a) Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:

(1) Viability of Hawaii's sugar and pineapple industries.

(2) Growth and development of diversified agriculture throughout the State.

(3) An agriculture industry that continues to constitute a dynamic and essential component of Hawaii's strategic, economic, and social well-being.

(b) To achieve the agriculture objectives, it shall be the policy of this State to:

(1) Establish a clear direction for Hawaii's agriculture through stakeholder commitment and advocacy.

(2) Encourage agriculture by making the best use of natural resources.

(3) Provide the governor and the legislature with information and options needed for prudent decision-making for the development of agriculture.

(4) Establish strong relationships between the agricultural and visitor industries for mutual marketing benefits.

(5) Foster increased public awareness and understanding of the contributions and benefits of agriculture as a major sector of Hawaii's economy.

(6) Seek the enactment and retention of federal and state legislation that benefits Hawaii's agricultural industries.

(7) Strengthen diversified agriculture by developing an effective promotion, marketing, and distribution system between Hawaii's food producers and consumers in the State, nation, and world.

(8) Support research and development activities that strengthen economic productivity in agriculture, stimulate greater efficiency, and enhance the development of new products and agricultural by-products.

(9) Enhance agricultural growth by providing public incentives and encouraging private initiatives.

(10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.

(11) Increase the attractiveness and opportunities for an agricultural education and livelihood.

(12) In addition to the State's priority on food, expand Hawaii's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises.

(13) Promote economically competitive activities that increase Hawaii's agricultural self-sufficiency, including the increased purchase and use of Hawaii-grown food and food products by residents, businesses, and governmental bodies as defined under section 103D-104.

(14) Promote and assist in the establishment of sound financial programs for diversified agriculture.

(15) Institute and support programs and activities to assist the entry of displaced agricultural workers into alternative agricultural or other employment.

(16) Facilitate the transition of agricultural lands in economically nonfeasible agricultural production to economically viable agricultural uses.

(17) Perpetuate, promote, and increase use of traditional Hawaiian farming systems, such as the use of loko i‘a, māla, and irrigated lo‘i, and growth of traditional Hawaiian crops, such as kalo, ‘uala, and ‘ulu.

(18) Increase and develop small-scale farms.

Discussion: The objectives and policies are not applicable to this project.

§226-8 Objective and policies for the economy--visitor industry.

(a) Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawaii's economy.

(b) To achieve the visitor industry objective, it shall be the policy of this State to:

(1) Support and assist in the promotion of Hawaii's visitor attractions and facilities.

(2) Ensure that visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawaii's people.

(3) Improve the quality of existing visitor destination areas by utilizing Hawaii's strengths in science and technology.

(4) Encourage cooperation and coordination between the government and private sectors in developing and maintaining well-designed, adequately serviced visitor industry and related developments which are sensitive to neighboring communities and activities.

(5) Develop the industry in a manner that will continue to provide new job opportunities and steady employment for Hawaii's people.

(6) Provide opportunities for Hawaii's people to obtain job training and education that will allow for upward mobility within the visitor industry.

(7) Foster a recognition of the contribution of the visitor industry to Hawaii's economy and the need to perpetuate the aloha spirit.

(8) Foster an understanding by visitors of the aloha spirit and of the unique and sensitive character of Hawaii's cultures and values.

Discussion: The objectives and policies are not applicable to this project.

§226-9 Objective and policies for the economy--federal expenditures.

(a) Planning for the State's economy with regard to federal expenditures shall be directed towards achievement of the objective of a stable federal investment base as an integral component of Hawaii's economy.

(b) To achieve the federal expenditures objective, it shall be the policy of this State to:

(1) Encourage the sustained flow of federal expenditures in Hawaii that generates long-term government civilian employment;

(2) Promote Hawaii's supportive role in national defense, in a manner consistent with Hawaii's social, environmental, and cultural goals by building upon dual-use and defense applications to develop thriving ocean engineering, aerospace research and development, and related dual-use technology sectors in Hawaii's economy;

(3) Promote the development of federally supported activities in Hawaii that respect statewide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawaii's environment;

(4) Increase opportunities for entry and advancement of Hawaii's people into federal government service;

(5) Promote federal use of local commodities, services, and facilities available in Hawaii;

(6) Strengthen federal-state-county communication and coordination in all federal activities that affect Hawaii; and

(7) Pursue the return of federally controlled lands in Hawaii that are not required for either the defense of the nation or for other purposes of national importance, and promote the mutually beneficial exchanges of land between federal agencies, the State, and the counties.

Discussion: The objectives and policies are not applicable to this project.

§226-10 Objective and policies for the economy--potential growth and innovative activities.

(a) Planning for the State's economy with regard to potential growth and innovative activities shall be directed towards achievement of the objective of development and expansion of potential growth and innovative activities that serve to increase and diversify Hawaii's economic base.

(b) To achieve the potential growth and innovative activity objective, it shall be the policy of this State to:

(1) Facilitate investment and employment growth in economic activities that have the potential to expand and diversify Hawaii's economy, including but not limited to diversified agriculture, aquaculture, renewable energy development, creative media, health care, and science and technology-based sectors;

(2) Facilitate investment in innovative activity that may pose risks or be less labor-intensive than other traditional business activity, but if successful, will generate revenue in Hawaii through the export of services or products or substitution of imported services or products;

(3) Encourage entrepreneurship in innovative activity by academic researchers and instructors who may not have the background, skill, or initial inclination to commercially exploit their discoveries or achievements;

(4) Recognize that innovative activity is not exclusively dependent upon individuals with advanced formal education, but that many self-taught, motivated individuals are able, willing, sufficiently knowledgeable, and equipped with the attitude necessary to undertake innovative activity;

(5) Increase the opportunities for investors in innovative activity and talent engaged in innovative activity to personally meet and interact at cultural, art, entertainment, culinary, athletic, or visitor-oriented events without a business focus;

(6) Expand Hawaii's capacity to attract and service international programs and activities that generate employment for Hawaii's people;

(7) Enhance and promote Hawaii's role as a center for international relations, trade, finance, services, technology, education, culture, and the arts;

(8) Accelerate research and development of new energy-related industries based on wind, solar, ocean, underground resources, and solid waste;

(9) Promote Hawaii's geographic, environmental, social, and technological advantages to attract new or innovative economic activities into the State;

(10) Provide public incentives and encourage private initiative to attract new or innovative industries that best support Hawaii's social, economic, physical, and environmental objectives;

(11) Increase research and the development of ocean-related economic activities such as mining, food production, and scientific research;

(12) Develop, promote, and support research and educational and training programs that will enhance Hawaii's ability to attract and develop economic activities of benefit to Hawaii;

(13) Foster a broader public recognition and understanding of the potential benefits of new or innovative growth-oriented industry in Hawaii;

(14) Encourage the development and implementation of joint federal and state initiatives to attract federal programs and projects that will support Hawaii's social, economic, physical, and environmental objectives;

(15) Increase research and development of businesses and services in the telecommunications and information industries;

(16) Foster the research and development of non-fossil fuel and energy efficient modes of transportation; and

(17) Recognize and promote health care and health care information technology as growth industries.

Discussion: The objectives and policies are not applicable to this project.

§226-10.5 Objectives and policies for the economy--information industry.

(a) Planning for the State's economy with regard to telecommunications and information technology shall be directed toward recognizing that broadband and wireless communication capability and infrastructure are foundations for an innovative economy and positioning Hawaii as a leader in broadband and wireless communications and applications in the Pacific Region.

(b) To achieve the information industry objective, it shall be the policy of this State to:

(1) Promote efforts to attain the highest speeds of electronic and wireless communication within Hawaii and between Hawaii and the world, and make high speed communication available to all residents and businesses in Hawaii;

(2) Encourage the continued development and expansion of the telecommunications infrastructure serving Hawaii to accommodate future growth and innovation in Hawaii's economy;

(3) Facilitate the development of new or innovative business and service ventures in the information industry which will provide employment opportunities for the people of Hawaii;

(4) Encourage mainland- and foreign-based companies of all sizes, whether information technology-focused or not, to allow their principals, employees, or contractors to live in and work from Hawaii, using technology to communicate with their headquarters, offices, or customers located out-of-state;

(5) Encourage greater cooperation between the public and private sectors in developing and maintaining a well-designed information industry;

(6) Ensure that the development of new businesses and services in the industry are in keeping with the social, economic, and physical needs and aspirations of Hawaii's people;

(7) Provide opportunities for Hawaii's people to obtain job training and education that will allow for upward mobility within the information industry;

(8) Foster a recognition of the contribution of the information industry to Hawaii's economy; and

(9) Assist in the promotion of Hawaii as a broker, creator, and processor of information in the Pacific.

Discussion: The objectives and policies are not applicable to this project.

§226-11 Objectives and policies for the physical environment--land-based, shoreline, and marine resources.

(a) Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives:

(1) Prudent use of Hawaii's land-based, shoreline, and marine resources.

(2) Effective protection of Hawaii's unique and fragile environmental resources.

(b) To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:

(1) Exercise an overall conservation ethic in the use of Hawaii's natural resources.

(2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.

(3) Take into account the physical attributes of areas when planning and designing activities and facilities.

(4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.

(5) Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.

(6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawaii.

(7) Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.

(8) Pursue compatible relationships among activities, facilities, and natural resources.

(9) Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes.

Discussion: The proposed project is consistent with these policies. It advances, in particular, items (b)(3). The physical attributes of this area were taken into account. Rather than developing a greenfield, this project involves the redevelopment of an existing property at a density compatible with surrounding uses. The parcel's location will allow future residents and employees to access multi-modal transportation options and thereby contribute to a less car-centric environment.

§226-12 Objective and policies for the physical environment--scenic, natural beauty, and historic resources.

(a) Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawaii's scenic assets, natural beauty, and multi-cultural/historical resources.

(b) To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of this State to:

(1) Promote the preservation and restoration of significant natural and historic resources.

(2) Provide incentives to maintain and enhance historic, cultural, and scenic amenities.

(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.

(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawaii's ethnic and cultural heritage.

(5) Encourage the design of developments and activities that complement the natural beauty of the islands.

Discussion: The objectives and policies are not applicable to this project.

§226-13 Objectives and policies for the physical environment--land, air, and water quality.

(a) Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:

(1) Maintenance and pursuit of improved quality in Hawaii's land, air, and water resources.

(2) Greater public awareness and appreciation of Hawaii's environmental resources.

(b) To achieve the land, air, and water quality objectives, it shall be the policy of this State to:

(1) Foster educational activities that promote a better understanding of Hawaii's limited environmental resources.

(2) Promote the proper management of Hawaii's land and water resources.

(3) Promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters.

(4) Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawaii's people.

(5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.

(6) Encourage design and construction practices that enhance the physical qualities of Hawaii's communities.

(7) Encourage urban developments in close proximity to existing services and facilities.

(8) Foster recognition of the importance and value of the land, air, and water resources to Hawaii's people, their cultures and visitors.

Discussion: The proposed project is consistent with these policies. It advances, in particular, items (b)(2), (3), (6) and (7). The urban infill development is in close proximity to transit, shopping, schools and parks. Best management practices will be implemented to protect land and water resources. The physical environment will be improved with complete streets design.

§226-14 Objective and policies for facility systems--in general.

(a) Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.

(b) To achieve the general facility systems objective, it shall be the policy of this State to:

(1) Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.

(2) Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.

(3) Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.

(4) Pursue alternative methods of financing programs and projects and cost-saving techniques in the planning, construction, and maintenance of facility systems.

Discussion: The objectives and policies are not applicable to this project.

§226-15 Objectives and policies for facility systems--solid and liquid wastes.

(a) Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:

(1) Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.

(2) Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.

(b) To achieve solid and liquid waste objectives, it shall be the policy of this State to:

(1) Encourage the adequate development of sewerage facilities that complement planned growth.

(2) Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.

(3) Promote research to develop more efficient and economical treatment and disposal of solid and liquid wastes.

Discussion: The objectives and policies are not applicable to this project.

§226-16 Objective and policies for facility systems--water.

(a) Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.

(b) To achieve the facility systems water objective, it shall be the policy of this State to:

(1) Coordinate development of land use activities with existing and potential water supply.

(2) Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs.

(3) Reclaim and encourage the productive use of runoff water and wastewater discharges.

(4) Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.

(5) Support water supply services to areas experiencing critical water problems.

(6) Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.

Discussion: The proposed project is consistent with these policies. It advances, in particular, items (b)(1). The Board of Water Supply has already confirmed that the water system can accommodate the potable and fire suppression needs of the proposed development.

§226-17 Objectives and policies for facility systems--transportation.

(a) Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives:

(1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.

(2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.

(b) To achieve the transportation objectives, it shall be the policy of this State to:

(1) Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter;

(2) Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives;

(3) Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties;

(4) Provide for improved accessibility to shipping, docking, and storage facilities;

(5) Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs;

(6) Encourage transportation systems that serve to accommodate present and future development needs of communities;

(7) Encourage a variety of carriers to offer increased opportunities and advantages to interisland movement of people and goods;

(8) Increase the capacities of airport and harbor systems and support facilities to effectively accommodate transshipment and storage needs;

(9) Encourage the development of transportation systems and programs which would assist statewide economic growth and diversification;

(10) Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawaii's natural environment;

(11) Encourage safe and convenient use of low-cost, energy-efficient, non-polluting means of transportation;

(12) Coordinate intergovernmental land use and transportation planning activities to ensure the timely delivery of supporting transportation infrastructure in order to accommodate planned growth objectives; and

(13) Encourage diversification of transportation modes and infrastructure to promote alternate fuels and energy efficiency.

Discussion: The proposed project is consistent with these policies. It advances, in particular, items (b)(1), (11), and (13). The project will provide residents with multi-modal opportunities to get to work and around Honolulu. The number of parking stalls is reduced from that which is required by the Land Use Ordinance (LUO) because the property is within half a mile from the proposed Ala Moana transit station. There are several bus stops in close proximity to 902 Alder Street. The site plan is designed with pedestrian paths that connect the property with public sidewalks. The project will have secure, on-site bicycle parking.

§226-18 Objectives and policies for facility systems--energy.

(a) Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:

(1) Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;

(2) Increased energy security and self-sufficiency through the reduction and ultimate elimination of Hawaii's dependence on imported fuels for electrical generation and ground transportation;

(3) Greater diversification of energy generation in the face of threats to Hawaii's energy supplies and systems;

(4) Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use; and

(5) Utility models that make the social and financial interests of Hawaii's utility customers a priority.

(b) To achieve the energy objectives, it shall be the policy of this State to ensure the short- and long-term provision of adequate, reasonably priced, and dependable energy services to accommodate demand.

(c) To further achieve the energy objectives, it shall be the policy of this State to:

(1) Support research and development as well as promote the use of renewable energy sources;

(2) Ensure that the combination of energy supplies and energy-saving systems is sufficient to support the demands of growth;

(3) Base decisions of least-cost supply-side and demand-side energy resource options on a comparison of their total costs and benefits when a least-cost is determined by a reasonably comprehensive, quantitative, and qualitative

accounting of their long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits;

(4) Promote all cost-effective conservation of power and fuel supplies through measures, including:

(A) Development of cost-effective demand-side management programs;

(B) Education;

(C) Adoption of energy-efficient practices and technologies; and

(D) Increasing energy efficiency and decreasing energy use in public infrastructure;

(5) Ensure, to the extent that new supply-side resources are needed, that the development or expansion of energy systems uses the least-cost energy supply option and maximizes efficient technologies;

(6) Support research, development, demonstration, and use of energy efficiency, load management, and other demand-side management programs, practices, and technologies;

(7) Promote alternate fuels and transportation energy efficiency;

(8) Support actions that reduce, avoid, or sequester greenhouse gases in utility, transportation, and industrial sector applications;

(9) Support actions that reduce, avoid, or sequester Hawaii's greenhouse gas emissions through agriculture and forestry initiatives;

(10) Provide priority handling and processing for all state and county permits required for renewable energy projects;

(11) Ensure that liquefied natural gas is used only as a cost-effective transitional, limited-term replacement of petroleum for electricity generation and does not impede the development and use of other cost-effective renewable energy sources; and

(12) Promote the development of indigenous geothermal energy resources that are located on public trust land as an affordable and reliable source of firm power for Hawaii.

Discussion: The proposed project is consistent with these policies. It advances, in particular, items (a)(4) and (b)(8) by reducing greenhouse gas emissions. The project proposes reducing the number of parking stalls from that which is required by the Land Use Ordinance. Residents and employees are expected to make use of the existing bus service. Secure on-site bicycle parking is provided.

§226-18.5 Objectives and policies for facility systems--telecommunications.

(a) Planning for the State's telecommunications facility systems shall be directed towards the achievement of dependable, efficient, and economical statewide telecommunications systems capable of supporting the needs of the people.

(b) To achieve the telecommunications objective, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable telecommunications services to accommodate demand.

(c) To further achieve the telecommunications objective, it shall be the policy of this State to:

> *(1) Facilitate research and development of telecommunications systems and resources;*
>
> *(2) Encourage public and private sector efforts to develop means for adequate, ongoing telecommunications planning;*
>
> *(3) Promote efficient management and use of existing telecommunications systems and services; and*
>
> *(4) Facilitate the development of education and training of telecommunications personnel.*

Discussion: The objectives and policies are not applicable to this project.

§226-19 Objectives and policies for socio-cultural advancement--housing.

(a) Planning for the State's socio-cultural advancement with regard to housing shall be directed toward the achievement of the following objectives:

> *(1) Greater opportunities for Hawaii's people to secure reasonably priced, safe, sanitary, and livable homes, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals, through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more affordable housing is made available to very low-, low- and moderate-income segments of Hawaii's population.*
>
> *(2) The orderly development of residential areas sensitive to community needs and other land uses.*
>
> *(3) The development and provision of affordable rental housing by the State to meet the housing needs of Hawaii's people.*

(b) To achieve the housing objectives, it shall be the policy of this State to:

> *(1) Effectively accommodate the housing needs of Hawaii's people.*

(2) Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.

(3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.

(4) Promote appropriate improvement, rehabilitation, and maintenance of existing housing units and residential areas.

(5) Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.

(6) Facilitate the use of available vacant, developable, and underutilized urban lands for housing.

(7) Foster a variety of lifestyles traditional to Hawaii through the design and maintenance of neighborhoods that reflect the culture and values of the community.

(8) Promote research and development of methods to reduce the cost of housing construction in Hawaii.

Discussion: The proposed project is consistent with all of these objectives and policies. A variety of rental housing units are proposed to be developed, with unit types ranging from studios to three-bedroom units. The units will be available to low income households. The diversity of household sizes will contribute to a lively social environment and off-set pedestrian and vehicular traffic. Families with children will benefit from the proximity of Sheridan Park and schools in walking distance. Residents will have multi-modal opportunities to get to work and around Honolulu. The intention is to reduce both housing and transportation costs in one of the more centrally located neighborhoods within Honolulu's urban core. Gentrification of this parcel will be avoided. The affordable rental housing located in close proximity to employment, shopping, and public services/amenities is intended to meet local needs.

§226-20 Objectives and policies for socio-cultural advancement--health.

(a) Planning for the State's socio-cultural advancement with regard to health shall be directed towards achievement of the following objectives:

(1) Fulfillment of basic individual health needs of the general public.

(2) Maintenance of sanitary and environmentally healthful conditions in Hawaii's communities.

(3) Elimination of health disparities by identifying and addressing social determinants of health.

(b) To achieve the health objectives, it shall be the policy of this State to:

(1) Provide adequate and accessible services and facilities for prevention and treatment of physical and mental health problems, including substance abuse.

(2) Encourage improved cooperation among public and private sectors in the provision of health care to accommodate the total health needs of individuals throughout the State.

(3) Encourage public and private efforts to develop and promote statewide and local strategies to reduce health care and related insurance costs.

(4) Foster an awareness of the need for personal health maintenance and preventive health care through education and other measures.

(5) Provide programs, services, and activities that ensure environmentally healthful and sanitary conditions.

(6) Improve the State's capabilities in preventing contamination by pesticides and other potentially hazardous substances through increased coordination, education, monitoring, and enforcement.

(7) Prioritize programs, services, interventions, and activities that address identified social determinants of health to improve native Hawaiian health and well-being consistent with the United States Congress' declaration of policy as codified in title 42 United States Code section 11702, and to reduce health disparities of disproportionately affected demographics, including native Hawaiians, other Pacific Islanders, and Filipinos. The prioritization of affected demographic groups other than native Hawaiians may be reviewed every ten years and revised based on the best available epidemiological and public health data.

Discussion: The objectives and policies are not applicable to this project.

§226-21 Objective and policies for socio-cultural advancement--education.

(a) Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations.

(b) To achieve the education objective, it shall be the policy of this State to:

(1) Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.

(2) Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.

(3) Provide appropriate educational opportunities for groups with special needs.

(4) Promote educational programs which enhance understanding of Hawaii's cultural heritage.

(5) Provide higher educational opportunities that enable Hawaii's people to adapt to changing employment demands.

(6) Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities.

(7) Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.

(8) Emphasize quality educational programs in Hawaii's institutions to promote academic excellence.

(9) Support research programs and activities that enhance the education programs of the State.

Discussion: The objectives and policies are not applicable to this project.

§226-22 Objective and policies for socio-cultural advancement--social services.

(a) Planning for the State's socio-cultural advancement with regard to social services shall be directed towards the achievement of the objective of improved public and private social services and activities that enable individuals, families, and groups to become more self-reliant and confident to improve their well-being.

(b) To achieve the social service objective, it shall be the policy of the State to:

(1) Assist individuals, especially those in need of attaining a minimally adequate standard of living and those confronted by social and economic hardship conditions, through social services and activities within the State's fiscal capacities.

(2) Promote coordination and integrative approaches among public and private agencies and programs to jointly address social problems that will enable individuals, families, and groups to deal effectively with social problems and to enhance their participation in society.

(3) Facilitate the adjustment of new residents, especially recently arrived immigrants, into Hawaii's communities.

(4) Promote alternatives to institutional care in the provision of long-term care for elder and disabled populations.

(5) Support public and private efforts to prevent domestic abuse and child molestation, and assist victims of abuse and neglect.

(6) Promote programs which assist people in need of family planning services to enable them to meet their needs.

Discussion: The proposed project is consistent with these policies. It advances, in particular, items (a), (b)(1) and (2). Individuals and families earning 60% AMI or less will have the opportunity to rent affordable housing. HHFDC and the Judiciary are partnering to maximize the use of State lands and funds in order to address social problems.

§226-23 Objective and policies for socio-cultural advancement--leisure.

(a) Planning for the State's socio-cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations.

(b) To achieve the leisure objective, it shall be the policy of this State to:

(1) Foster and preserve Hawaii's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.

(2) Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.

(3) Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.

(4) Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.

(5) Ensure opportunities for everyone to use and enjoy Hawaii's recreational resources.

(6) Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs.

(7) Provide adequate and accessible physical fitness programs to promote the physical and mental well-being of Hawaii's people.

(8) Increase opportunities for appreciation and participation in the creative arts, including the literary, theatrical, visual, musical, folk, and traditional art forms.

(9) Encourage the development of creative expression in the artistic disciplines to enable all segments of Hawaii's population to participate in the creative arts.

(10) Assure adequate access to significant natural and cultural resources in public ownership.

Discussion: The objectives and policies are not applicable to this project.

§226-24 Objective and policies for socio-cultural advancement--individual rights and personal well-being.

(a) Planning for the State's socio-cultural advancement with regard to individual rights and personal well-being shall be directed towards achievement of the objective of increased opportunities and protection of individual rights to enable individuals to fulfill their socio-economic needs and aspirations.

(b) To achieve the individual rights and personal well-being objective, it shall be the policy of this State to:

(1) Provide effective services and activities that protect individuals from criminal acts and unfair practices and that alleviate the consequences of criminal acts in order to foster a safe and secure environment.

(2) Uphold and protect the national and state constitutional rights of every individual.

(3) Assure access to, and availability of, legal assistance, consumer protection, and other public services which strive to attain social justice.

(4) Ensure equal opportunities for individual participation in society.

Discussion: The objectives and policies are not applicable to this project.

§226-25 Objective and policies for socio-cultural advancement--culture.

(a) Planning for the State's socio-cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawaii's people.

(b) To achieve the culture objective, it shall be the policy of this State to:

(1) Foster increased knowledge and understanding of Hawaii's ethnic and cultural heritages and the history of Hawaii.

(2) Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawaii's people and which are sensitive and responsive to family and community needs.

(3) Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawaii.

(4) Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawaii's people and visitors.

Discussion: The objectives and policies are not applicable to this project.

§226-26 Objectives and policies for socio-cultural advancement--public safety.

(a) Planning for the State's socio-cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives:

(1) Assurance of public safety and adequate protection of life and property for all people.

(2) Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic well-being of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances.

(3) Promotion of a sense of community responsibility for the welfare and safety of Hawaii's people.

(b) To achieve the public safety objectives, it shall be the policy of this State to:

(1) Ensure that public safety programs are effective and responsive to community needs.

(2) Encourage increased community awareness and participation in public safety programs.

(c) To further achieve public safety objectives related to criminal justice, it shall be the policy of this State to:

(1) Support criminal justice programs aimed at preventing and curtailing criminal activities.

(2) Develop a coordinated, systematic approach to criminal justice administration among all criminal justice agencies.

(3) Provide a range of correctional resources which may include facilities and alternatives to traditional incarceration in order to address the varied security needs of the community and successfully reintegrate offenders into the community.

(d) To further achieve public safety objectives related to emergency management, it shall be the policy of this State to:

(1) Ensure that responsible organizations are in a proper state of readiness to respond to major war-related, natural, or technological disasters and civil disturbances at all times.

(2) Enhance the coordination between emergency management programs throughout the State.

Discussion: The proposed project is consistent with these policies. It advances, in particular, item (c)(1). The Judiciary component of the project will provide space for expanded programming to implement and enhance current national best practices that places emphasis on services for youth and families at risk, of entering, or progressing further into the juvenile justice system. These services would include but not be limited to education, pro-social activity, counseling, accountability through restitution, etc.

§226-27 Objectives and policies for socio-cultural advancement--government.

(a) Planning the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the following objectives:

(1) Efficient, effective, and responsive government services at all levels in the State.

(2) Fiscal integrity, responsibility, and efficiency in the state government and county governments.

(b) To achieve the government objectives, it shall be the policy of this State to:

(1) Provide for necessary public goods and services not assumed by the private sector.

(2) Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response.

(3) Minimize the size of government to that necessary to be effective.

(4) Stimulate the responsibility in citizens to productively participate in government for a better Hawaii.

(5) Assure that government attitudes, actions, and services are sensitive to community needs and concerns.

(6) Provide for a balanced fiscal budget.

(7) Improve the fiscal budgeting and management system of the State.

(8) Promote the consolidation of state and county governmental functions to increase the effective and efficient delivery of government programs and services and to eliminate duplicative services wherever feasible.

Discussion: The proposed project is consistent with these policies. It advances, in particular, item (a)(1) and (2). The Judiciary and HHFDC are pioneering this first ever partnership between the Judicial and Executive branches of government. The redevelopment of an underutilized State-owned property will simultaneously help to address the State's affordable rental housing and juvenile justice needs.

4.2 HAWAI'I REVISED STATUTES CHAPTER 343

The proposed action involves the use of State lands and funds to create the mixed-use development at 902 Alder Street. Therefore, the Draft EA and this Final EA were prepared in accordance with Chapter 343,HRS, and Title 11, Chapter 200 of the State Department of Health's Hawai'i Administrative Rules (HAR).

4.3 HAWAI'I REVISED STATUES CHAPTER 201H

Chapter 201H, HRS, authorizes HHFDC to develop or assist in the development of housing projects which are exempt from certain statutes, ordinances, charter provisions, and rules of any governmental agency relating to planning, zoning, construction standards for subdivisions, development and improvement of land, and the construction of units thereon provided that:

- The project primarily or exclusively includes affordable housing units;
- The Corporation finds that the project meets minimum requirements of health and safety; and,
- The development of the project does not contravene any safety standards, tariffs, or rates and fees approved by the public utilities commission for public utilities or various Boards of Water Supply.

The 201H expedited processing tool provides for greater design flexibility and cost savings for affordable housing projects. The HHFDC establishes its affordability threshold for projects as those projects that primarily are affordable to households with incomes at or below 140% of area median income. The project satisfies the standards of Chapter 201H, HRS, and will request certain exemptions that will contribute to project economic feasibility and thereby result in the production of affordable rental housing units.

4.4 HAWAI'I REVISED STATUES CHAPTER 205A

The Coastal Zone Management Act (CZMA) of 1972 (16 USC 1451 et seq.) encourages coastal states to protect coastal resources consistent with the state's coastal zone management program. The objectives of the Coastal Zone Management (CZM) Program

are to provide the public with recreational opportunities, protect historic resources, protect scenic and open space resources, protect coastal ecosystems, provide facilities for economic development, reduce hazards and manage development.

Within Hawai‘i, the CZM program is authorized by HRS Chapter 205A, and is administered by the Office of Planning within the State of Hawai‘i Department of Business, Economic Development, and Tourism (DBEDT). Actions anywhere within the State of Hawai‘i must comply with the CZM program. As discussed throughout this document, the proposed project is not anticipated to have adverse impacts on the area's recreational opportunities, historic resources, scenic and open space resources, or coastal ecosystems.

A) Recreational Resources

Objective:

Provide coastal recreational opportunities accessible to the public.

Policies:

A) Improve coordination and funding of coastal recreational planning and management; and

B) Provide adequate, accessible and diverse recreational opportunities in the coastal zone management area by:

i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

ii) Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the state for recreation when replacement is not feasible or desirable;

iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

v) Ensuring public recreational use of county, state and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect and where feasible, restore the recreational value of coastal waters;

vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches and artificial reefs for surfing and fishing; and

viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use

commission, board of land and natural resources, county planning commissions; and crediting such dedication against the requirements of Section 46-6, HRS.

Discussion:

The proposed project will comply with applicable rules and regulations designed to control or reduce pollution, including point and non-point source water pollution, to conserve both the natural resources and recreational value of the adjacent Sheridan Park.

B) Historic Resources

Objective:

Protect, preserve, and where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policies:

A) Identify and analyze significant archaeological resources;

B) Maximize information retention through preservation of remains and artifacts or salvage operations; and

C) Support state goals for protection, restoration, interpretation, and display of historic resources.

Discussion:

The proposed project will be constructed in keeping with the guidelines and objectives of the aforementioned objective and policies.

The Honolulu Juvenile Detention Center is eligible for listing on the Hawai‘i and National Registers of Historic Places for its association with the development of Hawai‘i’s treatment of juvenile delinquents and as an intact example of Mid-Century Modern architecture. The building maintains its historic integrity as the additions have the same association to the judicial system with the original building. However, the building is physically deteriorated. Structural surveys conducted by Pacific Architects, Inc. in 2014 suggest that the Detention Facility has numerous deficiencies including the presence of hazardous materials, extensive termite damage, and antiquated plumbing, electrical, and fire protections systems.

The Historic Resource Inventory Form – Reconnaissance Level prepared by Fung Associates, Inc. on July 10, 2015 is included in Appendix E. The Historic Resource Form and proposed mitigation were sent to State Historic Preservation Division (SHPD) on August 24, 2015. The State Historic Preservation Division concurred with Fung’s findings in a letter dated November 6, 2015. Mitigation measures will include:

1. Historic American Buildings Survey (HABS) Level III, with archival photography and copies of all available original drawings.

2. Two interpretive panels utilizing the HABS photographs and historic information to be placed in the future Juvenile Counseling office located at Alder Street.

The Archeological Inventory Survey indicates the project area contains SIHP # 50-80-14-7817 and SIHP # 50-80- 14-7818. Through this report, information now has been documented regarding the location, extent, function, and age of SIHP # 50-80-14-7817 and SIHP # 50-80-14-7818. The information included in the report is the primary effort to mitigate the effect of the planned developments within the project area. Secondarily, future archaeological monitoring is recommended for these cultural resources during the planned development of the project area. These significance recommendations are included in Appendix F.

C) Scenic and Open Space Resources

Objective:

Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

A) Identify valued scenic resources in the coastal zone management area;

B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and

D) Encourage those developments that are not coastal dependent to locate in inland areas.

Discussion:

The project is not anticipated to have a significant negative impact on scenic viewplanes or scenic resources in the Ala Moana area. The property will be more visible than it is now because the buildings will be taller. The buildings will not, however, interfere with scenic views specified in the PUC DP. The more densely developed parcel will be better integrated with the urban fabric.

D) Coastal Ecosystems

Objective:

Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources

B) Improve the technical basis for natural resource management;

C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance

D) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine water ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Discussion:

The proposed project will be consistent with these policies. To minimize degradation to the water quality of near-shore waters, best management practices would be implemented during the construction phase of this project. Such measures would be developed during the design of this project, and would comply with the County's Erosion and Sedimentation Control regulations. Drainage will be designed to maintain acceptable drainage patterns. Makiki Stream is the closest stream to the subject property; it is located approximately one-half mile east of the subject property. Makiki Stream runs mauka-makai along Kalakaua Avenue. There are no wetlands in proximity to the property.

E) Economic Uses

Objective:

Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

A) Concentrate in appropriate areas the location of coastal dependent development necessary to the State's economy;

B) Insure that coastal dependent development such as harbors and ports, visitor industry facilities, and energy generating facilities are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such development and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

i) Utilization of presently designated locations is not feasible;

ii) Adverse environmental effects are minimized; and

iii) Important to the State's economy.

Discussion:

The proposed project will be consistent with these policies. The public facility for juvenile services and affordable housing are located in a suitable location. From the Alder Street location, future residents and employees will have convenient access to employment, shopping, dining, and family services. They will have access to multiple forms of

transportation with which to reach other destinations. In accordance with the Ala Moana Neighborhood TOD Plan, many residents and employees will choose to use the rail and bus system, and walk along nearby streets to their destinations.

F) Coastal Hazards

Objective:

Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, and subsidence.

Policies:

A) Develop and communicate adequate information on storm wave, tsunami, flood erosion, and subsidence hazard;

B) Control development in areas subject to storm wave, tsunami, flood, erosion, and subsidence hazard;

C) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and

D) Prevent coastal flooding from inland projects.

Discussion:

The design of the proposed project will conform to all regulatory requirements to ensure adequate and proper storm drainage and erosion control to the surrounding properties.

According to the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency, the subject property is located in Zone "X" which is an area that has been determined to be outside the 0.2% annual chance floodplain and outside of the 500 year floodplain. The State Civil Defense Tsunami Evacuation Zone maps reveal that the subject property is within an "Extreme Tsunami Evacuation Zone". In the event of an extreme tsunami, residents, employees and visitors will be able to take shelter in the upper floors of the proposed structures.

G) Managing Development

Objective:

Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policies:

A) Effectively utilize and implement existing law to the maximum extent possible in managing present and future coastal zone development;

B) Facilitate timely processing of application for development permits and resolve overlapping or conflicting permit requirements; and

C) Communicate the potential short- and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the general public to facilitate public participation in the planning and review process

Discussion:

The proposed project will be consistent with these policies. The Property is entirely located within the Primary Urban Center Development Plan's "Urban Community Boundary". The DP recognizes the Ala Moana district (where the subject property is located) as an area "with substantial capacity for future urban development". The Environmental Assessment process requires public notification and allowance for public comment

H) Public Participation

Objective:

Stimulate public awareness, education, and participation in coastal management.

Policies:

I) Maintain a public advisory body to identify coastal management problems and to provide policy advice and assistance to the coastal zone management program;

J) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities; and

K) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Discussion:

The project was also presented to the Ala Moana / Kaka'ako Neighborhood Board No. 11 at their February 23, 2016 meeting. The Environmental Assessment process requires public notification and allowance for public comment.

L) Beach Protection

Objective:

Protect beaches for public use and recreation.

Policies:

A) Locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion;

B) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

C) Minimize the construction of public erosion-protection structures seaward of the shoreline.

Discussion:

The proposed project will be consistent with these policies. Beaches will not be impacted by this proposed project. The project is inland from the shoreline setback and does not

involve any construction seaward of the shoreline. The project area is located approximately three-quarters of a mile inland from today's coast at Ala Moana Beach Park.

M) Marine Resources

Objective:

Implement the State's ocean resources management plan.

Policies:

A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

B) Assure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

C) Coordinate the management of marine and coastal resources and activities management to improve effectiveness and efficiency;

D) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;

E) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and

F) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Discussion:

The project will be consistent with these policies. The project will avoid any negative effects to marine and coastal resources, and will incorporate appropriate low-impact development measures to minimize impacts to affected streams and near-shore waters.

4.5 STATE LAND USE LAW

The State of Hawai'i Land Use Law, Chapter 205, Hawai'i Revised Statutes, classifies all lands in the State into four land use districts: Urban, Rural, Agricultural, and Conservation. The proposed project is located in the Urban district. A State Land Use District Boundary Amendment is not needed to redevelop the property as proposed. The proposed use of the subject property for residential and judiciary development would be consistent with the Urban designation.

4.6 CITY AND COUNTY OF HONOLULU GENERAL PLAN

The *General Plan* of the City and County of Honolulu is a comprehensive statement of objectives and policies which sets forth the long-range aspirations of island residents and shapes the strategies and actions needed to achieve them. The General Plan was adopted in 1992 and most recently amended in 2002 (Resolution 02-205, CD1). It is the first

level of a comprehensive planning process that addresses physical, social, economic, and environmental concerns. The rezoning of the subject property and its use residential and commercial facilities is consistent with the following objectives and policies of the Honolulu General Plan:

- *PART I: POPULATION.*
    - *Objective C: To establish a pattern of population distribution that will allow the people of Oahu to live and work in harmony.*
        - *Policy 1: Facilitate the full development of the primary urban center.*
- *PART IV: HOUSING.*
    - *Objective A: To provide decent housing for all the people of O‘ahu at prices they can afford.*
        - *Policy 5: Make full use of State and Federal programs that provide financial assistance for low- and moderate-income homebuyers.*
        - *Policy 12: Encourage the production and maintenance of affordable rental housing.*
        - *Policy 13: Encourage the provision of affordable housing designed for the elderly and the handicapped.*
    - *Objective C: To provide the people of Oahu with a choice of living environments which are reasonably close to employment, recreation, and commercial centers and which are adequately served by public utilities.*
        - *Policy 1: Encourage residential developments that offer a variety of homes to people of different income levels and to families of various sizes.*
        - *Policy 3: Encourage residential development near employment centers.*
        - *Policy 4: Encourage residential development in areas where existing roads, utilities, and other community facilities are not being used to capacity.*
- *PART V. TRANSPORTATION & UTILITIES.*
    - *Objective A: To create a transportation system which will enable people and goods to move safely, efficiently, and at a reasonable cost; serve all people, including the poor, the elderly, and the physically handicapped; and offer a variety of attractive and convenient modes of travel.*

        - *Policy 7: Promote the use of public transportation as a means of moving people quickly and efficiently, of conserving energy, and of guiding urban development.*

- *PART VII: PHYSICAL DEVELOPMENT AND URBAN DESIGN.*
    - *Objective A: To coordinate changes in the physical environment of Oahu to ensure that all new developments are timely, well-designed, and appropriate for the areas in which they will be located.*
        - *Policy 5: Provide for more compact development and intensive use of urban lands where compatible with the physical and social character of existing communities.*
        - *Policy 7: Locate new industries and new commercial areas so that they will be well related to their markets and suppliers, and to residential areas and transportation facilities.*
    - *Objective B: To develop Honolulu (Waialae-Kahala to Halawa), Aiea, and Pearl City as the Island's primary urban center.*
        - *Policy 5: Encourage the development of attractive residential communities in downtown and other business centers.*

- *PART VIII: PUBLIC SAFETY.*
    - *Objective A: To prevent and control crime and maintain public order.*
        - *Policy 9: Encourage the improvement of rehabilitation programs and facilities for criminals and juvenile offenders.*

- *PART XI: GOVERNMENT OPERATIONS AND FISCAL MANAGEMENT.*
    - *Objective A: To promote increased efficiency, effectiveness, and responsiveness in the provision of government services by the City and County of Honolulu.*
        - *Policy 2: Promote consolidation of State and City and County functions whenever more efficient and effective delivery of government programs and services can be achieved.*

Discussion:

An update to the General Plan is underway. Its working title is "O'ahu 2035: General Plan Focused Update." The update considers critical issues of growth, development, and quality of life that island residents are most concerned about, including regional population, economic health, affordable housing, and sustainability. The version examined for the purposes of this Final EA is titled "November 2012 Public Review Draft of Proposed General Plan Revisions". The proposed project remains consistent with the proposed changes to the text. The County proposes to add a new policy to the General Plan that is particularly relevant to the proposed project. It is as follows:

- *PART IV: HOUSING (proposed update).*

- *Objective A, Policy 12 - Promote higher-density, mixed use development, including transit oriented development, to increase the supply of affordable and market homes convenient to jobs, shops and public transit.*
- *Objective C, Policy 5 - Support mixed-use, higher-density redevelopment in areas surrounding future transit stations.*

4.7 CITY AND COUNTY OF HONOLULU LAND USE ORDINANCE

The subject property is designated as A-2 Medium-density Apartment District by Chapter 21 of the City and County of Honolulu Revised Land Use Ordinance (LUO). The LUO regulates land use in a manner that encourages the orderly development in accordance with the General Plan and Development Plans. The intent of the A-2 District is to:

> "allow for a range of apartment densities and a variety of living environments. The predominant uses include multifamily dwellings, such as common wall housing, walkup apartments and high-rise apartments. Uses and activities that complement apartment use are permitted, including limited social services …The intent of the A-2 medium density apartment district is to provide areas for medium density, multifamily dwellings. It is intended primarily for concentrated urban areas where public services are centrally located and infrastructure capacities are adequate."

The multifamily housing component of this project is permitted in the A-2 District.

Development Standard	Maximum Permitted	Proposed
Minimum Lot Area (sf)	10,000 sf	63,180 sf
Minimum Lot Width and Depth (ft)	70 ft	over 70 ft wide and deep
Setbacks	10 feet for front, side and rear	10 feet for front, side and rear
Maximum Building Area	40% x 63,180 = 25,272 sf	39,009 sf
Maximum Height (ft)	150 ft	185 ft
Height Setbacks	"for any portion of a structure over 40 feet in height, additional side and rear setbacks shall be provided; for each 10 feet of additional height or portion thereof, an additional one-foot setback shall be provided."	conforms
Maximum Allowable Floor Area	FAR 1.9 x 63,180 sf = max allowable FA 120,042 sf	FAR 4.5

"Public uses and structures" are permitted in an A-2 District. According to the Definitions section in the LUO, "public uses and structures" are "those uses conducted by or structures owned or managed by the federal government, the State of Hawai‘i or the city to fulfill a governmental function, activity or service for public benefit and in accordance with public policy. Excluded are uses which are not purely a function,

activity or service of government and structures leased by government to private entrepreneurs or to nonprofit organizations. Typical public uses and structures include: libraries, base yards, satellite city halls, public schools and post offices". A juvenile services center/shelter for the State of Hawai'i Judiciary is a public use.

4.8 PRIMARY URBAN CENTER DEVELOPMENT PLAN

The City's Development or Sustainable Communities Plans, consist of conceptual schemes for implementing the development or sustainable community objectives and policies of the City's *General Plan*. The purpose of the plans are to set forth the desired sequence, patterns, and characteristics of future development or sustainability of a region or community. Therefore, these plans are detailed guidelines for the physical sustainability or development of the island. The plans consist of maps depicting the land use pattern, public facilities, open spaces, general principles and common provisions, and specific urban design principles and controls. The Primary Urban Center Development Plan (PUC DP), adopted by the City Council via Ordinance 04-14 in June 2004, was prepared as a community-developed guidance document for orderly and coordinated public and private sector development in the Primary Urban Center Development Plan area in a manner that is consistent with applicable general plan provisions, including the designation of the Primary Urban Center as the principal region for future growth in residential population and jobs.

The Property is entirely located within the Primary Urban Center Development Plan's "Urban Community Boundary". The DP recognizes the Ala Moana district (where the subject property is located) as an area "with substantial capacity for future urban development".

The proposed redevelopment of 902 Alder Street is consistent with the following "Key Elements" of the vision for the Primary Urban Center:

- *Livable neighborhoods have business districts, parks and plazas, and walkable streets.*
- *The PUC offers in-town housing choices for people of all ages and incomes.*
- *A balanced transportation system provides excellent mobility for residents and visitors.*

The proposed affordable housing will be integrated with other uses on the parcel, and is in walking distance from shopping districts, community services, and mass transit. A landscaped recreation area, urban courtyard, and pedestrian paths will help integrate the project with neighboring uses. The State will contribute to the supply of affordable rental units and by supporting housing for low income households. The use of mass transit, bicycling and walking will be encouraged by reducing the number of vehicular parking spaces on-site. Bicycle parking will be provided on site. The project will contribute toward the implementation of complete streets with improvements to the walkability of Elm Street in particular.

In Figure 4 of the PUC DP Land Use Map, the proposed development is shown within the Medium and Higher Density Residential Mixed Use designation and within the Urban Community Boundary. The following discussion describe areas where the proposed project is consistent with policies and guidelines in the PUC DP.

Policies: In-Town Residential Neighborhoods

- *Density*
- *Building Heights*
- *Building Design and Streetscape Environment*

The project is significantly underutilized with one and two-story buildings in an area that allows heights of up to 150 feet. In conformance with the policies of the PUC DP and Ala Moana Neighborhood TOD Plan, higher densities with mixed uses are proposed. The location of the property – within close proximity to neighborhood stores, dining establishments, professional and/or business services along King Street – will support resident lifestyle and livelihood choices. The proposed height of the project will better reflect the currently allowed height. The primary entrance to the parking and judiciary structure will be on Alder Street, in order to support efficient patterns of circulation on Pi'ikoi Street. An urban courtyard may be placed near the main entrance to the other housing and judiciary activities, providing strategic open space relief and opportunities for social activity.

Policies: In-Town Housing Choices

- *Reduce costs for apartment homes.*
- *Provide incentives and cost savings for affordable housing.*
- *Provide for high-density housing options in mixed-use developments around transit stations.*

Land costs will be reduced by maximizing density in accordance with the existing zoning regulations. Federal standards for affordability will be satisfied, and 100% of the units are planned to be available for individuals and families earning 60% and below of the area median income. The property will be developed for the mix of residential and judiciary uses, at a density appropriate for its location with ½ mile of the proposed Ala Moana transit station.

Policies: Develop a Balanced Transportation System

- *Implement land use strategies to achieve a balanced transportation system.*
- *Implement Transportation Demand Management strategies.*
- *Implement the Honolulu Bicycle Master Plan.*
- *Enhance and improve pedestrian mobility.*
- *Encourage the full use of existing private and public parking garages.*

The project will take advantage of the existing zoning density and heights to maximize the use of the parcel. While on-site parking is proposed, the spaces will be limited in

order to encourage the use of bus, rail, bicycling and walking as alternative transportation modes. On-site parking for bicycles will encourage the use of transit and other alternative modes, and reflect the recommendations within the *Honolulu Bicycle Master Plan* and later bicycle planning documents. The sidewalks along Elm, Alder, and Pi'ikoi will be improved with landscaping and trees that enhance the pedestrian environment. The reduction of on-site parking will encourage alternative modes of commuting, and therefore, the proposed parking structure is expected to be fully utilized, and not under-utilized.

The proposed project is consistent with these policies and guidelines.

4.9 ALA MOANA NEIGHBORHOOD TRANSIT-ORIENTED DEVELOPMENT PLAN

The property is located within 1/2 mile from the proposed Ala Moana Center transit station (see Figure 16). Future residents can be expected to walk to the transit center to use buses and the train for commuting purposes. Although the Ala Moana Neighborhood Transit-Oriented Development (TOD) Plan is still in its Public Review Draft stage, we anticipate it being approved by the City Council, as the Waipahu and 'Aiea/Pearl City Plans were. Several components of the proposed design comply with the Draft TOD Plan's proposed development objectives.

The project can be assessed based on the design controls contained in the Interim Planned Development-Transit (IPD-T) permit process, set forth in ROH Chapter 21 (City Council Ordinance 14-10). Although the project does not require an IPD-T, it satisfies the permit's various standards, including:

a. Contributes positively to the economic enhancement of the affected area, particularly with regard to providing a broad mix of uses and diverse employment opportunities.

After the juvenile detention facility moved to Kapolei, the main structure and its three wings has remained vacant. The redevelopment of the property entails three distinct uses: residential, office and social service associated with the judiciary function, and open space. This broad mix of uses will maximize the zoning potential and thereby create both on-site employment potential, as well as insert more people into the neighborhood who will likely shop at the existing nearby stores and shopping malls/plazas.

b. Provides measures or facilities, or both, to promote a highly functioning, safe, interconnected, multi-modal circulation system, supporting easy access to, and effective use of the transit system on a pedestrian scale.

Wide sidewalks surround three sides of the property. Multi-modal needs will be accounted for with the installation of bicycle parking, pedestrian paths, and minimal parking for automobiles. The property will be landscaped to contribute to an attractive and functional streetscape.

c. Provides usable, safe, and highly accessible public accommodations, gathering spaces, pedestrian ways, bicycle facilities, or parks.

A landscaped community recreation area may be constructed on Pi'ikoi Street. The area could be used by the juveniles, visitors, and employees of the Juvenile Services Center. An urban courtyard may be located on Alder Street. The courtyard could serve as the primary entrance to the residential and/or judiciary components of the site. The existing sidewalk on the mauka side of Elm is not wide enough to accommodate street trees, so the frontage on Elm will be landscaped. Pedestrian paths will connect the sidewalks to the proposed new buildings. A recreation deck, possibly on the top of the parking structure, may be provided for the residents of the affordable housing units.

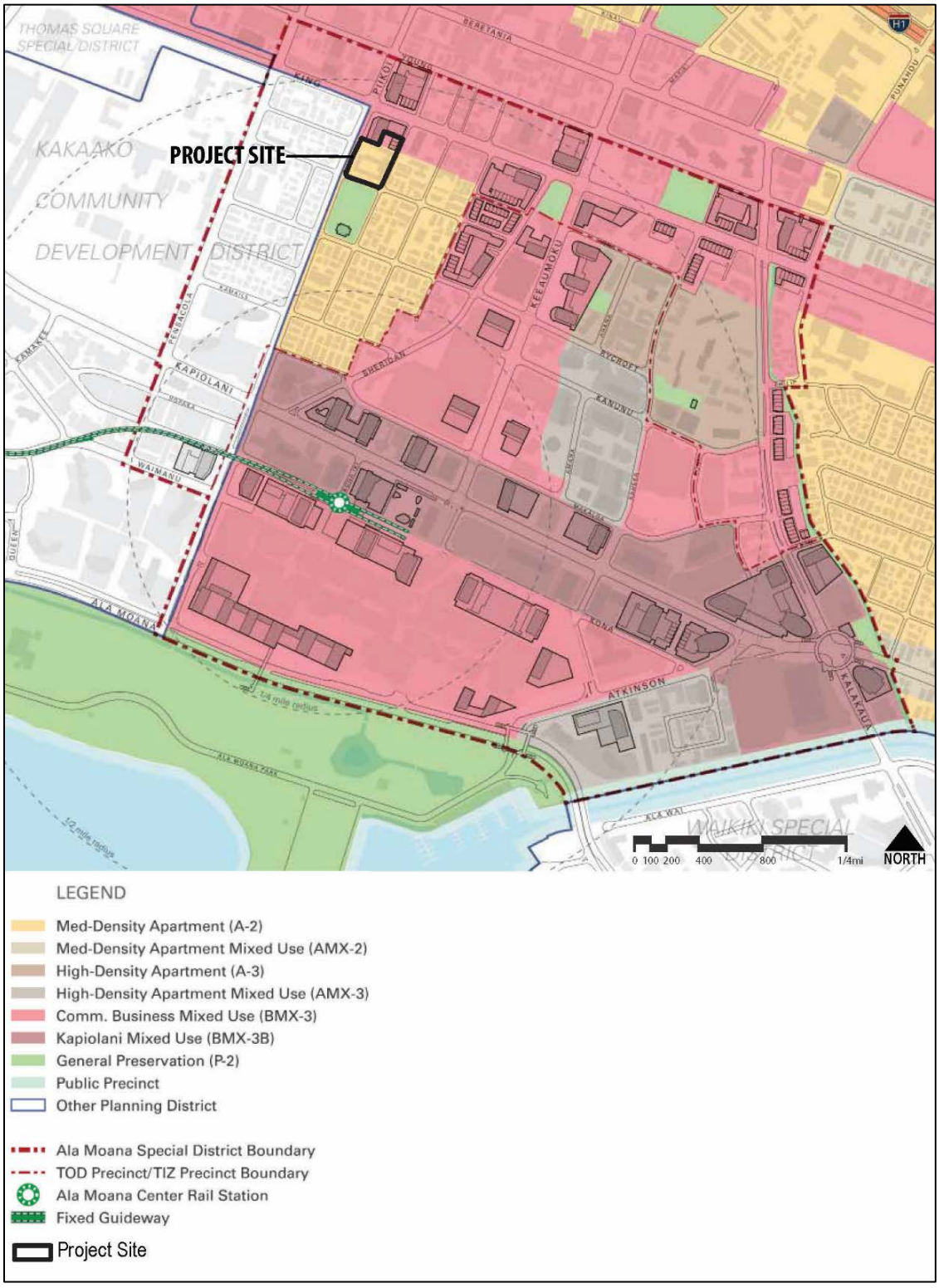
d. Provides an appropriate mix of housing and unit types, particularly affordable or rental housing, or both; with qualifying affordable or rental housing being located on the project site or within one-half mile of the same identified transit station as the project site.

The project involves the on-site construction of housing affordable to households at 60% and below the U.S. Department of Housing and Urban Development Area Medium Income within one-half mile of the future Ala Moana rail station. All residential units, with the exception of the manager's unit, will be affordable. A variety of rental housing units are proposed, including one-bedroom units, two-bedroom units, and three-bedroom units. Incidental uses include a manager's unit, laundry facility, management office, and recreation room.

The project is consistent with many of the principles and objectives within the draft *Ala Moana Neighborhood TOD Plan* (2014 Public Review Draft). For example, the principle of ***Residential Diversity*** is satisfied with the project's variety of unit sizes which will help accommodate diverse lifestyles and varying income levels and help attract a wider demographic. The project also satisfies the ***Usable Open Space*** principle. The recreation area, urban courtyard and pedestrian paths linking sidewalks to structures on site will help integrate the project into the fabric of the neighborhood. The proposed landscaping will provide "respite from the hardscape and pace of the city, and provide cool, contemplative spaces, social gathering places, active recreation areas, and a home for community-oriented public events" (p. 28). The on-site bicycle parking and pedestrian paths support ***Intermodal Connectivity***. The large public investment in the site, and ultimate mix of housing and judiciary services "can 'prime the market' for more long-term investment in the area", as proposed in the Ala Moana Neighborhood TOD Plan (p. 33).

The Neighborhood TOD Plan suggests that the Sheridan area has low redevelopment potential. The fear is that redevelopment will displace existing households with the construction of expensive housing units. However, this is not the case for the subject property because there is no one living there currently, and the proposed project will result in 100% affordable units. In fact, the TOD Development Framework, encourages the "redevelopment of underutilized parcels within Ala Moana will improve the character of the neighborhood's arterial and collector roadways while keeping the existing character of the neighborhood."

Figure 16: ALA MOANA NEIGHBORHOOD TOD PLAN SPECIAL DISTRICT BOUNDARY



Source: Ala Moana Neighborhood TOD Plan Public Review Draft (July 2014)

4.10 KAKA`AKO COMMUNITY DEVELOPMENT DISTRICT TOD OVERLAY PLAN

The Hawai‘i Community Development Authority’s (HCDA) Kaka`ako Community Development District TOD Overlay Plan (Draft May 20, 2013) identifies the Mauka Area Sheridan Zone as a “predominately a residential neighborhood composed of small, fee simple lots. This established residential neighborhood also includes active commercial uses fronting King Street and the historic Makiki Christian Church located along Pensacola Street. The [Kaka’ako Community Development District] KCDD’s Sheridan neighborhood area represents approximately half of the larger Sheridan Tract, which is bisected by Pi’ikoi Street. The land use, small lot size, block size and land tenure patterns are very similar to the other half of Sheridan Tract, which is located on the Diamond Head side of Pi’ikoi Street, just outside the KCDD.” Strategy CS3 of the Overlay Plan envisions Pi‘ikoi becoming an entirely commercial avenue, that accommodates a customer base by providing reliable vehicle access, but ensuring that priority is given to the pedestrian. The proposed project contributes to this vision by encouraging multimodal transportation options. More street front elements beyond landscaping, that improves the pedestrian experience, will be discussed with the project’s future developer.

4.11 OAHU BIKE PLAN: A BICYCLE MASTER PLAN

The *Oahu Bike Plan: A Bicycle Master Plan* (HHF, August 2012) recommends a future mauka-makai 1.2 mile bike route on Pi’ikoi Street from Ala Moana Boulevard to Wilder Avenue. Bicycle facilities that connect to TheBus transit centers and planned rail stations are important. The Pi‘ikoi bike route is designated as a short-range implementation plan project – to be built in the next five to ten years. It could be in the form of standard or protected bike lanes. The lack of mauka-makai bike facilities, and forthcoming installation of bike stations with Bikeshare Hawai‘i, increases the desirability and likely use of a bikeway facility.

In support of the future bike lanes on Pi‘ikoi Street, the curb line along the east side of Pi‘ikoi Street will remain. The City may wish to remove or relocate on-street parking and install bike lanes. To improve accessibility and access, the development will ensure ease of access to the building from Pi‘ikoi Street, as well as provide on-site bike storage. The on-site parking structure will ensure that residents, clients, visitors and employees will not require on-street parking. The proposed development will support multi-modal transportation, including increased bicycle usage.

4.12 CITY AND COUNTY OF HONOLULU SPECIAL MANAGEMENT AREA

The Hawai‘i Coastal Zone Management (CZM) Program, Chapter 205A, Hawai‘i Revised Statutes (HRS), outlines control, policies and guidelines for development within an area along the shoreline referred to as the Special Management Area (SMA). CZM policies are administered by each County. In the City and County of Honolulu, management of lands located within the SMA is regulated through Chapter 25, Special Management Area, Revised Ordinances of Honolulu (ROH). Chapter 205A, HRS also

establishes the shoreline setback area to further manage uses along the shoreline. The City and County of Honolulu is delegated authority to regulate uses located within the established Shoreline Setback Area (SSA) for the island of O‘ahu. The proposed development is not located within the SMA or SSA established by the City and County of Honolulu.

5.0 CHAPTER 201H APPLICATION AND REQUESTED EXEMPTIONS & DEFERRALS

5.1 INTRODUCTION

Hawai‘i Revised Statutes (HRS) Section 201H-38, “Housing development; exemption from statutes, ordinances, charter provision, and rules” allows eligible 201H projects to seek exemptions from all statutes, ordinances, and rules of any governmental agency relating to planning, zoning, and construction standards that do not negatively affect the health and safety of the general public in exchange for providing affordable housing.

902 Alder Street will be an affordable rental housing project that is planned to offer 100% of its units to households earning 60% and below of the Area Median Income (AMI). It is centrally located in the Ala Moana district of Central Honolulu, where already high property values are expected to rise further in anticipation of the multi-modal transit options and improved connectivity.

The exemption requests which follow are necessary to achieve and maintain the financial feasibility of the project. The primary objective is to reduce the per-square foot cost of development to achieve this financial feasibility. If this is achieved, the State of Hawai‘i will be able to maximize the number of quality affordable units. The requested exemptions and deferrals are not contrary to the policies contained in existing State and County plans and policies.

5.2 REQUESTED EXEMPTIONS AND DEFERRALS

The following is a description of the exemptions being requested for 902 Alder Street. A summary of these exemptions is presented in Table 20.

Exemption from Revised Ordinances of Honolulu, Land Use Ordinance Section 21-3.80-1 (Table 21-3.3), Apartment District Uses and Development Standards

1. An exemption from LUO Sec. 21-3.80-1(b) (Table 21-3.3) is sought to allow the Project to exceed the maximum allowable density of 1.9. The Project proposes a building floor area ratio (FAR) of up to 4.5.
2. An exemption from LUO Sec. 21-3.80-1(b) (Table 21-3.3) is sought to exempt the Project from maximum building area requirements. The Project proposes no maximum building area requirements.
3. An exemption from LUO Sec. 21-3.80-1(b) (Table 21-3.3) is sought to allow the Project to exceed the current allowable maximum height of 150 feet (which is exclusive of the additional 18 feet maximum height limit allowed for mechanical rooftop equipment, roof access stairwells, structures housing rooftop machinery, etc. per LUO Sec. 21-4.60(c)). The proposed Project height is 185 feet (which is

exclusive of the additional 18 feet maximum height limit allowed for mechanical rooftop equipment, roof access stairwells, structures housing rooftop machinery, etc. per LUO Sec. 21-4.60(c)).

Exemption from Revised Ordinances of Honolulu, Land Use Ordinance (LUO) Section 21-6.20 (Table 21-6.1), Off-street Parking Requirements

1. An exemption from LUO Sec. 21-6.20 (Table 21-6.1) is sought to allow for less than the minimum required off-street parking spaces. The proposed exemption is to allow a minimum of one required off-street parking per residential dwelling unit, regardless of the dwelling's floor area.

   The LUO would require that the proposed project provide a total of 365 parking stalls: 26 stalls for the 10,232 square feet of office space associated with the judiciary functions and 339 stalls for the residents and guests associated with the affordable housing. 902 Alder Street proposes to provide instead a total of 290 parking stalls. The judiciary will need more than the minimum. Based on their experience operating similar facilities, the judiciary may require 50 stalls, of which 2 will be ADA accessible. The affordable housing component of this project will require fewer parking stalls than the LUO requires. Residents are expected to require fewer cars as a result of their ability to access nearby City bus lines and the future rail station. Their places of employment may be within walking distance. Therefore, the residential component will require 240 stalls, of which 6 will be ADA accessible.

Use	**LUO Standards**	**LUO Required**	**Total Proposed**
Judiciary			
Admin / Offices (10,232sf)	1 stall per 400 sf	26	50
Mtg Room & Rec (10,232sf)	None Required	0	
Shelter (10,232sf)	None Required	0	(includes 2 ADA)
Housing			
600sf<x<800sf	1.5 stalls per unit	162	240
800≤x	2 stalls per unit	158	
Guest Stalls	1 stall per 10 units	19	(includes 6 ADA)
TOTAL		365	290

The reduced parking count also supports PUC DP recommendations for promotion of alternative forms of transportation and the draft Ala Moana TOD Plan's even lower parking requirements for similar reasons. In reducing its parking count in the way proposed, 902 Alder Street supports prevailing City urban transportation policies while maintaining a sufficiently attractive number of resident-oriented stalls to facilitate the marketability of project units, while individual transportation preferences for private automobile uses transition to coincide with emerging public policy.

No exemption from LUO requirements for the number of loading zones for each component of the project is being requested. A total of three loading spaces will be provided.

Building Permit and Plan Review Fees

1. Exemption from Sections 18-6.1 and 18-6.2, Revised Ordinances of Honolulu (ROH) is requested to allow exemption from building permit and plan review fees (including demolition, building, foundation, plumbing, electrical, fire sprinkler, etc.) to help achieve the economic feasibility of 902 Alder Street as a 201H affordable housing project.

Public Works/Infrastructure Fees

1. Exemption from Revised Ordinances of Honolulu (ROH), Sec. 14-14.4 is requested to exempt payment of fees and charges including, grading stockpiling, trenching, grubbing and de-watering to facilitate the achievement of project economic feasibility.
2. Exemption from Revised Ordinances of Honolulu (ROH), Sec. 14-12.12 is requested to exempt payment of storm drain connection license fee to facilitate the achievement of project economic feasibility.
3. Exemption from Revised Ordinances of Honolulu (ROH), Section 14-17.1 is requested to exempt payment from trenching, repair and service permit fees.
4. Deferral of Sections 1-102, 2-202(2), and 2-202(3) of the Board of Water Supply Rules and Regulations, to defer water system connection and facility charges until a Certificate of Occupancy is issued for each phase.
5. Exemption from Section 14-3.2 payment of sewer lateral connection and installation charges.
6. Exemption from Revised Ordinances of Honolulu (ROH), 14-10.1 and Sec. 14-10.3 is requested to exempt payment of wastewater connection and facility charges.

Exemption from Revised Ordinances of Honolulu, Chapter 22, Article 7, Park Dedication Ordinance

1. Exemption from Park Dedication requirements as set forth in Chapter 22, Article 7, Revised Ordinances of Honolulu is sought. The Park Dedication Ordinance would require the provision of land equal to 110 square feet for each residential unit or an in lieu fee payment for the required amount of land based on the market value of the project site. The amounts are figured by the architect/engineer in consultation with the affected agency since they are specific to the project. The proposed project includes a recreation deck for residents of the affordable housing units. A landscaped outdoor recreation space abutting Pi‘ikoi Street will be available to the juveniles, their visitors, and employees associated with the project’s judiciary component.

Table 20: Summary of Requested Exemptions and Deferrals

Development Standard or Requirement	Relevant Section	Requested Exemption/ Est. Value	Applicable Agency
Floor Area Ratio (FAR)	Revised Ordinances of Honolulu (ROH) Section 21-3.80-1 (Table 21-3.3), Apartment District Uses and Development Standards	Maximum allowable density is 1.9; proposed FAR is 4.5	Department of Planning and Permitting (DPP)
Building Area	ROH Section 21-3.80-1 (Table 21-3.3), Apartment District Uses and Development Standards	Maximum allowable building area is 25,272 sf; proposed building area is approx. 39,000 sf	DPP
Building Height	ROH Section 21-3.80-1(b) (Table 21-3.3), Apartment District Uses and Development Standards	Maximum allowable height of 150 feet; proposed height is 185 feet (which is exclusive of the additional 18 feet maximum height limit allowed for mechanical rooftop equipment, roof access stairwells, structures housing rooftop machinery, etc. per LUO Sec. 21-4.60(c))	DPP
Off-street Parking Requirements	ROH Section 21-6.20 (Table 21-6.1), Off-street Parking Requirements	Based on proposed residential units, the LUO requires 339 stalls for the residential component; proposed off-street parking is 240 stalls	DPP
Tandem Parking	ROH Section 21-6.40 (c) Arrangement of parking spaces	The proposed parking structure shows the use of tandem stalls. Based on how stalls are assigned, a waiver from the tandem	DPP

Development Standard or Requirement	Relevant Section	Requested Exemption/ Est. Value	Applicable Agency
		parking regulations may not be required; however, a waiver is requested in case the number of tandem stalls exceeds 25 percent of the total number of required spaces for employee parking	
Building Permit	ROH Sections 18-6.2	Exemption from building permit fees (including demolition, building, foundation, plumbing, electrical, fire sprinkler, etc.)	DPP
Plan Review Fees	ROH Sections 18-6.1	Exemption from plan review fees	DPP
Grading and Grubbing	ROH Section 14-14.4	Exemption grading stockpiling, trenching, grubbing and de-watering fees	DPP
Storm Drain Connection	ROH Section 14-12.12	Exemption from storm drain connection license fee to facilitate the achievement of project economic feasibility	DPP / Department of Environmental Services (DES)
Trenching	ROH Section 14-17.1	Exemption from trenching, repair and service permit fees	DPP
Water System Connection	Sections 1-102, 2-202(2), and 2-202(3) of the Board of Water Supply Rules and Regulations	Deferral of water system connection and facility charges until Certificate of Occupancy is issued for each phase	Honolulu Board of Water Supply
Sewer Lateral Connection And Facility	ROH Section 14-3.2	Exemption of payment of sewer lateral connection and installation charges	DPP / Wastewater Branch

Development Standard or Requirement	Relevant Section	Requested Exemption/ Est. Value	Applicable Agency
Wastewater System Facility Charge	ROH Section 14-10.3	Exemption from payment of wastewater connection	DPP / Wastewater Branch
Park Dedication	ROH Section 22-7	Exemption from Park Dedication requirements	DPP and Department of Parks and Recreation
School Impact Fee	Currently being contemplated, but not yet mandated	Exemption from Education Impact Fee, should one be imposed	State of Hawai‘i, Department of Education

6.0 FINDINGS AND DETERMINATION

The proposed redevelopment of 902 Alder Street for affordable housing and judiciary purposes is not anticipated to have a significant impact based on the criteria set forth in the Hawai‘i Administrative Rules (HAR), Chapter 200, Title 11, Section 12. The objective of this Final EA is to identify and consider the "significance" of potential environmental effects which includes the sum of effects on the quality of the environment along with cumulative long-term effects.

As set forth in HAR, Chapter 200, Title 11, a prescribed set of 13 Significance Criteria is used to determine the project's impact on the environment. The project's relationship to each criterion is discussed in this chapter and followed by the ensuing project determination.

6.1 FINDINGS

To determine whether a proposed action may have a significant effect on the environment under Hawai‘i Administrative Rules Title 11, Chapter 200, the Proposing Agency needs to consider every phase of the action, the expected primary and secondary consequences, cumulative effect, and the short- and long-term effects. The Proposing Agency's review and evaluation of the proposed action's effect on the environment would result in a determination whether: 1) the action would have a significant effect on the environment, and an Environmental Impact Statement Preparation Notice should be issued, or 2) the action would not have a significant effect warranting a Finding of No Significant Impact (FONSI).

1. *Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;*

The proposed action will entail redeveloping an underutilized parcel located in the Primary Urban Center. The property is surrounded by residential and commercial uses, and a small urban park.

Two archeological sites are known to be present on the property based on excavations and previous archaeological surveys. Mitigation measures will be developed in consultation with SHPD.

The Honolulu Juvenile Detention Center is eligible for listing on the Hawai‘i and National Registers of Historic Places; however, the building is physically deteriorated. Since the redevelopment project would involve the demolition of the building, mitigation measures – based on consultations with SHPD - include:

1. Historic American Buildings Survey (HABS) Level III, with archival photography and copies of all available original drawings.

2. Two interpretive panels utilizing the HABS photographs and historic information to be placed in the future Juvenile Counseling office located at Alder Street.

As a result of the proposed mitigation measures, the proposed project does not represent an irrevocable commitment to loss or destruction of any cultural or archeological resource.

2. Curtails the range of beneficial use of the environment;

Access to the property has been limited since it began operating as a juvenile detention facility in 1944. The construction of affordable housing will provide a community benefit and better integrate the property with the existing neighborhood. Pedestrian activities will increase in an urban environment that is close to commercial uses and mass transit. Landscaping will result in street trees that shade sidewalks on Elm and Pi'ikoi. The replacement of the closed, vacant detention facility with housing units that overlook Sheridan Park will improve park safety with more "Eyes on the Park". The proposed development will not curtail the range of potential beneficial uses of the subject parcel or surrounding environment.

3. Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;

The proposed project is consistent with the State's policies, goals and guidelines established in Chapter 344, HRS. The project is consistent with the goals of HRS Chapter 344-3 (2) (B): "Creating opportunities for the residents of Hawai'i to improve their quality of life through diverse economic activities which are stable and in balance with the physical and social environments" and (2) (C) "Establishing communities which provide a sense of identity, wise use of land, efficient transportation, and aesthetic and social satisfaction in harmony with the natural environment which is uniquely Hawaiian." The proposed project is consistent with the guidelines of HRS Chapter 344-4. The proposed project is located in proximity to existing bus lines, will provide secure, on-site bicycle parking, have reduced on-site vehicular parking, and will be located within ½ mile of the Ala Moana Transit Center. As such, it may help achieve improvements in transportation. The project should alleviate some environmental degradation caused by motor vehicles, and encourage the conservation of energy, reduced pollution emissions, including noise, and provide safe and convenient accommodations for residents, employees and visitors.

In coordination with the Office of the Governor, Judiciary, and Department of Land and Natural Resources, HHFDC would seek approval from the Board of Land and Natural Resources to cancel the existing Executive Order No. 1577, that in 1953 set aside this property for the public purpose of a Detention Home under the control and management of the Juvenile Court of the First Judicial Circuit, and issue a new one to both the Judiciary and HHFDC.

4. Substantially affects the economic welfare, social welfare, and cultural practices of the community or State;

The subject property is currently underutilized. One and two-story buildings are located in a zoning district that allows heights up to 150 feet. The proposed development is anticipated to have an overall positive effect on socio-economic conditions by providing approximately 180 rental housing units for low -income households. The new size and configuration of the judiciary component will allow for the implementation of best practices associated with juvenile justice. The proposed project will provide multi-modal opportunities, particularly for those in the area who would choose to walk, bike, take the bus, and eventually the rail transit, over driving, while maintaining the character of the area.

In the short-term, the proposed action will have a beneficial economic impact through the creation of temporary construction, real estate, legal, engineering, insurance, and other short-term employment opportunities associated with construction activities. New employment opportunities will be created by the addition of approximately 35,000 gross square feet of judiciary assistance and property maintenance requirements.

The proposed project will have a net positive effect on the economic and social welfare of the Sheridan District of Honolulu. No impact to current cultural practices are anticipated as the subject property is not associated with ongoing cultural activities.

5. Substantially affects public health;

The proposed action is not anticipated to have any environmental impacts that would adversely affect public health. No hazardous materials will be used during construction, and construction impacts to water and air quality will be minimized through the implementation of best management practices. Increases in redevelopment and added density will be offset by a transition towards multi-modal mobility due to the existing urban nature and future TOD zone. Therefore, it is likely that more people moving into this area will look towards walking, biking, and taking transit as opposed to making personal vehicle trips. The proposed Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter will have minimal impact on the transportation network. As a result, there are no anticipated long-term noise or air quality impacts. Short-term impacts associated with construction will be mitigated to the extent possible.

6. Involves substantial secondary impacts, such as population changes or effects on public facilities;

This project helps implement the draft 2014 *Housing O'ahu: Islandwide Housing Strategy*. In accordance with the *Strategy*'s vision, this project is transit-oriented (within ½ a mile from the Ala Moana transit station that revitalizes an existing urban neighborhood), involves compact, mixed-use community design, and contributes to a healthy, age-friendly community (allowing people who grew up in the Ala Moana and Kaka'ako neighborhoods to remain and not get displaced by unwanted gentrification). One major proposed initiative would be positively impacted. The first initiative, "Increase Workforce Housing Inventory" is positively impacted because approximately 180 affordable housing units will be constructed. Although the project will be developed entirely by a public partnership of the HHFDC and Judiciary, this State-owned property

was identified as having the potential for asset optimization during the Strategy's development.

The City Department of Planning and Permitting submitted comments on the Draft EA in support of this mixed-use project and finds the project consistent with City policies of directing housing development within the rail transit corridor and desire to incorporate other uses with residential developments in urban areas. According to the City's *Draft Affordable Housing Strategy*, there is a pressing need for affordable housing units on Oahu, with 75 percent of the demand by households earning less than 80 percent of the area median income. This demand is primarily for rental units. The provision of one-bedroom, two-bedroom, and three-bedroom units will address the diverse lifestyles of residents in need of affordable housing.

The population will become denser in an area targeted by the *General Plan* for growth. The population will have an impact on government supported services such as utilities, schools, public safety, and mass transportation systems. The potential impact of more users of the rail system is increased transit ridership, thereby decreasing the impact of automobiles on the environment and traffic. The slight increase in population resulting from this project is not anticipated to have a significant adverse impact on public facilities.

The proposed development is anticipated to have an overall positive effect on at risk youth. Historically, the majority of services for youth at risk were provided at the back-end, i.e., at post-adjudication or post-incarceration in detention. This proposed juvenile services center/shelter instead follows the national, best practices initiative which is designed to place equal emphasis on front-end services for youth and their families at risk or entering or progressing further into the juvenile justices system. The juvenile services/shelter center would also provide for increased shelter services for youth at risk who are not able to reside with their families in the short term for safety or other concerns.

7. Involves a substantial degradation of environmental quality;

The proposed action is not expected to cause a substantial degradation of environmental quality. No hazardous materials will be used during construction, and construction impacts to water and air quality will be minimized through the implementation of best management practices. No significant long-term adverse impacts are anticipated from development of the subject property for residential and judiciary purposes.

8. Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

The project is not a commitment to a larger action. The proposal is site-specific. The property is governed by an Executive Order that requires that it be used to serve juveniles. That commitment will remain. However, the entire parcel is larger than what is needed to serve at risk youth. The parcel has the capacity to be optimized to address other State needs. The property can fulfill the requirements of the Executive Order and contribute toward the production of affordable housing – another public good.

The parcel is well-located to serve the needs of at-risk youth and to provide affordable housing in a central location in convenient proximity to employment, shopping, dining, transportation options, and other services. The parcel's location in a TOD district can help keep the cost of living down. While the City and the State are interested in producing more affordable housing, this site is not physically linked to other nearby sites. Once completed, as described in this Final EA, the parcel will be built out and will not be able to accommodate additional development. The project is limited to this particular site, but is anticipated to contribute positively to the urban environment.

9. Substantially affects a rare, threatened, or endangered species, or its habitat;

The biological survey conducted for the project determined that two federally endangered plant species—'ohai and ma'o hau hele—were observed during the surveys in a landscaped area; but they were observed in a maintained garden courtyard area and appear to be cultivated stock. Federal protection is not extended to endangered species that are cultivated, do not originate directly from wild populations, or are not naturally occurring wild populations. No water features or designated critical habitat for threatened or endangered species is in or near the project area. Therefore, use of the subject property for residential and judiciary purposes does not represent an impact to rare, threatened, or endangered species, or their habitats.

10. Detrimentally affects air or water quality or ambient noise levels;

No significant impact to air or water quality or ambient noise levels are anticipated to result from the proposed action. Short-term impacts during construction of facilities will be minimized through the implementation of best management practices to control construction dust and emissions in compliance with provisions of HAR Section 11.60.1-33. All work will be in conformance with the air pollution standards and regulations of the State Department of Health (DOH).

Long term impacts to air quality from the proposed project are expected to be minimal. The proposed reduction of parking stalls from those required by the Land Use Ordinance will minimize impacts to air quality. The project TIAR indicates that the existing traffic level-of-service at these intersections is reasonably good, and in the year 2022, it was found that with the project this would continue to be the case. The TIAR estimates that project traffic in the year 2022 would account for less than about a two percent increase in traffic at the nearby intersections studied. The use of nearby mass transit, biking and walking will be encouraged by limiting on-site parking, which in turn will limit pollution emissions. The project is not expected to adversely impact air or water quality or ambient noise levels.

11. Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal water.

The subject property is not located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically-hazardous land, estuary,

fresh water, or coastal waters. The subject property is within an "Extreme Tsunami Evacuation Zone" but this zone is for events with low probability.

12. Substantially affects scenic vistas and view plans identified in county or state plans or studies.

The proposed structures will be visible when traveling along Pi'ikoi, Elm and Alder Streets. However, these structures will help complete the existing urban fabric. Currently, the older judiciary structures are unlike those in the neighborhood. The low buildings as seen from Pi'ikoi are set back from the street, and the property is surrounded by a chain link fence. The property does not have much landscaping. Development of the subject property will not significantly affect scenic vistas or view planes identified in county or state plans or studies.

13. Requires substantial energy consumption.

Construction of the project will not require substantial energy consumption relative to other similar projects. After the project is completed, energy will be conserved by the use of modern energy efficient appliances and fixtures, and application of green design concepts.

6.2 DETERMINATION

Based upon the information and results of the assessments conducted for the project site, a Finding of No Significant Impact (FONSI) determination is warranted for the proposed Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter.

7.0 AGENCY AND PUBLIC CONSULTATION

7.1 ALA MOANA / KAKA'AKO NEIGHBORHOOD BOARD MEETING

The proposed project was first presented at a "Town Meeting" hosted by Senator Brickwood Galuteria, Representative Scott Saiki, and Councilmember Ann Kobayashi on November 18, 2014. The project was also presented to the Ala Moana / Kaka'ako Neighborhood Board No. 11 at their February 23, 2016 meeting. The project was described during the meeting. In general, the project was favorably received and there were no objections voiced at the meeting. Attendees were made aware that the Draft EA would be published soon and were invited to submit comments.

7.2 PRE-ASSESSMENT AND DRAFT EA CONSULTATIONS

Pre-assessment consultation comments were solicited from the following government agencies and organizations. Comments received are included in Appendix A-1 and A-2. The table below also identifies the organizations that received copies of the Draft EA and those that provided comments in response to the Draft EA.

Distribution	Pre-Assessment Consultation Recipient	Comments Received	Received a Copy of the Draft EA	Provided Comments on the Draft EA
STATE OF HAWAIʻI AGENCY				
State of Hawaiʻi Office of Planning	X	X	X	X
State of Hawaiʻi Department of Education	X	X	X	X
State of Hawaiʻi Department of Health, Environmental Planning Office	X	X	X	X
State of Hawaiʻi Department of Health, Clean Air Branch	X		X	
State of Hawaiʻi Department of Health, Clean Water Branch	X	X	X	X
State of Hawaiʻi Department of Health, Indoor and Radiological Health Branch	X	X	X	
State of Hawaiʻi Department of Health, Office of Hazard Evaluation and Emergence Response	X		X	

Distribution	Pre-Assessment Consultation Recipient	Comments Received	Received a Copy of the Draft EA	Provided Comments on the Draft EA
State of Hawai‘i Department of Transportation	X	X	X	X
Hawai‘i Community Development Authority	X	X	X	X
Office of Hawaiian Affairs	X		X	
State of Hawai‘i Disability and Communication Access Board	X	X	X	X
State of Hawai‘i Department of Defense	X	X	X	X
State of Hawai‘i Office of Environmental Quality Control	X	X	X	
State of Hawai‘i Department of Accounting and General Services	X	X	X	
State of Hawai‘i Department of Hawaiian Home Lands	X	X	X	
State of Hawai‘i Department of Land and Natural Resources Engineering Division	X	X	X	X
State of Hawai‘i Department of Land and Natural Resources Commission on Water Resource Management	X	X	X	X
State of Hawai‘i Department of Land and Natural Resources Land Division	X	X	X	X
State of Hawai‘i Department of Land and Natural Resources, State Historic Preservation Division	X	X	X	
Hawai‘i State Judiciary	X		X	
Family Court of the 1st Circuit	X		X	
State of Hawai‘i First Judicial Circuit	X		X	
CITY AND COUNTY OF HONOLULU AGENCIES				
Department of Community Services	X	X	X	

Distribution	Pre-Assessment Consultation Recipient	Comments Received	Received a Copy of the Draft EA	Provided Comments on the Draft EA
Department of Design and Construction	X	X	X	X
Honolulu Board of Water Supply	X	X	X	X
Department of Environmental Services	X		X	
Department of Facility Maintenance	X	X	X	
Department of Planning and Permitting	X	X	X	X
Department of Parks and Recreation	X	X		
Department of Transportation Services	X	X	X	X
Honolulu Fire Department	X	X	X	X
Honolulu Police Department	X	X	X	X
Office of Housing	X		X	
Honolulu Authority for Rapid Transportation	X	X	X	X
Traffic Review Branch	X		X	
Department of Emergency Management	X		X	
NEIGHBORHOOD BOARD				
Ala Moana/Kaka'ako Neighborhood Board 11	X	X	X	
ELECTED OFFICIALS				
City Council Chair and Presiding Officer	X		X	
City Councilmember, Council District 2	X		X	
City Councilmember, Council District 4	X		X	
City Councilmember, Council District 5	X		X	
City Councilmember, Council District 6	X		X	
State Senator, Senate District 12	X		X	
State Senator, Senate District 16	X		X	

Distribution	Pre-Assessment Consultation Recipient	Comments Received	Received a Copy of the Draft EA	Provided Comments on the Draft EA
State Senator, Senate District 5	X		X	
State Representative, House District 26	X		X	
State Representative, House District 18	X		X	
State Representative, House District 29	X		X	
PRIVATE ENTITIES				
Hawaiian Electric Company, Inc.	X	X	X	X

8.0 LIST OF REFERENCES

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Appendix A-1:
Pre-Assessment Consultation Letters

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

EPO 15-271

SSFM INTERNATIONAL, INC.
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November 3, 2015

Ms. Katia Balassiano
Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Email: kbalassiano@ssfm.com

Dear Ms. Balassiano:

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment (PAC DEA) for Mixed-Use Redevelopment at Alder Street, Honolulu, Hawaii
TMK: (1) 2-3-012:019

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your PAC DEA to our office on November 3, 2015.

EPO strongly recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments.

We suggest you review the requirements for the National Pollutant Discharge Elimination System (NPDES) permit. We recommend contacting the Clean Water Branch at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov after relevant information is reviewed at:

1. http://health.hawaii.gov/cwb
2. http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/standard-npdes-permit-conditions
3. http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/forms

Please note that all wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems". We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please review online guidance at: http://health.hawaii.gov/wastewater and contact the Planning and Design Section of the Wastewater Branch at 586-4294.

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EPO also suggests that the Hazard Evaluation and Emergency Response (HEER) Office's Site Discovery and Response (SDAR) Section be contacted. The SDAR section protects human health and the environment by identifying, investigating, and remediating sites contaminated with hazardous substances (non-emergency site investigations and cleanup). The HEER Office's SDAR Section can be contacted at: (808) 586-4249 and relevant information can be reviewed at: http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/site-assessment-and-cleanup-programs

EPO encourages you to examine and utilize the Hawaii Environmental Health Portal. The portal provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings. The Portal is continually updated. Please visit it regularly at: https://eha-cloud.doh.hawaii.gov You may also wish to review the draft OEQC viewer at: http://eha-web.doh.hawaii.gov/oegc-viewer
This viewer geographically shows where previous Chapter 343 documents have been prepared.

In order to better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed a new environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at: http://www2.epa.gov/ejscreen

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

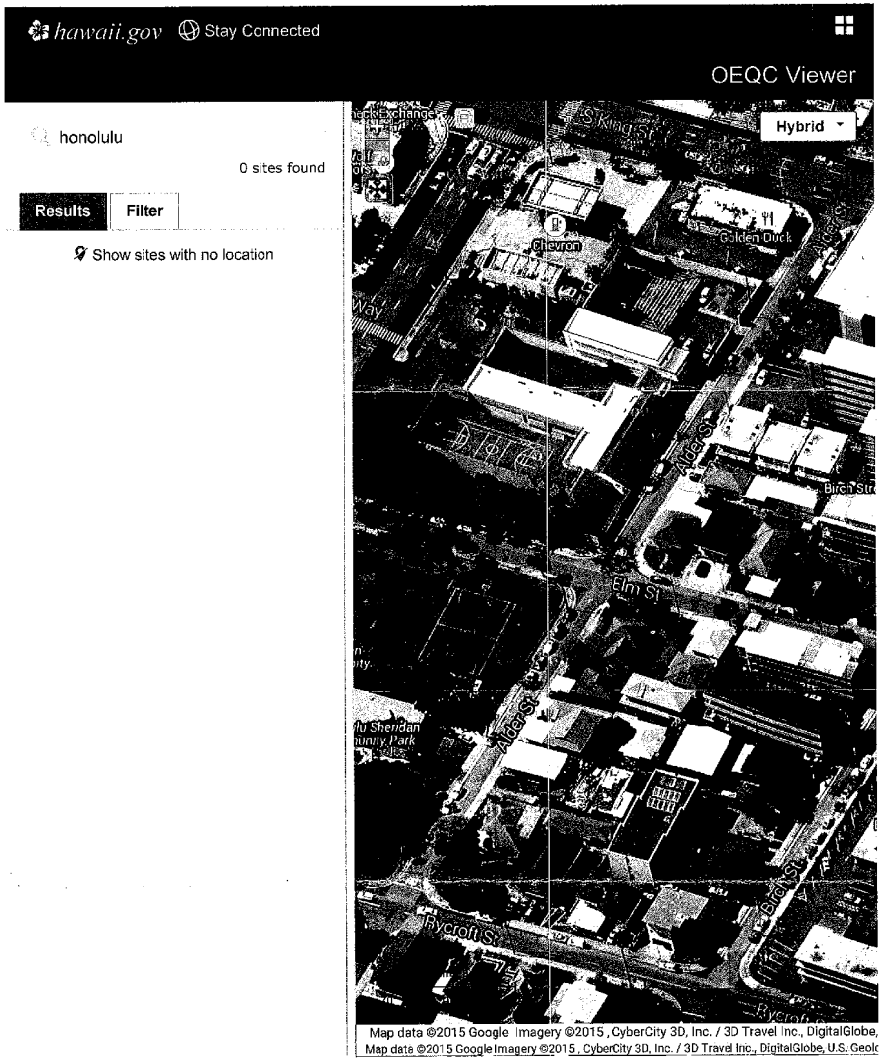
Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

LM:nn

Attachment 1: OEQC Viewer Map
Attachment 2: U.S. EPA EJSCREEN 3 page report

c: DOH: HRA, HEER (via email only)



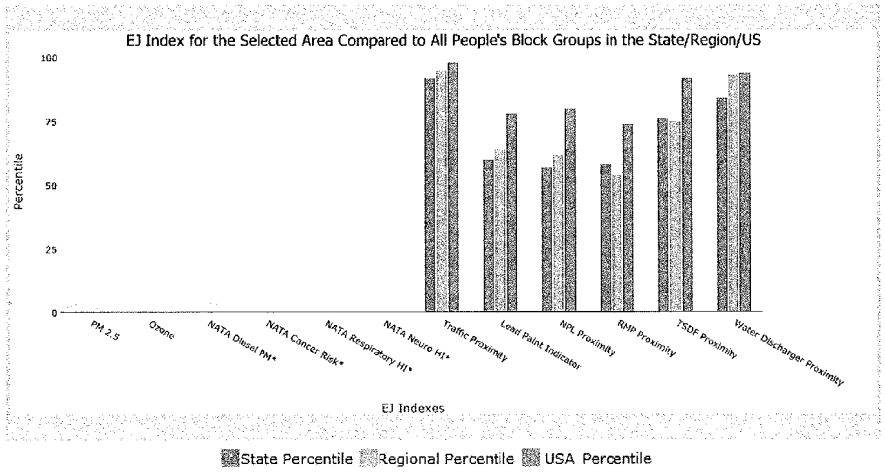
EPA United States Environmental Protection Agency

EJSCREEN Report

for 1 mile Ring Centered at 21.298897,-157.844061, HAWAII, EPA Region 9

Approximate Population: 64462

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA Diesel PM*	N/A	N/A	N/A
EJ Index for NATA Air Toxics Cancer Risk*	N/A	N/A	N/A
EJ Index for NATA Respiratory Hazard Index*	N/A	N/A	N/A
EJ Index for NATA Neurological Hazard Index*	N/A	N/A	N/A
EJ Index for Traffic Proximity and Volume	92	95	98
EJ Index for Lead Paint Indicator	60	64	78
EJ Index for Proximity to NPL sites	57	62	80
EJ Index for Proximity to RMP sites	58	54	74
EJ Index for Proximity to TSDFs	76	75	92
EJ Index for Proximity to Major Direct Dischargers	84	93	94



This report shows environmental, demographic, and EJ indicator values. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.



November 3, 2015

Digitized Point

1:1,128

0 0.0075 0.015 0.03 mi

0 0.015 0.03 0.06 km

© 2015 DigitalGlobe © 2015 GeoEye © 2015 Microsoft Corporation © 2015 HERE DAND

EPA United States Environmental Protection Agency

EJSCREEN Report

for 1 mile Ring Centered at 21.298897,-157.844061, HAWAII, EPA Region 9

Approximate Population: 64462

Selected Variables	Raw Data	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	N/A	N/A	N/A	9.95	N/A	9.78	N/A
Ozone (ppb)	N/A	N/A	N/A	49.7	N/A	46.1	N/A
NATA Diesel PM (µg/m³)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Cancer Risk (lifetime risk per million)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Respiratory Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Neurological Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Traffic Proximity and Volume (daily traffic count/distance to road)	1200	280	93	190	97	110	99
Lead Paint Indicator (% Pre-1960 Housing)	0.13	0.17	53	0.25	48	0.3	40
NPL Proximity (site count/km distance)	0.053	0.092	52	0.11	46	0.096	53
RMP Proximity (facility count/km distance)	0.11	0.18	58	0.41	27	0.31	40
TSDF Proximity (facility count/km distance)	0.14	0.092	81	0.12	77	0.054	92
Water Discharger Proximity (facility count/km distance)	0.71	0.33	89	0.19	96	0.25	92
Demographic Indicators							
Demographic Index	56%	51%	63	46%	65	35%	79
Minority Population	83%	77%	50	57%	73	36%	86
Low Income Population	29%	25%	66	35%	46	34%	47
Linguistically Isolated Population	17%	6%	91	9%	79	5%	91
Population With Less Than High School Education	9%	10%	56	18%	37	14%	42
Population Under 5 years of age	4%	6%	33	7%	30	7%	32
Population over 64 years of age	18%	14%	73	12%	83	13%	79

* The National-scale Air Toxics Assessment (NATA) environmental indicators and EJ indexes, which include cancer risk, respiratory hazard, neurodevelopment hazard, and diesel particulate matter will be added into EJSCREEN during the first full public update after the soon-to-be-released 2011 dataset is made available. The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: http://www.epa.gov/ttn/atw/natamain/index.html.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Laura Leialoha Phillips Mclntyre
Program Manager, Environmental Planning Office
State of Hawai'i
Department of Health
P. O. Box 3378
Honolulu, Hawai'i 96801-3378

Dear Ms. Mclntyre:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 3, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

The standard comments and available strategies have been reviewed. A NPDES permit will be secured prior to the start of construction activities. All wastewater plans will conform to the applicable provisions of the Department of Health's Administrative Rules. The Office of Hazard Evaluation and Emergency Response has been included as a consulted party. The Health Portal was examined and utilized. EJSCREEN was examined and utilized.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

SSFM INTERNATIONAL, INC.
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DISABILITY AND COMMUNICATION ACCESS BOARD

919 Ala Moana Boulevard, Room 101 • Honolulu, Hawaii 96814
Ph. (808) 586-8121 (V/TDD) • Fax (808) 586-8129

November 6, 2015

Ms. Katia Balassiano
Senior Planner
SSFM International, Inc.
501 Sumner Street
Suite 620
Honolulu, HI 96817

Regarding: Mixed-Use Redevelopment at Alder Street – Draft Environmental Assessment

Dear Ms. Balassiano,

The Disability and Communication Access Board (DCAB) would like to thank you for the opportunity to comment on the Mixed-Use Redevelopment at Alder Street. We hope our comments help to ensure that this project will take into account accessibility design requirements for persons with disabilities.

This project will have to comply with Hawaii Revised Statutes (HRS) §103-50. The following general statement should be included in the Draft Environmental Assessment (EA) document being prepared by your office:

> *"All buildings, facilities, and sites shall conform to applicable federal, state, and county accessibility guidelines and standards. Hawaii Revised Statutes §103-50 requires all State of Hawaii or County government buildings, facilities, and sites to be designed and constructed to conform to the Americans with Disabilities Act Accessibility Guidelines, the Federal Fair Housing Amendments Act, and other applicable design standards as adopted and amended by the Disability and Communication Access Board. The law further requires all plans and specifications prepared for the construction of State of Hawaii or County government buildings, facilities, and sites to be reviewed by the Disability and Communication Access Board for conformance to those guidelines and standards."*

Any new construction and alterations will be required to comply with the Department of Justice's (DOJ) 2010 ADA Standards for Accessible Design (2010 Standards) http://www.ada.gov/2010ADAstandards_index.htm. To be consistent with the DOJ's standard, DCAB adopted the 2004 Americans with Disabilities Act Accessibility Guidelines (ADAAG) as of January 1, 2011 and passed interpretive opinions consistent with the 2010 ADA Standards. All new Interpretive Opinions can be viewed or downloaded at http://health.hawaii.gov/dcab/facility-access/interpretive-opinions/.

Ms. Katia Balassiano
SSFM International, Inc.
Regarding: Mixed-Use Redevelopment at Alder Street
November 6, 2015

New construction of multi-family residential housing containing four (4) or more dwelling units are required to comply with the Department of Housing and Urban Development's (HUD) Federal Fair Housing Act. Per DCAB's Administrative Rules Title 11, Chapter 216, DCAB reviews projects covered by HRS §103-50 to HUD's Fair Housing Accessibility Guidelines and HUD's Supplemental Notice to Fair Housing Accessibility Guidelines: Questions and Answers about the Guidelines.

We strongly encourage the use of the Proposed Public Rights-of-Way Accessibility Guidelines, published by the U.S. Access Board. This accessibility guideline is not yet enforceable by the DOJ under the ADA, nor have they been adopted by state rules under HRS §103-50. However, this accessibility guideline provides guidance for a minimal level of accessibility for those elements in the public right-of-way not addressed by the enforceable 2010 Standards.

The above reflects DCAB's advice and recommendations at this time for the Mixed-Use Redevelopment at Alder Street's Draft EA. We request the opportunity to provide additional comments once the Final EA or Master Plan is developed.

Should you have any further questions, please feel free to contact Mona Higa, Facility Access Coordinator at (808) 586-8121.

Sincerely,

Francine Wai

FRANCINE WAI
Executive Director

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Francine Wai, Executive Director
State of Hawai'i
Disability and Communication Access Board
919 Ala Moana Boulevard, Room 101
Honolulu, Hawai'i 96814

Dear Ms. Wai:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 6, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Compliance with HRS §103-50 will be noted in the Draft EA and your proposed statement will be included verbatim in Section 2.4 Description of the Development. The project will consist of new construction that will comply with the Department of Justice's (DOJ) 2010 ADA Standards for Accessible Design, and therefore as well as the Department of Housing and Urban Development's (HUD) Federal Fair Housing Act accessibility guidelines, where applicable.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DAVID Y. IGE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

SSFM INTERNATIONAL, INC.
RECEIVED
NOV 09 2015
FILE

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

In reply, please refer to:
File:

FILE COPY

November 4, 2015

Ms. Katia Balassiano
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, HI 96817

Dear Ms. Balassiano:

This correspondence is in response to your request for comments to the Pre-Assessment Consultation for Draft Environmental Assessment for the Mixed-Use Redevelopment at 902 Alder Street, Honolulu, Hawaii; Tax Map Key: (1) 2-3-012:019.

Project activities shall comply with the following Administrative Rules of the Department of Health:

- Chapter 11-39 Air Conditioning & Ventilating
- Chapter 11-41 Lead-Based Paint Activities
- Chapter 11-46 Community Noise Control
- Chapter 11-501 Asbestos Requirements
- Chapter 11-503 Fees for Asbestos Removal & Certification
- Chapter 11-504 Asbestos Abatement Certification Program

Should you have any questions, please contact me at (808) 586-4701.

Sincerely,

Jeffrey M. Eckerd
Program Manager
Indoor and Radiological Health Branch

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015

SSFM 2014_068.000

Jeffrey M. Eckerd, Program Manager
State of Hawai'i Department of Health,
Indoor and Radiological Health Branch
P. O. Box 3378
Honolulu, Hawai'i 96801-3378

Dear Mr. Eckerd:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 4, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

The project will comply with the DOH Administrative Rules Chapter 11-39, 41, 46, 501, 503, and 504. Compliance will be addressed in the design and construction phases of the project.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

RECEIVED
NOV 17 2015
KIRK CALDWELL
MAYOR

DEPARTMENT OF PARKS & RECREATION
CITY AND COUNTY OF HONOLULU
1000 Uluohia Street, Suite 309, Kapolei, Hawaii 96707
Phone: (808) 768-3003 • Fax: (808) 768-3053
Website: www.honolulu.gov

MICHELE K. NEKOTA
DIRECTOR

JEANNE C. ISHIKAWA
DEPUTY DIRECTOR

November 6, 2015

FILE COPY

Ms. Katia Balassiano, Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment
Mixed-Use Redevelopment at 902 Alder Street
Tax Map Key (1) 2-3-012:019

Thank you for the opportunity to review and comment at the Pre-Consultation stage of the Draft Environmental Assessment for the Hawaii State Judiciary and Hawaii Housing Finance and Development Corporation.

The Department of Parks and Recreation has no comment. As the proposed project will have no impact on any of our programs or facilities, you may remove us as a consulted party to the balance of the EIS process.

Should you have any questions, please contact Mr. John Reid, Planner, at 768-3017.

Sincerely,

Michele K. Nekota
Director

MKN:jr
(630772)

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015

SSFM 2014_068.000

Michele K. Nekota, Director
City and County of Honolulu
Department of Parks and Recreation
1000 Uluohia Street, Suite 309
Kapolei, Hawaii 96707

Dear Ms. Nekota:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 6, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street.

We confirm that your Department has no comments and that your Department has determined that the proposed project will have no impact on any of your programs or facilities. A hardcopy of the Draft EA will not be provided to your Department because you have requested that we remove the Department from the consulted party list.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DAVID Y. IGE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

SSFM INTERNATIONAL, INC.
RECEIVED
NOV 12 2015
DOUGLAS MURDOCK
Comptroller
AUDREY HIDANO
Deputy Comptroller
(P)1285.5

FILE COPY

NOV 9 _ 2015

Ms. Katia Balassiano
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

Subject: Pre-Consultation for Draft Environmental Assessment
902 Alder Street
Honolulu, Hawaii
TMK: (1) 2-3-012:019

This is in response to your letter dated October 30, 2015 regarding the subject project. The proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and we have no comments to offer at this time.

If you have any questions, your staff may call Mr. David DePonte of the Public Works Division at 586-0492.

Sincerely,

FOR DOUGLAS MURDOCK
Comptroller

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Douglas Murdock, Comptroller
State of Hawai'i
Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawai'i 96810-0119

Dear Mr. Murdock:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 9, 2015 regarding the Mixed-Use Redevelopment at Alder Street. We confirm that your department has no comments to offer at this time. A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DAVID Y. IGE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

FORD N. FUCHIGAMI
DIRECTOR

Deputy Directors
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:
STP 8.1891

SSFM INTERNATIONAL, INC.
RECEIVED
NOV 5 2015
KB
FILE

FILE COPY

November 13, 2015

Ms. Katia Balassiano
Senior Associate
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

Subject: Mixed-Use Redevelopment at Alder Street
Pre-Assessment Consultation for Draft Environmental Assessment
Honolulu, Hawaii
TMK: (1) 2-3-012:019

The Draft Environmental Assessment (DEA) should discuss and evaluate the project's contribution to the cumulative traffic impacts on State highways facilities in the area.

If there are any questions, please contact Mr. Norren Kato of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7976.

Sincerely,

FOR FORD N. FUCHIGAMI
Director of Transportation

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015

SSFM 2014_068.000

Ford N. Fuchigami, Director
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Fuchigami:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 13, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). The draft TIAR will be included in the Draft EA. A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

HART

HONOLULU AUTHORITY for RAPID TRANSPORTATION

SSFM INTERNATIONAL, INC
RECEIVED
NOV 16 2015
K-D

IN REPLY REFER TO:
CMS-AP00ENV-00618

FILE COPY

Daniel A. Grabauskas
EXECUTIVE DIRECTOR AND CEO

BOARD OF DIRECTORS

Donald G. Horner
CHAIR

Damien T.K. Kim
VICE CHAIR

George I. Atta
Michael D. Formby
Ford N. Fuchigami
Terri Fujii
Colleen Hanabusa
William "Buzz" Hong
Terrence M. Lee
Ivan M. Lui-Kwan

November 10, 2015

Ms. Katia Balassiano, Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

Subject: Pre-Assessment Consultation
Draft Environmental Assessment
Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawaii
Tax Map Key: 2-3-012: 019

Thank you for providing the Honolulu Authority for Rapid Transportation (HART) with the opportunity to comment on the pre-assessment consultation letter for the proposed mixed-use redevelopment project.

HART has no comment on the proposed mixed-use redevelopment at this time. Please note that the above stated project is within a half mile of HART's Ala Moana station located on Kona Street.

If you have any questions regarding this matter, please do not hesitate to contact Mr. Tomo Murata, Land Use Planner, at (808) 768-6120.

Sincerely,

Daniel A. Grabauskas
Executive Director and CEO

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015

SSFM 2014_068.000

Daniel A. Grabauskas, Executive Director and CEO
City and County of Honolulu,
Honolulu Authority for Rapid Transportation
Ali'i Place, Suite 1700
1099 Alakea Street
Honolulu, Hawai'i 96813

Dear Mr. Grabauskas:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 10, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. We confirm that the Honolulu Authority for Rapid Transportation has no comment to offer at this time. We acknowledge that the project is within .5 miles of a future rail station. *Section 4.8* of the Draft EA will discuss the degree to which this project conforms to the Ala Moana Neighborhood TOD Plan. A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DAVID Y. IGE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

ARTHUR J. LOGAN
MAJOR GENERAL
ADJUTANT GENERAL

KENNETH S. HARA
BRIGADIER GENERAL
DEPUTY ADJUTANT GENERAL

November 16, 2015

FILE COPY

SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawai'i 96817

Attn.: Ms. Katia Balassiano, Senior Planner

Subject: Mixed-Use Redevelopment at Alder Street, Pre-Assessment Consultation for Draft Environmental Assessment, TMK (1) 2-3-012: 019

Dear Ms. Balassiano:

Thank you for the opportunity to comment on the above project. The State of Hawaii Department of Defense has no comments to offer relative to the project.

If you have any questions or concerns, please have your staff contact Mr. Lloyd Maki, Assistant Chief Engineering Officer at (808) 733-4250.

Sincerely,

ARTHUR J. LOGAN
Major General
Hawaii National Guard
Adjutant General

c: Ms. Havinne Okamura, Hawaii Emergency Management Agency

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Arthur J. Logan, Major General, Hawai'i National Guard
Adjutant General
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Logan:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 16, 2015 regarding the Mixed-Use Redevelopment at Alder Street. We confirm that your department has no comment to offer at this time. A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

November 25, 2015

SSFM International, Inc.
Attn: Katia Balassiano, Senior Planner via email: kbalassiano@ssfm.com
501 Sumner Street, Suite 620
Honolulu, HI 96817

Dear Ms. Balassiano,

SUBJECT: Mixed-Use Redevelopment at Alder Street, Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from (1) Land Division – Oahu District; (2) Commission on Water Resource Management; and (3) Engineering Division. No other comments were received as of our suspense date. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at 587-0439. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

November 3, 2015

MEMORANDUM

FROM TO:

DLNR Agencies:
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_ Engineering Division
___Div. of Forestry & Wildlife
___Div. of State Parks
_X_ Commission on Water Resource Management
_X_ Office of Conservation & Coastal Lands
_X_ Land Division – Oahu District
_X_ Historic Preservation

TO FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Mixed-Use Redevelopment at Alder Street, Pre-Assessment Consultation for Draft Environmental Assessment
LOCATION: 920 Alder Street, Honolulu, Hawai'i; Tax Map Key: (1) 2-3-012: 019
APPLICANT: Hawaii State Judiciary and the Hawaii Housing Finance and Development Corporation by their consultant SSFM International, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by November 24, 2015. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

The State Land has been set aside per EO 1577 to the Juvenile Court of the First Judicial Circuit, for a DETENTION HOME. As such, the existing purpose of the EO requires changes necessary to comply with the proposed mixed-use development.

Signed: _____
Print Name: Tiffany Chee
Date: 11/24/15

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

November 3, 2015

MEMORANDUM

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Mixed-Use Redevelopment at Alder Street, Pre-Assessment Consultation for Draft Environmental Assessment
LOCATION: 920 Alder Street, Honolulu, Hawai'i; Tax Map Key: (1) 2-3-012: 019
APPLICANT: Hawaii State Judiciary and the Hawaii Housing Finance and Development Corporation by their consultant SSFM International, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by November 24, 2015. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(x) Comments are attached.

Signed: /s/ Jeffrey T. Pearson, P.E.
Print Name: Deputy Director
Date: November 17, 2015

FILE ID: RFD. 4278.3
DOC ID: 13487

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON

WILLIAM D. BALFOUR, JR.
KAMANA BEAMER, PH.D.
MICHAEL G. BUCK
MILTON D. PAVAO
VIRGINIA PRESSLER, M.D.
JONATHAN STARR

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

November 17, 2015

REF: RFD.4278.3

TO: Mr. Russell Tsuji, Administrator
Land Division Oahu, DLNR-LD

FROM: Jeffrey T. Pearson, P.E., Deputy Director
Commission on Water Resource Management

SUBJECT: Mixed-Use Redevelopment at Alder Street, Pre-Assessment Consultation for DEA

FILE NO.: RFD.4278.3
TMK NO.: (1) 2-3-012: 019

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at http://dlnr.hawaii.gov/cwrm.

Our comments related to water resources are checked off below.

[ ] 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.

[X] 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

[ ] 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.

[X] 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.org/leed. A listing of fixtures certified by the EAP as having high water efficiency can be found at http://www.epa.gov/watersense.

[X] 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://hawaii.gov/dbedt/czm/initiative/lid.php.

[X] 6. We recommend the use of alternative water sources, wherever practicable.

[X] 7. We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at http://energy.hawaii.gov/green-business-program.

[X] 8. We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawaii. These practices can be found online at http://www.hawaiiscape.com/wp-content/uploads/2013/04/LICH_Irrigation_Conservation_BMPs.pdf.

☐ 9. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

☐ 10. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.

☐ 11. A Well Construction Permit(s) is (are) are required before the commencement of any well construction work.

☐ 12. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

☐ 13. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

☐ 14. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

☐ 15. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a steam channel.

☐ 16. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.

☐ 17. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

☐ 18. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

☒ OTHER: The DEA should include a discussion of the projected water requirements for the project, both potable and non-potable, and the calculations used to derive the projected water needs; water conservation and efficiency measures that will be implemented; the proposed water sources, including any alternative sources of water that may be available to meet nonpotable needs; and BMPs for stormwater management.

The Commission has published a Water Conservation Manual for State of Hawaii Facilities (2007) that lists conservation measures for restrooms and shower facilities; kitchens, cafeterias, and staff rooms; and landscaping. The Commission has also published a Handbook for Stormwater Reclamation and Reuse Best Management Practices in Hawaii (2008). Please visit the Commission's website at http://hawaii.gov/dlnr/cwrm to view or download a copy of these documents.

If you have any questions, please contact Lenore Ohye of the Commission staff at 587-0216.

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

'15 NOV 4 AM 10:37 ENGINEERING

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

November 3, 2015

MEMORANDUM

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
X Engineering Division
___Div. of Forestry & Wildlife
___Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Mixed-Use Redevelopment at Alder Street, Pre-Assessment Consultation for Draft Environmental Assessment
LOCATION: ~~902~~ 920 Alder Street, Honolulu, Hawai'i; Tax Map Key: (1) 2-3-012: 019
APPLICANT: Hawaii State Judiciary and the Hawaii Housing Finance and Development Corporation by their consultant SSFM International, Inc.

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document.

Please submit any comments by November 24, 2015. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____
Print Name: Carty S. Chang, Chief Engineer
Date: 11/19/15

RECEIVED
LAND DIVISION
2015 NOV 23 AM 6:15
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/ Russell Y. Tsuji
REF: Pre-Assessment Consultation for DEA for Mixed-Use Redevelopment at 902 Alder Street Oahu.075

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

(X) Please take note that the project site according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The National Flood Insurance Program (NFIP) does not regulate developments within Zone X.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

( ) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

( ) Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
( ) Mr. Carter Romero (Acting) at (808) 961-8943 of the County of Hawaii, Department of Public Works.
( ) Mr. Carolyn Cortez at (808) 270-7253 of the County of Maui, Department of Planning.
( ) Mr. Stanford Iwamoto at (808) 241-4896 of the County of Kauai, Department of Public Works.

(X) Please note that the implementation of any State-sponsored project requiring water service from the Honolulu Board of Water Supply (HBWS) system should first obtain water allocation credits from the Engineering Division before contacting HBWS for water service and/or water meter.

(X) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update. Also, provide the infrastructure required to meet water demands.

( ) Additional Comments: _____

( ) Other: _____

Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 11/19/15



Flood Hazard Assessment Report

www.hawaiinfip.org

Property Information

COUNTY:	HONOLULU
TMK NO:	(1) 2-3-012:019
WATERSHED:	ALA WAI
PARCEL ADDRESS:	902 ALDER ST HONOLULU, HI 96814

Notes:

Flood Hazard Information

FIRM INDEX DATE:	JANUARY 19, 2011
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL:	15003C0362G
PANEL EFFECTIVE DATE:	JANUARY 19, 2011

THIS PROPERTY IS WITHIN A TSUNAMI EVACUTION ZONE: NO
FOR MORE INFO, VISIT: http://www.scd.hawaii.gov/

THIS PROPERTY IS WITHIN A DAM EVACUATION ZONE: NO
FOR MORE INFO, VISIT: http://dlnreng.hawaii.gov/dam/

0 200 400 ft

Disclaimer: The Hawaii Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use, accuracy, completeness, and timeliness of any information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR, its officers, and employees from any liability which may arise from its use of its data or information.

If this map has been identified as 'PRELIMINARY', please note that it is being provided for informational purposes and is not to be used for flood insurance rating. Contact your county floodplain manager for flood zone determinations to be used for compliance with local floodplain management regulations.

FLOOD HAZARD ASSESSMENT TOOL LAYER LEGEND
(Note: legend does not correspond with NFHL)

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD - The 1% annual chance flood (100-year), also know as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. SFHAs include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

	Zone A: No BFE determined.
	Zone AE: BFE determined.
	Zone AH: Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
	Zone AO: Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
	Zone V: Coastal flood zone with velocity hazard (wave action); no BFE determined.
	Zone VE: Coastal flood zone with velocity hazard (wave action); BFE determined.
	Zone AEF: Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA - An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

	Zone XS (X shaded): Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
	Zone X: Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

	Zone D: Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase apply, but coverage is available in participating communities.

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Timmy Chee, Land Agent
State of Hawai'i
Department of Land and Natural Resources
Engineering Division
Post Office Box 621
Honolulu, Hawaii 96809

Dear Mr. Chee:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 17, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA).

We understand that the site has been set aside per Executive Order 1577 for a detention home. The Judiciary will request that the existing Executive Order No. 1577 be cancelled. HHFDC and the Judiciary will seek approval from the Board of Land and Natural Resources to have a new EO issued to both entities for the mixed-use project. A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

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Honolulu, Hawaii 96817
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December 23, 2015 SSFM 2014_068.000

Timmy Chee, Land Agent
State of Hawai'i
Department of Land and Natural Resources
Engineering Division
Post Office Box 621
Honolulu, Hawaii 96809

Dear Mr. Chee:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

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We understand that the site has been set aside per Executive Order 1577 for a detention home. The Judiciary will request that the existing Executive Order No. 1577 be cancelled. HHFDC and the Judiciary will seek approval from the Board of Land and Natural Resources to have a new EO issued to both entities for the mixed-use project. A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

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Honolulu, Hawaii 96817
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December 23, 2015 SSFM 2014_068.000

Jeffrey T. Pearson, Deputy Director
State of Hawai'i
Department of Land and Natural Resources
Commission on Water Resource Management
Post Office Box 621
Honolulu, Hawaii 96809

Dear Mr. Pearson:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street, Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 17, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA).

DLNR's Engineering Division is a consulted party; they, too, recommended that this project be incorporated into the State Water Projects Plan. The use of water efficient fixtures exceeding the limits already prescribed by existing codes will be explored. Best management practices for stormwater management will be utilized. There are no alternative water sources on or near the site that can be utilized. The Draft EA will discuss the Department's recommendation to participate in the Hawaii Green Business Program and see how it may apply to the project. Best management practices for landscape irrigation will be utilized. Water demands and calculations, and required infrastructure, will be included in Section 3.11 of the Draft EA. Thank you for referring us to the Commission's website. We will consider the recommendations as the project progresses through further stages of design. A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,
SSFM INTERNATIONAL, INC.

Katia Balassiano, Senior Planner
Email: kbalassiano@ssfm.com

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Honolulu, Hawaii 96817
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December 23, 2015 SSFM 2014_068.000

Carty S. Chang, Chief Engineer
State of Hawai'i
Department of Land and Natural Resources
Engineering Division
Post Office Box 621
Honolulu, Hawai'i 96809

Dear Mr. Chang:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 19, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA).

We understand that the site is located in Zone X of the Flood Insurance Rate Map (FIRM). We will contact the Honolulu Board of Water Supply regarding water allocation credits. Water demands and calculations, and required infrastructure, will be included in the Draft EA. A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

KIRK CALDWELL
MAYOR

SSFM INTERNATIONAL, INC.
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MANUEL P. NEVES
FIRE CHIEF

LIONEL CAMARA JR.
DEPUTY FIRE CHIEF

FILE

FILE COPY

November 18, 2015

Ms. Katia Balassiano
Senior Planner
SSFM International
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

Subject: Preassessment Consultation for Draft Environmental Assessment
Mixed-Use Redevelopment at 902 Alder Street
Tax Map Key: 2-3-012: 019

In response to your letter dated October 30, 2015, regarding the above-mentioned subject, the Honolulu Fire Department currently applies the 2006 edition of the National Fire Protection Association (NFPA) 1, with amendments, for compliance of the Fire Code of the City and County of Honolulu (Fire Code). Be advised that the 2012 edition of NFPA 1, with amendments, is expected to soon be adopted as the Fire Code.

Should you have questions, please contact Battalion Chief Terry Seelig of our Fire Prevention Bureau at 723-7151 or tseelig@honolulu.gov.

Sincerely,

Socrates D. Bratakos

SOCRATES D. BRATAKOS
Assistant Chief

SDB/SY:bh

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December 23, 2015 SSFM 2014_068.000

Socrates D. Bratakos, Assistant Chief
City and County of Honolulu
Honolulu Fire Department
636 South Street
Honolulu, Hawaii 96813-5007

Dear Mr. Bratakos:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 18, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

The project will comply with the 2012 Fire Code of the City and County of Honolulu.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DAVID Y. IGE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

In reply, please refer to:
EMD/CWB

11023PJF.15

November 18, 2015

SSFM INTERNATIONAL, INC.
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FILE COPY

Ms. Katia Balassiano
SSFM International, Inc.
501 Summer Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

SUBJECT: Draft Environmental Assessment (DEA) for Mixed-Use Redevelopment at Alder Street 902 Alder Street TMK: (1) 2-3-012:019 Honolulu, Island of Oahu, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated October 30, 2015, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.pdf.

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).

For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, you must submit the applicable form ("CWB Individual NPDES Form" or "CWB NOI Form") through the e-Permitting Portal and the hard copy certification statement with the respective filing fee ($1,000 for an individual NPDES permit or $500 for a Notice of General Permit Coverage). Please open the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/. You will be asked to do a one-time registration to obtain your login and password. After you register, click on the Application Finder tool and locate the appropriate form. Follow the instructions to complete and submit the form.

3. If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 835-4303) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and HAR, Chapter 11-54.

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

5. It is the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:

   a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects

natural ecosystems and traditional beneficial uses of State waters, like community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.

b. Clearly articulate the State's position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g., minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.

c. Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.

d. Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.

e. Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Particular consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

If you have any questions, please visit our website at: http://health.hawaii.gov/cwb/, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

ALEC WONG, P.E., CHIEF
Clean Water Branch

JF:ay

c: EPO [via e-mail noella.narimatsu@doh.hawaii.gov only]

SSFM INTERNATIONAL

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December 23, 2015

SSFM 2014_068.000

Alec Wong, P.E., Chief
State of Hawai'i
Department of Health, Clean Water Branch
P.O. Box 3378
Honolulu, Hawai'i 96801-3378

Dear Mr. Wong:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 18, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

As recommended, the standard comments and available strategies have been reviewed. The potential impact of the project on State waters has been examined. The project will comply with all applicable requirements, including HAR, Sections 11-54-1.1, and 4 through 8. A NPDES permit will be secured prior to the start of construction activities. The project does not involve work in, over, or under waters of the United States. All discharges related to the project construction and operation activities will comply with the State's Water Quality Standards. The project's efforts to reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters will be discussed in Section 3.13 of the Draft EA.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, THIRD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8305 • Fax: (808) 768-4730 • Internet: www.honolulu.gov

KIRK CALDWELL
MAYOR

MICHAEL D. FORMBY
DIRECTOR

MARK N. GARRITY, AICP
DEPUTY DIRECTOR

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TP11/15-630808R

November 19, 2015

FILE COPY

Ms. Katia Balassiano
Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment (DEA), Mixed-Use Redevelopment on Alder Street, Honolulu, Oahu, Hawaii

In response to your letter dated October 30, 2015, we have the following comments:

1. The DEA should include a Traffic Impact Assessment Report to evaluate existing traffic conditions of the surrounding roadways, possible increase in traffic and pedestrian volumes as a result of the project, including short-term impacts during construction and long term impacts after construction, and measures to mitigate these impacts applying complete streets principles.

2. The DEA should include a Traffic Management Plan, which should note that during construction, any deliveries of materials and equipment should be transferred to and from the project site during off-peak traffic hours (8:30 a.m. to 3:30 p.m.) to minimize any possible disruption to traffic on the local streets and pedestrians near the project site.

3. All loading and unloading needs, including service delivery vehicles should be handled on-site, rather than on City roadways. In addition, the project should be designed to accommodate TheHandi-Van paratransit vehicles on-site, which require a minimum 31-foot turning radius and a 10-foot, 6-inch height clearance.

4. On-site bike racks and secure bike storage for the residents, employees and visitors should be included.

5. All access driveways to the project site should be designed for pedestrian and bicycle safety.

6. The area Neighborhood Board, as well as the area residents, businesses, emergency personnel (fire, ambulance and police), Oahu Transit Services, Inc. (TheBus), etc., should be kept apprised of the details of the proposed project and the impacts, particularly during construction, the project may have on the adjoining local street area network.

7. A street usage permit from the City's Department of Transportation Services should be obtained for any construction-related work that may require the temporary closure of any traffic lane on a City street.

Thank you for the opportunity to review this matter. Should you have any questions, please contact Renee Yamasaki of my staff at 768-8383.

Very truly yours,

Michael D. Formby
Director

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Michael D. Formby, Director
City and County of Honolulu
Department of Transportation Services
650 South King Street, Third Floor
Honolulu, Hawai'i 96813

Dear Mr. Formby:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street, Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 19, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

A Traffic Impact Assessment Report will be included in the Draft EA. A Traffic Management Plan will be prepared closer to actual construction, after a contractor has been hired, and prior to the start of construction. All loading and unloading will take place on site. On-site bike storage for the residents and employees will be available in the parking structure. Access driveways to the project site will be designed for pedestrian and bicycle safety. Stakeholders will be kept informed; Section 7.0 of the Draft EA identifies the consulted parties. The project will be presented to the Ala Moana/Kaka'ako Neighborhood Board and area representatives. A street usage permit will be secured by the contractor. Traffic control services will be obtained for any construction-related work that may require the temporary closure of any traffic lane on a City street.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano, Senior Planner
Email: kbalassiano@ssfm.com

From: Aaron Landry
To: Katia Balassiano
Cc: Jared Chang
Subject: Re: Ala Moana-Kaka"ako Neighborhood Board
Date: Monday, December 07, 2015 8:45:36 AM
Attachments: image001.jpg
image004.jpg
image004.jpg

Yes, there should be room for a 10 minute presentation. The January meeting is the 26th and the February meeting is the 23rd, and I can fit you in either. I prefer the January one if that isn't too early. I usually list who is presenting and a one or two line description of the topic. If you have that, that'd be helpful. Otherwise it is no problem to follow up in mid-January before I make the agenda solid.

On Fri, Dec 4, 2015 at 15:06 Katia Balassiano <kbalassiano@ssfm.com> wrote:

> Hello Aaron,
>
> Thank you, again, for responding to the Pre-Assessment Consultation letter associated with the Alder Street mixed use project. We would like to take you up on your offer to present the project to the Board. Might there be about 10 or 15 minutes for the HHFDC and the Judiciary on your February agenda?
>
> Thank you,
>
> Katia
>
> **Katia Balassiano, AICP**
>
> Senior Planner
>
> Direct Line: 808-356-1273
>
> cid:image001.jpg@01CF7B54.45699390
>
> 501 Sumner Street, Suite 620
>
> Honolulu, HI 96817
>
> Office Line: 808-531-1308

Fax Line: 808-521-7348

www.ssfm.com

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From: Katia Balassiano
Sent: Monday, November 23, 2015 8:18 AM
To: 'Aaron Landry' <aaron@s4xton.com>
Subject: RE: Ala Moana-Kaka'ako Neighborhood Board

Hello Aaron,

I received your email. Thanks for taking the time to consider the proposal.

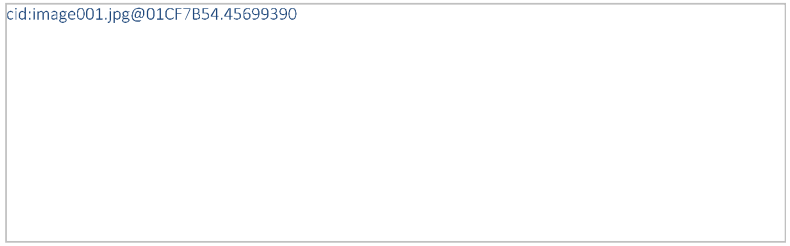
Best wishes,

Katia

Katia Balassiano, AICP

Senior Planner

Direct Line: 808-356-1273



501 Sumner Street, Suite 620

Honolulu, HI 96817

Office Line: 808-531-1308

Fax Line: 808-521-7348

www.ssfm.com

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From: Aaron Landry [mailto:aaron@s4xton.com]

Sent: Friday, November 20, 2015 10:41 AM

To: Katia Balassiano <kbalassiano@ssfm.com>
Subject: Re: Ala Moana-Kaka'ako Neighborhood Board

I do not have any comments at this time. Thank you for the opportunity to do so and for keeping us up-to-date.

-Aaron

On Tue, Nov 17, 2015 at 7:55 AM, Katia Balassiano <kbalassiano@ssfm.com> wrote:

> Hello Aaron,
>
> Thank you for the update and offer! We will make the changes to our files. Do you think you'll still have sufficient time to send a letter in response to my request?
>
> Thanks,
>
> Katia
>
> **From:** Aaron Landry [mailto:aaron@s4xton.com]
> **Sent:** Monday, November 16, 2015 4:29 PM
> **To:** Katia Balassiano <kbalassiano@ssfm.com>
> **Subject:** Ala Moana-Kaka'ako Neighborhood Board
>
> I just received a letter from you forwarded to me from October 30 regarding 902 Alder Street.
>
> Just wanted to let you know that I am the current chair of the Ala Moana–Kaka'ako NB. You can continue to use the same physical address, but use my name (Aaron Landry) instead of Larry Hurst. I will usually get postal mail within a week or two, but if you wish, this email reaches me immediately: aaron+nb11@s4xton.com.
>
> Thank you, and if you ever wish to present or give the Board an update directly, please let me know.
>
> Aloha,
>
> -Aaron

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Aaron Landry, Chair
Ala Moana / Kaka'ako Neighborhood Board No. 11
530 South King Street, Room 406
Honolulu, Hawai'i 96813

Dear Mr. Landry:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your email dated November 20, 2015 regarding the Mixed-Use Redevelopment at Alder Street. We understand the Board has no comments at this time. We look forward to presenting the project to the Neighborhood Board on February 23, 2016. A hardcopy of the Draft Environmental Assessment will be provided to your Board when it is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

SSFM INTERNATIONAL, INC.
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KIRK CALDWELL
MAYOR

LOUIS M. KEALOHA
CHIEF

MARIE A. McCAULEY
CARY OKIMOTO
DEPUTY CHIEFS

FILE

OUR REFERENCE MT-DK

November 20, 2015

FILE COPY

Ms. Katia Balassiano, Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

This is in response to your letter dated October 30, 2015, requesting comments on a Pre-assessment Consultation, Draft Environmental Assessment, for the Mixed-Use Redevelopment at 902 Alder Street project.

The Honolulu Police Department has reviewed this project and has concerns regarding the safe flow of vehicular traffic, parking in the project area, a space for alternate means of transportation, and the security of the subject property.

The project area will require a sufficient amount of traffic control devices (e.g., flag persons, clear signage and cones, special duty officers, etc.) to accommodate the construction vehicles being driven to and from the work site. Additionally, construction vehicles parked on the streets will be required to have proper permits, and the drivers of vehicles must abide by the parking zone restrictions on Piikoi and King Streets. Construction workers and visitors should be reminded not to use the city parks for their use while conducting business at the project site. Vehicles found in violation of park usage rules will be cited and towed.

Street parking around the project site is very limited. Therefore, the developer should consider providing adequate parking for the occupants, employees, and visitors residing in the building. Additionally, the developer should provide an assigned, secured storage area on the property for alternate means of transportation (e.g., bicycles, mopeds, etc.). A parking area access to the building should also be provided for emergency responders to park their vehicles without impeding street traffic.

Further, the property should include safety measures, such as well-lit common areas, key card access for secure entry, private security service, and a camera surveillance

system that can produce a readable image of the vehicle's license plate and identifiable facial images to aid in the investigation of criminal activities occurring on the site.

If there are any questions, please call Major Roy Sugimoto of District 1 (Central Honolulu) at 723-3327.

Thank you for the opportunity to review this project.

Sincerely,

LOUIS M. KEALOHA
Chief of Police

By

MARK TSUYEMURA
Management Analyst VI
Office of the Chief

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Mark Tsuyemura, Management Analyst VI
Office of the Chief
City and County of Honolulu
Police Department
801 South Beretania Street
Honolulu, Hawai'i 96813

Dear Mr. Tsuyemura:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 20, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

A Traffic Management Plan will be prepared to specify the traffic control devices and how construction vehicles will be managed. An on-site parking structure will accommodate residents, employee, visitor, and emergency responder parking. An on-site bicycle storage area will be available. A drop off area assigned to the Police Department will be provided within the parking structure. Safety measures, such as well-lit common areas, key card access for secure entry, private security service, and a camera surveillance system will be specified in Section 2.4 of the Draft EA.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DAVID Y. IGE
GOVERNOR OF HAWAII

STATE OF HAWAI'I
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
Department of Health
235 South Beretania Street, Suite 702
Honolulu, Hawai'i 96813
Telephone (808) 586-4185
Facsimile (808) 586-4186
Email: oeqchawaii@doh.hawaii.gov

SCOTT GLENN
INTERIM DIRECTOR

SSFM INTERNATIONAL, INC
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FILE

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November 24, 2015

SSFM International, Inc.
Attn: Katia Balassiano, Senior Planner
501 Summer Street, Suite 620
Honolulu, HI 96817

Dear Ms. Balassiano,

SUBJECT: Pre-Consultation Request for Mixed-Use Redevelopment at Alder Street, Honolulu, Hawaii.

The Office of Environmental Quality Control has reviewed the information contained in your October 30, 2015 letter about the subject project, and offers the following comments for your consideration.

Based on the information provided, The OEQC recommend the consideration of low impact development. The project would reduce the area of pervious surfaces, and mitigation measures such as pavers or pervious pavements would help groundwater recharge in the area. The Office of Planning, Land Use Development website: http://planning.hawaii.gov/lud/ has resources for low impact development and green buildings. The OEQC also recommends using native vegetation for landscaping, as per Act 233 (2015). OEQC looks forward to reviewing a Draft EA that includes sufficient information to enable recipients and the public to understand the project and to provide substantive feedback.

Thank you for your role in Hawaii's environmental review process and for the opportunity to comment at this early stage of this project. As you prepare to submit documents for publication and public review in The Environmental Notice, we appreciate your diligence in using current and correct publication forms available online. If you have any questions as you navigate this process, please consult our website at http://health.hawaii.gov/oeqc (see in particular the link to the Environmental Assessment Preparation Toolkit on the right panel) or contact our office at (808) 586-4185.

Sincerely,

Scott Glenn, Interim Director

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Scott Glenn, Director
State of Hawai'i
Office of Environmental Quality Control
Department of Health
235 South Beretania Street, Suite 702
Honolulu, Hawai'i 96813

Dear Mr. Glenn:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 24, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). The project will consider the use of measures that facilitate groundwater recharge in the area. We will use the current and correct publication forms as we prepare to submit documents for publication and public review in *The Environmental Notice.*

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

November 25, 2015

SSFM International, Inc.
Attn: Katia Balassiano, Senior Planner via email: kbalassiano@ssfm.com
501 Sumner Street, Suite 620
Honolulu, HI 96817

Dear Ms. Balassiano,

SUBJECT: Mixed-Use Redevelopment at Alder Street, Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from (1) Land Division – Oahu District; (2) Commission on Water Resource Management; and (3) Engineering Division. No other comments were received as of our suspense date. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at 587-0439. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

SSFM INTERNATIONAL, INC.
RECEIVED
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FILE

November 25, 2015

SSFM International
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Katia Balassiano:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street, Honolulu, Hawaii
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

The Department of Design and Construction has the following comment to offer on the pre-assessment consultation:

This project may qualify for the Governor's Emergency Proclamation which would waive the HRS Chapter 343 requirements.

Thank you for the opportunity to review and comment. Should there be any questions, please contact Clifford Lau, Chief Facilities Division at 768-8483.

Sincerely,

Robert J. Kroning, P.E.
Director

RJK: ps (630795)

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Robert Kroning, Director
City and County of Honolulu
Department of Design and Construction
650 South King Street, 11th Floor
Honolulu, Hawai'i 96813

Dear Mr. Kroning:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 25, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street.

We thank you for pointing out the opportunities contained in the Governor's Emergency Proclamation. The proclamation appears to be applicable for the purpose of "establishing a temporary transitional shelter and facilitating contracting with private providers of homeless services." The current mixed-use project will provide juvenile shelter/services and permanent (vs. transitional) rental housing for working families. A hardcopy of the Draft Environmental Assessment will be provided to your Department when it is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

HAWAII COMMUNITY DEVELOPMENT AUTHORITY

KAKAAKO KALAELOA

David Y. Ige
Governor

John Whalen
Chairperson

Anthony J. H. Ching
Executive Director

547 Queen Street
Honolulu, Hawaii
96813

Telephone
(808) 594-0300

Facsimile
(808) 587-0299

E-Mail
contact@hcdaweb.org

Web site
www.hcdaweb.org

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NOV 30 2015

Ref. No.: PL GEN 1.19.3

November 25, 2015

FILE COPY

FILE

Ms. Katia Balassiano
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

Re: Pre-Draft Environmental Assessment for the Proposed Mixed-Use Redevelopment, 902 Alder Street
Tax Map Key ("TMK"): (1)2-3-012: 019

The Hawaii Community Development Authority ("HCDA") has received a letter from SSFM International, Inc., dated October 30, 2015, requesting a pre-assessment comment for a Draft Environment Assessment ("EA"), which is in the process of being prepared, for a proposed mixed-use redevelopment located at 902 Alder Street (TMK: (1)2-3-012: 019).

As explained, the above mentioned 1.45-acre lot (63,180 square feet) is owned by the State of Hawaii and, in accordance with Executive Order No. 1577, it has been set aside since 1953 for a Detention Home under the control and management of the Juvenile Court of the First Judicial Circuit. Currently, the Hawaii State Judiciary and the Hawaii Housing Finance and Development Corporation are proposing to jointly redevelop the said lot with a mixed-use development consisting of an affordable rental housing, therapeutic counseling, rehabilitative services and shelter for juveniles, incidental community uses, and parking.

The proposed development will utilize the Hawaii Revised Statutes Chapter 201H provision granted to affordable housing projects to request certain exemptions from zoning requirements. The EA should weigh the requested exemptions and indicate how they would contribute specifically to resulting impacts.

The site, which is bound by Elm Street, South King Street, Piikoi Street and Alder Street, is in the A-2 Apartment Medium-Density zoning district with a height limit of 150 feet. It is outside the jurisdiction of the HCDA; nonetheless, on its western side it is closely bordered by parcels that are within HCDA's Mauka Area

Sheridan Zone. As such, the proposed redevelopment should take into consideration the development and urban design standards of the Sheridan Neighborhood. Section 15-217-23(4) of the Mauka Area Rules describes the Sheridan Zone as consisting of predominantly residential neighborhood with markedly lower scale buildings when compared to the remainder of the Mauka Area and as having commercial uses along South King, Pensacola, and Piikoi Streets; preferably within mixed-use buildings with upper floors of residential or office uses. To echo the small-scale feature of the neighborhood, the design of the development should be pedestrian friendly by having human-scaled features and frontages that embrace the sidewalks.

In addition, the EA shall discuss potential impacts and mitigation relating to traffic and circulation. The site will be within 15 minutes walking distance from the future Ala Moana Station and is bound by Piikoi Street, which is proposed as a primary bike network. Therefore, the traffic section of the EA should include a discussion relating to bicyclist and pedestrians as well as a discussion on access and potential safety impacts with particular regard to areas where there are potential conflict points.

The EA should also include a discussion regarding existing infrastructure and potential impacts to all the infrastructure systems (i.e., storm water drainage, sanitary sewers, and potable water). For instance, the design of the proposed project will have a direct impact on the amount of storm water being displaced which would directly affect the neighborhood properties. As mitigation, the proposed project should consider sustainable design and in lieu of using a manufacture treatment device consider implementing low impact development (LID) method for treating storm water runoff, such as vegetated streetscape. It will also have potential impact on sewer capacity in the Kakaako Community Development District, therefore impact on sewer capacity and mitigation measures shall be disclosed in the EA.

The EA should also address the implications of the proposed development to area schools and disclose proposed mitigations.

In general, even though the project site is governed by the laws and regulations of the City and County of Honolulu, due to the close proximity of the site to HCDA's Sheridan Zone, the design of the proposed development should be

sympathetic to the small-scale urban fabric of the Sheridan Neighborhood and all infrastructure issues relating to the project should be reviewed comprehensively.

Should have any additional questions regarding this matter, please contact Ms. Sery Berhanu at 594-0314 or via email at Sergut.Berhanu@hcdaweb.org.

Sincerely,

Anthony J. H. Ching
Executive Director

AJHC/DN/SB:ak

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Anthony J.H. Ching, Executive Director
Hawai'i Community Development Authority
547 Queen Street
Honolulu, Hawai'i 96813

Dear Mr. Ching:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 25, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). A hardcopy of the Draft Environmental Assessment will be provided to your Department when it is published in the State Office of Environmental Quality Control's *Environmental Notice*.

The proposed development is primarily guided by concepts and policies associated with promoting compact, mixed-use, transit-oriented development near the future rail station; maximizing the production of affordable housing; and creating a safe environment for juveniles. Section 3.10 of the Draft EA will address traffic and circulation issues, including the needs of bicyclists and pedestrians. Sections 3.11 to 13 of the Draft EA will address the project's impact on infrastructure systems; mitigation measures will also be discussed. Section 3.15 of the Draft EA will address the socioeconomic environment and impact on area schools. The proposed redevelopment will take into consideration the development and urban design standards of the Sheridan neighborhood.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

November 27, 2015

SSFM INTERNATIONAL, INC.
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KIRK CALDWELL, MAYOR

DUANE R. MIYASHIRO, Chair
ADAM C. WONG, Vice Chair
DAVID C. HULIHEE
KAPUA SPROAT
BRYAN P. ANDAYA

ROSS S. SASAMURA, Ex-Officio
FORD N. FUCHIGAMI, Ex-Officio

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

ELLEN E. KITAMURA, P.E.
Deputy Manager and Chief Engineer

Ms. Katia Balassiano
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

Subject: Your Letter Dated October 30, 2015 Requesting Comments on the Draft Environmental Assessment for the Proposed Mixed Used Development at 902 Alder Street – Tax Map Key: 2-3-012: 019

Thank you for your letter regarding the proposed mixed use development.

The existing water system is adequate to accommodate the proposed development. However, please be advised that this information is based upon current data, and therefore, the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of the building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

Water conservation measures are recommended for all proposed developments. These measures include low flow plumbing fixtures, utilization of nonpotable water for irrigation using rain catchment and chiller/air handler condensate, cooling tower conductivity meters and water softening recycling systems, drought tolerant plants, xeriscape landscaping, efficient irrigation systems and the use of Water Sense labeled ultra-low-flow water fixtures and toilets.

High-rise buildings with booster pumps will be required to install water hammer arrestors or expansion tanks to reduce pressure spikes and potential main breaks in our water system.

The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at 748-5443.

Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Ernest Y.W. Lau, Manager and Chief Engineer
City and County of Honolulu
Board of Water Supply
630 South Beretania Street
Honolulu, Hawai'i 96843

Dear Mr. Lau:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 27, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). A hardcopy of the Draft Environmental Assessment will be provided to your Department when it is published in the State Office of Environmental Quality Control's *Environmental Notice*.

We understand that while the existing water system is adequate to accommodate the proposed development, the final decision on the availability of water will be confirmed when the building permit application is submitted for approval. The applicant will be seeking a deferral of the Water System Facilities Charges as part of the 201H application process. Your recommendations on water conservation measures will be considered. Water hammer arrestors or expansion tanks will be installed, as required. Finally, on-site fire protection requirements will be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DAVID Y. IGE
GOVERNOR
STATE OF HAWAII

SHAN S. TSUTSUI
LT. GOVERNOR
STATE OF HAWAII

JOBIE M. K. MASAGATANI
CHAIRMAN
HAWAIIAN HOMES COMMISSION

WILLIAM J. AILA, JR.
DEPUTY TO THE CHAIRMAN

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DEC 07 2015

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1879
HONOLULU, HAWAII 96805

FILE COPY

November 30, 2015

Katia Balassiano, Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

Subject: Pre-Assessment Consultation for Draft Environmental Assessment, Mixed-Use Redevelopment at 902 Alder Street, Honolulu, O'ahu, Hawaii TMK: (1) 2-3-012:019

The Department of Hawaiian Home Lands acknowledges receiving the request for comments on the above-cited project. After reviewing the materials submitted, due to its lack of proximity to Hawaiian Home Lands, we do not anticipate any impacts to our lands or beneficiaries from the project.

However, we highly encourage all agencies to consult with Hawaiian Homestead community associations and other (N)native Hawaiian organizations when preparing environmental assessments in order to better assess potential impacts to cultural and natural resources, access and other rights of Native Hawaiians.

Mahalo for the opportunity to provide comments. If you have any questions, please contact Nancy McPherson, Planner at 620-9519 or via email at nancy.m.mcpherson@hawaii.gov.

Sincerely,

M. Kaleo Manuel
Acting Planning Program Manager

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

M. Kaleo Manuel, Acting Planning Program Manager
State of Hawai'i
Department of Hawaiian Home Lands, Land Division
Post Office Box 1879
Honolulu, Hawai'i 96805

Dear Mr. Manuel:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated November 30, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). A hardcopy of the Draft Environmental Assessment will be provided to your Department when it is published in the State Office of Environmental Quality Control's *Environmental Notice*.

We understand that due to its lack of proximity to Hawaiian Home Lands, DHHL does not anticipate any impacts to DHHL lands or beneficiaries from the project. In accordance with your recommendation, Cultural Surveys Hawai'i, Inc. has prepared a Cultural Impact Assessment for this project, which includes consultations and will be included in its entirety in the Draft EA.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
715 SOUTH KING STREET, SUITE 311 ● HONOLULU, HAWAII 96813 ● AREA CODE 808 ● PHONE: 768-7762 ● FAX: 768-7792

KIRK CALDWELL
MAYOR

GARY K. NAKATA
DIRECTOR

BARBARA YAMASHITA
DEPUTY DIRECTOR

SSFM INTERNATIONAL, INC.
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FILE COPY

December 1, 2015

Ms. Katia Balassiano
Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

SUBJECT: Mixed-Use Redevelopment at Alder Street
902 Alder Street, Honolulu, Hawaii 96814
Tax Map Key: (1) 2-3-012:019
Pre-Assessment Consultation Draft Environmental Assessment

We have reviewed your letter dated October 30, 2015, and the enclosed map of the project site.

Our review of the documents provided indicates the proposed project will have no adverse impacts on any Department of Community Services' activities or projects at this time.

Thank you for providing us with the opportunity to comment on this matter.

Sincerely,

for Gary K. Nakata
Director

GKN:jc

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015

SSFM 2014_068.000

Gary K. Nakata, Director
City and County of Honolulu
Department of Community Services
715 South King Street Suite 311
Honolulu, Hawai'i 96813

Dear Mr. Nakata:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated December 1, 2015 regarding the Mixed-Use Redevelopment at Alder Street. We confirm that your department has no comment to offer at this time. A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DAVID Y. IGE
GOVERNOR

KATHRYN S. MATAYOSHI
SUPERINTENDENT

STATE OF HAWAI`I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI`I 96804

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

SSFM INTERNATIONAL, INC
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December 3, 2015

Ms. Katia Balassiano, Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Re: Pre-Assessment Consultation for Draft Environmental Assessment
Mixed-Use Redevelopment at Alder Street, Tax Map Key No: (1) 2-3-012:019

Dear Ms. Balassiano:

The Department of Education (DOE) has reviewed your pre-assessment consultation letter regarding the proposed redevelopment at Alder Street. Due to the significant redevelopment within Kakaako involving residential units and the predictable impacts on public schools that are likely to occur, DOE has concerns over this and any similarly dense residential development within close proximity. DOE would appreciate further consultation on this project well in advance of entitlements being secured.

Thank you for the opportunity to comment on the proposed project. Should you have any questions, please feel free to contact Roy Ikeda of the Planning Section, Facilities Development Branch at 377-8301.

Respectfully,

Kenneth G. Masden II
Public Works Manager
Planning Section

KGM:jmb

c: Ruth Silberstein, Complex Area Superintendent, Kaimuki/McKinley/Roosevelt Complex Area

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Kenneth G. Masden II, Public Works Manager, Planning Section
State of Hawai'i
Department of Education
Post Office Box 2360
Honolulu, Hawai'i 96804

Dear Mr. Masden:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated December 3, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). Plasch Econ Pacific is analyzing the potential population, economic and fiscal impacts associated with this project, including the project's impacts on existing public schools. The report will be included in its entirety in the Draft EA. A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DEPARTMENT OF FACILITY MAINTENANCE

CITY AND COUNTY OF HONOLULU

1000 Ulu`ohia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 768-3343 • Fax: (808) 768-3381
Website: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROSS S. SASAMURA, P.E.
DIRECTOR AND CHIEF ENGINEER

EDUARDO P. MANGLALLAN
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 15-891

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SSFM INTERNATIONAL, INC.
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DEC 07 2015
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FILE COPY

December 2, 2015

Ms. Katia Balassiano, Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

SUBJECT: Mixed-Use Redevelopment at Alder Street
902 Alder Street, Honolulu, Hawaii
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for the opportunity to review and provide our input regarding your letter dated October 30, 2015, on the above-subject project.

Our comments are as follows:

- Once construction phase commences, install approved Best Management Practices (BMPs) fronting all drainage facilities, such as catch basin and drainage inlets along Piikoi Street and Elm Street.
- During construction and upon completion of the project, any damages/deficiencies to Piikoi Street, Elm Street, and Alder Street right-of-ways shall be corrected to City Standards, and at the owner's cost.
- The contractor shall be responsible for clearing storm drain facilities to mitigate flooding during construction and removing BMPs upon completion of the project.

If you have any questions, please contact Mr. Kyle Oyasato of the Division of Road Maintenance at 768-3697.

Sincerely,

Ross S. Sasamura, P.E.
Director and Chief Engineer

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015

SSFM 2014_068.000

Ross S. Sasamura, Director and Chief Engineer
City and County of Honolulu
Department of Facility Maintenance
1000 Ulu'ohia Street, Suite 215
Kapolei, Hawai'i 96707

Dear Mr. Sasamura:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated December 2, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). The property owner will have approved Best Management Practices (BMPs) installed where appropriate when construction commences. Any damages to Pi'ikoi Street, Elm Street, and Alder Street right-of-ways will be corrected to City Standards. BMPs will be removed upon the project's completion and storm drains will be cleared, as needed. A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. PEARSON
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555
KAPOLEI, HAWAII 96707

December 3, 2015

Ms. Katia Balassiano
SSFM International, Inc.
501 Sumner Street, suite 620
Honolulu, HI 96817

Log No. 2015.03923
Doc. No. 1512GC04
Archaeology

Dear Ms. Balassiano:

SUBJECT: **Chapter 6E-8 Historic Preservation Review –**
Mixed-Use Redevelopment at 902 Alder Street
Pre-Assessment for Draft Environmental Assessment
Honolulu Ahupua'a, Kona District, Island of O'ahu
TMK: (1) 2-3-012:019

Thank you for the opportunity to review this submittal for the 902 Alder Street Mixed Use Redevelopment Project, which was received by our office on November 2, 2015. According to the submittal, this is a joint redevelopment project among the Hawai'i State Judiciary and the Hawai'i Housing Finance and Development Corporation (HHFDC). The project will consist of developing affordable housing, therapeutic counseling, rehabilitative services and shelter for juveniles, parking and incidental community uses. In addition, the submittal indicates that the property will be used for the production of affordable rental housing.

Our records indicate that no archaeological inventory survey has been conducted within the subject parcel and that no historic properties have been identified. SHPD's review is based on available information in our records. At this time, SHPD has insufficient information to make a determination for the proposed project and its effect to potential historic properties. The SHPD requests the following information:

(1) Narrative description of the proposed project, including total area in acres and nature of any land alteration, new construction, demolition or modification of existing structures;

(2) TMK map showing the full extent of the project area within the affected parcel;

(3) Description and photographs of current vegetation cover and condition of the project area, including structures, roads, walls, or other features within the project area (photographs preferred);

(4) Summary of land use history, such as previous intensive cultivation, grubbing or grading;

(5) Copies or dates of previously approved permits, survey reports and/or prior SHPD review letters that pertains to the property; and

(6) Contact information for the responsible State and/or City and County of Honolulu agency for this project.

Please contact me at (808) 692-8019 or at Susan.A.Lebo@hawaii.gov if you have any questions regarding this letter.

Aloha,

Susan A. Lebo

Susan A. Lebo, PhD
Archaeology Branch Chief

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Susan A. Lebo, Archaeology Branch Chief
State of Hawaii
Department of Land and Natural Resources
State Historic Preservation Division
Kakuhihewa Building
601 Kamokila Blvd, Suite 555
Kapolei, Hawai'i 96707

Dear Ms. Lebo:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated December 3, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Cultural Surveys Hawai'i, Inc. (CSH) has prepared an Archeological Inventory Survey for this project. It will be included in its entirety in the Draft EA for review and comments. CSH will also be submitting the draft report to SHPD for review and comments directly. SHPD has already reviewed and accepted the Hale Hoomalu Reconnaissance Level Survey for this project (SHPD LOG: 2015.03959, DOC: 1511JLP05). A hardcopy of the Draft Environmental Assessment will be provided to your Department when it is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DAVID Y. IGE
GOVERNOR

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

KATHRYN S. MATAYOSHI
SUPERINTENDENT

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

SSFM INTERNATIONAL, INC.
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FILE COPY

December 3, 2015

Ms. Katia Balassiano, Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Re: Pre-Assessment Consultation for Draft Environmental Assessment
Mixed-Use Redevelopment at Alder Street, Tax Map Key No: (1) 2-3-012:019

Dear Ms. Balassiano:

The Department of Education (DOE) has reviewed your pre-assessment consultation letter regarding the proposed redevelopment at Alder Street. Due to the significant redevelopment within Kakaako involving residential units and the predictable impacts on public schools that are likely to occur, DOE has concerns over this and any similarly dense residential development within close proximity. DOE would appreciate further consultation on this project well in advance of entitlements being secured.

Thank you for the opportunity to comment on the proposed project. Should you have any questions, please feel free to contact Roy Ikeda of the Planning Section, Facilities Development Branch at 377-8301.

Respectfully,

Kenneth G. Masden II
Public Works Manager
Planning Section

KGM:jmb

c: Ruth Silberstein, Complex Area Superintendent, Kaimuki/McKinley/Roosevelt Complex Area

SCANNED

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Kenneth G. Masden II, Public Works Manager, Planning Section
State of Hawai'i
Department of Education
Post Office Box 2360
Honolulu, Hawai'i 96804

Dear Mr. Masden:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated December 3, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). Plasch Econ Pacific is analyzing the potential population, economic and fiscal impacts associated with this project, including the project's impacts on existing public schools. The report will be included in its entirety in the Draft EA. A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

OFFICE OF PLANNING
STATE OF HAWAII

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
ACTING DIRECTOR
OFFICE OF PLANNING

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: http://planning.hawaii.gov/

Ref. No. P-14970

December 4, 2015

FILE COPY

Ms. Katia Balassiano, Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

Subject: Pre-Assessment Consultation for Draft Environmental Assessment
Mixed-Use Redevelopment at Alder Street
Tax Map Key: (1) 2-3-012: 019
Honolulu, Oahu, Hawaii

Thank you for soliciting comments on the Environmental Assessment (EA) being prepared for the above referenced project.

The Hawaii State Judiciary (Judiciary) and the Hawaii Housing Finance and Development Corporation (HHFDC) propose to jointly redevelop the 1.45-acre property located at 902 Alder Street in Honolulu. The mixed-use development will consist of affordable housing, therapeutic counseling, rehabilitative services and shelter for juveniles, parking, and incidental community uses. An architectural concept plan will be developed for the proposed project. The current concept involves co-locating the affordable rental housing and judiciary components on the property, along with a parking structure for the new residents and judiciary employees and clients. The property is zoned A-2 Medium Density Apartment.

The Office of Planning (OP) provides the following comments for preparation of the Draft EA:

1. **Affordable Housing.** Increasing the supply of affordable housing is a critical State need. The Draft EA should discuss how the project will address affordable housing needs and requirements, including a description of proposed residential product types allocated among market and affordable housing target populations, and the expected price ranges for the different product types.

2. **Coastal Zone Management (CZM).** The coastal zone management area is defined as "all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the U.S. territorial sea" see Hawaii Revised Statutes (HRS) § 205A-1 (definition of "coastal

zone management area").

The Draft EA should include an assessment as to how the proposed project conforms to the CZM objectives and its supporting policies set forth in HRS § 205A-2. The assessment on compliance with HRS Chapter 205A is an important component for satisfying the requirements of HRS Chapter 343. These objectives and policies include recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, public participation, beach protection, and marine resources.

3. **Coastal Zone Resources.** OP has a number of resources available to assist in the development of projects which ensure sediment and stormwater control on land, thus protecting the nearshore environment. OP recommends consulting these guidance documents and stormwater evaluative tools when developing strategies to address polluted runoff. They offer useful techniques to keep land-based pollutants and sediment in place and prevent contaminating nearshore waters, while considering the practices best suited for this project. These three evaluative tools that should be used during the design process include:

    - Hawaii Watershed Guidance provides direction on mitigation strategies in urban areas that will safeguard Hawaii's watersheds and implement watershed plans http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI Watershed Guidance Final.pdf

    - Stormwater Impact Assessments can be used to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff, as well as consider secondary and cumulative impacts to the area http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_stormwater_impact_assessments_guidance.pdf

    - Low Impact Development (LID), A Practitioners Guide covers a range of structural best management practices (BMP's) for stormwater control management, roadway development, and urban layout that minimizes negative environmental impacts http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf

4. **Conformance with Hawaii State Plan.** Pursuant HAR § 11-200-10(4), this project must demonstrate that it is consistent with a number of State environmental, social, and economic goals and policies for land-use and housing development. OP provides technical assistance to State and County agencies in administering the statewide

planning system in HRS Chapter 226, the Hawaii State Plan. The Hawaii State Plan provides goals, objectives, policies, and priority guidelines for growth, development, and the allocation of resources throughout the State. The Hawaii State Plan includes diverse objectives and policies of State interest including but not limited to the economy, agriculture, the visitor industry, federal expenditure, the physical environment, facility systems, socio-cultural advancement, climate change adaptation, and sustainability. The Draft EA should include an analysis that addresses whether the proposed project conforms or is in conflict with the goals, objectives, policies, and priority guidelines listed in the Hawaii State Plan.

Relative to the sustainability priority guidelines, we request that the Draft EA describe the smart growth and livability principles, resource conservation, and green building measures that are expected to be employed in the development. Please see OP's Technical Assistance Memorandum at http://files.hawaii.gov/dbedt/op/docs/OP_TAM_2013-12-03.pdf.

If you have any questions, please contact Josh Hekekia, CZM Program, at (808) 587-2845 or Katie Mineo, Land Use Division, at (808) 587-2883.

Sincerely,



Leo R. Asuncion
Acting Director

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Leo R. Asuncion, Acting Director
State of Hawai'i
Office of Planning
Post Office Box 2359
Honolulu, Hawai'i 96804

Dear Mr. Asuncion:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated December 4, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA).

The Draft EA will discuss how the project will address affordable housing needs and requirements. The Draft EA will include an assessment as to how the proposed project conforms to the CZM objectives and its supporting policies set forth in HRS §205A-2. The Hawaii Watershed Guidance, Stormwater Impact Assessment tool, and Low Impact Development (LID). A Practitioners Guide will be consulted. The Draft EA will discuss how the project conforms to the State Plan. We will describe how the project contributes to the State's sustainability priority guidelines. A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

From: Liu, Rouen
To: Katia Balassiano
Cc: Kuwaye, Kristen
Subject: Mixed Use redevelopment at Alder Street - pre assessment consultation Draft EA
Date: Tuesday, December 08, 2015 5:35:28 PM

Dear Ms. Katia Balassiano,

Thank you for the opportunity to comment on the subject project. Hawaiian Electric Company has no objection to the project. Should HECO have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities.
We appreciate your efforts to keep us apprised of the subject project in the planning process. As the proposed Redevelopment at Alder Street Project comes to fruition, please continue to keep us informed. Further along in the design, we will be better able to evaluate the effects on our system facilities.
If you have any questions, please call me at 543-7245.

Sincerely,
Rouen Q. W. Liu
Permits Engineer
Tel: (808) 543-7245
Email: Rouen.liu@hawaiianelectric.com

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SSFM INTERNATIONAL

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Honolulu, Hawaii 96817
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www.ssfm.com

December 23, 2015 SSFM 2014_068.000

Rouen Q. W. Liu, Permits Engineer
Hawaiian Electric Company, Inc.
Post Office Box 2750
Honolulu, Hawai'i 96840-0001

Dear Mr. Liu:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your email dated December 8, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). We confirm that your Department has no objection to this project. We understand that should HECO have existing easements and facilities on the subject property, HECO will need continued access for maintenance of the facilities. A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice.*

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano
Senior Planner
Email: kbalassiano@ssfm.com

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

KIRK CALDWELL
MAYOR

GEORGE I. ATTA, FAICP
DIRECTOR

ARTHUR D. CHALLACOMBE
DEPUTY DIRECTOR

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DEC 18 2015
FILE
2015/ELOG-2358 (at)

FILE COPY

December 14, 2015

Ms. Katia Balassiano
Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

Thank you for your letter dated October 30, 2015, requesting a pre-assessment consultation for a Draft Environmental Assessment (DEA) for a mixed-use development project at 902 Alder Street in Honolulu (Tax Map Key: 2-3-012: 019), proposed jointly by the Hawaii State Judiciary (Judiciary) and the Hawaii Housing Finance and Development Corporation (HHFDC). We offer the following comments:

1. The DEA should include basic zoning information for the project, including proposed height, building area, floor area, yards, height setbacks, parking, and loading requirements, even if the plan is still conceptual in nature. Special emphasis should be given to the development standards for which modifications will be requested through Chapter 201H of the Hawaii Revised Statutes approval process.

2. Provide information relating to the proposed use of the site as a juvenile shelter, therapeutic counseling, and rehabilitative services. The DEA should discuss whether the Judiciary will operate the shelter, if the services will be accessory to the shelter, and whether the shelter will be available to only occupants of the shelter and/or the general public.

3. The DEA should discuss how the project is consistent with and implements the objectives and policies of the Oahu General Plan.

4. The DEA should discuss how the project is consistent with and implements the vision, policies, and guidelines of the Primary Urban Center Development Plan, in particular the following sections:

   - 3.2.2.1 Neighborhood Planning
   - 3.2.2.3 In-Town Residential Neighborhoods
   - 3.1.3.6 Parks and Recreational Open Spaces, specifically how the project and the State can embrace and support the adjacent Sheridan Community Park

5. The DEA should discuss how the project is consistent with the draft Ala Moana Neighborhood Transit-Oriented Development Plan, since the project site is within this boundary.

6. The DEA should discuss how the project design and operations will be adapted to respond to the projected impacts of climate change during the expected life of the structures, including an increase in the number of high intensity storms with associated high wind speed and intense rainfall, drought conditions, and higher temperatures.

7. A traffic impact analysis report (TIAR) should be prepared as part of the development of this project. The TIAR should include a multi-modal component which considers the promotion of bicycle, pedestrian, and transit-related person trips.

8. We note a sewer application (2015/SCA-0935) was approved for the site on December 7, 2015 and will expire on December 6, 2017.

Should you have any questions, please contact Andrew Tang of my staff at 768-8123 or andrew.tang@honolulu.gov.

Very truly yours,

George I. Atta

George I. Atta, FAICP
Director

GIA:kh

SSFM INTERNATIONAL

501 Sumner Street
Suite 620
Honolulu, Hawaii 96817
Phone: (808) 531-1308
Fax: (808) 521-7348
www.ssfm.com

December 23, 2015 SSFM 2014_068.000

George I. Atta, Director
City and County of Honolulu
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, Hawai'i 96813

Dear Mr. Atta:

Subject: Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawai'i
Tax Map Key: (1) 2-3-012: 019
Pre-Assessment Consultation for Draft Environmental Assessment

Thank you for your letter dated December 14, 2015 providing pre-assessment comments on the Mixed-Use Redevelopment at Alder Street. Your comments will be incorporated into the project's Draft Environmental Assessment (Draft EA). A hardcopy will be provided to your Department when the Draft EA is published in the State Office of Environmental Quality Control's *Environmental Notice*.

The Draft EA will include basic zoning information and identify the modifications requested through the 201H process. The Draft EA will provide as much information about the Judiciary's proposed services as is currently available. The DEA will discuss how the project is consistent with and implements the objectives and policies of the Oahu General Plan. The DEA will discuss how the project is consistent with and implements the vision, policies, and guidelines of the Primary Urban Center Development Plan. The DEA will discuss how the project is consistent with the draft Ala Moana Neighborhood Transit-Oriented Development Plan. The specific components of design and operations in response to projected impacts of climate change will be negotiated with the developer, once the developer is selected. The draft TIAR will be included in the DEA. The Draft EA will make note of the approved sewer application.

Sincerely,

SSFM INTERNATIONAL, INC.

Katia Balassiano

Katia Balassiano, Senior Planner
Email: kbalassiano@ssfm.com

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Appendix A-2:
Draft EA Consultation Comments and Responses

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

April 4, 2016

SSFM INTERNATIONAL, INC.
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KIRK CALDWELL, MAYOR

DUANE R. MIYASHIRO, Chair
ADAM C. WONG, Vice Chair
DAVID C. HULIHEE
KAPUA SPROAT
BRYAN P. ANDAYA

ROSS S. SASAMURA, Ex-Officio
FORD N. FUCHIGAMI, Ex-Officio

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

ELLEN E. KITAMURA, P.E.
Deputy Manager and Chief Engineer

FILE

FILE COPY

Ms. Katia Balassiano
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

Subject: Your Letter Dated March 17, 2016 Requesting Comments on the Draft Environmental Assessment for the Joint Development for Affordable Rental Housing and Juvenile Services Center at 902 Alder Street – Tax Map Key: 2-3-012: 019

Thank you for your letter regarding the proposed affordable rental housing and juvenile services center.

The existing water system is adequate to accommodate the proposed development. However, please be advised that this information is based upon current data, and therefore, the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of the building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

Water conservation measures are recommended for all proposed developments. These measures include low flow plumbing fixtures, utilization of nonpotable water for irrigation using rain catchment and chiller/air handler condensate, cooling tower conductivity meters and water softening recycling systems, drought tolerant plants, xeriscape landscaping, efficient irrigation systems and the use of Water Sense labeled ultra-low-flow water fixtures and toilets.

High-rise buildings with booster pumps will be required to install water hammer arrestors or expansion tanks to reduce pressure spikes and potential main breaks in our water system.

The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at 748-5443.

Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

Water for Life . . . Ka Wai Ola

DAVID Y. IGE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

SSFM INTERNATIONAL, INC.
RECEIVED
JUN 17 2016

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

(P)1176.6

FILE

JUN 15 2016

Mr. Ernest Y. W. Lau, Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Attn: Mr. Robert Chun

Dear Mr. Lau:

Subject: Draft Environmental Assessment for Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter
DAGS Job. No. 12-21-7550

Thank you for your April 4, 2016, letter providing comments on the draft environmental assessment (DEA) for the subject project. In response to your comments, we provide the following:

1. We appreciate the Board of Water Supply's confirmation that the existing water system can accommodate the proposed development. The availability of water will be further confirmed as the project progresses through the design phase and the building permit application is submitted for approval.

2. The Water System Facilities Charges will be paid as required.

3. The Board's recommendations on water conservation measures will be considered and implemented where practical.

4. Water hammer arrestors or expansion tanks will be installed as required.

5. On-site fire protection requirements will be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department. They have also provided comments and recommendations in response to our DEA.

If you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

SCOTT M. OJIRI
Acting Public Works Administrator

LM:mo
c: Mr. Jared Chang, SSFM

From: Liu, Rouen
To: Katia Balassiano
Cc: Kuwaye, Kristen; "dags@hawaii.gov"
Subject: Draft EA for the Joint Development for Affordable Housing and Juvenile Services Center - Attn: Ms. Katia Balassiano, SSFM and Mr. Lance Maja, Planning Branch, DAGS
Date: Wednesday, April 20, 2016 1:38:14 PM

Dear Ms. Katia Balassiano,

Thank you for the opportunity to comment on the subject project. Hawaiian Electric Company has no objection to the project. Should HECO have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities. We appreciate your efforts to keep us apprised of the subject project in the planning process. As the proposed affordable housing and Juvenile services center project comes to fruition, please continue to keep us informed. Further along in the design, we will be better able to evaluate the effects on our system facilities.
If you have any questions, please call me at 1-808-543-7245.

Sincerely,

Rouen Q. W. Liu
Permits Engineer
Hawaiian Electric Company, Inc.
Tel: (808) 543-7245
Email: Rouen.liu@hawaiianelectric.com

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DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1177.6

JUN 15 2016

Mr. Rouen Q. W. Liu, Permits Engineer
Hawaiian Electric Company
P.O. Box 2750
Honolulu, Hawaii 96840

Dear Mr. Liu:

Subject: Draft Environmental Assessment for Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter
DAGS Job. No. 12-21-7550

Thank you for your April 20, 2016, email regarding the draft environmental assessment for the subject project. We acknowledge that Hawaiian Electric Company has no objections to the project. We will continue to keep you informed as the project progresses through the design and construction phases.

If you have any questions, your staff may call Mr. Lance Maja of Planning Branch at 586-0483.

Sincerely,

Scott M. Ojiri

SCOTT M. OJIRI
Acting Public Works Administrator

LM:mo
c: Mr. Jared Chang, SSFM

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

KIRK CALDWELL
MAYOR

GEORGE I. ATTA, FAICP
DIRECTOR

ARTHUR D. CHALLACOMBE
DEPUTY DIRECTOR

2016/ELOG-666

April 29, 2016

Ms. Katia Balassiano
Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

SUBJECT: Draft Environmental Assessment (DEA)
Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter
Tax Map Key: 2-3-012: 019

In response to your letter dated March 18, 2016, requesting review of the DEA for Joint Development of Affordable Rental Housing and Juvenile Services Center/Shelter (the Project), we offer our comments below. We have also attached the comment letters from other agencies sent to the Department of Planning and Permitting (DPP) in error.

Planning

- The DPP supports this mixed-use project. The Project is consistent with City policies directing housing development within the rail transit corridor. It also fulfills the City's desire to incorporate other uses with residential developments in urban areas.

- We strongly support the provision of affordable rental units in this project. The City's Draft Affordable Housing Strategy, available at www.honoluludpp.org, describes the pressing need for affordable housing units on Oahu, with 75 percent of the demand by households earning less than 80 percent of the area median income. This demand is primarily for rental units. The provision of one-bedroom, two-bedroom, and three-bedroom units will address the diverse lifestyles of residents in need of affordable housing.

Land Use and Zoning

- The Project proposes to exceed several development standards of the A-2 Medium Density Apartment District, including floor area ratio, building area, and building height. The Project may seek approval for these variances under Chapter 201H, Hawaii Revised Statute (HRS) approval process.

- The Project proposes to provide nearly double the number of required parking spaces for the Judiciary component. Providing excess parking can contribute to traffic congestion and higher project costs and contradicts transit-oriented development (TOD) principles. Therefore, we recommend that the Final Environmental Assessment (FEA) reflect a quantity that closer aligns with the parking ratios proposed in the Ala Moana Neighborhood TOD Plan (TOD Plan).

Urban Design

While we support the land use program of the Project, we offer the following recommendations for the FEA to minimize the Project's impacts on, and to contribute to the walkability of, the residential neighborhood in which it is situated.

- Build-to Line and Ground Floor Uses. Consider providing active ground floor uses (e.g., reception areas, meeting rooms, etc.) close to the property line with transparent windows and pedestrian entrances directly from the sidewalk, to create an engaging ground-level environment for pedestrians as described in the TOD Plan. The visual connection between pedestrians and indoor activities will contribute to the safety and pedestrian orientation of the surrounding area.

- Mauka-makai Tower Orientation. The TOD Plan recommends that tall buildings orientate in a mauka-makai direction to preserve public view corridors. The Project should consider realigning the building tower in a mauka-makai orientation. Closer proximity to Piikoi Street is also recommended to reduce the impacts that a tall tower will have on the low-rise neighborhood and Sheridan Community Park.

- Park Frontage. The Project should consider fronting Sheridan Community Park with a low-rise element – housing component, neighborhood uses, and/or the Judiciary component – to provide "eyes on the park" and improve security and surveillance. Another option would be to locate the community recreation area across from Sheridan Community Park where it will be better protected from the impacts of heavy traffic on Piikoi Street.

- Street Trees. We recommend the FEA show new street trees located at the curb along Piikoi Street and Alder Street, as is currently the condition on Elm Street. To maintain proper tree well sizes and adequate sidewalk widths, sidewalks may need to be extended into the Project site. The vision for the Piikoi streetscape enhancements is illustrated and described in Section 4.2.3 of the TOD Plan.

- We are concerned with the impact of the proposed 4-story parking structure on the single-family homes across Alder Street. This concern is generally explained in Section 3.2.1.3 of the Primary Urban Center Development Plan (PUCDP). We recommend design treatments to minimize this impact, such as height setbacks, active ground floor uses and screening of the parking garage. This impact should be addressed in the FEA.

- Graphics. We recommend improving the labeling and legibility of the graphics in the FEA. For example, the urban courtyard located on Alder Street, as described in the DEA (Section

4.9.c), is not evident in Figure 6: Conceptual Site Plan. The text of this graphic, including the building and parking structure labels, is also not legible.

Access and Circulation

- The proposed Project is consistent with the PUCDP and TOD Plan in promoting the use of multimodal transportation by providing long-term bicycle storage and unbundling parking from the residential units.

- A timeline or phasing plan of the anticipated dates to obtain major building permit(s) for demolition/construction work, including the projected date of occupancy or opening, should be prepared by the Applicant. The timeline should identify when the Construction Management Plan (CMP) and the Traffic Management Plan (TMP) will be submitted for review and approval in relation to when approvals for construction plans, building, and occupancy permits will be necessary. Typically, the CMP should be submitted for review and approval prior to the issuance of demolition/building permits for major construction work. The TMP should be submitted and approved prior to the issuance of the (temporary) Certificate of Occupancy (CO). A new Traffic Impact Analysis Report (TIAR) may be required if there is a significant change to the scope or timing of the major work items contained in the initial report.

- The CMP should identify the type, frequency, and routing of heavy trucks and construction related vehicles. The CMP should identify efforts to minimize impacts from these vehicles and related construction activities. Preliminary or conceptual traffic control plans should also be included in the CMP. The Applicant should document the condition of roadways prior to the start of construction activities and provide remedial measures, as necessary, if the condition of the roadways has deteriorated as a result of the construction activities.

- A TMP should include Traffic Demand Management (TDM) strategies to minimize the amount of vehicular trips generated by the development. TDM strategies could include carpooling and ride sharing programs, transit, bicycle, and pedestrian incentives, and other similar TDM measures. Bicycle racks should be situated in easily accessible locations and in adequate numbers throughout the project. A post TMP will be required approximately one year after the issuance of the CO to validate the relative effectiveness of the various TDM strategies identified in the initial report. It is recommended that additional bicycle racks be installed if it is determined there is significant latent demand.

- In an effort to improve traffic circulation in the area and for the Project, an analysis to convert Alder Street to a two-way street between King Street and Elm Street should be conducted and implemented. If the findings conclude that traffic operations will be better with the conversion, which will involve the installation of appropriate signage and stripping as well as coordination with the affected businesses and residents, it should be completed prior to the issuance of the (temporary) CO for the Project.

- An updated TIAR or traffic assessment should be conducted approximately one year after the issuance of the CO to validate the trip generation rates in the initial report (December

11, 2015) and assess the relative effectiveness of the street conversion project. If additional traffic mitigation measures are necessary to support traffic impacts directly attributable to this development, the Applicant will be required to implement these measures.

- Construction plans for all work within or affecting public streets should be submitted for review and approval. Vehicular access points should be constructed as standard city dropped driveways. Adequate vehicular sight distance should be provided and maintained at all driveways to pedestrians and other vehicles. It is recommended that driveway grades should not exceed 5 percent for a minimum distance of 25 feet from the back of the designated pedestrian walkway. Entry gates and ticket dispensers should be recessed as far into the driveway as necessary to avoid any queuing onto public streets. All loading and parking areas should be designed such that vehicles enter and exit from the front first.

- The applicant should meet with the DPP and the Department of Transportation Services prior to submitting construction plans to discuss related traffic issues and the provision of Complete Streets strategies.

Wastewater

- The sewer connection application (2015/SCA-0935) was approved on December 7, 2015. However, we are unable to grant the requested exemptions from the payments of the sewer lateral installation charges and the wastewater system facility charge.

Storm Water

- As the storm water quality requirements are subject to change, the Project will need to comply with the prevailing standards at the time the construction/grading plans are submitted for review and approval.

Should you have any questions, please contact Andrew Tang of our staff at 768-8123 or andrew.tang@honolulu.gov. We welcome further discussion of our comments.

Very truly yours,

George I. Atta

George I. Atta, FAICP
Director

cc: Department of Accounting and General Services

Attachments: State Department of Health
Honolulu Fire Department
Office of Planning, Department of Business
Economic Development and Tourism

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1175.6

JUN 15 2016

Mr. George I. Atta, Director
Department of Planning and Permitting
City and County of Honolulu
650 S. King Street, 7th Floor
Honolulu, Hawaii 96813

Attn: Mr. Andrew Tang

Dear Mr. Atta:

Subject: Draft Environmental Assessment for Joint Development for
Affordable Rental Housing and Juvenile Services Center/Shelter
DAGS Job. No. 12-21-7550

Thank you for your April 29, 2016, letter providing comments on the draft environmental assessment (EA) for the subject project. In response to your comments, we offer the following:

Planning:

Thank you for expressing support for our project and referring us to the websites pertaining to the County's Draft Affordable Housing Strategy. We recognize the need for affordable housing units on Oahu.

Land Use and Zoning:

1. The project will seek approval for an exemption from development standards under Section 201H-38, Hawaii Revised Statutes (HRS) as necessary, based on the final design.

2. The Judiciary will be operating on a 24/7 basis. Accordingly, the additional stalls are required to accommodate the overlapping shifts for their staff and clients.

Urban Design:

1. *Build-to Line and Ground Floor Uses:* The concept was considered in the initial planning phases. The conceptual layout was based on the high volume of traffic along

Piikoi Street which does not create an engaging ground-level environment for pedestrians. However, the final design will be determined by the developer selected by the Hawaii Housing Finance and Development Corporation (HHFDC) and the Judiciary through an RFP process. Both the HHFDC and Judiciary will work with the developer to include as many of your suggestions into the final design as practical.

2. *Mauka-makai Tower Orientation:* Given the configuration of the lot and the need to maximize the use of the property for both the Judiciary and the housing component, the conceptual layout provided the most efficient use of the property. As previously noted, the final design will be determined by the developer selected by HHFDC and the Judiciary.

3. *Park Frontage:* The configuration of the lot would not allow for a low rise component without impacting the economic feasibility of the project's objective of providing the maximum amount of affordable units on the property.

4. *Street Trees:* Street trees will be placed within the existing curb and sidewalk right of way. Given the configuration of the lot and the limited space available, widening the sidewalk for planting street trees would unfortunately impact the economic viability of the project.

5. *Parking Structure:* The HHFDC and Judiciary will work with the developer to incorporate your recommendation of design treatments to minimize the impact of the parking structure to nearby residents.

6. *Graphics:* The graphics and labelling in the final EA will be improved and clarified.

Access and Circulation:

1. We acknowledge that the proposed project is consistent with the PUCDP and TOD Plan in promoting the use of multi modal transportation.

2. *Building Permits Timeline:* A timeline of the anticipated dates to obtain major building permit(s) for demolition/construction work, including the projected date of occupancy or opening will become available as the project progresses through the design phase. All documents to obtain the necessary permits and approvals will be submitted to the DPP at the appropriate times.

3. *Construction Management Plan (CMP):* The CMP will be prepared as the project progress through the design phase, closer to the date of actual construction.

4. *Traffic Demand Management (TDM):* The TDM will be prepared and included in the traffic management plan (TMP). The TMP and TDM will be prepared by the developer that is ultimately selected to design and construct the project.

5. *Alder Street Two-way Conversion:* The TIAR presented in the EA concluded that major alterations to the surrounding streets were not necessary. An analysis of the feasibility of converting Alder Street to two-way between Elm and South King Street will be included in the TIAR that is prepared during the design phase of the project.

6. *Updated TIAR:* An updated TIAR will be prepared if the Alder Street two-way conversion is implemented.

7. *Construction Plans:* Construction plans for all work within or affecting public streets will be submitted for review and approval during the design phase of the project.

8. Representatives from the selected developer, as well as from the HHFDC and Judiciary will continue to keep the DPP and the Department of Transportation Services informed as the project progresses.

Wastewater:

It is noted that DPP is unable to grant the requested exemptions from the payments to the sewer lateral installation charges and the wastewater system facility charge.

Storm Water:

The project will comply with the prevailing standards at the time the construction/grading plans are submitted for review and approval.

If you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

Scott M. Ojiri

SCOTT M. OJIRI
Acting Public Works Administrator

LM:mo
c: Mr. Jared Chang, SSFM

2016/ELOG-979

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
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Ref. No. P-15109

April 14, 2016

Katia Balassiano
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

Subject: Draft Environmental Assessment for the Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter, Honolulu, Oahu; Tax Map Key: (1) 2-3-012:019

Thank you for the opportunity to provide comments on the Draft Environmental Assessment (Draft EA) for this affordable rental housing and juvenile service center located at 902 Alder Street, Honolulu, Oahu. The Draft EA review material was transmitted to our office via letter dated March 18, 2016.

It is our understanding that the Hawaii Housing Finance Development Corporation and the State of Hawaii Judiciary are proposing to jointly develop the 1.45-acre parcel identified as (1) 2-3-012:019. There are currently two buildings on the site - a smaller building occupied by the Home Maluhia shelter for youth, and a larger building consisting of a main structure and three wings previously used as juvenile detention facilities.

The proposed project involves demolishing existing buildings and replacing them with new structures, and a parking garage. The mixed-use project entails a combination of affordable rental housing, therapeutic counseling and rehabilitative services, short-term shelter services, parking, and incidental community use.

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. The Draft EA addresses many of our comments made in a previous pre-consultation letter dated December 4, 2015 (reference number P-14970). The Draft EA provides a list of objectives and policies in the Hawaii State Plan, Hawaii Revised Statutes (HRS) Chapter 226; examines coastal erosion and sediment loss issues, considers stormwater runoff impact on surface water resources, and indicates the proposed use of Low-Impact Development design

features to mitigate against the negative effects of stormwater inundation.

Section 4.1, pages 69-70 of the Draft EA lists the objectives and policies of the Hawaii State Plan, HRS Chapter 226. The themes that this project is consistent with include:

a. HRS § 226-4 – State Goals;
b. HRS § 226-5 – Population;
c. HRS § 226-10 – economy – potential growth and innovative activities;
d. the physical environment – scenic, natural beauty, and historic resources;
e. HRS § 226-13(b)(7) – the physical environment – land, air, and water quality;
f. HRS § 226-17(b)(13) facility systems – transportation diversification of transportation modes and infrastructure;
g. HRS § 226-19 – socio-cultural advancement – housing; and
h. HRS § 226-22 – socio-cultural advancement – social services.

The Final Environmental Assessment (Final EA) should include a more detailed discussion that addresses how the project conforms to or is in conflict with all of the various state and county plans, policies, and controls listed in the Hawaii State Plan. The analysis should include a discussion on the project's ability to meet the objectives, policies, and priority guidelines or clarify where it is in conflict with them. If any of the themes listed in the Hawaii State Plan are not applicable to this project, then the Final EA should list them as "not applicable." Itemizing these themes in tabular form is often the most efficient way to address them.

2. Section 4.4, page 70 of the Draft EA maintains that the project is consistent with the objectives and policies of the Hawaii Coastal Zone Management (CZM) program, HRS § 205A-2, and examples of its consistency are stated throughout the document. Section 4.4 does not list these objectives and policies, nor does it provide an examination of their consistency with HRS § 205A-2. The Final EA, should list all objectives and policies and include a detailed examination of them. If a conflict exists, this section should detail what steps will be taken to resolve this conflict.

3. OP strongly supports the objectives of the proposed project to create affordable rental housing for individuals and families within Honolulu's urban core; promote dense, mixed-use, transit-oriented development in proximity to the future Ala

Moana rail station and existing transit hub; and optimize State lands on an underutilized parcel in the Primary Urban Center.

4. Affordable Housing: in the Final EA, please describe how the proposed rental units will be allocated among the various target populations (income groups), the number of units within each group, and the expected price ranges for the different groups.

5. Schools: in order to ensure that there is sufficient capacity in the Kaimuki-McKinley-Roosevelt Complex Area schools to accommodate the increase in population caused by the proposed project, the Final EA should expand the discussion of existing conditions of schools within the Complex Area to address current and projected enrollment and capacities.

6. Sustainability Principles: the Final EA should address how the project will incorporate the following:

    a. Resource Conservation – incorporation of energy and water efficiencies, including the implementation of solid or liquid waste management through methods of recycle and reuse, and hazard mitigation and climate change adaptation strategies.

    b. Green Building Standards – the planned use of green building and sustainable design practices, specifically the projected energy requirements of the project and measures to be taken to reduce energy demand, promote energy efficiency, and to promote use of alternative, renewable energy sources.

7. Other Comments:

    a. All maps should be legible. Some maps, particularly the existing site plan on page 10 and the conceptual plans on pages 16-19, contain text that is too small to read.

    b. It appears that the Department of Education's pre-assessment consultation letter has been omitted from Appendix A. If this appendix is to be included in the Final EA, please reconcile this error.

We have no further comments at this time. If you have any questions regarding this comment letter, please contact Joshua Hekekia of our CZM Program at (808) 587-2845 or Katie Mineo of our Land Use Division at (808) 587-2883.

Sincerely,

Leo R. Asuncion
Director

c✓Mr. George I. Atta, Department of Planning and Permitting, City and County of Honolulu
Lance Maja, Planning Branch, Department of Accounting and General Services, Public Works Division

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

JUN 15 2016

(P)1163.6

MEMORANDUM

TO: Mr. Leo R. Asuncion, Director
Office of Planning
State of Hawaii

ATTN: Mr. Joshua Hekekia
Coastal Zone Management Program

Ms. Katie Mineo
Land Use Division

FROM: Scott M. Ojiri
Acting Public Works Administrator

SUBJECT: Draft Environmental Assessment for
Joint Development for Affordable Rental Housing and
Juvenile Services Center/Shelter
DAGS Job No. 12-21-7550

Thank you for your April 14, 2016, letter expressing support for our project and providing comments on the draft environmental assessment (EA). In response to your comments, we offer the following:

1. Section 4.1 of the EA has been expanded to include all objectives and policies in the State Plan, and how the project conforms to or is in conflict with them.

2. Section 4.4 has been revised to include all objectives and policies of HRS § 205A-2, and how the project conforms to or is in conflict with them.

3. We acknowledge and thank you for your support of our project.

4. The developer for the project has not yet been selected. Accordingly, the details of how the rental units will be allocated among the various target populations (income groups)

and the number of units within each group is undetermined at this time. The Hawaii Housing Finance and Development Corporation (HHFDC) is requiring that all units be made available to households earning 60% AMI or less.

5. The Department of Education's (DOE's) pre-assessment consultation letter was inadvertently left out of Appendix A of the draft EA but will be included in the final EA. In their April 14, 2016 comments to the draft EA, the DOE stated that they are contemplating the use of impact fees to accommodate growth in schools. They have advised us that further consultation and the execution of an Educational Contribution Agreement for payment of school impact fees may by required should the area of the proposed project become designated as a school impact district. If this occurs, we will provide the DOE with the information they require to project enrollment and facility improvements.

6. As described in the draft EA, a developer has not yet been selected, so the details associated with Resource Conservation and Green Building Standards are not yet available. However, the HHFDC and Judiciary intend to incorporate sustainability features into the project.

7. The maps on page 10 and the conceptual plans on pages 16-19 have been enlarged.

Should you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:lnn
c: Mr. Jared Chang, SSFM

HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

KIRK CALDWELL
MAYOR

MANUEL P. NEVES
FIRE CHIEF

LIONEL CAMARA JR.
DEPUTY FIRE CHIEF

SSFM INTERNATIONAL, INC.
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April 11, 2016

Ms. Katia Balassiano
Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

Subject: Draft Environmental Assessment
Alder Street Mixed Use Project
Tax Map Key: 2-3-012: 019

In response to your letter dated March 17, 2016, regarding the above-mentioned subject, the Honolulu Fire Department (HFD) requires that the following be complied with:

1. Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 feet from fire department access roads as measured by an approved route around the exterior of the building or facility. (National Fire Protection Association [NFPA] 1; Uniform Fire Code [UFC]™, 2012 Edition, Section 18.2.3.2.2.)

   A fire department access road shall extend to within 50 feet of at least one exterior door that can be opened from the outside and that provides access to the interior of the building. (NFPA 1; UFC™, 2012 Edition, Section 18.2.3.2.1.)

2. A water supply approved by the county, capable of supplying the required fire flow for fire protection, shall be provided to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet from a water supply on a

fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the AHJ [Authority Having Jurisdiction]. (NFPA 1; UFC™, 2012 Edition, Section 18.3.1, as amended.)

3. The unobstructed width and unobstructed vertical clearance of a fire apparatus access road shall meet county requirements. (NFPA 1; UFC™, 2012 Edition, Section 18.2.3.4.1.1, as amended.)

4. Submit civil drawings to the HFD for review and approval.

Should you have questions, please contact Battalion Chief Terry Seelig of our Fire Prevention Bureau at 723-7151 or tseelig@honolulu.gov.

Sincerely,

Socrates D. Bratakos

SOCRATES D. BRATAKOS
Assistant Chief

SDB/SY:bh

cc: Mr. George Atta, Director
Department of Planning and Permitting

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1174.6

JUN 15 2016

Mr. Socrates D. Bratakos, Assistant Chief
Honolulu Fire Department
City and County of Honolulu
636 South Street
Honolulu, Hawaii 96813-5007

Attn: Mr. Terry Seelig, Battalion Chief
Fire Prevention Bureau

Dear Mr. Bratakos:

Subject: Draft Environmental Assessment for Joint Development for
Affordable Rental Housing and Juvenile Services Center/Shelter
DAGS Job. No. 12-21-7550

Thank you for your April 11, 2016, letter providing comments on the draft environmental assessment (DEA) for the subject project. In response to your comments, we offer the following:

1. The project will comply with the Honolulu Fire Department, NFPA, UFC and County access road requirements. There are no exterior walls of the project that are more than 150 feet away from a public street. The property is accessible from three (3) public streets and has two (2) proposed entrances to the parking structure.

2. The Board of Water Supply has confirmed that the water system can accommodate the potable and fire suppression needs of the proposed development.

3. The project will comply with the Honolulu Fire Department, NFPA, UFC and County requirements for unobstructed width and vertical clearances for fire apparatus access.

4. Civil drawings will be submitted to the Honolulu Fire Department for review and approval as the project progresses through the design phase.

If you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

Scott M. Ojiri

SCOTT M. OJIRI
Acting Public Works Administrator

LM:mo
c: Mr. Jared Chang, SSFM

HART

HONOLULU AUTHORITY for RAPID TRANSPORTATION

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kb

REPLY REFER TO:
CMS-AP00ENV-00708

Daniel A. Grabauskas
EXECUTIVE DIRECTOR AND CEO

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Terrence M. Lee
Ivan M. Lui-Kwan

April 5, 2016

Ms. Katia Balassiano, Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

Subject: Draft Environmental Assessment (EA)
Mixed-Use Redevelopment at Alder Street
902 Alder Street
Honolulu, Hawaii
Tax Map Keys: 2-3-012: 019

Thank you for providing the Honolulu Authority for Rapid Transportation (HART) with the opportunity to comment on the proposed mixed use which entails affordable rental housing, therapeutic counseling and rehabilitative services for juveniles, short-term shelter services, parking, and incidental community uses.

As indicated in the Draft EA, the above-stated project is within a half mile of the Honolulu Rail Transit Project Ala Moana Station located on Kona Street. HART supports the State of Hawaii's Judiciary and the Hawaii Housing Finance Development Corporation for their efforts related to mixed-use development within the Transit Oriented Development area.

HART has no comment on the proposed mixed-use redevelopment at this time.

If you have any questions regarding this matter, please feel free to contact Mr. Tomo Murata, Land Use Planner, at 768-6120.

Sincerely,

Daniel A. Grabauskas
Executive Director and CEO

cc: Mr. Lance Maja, Department of Accounting and General Services

CITY AND COUNTY OF HONOLULU, Alii Place, Suite 1700, 1099 Alakea Street, Honolulu, Hawaii 96813
Phone: (808)768-6159 Fax: (808)768-5110 www.honolulutransit.org

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GOVERNOR

DOUGLAS MURDOCK
Comptroller

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1173.6

JUN 15 2016

Mr. Daniel A. Grabauskas, Executive Director and CEO
Honolulu Authority for Rapid Transportation
City and County of Honolulu
Alii Place, Suite 1700
1099 Alakea Street
Honolulu, Hawaii 96813

Attn: Mr. Tomo Murata
Land Use Planner

Dear Mr. Grabauskas:

Subject: Draft Environmental Assessment for Joint Development for
Affordable Rental Housing and Juvenile Services Center/Shelter
DAGS Job. No. 12-21-7550

Thank you for your April 5, 2016, letter regarding the draft environmental assessment (DEA) for the subject project. The DEA recognizes the advantageous location of the future transit station and enhanced multi-modal opportunities of the project's future residents, employees and clients. We appreciate HART's support of our project and we acknowledge that your department has no comments at this time.

If you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

SCOTT M. OJIRI
Acting Public Works Administrator

LM:mo
c: Mr. Jared Chang, SSFM

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

KIRK CALDWELL
MAYOR

OUR REFERENCE MT-DK

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APR 1 5 2016

LOUIS M. KEALOHA
CHIEF

MARIE A. McCAULEY
GARY OKIMOTO
DEPUTY CHIEFS

FILE

April 11, 2016

FILE COPY

Ms. Katia Balassiano, Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

This is in response to your letter dated March 18, 2016, requesting comments on a Draft Environmental Assessment for the Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter project at 902 Alder Street.

The Honolulu Police Department has reviewed this project and has concerns regarding parking in the project area.

Street parking around the project site is very limited. Therefore, we recommend providing parking stalls in conjunction with a recreational area on the roof of the parking structure. This will be inconsideration to plan for the future provisions of employees and visitors with onsite parking in the building.

Additionally, construction vehicles parked on the streets will be required to have proper permits, and the drivers of vehicles must abide by the parking zone restrictions. Construction workers and visitors should be reminded not to use the city parks for their use while conducting business at the project site. Vehicles found in violation of park usage rules or in restricted parking zone areas will be cited and towed.

If there are any questions, please call Major Roy Sugimoto of District 1 (Central Honolulu) at 723-3327. Thank you for the opportunity to review this project.

Sincerely,

LOUIS M. KEALOHA
Chief of Police

By
MARK TSUYEMURA
Management Analyst VI
Office of the Chief

cc: Mr. Lance Maja, Planning Branch
Department of Accounting & General Services

Serving and Protecting With Aloha

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
Comptroller

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1172.6

JUN 15 2016

Mr. Mark Tsuyemura, Management Analyst VI
Office of the Chief
Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, Hawaii 96813

Attn: Major Roy Sugimoto
District 1

Dear Mr. Tsuyemura:

Subject: Draft Environmental Assessment for Joint Development for Affordable Rental Housing and Juvenile Services Shelter/Center
DAGS Job. No. 12-21-7550

Thank you for your April 11, 2016, letter providing comments on the draft environmental assessment for the subject project. In response to your comments, we offer the following:

1. We acknowledge the Police Department's concern that there is limited on-street parking. However, the developer selected for this project may propose an exemption from the Land Use Ordinance parking requirements for the affordable housing component pursuant to Section 201H-38, Hawaii Revised Statutes, to provide less than the minimum required parking stalls. This is in keeping with the City's transportation policies. Residents are expected to require fewer cars as a result of their ability to access nearby City bus lines, the future rail station, bikeways and pedestrian facilities. There will be sufficient stalls in the parking structure to accommodate all of the Judiciary's employees and clients.

2. The recreation deck is primarily for the residents of the building. Accordingly, parking stalls associated with the recreation deck should not be necessary.

3. A traffic control plan that manages vehicles during construction will be submitted to the Department of Transportation Services for review as the project progresses through the design phase.

If you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

Scott M. Ojiri

SCOTT M. OJIRI
Acting Public Works Administrator

LM:mo
c: Mr. Jared Chang, SSFM

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8305 • Fax: (808) 768-4730 • Internet: www.honolulu.gov

KIRK CALDWELL
MAYOR

MICHAEL D. FORMBY
DIRECTOR

MARK N. GARRITY, AICP
DEPUTY DIRECTOR

SSFM INTERNATIONAL, INC.
RECEIVED
APR 13 2016
kb

TP3/16-630808R

April 12, 2016

FILE
FILE COPY

Ms. Katia Balassiano
Project Manager
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

SUBJECT: Draft Environmental Assessment (DEA) Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter; 902 Alder Street; Tax Map Key: (1) 2-3-01-012:019; Honolulu, Oahu, Hawaii

In response to a letter from your firm dated March 18, 2016, we have the following comments:

1. To the extent practicable, the design of the project should be consistent with the City's Complete Streets ordinance and include features to encourage walking, bicycling and use of transit.

2. The second proposed driveway location, directly across from Alohi Street, is in conflict with a fire hydrant and utilities. This issue should be addressed with proposed mitigative measures if the 2nd driveway is installed.

3. The sidewalk area used to access the project site should be restored and brought up to City standards.

4. Provide bike storage that will be sufficient for residents and customers.

5. Ensure that all loading activities and maneuvering are done on site.

6. The closest bus stop to the project area is #138, South King and Piikoi Streets, on the Makai-Ewa corner of that intersection. It services

approximately 646 riders per day, boarding and alighting. The DEA states the project will house approximately 380 residents and employ approximately 65.5 full time employees when operational. Increased bus ridership from the project may affect bus service. Also, increased traffic congestion during the construction phase may affect bus service along South King Street. The DEA should address the potential impacts of these factors on bus service in the area, mitigate potential traffic impacts in the traffic control plan, and coordinate project activities with the Department of Transportation Services and the private bus contractor for the City, Oahu Transit Services, Inc.

Thank you for the opportunity to review this matter. Should you have any further questions, please contact Michael Murphy of my staff at 768-8359.

Very truly yours,

Michael D. Formby
Director

cc: Lance Maja, State of Hawaii, Department of Accounting and Public Services, Public Works Division, Planning Branch

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
Comptroller

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1171.6

JUN 15 2016

Mr. Michael D. Formby, Director
Department of Transportation Services
City and County of Honolulu
650 S. King Street, Third Floor
Honolulu, Hawaii 96813

Attn: Mr. Michael Murphy

Dear Mr. Fromby:

Subject: Draft Environmental Assessment for Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter
DAGS Job. No. 12-21-7550

Thank you for your April 12, 2016, letter commenting on the draft environmental assessment (DEA) for the subject project. In response to your comments, we provide the following:

1. The project will include features to encourage walking, bicycling and use of transit. For example, secure bicycle parking will be included onsite and the number of onsite parking stalls will be reduced.

2. The existing fire hydrant and utilities will be relocated, if necessary, to accommodate the second driveway. The exact location and configuration of the driveway will be determined by the developer that is ultimately selected to design and construct the project.

3. The sidewalk area used to access the project site will be restored, as necessary, and brought up to City and County standards.

4. Onsite secure bicycle parking will be included in the project.

5. All loading activities and vehicular maneuvering will be done onsite.

6. Bus ridership was examined as part of the DEA. It is true that bus ridership is expected to increase as a result of this project. However, the Traffic Impact Assessment contained in the DEA suggests that only 12.8% of project related transportation will be by bus or rail. That means the additional project related bus trips in the AM peak hour totals 15, and another 15 bus or rail trips may be expected in the PM peak hour. The impact on bus services may not warrant extensive coordination with DTS, however, this matter can be revisited once the project is completed and transportation patterns become clearer.

   The number of employees is higher than the number who currently work at the site, however, it should be recognized that not all the employees will be working at the site at the same time. The Judiciary's juvenile services and shelter program operates 24/7. Accordingly, their employees will be working on 8-hour shifts.

   Regarding traffic congestion during construction, a traffic control plan will be submitted to DTS for review when the project progresses through the design phase.

If you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

SCOTT M. OJIRI
Acting Public Works Administrator

LM:mo
c: Mr. Jared Chang, SSFM

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROBERT J. KRONING, P.E.
DIRECTOR

MARK YONAMINE, P.E.
DEPUTY DIRECTOR

SSFM INTERNATIONAL, INC
RECEIVED
APR 07 2016
FILE COPY

April 4, 2016

SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, HI 96817

Attn: Katia Balassiano

Dear Ms. Balassiano:

Subject: Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter
902 Alder Street Oahu, TMK: (1)2-3-012:019

The Department of Design and Construction does not have any comments at this time.

Thank you for the opportunity to review and comment. Should you have any questions, please me at 768-8480.

Sincerely,

Robert J. Kroning, P.E.
Director

RJK: ms (646596)
cc: Department of Accounting & General Services, Lance Maja

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
Comptroller

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1170.6

JUN 15 2016

Mr. Robert J. Kroning, Director
Department of Design and Construction
City and County of Honolulu
650 S. King Street, 11th Floor
Honolulu, Hawaii 96813

Dear Mr. Kroning:

Subject: Draft Environmental Assessment for Joint Development for
Affordable Rental Housing and Juvenile Services Center/Shelter
DAGS Job. No. 12-21-7550

Thank you for your April 4, 2016, letter regarding the draft environmental assessment for the subject project. We acknowledge that the Department of Design and Construction does not have any comments to offer at this time.

If you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

Sincerely,

SCOTT M. OJIRI
Acting Public Works Administrator

LM:mo
c: Mr. Jared Chang, SSFM

DAVID Y. IGE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

FORD N. FUCHIGAMI
DIRECTOR

DEPUTY DIRECTORS
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:
DIR 0381 & 0387
HWY-PS 2.2189

RECEIVED
MAY 02 2016
wfh
FILE

FILE COPY

April 29, 2016

Ms. Katia Balassiano
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

Subject: Draft Environmental Assessment
Joint Development for Affordable Rental Housing and
Juvenile Services Center/Shelter
902 Alder Street – Honolulu, Oahu
TMK: (1) 2-3-012: 019

Thank you for consulting with us regarding the Draft Environmental Assessment (EA) required by Chapter 343, Hawaii Revised Statutes on the subject project involving State lands and funds. The proposed work will involve the construction of a 35,452-sq ft facility consisting of 180 affordable rental units and offices, recreation areas and a juvenile shelter for judiciary related uses. The property can accommodate approximately 290 parking stalls primarily to be used by the Judiciary. The main access will be on Piikoi Street and a secondary access off of Alder Street, which are county roadways.

Based on the information provided, the proposed project does not appear to significantly impact the State highway system. Therefore, we have no comments on the Draft EA.

If you have any questions, please contact Nami Wong, Systems Planning Engineer, Highways Division, Planning Branch, at (808) 587-6336. Please reference file review number PS 2016-040 in all contacts and correspondence regarding these comments.

Sincerely,

FORD N. FUCHIGAMI
Director of Transportation

c: Lance Maja, Department of Accounting and General Services

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1169.6

JUN 1 5 2016

MEMORANDUM

TO: The Honorable Ford N. Fuchigami, Director
Department of Transportation

ATTN: Ms. Nami Wong, Systems Planning Engineer
Highways Division, Planning Branch

FROM: Scott M. Ojiri SOJ
Acting Public Works Administrator

SUBJECT: Draft Environmental Assessment for Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter
DAGS Job No. 12-21-7550

Thank you for your April 29, 2016, letter responding to the draft environmental assessment for the subject project. We acknowledge that the Department of Transportation's review concluded that the project will not significantly impact the State highway system and therefore, has no comments at this time.

Clarifying an item mentioned in your letter, the majority of the 290 stalls in the parking structure are for the residential tenants. A small portion will be for the Judiciary.

If you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:mo
c: Mr. Jared Chang, SSFM

LM [illegible] 3/28
JE 3/28

DISABILITY AND COMMUNICATION ACCESS BOARD

919 Ala Moana Boulevard, Room 101 • Honolulu, Hawaii 96814
Ph. (808) 586-8121 (V/TDD) • Fax (808) 586-8129

March 22, 2016

RECEIVED
MAR 2 8 2016
DIVISION OF PUBLIC WORKS
PLANNING BRANCH

Mr. Lance Maja
Project Manager
Public Works Division
Department of Accounting and General Services
1151 Punchbowl Street
Room 430
Honolulu, HI 96813

Regarding: Affordable Rental Housing and Juvenile Services Center Shelter
Draft Environmental Assessment

Dear Mr. Maja,

The Disability and Communication Access Board (DCAB) would like to thank you for the opportunity to review the Affordable Rental Housing and Juvenile Services Center Shelter, Draft Environmental Assessment (DEA). The purpose of this review is to ensure that this project will take into account accessibility design requirements for persons with disabilities.

As this project is being constructed on State land (DEA page 3) and funds from both Hawaii Housing Finance and Development Corporation (HHFDC) and the Judiciary will be used for construction (DEA page 13), this project is covered by §103-50, Hawaii Revised Statutes (HRS).

New construction and alterations for the Juvenile Services Center Shelter are required to comply with the Department of Justice's (DOJ) 2010 ADA Standards for Accessible Design (2010 Standards) http://www.ada.gov/2010ADAstandards_index.htm. The design and construction of the dwelling units are also required to comply with the DOJ's 2010 Standards. This means that five percent (5%) of the units must be designed for mobility access and two percent (2%) of the units must be designed with communication features for persons with disabilities.

To be consistent with the DOJ's standard, DCAB adopted the 2004 Americans with Disabilities Act Accessibility Guidelines (ADAAG) as of January 1, 2011 and passed interpretive opinions consistent with the 2010 ADA Standards. All new Interpretive Opinions can be viewed or downloaded at http://health.hawaii.gov/dcab/facility-access/interpretive-opinions/.

In addition to the 2010 Standards, the dwelling units will be required to comply with the Fair Housing Act. DCAB's document review includes a review to the Fair Housing Act Accessibility Guidelines.

Mr. Lance Maja
Department of Accounting and General Services
Regarding: Affordable Rental Housing and Juvenile Services Center Shelter
Draft Environmental Assessment
March 22, 2016

We continue to support and encourage the use of the U.S. Access Board's Proposed Public Rights-of-Way Accessibility Guidelines (DEA page 15). The accessibility guidelines are not yet enforceable by the DOJ under the Americans with Disabilities Act (ADA), nor have they been adopted by state rules under §103-50, HRS. However, the accessibility guidelines provide guidance for a minimal level of accessibility for those elements not addressed by the enforceable ADA Accessibility Guidelines.

In reviewing the Affordable Rental Housing and Juvenile Services Center Shelter DEA, one item posed a possible concern:

- The number of accessible parking appears to be determined by the total number of parking spaces provided (DEA page 15). However, the number of accessible parking required to be provided must be determined based on the number of "facilities" served or how the stalls are managed and operated per DCAB Interpretive Opinion 2014-05. For example, there are specific scoping provisions for parking at residential facilities and where parking is reserved or segregated for employees and visitors. (http://health.hawaii.gov/dcab/files/2016/02/DCAB-2014-05-Definition-of-Parking-Facility.pdf)

The above reflects DCAB's advice and recommendations for the Affordable Rental Housing and Juvenile Services Center Shelter Draft Environmental Assessment. Please note that the individual project(s) must still be submitted to DCAB for review per §103-50, HRS.

Should you have any further questions, feel free to contact Mona Higa, Facility Access Coordinator at (808) 586-8121.

Sincerely,

Francine Wai

FRANCINE WAI
Executive Director

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

JUN 15 2016

(P)1159.6

MEMORANDUM

TO: Ms. Francine Wai, Executive Director
Disability and Communication Access Board
Department of Health

ATTN: Ms. Mona Higa
Facility Access Coordinator

FROM: Scott M. Ojiri
Acting Public Works Administrator

SUBJECT: Draft Environmental Assessment for
Joint Development for Affordable Rental Housing and
Juvenile Services Center/Shelter
DAGS Job No. 12-21-7550

Thank you for your March 22, 2016, letter providing comments on the draft environmental assessment (EA) for the subject project. In response to your comments, we offer the following:

1. The project's proposed compliance with §103-50, Hawaii Revised Statutes and conformance with the Americans with Disabilities Act Accessibility Guidelines, the Federal Fair Housing Act, Department of Justice Standards for Accessible Design, and other applicable design standards as adopted by the Disability and Communication Access Board is documented in *Section 2.4, Description of Development – Accessibility Compliance*, of the final EA.

2. The number of accessible parking stalls is based on the Land Use Ordinance's classification of uses. Two facilities were accounted for in determining the number of stalls; office/administrative uses and residential. The parking per facility is described in *Section 5.2, Requested Exemptions and Deferrals*, of the final EA.

3. The design documents for the project will be submitted to Disability and Communication Access Board for review and comment.

Should you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:lnn
c: Mr. Jared Chang, SSFM

DAVID Y. IGE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

RECEIVED
MAR 28 2016
FILE

ARTHUR J. LOGAN
MAJOR GENERAL
ADJUTANT GENERAL

KENNETH S. HARA
BRIGADIER GENERAL
DEPUTY ADJUTANT GENERAL

FILE COPY

March 24, 2016

SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Attn.: Ms. Katia Balassiano

Subject: Draft Environmental Assessment, Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter, Honolulu, Hawaii, TMK (1) 2-3-012: 019

Dear Ms. Balassiano:

Thank you for the opportunity to comment on the above project. The State of Hawaii Department of Defense has no comments to offer relative to the project.

Should you have any questions, please contact Mr. Lloyd Maki, Assistant Chief Engineering Officer at (808) 733-4250.

Sincerely,

for ARTHUR J. LOGAN
Major General
Hawaii National Guard
Adjutant General

c: Mr. Lance Maja, Department of Accounting and General Services, Planning Branch
Ms. Havinne Okamura, Hawaii Emergency Management Agency

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

JUN 15 2016

(P)1160.6

MEMORANDUM

TO: The Honorable Adjutant General Arthur J. Logan
Department of Defense

ATTN: Mr. Lloyd Maki
Assistant Chief Engineering Officer

FROM: Scott M. Ojiri
Acting Public Works Administrator

SUBJECT: Draft Environmental Assessment for the
Joint Development for Affordable Rental Housing and
Juvenile Services Center/Shelter
DAGS Job No. 12-21-7550

Thank you for your March 24, 2016, letter regarding the draft environmental assessment for the subject project. We acknowledge that the Department of Defense has no comments at this time.

Should you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:lnn
c: Mr. Jared Chang, SSFM

DAVID Y. IGE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

SSFM INTERNATIONAL, INC.
RECEIVED
VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH
APR 04 2016
kb
In reply, please refer to:
File:
EPO 16-111

FILE COPY

March 29, 2016

Ms. Katia Balassiano
SSFM International
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Email: kbalassiano@ssfm.com

Dear Ms. Balassiano:

SUBJECT: Draft Environmental Assessment (DEA) for Alder Street Housing and Juvenile Services
TMK: (1) 2-3-012:019

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your DEA to our office via the OEQC link:
http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Oahu/2010s/2016-03-23-OA-5B-DEA-Alder-Street-Housing-and-Juvenile-Services.pdf

EPO strongly recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments. EPO has recently updated the environmental Geographic Information System (GIS) website page. It now compiles various maps and viewers from our environmental health programs. The eGIS website page will be continually updated so please visit it regularly at: http://health.hawaii.gov/epo/egis.

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: https://eha-cloud.doh.hawaii.gov. This site provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings.

We suggest you review the requirements for the National Pollutant Discharge Elimination System (NPDES) permit. We recommend contacting the Clean Water Branch at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov after relevant information is reviewed at:

1. http://health.hawaii.gov/cwb
2. http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/standard-npdes-permit-conditions
3. http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/forms

If noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control". A noise permit may be required and should be obtained before the commencement of work. Please call the Indoor and Radiological Health Branch at (808) 586-4700 and review relevant information online at: http://health.hawaii.gov/irhb/noise.

You may also wish to review the draft Office of Environmental Quality Control (OEQC) viewer at: http://eha-web.doh.hawaii.gov/oeqc-viewer. This viewer geographically shows where some previous Hawaii Environmental Policy Act (HEPA) (Hawaii Revised Statutes, Chapter 343) documents have been prepared.

In order to better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed a new environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at: http://www2.epa.gov/ejscreen.

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

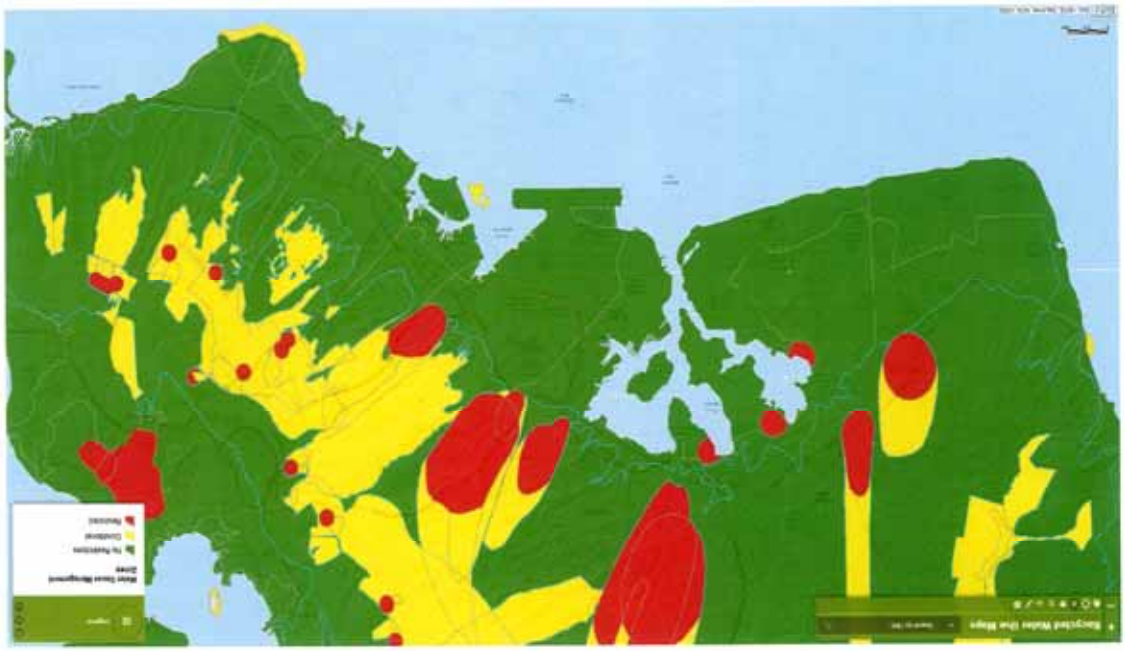
LM:nn

Attachment 1: EPO Draft Environmental Health Management Map
Attachment 2: Recycled Water Use Map
Attachment 3: OEQC Viewer Map of Project Area
Attachment 4: U.S. EPA EJSCREEN Report for Project Area

c: Lance Maja, DAGS (via email: lance.y.maja@hawaii.gov)
DOH: CWB, IRHB (via email only)





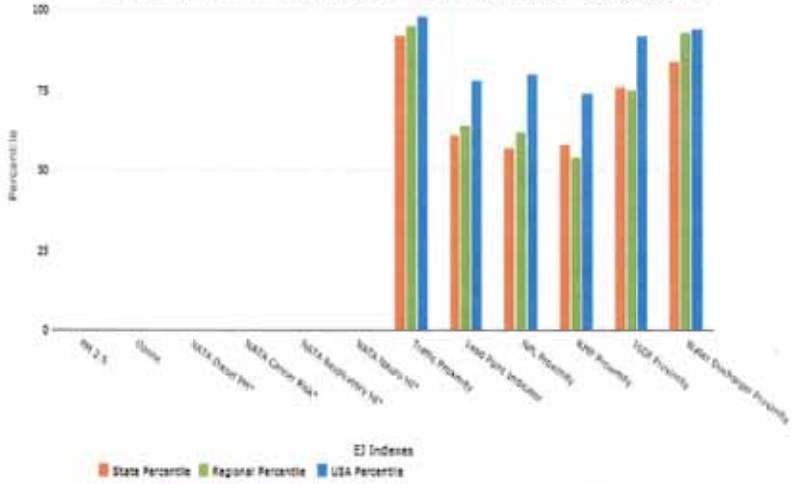


EPA

1 mile Ring Centered at 21.299561,-157.843524
HAWAII, EPA Region 9
Approximate Population: 65543

Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
EJ Indexes			
EJ Index for Particulate Matter (PM 2.5)	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA Diesel PM*	N/A	N/A	N/A
EJ Index for NATA Air Toxics Cancer Risk*	N/A	N/A	N/A
EJ Index for NATA Respiratory Hazard Index*	N/A	N/A	N/A
EJ Index for NATA Neurological Hazard Index*	N/A	N/A	N/A
EJ Index for Traffic Proximity and Volume	92	95	89
EJ Index for Lead Paint Indicator	81	84	78
EJ Index for NPL Proximity	57	62	80
EJ Index for RMP Proximity	58	54	74
EJ Index for TSDF Proximity	76	75	92
EJ Index for Water Discharger Proximity	84	93	94

EJ Index for the Selected Area Compared to All People's Block Groups in the State/Region/US



This report shows environmental, demographic, and EJ indicator values. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.



Selected Variables	Raw data	State Average	%ile in State	EPA Region Average	%ile in EPA Region	USA Average	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	N/A	N/A	N/A	9.00	N/A	8.78	N/A
Ozone (ppb)	N/A	N/A	N/A	49.1	N/A	45.1	N/A
NATA Diesel PM (µg/m³)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Air Toxics Cancer Risk (lifetime risk)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Respiratory Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Neurological Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Traffic Proximity and Volume (daily vehs / distance to road)	1200	280	93	190	97	110	99
Lead Paint Indicator (% pre-1960s housing)	0.14	0.17	54	0.26	49	0.3	41
NPL Proximity (site count/km distance)	0.003	0.092	52	0.11	45	0.098	53
RMP Proximity (facility count/km distance)	0.11	0.19	59	0.41	27	0.31	40
TSDF Proximity (facility count/km distance)	0.14	0.092	81	0.12	77	0.054	92
Water Discharger Proximity (count/km)	0.7	0.33	89	0.19	95	0.25	92
Demographic Indicators							
Demographic Index	59%	51%	63	46%	65	35%	78
Minority Population	83%	77%	61	57%	74	38%	88
Low Income Population	29%	29%	56	38%	45	34%	47
Linguistically Isolated Population	17%	8%	81	9%	79	5%	90
Population with Less Than High School Education	9%	10%	56	16%	37	14%	42
Population under Age 5	4%	6%	34	7%	30	7%	33
Population over Age 64	18%	14%	72	12%	83	13%	79

*The National-Scale Air Toxics Assessment (NATA) environmental indicators and EJ indexes, which include cancer risk, respiratory hazard, neurodevelopment hazard, and diesel particulate matter will be added into EJSCREEN during the first full public release after the soon-to-be-released 2011 dataset is made available. The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

JUN 15 2016

(P)1161.6

MEMORANDUM

TO: Ms. Laura Leialoha Phillips McIntyre, Program Manager
Environmental Planning Office
Department of Health

FROM: Scott M. Ojiri
Acting Public Works Administrator

SUBJECT: Draft Environmental Assessment for
Joint Development for Affordable Rental Housing and
Juvenile Services Center/Shelter
DAGS Job No. 12-21-7550

Thank you for your March 29, 2016, letter providing comments on the draft environmental assessment (EA) for the subject project. In response to your comments, we offer the following:

1. The standard comments and available strategies on the EPO's web site to support sustainable and healthy design have been reviewed as recommended. Our project intends to comply with all the applicable standards of the Hawaii Administrative Rules, including:

   a. Chapter 11-39 Air Conditioning and Ventilating

   b. Chapter 11-45 Radiation Control

   c. Chapter 11-46 Community Noise Control

   d. Chapter 11-501 Asbestos Requirements

   e. Chapter 11-503 Fees for Asbestos Removal and Certification

   f. Chapter 11-504 Asbestos Abatement Certification Program

The standard comments of the Safe Drinking Water Branch pertaining to public water systems, underground injection control, and groundwater protection associated with golf courses are not applicable to the project. Similarly, the standard comments from the Solid and Hazardous Waste Branch are not applicable.

The standard comments of the Wastewater Branch were reviewed. The project will connect to the City's sewer system. Preliminary approval to connect to the City wastewater system has been given by the Department of Planning and Permitting's Wastewater Branch in response to a Sewer Connection application. The approval directs the project to connect to an existing 8-inch main on Alder Street.

2. The Hawaii Environmental Health Portal has been examined.

3. The requirements for the NPDES permit have been reviewed. A NPDES permit will be obtained prior to the start of construction activities.

   The standard comments of the Clean Water Branch have been reviewed. As a Type A2 project that disturbs between one and five acres, the following practices will be implemented to meet water supply criteria:

   a. Incorporate appropriate low impact development site design strategies.

   b. Incorporate appropriate Source Control BMP's.

   c. Retain or bio-filter the water quality volume with appropriate post construction treatment control BMP's.

4. The Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control" have been reviewed. A noise permit will be obtained prior to commencement of construction if it is determined to be necessary.

5. The OEQC viewer has been examined. It will be used as a resource.

6. Thank you for your suggestion to explore the EPA EJSCREEN tool.

Should you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:lnn
c: Mr. Jared Chang, SSFM

DAVID Y. IGE
GOVERNOR

KATHRYN S. MATAYOSHI
SUPERINTENDENT

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

RECEIVED
APR 29 2016
kb

FILE COPY

April 14, 2016

Ms. Katia Balassiano
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Re: Draft Environmental Assessment for the Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter, Tax Map Key: (1) 2-3-012:019

Dear Ms. Balassiano:

The Department of Education (DOE) has reviewed the Draft Environmental Assessment for the joint development of an affordable rental housing and juvenile services center/shelter project.

The DOE is currently seeking approval to implement school impact fees for an area between Kalihi and Ala Moana. If the area for the proposed project gets designated as a school impact fee district, before the project gets a building permit, DOE will require further consultation and the execution of an Educational Contribution Agreement for payment of school impact fees.

We appreciate the opportunity to provide comments. If you have any questions, please call Heidi Meeker of the Planning Section, Facilities Development Branch at (808) 377-8301.

Respectfully,

Kenneth G. Masden II
Public Works Manager
Planning Section

KGM:jmb

c: Lance Maja, Department of Accounting & General Services

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

JUN 15 2016

(P)1162.6

MEMORANDUM

TO: Mr. Kenneth G. Masden II, Public Works Manager
Planning Section, Facilities Development Branch
Department of Education

ATTN: Ms. Heidi Meeker

FROM: Scott M. Ojiri SO
Acting Public Works Administrator

SUBJECT: Draft Environmental Assessment for
Joint Development for Affordable Rental Housing and
Juvenile Services Center/Shelter
DAGS Job No. 12-21-7550

Thank you for your April 14, 2016, letter commenting on the draft environmental assessment for the subject project. We acknowledge that an Educational Contribution Agreement for the payment of school impact fees may be required and that further consultation with the Department of Education will be necessary as the project progresses through the design and construction phases.

Should you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:lnn
c: Mr. Jared Chang, SSFM

HAWAII COMMUNITY DEVELOPMENT AUTHORITY

KAKAAKO KALAEOA

David Y. Ige
Governor

John Whalen
Chairperson

Aedward Los Banos
Interim Executive Director

547 Queen Street
Honolulu, Hawaii
96813

Telephone
(808) 594-0300

Facsimile
(808) 587-0299

E-Mail
contact@hcdaweb.org

Website
www.hcdaweb.org

SSFM INTERNATIONAL, INC.
RECEIVED
APR 18 2016
FILE

April 15, 2016

Ms. Katia Balassiano
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

FILE COPY

Dear Ms. Blassiano:

Re: Draft Environmental Assessment for the Proposed Mixed-Use Redevelopment, 902 Alder Street Tax Map Key (TMK): (1) 2-3-012: 019

The Hawaii Community Development Authority (HCDA) received a letter from SSFM International, Inc., dated March 18, 2016, requesting comment on the Draft Environmental Assessment (EA) published on March 23, 2016 for a proposed mixed-use redevelopment located at 902 Alder Street TMK: (1) 2-3-012: 019.

As stated in the Draft EA, the above mentioned 1.45-acre lot (63,180 Square feet) is owned by the State of Hawaii and, in accordance with Executive Order No. 1577, it has been set aside since 1953 for a Detention Home under the control and management of the Juvenile Court of the First Judicial Circuit. Currently, the Hawaii State Judiciary and the Hawaii Housing Finance and Development Corporation are proposing to jointly redevelop the said lot with a mixed-use development (Project) consisting of an affordable rental housing, therapeutic counseling, rehabilitative services and shelter for juveniles, short term shelter services, parking and incidental community uses.

As noted, this proposed development will utilize the Hawaii Revised Statutes Chapter 201H provision granted to affordable housing projects to request certain exemptions from zoning requirements. Therefore, this Draft EA is also serving as the Chapter 201H application agency/public comment document.

The HCDA, in a letter dated November 25, 2015, prior to the preparation for this Draft EA, provided pre-assessment comments as requested by the SSFM International, Inc. in a letter dated October 30, 2015. The Draft EA has captured most of the HCDA's comments provided in the aforementioned letter.

The Draft EA describes the Project site as being located within the Ala Moana-Kakaako District of Honolulu. It should be noted that, even though the Project site is outside the Kakaako Community Development District, it is closely bordered by HCDA's Mauka Area Sheridan Zone.

In addition, even though the Draft EA includes a discussion relating to the pedestrians and bicyclists and its conformity to plans outlined in the Ala Moana

Neighborhood Transit Oriented Development Plan and the Oahu Bike Plan, it does not discuss its conformity to the Kakaako Community Development District Draft TOD Overlay Plan. The said plan, aside from marking Piikoi Street as a primary street for bicycling, it identified it as a commercial avenue. As such, the HCDA strongly recommends that as the design of the proposed Project advances to implement the street element design characteristics that are outlined in the Draft TOD Overlay Plan. For example, while a landscaped open space is provided along Piikoi Street, a lack of building edge activation (as it will face a parking structure) might negatively influence the pedestrian experience. It is recommended that the parking be accessed from a secondary street and that the lower story of the parking structure has a livable liner whereas the top stories have some form of screening. Similarly, the tower should have street front elements that would allow it to transition to the street. The lower stories of buildings have the greatest influence on the experience of walking and creating an active urban space.

As explained, a developer has not been yet secured and as such the design of the proposed Project is not yet available. However, it is recommended that the Final EA has a better detail indicating the site layout of the Project with circulation plans for all modes of transportation. The design of the Project should attempt to reflect most of the design attributes that are linked to residential buildings within a TOD area as indicated in the Ala Moana Neighborhood Transit Oriented Development. In addition, if possible, the Project should consider basic best practices relating to sustainable designs including passive strategies that afford natural daylight and ventilation.

In general, the Project design in the Final EA should consider the small-scale urban fabric of the neighborhood and have building and site design elements that are essential to create a strong social environment.

Should you have any additional questions regarding this matter, please contact Ms. Sery Berhanu at 594-0314 or via email at Sergut.Berhanu@hawaii.gov.

Sincerely,

Aedward Los Banos
Interim Executive Director

c: Mr. Lance Maha, DAGS, Planning Branch

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

JUN 15 2016

(P)1164.6

MEMORANDUM

TO: Mr. Aedward Los Banos, Interim Executive Director
Hawaii Community Development Authority

ATTN: Ms. Sery Berhanu

FROM: Scott M. Ojiri
Acting Public Works Administrator

SUBJECT: Draft Environmental Assessment for
Joint Development for Affordable Rental Housing and
Juvenile Services Center/Shelter
DAGS Job No. 12-21-7550

Thank you for your April 15, 2016, letter providing comments on the draft environmental assessment (DEA). In response to your comments, we offer the following:

1. New text has been added to Section 2.1 that recognizes that the project site is outside of the Kakaako Community Development District (KCDD), but borders the Hawaii Community Development Authority's (HCDA's) Mauka Area Sheridan Zone.

2. A new section has been added to *4.0 Conformance with Plans and Policies* titled *4.10 KCDD TOD Overlay Plan*. This section describes the design goals for the Ewa side of Piikoi Street and HCDA's desire to turn Piikoi Street into an entirely commercial avenue. Although the project site is located outside of the KCDD, we support the proposed multi-modal and pedestrian friendly environment that HCDA promotes.

3. HCDA's recommendations to improve the urban fabric with street front elements will be discussed with the developer that is eventually selected. The recommendations will be implemented where practical.

Should you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:lnn
c: Mr. Jared Chang, SSFM

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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APR 25 2016
kb
FILE

FILE COPY

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 20, 2016

SSMF International, Inc.
Attention: Ms. Katia Balassiano
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

State of Hawaii
Department of Accounting & General Services
Public Works Division
Attention: Mr. Lance Maja, Planning Branch via email: lance.y.maja@hawaii.gov
1151 Punchbowl Street, Room 430
Honolulu, Hawaii 96813

Dear Ms. Balassiano and Mr. Maja:

SUBJECT: Draft Environmental Assessment (DEA) for Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from the (a) Engineering Division, Land Division – Oahu District, and (c) Commission on Water Resource Management on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 24, 2016

RECEIVED
LAND DIVISION
2016 APR -1 AM 11:05
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII
'16MAR28AM10:58 ENGINEERING

MEMORANDUM

TO: FROM:

DLNR Agencies:
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: TO:
FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (DEA) for Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter
LOCATION: 902 Alder Street, Honolulu, Island of Oahu; TMK: (1) 2-3-012:019
APPLICANT: Department of Accounting and General Services

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **April 19, 2016.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice under Quick Links on the right.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed:

Print Name: Carty S. Chang, Chief Engineer
Date: 3/31/16

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

To: Land Division/ Russell Y. Tsuji

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a designated Flood Hazard.

The owner or the project property and/or their representative is responsibile to research the Flood Hazard Zone designation for the project. Flood Hazard Zone designations can be found using the Flood Insurance Rate Map (FIRM), which can be accessed through the Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT).

National Flood Insurance Program establishes the rules and regulations of the NFIP - Title 44 of the Code of Federal Regulations (44CFR). The NFIP Zone X is a designation where there is no perceived flood impact. Therefore, the NFIP does not regulate any development within a Zone X designation.

Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may take precedence over the NFIP standards as local designations prove to be more restrictive. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- Kauai: County of Kauai, Department of Public Works (808) 241-4846.

The applicant should include water demands and infrastructure required to meet project needs. Please note that the projects within State lands requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.

The applicant is required to provide water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update projections.

Signed:
CARTY S. CHANG, CHIEF ENGINEER
Date: 3/31/16

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
LAND DIVISION
2016 APR -5 AM 6:48
DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

March 24, 2016

MEMORANDUM

FROM: TO:

DLNR Agencies:
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (DEA) for Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter
LOCATION: 902 Alder Street, Honolulu, Island of Oahu; TMK: (1) 2-3-012:019
APPLICANT: Department of Accounting and General Services

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **April 19, 2016.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice under Quick Links on the right.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

Comments:
Per EO 15 77, the State land has been set aside for the Judiciary Branch as a site for a detention home. As such, the EO would first have to be amended to allow for affordable housing as listed purposes.

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: T Chee
Print Name: Tiffany Chee
Date: 4/4/2016

BL

cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
LAND DIVISION
2016 APR 19 AM 11:41
DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
COMMISSION ON WATER RESOURCE MANAGEMENT
2016 MAR 29 PM 2:53

March 24, 2016

MEMORANDUM

TO:

DLNR Agencies:
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (DEA) for Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter
LOCATION: 902 Alder Street, Honolulu, Island of Oahu; TMK: (1) 2-3-012:019
APPLICANT: Department of Accounting and General Services

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **April 19, 2016.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice under Quick Links on the right.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(x) Comments are attached.

Signed: /s/ Jeffrey T. Pearson, P.E.
Print Name: Deputy Director
Date: April 18, 2016

RED. 4367.3
13895/

cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON

WILLIAM D. BALFOUR, JR.
KAMANA BEAMER, PH.D.
MICHAEL G. BUCK
MILTON D. PAVAO
VIRGINIA PRESSLER, M.D.
JONATHAN STARR

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

April 18, 2016

REF: RFD.4367.3

TO: Mr. Russell Tsuji, Administrator
Land Division Oahu, DLNR-LD

FROM: Jeffrey T. Pearson, P.E., Deputy Director
Commission on Water Resource Management

SUBJECT: Draft Environmental Assessment (DEA) for Joint Development for Affordable Rental Housing and Juvenile Center/Shelter

FILE NO.: RFD.4367.3
TMK NO.: (1) 2-3-012:019

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at http://dlnr.hawaii.gov/cwrm.

Our comments related to water resources are checked off below.

☐ 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.

☒ 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

☐ 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.

☒ 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at http://www.usgbc.org/leed. A listing of fixtures certified by the EAP as having high water efficiency can be found at http://www.epa.gov/watersense.

☒ 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at http://hawaii.gov/dbedt/czm/initiative/tid.php.

☒ 6. We recommend the use of alternative water sources, wherever practicable.

☒ 7. We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at http://energy.hawaii.gov/green-business-program.

☒ 8. We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawaii. These practices can be found online at

http://www.hawaiiscape.com/wp-content/uploads/2013/04/LICH_Irrigation_Conservation_BMPs.pdf.

☐ 9. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

☐ 10. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.

☐ 11. A Well Construction Permit(s) is (are) are required before the commencement of any well construction work.

☐ 12. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

☐ 13. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.

☐ 14. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

☐ 15. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a steam channel.

☐ 16. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.

☐ 17. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.

☐ 18. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

☒ OTHER: The Commission strongly encourages the implementation of water conservation measures, best management practices to mitigate stormwater runoff, and the use of other alternative non-potable sources, where practicable. The Commission has published a Water Conservation Manual for State of Hawaii Facilities (2007) that lists conservation measures for restrooms and shower facilities; kitchens, cafeterias, and staff rooms; and landscaping. Please visit the Commission's website at http://hawaii.gov/dlnr/cwrm to view or download a copy of this document.

The Commission encourages the use of xeriscaping or drought-tolerant plantings. To help you select the type of plants appropriate for the climate in your area, visit the Board of Water Supply's website at http://www.boardofwatersupply.com/cssweb/display.cfm?sid=1360.

If you have any questions, please contact Lenore Ohye of the Commission staff at 587-0216.

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

JUN 15 2016

(P)1165.6

MEMORANDUM

TO: Mr. Russell Y. Tsuji, Administrator
Land Division
Department of Land and Natural Resources

ATTN: Mr. Timmy Chee, Land Agent

FROM: Scott M. Ojiri
Acting Public Works Administrator

SUBJECT: Draft Environmental Assessment for
Joint Development for Affordable Rental Housing and
Juvenile Services Center/Shelter
DAGS Job. No. 12-21-7550

Thank you for your April 20, 2016, letter providing comments on the draft environmental assessment for the subject project. In response to your comments, we offer the following:

Upon fulfillment of the conditions of the MOU between the Hawaii Housing Finance and Development Corporation (HHFDC) and the Judiciary, and completion of the environmental review process, the Judiciary will formally request the Board to cancel the existing Executive Order No. 1577. The Judiciary and the HHFDC will then request the Board to issue a new Executive Order to both agencies, for the purposes of juvenile services and affordable rental housing. Preliminary discussions have been begun with Land Division staff.

Should you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:lnn
c: ✓ Mr. Jared Chang, SSFM
Ms. Lydia Morikawa, DLNR Land Division

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

JUN 15 2016

(P)1166.6

MEMORANDUM

TO: Mr. Carty S. Chang, Chief Engineer
Engineering Division
Department of Land and Natural Resources

FROM: Scott M. Ojiri
Acting Public Works Administrator

SUBJECT: Draft Environmental Assessment for
Joint Development for Affordable Rental Housing and
Juvenile Services Center/Shelter
DAGS Job. No. 12-21-7550

Thank you for your comments on the draft environmental assessment (EA) for the subject project submitted through Mr. Russell Tsuji, Land Administrator, on April 20, 2016. In response to your comments, we offer the following:

1. We acknowledge that the project site is located in NFIP Zone X, a designation where there is no perceived flood impact and one that the NFIP does not regulate.

2. Water demand estimates, calculations, and required infrastructure are included in *Section 3.11, Water System,* of the final EA. The Board of Water Supply has reviewed the calculations and has determined that the water needs can be accommodated.

3. The developer for this project may seek exemptions from statutes, ordinances and rules pursuant to Section 201H-38, Hawaii Revised Statutes. Accordingly, the developer may request a deferral of the water system resource development charge and water facilities charges for transmission and daily storage.

4. Water demand estimates for this project have been included in the State Water Projects Plan Update.

Should you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:lnn
c: ✓ Mr. Jared Chang, SSFM
Ms. Lydia Morikawa, DLNR Land Division

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

JUN 15 2016

(P)1167.6

MEMORANDUM

TO: Mr. Jeffrey T. Pearson, Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources

ATTN: Ms. Lenore Ohye

FROM: Scott M. Ojiri
Acting Public Works Administrator

SUBJECT: Draft Environmental Assessment for
Joint Development for Affordable Rental Housing and
Juvenile Services Center/Shelter
DAGS Job. No. 12-21-7550

Thank you for your comments on the draft environmental assessment (EA) for the subject project submitted through Mr. Russell Tsuji, Land Administrator, on April 20, 2016. In response to your comments, we offer the following:

1. This project is included in the State Water Projects Plan Update.

2. Low flow water fixtures will be employed were practical. The use of water efficient fixtures exceeding the limits already prescribed by existing codes will be explored. The Judiciary and the Hawaii Housing Finance and Development Corporation (HHFDC) are committed to sustainability and will consider LEED certification for their project.

3. Best management practices (BMP) for storm water management will be utilized.

4. Alternative water sources were investigated. Unfortunately, no practical alternative source for potable water exists. The project will evaluate converting the irrigation system to non-potable if and when a source becomes available.

5. The EA will discuss your department's recommendation to participate in the Hawaii Green Business Program and evaluate how it may apply to the project.

6. Landscape irrigation BMP's as recommended by the Landscape Industry Council of Hawaii will be utilized.

7. Thank you for referring us to the websites pertaining to conservation measures and xeriscaping. We will consider the recommendations as the project progresses through the design phase. The Judiciary and HHFDC are committed to implementing water conservation measures.

Should you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:lnn
c: ✓ Mr. Jared Chang, SSFM
Ms. Lydia Morikawa, DLNR Land Division

DAVID Y. IGE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

RECEIVED
VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH
APR 07 2016
In reply, please refer to:
04004PNN.16

FILE COPY

April 4, 2016

Ms. Katia Balassiano
Senior Planner
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Ms. Balassiano:

SUBJECT: Comments on the Draft Environmental Assessment for the Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter, Alder Street Mixed Use Project Honolulu, Island of Oahu, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), has reviewed the subject document and has no comments at this time. The DOH-CWB provided comments on the Pre-Assessment Consultation for Draft Environmental Assessment for this project (Letter No. 11023PJF.15, dated November 18, 2015).

Please note that our review is based solely on the information provided in the subject document and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://health.hawaii.gov/epo/files/2013/05/CWB-standardcomment.pdf.

If you have any questions, please visit our website at: http://health.hawaii.gov/cwb, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

Alec Wong

ALEC WONG, P.E., CHIEF
Clean Water Branch

NN:nn

c: Mr. George I. Atta, CCH-DPP
DOH-EPO #16-111 [via email Noella.Narimatsu@doh.hawaii.gov only]

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
COMPTROLLER

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

JUN 15 2016

(P)1168.6

MEMORANDUM

TO: Mr. Alec Wong, Chief
Clean Water Branch
Department of Health

FROM: Scott M. Ojiri
Acting Public Works Administrator

SUBJECT: Draft Environmental Assessment for
Joint Development for Affordable Rental Housing and
Juvenile Services Center/Shelter
DAGS Job No. 12-21-7550

Thank you for your April 4, 2016, letter regarding the draft environmental assessment (EA) for the subject project. We acknowledge that the Clean Water Branch has no comments at this time. The comments you provided on our pre-assessment consultation have been incorporated into the draft EA and final EA. As recommended, we have reviewed the standard comments available on the Department of Health's web site.

Should you have any questions, your staff may call Mr. Lance Maja of the Planning Branch at 586-0483.

LM:lnn
c: ✓Mr. Jared Chang, SSFM

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Appendix B:
Biological Resource Survey Report

SWCA
ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

Biological Resource Survey Report for 902 Alder Street, O‘ahu, Hawai‘i

Prepared for

SSFM International Inc.

Prepared by

SWCA Environmental Consultants

August 2015



BIOLOGICAL RESOURCE SURVEY REPORT FOR 902 ALDER STREET, O'AHU, HAWAI'I

Prepared for

SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawai'i 96817

Prepared by

SWCA Environmental Consultants
Bishop Square ASB Tower
1001 Bishop Street, Suite 2800
Honolulu, Hawai'i
(808) 548-7899
www.swca.com

SWCA Project No. 30515

August 20, 2015

EXECUTIVE SUMMARY

SSFM International (SSFM) retained SWCA Environmental Consultants (SWCA) to conduct biological resource surveys at the Alder Street Detention Facility. The State of Hawai'i is proposing to construct the New Status Offender Shelter and Juvenile Services Center, located at the former Alder Street Detention facility at 902 Alder Street. SSFM will use the results of the biological resource surveys as part of an environmental assessment (EA) to identify potential impacts of the proposed action.

SWCA conducted biological resource surveys on July 22, 2015. The results are summarized below.

Two federally endangered plant species—'ohai (*Sesbania tomentosa*) and ma'o hau hele (*Hibiscus brackenridgei*)—were observed during the surveys in a landscaped area; however, they are not federally protected because they are cultivated.

The white tern (*Gygis alba*) was observed during the surveys. This species is indigenous, state-threatened, and protected under the Migratory Bird Treaty Act. It may be temporarily displaced during construction; however, it will likely find suitable habitat nearby, and the displacement is not expected to affect survival of the overall species' populations. To further minimize risks, tree removal and trimming should be conducted in the fall and early winter, when white tern breeding is at its lowest, and trees should be inspected for white tern eggs or chicks before trees are removed.

Potential habitat for the Hawaiian hoary bat (*Lasiurus cinereus semotus*) was present at the project area. This species is federally endangered and is the only native land mammal in Hawai'i. To minimize potential impacts to this species, the following conservation measures are recommended:

- Any fences that are erected as part of the project should have barbless top-strand wire to prevent entanglements of the Hawaiian hoary bat on barbed wire. No fences in the project area were observed with barbed wire during the survey; however, if fences are present, the top strand of barbed wire should be removed or replaced with barbless wire.
- No trees taller than 15 feet (4.6 meters) should be trimmed or removed as a result of this project between June 1 and September 15, when juvenile bats that are not yet capable of flying may be roosting in the trees.

The proposed project is not likely to have any long-term adverse impacts on any state or federally listed threatened or endangered species if the recommended mitigation measures listed above are used.

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CONTENTS

1. Introduction **1**
1.1. Location and Vicinity 1
2. Methods **1**
2.1. Flora 1
2.2. Fauna 1
3. Results **4**
3.1. Flora 4
3.2. Fauna 4
3.2.1. Avifauna 4
3.2.2. Mammals 5
3.2.3. Reptiles and Amphibians 5
3.2.4. Insects and Other Invertebrates 5
4. Impacts **6**
4.1. Flora 6
4.2. Fauna 6
4.2.1. White Tern 6
4.2.2. Seabirds 6
4.2.3. Hawaiian Hoary Bat 7
5. Avoidance and Mitigation Measures **7**
5.1. Flora 7
5.1.1. Decontamination 7
5.1.2. Revegetation and Landscaping 7
5.2. Fauna 8
6. Conclusion **8**
7. Literature Cited **9**

APPENDICES

Appendix A. Checklist of Plants Observed at the Alder Street Project Area on July 22, 2015

FIGURES

Figure 1. 902 Alder St. project area. 3

TABLES

Table 1. Birds Observed by SWCA in and Near the Project Area 5

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1. INTRODUCTION

SSFM International (SSFM) retained SWCA Environmental Consultants (SWCA) to conduct biological resource surveys at the Alder Street Detention Facility. The Hawai'i Housing Finance and Development Corporation and the Hawai'i State Judiciary are partnering to redevelop 902 Alder Street into a mixed-use development that will simultaneously help to address the State's affordable rental housing and juvenile justice needs. SSFM will use the results of the biological resource surveys as part of an environmental assessment (EA) to identify potential impacts of the proposed action. SWCA conducted the biological resource surveys on July 22, 2015, to document site conditions and to identify species present in the project area (defined below). This report summarizes these findings.

1.1. Location and Vicinity

The project area is located at 902 Alder Street in the Kaka'ako District of Honolulu, O'ahu, Hawai'i (Figure 1). It is approximately 63,180 square feet (1.45 acres) and consists of two buildings, a paved parking area, paved recreational facilities, and vegetated land (EnviroQuest 2011). The project area is currently used as a juvenile detention facility, and surrounding land uses include residential dwellings, retail stores, gas stations, restaurants, offices, and a district park.

No water features or designated critical habitat for threatened or endangered species is in or near the project area. The topography of the project area is generally flat.

2. METHODS

SWCA reviewed available scientific and technical literature regarding natural resources in and near the project area. The USFWS online list of threatened, endangered, and candidate species was also reviewed. SWCA also reviewed available geospatial data, aerial photographs, and topographic maps of the project area.

SWCA Botanist Dr. Jason Cantley and Wildlife Biologist James Breedan conducted pedestrian biological resources surveys on July 22, 2015, to document site conditions, the presence of flora and fauna species, and any state or federally listed candidate, threatened, or endangered species and/or rare species in the project area.

2.1. Flora

SWCA conducted the pedestrian flora survey in the vegetated areas of the project area to document all vascular plant species and vegetation communities.

Plants recorded during the survey are indicative of the season ("rainy" vs. "dry") and the environmental conditions at the time of the survey. It is likely that additional surveys conducted at a different time of the year would result in minor variations in the species and abundances of plants observed.

2.2. Fauna

SWCA conducted the pedestrian fauna surveys during morning hours, when wildlife was most likely to be active. Birds were observed using 10 × 42–millimeter binoculars. Visual and auditory observations

were included in the survey. All observed birds, mammals, reptiles, amphibians, and invertebrate species were noted during the survey.

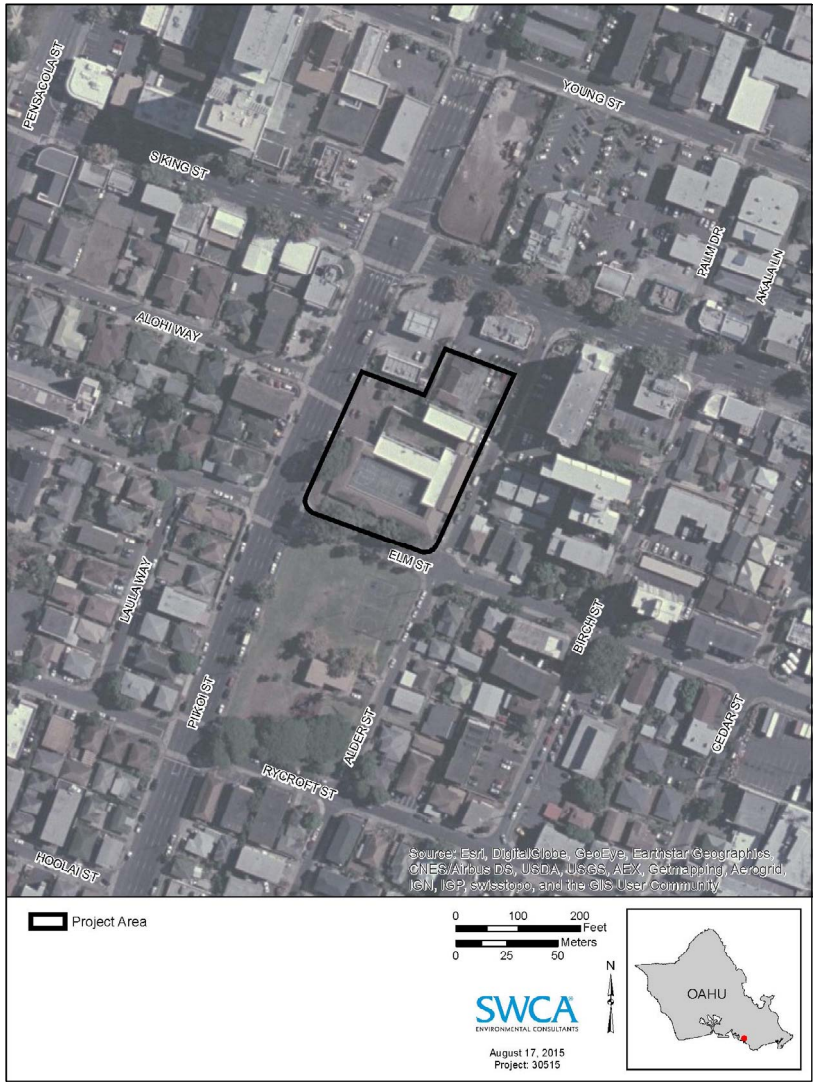

Figure 1. 902 Alder Sreet project area.

SWCA also noted the presence of potential habitat for state or federally listed threatened or endangered species.

3. RESULTS

3.1. Flora

In all, 82 plant species were recorded in the project area during the survey. Of these, six species are native to the Hawaiian Islands: ʻohai (*Sesbania tomentosa*), maʻo hau hele (*Hibiscus brackenridgei*), milo (*Thespesia populnea*), ʻōhiʻa lehua (*Metrosideros polymorpha*), ʻuhaloa (*Waltheria indica*), and kupukupu fern (*Nephrolepis cordifolia*). Two of these species, ʻohai and maʻo hau hele, are endangered, but they were observed in a maintained garden courtyard area and appear to be cultivated stock. Federal protection is not extended to endangered species that are cultivated, do not originate directly from wild populations, or are not naturally occurring wild populations. Four species observed are considered to be of Polynesian introduction: ʻuala or sweet potato (*Ipomoea batatas*), yellow wood sorrel (*Oxalis corniculata*), banana (*Musa* x *paradisiaca*), and kalo (*Colocasia esculenta*). Appendix A provides a list of all plant species observed by SWCA biologists in the project area during the survey.

SWCA identified two vegetation types identified in project area during the survey: a Demonstration Garden and Urban Landscaping.

Demonstration Garden: The demonstration garden is in a central courtyard of the existing detention center building and is apparently used as a teaching resource for the staff. A number of commonly cultivated agricultural plants are in the garden, including some of Polynesian introduction and some endemic species. Polynesian species include ʻuala, kalo, and banana, and native species include two individual ʻōhiʻa lehua trees and kupukupu ferns.

Urban Landscaping: Species commonly used for urban landscaping projects are abundant around the perimeter of the facility. The largest trees are mahogany (*Swietenia mahagoni*), milo, lemon scented gum (*Corymbia citriodora*), royal palm (*Roystonea regia*), and Chinese banyan (*Ficus microcarpa*). The ground is mostly devoid of vegetation, but commonly includes weedy ruderal species such as pitted beardgrass (*Bothriochloa pertusa*), fingergrasses (*Chloris* ssp.), and straggler daisy (*Calyptocarpus vialis*).

3.2. Fauna

3.2.1. Avifauna

Bird species observed in the project area are species commonly found in Hawaiʻi's urban areas and gardens. Of the nine bird species documented (Table 1), eight species are non-native introductions and one species, the white tern (*Gygis alba*), is indigenous, state-threatened, and protected under the Migratory Bird Treaty Act (MBTA). No suitable nesting sites for Hawaiian waterbirds or Hawaiian seabird species are present in the project area; however it is possible that seabirds, such as the Hawaiian petrel and Newell's shearwater, may fly over the project area at night while travelling to and from their upland nesting sites to the ocean.

Table 1. Birds Observed by SWCA in and Near the Project Area

Common Name	Scientific Name	Status*	Protected by the MBTA
Common myna	*Acridotheres tristis*	NN	
House finch	*Haemorhous mexicanus*	NN	
Japanese white-eye	*Zosterops japonicus*	NN	
Red-vented bulbul	*Pycnonotus cafer*	NN	
Red-whiskered bulbul	*Pycnonotus jocosus*	NN	
Rose-ringed parakeet	*Psittacula krameri*	NN	
Spotted dove	*Streptopelia chinensis*	NN	
White tern	*Gygis alba*	I	X
Zebra dove	*Geopelia striata*	NN	
Total		**9**	**1**

* I = Indigenous, NN = Non-native permanent resident

3.2.2. Mammals

The project area is bordered by residential areas, where it is common to find people walking pet dogs (*Canis familiaris*). No other mammals were observed during the pedestrian surveys. Mammals that could be expected in the project area include cat (*Felis catus*), mongoose (*Herpestes javanicus*), rat (*Rattus* spp.) and mouse (*Mus musculus*).

3.2.2.1. HAWAIIAN HOARY BAT

The federally endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) is the only native terrestrial mammal that is still extant within the Hawaiian Islands (U.S. Fish and Wildlife Service [USFWS] 1998). Acoustic surveys for the Hawaiian hoary bat were not conducted, but any areas of suitable habitat for roosting and foraging were noted during the surveys. Hawaiian hoary bats forage in open, wooded, and linear habitats within a wide range of vegetation types. These animals are insectivores and are regularly observed foraging over streams, reservoirs, and wetlands up to 300 feet (100 meters) offshore (U.S. Department of Agriculture [USDA] 2009). Hawaiian hoary bats require open access for launching into flight and typically roost in dense canopy foliage or in the subcanopy when canopy foliage is sparse (USDA 2009). Several of the tree species in the project area—Chinese banyan, mango (*Mangifera* sp.), royal palm, and mahogany—could be used by Hawaiian hoary bats for foraging and roosting.

3.2.3. Reptiles and Amphibians

The brown anole (*Anolis sagrei*) was frequently observed during the pedestrian survey; individuals were foraging or basking in the sun throughout the project area. No other reptiles or amphibians were seen during the survey. None of the terrestrial reptiles and amphibians on the Hawaiian Islands are native to the islands.

3.2.4. Insects and Other Invertebrates

No native invertebrate species were recorded during the survey.

4. IMPACTS

4.1. Flora

The vegetation types and species identified during the surveys are not unique. Most of the plant species observed are not native to Hawai'i, and the native species present were only a few individuals (with the exception of 'uhaloa, which is weedy and was found in several locations). No threatened or endangered plants, other than the cultivated species previously discussed, were found and no designated plant critical habitat was found in or near the project area. Therefore, the proposed project is not expected to have a significant, adverse impact on botanical resources. Weedy non-native plant species are common throughout the project area. Most of these weedy species are widespread on O'ahu, and their control is not expected to result in a significant decrease in their number or distribution.

4.2. Fauna

4.2.1. White Tern

The white tern is the only state-listed (threatened) species observed in the project area. It is also the only observed species that is protected under the MBTA. On O'ahu, white terns most commonly nest in trees, such as banyan (*Ficus* spp.), monkeypod (*Samanea saman*), mahogany, and kukui (*Aleurites moluccana*), although other species have also been used for nesting and roosting (Vanderwerf 2003). White terns were not specifically observed nesting in the project area, but suitable nest trees are present.

The white tern lays eggs directly on branches; therefore, eggs and flightless chicks may be vulnerable displacement and fatality due to tree trimming and removal activities (Vanderwerf 2003). It nests year round, but decreases egg production in the fall and early winter. The mitigation measures identified for this species would decrease the probability of chick fatality.

Construction at the site may temporarily displace white terns from nesting and roosting habitat, but long-term impacts are not expected. These birds (likely limited to a few individuals) are expected to find suitable habitat nearby. The temporary displacement of these individuals at the project area is not expected to affect individual's survival or the overall species' populations. Avoidance and mitigation measures to avoid white tern impacts are provided in section 4.3.

4.2.2. Seabirds

Seabirds, particularly the endangered Hawaiian petrel (*Pterodroma sandwichensis*) and threatened Newell's shearwater (*Puffinus auricularis newelli*), may fly over the project area at night while travelling between upland nesting sites and the ocean. The Hawaiian petrel in no longer thought to breed on O'ahu (Harrison 1990). Recent radar studies suggest the Newell's shearwater may nest on O'ahu (Day and Cooper 2008). No suitable nesting sites are present for these species in the project area.

One of the threats to the Hawaiian petrel and Newell's shearwater populations is the attraction of adults and newly fledged juveniles to bright lights while transiting between nest sites and the ocean. Juvenile birds are particularly vulnerable to light attraction and are sometimes grounded when they become disoriented by lights (Mitchell et al. 2005). Many of these grounded birds are vulnerable to mammalian predators or to being struck by vehicles. The following mitigation measures are provided to avoid and minimize light

attraction of these seabirds to the project area: Avoidance and mitigation measures to avoid seabird direct impacts have are provided in section 4.3.

4.2.3. Hawaiian Hoary Bat

Hawaiian hoary bats are known to occur on O'ahu in native, non-native, agricultural, and developed landscapes (USDA 2009; USFWS 1998). Hawaiian hoary bats have been documented roosting in coconut trees (*Cocos nucifera*), and may roost in other palms at the site (Appendix A Table A1). Direct impacts to bats would occur if a juvenile bat that is too small to fly but too large to be carried by a parent were present in a tree that was cut down. Avoidance and mitigation measures to avoid Hawaiian hoary bat direct impacts have been promulgated by the USFWS (1998) and are provided in section 4.3.

5. AVOIDANCE AND MITIGATION MEASURES

5.1. Flora

5.1.1. Decontamination

To avoid the unintentional introduction or transport of new terrestrial invasive flora and fauna species to O'ahu, all construction equipment and vehicles arriving from outside O'ahu should be washed and inspected before they enter the project area. In addition, construction materials arriving from outside of O'ahu should also be washed and/or visually inspected (as appropriate) for excessive debris, plant materials, and invasive or harmful non-native species (plants, amphibians, reptiles, and insects). When possible, raw materials (gravel, rock, soil) should be purchased from a local supplier on O'ahu to avoid introducing non-native species not present on the island. Inspection and cleaning activities should be conducted at a designated location.

The inspector should be a qualified biologist that is able to identify invasive species that are of concern relevant to the point of origin of the equipment, vehicle, or material (e.g., brown tree snakes [*Boiga irregularis*] are of concern if materials are originating from Guam). Invasive species that should be checked for during inspections can be found at the following sources:

- Hawaii State-listed Noxious Weeds: http://plants.usda.gov/java/noxious?rptType=State&statefips=15
- Oahu Invasive Species Committee Priority Target Species: http://www.oahuisc.org/target-pests/

5.1.2. Revegetation and Landscaping

If portions of the project area are landscaped as a result of the project, SWCA recommends that native Hawaiian plants be employed for landscaping around the project area to the maximum extent possible. Potential native species that may be appropriate for urban landscaping at the project area include koa (*Acacia koa*), munroidendron (*Polyscias racemosa*), 'a'ali'i (*Dodonaea viscosa*), alahe'e (*Psydrax odorata*), and O'ahu sedge (*Carex wahuensis*). If native plants do not meet landscaping objectives, plants with a low risk of becoming invasive may be substituted. Additional information on selecting appropriate plants for landscaping can be obtained from the following sources:

- http://www.plantpono.org/
- http://nativeplants.hawaii.edu/

5.2. Fauna

Implementation of the proposed action would include a variety of avoidance, mitigation measures, and best management practices (BMPs). Avoidance and mitigation measures are expected to reduce or eliminate project-related impacts and avoid adverse effects to listed species. Where appropriate, conservation measures would be implemented to minimize impacts. BMPs would be used to minimize impacts to listed species during construction.

Avoidance, mitigation measures, and BMPs for the proposed action include the following:

White Tern

- Tree removal and trimming should be conducted in the fall and early winter, when white tern breeding is at its lowest (Vanderwerf 2003).
- Trees should be inspected for white tern eggs or chicks before trees are removed.
- If a white tern nest or chick is found, the tree should not be trimmed or removed until the chick has fledged.

Seabirds

- Construction activity should be restricted to daylight hours as much as practicable during the seabird peak fallout period (September 15–December 15) to avoid the use of nighttime lighting that could attract seabirds.
- All outdoor lights should be shielded to prevent upward radiation. This has been shown to reduce the potential for seabird attraction (Reed et al. 1985; Telfer et al. 1987). A selection of acceptable seabird-friendly lights can be found online at the Kauai Seabird Habitat Conservation website (2013).
- Outside lights that are not needed for security and safety should be turned off from dusk through dawn during the seabird fallout period (September 15–December 15).

Hawaiian Hoary Bat

- Any fences that are erected as part of the project should have barbless top-strand wire to prevent entanglements of the Hawaiian hoary bat on barbed wire. No fences in the project area were observed with barbed wire during the survey; however, if fences are present, the top strand of barbed wire should be removed or replaced with barbless wire.
- No trees taller than 15 feet (4.6 meters) should be trimmed or removed as a result of this project between June 1 and September 15, when juvenile bats that are not yet capable of flying may be roosting in the trees.

6. CONCLUSION

Two federally endangered plant species—'ohai and ma'o hau hele—were observed during the surveys in a landscaped area; however, they are not federally protected because they are cultivated.

The proposed action is not likely to have any long-term adverse impacts to any state- or federally listed threatened or endangered species if the recommended avoidance and mitigation measures listed above are used.

7. LITERATURE CITED

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Appendix A.

Checklist of Plant Species Observed at the Alder Street Project Area on July 22, 2015

Table A1 provides an inventory checklist of plant species observed by SWCA on July 22, 2015, at the Alder Street project area. The plant names are arranged alphabetically by family and then by species into three groups: ferns and lycophytes, gymnosperms, monocots, and dicots. The taxonomy and nomenclature of the ferns and lycophytes are in accordance with Palmer (2003) and Evenhuis and Eldredge (2011). The taxonomy and nomenclature of the flowering plants are in accordance with Wagner et al. (1999), Wagner and Herbst (2003), and Staples and Herbst (2005). Recent name changes are those recorded in Wagner et al. (2012).

Table A1. Checklist of Plants Observed at the Alder Street Project Area on July 22, 2015

Scientific Name and Authority	Common/Hawaiian Name	Status*
FERNS AND LYCOPHYTES		
Nephrolepidaceae		
Nephrolepis cordifolia (L.) C.Presl	kupukupu fern	I
Polypodiaceae		
Phymatosorus grossus (Langsd. & Fisch.) Brownlie	laua'e, maile-scented fern	X
GYMNOSPERMS		
Pinaceae		
Pinus sp.	pine tree	X
MONOCOTS		
Agavaceae		
Sansevieria trifasciata Prain	mother in law's tongue, snakeplant	X
Aloeaceae		
Aloe vera (L.) Burm.f.	aloe	X
Araceae		
Colocasia esculenta (L.) Schott	taro, kalo	P
Arecaceae		
Adonidia merrillii (Becc.) Becc.	Manila palm	X
Roystonea regia (Kunth) O.F.Cook	royal palm	X
Bromeliaceae		
Ananas comosus (L.) Merr.	pineapple	X
Costaceae		
Costus scaber Ruiz & Pav.	spiral ginger	X
Costus woodsonii Maas	red button ginger	X
Cyperaceae		
Kyllinga brevifolia Rottb.	kili'o'opu, kaluhā, manunēnē, mau'u mokae	X

Table A1. Checklist of Plants Observed at the Alder Street Project Area on July 22, 2015

Scientific Name and Authority	Common/Hawaiian Name	Status*
Kyllinga nemoralis (J.R.Forst. & G.Forst.) Dandy ex Hutch. & Dalziel	kili'o'opu, mau'u mokae	X
Heliconiaceae		
Heliconia bihai (L.) L.	red palulu, macaw flower	X
Juncaceae		
Juncus tenuis Willd.	rush, bog rush	X
Musaceae		
Musa X *paradisiaca* L.	mai'a, banana	P
Orchidaceae		
Spathoglottis plicata Blume	Malayan ground orchid, Philippine ground orchid	X
Spathoglottis pubescens Lindl.	buttercup orchid	X
Poaceae		
Bothriochloa pertusa (L.) A.Camus	pitted beardgrass	X
Cenchrus echinatus L.	common sandbur, 'ume'alu, mau'u kukū	X
Chloris barbata Sw.	swollen fingergrass, mau'u lei	X
Chloris radiata (L.) Sw.	radiate fingergrass, plushgrass	X
Cynodon dactylon (L.) Pers.	Bermuda grass, mānienie, mānienie haole	X
Digitaria insularis (L.) Mez ex Ekman	sourgrass	X
Eragrostis amabilis (L.) Wight & Arn.	lovegrass	X
Melinis repens (Willd.) Zizka	natal redtop, natal grass	X
Paspalum conjugatum P.J.Bergius	Hilo grass, mau'u Hilo, sour paspalum	X
Sporobolus indicus (L.) R.Br.	West Indian dropseed, smutgrass	X
Urochloa maxima (Jacq.) R.D.Webster	Guinea grass	X
Zingiberaceae		
Alpinia purpurata (Vieill.) K.Schum.	red ginger, 'awapuhi 'ula'ula	X
Alpinia zerumbet (Pers.) B.L.Burtt & R.M.Sm.	shell ginger	X
Etlingera elaitor (Jack) R.M. Sm.	torch ginger, red ginger lily	X
Hedychium coronarium J.König	white ginger, common ginger lily, butterfly lily, garland flower, 'awapuhi ke'oke'o	X
DICOTS		
Acanthaceae		
Asystasia gangetica (L.) T.Anderson	Chinese violet, coromandel	X

Table A1. Checklist of Plants Observed at the Alder Street Project Area on July 22, 2015

Scientific Name and Authority	Common/Hawaiian Name	Status*
Pseuderanthemum carruthersii (Seem.) Guillaumin	Carruthers's falseface	X
Amaranthaceae		
Amaranthus viridis L.	slender amaranth, pakai, 'āheahea, pākaikai, pakapakai (Ni'ihau)	X
Anacardiaceae		
Mangifera indica L.	mango, manakō, manakō meneke, meneke	X
Apocynaceae		
Plumeria rubra L.	plumeria, frangipani	X
Tabernaemontana pandacaqui Poir.	windmill bush	X
Asparagaceae		
Dracaena marginata Lam.	money tree	X
Asteraceae		
Calyptocarpus vialis Less.	straggler daisy	X
Conyza bonariensis (L.) Cronquist	hairy horseweed, līlīoha, 'awi'awī, pua mana, lani wela (Ni'ihau)	X
Sphagneticola trilobata (L.) Pruski	wedelia	X
Tridax procumbens L.	coat buttons	X
Bignoniaceae		
Spathodea campanulata P.Beauv.	African tulip tree, fountain tree	X
Boraginaceae		
Carmona retusa (Vahl) Masam.	Fukien tea, Philippine tea	X
Caricaceae		
Carica papaya L.	papaya, mīkana, hē'ī, mīlikana, papala, pawpaw	X
Celastraceae		
Elaeodendron orientale J.Jacq.	false olive	X
Convolvulaceae		
Ipomoea batatas (L.) Lam.	'uala, 'uwala, sweet potato	P
Cucurbitaceae		
Coccinia grandis (L.) Voigt	ivy gourd, scarlet-fruited gourd	X
Euphorbiaceae		
Euphorbia hirta L.	hairy spurge, garden spurge, koko kahiki	X
Euphorbia hypericifolia L.	graceful spurge	X

Table A1. Checklist of Plants Observed at the Alder Street Project Area on July 22, 2015

Scientific Name and Authority	Common/Hawaiian Name	Status*
Euphorbia hyssopifolia L.	spurge	X
Euphorbia prostrata Aiton	prostrate spurge	X
Fabaceae		
Alysicarpus vaginalis (L.) DC.	alyce clover	X
Caesalpinia pulcherrima (L.) Sw.	pride of Barbados, peacock flower	X
Desmanthus pernambucanus (L.) Thell.	slender mimosa, virgate mimosa	X
Leucaena leucocephala (Lam.) de Wit	koa haole, ēkoa, līlikoa	X
Mimosa pudica var. *unijuga* (Duchass. & Walp.) Griseb.	sensitive plant, sleeping grass, pua hilahila	X
Sesbania tomentosa Hook. & Arn.	ʻohai	E
Lamiaceae		
Ocimum basilicum L.	common basil, sweet basil, kī ʻaʻala, kī paoa	X
Plectranthus prostratus	succulent Swedish ivy, pillow plant	X
Loganiaceae		
Fagraea berteroana Bentham	puakenikeni	X
Malvaceae		
Hibiscus brackenridgei A. Gray	maʻo hau hele	E
Thespesia populnea (L.) Sol. ex Corrêa	milo, portia tree	I?
Meliaceae		
Aglaia odorata Lour.	Chinese perfume plant	X
Swietenia mahagoni (L.) Jacq.	mahogany, West Indies mahogany	X
Moraceae		
Ficus microcarpa L.f.	Chinese banyan, Malayan banyan	X
Myrtaceae		
Corymbia citriodora (Hook.) K.D.Hill & L.A.S.Johnson	lemon-scented gum	X
Metrosideros polymorpha Gaudich.	ʻōhiʻa, ʻōhiʻa lehua, lehua	E
Psidium guajava L.	common guava, kuawa, kuawa keʻokeʻo, kuawa lemi, kuawa momona, puawa	X
Nyctaginaceae		
Boerhavia coccinea Mill.	scarlet spiderling	X

Table A1. Checklist of Plants Observed at the Alder Street Project Area on July 22, 2015

Scientific Name and Authority	Common/Hawaiian Name	Status*
Oxalidaceae		
Oxalis corniculata L.	yellow wood sorrel, ʻihiʻai, ʻihiʻawa, ʻihi maka ʻula, ʻihi mākole	P?
Passifloraceae		
Passiflora edulis Sims	passion fruit, purple granadilla, purple water lemon, liliko'i	X
Passiflora suberosa L.	huehue haole	X
Rosaceae		
Rhaphiolepis umbellata	Indian Hawthorne, Yeddo Hawthorn	X
Rubiaceae		
Gardenia jasminoides J.Ellis	gardenia, cape jessamine	X
Oldenlandia corymbosa L.		X
Sapotaceae		
Chrysophyllum oliviforme L.	satinleaf	X
Solanaceae		
Solanum lycopersicum var. *cerasiforme* (Dunal) D.M.Spooner, G.J.Anderson & R.K.Jansen	tomato, ʻōhiʻa lomi, kamako, ʻōhiʻa, ʻōhiʻa haole	X
Sterculiaceae		
Waltheria indica L.	ʻuhaloa, ʻalaʻala pū loa, hala ʻuhaloa, hiʻaloa, kanakaloa	I?
Zygophyllaceae		
Guaiacum officinale L.	Lignum vitae	X

* Status:

E = endemic (native only to the Hawaiian Islands).

I = indigenous (native to the Hawaiian Islands and elsewhere).

P = Polynesian (introduced by Polynesians).

X = introduced/ alien (plants brought to the Hawaiian Islands by humans, intentionally or accidentally, after Western contact [Cook's arrival in the islands in 1778]).

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Appendix C:
Environmental Noise Assessment Report

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Environmental Noise Assessment Report
Juvenile Detention Home Planning For Judiciary Multi-Use and HHFDC Housing Joint Development
Honolulu, Hawaii

December 2015

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TABLE OF CONTENTS

SECTION		PAGE
1.0	**EXECUTIVE SUMMARY**	**1**
2.0	**PROJECT DESCRIPTION**	**2**
2.1	Project Design	2
3.0	**NOISE STANDARDS**	**2**
3.1	State of Hawaii, Community Noise Control (HDOH)	2
3.2	U.S. Federal Highway Administration (FHWA)	2
3.3	State of Hawaii Department of Transportation (HDOT)	2
3.4	U.S. Department of Housing and Urban Development (HUD)	3
3.4.1	Exterior Noise Design Criteria	3
3.4.2	Interior Noise Design Criteria	3
3.5	Community Response to Change in Noise Level	3
4.0	**EXISTING ACOUSTICAL ENVIRONMENT**	**4**
4.1	Long Term Noise Measurements	4
4.1.1	Long-Term Noise Measurement Procedure	4
4.1.2	Long-Term Noise Measurement Locations	4
4.1.3	Long-Term Noise Measurement Results	4
5.0	**POTENTIAL NOISE IMPACTS**	**5**
5.1	Project Construction Noise and Compliance with HDOH Community Noise Control Rule	5
5.2	Project Generated Stationary Mechanical Noise and Compliance with HDOH Community Noise Control Rule	5
5.3	Vehicular Traffic Noise and Compliance with FHWA/HDOT Guidelines	5
5.3.1	Vehicular Traffic Noise Impacts on the Surrounding Community	6
5.3.2	Vehicular Traffic Noise Impacts on the Project	6
5.4	Compliance with EPA and HUD Noise Guidelines	6
5.4.1	Vehicular Traffic Noise Impacts on the Project	6
6.0	**NOISE IMPACT MITIGATION**	**7**
6.1	HDOH Noise Permit for Construction Noise	7
6.2	HDOH Noise Variance for Construction Noise	7
6.3	Mitigation of Project Construction Noise	8
6.3.1	Mitigation of Noise Source	8
6.3.2	Mitigation of Noise Path	8
6.4	Mitigation of Development Noise	8
6.4.1	Stationary Mechanical Equipment Noise	8
6.4.2	Parking Garage Noise	8
6.5	Mitigation of Traffic Noise	9
6.5.1	Residential Interior Spaces of the Development	9
6.5.2	Residential Exterior Spaces of the Development	9
REFERENCES		**10**

LIST OF TABLES

Table 1 HUD Site Acceptability Standards

Table 2 Average Ability to Perceive Changes in Noise Level

Table 3 Summary of Long Term Noise Measurement Results

Table 4 Construction Noise Source Control Methods

LIST OF FIGURES

Figure 1 Hawaii DOH Maximum Permissible Sound Levels for Various Zoning Districts

Figure 2 FHWA Noise Abatement Criteria for Highway Noise

Figure 3 Project Site Overview and Noise Measurement Location

Figure 4 Long Term Noise Measurement Data

Figure 5 Typical Noise Levels from Construction Equipment

Figure 6 Noise Map of Existing Exterior Noise Levels (Day-Night Level)

Figure 7 Existing Exterior Nose Levels (Day-Night Level) – Piikoi Street Façade 1

Figure 8 Existing Exterior Nose Levels (Day-Night Level) – Piikoi Street Façade 2

LIST OF APPENDICES

Appendix A Acoustic Terminology

Appendix B Photographs at Project Site

1.0 EXECUTIVE SUMMARY

1.1 The Juvenile Services Center and Housing project is located in the Ala Moana district in Honolulu, Hawaii. The proposed 17 story project includes approximately 187 housing units and 290 parking stalls. The project site is on a block bordered by King Street on the mauka (mountain) side, Elm Street on the Makai (ocean) side, Piikoi Street on the west (Ewa) side and Alder Street on the east (Diamond Head) side. The area is currently zoned as Medium Density Apartment (zoning code A-2).

1.2 The project area is currently exposed to varying daytime and nighttime ambient noise levels, typical of as urban environment. The dominant noise source was vehicular traffic noise from Piikoi Street. Daytime noise levels ranged from 61 to 67 dBA. Nighttime noise levels were slightly less and ranged from 58 to 62 dBA. Noise measurements taken on the project site show a day-night level (L_{dn}) of 68 dBA. The L_{dn} is the noise level taken from the logarithmic average of each individual hour's equivalent noise level. Before they are summed for the average, each hourly noise level from night time hours (10:00 PM – 7:00 AM) has a 10 dB penalty added to it to account for increased sensitivity to noise during those hours.

1.3 During project construction, the dominant noise sources will likely be earth moving equipment, such as bulldozers and diesel powered trucks. Noise from construction activities should be short term and must comply with State Department of Health noise regulations, and a construction noise permit.

1.4 After construction is complete, noise generated from any stationary mechanical equipment on the project site must comply with the Hawaii Department of Health property line noise regulations. Noise mitigation for stationary mechanical equipment should be considered during the design of the project.

1.5 To evaluate existing vehicular traffic noise levels from traffic on the project site, traffic noise was calculated in the occupied areas and compared to both the FHWA/HDOT and HUD noise level criteria. Per the traffic report for the project site, future traffic with and without the project is expected to be the same as the currently existing traffic level. Traffic noise was projected on the full elevation façade of the building and on the exterior area at ground level on the Juvenile Services Center and Housing project site. The exterior façade of the apartment units directly overlooking Piikoi Streets are expected to be exposed to noise levels in excess of the HUD site acceptability standards and the FHWA noise abatement criteria. In order to comply with the HUD noise criteria inside the units, exterior façade elements such as glazing and wall construction should be considered during the design of the project. A noise impact is not expected for the Alder Street facing side of the housing section of the building or the housing sections of the Elm Street and South King Street facing sides not in the immediate vicinity of Piikoi Street.

1.6 Design of the exterior elements of the building should incorporate features that reduce noise levels to the interior spaces of the apartment unit. These features include concrete exterior walls, minimum STC 35 rated windows, and no window or wall mounted AC or PTAC units installed in the exterior shell of the building.

1.7 The FHWA/HDOT criteria are not regulatory requirements for this project as it has no authority to enforce land use. The criteria are recommended by the FHWA to be used as a guideline for consideration of land use and the impact of traffic noise. It is also important to note that the HUD noise guidelines are also design goals and not enforceable regulations. However, these guidelines and design goals are useful tools for assessing the noise environment. It is important to note that the HUD site acceptability standards must be satisfied for projects involving HUD or federal financing.

2.0 PROJECT DESCRIPTION

2.1 Project Design

The Juvenile Services Center and Housing project is located in Honolulu, Hawaii. The proposed 17 story project includes approximately 187 housing units and 290 parking stalls. The project site is on a block bordered by King Street on the mauka (mountain) side, Elm Street on the Makai (ocean) side, Piikoi Street on the west (Ewa) side and Alder Street on the east (Diamond Head) side. The area is currently zoned for medium density apartments (zoning code A-2).

3.0 NOISE STANDARDS

Various local and federal agencies have established guidelines and standards for assessing environmental noise impacts and set noise limits as a function of land use. A brief description of common acoustic terminology used in these guidelines and standards is presented in Appendix A.

3.1 State of Hawaii, Community Noise Control (HDOH)

The State of Hawaii Community Noise Control Rule [Reference 1] defines three classes of zoning districts and specifies corresponding maximum permissible sound levels due to *stationary* noise sources such as air-conditioning units, exhaust systems, generators, compressors, pumps, etc. The Community Noise Control Rule does not address most *moving* sources, such as vehicular traffic noise, aircraft noise, or rail transit noise. However, the Community Noise Control Rule does regulate noise related to agricultural, construction, and industrial activities, which may not be stationary.

The maximum permissible noise levels for stationary mechanical equipment are enforced by the Hawaii Department of Health (HDOH) for any location at or beyond the property line and shall not be exceeded for more than 10% of the time during any 20-minute period. The specified noise limits which apply are a function of the zoning and time of day as shown in Figure 1. With respect to mixed zoning districts, the rule specifies that the primary land use designation shall be used to determine the applicable zoning district class and the maximum permissible sound level. In determining the maximum permissible sound level, the background noise level is taken into account by HDOH.

The criteria for *impulse* or impact noise is separate from stationary noise due to the nature of the sound. HDOH defines impulse noise as " any sound with a rapid rise and decay of sound pressure level, lasting less than one second, caused by sudden contact between two or more surfaces…". Noise from pile driving is considered impulse noise and the maximum permissible noise level is 10 dB above the specified noise limits for stationary sources, as shown in Figure 1.

3.2 U.S. Federal Highway Administration (FHWA)

The FHWA regulation 23 CFR 772 contains highway traffic noise abatement criteria (NAC) for seven land use activity categories and assigns corresponding maximum hourly equivalent sound levels ($L_{eq}(h)$) for traffic noise exposure [Reference 2, 3]. The Noise Abatement Criteria (NAC) for all seven categories are listed in Figure 2. This project is classified under "Category B" for residential activities, which has a maximum $L_{eq}(h)$ of 67 dBA. These limits are viewed as design goals, and all projects meeting these limits are deemed in conformance with FHWA noise standards.

3.3 State of Hawaii Department of Transportation (HDOT)

The HDOT has implemented the requirements of the FHWA's design goals for traffic noise exposure in its noise analysis and abatement policy [Reference 4]. According to the policy, a traffic noise impact occurs when the predicted traffic noise levels "approach" or exceed FHWA's NAC or when the predicted traffic noise levels "substantially exceed the existing

noise levels." The policy also states that "approach" is defined as 1 dB less than FHWA's NAC and "substantially exceed" is defined as an increase of at least 15 dB.

3.4 U.S. Department of Housing and Urban Development (HUD)

HUD's environmental noise criteria and standards in 24 CFR 51 [Reference 5] were established for determining housing project site acceptability. These standards are based on day-night equivalent sound levels, L_{dn}, and are not limited to traffic noise exposure. L_{dn} takes into account noise levels from both daytime (15-hour average) and nighttime (9-hour average). The L_{dn} metric is used in areas that are typically occupied during both daytime and nighttime hours, and where people are intended to sleep.

3.4.1 Exterior Noise Design Criteria

The HUD standards applies to locations where quiet outdoor space is required. The HUD Site Acceptability Standards for exterior sound levels are summarized in Table 1. HUD also recommends L_{dn} 55 dBA as a future goal for outdoors in residential areas, however this is rarely achievable in urban environments.

Table 1. HUD Site Acceptability Standards

Category	Site L_{dn}	Comments
Acceptable	≤ 65 dBA	No special acoustical design consideration necessary
Normally Unacceptable	> 65 dBA, ≤ 70 dBA	5 dB additional attenuation required through use of barriers or in design to ensure interior noise levels are acceptable
	> 70 dBA, ≤ 75 dBA	10 dB addition attenuation required through the use of barriers or in design to ensure interior noise levels are acceptable
Unacceptable	> 75 dBA	Attenuation measures must be submitted on a case-by-case basis

3.4.2 Interior Noise Design Criteria

The intent of the above exterior noise criteria is to achieve an interior L_{dn} of 45 dBA. HUD will sometimes allow upgrades to the building shell to meet an interior L_{dn} of 45 dBA in Normally Unacceptable or Unacceptable areas. This can be accomplished by specifying building facades, windows, and doors with a higher STC rating than normal construction.

3.5 Community Response to Change in Noise Level

Human sensitivity to changes in sound pressure level is highly individualized. Sensitivity to sound depends on frequency content, time of occurrence, duration, and psychological factors such as emotions and expectations. However, the average ability of an individual to perceive changes in noise levels is well documented and has been summarized in Table 2 [Reference 6]. These guidelines permit direct estimation of an individual's probable perception of changes in noise levels.

Table 2. Average Ability to Perceive Changes in Noise Level

Sound Level Change (dB)	Human Perception of Sound
0	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	Two times (or 1/2) as loud
20	Four times (or 1/4) as loud

4.0 EXISTING ACOUSTICAL ENVIRONMENT

Noise measurements consisted of continuous long-term and short term ambient noise level measurements, as described in the sections below. The noise measurements were conducted between October 1, 2015 and October 3, 2015.

The methodology, location, and results for the measurement are described below and the measurement location is illustrated in Figure 3. Photographs of the measurements locations are provided in Appendix B.

4.1 Long Term Noise Measurements

Continuous long-term ambient noise level measurements were conducted to assess the existing acoustical environment at the project site. Long-term measurements (taken continuously over the course of multiple days) offer a baseline for establishing existing ambient noise levels in the area and are used for estimating future noise levels by adding the ambient levels to other noise levels generated from the proposed project.

4.1.1 Long-Term Noise Measurement Procedure

Hourly equivalent sound levels ($L_{eq}(h)$) were recorded for approximately 2 days. The measurements were taken using a Larson-Davis, Model 831, Type 1 Sound Level Meter together with a Larson Davis, PRM831 Type 1 Microphone. Calibration was checked before and after the measurements with a Larson-Davis Model CAL200 calibrator. Both the sound level meter and the calibrator have been certified by the manufacturer within the recommended 2-year calibration period. The microphone was mounted to a tripod at approximately 15 feet above the ground. A windscreen covered the microphone during the entire measurement period. The sound level meter was secured in a weather-resistant case.

4.1.2 Long-Term Noise Measurement Locations

Location L1: The sound level meter was located immediately adjacent to the existing building on the roof of a small structure adjoined to the main building. The meter location was approximately 70 feet from the Piikoi Street edge-of-pavement. The dominant noise source was vehicular traffic from Piikoi Street. Secondary noise sources included birds and wind. Occasionally, personnel from the existing facility created noise in the vicinity of the meter from activities such as waste disposal in the nearby dumpster and from daily traffic arrival and departure.

4.1.3 Long-Term Noise Measurement Results

The measured $L_{eq}(h)$ and the 90 percent exceedance level (L_{90}) in dBA are graphically presented in Figure 4. The ambient sound levels were dynamic and depended significantly on the vehicular traffic patterns along Piikoi Street. The range of $L_{eq}(h)$ during the day (7:00 AM to 10:00 PM) and during the night (10:00 PM to 7:00 AM) and calculated day-night level (L_{dn}) are summarized in Table 3 below.

Table 3. Summary of Long-Term Noise Measurement Results (dBA)

Measurement Location	7 AM-10 PM $L_{eq(h)}$ Range	10 PM-7 AM $L_{eq(h)}$ Range	L_{dn}
Location L1	61-67	58-62	68

5.0 POTENTIAL NOISE IMPACTS

5.1 Project Construction Noise and Compliance with HDOH Community Noise Control Rule

The various construction phases of the project will generate significant amounts of noise and will need to comply with the HDOH requirements. Development of the project areas will involve excavation, grading, material handling, concrete mixing, and other typical construction activities during construction. The actual noise levels produced during construction will be a function of the methods employed during each stage of the construction process. Construction stages include site preparation, building construction, etc. Typical ranges of construction equipment noise are shown in Figure 5. Earthmoving equipment, e.g., bulldozers and diesel-powered trucks, will probably be the loudest equipment used during construction, assuming that no impact noise from pile driving occurs. Presently, no geotechnical study has been conducted for the site and therefore no determination has been made whether pile driving is required. Assuming pile driving is required, an estimate has been provided that pile driving activities may last up to 60 days. In cases where construction noise is expected to exceed the HDOH maximum permissible property line noise levels, a permit must be obtained to allow the operation of construction equipment. If pile driving activities are required for the project construction, a HDOH noise permit as referenced in Section 6.1 will be required during the time period of pile driving and general construction activities.

5.2 Project Generated Stationary Mechanical Noise and Compliance with HDOH Community Noise Control Rule

The proposed Juvenile Services Center and Housing development at 902 Alder Street will likely incorporate stationary mechanical equipment. Expected mechanical equipment may include HVAC equipment, emergency generators, etc. Noise from this mechanical equipment and other equipment must meet the HDOH noise regulations, which stipulate maximum permissible noise limits at the property line. For residential apartment areas, the noise limits are 60 dBA during the day and 50 dBA during the night, as shown in Figure 1. Mitigation of mechanical noise to meet the HDOH noise rules should be incorporated into the project design.

5.3 Vehicular Traffic Noise and Compliance with FHWA/HDOT Guidelines

A vehicular traffic noise analysis was completed using the DataKustik CadnaA (version 4.5) software program [Reference 7] for the existing conditions which, per the traffic report, are expected to accurately represent the future with and without project scenarios as well. The traffic noise analysis was based on the peak hour PM traffic volumes provided by the Traffic Consultant [Reference 8]. The PM peak hour traffic volumes represented the worst case traffic volumes at the site. Intersection geometric configurations, % heavy truck traffic, and speed limits were also provided by the traffic consultant.

Vehicular traffic noise level contours were calculated throughout the project site and surrounding community. The long term noise measurements were used to validate the software at noise measurement location L1. The results of the traffic noise analysis for the existing and future year projections are shown graphically in Figures 6 for the peak PM traffic hour. Additional projections of future traffic noise on the full elevation of the Piikoi Street Facing façades of the proposed development can be seen in Figure 7 and Figure 8 respectively.

5.3.1 Vehicular Traffic Noise Impacts on the Surrounding Community

Future traffic volume increases on Piikoi Street, King Street and the surrounding roadways (Alder and Elm Street) due to the development of the proposed project are not significant. Therefore, the existing single and multi-family residences and commercial business located within in the vicinity of the proposed project will not experience a significant vehicular traffic noise increase due to the development.

5.3.2 Vehicular Traffic Noise Impacts on the Project

Traffic projections show that the FHWA maximum noise limit of 67 dBA will be satisfied along all faces of the Juvenile Services Center and HHFDC residential tower except for the façade closest to Piikoi Street. The projected traffic volumes and speed limits on Alder and Elm Streets are not significant enough to generate noise levels greater than 60 dB on the building façade.

Although the FHWA criteria is not a regulatory requirement for this project, as it has no authority to enforce land use, its noise limit criteria is recommended by the FHWA to be used as a guideline for consideration of land use and the impact of traffic noise.

5.4 Compliance with EPA and HUD Noise Guidelines

The results from the long-term noise measurements conducted at the 902 Alder Street site indicate that the existing day-night level is 68 dBA at approximately 70 feet from the Piikoi Street edge-of-pavement. Therefore, the noise levels for a portion of the project site exceed HUD site acceptability standards, which state a design goal of $L_{dn} \leq 65$ dBA for the exterior noise level. The EPA has an existing design goal of $L_{dn} \leq 65$ dBA and a future design goal $L_{dn} \leq 55$ dBA for exterior noise levels. Therefore the noise levels at the project site exceed both existing and future EPA design goals.

5.4.1 Future Traffic Noise Impacts on the Project

Due to the lack of off-peak hour traffic data, a 24-hour traffic noise model could not be created to project the future L_{dn} levels at the proposed JUD Juvenile Services Center and the HHFDC housing development. Because of this, a correction factor based on the difference between the L_{dn} and corresponding peak traffic hour $L_{eq}(h)$ from the long term noise measurements was created and applied to the calculated $L_{eq}(h)$ levels from the model to determine the future L_{dn} levels. Based on the long term measurements taken at the site, the 24-hour L_{dn} levels at the project site where approximately 4 dB higher than the $L_{eq}(h)$ levels at the peak PM traffic hours. To predict the L_{dn} at the building façade, this 4 dB difference was used as a correction factor added to the calculated peak PM $L_{eq}(h)$ values from the noise model.

The HHFDC housing units closest to Piikoi Street will be exposed to the highest levels of traffic noise. The results from the model indicate that these units will experience L_{dn} levels ranging from 65-70 dBA. Therefore, all units facing Piikoi Street are expected to fall under the "normally unacceptable" category of HUD's site acceptability standards. Per HUD guidelines, attention should be given to the exterior façade elements (such as glazing and exterior wall construction) to ensure the L_{dn} 45 dBA noise criteria is satisfied inside these units. The remaining housing units facing Alder, Elm, and King Streets will be exposed to L_{dn} levels that range from 45-66 dBA which falls into the "acceptable" category. Mitigation measures will also be required to reduce exterior noise levels such that the outdoor recreation area complies with HUD's site acceptability criteria.

It is important to note that the HUD and EPA noise guidelines are design goals and not enforceable regulations, although the HUD site acceptability standards must be satisfied for

projects involving HUD or federal financing. However, these guidelines and design goals are useful tools for assessing the noise environment.

6.0 NOISE IMPACT MITIGATION

6.1 HDOH Noise Permit for Construction Noise

In cases where construction noise exceeds, or is expected to exceed the State's "maximum permissible" property line noise levels [Reference 1], a permit must be obtained from HDOH to allow the operation of vehicles, cranes, construction equipment, power tools, etc., which emit noise levels in excess of the "maximum permissible" levels.

In order for HDOH to issue a construction noise permit, the contractor must submit a noise permit application to HDOH, which describes the construction activities for the project. Prior to issuing the noise permit, HDOH may require action by the contractor to incorporate noise mitigation into the construction plan. HDOH may also require the contractor to conduct noise monitoring or community meetings inviting the neighboring residents and business owners to discuss construction noise. The contractor should use reasonable and standard practices to mitigate noise, such as using mufflers on diesel and gasoline engines, using properly tuned and balanced machines, etc. However, HDOH may require additional noise mitigation, such as temporary noise barriers, or time of day usage limits for certain kinds of construction activities.

Specific permit restrictions for construction activities [Reference 1] are:

> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels ... before 7:00 AM and after 6:00 PM of the same day, Monday through Friday."
>
> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels... before 9:00 AM and after 6:00 PM on Saturday."
>
> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels on Sundays and on holidays."

The use of pile drivers, hoe rams and jack hammers 25 pounds (lbs.) or larger, high pressure sprayers, and chain saws are restricted to 9:00 AM to 5:30 PM, Monday through Friday. In addition, construction equipment and on-site vehicles or devices whose operations involve the exhausting of gas or air, excluding pile hammers and pneumatic hand tools weighing less than 15 pounds (lbs.), must be equipped with mufflers [Reference 1].

The HDOH noise permit does not limit the noise level generated at the construction site, but rather the times at which noisy construction can take place. However, when considering a noise permit application, consideration is also given to any proposed noise mitigation for the project. Therefore, noise mitigation for construction activities should be addressed using project management and the source and path noise control measures discussed in Section 6.3 below.

6.2 HDOH Noise Variance for Construction Noise

In cases where nighttime construction is expected, a variance must be obtained from the HDOH to allow the operation of a noise source which emits noise levels in excess of the maximum permissible levels and which operation does not conform to the requirements of the noise permit (i.e., nighttime construction activities which occur between 6:00 p.m. and 7:00 a.m., Monday through Friday). However, nighttime construction is not anticipated for this project so a variance will not be required.

6.3 Mitigation of Project Construction Noise

6.3.1 Mitigation of Noise Source

Mitigating construction noise at the source is the most effective form of noise control. The source control methods listed in Table 4 below can be applied to most construction equipment.

Table 4. Construction Noise Source Control Methods

Scheduling	Limit activities that generate the most noise to less sensitive time periods (e.g. daytime hours).
Substitution	Use quieter methods/equipment when possible (e.g. low noise generators, smaller excavators, etc.).
Exhaust Mufflers	Install quality mufflers on equipment.
Reduced Power Options	Use smallest size and/or lowest power as required.
Quieter Backup Alarms	Install manual adjustable or ambient sensitive alarms. Do not use backup alarms during night work.
Motors	Insulate or enclose motors
Equipment Selection	Electric equipment is quieter than pneumatic equipment
Equipment Retrofit	Rubber chucks in jackhammers
Equipment Maintenance	Sharpen and balance tools, repair silencing equipment, replace worn parts and open airways
Staging Area	Maximize the distance between the construction staging areas and nearby receptors to the greatest extent possible

In general, a majority of the construction noise mitigation is in the form of scheduling, specifically, limiting the construction hours to the time frame specified by the HDOH.

6.3.2 Mitigation of Noise Path

When source control measures are not sufficient to avoid a noise impact, path control measures must be considered. Non-permanent noise barriers or curtains and equipment enclosures could be installed at the construction site to reduce construction noise in noise sensitive locations. The general contractor could also conduct noise monitoring of construction during noisy or extensive activities at locations close to residential properties.

6.4 Mitigation of Development Noise

6.4.1 Stationary Mechanical Equipment Noise

The design of the project should give consideration to controlling the noise emanating from all stationary mechanical equipment such as air-cooled chillers, cooling towers, air-handling units, condensing units, emergency generators, etc. so as to comply with the State of Hawaii Community Noise Control rules [Reference 1]. Noisy equipment should be located away from neighboring properties and residential units as much as possible. Enclosed mechanical rooms may be required for some equipment.

6.4.2 Parking Garage Noise

Noise emanating from the parking garage to the neighboring buildings may be audible and cause complaints. Noise reduction measures such as rough, non-painted driving surfaces and acoustical absorption on the ceiling should be considered during the project's design phase.

6.5 Mitigation of Traffic Noise

6.5.1 Interior Spaces of the Development

HHFDC housing units overlooking Piikoi Street will experience relatively high noise levels due to vehicular traffic. The exterior wall should have a minimum rating of STC 50, which is typical of poured concrete in any thickness greater than 4 inches. In addition, a minimum STC 35 rated window assembly, typical of a ½ inch laminated glass or various IGU assemblies, should be considered to comply with the HUD interior noise design criteria for these units. The window assembly typically degrades the STC rating of the glazing by approximately 3 points, therefore STC requirements for the glass itself should be a minimum of STC 38. Smaller window sizes may reduce these STC requirements. Window AC or PTAC ductless HVAC units are not acceptable for these housing units as they would degrade the acoustical isolation of the wall and window assembly.

To reduce the noise impact to the interior of the JUD spaces on the lower floors, acoustical consideration should be given to space planning. For example, noise sensitive spaces should not be located at the Piikoi end of the building. Where this is not possible, improved exterior façade elements (as discussed above) should be provided.

6.5.2 Exterior Spaces of the Development

The outdoor recreation area immediately adjacent to Piikoi Street is expected to be exposed to noise levels that are higher than the established HUD site acceptability standards for exterior noise. A noise barrier wall along the Piikoi Street side of the project should be considered to reduce noise levels by 5 to 10 dB.

REFERENCES

1. Chapter 46, *Community Noise Control*, Department of Health, State of Hawaii, Administrative Rules, Title 11, September 23, 1996.

2. *Department of Transportation, Federal Highway Administration Procedures for Abatement of Highway Traffic Noise*, Title 23, CFR, Chapter 1, Subchapter J, Part 772, 38 FR 15953, June 19, 1973; Revised at 75 FR 32820, July 13, 2010.

3. *Highway Traffic Noise: Analysis and Abatement Guidance*, U.S. Department of Transportation, Federal Highways Administration, December 2011.

4. *Highway Noise Policy and Abatement Guidelines*, Department of Transportation, Highways Division, State of Hawaii, November 29, 2011.

5. *Department of Housing and Urban Development Environmental Criteria and Standards*, Title 24, CFR, Part 51, 44 FR 40860, July 12, 1979; Amended by 49 FR 880, January 6, 1984.

6. M. David Egan, *Architectural Acoustics*, McGraw-Hill Book Company, 1998

7. DataKustik CadnaA software program, Version 4.5.151; DataKustik GmbH, 2015.

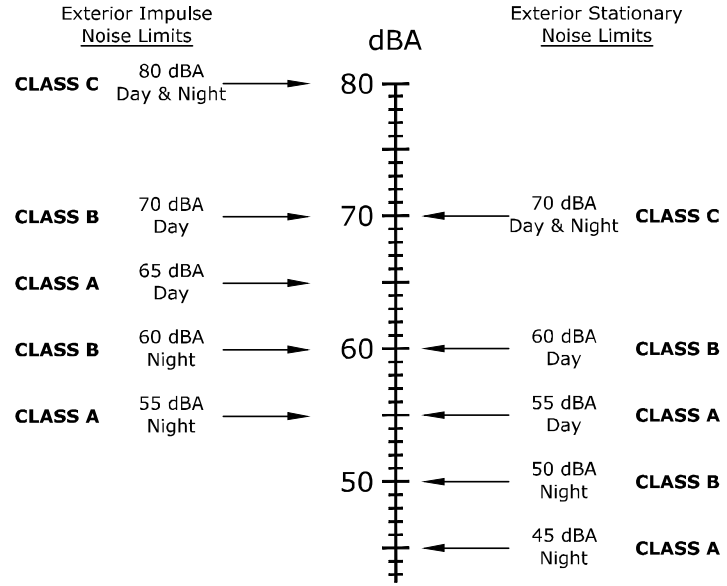
8. *Juvenile Detention Home Planning For Judiciary Multi-Use and HHFDC Housing Joint Development Traffic Impact Analysis Report,* SSFM International, December 2015

HAWAII DEPARTMENT OF HEALTH MAXIMUM PERMISSIBLE SOUND LEVELS FOR VARIOUS ZONING DISTRICTS

Zoning District	Day Hours (7 AM to 10 PM)	Night Hours (10 PM to 7 AM)
CLASS A Residential, Conservation, Preservation, Public Space, Open Space	55 dBA (Exterior)	45 dBA (Exterior)
CLASS B Multi-Family Dwellings, Apartments, Business, Commercial, Hotel, Resort	60 dBA (Exterior)	50 dBA (Exterior)
CLASS C Agriculture, Country, Industrial	70 dBA (Exterior)	70 dBA (Exterior)

IMPULSE NOISE:

The maximum permissible noise limit for impulse noise is 10 dBA above the stationary noise limits.



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Juvenile Detention Home Planning For Judiciary Multi-Use and HHFDC Housing Joint Development

PROJECT NO:	DATE:	FIGURE:
15-21	December 2015	1

FEDERAL HIGHWAY ADMINISTRATION NOISE ABATEMENT CRITERIA FOR HIGHWAY NOISE

ACTIVITY CATEGORY	ACTIVITY CATEGORY DESCRIPTION	HOURLY EQUIVALENT SOUND LEVEL L_{eq}
A	LANDS ON WHICH SERENITY AND QUIET ARE OF EXTRAORDINARY SIGNIFICANCE AND SERVE AN IMPORTANT PUBLIC NEED AND WHERE THE PRESERVATION OF THOSE QUALITIES IS ESSENTIAL IF THE AREA IS TO CONTINUE TO SERVE ITS INTENDED PURPOSE.	57 dBA (EXTERIOR)
B	RESIDENTIAL	67 dBA (EXTERIOR)
C	ACTIVE SPORT AREAS, AMPHITHEATERS, AUDITORIUMS, CAMPGROUNDS, CEMETERIES, DAY CARE CENTERS, HOSPITALS, LIBRARIES, MEDICAL FACILITIES, PARKS, PICNIC AREAS, PLACES OF WORSHIP, PLAYGROUNDS, PUBLIC MEETING ROOMS, PUBLIC OR NONPROFIT INSTITUTIONAL STRUCTURES, RADIO STUDIOS, RECORDING STUDIOS, RECREATION AREAS, SECTION 4(F) SITES, SCHOOLS, TELEVISION STUDIOS, TRAILS, AND TRAIL CROSSINGS	67 dBA (EXTERIOR)
D	AUDITORIUMS, DAY CARE CENTERS, HOSPITALS, LIBRARIES, MEDICAL FACILITIES, PLACES OF WORSHIP, PUBLIC MEETING ROOMS, PUBLIC OR NONPROFIT INSTITUTIONAL STRUCTURES, RADIO STUDIOS, RECORDING STUDIOS, SCHOOLS, AND TELEVISION STUDIOS .	52 dBA (INTERIOR)
E	HOTELS, MOTELS, OFFICES, RESTAURANTS/BARS, AND OTHER DEVELOPED LANDS, PROPERTIES OR ACTIVITIES NOT INCLUDED IN A-D OR F.	72 dBA (EXTERIOR)
F	AGRICULTURE, AIRPORTS, BUS YARDS, EMERGENCY SERVICES, INDUSTRIAL, LOGGING, MAINTENANCE FACILITIES, MANUFACTURING, MINING, RAIL YARDS, RETAIL FACILITIES, SHIPYARDS, UTILITIES (WATER RESOURCES, WATER TREATMENT, ELECTRICAL), AND WAREHOUSING	N/A
G	UNDEVELOPED LANDS THAT ARE NOT PREMITTED	N/A

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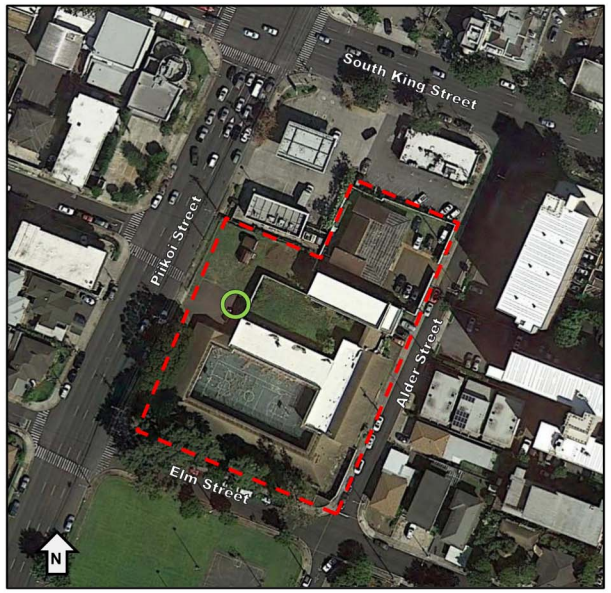
Juvenile Detention Home Planning For Judiciary Multi-Use and HHFDC Housing Joint Development

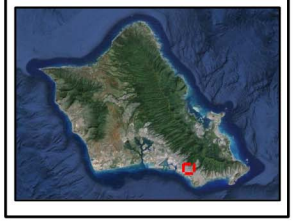
PROJECT NO:	DATE:	FIGURE:
15-21	December 2015	2

Project Site Overview and Noise Measurement Location



Legend

- Noise Measurement Location – Long Term (L1)
- Property Boundary



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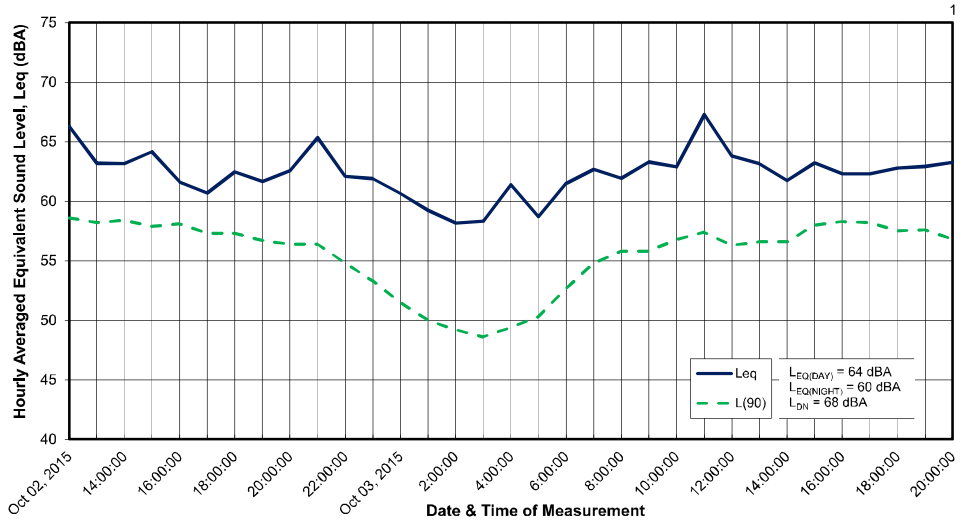
Juvenile Detention Home Planning For Judiciary Multi-Use and HHFDC Housing Joint Development

PROJECT NO:	DATE:	FIGURE:
15-21	December 2015	3

Long Term Noise Measurement Data



L_{eq}: Equivalent Sound Level - Logrithmic average of sound levels of time.
L_{90}: Ambient Noise Level: Highest noise level exceeded 90% of each hourly recording.

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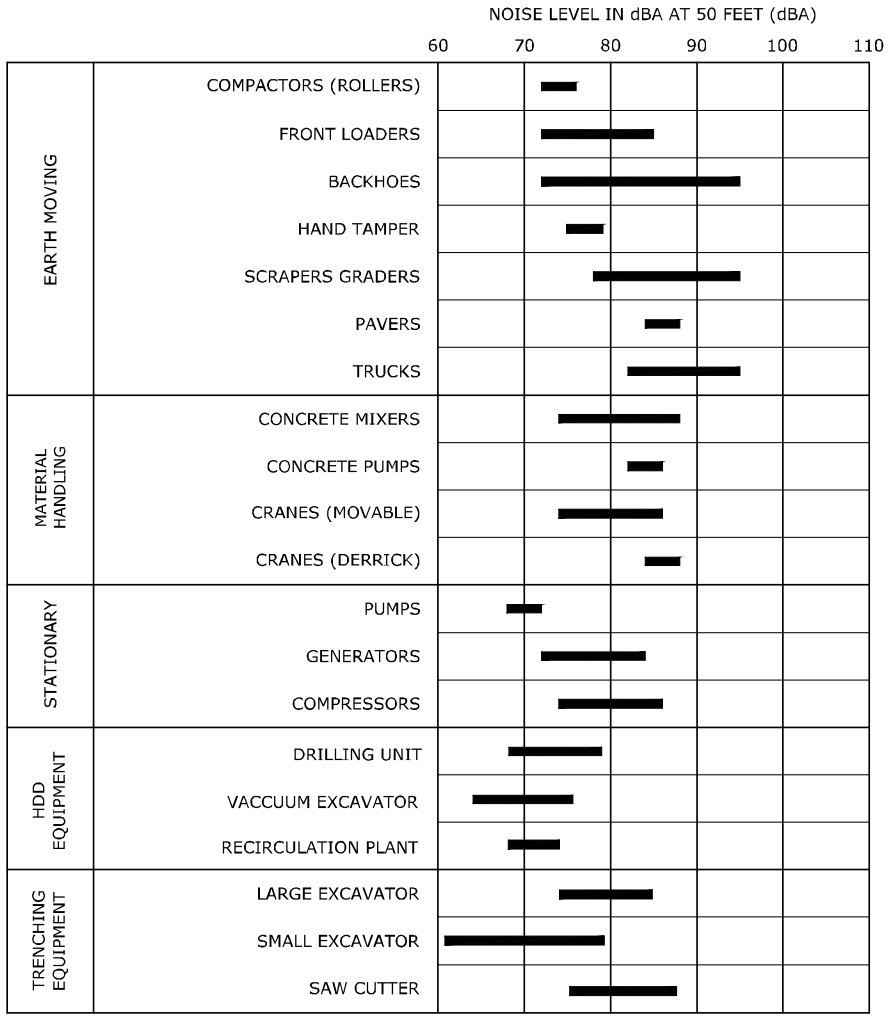
	PROJECT NO: 15-21	DATE: October 2015	FIGURE: 4

TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT



NOTE: BASED ON LIMITED AVAILABLE DATA SAMPLES

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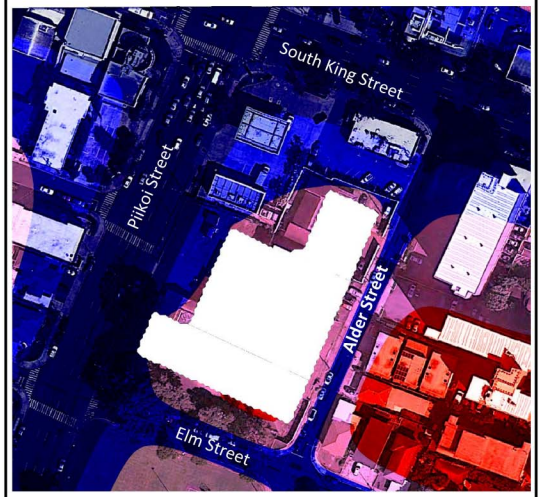
	PROJECT NO: 15-21	DATE: December 2015	FIGURE: 5

NOISE MAP OF EXISTING EXTERIOR NOISE LEVELS (DAY-NIGHT LEVEL)



Noise Level Contour Key (dBA)

- 55.0 < ... <= 60.0
- 60.0 < ... <= 65.0
- 65.0 < ... <= 70.0
- 70.0 < ... <= 75.0
- 75.0 < ...

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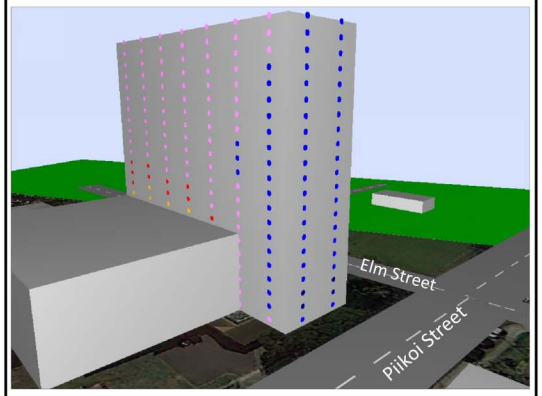
PROJECT NO:	DATE:	FIGURE:
15-21	December 2015	6

EXISTING EXTERIOR NOISE LEVELS (DAY-NIGHT LEVEL) – PIIKOI STREET FAÇADE 1



Noise Level Contour Key (dBA)

- 45.0 < ... <= 50.0
- 50.0 < ... <= 55.0
- 55.0 < ... <= 60.0
- 60.0 < ... <= 65.0
- 65.0 < ... <= 70.0
- 70.0 < ... <= 75.0
- 75.0 < ...

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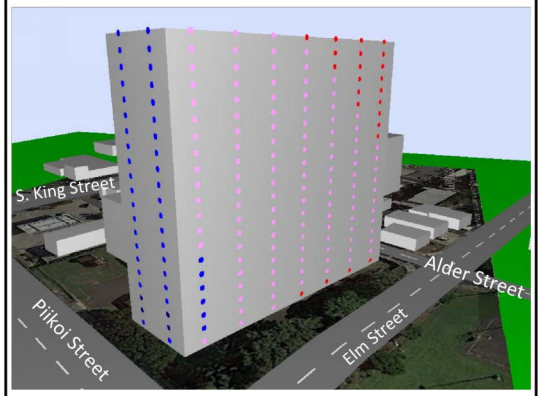
Juvenile Detention Home Planning for Judiciary Multi-Use and HHFDC Housing Joint Development

PROJECT NO:	DATE:	FIGURE:
15-21	December 2015	7

EXISTING EXTERIOR NOISE LEVELS (DAY-NIGHT LEVEL) – PIIKOI STREET FAÇADE 2



Noise Level Contour Key (dBA)

- 45.0 < ... <= 50.0
- 50.0 < ... <= 55.0
- 55.0 < ... <= 60.0
- 60.0 < ... <= 65.0
- 65.0 < ... <= 70.0
- 70.0 < ... <= 75.0
- 75.0 < ...

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Juvenile Detention Home Planning for Judiciary Multi-Use and HHFDC Housing Joint Development

PROJECT NO:	DATE:	FIGURE:
15-21	December 2015	8

APPENDIX A

Acoustic Terminology

Acoustic Terminology

Sound Pressure Level

Sound, or noise, is the term given to variations in air pressure that are capable of being detected by the human ear. Small fluctuations in atmospheric pressure (sound pressure) constitute the physical property measured with a sound pressure level meter. Because the human ear can detect variations in atmospheric pressure over such a large range of magnitudes, sound pressure is expressed on a logarithmic scale in units called decibels (dB). Noise is defined as Aunwanted@ sound.

Technically, sound pressure level (SPL) is defined as:

$$SPL = 20 \log (P/P_{ref}) \text{ dB}$$

where P is the sound pressure fluctuation (above or below atmospheric pressure) and P_{ref} is the reference pressure, 20 µPa, which is approximately the lowest sound pressure that can be detected by the human ear. For example:

If P = 20 µPa, then SPL = 0 dB
If P = 200 µPa, then SPL = 20 dB
If P = 2000 µPa, then SPL = 40 dB

The sound pressure level that results from a combination of noise sources is not the arithmetic sum of the individual sound sources, but rather the logarithmic sum. For example, two sound levels of 50 dB produce a combined sound level of 53 dB, not 100 dB. Two sound levels of 40 and 50 dB produce a combined level of 50.4 dB.

Human sensitivity to changes in sound pressure level is highly individualized. Sensitivity to sound depends on frequency content, time of occurrence, duration, and psychological factors such as emotions and expectations. However, in general, a change of 1 or 2 dB in the level of sound is difficult for most people to detect. A 3 dB change is commonly taken as the smallest perceptible change and a 6 dB change corresponds to a noticeable change in loudness. A 10 dB increase or decrease in sound level corresponds to an approximate doubling or halving of loudness, respectively.

A-Weighted Sound Level

Studies have shown conclusively that at equal sound pressure levels, people are generally more sensitive to certain higher frequency sounds (such as made by speech, horns, and whistles) than most lower frequency sounds (such as made by motors and engines)[1] at the same level. To address this preferential response to frequency, the A-weighted scale was developed. The A-weighted scale adjusts the sound level in each frequency band in much the same manner that the human auditory system does. Thus the A-weighted sound level (read as "dBA") becomes a single number that defines the level of a sound and has some correlation with the sensitivity of the human ear to that sound. Different sounds with the same A-weighted sound level are perceived as being equally loud. The A-weighted noise level is commonly used today in environmental noise analysis and in noise regulations. Typical values of the A-weighted sound level of various noise sources are shown in Figure A-1.

[1] D.W. Robinson and R.S. Dadson, AA Re-Determination of the Equal-Loudness Relations for Pure Tones,@ *British Journal of Applied Physics*, vol. 7, pp. 166 - 181, 1956. (Adopted by the International Standards Organization as Recommendation R-226.

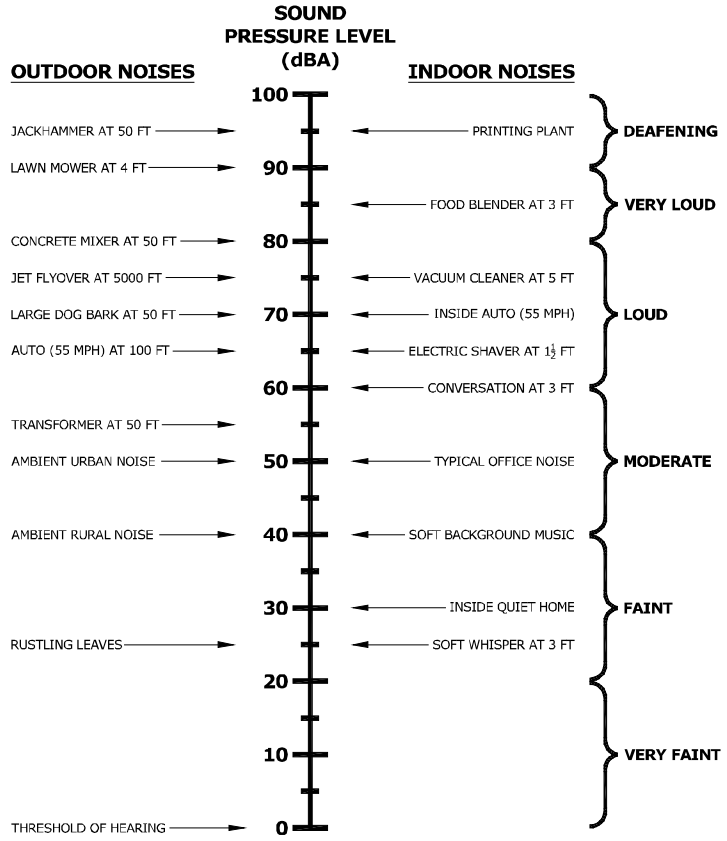

Figure A-1. Common Outdoor/Indoor Sound Levels

Equivalent Sound Level

The Equivalent Sound Level (L_{eq}) is a type of average which represents the steady level that, integrated over a time period, would produce the same energy as the actual signal. The actual *instantaneous* noise levels typically fluctuate above and below the measured L_{eq} during the measurement period. The A-weighted L_{eq} is a common index for measuring environmental noise. A graphical description of the equivalent sound level is shown in Figure A-2.

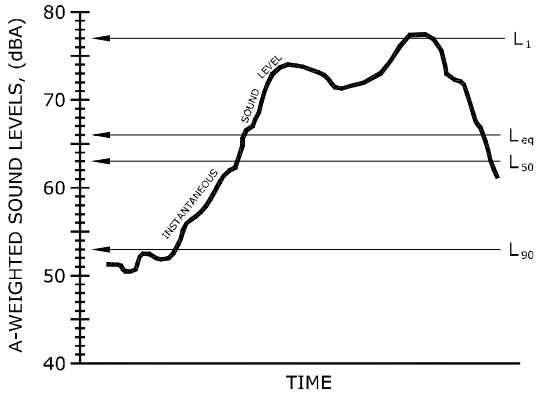

Figure A-2. Example Graph of Equivalent and Statistical Sound Levels

Statistical Sound Level

The sound levels of long-term noise producing activities such as traffic movement, aircraft operations, etc., can vary considerably with time. In order to obtain a single number rating of such a noise source, a statistically-based method of expressing sound or noise levels has been developed. It is known as the Exceedence Level, L_n. The L_n represents the sound level that is exceeded for n% of the measurement time period. For example, L_{10} = 60 dBA indicates that for the duration of the measurement period, the sound level exceeded 60 dBA 10% of the time. Typically, in noise regulations and standards, the specified time period is one hour. Commonly used Exceedence Levels include L_{01}, L_{10}, L_{50}, and L_{90}, which are widely used to assess community and environmental noise. A graphical description of the equivalent sound level is shown in Figure A-2.

Day-Night Equivalent Sound Level

The Day-Night Equivalent Sound Level, L_{dn}, is the Equivalent Sound Level, L_{eq}, measured over a 24-hour period. However, a 10 dB penalty is added to the noise levels recorded between 10 p.m. and 7 a.m. to account for people's higher sensitivity to noise at night when the background noise level is typically lower. The L_{dn} is a commonly used noise descriptor in assessing land use compatibility, and is widely used by federal and local agencies and standards organizations.

Appendix B
Photographs at Project Site

Noise Measurement Location L1: Microphone mounted on tripod, approximately 5 feet from the face of the building and 15 feet above grade.





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Appendix D:
Air Quality Impact Assessment

B.D. NEAL & ASSOCIATES
Applied Meteorology • Air Quality • Computer Science
P.O. BOX 1808 • KAILUA-KONA, HAWAII 96745 • TELPHONE (808) 329-1627 • FAX (808) 325-6739
EMAIL: bdneal@bdneal.com

December 18, 2015

Ms. Katia Balassiano
SSFM International
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Subject: Judiciary Multi-Use and HHFDC Housing Joint Development
Air Quality Impact Assessment

Dear Ms. Balassiano:

In response to your request, we have examined the potential air quality impacts related to the proposed Judiciary Multi-Use and Hawaii Housing Finance Development Corporation Joint Development located in the Ala Moana District, Honolulu, Oahu. The results of this examination along with background information related to this issue and recommended mitigation measures are summarized below.

Project Description

The Hawaii Housing Finance Development Corporation (HHFDC) and the Judiciary Courts of the State of Hawaii, Juvenile Detention Facility Redevelopment Planning (Judiciary) are proposing a joint development at 902 Alder Street in Honolulu on the island of Oahu. The project site is on a block bordered by King Street on the mauka (mountain) side, Elm Street on the Makai (ocean) side, Piikoi Street on the west (Ewa) side and Alder Street on the east (Diamond Head) side. The project site is within ½ mile of the future Ala Moana Rail Transit Station and therefore falls within a transit oriented development (TOD) transit influence zone (TIZ). The project has an anticipated full build-out and occupancy year of 2022. The project site is approximately 1.45 acres and currently contains two partially utilized buildings which will be removed as part of the redevelopment plan. The Judiciary component of the proposed redevelopment includes a 35,452 square-foot facility which will include space for administration services, a recreational center, supervised visitation area, shelter classrooms, laundry area, restrooms and storage space. The HHFDC is proposing to construct an affordable housing complex on the same project site which will include 187 residential rental units. A total of 290 parking stalls will be

provided onsite, and two driveway accesses are being proposed. One will be from Adler Street and the other from Piikoi Street.

Ambient Air Quality Standards

Both federal and state standards have been established to maintain ambient air quality. At the present time, seven parameters are regulated including: particulate matter, sulfur dioxide, hydrogen sulfide, nitrogen dioxide, carbon monoxide, ozone and lead. The federal and state standards pertain to most of the same parameters, although at present, for several of the parameters regulated, the federal standards are more stringent than the Hawaii standards.

Regional and Local Climatology

Regional and local climate together with the amount and type of human activity generally dictate the air quality of a given location. Winds are predominantly trade winds which are deviated somewhat from the northeast toward the east or southeast by the local terrain. During winter, occasional storms may generate strong winds from the south (kona winds) for brief periods. When the trade winds or kona winds are weak or absent, landbreeze-seabreeze circulations may develop. Wind speeds are often lower compared to more exposed coastal locations, but the trade winds still provide relatively good ventilation much of the time. Temperatures in the Oahu area leeward of the Koolaus are generally very moderate with average daily temperatures ranging from about 70°F to 84°F. Extreme temperatures range from about 53°F to about 95°F. Rainfall is relatively low with an average of about 30 inches per year in the Ala Moana area.

Existing Air Quality Conditions

Air quality in the vicinity of the project presently is mostly affected by emissions from vehicular sources which emit carbon monoxide, nitrogen oxides, hydrocarbons and other air pollutants. Air quality data from the nearest monitoring stations operated by the Hawaii Department of Health suggest that all state and national air quality standards are currently being met in the project area.

Air Quality Impacts of Project

Short-term direct and indirect impacts on air quality could potentially occur during project redevelopment activities. For a project of this nature, there are two potential types of air pollution emissions that could directly result in short-term air quality impacts during project demolition and construction phases: (1) fugitive dust from building demolition, soil excavation, aggregate processing and vehicle movement; and (2) exhaust emissions from on-site construction equipment. Indirectly, there also could be short-term air quality impacts from the disruption of traffic on nearby roadways, from slow-moving construction equipment traveling to and from the project site, and from a temporary increase in local traffic caused by commuting construction workers.

Fugitive dust emissions from demolition and construction activities are difficult to estimate accurately because of their elusive nature of emission and because the potential for dust generation varies greatly depending upon the type of soil at the construction site, the amount and type of dirt-disturbing activity taking place, the moisture content of exposed soil in work areas, and the wind speed. The U.S. EPA has provided a rough estimate for uncontrolled fugitive dust emissions from construction activity of 1.2 tons per acre per month under conditions of "medium" activity, moderate soil silt content (30%), and precipitation/evaporation (P/E) index of 50. Uncontrolled fugitive dust emissions from project demolition and construction work would likely be somewhere near this level. In any case, State of Hawaii Air Pollution Control Regulations prohibit visible emissions of fugitive dust from construction activities at the project property line. Thus, an effective dust control plan for the project construction phase should be prepared.

Adequate fugitive dust control can usually be accomplished by the establishment of a frequent watering program to keep bare-dirt surfaces in active construction areas from becoming significant sources of dust. On days without rainfall, construction areas should be watered at least twice during the workday to help keep dust to a minimum. Control regulations further stipulate that open-bodied trucks be covered at all times when in motion if they are transporting materials likely to give rise to airborne dust. Haul trucks tracking dirt onto paved streets from unpaved areas are oftentimes a significant source of dust in construction

areas. Some means to alleviate this problem, such as tire washing or road cleaning, may be appropriate. Dust monitoring could be considered as a means to quantitatively evaluate the effectiveness of dust control measures.

On-site mobile and stationary construction equipment also will emit air pollutants from engine exhausts. The largest of this equipment is usually diesel-powered. Nitrogen oxides emissions from diesel engines can be relatively high compared to gasoline-powered equipment, but the standards for nitrogen dioxide are set on an annual basis and are not likely to be violated by short-term construction equipment emissions. Also, the short-term (1-hour) standard for nitrogen dioxide is based on a three-year average; thus it is unlikely that relatively short-term construction emissions would exceed the standard. Carbon monoxide emissions from diesel engines, on the other hand, are low and should be relatively insignificant compared to vehicular emissions on nearby roadways. Indirectly, slow-moving construction vehicles on roadways leading to and from the project site could obstruct the normal flow of traffic to such an extent that overall vehicular emissions increase. This impact can be mitigated by moving heavy construction equipment during periods of low traffic volume. Likewise, the schedules of commuting construction workers can be adjusted to avoid peak hours in the project vicinity.

After the period of construction, long-term impacts on air quality from motor vehicle exhausts can potentially occur at or near any project that attracts large volumes of motor vehicle traffic. Carbon monoxide emissions are usually the primary issue, and public areas near traffic-congested intersections are the main concern. The proposed project will be accessed from two driveways: one off Adler Street and one off Piikoi Street. The project traffic impact analysis report (TIAR) examined four existing nearby roadway intersections. These included Piikoi Street and King Street, King Street and Adler Street, Adler Street and Elm Street, and Elm Street and Piikoi Street. The project TIAR indicates that the existing traffic level-of-service at these intersections is reasonably good, and in the year 2022, it was found that with the project this would continue to be the case. The TIAR estimates that project traffic in the year 2022 would account for less than about a two percent increase in traffic at the nearby intersections studied.

Based on extensive experience in assessing traffic-related air quality impacts, traffic volume increases of less than about 5 percent or less than about 100 vehicles per hour or traffic approach volumes of less than about 1,000 vehicles per hour do not cause any significant impacts on air quality if adequate traffic level-of-service is provided. Considering the small project-related traffic volumes that are expected and the reasonably good traffic level-of-service that is forecast, traffic from the proposed project should have no measurable long-term impacts on air pollution levels in the project area. Although a detailed air quality modeling study could be performed to quantitatively predict project impacts, such an analysis is probably unwarranted.

In summary, short-term impacts from fugitive dust during project demolition and construction phases may potentially occur. Because of this, an effective dust control plan for the period of construction should be prepared and implemented. After construction, any long-term impacts on air quality from motor vehicle traffic related to this project will likely be negligible.

Please call me if you have any questions concerning the information presented herein or if you wish to discuss this matter further.

Very truly yours,

Barry D. Neal
Certified Consulting
Meteorologist

Appendix E:
Historic Resource Inventory Form
& SHPD Correspondence

FOR SHPD USE ONLY: **Site #** Click here to enter text. **TMK #** Click here to enter text.

I. GENERAL INFORMATION

Common / Present Name: Hale Ho`omalu
Historic Name: Honolulu Juvenile Detention Center
Property Owner: State of Hawaii
Address: 902 Alder Street
City/ Town/ Location: Honolulu
County: Honolulu
TMK: (1)-2-3-012: 019
Subdivision/Neighborhood: NA
Latitude: 21.298888
Longitude: 157.843954
Parcel Number: NA
Historic District: NA
Original Use: GOVERNMENT/correctional facility
Current Use: GOVERNMENT
Architect/ Builder (if known): Lyman Bigelow (1944), Ives & Hogan (1949)
Date of Construction (if known): 1944, 1949, Additions: 1952, 1958

II. Photograph of Resource

Alder Street façade from the northeast



HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM – Reconnaissance Level

FOR SHPD USE ONLY: **Site #** Click here to enter text. **TMK #** Click here to enter text.

III. CONDITION ASSESSMENT

Category (select all that apply):
- ☒Building(s)
  - ☐Residential ☐Commercial ☐Educational ☐Public/Civic ☐Religious
- ☐Structure(s)
- ☐Object(s)
- ☐Site(s)/Landscape(s)
- ☐Archaeology or potential for archaeology (Please provide a description of the potential for archaeology within VI. Description of Resource Features below.)

Condition:
- ☐Excellent
- ☐Good
- ☒Fair

Eligibility (select all that apply):
- ☒National Register of Historic Places
- ☒State Register of Historic Places
  - ☐Not Eligible
  - ☒Eligible
  - ☐Listed
  - ☐Contributing to Historic District:
  - Name of District: Click here to enter text.
  - ☐Unknown

Criteria of Significance (select all that apply)
- ☒A: Associated with Events
- ☐B: Associated with Significant Person(s)
- ☒C: Distinctive characteristics of a type, period or method of construction; work of a master; possess high artistic values (Architecture, Engineering, Design)
- ☐D: Have yielded or may be likely to yield information important to history or prehistory.

Prepared By: Don Hibbard/Tonia Moy Consulting Firm: Fung Associates, Inc.
Address: 1833 Kalakaua Blvd., Suite 1008, Honolulu, HI 96815
Telephone Number: (808)941-3000 Email:tonia@funghawaii.com Date: July 10, 2015

FOR SHPD USE ONLY: **Site #**Click here to enter text. **TMK #** Click here to enter text.

IV. MAP



HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM –Reconnaissance Level

FOR SHPD USE ONLY: **Site #**Click here to enter text. **TMK #** Click here to enter text.

V. DESCRIPTION

Materials (please check those materials that are visible):

Height
- ☒Stories: one and two stories
- ☐Below Ground
- ☐N/A
- ☐Other: Click here to enter text.

Exterior Walls (siding):

☐Aluminum Siding	☐Metal	☐Plywood
☐Asbestos	☐Shingles-Asphalt	☐OSB
☐Brick	☐Shingles-Wood	☐Fiberboard
☐Ceramic	☐Stone	☐Fiber Cement
☒Concrete	☐Stucco	☐Vinyl Siding
☐Horizontal Wood Siding	☐Vertical Wood Siding	☒Other: CMU bock
☐Log	☐Engineered Siding	

Roof:

☒Asphalt, shingle	☐Slate	☐Wood Shingle
☐Asphalt, roll	☒Built Up	☐None
☐Metal	☐Ceramic Tile	

☐Other: Click here to enter text.

Foundation:

☐Brick	☒Concrete Slab	☐Stone
☐Concrete Block	☐Poured Concrete	☒Raised/Pile

☐Other: Click here to enter text.

Structural Support:

☐Baled Hay	☐Frame-wood	☐Puddled Clay
☐Concrete Block	☐Frame-metal/steel	☐Rammed Earth
☐Concrete Framed	☐Brick-load bearing	☐Sod
☒Concrete Poured	☐Stone-load bearing	

☐Other: Click here to enter text.

Windows:

☐Double Hung Sash	☐Jalousie	☐Stained Glass
☐Single Hung Sash	☐Glass Block	☐Replacement
☐Casement	☐None/Unknown	☐Aluminum
☐Fixed	☐Ribbon	☐Vinyl

☒Other: Awning, Hopper, screened

Lanai(s)

☐Arcade	☒Recessed	☐Wrap-around
☐Balcony	☐Stoop	☐Verandah
☐Porte-Cochere	☐Portico	☐None

☐Other: Click here to enter text.

Chimney

☐Brick	☐Stuccoed Masonry	☐Stove Pipe
☐Concrete	☐Stone	☐Siding
☒None	☐Other: Click here to enter text.	

FOR SHPD USE ONLY: **Site #**Click here to enter text. **TMK #** Click here to enter text.

X. Continuation Sheet

Please use this sheet those that follow to attach additional information about the site; including, but not limited to additional floor plans, drawings, photographs, maps, etc.

Brief History:

In 1909 Hawaii joined twenty states and the District of Columbia by passing legislation to provide for a separate juvenile law and court system. Sometime between 1917 and 1923 a detention home was constructed at the corner of King and Alder streets, as the law prohibited the confinement of juveniles in a prison or police station. This home was built as a holding facility to house juveniles for a short term (usually several days) until the Juvenile Court could determine how best to address their future needs.

Starting in 1944, the building that is the subject of this survey commenced operations as the Honolulu Juvenile Detention Home. Over the years it was enlarged to meet the needs of the expanding population that it housed. The present building is the result of five different construction projects (See attached color coded site plan).

By the late 1930s the original single story wood detention home was deemed inadequate and in 1944 a concrete, two story building was constructed to replace the earlier structure. This building is now the two story section of the present building. In 1949 a U-shaped, single story addition was added to the 1944 building and included a kitchen, laundry facilities, dining rooms, recreational lounges, and additional dormitory space. The 1944 building became the girl's dormitory and the new dormitory wing was used to house the boys. In 1952, the boy's dormitory wing was extended, and in 1958 further expanded to form a courtyard space. In addition, in 1958, administrative offices were added to the Alder Street elevation of the 1949 addition. In 1961 a cmu wall replaced a wood fence between the girl's dormitory and the kitchen wing to provide a play space for the girls. Also at this time the basketball court was built in the boy's courtyard. In 1989 a new building was constructed on the *mauka* end of the property, but it is not included in this survey as it is not fifty years of age and does not appear to meet the criteria for listing in the Hawaii or National Registers of Historic Places.

In 2010 the detention home was relocated to Kapolei, where the Family Court is also located. The former detention home is now used to house various social service organizations working with at risk youths.

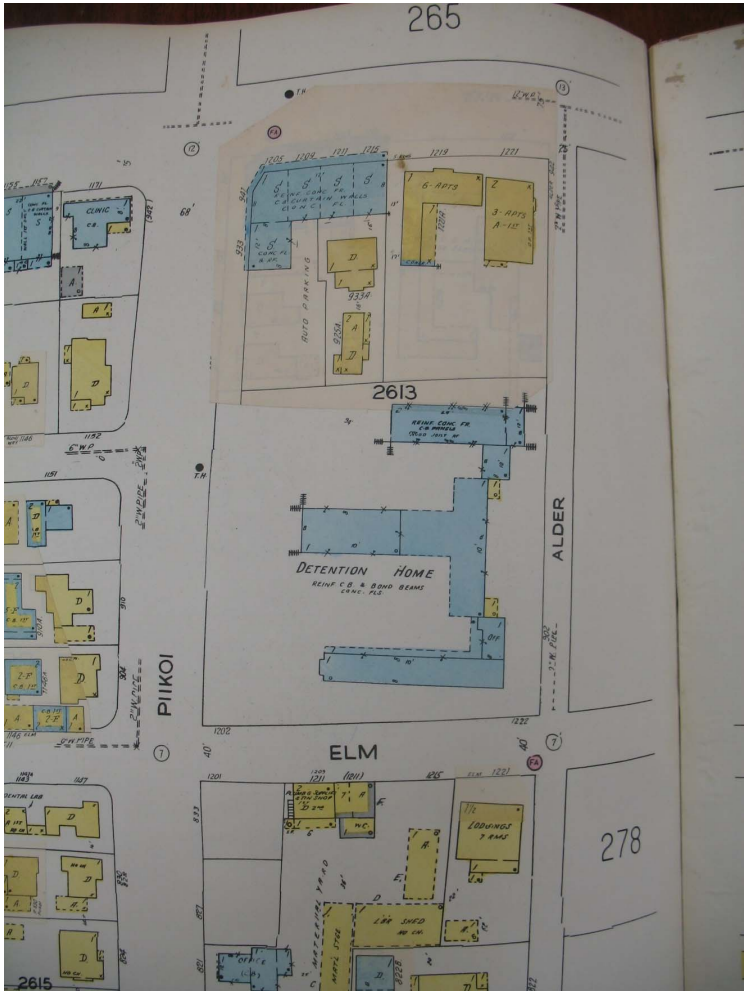
HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM –Reconnaissance Level

FOR SHPD USE ONLY: **Site #**Click here to enter text. **TMK #** Click here to enter text.



1937 Sanborn Fire Insurance Map

FOR SHPD USE ONLY:	Site #Click here to enter text.	TMK # Click here to enter text.



1950 Sanborn Fire Insurance Map

HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM –Reconnaissance Level

FOR SHPD USE ONLY:	Site #Click here to enter text.	TMK # Click here to enter text.



902 Alder Street Exterior Photo Key



1: Elm and Alder Street Corner View (Photo taken from Googlemaps Streetview)



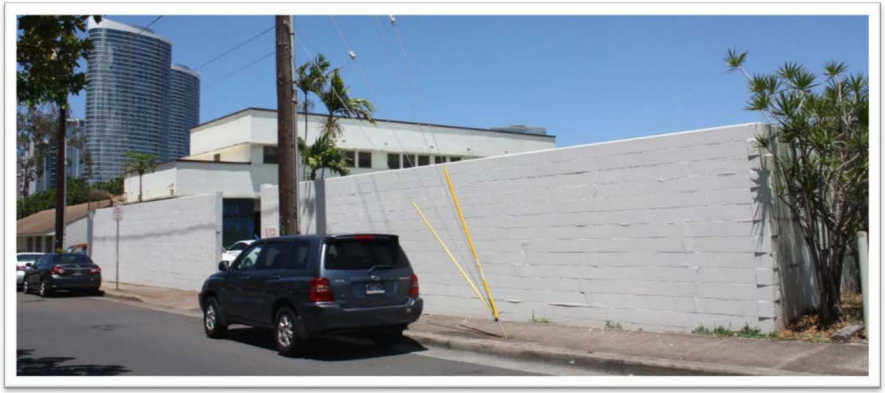
2: Alder Street Facade (1958 Addition)

HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM –Reconnaissance Level

FOR SHPD USE ONLY: **Site #**Click here to enter text. **TMK #** Click here to enter text.



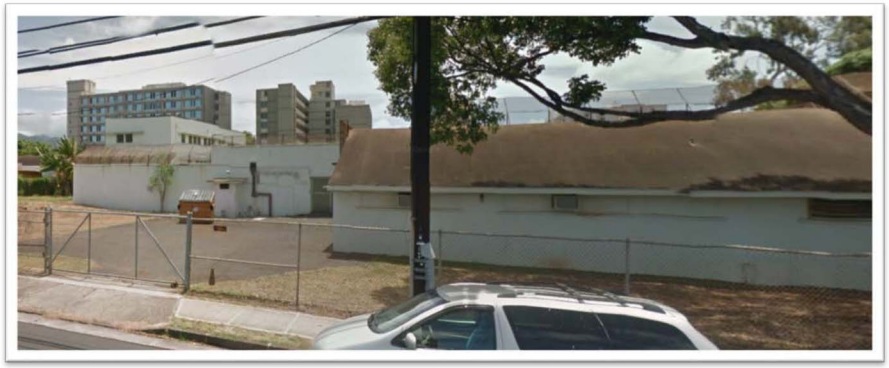
3: Alder Street View of 1944 Building



4: Alder Street Wall



5: Piikoi Street view of 1958 addition



6: Piikoi Street View (Photo taken from Googlemaps Streetview)

HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM –Reconnaissance Level

FOR SHPD USE ONLY: **Site #**Click here to enter text. **TMK #** Click here to enter text.

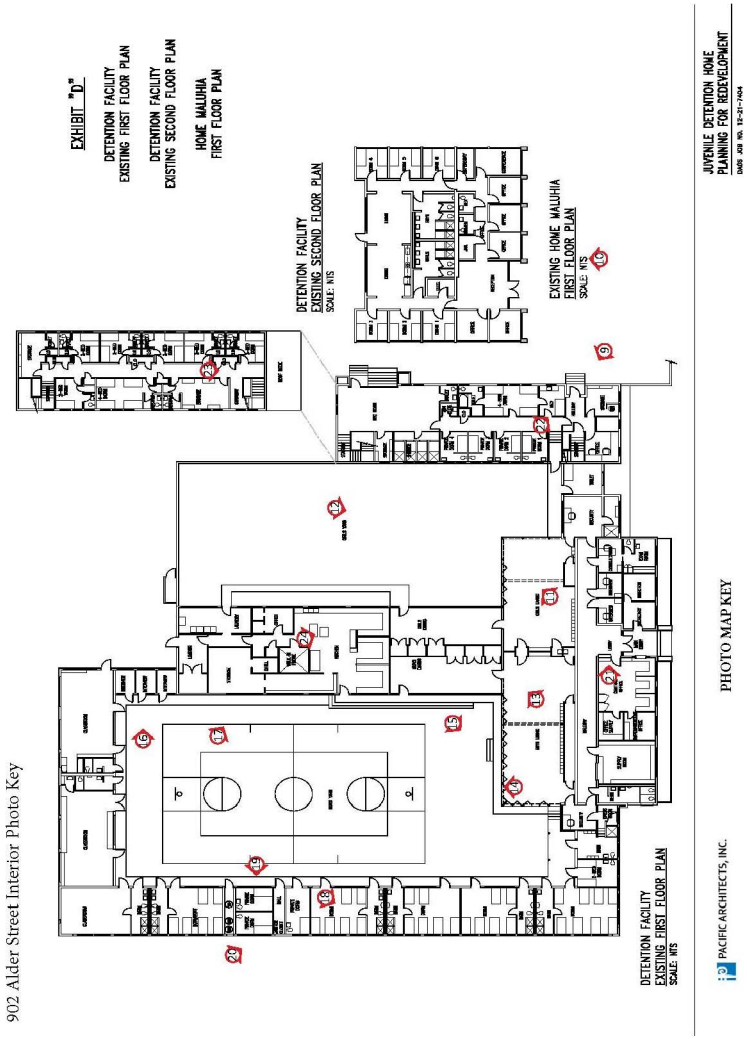


7: Piikoi Street & Elm Street corner view (Photo taken from Googlemaps Streetview)



8: Elm Street view of 1952 Extension to 1949 Building

FOR SHPD USE ONLY: **Site #**Click here to enter text. **TMK #** Click here to enter text.



HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM –Reconnaissance Level

FOR SHPD USE ONLY: **Site #**Click here to enter text. **TMK #** Click here to enter text.



9: 1944 Building



10: Maluhia Hall - Built 1989, Not eligible

HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM –Reconnaissance Level

FOR SHPD USE ONLY: **Site #**Click here to enter text. **TMK #** Click here to enter text.



11: Girls' living



12: Girls' living from yard

HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM –Reconnaissance Level

FOR SHPD USE ONLY: **Site #**Click here to enter text. **TMK #** Click here to enter text.



13: Boys' dining



14: Boys' Court

HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM –Reconnaissance Level

FOR SHPD USE ONLY: **Site #**Click here to enter text. **TMK #** Click here to enter text.



15: Boys' living from court



16: Typical Doors and Vents in 1949-52 Addition



17: Kitchen Windows (1949 Addition)

HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM –Reconnaissance Level

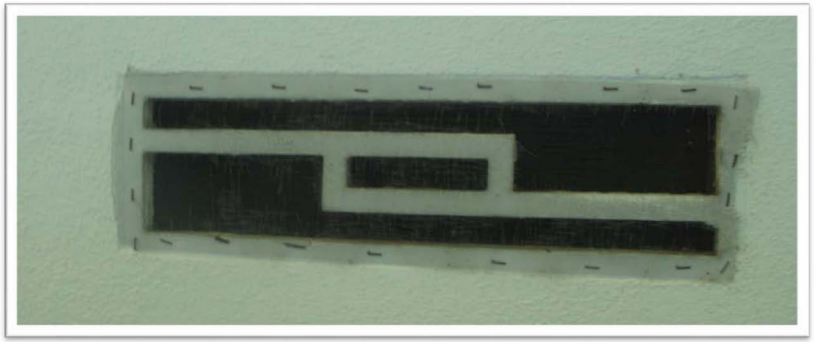
FOR SHPD USE ONLY: **Site #**Click here to enter text. **TMK #** Click here to enter text.



18: Boys' Dorm



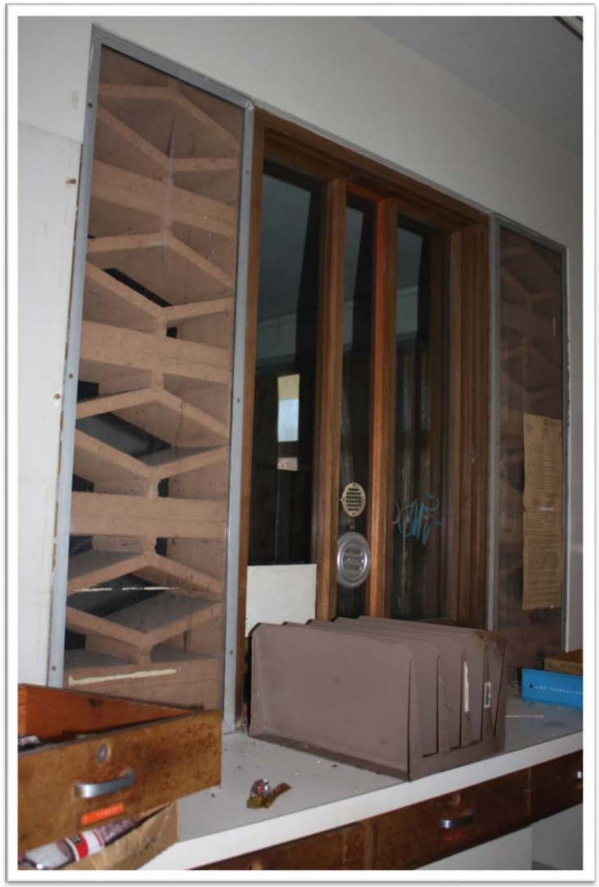
19: Typical vent for 1949-52 Addition



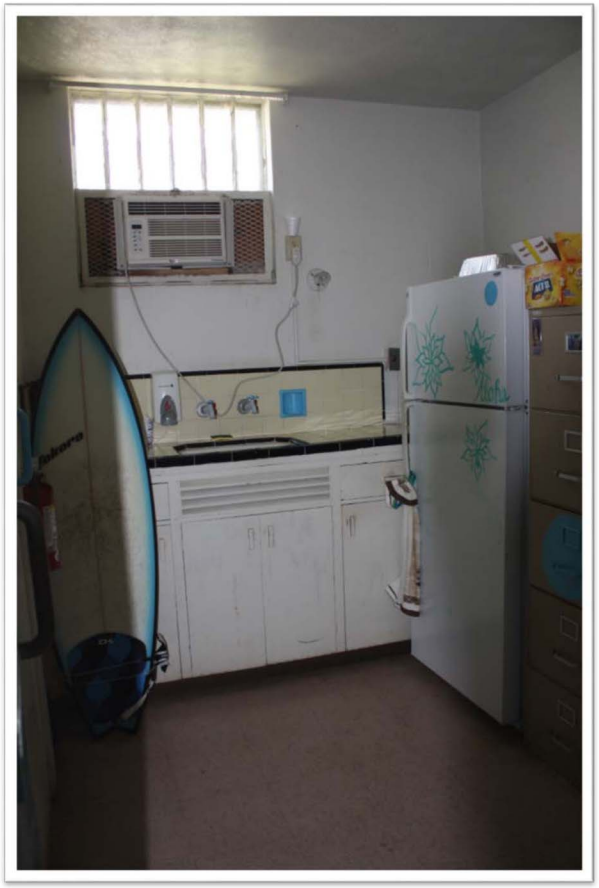
20: Eave vent of 1949-52 Addition

HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM –Reconnaissance Level

FOR SHPD USE ONLY: **Site #**Click here to enter text. **TMK #** Click here to enter text.



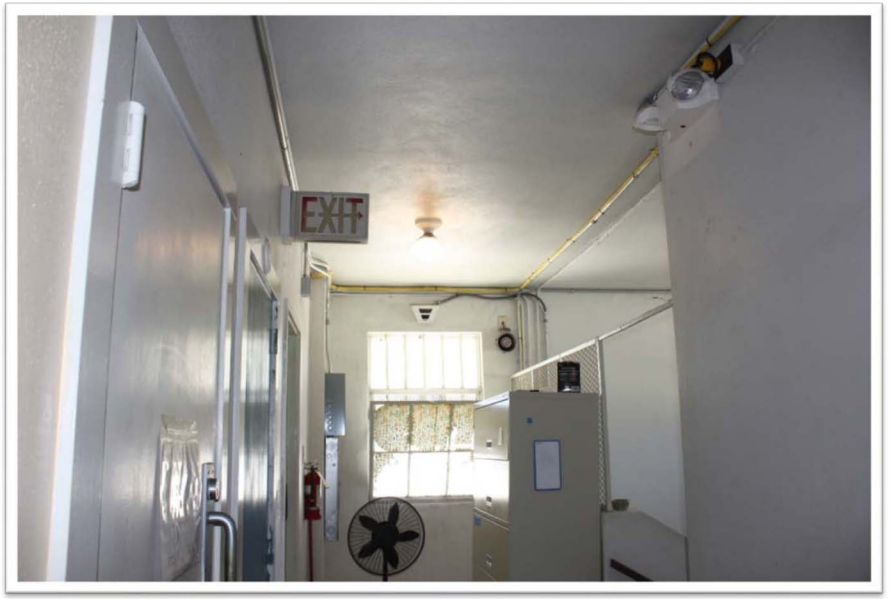
21: Office Entrance of 1958 Addition



22: Kitchen of 1944 Building

HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM –Reconnaissance Level

FOR SHPD USE ONLY: **Site #**Click here to enter text. **TMK #** Click here to enter text.



23: Upstairs Hall of 1944 Building

HAWAII STATE HISTORIC PRESERVATION DIVISION
HISTORIC RESOURCE INVENTORY FORM –Reconnaissance Level

FOR SHPD USE ONLY:	Site #Click here to enter text.	TMK # Click here to enter text.



24: Kitchen of 1949 Addition

FUNG ASSOCIATES INC
1833 Kalakaua Avenue, Suite 1008, Honolulu, Hawaii 96815
808.941.3000 (Office) • 808.941.0900 (Fax)
E-mail: projects@funghawaii.com

August 24, 2015

Mr. Alan Downer, Administrator
State Historic Preservation Division
601 Kamokila Blvd., #555
Kapolei, Hawai`i 96707

Dear Mr. Downer:

SUBJECT: Hawaii Revised Statutes, Chapter 6E-8, Review of Proposed Projects
Planning for Redevelopment of Honolulu Juvenile Detention Center
902 Alder Street,
TMK: (1) 2-3-012:019
Honolulu, Oahu

On behalf of the State of Hawaii Department of Accounting and General Services (DAGS), we are submitting the draft redevelopment plans and Reconnaissance Level Architectural Inventory Survey for your review.

I. GENERAL INFORMATION

A. Organization: State of Hawaii Department of Accounting and General Services
B. Address: 1151 Punchbowl Street, Honolulu, Hawai'i 96813

C. Contact: Mr. Lance Maja, Planning Branch
Phone (808)586-0483
Email: lance.y.maja@hawaii.gov

D. Additional contacts: Tonia Moy, Fung Associates, Inc.
Phone: (808) 941-3000
Email: tonia@funghawaii.com

E. Project Name: Redevelopment of Honolulu Juvenile Detention Center

F. Project Street Address: 902 Alder Street

G. Location: Honolulu

H. TMK: (1) 2-3-012:019

I. Area of Potential Effect: Included in the area of potential effect are the existing land parcels.
(See Page 3 of RLS)

FUNG ASSOCIATES INC

1833 Kalakaua Avenue, Suite 1008, Honolulu, Hawaii 96815
808.941.3000 (Office) • 808.941.0900 (Fax)
E-mail: projects@funghawaii.com

J. Project Description: The State Department of Accounting and General Services (DAGS), on behalf of the Hawaii State Judiciary and Hawaii Housing Finance Development Corporation, proposes to design and construct a mixed-use development to include a new Status Offender Shelter/Juvenile Services Center and affordable housing at the subject location. The proposed development will involve demolition of the existing buildings located at 902 Alder Street.

K. Consulting Parties: Unofficial discussion with Historic Hawaii Foundation

II. IDENTIFICATION OF HISTORIC PLACES

A. Built between 1944 and 1958, we believe the Honolulu Juvenile Detention Center is eligible for listing on the Hawaii and National Registers of Historic Places for its association with the development of Hawaii's treatment of juvenile delinquents and as an intact example of Mid-Century Modern architecture. Though physically deteriorated and with several additions, the building maintains its historic integrity as the additions have the same association to the judicial system with the original building.

B. Mitigation measures. Per telephone conversation with Anna Broverman, DAGS agrees to the following mitigation measures:

1. HABS Level III, with archival photography and copies of all available original drawings.
2. Two (2) interpretive panels utilizing the HABS photographs and historic information to be placed in the future Juvenile Counseling office located at Alder Street.

Since the redevelopment project would involve the demolition of the building, we believe the project would be determined "effect with agreed upon mitigation measures." Archaeological concerns will be addressed in a separate consultation letter. Thank you very much for your consideration. Please feel free to call Tonia Moy at 941-3000 should you or your staff have any questions. We look forward to working with SHPD on these needed improvements.

Aloha,

Tonia S. Moy, AIA
Fung Associates, Inc.

Attachments: Reconnaissance Level Survey

DAVID Y. IGE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING
601 KAMOKILA BLVD, STE 555

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. PEARSON
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

November 6, 2015

LOG: 2015.03959
DOC: 1511JLP05

Tonia Moy
Fung Associates, Inc.
1833 Kalakaua Blvd.
Suite 1008
Honolulu, HI 96815

SUBJECT: Section: Survey & Inventory
Agency: Fung Associates, Inc.
Survey: Hale Hoomalu Reconnaissance Level Survey Form
Location: 902 Alder Street
TMK: (1) 2-3-012:019

Aloha Ms. Moy,

Thank you for the opportunity to review the Hale Hoomalu Reconnaissance Level Survey Form (RLS), received by the Hawai'i State Historic Preservation Division (SHPD) on October 7, 2015. We have reviewed the above cited survey and agree with your findings. Hale Hoomalu is **eligible** for the National Register of Historic Places.

SHPD requires no further work or corrections and accepts the above cited document as the final draft.

Mahalo,

Dr. Alan Downer
Deputy State Historic Preservation Officer

Appendix F:
Archaeological Inventory Survey Report

Draft

Archaeological Inventory Survey Report for the Mixed Use Project at 902 Alder Street, Department of Accounting and General Services (DAGS) JOB NO. 12-21-7550, Honolulu Ahupua'a, Honolulu (Kona) District, O'ahu TMK: [1] 2-3-012:019

Prepared for
SSFM International, Inc.

Prepared by
Richard T. Stark, Ph.D.,
Constance R. O'Hare, B.A.,
David W. Shideler, M.A.,
and
Hallett H. Hammatt, Ph.D.

Cultural Surveys Hawai'i, Inc.
Kailua, Hawai'i
(Job Code: HONOLULU 58)

August 2015

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www.culturalsurveys.com

Maui Office
1860 Main St.
Wailuku, Hawai'i 96793
Ph.: (808) 242-9882
Fax: (808) 244-1994

Management Summary

Reference	Archaeological Inventory Survey Report for the Mixed Use Project at 902 Alder Street, Department of Accounting and General Services (DAGS) JOB NO. 12-21-7550, Honolulu Ahupua'a, Honolulu (Kona) District, O'ahu, TMK: [1] 2-3-012:019 (Stark et al. 2015)
Date	August 2015
Project Number(s)	Department of Accounting and General Services (DAGS) JOB NO. 12-21-7550, SSFM Project Number 2014_068.000, Cultural Surveys Hawai'i, Inc. (CSH) Job Code: HONOLULU 58
Investigation Permit Number	CSH completed the archaeological inventory survey (AIS) fieldwork under archaeological permit number 15-03, issued by the Hawai'i State Historic Preservation Division (SHPD) per Hawai'i Administrative Rules (HAR) §13-13-282.
Agencies	State Historic Preservation Division (SHPD), DAGS
Land Jurisdiction	State of Hawai'i
Project Proponent	DAGS, Department of Justice (DOJ)
Project Funding	DAGS
Project Location	902 Alder Street, Honolulu Ahupua'a, Honolulu (Kona) District, O'ahu, TMK: [1] 2-3-012:019
Project Description	This project will replace the old Judiciary facility with a new one. The Hawaii Housing Finance Development Corporation (HHFDC) will jointly develop the subject property by adding an affordable housing component to the project. Ground disturbance is expected to impact the entirety of the project area, relating to demolition, utilities trenching, and new building footings.
Project Acreage	1.4 acres (0.6 hectares)
AIS Scope[i]	This AIS focused on archaeological historic properties pursuant to the guidelines of HAR §13-276. The identification, documentation, and evaluation of in-use potential architectural historic properties such as historic buildings and structures was outside the scope of this AIS. Throughout this report the term "historic properties" is used and should be generally understood to refer to archaeological historic properties, unless otherwise stated.
Area of Potential Effect (APE)[ii]	The Area of Potential Effect (APE) is considered to be the entirety of the project area.
Historic Preservation Regulatory Context[iii]	This is a state/municipal "governmental" project needing review under Hawai'i Revised Statutes (HRS) §6E-8 and HAR §13-13-275. This AIS investigation fulfills the requirements of HAR §13-13-276 and was conducted to identify, document, and assess significance of any historic properties. This document is intended to support the proposed project's

	historic preservation review under HRS §6E-8 and HAR §13-13-275, as well as the project's environmental review under HRS §343. It is also intended to support any project-related historic preservation consultation with stakeholders such as state and county agencies and interested Native Hawaiian Organizations (NHOs) and community groups.
Fieldwork Effort	Fieldwork was accomplished between 17 June 2015 and 17 July 2015 by David W. Shideler, M.A., Nathaniel S. Garcia, B.A., Mary L. Tardona, M.S., Abigail H. Langham, B.A., and Richard T. Stark, Ph.D. under the general supervision of Hallett H. Hammatt, Ph.D. This work required approximately 10 person-days to complete.
Historic Properties Identified and Historic Property Significance[h]	SIHP # 50-80-14-7817 is represented by historic artifacts recovered from buried fill and trash pit features in test excavations in the southern and southeastern portions of the project area (T2, T3, and T4). Specifically, fragments of eight glass bottles, a ceramic plate, a ceramic bowl, and a ceramic pitcher were recovered from 40 to 100 cmbs, with dates of manufacture from 1800 to 1920. SIHP # 50-80-14-7817 is represented by stratigraphic layers including historic artifacts, most likely related to the family of Henry Martyn Whitney, Sr. Whitney, a prominent member of the Honolulu community, served as first postmaster general in Hawai'i in 1850, was elected to the house of representatives of the legislature of the Hawaiian Kingdom in 1855 and may have entertained the young Samuel Clements at this house. In 1856, he produced the first issue of the *Pacific Commercial Advertiser* and in 1861 he established *Ka Nupepa Kū'oko'a*, a Hawaiian language newspaper. Whitney began publishing the *Marine Bulletin* in 1882 which was eventually purchased by James Robison and became the *Honolulu Star-Bulletin.* The *Star-Bulletin,* merged with the *Honolulu Advertiser* in 2010 to become the *Honolulu Star-Advertiser*, currently the largest daily newspaper in Hawai'i (Krauss 2009:7-11). SIHP # 50-80-14-7817 is considered significant under significance criterion "b" only, as it is associated with the lives of persons important in our past. SIHP # 50-80-14-7818 is represented by historic artifacts recovered from test excavation T3 in the southeastern corner of the project area. Specifically, a fire-cracked rock fragment and faunal material representing fragments of *Bos taurus* (cow) tibia, *Sus scrofa* (pig) rib, and *Gallus gallus* (chicken) tibiotarsus were recovered from a highly organic sediment matrix partially submerged in the fresh water table at approximately 150 to 165 cmbs. Analysis of a bulk matrix sample from this location also revealed fresh water snails and marine snails. SIHP # 50-80-14-7818 is considered significant under significance criterion "d" only (Have yielded, or may be likely to yield, information important for research on prehistory or history). These significance recommendations are included in this AISR for the review and concurrence of the SHPD.

Summary of Findings	No significant archaeological finds were made during the pedestrian survey of the unbuilt portions of the project area, however, Figure 24 and Figure 25 indicate portions of the extant facility were built by 1950. Staff working within the project area indicate their belief that some buildings of the current facility pre-date World War II and Figure 18 indicates that the original detention home buildings had been completed within the project area by 1914. These buildings would be considered by the State Historic Preservation Division as "historic properties" under HAR §13-275-2 and CSH recommends consultation with the State Historic Preservation Division (SHPD) regarding mitigation of any historic architecture within the project area. Two significant finds were made during subsurface testing, related to the 29 artifact fragments representing 16 historic artifacts recovered from the project area (see Table 10). All collected artifacts are from the post-Contact period. The artifacts recovered from SIHP # 50-80-14-7817 likely relate to domestic use of the project area by the family of Catherine and Henry Martin Whitney (1824-1904). The artifacts recovered from SIHP # 50-80-14-7818 may also represent early post-Contact Hawaiian settlement within the project area.
Effect Recommendation[v]	In accordance with Hawai'i State historic preservation review legislation, HAR §13-13-275-7, the project's effect recommendation is "effect, with proposed mitigation commitments."
Mitigation Recommendations	This AISR indicates the project area contains SIHP # 50-80-14-7817 and SIHP # 50-80-14-7818. Through this report, information has been documented regarding the location, extent, function, and age of SIHP # 50-80-14-7817 and SIHP # 50-80-14-7818. While this AISR was undertaken to mitigate any adverse effect caused by proposed development activities, additional archaeological data collection, in the form of archaeological monitoring with detailed documentation of the historic properties, is recommended to be sufficient to satisfy the requirements to mitigate any adverse effect caused by the proposed development activities within the project area. Consultation with the SHPD is recommended for their determination on the project's effect and mitigation recommendations.

[i] An "archaeological inventory survey" is defined as "the process of identifying and documenting the archaeological historic properties and burial sites in a delineated area, gathering sufficient information to evaluate significance of the historic properties and burials, and compiling the information into a written report for review and acceptance by the department [SHPD]" (HAR §13-276-2). An archaeological inventory survey report must contain documentation, arguments and reasoning, and mitigation commitments to support the completion of historic preservation review steps one through four for archaeological historic properties.

[ii] "Project Area" is defined (HAR §13-284-2) as "the area the proposed project may potentially affect, either directly or indirectly. It includes not only the area where the proposed project will take place, but also the proposed project's area of potential effect." "Effects include, but are not limited to, partial or total destruction or alteration of the historic property, detrimental alteration of the properties' surrounding environment, detrimental visual, spatial, noise or atmospheric impingement, increasing access with the chances of resulting damage, and neglect resulting in deterioration" (HAR §13-284-7(b). Based on these definitions of "project area" and "effects" there is potential for project effects to historic properties to extend outside the footprint of project construction. Accordingly a definition and justification of the "project area" and "area of potential effect" employed in the AIS study is required.

[iii] The State of Hawai'i historic preservation review process is designed to identify and mitigate a project's impacts to significant historic properties. Historic properties are defined as "any building, structure, object, district, area, or site, including *heiau* [temple] and underwater site, which is over fifty years old" (HAR §13-284-2). The six potential historic preservation review steps include the following: 1) identification and inventory, to determine if historic properties are present in the project's area and, if so, to identify and document (inventory) them; 2) evaluation of historic property significance; 3) determination of project effect (impact) on significant historic properties; 4) mitigation commitments that commit to acceptable forms of mitigation in order to properly handle or minimize impacts to significant historic properties; 5) detailed mitigation plan, scope of work to properly carry out the general mitigation commitments; and 6) verification of completion of detailed mitigation plan (HAR §13-284-3). 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 significant following their evaluation of significance [HAR §13-284-6]).

[iv] Once a historic property is identified, then an assessment of significance shall occur pursuant to HAR § 13-284-6. To be significant, a historic property shall possess integrity of location, design, setting, materials, workmanship, feeling, and association, and meet one or more of the following significance criteria: "a" be associated with events that have made an important contribution to the broad patterns of our history; "b" be associated with the lives of persons significant in our past; "c" embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master, or possess high artistic value; "d" have yielded, or is likely to yield, information important for research on prehistory or history; or "e" have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations being important to the group's history and cultural identity. By convention criterion "e" usually includes human skeletal remains and/or burials and religious sites.

[v] One of two effect determinations must be established: 1) "No historic properties affected," the project will have no effect on significant historic properties; or 2) "Effect, with agreed upon mitigation commitments," the project will affect one or more significant historic properties, and the effects will potentially be harmful. However, the agreed upon mitigation commitments involving one or more forms of mitigation will reasonably and acceptably mitigate the harmful effects (HAR § 13-284-7).

Table of Contents

Management Summary ii

Section 1 Introduction 1

1.1 Project Background 1
1.2 Historic Preservation Regulatory Context and Document Purpose 1

Section 2 Methods 7

2.1 Field Methods 7
2.2 Laboratory Methods 7
2.2.1 Bulk Sediment Sample Analysis 7
2.2.2 Artifact Analysis 9
2.2.3 Faunal Analysis 9
2.2.4 Disposition of Materials 9
2.2.5 Research Methods 9
3.1 Early Historic Period 22

Section 4 Previous Archaeological Research 44

4.1.1 Smith (1989) 44
4.1.2 Athens et al. (1994) 44
4.1.3 Sinoto (2000) and McElroy (2010) 44
4.1.4 O'Hare et al. (2003) 53
4.1.5 LeSeur and Cleghorn (2004) 53
4.1.1 O'Leary and Hammatt (2004), Fong et al. (2009) 53
4.1.2 Monahan (2005) 53
4.1.3 Clark and Gosser (2005) and Gosser et al. (2006) 54
4.1.4 Esh and Hammatt (2006) 54
4.1.5 Hammatt (2006) 54
4.1.6 O'Leary and Hammatt (2006) 54
4.1.7 Hazlett, Carney, and Hammatt (2008) 54
4.1.8 Hazlett, Loynaz, and McDermott (2008) 54
4.1.9 McCurdy and Hammatt (2008) 54
4.1.10 O'Hare et al. (2010) and Medina and Hammatt (2012) 55
4.1.11 Pammer and Hammatt (2010) 55
4.1.12 Altizer et al. (2011) 55
4.1.13 Burke and Hammatt (2012) 55
4.1.14 Hunkin et al. (2013) 55
4.2 Historic Cemeteries 56
4.2.1 Makiki Cemetery 56
4.2.2 Cemetery of the Foreigners 56
4.3 Background Summary and Predictive Model 58

Section 5 Results of Fieldwork 60

5.1 Test Excavation 1 (T1) 60
5.2 Test Excavation 2 (T2) 66
5.3 Test Excavation 3 (T3) 70
5.4 Test Excavation 4 (T4) 77
5.5 Test Excavation 5 (T5) 83

5.6 Test Excavation 6 (T6) 87
5.7 Test Excavation 7 (T7) 91

Section 6 Results of Laboratory Analysis 95

6.1 Artifact Analysis 95
6.2 Faunal Analysis 115
6.3 Bulk sediment Analysis 116

Section 7 Site Descriptions 119

7.1 SIHP # 50-80-14-7817 119
7.1 SIHP # 50-80-14-7818 120

Section 8 Summary and Interpretation 123

Section 9 Significance Assessments 124

Section 10 Project Effect and Mitigation Recommendations 126

10.1 Project Effect 126
10.2 Mitigation Recommendations 126

Section 11 References Cited 127

List of Figures

Figure 1. Portion of the 1998 USGS 7.5-minute topographic quadrangle indicating the location of the project area 2
Figure 2. Tax Map Key (TMK) [1] 2-3-012 indicating the project area (Hawai'i TMK Service 2014) 3
Figure 3. Aerial photograph indicating the project area (Google Earth 2013) 4
Figure 4. Overlay of *Soil Survey of the State of Hawaii* (Foote et al. 1972), indicating soil types within and surrounding the project area (U.S. Department of Agriculture Soils Survey Geographic Database [SSURGO] 2001) 6
Figure 5. 2013 aerial photograph indicating the locations of test excavations within the project area 8
Figure 6. 1884 map of Honolulu, Kewalo Section (portion) by S.E. Bishop, indicating the project area within LCA 10605 to A. Pi'ikoi within the *'ili* of Kewalo 11
Figure 7. 1887 map of Honolulu and vicinity by W.A. Wall (portion), indicating the project area in the *'ili* of Kewalo in the *ahupua'a* of Makiki 12
Figure 8. 1817 map (portion) made during the visit of Otto von Kotzebue of the Russian Ship *Rurick*, indicating the approximate location of the project area; note location of cemetery (labeled in Russian as "Кладбище," meaning "Cemetery of Foreigners") (map reprinted in Fitzpatrick 1986:49) 18
Figure 9. 1825 Malden map of the south coast of O'ahu, indicating the location of the project area 19
Figure 10. Map of O'ahu trails ca. 1810, drawn by Paul Rockwood based on information from 'Ī'ī (figure in 'Ī'ī 1959:93); map not to scale; indicating the approximate location of the project area 20
Figure 11. 1840 Wilkes Expedition sketch of Honolulu and Waikīkī by James Dwight Dana (portion), showing two cross-*ahupua'a* trail alignments and scattered habitations; note the *mauka* trail (now approximated by King Street), between Kawaiaha'o Church (two-story building at left), the *makai* trail to Diamond Head Crater (now covered by the Queen Street/Kalākaua Avenue alignment) and limited habitation in the vicinity of the project area in the far right to central portion of the illustration (reprinted in Scott 1968:58–59) 21
Figure 12. 1855 La Passe map of Honolulu indicating the location of project area 24
Figure 13. 1897 Monsarrat map of Honolulu indicating the Old Plantation (right center) and the house of H.M. Whitney on the boundary of the project area 26
Figure 14. 1893 Wall map of Honolulu, indicating the location of the project area 27
Figure 15. Henry Martin Whitney, Sr. (1824-1904) (photo from the *Hawaiian Gazette*, 14 April 1903) 29
Figure 16. 1911 Podmore map of Honolulu, indicating the location of the project area 31
Figure 17. 1919 U.S. Army War Department Fire Control map of O'ahu, Honolulu Quadrangle, indicating the location of the project area 32
Figure 18. 1914 Sanborn Map Company Fire Insurance map, Honolulu Series Sheet 89, indicating the location of the project area 33
Figure 19. 1920 Monsarrat map of Honolulu 34

Figure 20. 1927 Kaka'ako coast aerial photograph (UH SOEST), indicating the location of the project area 35
Figure 21. 1927 Sanborn Map Company Fire Insurance map, Honolulu Series Sheets 277 and 278, indicating the location of the project area 36
Figure 22. 1933 U.S. Army War Department Fire Control map, Honolulu Quadrangle (portion), indicating the project area east of the new McKinley High School 37
Figure 23. 1943 U.S. War Department map, Honolulu Quadrangle (portion), indicating the location of the project area 38
Figure 24. 1950 Sanborn Map Company Fire Insurance map, Honolulu Series Sheets 277 and 278, indicating the location of the project area 39
Figure 25. 1953 Honolulu USGS topographic quadrangle (portion), indicating the location of the project area 40
Figure 26. 1954 aerial photograph, indicating the project area (RM Towill) 41
Figure 27. 1969 Honolulu USGS topographic quadrangle (portion), indicating the location of the project area, much as it appears today 42
Figure 28. Previous archaeological studies in the vicinity of the project area 45
Figure 29. Portion of 1998 Honolulu USGS map showing locations of previously designated historic properties in the vicinity of the project area 50
Figure 30. T1, general plan view to the west, red/white arrow indicates north 61
Figure 31. T1, surface to base of excavation, profile view to south, white/black arrow indicates north 62
Figure 32. T1, surface to base of excavation, portion of the east wall profile, view to east, white/black arrow indicates north 63
Figure 33. T1, profile close up at the base of excavation, view to east, white/black arrow indicates north 64
Figure 34. T1, east wall stratigraphic profile illustration 65
Figure 35. T2, general plan view to south, red/white arrow indicates north 66
Figure 36. T2 west wall profile, surface to base of excavation, oblique view to the northwest, red/white arrow indicates north 67
Figure 37. T2, portion of the west wall profile, surface to base of excavation, view to west, white/black arrow indicates north, and red/blue arrow indicates trash pit representing a portion of SIHP # 50-80-14-7817 68
Figure 38. T2, west wall stratigraphic profile illustration 69
Figure 39. T3, general plan view to east, red/white arrow indicates north 70
Figure 40. T3, surface to base of excavation, oblique view to northwest, north wall profile, red/white arrow indicates north 71
Figure 41. T3, portion of the north wall profile, oblique view to northwest, red/white arrow indicates north 72
Figure 42. T3, portion of the north wall profile to the base of excavation, red/white arrow indicates north 73
Figure 43. T3, surface to 1.0 m below surface, portions of the south, east, and north walls, profile view to east, blue/red arrow denotes a portion of SIHP # 50-80-14-7817 historic artifacts (Acc. # 5) in situ, red/white arrow indicates north 74

Figure 44. T3, portion of the north wall profile, close-up oblique view to northwest of the BOE, noting blue/red arrows indicating SIHP # 50-80-14-7818, red/white arrow indicates north 75
Figure 45. T3, north wall stratigraphic profile illustration 76
Figure 46. T4 groundbreaking, general view to southeast noting the Elm Street/Pi'ikoi Street intersection, red/white arrow indicates north 77
Figure 47. T4, general west wall profile, oblique view to northwest of surface to the base of excavation, red/white arrow indicates north 78
Figure 48. T4, west wall profile, view to west of a mid- to northern portion of the trench, red/white arrow indicates north, blue/red arrow indicates a portion of SIHP # 50-80-14-7817, brick not collected 79
Figure 49. T4, west wall profile, view to southwest of a mid- to northern portion of the trench, red/white arrow indicates north 80
Figure 50. T4, general west wall profile, oblique view to south of a southern portion of the trench, red/white arrow indicates north 81
Figure 51. T4, west wall stratigraphic profile illustration 82
Figure 52. T5, general plan view to east, black/white arrow indicates north 83
Figure 53. T5, north wall profile, oblique view to east, black/white arrow indicates north 84
Figure 54. T5, north wall profile, view to north, red/white arrow indicates north 85
Figure 55. T5, north wall stratigraphic profile illustration 86
Figure 56. T6, ongoing excavation, general plan view to east, black/white arrow indicates north 87
Figure 57. T6, upper fill sequence in the western portion of the south wall profile, oblique view to southwest, red/white arrow indicates north 88
Figure 58. T6, surface to base of excavation, eastern portion of the south wall profile, view to south, red/white arrow indicates north 89
Figure 59. T6, south wall stratigraphic profile illustration 90
Figure 60. T7 general plan view to west, red/white arrow indicates north 91
Figure 61. T7 north wall profile, oblique view to northwest, red/white arrow indicates north 92
Figure 62. T7 north wall profile, western portion, view to northwest, red/white arrow indicates north 92
Figure 63. T7, north wall profile, oblique view to northeast, white arrow indicates north 93
Figure 64. T7, north wall stratigraphic profile illustration 94
Figure 65. Black glass bottles, Acc. #5 (left), #9 (lower right) and #10 (upper right), 1800-1885 101
Figure 66. Light green glass bottles, Acc. # 3 (upper), # 6 (lower left) and # 11 (lower right), 1830-1910 102
Figure 67. Colorless glass, glass vessel fragments, Acc. #s 1-2 (left) and medicine bottle (Acc. # 7), 1850-1920 103
Figure 68. Amber glass bottles, Acc. # 4 (left) and Acc. # 8 (right), 1850-1920 104
Figure 69. Euro-American whiteware pitcher with transfer print pattern, top of base, Acc. # 14, 1840-1860 105
Figure 70. Euro-American whiteware pitcher, stamped G on bottom of base Acc. # 14, 1840-1860 106
Figure 71. Euro-American ironstone pitcher, Acc. # 15, 1862-1882 107

Figure 72. Euro-American ironstone pitcher, Acc. # 15, maker's mark of Pinder, Bourne & Company, Burselm, 1862-1882 108
Figure 73. Ironstone bowl, upper surface, 1862-1880, Acc. # 13....109
Figure 74 . Euro-American ironstone bowl, base with maker's mark, Hope and Carter, 1862-1880, Acc. # 13 110
Figure 75. Chinese Qing dynasty "Om" plate, interior side, Acc. # 12, 1820-1850 111
Figure 76. Chinese Qing dynasty plate, exterior side (including unglazed base), Acc. # 12, 1820-1850 112
Figure 77. Acc. # 12, compared with a plate found during the underwater salvage of the "Desaru," a Chinese junk that sank off the coast of Malaysia in 1845 (Maritime Asia 2015)....113
Figure 78. Fire-cracked rock, Acc. # 16, dorsal surface....114
Figure 79. Fire-cracked rock, Acc. # 16, profile view....114
Figure 80. *Tryonia porrecta* recovered from T3, Str. III (110-165 cmbs) bulk matrix sample....116
Figure 81. *Melanoides tuberculata* recovered from T3, Str. III (110-165 cmbs) bulk matrix sample 117
Figure 82. *Nerita picea,* dorsal surfaces, recovered from T3, Str. III (110-165 cmbs) bulk matrix sample....117
Figure 83. *Nerita picea,* ventral surfaces, recovered from T3, Str. III (110-165 cmbs) bulk matrix sample....118
Figure 84. Portion of the 1998 USGS 7.5-minute topographic quadrangle indicating the locations SIHP # 50-80-14-7817 and SIHP # 50-80-14-7818 within the project area....121
Figure 85.Portion of Tax Map Key (TMK) [1] 2-3-012 indicating the locations SIHP # 50-80-14-7817 and SIHP # 50-80-14-7818 within the project area....122

List of Tables

Table 1. Previous Archaeological Studies in the Vicinity of the Project Area....46
Table 2. Previously Identified Historic Properties near the Present Study Area....51
Table 3. T1 Stratigraphic Description....65
Table 4. T2 Stratigraphic Description....69
Table 5. T3 Stratigraphic Description....76
Table 6. T4 Stratigraphic Description....82
Table 7. T5 Stratigraphic Description....86
Table 8. T6 Stratigraphic Description....90
Table 9. T7 Stratigraphic Description....94
Table 10. Summary of Artifacts Recovered....96
Table 11. Summary of Recovered Faunal Material....115
Table 12. Snails Recovered from 2 L Bulk Matrix Sample in T3, Str. III (111-165 cmbs)....118
Table 13. Sites Identified within the Current Project Area....119
Table 14. Archaeological Historic Property Integrity, Significance, and Mitigation Recommendations....125

Section 1 Introduction

1.1 Project Background

At the request of SSFM International, Inc., Cultural Surveys Hawai'i, Inc. (CSH) has prepared this archaeological inventory survey (AIS) report for the mixed use project at 902 Alder Street, Department of Accounting and General Services (DAGS) JOB NO. 12-21-7550, Honolulu Ahupua'a, Honolulu (Kona) District, O'ahu, TMK: [1] 2-3-012:019. The companion cultural impact assessment (CIA) for this project was prepared by Ishihara and Hammatt (2015). Faunal analysis for the current report was conducted by Malina L. Reveal, M.Sc. The project area is 1.4 acres (0.6 hectares), depicted on a portion of the 1998 U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1), a tax map plat (Figure 2), and a 2013 aerial photograph (Figure 3). This project will replace the old Judiciary facility with a new one. The Hawaii Housing Finance Development Corporation (HHFDC) will jointly develop the subject property by adding an affordable housing component to the project. Ground disturbance is expected to impact the entirety of the project area, relating to demolition, utilities trenching, and new building footings.

1.2 Historic Preservation Regulatory Context and Document Purpose

This is a state/municipal "governmental" project needing review under Hawai'i Revised Statutes (HRS) §6E-8 and Hawai'i Administrative Rules (HAR) §13-13-275. This AIS investigation fulfills the requirements of HAR §13-13-276 and was conducted to identify, document, and assess significance of any historic properties. This document is intended to support the proposed project's historic preservation review under HRS §6E-8 and HAR §13-13-275, as well as the project's environmental review under HRS §343. It is also intended to support any project-related historic preservation consultation with stakeholders such as state and county agencies and interested Native Hawaiian Organizations (NHOs) and community groups.

1.3 Environmental Setting

1.3.1 Natural Environment

The project area is located on the central/east Honolulu coastal plain, approximately 1,200 meters (m) inland from today's coast at Ala Moana Beach Park. The natural coastline in this area would have been approximately 250 m *makai* from its current location.

According to the U.S. Department of Agriculture (USDA) Soil Survey Geographic (SSURGO) database (2001) and soil survey data gathered by Foote et al. (1972), the project area's soils consist of Makiki Clay loam, 0 to 2% slopes (MkA) (Figure 4). Makiki soils are described as follows:

> This series consists of well-drained soils on alluvial fans and terraces in the city of Honolulu on the island of Oahu. These soils formed in alluvium mixed with volcanic ash and cinders. They are nearly level. Elevations range from 20 to 200 feet. The annual rainfall amounts to 30 to 60 inches. Most of it falls between November and April. The mean annual soil temperature is 73° F. Makiki soils are geographically associated with Kaena and Tantalus soils. [Foote et al. 1972:91]

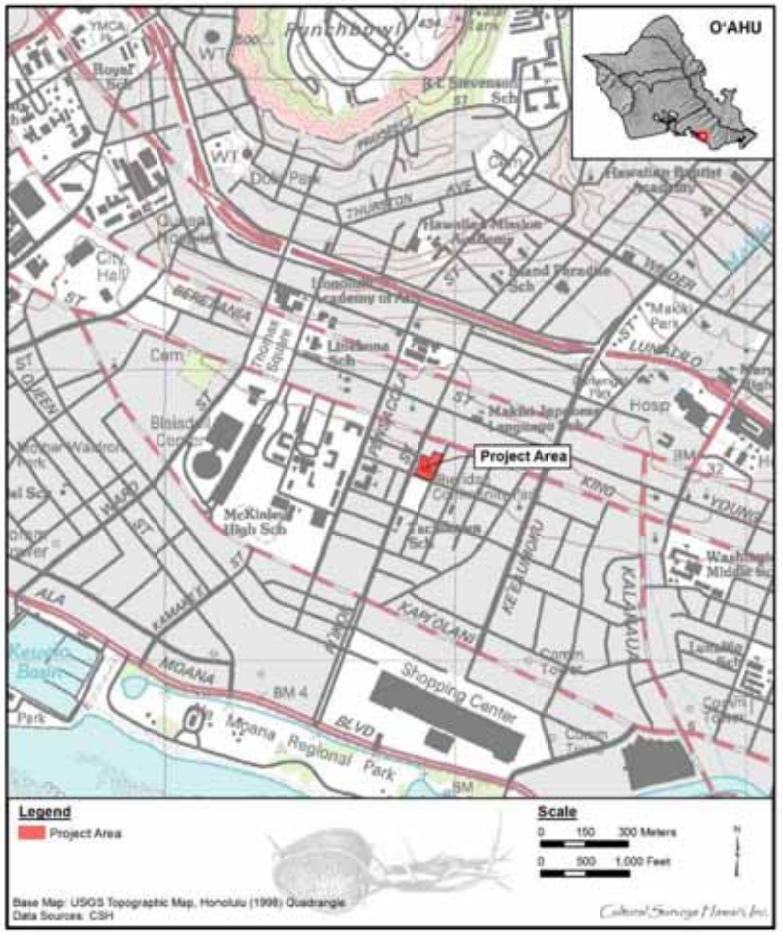

Figure 1. Portion of the 1998 USGS 7.5-minute topographic quadrangle indicating the location of the project area

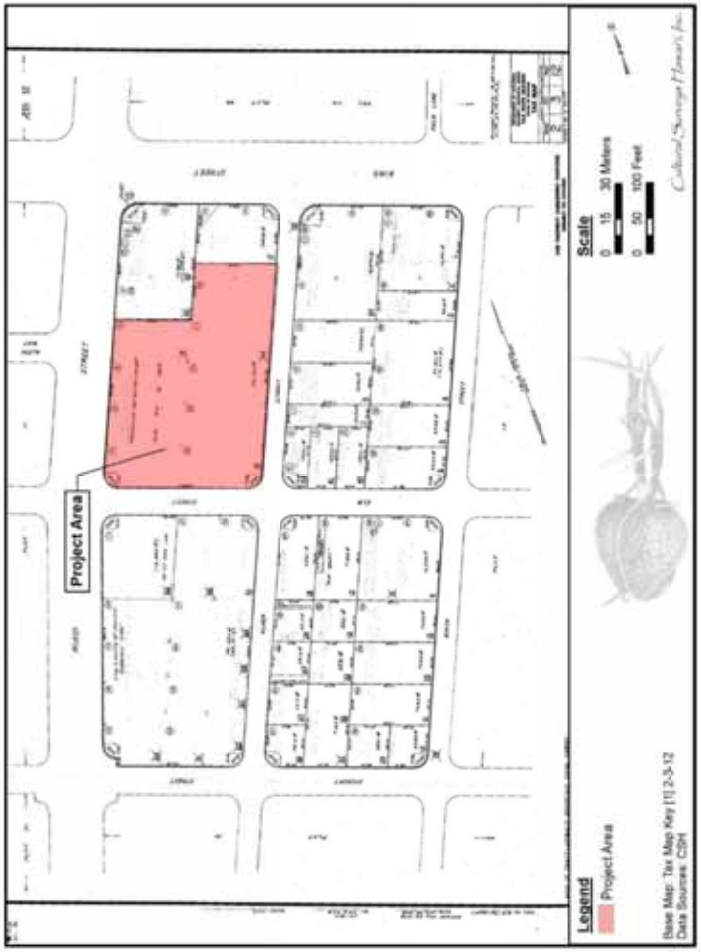

Figure 2. Tax Map Key (TMK) [1] 2-3-012 indicating the project area (Hawai'i TMK Service 2014)

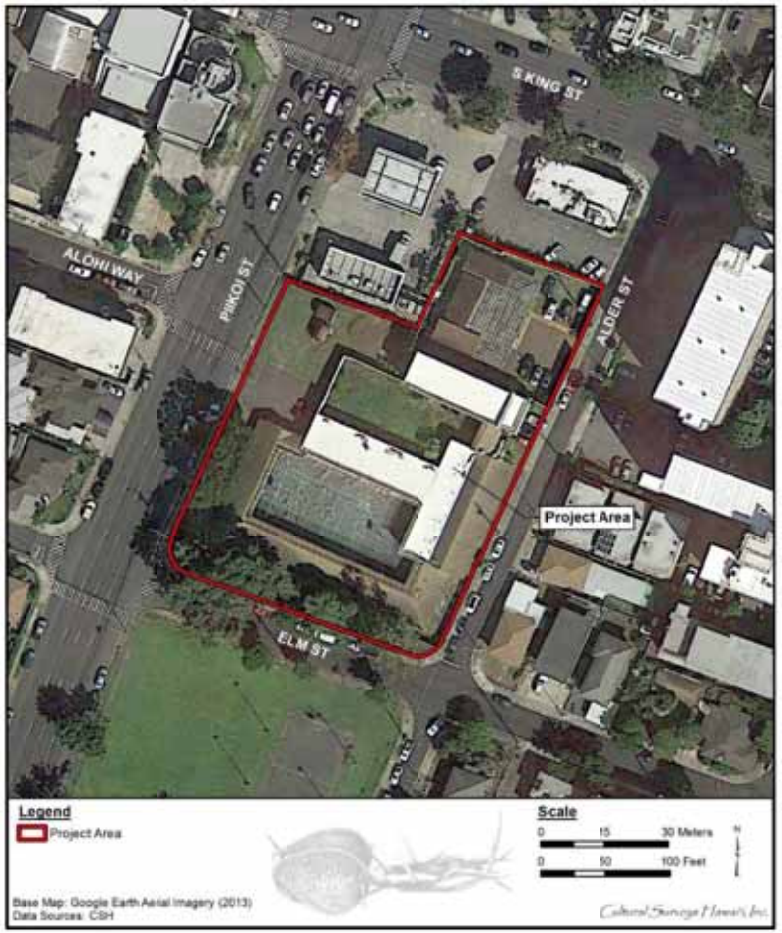

Figure 3. Aerial photograph indicating the project area (Google Earth 2013)

Makiki Clay loam, 0 to 2% slopes soils are described as follows:

> This soil is on smooth fans and terraces. Included in mapping were small, stony areas and small areas of Kaena soils.
>
> In a representative profile the surface layer is dark brown clay loam about 20 inches thick. The subsoil, about 10 inches thick is dark-brown clay loam that has subangular blocky structure. It contains cinders and rock fragments. The subsoil is underlain by similar material, about 24 inches thick, that is massive. Below this are volcanic cinders. The soil is strongly acid to medium acid.
>
> Permeability is moderately rapid. Runoff is slow, and the erosion hazard is no more than slight. The available water capacity is about 1.7 inches per foot of soil. In places roots penetrate to a depth of 5 feet or more. [Foote et al. 1972:91–92]

The project area receives approximately 600 millimeters (mm) (at the south end) to 800 mm (at the north end) of rainfall per year (Giambelluca et al. 2013).

1.3.2 Built Environment

The project area vicinity is within urban Honolulu, between Pi'ikoi, Adler, South King, and Elm streets, largely lined with office and apartment buildings, shops, and residences. McKinley High School is one block to the west and Sheridan Community Park, with open grassy fields and playground equipment, is across Elm Street immediately south of the project area. The project area includes an open garden plaza, a large open basketball court paved with asphalt, and three buildings.

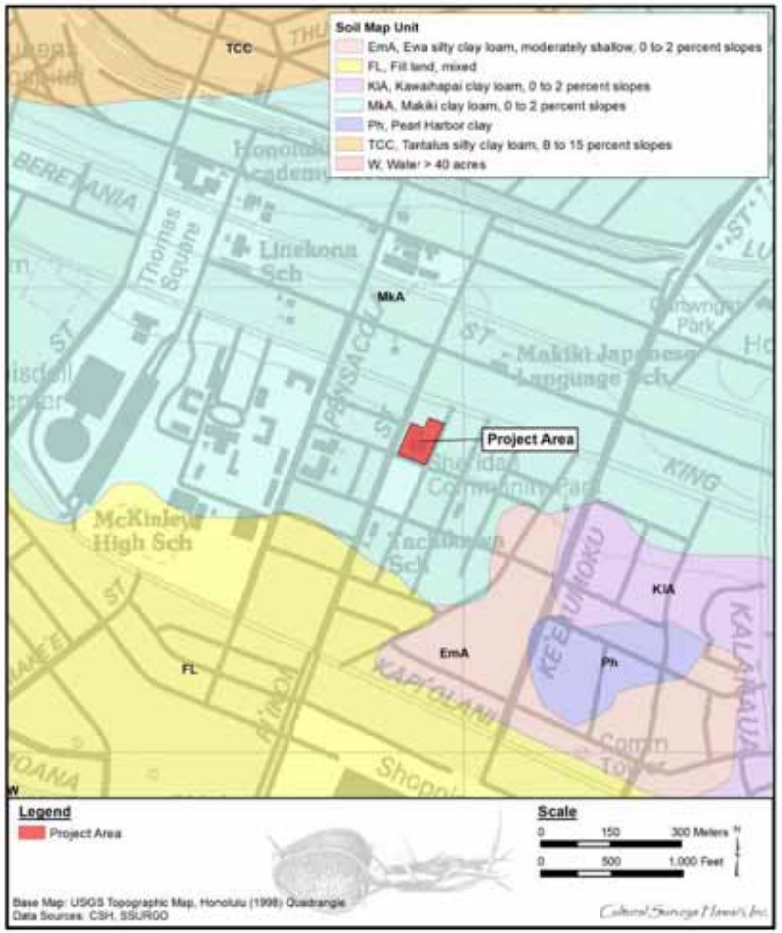

Figure 4. Overlay of *Soil Survey of the State of Hawaii* (Foote et al. 1972), indicating soil types within and surrounding the project area (U.S. Department of Agriculture Soils Survey Geographic Database [SSURGO] 2001)

Section 2 Methods

2.1 Field Methods

CSH completed the archaeological inventory survey (AIS) fieldwork under archaeological permit number 15-03, issued by the Hawai'i State Historic Preservation Division (SHPD) per HAR §13-13-282. Fieldwork was accomplished between 16 July 2015 and 17 July 2015 by David W. Shideler, M.A., Nathaniel S. Garcia, B.A., Mary L. Tardona, M.S., Abigail H. Langham, B.A., and Richard T. Stark, Ph.D. under the general supervision of Hallett H. Hammatt, Ph.D. This work required approximately 10 person-days to complete. In general, fieldwork included 100% pedestrian inspection of the unbuilt portions of the project area and systematic subsurface testing at locations distributed throughout the project area.

Informal, preliminary conversation with the SHPD archaeology branch chief confirmed the need for an archaeological inventory survey with subsurface testing prior to redevelopment of the project area, with special reference to the Ke'eaumoku Walmart case with approximately 64 burials roughly 300 m to the southeast of the project area. A field inspection of the 902 Alder Street project area was undertaken by David W. Shideler, M.A. of Cultural Surveys Hawai'i on 17 June 2015 to confirm the test excavation locations. The subsurface testing program was backhoe assisted in six test excavations. At one central location within the project area the use of a backhoe was not feasible and the trench was hand-dug using trowels and shovels. The test excavation trenches were all linear, measuring approximately 6 m (20 feet [ft]) long and 0.8 m (2 ft) wide (Figure 5). A stratigraphic profile of each test excavation was drawn and photographed. The observed sediments were described using standard USDA soil description observations/ terminology. Sediment descriptions included Munsell color; texture; consistence; structure; plasticity; cementation; origin of sediments; descriptions of any inclusions, such as cultural material and/or roots; lower boundary distinctiveness and topography; and other general observations. Where stratigraphic anomalies or potential cultural deposits were exposed, these were carefully represented on test excavation profile maps. Sediment samples, faunal remains, floral remains, and diagnostic artifacts were collected from these test excavations, analyzed, and described.

2.2 Laboratory Methods

Materials collected during AIS fieldwork were identified and catalogued at CSH's laboratory facilities on O'ahu. Analysis of collected materials was undertaken using standard archaeological laboratory techniques. Materials were washed, sorted, measured, weighed, described, and/or photographed.

2.2.1 Bulk Sediment Sample Analysis

Sediment samples collected from potential cultural strata and/or features were examined within the CSH laboratory to aid in characterizing the cultural content and chronology of these deposits. Samples were collected and screened in the field and/or collected as bulk samples. All samples were labeled with provenience information, and the volume of each sample was recorded so that comparisons could be made among samples. Samples screened in the field utilized 1/8-inch wire mesh to remove the sedimentary matrix from the cultural content (faunal, floral, and artifactual

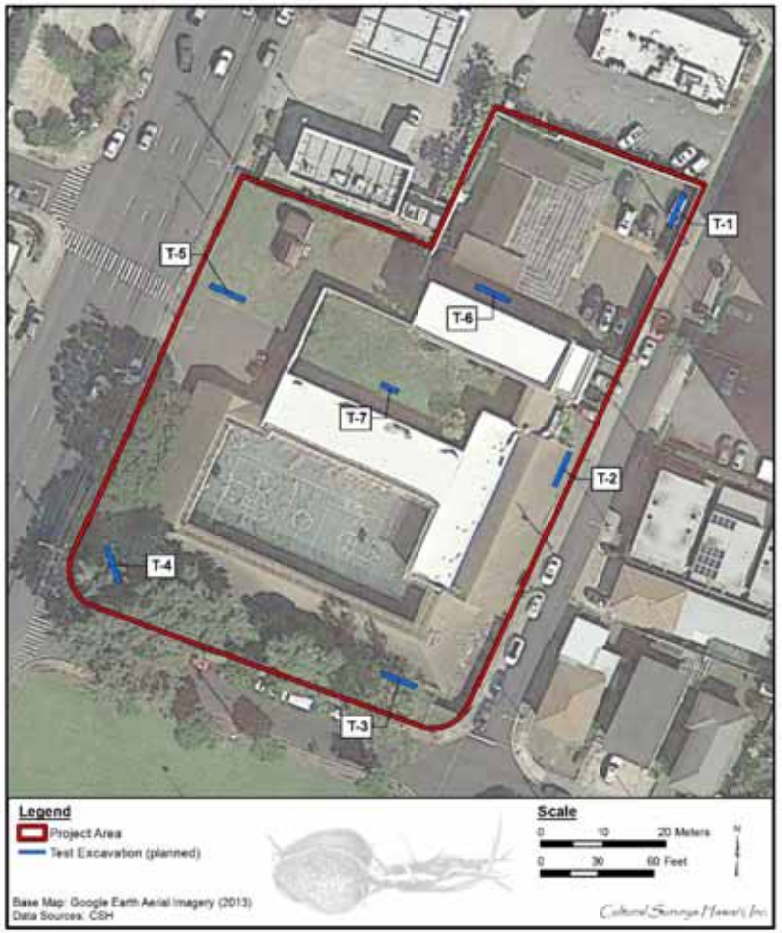

Figure 5. 2013 aerial photograph indicating the locations of test excavations within the project area

remains). In the lab, bulk sediment samples were screened through 1/16-inch wire mesh. Wet screening of samples was performed as necessary. As applicable, the cultural material was washed, sorted, measured, weighed, described, photographed, identified, and catalogued. Results of analysis are described in Section 6: Results of Laboratory Analysis.

2.2.2 Artifact Analysis

In general, artifact analysis focused on establishing, to the greatest extent possible, material type, function, cultural affiliation, and age of manufacture. As applicable, artifacts were washed, sorted, measured, weighed, described, photographed, and catalogued. Diagnostic (dateable or identifiable) attributes of artifacts were researched. Analyzed materials were tabulated and are presented in Section 6: Results of Laboratory Analysis.

2.2.3 Faunal Analysis

Faunal analysis focused on species identification as evidence of food consumption and socio-economics. Collected non-human vertebrate skeletal material was identified to the lowest possible taxa and analyzed using an in-house comparative collection and reference texts. A catalogue of all collected material was prepared and is presented in Section 6: Results of Laboratory Analysis.

2.2.4 Disposition of Materials

Materials collected during the current AIS (excluding human remains and grave goods) will remain temporarily curated at the CSH office in Waimānalo, O'ahu. Should the landowner request different archiving of material, an archive location will be determined in consultation with the SHPD. All data generated during the course of the AIS are stored at the CSH offices.

2.2.5 Research Methods

Background research included a review of previous archaeological studies on file at the SHPD; review of documents at Hamilton Library of the University of Hawai'i, the Hawai'i State Archives, the Mission Houses Museum Library, the Hawai'i Public Library, and the Bishop Museum Archives; study of historic photographs at the Hawai'i State Archives and the Bishop Museum Archives; and study of historic maps at the Survey Office of the Department of Land and Natural Resources. Historic maps and photographs from the CSH library were also consulted. In addition, Māhele records were examined from the Waihona 'Aina database (Waihona 'Aina 2000). This research provided the environmental, cultural, historic, and archaeological background for the project area. The sources studied were used to formulate a predictive model regarding the expected types and locations of historic properties in the project area.

Section 3 Background Research

The project area lies in an area known as Kulaokahu'a, "The Plains." This seems to have consisted of area in the *'ili* (land division, smaller than an *ahupua'a*) of Kaka'ako, Kewalo, Makiki, Pāwa'a, and Kamō'ili'ili (Fitzpatrick 1989:25). The project area is in the *mauka* (toward the mountains, inland) section of Kewalo, as can be seen on Bishop's 1884 map (Figure 6) and Wall's 1887 map of Honolulu (Figure 7), and thus would have been a part of Kulaokahu'a. Kulaokahu'a translates as "the plain of the boundary" (Pukui et al. 1974:123). This flat land was often identified as the Makiki Plains (Fitzpatrick 1989:26).

This area was known for its barrenness and aridity, as seen in an 1853 description by the American missionaries who lived on the eastern edge of Honolulu. Sereno Bishop, son of one of these Protestant missionaries, said

> . . . that by May or June there was much heat and dust, and no verdure in sight. The small mission herd had thoroughly depastured the plain which extended unbroken by house or tree to Punahou, while brown Punchbowl with its dry slopes frowned darkly above. [Bishop 1916:34]

Gorman Gilman remembered how this area appeared in the 1840s:

> Beyond the mission premises there was but one other building, the residence of Mr. and Mrs. A. Johnstone, who were the teachers in the Oahu Charity School, of which I wrote, I think, in my former communication. Beyond this was Kulaokahua, or the Plains, a dry, dusty waste without a shrub to relieve its barrenness. There were a couple of *hau* trees on the *mauka* side of the road covering the little cottage. On the seaward side, further out, was what was called 'Little Britain.'—the residence in later years of Capt. Luce and Mr. J.N. Wright. Between these two places, nothing but a most exceedingly dreary parcel of land with here and there a horse trail as path-way. [Gilman 1909:90–91]

3.1 Mythological and Traditional Accounts

In 1865, John Papa 'Ī'ī identified Kulaokahu'a as a "play ground, where the '*maika*' etc. was played" (Hawaii Commission on Boundaries, Kewalo in King 1989:26). *Maika* is a Hawaiian sport that uses a disc-shaped stone called an *'ulu maika* for a bowling type of game. Kulaokahu'a would have been a favorable place to play this sport. Pukui et al. (1974) state that the name "*makiki*" comes from the type of stone used to make octopus lures. This is the same type of stone used to make *'ulu maika*, and Fitzpatrick (1989:29) has speculated that the name of the *ahupua'a* may have originated from its association with the *maika* sport rather than, or in addition to, the making of octopus lures.

Several other legends are associated with this arid plain. Hi'iaka, sister of the goddess Pele, passed through this area before her departure from O'ahu:

> she wasted no time in leave-taking . . .Their route lay eastward across the dusty, wind-swept plain of Kula-o-kahu'a—destined in the coming years to be the field of many a daring feat of arms;—then through the wild regions of Ka-imu-ki, thickset with

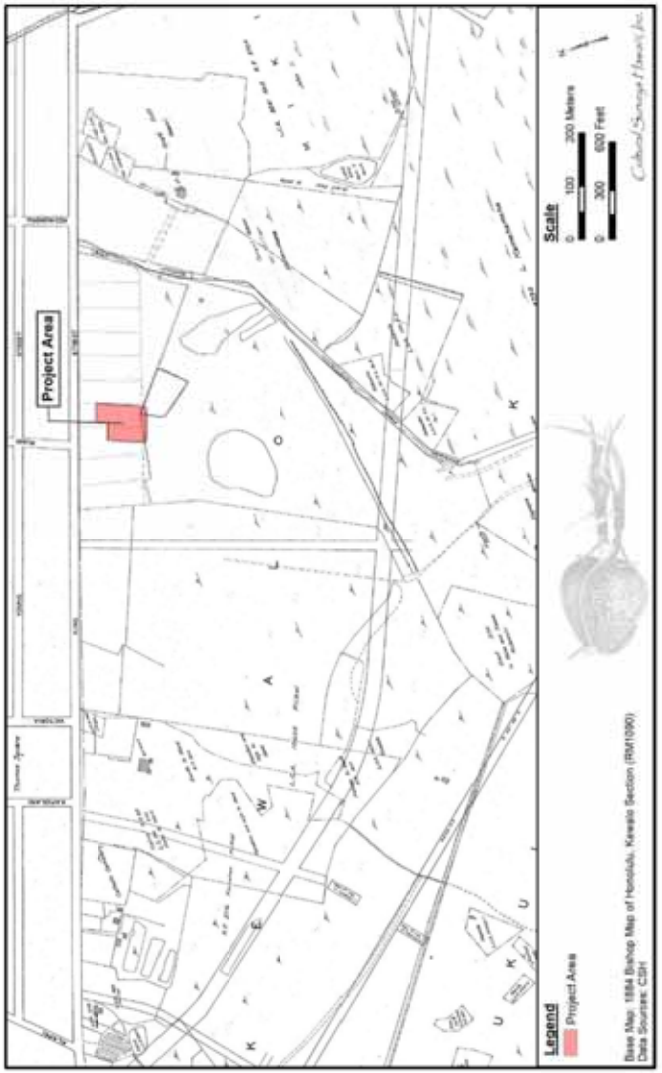

Figure 6. 1884 map of Honolulu, Kewalo Section (portion) by S.E. Bishop, indicating the project area within LCA 10605 to A. Pi'ikoi within the *'ili* of Kewalo

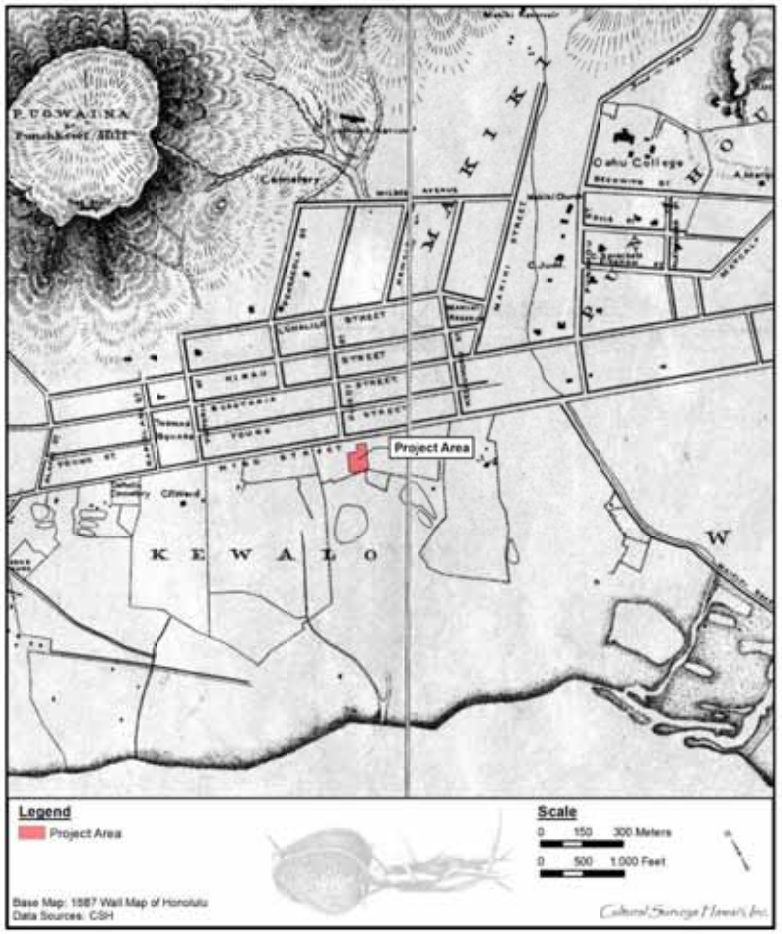

Figure 7. 1887 map of Honolulu and vicinity by W.A. Wall (portion), indicating the project area in the *'ili* of Kewalo in the *ahupua'a* of Makiki

> bowlders [*sic*]—region at one time chosen by the dwarf Menehune as a sort of stronghold where they could safely plant their famous *ti* ovens and be unmolested by the nocturnal depredations of the swinish Kama-pua'a. Hi'iaka saw nothing or took no notice of these little rock-dwellers. Her gaze was fixed upon the ocean beyond, whose waves and tides they must stem before they reached and passed Moloka'i and Maui, shadowy forms that loomed in the horizon between her and her goal. [Emerson 1915:185–186]

The description of this area as a playing field is repeated in the "Legend of Pikoi the Rat Killer." In this tale, a chief on Kaua'i had eight children, six "god daughters or demi-gods," one real daughter, and one real son. The real son, Pikoi, became a noted rat hunter on Kaua'i, using a bow and arrow to kill the rats. The real daughter moved to O'ahu and married the chief of Mānoa. One day Pikoi and his father decided to travel to O'ahu to visit their sister at Mānoa. While in O'ahu, Pikoi wandered from Mānoa toward the harbor at Honolulu. Pikoi impressed the chiefess and her followers by shooting at a hidden rat, and striking and entangling the whiskers of three rats in one shot. He then proceeded to kill an additional number of rats in one shot, all strung along the length of the arrow (Westervelt 1963:160).

This arid plain was also mentioned in the "Legend of Hanaaumoe" as a place that must be crossed to travel to the more agriculturally productive area of Nu'uanu. Halali'i, the king of the spirits, designated the spirit Hanaaumoe to guard the coasts of O'ahu. When canoes from other islands were seen, Hanaaumoe invited the crews to land and promised them food and wives. One day several canoes appeared with friends of the king of Kaua'i, including a lame man named Kaneopa. Hanaaumoe enticed them to land at Kou and sleep in the canoe shed while they waited for the food and wives that he had promised. When the spirit thought that everyone was asleep, he returned to the shed and said:

Kahea ana o Hanaaumoe, moe ea?	Asleep are you?
Halahala kau e,	Piled on one another,
Halahala kau e,	Scattered here and there,
Ua moe oukou?	Are you all asleep?

[Fornander 1919:5(2):433]

Only the man Kaneopa was awake. Beginning to suspect Hanaaumoe was a spirit who wished to eat the people, Kaneopa answered that all were awake and waiting for the food, meat, and wives promised. Hanaaumoe lied and said that these things could not arrive quickly since the road down from Nu'uanu (Valley) was long, the climb from Kapūkaki (crater near Pearl Harbor) was long, and the plain of Kulaokahu'a (plain in Makiki) was far off. When Kaneopa could stay awake no longer, he dug a hole under the sill of the house, knowing that if the king of the spirits came to the house, he would sit at this place of honor. Hanaaumoe came back to the house and again asked if everyone was sleeping. When he got no reply he summoned the rest of the spirits, including the king Halali'i, who sat on the sill of the house. The spirits ate all the people inside, and dug up the floor to search for anyone hiding. The only place they did not dig was the spot under the sill where the king was sitting. When the spirits left, Kaneopa came out of his hiding place, launched a canoe, and fled back to Kaua'i. He told the king of Kaua'i about the evil spirits. The king and his followers returned to O'ahu, bringing with them a number of wooden carvings made to look like men. They landed at Lē'ahi (Diamond Head). Hanaaumoe again enticed the people to land and sleep in the

canoe shed by promising food and wives. When Hanaaumoe left, the people left the wooden carvings in the shed and went back to their canoes to wait. The spirits with their king entered the shed and began to gnaw on the wooden idols. When all of the spirits were within, the Kaua'i people crept up on them and burned the house down (Fornander 1917:4(3):476–482; 1919:5(2):428–434).

This legend led to a Hawaiian saying, used to describe any broken promise of food, fish, etc.

He Lō'ihi o 'Ewa; he pali o	'Ewa is a long way off;
Nu'uanu; he kula o Kulaokahu'a;	Nu'uanu is a cliff; Kulaokahu'a is a dry plain;
He hiki mai koe.	but all will be here before long.
[Pukui 1983:84–85]	

As mentioned previously, portions of Kulaokahu'a were within the *'ili* of Kewalo (see Figure 6 and Figure 7). Kewalo literally means "the calling," as in an echo (Pukui et al. 1974:109). Kewalo once had a freshwater spring in the central portion (current location unknown), as seen in the proverb "*Ka wai hnahua'i o Kewalo,*" which translates as "The bubbling water of Kewalo." Two springs are mentioned in a traditional story of the Waters of Ha'o. This legend tells of two children of the chief Ha'o who ran away from their cruel stepmother. They stayed a time with the caretakers of Kewalo Spring, which may have been located close to the trail that connected Waikīkī and Honolulu. The children then left when they heard the chiefess had sent men to look for them. The two children followed the moonlit trail across the plain toward Kou (Honolulu), but finally collapsed from weariness and thirst. In a dream, the boy's mother told him to pull up a plant close to his feet. When he did, he found a spring under the plant, which was called the Water of Ha'o, or Kawaiaha'o. This spring is located at the western end of the trail, near Kawaiaha'o Church in Kaka'ako (Pukui 1988:87–89). The Kewalo area also once had a famous fishpond, which was used to drown members of a pariah caste (*kauwā*) or *kapu* (tabu) breakers as the first step in a sacrificial ritual known as *Kānāwai Kaihehe'e* (Kamakau 1991:6) or *Ke-kai-he'ehe'e*, which translates as "sea sliding along," suggesting the victims were slid under the sea (Westervelt 1963:16). Sterling and Summers describe Kewalo as follows:

> A fishpond and surrounding land on the plains below King Street, and beyond Koula. It contains a spring rather famous in the times previous to the conversion to Christianity, as the place where victims designed for the Heiau of Kanelaau on Punchbowl slopes, was first drowned. The priest holding the victim's head under water would say to her or him on any signs of struggling, 'Moe malie i ke kai o ko haku.' 'Lie still in the waters of your superiors.' From this it was called Kawailumalumai, 'Drowning waters.' [Sterling and Summers 1978:292]

Kewalo is mentioned in a legend as a marsh near the beach, where tall *pili* grass was growing. Kapoi went to this area to get thatching for his house. While there, Kapoi found seven owls eggs and took them home to cook for his supper. An owl perched on the fence surrounding his house and cried out, "O Kapoi, give me my eggs!" Kapoi eventually returned the eggs, and the owl became his family god and instructed him to build a *heiau* (place of worship) in Mānoa. Kapoi built the *heiau* and placed some bananas on the altar as a sacrifice. He also set the *kapu* (taboo) days for its dedication. The king of O'ahu, Kākuhihewa, who was building his own *heiau* in Waikīkī, had ruled that if any man among his people erected a *heiau* and set the *kapu* before him, that man should die. Kapoi was seized and taken to the *heiau* of Kūpalaha, at Waikīkī. The owl that Kapoi had first met secured the aid of the king of the owls at Owl's Hill (Pu'u Pu'eo) in

Mānoa, who gathered all of the owls of the islands; they flew to Kūpalaha and battled the king's men, who finally surrendered. From this time the owl was considered a powerful *akua* (god). The battle area was known as Kukaeunahio-ka-pueo, which means "the confused noise of owls rising in masses" (Poepoe 1998:200–202; Westervelt 1963:132–135). Kewalo was also the birthplace of the great chief Hua-nui-ka-la-la'ila'i (Hua), as mentioned in this *mele* (story) chanted by Kamakau (1991:24):

'O Hua-a-Kamapau ke 'li'i	Hua-a-Kamapau the chief
O Honolulu o Waikīkī	O Honolulu, of Waikīkī
I hānau no la i kahua la i Kewalo,	Was born at Kewalo,
'O Kālia la kahua	Kālia was the place [the site]
O Makiki la ke ēwe,	At Makiki the placenta,
I Kānelā'au i Kahehuna ke piko,	At Kānelā'au at Kahehuna the navel cord,
I Kalo i Pauoa ka 'a'a;	At Kalo at Pauoa the caul;
I uka i Kaho'iwai i Kanaloaho'okau . . .	Upland at Kaho'iwai, at Kanaloaho'okau. . .

The chief Hua was famous for his love of cultivation and his care for the people. His *heiau* was in Kukuluāe'o in Honolulu, called Pu'ukea; it is mentioned in a traditional *wānana* (prophecy) recorded by Kamakau (1991:24–25).

[Ka makaua ua kahi o 'Ewa]	[The increasing 'first rain' of 'Ewa]
Ua puni ka i'a o Mokumoa,	Overcomes the fish of Mokumoa,
Ua kau i'a ka nene;	Washes up fish to the nene plants;
Ua ha'a kalo ha'a nu;	Lays low the taro as it patters down;
Ha'a ka i'a o kewalo,	Lays low the fish of Kewalo,
Ha'a na 'uala o Pahua,	Lays low the sweet potatoes of Pahua,
Ha'a ka mahiki i Pu'ukea,	Lays low the mahiki grass at Pu'ukea,
Ha'a ka umuunu i Pele'ula,	Lays low the growing things at Pele'ula
Ha'a Makaaho i ke ala.	Lays low Makaaho [Makāho] in its path
E Kū e, ma ke kaha ka ua, e Kū,	O Kū, the rain goes along the edge [of the island], O Kū
[i 'ai 'na ka i'a o Maunalua] . . .	['Eating' the fish of Maunalua] . . .

From these legendary accounts it can be seen that Kewalo was traditionally noted for its fishponds, its marsh lands where *pili* grass could be collected, for ceremonial sites such as the Kewalo spring and the fishpond at which sacrifices were made, and for its trails that allowed transport between the more populated areas of Waikīkī and Honolulu (see discussion in following section). Important chiefs were born in the area and conducted religious rites, and commoners traveled to the area to procure food and other resources; some commoners probably also lived in the area, possibly adjacent to the fishponds and the trails.

3.2 Pre-Contact to Early 1800s

Kewalo and the plains area called Kulaokahu'a were between two centers of population and activity in pre-Contact O'ahu, Kou and Waikīkī. In Waikīkī a system of irrigated taro *lo'i* (irrigated fields) fed by streams descending from Makīki, Mānoa, and Pālolo valleys blanketed the Waikīkī plain, and networks of fishponds dotted the shoreline. Similarly, Kou—the area of the present

downtown Honolulu surrounding Honolulu Harbor—possessed shoreward fishponds and irrigated fields watered by streams from Nu'uanu and Pauoa valleys. Kewalo's "identity"—its pre-Contact population and activity patterns—may have derived from its relationship to these two densely populated areas; it may have participated in some of the activities associated with Kou and Waikīkī. A basic description of Honolulu and Kou up to Western Contact is given by E.S. Craighill Handy and Elizabeth Handy:

> What is now Honolulu was originally that flatland area between the lower ends of Nu'uanu and Pauoa Valleys and the harbor. [W.D.] Westervelt . . . wrote that '"Honolulu" was probably a name given to a very rich district of farm land near what is now . . . the junction of Liliha and School Streets, because its chief was Honolulu, one of the high chiefs of the time of Kākuhihewa. . . .' It is probable that the chief referred to by Westervelt took his name from the harbor and adjoining land. The original name of the land where the town grew when the harbor became a haven for foreign ships was Kou. . . . The number of *heiau* in this area indicates that it was a place of first importance before the era of foreign contact. [Handy and Handy 1972:479]

Rev. Hiram Bingham, arriving in Honolulu in 1820, described a still predominantly Hawaiian environment—still a "village"—on the brink of western-induced transformations:

> We can anchor in the roadstead abreast of Honolulu village, on the south side of the island, about 17 miles from the eastern extremity. . . . Passing through the irregular village of some thousands of inhabitants, whose grass thatched habitations were mostly small and mean, while some were more spacious, we walked about a mile northwardly to the opening of the valley of Pauoa, then turning southeasterly, ascending to the top of Punchbowl Hill, an extinguished crater, whose base bounds the northeast part of the village or town. . . . Below us, on the south and west, spread the plain of Honolulu, having its fishponds and salt making pools along the seashore, the village and fort between us and the harbor, and the valley stretching a few miles north into the interior, which presented its scattered habitations and numerous beds of *kalo* (*arum esculentum*) in its various stages of growth, with its large green leaves, beautifully embossed on the silvery water, in which it flourishes. [Bingham 1981:92–93]

The Kewalo region would have been in Bingham's view as he stood at "Punchbowl Hill" looking south toward Waikīkī: it would have comprised part of the area he describes as the "plain of Honolulu" with its "fishponds and salt making pools along the seashore." Another visitor to Honolulu in the 1820s, Jacobus Boelen, hints at the possible pre-Contact character of Honolulu and its environs, including the Kewalo area:

> It would be difficult to say much about Honoruru. On its southern side is the harbor or the basin of that name (which as a result of variations in pronunciations [*sic*] is also written as Honolulu, and on some maps, Honoonoono). The landlocked side on the northwest consists mostly of *tarro* fields. More to the north there are some sugar plantations and a sugar mill, worked by a team of mules. From the north toward the east, where the beach forms the bight of Whytetee, the soil around the village is less fertile, or at least not greatly cultivated. [Boelen 1988:62]

Boelen's description suggests preliminarily that the Kewalo region and the present project area are within a "not greatly cultivated" region of Honolulu perhaps extending from Pūowaina (Punchbowl Crater) at the north through Kaka'ako to the Kālia portion of Waikīkī in the east. The traditional Hawaiian focus on Waikīkī as a center of chiefly and agricultural activities on southeastern O'ahu was soon to change, disrupted by the same Euro-American contact that produced the first written documentation of that traditional life. Honolulu, with the only sheltered harbor on O'ahu, became the center for trade with visiting foreign vessels, drawing increasing numbers of Hawaiians away from their traditional environments. This shift in preeminence is illustrated by the fact that Kamehameha moved his residence from Waikīkī to Honolulu. By the 1830s and 1840s, disease, the demands on labor for the sandalwood trade, and other factors had led to a general depopulation of the Kewalo area by Native Hawaiians. The irrigated taro *lo'i* and the fishponds were neglected and began to be filled in with sediments. In 1828, the missionary Levi Chamberlain observed the following:

> [W]e took a path on our right leading through a grove of tall cocoanut trees toward Waikiki—our path led us along the borders of extensive plats of marshy ground, having raised banks on one or more sides, and which were once filled with water, and replenished abundantly with esculent fish; but now over grown with tall rushes waving in the wind. The land all around for several miles has the appearance of having once been under cultivation. I entered into conversation with the native respecting this present neglected state. They ascribed it to the decrease of population . . . [Chamberlain 1957:26]

An early, somewhat generalized depiction of the pre-Contact Native Hawaiian shaping of Waikīkī, Honolulu, and the Kewalo region is given on an 1817 map by Otto von Kotzebue, commander of the Russian ship *Rurick*, who had visited O'ahu during the previous year. The map (Figure 8) shows taro *lo'i* (the rectangles) massed around the streams descending from Nu'uanu and Mānoa valleys and a wall terminating near the southwestern boundary of the project area defining an area that Kotzebue labeled "cemetery." Kotzebue's map suggests the land between Pūowaina (Punchbowl Crater) and the shoreline—which would include the Kewalo area—formed a "break" between the heavily populated and cultivated centers of Honolulu and Waikīkī. The area is characterized by fishponds, trails connecting Honolulu and Waikīkī, and occasional taro *lo'i* and habitation sites. The Malden map of 1825 (Figure 9) also supports this concept of a break between more heavily populated areas to the west (Kou) and east (Waikīkī).

John Papa 'Ī'ī (1959:92) described many of the major trails in the Honolulu and Waikīkī area during the early nineteenth century (Figure 10). The main cross-*ahupua'a* trail extended from Honolulu (Honuakaha) to Wai'alae (King Street and Wai'alae Avenue). In the mid-nineteenth century, Gilman described Kulaokahu'a, the arid Honolulu plains, as "a most exceedingly dreary parcel of land with here and there a horse trail as path-way" (Gilman 1909:90–91). From 1840 to 1875, only a few unpaved roads were in the area, probably along the present course of King, Young, Beretania, and Punahou streets. These roads or horse paths "ran a straggling course which changed as often as the dust piled up deep" (Clark 1939:12). It is possible some minor foot trails or horse paths once approximated the project area, but there is no definite evidence for this from the historic archival material prior to 1887. Two of these trails are illustrated in an 1840 sketch by a member of the Wilkes expedition (Figure 11). This drawing shows a cluster of houses near the Honolulu Harbor and a second cluster in the far background at Waikīkī, in front of Diamond

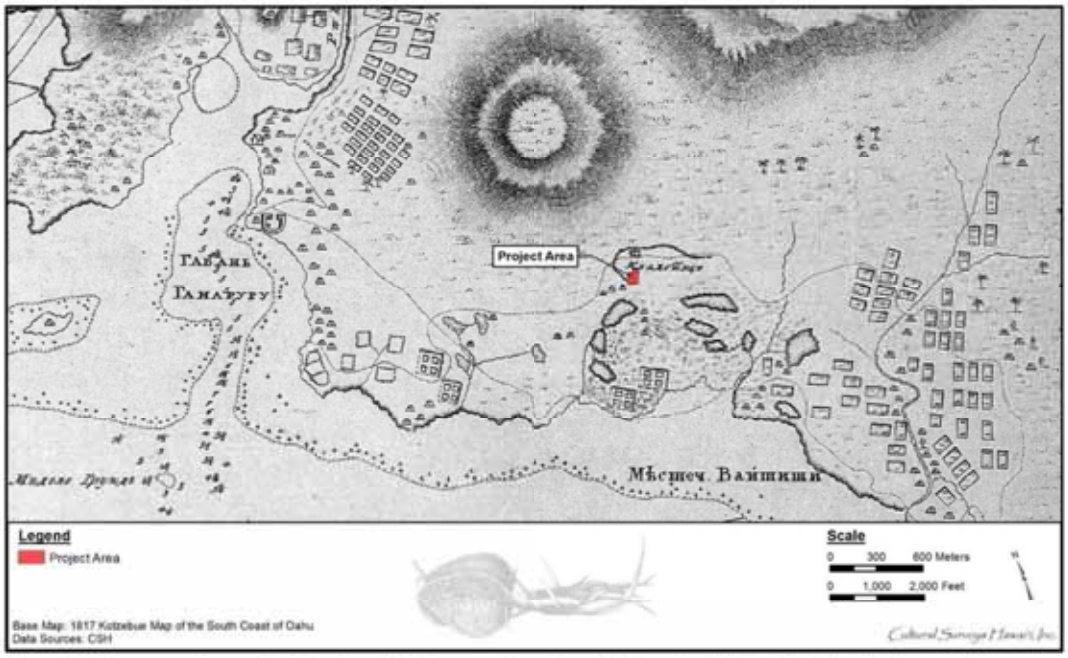

Figure 8. 1817 map (portion) made during the visit of Otto von Kotzebue of the Russian Ship *Rurick*, indicating the approximate location of the project area; note location of cemetery (labeled in Russian as "Кладбище," meaning "Cemetery of Foreigners") (map reprinted in Fitzpatrick 1986:49)

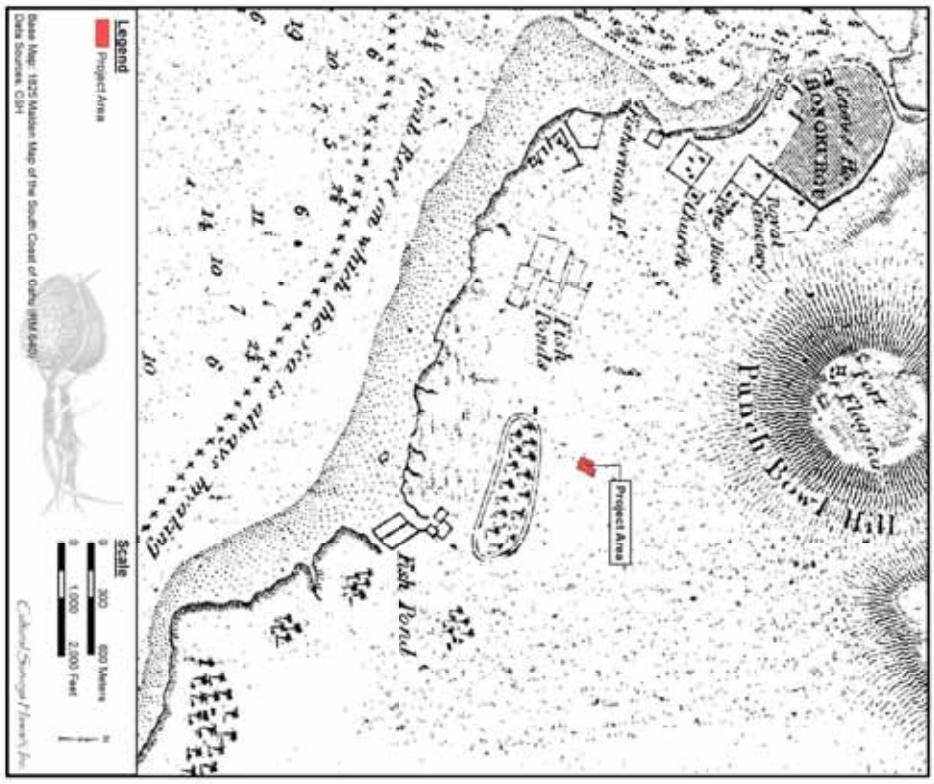

Figure 9. 1825 Malden map of the south coast of O'ahu, indicating the location of the project area

Figure 10. Map of O'ahu trails ca. 1810, drawn by Paul Rockwood based on information from 'Ī'ī (figure in 'Ī'ī 1959-93); map not to scale; indicating the approximate location of the project area

Figure 11. 1840 Wilkes Expedition sketch of Honolulu and Waikīkī by James Dwight Dana (portion), showing two cross-*ahupua'a* trail alignments and scattered habitations; note the *mauka* trail (now approximated by King Street), between Kawaiaha'o Church (two-story building at left), the *makai* trail to Diamond Head Crater (now covered by the Queen Street/Kalākaua Avenue alignment) and limited habitation in the vicinity of the project area in the far right to central portion of the illustration (reprinted in Scott 1968:58–59)

Head Crater. The *makai* (seaward) trail from Honolulu Harbor to Waikīkī is now generally covered by Queen Street and Kalākaua Avenue. This would have been seaward of the present project area. The *mauka* trail generally aligns with King Street and Wai'alae Avenue (Kuykendall 1965:112). In the 1840 sketch, this *mauka* trail extends from Kawaiaha'o Church to the coconut grove at "Little Britain," east of Pensacola Street.

3.1 Early Historic Period

A clearer picture of Kewalo and the present project area develops with accounts of other visitors to—and settlers of—Honolulu during the first half of the nineteenth century. Gorman D. Gilman, who arrived in Honolulu in 1841, recalled in a memoir the limits of Honolulu during the early 1840s:

> The boundaries of the old town may be said to have been, on the *makai* side, the waters of the harbor; on the *mauka* side, Beretania street; on the Waikiki side, the barren and dusty plain, and on the Ewa side, the Nuuanu Stream. [Gilman 1904:97]

The plain was called "Kulaokahua," a dry, dusty area without a shrub to relieve its barrenness. From 1840 to 1875, only a few unpaved roads were in the area, probably along the present course of King, Young, Beretania, and Punahou streets. These roads "ran a straggling course which changed as often as the dust piled up deep" (Clark 1939:12). There were several horse paths crisscrossing the Kulaokahu'a Plains. The flat plains were also perfect for horse racing, and the area between present-day Pi'ikoi and Makiki streets were a well-known racing track (Peterson 1984:371). Gilman further describes the "barren and dusty plain" beyond (east of) Punchbowl Street:

> The next and last street running parallel [*mauka/makai*] was that known as Punchbowl Street. There was on the entire length of this street, from the *makai* side to the slopes of Punchbowl, but one residence, the two-story house of Mr. Henry Diamond, *mauka* of King Street. Beyond the street was the old Kawaiahao church and burying ground. A more forsaken, desolate-looking place than the latter can scarcely be imagined. One to see it in its present attractiveness of fences, trees and shrubbery, can hardly believe its former desolation, when without enclosure, horse and cattle had free access to the whole place. [Gilman 1904:89]

That the Kaka'ako environs of the missionary enclave and Kawaiaha'o Church were indeed "forsaken" and "desolate-looking" in the 1820s when the missionaries were first settled there is confirmed in the memoirs of the American missionary C.S. Stewart. Arriving on Maui after living at Kaka'ako, Stewart declared Lahaina to be "like the delights of an Eden" after "four weeks' residence on the dreary plain of Honoruru" (Stewart 1970:177). It is likely these descriptions of the Honolulu plain also include—at least for western sensibilities—the Kewalo region beyond Kaka'ako.

The mid-nineteenth century was a period of rapid change for Honolulu. An excellent overview of Honolulu from the harbor to Beretania Street ca. 1850, constructed by Albert Peary, is located

at the Judiciary History Center across from the 'Iolani Palace. Reverend Sereno Bishop offered a unique perspective on the changes in the layout of Honolulu and the structures that lined the streets:

> When I returned to Honolulu in 1853, after an absence of thirteen years, I was struck by the many changes. . . . [in 1840] the major portion of the residents of Honolulu still lived in thatched houses. In fact the town was almost entirely composed of this kind of dwellings. . . .
>
> When I went away there were only Punchbowl Road, Beretania Street, King Street and Merchant Street. This was the condition of the city in 1840. . . .
>
> The settled portion of the city was then substantially limited by the present Alapai and River streets and mauka at School Street. There was hardly anything outside of those limits and the remainder was practically an open plain.
>
> Above Beretania Street, on the slopes and beyond Alapai Street, there was hardly a building of any nature whatever. . . .
>
> The plains remained open until within twenty-five years [ca. 1878], before there was any building there of any description. [Bishop 1916:58]

The 1855 La Passe map of Honolulu (Figure 12) appears to show significantly more enterprise in the area between Honolulu and Waikīkī than previous maps show. Particularly notable are the depiction of a second east/west artery *mauka* of King Street approximating today's Beretania Street and also the new indications of enterprise close to the coast.

3.2 The Māhele and the Kuleana Act

The Organic Acts of 1845 and 1846 initiated the process of the Māhele—the division of Hawaiian lands—which introduced private property into Hawaiian society. In 1848, the crown, the Hawaiian government, and the *ali'i* (royalty) received their land titles. Subsequently in the Māhele, Land Commission Awards (LCAs) for *kuleana* (tenant) parcels were given to commoners and others who could prove residency on and use of the parcels they claimed. Land Commission Award records document awardees continuing to maintain fishponds and irrigated and dryland agricultural plots, though on a greatly reduced scale than had been previously possible with adequate manpower.

An 1884 Hawaiian Government survey map by S.E. Bishop of the area from Honolulu to Waikīkī (see Figure 6) provides a detailed record of the physical landscape of the coast between Honolulu and Waikīkī before the transformations of the twentieth century. The map reveals an extensive marsh extending from near Alapai and King Streets at the northwest toward Waikīkī with small LCAs and land grants scattered near the coast. Development is predominantly on the higher, drier, *mauka* side where Beretania and King streets are now separated by the parallel Young Street and *mauka/makai* streets such as Pi'ikoi now appear (although notably ending at King Street on the south side). It appears Kapi'olani Boulevard is in a planned stage but is not yet a reality. A portion of LCA 10605, awarded to Kamake'e Pi'ikoi (the award is shown on the 1884 Bishop map in the general vicinity of the project area), a member of the *ali'i*, comprised the entire *'ili 'āina* of Kewalo (270.84 acres). Kamake'e Pi'ikoi was a member of the *ali'i* and the younger sister of the wet nurse to Kauikeaouli, who later became Kamehameha III. She was also the wife of Iona Pi'ikoi who served both Kauikeaouli, and before him Liholiho (Kamehameha II) (Kame'eleihiwa 1992:276). The two actually shared the award and it was managed by Iona Pi'ikoi after his wife's death. Documents related to this large award—LCA 10605—reveal little of the actual character of

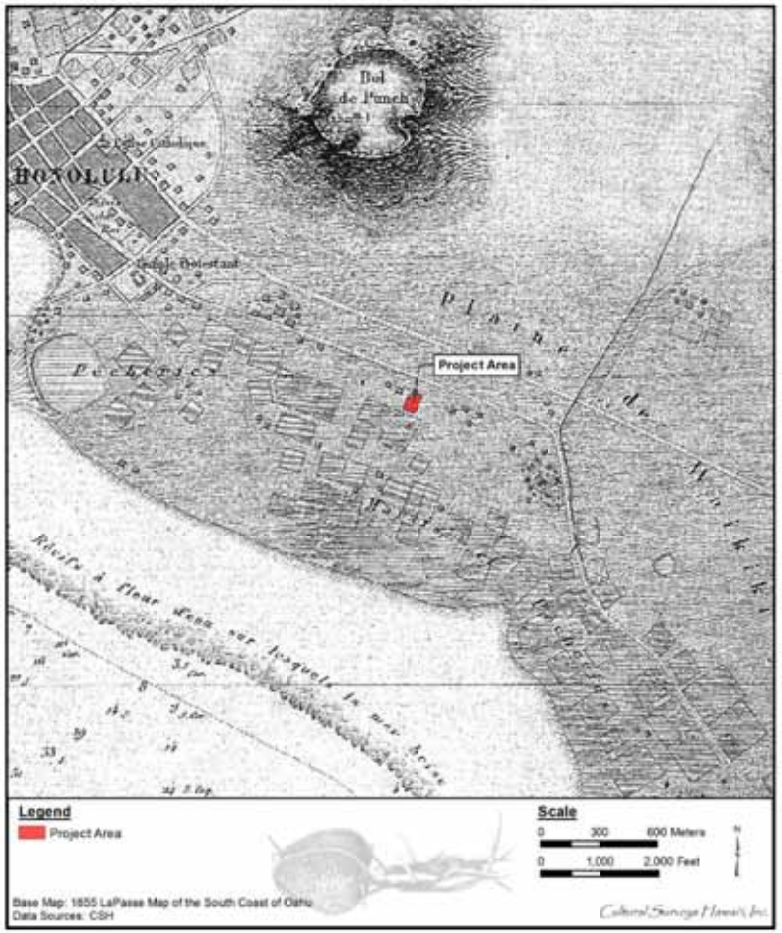

Figure 12. 1855 La Passe map of Honolulu indicating the location of project area

the land. However, records for other awards—including testimonies entered for smaller *kuleana* awards to individuals living in the area—give a more detailed picture of Kewalo. A large portion of the Kulaokahu'a Plains was awarded to the Crown in March 1848 (Fitzpatrick 1989:54) during the Māhele. These Crown lands, set aside for the Hawaiian monarchy, were often sold to private individuals. The remaining land in the lower portion of Makiki and in the Kulaokahu'a Plains became government land, which could be sold to private individuals as "Land Grants." The present project area is within this Government Land.

3.2.1 Mid- to Late 1800s

The *mauka* section of the Kulaokahu'a was designated government lands and was divided into lots and sold to private individuals between 1877 and 1882. Kulaokahu'a was one of the earliest planned blocks in Honolulu. People at first apparently bought the numbered lots as an investment, since the owner names on the lots changed frequently. Only a few people in the mid-nineteenth century O'ahu tax books are listed as actually living in Kulaokahu'a or on "the plains" (Fitzpatrick 1989:28). T. Blake Clark has noted that "the settling of the Plains did not come until the 1880s, after water was brought from Makiki Valley" (Clark 1939:12).

Two developments in the Kewalo area during the second half of the nineteenth century—Thomas Square and the "Old Plantation"—are paradigmatic of western-conceived and induced change imposed on the landscape. Thomas Square (see Figure 6), named for Admiral Richard Thomas who in July 1843 had restored the Hawaiian flag to Kamehameha III at that site, was designed by Archibald S. Cleghorn in 1875. In 1870, Cyrus P. Ward bought the property across King Street from Thomas Square at auction for $2,450 from the estate of the late J. Booth. The property originally consisted of 17 acres with a fishpond but by 1875, Ward's property comprised 30 acres. Five years later he built a home on the property called "The Old Plantation" (Figure 13). An article in the *Pacific Commercial Advertiser* (4 September 1875) reported the following:

> In taking a drive out on the Kulaokahua continuation of King Street, attention is attracted to the premises just beyond the Catholic cemetery, the property of Mr. C.P. Ward. The lot consists of some thirty acres, and is thickly planted with algaroba and, in rows, there are some seven thousand thrifty young cocoanut trees. . . . The algarobas will certainly be valuable as firewood, and the cocoanuts alone will in a few years produce a handsome income. The property is well watered by means of pumps driven by windmills, there being an inexhaustible supply of water a few feet below the surface of the plains. [*Pacific Commercial Advertiser* 4 September 1875]

Figure 14 also indicates that in 1893 the area to the south of the project area was swampy, with a pond approximately 150 m to the southwest. Further, the rectilinear corral in the southeast corner of the project area is still intact after fist appearing on the 1884 and 1887 maps (see Figure 6 and Figure 7). The pond southwest of the project area is still in existence in 1897 (Figure 13) and a house has been built on the west-central boundary of the project area, labeled as the property of H.M. Whitney.

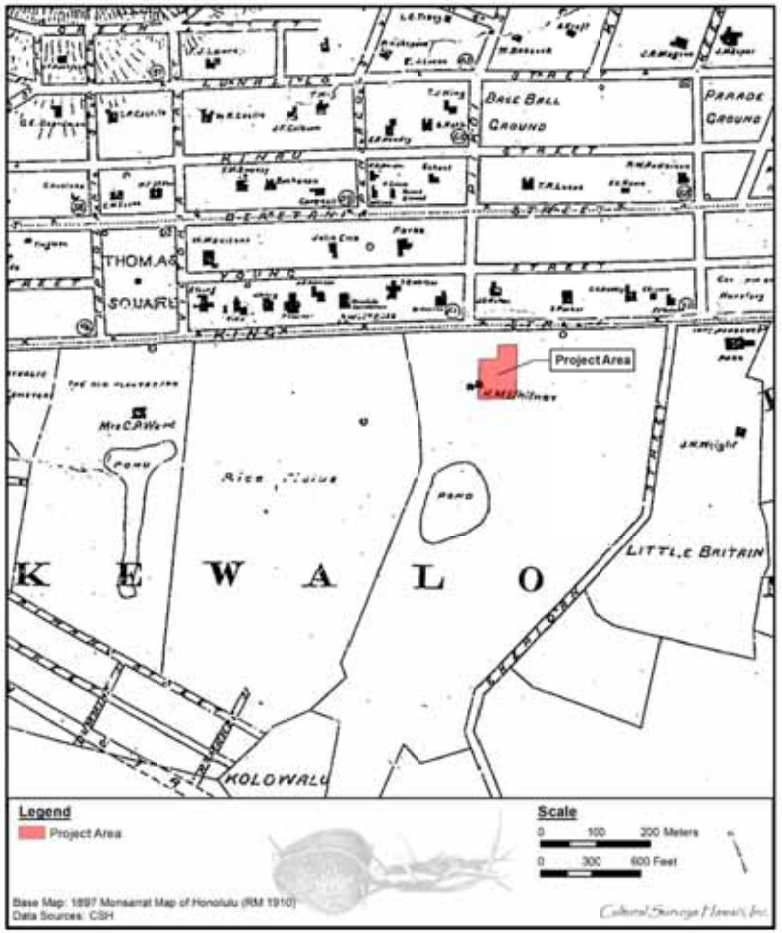

Figure 13. 1897 Monsarrat map of Honolulu indicating the Old Plantation (right center) and the house of H.M. Whitney on the boundary of the project area

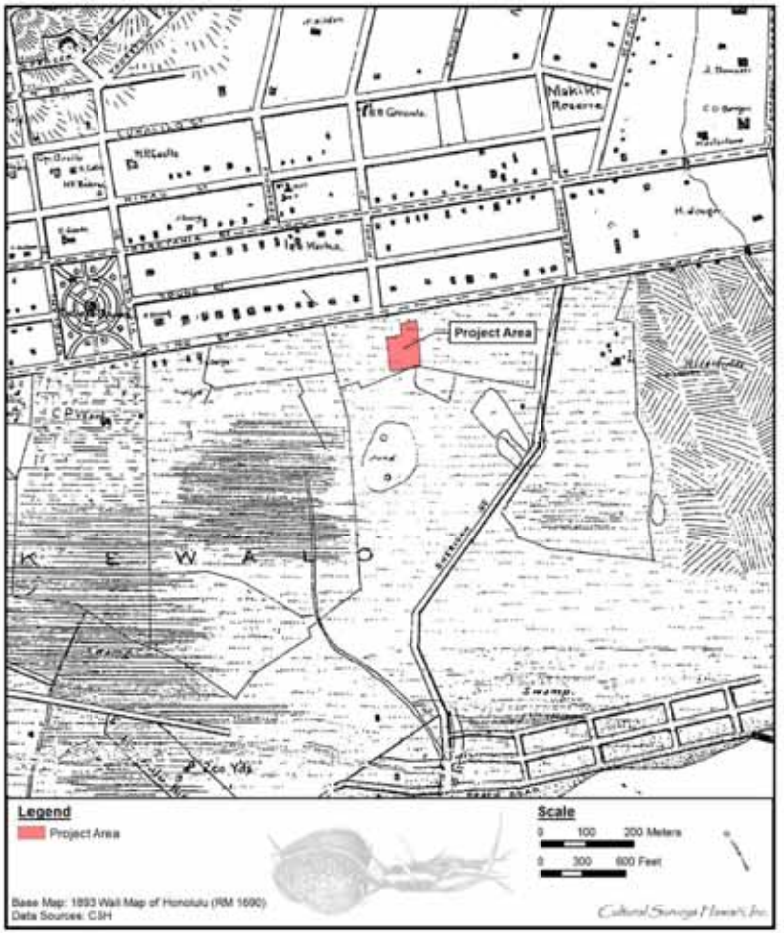

Figure 14. 1893 Wall map of Honolulu, indicating the location of the project area

Henry Martin Whitney (1824-1904) (Figure 15), the son of missionaries Mrs. Mercy Partridge Whitney and Samuel Whitney, moved to O'ahu in 1850 with his wife Catherine Olivia March (Hawaiian Mission Children's Society 1969:198–199). H.M. Whitney served as first postmaster general in Hawai'i in 1850 and was elected to the house of representatives of the legislature of the Hawaiian Kingdom in 1855. In 1856, he produced the first issue of the *Pacific Commercial Advertiser* and in 1861 he established *Ka Nupepa Kū'oko'a*, a Hawaiian language newspaper designed to monopolize the Hawaiian language press by out-producing its competitor, *Ka Hoku o ka Pakipika*. The *Pacific Commercial Advertiser* would eventually become the *Honolulu Advisor* (Krauss 2009:7–11). In 1875, Whitney published the first guide to Hawai'i for tourists, *The Hawaiian Guide Book for Travelers* (Whitney 1875), began publishing the *Marine Bulletin* in 1882, and in 1883 he was reappointed as Honolulu's postmaster general. The *Marine Bulletin* was eventually purchased by James Robison and became the *Honolulu Star-Bulletin,* which ceased publication in 2010 when it merged with the *Honolulu Advertiser* to become the *Honolulu Star-Advertiser*, currently the largest daily newspaper in Hawai'i (Krauss 2009:7–11). An unapologetic Puritan, Whitney was outspoken in his critique of traditional Native Hawaiian cosmological beliefs and the Hawaiian monarchy. In 1866, he rejected Samuel Clemens' (Mark Twain) application for employment and although the two shared cigars, Clemens' letters indicate satirical animosity toward Whitney:

> I am going chiefly, however, to eat the editor of the Commercial Advertiser for saying I do not write the truth about the Hawaiian Islands, and for exposing my highway robbery in carrying off Father Damen's book—History of the Islands. I shall go there might hungry. Mr. Whitney is jealous of me because I speak the truth so naturally, and he can't do it without taking the lock-jaw. But he ought not to be jealous; he ought not to try to ruin me because I am more virtuous than his is; I cannot help it—it is my nature to be reliable, just as it is his to be shaky on matters of fact—we cannot alter these natures—us leopards cannot change our spots. Therefore, why growl?—why go and try to make trouble? If he cannot tell when I am writing seriously and when I am burlesquing—if he sits down solemnly and take one of my palpable burlesques and reads it with a funereal aspect, and swallows it as petrified truth,—how am I going to help it? I cannot give him the keen perception that nature denied him—now can I? Whitney knows that. Whitney knows he has done me many a kindness, and that I do not forget it, and am still grateful—and he knows that if I could scour him up so that he could tell a broad burlesque from a plain statement of fact, I would get up in the night and walk any distance to do it. You know that, Whitney. But I am coming down there mighty hungry—most uncommonly hungry, Whitney. [Samuel Clemens in Zmijewski 2006:55–95]

An 1887 map by the surveyor W.A. Wall (see Figure 7) shows the new Pensacola Street but only that portion extending *mauka* from Beretania Street. Virtually no houses are shown in the vicinity of the project area at that time; a few fences are shown in the vicinity of the project area *makai* of King Street. In 1897 (see Figure 13) the street system is much the same but there has been considerable home building *mauka* of King Street. Rice cultivation is indicated in the low-lying lands that would soon become McKinley High School.



Figure 15. Henry Martin Whitney, Sr. (1824-1904) (photo from the *Hawaiian Gazette*, 14 April 1903)

3.2.2 1900s

In the early twentieth century the process of urbanization extended seaward east of Pi'ikoi Street as far as Sheridan Street including the creation of the "ABC tree" streets: Alder, Birch, and Cedar. The east/west streets stubbed out just west of Pi'ikoi Street as they encountered the low-lying marsh lands (Figure 16 and Figure 17). Before 1914, the project area held a shed next to a dwelling (Figure 18).

During the 1920s the Honolulu and Waikīkī landscape was transformed when construction of the Ala Wai Drainage Canal—begun in 1921 and completed in 1928—resulted in the draining and filling in of the remaining ponds and irrigated fields of Waikīkī. The canal was one element of a plan to urbanize Waikīkī and the surrounding districts. During the course of the Ala Wai Canal's construction, the banana patches and ponds as far *mauka* as the location of McKinley High School were filled. The land surface of much of Honolulu is the result of this decade-long dredging and fill project which included the creation of the Ala Wai Canal. In Nakamura's (1979:113) *The Story of Waikīkī and the "Reclamation" Project*, he writes that this land "'reclamation' program changed the ecology of the area from a once viable and important agriculture and aquaculture center . . . destroyed by profit-seeking capitalist entrepreneurs. . . under the subterfuge of 'drainage' and 'sanitation.'" Many of the original property owners lost their land or had serious damage to their property as a result of the reclamation activities and/or the costly expense of the mandatory filling in of their properties. Information is minimal about the actual dredging and fill process as well as the dredged materials used for fill.

It is known that in 1922 fill was pumped from the Ala Wai to the McKinley High School site (Griffin et al. 1987:58). The 1920 Monsaratt map of Honolulu (Figure 19) indicates the "Proposed McKinley High School" west of the project area, Kapi'olani Boulevard south of the project area is incomplete with a portion "Proposed," as well as a "Proposed Boulevard," a never built extension of Makaloa Street that would have passed through the southern portion of the current footprint of McKinley High School. A 1927 Kaka'ako coast aerial photograph (Figure 20) shows the newly infilled land west of the project area with the new McKinley High School. Neither Kapi'olani Boulevard nor the southern extension of Pensacola Street *makai* of King Street have been constructed. However, a 1933 U.S. Army War Department Fire Control map (Figure 22) shows the former fishponds and rice fields have been filled and leveled for development and a new portion of Pensacola Street extends down to the new Kapi'olani Boulevard. In 1928, work began on Kapi'olani Boulevard, commencing at the intersection of South and King streets. By 1931, the boulevard had reached Sheridan Street. Pensacola Street, named for the USS *Pensacola,* had been laid out in the nineteenth century but did not extend *makai* past King Street until the mid-1930s. By 1943 (Figure 23), only the smaller side streets remained unimproved (unpaved). There were still surprisingly few buildings adjacent to the east side of Pensacola Street seaward of King Street. By 1951 (Figure 24), the east side of Pensacola Street seaward of King Street had largely been filled in with new homes. Figure 24 and Figure 25 indicate portions of the extant facility were built by 1950. By 1953, the built portion of the project area appears much as it does today (Figure 26) and by 1969 (Figure 27), a USGS topographic map shows the built appearance of the vicinity surrounding the project area much as it appears today.

Hawaiian directories of 1871-1924 (Bennett 1871; Bowser 1880; Husted 1892–1910; Lane 1890; McKenney 1884; McKenney Directory Co. 1888, 1889; Polk-Husted Directory Co. 1912,

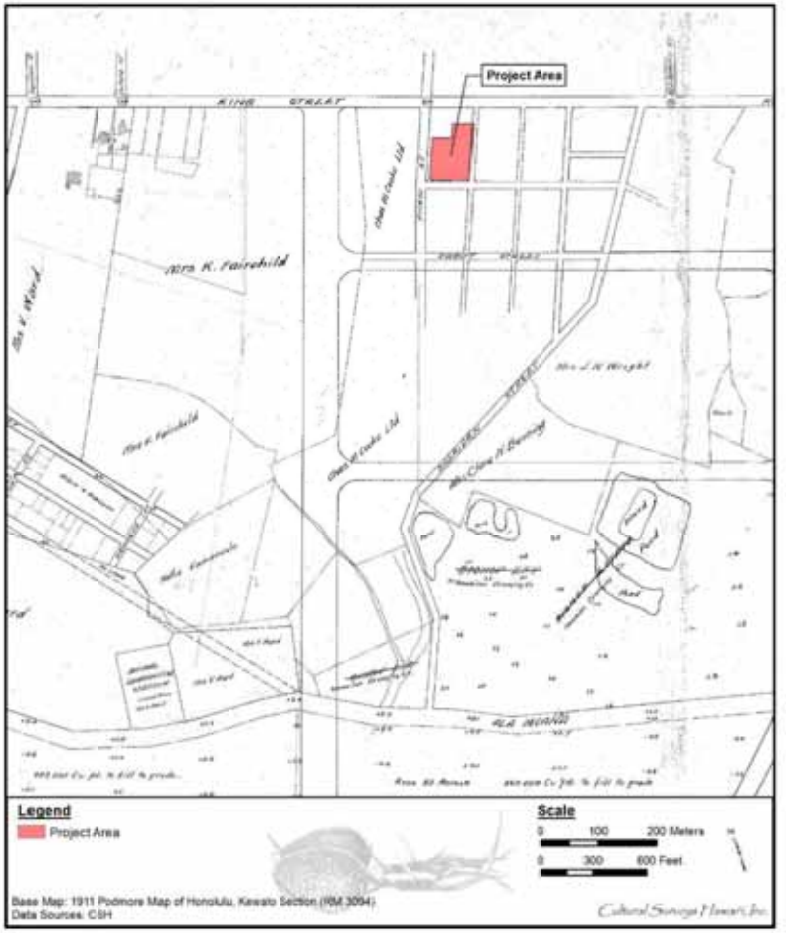

Figure 16. 1911 Podmore map of Honolulu, indicating the location of the project area

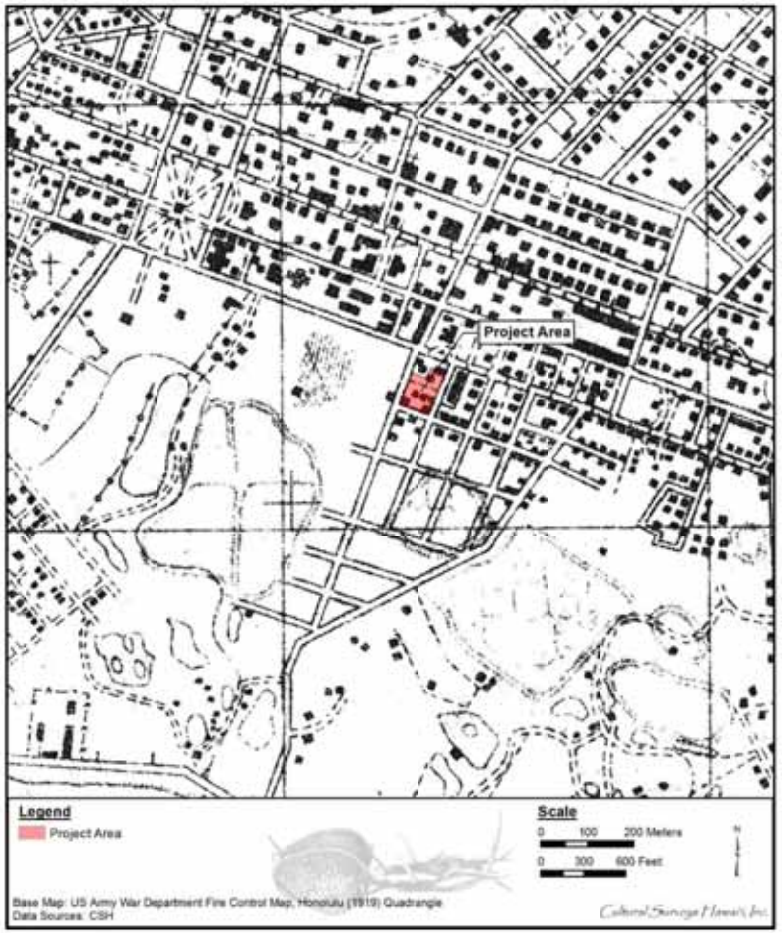

Figure 17. 1919 U.S. Army War Department Fire Control map of O'ahu, Honolulu Quadrangle, indicating the location of the project area

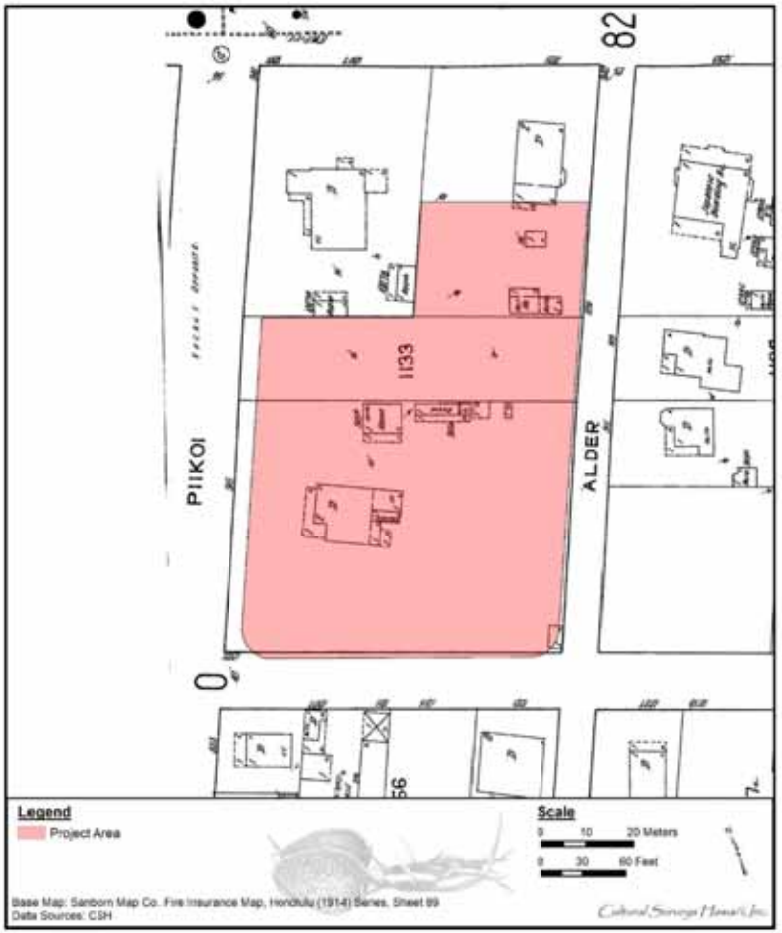

Figure 18. 1914 Sanborn Map Company Fire Insurance map, Honolulu Series Sheet 89, indicating the location of the project area

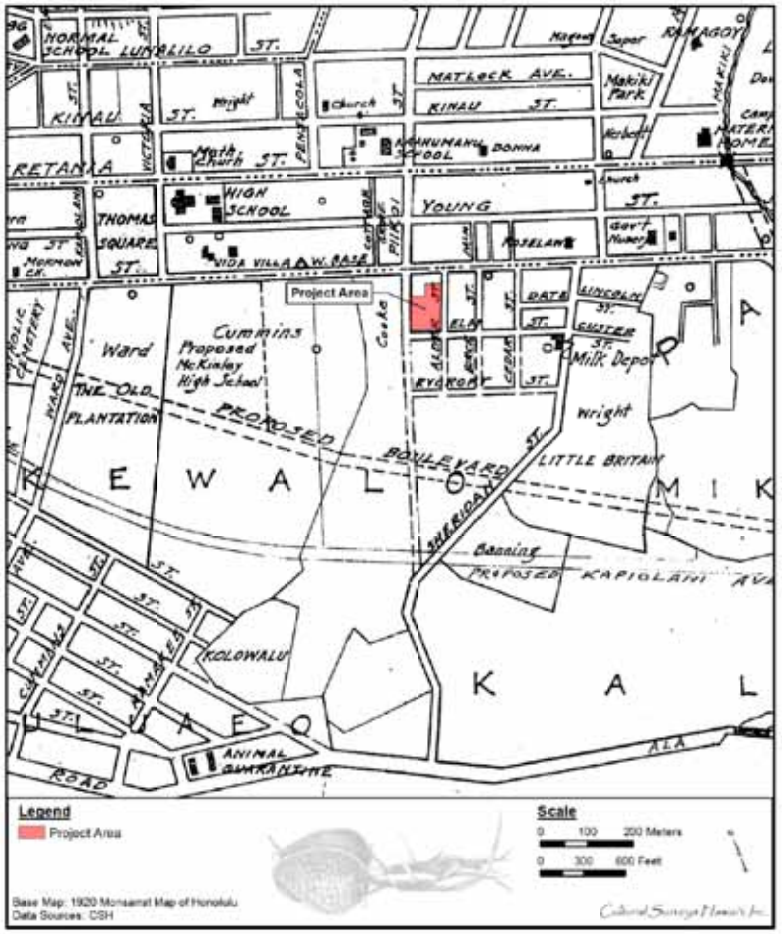

Figure 19. 1920 Monsarrat map of Honolulu

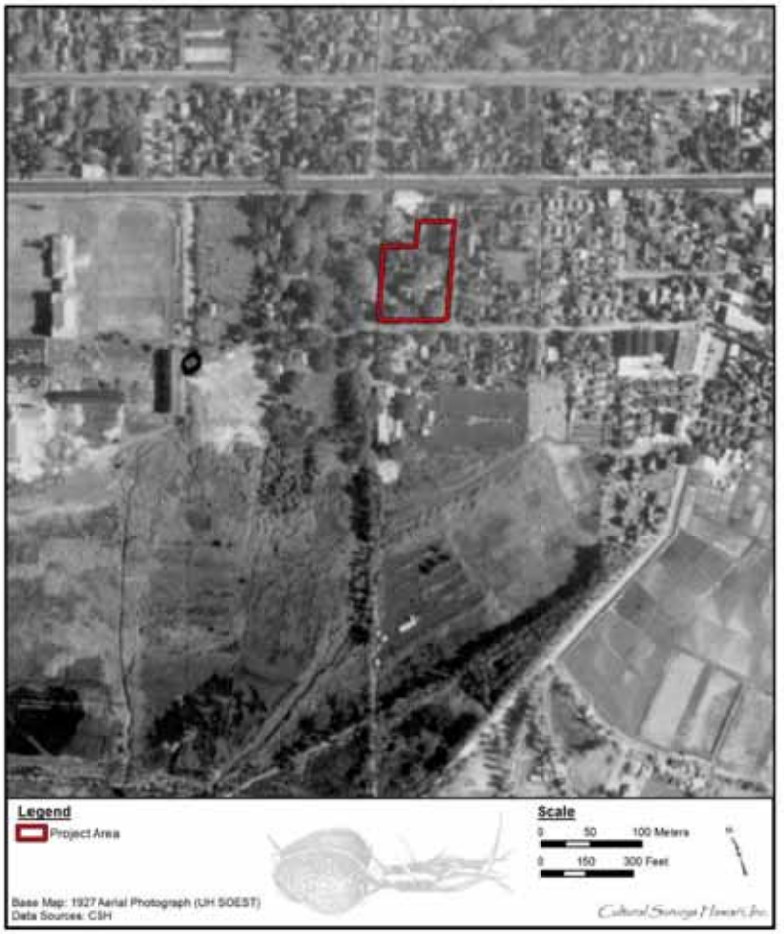

Figure 20. 1927 Kaka'ako coast aerial photograph (UH SOEST), indicating the location of the project area

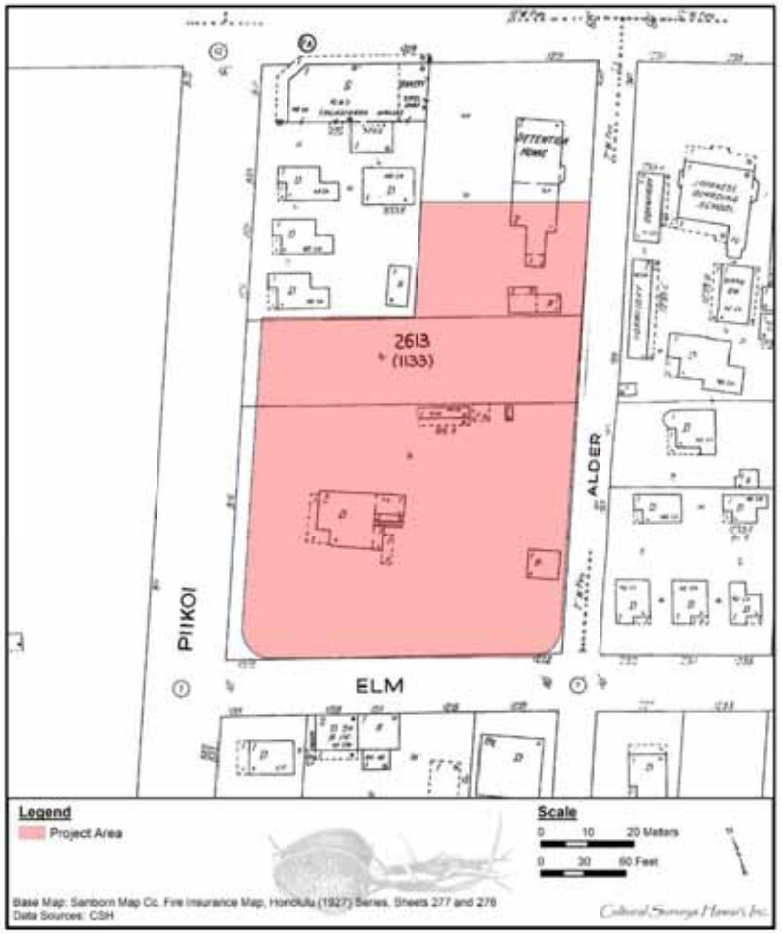

Figure 21. 1927 Sanborn Map Company Fire Insurance map, Honolulu Series Sheets 277 and 278, indicating the location of the project area

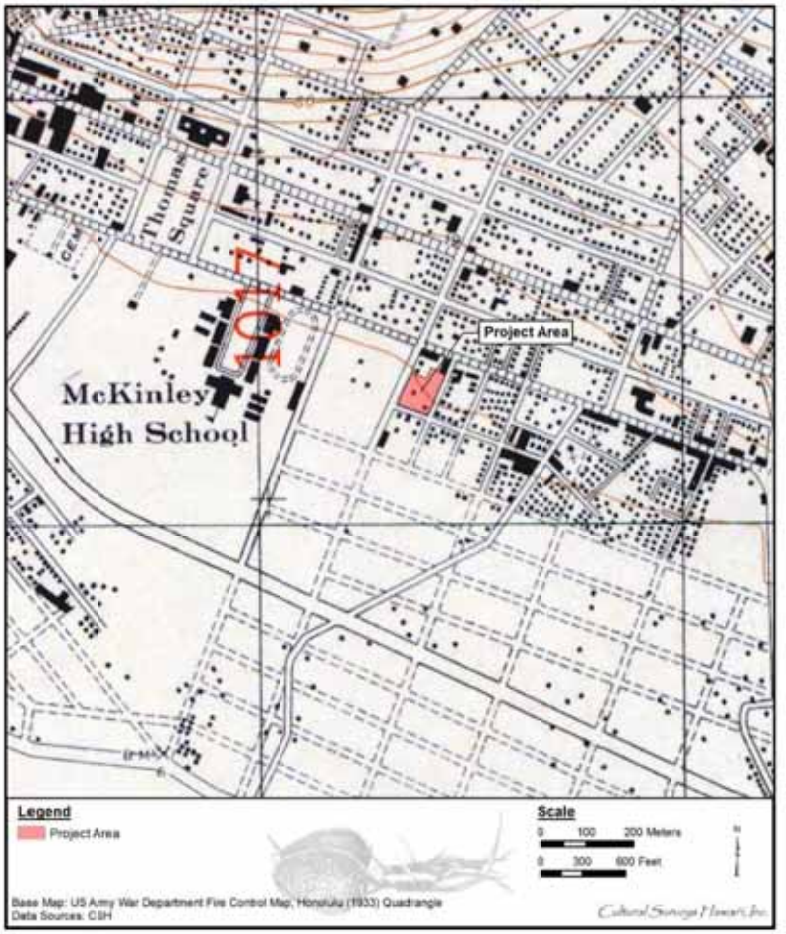

Figure 22. 1933 U.S. Army War Department Fire Control map, Honolulu Quadrangle (portion), indicating the project area east of the new McKinley High School

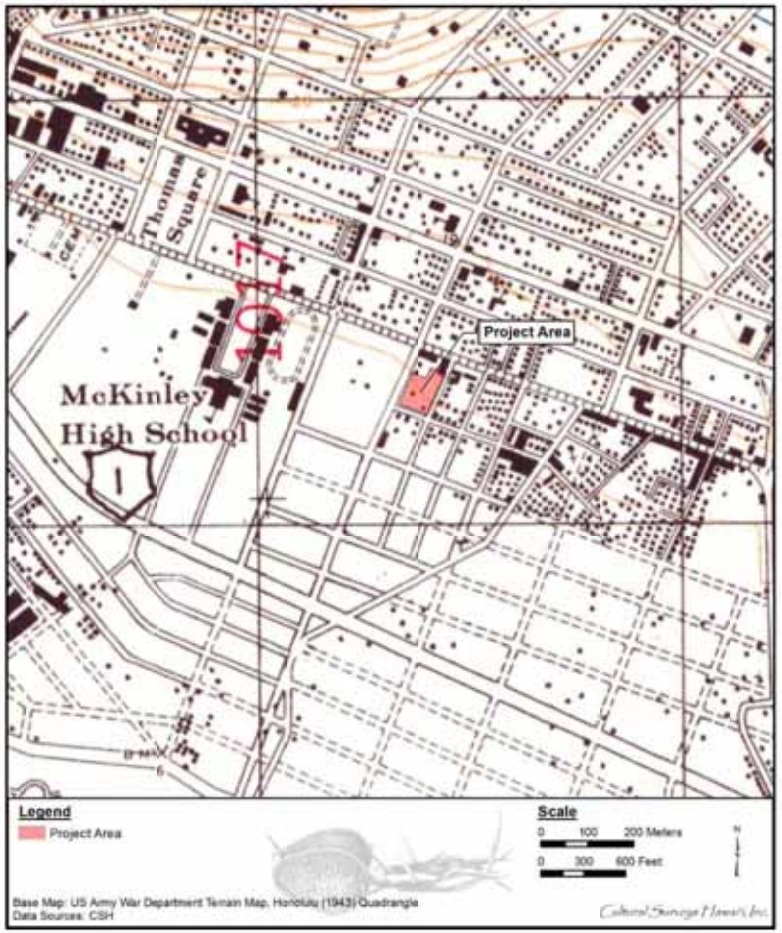

Figure 23. 1943 U.S. War Department map, Honolulu Quadrangle (portion), indicating the location of the project area



Figure 24. 1950 Sanborn Map Company Fire Insurance map, Honolulu Series Sheets 277 and 278, indicating the location of the project area

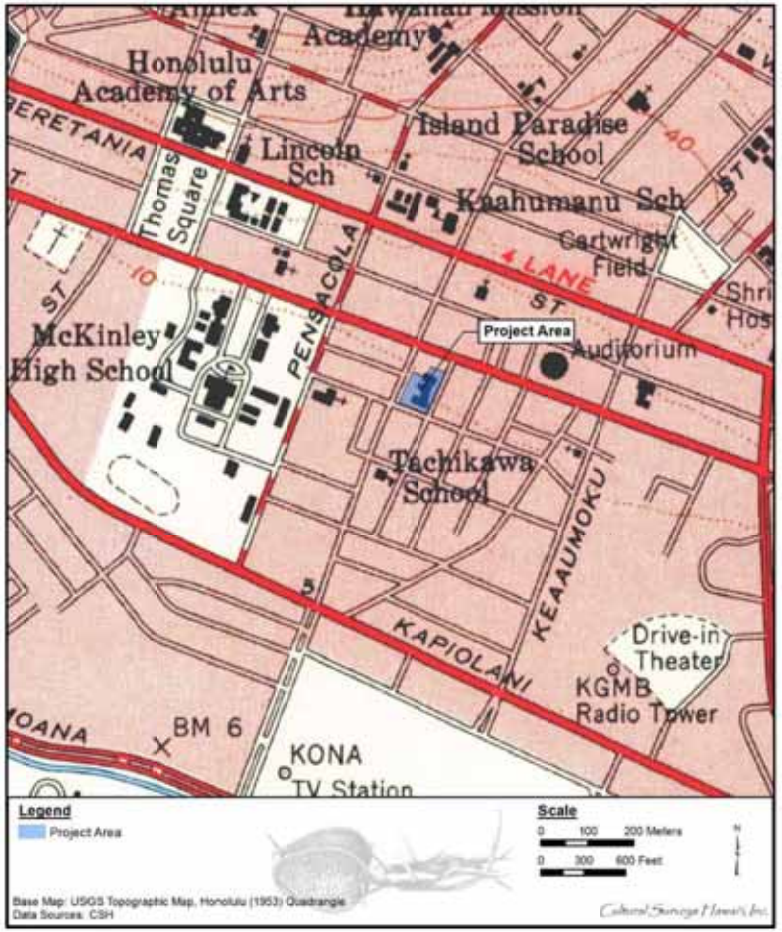

Figure 25. 1953 Honolulu USGS topographic quadrangle (portion), indicating the location of the project area

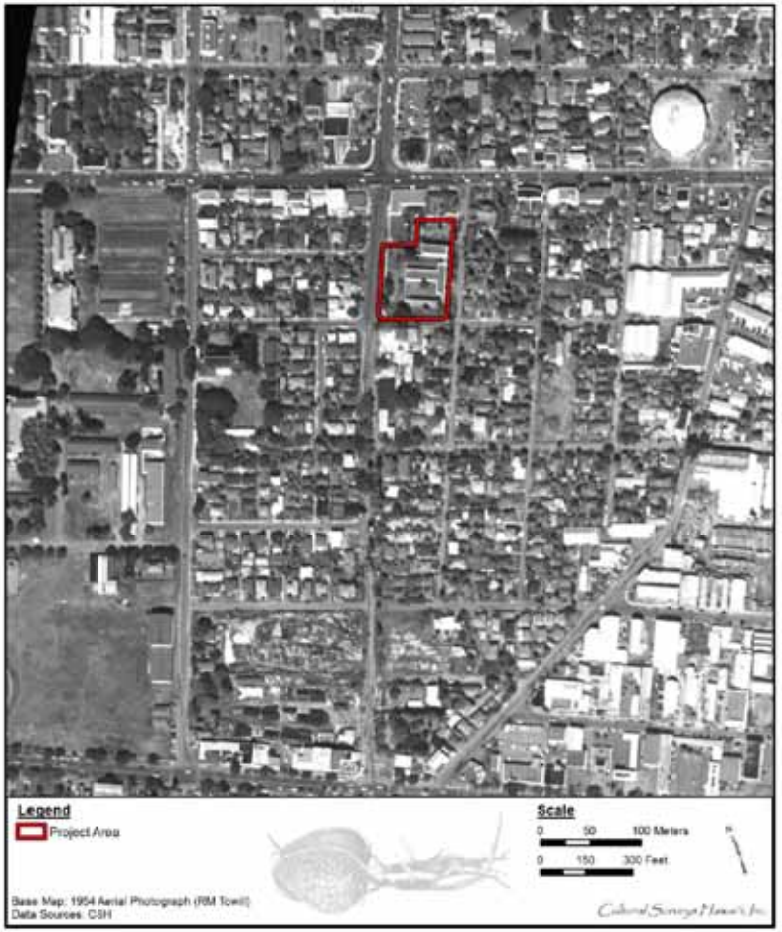

Figure 26. 1954 aerial photograph, indicating the project area (RM Towill)

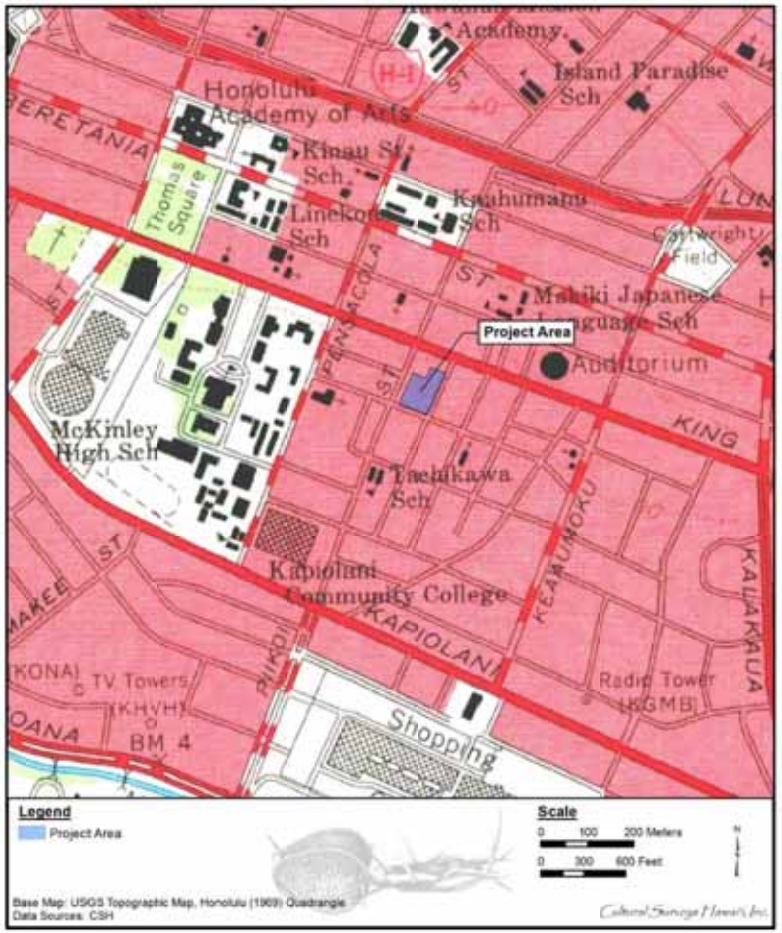

Figure 27. 1969 Honolulu USGS topographic quadrangle (portion), indicating the location of the project area, much as it appears today

1924) and historic maps provide some additional information on the buildings in the property in the late nineteenth to early twentieth century. The home address for Henry Martyn Whitney, Sr. is listed as School Street and Punahou in 1871 and 1880, respectively. From 1884, his address is listed as "Kewalo, 251 King Street," or "Piikoi nr King," which matches the location of the large house in the southern portion of the project area. Thus, Whitney must have moved to his house between 1880 and 1884. In 1904, the address is listed for both Henry Martyn Whitney, Sr., who died in this same year, and his only surviving son, Henry Martyn Jr., an employee at C. Brewer & Company. Directories up to 1924 continue to list Henry Martyn Whitney, Jr. as the resident of the Pi'ikoi house, and he probably lived there until his death in 1936. Before 1914, the upper portion of the project area had a shed next to a dwelling (see Figure 18). It was also in 1914 that a new detention home was built in the upper portion of the project area. The initial building date for the detention home is corroborated by a report of the Governor of Hawaii to the U.S. Department of the Interior for 1914:

> A detention home, within easy access of the juvenile court in Honolulu, has been established during the past year and supported by the city and county of Honolulu, to care for children awaiting trial, dependents not yet permanently provided for, and sometimes paroled juveniles. [Governor of Hawaii: 1914:573]

By 1927, three additional buildings related to the detention home exist in the project area (Figure 21). The original detention home was replaced by a larger building in 1944. *Honolulu Magazine* (2006) reports that, "The state built the facility in 1944, and its 60 years—with little renovation or modernization—shows." This 1944 building reference points to renovations and additional buildings added to the facility visible on a 1950 Sanborn map (see Figure 24). The article goes on to report

> In 2005, the state Legislature approved $95 million for the judiciary to build a 70,000-square-foot juvenile detention center in Kapolei and a new Family Court complex. The new center should replace the ramshackle existing Ala Moana facility by 2010. [*Honolulu Magazine* 2006]

Section 4 Previous Archaeological Research

4.1 Previous Archaeological Studies in the Vicinity

Archaeological studies within the vicinity of the project area are depicted in Figure 28 and summarized in Table 1. Previously identified historic properties in the vicinity of the project area are depicted in Figure 29 and listed in Table 2. A more detailed text summary follows (in chronological order) for prior archaeological studies in the vicinity of the project area.

4.1.1 Smith (1989)

In 1989, four bone fragments were found by construction workers in a property (TMK: [1] 2-3-039:019) on the southeast corner of Kapi'olani Boulevard and Pi'ikoi Street. The find was reported to Marc Smith (1989) of the SHPD. Smith examined the bones and determined only one was human; the remaining bones were pig bones. The human bone was a right tibia shaft fragment. The bone was temporarily taken to the Honolulu SHPD office and the site was given the designation of State Inventory of Historic Places (SIHP) # 50-80-14-4243.

4.1.2 Athens et al. (1994)

In 1994, during excavation of a trench for an underground telephone line near the northeast corner of Pi'ikoi Street and Kapi'olani Boulevard, the remains of a single individual were inadvertently discovered and later disinterred (Athens et al. 1994). Osteological analysis revealed the remains (SIHP # -4847) were the fairly complete skeleton of a 12- to 15-year old female. Radiocarbon analysis of a sample of bone collagen yielded a date of death between AD 1295 and 1473, supporting the osteological determination of Hawaiian/Polynesian ancestry. The remains were interred within a wetlands environment at a shallow depth of 50-80 cmbs (centimeters [cm] below surface). A lack of burial goods and the presence of the remains within an unusual wetlands context strongly suggested the location of the remains did not reflect an intentional burial. Osteological analysis revealed severe bone infection of the right pubis as the probable cause of death. The individual probably passed away, undiscovered, at the very spot of interment. Athens et al. (1994:8) placed the location of this burial near an earth embankment that was probably used as a trail between a fishpond and other marshy areas in the Kewalo region.

4.1.3 Sinoto (2000) and McElroy (2010)

In an area bounded by Sheridan and Ke'eaumoku streets is the "Wal-Mart Site." Aki Sinoto Consulting conducted an archaeological assessment (Sinoto 2000) and prepared an archaeological monitoring plan for the Makaloa-Sheridan Sam's Club/Wal-Mart project. Archaeological monitoring of the project was conducted from 2002 to 2004 and ended up being summarized by McElroy (2010) who was not directly involved in the fieldwork. Human remains recovered were from a minimum number of 64 individuals (MNI = 64) and were observed in six areas within the project parcel (designated SIHP #s -6516, -6661, and -6662). The burials appear to represent both pre-Contact and post-Contact burials.

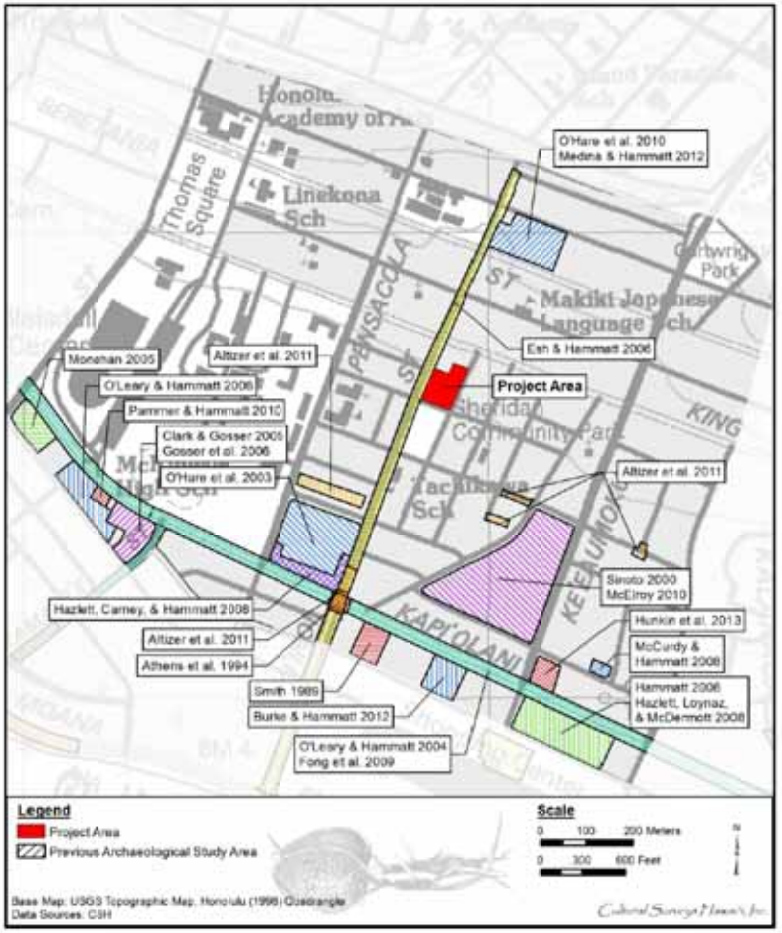

Figure 28. Previous archaeological studies in the vicinity of the project area

Table 1. Previous Archaeological Studies in the Vicinity of the Project Area

Reference	Type of Study	Location	Results (SIHP #s 50-80-14)
Smith 1989	SHPD burial call report	Kapi'olani and Pi'ikoi	Inadvertent disturbed burial find in back dirt pile; (SIHP # -4243)
Athens et al. 1994	Archaeological investigation of inadvertently discovered human remains	Kapi'olani and Pi'ikoi	Inadvertent in situ burial find—one individual; (SIHP # -4847)
Sinoto 2000	Archaeological assessment (literature review and field inspection)	Proposed Wal-Mart	Assessment of project area before construction; during monitoring between Jan. 2003 and April 2003 64 burials found, but final report on these findings not completed
O'Hare et al. 2003	Archaeological inventory survey	Block on corner of Kapi'olani Blvd and Pi'ikoi St, TMKs: [1] 2-3-010:028, 048, 050, 052–056	Total of 24 trenches excavated in a lot on east side of Pi'ikoi St; two sites identified, several historical trash pits (SIHP # -6637), a wetland stratum with a defined sand berm (SIHP # -6636), which can be seen on late nineteenth century maps
O'Leary and Hammatt 2004	Archaeological monitoring	Unit 9 Streets	No cultural remains found
Clark and Gosser 2005	Subsurface archaeological inventory survey	TMKs: [1] 2-3-003:075, 085, and 086	SIHP # -6636 designates a subsurface remnant of a small pond present in northern portions of project area
Monahan 2005	Archaeological assessment	909 Kapi'olani Blvd, TMKs: [1] 2-3-003:073 and 096	Nine backhoe test excavations conducted; no historic properties identified
Esh and Hammatt 2006	Archaeological monitoring	Pi'ikoi St, Ala Moana Blvd to Matlock St	Monitoring of Unit 5 B Streets; no cultural materials found

Reference	Type of Study	Location	Results (SIHP #s 50-80-14)
Gosser et al. 2006	Archaeological monitoring	TMKs: [1] 2-3-003:075, 085, and 086	SIHP # -6636 subsurface remnant of small pond present in northern portions of project area; during archaeological monitoring in southern portion of project area, observed a buried A horizon, Layer II, previously identified during subsurface testing
Hammatt 2006	Archaeological literature review and field inspection	1391 Kapi'olani Blvd parcel, TMK [1] 2-3-039:011	Noted project area within LCA 100 FL and near burials found at junction of Kapi'olani Blvd and Pi'ikoi St
O'Leary and Hammatt 2006	Archaeological inventory survey	Moana Vista project on Kapi'olani Blvd, TMKs: [1] 2-3-003:072, 088, 102	No historic properties identified
Hazlett, Carney, and Hammatt 2008	Archaeological monitoring	Honolulu Design Center Phase III, TMKs: [1] 2-3-010:048, 050, 052, 053, 054, 055, 056	No historic properties identified
Hazlett, Loynaz, and McDermott 2008	Archaeological monitoring	Approx. 6-acre Ala Moana Center Exparsion, TMKs: [1] 2-3-038: 001 and 2-3-040:005, 007, 009, 011, 014, 016, and 018	No historic properties identified
McCurdy and Hammatt 2008	Results of subsurface testing	Hawaiian Electric Company East O'ahu Transmission Project (Makaloa Substation), TMK: [1] 2-3-021:027	No cultural materials (midden, charcoal, or artifacts) observed; results of analysis determined sedges and grasses by far most abundant plants represented in this record; Cyperaceae (sedge) pollen almost 30% of total pollen; Saccharum-type pollen (sugar cane), most common of grass pollen at roughly 25% of total, consistent with a pond or wetland in the area; identification of *Ipomoea batatas*-type pollen indicates cultivation of sweet potato at edges of existing pond

Reference	Type of Study	Location	Results (SIHP #s 50-80-14)
Fong et al. 2009	Archaeological monitoring	Kapi'olani Blvd from Kalākaua Ave to Ward Ave, Kamake'e St from Kapi'olani Blvd to Auahi St, and Atkinson Dr from Kapi'olani Blvd to Ala Moana Blvd	No human remains or historic properties identified; several historic items encountered, all post-dating 1890, indicative of conversion of area from agriculture land to residential suburbs; fill material also found at various locations in project area, deposited during reclamation activities in the 1920s and 1930s
McElroy 2010	Archaeological monitoring	Makaloa-Sheridan Sam's Club/Wal-Mart, TMKs: [1] 2-3-016:009 and 043	Human remains found in six areas of work site, designated as Burial Findspots (BFS-1–BFS-6); three site numbers assigned: SIHP # -6516 includes BFS-1, -3, -4, and -5; SIHP # -6661 composed of BFS-2; and SIHP # -6662 encompasses BFS-6; these three sites evaluated as significant under Criterion d of §13-275-6(b) for information on history and pre-history they might yield; examination of stratigraphy indicates multiple, extensive disturbance episodes throughout much of project site
O'Hare et al. 2010	Archaeological literature review and field inspection	Safeway/Schurman Carriage property	Historic documents and previous archaeological studies indicate low potential for intact cultural deposits, including pre-Contact deposits, historic deposits, and possibly pre-Contact and post-Contact burials
Pammer and Hammatt 2010	Archaeological assessment	Approx 0.26-acre Moana Vista project area on Kapi'olani Blvd, TMK: [1] 2-3-003:084	No historic properties discovered
Altizer et al. 2011	Archaeological monitoring	Kapi'olani Area Revised Sewer System, TMKs: [1] 2-3-004, 005, 007, 009, 010, 013, 014, 017, 018, 022, 035, 036, 038, and 041	Excavation activities included replacement of ten sewer line segments; three segments rehabilitated with cured-in-place pipe method and no open trenching conducted at these segments; previously documented SIHP # -6636, a wetland deposit, documented in Sewer Line G off Pensacola St between Ho'ola'i and Kamaile streets

Reference	Type of Study	Location	Results (SIHP #s 50-80-14)
Burke and Hammatt 2012	Archaeological inventory survey	1391 Kapi'olani Blvd parcel, TMK: [1] 2-3-039:011	Single historic property identified within project area, SIHP # -7193, consists of layer of historic trash; layer seen in nine trenches within northern and eastern portions of project area
Medina and Hammatt 2012	Archaeological monitoring	Safeway, Inc. development project, TMKs: [1] 2-4-011:008, 009, 010, and 011	Observed and recorded stratigraphy includes various modern fill layers related to modern development (post-1960) overtop naturally deposited alluvial sediment, over top of natural volcanic cinder layer; one historic property observed (SIHP # -7212), a post-Contact trash pit containing historic era refuse
Hunkin et al. 2013	Archaeological inventory survey	Walgreens Kapi'olani Redevelopment project, TMKs: [1] 2-3-021:008, 009, and 010	Two archaeological historic properties identified: • SIHP # -6636, former wetland surface for region with potential to yield information related to past land use • SIHP # -7431, historic structural remnants associated with past industrial and commercial land use in 1950s

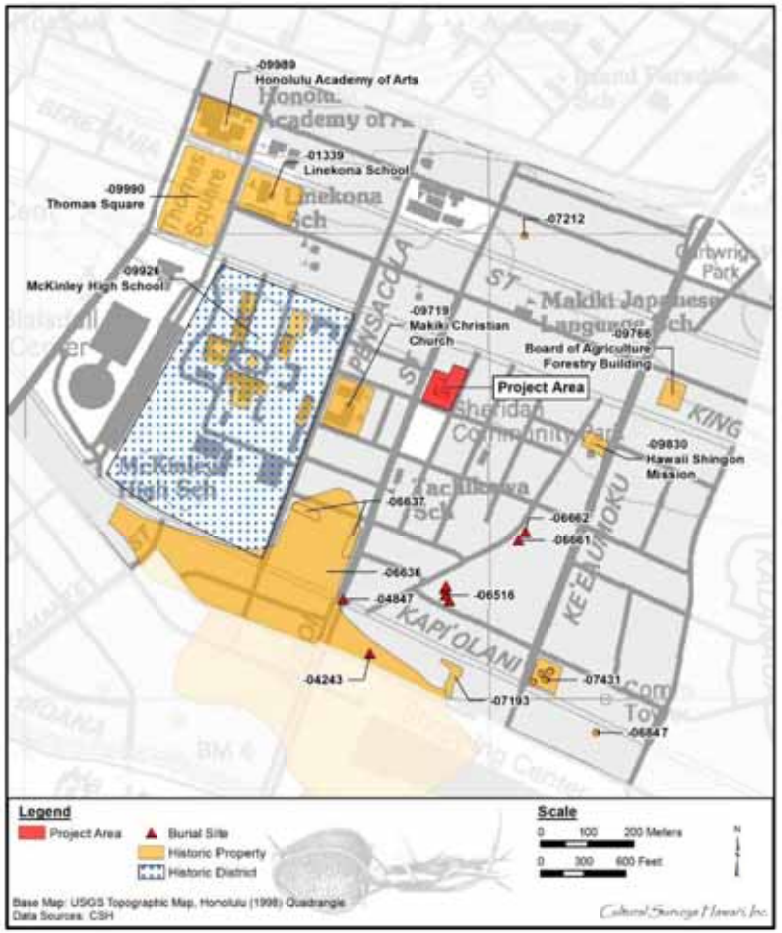

Figure 29. Portion of 1998 Honolulu USGS map showing locations of previously designated historic properties in the vicinity of the project area

Table 2. Previously Identified Historic Properties near the Present Study Area

SIHP # (50-80-14-)	Description of Site	General Location	Source
01339	Linekona School	300 m west of north end of project area	HRHP and NRHP
04243	Human bone at 1341 Kapi'olani Ave	500 m south of south end of project area	Smith 1989
04847	Archaeological investigation of inadvertently discovered human remains at Pi'ikoi and Kapi'olani intersections	300 m southeast of south end of project area	Athens 1994
06516	Burials (BFS-1, -3, -4, and -5, 62 burials)	300 m southeast of south portion of project area	McElroy 2010
06636	Subsurface wetland sediments (estimated extent)	Extensive area 250 m south of project area extending *makai*	Altizer et al. 2011, and further south: O'Hare et al. 2003, O'Hare et al. 2004, Clark and Gosser 2005, Tulchin and Hammatt 2005, Runyon et al. 2011, Runyon et al. 2012, Hammatt 2013, Morriss et al. 2013
06637	Historic trash pit	300 m south of project area	O'Hare et al. 2003
06661	Burial (BFS-2, one burial)	350 m southeast of project area	McElroy 2010
06662	Burial (BFS-6, one burial)	350 m southeast of project area	McElroy 2010
06847	Wood lined subsurface feature	700 m southeast of project area	Hammatt 2006
07193	Historic trash pit	500 m SSE of project area	Burke and Hammatt 2012
07212	Subsurface refuse deposit	300 m NNE of project area	Medina and Hammatt 2012
07431	Subsurface historic structure remnants	600 m southeast of project area	Hunkin et al. 20213
09719	Makiki Christian Church	100 m southwest of project area	HRHP

SIHP # (50-80-14-)	Description of Site	General Location	Source
09766	Board of Agriculture Forestry Building	400 m east of project area	HRHP
09830	Hawaii Shingon Mission	300 m east of project area	HRHP and NRHP
09926	Commercial Building (McKinley HS)	300 m west of project area	HRHP and NRHP
	Home Economics Building (McKinley HS)	300 m west of project area	HRHP and NRHP
	Art Building (McKinley HS)	300 m west of project area	HRHP and NRHP
	Mathematics Building (McKinley HS)	300 m west of project area	HRHP and NRHP
	Auditorium (McKinley HS)	300 m west of project area	HRHP and NRHP
	Senior Core Building (McKinley HS)	300 m west of project area	HRHP and NRHP
09989	Honolulu Academy of Arts	600 m northwest of project area	NRHP
09990	Thomas Square	500 m northwest of project area	NRHP

4.1.4 O'Hare et al. (2003)

In 2003, CSH (O'Hare et al. 2003) completed an archaeological inventory survey of an approximately 6-acre parcel in the vicinity of the project area. No burials were found in the 24 trenches excavated during the inventory survey, as predicted. No pre-Contact or pre-twentieth century habitation deposits were recorded, but historical trash pits (SIHP # -6637) and a new defined berm (SIHP # -6636) related to agricultural activities were documented. SIHP # -6637 consists of a trash dump found in six trenches, all located in the northeast corner of the project area near Pi'ikoi Street. This trash pit contained wood, brick, tires, ceramic dinnerware, insulators, rusted metal, and glass bottles. Many of the glass bottles were dated to the 1920s to 1940s, some specifically to the 1930s. The type of material present does not seem to be individual household garbage, but may be related to the businesses in the surrounding area.

4.1.5 LeSeur and Cleghorn (2004)

Pacific Legacy, Inc. (LeSeur and Cleghorn 2004) completed an archaeological assessment for proposed routes of the HECO East O'ahu Transmission project in 2004. The King Street portion of the electric line route is near the current study area. The report authors note the route is near six historic sites: Thomas Square (SIHP # -9990), which has ties to the return of sovereignty from the British in 1843; Linekona School, established in 1925 (SIHP # -1339); McKinley High School (SIHP # -9926), built at its current location in 1923; a Catholic cemetery (*makai* of King Street) first used in 1851; and two former fishponds.

4.1.1 O'Leary and Hammatt (2004), Fong et al. (2009)

From August to October 2004, CSH conducted archaeological monitoring for emergency sewer line repairs that occurred along Kapi'olani Blvd. (O'Leary and Hammatt 2004). A total of five 0.6-m deep trenches were excavated. Excavations took place in fill materials associated with the original placement of the sewer pipes; no cultural material was encountered.

In 2009, CSH completed archaeological monitoring of construction associated with the upgrading of existing drainage, water, and sewer systems within Kapi'olani Boulevard from Kalākaua Avenue to Ward Avenue, within Kamake'e Street from Kapi'olani Boulevard to Auahi Street and within Atkinson Drive from Kapi'olani Boulevard to Ala Moana Boulevard (Fong et al. 2009). No historic properties were observed. Observed stratigraphy consisted primarily of imported fill material associated utility and road construction. In some instances pockets of naturally deposited sediment (Jaucas sand and wetland clays) were observed beneath fill deposits.

4.1.2 Monahan (2005)

In 2005, Scientific Consultant Services conducted an archaeological assessment for three parcels bounded by Ward Avenue, Kapi'olani Boulevard, and Waimanu Street. Nine backhoe assisted trenches were excavated within the project area. The trenches were excavated to an average depth of 103 cm below ground surface. No historic artifacts, features, and/or artifacts were recorded as a result of the survey. Although no artifacts were recorded, archaeological monitoring was recommended for all areas to ensure there are no cultural remains under compacted fill layers, which were still encountered at the base of excavation in some trenches.

4.1.3 Clark and Gosser (2005) and Gosser et al. (2006)

Pacific Consulting Services carried out two studies for a storage facility on the southwest corner of Kapi'olani Boulevard and Kamake'e Street, documenting SIHP # -6636, a subsurface remnant of a small pond present in northern portions of the project area.

4.1.4 Esh and Hammatt (2006)

In August 2004, CSH conducted archaeological monitoring for the Rehabilitation of Streets, Unit 5B on Pi'ikoi Street between Ala Moana Boulevard and Matlock Street (Esh and Hammatt 2006). Monitoring was only required at the intersection of Pi'ikoi and Young streets, as excavations in other areas did not extend deeper than 30 cm below base course fill. No cultural materials were observed.

4.1.5 Hammatt (2006)

CSH (Hammatt 2006) concluded a literature review and field check on a 1.43-acre parcel on Kapi'olani Boulevard near the junction with Pi'ikoi Street. Documentary evidence suggests the project area, before being filled and graded during the first half of the twentieth century to create the present land surface, comprised a portion of Kewalo *'ili* that included habitation sites, taro *lo'i*, and ponds situated amid the encompassing marshlands of the Honolulu plain. The documentation of the project area suggested a more dryland environment in traditional Hawaiian times than a ponded one.

4.1.6 O'Leary and Hammatt (2006)

CSH conducted an archaeological inventory survey at the Moana Vista project. The project area is bounded Kapi'olani Boulevard, Kamake'e Street, Waimanu Street, and Ward Avenue. Twenty-four backhoe assisted trenches were excavated within the project area. No historic properties were encountered during the course of the survey.

4.1.7 Hazlett, Carney, and Hammatt (2008)

CSH (Hazlett, Carney, and Hammatt 2008) concluded an archaeological monitoring report for the Honolulu Design Center Phase III project (TMK: (1) 2-3-010:048, 050, and 052-056) which is bounded by Kapi'olani Boulevard, Pensacola, Kamaile, and Pi'ikoi Streets. No cultural resources were identified during the monitoring of this project.

4.1.8 Hazlett, Loynaz, and McDermott (2008)

CSH (Hazlett, Loynaz, and McDermott 2008) concluded an archaeological monitoring report for an approximately 6-acre Ala Moana Center Expansion project (TMK [1] 2-3-38: 001 and 2-3-40: 005, 007, 009, 011, 014, 016, & 018) comprising the construction of a Nordstrom store, other retail space, and a parking garage. No historic properties were identified. The observed stratigraphy generally consisted of imported construction fill, overlying a buried A horizon (former land surface) consisting of naturally deposited sandy loam. Underlying the buried A horizon were varying layers of naturally deposited sediments, consisting of loams and clays, indicative of the marsh environment that preceded the land reclamation and subsequent development of the area.

4.1.9 McCurdy and Hammatt (2008)

CSH (McCurdy and Hammatt 2008) completed archaeological monitoring of construction activities at the Makaloa Substation. No historic properties were identified; however, pond/wetland

deposits were encountered and tested. Pollen analysis was conducted and documented abundant Cyperaceae (sedge) pollen and *Saccharum*-type (sugar cane) pollen. *Prosopis* sp. (*kiawe*) pollen found within the wetland samples suggest the wetlands did see intrusion of invasive species in the historic era. *Ipomoea batatas* (sweet potato) was found in an isolated sample, suggesting some small scale agriculture may have been conducted in this area (McCurdy and Hammatt 2008).

4.1.10 O'Hare et al. (2010) and Medina and Hammatt (2012)

CSH (O'Hare et al. 2010) completed an archaeological literature review and field inspection with limited subsurface testing for the Safeway/ Schuman Carriage property project, (TMK: [1] 2-4-011:008, 009, 010, 011) located between Beretania Street and Kīna'u Street on the east side of Pi'ikoi Street. Five backhoe test trenches were excavated, documented, and sampled. The stratigraphy generally consisted of asphalt, base course, and modern construction fill overlying alluvial clay loam and undisturbed volcanic cinder. Only one feature, a fire pit, was encountered during subsurface excavation. The fire pit was interpreted as a modern feature associated with the demolition of previously existing structures present during the 1960s.

CSH (Medina and Hammatt 2012) produced an archaeological monitoring report for the development of the same former Schuman Carriage property. In general, the observed and recorded stratigraphy for this project area includes various modern fill layers related to modern development (post 1960) above naturally deposited alluvial sediment, above a natural volcanic cinder layer. One historic property was observed (SHIP# 50-80-14-7212), a post-contact trash pit containing historic era refuse.

4.1.11 Pammer and Hammatt (2010)

CSH (Pammer and Hammatt 2010) produced an archaeological assessment (archaeological inventory survey scope of work with no findings) for an approximately 0.26-acre Moana Vista Project Area on Kapi'olani Boulevard (TMK [1] 2-3-003:084). The subsurface testing program included excavation of 4 test trenches in order to document stratigraphy, as well as potential subsurface cultural deposits. No historic properties were identified.

4.1.12 Altizer et al. (2011)

CSH (Altizer et al. 2011) reported on archaeological monitoring on ten sewer line segments in the greater Kapi'olani area. Of note was further documentation of previously documented SIHP # -6636, a wetland deposit in Sewer Line G off Pensacola Street between Ho'ola'i and Kamaile streets. This was a pre-Contact to early twentieth century land surface that underlays dredged fill materials from the Kewalo and Ala Wai Canal land reclamation projects.

4.1.13 Burke and Hammatt (2012)

CSH (Burke and Hammatt 2012) carried out an archaeological inventory survey report for a 1391 Kapi'olani Boulevard parcel. A single historic property was identified within the project area, SIHP # -7193, which consists of a layer of historic trash. This layer was seen in nine trenches and yielded vast quantities of mid-twentieth century beer and milk bottles.

4.1.14 Hunkin et al. (2013)

CSH completed an archaeological inventory survey (AIS) report for the project area (Hunkin et al. 2013). Two historic properties were identified during AIS test excavations for the proposed Walgreens Kapi'olani redevelopment project. One is an addition to an existing historic property

(SIHP # -6636), a remnant wetland deposit, and the other is newly identified (SIHP # -7431), remnant historic concrete structures. Subsurface investigations indicated relatively consistent stratigraphy throughout the project area. Silty clay sediments indicative of a wetland deposit (SIHP # -6636) were documented in all the trenches excavated. In general, the wetland sediment contained bluish to greenish gray sandy clay variations. Evidence of A horizon soil formation processes was observed in some test excavations, characterized by darker, organically enriched clays that contained decomposing rootlets and reed vegetation remnants. Two diagnostic historic glass bottle artifacts were recovered in this wetland sediment during excavation from one of the test excavations.

4.2 Historic Cemeteries

4.2.1 Makiki Cemetery

There are several historic cemeteries in the lower Makiki and Kewalo area. Makiki Cemetery, located at Pensacola and Prospect streets, contains graves dating from the mid-nineteenth century and is shown on several early historic maps, such as the 1887 Wall map (see Figure 7). The graves at this cemetery are clustered by ethnicity into Hawaiian, Japanese, and Portuguese sections, with distinctive grave markers for each. This graveyard is still in use today.

4.2.2 Cemetery of the Foreigners

Another cemetery associated with the Kewalo area may have been fairly close to the project area, possibly near Pi'ikoi Street. The literature associated with this cemetery has been extensively researched by Robert Schmitt (2000), which he reviewed in an article called "The Cemetery for Foreigners" in *The Hawaiian Journal of History*. Most of the following discussion is based on his comprehensive research. The first interment at this cemetery may have been as early as 1794. In this year, Mr. Kendrick, captain of the American ship *Lady Washington*, was accidentally killed by a shot fired in salute by the British ship *Jackal*, as both ships were anchored in Honolulu Harbor (Cartwright 1922:23).

In 1802, Captain Charles Derby, commander of the ship *Caroline*, died at Honolulu and was buried "somewhere on the plains east of Kawaiaha'o where the prostrate stone was found, but not the grave" (Mellen 1940:5). The "prostate stone" is now in the Kawaiaha'o Church Cemetery at the corner of King and Punchbowl streets. The church was on a major cross-*ahupua'a* trail that extended from Honolulu Harbor to Wai'alae past Diamond Head. This trail is now covered by the present alignment of King Street and Wai'alae Avenue. This means that the true burial spot for Captain Derby must have been further east of Kawaiaha'o Church, in Kewalo or the dusty plains of Honolulu.

Richard Cleveland visited the burial spot in 1803, describing it as verdant, which is more suggestive of the wet Kewalo region than the dry Kulaokahu'a area.

> I made a long excursion on shore, among the beautiful rural scenery in the neighbourhood of the [Whyteete] bay. In a retired spot, clothed with verdure and surrounded by cocoanut trees, my guide pointed to the grave of my old friend and former shipmate, Charles Derby, who died here last year, on board a Boston ship, which he commanded, from the Northwest Coast. [Cleveland 1842:1:232]

An anonymous note in the *Papers of the Hawaiian Historical Society* (1929) asserts that this cemetery was at the corner of King and Pi'ikoi streets.

> In 1802, Captain Charles Derby, of the well-known Derby family of Salem, Mass., died in Honolulu and was buried in a lot set apart for the interment of foreigners, situated at what is now near the corner of Piikoi and King Streets. When this burying ground was abandoned the tombstone at the head of the Derby grave was removed to the Kawaiahao churchyard. It was lately discovered to be face downward in the rear of the Mission cemetery. [Hawaiian Historical Society 1929:6]

John Papa 'Ī'ī's gave an account of the death in 1810 of Isaac Davis, an American sailor who had settled in the Hawaiian Islands, becoming a confidant of Kamehameha I:

> Many chiefs and notables mourned Davis, including Kamehameha and the company of warriors who watched over him. The funeral procession went from Davis' dwelling at Aienui to Kewalo, where his body was deposited on the land of Alexander, a *haole* who had died earlier. At the time of his death, Davis was an old man with white hair and other signs of age. ['Ī'ī 1959:85]

An article about Davis in *The Friend* of February 1862 mentions only that his grave was "in the burying place of the Europeans, near Hana-rura," suggesting the Kewalo region and the "burying place" were outside the limits of Honolulu both at the time of Davis' death and 42 years later when the article was written.

Captain Otto von Kotzebue of the Russian ship *Rurick*, who stopped at the Islands in 1816 and 1817, traveled to a cemetery to see the grave of Isaac Davis. It is probably the same cemetery labeled (in Russian) on his 1817 map of the Honolulu area, southeast of Punchbowl, with a wall terminating near the southwest corner of the project area (see Figure 8). Kotzebue describes it: "In the burial-place of the Europeans, near Hana-rura, we read this simple monument of Mr. Davis: 'The remains of M. Isaac Davis, who died at this Island, April 1810, aged 52 years'" (Kotzebue 1821:3:258). In 1824, Andrew Bloxam, a scientist aboard the British ship the *Blonde*, commanded by Lord Byron, also gave a description of the gravesite of Isaac Davis.

> The road to it [Diamond Head] leads to the picturesque village of Waititi, near which, a little to the right of the road, there is a small enclosed spot, where the remains of Isaac Davis, one of the first Europeans who assisted Tamehameha in the practical civilization of the Island, are interred . . . . [Bloxam1826:145]

This excerpt suggests the burial plot was somewhere along a trail that extended from Honolulu to Waikīkī, probably the main trail that was later covered by King Street, confirming the 1929 Hawaiian Historical Society note that placed the graveyard on the corner of King and Pi'ikoi streets. An 1838 article concerning the establishment of the new O'ahu Cemetery in Nu'uanu, also confirms that the grave plot was near a major road or trail. John Diell wrote the following:

> Thus the disgrace, which has so long attached to the revolting, not to say indecent, burial of foreigners at this port, in a common immediately contiguous to a public high-way, and entirely exposed to the intrusion of beasts, will as we trust, be speedily wiped off. [Diell 1838:86]

The mention of roaming cattle suggests the burial was *makai* of the wall on Wilder Street built by the order of Queen Ka'ahumanu in 1830, and also reemphasizes that the burial ground was near a major trail or road. In 1923, Bishop Henry B. Restarick asserted that "Kendrick was buried at the place where Captain Derby was interred in 1802 and Isaac Davis in 1810" (Restarick 1923:58-59), concluding they were probably all buried close to each other or in the same place, a lot set aside by the Hawaiian chiefs for the interment of foreigners.

Restarick had been the first to publish that the graveyard was on the *makai* corner of Pi'ikoi and King streets, and that the graveyard was abandoned in 1900. In 1923, he stated, "Many now living remember seeing the grave stones of Derby and Davis at the place named until they were removed in 1900. They state that there were a number of sunken unmarked graves nearby" (Restarick 1923:58-29). As Restarick mentions, other foreigners besides the three noted were also buried at this site.

Maria Loomis recorded that an orphan was buried at the site in 1821, and in the following year a young native man was buried in the same plot, "the first instance of natives burying their dead after the manner of civilized nations" (Loomis 1819, 1921 in Schmitt 2000:65).When the graveyard was abandoned the gravestones were removed, however, Davis' original headstone of Chinese granite was later lost (Restarick 1924:20).

Purnell, writing about a headstone found for Davis now at O'ahu Cemetery wrote the following:

> Although Davis' name appears on a family tombstone in O'ahu Cemetery, it is not certain that he is buried here. Documentation indicates that he was originally buried in an unnamed cemetery in Makiki, and that his ashes [*sic*] may have later been disinterred and scattered at sea. [Purnell 1998:121]

Although Restarick stated the graveyard was at the corner of King and Pi'ikoi, other authors have suggested other locations. Glynn Barratt (1988:235) placed the graveyard at Pensacola and Pi'ikoi streets (the *mauka* end of Pi'ikoi Street abuts an east-west street called Pi'ikoi Place that ends at Pensacola Street), although Schmitt thinks he was confusing this cemetery with the mid-nineteenth Makiki Cemetery on Pensacola and Prospect streets. Edwin McClellan (1928a, b) placed the cemetery at the junction of King and Kewalo streets, however, the present *makai* end of Kewalo Street ends at Lunalilo Street, not at King Street. These three suggestions all place the cemetery in the vicinity (Pensacola Street, Kewalo Street, Pi'ikoi and King streets) of the project area.

Although the cemetery is marked on Kotzebue's 1817 map, it is difficult to reconcile this historic map with modern maps as there are few points of comparison (Punchbowl Crater is the only common feature in the vicinity) and the coastline has changed so much in the intervening years. The background does indicate there was once an early historic cemetery in the general area and historic documents indicate that all, or most, of the bodies were later disinterred. The size of the cemetery and the number of burials is unknown, and it is possible there is still some remnant of the cemetery under modern fill layers in Kewalo.

4.3 Background Summary and Predictive Model

The project area lies in an area traditionally known as Kulaokahu'a, in the *'ili* of Kewalo, (Fitzpatrick 1989:25). John Papa 'Ī'ī identified Kulaokahu'a as a "playground, where the '*maika*'

etc. was played" (Hawaii Commission on Boundaries, Kewalo in King 1989:26). *Maika* is a Hawaiian sport that uses a disc-shaped stone called an *'ulu maika* for a bowling type of game.

Kewalo literally means "the calling," as in an echo (Pukui et al. 1974:109). Kewalo once had a freshwater spring in the central portion (current location unknown), as seen in the proverb "*Ka wai huahua'i o Kewalo*," which translates as "The bubbling water of Kewalo." Two springs are mentioned in a traditional story of the Waters of Ha'o, one located near Kawaiaha'o Church in Kaka'ako (Pukui 1988:87–89). Kewalo was also the birthplace of the great chief Hua-nui-ka-la-la'ila'i (Hua), as mentioned in a *mele* (story) chanted by Kamakau (1991:24). In legendary accounts, Kewalo was noted for its fishponds, its marsh lands where *pili* grass could be collected, for ceremonial sites such as the Kewalo spring and the fishpond at which sacrifices were made, and for its trails that allowed transport between the more populated areas of Waikīkī and Honolulu. Important chiefs were born in the area and conducted religious rites, and commoners traveled to the area to procure food and other resources, while others probably lived in the area.

The 1817 map by Otto von Kotzebue, (see Figure 8) depicts a wall terminating near the southwestern to south-central boundary of the project area, defining an area that Kotzebue labeled "cemetery." This is likely the "Cemetery for Foreigners" discussed in detail by Robert Schmitt (2000). Developments in the Kewalo area during the second half of the nineteenth century include increased western-conceived urbanization exemplified by Thomas Square and the "Old Plantation." Historic maps indicate that in the late1800s the area surrounding the project area was swampy, with a pond approximately 150 m to the southwest, a rectilinear corral in the southeast corner of the project area (see Figure 6, Figure 7and Figure 13), and the house of H.M. Whitney built on the west-central boundary of the project area. Whitney, a prominent member of the Honolulu community, may have entertained the young Samuel Clemens at this house. Previous archaeology in the vicinity of the project area documents the presence of isolated burials, cemeteries, wetlands and resource ponds, and historic trash pits and lenses.

Based upon the background ethno-historical and previous archaeological research, archaeological investigations within the project area may encounter traditional Hawaiian materials including houses, middens, burials, resource ponds, and gaming artifacts such as *'ulu maika*. The wall of the "Cemetery for Foreigners" may be near the southwestern boundary of the project area and a corral wall may be near the southeast corner of the project area. Material culture related to the H.M. Whitney house may also be present and with that, there is the probability that some of these materials were related to the entertainment of the young Samuel Clemens, whom Whitney entertained.

Section 5 Results of Fieldwork

CSH completed the AIS fieldwork under archaeological permit number 15-03, issued by the SHPD per HAR §13-13-282. Fieldwork was accomplished between 17 June 2015 and 17 July 2015 by David W. Shideler, M.A., Nathaniel S. Garcia, B.A., Mary L. Tarcona, M.S., Abigail H. Langham, B.A., and Richard T. Stark, Ph.D. under the general supervision of Hallett H. Hammatt, Ph.D. This work required approximately 10 person-days to complete.

In general, fieldwork included 100% pedestrian inspection of the unbuilt portions of the project area and systematic subsurface testing at locations distributed throughout the project area. Excluding the buildings, the archaeological pedestrian inspection did not identify cultural material greater than 50 years, however, the subsurface testing portion of fieldwork did identify two buried historic properties, assigned as SIHP # 50-80-14-7817 and SIHP # 50-80-14-7818. The following discussion details the stratigraphy and material culture recovery for each subsurface test excavation (T1 through T7).

5.1 Test Excavation 1 (T1)

T1 is located in the northeast portion of the project area, in a staff parking lot adjacent to the project area boundary with Alder Street (see Figure 5). T1 measures 5.6 m long by 0.8 m wide with a maximum depth of 2.4 m below the surface and a general north/south (200 degrees true north) orientation. For the purposes of trench access and stability, a 45 cm bench was left unexcavated in the southern half of T1. The stratigraphic profile of T1 (Figure 30 through Figure 34 and Table 3) consists of dark brown sandy clay loam fill (Stratum Ia), dark brown sandy clay loam fill (Stratum Ib), natural terrigenous dark reddish brown silty clay loam (Stratum II), and natural terrigenous very dark greyish brown cinder (Stratum III). The water table was not observed in T1. Two artifacts were recovered from T1, Stratum Ia, 0-50 cmbs. Section 6, Results of Laboratory Analysis, documents these finds, Acc. # 1 and Acc. # 2, glass vessel fragments.



Figure 30. T1, general plan view to the west, red/white arrow indicates north



Figure 31. T1, surface to base of excavation, profile view to south, white/black arrow indicates north



Figure 32. T1, surface to base of excavation, portion of the east wall profile, view to east, white/black arrow indicates north



Figure 33. T1, profile close up at the base of excavation, view to east, white/black arrow indicates north

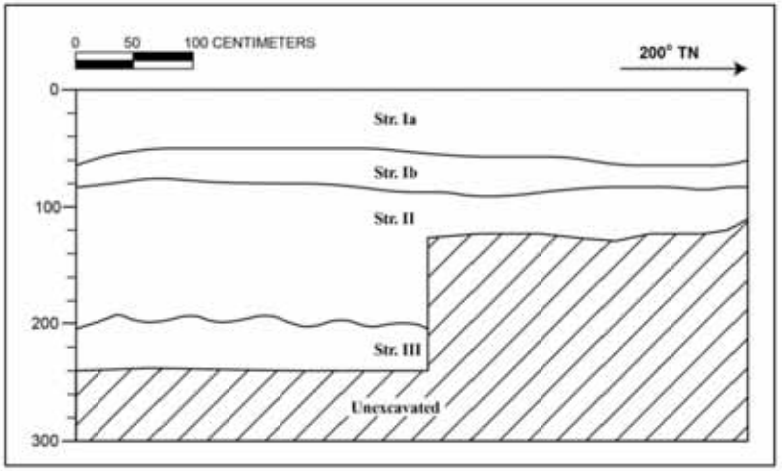

Figure 34. T1, east wall stratigraphic profile illustration

Table 3. T1 Stratigraphic Description

Stratum	Depth (cmbs)	Description of Sediment
Ia	0–60	Fill; 7.5YR 3/2, dark brown; sandy clay loam; massive (structureless) structure; moist, loose consistence; weak cementation; non-plastic; terrigenous origin; abrupt smooth lower boundary; few, fine roots
Ib	50–90	Fill; 10YR 3/3, dark brown; sandy clay loam; massive (structureless) structure; moist, loose consistence; non-plastic; terrigenous origin; abrupt, smooth lower boundary
II	80–200	Natural; 5YR 3/2, dark reddish brown; silty clay loam; moderate, very fine, platy structure; weak cementation; non-plastic; terrigenous origin; clear, wavy lower boundary
III	190–BOE	Natural; 10YR 3/2, very dark greyish brown; cinder; weak, medium, granular structure; moist, loose consistence; non-plastic; terrigenous origin; lower boundary not visible

5.2 Test Excavation 2 (T2)

T2 is located in the east/central portion of the project area, in a staff parking lot adjacent to the project area boundary with Alder Street. T2 measures 5.8 m long by 0.8 m wide with a maximum depth of 1.5 m and a general north/south (20 degrees true north) orientation. The stratigraphic profile of T2 (Figure 35 through Figure 38 and Table 4) consists of asphalt (Stratum Ia), crushed coral fill (Stratum Ib), dark brown sandy clay loam fill (Stratum Ic), crushed basalt fill (Stratum Id) and natural terrigenous dark reddish brown silty clay loam (Stratum II). The water table was not observed in T2. Two artifacts were recovered from T2, Stratum Ic, 40-65 cmbs. Section 6, Results of Laboratory Analysis, further documents these finds, Acc. # 3 and Acc. # 4, amber/light green glass vessel fragments, which represent a portion of the collection for SIHP # 50-80-14-7817.



Figure 35. T2, general plan view to south, red/white arrow indicates north



Figure 36. T2 west wall profile, surface to base of excavation, oblique view to the northwest, red/white arrow indicates north



Figure 37. T2, portion of the west wall profile, surface to base of excavation, view to west, white/black arrow indicates north, and red/blue arrow indicates trash pit representing a portion of SIHP # 50-80-14-7817

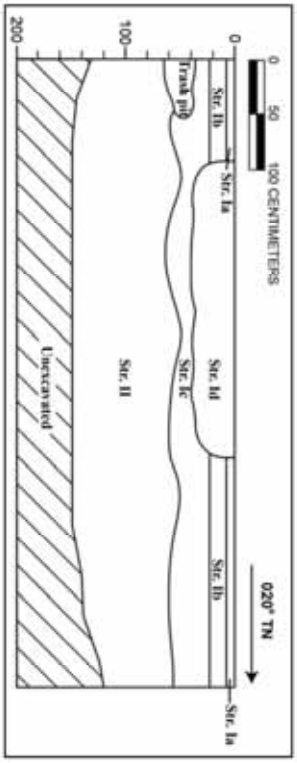

Figure 38. T2, west wall stratigraphic profile illustration

Table 4. T2 Stratigraphic Description

Stratum	Depth (cmbs)	Description of Sediment
Ia	0–10	Asphalt
Ib	10–26	Fill; GLEY 1 8/N, white; crushed coral base course; gravelly; massive (structureless); moist, loose consistence; no cementation; non-plastic; marine origin; clear, smooth lower boundary
Ic	25–62	Fill; 10YR 3/3, dark brown; sandy clay loam; massive (structureless) structure; moist, loose consistence; weak cementation; non-plastic; terrigenous origin; abrupt, smooth lower boundary
Id	0–40	Fill; GLEY 1 4/N, dark grey; crushed basalt base course; gravelly; massive (structureless); moist, loose consistence; no cementation; non-plastic; terrigenous origin; clear, smooth lower boundary
II	50–BOE	Natural; 5YR 3/2, dark reddish brown; silty clay loam; moderate, very fine, platy structure; moist, loose consistence; weak cementation; non-plastic; terrigenous origin; lower boundary not visible

5.3 Test Excavation 3 (T3)

T3 is located in the southeastern portion of the project area, adjacent to the project area boundary and the intersection of Alder and Elm streets. T3 measures 7.1 m long by 0.8 m wide with a maximum depth of 1.65 m and a general east/west (110 degrees true north) orientation. The stratigraphic profile of T3 (Figure 39 through Figure 45 and Table 3) consists of dark reddish brown silt loam fill (Stratum Ia), brown silt loam fill (Stratum Ib), natural terrigenous very dark brown loam (Stratum II), and natural terrigenous greenish black silty clay (Stratum III). The water table was observed at 1.6 m in T3. Six artifacts were recovered from T3, Stratum II, 60-80 cmbs. Figure 65 through Figure 68 document these finds as Acc. # 5 through Acc. # 10, glass vessel fragments. These artifacts represent a portion of the collection for SIHP # 50-80-14-7817. One artifact, an fire-cracked rock (FCR) fragment (Acc. # 16) was recovered from T3, Stratum III (155-165 cmbs), with faunal material representing *Bos taurus* (cow) tibia, *Sus scrofa* (pig) rib and *Gallus gallus* (chicken) tibiotarsus. T3, Stratum III represents SIHP # 50-80-14-7818. A bulk sediment sample, taken from 155-165 cmbs, was fine-screened, revealing both freshwater and marine snail species. More discussions of the recovery from T3 may be found in Section 6, Results of Laboratory Analysis. The recovery of artifacts, faural material, and snails recovered in the bulk sediment analyis represent the entirety of the current collection for SIHP # 50-80-14-7818.



Figure 39. T3, general plan view to east, red/white arrow indicates north



Figure 40. T3, surface to base of excavation, oblique view to northwest, north wall profile, red/white arrow indicates north



Figure 41. T3, portion of the north wall profile, oblique view to northwest, red/white arrow indicates north



Figure 42. T3, portion of the north wall profile to the base of excavation, red/white arrow indicates north



Figure 43. T3, surface to 1.0 m below surface, portions of the south, east, and north walls, profile view to east, blue/red arrow denotes a portion of SIHP # 50-80-14-7817 historic artifacts (Acc. # 5) in situ, red/white arrow indicates north



Figure 44. T3, portion of the north wall profile, close-up oblique view to northwest of the BOE, noting blue/red arrows indicating SIHP # 50-80-14-7818, red/white arrow indicates north

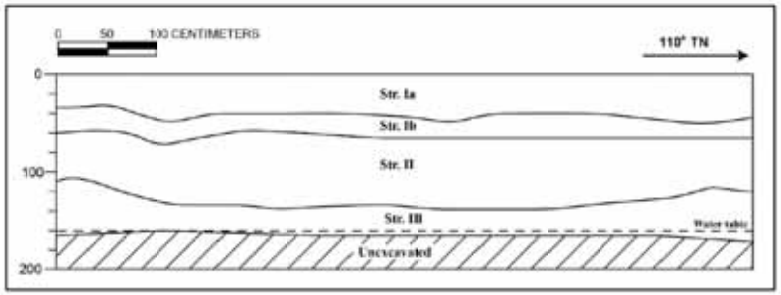

Figure 45. T3, north wall stratigraphic profile illustration

Table 5. T3 Stratigraphic Description

Stratum	Depth (cmbs)	Description of Sediment
Ia	0–50	Fill; 5YR 2.5/2, dark reddish brown; silt loam; massive (structureless); moist, loose consistence; no cementation; non-plastic; terrigenous origin, abrupt, smooth lower boundary
Ib	35–70	Fill; 10YR 5/3, brown; silt loam; massive (structureless); moist, loose consistence; no cementation; non-plastic; terrigenous origin, abrupt, smooth lower boundary
II	60–138	Natural; 10YR 2/2, very dark brown; loam; moderate, fine, granular structure; moist, friable consistence; weak cementation; slightly plastic; clear, terrigenous origin, smooth lower boundary
III	110–BOE	Natural; 5Y 2.5/1, black; silty clay; moderate, very fine, blocky structure; wet, sticky consistence; weak cementation; plastic; terrigenous origin; lower boundary not visible; fresh water table observed at 1.6 m

5.4 Test Excavation 4 (T4)

T4 is located in the southwest portion of the project area, adjacent to the project area boundary and the intersection of Elm Street and Pi'ikoi streets. T4 measures 6.0 m long by 0.8 m wide with a maximum depth of 1.5 m and a general northwest by southeast (330 degrees true north) orientation. The stratigraphic profile of T4 (Figure 46 through Figure 51 and Table 7) consists of dark reddish brown silt loam fill (Stratum Ia), brown silt loam fill (Stratum Ib), very dusky red silt loam fill (Stratum II), natural terrigenous very dark brown loam (Stratum III), and natural terrigenous very dark grayish brown cinder. The water table was not observed in T4. Four artifacts were recovered from T4, Stratum II 60-108 cmbs. Section 6, Results of Laboratory Analysis, documents these finds as Acc. # 11 through Acc. # 15, which represent a portion of the collection for SIHP # 50-80-14-7817.



Figure 46. T4 groundbreaking, general view to southeast noting the Elm Street/Pi'ikoi Street intersection, red/white arrow indicates north



Figure 47. T4, general west wall profile, oblique view to northwest of surface to the base of excavation, red/white arrow indicates north



Figure 48. T4, west wall profile, view to west of a mid- to northern portion of the trench, red/white arrow indicates north, blue/red arrow indicates a portion of SIHP # 50-80-14-7817, brick not collected



Figure 49. T4, west wall profile, view to southwest of a mid- to northern portion of the trench, red/white arrow indicates north



Figure 50. T4, general west wall profile, oblique view to south of a southern portion of the trench, red/white arrow indicates north

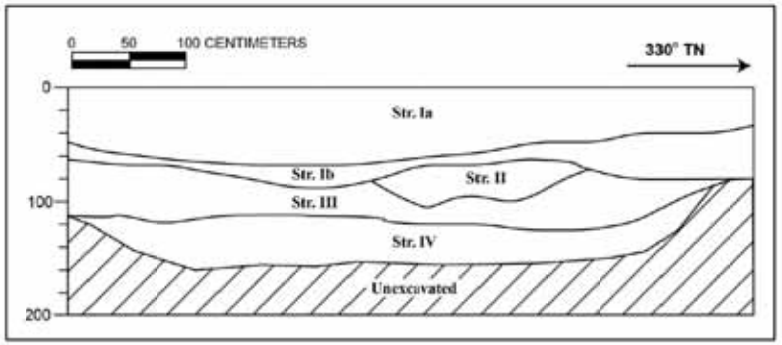

Figure 51. T4, west wall stratigraphic profile illustration

Table 6. T4 Stratigraphic Description

Stratum	Depth (cmbs)	Description of Sediment
Ia	0–70	Fill; 10YR 5/3, brown; silt loam; massive (structureless); moist, loose consistence; weak cementation; non-plastic; terrigenous origin; abrupt, wavy lower boundary
Ib	35–80	Fill; 10YR 5/3, brown; silt loam; massive (structureless); moist, loose consistence; weak cementation; non-plastic; terrigenous origin; abrupt, wavy lower boundary
II	90–105	Fill; 2.5YR 2.5/2, very dusky red; silt loam; massive (structureless); moist, loose consistence; weak cementation; non-plastic; terrigenous origin; abrupt, irregular lower boundary
III	70–130	Natural; 10YR 2/2, very dark brown loam; moderate, fine, granular structure; moist, friable consistence, weak cementation; slightly plastic; smooth, abrupt lower boundary
IV	115–160	Natural, 10YR 3/2; cinder; weak, medium, granular structure; moist, loose consistence; non-plastic; terrigenous origin; lower boundary not visible

5.5 Test Excavation 5 (T5)

T5 is located in the west-central portion of the project area, adjacent to the project area boundary along Pi'ikoi Street and within a staff parking lot. T5 measures 6.4 m long by 0.8 m wide with a maximum depth of 1.2 m and a general east/west (110 degrees true north) orientation. The stratigraphic profile of T5 (Figure 52 through Figure 55 and Table 7) consists of dark reddish brown silt clay fill (Stratum Ia), brown silt loam fill (Stratum Ib), and natural terrigenous very dark brown loam (Stratum II). The water table was not observed in T5, nor were artifacts or cultural resources in any form observed within T-5.



Figure 52. T5, general plan view to east, black/white arrow indicates north



Figure 53. T5, north wall profile, oblique view to east, black/white arrow indicates north



Figure 54. T5, north wall profile, view to north, red/white arrow indicates north

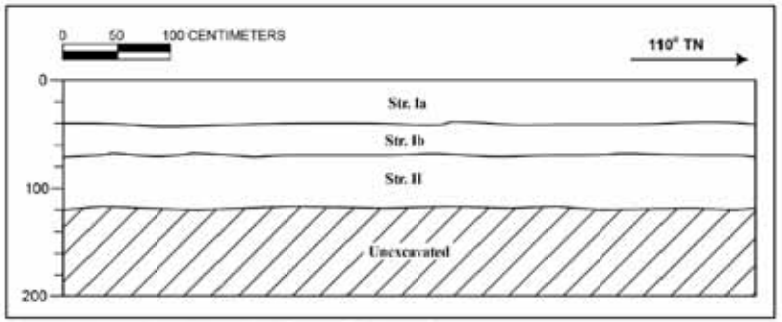

Figure 55. T5, north wall stratigraphic profile illustration

Table 7. T5 Stratigraphic Description

Stratum	Depth (cmbs)	Description of Sediment
Ia	0–40	Fill; 5YR 2.5/2, dark reddish brown; silty clay; massive (structureless); moist, loose consistence; weak cementation; non-plastic; terrigenous origin; abrupt, smooth lower boundary
Ib	40–70	Fill; 10YR 5/3, brown; silt loam; massive (structureless); moist, loose consistence; weak cementation; non-plastic; terrigenous origin; abrupt, smooth lower boundary
II	70–120	Natural; 10YR 2/2, very bark brown; loam; moderate, fine, granular structure; moist, friable consistence; weak cementation; slightly plastic; lower boundary not visible

5.6 Test Excavation 6 (T6)

T6 is located in the north-central portion of the project area. T6 measures 4.6 m long by 0.8 m wide, with a maximum depth of 1.8 m and a general east/west (290 degrees true north) orientation. To avoid disturbance of a buried active water utility within the western portion of the trench, a buried utility immediately west of the trench, and a concrete stair in the far eastern portion of the initial trench, the excavation of T6 was abbreviated in length and shifted 0.8 m south. The stratigraphic profile of T6 (Figure 56 through Figure 59 and Table 8) consists of dark brown sandy clay loam fill (Stratum Ia), dark brown sandy clay loam fill (Stratum Ib), and natural terrigenous dark reddish brown silty clay loam (Stratum II). The water table was not observed in T6. No artifacts or cultural resources in any form were observed within T-6.



Figure 56. T6, ongoing excavation, general plan view to east, black/white arrow indicates north

Figure 57. T6, upper fill sequence in the western portion of the south wall profile, oblique view to southwest, red/white arrow indicates north

Figure 58. T6, surface to base of excavation, eastern portion of the south wall profile, view to south, red/white arrow indicates north

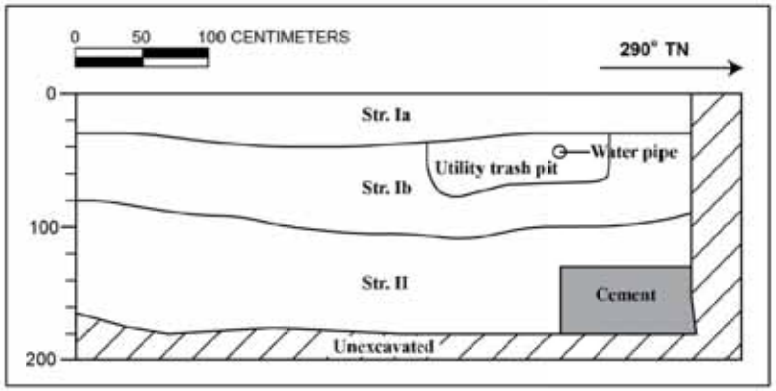

Figure 59. T6, south wall stratigraphic profile illustration

Table 8. T6 Stratigraphic Description

Stratum	Depth (cmbs)	Description of Sediment
Ia	0–40	Fill; 7.5YR 3/2, dark brown; sandy clay loam; massive (structureless); moist, loose consistence; weak cementation; non-plastic; terrigenous origin; clear, wavy lower boundary
Ib	30–110	Fill; 10YR 3/3, dark brown; sandy clay loam; massive (structureless); moist, loose consistence; weak cementation; non-plastic; terrigenous origin; abrupt, wavy lower boundary; few, fine roots
II	80–180	Natural; 5YR 3/2; dark reddish brown; silty clay loam; moderate, very fine, platy structure; moist, loose consistence; weak cementation; non-plastic; terrigenous origin; lower boundary not visible; few, fine roots

5.7 Test Excavation 7 (T7)

T7 is located in the central portion of the project area. T7 measures 3.1 m long by 0.6 m wide, with a maximum depth of 1.4 m and a general east/west (115 degrees true north) orientation. T7 was located in a walled garden courtyard, prohibiting backhoe access and thus requiring hand excavation with trowels and shovels. The stratigraphic profile of T7 (Figure 60 through Figure 64 and Table 9) consists of dark brown silt loam fill (Stratum Ia), dark yellowish brown loam fill (Stratum Ib), and natural terrigenous dark brown loam (Stratum II). The water table was not observed in T7. No artifacts or cultural resources in any form were observed within T-6.



Figure 60. T7 general plan view to west, red/white arrow indicates north



Figure 61. T7 north wall profile, oblique view to northwest, red/white arrow indicates north



Figure 62. T7 north wall profile, western portion, view to northwest, red/white arrow indicates north



Figure 63. T7, north wall profile, oblique view to northeast, white arrow indicates north

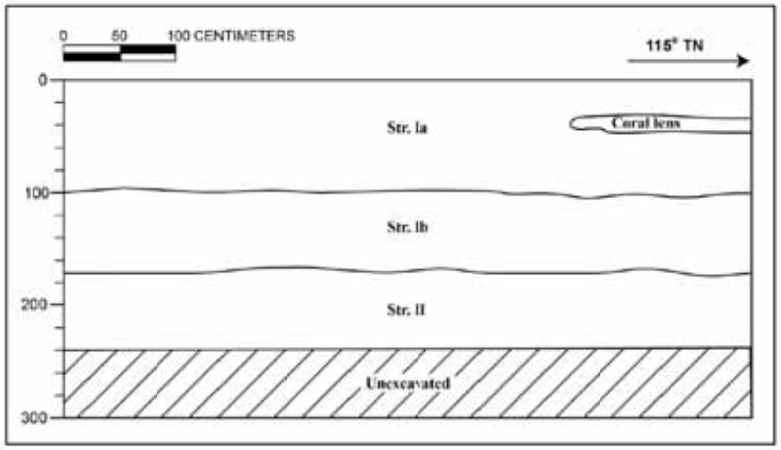

Figure 64. T7, north wall stratigraphic profile illustration

Table 9. T7 Stratigraphic Description

Stratum	Depth (cmbs)	Description of Sediment
Ia	0–50	Fill; 7.5YR 3/2, dark brown; silt loam; massive (structureless); moist, loose consistence; weak cementation; non-plastic; terrigenous origin; clear, wavy lower boundary; coral inclusion lens in eastrn portion of trench; common, fine roots
Ib	50–88	Fill; 10YR 3/4, dark yellowish brown; loam; massive (structureless); moist, loose consistence; weak cementation; non-plastic; terrigenous origin; abrupt, wavy lower boundary; few, fine roots
II	85–120	Natural; 7.5YR 3/2, dark brown; loam; weak, fine, blocky structure; moist, friable consistence; weak cementation; non-plastic; few, fine roots; lower boundary not visible

Section 6 Results of Laboratory Analysis

Twenty-seven artifact fragments, representing at most 17 historic artifacts were recovered from the project area (Table 10). The collection represents nine glass bottles, two glass vases, one ceramic plate, one ceramic bowl, two ceramic pitchers, and one FCR. Sediment sample analysis consisted of fine screening 2 liters (l) (0.5 gallons) of bulk matrix from T3, Stratum III (110 to 165 cmbs). Analysis of these 2 l of bulk sediment from T3, summarized in Table 12, revealed both marine and fresh water snail species including *Nerita picea, Tryonia porrecta,* and *Melanoides tuberculate*. All recovered faunal material, including *Bos taurus* (cow), *Sus scrofa* (pig) and *Gallus gallus* (chicken) is included in Table 11.

6.1 Artifact Analysis

The Alder Street historic artifact collection is comprised of 27 fragments of glass and ceramics, plus one FCR (fire-cracked rock) fragment. The entirety of the collection represents artifacts collected from four excavated trenches. The artifacts are described in Table 10 and illustrated in photographs (Figure 65 through Figure 79). The material fragments consist of a body fragment of a vase or other glass vessel (Acc. # 1), a glass vessel base fragment (Acc. # 2), two light green fragments of a beverage bottle made in a three-piece mold (Acc. # 3), a non-embossed amber glass bottle fragment (Acc. # 4), three fragments of a dark olive glass free-blown bottle (Acc. # 5), three light green glass bottle fragments (Acc. # 6), a complete colorless glass medicine bottle (Acc. # 7), an amber glass bottle with an embossed pattern on the entire surface (Acc. # 8), a dark olive (black) glass beverage bottle base (Acc. # 9), a dark olive glass beverage lip (Acc. # 10), a light green bottle lip, (Acc. # 11), three fragments of a Chinese porcelain plate (Acc. # 12), a Euro-American ironstone shallow bowl fragment (Acc. # 13), a Euro-American whiteware pitcher base fragment with a transfer-print decoration (Acc. # 14), seven fragments of a Euro-American ironstone pitcher with no decoration (Acc. # 15), and one FCR fragment (Acc. #16) . Some of the artifact fragments may be parts of the same artifact. The glass body (Acc. # 1) and base fragment (Acc. # 2) of a vessel from Trench 1 may be from the same vase, although the broken edges of the fragments do not fit together. One lip fragment of a light green bottle from T3 (Acc. # 6) does connect with the broken edge of a light green bottle found in T2 (Acc. # 3), but they were given separate accession numbers since they were collected from two different trenches. The lip of a dark olive glass bottle from T4 (Acc. # 10) could be a portion of the dark olive bottle from T3, trash layer (Acc. # 5) or the dark olive bottle from T3, Stratum II (Acc. # 9).

6.1.1 Glass Bottles

The bottles from this collection were analyzed, described, and dated from information at the Bureau of Land Management/Society for Historical Archaeology "Historic Glass Bottle Identification & Information Website (BLM/SHA 2015). The website provides information mainly on bottles made in North America. American glassmakers were quick to embrace and switch over to new technologies. In Europe and England, which had powerful guilds and unions to guard against the loss of jobs for skilled glass-blowers, the switch to new technologies was usually slower. It should be kept in mind that many of the early bottles found in Hawai'i were made in England and Europe, rather than America. Thus for non-American bottles found in Hawai'i, the beginning and ending dates for a new technology may be later than that given at the BLM/SHA website. This BLM/SHA resource divides bottles into three groups based on the

Table 10. Summary of Artifacts Recovered

Acc. No.	Trench	Stratum / Depth (cmbs)	Age	Material	Type	Description	#	Wt. (g)
001	T1	Ia / 0-50	?	glass	vase	Fragment of colorless glass vessel body, pressed glass with flutes and pattern	1	13.7
002	T1	Ia / 0-50	?	glass	vase	Fragment of colorless glass half circle, broken, flat bottom surface and convex upper surface	1	12.0
003	T2	Ic /40-65	1830-1910	glass	bottle	Fragments of aqua green glass beverage bottle, base to body (1) and shoulder to neck (1), mold-blown with three-piece mold	2	246.0
004	T2	Ic /40-65	?	glass	bottle	Fragment of amber glass bottle, cylindrical body, no seam	1	11.8
005	T3	II / 70	1800-1870	glass	bottle	Fragment (base) of very dark olive (black), free-blown, beverage bottle	1	477.7
006	T3	Str II / 60-80	1800-1885	glass	bottle	Fragments of light green glass beverage bottle, body (2) and lip (1), applied patent lip, no seams on lip, may be a portion of Acc. # 1, three-piece mold bottle	3	33.2
007	T3	II / 60-80	1850-1920	glass	bottle	Complete, colorless, mold-blown glass medicine bottle, square base with beveled corners, mold-blown, two-piece cup bottom mold	1	108.1
008	T3	II / 60-80	1850-1920	glass	bottle	Fragment of amber, mold-blown glass bottle, oval base and bi-convex body, mold-blown, two-piece cup-bottom mold, pattern with flutes and vines, possibly a flask	1	163.8

Acc. No.	Trench	Stratum / Depth (cmbs)	Age	Material	Type	Description	#	Wt. (g)
009	T3	II / 60-80	1800-1870	glass	bottle	Fragment of very dark olive (black) beverage bottle, base, applied grooved ring finish, beveled lip, could be free-blown or mold-blown	1	85.5
010	T3	II / 60-80	1800-1870	glass	bottle	Fragment of dark olive (black) glass beverage bottle, base to body, round base with push-up, sand pontil scar, probably dip mold based upon orange peel texture	1	271.9
011	T4	Str II / 60-108	1800-1885	glass	bottle	Fragment of light green bottle, neck to lip portion, reinforced extract finish	1	15.4
012	T4	Str II / 60-108	1820-1850	ceramic	plate	Fragments of Chinese Qing dynasty plate, base to rim (1), body to rim (1) and body (1) repeated Sanskrit Om symbol on cavetto, central pattern is Chinese character for *shou*	3	97.0
013	T4	Str II / 60-108	1862-1880	ceramic	bowl	Fragment of ironstone shallow bowl, base to rim fragment, transparent glaze, black stomped makers mark on base: British Coat of Arms with lion and unicorn / IMPERIAL IRONSTONE CHINA / HOPE & Carter, a Burslem, England pottery	1	42.1
014	T4	Str II / 60-108	Post-1840	ceramic	pitcher	Fragment of whiteware pitcher base to body, octagonal base, bulbous body, blue geometric and floral transfer print pattern on upper side of base, printed blue "G" with serif on base bottom	1	325.8

Acc. No.	Trench	Stratum / Depth (cmbs)	Age	Material	Type	Description	#	Wt. (g)
015	T4	Str II / 60-108	1862-1882	ceramic	pitcher	Fragments of ironstone pitcher, base (1), body (3) base to body (1), body to rim with broken handle (1) and body to rim (1), transparent glaze, black stamped makers mark on base is the British Coat of Arms with lion and unicorn, NE China, "[PINDE]R BOURNE & C[O] / BURSLEM", bulbous body	7	268
016	T3	III / 150-165	?	basalt	FCR	FCR fragment (6.0 by 6.0 cm), vesicular basalt with angular fractures and fire-reddened surfaces	1	117.4

technology of bottle manufacture. Free-blown bottles, made up to ca. 1865 in North America, were usually made by a glassblower without any formal metal molds. These types of bottles are sometimes asymmetrical, have no mold seam lines, have a thickening of the glass at the heel (the area above the base), and have a pontil scar on the base, where a pontil rod was used to hold the bottle while the glassblower made a lip for the bottle. From ca. 1800 in the United States, glass-blowers began to blow a portion of the bottle in a metal mold; only the earliest mold-blown bottles also have a pontil scar. The lip of the bottle still had to be finished by hand. During the mold-blown period, this was at first accomplished by adding new glass to the neck of the bottle, and forming the "finish" with a lipping tool. These "applied lips" are found on bottles made from 1800 to 1885. An improved method for bottle finishes was introduced in 1870 when the neck of the bottle was simply reheated, and improved lipping tools were used. These finishes are called "tooled lips," and are found on bottles dating from 1870 to 1920. In 1903, Michael Owen invented a machine that completely did away with the human glassblower, as a machine blew the glass from base to lip. Glass manufacturers continued to make mold-blown glass up to ca. 1920 in the United States. Thus, the three types of glass bottles made in the United States, based on manufacturing techniques, are free-blown (pre-1865), mold-blown (1800-1920), and machine-made (1903-present).

There is one possible free-blown black glass bottle fragment in the Alder Street collection (Acc. # 5). This bottle base fragment has glass thickening at the heel and a sand-pontil scar on the base. This bottle would have been made between 1800 and 1870. One light green beverage bottle (Acc. # 3 and Acc. # 6) was made in a three-piece mold, used from 1830 to 1910. This bottle has an "A / 80" embossed on the base, but this does not seem to be a glass makers' mark. It is probably some type of mold number. The two light green (Acc. # 6 and Acc. # 11) and one black glass fragment (Acc. # 10) with applied lips are found on bottles made before 1885. Another black bottle base (Acc. # 9) has a sand-pontil scar and an "orange-peel texture." Although the bottle has a pontil, it is not free-blown. It was probably made in a dip mold, used from 1800 to 1870. The surfaces of some of the early molded bottles have an "orange-peel texture," which occurred when the metal mold was not heated to the proper temperature. The colorless medicine bottle (Acc. # 7) and the amber embossed bottle (Acc. # 8) were both made in a two-piece cup-bottom mold, used for mold-blown bottles from 1850 to 1910. The other glass fragments did not have any diagnostic manufacturing attributes. There were no machine-made bottles in the collection. In summary, the bottles were all manufactured in the nineteenth century, and probably before ca. 1885, when applied lips were no longer made.

6.1.2 Ceramics

There are four ceramic vessels in the collection, two Euro-American (made in Great Britain, Europe, or America) ironstones, one Euro-American whiteware, and one Chinese porcelain plate. Whiteware is a type of refined earthenware first made around 1820 and ironstone is a type of refined earthenware first made around 1840. The whiteware pitcher has a blue monochrome floral transfer print on the upper side of the pitcher base. This type of transfer print was made from the late 1780s to the late nineteenth century (Lebo 1997:G-7). Although there is a stamped "G" on the base, this does not seem to be a maker's mark. It might be the initial of the distributor or an inventory code. Both ironstones are undecorated and both have a stamped maker's mark on the base, one for Pinder, Bourne & Company, and one for Hope & Carter. Thomas Pinder, Joseph Harvey Bourne, and John Hope formed the partnership of Pinder, Bourne & Hope in 1851 at the

Fountain Place factory, Burslem, one of the towns that form the modern city of Stoke-on-Trent, Staffordshire, West Midlands, England. The company moved to a Burslem factory on Nile Street in 1860. In 1862, the partnership broke up and John Hope took over the old Fountain Place factory with a new partner, John Carter. Pinder and Bourne, with several new partners, stayed at the Nile Street factory as Pinder, Bourne and Company. The partnership of Hope & Carter was taken over by G.L. Ashworth & Bros. in 1880, and the partnership of Pinder, Bourne & Company was taken over by the Doulton & Company in 1882. Thus the pitcher and the plate, both ironstone, come from two closely related Burslem (Stoke-on-Trent) English potteries operating at the same time and making similar products, as Pinder, Bourne & Company (1862-1882) and Hope & Carter (1862-1880). The specific mark on the Hope & Carter bowl is a style known to have been used by at least 1867 (Stoke-on-Trent 2015_Potteries_A-Z).

The Chinese porcelain plate, with a hand-painted blue decoration, was made during the Qing dynasty (1644-1912). The Chinese produced ceramics for export and for domestic use. Export wares were traded to Asian markets (including Malaysia), to Europe, and to America. In Hawai'i, these export ceramics could date soon after Western Contact (1778), as many of the westerners who first touched at the Islands were involved in the China trade, taking seal furs, sandalwood, and other trade items from the West Coast and the Pacific Islands to exchange for luxury goods, such as porcelain wares, from China (Kuykendall 1938:84–85). As early as 1830, there were three Chinese shop-keepers in Honolulu, and at least one sold "crockery" (Char 1974:20). In 1852, Chinese contract workers were first officially brought to Hawai'i to work in the sugar fields (Nordyke and Lee 1989:199). After this date, the main item of export to Hawai'i and the West Coast, is not the export wares, but the domestic wares made in China (Jones 1992:87). A large number of Chinese hand-painted wares, especially rice bowls, with patterns such as "Bamboo," "Double Happiness" and "Four Seasons" were sent to Hawai'i and the West Coast of America in the last half of the nineteenth century and sold to the Chinese immigrants who came to work in the sugar cane fields in Hawai'i or the gold fields and railroad camps of California and the western states (Costello and Maniery 1988:16; Lebo 1997:G-14–15).

The specific Chinese plate in the Alder Street collection is decorated with a repeating stick-like pattern on the rim portion. This "stick" is actually a stylized "Om" symbol, a Sanskrit symbol that can have several meanings, such as soul, truth, and the universe (Wikipedia 2015_Om). The central fragment of the plate has a scroll pattern around another symbol. The plate was compared to other Chinese Qing ceramics in the literature, and it most closely matches a plate found during the underwater salvage of the "Desaru," a Chinese junk that sank off the coast of Malaysia in 1845 (Maritime Asia 2015). This plate, shown in Figure 77, has the stylized repeating "Om" symbol on the rim and scroll patterns around the central painted symbol. The central figure on the "Desaru" plate is the Chinese symbol "*shou*," which means life. Two Chinese Qing patterns, the "Om" and "Allah" made for the Malaysian market, have been dated to ca. 1820-1850 by Willets and Poh (1981:5). Both patterns on Chinese export wares have also been found on Hawai'i sites, especially Honolulu and Kaka'ako sites dating to the early to mid-nineteenth century (Hammatt 2013:47). The presence of the pre-1850 Chinese export "Om" plate and the lack of the post-1850 Chinese domestic wares may be another indication that the Adler Street collection was deposited in the mid to late nineteenth century.



Figure 65. Black glass bottles, Acc. #5 (left), #9 (lower right) and #10 (upper right), 1800-1885



Figure 66. Light green glass bottles, Acc. # 3 (upper), # 6 (lower left) and # 11 (lower right), 1830-1910



Figure 67. Colorless glass, glass vessel fragments, Acc. #s 1-2 (left) and medicine bottle (Acc. # 7), 1850-1920



Figure 68. Amber glass bottles, Acc. # 4 (left) and Acc. # 8 (right), 1850-1920



Figure 69. Euro-American whiteware pitcher with transfer print pattern, top of base, Acc. # 14, 1840-1860

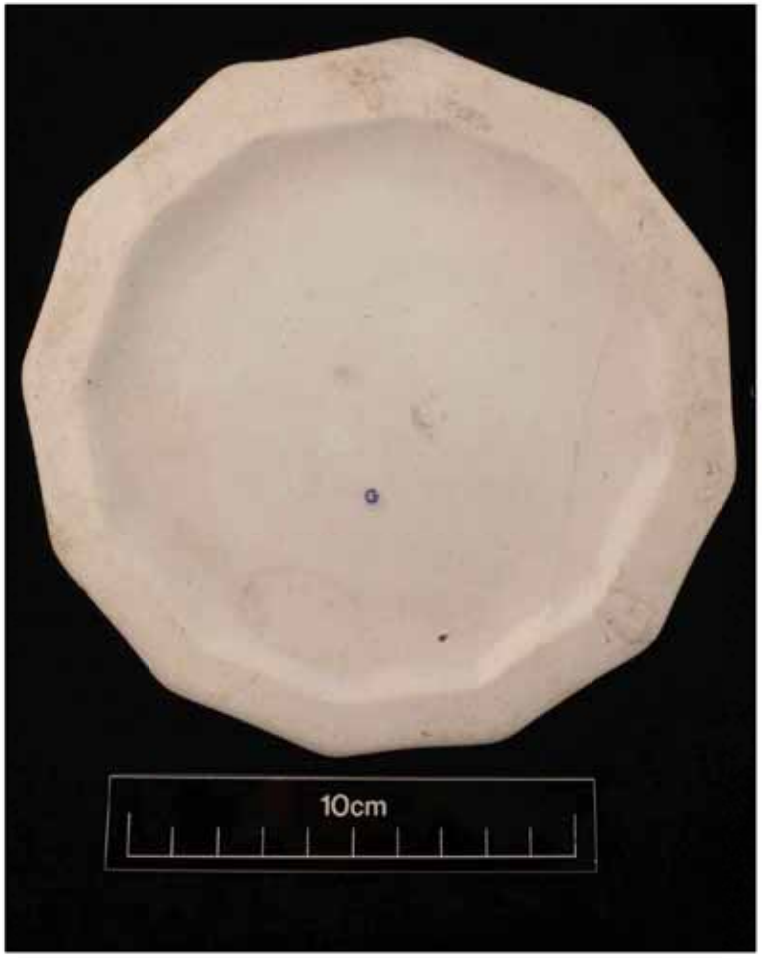

Figure 70. Euro-American whiteware pitcher, stamped G on bottom of base Acc. # 14, 1840-1860

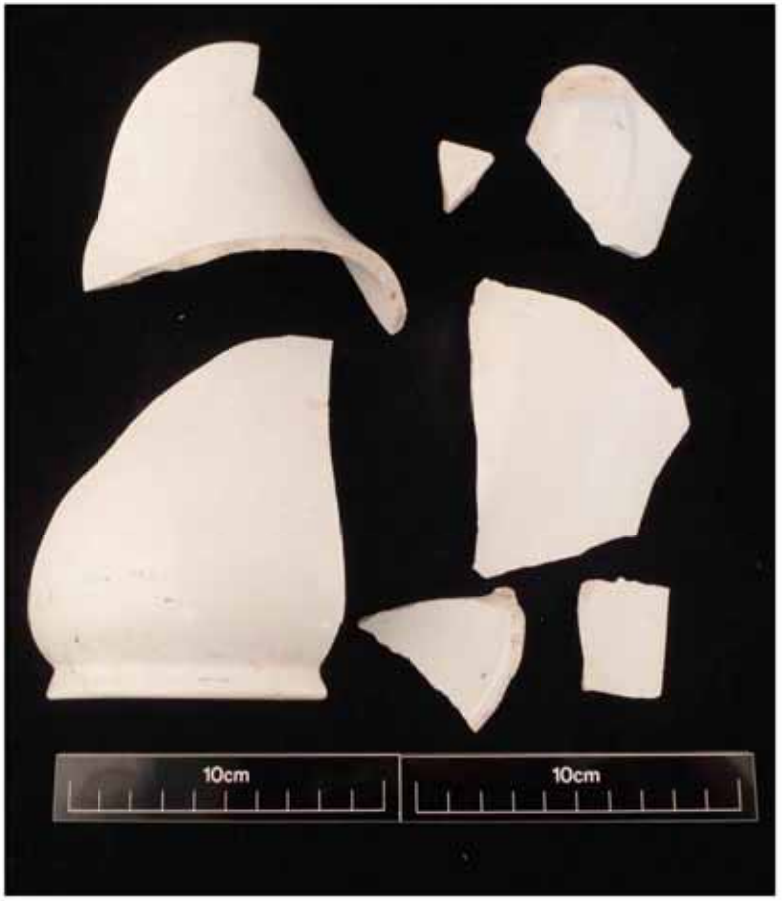

Figure 71. Euro-American ironstone pitcher, Acc. # 15, 1862-1882

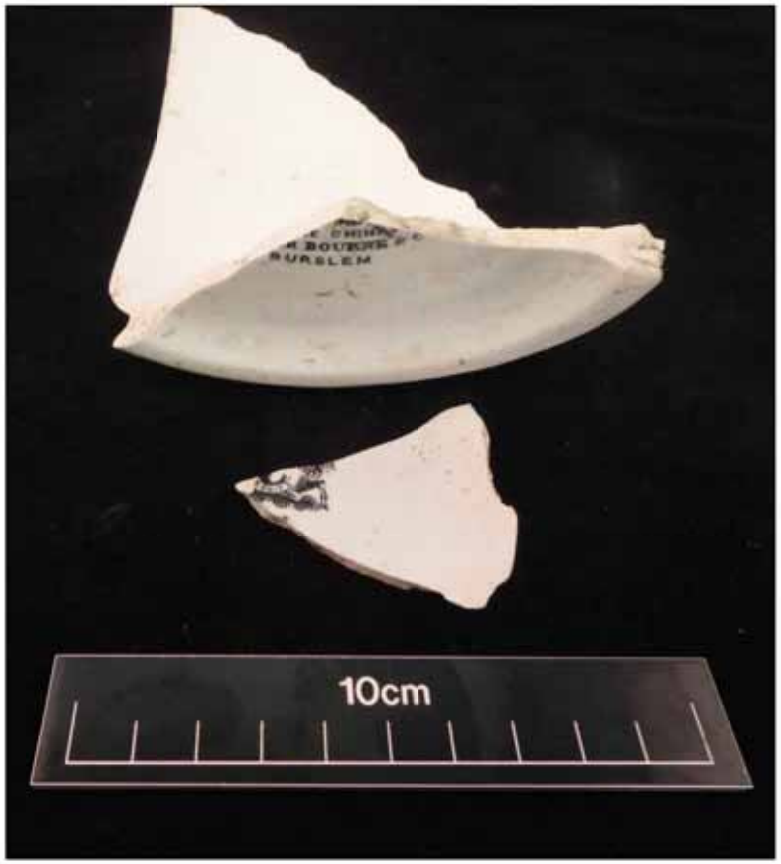

Figure 72. Euro-American ironstone pitcher, Acc. # 15, maker's mark of Pinder, Bourne & Company, Burselm, 1862-1882

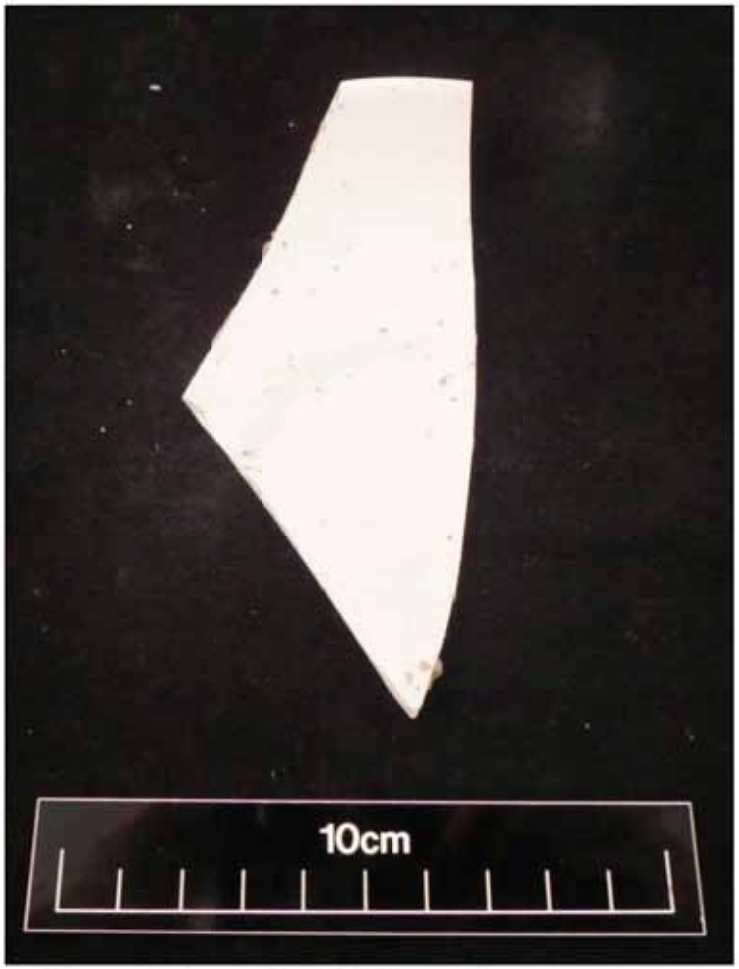

Figure 73. Ironstone bowl, upper surface, 1862-1880, Acc. # 13

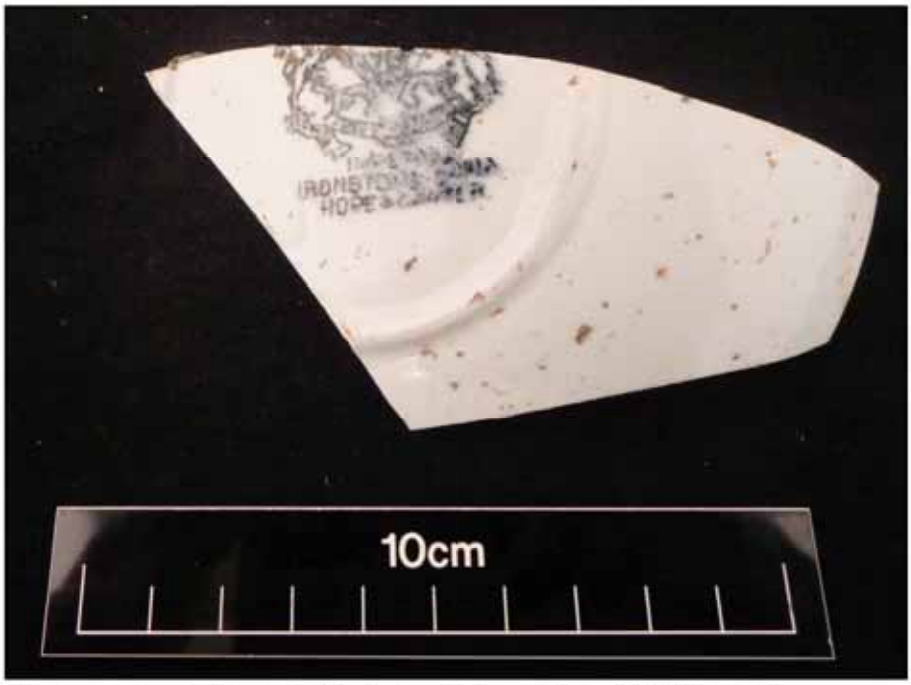

Figure 74 . Euro-American ironstone bowl, base with maker's mark, Hope and Carter, 1862-1880, Acc. # 13

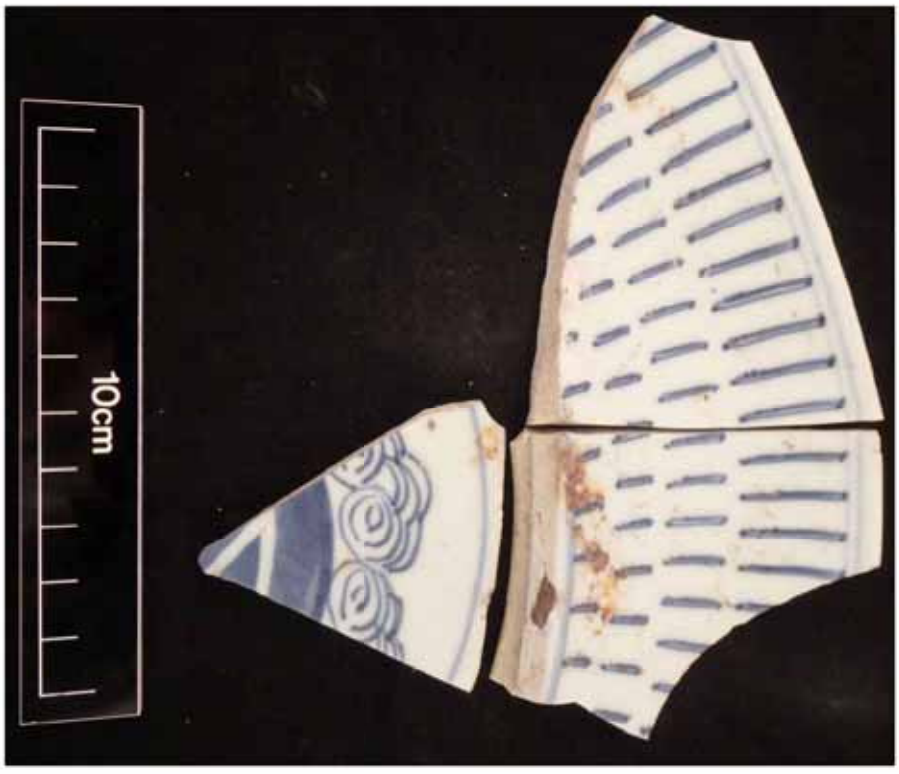

Figure 75. Chinese Qing dynasty "Om" plate, interior side, Acc. # 12, 1820-1850

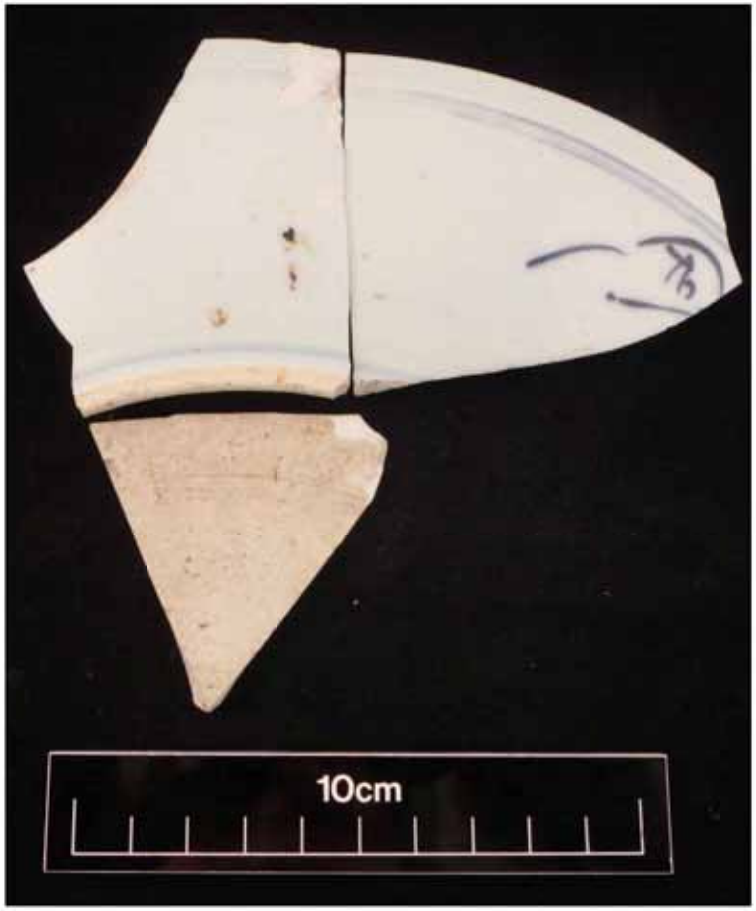

Figure 76. Chinese Qing dynasty plate, exterior side (including unglazed base), Acc. # 12, 1820-1850

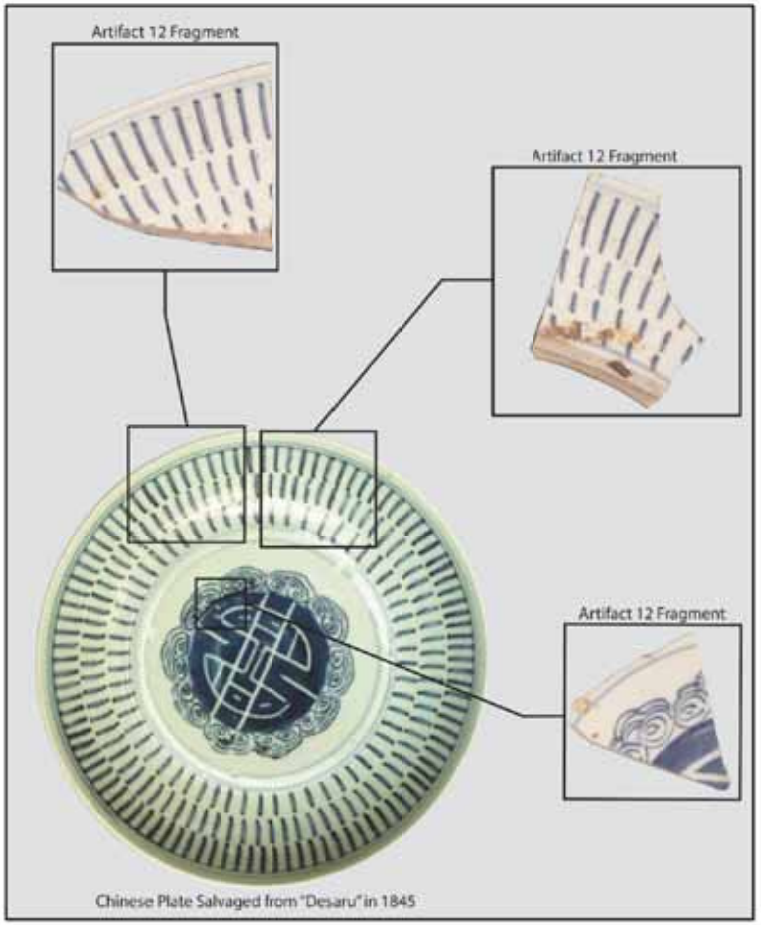

Figure 77. Acc. # 12, compared with a plate found during the underwater salvage of the "Desaru," a Chinese junk that sank off the coast of Malaysia in 1845 (Maritime Asia 2015)

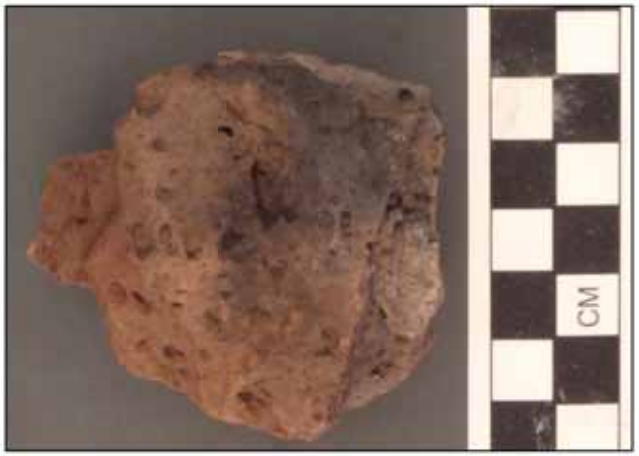

Figure 78. Fire-cracked rock, Acc. # 16, dorsal surface

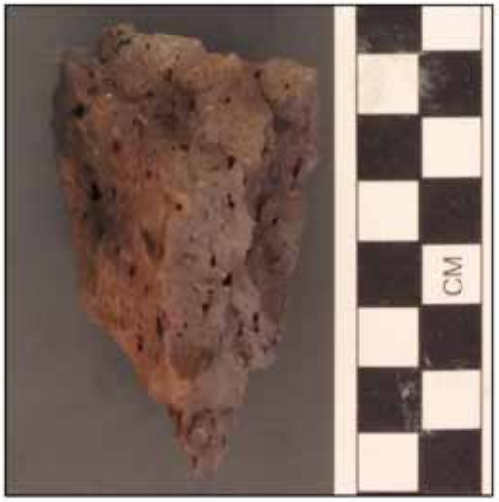

Figure 79. Fire-cracked rock, Acc. # 16, profile view

6.1.3 Summary and Conclusions

Although no pre-Contact traditional Hawaiian materials were recovered from the archaeological testing of the project area, Stratum III in T3 did include exotic faunal material and one FCR fragment (Acc. # 16). This lens likely represents occupation within the project area prior to 1850 and is documented as SIHP # 50-80-14-7818.

SIHP # 50-80-14-7817 is interpreted as portions of the material discarded from the family of Henry Martyn Whitney, Sr., who was born in Hawai'i in 1824, moved to the Alder Street house sometime between 1880 and 1884, and lived there until his death in 1904. His only surviving son, Henry Martyn Whitney, Jr., lived in the house until at least 1924; he died in 1936. The Juvenile Detention Center was built in 1944. It is therefore possible that the only household structure on this property in the nineteenth to early twentieth century was the Whitney house, inhabited by at least two generations of the family. The artifacts (Acc. # 1 through Acc. # 15) therefore, might all have once been owned and used by the Whitney family and discarded sometime in the nineteenth century as household trash. Most of the bottles and ceramics can be dated to the pre-1885 period, and one ceramic, the Chinese Qing dynasty plate, may have been purchased or collected by the family before ca. 1850.

6.2 Faunal Analysis

Faunal analysis revealed the presence of *Bos taurus* (cow), *Sus scrofa* (pig), and *Gallus gallus* (chicken) within the subterranean tests in the project area. Sediments related to SIHP # 50-80-14-7817 from T2 and T4 (Strata Ic and II respectively) contained fragments of *Bos taurus* (cow) saw-cut rib and tibiotarsus. Sediments related to SIHP # 50-80-14-7818 from T3 (Stratum III) contained fragments of *Bos taurus* (cow) tibia, *Sus scrofa* (pig) rib and *Gallus gallus* (chicken) tibiotarsus.

Table 11. Summary of Recovered Faunal Material

Trench	Stratum & Depth (cmbs)	Species	Description	Count	Weight (g)
T2	Ic (25-62)	*Bos taurus* (cow)	Rib fragment, saw cut, striation consistent with metal blade used in commercial butcher shop	1	30.0
T3	III (150-165)	*Bos taurus* (cow)	Tibia, fragment		898.6
T3	III (150-165)	*Sus scrofa* (pig)	Juvenile, rib fragment		242.4
T3	III (150-165)	*Gallus gallus* (chicken)	Tibiotarsus fragment	1	1.9
T4	II (90-105)	*Bos taurus* (cow)	Tibiotarsus fragment	1	429.4

Trench	Stratum & Depth (cmbs)	Species	Description	Count	Weight (g)
T7	Ib / 60	*Sus scrofa* (pig)	Rib fragment, saw cut, striation consistent with metal blade used in commercial butcher shop	1	2.5

6.3 Bulk sediment Analysis

Bulk sediment sample analysis consisted of fine screening 2 l (0.5 gallons) of matrix collected from T3, Stratum III (110 to 165 cmbs). Analysis of this bulk sediment revealed both marine and fresh water snail species including *Nerita picea*, *Tryonia porrecta*, and *Melanoides tuberculate*.

Tryonia porrecta is a freshwater snail that is apparently native to the Hawaiian Islands but is also found in North America in California and the Great Basin region. It has been found throughout the Hawaiian Islands and is often abundant in sediments from fishponds and taro fields of pre- and post-Contact age, but has virtually disappeared from such sites since the early twentieth century (Christensen 2011 and 2013).



Figure 80. *Tryonia porrecta* recovered from T3, Str. III (110-165 cmbs) bulk matrix sample

Melanoides tuberculata is a common inhabitant of fresh and brackish water habitats in the Hawaiian Islands. The species is known to be native to Africa and Indonesia but has spread throughout the tropics within the last several hundred years. It is probably a pre-Contact introduction in Hawai'i, but the possibility cannot yet be excluded that it is native here (Christensen 2012 and references cited therein).



Figure 81. *Melanoides tuberculata* recovered from T3, Str. III (110-165 cmbs) bulk matrix sample

Nerita picea (pipipi) is a small to medium-sized marine gastropod endemic to Hawai'i, traditionally harvested and boiled for a snack and threaded as *kūpe'e* (bracelets) or shell *lei*. *Pipipi* means small and close together, which is how they are often found on rocky marine shores. These snails graze algae on rocks in the high intertidal zone. They have versatile gills allowing them to use oxygen from salt or brackish water and open air

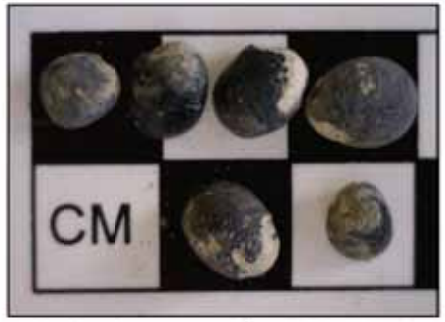

Figure 82. *Nerita picea,* dorsal surfaces, recovered from T3, Str. III (110-165 cmbs) bulk matrix sample

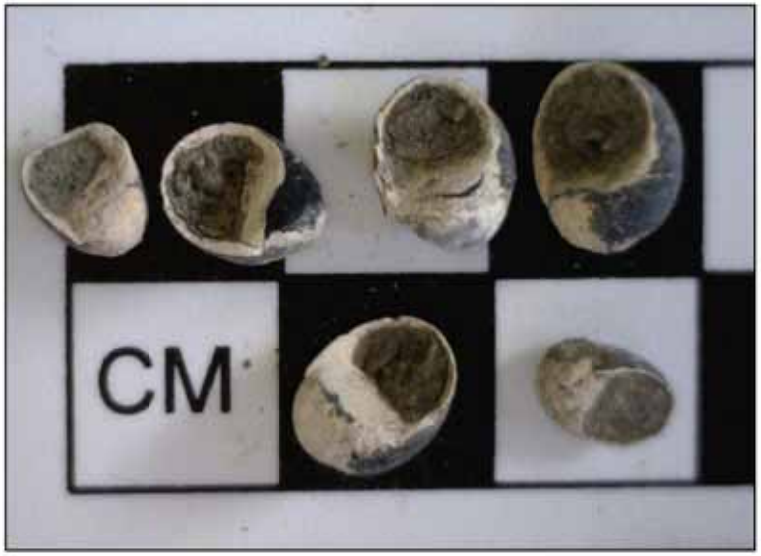

Figure 83. *Nerita picea,* ventral surfaces, recovered from T3, Str. III (110-165 cmbs) bulk matrix sample

Table 12. Snails Recovered from 2 L Bulk Matrix Sample in T3, Str. III (111-165 cmbs)

Trench	Stratum / Depth (cmbs)	Species	Description	Count
T3	III / 110-165	*Tryonia porrecta*	Endemic freshwater snail	20
T3	III / 110-165	*Melanoides tuberculata*	Freshwater snail, probably a pre-Contact introduction in Hawai'i	1
T3	III / 110-165	*Nerita picea*	Endemic marine snail	6

Section 7 Site Descriptions

Two archaeological sites were identified within or immediately adjacent to the current project area during this AIS. They are summarized in Table 13 and their distributions are depicted on Figure 84 and Figure 85.

Table 13. Sites Identified within the Current Project Area

SIHP #	Formal Type	Function
SIHP # 50-80-14-7817	Historic midden (1800-1900)	Domestic discard
SIHP # 50-80-14-7818	Historic midden (pre-1850)	Domestic discard

7.1 SIHP # 50-80-14-7817

FORMAL TYPE:	Historic midden
FUNCTION:	Domestic discard
NUMBER OF FEATURES:	3
AGE:	Approximately 1800-1900
TEST EXCAVATIONS:	T2 (Str. Ic), T3 (Str. II) and T4 (Str. II)
TAX MAP KEY:	TMK: [1] 2-3-012:019
LAND JURISDICTION:	State of Hawai'i
PREVIOUS DOCUMENTATION:	none

SIHP # 50-80-14-7817 is represented by historic artifacts recovered from buried fill and trash pit features in test excavations in the southern and southeastern portions of the project area (T2, T3, and T4). Specifically, fragments of eight glass bottles, a ceramic plate, a ceramic bowl, and a ceramic pitcher were recovered from 40 to 100 cmbs, with dates of manufacture from 1800 to 1920. Sediments related to SIHP # 50-80-14-7817 from T2 and T4 (Strata Ic and II respectively) contained fragments of *Bos taurus* (cow) saw-cut rib and tibiotarsus.

7.1 SIHP # 50-80-14-7818

FORMAL TYPE:	Historic midden
FUNCTION:	Domestic discard
NUMBER OF FEATURES:	1
AGE:	Unknown, pre 1850
CONTEXT:	T3; Stratum III (110-165cmbs)
TAX MAP KEY:	TMK: [1] 2-3-012:019
LAND JURISDICTION:	State of Hawai'i
PREVIOUS DOCUMENTATION:	none

SIHP # 50-80-14-7818 is represented by an FCR fragment, faunal material and organic sediments recovered from test excavation in the southeastern corner of the project area (T3) in Stratum III at 110 to 165 cm below surface. Specifically, an FCR fragment, and faunal material representing fragments of *Bos taurus* (cow) tibia, *Sus scrofa* (pig) rib and *Gallus gallus* (chicken) tibiotarsus. were recovered from a highly organic sediment matrix partially submerged in the fresh water table at approximate 160 to 165 cmbs. Analysis of a bulk matrix sample from this location revealed fresh water and marine snails.

Although no pre-Contact traditional Hawaiian materials were recovered from the archaeological testing of the project area, SIHP # 50-80-14-7818 likely represents discard from occupation within the project area prior to 1850 and may represent an early contact situation. This stratum was only identified in the southeastern portion of the project area in T3, Stratum III (110-165 cmbs).

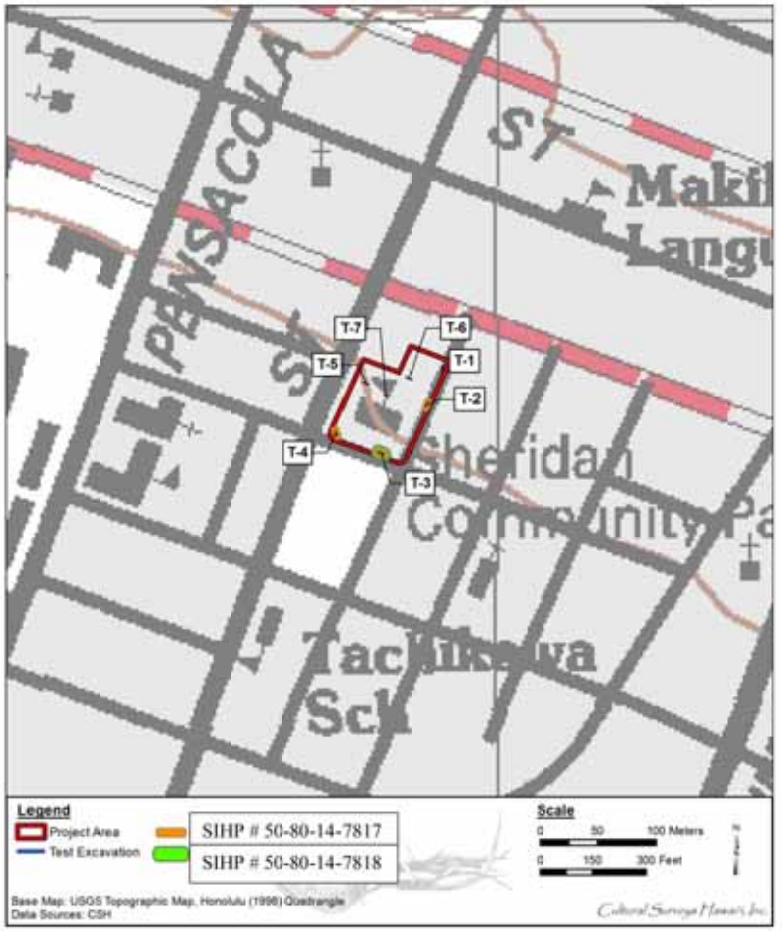

Figure 84. Portion of the 1998 USGS 7.5-minute topographic quadrangle indicating the locations SIHP # 50-80-14-7817 and SIHP # 50-80-14-7818 within the project area

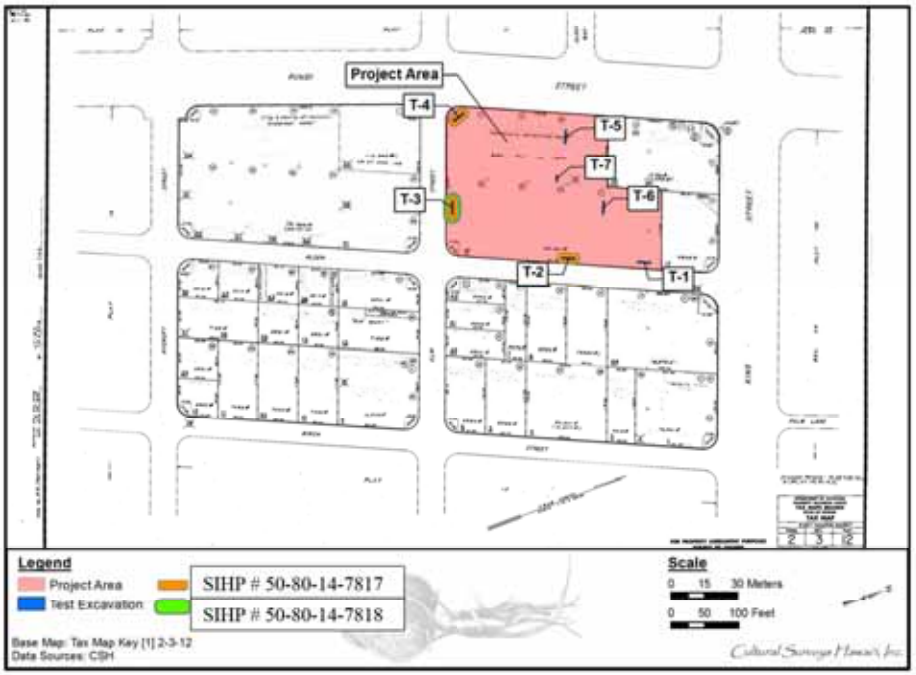

Figure 85.Portion of Tax Map Key (TMK) [1] 2-3-012 indicating the locations SIHP # 50-80-14-7817 and SIHP # 50-80-14-7818 within the project area

Section 8 Summary and Interpretation

CSH completed the fieldwork component of this AIS under archaeological permit number 15-03, issued by the SHPD pursuant to HAR §13-13-282, between 17 June 2015 and 17 July 2015 by David W. Shideler, M.A., Nathaniel S. Garcia, B.A., Mary L. Tardona, M.S., Abigail H. Langham, B.A., and Richard T. Stark, Ph.D. under the general supervision of Hallet H. Hammatt, Ph.D. Fieldwork included a pedestrian inspection of the project area and subsurface testing.

No significant archaeological finds were made during the pedestrian survey of the unbuilt portions of the project area, however, Figure 24 and Figure 25 indicate that portions of the extant facility were built by 1950. Staff working within the project area indicated their belief that some buildings of the current facility pre-date World War II and Figure 18 indicates the original detention home buildings had been completed within the project area by 1914. These buildings would be considered by the State Historic Preservation Division as "historic properties" under HAR §13-275-2 and CSH recommends consultation with the State Historic Preservation Division (SHPD).

Two significant finds were made during the subsurface testing, related to the 29 artifact fragments, representing 16 artifacts recovered from the project area (see Table 10). All collected artifacts are historic. The artifacts recovered from SIHP # 50-80-14-7817 likely relate to the domestic use of the project area by Catherine and Henry Martin Whitney (1824-1904). The artifacts recovered from SIHP # 50-80-14-7818 represent possible early post-Contact traditional Hawaiian settlement within the project area.

Section 9 Significance Assessments

Historic property significance is evaluated and assessed based on the five State of Hawai'i historic property significance criteria. Two new historic properties were identified within the current project area. Table 13 lists the historic properties along with their significance assessments and mitigation recommendations. To be considered significant, a historic property must possess integrity of location, design, setting, materials, workmanship, feeling, and/or association and meet one or more of the following broad cultural/historic significance criteria (in accordance with HAR §13-13-275-6):

a. Be associated with events that have made an important contribution to the broad patterns of our history;

b. Be associated with the lives of persons important in our past;

c. Embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, or possess high artistic value;

d. Have yielded, or is likely to yield, information important for research on prehistory or history; or

e. Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

SIHP # 50-80-14-7817 is represented by stratigraphic layers including historic artifacts, most likely related to the family of Henry Martyn Whitney, Sr. Whitney, a prominent member of the Honolulu community, may have entertained the young Samuel Clemens at this house. Whitney served as first postmaster general in Hawai'i in 1850 and was elected to the house of representatives of the legislature of the Hawaiian Kingdom in 1855. In 1856, he produced the first issue of the *Pacific Commercial Advertiser* and in 1861 he established *Ka Nupepa Kū'oko'a*, a Hawaiian language newspaper. Whitney began publishing the *Marine Bulletin* in 1882, which was eventually purchased by James Robison and became the *Honolulu Star-Bulletin.* In 2010, the *Star-Bulletin* merged with the *Honolulu Advertiser* to become the *Honolulu Star-Advertiser*, currently the largest daily newspaper in Hawai'i (Krauss 2009:7–11). SIHP # 50-80-14-7817 is considered significant under criteria "b" only, as it is "associated with the lives of persons important in our past." SIHP # 50-80-14-7818 is represented by historic artifacts recovered from test excavation in the southeastern corner of the project area (T3) in Stratum III at 110 to 165 cm below surface. Specifically, an FCR fragment, and faunal material representing *Bos taurus* (cow) tibia, *Sus scrofa* (pig) rib, and *Gallus gallus* (chicken) tibiotarsus were recovered from a highly organic sediment matrix partially submerged in the fresh water table at approximately 165 cmbs. Analysis of a bulk matrix sample from this location revealed both fresh water and marine snails. SIHP # 50-80-14-7818 is considered significant under criteria "d" only ("Have yielded, or may be likely to yield, information important for research on prehistory or history") for the information it may afford regarding the Islands' natural history.

Table 14. Archaeological Historic Property Integrity, Significance, and Mitigation Recommendations

SIHP #	Test Excavation	Formal Type/ Description	Integrity		Significance	Mitigation Recommendation
			Location	Y		
			Design	N		
			Setting	N		
			Materials	Y		
			Workmanship	N		
			Feeling	N		
			Association	Y		
SIHP # 50-80-14-7817	T2 (Str. Ic), T3 (Str. II), T4 (Str. II)	Historic midden			b	Archaeological data recovery as archaeological monitoring
SIHP # 50-80-14-7818	T3 (Str. III)	Historic midden	Y	N	d	Archaeological data recovery as archaeological monitoring
			Setting	Y		
			Materials	N		
			Workmanship	N		
			Feeling	N		
			Association	Y		

Section 10 Project Effect and Mitigation Recommendations

10.1 Project Effect

In accordance with Hawai'i State historic preservation review legislation, HAR §13-13-275-7, the project's effect recommendation is "effect, with proposed mitigation commitments." CSH observed no evidence of pre-Contact Hawaiian culture and documented two historic sites. SIHP # 50-80-14-7817 is a historic midden lens observed in three test excavation trenches in the project area: T2, Stratum Ic (40-65 cmbs), T3, Stratum II (60-60cmbs) and T4, Stratum II (60-100 cmbs). SIHP # 50-80-14-7817 likely represents discarded historic artifacts in fill within the project area relating to the family of Catherine and Henry Martyn Whitney, Sr., who moved to the Alder Street house sometime between 1880 and 1884, and lived there until his death in 1904. His only surviving son, Henry Martyn Whitney, Jr., lived in the house until at least 1924. SIHP # 50-80-14-7818 is represented by material recovered from a test excavation in the southeastern corner of the project area (T3) in Stratum III at 110 to 165 cm below surface. Specifically, an FCR fragment, along with faunal material representing *Bos taurus* (cow) tibia, *Sus scrofa* (pig) rib, and *Gallus gallus* (chicken) tibiotarsus was recovered from a highly organic sediment matrix partially submerged in the fresh water table at approximatly165 cmbs. Analysis of a bulk matrix sample from this location revealed fresh water and marine snails.

The information included in the report is the primary effort to mitigate the effect of the planned developments within the project area. Secondarily, future archaeological monitoring is recommended for these cultural resources, SIHP # 50-80-14-7817 and SIHP # 50-80-14-7818, during the planned development of the project area. These significance recommendations are included in this AISR for the review and concurrence of the SHPD.

10.2 Mitigation Recommendations

This AIS report indicates the project area contains SIHP # 50-80-14-7817 and SIHP # 50-80-14-7818. Through this report, information now has been documented regarding the location, extent, function, and age of SIHP # 50-80-14-7817 and SIHP # 50-80-14-7818. This AIS was undertaken to mitigate any adverse effect caused by proposed development activities.

This AIS plus archaeological monitoring with detailed documentation of the historic properties is recommended as sufficient to satisfy the requirements to mitigate any adverse effect caused by the proposed development activities within the project area. The indicated archaeological monitoring program would begin with the preparation of an archaeological monitoring plan for the review and acceptance of the SHPD. Early consultation with the SHPD is recommended through submittal of the present study is recommended for their determination on the project's effect and mitigation recommendations.

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Appendix G:
Cultural Impact Assessment

FINAL

Cultural Impact Assessment for the Mixed Use Project at 902 Alder Street, Honolulu Ahupua'a, Honolulu (Kona) District, O'ahu Island TMK: [1] 2-3-012:019

Prepared for

SSFM International

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(Job Code: HONOLULU 59)

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Management Summary

Reference	Cultural Impact Assessment for the Mixed Use Project at 902 Alder Street, Honolulu Ahupua'a, Honolulu (Kona) District, O'ahu, TMK: [1] 2-3-012:019 (Ishihara and Hammatt 2015)
Date	October 2015
Project Number(s)	Cultural Surveys Hawai'i, Inc. (CSH) Job Code: HONOLULU 59
Agencies	Department of Health, Office of Environmental Quality Control (DOH/OEQC)
Land Jurisdiction	State of Hawai'i Department of Accounting and General Services (DAGS)
Project Location	The project area is immediately bound by Pi'ikoi Street to the west, Elm Street to the south, and Alder Street to the east. Other businesses can be found to the north of the project area, which front South King Street.
Project Description	The project will replace the old Judiciary facility with a new one. The Hawaii Housing Finance Development Corporation (HHFDC) will jointly develop the subject property by adding an affordable housing component to the project. Ground disturbance is expected to impact the entirely of the project area, relating to demolition, utilities trenching, and new building footings.
Project Acreage	The project area is 1.4 acres.
Document Purpose	This CIA was prepared to comply with the State of Hawai'i's environmental review process under Hawai'i Revised Statutes (HRS) §343, which requires consideration of the proposed project's potential effect on cultural beliefs, practices, and resources. Through document research and cultural consultation efforts, this report provides information compiled to date pertinent to the assessment of the proposed project's potential impacts to cultural beliefs, practices, and resources (pursuant to the Office of Environmental Quality Control's *Guidelines for Assessing Cultural Impacts*) which may include traditional cultural properties (TCPs). These TCPs may be significant historic properties under State of Hawai'i significance criterion "e," pursuant to Hawai'i Administrative Rules (HAR) §13-275-6 and §13-284-6. Significance criterion "e" refers to historic properties that "have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity" (HAR §13-275-6 and §13-284-6). The document will likely also support the project's historic preservation review under HRS §6E and HAR §13-275 and §13-284.The document is also intended to support the project's environmental review.

Results of Background Research	Background research for this study yielded the following results which are presented in approximate chronological order: 1. The traditional name for Honolulu Ahupua'a was Kou. This *ahupua'a* was subdivided into smaller land divisions called *'ili*. The area between Maunakea Street and Nu'uanu Stream and *makai* (towards the ocean) of King Street was known as Kapu'ukolo. The area *mauka* (towards of the mountain) between Maunakea Street and Nu'uanu Stream was known as Kīkīhale. Pukui et al. (1974:110) states that Kīkīhale was named for the daughter of the chief Kou for whom the area was named. 2. Honolulu literally translates to "protected bay," which refers to Honolulu Harbor (Pukui et al. 1974:49-50). Other translations include "sheltered hollow" and "abundance of peace" (Hawaiian Historical Society 1904:24). Westervelt adds that Honolulu was most likely a name of a very rich farm land near the junction of Liliha and School Streets. 3. Pākākā was the name of a coastal point, canoe landing, wharf built off the point in 1827, and *heiau* (pre-Christian place of worship, shrine). The name literally means "to skim, as stones over the water" (Pukui et al. 1974:175). Thrum (1906) mentions Pākākā Heiau being the main royal temple in Honolulu. This *heiau* would be located near the foot of Fort Street today. 4. Pukui et al. (1974) does not give a meaning for the place name Kaka'ako. However, Pukui and Elbert (1986:110) translates the word *kākā'ākо* as "dull, slow," and Thrum (1922:639) translated the word as "prepare the thatching." If Thrum's translation is correct, this name could be related to the many salt marshes in Kaka'ako which were excellent places to gather *pilī* (a type of grass; *Heteropogon contortus*), which Hawaiians used to thatch their houses. 5. Kewalo 'Ili means "the calling (as an echo)" and was once the place where *kauwā*, members of a pariah caste intended for sacrifice, were drowned (Pukui et al. 1974:109). 6. Pūowaina, also known as Punchbowl in modern times, translates to "hill of placing [human sacrifices]" (Pukui et al. 1974:195). There were six *heiau* (pre-Christian place of worship) and one home for priests located on Pūowaina. These sites were first noted by Emma Nakuina in 1909 (Sterling and Summers 1978:317) 7. Several battles ensued in Pauoa Valley including the invasion led by Maui chief Kahekili, battling the chief of O'ahu, Kahahana, in 1783. Almost a decade (1795) later, Kamehameha I landed his army in Waikīkī to feud with Kalanikūpule, king of Maui and O'ahu.

	8. In 1846, Honolulu was the capitol of the Hawaiian Kingdom and was on its way to becoming the commercial and political hub of the Islands. During this time there was an obvious increase in population, land use, and urbanization. The waterfront area changed dramatically to accommodate trading and whaling vessels. 9. In 1895, a cholera epidemic struck the Islands and spread rapidly due to unsanitary conditions of the harbors and Nu'uanu Stream. The epidemic broke out in August and ended in October. A total of 64 people died. Shortly after the end of the epidemic, the government began to plan and institute public improvements to roads, bridges, sewage systems, and streams. 10. The Kaka'ako area has been heavily modified for the last 150 years due to historic filling of the area for land reclamation. 11. By the 1880s, the Kaka'ako area was being filled in for the construction of new roads and improvements of older roads. The justification for filling former mud flats, marshes, and fishponds was that low-lying areas were frequently being cited for unsanitary conditions and contributing to cholera outbreaks and breeding areas for rats and mosquitoes. By February 1914, the land from South Street to Ward Avenue and from Ala Moana Boulevard to Queen Street had been filled in.
Results of Community Consultation	CSH attempted to contact Hawaiian organizations, agencies, and community members as well as cultural and lineal descendants of Kaka'ako in order to identify individuals with cultural expertise and/or knowledge of the project area and vicinity. Results are below: 1. Mr. Jan Becket, a retired Kamehameha Schools teacher who is well recognized for his photographic documentation of *wahi pana* (storied places), escorted CSH to multiple cultural sites from October 2014 to September 2015 within Honolulu Ahupua'a. A total of 28 sites within Honolulu Ahupua'a have been mentioned for the current study. None of the sites visited were in the vicinity of the project area. 2. Pākākā Heiau was once located near the foot of the *makai* end of Fort Street Mall. Mr. Becket assumes that some of the rubble from Pākākā Heiau was most likely used for the construction of roads in downtown Honolulu. Pākākā was the most important *heiau* in Honolulu Ahupua'a. It was also near Kamehameha's compound and was possibly the headquarters for Kahuna Kū. 3. Mr. Becket states the original location of Kaumakapili Church was near the current alignment of Maunakea Street and North Beretania Street. Prior to the construction of Kaumakapili Church was where Kahuoi's shrine once stood. It is said that Kahuoi would fish with his pet bird named Kau-maka-pili

	("perched with eyes closed"). The translation of Kau-maka-pili tells how the bird would catch its prey, swooping down from above and closing one eye before grabbing a fish. 4. Mr. Becket escorted CSH to Pūowaina, commonly known as Punchbowl. The name translates to "hill of placing [human sacrifices]." Mr. Becket's late uncle, Siebrand Schaffsma, grew up in Honolulu during the 1920s and referred to Punchbowl as "The Devil's Punchbowl." Mr. Becket added that it was common practice for early white settlers to re-name Native American sacred places with names beginning with "The Devil's…" He commented that the name "The Devil's Punchbowl" clearly follows the same practice in the re-naming of Pūowaina. 5. Important sites that have been destroyed below Pūowaina include O Kāne Lā'au Heiau, Manua Heiau, Po'ouahi Heiau, Ka'akopua Heiau, Kahehuna Heiau, Kahahaimauli Heiau, and Kahe Iki Heiau. Pūowaina Heiau and Imu Ahi, a sacrificial stone, were located at Pūowaina. In addition, a *hōlua* slide was located on the eastern slope above Stevenson Intermediate School. 6. Paulette Ka'anohi Kaleikini, State of Hawai'i recognized lineal descendant, indicated that her *kūpuna* (elders) once lived in this area. She adds the project area is within the urban corridor and is in the vicinity of Walmart on Ke'eaumoku Street "where a cemetery was found." Ms. Kaleikini states that "chances of impacting a cultural layer or historic property at this project site is high." 7. Ms. Kaleikini points out that this area was favored by *ali'i* (chiefs) but also by the *lāhuī* (nation, race, people). The area once consisted of agricultural lands including water and ponds. Ms. Kaleikini adds because of the land was fertile, people lived and died in these areas. 8. Ms. Kaleikini recommends an archaeological inventory survey and cultural monitoring.
Impacts and Recommendations	Based on the information gathered from the cultural and historic background and community consultation detailed in this CIA report, the proposed project may have potential impacts. To avoid these, we suggest the following: 1. Personnel involved in the construction activities should exercise caution due to the culturally sensitive nature of the proposed project area as indicated by a community participant. 2. Personnel involved in the construction activities of the project should be informed of the possibility of inadvertent cultural finds, including human remains. Should burials or other cultural

	finds be encountered during ground disturbance, the construction contractor should immediately cease all work and the appropriate agencies should be notified pursuant to applicable law. 3. If any *iwi kūpuna* or other inadvertent cultural finds are found during ground disturbance, the State of Hawai'i Department of Accounting and General Services in conjunction with the State Historic Preservation Division (SHPD) and the O'ahu Island Burial Council (OIBC) should consult with lineal and cultural descendants of Honolulu (including Kaka'ako) to develop a reinterment plan, as well as a cultural preservation plan in the event that any human remains or cultural sites or artifacts are uncovered during construction of long-term maintenance for the project.

Table of Contents

Management Summary i

Section 1 Introduction 1

1.1 Project Background 1
1.2 Document Purpose 1
1.3 Scope of Work 4
1.4 Environmental Setting 4
1.4.1 Natural Environment 4
1.4.2 Winds, Rains, and Seas of Kapālama 6
1.4.3 Built Environment 6

Section 2 Methods 7

2.1 Community Consultation 7
2.1.1 Scoping for Participants 7
2.1.2 "Talk Story" Sessions 7
2.1.3 Interview Completion 8

Section 3 *Ka'ao* (Legends) 9

3.1 Traditional Legends 9
3.1.1 'Ai'ai and Puniaiki in Kou 9
3.1.2 Keaomelemele 10
3.1.3 The Legend of Kapo'i Kukaeunahiokapueo 14
3.2 *Wahi Pana* (Legendary Places) 14
3.2.1 Pākākā and the Honolulu Fort 16
3.2.2 Kou 17
3.2.3 Māmala 17
3.2.4 Nīhoa 17
3.2.5 Kukuluāe'o 18
3.2.6 Pu'ukea Heiau 18
3.2.7 Kawaiha'o and the Waters of Ha'o 18
3.2.8 Pūowaina 19
3.3 *'Ōlelo No'eau* (Proverbs) 21
3.3.1 *'Ōlelo No'eau* #1016 21
3.3.2 *'Ōlelo No'eau* #1033 21
3.3.3 *'Ōlelo No'eau* #1128 21
3.3.4 *'Ōlelo No'eau* #1423 22
3.3.5 *'Ōlelo No'eau* #1510 22
3.3.6 *'Ōlelo No'eau* #1575 22
3.3.7 *'Ōlelo No'eau* #1652 22
3.3.8 *'Ōlelo No'eau* #2113 22
3.3.9 *'Ōlelo No'eau* #2486 23
3.4 *Oli* (Chants) 23
3.4.1 The Epic Tale of Hi'iaka-i-kapoliopele 23
3.4.2 The Battle of Nu'uanu 24

Section 4 Traditional *Mo'olelo* and Historical Accounts 25

4.1 Traditional *Mo'olelo* 25

4.1.1 Battles in Pauoa Valley 25
4.1.2 Honolulu 26
4.1.3 The Māhele and the Kuleana Act 29
4.1.4 Mid- to Late 1800s 30
4.1.5 1900s 34
4.2 Previous Archaeological Research 40
4.2.1 Smith (1989) 40
4.2.2 Athens et al. (1994) 40
4.2.3 Sinoto (2000) and McElroy (2010) 40
4.2.4 O'Hare et al. (2003) 40
4.2.5 LeSuer and Cleghorn (2004) 43
4.2.6 O'Leary and Hammatt (2004) and Fong et al. (2009) 43
4.2.7 Monahan (2005) 43
4.2.8 Clark and Gosser (2005) and Gosser et al. (2006) 43
4.2.9 Esh and Hammatt (2006) 44
4.2.10 Hammatt (2006) 44
4.2.11 O'Leary and Hammatt (2006) 44
4.2.12 Hazlett, Carney, and Hammatt (2008) 44
4.2.13 Hazlett, Loynaz, and McDermott (2008) 44
4.2.14 McCurdy and Hammatt (2008) 44
4.2.15 O'Hare et al. (2010) and Medina and Hammatt (2012) 45
4.2.16 Pammer and Hammatt (2010) 45
4.2.17 Altizer et al. (2011) 45
4.2.18 Burke and Hammatt (2012) 45
4.2.19 Hunkin et al. (2013) 45
4.3 Background Summary and Predictive Model 53

Section 5 Previous Oral History Research 56

5.1 Remembering Kaka'ako 56
5.1.1 Eleanor Nahiapo Wilson Heavy 56
5.1.2 David Tai Loy Ho 56
5.1.3 Joseph Kekauoha 57
5.1.4 Mary Ka'uhane Naito 57
5.1.5 Charlie Correa 57
5.1.6 Usaburo Katamoto 58
5.1.7 Wallace Amioka 58
5.1.8 Francis Zane 59

Section 6 Community Consultation 60

6.1 Introduction 60
6.2 Community Contact Letter 60
6.3 Community Contact Table 62
6.4 Kama'āina Interviews 71
6.4.1 Jan Becket 71
6.5 Summary of Kama'āina Interviews 92

Section 7 Traditional Cultural Practices 94

7.1 Gathering of Plant Resources 94
7.2 Burials 94

7.3 Cultural Sites 95
7.4 *Ka'ao* and *Mo'olelo* 95

Section 8 Summary and Recommendations 97

Section 9 References Cited 100

Appendix A LCA 10605 108

List of Figures

Figure 1. Portion of the 1998 USGS 7.5-minute topographic Honolulu quadrangle showing the location of the study area 1
Figure 2. Tax Map Key (TMK) [1] 2-3-12 depicting the project area (Hawai'i TMK Service) 2
Figure 3. Aerial photograph (Google Earth 2013), showing study area bordered by Pi'ikoi Street, Alder Street, and Elm Street 3
Figure 4. 2013 aerial photograph (Google Earth 2013) with an overlay of the USDA SSURGO database (2001) and soil survey data gathered by Foote et al. (1972) 5
Figure 5. Photo of Kunawai Springs, bathing pool for Kahanaiakeakua, Kahihikuaokalani, Kamakaokauila, and Keanuenue (CSH 2014) 13
Figure 6. Photo of plaque at Kunawai Springs (CSH 2014) 13
Figure 7. Photo of Punchbowl from Pacific Heights, circa 1890 (courtesy of Myatt 1991) 20
Figure 8. 1817 map (portion) made during the visit of Otto von Kotzebue of the Russian Ship *Rurick*, indicating the approximate location of the project area. Note the presence of Pūowaina, *mauka* of the project area, as well as the location of a cemetery (labeled in Russian as "Кладбище," meaning "Cemetery of Foreigners") and the grid-like symbols indicating salt pans 28
Figure 9. 1855 LaPasse Map of the South Coast of O'ahu with project area; note a trail is found just *mauka* of the project area that traverses Honolulu to Waikīkī Ahupua'a 31
Figure 10. 1911 Podmore Map of Honolulu, Kewalo Section (RM 3094) with project area 36
Figure 11. 1920 Monsarrat Map of Honolulu with project area; note McKinley High School has not been constructed, the Ward Estate was still existent, and a proposed Kapi'olani Boulevard cuts through both properties 37
Figure 12. 1933 US Army War Department Fire Control Map, Honolulu Quadrangle with project area; note that Kapi'olani Boulevard has now been constructed and few homes are located *makai* of the project area in the Kaka'ako area 38
Figure 13. 1953 USGS Topographic Map, Honolulu Quadrangle with project area depicted in blue; the large white space *makai* of the Kapi'olani Boulevard will be the future location of Ala Moana Center 39
Figure 14. 1998 USGS Topographic Map, Honolulu Quadrangle with previous archaeological study areas in the vicinity of the project area 41
Figure 15. 1998 USGS Topographic Map, Honolulu Quadrangle with historic properties including burials and historic districts in the vicinity of the project area 42
Figure 16. 1887 Wall Map of Honolulu with project area; note roads constructed *mauka* of the project area while the *makai* portions still remain undeveloped 54
Figure 17. 1893 Wall Map of Honolulu (RM 1690) with project area; note the ponds *makai* 55
Figure 18. Consultation letter sent to the community 61
Figure 19. Possible *pōhaku kia'i* (stone guard, watchman) on the 'Ewa (place name west of Honolulu, used as a direction term) side of the Pali Lookout, October 2014 (photo courtesy of Jan Becket) 73
Figure 20. Photo of the former location of *mo'o* and *pōhaku*, Kalanaihauola, once stood where the *hau* grows in the foreground; Lanihuli peak in the background, October 2014 (photo courtesy of Jan Becket) 74

Figure 21. Photo of upright stones in Makuku 'Ili, October 2014 (photo courtesy of Jan Becket) 75
Figure 22. Kunawai Spring, October 2014 (photo courtesy of Jan Becket) 78
Figure 23. Pōhaku 'Aumeume, n.d. (photo courtesy of Jan Becket) 79
Figure 24. Lulumahu Valley terrace wall and upright stones, November 2014 (photo courtesy of Jan Becket) 81
Figure 25. Photo of enclosure in Kahapa'akai 'Ili, November 2014 (photo courtesy of Jan Becket) 83
Figure 26. Photo of enclosure Kahapa'akai 'Ili facing *mauka*, November 2014 (photo courtesy of Jan Becket) 84
Figure 27. Photo of Pūowaina, commonly known as Punchbowl, former site of a *heiau* and sacrificial stone, September 2015 (photo courtesy of Jan Becket) 85
Figure 28. Photo of former *heiau* in the lower portions of Honolulu Ahupua'a; former locations of *heiau* include O Kāne La'au (foreground, H-1 Freeway), Kahehuna (right foreground, behind H-1 Freeway), Ka'akopua (midground, Central Intermediate); September 2015 (photo courtesy of Jan Becket) 87
Figure 29. Photo of upright stone in Makiki Heights; Mr. Becket photographed this *pōhaku* for his book *Pana O'ahu*; September 2015 (photo courtesy of Jan Becket) 88
Figure 30. Photo of *lo'i kalo* adjacent to the Kanahā Stream in Makiki Valley; the *lo'i* is maintained by the students of Hālau Kū Māna charter school mauka of the park; September 2015 (photo courtesy of Jan Becket) 89
Figure 31. 2013 Google Earth Aerial Imagery with cultural sites visited with Mr. Jan Becket throughout Honolulu Ahupua'a 91

List of Tables

Table 1. Previous Archaeological Studies in the Vicinity of the Project Area 47
Table 2. Previously Identified Historic Properties in the Vicinity of the Project Area 51
Table 3. Results of Community Consultation 62

Section 1 Introduction

1.1 Project Background

At the request of SSFM International, Inc. on behalf of the State of Hawai'i Department of Accounting and General Services (DAGS), Cultural Surveys Hawai'i, Inc. (CSH) has prepared a cultural impact assessment (CIA) for the Mixed Use Project at 902 Alder Street, DAGS JOB NO. 12-21-7550, Honolulu Ahupua'a, Honolulu (Kona) District, O'ahu, Tax Map Key (TMK): [1] 2-3-012:019.

The project will replace the old Judiciary facility with a new one. The Hawaii Housing Finance Development Corporation (HHFDC) will jointly develop the subject property by adding an affordable housing component to the project. Ground disturbance is expected to impact the entirety of the project area, relating to demolition, utilities trenching, and new building footings. The project area is approximately 1.4 acres. Figure 1 through Figure 3 depict the project area.

1.2 Document Purpose

This CIA was prepared to comply with the State of Hawai'i's environmental review process under Hawai'i Revised Statutes (HRS) §343, which requires consideration of the project's potential effect on cultural beliefs, practices, and resources. Through document research and cultural consultation efforts, this report provides information compiled to date pertinent to the assessment of the proposed project's potential impacts on cultural beliefs, practices, and resources (pursuant to the Office of Environmental Quality Control's *Guidelines for Assessing Cultural Impacts*), which may include Traditional Cultural Properties (TCPs). These TCPs may be significant historic properties under State of Hawai'i significance criterion "e," pursuant to Hawai'i Administrative Rules (HAR) §13-275-6 and §13-284-6. Significance criterion "e" refers to historic properties that "have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity" (HAR §13-275-6 and §13-284-6). The document will likely also support the project's historic preservation review under HRS §6E and HAR §13-275 and §13-284. The document is also intended to support the project's environmental review.

Figure 1. Portion of the 1998 USGS 7.5-minute topographic Honolulu quadrangle showing the location of the study area

Figure 2. Tax Map Key (TMK) [1] 2-3-12 depicting the project area (Hawai'i TMK Service)

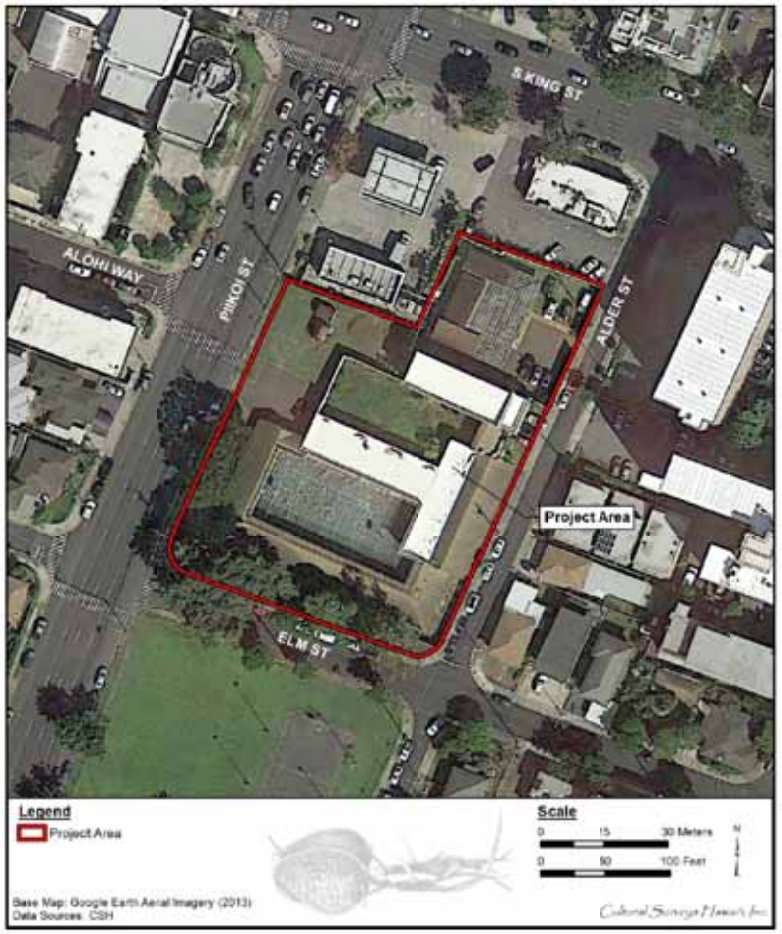

Figure 3. Aerial photograph (Google Earth 2013), showing study area bordered by Pi'ikoi Street, Alder Street, and Elm Street

1.3 Scope of Work

The scope of work for this CIA includes the following:

1. Examination of cultural and historical resources, including Land Commission documents, historic maps, and previous research reports for the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal, and other resources or agricultural pursuits as may be indicated in the historic record.
2. Review of previous archaeological work within and near the subject parcel that may be relevant to reconstructing traditional land use activities; and to the identification and description of cultural resources, practices, and beliefs associated with the parcel.
3. Consultation and interviews with knowledgeable parties regarding cultural and natural resources and practices in or near the parcel; present and past uses of the parcel; and/or other practices, uses, or traditions associated with the parcel and environs.
4. Preparation of a report that summarizes the results of these research activities and provides recommendations based on findings.

1.4 Environmental Setting

1.4.1 Natural Environment

The project area is situated on Makiki clay loam, 0 to 2 percent slopes (MkA). The Makiki series is described below:

> This series consists of well-drained soils on alluvial fans and terraces in the city of Honolulu on the island of Oahu. These soils formed in alluvium mixed with volcanic ash and cinders. They are nearly level. Elevations range from 20 to 200 feet. The annual rainfall amounts to 30 to 60 inches. Most of it falls between November and April. The mean annual soil temperature is 78° F. Makiki soils are geographically associated with Kaena and Tantulus soils. [Foote et al. 1972:91]

The MkA soil can be found on smooth fans and terraces. The surface layer consists of a dark-brown clay loam approximately 20 inches thick. The subsoil tends to be 10 inches thick and is a dark-brown clay loam with a subangular blocky structure. The subsoil consists of a similar material and is about 24 inches thick. Below the subsoil are volcanic cinders. The soil tends to be strong to medium acidic. This particular soil can be found in mostly urban areas (Foote et al. 1972:92). Figure 4 depicts the various soils found in the vicinity of the project area.

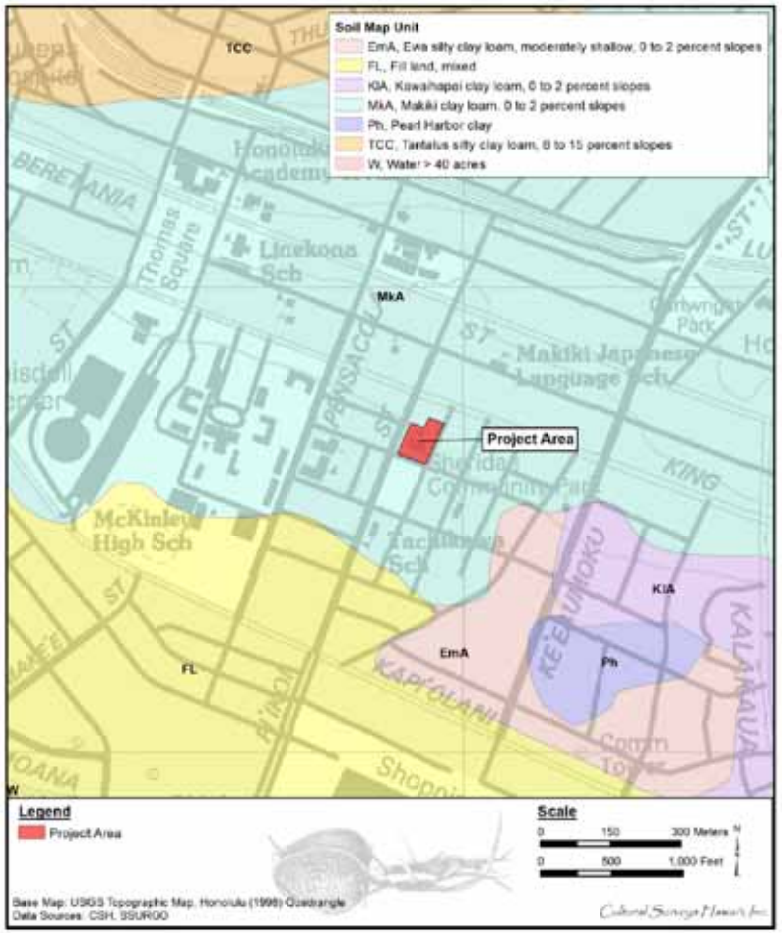

Figure 4. 2013 aerial photograph (Google Earth 2013) with an overlay of the USDA SSURGO database (2001) and soil survey data gathered by Foote et al. (1972)

1.4.2 Winds, Rains, and Seas of Honolulu

Each small geographic area on O'ahu had a Hawaiian name for its own wind, rain, and seas. The name of the winds of O'ahu are listed in a chant concerning a powerful gourd called *The Wind Gourd of La'amaomao*. When the gourd was opened, a specific wind could be called to fill the sails of a canoe and take the person in the desired direction. The chant lists the winds of the Honolulu area from east to west.

> Kukalahale is of Honolulu,
>
> 'Ao'oa is of Māmala,
>
> 'Ōluniu is of Kapālama,
>
> Haupe'epe'e is of Kalihi,
>
> Ko-momona is of Kahauiki.
>
> [Nakuina 1992:43]

The names of the seas of southeastern O'ahu are listed in a chant for the high chief, Kūali'i, paramount chief of the Hawaiian Islands from 1720 to 1740 (Cordy 2002:19). From the east end of Waikīkī to the west boundary of the Kona district at Moanalua Ahupua'a, the seas were:

> A sea for surf swimming is Kahaloa [sic] [in Waikīkī]
>
> A sea for net fishing is Kalia [in Waikīkī]
>
> A sea for going naked is Mamala [mouth of Honolulu Harbor]
>
> A sea for swimming is Kapuuone [in Kapālama/Kalihi]
>
> A sea for surf-swimming sideways is Makaiwa [in Kapālama/Kalihi]
>
> A sea for catching 'anae [mullet] is Keeia [in Moanalua]
>
> A sea for crabs is Leleiwi [in Moanalua]. [Fornander 1880:390]

1.4.3 Built Environment

The study area is located within urban Honolulu. The study area's built environment encompasses the entire Family Court Detention Facility, which takes up more than half the block upon which the establishment is situated. On the same block northwest of the project area is a gas station/convenient store and to the northwest is a restaurant. The block is bordered by South King Street to the north; Alder Street to the east; Elm Street to the south; and Pi'ikoi Street to the west.

Section 2 Methods

Research centers on Hawaiian activities including *ka'ao* (legends), *wahi pana* (storied places), *'ōlelo no'eau* (proverbs), *oli* (chants), *mele* (songs), traditional *mo'olelo* (stories), traditional subsistence and gathering methods, ritual and ceremonial practices, and more. Background research focuses on land transformation, development, and population changes beginning with the early post-Contact era to the present day.

Cultural documents, primary and secondary cultural and historical sources, historic maps, and photographs were reviewed for information pertaining to the study area. Research was primarily conducted at the CSH library. Other archives and libraries where CSH cultural researchers gather information include the Hawai'i State Archives, the Bishop Museum archives, the University of Hawai'i at Mānoa's Hamilton Library, Ulukau, the Hawaiian Electronic Library (Ulukau.org 2004), the State Historic Preservation Division (SHPD) Library, the State of Hawai'i Land Survey Division, the Hawaiian Historical Society, and the Hawaiian Mission Houses Historic Site and Archives. Information on Land Commission Awards (LCAs) were accessed via Waihona 'Aina Corporation's Māhele database (Waihona 'Aina 2000), the Office of Hawaiian Affairs (OHA) Papakilo Database (Office of Hawaiian Affairs 2015), and the Ava Konohiki Ancestral Visions of 'Āina website (Ava Konohiki 2015).

2.1 Community Consultation

2.1.1 Scoping for Participants

The cultural department commences our consultation efforts by utilizing our previous community contact list to facilitate the interview process. We then review an in-house database of *kūpuna* (elders), *kama'āina* (native born), cultural practitioners, lineal and cultural descendants, Native Hawaiian Organizations (NHOs, includes Hawaiian Civic Clubs and those listed on the Department of Interior's NHO list), and community groups. CSH also contacts agencies such as SHPD, OHA, and the appropriate Burial Council for the island on which the proposed project is located for their response to the project and to identify lineal and cultural descendants, individuals and/or NHO with cultural expertise and/or knowledge of the study area. CSH is also open to referrals and new contacts.

2.1.2 "Talk Story" Sessions

Prior to the interview, CSH cultural researchers explain the role of a CIA, how the consent process works, the project purpose, the intent of the study, and how their *'ike* (knowledge) and *mana'o* (thought, opinion) will be used in the report. The interviewee is given an Authorization and Release Form to read and sign.

"Talk Story" sessions range from the formal (e.g., sit down and *kūkā* [consultation, discussion] in the participant's place of choice over set interview questions) to the informal (e.g., hiking to cultural sites near the study area and asking questions based on findings during the field outing). In some cases, interviews are recorded and transcribed later.

CSH also conducts group interviews, which range in size. Group interviews usually begin with set, formal questions. As the group interview progresses, questions are based on interviewees' answers. Group interviews are always transcribed and notes are taken. Recorded interviews assist

the cultural researcher in 1) conveying accurate information for interview summaries, 2) reducing misinterpretation, and 3) adding missing details to *mo'olelo*.

CSH seeks *kōkua* (assistance) and guidance in identifying past and current traditional cultural practices of the study area. Those aspects include general history of the *ahupua'a* (traditional land division extending from the mountain to the sea); past and present land use of the study area; knowledge of cultural sites (for example, *wahi pana*, archaeological sites, and burials); knowledge of traditional gathering practices (past and present) within the study area; cultural associations (*ka'ao* and *mo'olelo*); referrals; and any other cultural concerns the community might have related to Hawaiian cultural practices within or in the vicinity of the study area.

2.1.3 Interview Completion

After an interview, CSH cultural researchers transcribe and create an interview summary based on information provided by the interviewee. Cultural researchers give a copy of the transcription and interview summary to the interviewee for review and ask that they make any necessary edits. Once the interviewee has made those edits, CSH incorporates their *'ike* and *mana'o* into the report. When the draft report is submitted to the client, cultural researchers then prepare a finalized packet of the participant's transcription, interview summary, and any photos that were taken during the interview. We also include a thank you card and honoraria.

It is important that CSH cultural researchers cultivate and maintain community relationships. The CIA report may be completed, but CSH researchers continuously keep in touch with the community and interviewees throughout the year—such as checking in to say hello via email or by phone, volunteering with past interviewees on community service projects, and sending holiday cards to them and their *'ohana* (family). CSH researchers feel this is an important component to building relationships and being part of an *'ohana* and community.

"*I ulu no ka lālā i ke kumu*—the branches grow because of the trunk," is an *'ōlelo no'eau* (#1261) shared by Mary Kawena Pukui with the simple explanation: "Without our ancestors we would not be here" (Pukui 1983:137). As cultural researchers, we often lose our *kūpuna* but we do not lose their wisdom and words. We routinely check obituaries and gather information from other community contacts if we have lost our *kūpuna*. CSH makes it a point to reach out to the *'ohana* of our *kūpuna* who have passed on and pay our respects including sending all past transcriptions, interview summaries, and photos for families to have on file for genealogical and historical reference.

Section 3 *Ka'ao* (Legends)

Hawaiian storytellers of old were greatly honored and played a major source of entertainment and contained teachings while interweaving parts of Hawaiian lifestyles, genealogy, history, relationships, arts, and the natural environment (Pukui 1995:IX). According to Pukui (1995), storytelling is better to be heard rather than read for much becomes lost in the transfer from the spoken word to the written word and *ka'ao* (legends) are often full of *kaona* or double meanings.

Martha Beckwith (1940:1) notes that Hawaiians use the term *ka'ao* "for a fictional story or one in which fancy plays an important part." Beckwith defines *mo'olelo* as "a narrative about a historical figure, one which is supposed to follow historical events. Stories of the gods are mo'olelo" (Beckwith 1940:1). In reality, the distinction between *ka'ao* and *mo'olelo* are fiction and fact, respectively, and cannot be "pressed to closely" as "it is rather in the intention than in the fact" (Beckwith 1940:1). Thus a *mo'olelo*, which may be enlivened by fantastic adventures of *kupua* (supernatural beings) "nevertheless corresponds with the Hawaiian view of the relation between nature and man" (Beckwith 1940:1). A *ka'ao* "is consciously composed to tickle the fancy rather than to inform the mind as to supposed events" (Beckwith 1940:1).

3.1 Traditional Legends

3.1.1 'Ai'ai and Puniaiki in Kou

The *ahupua'a* (land division extending from the mountain to the sea) of Kou was subdivided into several smaller land divisions, known as *'ili*. The area between Maunakea Street and Nu'uanu Stream and *makai* (towards the sea) of King Street was known as Kapu'ukolo. The area between Maunakea and Nu'uanu Stream *mauka* (towards the mountains) of King Street to Beretania Street was called Kīkīhale. In Pukui et al.'s (1974:110) *Place Names of Hawai'i*, no meanings are given for these names, but they do state that Kīkīhale was named for the daughter of the chief, Kou, for whom the district was named. Many of these names are mentioned in the legend of 'Ai'ai (Thrum 1998:230-254).

Kū'ula, the god presiding over the fish of the sea had a son named 'Ai'ai. He was the first to teach the Hawaiians how to make various fishing lines and nets, the first to set up a *ko'a kū'ula*, a rock shrine on which the fishermen would place their first catch as an offering to Kū'ula, and the first to set up *ko'a i'a*, fishing stations where certain fish were known to gather (Thrum 1998:231). Leaving his birthplace in Maui, 'Ai'ai traveled around the islands, establishing *ko'a kū'ula* and *ko'a i'a*.

He landed first at Keana Point, then traveled around the island of O'ahu, stopping in Kaka'ako (an *'ili* now covered by One Waterfront Plaza) to visit his friend, Apua. Here he met the famed O'ahu chief, Kou, a skilled fisherman who caught the large *aku* (bonito; *Katsuwonus pelamis*) in the bay of Māmala (ancient name for the mouth of Honolulu Harbor). 'Ai'ai soon met a young woman named Puiwa, married her, and had a son named Puniaiki. One day the family went to a dam on the Nu'uanu Stream to catch *'o'opu* (gobies) and *'ōpae* (shrimp). When Puiwa left the newborn Puniaiki on the bank of the river, the baby started to cry. 'Ai'ai told his wife to tend to the child but she answered him back saucily, so 'Ai'ai called on his ancestors and a storm came up, flooding the dam and sweeping the child into the stream. Leaving his wife, he went downstream to the *'ili* of Kaumakapili. Here he saw the chiefess Kīkīhale gather a large *'o'opu* from the stream.

Kīkīhale's guardian advised her to put it in a calabash with water and keep it as a pet. 'Ai'ai realized that the *'o'opu* was Puniaiki, his transformed child who had been swept downstream to Kīkīhale (to the person and also to the *'ili* named Kīkīhale). The next day the chiefess's guardian saw that the *'o'opu* had turned back into a child, and Kīkīhale instructed her to raise the child until it was an adult, so that she could take the young man for a husband. This came to pass, but the chiefess was not satisfied with her husband Puniaiki since he did not bring fish home as the other men in the islands. Puniaiki was annoyed with her complaints, and took the pearl fishhook, Kahuai, given to him by his father 'Ai'ai, and went out with the men of Kou to fish for the *aku*. When Puniaiki held the pearl fishhook in his hand:

> . . . the akus, unprecedented in number, fairly leaped into the canoes. They became so filled with the fish, without labor, that they sank in the water as they reached Kapuukolo, and the men jumped overboard to float them to the beach. ([Thrum 1998:247-248]

This suggests that not only was Kapu'ukolo an *'ili* name, but also a canoe landing, a place to come ashore after *aku* fishing.

3.1.2 Keaomelemele

The story of Keaomelemele begins with Mooinanea, the supernatural who divided herself into five divisions: the chiefly lines, godly lines, the prophet lines, the priestly lines, and the lineages of the common people. From the godly lines came Ku and Olopana, both *kāne* (men). Following them were Hiilei and Hinawelelani, both *wahine* (women) (Manu 2002:99). When Mooinanea discovered the latter born were *wahine*, she set aside the lands of Kuaihelani for them to live on so they would not see Ku and Olopana. The purpose of having them live separate was to find true peace without being defiled before reaching maturity.

Mooinanea decided to introduce one of the *kāne* to a *wahine*. When Ku met Hinawelelani, he carefully observed her features and said, "The elegance of Waipio with its matching cliffs," (Manu 2002:100). When Hinawelelani glanced at Ku, she thought "he was like an ohia lehua tree standing out amid the leafy shade of the forest" (Manu 2002:100). The two married and soon Hinawelelani became pregnant. Several days later, the gods Kāne and Kanaloa, standing upon the cliff Waolani in Nu'uanu, recognized Hinawelelani's pregnancy through their godly nature. Then came the task of creating temples at Waolani by the Menehune (a legendary race of small people who worked at night, building fish ponds, roads, temples). These temples can still be seen at Waolani to this day. Hina then gave birth to a boy. Kāne and Kanaloa sent their sister, the rainbow goddess Keanuenue, to fetch the child for them to raise. However, when she arrived, Ku was holding the newborn. She then decided to make a request through Mooinanea. Agreeing to the request, Mooinanea commanded, "Return to our lord-brothers, and wait until your young charge is grown up, and when you intend to pair him up with a wife, do not agree to some woman of Hawaiinuiakea; the wife he should take will be here, so that your foster child will not be tainted" (Manu 2002:101).

Heeding Mooinanea's words, Keanuenue agreed to fulfill her commands and replied, "And if I get the child now from Ku and the others, who will bestow a name on the child?" Mooinanea answered,

> Return with the child until you come before our brothers, and they shall be the ones to name the child, not I, nor the child's parents, lest I be wrong, because if our

> brothers had not sent you to fetch the child, then I would have been the one to give the name, so you return and tell them what you and I are discussing here, though they probably know of our discussion, and that shall be it. [Manu 2002:101]

Keanuenue agreed to fulfill Mooinanea's orders. In an instant, Keanuenue was at the doorstep of Ku and Hina's home in the form of a red mist. Hina turned to Ku and said,

> Amazing, there is no rain outside that would bring the red mist, so step outside to see what the red mist is about. [Manu 2002:101]

Ku went outside and saw seven rainbows at once with no rain clouds. As Ku went to tell Hina about this unusual sight, the red mist and rainbow merged and a woman took form. The woman was beautiful and wore a rainbow cloak. The stranger was greeted by the pair before being invited in.

> 'We have never seen you before today, where have you come from?' Keanuenue responded, 'From the high heavens, I am a messenger sent by my brothers to fetch your newborn child for us to raise. The child is yours by birth, and I and my brothers shall only raise him, and if he grows to be a man and loves you two as his parents, that's fine, but if he cares for our raising him, that would be appropriate, like a little fish of Kahoolawe, like an uku—a just reward.' [Manu 2002:102]

Hina was incredibly sad hearing Keanueanue's words. Ku thought for a bit before retorting,

> 'Listen, Stranger, what you've told us is good, but here is my only concern. If what you've told us deals with Mooinanea, then it's all fitting and proper, because you obtain the child through her. Therefore, if you go to her first and let her hear your case, you'll get the child through her, but you won't get your way unless you get it through her.' [Manu 2002:102]

Keanuenue then stated that Ku and Hina's child was already hers, as she had previously discussed the matter with Mooinanea. Hina turned to Ku and said, "Let the child be given as she says, lest we do wrong in Mooinanea's opinion, because she is telling us the truth, so let the child be released for the gods to raise" (Manu 2002:102). The couple agreed and handed over the child to Keanuenue who called out for the mist and grabbed a fragment of the rainbow cloak to wrap the child in before disappearing.

Ku stepped out of his *hale* (house) and in the sky was a rainbow, the red mist, and a fragment of the rainbow cloak floating away. Soaring above the ocean, Keanuenue tossed the placenta of the child into the ocean where it became a large red octopus. When Keanuenue reached Waolani, she entered the home of her brothers, Kāne and Karaloa. The two took the child and entered the *heiau* to sanctify the child under a godly *kapu* (taboo). A portion of the child's umbilical cord was cut and placed on a *pali* (cliff) called Kaipuolono ("Lono's offering gourd") by Kanaloa (Manu 2002:103).

After Kanaloa returned, he asked to Kāne who should stay with Keanuenue. Kāne felt it was appropriate "to gather those who are despised, not young and handsome people, lest they tempt our sister and she leave our foster child" (Manu 2002:103). Their wishes were immediately fulfilled. The two gathered approximately 400 people who were red-eyed, crippled, deformed, and

flawed. Homes were constructed, groups were divided, and work duties were assigned. Keanuenue oversaw this group and it was instructed for them to heed her words.

Kāne and Kanaloa named the boy Kahanaiakeakua ("Foster-child-of-the-gods"), Kahihikuaokalani ("The-spreading-over-the-back-of-heaven"), and Kamakaokauila ("The-eyes-of-lightning"). Keanuenue was ordered to take care of the child per her brother's instructions. Kāne also had an idea to have Kamanuwai ("The-water-bird") take their foster son wherever he wanted to go. Kamanuwai was a wild duck; it is also the name of a place near Kaumakapili (Manu 2002:103). Kunawai became the bathing pool for the child and Keanuenue (Figure 5 and Figure 6). The owner of the bathing pool was a *mo'o* (lizard, water spirit). The bathing pool bears the name of the *mo'o* to this day. Kamanuwai would take Kahanaiakeakua wherever he wanted to go then the two would go to Kunawai before heading back to Waolani. The lands of Waolani then became *kapu*.

Two *'ōlelo no'eau* (see Section 3.3.2 and 3.3.8) describe those who inhabited the lands of Waolani.



Figure 5. Photo of Kunawai Springs, bathing pool for Kahanaiakeakua, Kahihikuaokalani, Kamakaokauila, and Keanuenue (CSH 2014)



Figure 6. Photo of plaque at Kunawai Springs (CSH 2014)

3.1.3 The Legend of Kapo'i Kukaeunahiokapueo

In one legend, Kewalo is a marsh near the beach, where tall *pili* grass grew. A man named Kapo'i went to this area to get thatching for his house. While there, he found seven eggs of a *pueo* (Hawaiian short-eared owl) and took them home to cook for his supper. An owl perched on the fence surrounding his house and cried out "O Kapo'i, give me my eggs!" After several such pleas, Kapo'i eventually returned the eggs. In return, the owl became his *'aumakua* (deified ancestor) and instructed him to build a *heiau* named Mānoa. Kapo'i built the *heiau*, placed some bananas on the altar as a sacrifice, and set the *kapu* days for its dedication. The king of O'ahu, Kākuhihewa, who was building his own *heiau*, had made a law that if any man among his people erected a *heiau* and set the *kapu* before him, that man should die. Kapo'i was seized and taken to the *heiau* of Kūpalaha at Waikīkī. Kapo'i's *'aumakua* asked for aid from the king of the owls at Pu'u Pueo in Mānoa, who gathered all of the owls of the islands. They flew to Kūpalaha and battled the king's men, who finally surrendered: "The owls scratched at the eyes and noses of the men and befouled them with excrement" (Kamakau 1991:23). From this time, Hawaiians considered the owl a powerful *akua* (god, divine). Because of this battle, the Hawaiians named the area Kukaeunahiokapueo, which means, "the confused noise of owls rising in masses" (Thrum 1998:200-202; Westervelt 1963:135-137).

3.2 *Wahi Pana* (Legendary Places)

A Hawaiian *wahi pana*, also referred to as a place name, "physically and poetically describes an area while revealing its historical or legendary significance" (Landgraf 1994: v). *Wahi pana* can refer to natural geographic locations, such as streams, peaks, rock formations, ridges, offshore islands and reefs, or they can refer to Hawaiian land divisions such as *ahupua'a*, or *'ili*, and man-made structures, such as fishponds. In this way, the *wahi pana* of Honolulu and the study area tangibly link the *kama'āina* (native born) of Honolulu to their past.

According to Westervelt (1915), Honolulu is a name made by the union of the two words *hono* and *lulu*. Several translations include "sheltered hollow" and "abundance of peace" (Hawaiian Historical Society 1904:24). Pukui translates Honolulu as "protected bay" (Pukui et al. 1974:50). Westervelt adds that Honolulu was most likely a name of a very rich farm land near the junction of Liliha and School Streets. A high chief of this area was known as Honolulu. According to legends, he ruled this area during the time of Kākuhihewa.

Kākuhihewa was the *mō'ī* (king, sovereign) of O'ahu prior to Kamehameha's rule. Kākuhihewa divided the island of O'ahu amongst his favorite chiefs and officers and offered their names to the places that they received from their ruler. What is often referred to as Honolulu was once known as Kou. The area was named after a chief who was an *ilāmuku* (marshall) under Kākuhihewa. For more on the area Kou, refer to Section 3.2.2.

Near the current alignment of Richards and Queens Streets was Hono-kau-pu—a noted field for *'ulu maika*, an ancient Hawaiian game suggesting bowling (Westervelt 1915:16). Kou was the popular *'ulu maika* field amongst chiefs (see Section 3.2.2). The track at Hono-kau-pu was approximately 12 feet wide and extended from the current location of Merchant and Fort Streets, traveling 'Ewa (westward) to the intersection of Merchant Street and Nu'uanu Avenue. It is said that Kamehameha I used this *maika* track (Westervelt 1915:16). At the foot of the present Richards Street was once the site of lumber yards. In ancient times, this area was called Ula-kua and idols

were once made here. Near Ula-kua was Ke-kau-kukui, a place where people gathered to play *kōnane*, an ancient game that resembled checkers (see Section 3.2.3 for expanded *mo'olelo*). Ke-kau-kukui was also where Kekūanāo'a, father of Kamehameha V (Lot Kapuāiwa), built his home (Westervelt 1915:17).

Ka-wai-hao ("the water belonging to Ha'o") was and still is the site of an old Native Hawaiian church (Pukui et al. 1974:97). This was the site of a spring used by the chiefess Ha'o. It is said that the chiefess was carried from her home in Mō'ili'ili for ceremonial bathing and purification in a spring. Pukui places the spring "near the present News Building," which is most likely the former location of the Honolulu Advertiser building located at 605 Kapi'olani Boulevard, approximately a block 'Ewa of the current location of Kawaiha'o Church (at the intersection of South King Street and Punchbowl Street). See Section 3.2.7 for an expanded story of Kawaiha'o.

Pukui et al. (1974) do not give a meaning for the place name Kaka'ako, but Pukui and Elbert (1986:110) translate the word *kākā'āko* as "dull, slow," and Thrum (1922:639) translated the word as "prepare the thatching," as *kākā* means "to chop, beat, or thresh" and *ako* means "thatch." If Thrum's translation is correct, it could be related to the fact that salt marshes, such as areas like Kaka'ako, were excellent places to gather tall *pili* (a type of grass; *Heteropogon contortus*), which the Hawaiians traditionally used to thatch their houses.

Ka'ākaukukui, a filled-in reef, means "the right (or north) light," and it may refer to a maritime navigation landmark. According to Kekahuna (1958:4), Ka'ākaukukui was "a beautiful sand beach and reef that formerly extended a quarter mile along Ala Moana Park to Kewalo Basin. Various translations of Ka'ākaukukui include "radiating place for lamp" (Thrum 1922:635) and "to the right of the lighthouse" (Gessler 1937:187). This would have been an accurate description of the area at that time as Ka'ākaukukui was east, or "to the right" of the Honolulu Lighthouse in the harbor. This is probably a historic, not an ancient, interpretation as the Honolulu Lighthouse was not built until 1869 (Dean 1991:7). Ka'ākaukukui was a *lele* (a detached part or lot of land belonging to one *'ili* and located in another) with one parcel on the coast and two other, non-contiguous parcels inland. Ka'ākaukukui was adjacent on the *mauka* side to several other small *'ili* and *lele* lands, including portions of Pu'unui (big hill) and Pualoalo (*Hibiscus kokio*; Thrum 1922:667).

Kukuluāe'o, which translates literally as the "Hawaiian stilt (bird)," means "to walk on stilts." This area on the upland side of Ka'ākaukukui (Kekahuna 1958:4) formerly fronted Kewalo Basin and was an ideal environment for the Hawaiian stilt with its marshes, salt pans, and small fishponds (Griffin et al. 1987:36).

Kolowalu was a small land section between Kukuluāe'o and Kewalo that encompassed a large fishpond. Pukui et al. (1974:116-117) do not give a meaning for Kolowalu Pond, but they interpret the name of Kolowalu, a ridge in Mānoa, as "eight creeping." As Kolowalu Kai was probably associated with Mānoa, it is possible that "eight creeping" is also the correct interpretation for the pond name. Thrum (1922:652) interpreted *kolowalu* as "a beneficent law of Kualii." The *kolowalu* law was initiated by the Hawaiian chief Kūali'i, who ruled O'ahu from about 1720 to 1740 (Cordy 2002:19). This law protected the rights of commoners and provided food to the hungry (Fornander 1917:4 (2):432).

Kewalo literally means "the calling (as an echo)." Land Commission and other historic-era documents identify it as the area between Cooke and Sheridan streets *mauka* of Queen Street and

the coastal sections of Ka'ākaukukui, Kukuluāe'o, and Kālia. According to Pukui et al. (1974:109), *kauwā*, or members of a pariah caste, intended for sacrifice were drowned there. At one time, there was a sand beach at Kewalo, where various sports, such as surfing were held (Kekahuna 1958).

Kō'ula (red sugar cane) is the area around Thomas Square and the *mauka* portion of the Ward Estate, suggesting Kawailumalumai Pond may have been east of the Ward Estate.

Pūowaina, also known as Punchbowl in modern times, translates to "hill of placing [human sacrifices]" (Pukui et al. 1974:195). Hawaiian historian Samuel Kamakau related the following:

> I had heard of the famous place of O'ahu from Makuaka'ūmana and came to see them for myself. Kou was the harbor, Māmala the entrance, Pākākā the *heiau*. Pū-o-waina was the place where men were burned, *puhi kanaka* [burning man]; Hekili was the oven, *imu pīka'o* [cooking oven], where chiefs captured in war were parched. Kewalo was the place where the *kauwā* were held under water to drown according to Kānāwai Kaihehe'e [Kamakau 1991:6].

For more on Pūowaina and *heiau* that surrounded the area, see Section 3.2.8 for an expanded story.

Nu'uanu ("cool height") may derive from the contraction of *nuku* (mountain pass) to reference the cold wind near the summit of the Pali (Lyons 1901:181). Nu'uanu Valley contains many *wahi pana* including the peak of Kōnāhuanui ("large fat innards"), the home of the gods Kāne and Kanaloa, which is also the highest peak of the Ko'olau Mountains (Manu 2002:99). The name of the *pu'u* (peak) refers to a story about a giant who threw his testicles (*kona hua nui*) at a woman who escaped from him (Pukui et al. 1974:117). Pu'u Lanihuli ("where the heavens change") describes the abrupt changes in the winds at the peak (Raphaelson 1925). Nestled between Kōnāhuanui and Lanihuli is the Ka Nuku, the *nuku* (entrance) that leads to the Nu'uanu Pali. Smaller peaks include Napu'umaia ("the banana hills") and Waolani ("heavenly mountain area") on the west side of the valley (Pukui et al. 1974). *Mo'olelo* describe how Menehune contended for the possession of a *pōhaku* called Pōhaku a 'Ume'ume ("stone of contention"), which was hurled back and forth between Waolani and Kupanihi (Pacific Heights) (Cummins in Sterling and Summers 1978:303). Kamakau (1922:130) states that one of the earliest *heiau* on O'ahu was built at Waolani (see Section 3.1.2 in relation to the *mo'olelo* of Keaomelemele). Thrum (1906:44) mentions a *luakini* (sacrificial) class *heiau* in Waolani called Kawaluna similarly constructed by Wākea and consecrated by the *mō'ī* (paramount ruler) of O'ahu, Kūali'i, in 1685. According to a Hawaiian language newspaper, Kawaluna Heiau was located on the east ridge of Waolani Valley (*Ka Nai Aupuni* 1906 in Sterling and Summers 1978:304). Waolani is also where the legendary musical shell Kiha-pu had its first home before it was stolen by Kapuni and carried to its historic home in Waipi'o Valley, Hawai'i (Fornander 1915:20).

3.2.1 Pākākā and the Honolulu Fort

Pākākā was the name of a coastal point, a canoe landing, a wharf built off the point in 1827, and the name of a *heiau* built on the point. The name literally means "to skim, as stones over the water" (Pukui et al. 1974:175). Thrum (1906) generated several lists and surveys of *heiau* and noted that Peter Corney, a visitor to the island in 1819, saw several *heiau* along the Honolulu shore:

> There are several morais [*heiau*], or churches in the village, and at new moon the priests, chiefs and hikanees (aikane) [friends] enter them with offerings of hogs, plantains, and cocoanuts, which they set before the wooden images. The place is

> fenced in, and have [*sic*] pieces of white flags flying on the fences. [Corney 1896:101]

Westervelt (1915:21) identifies Pākākā Heiau as once being the main royal temple in Honolulu and the headquarters for priests, with the nearby wharf a possible part of the complex. The walls of the *heiau* were decorated with sacrificial heads of men. Westervelt relates that Pākākā was built before the time of Kākuhihewa, and was later owned by Kīna'u, the mother of Kamehameha V.

In 1816, a fort named Kekuanohu was constructed in this area, roughly *mauka* of Pākākā Heiau; the adjacent street was called Fort Street. Liloliho, Kamehameha II, built a palace complex in this area in 1821, possibly on the former Pākākā Heiau platform. P. Christiaan Klieger (1997:15-16) has suggested the Pākākā Palace complex may have lasted until around 1826, when a new royal compound was built for Kamehameha III within the town of Honolulu, near the modern junction of Alakea and Beretania streets.

Kekuanohu Fort was demolished in 1857 and the stones from the wall were used to create a seawall (Pukui et al. 1974:30), which was then filled to create a new land, called the Esplanade or 'Āinahau, from the *hau* tree (beach hibiscus; *Hibiscus tiliaceus*) land (Pukui et al. 1974:7).

3.2.2 Kou

The conflicting use of the name Kou traces its origins back to pre-Contact Hawai'i. The *kou* (*Cordia subcordata*) tree is a beautiful wood, soft, but lasting, was valuable to the early Hawaiians and was used for cups, dishes, and calabashes (Pukui and Elbert 1986:167). Kou was also the name of a chief officer who lived in the area, and the "old name, until 1800, for Honolulu Harbor and vicinity, including the area from Nu'uanu Avenue to Alakea Street and from Hotel Street to the sea, noted for *kōnane* and for *ulu maika*, and said to be named for the executive officer of Chief Kākuhihewa of O'ahu" (Pukui et al. 1974:117–118). Westervelt (1915:16) adds that *kōnane* was so competitive here that chiefs gambled away property and lives.

3.2.3 Māmala

Spanning from Honolulu Harbor to Pearl Harbor, Māmala was named for a shark woman who lived at the entrance of Honolulu Harbor. Ke kai o Māmala is the surf in the outer entrance of Honolulu Harbor. The chiefess Māmala loved to play *kōnane*, drink *'awa* (kava; *Piper methysticum*) and ride the surf (Pukui et al. 1974:106). Māmala left her shark husband, 'Ouha, for Honoka'upu. 'Ouha then became the shark god of Waikīkī and of Koko Head (Pukui et al. 1974:144).

3.2.4 Nihoa

Nihoa was the Waterfront area in downtown Honolulu formerly owned by Ka'ahumanu and named by her in honor of her visit to Nihoa Island ('Ī'ī 1959:166). This area had a sandy beach where natives could land and pull up their canoes on shore. In the early nineteenth century, western ships were also beached here for mooring and repair. In the time of Kamehameha I, "the shore at Nihoa . . . was a shipyard where foreign style vessels were being made by Hawaiians under the tutelage of whites" ('Ī'ī 1959:64).

3.2.5 Kukuluāe'o

Translated literally as the "Hawaiian stilt" (*Himantopus himantopus*), *kukuluāe'o* means "to walk on stilts." Pukui et al. (1974:123) identify the area as "formerly fronting Kewalo Basin" and "containing marshes, salt ponds, and small fishponds," an environment well-suited for this type of bird (Griffin et al. 1987:36). The ethnographer Henry Kekahuna (1958:4) described Kukuluāe'o as an area where salt was formerly made.

3.2.6 Pu'ukea Heiau

The chief Huanuikalala'ila'i governed Pu'ukea Heiau in the land section of Kukuluāe'o, according to Kamakau (1991:24). Pu'ukea literally means "white hill" and is also the name of a small land division within the *'ili* of Kukuluāe'o that is mentioned in at least two Land Commission cases, LCA 1502 (not awarded) and LCA 1504. LCA 1504 is located near the junction of Halekauwila and Cooke streets. It is common for a *heiau* to have the same name as the *'ili* in which it is located, so it is possible Pu'ukea Heiau was also near the junction of Halekauwila and Cooke streets. The majority of the house sites in the mid-nineteenth century in Kukuluāe'o were located near Halekauwila and Queen streets, *mauka* of the low-lying coastal swamplands on higher, dry ground. It is possible the *heiau* platform or the area that it was built on was one of the few elevated locations in the flat, low-lying swamp that surrounded it, and thus gained the name *pu'u kea*, or "white hill." Kamakau mentions Pu'ukea Heiau in a traditional *wānona* (prophecy) (1991:24–25):

[*Ka makaua ua kahi o 'Ewa*]	[The increasing 'first rain' of 'Ewa]
Ua puni ka i'a o Mokumoa,	Overcomes the fish of Mokumoa,
Ua kau i'a ka nene;	Washes up fish to the nene plants;
Ua ha'a kalo ha'a nu;	Lays low the taro as it patters down;
Ha'a ka i'a o kewalo,	Lays low the fish of Kewalo,
Ha'a na 'ualu o Pahua,	Lays low the sweet potatoes of Pahua,
Ha'a ka mahiki i Pu'ukea,	Lays low the mahiki grass at Pu'ukea,
Ha'a ka umunu i Pele'ula,	Lays low the growing things at Pele'ula
Ha'a Makaaho i ke ala.	Lays low Makaaho [Makāho] in its path
E Kū e, ma ke kaha ka ua, e Kū,	O Kū, the rain goes along the edge [of the island], O Kū
[*I 'ai 'na ka i'a o Maunalua*] . . .	['Eating' the fish of Maunalua] . . .

Thrum (1906:37–47), does not mention Pu'ukea Heiau. In his report on O'ahu sites in the early 1930s, McAllister (1933:80) says of Honolulu: "Information regarding former sites within the present limits of Honolulu must come entirely from literary sources."

3.2.7 Kawaiha'o and the Waters of Ha'o

Two springs in Kewalo are mentioned in the *mo'olelo* of the *Waters of Ha'o*, which describes two children of the chief Ha'o who ran away from their cruel stepmother. They stayed a time with the caretakers of Kewalo Spring, which may have been located close to the trail that connected Waikīkī and Honolulu. The children then left when they heard that the chiefess had sent men to look for them. The two children followed the moonlit trail across the plain toward Kou (Honolulu), but finally collapsed from weariness and thirst. In a dream, the boy's mother told him to pull up a plant close to his feet. When he did, he found a spring under the plant, which was called the Water

of Ha'o, or Kawaiaha'o. This spring is located at the western end of the trail, near Kawaiaha'o Church in Kaka'ako (Pukui 1988:87-89).

3.2.8 Pūowaina

There were six *heiau* and one home for priests located on Pūowaina, commonly referred to as Punchbowl Crater today (Figure 7). Some of these *heiau* were located on the Makiki side of the crater and also on the Pauoa ('Auwaiolimu) side. These *heiau* acted as temples, forts, and as part of the complex for the priests of Pūowaina, and were important sites during the Battle of Nu'uanu in 1795 when Kamehameha conquered the island of O'ahu. The approximate locations of the *heiau* were first noted by Emma Nakuina (1909) in an article on the battle published in the *Pacific Commercial Advertiser*:

> The battle of Nuuanu commenced at the heiau of Kanelaau just below the old flagstaff station on Punchbowl about where Alapai joins Kinau and Lunalilo Streets and raged along a series of heiaus that formed the guard or outposts of the Puowaina sacred *heiau*. There was one called Mana above the Queen's Hospital, Kahehuna (Royal School site) and one at Kaakopua (Princess Ruth's now the Central Grammar). Here the battle raged the fiercest and the Oahuans were so hard pressed they were divided into two sections, one fleeing Ewa-ward . . .
>
> The main portion of the Oahu army retreated fighting up Pauoa way but were met by the Hawaiians under Heulu who had stole a march around Punchbowl and poured down on the retreating defenders by the pass above Punchbowl, Papakolea. [Emma Nakuina, *Pacific Commercial Advertiser* June 29, 1909, cited in Sterling and Summers 1978:317]

For more information on the two invasions in Pauoa, see Section 4.1.1.

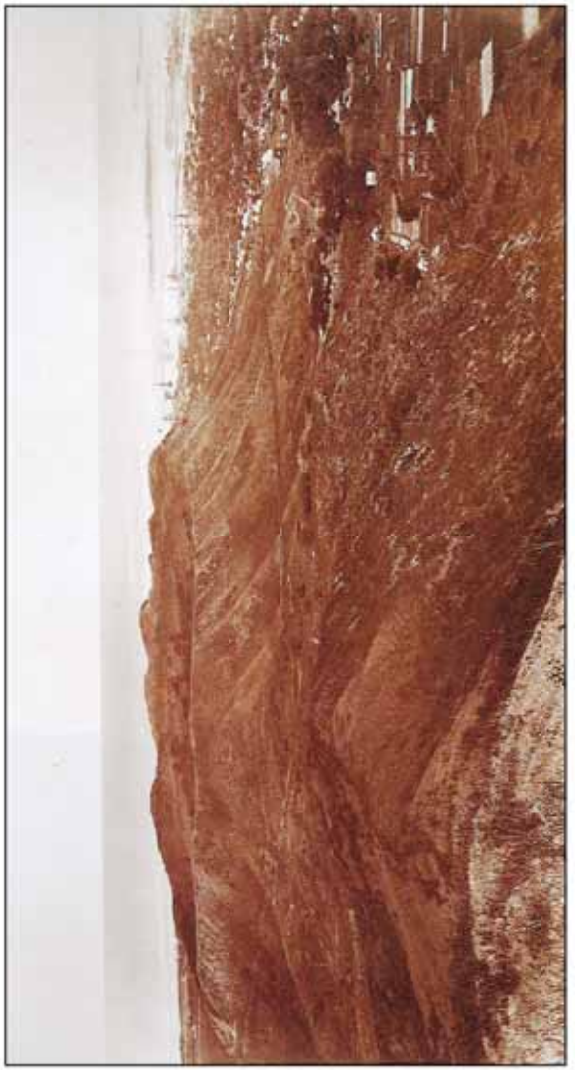

Figure 7. Photo of Punchbowl from Pacific Heights, circa 1890 (courtesy of Myatt 1991)

3.3 *'Ōlelo No'eau* (Proverbs)

Hawaiian knowledge was shared by way of oral histories. The following section draws from author and historian Mary Kawena Pukui and her knowledge of Hawaiian proverbs describing *'āina* (land), weather, and places.

3.3.1 *'Ōlelo No'eau* #1016

The following *'ōlelo no'eau* describes the sustainable food source provided in the *mauka* area of Nu'uanu Valley above Honolulu.

> Ho'ā ke ahi, kō'ala ke ola.
> O na hale wale no ka i Honolulu;
> o ka 'ai a me ka i'a i Nu'uanu.
>
> *Light the fire for there is life giving substance.*
> *Only the houses stand in Honolulu;*
> *the vegetable food and meat are in Nu'uanu.*
>
> An expression of affection for Nu'uanu. In olden days, much of the taro lands were found in Nu'uanu, which supplied Honolulu with *poi* (the Hawaiian staff of life, made from cooked taro corms, pounded and thinned), taro greens, *'o'opu* (general name for fishes included in the families *Eleotridae*, *Gobiidae*, and *Blennidae*), and freshwater shrimp. So it is said that only houses stand in Honolulu. Food comes from Nu'uanu. [Pukui 1983:109]

3.3.2 *'Ōlelo No'eau* #1033

This proverb speaks of those found at Waolani in Nu'uanu. This *'ōlelo no'eau* relates to the *ka'ao*, Keaomelemele:

> Ho'i i Waolani i kāhi o ka 'e'epa.
>
> *Go to Waolani where the supernatural beings dwell.*
>
> Said to one who can't be fathomed. It is the equivalent of, "Go and join your peculiar kind of people." Waolani, in Nu'uanu, O'ahu, was once the home of gods, *Menehune*, *Nāwā* (Noisy beings), *Nāmū* (Silent beings), and all manner of disgruntled, misshapen, and joyous characters who were grouped under the term *'e'epa*. [Pukui 1983:110]

3.3.3 *'Ōlelo No'eau* #1128

The following proverb describes Kou, the ancient name for Honolulu. Kou was considered a gathering place for *maka'āinana* and *ali'i*:

> Hui aku na maka i Kou.
>
> *The faces will meet in Kou.*
>
> We will all meet there. Kou (now central Honolulu) was the place where the chiefs played games, and people came from everywhere to watch [Pukui 1983:120].

3.3.4 *'Ōlelo No'eau* #1423

The following *'ōlelo no'eau* describes the beautiful weather characteristic of the Honolulu area.

> Ka lā ikiiki o Honolulu.
>
> *The intensely warm days of Honolulu.*
>
> People from the country often claim that Honolulu is excessively warm. [Pukui 1983:154]

3.3.5 *'Ōlelo No'eau* #1510

The following *'ōlelo no'eau* discusses Māmala, the entrance to Honolulu Harbor:

> Ka ruku o Māmala.
>
> *The mouth of Māmala.*
>
> The entrance to Honolulu Harbor, named for a shark goddess who once lived in the vicinity. [Pukui 1983:163]

3.3.6 *'Ōlelo No'eau* #1575

The following *'ōlelo no'eau* describes the sound of the rain that falls on the southern coast of O'ahu, in the Honolulu area. To the Hawaiians, each and every valley possessed particular qualities of rain in the smell, the way if fell, the density of each drop, and based on these characteristics each rain had its own name, characteristic to the area.

> Ka ua Kukalahale o Honolulu.
>
> *The Kukalahale rain of Honolulu.*
>
> The rain that announces itself to the homes by the pattering it makes on the roofs as it falls. Often mentioned in songs. [Pukui 1983:170]

3.3.7 *'Ōlelo No'eau* #1652

The following proverb describes a fresh water spring in the Kewalo area:

> Ka wai hualhua'i o Kewalo.
>
> *The bubbling water of Kewalo.*
>
> Kewalo once had a large spring where many went for cool, refreshing water. [Pukui 1983:178]

3.3.8 *'Ōlelo No'eau* #2113

Similar to *'ōlelo no'eau* # 1033, this proverb also talks of those who inhabited Waolani in Nu'uanu:

> Mākole la i Waolani.
>
> *The red-eyed ones of Waolani.*
>
> Waolani, Nu'uanu, was said to have been the home of many defective people—the hunchbacked, the club-footed, the red-eyed, and so forth. To see such a person anywhere outside of Waolani was regarded as a sign of bad luck.

3.3.9 *'Ōlelo No'eau* #2486

The following proverb discusses a rain known as Wa'ahila, which frequents Nu'uanu and Mānoa Valleys, that supplies Honolulu with water. Wa'ahila is also the name of a ridge that separates Mānoa Valley from Pālolo Valley.

Ola ke awa o Kou i ka ua Wa'ahila.

It is the rain of Nu'uanu that gives water to Kou (now central Honolulu). [Pukui 1983:272]

3.4 *Oli* (Chants)

3.4.1 The Epic Tale of Hi'iakaikapoliopele

The Epic Tale of Hi'iakaikapoliopele takes the reader on a literary adventure throughout the Hawaiian Islands. The saga begins with the fire goddess, Pele, in pursuit of a lover. Hi'iakaikapoliopele, Pele's younger sister, is tasked with bringing back the handsome *ali'i* of Kaua'i, Lohi'au.

Hi'iakaikapoliopele, her *aikāne* (friend) Wahine'ōma'o, and Lohi'au board a canoe at Pu'uloa (now known as Pearl Harbor) and plan to sail to Waikīkī. At Pu'uloa, Hi'iaka meets a party who were planning on traveling to the house of the chiefess Pele'ula in Waikīkī. Hi'iaka recites the following chant, telling the party despite the fact that she would be traveling by boat and they would be walking, they would meet again in Kou:

'O Kou ka papa	Kou is the coral flat
'O Ka'ākaukukui ka loko	Ka'ākaukukui is the pool
'O ka 'alamihi a'e nō	Some 'alamihi [a black crab], indeed
'O ka lā a pō iho	Wait all day until night
Hui aku i Kou nā maka.	Friends shall meet in Kou.

[Ho'oulumāhiehie 2006a:277; Ho'oulumāhiehie 2006b:297]

The party continues to sail towards Waikīkī where they reach the outside area of Kou. Hi'iaka turns, looks towards the uplands of Nu'uanu and sees Hāpu'u and Kala'ihauola. Hi'iaka says to them, "I might have forgotten you two, Hāpu'u and Kala'ihauola. I do not want you to say I did not acknowledge you, so here are the chanted regards from the traveler." She then offers the following *kānaenae* (chanted supplicating prayer):

E Hapuu laua me Kalaihauola e

E na wahine no noho Koolau

E no nonoho ana i ke Alanui

Kanaenae au a ka mea hele i'ai'a. [*Ka Na'i Aupuni*, Volume II, Number 10, 13 June 1906]

Translation:

O Hāpu'u and Kala'ihauola

O women who dwell on the Ko'olau range

Residing upon the pathway

I offer this chant for those who pass that way. [Ho'oulumāhiehie 2007a:278]

3.4.2 The Battle of Nu'uanu

The *heiau* of Pu'ukea and an area called Kaka'ako are mentioned in the chant "The Battle of Nu'uanu," which concerns the 1795 invasion and conquest of O'ahu by Kamehameha I. One section of the chant describes locations in Honolulu, possibly listing them from east to west:

75 *Lauwili i Pūkē (Pu'ukea) i Ka-imu-hai-kanaka,*
76 *I Kai-kua, i Kakaako, i Mamala,*
77 *I ke kai o Kuloloia, Pakaka,*
78 *I ka-imu-hai-kanaka, i ka-wai-apuka-Kāne.* [Kala'ikuahulu 1880:131]

Section 4 Traditional *Mo'olelo* and Historical Accounts

4.1 Traditional *Mo'olelo*

4.1.1 Battles in Pauoa Valley

Pauoa Valley was associated with two famous invasions in 'Auwaiolimu 'Ili and near a *heiau* (temple) called Kānelā'au.

4.1.1.1 Kahekili and Kahahana

In 1783, the Maui chief Kahekili invaded O'ahu, landing at Waikīkī. The chief of O'ahu, Kahahana, was in the uplands of Nu'uanu.

> In the beginning of 1783—some say it was in the month of January—Kahekili, dividing his forces in three columns, marched from Waikiki by Puowaina, Pauoa, and Kapena [in Nu'uanu], and gave battle to Kahahana near the small stream of Kaheiki. Kahahana's army was thoroughly routed, and he and his wife Kekua-poi-ula fled to the mountains. [Fornander 1996:224-225]

Samuel Kamakau (1992:136) gives additional information on this battle and the distribution of forces in Pauoa:

> *I ka malama 'o Ianuari 1, o ka A.D. 1783, ua 'ākoakoa nā ali'i a me nā pūkaua, nā pū'ali a me nā koa o Kahekili, a māhele 'ia ihola 'elua po'e kaua. Māhele 1. 'O Kahekili ka pūkaua. Māhele 2. 'O Hū'eu ka pūkaua. 'O kā Hū'eu po'e kaua ma uka o Kānelā'au a ma Kapapakōlea, ma uka o Pūowaina. 'O ka māhele mua ma luna o Hekili a hiki i Kahēhuna a me 'Auwaiolimu. ''O Kaheiki ke kahua kaua.*
>
> *Ma kēia ho'ouka kaua 'ana, ua lilo ka wai o ke kahawai o Kaheiki i koko, no ke āhua lālā kukui o ka heana i ka wai, no ka mea, ua kūmano 'ia ke kahawai i ke kino o nā kānaka i make i ke kaua. 'O ke kaua ma luna iho o ka heiau 'o Kaheiki ke kaua i he'e ai, no ka mea, ua pi'i a'ela kekahi kaua ma ka kualapa pili o Pauoa, a iho ma Kapena, a uluāo'a a'ela ka ho'ouka 'ana o ke kaua. 'O ka puehu ihola nō ia o nā koa o Kahahana* (Kamakau 1867; *Ka Nūpepa Kū'oko'a*, March 30, 1867).

Translation

> In January, 1783, a decisive battle was fought with Kahe-iki as the battlefield. Kahekili's forces were divided into two companies, one under Hu'eu's leadership stationed at Kanela'au and Kapapakolea back of Pu'owaina and the other under his own command stationed from above Hekili to Kahehuna and 'Auwaiolimu. In this battle the waters of the stream of Kahe-iki ran red with blood from the heaps of broken corpses that fell into the water; the stream was dammed back with the corpses of those who died in battle. On the ridge facing Pauoa and from thence down to Kapena another attack was made against the defense station back of the heiau of Kahe-iki. Confusion seized the ranks; the warriors of Kahahana were dispersed. [Kamakau 1992:136]

4.1.1.2 Kamehameha and Kalanikūpule

In 1795 Kamehameha I's landed his army at Waikīkī to make war against Kalanikūpule, king of Maui and O'ahu and begin to unite all of the Hawaiian Islands under his rule:

> Immediately on disembarking the army was formed in lines of battle and marched to Nuuanu Valley to meet Kalanikupule. Several running engagements took place between the opposing forces, commencing at the opening of the valley on the Ewa side of Punchbowl (Puowaina), then again at about the present cemetery sites, and around where the royal mausoleum stands. . . (Nakuina 1904:18)

The forces met at a pitched battle at Pū'iwa, where the men of Kalanikūpule were then pushed further in Nu'uanu Valley. They fled up the valley and were finally driven over the *pali* (cliff); thousands were killed. A young chiefess who lived on Punchbowl Crater was forced to marry one of Kamehameha's generals, but in defiance she named her first born son Kaheananui, which means "the great heap of the slain," to commemorate the slaughter (Nakuina 1904:17-21).

In a recent study on the Nu'uanu battle, Neil Dukas (2010) noted:

> The two armies meet in full-on battle at the foot of Pūowaina (Punchbowl Crater). The allied defenders . . . are well entrenched, employing several heiau as forward bastions or redoubts. These are prepared defenses.
>
> . . . it is more than likely the defenders have established gun emplacements atop these heiau. The first position to receive a direct assault by the Hawaiians in Kānelā'au heiau, located somewhere near the intersection of today's Alapa'i and Kīna'u streets. The other three bastions [Mana, Kahehuna, and Kaakopua] come into play one at a time as the Hawaiian vanguard, and then the main body, pivots around to face the defenders.
>
> Arranged in a rough semi-circle, the fortified heiau divide the attentions of the attacking force, luring the enemy into a shared killing ground. [Dukas 2010:24]

It was at these fortified *heiau* that, according to Emma Nakuina, the "battle raged the fiercest" (Sterling and Summers 1978:317). However, the invading forces soon isolated the defenders of each fort, destroying their united force. The invading Hawaiians somehow managed to take Papakōlea Heights *mauka* of Punchbowl, thus surrounding the O'ahu forces on two sides. The O'ahu warriors made a strategic retreat from Punchbowl upward into Pauoa Valley. Eventually they were cornered on the Pali at the head of Nu'uanu Valley, where the remaining forces were destroyed or escaped in small groups.

4.1.2 Honolulu

The area that today comprises the portion of downtown Honolulu that surrounds Honolulu Harbor and extends to the mouth of Nu'uanu Stream was known to the Hawaiians as "Kou," a center of population and activity similar to Waikīkī, its preeminent neighbor to the southeast. Kou stretched from "Nu'uanu to Alakea streets and from Hotel Street to the sea" (McAllister 1933:80) and possessed shoreward fishponds and irrigated fields fed by streams descending from Nu'uanu and Pauoa valleys.

After defeating Kalanikūpule in the battle of Nu'uanu, Kamehameha moved his court, government, and residence from Waikīkī to Honolulu. Kamehameha was known to have taken a

special interest in farming and would work in the fields alongside the commoners to demonstrate the importance of agriculture. Crops such as yams were developed under Kamehameha and were often sold to the captains of foreign ships in need of provisions at Honolulu Harbor ('Ī'ī 1959:69).

Honolulu was somewhat slow to catch on as a major destination for foreigners visiting the archipelago. The only stop of Cook's ships on O'ahu was at Waimea Bay (1779), not viable as a significant port owing to the famous winter swell that breaks there. A discouraging factor for early trade at O'ahu was political instability. The ruling chief Peleiōhōlani died around 1780, and his heir, Kumuhana was almost immediately deposed in a coup d'état. A period of political unrest followed including Kahekili's invasion in 1783, the bloody crushing of the O'ahu rebellion in 1786, the invasion by the Kaua'i ruler Ka'eokūlani in 1791, the passing of the rule following Kahekili's death in 1794 to Kalanikūpule, and finally, his defeat by Kamehameha I in 1795 (Beechert 1991:12-14).

E.S. Craighill Handy and Elizabeth G. Handy give a description of Honolulu:

> What is now Honolulu was originally that flatland area between the lower ends of Nu'uanu and Pauoa Valleys and the harbor. Westervelt (1915, p. 1) wrote that 'Honolulu' was probably a name given to a very rich district of farm land near what is now . . . the junction of Liliha and School Streets, because its chief was Honolulu, one of the high chiefs at the time of Kakuhihewa . . . It is probable that the chief referred to by Westervelt took his name from the harbor and adjoining land. The original name of the land where the town grew when the harbor became a haven for foreign ships was Kou (Pukui and Elbert, 1957, p. 154). The number of heiau in this area indicates that it was a place of first importance before the era of foreign contact. [Handy and Handy 1972:479]

Rev. Hiram Bingham arrived in Honolulu in 1820. He described Honolulu as a still predominantly native Hawaiian environment—still a "village"—on the brink of western transformations:

> We can anchor in the roadstead abreast of Honolulu village, on the south side of the island, about 17 miles from the eastern extremity . . . Passing through the irregular village of some thousands of inhabitants, whose grass thatched habitations were mostly small and mean, while some were more spacious, we walked about a mile northwardly to the opening of the valley of Pauoa, then turning southeasterly, ascending to the top of Punchbowl Hill, an extinguished crater, whose base bounds the northeast part of the village or town . . . Below us, on the south and west, spread the plain of Honolulu, having its fishponds and salt making pools along the seashore, the village and fort between us and the harbor, and the valley stretching a few miles north into the interior, which presented its scattered habitations and numerous beds of *kalo* (*arum esculentum*) in its various stages of growth, with its large green leaves, beautifully embossed on the silvery water, in which it flourishes. [Bingham 1847:92-93]

This description is borne out in an 1817 map by Otto von Kotzebue (Figure 8), showing the land between Pūowaina (Punchbowl Crater) and the shoreline as characterized by fishponds, salt ponds, trails connecting Honolulu and Waikīkī, and occasional taro *lo'i* and habitation sites.



Figure 8. 1817 map (portion) made during the visit of Otto von Kotzebue of the Russian Ship *Rurick*, indicating the approximate location of the project area. Note the presence of Pūowaina, *manoa* of the project area, as well as the location of a cemetery (labeled in Russian as "Кладбище," meaning "Cemetery of Foreigners") and the grid-like symbols indicating salt pans.

4.1.3 The Māhele and the Kuleana Act

The Organic Acts of 1845 and 1846 initiated the process of the Māhele—the division of Hawaiian lands—that introduced private property into Hawaiian society. In 1848, the Crown and the *ali'i* received their land titles as *konohiki* (land manager) awards. *Kuleana* (Native land rights) awards to commoners for individual parcels within the *ahupua'a* were subsequently granted in 1850 and thereafter. The Crown Lands were considered the private lands of the monarch, and many lands were sold or mortgaged during the reigns of Kamehameha III and IV to settle debts to foreigners. To end this practice, the Crown Lands were made inalienable in 1865, and their dispensation was regulated by a Board of Commissioners of Crown Lands, which effectively put them under the administrative control of foreign-born residents (Kame'eleihiwa 1992:310).

To apply for simple title to their lands, native tenants were required to file their claim with the Land Commission on or before 14 February 1848. In 1850, the Privy Council passed resolutions that affirmed and protected the rights of the commoners or native tenants, including the Kuleana Act. Under this act, the claimant was required to have two witnesses who could testify they knew the claimant and the boundaries of the land, knew that the claimant had lived on the land for a minimum of two years, and knew that no one had challenged the claim. The land also had to be surveyed (Chinen 1958:31).

These awards were presented to tenants, Native Hawaiians, naturalized foreigners, non-Hawaiians born in the Islands, or long-term resident foreigners who could prove occupancy on the parcels before 1845. LCA documents indicate these parcels were awards to a variety of Native Hawaiians and foreign settlers who had moved into Honolulu as the city developed.

On 8 March 1848, Kamehameha III divided his property in the Islands reserved for him through the Māhele into two parts; the smaller portion he retained for himself and his heirs, while the larger portion was given "to his Chiefs and People"; the latter became known as "Government Lands" (Chinen 1958:26). Fifty-two *'ili* in Honolulu, Kalihi, and Waikīkī were set aside from the Government Lands as "Fort Lands" for the support of the garrison of the fort at Honolulu. A distinct series of LCAs were issued for the *kuleana* in these lands, marked FL (Fort Land) to distinguish them from other awards. The Fort Land *kuleana* were granted free of charge to the awardees. Most of the LCAs in Honolulu were house lots and store lots *mauka* of Queen Street.

A small portion on the *makai* side of the project area is situated on LCA 10605, which belonged to Pi'ikoi. A few fishponds or possible salt pans can be found on Pi'ikoi's land *makai* of the project area. LCA testimonies do not validate if any fishponds or salt pans were on Pi'ikoi's land. For detailed information on LCA 10605, see Appendix A

4.1.4 Mid- to Late 1800s

In 1846, Honolulu was made the capitol of the Hawaiian Kingdom and was well on its way to becoming the commercial and political hub of the Islands. By 1850, Honolulu was, as described by Charles Wilkes, "very conspicuous from the sea and has more the appearance of a civilized land, with its churches and spires, than any other island in Polynesia" (Wilkes 1856:373). An 1855 map by Joseph de LaPasse (Figure 9) shows an increased number of structures dotting the southern coast of O'ahu.

During this period there was an obvious increase in density of land use and urbanization. The waterfront of Honolulu changed significantly during this period. Experiencing the peak of the whaling industry around 1850, the harbor area became crowded with trading and whaling vessels, and required additional wharfs to accommodate them.

Honolulu was in a period of rapid change. Reverend Sereno Bishop offers a unique perspective on the changes in the layout of Honolulu and the structures that lined the streets:

> When I returned to Honolulu in 1853, after an absence of thirteen years, I was struck by the many changes . . . [In 1840] The major portion of the residents of Honolulu still lived in thatched houses. In fact the town was almost entirely composed of this kind of dwellings . . . When I went away there were only Punchbowl Road, Beretania Street, King Street and Merchant Street. This was the condition of the city in 1840. [Bishop 1916:58]

During the whaling era, when seamen came ashore for "rest and relaxation," the downtown area from Nu'uanu Street west to Nu'uanu Stream was a district of "dilapidated native huts and tenements, tiny bar-rooms, coffee-shops, and run-down 'boarding houses,' all turning to the harbor for their opportunities and income" (Daws 2006:239).

4.1.4.1 Cholera Epidemic of 1895

In 1895, a cholera epidemic struck the Islands and spread due to the unsanitary conditions of the harbors and Nu'uanu Stream. Near the King Street bridges were many laundries. This area was called *'a'ala* (fragrant) by the Hawaiians, an ironic statement on the odors of the area. The cholera

> . . . came in the form of active cases among Chinese steerage passengers on the *Belgic*, which arrived August 9. The harbor waters—stagnant, alkaline, and heavily contaminated with sewage and refuse became infected and crabs feeding upon this infected material were believed to have been the means through which it spread, first to a native woman, and then to guests at a luau in her house. One of these secondary cases washed his clothing at the Aala laundries and infected the Nuuanu stream, and various rice and taro patches became contaminated in a similar manner. [Arnold 1956:317]

A total of 88 cases, of which 76 were Hawaiians, were reported between the start of the epidemic in August to its end in October. A total of 64 people died, all in the Honolulu area (Arnold 1956:317; Schmitt 1977:363).

Spurred by these deaths, the government began to plan and institute public improvements to the roads, bridges, sewer systems, and streams in the western Honolulu area. Thomas Thrum, editor of the *Hawaiian Almanac and Annual*, reported on these improvements in his annual retrospect of the preceding year:

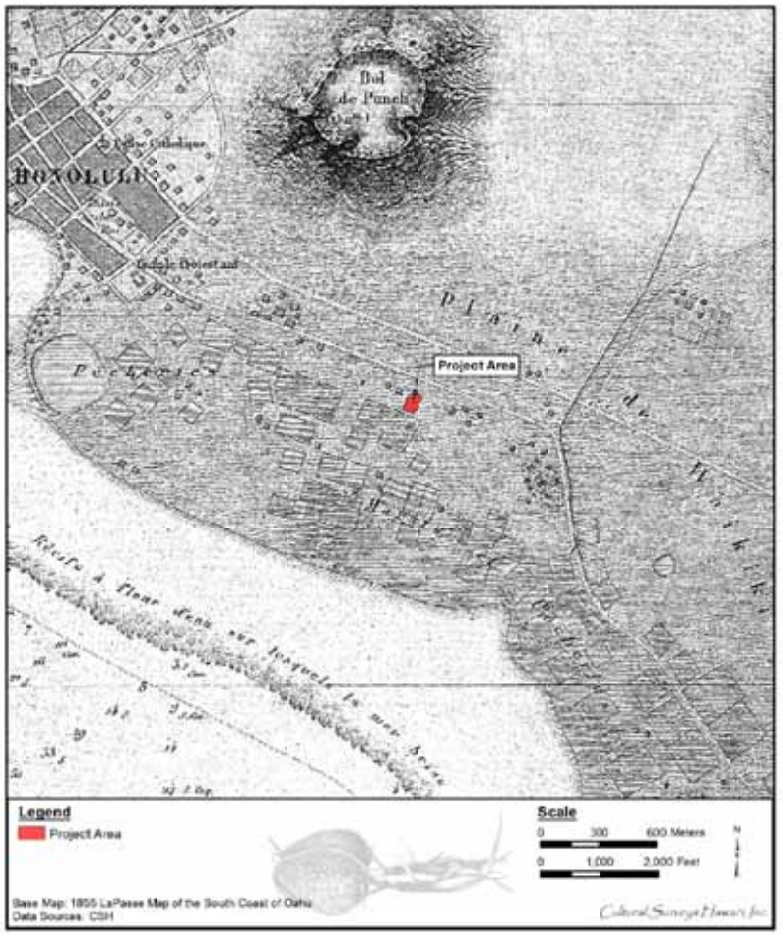

Figure 9. 1855 LaPasse Map of the South Coast of O'ahu with project area; note a trail is found just *mauka* of the project area that traverses Honolulu to Waikīkī Ahupua'a

> The new spirit of public improvements . . . has been pushed with vigor. The relaying of larger water mains through a number of streets and completion of the new pumping plant, auxiliary to the reservoir system, was effected in time to do valuable service during the cholera period by shutting off the reservoir supply with its possible contamination, and flushing the mains with artesian water. . . . the enlargement of the inner harbor by dredging, with contemplated increased wharfage facilities along the extension of Queen street toward the King street bridge has already been entered upon. The dredging serves the further beneficial purpose of filling in the low land partly occupied, till recently, by the old wash houses, on the northern side of Nuuanu stream which is to be assigned to ['A'ala] park purposes for the benefit of the residents in that part of the city and the improvement of its sanitary condition. [Thrum 1896:144]

In the retrospect for 1897, the *Hawaiian Annual* gave an update on the project:

> The dredging of Honolulu harbor and rock cutting to deepen the site at the Waikiki end of the Pacific–Mail Wharf selected for the special needs of the big steamers of the Orient line, has been pushed, and considerable progress made in filling in the Aala and other tracts adjacent to the Nuuanu stream. There remains much yet to be done to complete the extensive channelization contemplated by this river and harbor improvement. [Thrum 1898:158]

4.1.4.2 Kaka'ako Salt Works and the Salt Pans of Kewalo and Kukuluāe'o

Much of the land in Ka'ākaukukui was used to produce salt. The Hawaiians used *pa'akai* (salt) for a variety of purposes: to flavor food, to preserve fish by salting, for medicines, and for ceremonial purposes. David Malo describes the traditional method of making salt:

> O ka paakai kekahi mea e pono ai, he mea e ono ai, ka ia, a me ke koekoe o ka paina ana, he mea hana ia ka paakai, ma kekahi aina, aole i hana a ma kekahi aina, o ke kai makai, e kii aku no ka wahine, a lawe mai ma ke poi, a ke kai hooholo ia mai kekahi ma kauwahi mai.
>
> E waiho kela kai ma kekahi poho paha, he ekaha paha, he kahe ka paha, a liu malaila, alaila lawe ana kauwahi e, a paakai iho la no ia, o ka papa laau ka mea kui poi. [Malo 2006:73]

Translation:

> Pa'akai (salt) is another beneficial item. It is used to make fish delicious and tasteless foods edible. Pa'akai is made at a particular place, [but] it [salt] is not actually made from this spot, rather it [salt water] came from the sea. A woman went to get some when the sea crashed [upon the rocks] and she ran back [the salt water] to this particular spot. That salt water (kai) is placed in, perhaps, a depression (poho) or a 'Bird's nest' (ēkeha) or rock basin (kāheka) and allowed to evaporate (liu). Then it is taken to another spot and is formed into pa'akai. Wooden boards (papa lā'au) are used to pound poi (mashed cooked kalo corms) on. [Malo 2006:95]

In 1903, Nathaniel Emerson translated David Malo's articles on early Hawaiian life. In his publication, the translations are not literal, but include information that Emerson added for clarity:

> Salt was one of the necessities and was a condiment used with fish and meat, also as a relish with fresh food. Salt was manufactured in certain places. The women brought sea-water in calabashes, or conducted it in ditches to natural holes, hollows and shallow ponds (kekaha) on the sea-coast, where it soon became strong brine from evaporation. Thence it was transferred to another hollow or shallow vat, where crystallization into salt was completed. [Malo 1951:123]

Captain Cook was the first to note the method of making salt in prepared "saltpans":

> Amongst their arts, we must not forget that of making salt, with which we were amply supplied, during our stay at these islands, and which was perfectly good of its kind. Their saltpans are made of earth, lined with clay; being generally six or eight feet square, and about eight inches deep. They are raised upon a bank of stones near the high-water mark, from whence the salt water is conducted to the foot of them, in small trenches, out of which they are filled, and the sun quickly performs the necessary process of evaporation . . . Besides the quantity we used in salting pork, we filled all our empty casks, amounting to sixteen puncheons, in the Resolution only. [Cook 1784:151]

The export of salt declined in the late nineteenth century. Thrum (1924:116) states that the apex of the trade was in 1870, but by 1883 he noted that "salt and oil have disappeared entirely" from the list of yearly exports (Thrum 1884:68). By 1916, only one salt works, the Honolulu Salt Company, was still in operation. However, salt continued to be manufactured for local use. The Kaka'ako Salt Works appears as late as 1891 and a page in Victoria Ward's ledger for 1883 notes a yearly income of $651.50 received from her "Salt Lands" in Kukuluāe'o (Hustace 2000:50). As noted above, Thrum (1924:116) said the Honolulu Salt Company was the only salt producer on O'ahu in 1916. A 1916 Commerce Report (Taylor 1916:723) states the Honolulu Salt Company operates "salt beds at Puuloa, Kalihi, and Waikiki, on the island of O'ahu." No mention is made of Kaka'ako, suggesting the Kaka'ako salt works had closed before 1916.

The traditional method of salt production was gradually replaced by the more labor intensive Chinese method, as Chinese immigrants began to take over the traditional salt and fishponds of Honolulu in order to grow rice, to raise ducks, and to make salt. In a 1906 article, Rev. Westervelt (1906:43-46) explained the Chinese method of salt evaporation for the Honolulu salt beds. The Chinese worker first used a water pump to draw the seawater from the larger ditch below to the salt-evaporation beds above. The man moved the two handles back and forth to work the pump. The evaporation beds were lined with clay, wet with sea water, and tramped and pounded down. Each pan was about 20 ft square, covered with about 2 inches of water, and bound by an earth dyke. On early historic maps, the area of salt pans is often marked out as a large grid of contiguous squares (Figure 8).

After allowing the sun to evaporate some of the water, the worker stepped into the evaporation pan and scraped the salt into a pile in the center with a simple wooden scraper. The worker then threw a large basket-shaped scoop into the brine and used a tin dipper to move the salt to the basket. Two baskets, one on each side of a pole, were then carried on the back of a worker across the thin earth dykes between the salt pans. The baskets were dumped into large drying piles, where the

remaining water seeped out into the ground. The salt was then sewn into gunny sacks and sent to the market for sale.

By 1901, most of the fishponds and salt pans *makai* of King Street were reported as abandoned. In that year, the Hawai'i Legislature proposed to build a ditch to drain away the "foul and filthy water that overflows that district at the present time."

> The district makai of King St. and the Catholic Cemetery, Ewa of Mrs. Ward's (the Old Plantation), mauka of Clayton St., and Waikiki of the land from King St., leading to the Hoomananaauao Church, consists of six large abandoned fish ponds and a large number of smaller ones, all in filthy condition, fed by springs and flowing into Peck's ditches. Just makai of these ponds, at the end of Clayton street, The rear portion of Mrs. Ward's property down to Waimanu St. used to be fish ponds all connecting to the sea by a ditch which is fed by an artesian well. These ponds, with the exception of three, are abandoned. Next to Mr. Ward's, is Peck's place. An artesian well flushing the wash houses flows into two foul ditches, thence to the big pond which is Waikiki of what used to be Cyclonere and next to Mrs. Ward's line [ditch] extending down to Waimanu St. [Hawaii Legislature 1901:185]

4.1.4.3 Kewalo Harbor Improvement

Prior to dredging, Kewalo Basin was a natural deep pocket in the reef seaward of Ala Moana Boulevard between Ward Avenue and Kamake'e Street. It had been used as a canoe landing in pre-Contact times. In 1919, the Hawai'i Government appropriated $130,000 to improve the small harbor of Kewalo for the aim of "harbor extension in that it will be made to serve the fishing and other small craft, to the relief of Honolulu harbor proper" (Thrum 1920:147). As the area chosen for the harbor area was adjacent to several lumber yards, the basin was initially made to provide docking for lumber schooners, but by the time the wharf was completed in 1926, this import business had faded, so the harbor was used mainly by commercial fishermen. The dredged material from the basin was used to fill a portion of the Bishop Estate on the western edge of Waikīkī and some of the Ward Estate in the coastal area east of Ward Avenue (U. S. Department of Interior 1920:52). In 1941, the basin was dredged and expanded to its current 55 acres. In 1955, dredged material was placed along the *makai* side to form an 8-acre land section protected by a revetment, now part of the Kewalo Basin Park (Kewalo Basin Harbor 2014).

4.1.5 1900s

4.1.5.1 Contemporary Land Use

Honolulu in the late nineteenth century consisted of many streets still unpaved and several small lanes (that no longer exist) between major roads. Bishop Street, the main road now between Fort and Alakea streets, did not exist. Union Street exists now only as a pedestrian walkway between buildings.

By 1919 however, Honolulu had wide paved streets, with blocks of contiguous brick and stone stores along all major downtown roads. The first section of Bishop Street, between Fort and King streets, was built in 1900. This street quickly became the financial sector of the city, and many of the "Big Five" companies built their headquarters and their banks on this street (Ames 1996:27). By 1918, the section from the harbor to King Street had been completed and paved (Ames 1996:119). In 1919, the *mauka* extension of Bishop Street from Hotel to Beretania Street began construction. The city condemned all of the property in the way of this new thoroughfare and in

1927, razed all of the structures, including several of the residences near the project area (Ames 1996:120).

The first efforts to deepen Honolulu Harbor were made in the 1840s. The idea of using the dredged material composed of sand and crushed coral to fill in low-lying lands was quickly adopted. From 1857 to 1870, the "Esplanade" between Fort Street and Alakea Street was created on 22 acres of former reef and tideland. By 1874, Sand (Quarantine) Island, site of the first immigration station, had been created over "reclaimed" land on reefs.

Kaka'ako was considered outside the Honolulu town boundary and was used in the mid- to late nineteenth century as a place for cemeteries, burial grounds, and for the quarantine of contagious patients. Then, in the beginning of the twentieth century, the area was used as a place for sewage treatment and garbage burning, before finally becoming an area for cheap housing and commercial industries (Griffin et al. 1987:13).

Early twentieth century maps show the emerging traces of the future development in Kaka'ako as the grid of roads extending southeast from Honolulu toward Waikīkī (Figure 10 to Figure 13). Queen Street, which was planned to connect to the beach road near Waikīkī, appears to follow the route of the traditional trail from Honolulu to Waikīkī, as described by John Papa 'Ī'ī (1959:93). This trail likely traversed a sand berm raised above the surrounding marshlands and coral flats, probably near Queen Street. The 1855 map by Joseph de LaPasse reveals the presence of a trail *mauka* of the current project area (Figure 9).

As previously discussed, the current project area and vicinity were completely filled by 1914, during road improvement projects and the Kaka'ako/Kewalo Reclamation projects. All of the ponds and the low-lying areas in the vicinity of the current project area were filled, and new land was created from dredged material.

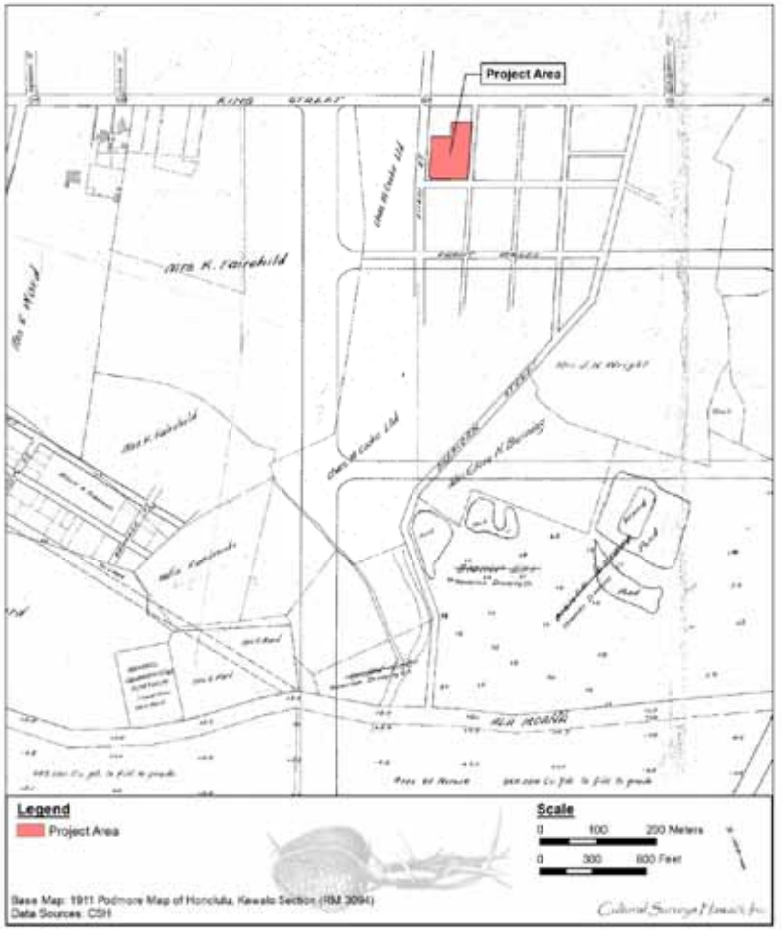

Figure 10. 1911 Podmore Map of Honolulu, Kewalo Section (RM 3094) with project area

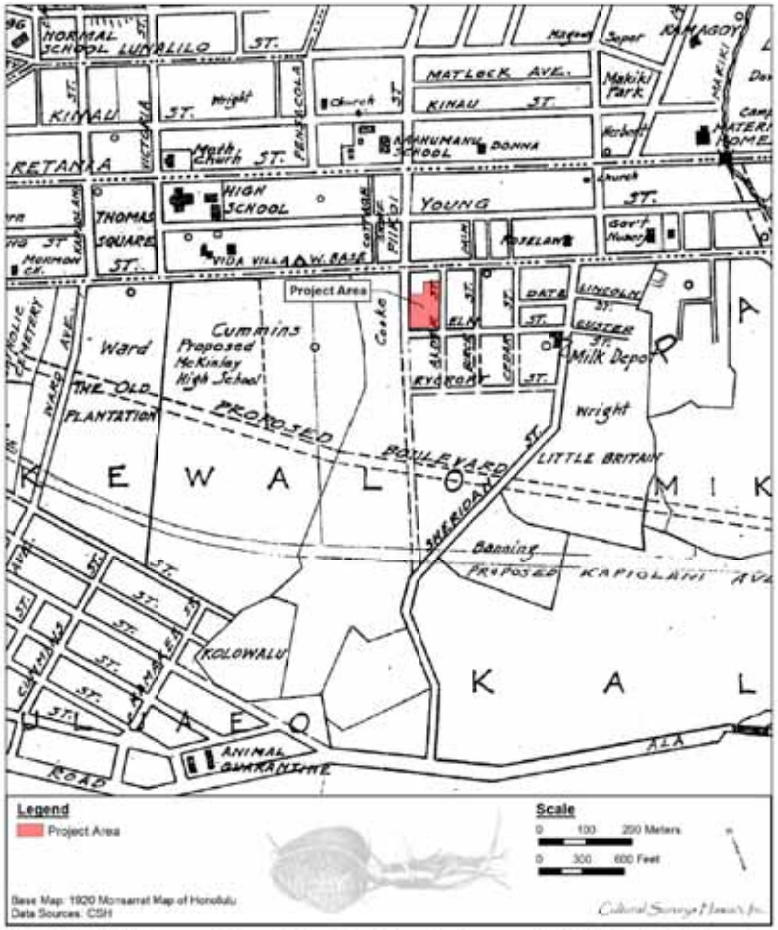

Figure 11. 1920 Monsarrat Map of Honolulu with project area; note McKinley High School has not been constructed, the Ward Estate was still existent, and a proposed Kapi'olani Boulevard cuts through both properties

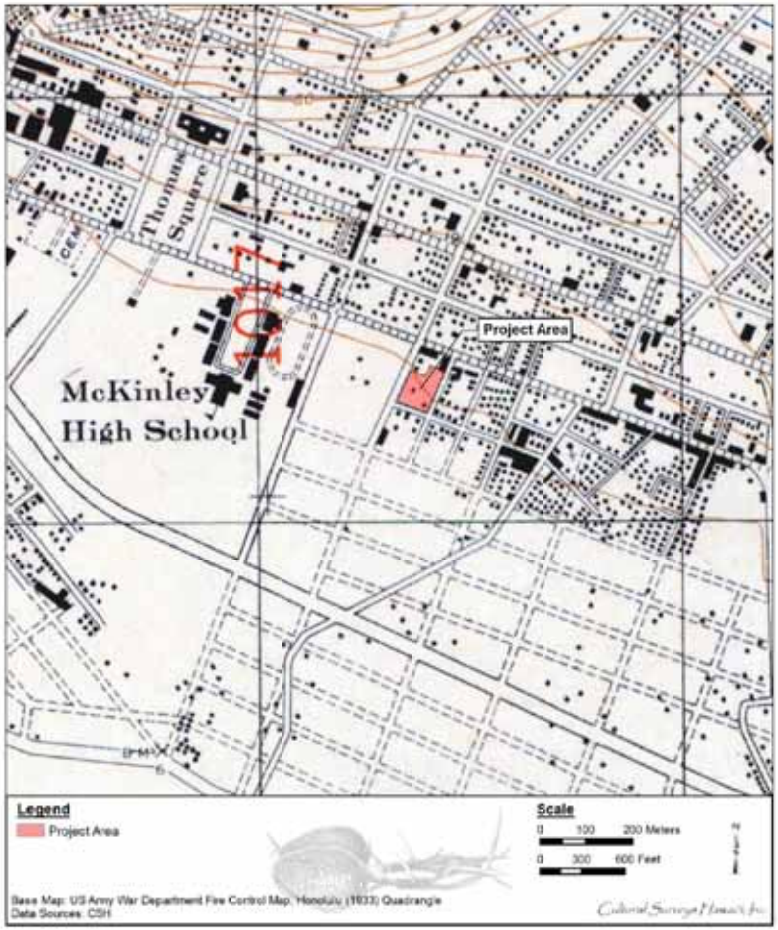

Figure 12. 1933 US Army War Department Fire Control Map, Honolulu Quadrangle with project area; note that Kapi'olani Boulevard has now been constructed and few homes are located *makai* of the project area in the Kaka'ako area

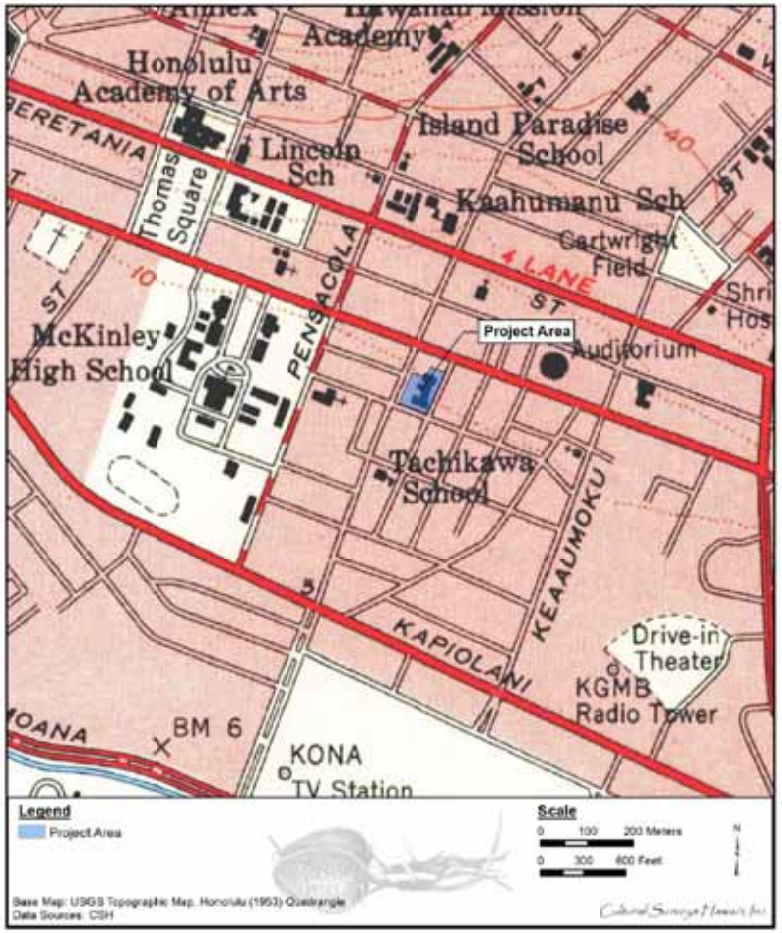

Figure 13. 1953 USGS Topographic Map, Honolulu Quadrangle with project area depicted in blue; the large white space *makai* of the Kapi'olani Boulevard will be the future location of Ala Moana Center

4.2 Previous Archaeological Research

Below are descriptions of archaeological studies that have been conducted in the vicinity of the current project area. Figure 14 depicts previous archaeological studies that have been conducted in the vicinity of the project area. Table 1 references type of study, location, and results of previous work done in the vicinity of the project area. Figure 15 depicts historic properties, burials, and historic districts near the project area. Table 2 describes historic properties near the project area.

4.2.1 Smith (1989)

In 1989, four bone fragments were found by construction workers in a property (TMK: [1] 2-3-039:019) on the southeast corner of Kapi'olani Boulevard and Pi'ikoi Street. The find was reported to Marc Smith of the SHPD. In his memorandum (Smith 1989), Smith examined the bones and determined only one was human; the remaining bones were pig bones. The human bone was a right tibia shaft fragment. The bone was temporarily taken to the Honolulu SHPD office and the site was given the designation of State Inventory of Historic Places (SIHP) # 50-80-14-4243.

4.2.2 Athens et al. (1994)

In 1994, during the excavation of a trench for an underground telephone line near the northeast corner of Pi'ikoi Street and Kapi'olani Boulevard, the remains of a single individual were inadvertently discovered and later disinterred (Athens et al. 1994). Osteological analysis revealed the remains (SIHP # -4847) were the fairly complete skeleton of a 12- to 15-year old female. Radiocarbon analysis of a sample of bone collagen yielded a date of death between AD 1295 and 1473, supporting the osteological determination of Hawaiian/Polynesian ancestry. The remains were interred within a wetlands environment at a shallow depth of 50-80 cmbs (centimeters [cm] below surface). A lack of burial goods and the presence of the remains within an unusual wetlands context strongly suggested the location of the remains did not reflect an intentional burial. Osteological analysis revealed severe bone infection of the right pubis as the probable cause of death. The individual probably passed away, undiscovered, at the very spot of interment. Athens et al. (1994:8) placed the location of this burial near an earth embankment that was probably used as a trail between a fishpond and other marshy areas in the Kewalo region.

4.2.3 Sinoto (2000) and McElroy (2010)

In an area bounded by Sheridan and Ke'eaumoku streets is the "Wal-Mart Site." Aki Sinoto Consulting conducted an archaeological assessment (Sinoto 2000) and prepared an archaeological monitoring plan for the Makaloa-Sheridan Sam's Club/Wal-Mart project. Archaeological monitoring of the project was conducted from 2002 to 2004 and ended up being summarized by McElroy (2010) who was not directly involved in the fieldwork. Human remains recovered were from a minimum number of 64 individuals (MNI = 64) and were observed in six areas within the project parcel (designated SIHP #s -6516, -6661, and -6662). The burials appear to represent both pre- and post-Contact burials.

4.2.4 O'Hare et al. (2003)

CSH completed an archaeological inventory survey (O'Hare et al. 2003) of an approximately 6-acre parcel in the vicinity of the project area. No burials were found in the 24 trenches excavated during the inventory survey, as predicted. No pre-Contact or pre-twentieth century habitation deposits were recorded, but historical trash pits (SIHP # -6637) and a new defined berm

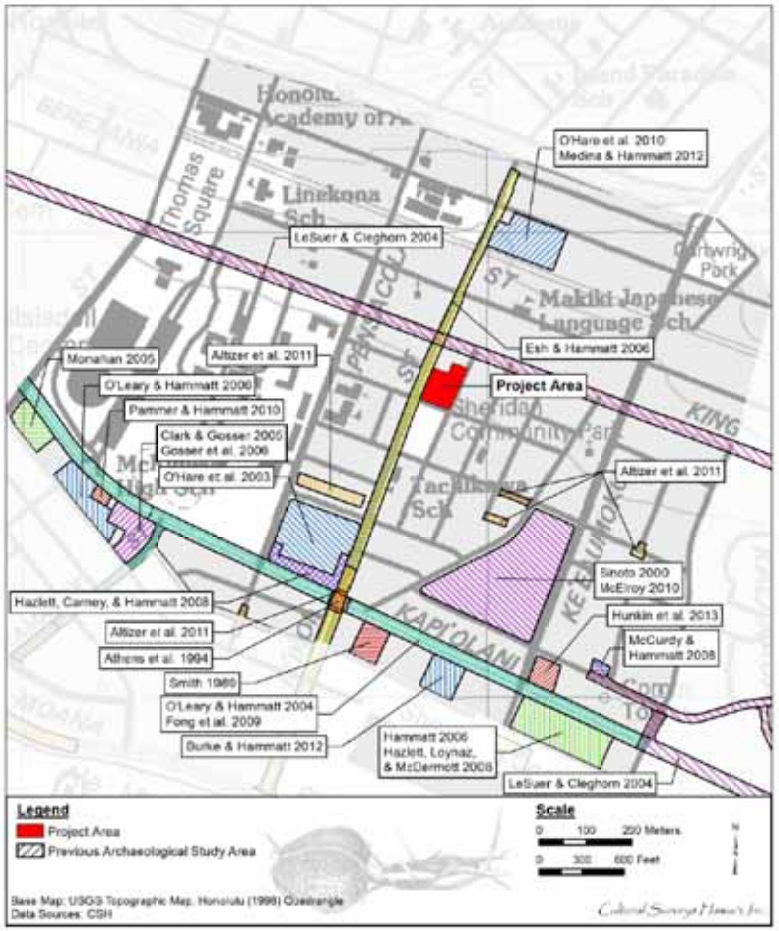

Figure 14. 1998 USGS Topographic Map, Honolulu Quadrangle with previous archaeological study areas in the vicinity of the project area

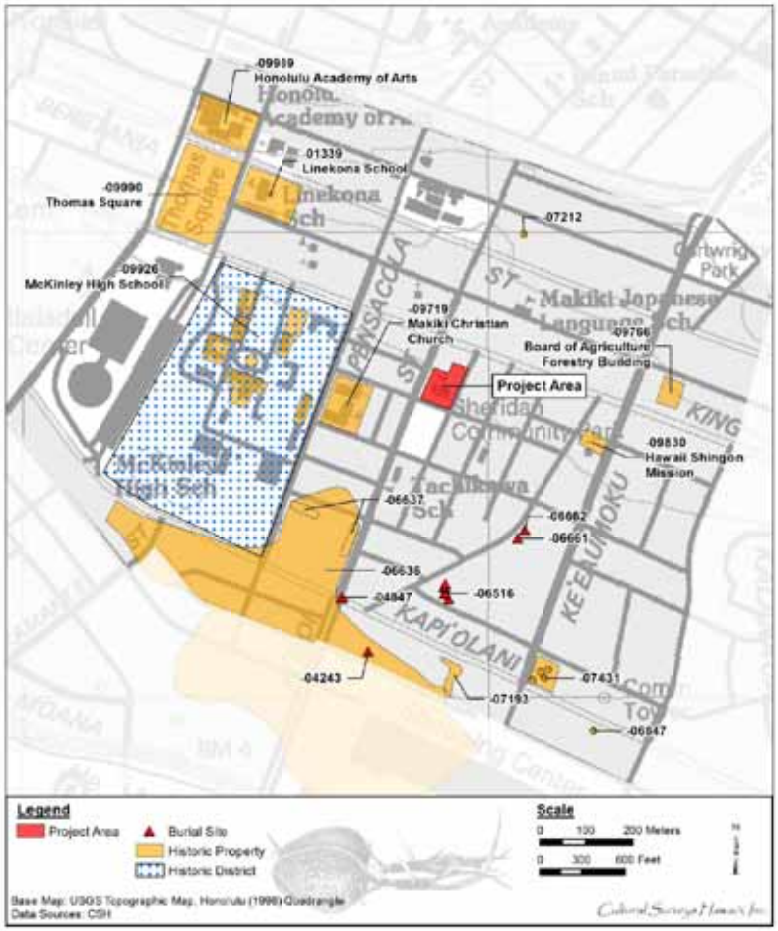

Figure 15. 1998 USGS Topographic Map, Honolulu Quadrangle with historic properties including burials and historic districts in the vicinity of the project area

(SIHP # -6636) related to agricultural activities were documented. SIHP # -6637 consists of a trash dump found in six trenches, all located in the northeast corner of the project area near Pi'ikoi Street. This trash pit contained wood, brick, tires, ceramic dinnerware, insulators, rusted metal, and glass bottles. Many of the glass bottles were dated to the 1920s to 1940s, some specifically to the 1930s. The type of material present does not seem to be individual household garbage, but may be related to the businesses in the surrounding area.

4.2.5 LeSuer and Cleghorn (2004)

Pacific Legacy, Inc. completed an archaeological assessment (LeSuer and Cleghorn 2004) for proposed routes of the HECO East O'ahu Transmission project in 2004. The King Street portion of the electric line route is near the current study area. The report authors note the route is near six historic sites: Thomas Square (SIHP # -9990), which has ties to the return of sovereignty from the British in 1843; Linekona School (SIHP # -1339), established in 1925; McKinley High School (SIHP # -9926), built at its current location in 1923; a Catholic cemetery (*makai* of King Street) first used in 1851; and two former fishponds.

4.2.6 O'Leary and Hammatt (2004) and Fong et al. (2009)

From August to October 2004, CSH conducted archaeological monitoring (O'Leary and Hammatt 2004) for emergency sewer line repairs that occurred along Kapi'olani Blvd. A total of five 0.6-m deep trenches were excavated. Excavations took place in fill materials associated with the original placement of the sewer pipes; no cultural material was encountered.

In 2009, CSH completed archaeological monitoring (Fong et al. 2009) of construction associated with the upgrading of existing drainage, water, and sewer systems within Kapi'olani Boulevard from Kalākaua to Ward avenues, within Kamake'e Street from Kapi'olani Boulevard to Auahi Street, and within Atkinson Drive from Kapi'olani Boulevard to Ala Moana Boulevard. No historic properties were observed. Observed stratigraphy consisted primarily of imported fill material associated utility and road construction. In some instances pockets of naturally deposited sediment (Jaucas sand and wetland clays) were observed beneath fill deposits.

4.2.7 Monahan (2005)

In 2005, Scientific Consultant Services (conducted an archaeological assessment Monahan 2005) for three parcels bounded by Ward Avenue, Kapi'olani Boulevard, and Waimanu Street. Nine backhoe assisted trenches were excavated within the project area. The trenches were excavated to an average depth of 103 cm below ground surface. Although no historic artifacts, features, or artifacts were recorded as a result of the survey, compacted fill layers were still encountered at the base of excavation in some trenches. As a result, archaeological monitoring was recommended for all areas to ensure there were no cultural remains under these compacted fill layers

4.2.8 Clark and Gosser (2005) and Gosser et al. (2006)

Between 2005 and 2006, Pacific Consulting Services carried out an archaeological inventory survey (Clark and Gosser 2005) and archaeological monitoring (Gosser et al. 2006) for a storage facility on the southwest corner of Kapi'olani Boulevard and Kamake'e Street. These studies documented SIHP # -6636, a subsurface remnant of a small pond present in northern portions of the project area.

4.2.9 Esh and Hammatt (2006)

In August 2004, CSH conducted archaeological monitoring (Esh and Hammatt 2006) for the Rehabilitation of Streets, Unit 5B on Pi'ikoi Street between Ala Moana Boulevard and Matlock Street. Monitoring was only required at the intersection of Pi'ikoi and Young streets, as excavations in other areas did not extend deeper than 30 cm below base course fill. No cultural materials were observed.

4.2.10 Hammatt (2006)

CSH concluded a literature review and field check (Hammatt 2006) on a 1.43-acre parcel on Kapi'olani Boulevard near the Pi'ikoi Street junction. Documentary evidence suggests the project area, before being filled and graded during the first half of the twentieth century to create the present land surface, comprised a portion of Kewalo *'ili* that included habitation sites, taro *lo'i*, and ponds situated amid the encompassing marshlands of the Honolulu plain. The documentation of the project area suggested a more dryland environment in traditional Hawaiian times than a ponded one.

4.2.11 O'Leary and Hammatt (2006)

CSH conducted an archaeological inventory survey (O'Leary and Hammatt 2006) at the Moana Vista project. The project area was bounded Kapi'olani Boulevard, Kamake'e Street, Waimanu Street, and Ward Avenue. Twenty-four backhoe assisted trenches were excavated within the project area. No historic properties were encountered during the course of the survey.

4.2.12 Hazlett, Carney, and Hammatt (2008)

CSH concluded an archaeological monitoring report (Hazlett, Carney, and Hammatt 2008) for the Honolulu Design Center Phase III project (TMK: (1) 2-3-010:048, 050, and 052-056) which is bounded by Kapi'olani Boulevard, Pensacola, Kamaile, and Pi'ikoi Streets. No cultural resources were identified during the monitoring of this project.

4.2.13 Hazlett, Loynaz, and McDermott (2008)

CSH concluded an archaeological monitoring report (Hazlett, Loynaz, and McDermott 2008) for an approximately 6-acre Ala Moana Center Expansion project (TMK [1] 2-3-38: 001 and 2-3-40: 005, 007, 009, 011, 014, 016, & 018) comprising the construction of a Nordstrom store, other retail space, and a parking garage. No historic properties were identified. The observed stratigraphy generally consisted of imported construction fill, overlying a buried A horizon (former land surface) consisting of naturally deposited sandy loam. Underlying the buried A horizon were varying layers of naturally deposited sediments, consisting of loams and clays, indicative of the marsh environment that preceded the land reclamation and subsequent development of the area.

4.2.14 McCurdy and Hammatt (2008)

CSH completed archaeological monitoring (McCurdy and Hammatt 2008) of construction activities at the Makaloa Substation. No historic properties were identified; however, pond/wetland deposits were encountered and tested. Pollen analysis was conducted and documented abundant Cyperaceae (sedge) pollen and *Saccharum*-type (sugar cane) pollen. *Prosopis* sp. (*kiawe*) pollen found within the wetland samples suggest the wetlands did see intrusion of invasive species in the historic era. *Ipomoea batatas* (sweet potato) was found in an isolated sample, suggesting some small scale agriculture may have been conducted in this area.

4.2.15 O'Hare et al. (2010) and Medina and Hammatt (2012)

CSH completed an archaeological literature review and field inspection (O'Hare et al. 2010) with limited subsurface testing for the Safeway/ Schuman Carriage property project, (TMK: [1] 2-4-011:008, 009, 010, 011) located between Beretania and Kīna'u streets on the east side of Pi'ikoi Street. Five backhoe test trenches were excavated, documented, and sampled. The stratigraphy generally consisted of asphalt, base course, and modern construction fill overlying alluvial clay loam and undisturbed volcanic cinder. Only one feature, a fire pit, was encountered during subsurface excavation. The fire pit was interpreted as a modern feature associated with the demolition of previously existing structures present during the 1960s.

CSH subsequently produced an archaeological monitoring report (Medina and Hammatt 2012) for the development of the former Schuman Carriage property. In general, the observed and recorded stratigraphy for this project area includes various modern fill layers related to modern development (post 1960) above naturally deposited alluvial sediment, above a natural volcanic cinder layer. One historic property was observed (SHIP# 50-80-14-7212), a post-contact trash pit containing historic era refuse.

4.2.16 Pammer and Hammatt (2010)

CSH produced an archaeological assessment (archaeological inventory survey scope of work with no findings; Pammer and Hammatt 2010) for an approximately 0.26-acre Moana Vista Project Area on Kapi'olani Boulevard (TMK [1] 2-3-003:084). The subsurface testing program included excavation of 4 test trenches in order to document stratigraphy, as well as potential subsurface cultural deposits. No historic properties were identified.

4.2.17 Altizer et al. (2011)

CSH (Altizer et al. 2011) reported on archaeological monitoring on ten sewer line segments in the greater Kapi'olani area. Of note was further documentation of previously documented SIHP # -6636, a wetland deposit in Sewer Line G off Pensacola Street between Ho'ola'i and Kamaile streets. This was a pre-Contact to early twentieth century land surface that underlays dredged fill materials from the Kewalo and Ala Wai Canal land reclamation projects.

4.2.18 Burke and Hammatt (2012)

CSH (Burke and Hammatt 2012) carried out an archaeological inventory survey report for a 1391 Kapi'olani Boulevard parcel. A single historic property was identified within the project area, SIHP # -7193, which consists of a layer of historic trash. This layer was seen in nine trenches and yielded vast quantities of mid-twentieth century beer and milk bottles.

4.2.19 Hunkin et al. (2013)

CSH completed an archaeological inventory survey (AIS) report for the project area (Hunkin et al. 2013). Two historic properties were identified during AIS test excavations for the proposed Walgreens Kapi'olani redevelopment project. One was a remnant wetland deposit, an addition to an existing historic property (SIHP # -6636), and the other newly identified remnant historic concrete structures (SIHP # -7431). Subsurface investigations indicated relatively consistent stratigraphy throughout the project area. Silty clay sediments indicative of a wetland deposit (SIHP # -6636) were documented in all the trenches excavated. In general, the wetland sediment contained bluish to greenish gray sandy clay variations. Evidence of A horizon soil formation

processes was observed in some test excavations, characterized by darker, organically enriched clays that contained decomposing rootlets and reed vegetation remnants. Two diagnostic historic glass bottle artifacts were recovered in this wetland sediment during excavation from one of the test excavations.

Table 1. Previous Archaeological Studies in the Vicinity of the Project Area

Reference	Type of Study	Location	Results (SIHP #s 50-80-14)
Smith 1989	SHPD burial call report	Kapi'olani and Pi'ikoi	Inadvertent disturbed burial find in back dirt pile (SIHP # -4243)
Athens et al. 1994	Archaeological investigation of inadvertently discovered human remains	Kapi'olani and Pi'ikoi	Inadvertent in situ burial find—one individual (SIHP # -4847)
Sinoto 2000	Archaeological assessment (literature review and field inspection)	Proposed Wal-Mart	Assessment of project area before construction; during monitoring between Jan. 2003 and April 2003; 64 burials found, but final report on these findings not completed
O'Hare et al. 2003	Archaeological inventory survey	Block on corner of Kapi'olani Blvd and Pi'ikoi St, TMKs: [1] 2-3-010:028, 048, 050, 052–056	Total of 24 trenches excavated in a lot on east side of Pi'ikoi St; two sites identified, several historical trash pits (SIHP # -6637), a wetland stratum with a defined sand berm (SIHP # -6636), which can be seen on late nineteenth century maps
LeSuer and Cleghorn 2004	Archaeological assessment	King Street	Assessment of proposed electric line routes, noted the presence of six historic sites: Thomas Square, Linekona School (SIHP # -1339); McKinley High School (SIHP # -9926); a Catholic cemetery, and two former fishponds
O'Leary and Hammatt 2004	Archaeological monitoring	Unit 9 Streets	No cultural remains found
Clark and Gosser 2005	Subsurface archaeological inventory survey	TMKs: [1] 2-3-003:075, 085, and 086	SIHP # -6636 designates a subsurface remnant of a small pond present in northern portions of project area
Monahan 2005	Archaeological assessment	909 Kapi'olani Blvd, TMKs: [1] 2-3-003:073 and 096	Nine backhoe test excavations conducted; no historic properties identified

Reference	Type of Study	Location	Results (SIHP #s 50-80-14)
Esh and Hammatt 2006	Archaeological monitoring	Pi'ikoi St, Ala Moana Blvd to Matlock St	Monitoring of Unit 5 B Streets; no cultural materials found
Gosser et al. 2006	Archaeological monitoring	TMKs: [1] 2-3-003:075, 085, and 086	SIHP # -6636 subsurface remnant of small pond present in northern portions of project area; during archaeological monitoring in southern portion of project area, observed a buried A horizon, Layer II, previously identified during subsurface testing
Hammatt 2006	Archaeological literature review and field inspection	1391 Kapi'olani Blvd parcel, TMK [1] 2-3-039:011	Noted project area within LCA 100 FL and near burials found at junction of Kapi'olani Blvd and Pi'ikoi St
O'Leary and Hammatt 2006	Archaeological inventory survey	Moana Vista project on Kapi'olani Blvd, TMKs: [1] 2-3-003:072, 088, 102	No historic properties identified
Hazlett, Carney, and Hammatt 2008	Archaeological monitoring	Honolulu Design Center Phase III, TMKs: [1] 2-3-010:048, 050, 052, 053, 054, 055, 056	No historic properties identified
Hazlett, Loynaz, and McDermott 2008	Archaeological monitoring	Approx. 6-acre Ala Moana Center Expansion, TMKs: [1] 2-3-038: 001 and 2-3-040:005, 007, 009, 011, 014, 016, and 018	No historic properties identified

Reference	Type of Study	Location	Results (SIHP #s 50-80-14)
McCurdy and Hammatt 2008	Results of subsurface testing	Hawaiian Electric Company East O'ahu Transmission Project (Makaloa Substation), TMK: [1] 2-3-021:027	No cultural materials (midden, charcoal, or artifacts) observed; results of analysis determined sedges and grasses by far most abundant plants represented in this record; Cyperaceae (sedge) pollen almost 30% of total pollen; Saccharum-type pollen (sugar cane), most common of grass pollen at roughly 25% of total, consistent with a pond or wetland in the area; identification of Ipomoea batatas-type pollen indicates cultivation of sweet potato at edges of existing pond
Fong et al. 2009	Archaeological monitoring	Kapi'olani Blvd from Kalākaua Ave to Ward Ave, Kamake'e St from Kapi'olani Blvd to Auahi St, and Atkinson Dr from Kapi'olani Blvd to Ala Moana Blvd	No human remains or historic properties identified; several historic items encountered, all post-dating 1890, indicative of conversion of area from agriculture land to residential suburbs; fill material also found at various locations in project area, deposited during reclamation activities in the 1920s and 1930s
McElroy 2010	Archaeological monitoring	Makaloa-Sheridan Sam's Club/Wal-Mart, TMKs: [1] 2-3-016:009 and 043	Human remains found in six areas of work site, designated as Burial Findspots (BFS-1–BFS-6); three site numbers assigned: SIHP # -6516 includes BFS-1, -3, -4, and -5; SIHP # -6661 composed of BFS-2; and SIHP # -6662 encompasses BFS-6; these three sites evaluated as significant under Criterion d of §13-275-6(b) for information on history and pre-history they might yield; examination of stratigraphy indicates multiple, extensive disturbance episodes throughout much of project site
O'Hare et al. 2010	Archaeological literature review and field inspection	Safeway/Schuman Carriage property	Historic documents and previous archaeological studies indicate low potential for intact cultural deposits, including pre-Contact deposits, historic deposits, and possibly pre-Contact and post-Contact burials

Reference	Type of Study	Location	Results (SIHP #s 50-80-14)
Pammer and Hammatt 2010	Archaeological assessment	Approx 0.26-acre Moana Vista project area on Kapi'olani Blvd, TMK: [1] 2-3-003:084	No historic properties discovered
Altizer et al. 2011	Archaeological monitoring	Kapi'olani Area Revised Sewer System, TMKs: [1] 2-3-004, 005, 007, 009, 010, 013, 014, 017, 018, 022, 035, 036, 038, and 041	Excavation activities included replacement of ten sewer line segments; three segments rehabilitated with cured-in-place pipe method and no open trenching conducted at these segments; previously documented SIHP # -6636, a wetland deposit, documented in Sewer Line G off Pensacola St between Ho'ola'i and Kamaile streets
Burke and Hammatt 2012	Archaeological inventory survey	1391 Kapi'olani Blvd parcel, TMK: [1] 2-3-039:011	Single historic property identified within project area, SIHP # -7193, consists of layer of historic trash; layer seen in nine trenches within northern and eastern portions of project area
Medina and Hammatt 2012	Archaeological monitoring	Safeway, Inc. development project, TMKs: [1] 2-4-011:008, 009, 010, and 011	Observed and recorded stratigraphy includes various modern fill layers related to modern development (post-1960) overtop naturally deposited alluvial sediment, over top of natural volcanic cinder layer; one historic property observed (SIHP # -7212), a post-Contact trash pit containing historic era refuse
Hunkin et al. 2013	Archaeological inventory survey	Walgreens Kapi'olani Redevelopment project, TMKs: [1] 2-3-021:008, 009, and 010	Two archaeological historic properties identified: • SIHP # -6636, former wetland surface for region with potential to yield information related to past land use • SIHP # -7431, historic structural remnants associated with past industrial and commercial land use in 1950s

Table 2. Previously Identified Historic Properties in the Vicinity of the Project Area

SIHP # (50-80-14-)	Description of Site	General Location	Source
01339	Linekona School	300 m west of north end of project area	HRHP and NRHP
04243	Human bone at 1341 Kapi'olani Ave	500 m south of south end of project area	Smith 1989
04847	Archaeological investigation of inadvertently discovered human remains at Pi'ikoi and Kapi'olani intersections	300 m southeast of south end of project area	Athens 1994
06516	Burials (BFS-1, -3, -4, and -5, 62 burials)	300 m southeast of south portion of project area	McElroy 2010
06636	Subsurface wetland sediments (estimated extent)	Extensive area 250 m south of project area extending *makai*	Altizer et al. 2011, and further south: O'Hare et al. 2003, O'Hare et al. 2004, Clark and Gosser 2005, Tulchin and Hammatt 2005, Runyon et al. 2011, Runyon et al. 2012, Hammatt 2013, Morriss et al. 2013
06637	Historic trash pit	300 m south of project area	O'Hare et al. 2003
06661	Burial (BFS-2, one burial)	350 m southeast of project area	McElroy 2010
06662	Burial (BFS-6, one burial)	350 m southeast of project area	McElroy 2010
06847	Wood lined subsurface feature	700 m southeast of project area	Hammatt 2006
07193	Historic trash pit	500 m SSE of project area	Burke and Hammatt 2012
07212	Subsurface refuse deposit	300 m NNE of project area	Medina and Hammatt 2012
07431	Subsurface historic structure remnants	600 m southeast of project area	Hunkin et al. 20213
09719	Makiki Christian Church	100 m southwest of project area	HRHP

SIHP # (50-80-14-)	Description of Site	General Location	Source
09766	Board of Agriculture Forestry Building	400 m east of project area	HRHP
09830	Hawaii Shingon Mission	300 m east of project area	HRHP and NRHP
09926	Commercial Building (McKinley HS)	300 m west of project area	HRHP and NRHP
	Home Economics Building (McKinley HS)	300 m west of project area	HRHP and NRHP
	Art Building (McKinley HS)	300 m west of project area	HRHP and NRHP
	Mathematics Building (McKinley HS)	300 m west of project area	HRHP and NRHP
	Auditorium (McKinley HS)	300 m west of project area	HRHP and NRHP
	Senior Core Building (McKinley HS)	300 m west of project area	HRHP and NRHP
09989	Honolulu Academy of Arts	600 m northwest of project area	NRHP
09990	Thomas Square	500 m northwest of project area	NRHP

4.3 Background Summary and Predictive Model

The project area lies in an area traditionally known as Kulaokahu'a, in the *'ili* of Kewalo, (Fitzpatrick 1989:25). John Papa 'Ī'ī identified Kulaokahu'a as a "playground, where the '*maika*' etc. was played" (Hawaii Commission on Boundaries, Kewalo in King 1989:26). *Maika* is a Hawaiian sport that uses a disc-shaped stone called an *'ulu maika* for a bowling type of game.

Kewalo literally means "the calling," as in an echo (Pukui et al. 1974:109). Kewalo once had a freshwater spring in the central portion (current location unknown), as seen in the proverb "*Ka wai huahua'i o Kewalo*," which translates as "The bubbling water of Kewalo." Two springs are mentioned in a traditional story of the *Waters of Ha'o*, one located near Kawaiaha'o Church in Kaka'ako (Pukui 1988:87–89). In legendary accounts, Kewalo was noted for its fishponds, its marsh lands where *pili* grass could be collected, for ceremonial sites such as the Kewalo spring and the fishpond at which sacrifices were made, and for its trails that allowed transport between the more populated areas of Waikīkī and Honolulu. Important chiefs were born in the area and conducted religious rites, and commoners traveled to the area to procure food and other resources, while others probably lived in the area.

The 1817 map by Otto von Kotzebue (Figure 8) depicts a wall terminating near the southwestern to south-central boundary of the project area, defining an area that Kotzebue labeled "cemetery." This is likely the "Cemetery for Foreigners" discussed in detail by Robert Schmitt (2000). Developments in the Kewalo area during the second half of the nineteenth century include increased western-conceived urbanization exemplified by Thomas Square and the "Old Plantation." Historic maps indicate that in the late 1800s the area surrounding the project area was swampy, with a pond approximately 150 m to the southwest, a rectilinear corral in the southeast corner of the project area (Figure 16 and Figure 17), and the house of H.M. Whitney built on the west-central boundary of the project area. Whitney, a prominent member of the Honolulu community, may have entertained the young Samuel Clemens (Mark Twain) at this house. Previous archaeology in the vicinity of the project area documents the presence of isolated burials, cemeteries, wetlands and resource ponds, and historic trash pits and lenses.

Based upon the background ethno-historical and previous archaeological research, archaeological investigations within the project area may encounter traditional Hawaiian materials including houses, middens, burials, resource ponds, and gaming artifacts such as '*ulu maika*. The wall of the "Cemetery for Foreigners" may be near the southwestern boundary of the project area and a corral wall may be near the southeast corner of the project area. Material culture related to the H.M. Whitney house may also be present and with that, there is the probability that some of these materials are related to Samuel Clemens, whom Whitney entertained.

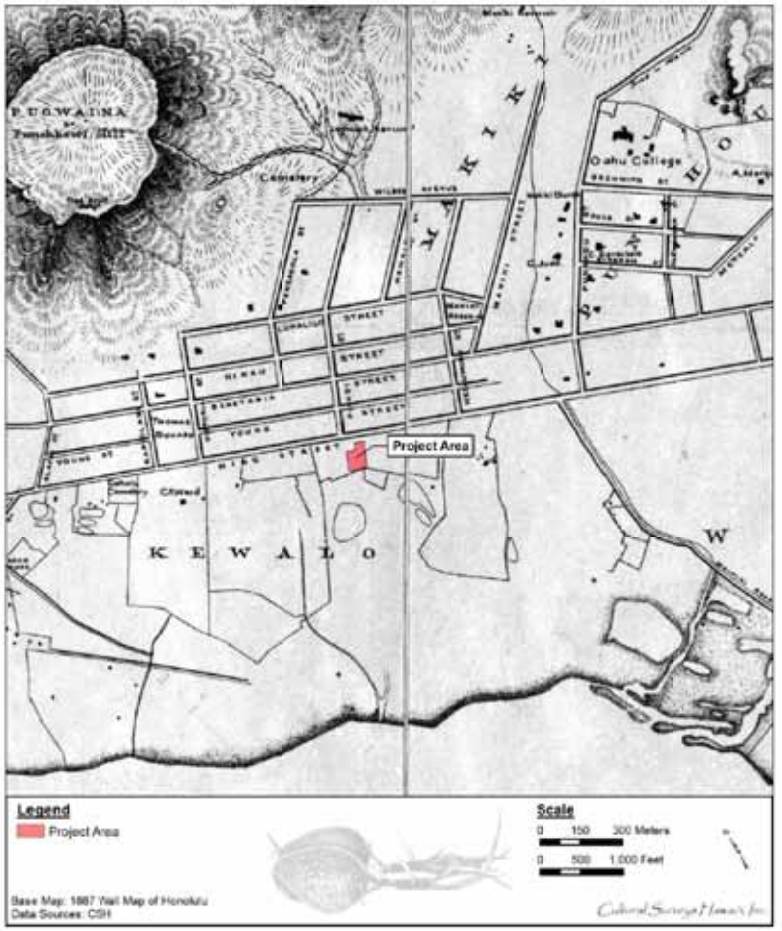

Figure 16. 1887 Wall Map of Honolulu with project area; note roads constructed *mauka* of the project area while the *makai* portions still remain undeveloped

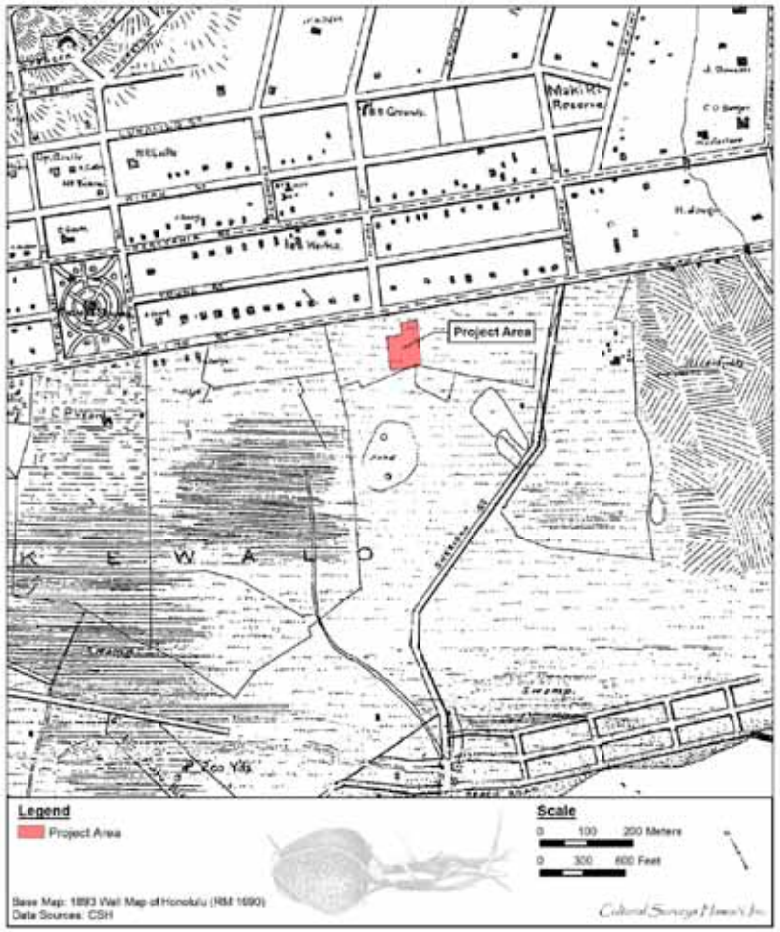

Figure 17. 1893 Wall Map of Honolulu (RM 1690) with project area; note the ponds *makai*

Section 5 Previous Oral History Research

The following section draws from previous oral history research conducted by the University of Hawai'i's Center for Oral History (UHCOH) to highlight the voices of several people who have or have had deep knowledge of the culture and history of the project areas. Indigenous cultures have used oral history to preserve a record of their past in the absence of written records.

In 1976, the Center for Oral History (COH) was established by the Hawai'i State Legislature with the intent to preserve the memories of Hawai'i's people through oral interviews for the purpose of disseminating transcripts to researchers, students, and the general community. To date, 12 communities have been recorded by the COH. Below are summaries and excerpts from this vast collection of oral histories. Please note the variations in the use of Hawaiian diacritical marks; direct quotations preserve diacritical marks as they appear in the actual UHCOH study.

5.1 Remembering Kaka'ako

5.1.1 Eleanor Nahiapo Wilson Heavy

Mrs. Eleanor Nahiapo Wilson Heavy, a Hawaiian-English-Chinese woman, was born in Kaka'ako in 1912 and lived there until 1938 (UH 1978:340–405). Her home was on Pohukaina and South streets and she attended Muriel Kindergarten in Kaka'ako. She used to help her mother collect herbs such as *pōpolo* (black nightshade; *Solanum nigrum*) for cold and congested chest, and the *'uhaloa* (American weed; *Waltheria indica var. americana*) root for colds. The people in Kaka'ako at this time still went to the medicinal *kahuna*; the hospital was a place where you would go when no hope remained.

Her mother traveled to the Squattersville area (Ka'ākaukukui area west of project parcels) to gather *limu* (seaweed), *wana* or *'ina* (sea urchins), squid, and *'ōpae* (shrimp) for the family's meals. Mrs. Heavy also remembered that they used Hawaiian salt to embalm bodies. They would stuff the *'ōkole* (buttocks) with salt, working it in with *ti* leaves. They also put salt in cuts under the armpit, and within the mouth, nose, and ears. The body then could be viewed by relatives at the undertakers for several days. The body was later put into a coffin for burial at the Catholic Cemetery or at the Kawaiaha'o Church cemetery, both on King Street.

5.1.2 David Tai Loy Ho

Mr. David Tai Loy Ho, Chinese-Hawaiian, was born in Kaka'ako in 1910 (UH 1978:405–465). As a child he made money picking *kiawe* (Algaroba tree; *Prosopis pallida*) beans, selling newspapers, and diving for coins at Honolulu Harbor when the large tourist cruise lines came into port. His home was on the corner of Queen and Cooke streets. The best place to pick the beans was the private property of the Ward Estate, between Queen and King streets. He and his brothers would sneak under the wire fence and load up on the *kiawe* beans near the Ward horse stables. The *kiawe* beans were sold as horse and cattle feed.

Mr. Ho said there were not many Chinese in the area:

> Well, the Chinese people who lived there were all storekeepers. Well, let's see, they were laundry men and storekeepers. The two storekeepers right on the corner there. The barbers were Japanese. The poi men were Chinese; the poi men were all

> Chinese because I guess they got the poi from the Chinese who lived on the farms. The Chinese planted rice and later on, they changed to taro because rice came from California . . . They lived right in the buildings [stores], right in the back. They'd eat; they have a little stove in the back. Live with their family. [UHCOH 1978:413–414]

5.1.3 Joseph Kekauoha

Mr. Joseph Kekauoha, a Hawaiian, was born in Kaka'ako in 1920 (UH 1978:633–669). His mother worked at the American Sanitary Laundry, his father at the Honolulu Iron Works. He attended Pohukaina School and his family attended the Latter Day Saints Church on Cooke and Ilaniwai. He began to play slack-key guitar and Hawaiian music after he left Kaka'ako, but sometimes returned to play at Felix Florentine's Garden. He remembered some of the residential areas and the stores of Kaka'ako:

> So had Magoon Block and Kumulae Block (where dad gambled). Magoon Block was, if you facing this way, it's on the left. If you going towards Waikiki. And Kumulae Block was one laundry store. One laundry and the poi factory in the back. And Magoon Block had all stores—barber shop, and small snack and everything. And at the corner of South and Queen used to be Murata Furniture Store. . . . And then, across, if you see where the new fire station is at, Kakaako fire station, across the street used to be Kawaiahao Court. That's another section of people besides the graveyard and the poi factory there. Another poi factory. And along side where that big McKesson something, alongside there was another poi factory. We had about 1, 2, 3 poi factories in Kakaako. Because all Hawaiian—they got to have their poi or whatever. [UHCOH 1978:637]

5.1.4 Mary Ka'uhane Naito

Mary Ka'uhane Naito, Hawaiian-Caucasian, was born in Kaka'ako in 1920 (UH 1978:877–912). Her father worked at the Hawaiian Electric powerhouse. Their family lived for a time in Squattersville, and they were one of the families evicted when the houses were torn down. Although she remembered that Kaka'ako was mainly a district of poor people, she still talked of her birthplace with pride:

> I going tell I'm proud because I come from Kakaako because we had good people. We get along with one another. You know? And if there's a Palama team going, and Kakaako team go, we still stick together. You know. Regardless of what, we still stick. And we all born and raise in Kakaako. . . . That's why I'm not ashamed to say that I came from Kakaako because all the people in Kakaako was good. [UHCOH 1978:911]

5.1.5 Charlie Correa

Charlie Correa, of Portuguese ethnicity, was born in Kaka'ako in 1917 (UH 1978:102–127). His father was a driver for the City Transfer Company, but he was hurt on the job and his family depended on his mother and grandmother who made and sold Portuguese sausage and sweet bread (UH 1978:102). In 1978, he recalled that electricity was still uncommon in some areas in the late 1920s. One of his tasks as a child was to gather *kiawe* branches and other wood for the kerosene stoves. The wood was also used to boil water for washing, which was done in large metal tubs in

the backyard. Toilets in each house were not common until about 1927. Mr. Correa went to the Ala Moana Opportunity School, a vocational school in Kaka'ako, where he took classes in carpentry and other skills. After leaving school, he worked for H.C. and D., who had a yard on South Street, delivering ice for the Hawaiian Electric Company. Later he drove a tractor that picked up merchandise from the piers at Honolulu Harbor. His first house in Kaka'ako was on Queen Street between Cooke and Kamani streets. It was adjacent to a rice-bagging warehouse and a rooming house for single Filipino and Hawaiian men. In their second house, also on Queen Street, they had a brick Portuguese oven in their backyard, where his mother would bake bread about once a month.

He remembered an early air strip on the beach called Malolo Field, in the area now covered by the Ala Moana Center, where the first one-seat plane landed. He recalled,

> Malolo was the first one that landed there. When they named the plane, a one-seater, Malolo because . . . like the fish in the ocean, when the liner travels, this fish is right alongside the liner when she flies up in the air and she goes down. That's the malolo. And that's when they named the plane 'Malolo.' [UHCOH 1978:119]

A biplane called "Malolo" was owned by the Lewis Air Tour's Martin Jensen in the 1920s. Holbrook Goodale, who tried to start the first commercial inter-island flying service, the Hawaiian Air Transpiration Company of Honolulu, was taught to fly by this company. He was flying the Lewis plane "Malolo" in 1927 when it crashed in Lā'ie, putting an end to the early dream of the air service company. Mr. Correa seems to be referencing an early grass airfield in Kaka'ako in the 1930s or 1940s. A more elaborate, paved airport, called the Ala Moana Airport, was planned in 1944 by the Territorial Department of Public Works, but it was never built (Hawaii Aviation 2010).

5.1.6 Usaburo Katamoto

Mr. Usaburo Katamoto is a retired boat builder of Japanese descent who moved to Kaka'ako in 1910 (UH 1978:534–632). He shared a great deal of information about the fishing boats that used Kewalo Basin. He recollected the dredging of the area to make Kewalo Basin and Ala Moana Park, an area once used for salt making. He said,

> Used to be salt field [Ala Moana Boulevard area]. You know, Chinese had the salt field there. High tide come, they put the sea water go in. And shut the gate. And throw the sea water on the field and make it dry. And then rake it up and put 'em in the trough like, you know. Make the salt water richer (dried in the field, more concentrated). How they make that Hawaiian salt. [UHCOH 1978:622]

5.1.7 Wallace Amioka

Mr. Wallace Amioka, of Japanese ancestry, was born on South Street in Kaka'ako in 1914 (UH 1978:20–63). His father was a fisherman and his mother came to Hawai'i as a picture bride. Wallace attended Pohukaina School and then McKinley High School, and participated in sports sponsored by the schools and by the Kaka'ako YMA, or Young Man's Association. These sporting events often became rough when rival footballs teams met at the Honolulu Stadium and squared off after the games. His family were Buddhists, so they attended the Jodo Shu Temple in Kaka'ako. He remembered watching sumo wrestling matches and going with his family to Japanese movies on the grounds of the Japanese Temple. The Kaka'ako people of different ethnicities lived in different "camps." Mr. Amioka explained this concept:

> By camp I mean the houses are very close together. Okay? You don't have a big, lush yard like you find in homes today. You don't have a 10,000 square feet lot, now. You just, your house is here. There's a common, right? Common, ah, roadway you might say. The next house is almost next door to you. You know, very close . . . that's what we mean by camp. See? And you'd have the main street, of course. But you have these clusters, or groupings of houses. Cluster houses what they would call today. [UHCOH 1978:33]

5.1.8 Francis Zane

Francis Zane was one of the few Chinese living in Kaka'ako (UH 1978:1147–1183). His family moved there in 1909 when he was about 10 years old. His father worked for various companies, the E. Hall and Son Company, the Bank of Hawaii, and the Soda Water Works in Honolulu. Francis made extra money for the family by selling newspapers and by diving for coins in Honolulu Harbor. On the way to the harbor, he would pass the marshy areas near the base of Ward Avenue. He noted,

> And you know Ward Street, coming down. Before you reach the Fisherman Wharf, coming down? It's on the right side. They used to have a place, where they used to make salt. Gee, you pass it when the sun shine, that's salt, eh, burn your eye, you know, from the salt . . . red salt, white salt? [UHCOH 1978:1178]

Section 6 Community Consultation

6.1 Introduction

Throughout the course of this assessment, an effort was made to contact and consult with individuals who might have knowledge of and/or concerns about traditional cultural practices specifically related to the *ahupua'a* and/or project area; Native Hawaiian Organizations (NHOs); and government agencies. This effort was made by letter, email, telephone, and in-person contact. The initial outreach effort began in August 2015 and ended in October 2015.

6.2 Community Contact Letter

In the majority of cases, an aerial photograph, USGS map, and a letter describing the project were mailed. Text in the letter can be found below. Figure 18 displays consultation letter sent to community.

> At the request of SSFM International, Inc. on behalf of the State of Hawai'i Department of Accounting and General Services (DAGS), Cultural Surveys Hawai'i, Inc. (CSH) is preparing a cultural impact assessment (CIA) for the mixed use project at 902 Alder Street, DAGS JOB NO. 12-21-7550, Honolulu Ahupua'a, Honolulu (Kona) District, O'ahu, Tax Map Key (TMK) [1] 2-3-012:019. Please see accompanying USGS, Aerial, and TMK maps.
>
> The project area is immediately bound by Pi'ikoi Street to the west, Elm Street to the south, and Alder Street to the east. Other businesses can be found to the north of the project area, which front South King Street. The project will replace the old Judiciary facility with a new one. The Hawaii Housing Finance Development Corporation (HHFDC) will jointly develop the subject property by adding an affordable housing component to the project. Ground disturbance is expected to impact the entirety of the project area, relating to demolition, utilities trenching, and new building footings. The project area is 1.4 acres.
>
> We are seeking your *kōkua* and guidance regarding the following aspects of our study:
>
> - **General history and present and past land use of the project area.**
> - **Knowledge of cultural sites which may be impacted by future development of the project area - for example, historic sites, archaeological sites, and burials.**
> - **Knowledge of gathering practices in the project area, both past and ongoing.**
> - **Cultural associations of the project area, such as legends and traditional uses.**
> - **Referrals of *kūpuna* and *kama'āina* who might be willing to share their cultural knowledge of the project area and the surrounding *ahupua'a* lands.**

- **Any other cultural concerns the community might have related to Hawaiian cultural practices within or in the vicinity of the project area.**

Cultural Surveys Hawai'i, Inc.
Archaeological and Cultural Impact Studies
Hallett H. Hammatt, Ph.D., President

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August 2015

Aloha,

At the request of SSFM International, Inc. on behalf of the State of Hawai'i Department of Accounting and General Services (DAGS), Cultural Surveys Hawai'i, Inc. (CSH) is preparing a cultural impact assessment (CIA) for the mixed use project at 902 Alder Street, DAGS JOB NO. 12-21-7550, Honolulu Ahupua'a, Honolulu (Kona) District, O'ahu, Tax Map Key (TMK): [1] 2-3-012:018. Please see accompanying USGS, Aerial and TMK maps.

The project area is immediately bound by Pi'ikoi Street to the west, Elm Street to the south, and Alder Street to the east. Other businesses can be found to the north of the project area, which front South King Street. The project will replace the old Judiciary facility with a new one. The Hawaii Housing Finance Development Corporation (HHFDC) will jointly develop the subject property by adding an affordable housing component to the project. Ground disturbance is expected to impact the entirety of the project area, relating to demolition, utilities trenching, and new building footings. The project area is 1.4 acres.

We are seeking your ākāka and guidance regarding the following aspects of our study:

- **General history and present and past land use of the project area.**
- **Knowledge of cultural sites which may be impacted by future development of the project area - for example, historic sites, archaeological sites, and burials.**
- **Knowledge of gathering practices in the project area, both past and ongoing.**
- **Cultural associations of the project area, such as legends and traditional uses.**
- **Referrals of *kūpuna* and *kama'āina* who might be willing to share their cultural knowledge of the project area and the surrounding *ahupua'a* lands.**
- **Any other cultural concerns the community might have related to Hawaiian cultural practices within or in the vicinity of the project area.**

I invite you to contact me at (808) 262-9972 or (e-mail: nishihara@culturalsurveys.com) if you have any information you would like to share.

Me ka ha'aha'a,

Nicole Ann Nihōkūlaniahiahi Ishihara
CSH Supervising Cultural Researcher

Figure 18. Consultation letter sent to the community

6.3 Community Contact Table

Below in Table 3 are names, affiliations, dates of contact, and comments of NHOs, individuals, organizations, and agencies that were contacted for the project.

Table 3. Results of Community Consultation

Name	Affiliation	Comments
Becket, Jan	Author, photographer, knowledgeable in cultural sites Kona Moku Representative for the Commiitee on the Preservation of Historic Sites and Cultural Properties	Letter and figures sent via email 1 September 2015 Mr. Becket responded via email on 1 September 2015 stating availability and sites within Honolulu Ahupua'a to visit CSH emailed Mr. Becket dates of availability on 22 September 2015 for an interview and site visit Mr. Becket responded on 22 September 2015 via email; site visit scheduled for 29 September 2015 to Pūowaina and Makiki Heights; CSH confirmed date for site visit Site visit to Pūowaina and Makiki Heights 29 September 2015 with Mr. Becket Draft summary sent to Mr. Becket via email on 6 October 2015 for review and approval Mr. Becket sent revisions to draft on 6, 7, and 8 October 2015 Approval of summary 10 October 2015
Crabbe, Kamana'opono	Ka Pouhana (Chief Executive Officer), Office of Hawaiian Affairs	Letter and figures sent via USPS 14 August 2015
DaMate, Leimana	Executive Director, Department of Land and Natural Resources (DLNR)—Aha Moku Advisory Committee	Letter and figures sent via email 18 August 2015 Second letter and figures sent via email 22 September 2015

Name	Affiliation	Comments
Del Toro, Benjamin	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Del Toro, Daniel	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Del Toro, Rachel	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Del Toro, Samuel	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Faulkner, Kiersten	Executive Director, Historic Hawai'i Foundation	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via email 22 September 2015
Friends of 'Iolani Palace		Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Gomes, Phoebe	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Gomes, Robin	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Hawaiian Civic Club of Honolulu		Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015

Name	Affiliation	Comments
Hawaiian Historical Society		Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Higgins, Collette	*Kūpuna, kama'āina* of Kaka'ako	Letter and figures sent via email 18 August 2015 Second letter and figures sent via email 22 September 2015
Hilo, Regina	O'ahu Island Burial Sites Specialist, DLNR—State Historic Preservation Division (SHPD)	Letter and figures sent via email 18 August 2015 Forwarded letter and figures to Sheleigh Solis, O'ahu Cultural Historian at DLNR-SHPD, on 18 August 2015 via email
Kaleikini, Ali'ikaua	Lineal Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Kaleikini, Hāloa	Lineal Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Kaleikini, Kala	Lineal Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Kaleikini, Moehonua	Lineal Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Kaleikini, No'eau	Lineal Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Kaleikini, Paulette Ka'anohi	Lineal Descendant	Letter and figures sent via USPS 14 August 2015

Name	Affiliation	Comments
		Second letter and figures sent via email 22 September 2015 Ms. Kaleikini responded via email to CSH on 9 October 2015. Her response is below: Sorry so late in responding to this inquiry. The area of this project sits within the urban corridor. It is situated very close to the Walmart where a cemetery was found. Chances of impacting a cultural layer or historic property at this project site is high. This was an area favored not only by the alii but the lahui in general. It was agricultural land and water & ponds were in various locations close to this site. So where there was good fertile land and water, the people lived and died nearby. I would recommend proceeding with a full archaeological inventory survey coupled with cultural monitoring. My kupuna lived in this area. And my 'ohana will look forward to participating in any future discussions regarding this project. Please keep me informed. I request a

Name	Affiliation	Comments
		copy of the final CIA for this project. Mahalo nui P. Kaanohi Kaleikini
Keana'āina, Betty	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Keana'āina, Kīhei	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Keana'āina, Luther	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Keana'āina, Noelani	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Keana'āina, Regina	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Keana'āina, Vicky	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Keana'āina, Wilsam	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Kekaula, Ashford	Descendant	Letter and figures sent via USPS 14 August 2015

Name	Affiliation	Comments
		Second letter and figures sent via USPS 24 September 2015
Kekaula, Mary K.	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Keli'inoi, Kalahikiola	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Keli'inoi, Kilinahe	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Keli'inoi, Moani	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Keli'ipa'akaua, Chase	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Keli'ipa'akaua, Justin	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Keohokālole, Ema	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Keohokālole, Jeanine	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Keohokālole, Joseph	Descendant	Letter and figures sent via USPS 14 August 2015

Name	Affiliation	Comments
		Second letter and figures sent via USPS 24 September 2015
Keohokālele, Lori	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Kini, Debbie	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Kini, Nalani	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Lew, Haunea	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Lopes, Leina'ala	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Luka, Alika	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Nishiyama, Ku'ulei	Papakolea Hawaiian Civic Club	Referred to CSH by Ka'ahiki Solis of DLNR-SHPD Letter and figures sent via email 13 October 2015
Norman, Carolyn	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Norman, Eileen	Descendant	Letter and figures sent via USPS 14 August 2015

Name	Affiliation	Comments
		Second letter and figures sent via USPS 24 September 2015
Norman, Kaleo	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Norman, Keli'inui	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Norman, Theodore	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Paik, Kaleo	Cultural practitioner	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Papa Jr., Richard Likeke	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Rash, Regina	Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Rodrigues, Hinano	History and Culture Branch Chief, DLNR-SHPD	Letter and figures sent via email 18 August 2015
Soares, Moani	Lineal Descendant	Letter and figures sent via USPS 14 August 2015 Second letter and figures sent via USPS 24 September 2015
Solis, Sheleigh	O'ahu Cultural Historian, DLNR-SHPD	Letter and figures forwarded from Regina Hilo 18 August 2015

Name	Affiliation	Comments
		Second letter and figures sent via email 22 September 2015 Ms. Solis responded via email to CSH on 22 September 2015. Her response is below: I do have the place names historian John Clark is very wonderful and consented to be a community outreach person. I am not sure that he would be of any kokua to you as his area of specialization is surf history. He is interested in Place Names and has tons of knowledge. Off hand that is all I can think of as far as referrals. I know the oral history project at UH Manoa may have kupuna and makua info relative to the project area. I would suggest Civic Club members in Papakolea because of their standing as the first Hawaiian Homestead perhaps their Community Center would have kupuna informants that like to talk story. I do not have the information but I am sure it would not be hard to find. Mahalo nui.
Wong-Kalu, Hinaleimoana	O'ahu Island Burial Council (OIBC) Chair,	Letter and figures sent via email 18 August 2015

Name	Affiliation	Comments
	Kona Moku Representative	Second letter and figures sent via email 22 September 2015 Ms. Wong-Kalu responded via email to CSH on 29 September 2015. Her response is below: I do not have any information to provide to you except that I spent my childhood years growing up in this area right up the road on Piikoi. By the time I came along into this world it pretty much looked like what it does today with the exception of the changes in businesses in the area. Mahalo for reaching out to me and I look forward to any important updates re: the project should they come up.

6.4 Kama'āina Interviews

Kama'āina and *kūpuna* with knowledge of the proposed project area participated in semi-structured interviews from August 2015 to October 2015. CSH initiated the interviews with questions from the following five broad categories: *wahi pana* and *mo'olelo*, agriculture and gathering practices, freshwater and marine resources, cultural and historic properties, and burials.

The authors and researchers of this report extend our deep appreciation to everyone who took time to speak and share their *mana'o* and *'ike* with CSH whether in interviews or brief consultation, including contacts who opted not to contribute to the current cultural impact assessment, but nevertheless spent time explaining their position on the proposed project. We request that if these interviews are used in future documents, the words of contributors are reproduced accurately and in no way altered, and that if large excerpts from interviews are used, report preparers obtain the express written consent of the interviewee/s.

6.4.1 Jan Becket

Jan Becket is a retired teacher with Kamehameha Schools who is well-recognized for his black-and-white photographic documentation of sacred sites. He has conducted extensive archival

research on sites of cultural significance, learned from *kūpuna*, and photographed many undocumented sites on O'ahu, which resulted in a co-written book, *Pana O'ahu* (Becket and Singer 1999). He is a member of the Committee for the Preservation of Cultural Sites and Properties under the O'ahu Council of Hawaiian Civic Clubs, and reports back to the chair of the committee (Shad Kāne) on issues concerning cultural sites in the Kona district of O'ahu.

On 29 October 2014, Mr. Becket led a CSH to visit several cultural sites within Honolulu Ahupua'a. The first site is located near the Honolulu and Kāne'ohe Ahupua'a border. A large *pōhaku* can be found in a bamboo forest at the Nu'uanu Pali State Wayside park (Figure 19). The *pōhaku* can be found perched on an incline near the ridgeline of a *pali*. Below the *pōhaku* several water worn rocks somewhat resembling remnants of a terrace are evident. Walking towards the Pali Lookout, a second *pōhaku* once stood on a small portion of land to the side of the original Pali Road. Mr. Becket recalls passing the *pōhaku* on the road growing up. Today, the stone is no longer there. He believes the stone was either pushed down the cliff or blasted during the construction of the Pali Tunnels. All that remains where the *pōhaku* once stood is heavy vegetation including *hau* and ginger (Figure 20). Mr. Becket believes that this stone may have been Kalanaihauola, a *mo'o* who guarded the Pali. Across from the former location of the *pōhaku* thought to be Kalanaihauola are several circular holes in the mountainside. He stated he has seen a woman stuffing *piko* (navel cord) in these holes.

Mr. Becket led CSH to an *'ili* known as Makuku located 10-15 minutes *makai* from Nu'uanu Pali Drive, the road that exits town-bound from the Pali Lookout State Wayside park. He indicated that he knows of a possible *heiau*, upright stone, and a burial under a rock mound (Figure 21). The last time he visited and photographed the sites at Makuku was during the 1990s. Mr. Becket led CSH to a wooded area of strawberry guava, ginger, ti, and *palapalai* (fern). The rock mound paved with *'ili'ili* (pebble, small stone) with an upright stone marks a possible burial. The mound and upright stone run parallel to the Pali Highway. A scattering of various sized *pōhaku* were observed approximately 50 feet *makai* of the mound and upright stone. Unfortunately, we were unable to locate the possible *heiau*. However, Mr. Becket believes that we were in the vicinity of the possible *heiau* and may have just not inspected the area thoroughly.

Other cultural sites that Mr. Becket shared with CSH include the original location of Kaumakapili Church and Pākākā Heiau, which have been completely destroyed. The original location of Kaumakapili was near the current location of Maunakea Street and North Beretania Street. Prior to the construction of Kaumakapili Church was where Kahuoi's shrine once stood. It is said that Kahuoi would fish with his pet bird named Kau-maka-pili ("perched with eyes closed"). The translation of Kau-maka-pili tells the way the bird would catch its prey—it would swoop from above and close one eye before grabbing a fish. The name of the church is deliberately tied to the *wahi pana*. Pākākā Heiau was once located near the foot of the *makai* end of Fort Street Mall. Mr. Becket assumes that some of the rubble from Pākākā Heiau was most likely used for the construction of roads in downtown Honolulu. Pākākā Heiau was the most important *heiau* in Honolulu Ahupua'a. It was near Kamehameha's compound and was possibly the headquarters for Kahuna Kū.



Figure 19. Possible *pōhaku kia'i* (stone guard, watchman) on the 'Ewa (place name west of Honolulu, used as a direction term) side of the Pali Lookout, October 2014 (photo courtesy of Jan Becket)



Figure 20. Photo of the former location of *mo'o* and *pōhaku*, Kalanaihauola, once stood where the *hau* grows in the foreground; Lanihuli peak in the background, October 2014 (photo courtesy of Jan Becket)

Figure 21. Photo of upright stones in Makuku 'Ili, October 2014 (photo courtesy of Jan Becket)

The last stop of the day was Kunawai Springs located in Liliha. According to Pukui, the spring and pools were named after a supernatural fresh water eel (*kuna*). This eel lived in a pool of water (*wai*) were wild ducks never swam. Kahānaiakeakua, a chief, bathed in this pool. Kahānaiakeakua was raised at Waolani Heiau by the gods Kāne and Kanaloa. Kahānaiakeakua eventually married his sister and became the ruling chief of O'ahu over the Mū (legendary people of Lā'au-haela-mai, Kaua'i), Wā (shouting people), and Menehune. Some believe that the water from Kunawai Springs had healing qualities. The springs are located on Kunawai Lane just *makai* of Kuakini Medical Center in the Liliha area. The Kunawai Springs Urban Park consists of a landscaped area with a large pool of water and amphitheater seating. A plaque with the story of Kunawai Springs is located near the pool emblazoned with the following *mo'olelo:*

KUNAWAI SPRINGS

The water bubbling into this pool comes from the Kunawai Springs, natural source of water situated beneath this and nearby properties on Kunawai Lane.

The springs were the site of an ancient healing center, as recently as the late 1860's, the healing center was regulated by a wahine kahuna (priestess) who believed herself to be a descendant of the first moo [*mo'o*] sent to earth. (Moo [*mo'o*] were supernatural peoples of olden Hawaii sent to earth by the gods to guard the fresh water sources.)

Many springs and lakes were originally in the area. In later years the following six were well known: Kuna-wai-nui, Kuna-wai-iki, Ka-wai-olena, Kumu-hahana, Kalua Palolo, and Kalua Moo.

The springs were noted for the curative benefits derived from the waters and from clay found at the bottom of one of the springs. Only the alii [*ali'i*] (nobility) were allowed in any of the places on Kunawai Lane, the Kumu-Hahana and Kalua Moo [Mo'o] pools were considered very sacred.

Medicines were made with waters from Ka-wai-olena which is located under the adjacent ewa properties. Treatment for the ill began with use of the medicines and ended with a bath in Ka-wai-nui, the largest of the bodies of fresh water, which is under Kunawai Playground across the street, the sick could bathe in Kuna-wai-nui and Kuna-wai-iki with permission of the guardian moo [*mo'o*] after proper prayers and offerings were presented. It was believed that the pure waters of the springs and lakes washed away the sins causing the illness.

Clay for which Kunawai was known was found at the bottom of Kalu Palolo. It was whitish gray and was valuable as a pack for irritated skin and for falling of dull hair.

The Kunawai waters were important also because they irrigated the taro patches in lower Nuuanu [Nu'uanu] Valley and thus helped to provide Hawaiians with their staff of life.

Department of Parks and Recreation
City and County of Honolulu
1966

A small pool of water, umbrella sedge, and mud was found several feet away from the plaque. A sidewalk divides the small pool of water with sedge from the larger pool which is home to several ducks (Figure 22). CSH observed the small pool of water and noticed that it was slowly bubbling as water spilled onto the sidewalk. The larger pool is lined by a cement and rock wall. A PVC pipe was observed in the rock wall and carried a steady flow of water, emptying into the larger pool. Mr. Becket mentioned that the springs were capped years ago, however, it was evident that there was a steady water source coming from the smaller pool, which drained into the larger pool. As we walked the perimeter of the larger pool, we observed a drain to west. The water is then transported to the western edge of Kunawai Springs Urban Park and flows *makai* into an historic cement and rock ditch. The ditch appears to run in back of several private residences. Mr. Becket recalls in the past residents who lived along the ditch would place a hose or pipe into the water and siphon the water. No hoses or pipes were observed in the ditch.

Mr. Becket and the plaque indicated that another spring related to the Kunawai Spring system was across the street. Directly across the street from Kunawai Springs Urban Park is another park. The park is divided in half by a sidewalk that runs *mauka* to *makai*. The Diamond Head portion consists of a playground and basketball court; while the 'Ewa portion is an open grassy area. In the northwestern corner of the 'Ewa portion, a small pool was observed. The perimeter is comprised of flat *pōhaku* cemented in place. A shower tree stands in the northeast portion of the wall. In the northwest portion of the wall is a *hala* (pandanus; *Pandanus odoratissimus*) tree, which is also located near the drainage point of this pool. The drain empties into a cement and stone lined ditch borders the park's limits and travels *makai*. The pool is rather shallow measuring no more than a few inches in height and appears to be cemented in. The pool appears to be dry, however, with closer inspection a trickle of water stems from the northeast corner of the wall before it crosses the center of the pool and drains to the western corner. A pottery shard and a piece of coral were found at the pool. CSH inspected the neighborhood *mauka* of the second pool but did not see any other sources of water in the area.

CSH and Mr. Becket met again on 11 November 2014 on Country Club Road located in Waolani 'Ili, Nu'uanu. In correspondence, Mr. Becket mentioned a possible *heiau* within the O'ahu Country Club property located just *mauka* of the fairway. He notes this might be Kawaluna Heiau and describes it via email as "a very important heiau." He recalls the *heiau* being in excellent condition, however, it needs a good vegetation clearing. CSH attempted to contact O'ahu Country Club General Manager, Peter Hansen, asking permission to access the *heiau* and document the structure. Unfortunately due to time constraints, we were unable to secure a visitation.

Another site in the vicinity of O'ahu Country Club is Pōhaku Aumeume, a stone connected to the Menehune (Figure 23). The *pōhaku* is located in the backyard of a private residence. Mr. Becket photographed the stone years ago and also shared a *mo'olelo* from his friend. Mr. Becket's friend recalled when her friend from the mainland had moved to O'ahu and rented a home near the O'ahu Country Club. Without any prior cultural or historic knowledge of the Hawaiian Islands, this person mentioned how "little, deformed men" would wake her up in the middle of the night and surround her in her room. She moved out of the home as soon as possible. CSH and Mr. Becket located the *pōhaku* on the backside of the residence. The Pōhaku Aumeume is on a paved platform shaded by a *hau* tree. Branch coral and *'ili'ili* sit within the many



Figure 22. Kunawai Spring, October 2014 (photo courtesy of Jan Becket)

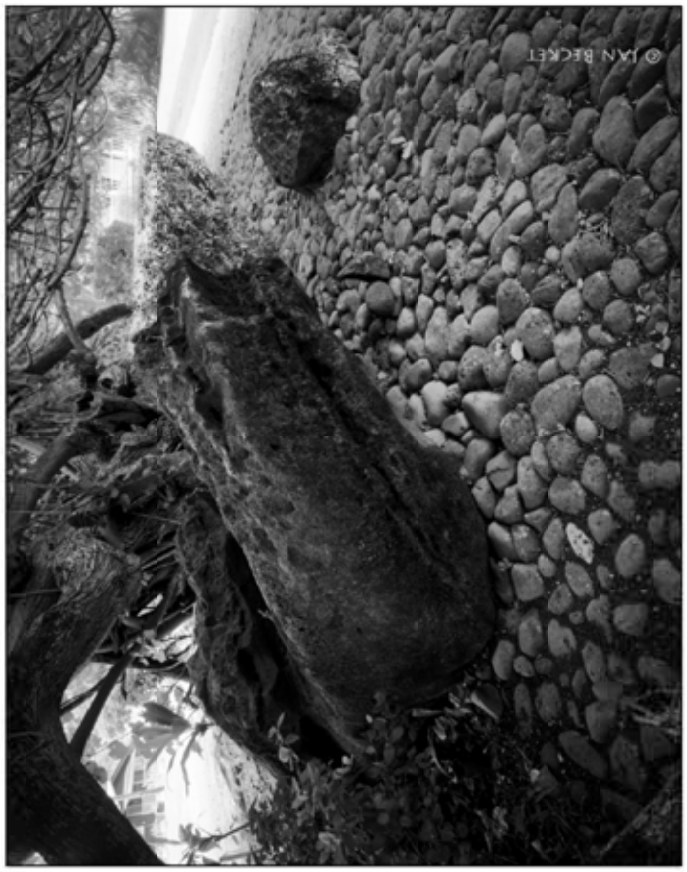

Figure 23. Pōhaku 'Aumeume, n.d. (photo courtesy of Jan Becket)

crevices of the *pōhaku*. Branch coral at a cultural site indicated a possible burial or ceremonial function. Mr. Becket added that these crevices are fingerprints from the Menehune when they threw the *pōhaku*.

Mr. Becket wanted to investigate another site, located in the backyard of a home on the 2200 block of Liliha Street that Mr. Earl "Buddy" Neller, former SHPD archaeologist, had mentioned to him years ago. There was an alleged *heiau* or remnants of one within property of a private residence. We parked along Liliha Street on the 2200 block to investigate the possible remnants. It appears that two properties have a scattering of large *pōhaku* in their yard and are confined by historic stone walls. The corner property on the 2200 block contained more *pōhaku* than its neighbor. Unfortunately, no one was home at the corner property to question regarding the history of the stones. It appears that *makai* of the home within the property limits is a grouping of large *pōhaku* with a scattering of medium rocks leading *mauka*. Some of these *pōhaku* are being held in place with pieces of rebar and the yard is very well maintained.

CSH visited the neighboring home and asked a tenant there if she knew anything about the rocks. She replied that the rocks were put there by a landscaper years ago. Evidence of a possible *heiau* or other traditional structure on the 2200 block on Liliha Street were inconclusive and further investigation and research needs to be conducted.

The next stop was Lulumahu Valley. We met with Māhealani Cypher of the Koʻolaupoko Hawaiian Civic Club at the intersection of the Pali Highway and Nuʻuanu Pali Drive. From there we drove to the Nuʻuanu Reservoir No. 3 owned by the Board of Water Supply and parked our vehicles at the trailhead of Lulumahu Valley. Ms. Cypher led the group to an area near the reservoir where she pointed out the valley. The valley blends in with the mountains creating the illusion that it is just another ridgeline along the Koʻolau Mountain Range. However, upon closer inspection, the valley is actually hidden with the ridge facing *makai*.

The group began to head *mauka* on the Lulumahu Trail where several historic water control features were observed. Ginger, *hau*, *māmaki* (*Pipturus spp.*), strawberry guava, and the invasive *clidemia hirta* grow alongside the trail. Significantly large *pōhaku* were spotted alongside the trail as well as burial mounds. In the past, Mr. Becket photographed a stacked terrace wall with an upright stone on the left side of the trail. The group stopped to *mālama* (to take care of) the terrace wall by clearing fallen debris and invasive plants. A large piece of rebar was nestled between tree branches at the foot of the terrace (Figure 24). *Mauka* of the wall was a large stone mound. After debris and vegetation removal, it became apparent that there were two terrace walls and three upright stones. Ti plants were spread amongst the site including one next to an upright stone. Native plants such as *palapalai* and *lauaʻe* (fragrant fern) were not removed from the terrace wall. After Mr. Becket photographed the wall and took GPS (Global Positioning System) coordinates of the site, the group traversed the trail to the trailhead where we parted ways with Ms. Cypher.

CSH and Mr. Becket then drove to the Nuʻuanu 822 Reservoir Site located along Nuʻuanu Pali Drive. CSH had previously contacted Michael Matsuo of the Board of Water Supply's Land Division for permission to access the Nuʻuanu 822 Reservoir. We parked within the Board of Water Supply property and began walking to the left of the reservoir where stone paving was observed alongside a footpath. After passing the stone paving, the footpath ended and a small, dry *ʻauwai* (irrigated ditch) was observed. After crossing the *ʻauwai*, we were in a dense bamboo forest, which then opened into a grove of *hau* and Christmas Berry. After exiting the grove of

tangled *hau* and Christmas Berry, we found ourselves on the shoulder of the Pali Highway where we proceeded to walk *makai*. Mr. Becket recalls a petroglyph rock on the side of the Pali Highway.

After walking down several feet *makai* we spotted a *pōhaku* a foot or two into the dense bamboo forest. The medium-sized *pōhaku* consists of one human stick figure. Mr. Becket learned about the site from the late J. Mikilani Ho-Holuole, petroglyph and Hawaiian sites specialist. After a brief discussion, there is a possibility that the *pōhaku* may have been moved out of the way for the construction of the Pali Highway but it is unclear.

Mr. Becket wanted to show CSH an enclosure just off of the Pali Highway. We continued to travel *makai* along the highway where we reached a drainage ditch, hiked down, and into another dense bamboo forest. A steep *'auwai* cuts through the bamboo forest, which leads to the previously mentioned drainage ditch. The enclosure is on the opposite side of the stream bank immediately exiting the *'auwai* (Figure 25). The enclosure is in excellent condition with the exception of several stalks of bamboo that have managed to sprout between the *pōhaku*. The wall is approximately one to three feet in height and three to four feet in width (Figure 26). CSH explored *mauka* of the enclosure and discovered a second enclosure with historic bottle and plate shards amongst the site. Mr. Becket referred to the enclosure as Kahapa'akai. We discussed the site's name trying to connect the word *pa'akai* to the location, as it is far from the ocean. After conducting some research, Kahapa'akai is an *'ili* (1874 Lyons; Registered Map 133) within Nu'uanu Valley. The term *kaha* translates to "place." The word *pa'akai* is usually associated with salt, however, it is also a variety of taro and also a variety of *limu* (seaweed) (Pukui and Elbert 1986). In this case, the term refers to a type of taro that was usually grown in the uplands and used for *poi*, the Hawaiian staff of life made from cooked *kalo* corms. The name Kahapa'akai simply translates to "taro place," which is appropriate as Nu'uanu Mauka was an excellent source for cultivating *kalo* based on its many streams and terraces (Handy and Handy 1972).

Mr. Becket escorted CSH to several cultural sites on 29 September 2015 within Honolulu Ahupua'a. The first stop was Pūowaina ("hill of placing [human sacrifices]"), commonly known as Punchbowl (Figure 27). Today, the crater is home to the National Memorial Cemetery of the Pacific. Mr. Becket shared that his grandparents came from Holland via a Thomas Cook Tour. His grandparents lived near Washington Place and would talk to Queen Lili'uokalani regularly. Mr. Becket's late uncle, Siebrand Schaffsma, who grew up in Honolulu during the 1920s, always referred to the Punchbowl as "The Devil's Punchbowl." Mr. Becket commented that it was common practice for early white settlers to re-name Native American sacred places with names beginning with "The Devil's…" He adds that the name "The Devil's Punchbowl" clearly follows the same practice in the re-naming of Pūowaina.

We walked to the rim of the crater overlooking Kaka'ako and Honolulu. Mr. Becket pointed out several sites below including O Kāne Lā'au Heiau (located at the base of Pūowaina where the H-1 Freeway stands); Mamua Heiau, where *kahuna nui* (high priest) of Pūowaina resided (the present location of Queen's Hospital); Po'ouahi Heiau (the present location of Stevenson Intermediate School); Ka'akopua Heiau (present location of Central Intermediate School); Kahehuna Heiau (the location of Royal School); Pūowaina Heiau and Imu Ahi, a *hoakini heiau* and sacrificial stone (located at Pūowaina); Kahahainauli Heiau ('Iolani Palace); and Kahe Iki Heiau (located on the ridgeline at Pauoa extending towards Kapena Falls). Mr. Becket noted that Kahe Iki Heiau was an important site, as a battle ensued between Kahekili and Kahahana.

Figure 24. Lulumahu Valley terrace wall and upright stones, November 2014 (photo courtesy of Jan Becket)



Figure 25. Photo of enclosure in Kahapa'akai 'Ili, November 2014 (photo courtesy of Jan Becket)



Figure 26. Photo of enclosure Kahapa'akai 'Ili facing *mauka*, November 2014 (photo courtesy of Jan Becket)

Figure 27. Photo of Pāowaina, commonly known as Puukbowl, former site of a *heiau* and sacrificial stone, September 2015 (photo courtesy of Jan Becket)

Below was the Nu'uanu Stream which ran red with blood from warriors that were killed in battle. He also indicated that a *hōlua* (sled) slide was on the eastern slope above Stevenson Intermediate School. A majority of these sites were passed mentioned to Mr. Becket by Mr. Buddy Neller. The former locations of some of these sites can be seen in Figure 28.

A point of interest that Mr. Becket wanted to locate was the Imu Ahi, a sacrificial stone that once stood near the rim of the Pāowaina. We walked the perimeter of the overlook but did not find any large *pōhaku* that indicated it was the Imu Ahi. He found a small overhang below that appeared to be a storage area for cemetery service workers. No *pōhaku* was observed on the overhang.

CSH asked a cemetery worker if they knew of any cultural sites on the property. The cemetery worker pointed out the *hōlua* slide on the eastern slope of Pāowaina and a platform on the western rim of the crater. CSH asked if it was possible to access the platform. However, due to the thick brush and steep slopes, access was not possible. The cemetery worker also indicated that a pre-Contact human mandible was inadvertently identified while excavating for a grave several years ago.

We attempted to find any remnants of the platform on the western rim of the crater mentioned by the cemetery worker. On a slope below the western rim of the crater, a small section under a banyan tree suggested some terracing and alignments running east to west with *'ili'ili*. However, further east the area became ambiguous. Portions of the slope indicated natural terracing with some modification. Excessive fallen vegetation on the slope and no access to the rim made it difficult to determine the size of the platform. Results of a possible platform were inconclusive.

We stopped at a lookout overlooking Stevenson Intermediate School. We attempted to locate the exact area of the *hōlua* slide but were unable to with the thick brush below. *Kiawe* (Algaroba; *Prosopis pallida*) trees, Castor Bean plants, and *haole koa* (*Leucaena leucocephala*) litter the hillside. Mr. Becket added that the *hōlua* slide was once visible on Google Earth. We estimated the location of the *hōlua* slide to be on a hillside overlooking and leading into the Stevenson Intermediate School baseball field.

Our last stop was in Makiki. We made our way *mauka* on Makiki Heights Drive towards the Department of Forestry and Wildlife (DOFAW) office. Adjacent to the DOFAW office is a parking lot that crosses the Kanahā Stream and leads to the Maunalaha Trailhead. We began our trek and immediately observed many low terraces and upright stones. To the right of the trail, Mr. Becket pointed out an upright stone that he photographed for his book *Puna O'ahu* (Figure 29). The stone stands at approximately two feet in height and has a smooth front face. He pointed out that the backside of the stone has an L-shaped shelf that appears intentionally carved out. Across the trail path was a small clearing that overlooked the Kanahā Stream. Across the stream was a terraced wall. It was unknown if this was pre-Contact or restored. Banana plants, *'ape* (*Alocasia macrorrhiza*), *kalo*, and miscellaneous wetland plants dot the streambed. Further up the trail were more terrace walls eventually leading to two small *lo'i* (irrigated terrace) to the west of the trail. These *lo'i* are maintained by the students of nearby charter school, Hālau Kū Māna (Figure 30). An *'auwai* offshoots from Kanahā Stream and feeds into the two small *lo'i* before emptying back into the stream. Across the stream are retaining terrace walls that have been modified. Wild *kalo*, ti, *wauke* (paper mulberry; *Broussonetia papyrifera*), *palapalai*, and button ginger were observed



Figure 28. Photo of former *heiau* in the lower portions of Honolulu Ahupua'a; former locations of *heiau* include O Kāne La'au (foreground, H-1 Freeway), Kahehuna (right foreground, behind H-1 Freeway), Ka'akopua (midground, Central Intermediate); September 2015 (photo courtesy of Jan Becket)



Figure 29. Photo of upright stone in Makiki Heights; Mr. Becket photographed this *pōhaku* for his book *Pamo O'ahu*; September 2015 (photo courtesy of Jan Becket)



Figure 30. Photo of *lo'i kalo* adjacent to the Kanahā Stream in Makiki Valley; the *lo'i* is maintained by the students of Hālau Kū Māna charter school mauka of the park; September 2015 (photo courtesy of Jan Becket)

in the streambed. A small upright stone sits above the streambed, notched, with a *lei* of ti sitting on the upper portion of the stone. Figure 31 is a composite of sites visited within Honolulu Ahupua'a with Mr. Jan Becket.

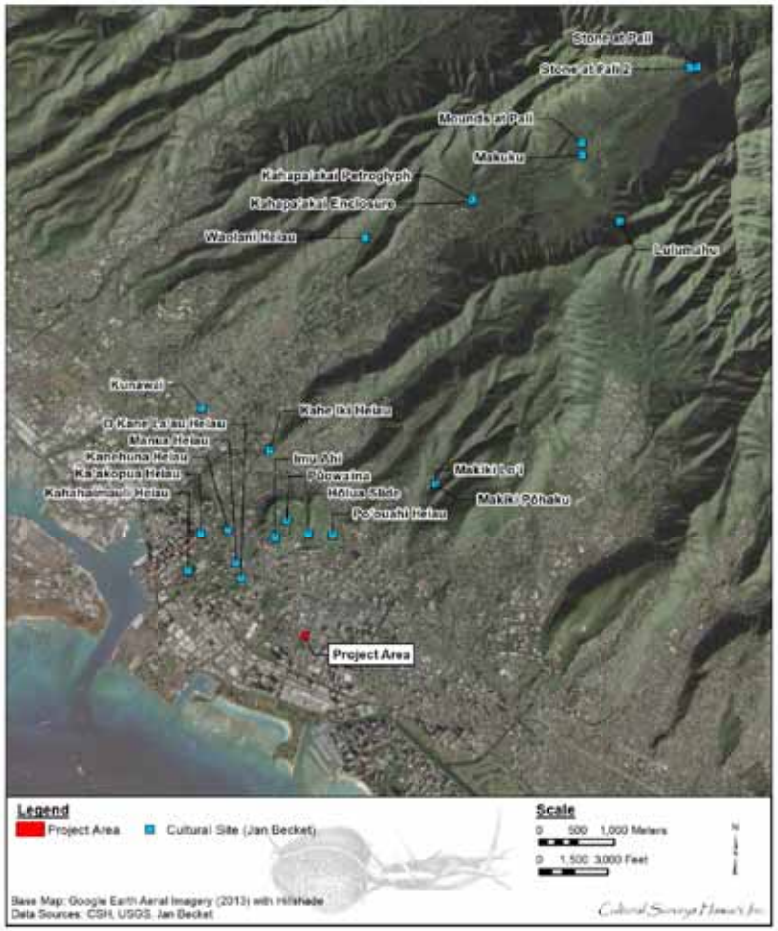

Figure 31. 2013 Google Earth Aerial Imagery with cultural sites visited with Mr. Jan Becket throughout Honolulu Ahupua'a

6.5 Summary of Kama'āina Interviews

CSH completed the community consultation component of this CIA in October 2015. Author, photographer, and Honolulu Representative for the Committee for the Preservation of Cultural Sites and Historic Properties, Jan Becket, was interviewed for the current project on 29 September 2015. He was previously interviewed for past projects in Honolulu Ahupua'a on 20 October 2014 and 11 November 2014.

Mr. Becket, who is knowledgeable in *wahi pana* and cultural sites, escorted CSH to various sites within Honolulu Ahupua'a. On 20 October 2014, two significantly large *pōhaku* were visited at the Nu'uanu Pali State Wayside park. He believes that one of the *pōhaku* may have been Kalanaiahuola, a *mo'o* who guarded the Pali. A possible *heiau*, upright stone, and burial under a rock mound in Makuku 'Ili were also visited. Makuku 'Ili is located on the *'ewa* side of Nu'uanu Mauka, approximately 10-15 minutes *makai* of the Nu'uanu Pali State Wayside park. Mr. Becket also escorted CSH to the Kunawai Springs located in Liliha. He stated that the springs were capped years ago; however, a steady water source continues to emerge from the ground. Another spring related to the Kunawai Spring system was across the street. A cemented pool stands in the 'Ewa corner of the park. A trickle of water came from the *mauka* portion of the pool indicating there is still water underground. A pottery shard and a piece of coral were found at the pool. Branch coral at a cultural site usually denotes a burial or ceremonial function.

During our 11 November 2014 *huaka'i* (voyage), we visited the *wahi pana* known as Pōhaku Aumeume. The stone is connected to Menehune. Mr. Becket shared a story from his friend who had moved from the mainland to O'ahu. Without any prior cultural or historic knowledge of O'ahu, his friend rented a home near the O'ahu Country Club. This friend then told Mr. Becket how "little, deformed men" would wake her in the middle of the night and surround her in her room. The *pōhaku* is located on the backside of a private, gated residence. The Pōhaku Aumeume sites on a paved platform under a grove of *hau*. Branch coral and *'ili 'ili* sit within the many crevices of the stone. He added these crevices are fingerprints from the Menehune when they threw the *pōhaku*. Another site visited was on the 2200 block of Liliha Street. Mr. Becket stated that Mr. Earl "Buddy" Neller, former SHPD archaeologist, had mentioned a possible *heiau* or remnants of one on someone's property. It appeared that two properties had a scattering of *pōhaku* in both yards. CSH visited a neighboring home and asked a tenant if they knew anything about the rocks. She replied that they rocks were put there by a landscaper years ago. We also visited Lulumahu Valley where several large *pōhaku*, a stacked terrace wall with uprights, and a large stone mound were observed. The last stop was at the Nu'uanu 822 Reservoir Site located along Nu'uanu Pali Drive. Within the Board of Water Supply property and to the left of the reservoir, a stone paving was observed alongside a footpath. After passing the stone paving, the footpath ended and led us to an old *'auwai*. We crossed the *'auwai* and passed through a grove of Christmas Berry and *hau*, which led to the shoulder of the Pali Highway windward bound. We walked *makai* and entered a bamboo forest where Mr. Becket pointed out a single, medium sized *pōhaku* with a single human stick figure petroglyph. Mr. Becket learned about the site from the late J. Mikilani Ho-Holuole, petroglyph and Hawaiian sites specialist. Further *makai* in the bamboo forest are two enclosures in the *'ili* known as Kahapa'akai. Both enclosures are in excellent condition with the exception of several stalks of bamboo that have managed to sprout between the enclosure walls. At the second enclosure historic bottles and plate shards were observed. We discussed the *'ili* name. The word *kaha* means "place" while the word *pa'akai* is usually associated with "salt." However, in this case

the term *pa'akai* is referring to a variety of taro. The name Kahapa'akai translates to "taro place," which is appropriate as Nu'uanu was an excellent place to cultivate taro based on the many streams and terraces in the valley.

The last *huaka'i* with Mr. Becket was on 29 September 2014. We visited Pūowaina, commonly known as Punchbowl. Mr. Becket shared that his late uncle, Siebrand Schaffsma, would refer to Punchbowl as "the Devil's Punchbowl." Mr. Becket commented that it was common practice for early settlers to re-name Native American sacred places with "The Devil's…" Mr. Becket added that "The Devil's Punchbowl" clearly follows the same practice for renaming Pūowaina. Overlooking Kaka'ako and Honolulu, Mr. Becket pointed out several sites below including O Kāne La'au Heiau, Manua Heiau, Po'ouahi Heiau, Ka'akopua Heiau, Kahahaimauli Heiau, and Kahe Iki Heiau. He also indicated that a *hōlua* slide was on the eastern slope above Stevenson Intermediate School. A majority of these sites were mentioned by Mr. Neller as well. The last stop was to the Maunalaha Trail. Alongside the trail an upright stone with an intentionally carved L-shaped shelf and two small *lo'i kalo* were observed.

Sites that were not visited but were discussed were the original locations of Kaumakapili Church and Pākākā Heiau, which have been completely destroyed. The original location of Kaumakapili was near the current location of Maunakea Street and North Beretania Street. Prior to the construction of the church was where Kahuoi's shrine once stood. It is said that Kahuoi would fish with his pet bird, Kau-maka-pili ("perched with eyes closed"). The translation of Kau-maka-pili tells the way the bird would catch its pretty—it would swoop from above and close one eye before grabbing a fish. The name of the church is deliberately tied to the *wahi pana*. Pākākā Heiau was once located near the foot of the *makai* end of Fort Street Mall. Mr. Becket assumes that some of the stones from Pākākā Heiau was most likely used for the construction of roads in Honolulu. Pākākā Heiau was the most important *heiau* in Honolulu Ahupua'a. It was near Kamehameha's compound and possible the headquarters for Kahuna Kū.

Section 7 Traditional Cultural Practices

7.1 Gathering of Plant Resources

Kalo was the sacred staple in the Hawaiian diet and way of life. According to the Kumulipo, the Hawaiian genesis chant, Hāloa was the second son of Wākea and Papa. Hāloa-naka, the first-born, was born prematurely and died shortly after birth (Kanahele 1995:17). After burying Hāloa-naka, a *kalo* sprouted from his grave. Hāloa was born shortly after the sprouting of this *kalo* plant. Hāloa symbolizes *kalo* and man. Kanahele explains that *kalo* is a metaphor for life and that "plants have been used to symbolize human spiritual growth. Hawaiians made taro a metaphor for life because, like the taro plant, it needs to be rooted in good soil and to be constantly nourished with the waters of Kāne" (Kanahele 1995:18).

Honolulu Ahupua'a was abundant in taro. Upper Nu'uanu Valley provided an abundance of water to the lower portion of the *ahupua'a*. Taro lands extended *makai* to at least half-way of upper Nu'uanu Valley (Handy and Handy 1972:475). Author and photographer, Mr. Jan Becket, escorted CSH to an enclosure just off of the Pali Highway in an *'ili* called Kahapa'akai. The term *kaha* translates to "place," while the word *pa'akai* is commonly known as "salt." However, it also refers to a variety of *kalo* as well as a variety of *limu* (Pukui and Elbert 1986). In this case, the term refers to a type of *kalo* that was usually grown in the uplands and used for *poi*, the Hawaiian staff of life. The name Kahapa'akai simply translates to "taro place," indicating the abundance in *kalo* and its many streams and terraces (Handy and Handy 1972).

The Kaka'ako area is located between two traditional centers of population, Honolulu and Waikīkī. The *ahupua'a* of Waikīkī consisted of a large system of irrigated *lo'i* ascending from Makiki, Mānoa, and Pālolo valleys toward the ocean. A network of fishponds and salt pans dotted the shoreline in Kaka'ako and Waikīkī (Bingham 1847:92–93). Ms. Paulette Ka'anohi Kaleikini, State of Hawai'i recognized lineal descendant, indicated that the project area was favored by *ali'i* and the *lāhui* in general with its vast agricultural lands and waterways.

UHCOH interviewee, Mrs. Eleanor Nahiapo Wilson Heavy, recalls helping her mother collect *pōpolo* used for cold and congested chest, as well as *'uhaloa* root for colds. During the time Mrs. Heavy collected these herbs, the people of Kaka'ako still went to the medical *kahuna*. You only went to the hospital when there was no hope. Mrs. Heavy's mother often ventured to Ka'ākaukukui 'Ili where she gathered *limu*, *wana*, *'ina*, squid, and *'ōpae* for the family's meals. Another UHCOH interviewee, Mr. David Tai Loy Ho, made money by picking *kiawe* beans as a child. He states that the best place to pick *kiawe* beans was at the Ward Estate, between Queen and King Streets. The beans were sold as horse and cattle feed. UHCOH interviewee Charlie Correa often picked *kiawe* branches and other wood for the kerosene stoves.

7.2 Burials

Ms. Kaleikini has stated that "where there was good fertile land and water, the people lived and died nearby." She adds that the project area is within the urban corridor and points out that it is very close to the Walmart on Ke'eaumoku Street where a cemetery was found in the past. She indicates that the chances of impacting a cultural layer or historic property within the project area is high.

Previous archaeological studies indicate that burials have been found *makai* of the project area. Human remains were found in six areas of the Makaloa-Sheridan work site of the Sam's Club/Walmart project (McElroy 2010). SIHP # -6661 and -6662 were two burials found east of Sheridan Street. SIHP # -6516 consisted of 62 individuals. Burials were dated to both pre- and post-Contact eras. Farther *makai* include SIHP # -4847, an inadvertent in situ burial at Kapi'olani Boulevard and Pi'ikoi Street (Athens et al. 1994), and SIHP # -4243, a right tibia shaft fragment found in a back dirt pile (Smith 1989).

Mrs. Eleanor Heavy recalls Hawaiian salt being used to embalm bodies. Salt would be stuffed into the *'ōkole* while being worked in by *ti* leaves. Salt would also be distributed into cuts under the armpit and other orifices such as the mouth, nose, and ears. The body would be viewed by several days until it was transferred into a coffin for burial.

7.3 Cultural Sites

Mr. Becket escorted CSH to several *wahi pana* within Honolulu Ahupua'a. A large *pōhaku* near the Honolulu and Kāne'ohe Ahupua'a border that sits near the ridgeline of a *pali* on the *'ewa* side of the Nu'uanu Pali State Wayside park. Several water worn rocks resembling a terrace sit below the *pōhaku*. A second *pōhaku* once stood on a small portion of land on the side of the original Pali Road. Mr. Becket recalls passing this *pōhaku* when he was younger. Today, the stone is no longer there. Mr. Becket believes the stone was either pushed down the cliff or blasted during the construction of the Pali Tunnels. He believes this stone may have been Kalanaihauola, a *mo'o* who guarded the Pali. Several historic water features, large *pōhaku*, burial mounds, and a stacked terrace with upright stones were found in Lulumahu Valley. Off the Pali Highway, Mr. Becket also showed CSH a single petroglyph and an enclosure in the *'ili* of Kahapa'akai. Another point of interest that Mr. Becket pointed out was Pūowaina, commonly known as Punchbowl. From the rim of the crater, Mr. Becket pointed out the former locations of several cultural sites including O Kāne La'au Heiau, Manua Heiau, Po'ouahi Heiau, Ka'akopua Heiau, Kahehuna Heiau, Kahhaimauli Heiau, and Kahe Iki Heiau. Pūowaina Heiau and Imu Ahi, a sacrificial stone, could be found within Punchbowl. On the eastern slope was a *hōlua* slide. On the Maunalaha Trail, Mr. Becket pointed out two sites: an upright stone with an intentionally caved L-shaped shelf and an old *lo'i*.

7.4 *Ka'ao* and *Mo'olelo*

Traditional Hawaiian knowledge was preserved through a narrative dialogue known as *mo'olelo*, the oral history and legends of the Hawaiian people, as factual as any written account of history. Origin myths, cosmology, and genealogies are indigenous forms of knowledge that account for the creation of the world and the first Hawaiians. *Mo'olelo* also chronicle the rise and fall of divine kingship throughout Hawai'i (Kirch 2010).

Mr. Becket escorted CSH to several *wahi pana*. In addition, he has shared *mo'olelo* of cultural sites that we were unable to visit or have been destroyed. Mr. Becket shared that the original location of Kaumakapili Church was near the current alignment of Maunakea Street and North Beretania Street. The caretaker of Kaumakapili was Kahuoi. The translation of Kau-maka-pili describes the way the bird would catch its prey—swooping from above and closing one eye before grabbing a fish. Pākākā Heiau was once located near the foot of the *makai* end of Fort Street Mall.

Pākākā Heiau was the most important *heiau* within Honolulu Ahupua'a. It was near Kamehameha's compound and was possibly the headquarters for Kahuna Kū.

The story of Keaomelemele takes place in Nu'uanu. Ku and Hinwelelani married and were soon expecting a baby together. The gods, Kāne and Kanaloa, recognized that a child would soon enter the world while standing in Waolani (the area where the O'ahu Country Club stands today). The two gods tasked out the construction of temples in Waolani to the Menehune. These temples can still be seen in Waolani today.

Mr. Becket shared a *mo'olelo* from his friend whose friend had rented a home near the O'ahu Country Club in Nu'uanu Valley. Without any prior cultural or historic knowledge of the Hawaiian Islands, this person mentioned to Mr. Becket's friend how "little, deformed men" would wake her up in the middle of the night and surround her in her room. She moved out of the home as soon as possible. The Pōhaku Aumeume, a stone connected to the Menehune, is a block away from the O'ahu Country Club. The *pōhaku* was supposedly thrown by the Menehune. Small crevices can be observed from the front of the *pōhaku*. Mr. Becket added that these crevices are fingerprints from the Menehune when they threw the stone.

Section 8 Summary and Recommendations

CSH undertook this CIA at the request of SSFM International. The research broadly covered the entire *ahupua'a* of Honolulu, including the 1.4-acre project area.

Background research for this study yielded the following results which are presented in approximate chronological order:

1. The traditional name for Honolulu Ahupua'a was Kou. This *ahupua'a* was subdivided into smaller land divisions called *'ili*. The area between Maunakea Street and Nu'uanu Stream and *makai* of King Street was known as Kapu'ukolo. The area *mauka* between Maunakea Street and Nu'uanu Stream was known as Kīkīhale. Pukui et al. (1974:110) state that Kīkīhale was named for the daughter of the chief Kou for whom the area was named.
2. Honolulu literally translates to "protected bay," which refers to Honolulu Harbor (Pukui et al. 1974:49-50). Other translations include "sheltered hollow" and "abundance of peace" (Hawaiian Historical Society 1904:24). Westervelt adds that Honolulu was most likely a name of a very rich farm land near the junction of Liliha and School Streets.
3. Pākākā was the name of a coastal point, canoe landing, wharf built off the point in 1827, and *heiau*. The name literally means "to skim, as stones over the water" (Pukui et al. 1974:175). Thrum (1906) mentions Pākākā Heiau being the main royal temple in Honolulu. This *heiau* would be located near the foot of Fort Street today.
4. Pukui et al. (1974) does not give a meaning for the place name Kaka'ako. However, Pukui and Elbert (1986:110) translates the word *kākā'āko* as "dull, slow," and Thrum (1922:639) translated the word as "prepare the thatching." If Thrum's translation is correct, it could be related to the many salt marshes in Kaka'ako were excellent places to gather *pili*, which Hawaiians used to thatch their houses.
5. Kewalo 'Ili means "the calling (as an echo)" and was once the place where *kauwā*, members of a pariah caste intended for sacrifice, were drowned (Pukui et al. 1974:109).
6. Pūowaina, also known as Punchbowl in modern times, translates to "hill of placing [human sacrifices]" (Pukui et al. 1974:195). There were six *heiau* and one home for priests located on Pūowaina. These sites were first noted by Emma Nakuina in 1909 (Sterling and Summers 1978:317).
7. Several battles ensued in Pauoa Valley including the invasion led by Maui chief Kahekili, battling the chief of O'ahu, Kahahana in 1783. Almost a decade (1795) later Kamehameha I landed his army in Waikīkī to feud with Kalanikūpule, king of Maui and O'ahu.
8. In 1846, Honolulu was the capitol of the Hawaiian Kingdom and was on its way to becoming the commercial and political hub of the Islands. During this time there was an obvious increase in population, land use, and urbanization. The waterfront area changed dramatically to accommodate trading and whaling vessels.
9. In 1895, a cholera epidemic struck the Islands and spread rapidly due to unsanitary conditions of the harbors and Nu'uanu Stream. The epidemic broke out in August and ended in October. A total of 64 people died. Shortly after the end of the epidemic, the government began to plan and institute public improvements to roads, bridges, sewage systems, and streams.
10. The Kaka'ako area has been heavily modified for the last 150 years due to historic filling of the area for land reclamation.

11. By the 1880s, the Kaka'ako area was being filled in for the construction of new roads and improvements of older roads. The justification for filling former mud flats, marshes, and fishponds was that low-lying areas were frequently being cited for unsanitary conditions and contributing to cholera outbreaks and breeding areas for rats and mosquitoes. By February 1914, the land from South Street to Ward Avenue and from Ala Moana Boulevard to Queen Street had been filled in.

CSH attempted to contact Hawaiian organizations, agencies, and community members as well as cultural and lineal descendants of Kaka'ako in order to identify individuals with cultural expertise and/or knowledge of the project area and vicinity. Results are below:

1. Mr. Jan Becket, a retired Kamehameha Schools teacher who is well recognized for his photographic documentation of *wahi pana* (storied places), escorted CSH to multiple cultural sites from October 2014 to September 2015 within Honolulu Ahupua'a. A total of 28 sites within Honolulu Ahupua'a have been mentioned for the current study. None of the sites visited were in the vicinity of the project area.
2. Pākākā Heiau was once located near the foot of the *makai* end of Fort Street Mall. Mr. Becket assumes that some of the rubble from Pākākā Heiau was most likely used for the construction of roads in downtown Honolulu. Pākākā was the most important *heiau* in Honolulu Ahupua'a. It was also near Kamehameha's compound and was possibly the headquarters for Kahuna Kū.
3. Mr. Becket states the original location of Kaumakapili Church was near the current alignment of Maunakea Street and North Beretania Street. Prior to the construction of Kaumakapili Church was where Kahuoi's shrine once stood. It is said that Kahuoi would fish with his pet bird named Kau-maka-pili ("perched with eyes closed"). The translation of Kau-maka-pili tells how the bird would catch its prey, swooping down from above and closing one eye before grabbing a fish.
4. Mr. Becket escorted CSH to Pūowaina, commonly known as Punchbowl. The name translates to "hill of placing [human sacrifices]." Mr. Becket's late uncle, Siebrand Schaffsma, grew up in Honolulu during the 1920s and referred to Punchbowl as "The Devil's Punchbowl." Mr. Becket added that it was common practice for early white settlers to re-name Native American sacred places with names beginning with "The Devil's…" He commented that the name "The Devil's Punchbowl" clearly follows the same practice in the re-naming of Pūowaina.
5. Important sites that have been destroyed below Pūowaina include O Kāne La'au Heiau, Manua Heiau, Po'ouahi Heiau, Ka'akopua Heiau, Kahehuna Heiau, Kahahaimauli Heiau, and Kahe Iki Heiau. Pūowaina Heiau and Imu Ahi, a sacrificial stone, were located at Pūowaina. In addition, a *hōlua* slide was located on the eastern slope above Stevenson Intermediate School.
6. Paulette Ka'anohi Kaleikini, State of Hawai'i recognized lineal descendant, indicated that her *kūpuna* (elders) once lived in this area. She adds the project area is within the urban corridor and is in the vicinity of Walmart on Ke'eaumoku Street "where a cemetery was found." Ms. Kaleikini states that "chances of impacting a cultural layer or historic property at this project site is high."
7. Ms. Kaleikini points out that this area was favored by *ali'i* (chiefs) but also by the *lāhui* (nation, race, people). The area once consisted of agricultural lands including water and

ponds. Ms. Kaleikini adds because of the land was fertile, people lived and died in these areas.

8. Ms. Kaleikini recommends an archaeological inventory survey and cultural monitoring.

Based on the information gathered from the cultural and historic background and community consultation detailed in this CIA report, the proposed project may have potential impacts. To avoid these, we suggest the following:

1. Personnel involved in the construction activities should exercise caution due to the culturally sensitive nature of the proposed project area as indicated by a community participant.
2. Personnel involved in the construction activities of the project should be informed of the possibility of inadvertent cultural finds, including human remains. Should burials or other cultural finds be encountered during ground disturbance, the construction contractor should immediately cease all work and the appropriate agencies should be notified pursuant to applicable law.
3. If any *iwi kūpuna* or other inadvertent cultural finds are found during ground disturbance, the State of Hawai'i Department of Accounting and General Services in conjunction with the State Historic Preservation Division (SHPD) and the O'ahu Island Burial Council (OIBC) should consult with lineal and cultural descendants of Honolulu (including Kaka'ako) to develop a reinterment plan, as well as a cultural preservation plan in the event that any human remains or cultural sites or artifacts are uncovered during construction of long-term maintenance for the project.

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Appendix A LCA 10605

No. 10605*O, Iona Piikoi, Honolulu, February 10, 1848

N.R. 563v4

Greetings to you the Land Commissioners: We hereby enter our claims for land, being the lands which passed to us by the division of lands of the Mo'i. Here are Iona Piikoi's:

1. Paa, with its lihis and its leles, Ahupua'a at Kona, Kauai

2. Pualoalo and its lihi and leles, 'ili at Honolulu, Oahu.

3. Kaluaoopu, with its lihis and its leles, 'ili at Waiawa, Ewa.

4. Mikiola, with its lihis and leles, 'ili at Kaneohe, Koolau.

5. Kainehe, with its lihis and leles, Ahupua'a at Lahaina, Maui.

Here at Kamakee's:

6. Keapuka, lihis and leles, perhaps, 'ili at Kaneohe, Koolau.

7. Kewalo, lihis and leles, perhaps, at Honolulu, Oahu.

Kindly award our claims, with their lihis and their leles, and all the places which wrongfully went to someone else, and which were trespassed upon and which were perhaps wrongfully occupied, and the places which were conveyed by lease, and all the rights which pertain in the names of those lands - the right to the protected fish and the wood and the water and everything which is said to pertain to these lands. That is what we give to you to work on and quiet title to us and to award in a way as to benefit the populace who are living on the land, and the lands which we occupy which also are for us. Here are these claims: a house lot in Honolulu, also, at Kamooiki, Honuaula, is a plantation of coconut trees.

I am, respectfully,

I. PIIKOI, KAMAKEE

/Translator's note: As far as I can determine, lihi is a pretty elastic term, meaning boundary or edge, but stretched to mean other areas not necessarily contiguous. Lele, of course, means "jump" areas./

F.T. 387-388v3

No. 10605, Kamakee Piikoi, September 28th, 1852

A portion of land in claimant's survey of Kewalo uka, called "Kapuni" is disputed by M. Kekuanaoa, also by the Government. Claimant avers that it is a part of Kewalo & therefore hers.

Kaia, sworn, says he is a kamaaina of Kewalo. Kaholoau was Luna of Kewalo in the time of Kaahumanu. After him were Mahina and Kealio. The name of the small piece of land now disputed is "Kapuni." It belonged to Kaahumanu. The above named Luras were under Kaahumanu. "Kapuni" is a pauku aina in Kewalo. It does not belong to Kalokohonu, "Kapuni" was always

included in Kewalo in the collection of taxes, and the people of "Kapuni" always worked for the konohiki of Kewalo. Naone, the present tax collector has lately caused this pauku of Kewalo to be included in Kalokohonu.

Mahina, sworn, I was Luna of Kewalo in the time of Kaahumanu, after Kaholoau. This pauku of land now in dispute, called "Kapuni," always formed part of Kewalo. "Kapuni" was always included with Kewalo in taxation and the people of "Kapuni" worked for the konohiki of Kewalo. "Kapuni" never belonged to Kalokohonu until the decision given by Naone to that effect, last year.

Mahu, sworn, says he is a kamaaina of Kewalo, and knows the piece of land now in dispute, called "Kapuni." It has always formed a part of the ili of Kewalo, from ancient times.

Cross Examination. I have lived on Kewalo since the time of Kaio, the kenohiki, in the time of Kamehameha I. I know the boundaries of Kewalo uka pretty well. I know Kailepulu who lives there, but he is a newcomer. Witness gave the names of a long line of konohikis.

Paoimuai, sworn (for the Government), I am a kamaaina of Auwaiolimu adjoiing Kewalo. When I was a boy, I lived on Kewalo, when Kapaukahi was konohiki in the time of Kamehameha I. I know the pauku aina called "Kapuni," now in dispute. "Kapuni" belonged to Kaahumanu, i.e. to her ili of Kewalo. She had her Lunas there. Witness named some of the lunas. The men of "Kapuni" worked for the konohiki of Kewalo. It is about 40 years since "Kapuni" was joined to Kewalo - shortly after the sickness which destroyed the people's hair. "Kapuni" always formed part of Kewalo from that time till Naone's decision about 18 months ago.

N.T. 21-22v10

No. 10605, J. Piikoi, 1 July 1851, See page 387, vol. 3

No. 3176, G. Kailaa for Kamakee vs Kaaukai

Kukahiko, sworn, I have seen this house lot in Honolulu,

the boundaries are:

Mauka by Kekualaula's lot, Kahanaumaikai's lot

Waikiki by Puowaina street

Makai by Kaaoaohuna lot, S. Reynold's lot

Ewa by Road.

Land from Kauka (i [kane?]) in 1843, Kaaukai had received it in 1832. When Kamakee had it permanently, G. Kailaa lived on the land and Ihu had enclosed it. Kaaukai built the house and Ihu had helped also by buying the material for thatching. Kailai has lived there to the present time, no disputes.

I have heard Kaaukai had bequested this place to Kamakee at the time Kapili had returned the deed of the land to Kaaukai. Kamaikaaloa had given this lot to Kaaukai, the chief had given her, her land. She had given orally to her brother Kamakee saying, "I am leaving for Hawaii, you are the chief's tenant, here is your house lot," Kaaukai lived on the land until her death.

Kanaulu, sworn for Kaaukai, I heard there were two of them on this place, Kamaikaaloa mauka and Kaaukai, Makai. This had been from the chief, later they had separate land. Then Kaaukai left for the island of Hawaii and I saw Kailaa living on that land. I have not known Kaaukai's bequest for anyone else and I have always seen Kailaa living there to the present time since the time of Kaahumanu I. Kailaa built his house and Pahua helped him to enclose the land. I have heard on Maui they had lived together and they had agreed that the land would be for the other should either one of them die, so at Kaaukai's passing, the land was possessed by Kamaikaaloa. I have not heard Kamaikaaloa's bequest.

Pahua (female), sworn, I have seen this coconut grove at Mooiki of Honuaula, Maui.

Mauka by Government land

Kipahulu by "Makeaka" land

Makai by sea

Lahaina by "Nahupaka" land.

Kamakee, the wife of J. Piikoi, had received this land from Kapili, her brother in 1842, he had received it from their father, Ihu in 1841. Ihu had received it from Kaikioewa at the time of Liholiho and he has lived comfortably. He has planted coconut trees, the children have them now, no one has disputed the government has retaken the land since the great Mahele, except for the coconut grove. They are for Kamakee.

Kaahumanu, sworn, as a child, I had seen Ihu himself and his men plant those coconut trees at the time of Liholiho to the present time, no disputes. Cont. page 161.

N.T. 161v10

No. 10605, Johan Piikoi (from page 21)

COPY

Na Paa ahupuaa, Kona, Hawaii

Pualoalo ili of Honolulu, Kona, Oah.

Kaluaoopu ili for Waiau, Ewa, Oahu.

Mikiola ili for Kaneohe, Koolaupoko, Oahu.

Kainehe ahupuaa, Lahaina, Maui.

This distribution is good, the lands listed above are for Jonah Piikoi, he has been permitted to present his claims before the land officers.

(signature) Kamehameha, Seal

This Palace, 28 January 1848

This is a true copy from the Mahele Book

A.G. Thruston, Secretary K.K. Interior Minister Office, 31 March 1852

No. 10605, Kamakee Piikoi

COPY

Kewalo ili for Honolulu, Kona, Oahu.

Keopuka ili for Kaneohe, Koolaupoko, Oahu.

This distribution has been approved, it is good. The lands listed above are for Kamakee Piikoi and has been permitted to present this before the land officers.

(signature) Kamehameha II, Seal

This Palace, 28 January 1848

See page 328, True copy from the Mahele Book

A.G. Thruston, Secretary K.K. Interior Minister Office, 31 November 1852

N.T. 328v10

No. 10605, Jonah Piikoi

Jonah Piikoi's land distributions.

Na Paa ahupuaa, Kona, Hawaii.

Puaaloalo ili, Honolulu, Oahu.

Kaluaoopu ili, Waiau, Oahu.

Mikiola ili, Kaneohe, Koolaupoko, Oahu.

Kainehe ahupuaa, Lahaina, Maui.

TRUE COPY

Interior Office, A. Thruston, Chief Clerk

November 17, 1853

[Award 10605; R.P.; 2672, Kewalo Honolulu; 3 ap.; 60.44 Acs; R.P. 5715, Kewalo Honolulu; 4 apana, 88 Ac. 5 Roods, 78 Rods (location index gives 3 apana; 60.44 Acres); R.P. 5716; Koula Honolulu Kona; 1 ap.; 270.84 Acs; (Kamakee Piikoi); R.P. 5567, Pualoalo Honolulu; 1 ap.; 3.37 (Ap. 2); R.P. 5569, Pualoalo Honolulu; 2 ap.; 8.65 Acres; (Ap. 1 & 3); R.P. 1739; Punchbowl St.; 1 ap.; 1.17 Acs; (Iona & Kamakee Piikoi); R.P. 8135; Mikiola Kaneohe Koolaupoko; 2 ap.; 43.5 Acs; R.P. 6557; Waiau Ewa; 2 ap.; 35.7 Acs; (Apana 5); R.P. 5611; Kaneohe Koolaupoko; (Maui) R.P. 8400; Kainehe Lahaina; (Kauai) no R.P. Paa Kona; 1 ap.; 3263 Acs 1 rood 33 rods (ahupua'a); See also Award 3176 for Oahu]

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Appendix H:
Traffic Impact Assessment

DRAFT

Joint Development for Affordable Rental Housing and Juvenile Services Center/Shelter

Traffic Impact Analysis Report

902 Alder Street
Honolulu, Hawai‘i

December 11, 2015

Prepared for
Department of Accounting and General Services,
State of Hawai‘i

Prepared by
SSFM International

Table of Contents

I. INTRODUCTION 1
II. EXISTING (2015) CONDITIONS 4
A. Transportation Network 4
1. Roadway Network Users 4
2. Pedestrian Facilities 4
3. Bicycle Facilities 6
B. Geometric Configuration 6
1. Intersection Configuration 6
2. Roadway Configuration 9
C. Volumes 9
1. Peak Hour Volumes 9
2. 24-Hour Roadway Volumes 12
3. Multi-Modal Volumes 16
D. Level of Service 17
1. LOS Methodology 17
2. Existing Intersection LOS Conditions 19
III. FUTURE (2022) CONDITIONS 20
A. Surrounding Area Conditions 20
B. Transportation Network 20
1. Vehicular Facilities 20
2. Pedestrian Facilities 20
3. Bicycle Facilities 20
C. Geometric Configuration 20
D. Traffic Volumes 21
1. Background Growth 21
2. Project Related Volumes 21
3. Future Peak Hour Volumes 24
4. Future 24-Hour Volumes 24
5. Multi-Modal Volumes 27
E. Level of Service 27

1. Future (2022) Without Project LOS 27
2. Future (2022) With Project LOS 27
F. Mitigation 28
1. Pedestrians 28
2. Bicycles 28
3. Transit 28
4. Vehicles 28
IV. SUMMARY 29
V. REFERENCES 30

List of Appendices

Appendix A – TheBus Route Maps
Appendix B – Intersection Peak Period Traffic Counts and 24-Hour Traffic Data
Appendix C – Analysis Reports Existing (2015) Conditions
Appendix D – Analysis Reports Future (2022) With Project Conditions

List of Figures

Figure 1: Project Location Map 2
Figure 2: Site Plan 3
Figure 3: TheBus Stops and Routes 5
Figure 4: Bikeway Details 7
Figure 5: Existing (2015) Lane Configurations 8
Figure 6: Existing (2015) Peak Hour Vehicular Volumes 10
Figure 7: Existing (2015) Peak Hour Bicycle and Pedestrian Volumes 11
Figure 8: Pi'ikoi Street between Alohi Way and King Street, 24-Hour Volume Distribution 13
Figure 9: Pi'ikoi Street between King Street and Young Street, 24-Hour Volume Distribution 14
Figure 10: King Street between Akala Lane and Cedar Street, 24-Hour Volume Distribution 15
Figure 11: Future Trip Distribution 23
Figure 12: Project Related Peak Hour Volumes 25
Figure 13: Future (2022) With Project Peak Hour Volumes 26

List of Tables

Table 1: Intersection Peak Hours 12
Table 2: Existing Roadway ADT 12
Table 3: Intersection Peak Hour Heavy Vehicle Volumes and Percentage 16
Table 4: TheBus Daily Ridership 16
Table 5: Intersection Peak Hour Pedestrian Volumes 17
Table 6: Intersection Peak Hour Bicycle Volumes 17
Table 7: LOS Criteria for Unsignalized Intersections 18
Table 8: LOS Criteria for Signalized Intersections 18
Table 9: Existing (2015) Unsignalized Intersection Level of Service 19
Table 10: Existing (2015) Signalized Intersection Level of Service 19
Table 11: Development Trip Generation Rates 21
Table 12: Development Trip Generation Volumes 22
Table 13: Project Related Trip Definitions 22
Table 14: Project Related Transportation Mode 24
Table 15: Future (2022) Roadway ADT 24
Table 16: Future (2022) With Project Unsignalized Intersection Level of Service 27
Table 17: Future (2022) With Project Signalized Intersection Level of Service 28

I. INTRODUCTION

The State of Hawai'i Housing Finance Development Corporation (HHFDC) and the Judiciary Courts of the State of Hawai'i, Juvenile Detention Facility Redevelopment Planning (Judiciary) are proposing a joint development at 902 Alder Street in Honolulu on the island of O'ahu. The project site is identified as Tax Map Key (1) 2-3-012:019 and is on a block bordered by King Street on the mauka (mountain) side, Elm Street on the makai (ocean) side, Pi'ikoi Street on the west ('Ewa) side and Alder Street on the east (Diamond Head) side.

The project is within ½-mile of the Ala Moana Rail Transit Station and therefore falls within a transit oriented development (TOD) transit influence zone (TIZ). The project location is shown in Figure 1. The project has an anticipated full build-out and occupancy year of 2022. This follows the construction and operation of the Honolulu Rail Transit guideway and stations which are expected to be complete by 2019 or 2020.

The project site is approximately 1.45 acres and currently contains two partially utilized buildings. This includes the former Juvenile Detention Home, which was relocated to Kapolei Judiciary Complex in 2010, and Shelter. The Juvenile Shelter and some services continue to operate on site.

The proposed project would result in the construction of approximately 254,000 square feet of floor area for approximately 180 affordable rental housing units targeted for working individuals and families. The housing would be located in a 19-story building, of which the Judiciary would occupy approximately 35,000 square feet on the first three floors. Parking for residents, employees, and visitors would be located in an adjacent structure. The parking structure will be four stories tall. Part of the roof of the parking structure may be used as a recreational deck for residents. The structure will contain approximately 290 vehicular parking stalls.
Two driveway accesses are being proposed to this joint mixed-use facility. One will be from a driveway off of Alder Street at the location of an existing curb-cut. The other will be from a driveway off of Pi'ikoi Street, directly across from Alohi Street. The proposed development site plan is shown in Figure 2.

This traffic impact analysis report (TIAR) is being prepared in support of an environmental assessment being prepared for the project. Future conditions will be evaluated for the year 2022 for determination of project impact as well as the completion of the Honolulu Rail Transit project.

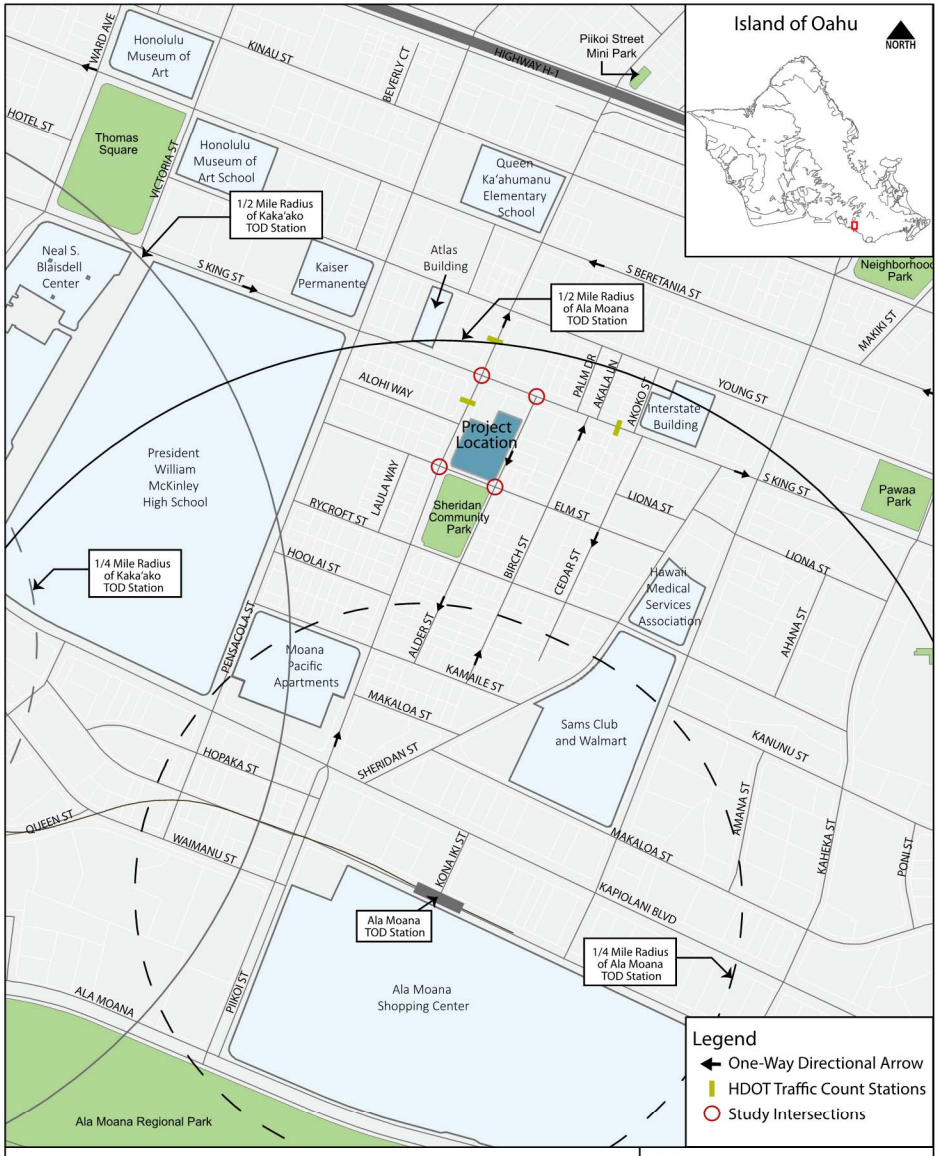

Figure 1: Project Location Map

Juvenile Detention Home Planning for Judiciary Multi-Use and HHFDC Housing Joint Development – Honolulu, O'ahu

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Figure 2: Site Plan

II. EXISTING (2015) CONDITIONS

The surrounding neighborhood is in an urban district that has a mix of commercial and residential uses. The neighborhood is also considered a high employment zone due to its proximity to commercial, institutional, and retail establishments. There are numerous single and multi-family buildings surrounding the project area, making it a medium to high-density residential neighborhood. The Sheridan Community Park is located adjacent to the project site on the makai side of Elm Street. Currently, the buildings located at 902 Alder Street have minimal use and resulting trips generated.

A. Transportation Network

1. Roadway Network Users

a) Passenger Vehicles and Heavy Vehicles

The surrounding transportation network consists of a grid network of streets. The block in which the project is located in is approximately 450 feet by 250 feet in size. There are some "superblocks" (large blocks that interrupt the street grid) in the area which include the Neal S. Blaisdell Center/Blaisdell Concert Hall/McKinley High School to the west and Walmart/Sams Club to the east. These superblocks concentrate vehicular volumes at major intersections resulting in multiple travel lanes, long signal timing cycle lengths, and strained capacity. They make it difficult to maintain connectivity and mobility for other transportation modes.

b) Buses

There are no bus stops directly adjacent to the project site. However, Stop 138 is at the corner of King Street and Pi'ikoi Street and there are several other stops within a ¼- mile of 902 Alder Street. Buses that service this area include Routes: 17, 18, 1, 1L, 2 and 2L. Bus routes that fall within ½-mile from the project site include Routes: 3, 5, 6, 9, 13, 40, 52, 53, and 62. The location of the bus stops near the project site are shown in Figure 3. Appendix A includes the detailed bus route schedule and map for these routes.

2. Pedestrian Facilities

Sidewalks line both sides of Alder Street, Elm Street, Pi'ikoi Street, and King Street. Sidewalks widths in the surrounding project area range from six-feet on Alder Street to four to eight-feet on Pi'ikoi Street and King Street. The City and County of Honolulu's *Traffic Standards Manual* (C&C, 1979) states that in most cases, concrete sidewalks shall be at least four feet wide in residential districts. However, wider sidewalks are recommended in commercial areas. Along Alder Street, Pi'ikoi Street and King Street adjacent to the project area, there are frequent driveway locations that interrupt the sidewalks along both sides of the street.

Marked crosswalks exist at the intersection of King Street and Pi'ikoi Street with pedestrian signal heads and push-buttons. Marked crosswalks also exist at the two-way stop sign controlled (TWSC) intersection of Pi'ikoi Street and Elm Street on the south leg (unprotected), east leg and west leg. An additional unprotected marked crosswalk exists across Pi'ikoi Street at the TWSC intersection with Alohi Way, approximately 230 feet from the intersection with King Street.

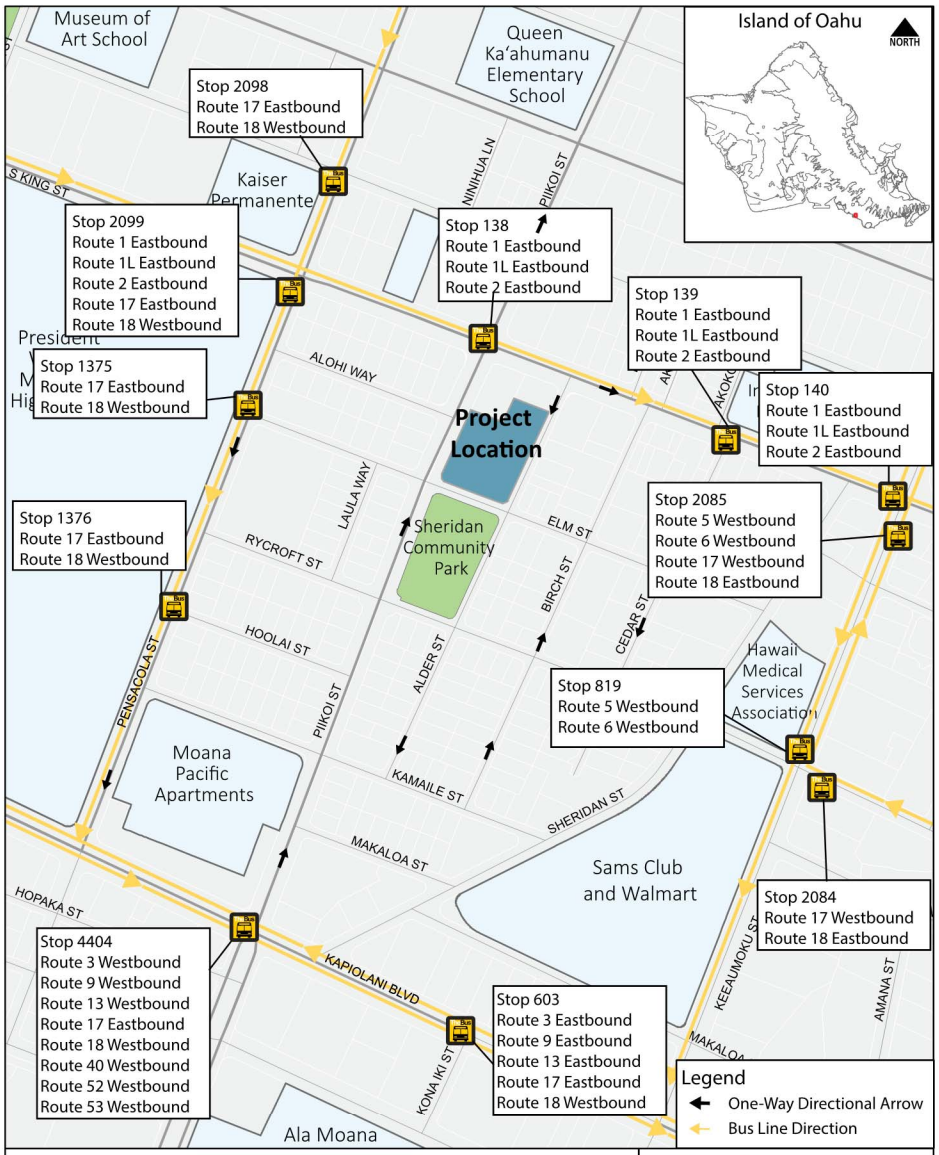

Figure 3: TheBus Stops and Routes

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3. Bicycle Facilities

There is a two-way protected bike lane (i.e., bike lanes that are physically separated from traffic) along King Street between Alapai Street and Isenberg Street. An additional bike route exists along Young Street which is comprised of signage and sharrows. Ease of biking in the surrounding project area is not optimal because of the lack of designated bikeway connectivity and the presence of heavy vehicle traffic. There are no existing designated mauka-makai bicycle facilities in the surrounding area. Proposed mauka-makai bikeways on Pi'ikoi Street and Ke'eaumoku Street are recommended in in the *Oahu Bike Plan, A Bicycle Master Plan* (HHF, August 2012). Figure 4 provides the existing and proposed bicycle facilities surrounding the project site, as provided in the *Oahu Bike Plan*.

B. Geometric Configuration

1. Intersection Configuration

Primary study intersections in the project area include the following:

1. King Street and Pi'ikoi Street
2. King Street and Alder Street
3. Alder Street and Elm Street
4. Elm Street and Pi'ikoi Street

Existing (2015) lane configurations, marked pedestrian crosswalks, and traffic control at the study intersections are shown in Figure 5.

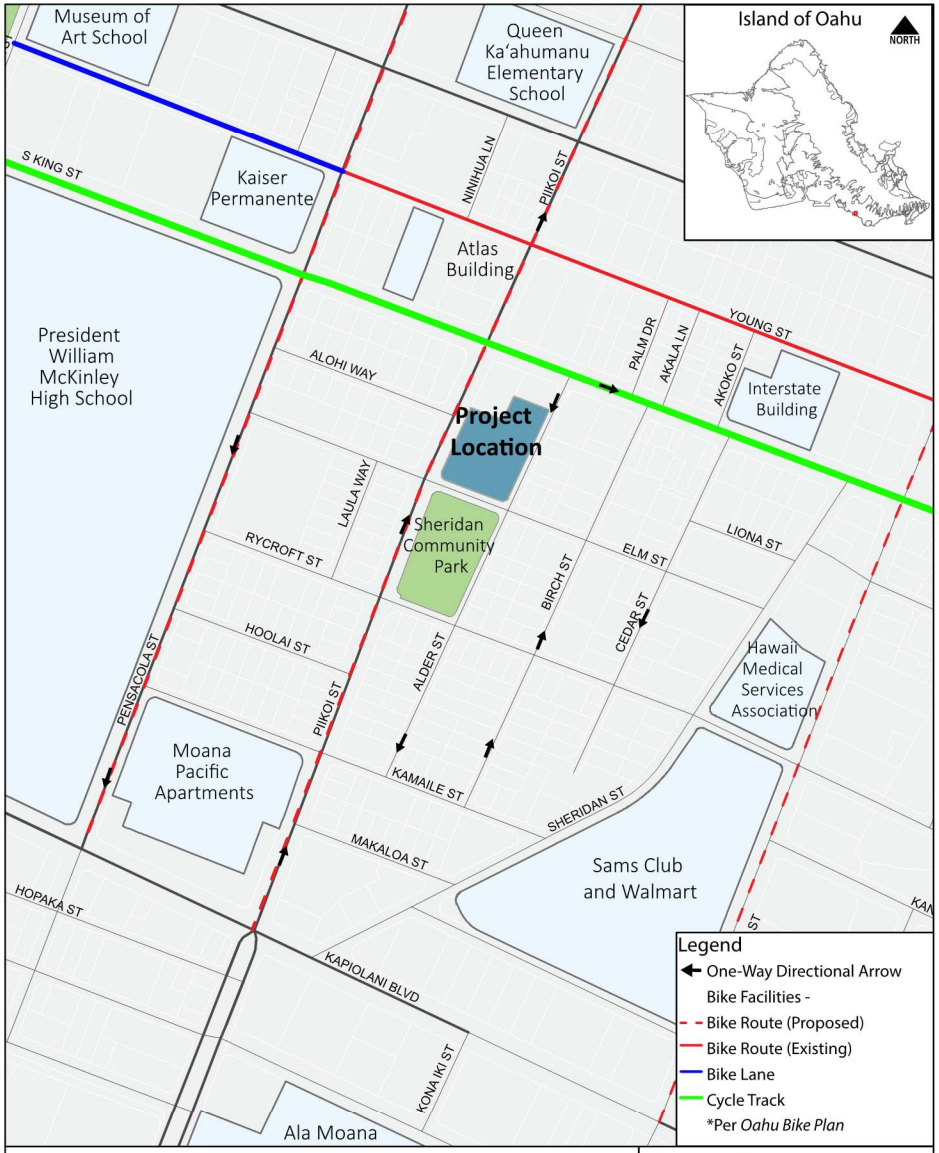

Figure 4: Bikeway Details

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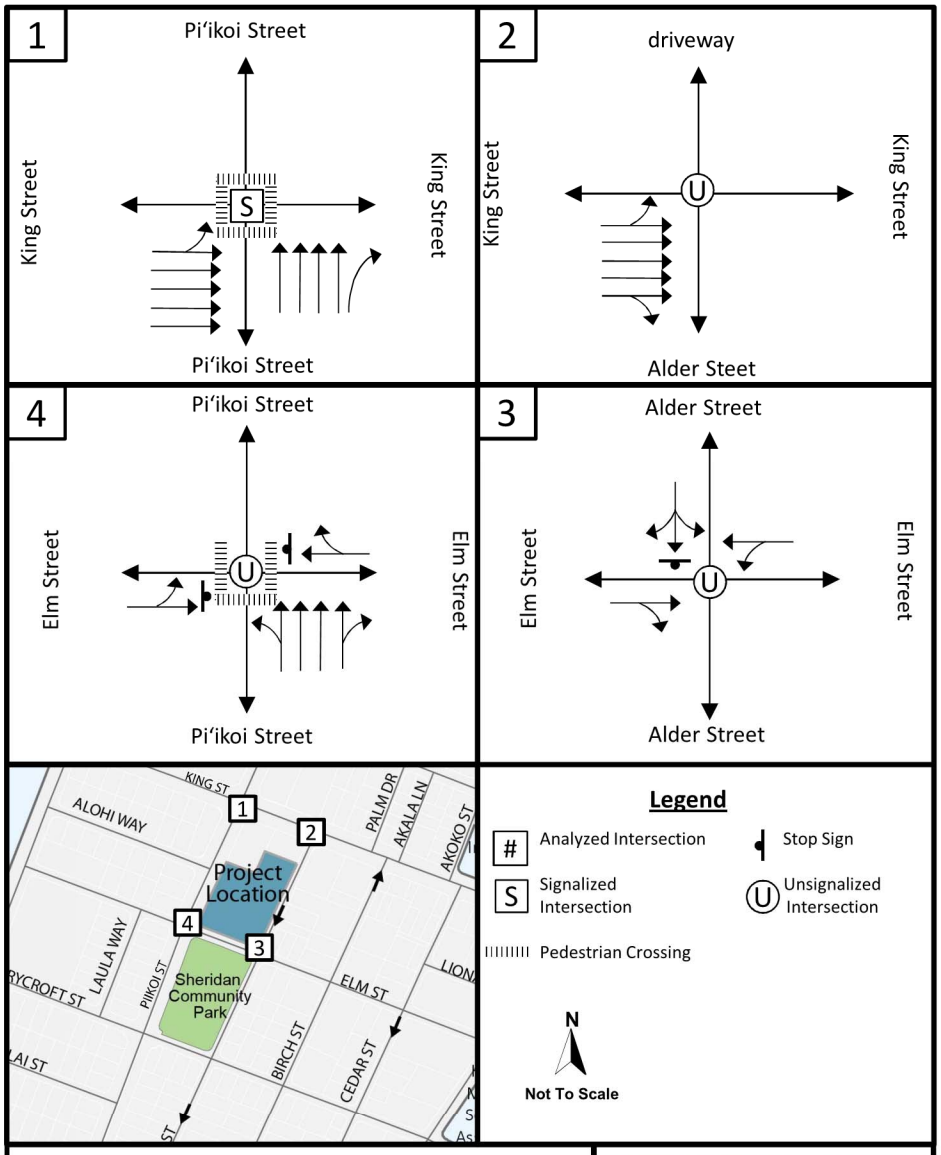

Figure 5: Existing (2015) Lane Configurations

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2. Roadway Configuration

King Street is a principal arterial owned by the City and County of Honolulu. It is a one-way roadway with five lanes in the eastbound direction. There is on-street parking on both sides of the street; parking is restricted on both sides from 3:30pm to 6:30pm on weekdays. King Street has sidewalks on both sides of the street. The posted speed limit is 30 mph. There is a two-way protected bike lane on the mauka side of the street between Alapai Street and Isenberg Street.

Pi'ikoi Street is a minor arterial owned by the City and County of Honolulu. It is a one-way roadway in the mauka-bound direction between Kapi'olani Boulevard and Pensacola Street. Pi'ikoi Street is a four-lane roadway adjacent to the project site. At the intersection with King Street, Pi'ikoi Street has four through lanes and one dedicated right-turn lane. Mauka of that, Pi'ikoi Street becomes six lanes between King Street and Young Street. The posted speed limit is 25 mph. There is unmarked, on-street parking on both sides of the street. Sidewalks exist on both sides of the street.

Alder Street is a one-lane, one-way roadway that runs makai-bound between King Street and Kamaile Street. The posted speed limit is 25 mph. Alder Street primarily provides access to residential units. There is no traffic control at the intersection of King Street and Alder Street since the only permitted turning movement is for vehicles making a right turn from King Street onto Alder Street. The intersection of Alder Street and Elm Street is controlled by a stop sign on the Alder Street approach. There are unmarked, on-street parking spaces on the west side of the street. Sidewalks exist along both sides of the street.

Elm Street is a two-lane local road. The road mainly provides access to residential units. The posted speed is 25 mph. Parking is allowed along the mauka side of the roadway. Sidewalks exist along both sides of the street.

Driveway accesses to existing properties in the project area, including the subject project site, are prevalent along all streets. Fronting the property, sidewalks exist along both sides of the street, with various widths. There are three driveways accessing the existing project site; two off of Alder Street and one off of Pi'ikoi Street.

C. Volumes

1. Peak Hour Volumes

Intersection peak period turning movement traffic counts were taken on Wednesday, September 16, 2015. These counts also included the tabulation of heavy vehicles, bicycles, and pedestrian movements at all intersections. Counts were taken during the AM and PM peak periods from 6:30–8:30 AM and 3:45–5:45 PM. Peak hours varied per intersection and are provided in Table 1. Peak hour vehicle volumes are shown in Figure 6. Peak hour bicycle and pedestrian volumes are shown in Figure 7. Appendix B includes the detailed traffic count data.

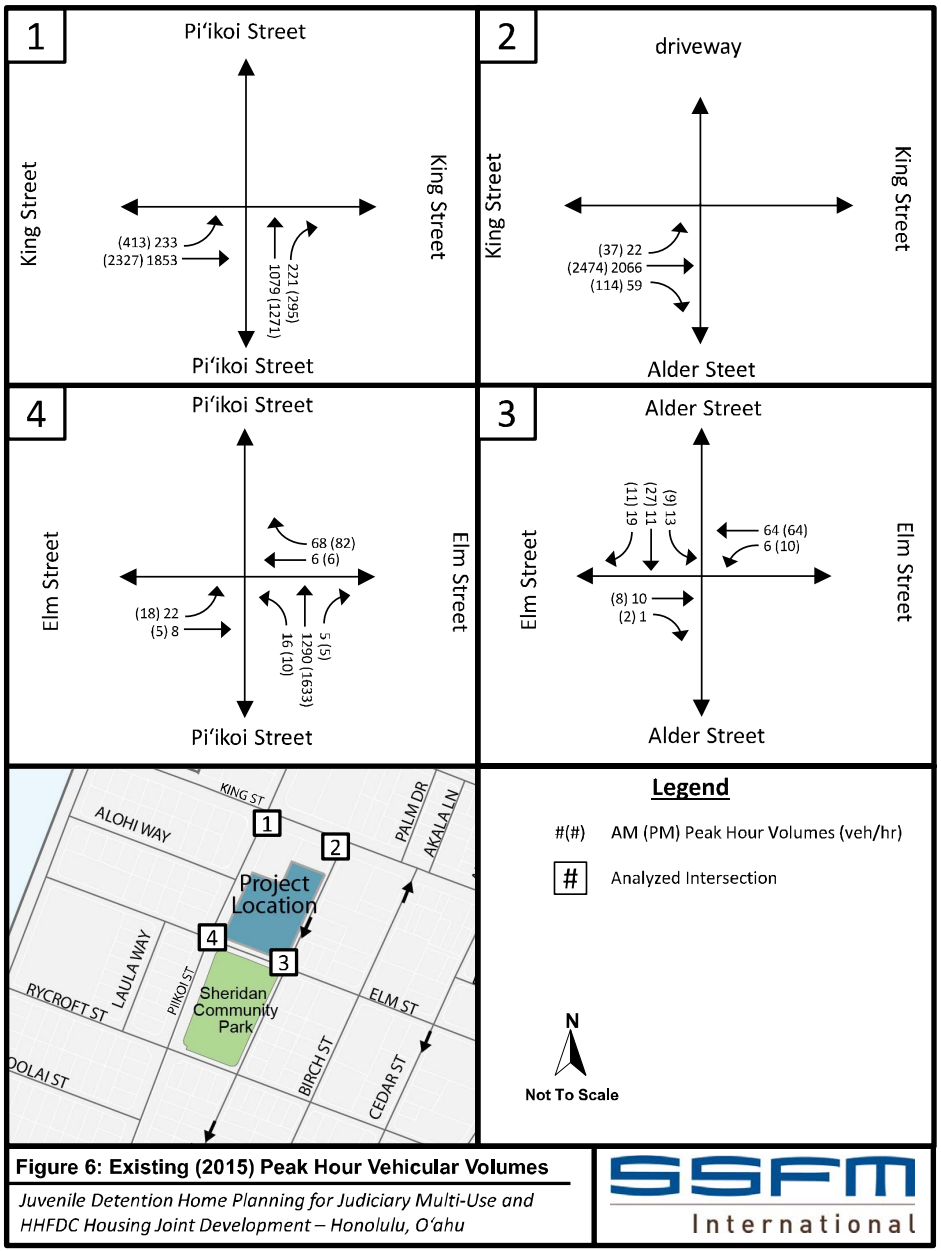

Figure 6: Existing (2015) Peak Hour Vehicular Volumes

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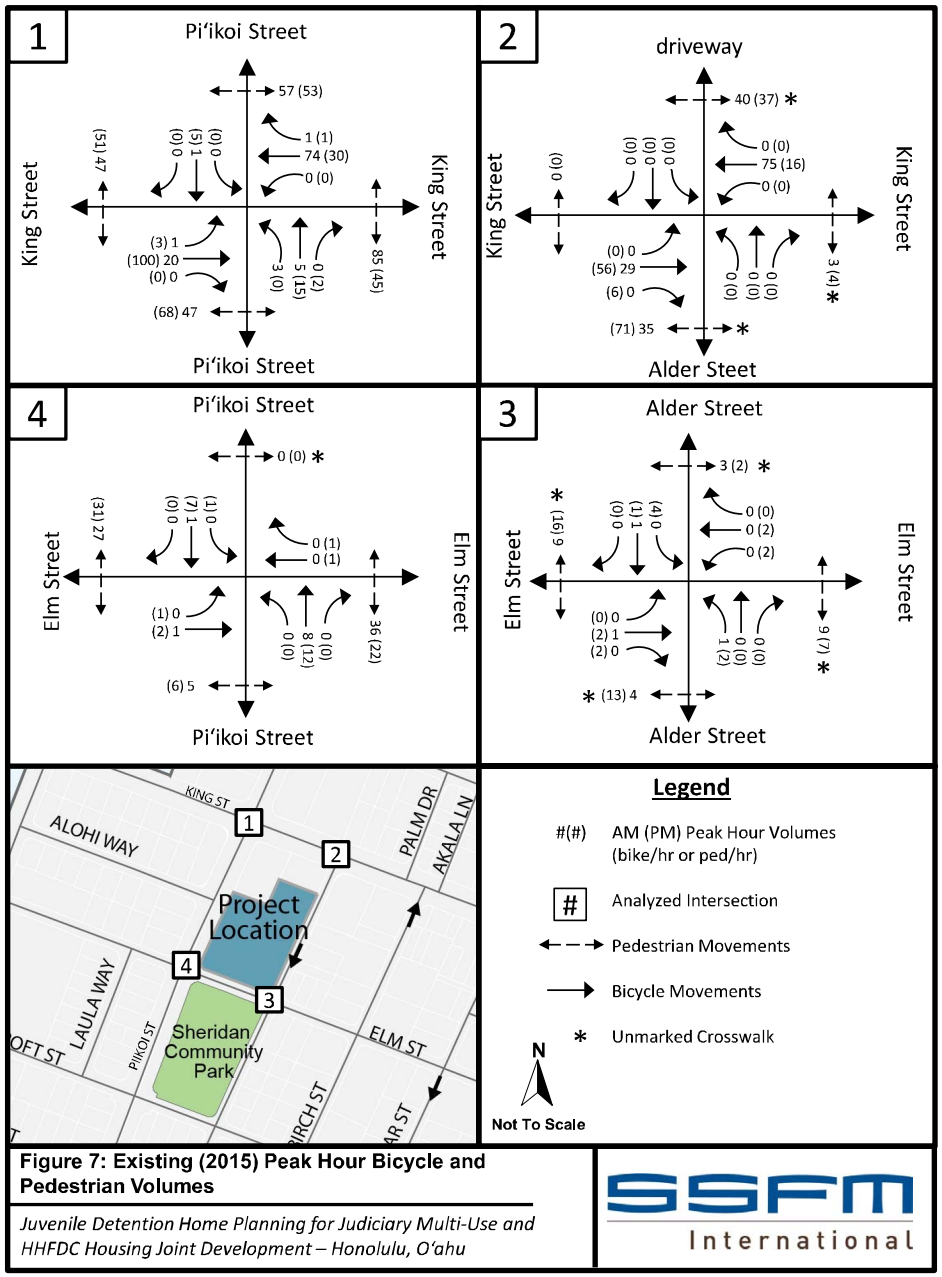

Figure 7: Existing (2015) Peak Hour Bicycle and Pedestrian Volumes

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Table 1: Intersection Peak Hours

Intersection	AM Peak Hour	PM Peak Hour
King Street and Pi'ikoi Street	7:15 – 8:15 AM	4:45 – 5:45 PM
King Street and Alder Street	7:00 – 8:00 AM	4:45 – 5:45 PM
Alder Street and Elm Street	7:00 – 8:00 AM	3:45 – 4:45 PM
Elm Street and Pi'ikoi Street	7:15 – 8:15 AM	4:45 – 5:45 PM

2. 24-Hour Roadway Volumes

Average daily traffic (ADT) along Pi'ikoi Street and King Street are shown in Table 2. The 2011 ADT along Pi'ikoi Street, adjacent to the project site, is approximately 27,700 vehicles per day (vpd). The 2013 ADT along Pi'ikoi Street between King Street and Young Street is approximately 31,500 vpd. The 2011 ADT along King Street, east of Pi'ikoi Street is approximately 33,000 vpd.

Table 2: Existing Roadway ADT

Roadway	Station	Location	Year	ADT
Pi'ikoi Street	B727 513 00027	Between Alohi Way and King Street	2011	27,700
	B727 503 00153	Between King Street and Young Street	2013	31,500
King Street	B727 402 00310	Between Akala Lane and Cedar Street	2011	33,000

Source: *Historical Traffic Station Maps* (HDOT)

The 24-hour traffic volume distribution along Pi'ikoi Street and King Street at the traffic count stations shows the variation in travel patterns in the project area (see Figures 8, 9 and 10). AM and PM peak hours for Pi'ikoi Street between Alohi Way and King Street are 7:00-8:00 AM and 2:00-3:00 PM. The AM and PM peak hour volumes are about 1,500 vehicles per hour (vph) and 2,200 vph respectively.

There is no discernible morning peak hour along Pi'ikoi Street between King Street and Young Street. The peak hour occurs in the afternoon from 3:30-4:30 PM with around 2,500 vph.

The AM and PM peak hour along King Street between Akala Lane and Cedar Street is 7:00-8:00 AM and 4:45-5:45 PM. The AM and PM peak hour volume has about 2,100 vph and about 3,200 vph, respectively.

Detailed 24-hour counts are included in Appendix B.

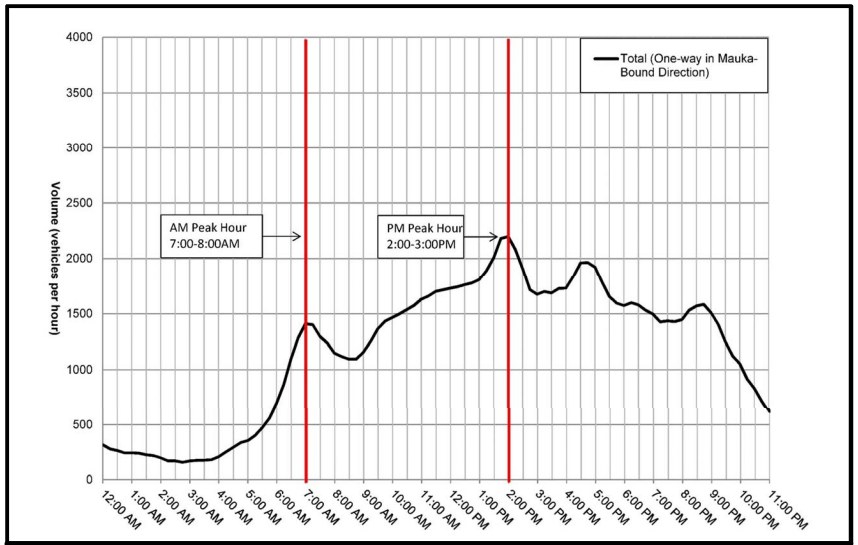

Figure 8: Pi'ikoi Street between Alohi Way and King Street, 24-Hour Volume Distribution

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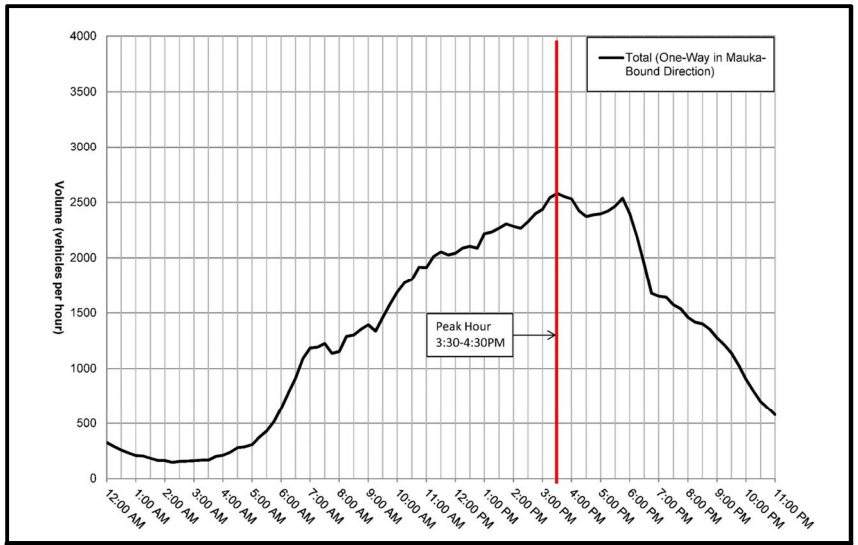

Figure 9: Pi'ikoi Street between King Street and Young Street, 24-Hour Volume Distribution

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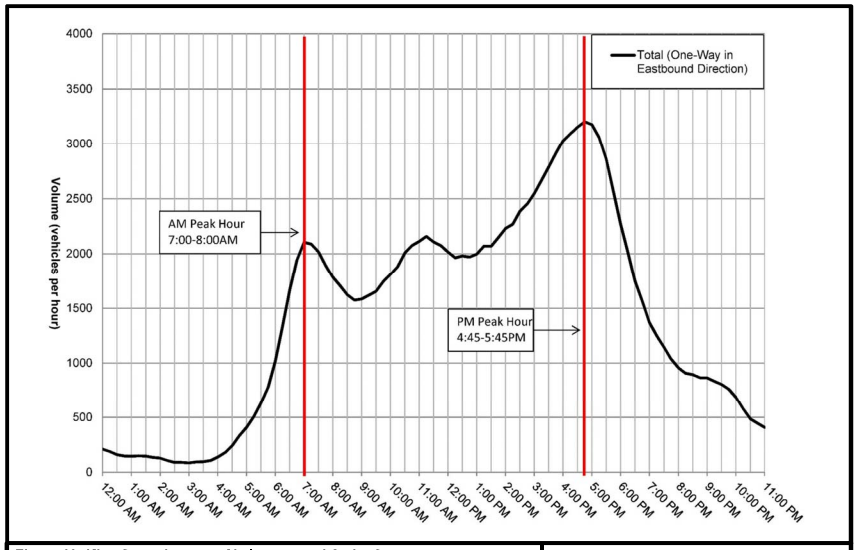

Figure 10: King Street between Akala Lane and Cedar Street, 24-Hour Volume Distribution

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3. Multi-Modal Volumes

a) Buses and Heavy Vehicles

Tabulated heavy vehicles include TheBus transit service, tourist bus/trolleys, and delivery trucks. Table 3 provides the peak hour volumes and percentage of heavy vehicles as compared to the total vehicles counted. These heavy vehicle percent are relatively small.

Table 3: Intersection Peak Hour Heavy Vehicle Volumes and Percentage

Intersection	AM Peak Hour		PM Peak Hour	
	Volumes	Percent	Volumes	Percent
King Street and Pi'ikoi Street	94	2.6	29	0.6
King Street and Alder Street	62	2.8	7	0.3
Alder Street and Elm Street	2	1.3	2	1.2
Elm Street and Pi'ikoi Street	42	2.8	11	0.6

Daily total TheBus ridership at Stop 338 for boarding and alighting passengers was 250 and 396 riders respectively. Stops in the area include transit centers which range up to 1,000 boarding and alighting passengers (see Table 4). Data was provided by the City and County of Honolulu, O'ahu Transit Services.

Table 4: TheBus Daily Ridership

Stop # (Geoid)	TheBus Stop	Daily Totals	
		On	Off
138	King Street, at Pi'ikoi Street	250	396
139	King Street, at Cedar Street	82	199
140	King Street at Ke'eaumoku Street	561	679
2098	Pensacola Street, at Young Street	132	48
2099	Pensacola Street, at King Street	42	38
1375	Pensacola Street, Opposite Elm Street	2	4
1376	Pensacola Street, Opposite Hoolai Street	20	34
4404	Kapi'olani Boulevard at Pi'ikoi Street	343	246
603	Kapi'olani Boulevard at Kona Iki Street	955	983
2084	Rycroft Street, at Ke'eaumoku Street	64	50
819	Ke'eaumoku Street, at Rycroft Street	46	62
2085	Ke'eaumoku Street at King Street	62	42
Daily Totals		2,559	2,781
Source: *The Bus, City and County of Honolulu*			

b) Pedestrians

Large pedestrian volumes were counted crossing at the study intersections during the AM and PM peak hours (see Table 5). This is a result of the neighborhood being an urban district with high employment, commercial, and residential accessibility.

Table 5: Intersection Peak Hour Pedestrian Volumes

Intersection	AM Peak Hour	PM Peak Hour
King Street and Pi'ikoi Street	236	217
King Street and Alder Street	78	112
Alder Street and Elm Street	25	38
Elm Street and Pi'ikoi Street	104	59

c) Bicycles

High bicycle volumes were counted on King Street during the AM and PM peak hours (see Table 6) near the project area. Most of these were in the two-way protected bike lane; however these volumes were not differentiated. Some bicyclists rode outside of the bike lane; some rode on the sidewalks. Table 6 identifies all bicycles counted during the peak hours, regardless of where they were riding.

Table 6: Intersection Peak Hour Bicycle Volumes

Intersection	AM Peak Hour	PM Peak Hour
King Street and Pi'ikoi Street*	105	156
King Street and Alder Street *	104	78
Alder Street and Elm Street	3	15
Elm Street and Pi'ikoi Street	10	25
*- Bicycles using protected bike lane included in this count.		

D. Level of Service

1. LOS Methodology

Level of service (LOS) is an operational analysis rating system used in traffic engineering to measure the effectiveness of vehicular roadway operating conditions. There are six LOS ranging from A to F. LOS A is defined as being the least interrupted flow conditions with little or no delays, whereas LOS F is defined as conditions where extreme delays exist. Guidelines from *A Policy on Geometric Design of Highways and Streets* (AASHTO, 2011) states that appropriate LOS for an urban road is LOS D or better.

a) Two-Way Stop Controlled Intersection LOS

The *Highway Capacity Manual* (TRB, 2010) (referred to hereafter as *HCM)* LOS for a two-way stop controlled (TWSC) intersection is determined by the measured control delay (see Table 7). It is defined for each minor movement, not for the intersection as a whole. Vehicles traveling along the major, free-flow road of a TWSC intersection proceed through with minimal delay. Those vehicles approaching the intersection along the minor movement are controlled by a stop sign and thus experience delay attributable to the volume of vehicles passing along the free-flow road and the gaps available.

Table 7: LOS Criteria for Unsignalized Intersections

Average Control Delay (s/veh)	LOS by v/c Ratio	
	<=1.0	>1.0
≤ 10.0	A	F
>10 and ≤15	B	F
>15 and ≤25	C	F
>25 and ≤35	D	F
>35 and ≤50	E	F
>50	F	F

Source: *HCM* (TRB, 2010)

b) Signalized Intersection LOS

The LOS analysis for signalized intersections is based on average total vehicle delay based on the methodologies of the *HCM* (TRB, 2010) shown in Table 8. High numbers of vehicles passing the intersection, long cycle lengths, inappropriate signal phasing, or a poor signal progression can result in long delays, and consequently poor LOS.

Table 8: LOS Criteria for Signalized Intersections

Average Control Delay (s/veh)	LOS by v/c Ratio	
	<=1.0	>1.0
≤ 10.0	A	F
>10 and ≤20	B	F
>20 and ≤35	C	F
>35 and ≤55	D	F
>55 and ≤80	E	F
>80	F	F

Source: *HCM* (TRB, 2010)

Another measure of intersection operation is the volume to capacity (v/c) ratio. This is the ratio of the volume of traffic utilizing the intersection compared to the maximum volume of vehicles that can be accommodated by the intersection during a specific period of time. A v/c ratio under 0.85 means the intersection is operating under capacity and excessive delays are not experienced. An intersection is operating near its capacity when v/c ratios range from 0.85 to 0.95. Unstable flows are expected when the v/c ratio is between 0.95 and 1.0. Any v/c ratio greater than or equal to 1.0 indicates that the intersection is operating at or above capacity which results in a LOS F per the *HCM* (TRB, 2010). A traffic movement can have a poor LOS but low v/c which suggests that the traffic volumes along that movement are low but have to wait a long time to make the movement. This is common for low volume protected turn movements or side streets that have to wait through a long cycle length for their split to come up.

2. Existing Intersection LOS Conditions

Existing (2015) unsignalized and signalized intersection LOS, v/c ratio and delay were determined for the AM and PM peak hours (see Tables 9 and 10). Three of the four study intersections were able to be analyzed for delay in their current configuration. The intersection of King Street and Alder Street has no conflict between vehicles and therefore no vehicular delay can be calculated using traffic signal software.

The unsignalized intersection of Alder Street and Elm Street resulted in LOS A for all movements. At the intersection of Pi'ikoi Street and Elm Street, Pi'ikoi has four lanes in one direction. HCM 2010 states that analysis can only be done for a maximum of three lanes in one direction. Since there are four one-way lanes along Pi'ikoi Street, the analysis cannot be completed for the existing configuration. So as to evaluate worst case conditions, the intersection was reconfigured in the traffic model to show three lanes, thereby reducing the intersection capacity. Even with this reduction in capacity, the intersection resulted in LOS D or better.

The signalized intersection of King Street and Pi'ikoi Street resulted in LOS C or better. Detailed analysis reports for these intersections during Existing (2015) conditions are provided in Appendix C.

Table 9: Existing (2015) Unsignalized Intersection Level of Service

Unsignalized Intersection	Approach	Movement	AM Peak Hour			PM Peak Hour		
			Delay (s/veh)	v/c	LOS	Delay (s/veh)	v/c	LOS
Alder Street and Elm Street	Eastbound	L	-	-	A	-	-	A
	Westbound	LT	7.2	0.01	A	7.2	0.01	A
	Southbound	LTR	9.0	0.06	A	9.0	0.05	A
Pi'ikoi Street and Elm Street*	Westbound	TR	20.6	0.27	C	27.1	0.37	D
* - Model limitations required that three lanes be analyzed instead of four lanes.								

Table 10: Existing (2015) Signalized Intersection Level of Service

Signalized Intersection		AM Peak Hour			PM Peak Hour		
Approach	Movement	Delay (s/veh)	v/c	LOS	Delay (s/veh)	v/c	LOS
Pi'ikoi Street and King Street		20.1	-	C	22.2	-	C
Eastbound	TL	24.6	0.70	C	27.0	0.81	C
	T	22.7	0.72	C	22.4	0.83	C
Northbound	T	15.2	0.37	B	19.6	0.49	B
	R	15.4	0.31	B	20.9	0.46	C

III. FUTURE (2022) CONDITIONS

Full build-out and occupancy of this project is planned for 2022. Therefore the Future Without Project (no-action) and Future With Project (full-build) conditions were evaluated for that year.

A. Surrounding Area Conditions

Research through the State of Hawaii Office of Environmental Quality Control (OEQC) library showed no adjacent projects planned for construction by 2022. The "Ala Moana Center 'Ewa wing expansion" is currently under construction. Part of the expansion was opened on November 12, 2015. Further away are other projects under construction that include Kalakaua Gardens, located at 1723 Kalakaua Avenue, which has a proposed opening in early 2016. The Plaza Assisted Living, located at 1812 across from the Hawaii Convention Center, opened in October 2015. Both of these projects are designated senior housing.

Plans for final construction of the Honolulu Rail Transit guideway and rail station estimate full-build out and operation by 2019 or 2020 and, therefore, were included in the analysis of Future (2022) conditions.

B. Transportation Network

1. Vehicular Facilities

a) Passenger Vehicles

Vehicular accesses to the project are being proposed through a driveway off Alder Street, at an existing curb cut, and a driveway off of Pi'ikoi Street, across of Alohi Street.

b) Bus and Heavy Vehicles

Changes are expected for bus routes in advance of the Honolulu Rail Transit system opening. Such changes may include alterations of available routes, the location of the bus stops, and queuing. It is not expected that this will have a significant effect on this project.

2. Pedestrian Facilities

The *Ala Moana Neighborhood TOD Plan* (RTKL, 2014) calls for improving pedestrian facilities. These improvements provide additional width and buffer from traffic with the redevelopment of parcels in the area to improve walkability in this urban TOD TIZ area.

3. Bicycle Facilities

Future bikeways included in the *Oahu Bike Plan, A Bicycle Master Plan* (HH&F, August 2012) are shown on Figure 4. Priority 1 projects in the project area anticipated to be built in the next five to ten years include a bike route along Pi'ikoi Street. It is expected that this could be in the form of standard or protected bike lanes. The lack of mauka-makai bike facilities, and forthcoming installation of bike stations with Bikeshare Hawai'i, increases the desirability and likely use of a facility.

C. Geometric Configuration

With limited right-of-way in this urban transportation network, no changes in roadway configuration are expected. Future (2022) conditions are evaluated using existing lane configurations which are shown in Figure 5.

D. Traffic Volumes

1. Background Growth

Changes in traffic volume along roadways in the surrounding area over the past ten years have been mixed. Despite large scale development and increased density from high-rise condominiums, vehicular traffic volumes have not grown. A decrease in ADT is noted for some roadway segments while there are slight increases for others. Increases in redevelopment and added density will be offset by a transition towards multimodal mobility due to the existing urban nature and future TOD TIZ. Therefore, it is likely that more people moving into this area will look towards walking, biking, and taking transit as opposed to making personal vehicle trips. Pi'ikoi Street provides this access to/from the Ala Moana Rail Station while the rail guideway parallels King Street and therefore should absorb trips. Therefore, it was assumed there will be no surrounding area vehicular growth in Future (2022) conditions and Future (2022) Without Project Volumes will be similar to Existing (2015) conditions.

2. Project Related Volumes

The addition of trips resulting from the project was calculated using the four step trip generation methodology: trip generation, trip distribution, modal choice, route assignment.

a) Trip Generation

The proposed joint mixed-use development is planning to include affordable apartment units and a juvenile detention service center. The proposed project would result in the construction of approximately 180 affordable rental housing units (not exceeding 187 units) and an approximately 35,000 to 35,455 square foot juvenile detention center. Resulting trip generation for the proposed development was calculated using *Trip Generation, 8th Edition* (ITE, 2008) and related trip generation rates are shown in Table 11. The juvenile detention center was assumed to be similar to the "single tenant office building" land use while the affordable apartment units was similar to the "high rise apartment". Resulting trip generation volumes for the AM and PM peak hours are shown in Table 12.

Table 11: Development Trip Generation Rates

Land Use [ITE Code]	Quantity	Units	Trip Generation Average Rate		
			AM Peak Hour	PM Peak Hour	Daily
High Rise Apartment [222]	187	Dwelling Units	0.30	0.35	4.20
Single Tenant Office Building [715]	35.455	1,000 Square Feet	1.80	1.73	11.57

Table 12: Development Trip Generation Volumes

Land Use [ITE Code]	Project Related Trips						
	AM Peak Hour			PM Peak Hour			Daily
	In	Out	Total	In	Out	Total	
High Rise Apartment [222]	14	42	56	40	25	65	785
Single Tenant Office Building [715]	57	7	64	9	52	61	410

Methodologies described in *Trip Generation Handbook, 2nd Edition* (ITE, June 2004) state that although total project trips are calculated for a specified development, the total trips will not necessarily be new vehicles added to the adjacent roadways. The three types of project related trips considered are pass-by trips, diverted trips and primary trips. The definition of each type of trip is shown in Table 13.

Table 13: Project Related Trip Definitions

Type	Definition
Pass-by	Traffic currently passing the site on an adjacent street or roadway that offers direct access to the generator.
Diverted	Trips that are attracted from the traffic volume on roadways within the vicinity of the generator but require a diversion from that roadway to another roadway to gain access to the site.
Primary	Trips made for the specific purpose of visiting the generator. The stop at the generator is the primary reason for the trip.

Source: *Trip Generation Handbook, 2nd Edition* (ITE, June 2004)

All trips from the juvenile detention services center and the housing development will be considered to be primary trips and will be considered for distribution.

b) Trip Distribution

Existing and future tripmakers' origin and destination were considered when evaluating future travel in the area. The *Kakaako Mauka Area Plan Transportation Analysis* (AECOM, April 2009) identified the future trip distribution trends (see Figure 11) using the *OahuMPO Travel Demand Forecast Model*. This future trip distribution is considered applicable for the joint mixed-use facility development because the study area is directly adjacent to the project site.

The following trip distribution was assumed for the project related trips:

- Westbound (via surface streets): 25%
- East bound (via surface streets): 22%
- Westbound (via H-1): 19%
- East bound (via H-1): 24%
- Mauka bound: 3%; and,
- Within the project area: 7%.

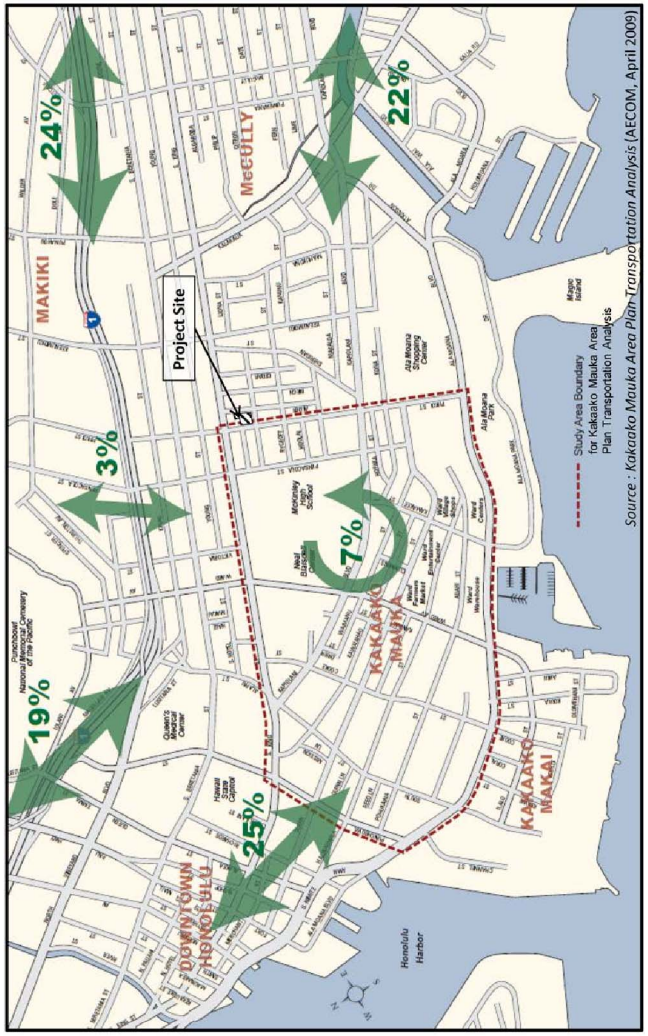

Figure 11: Future Trip Distribution

c) Modal Choice

This project site is in an urban setting with high proximity to existing transit and rail options, a high degree of alternative travel modes exist. The *Kakaako Mauka Area Plan Transportation Analysis* (AECOM, April 2009) states that because of the difficulty in estimating ongoing redevelopment and TOD elements on travel behavior, existing modal split is still deemed appropriate for use in the near term. The proposed housing development involves affordable housing. It can be assumed that there will be a lower use of personal vehicles and higher use of other transportation modes as compared to a similarly sized market-priced development. However, as a "worst case" scenario (highest volume of vehicle trips) the existing modal split percentage was used to calculate project related trips (see Table 14).

Table 14: Project Related Transportation Mode

Transportation Mode	Percentage*	Project Related Trips	
		AM Peak Hour	PM Peak Hour
Private Vehicle	76.9%	92	99
Transit (Bus and Rail)	12.8%	15	15
Bike	2.3%	3	3
Walk	8.0%	10	9

* Source: *Kakaako Mauka Area Plan Transportation Analysis* (AECOM, April 2009)

d) Route Assignment

Project related trips associated with the proposed development during the AM and PM peak hours were distributed along the adjacent roadways using existing intersection distribution and future travel patterns. Project related vehicular volumes (see Figure 12) were distributed through the study intersections. Project related transit use will increase the demand for and volume from transit riders.

3. Future Peak Hour Volumes

Project related vehicular volumes were added to the Existing (2015) traffic volumes for the resulting Future (2022) With Project traffic volumes shown in Figure 13. This is reflective of future traffic conditions after the build out of the judiciary and housing development project.

4. Future 24-Hour Volumes

Considering the anticipated growth in the area, projected Future (2022) ADT in the project area is shown in Table 15.

Table 15: Future (2022) Roadway ADT

Roadway	Location	ADT
Pi'ikoi Street	Between Alohi Way and King Street	28,100
	Between King Street and Young Street	31,700
King Street	Between Akala Lane and Cedar Street	33,100

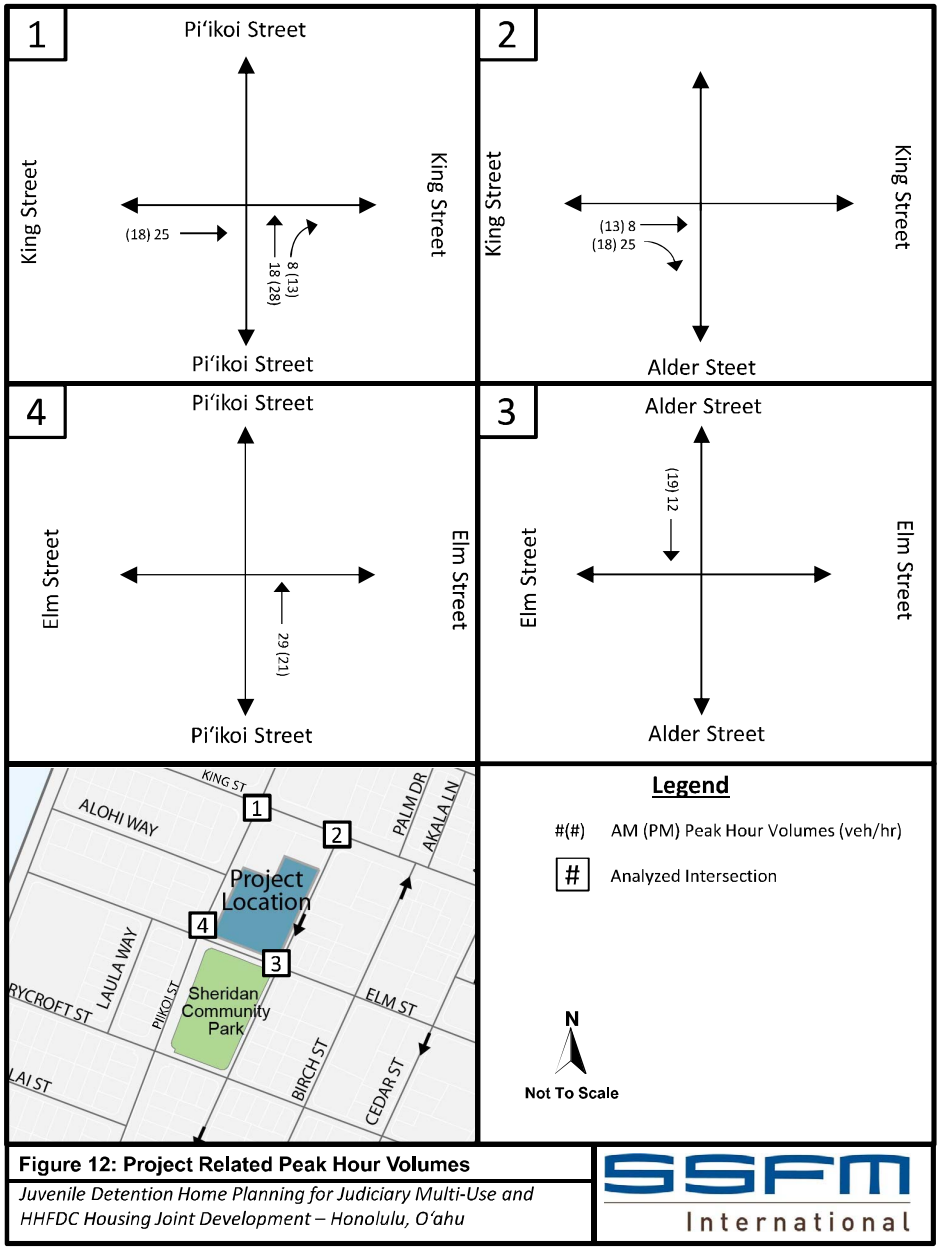

Figure 12: Project Related Peak Hour Volumes

Juvenile Detention Home Planning for Judiciary Multi-Use and HHFDC Housing Joint Development – Honolulu, O'ahu

SSFM International

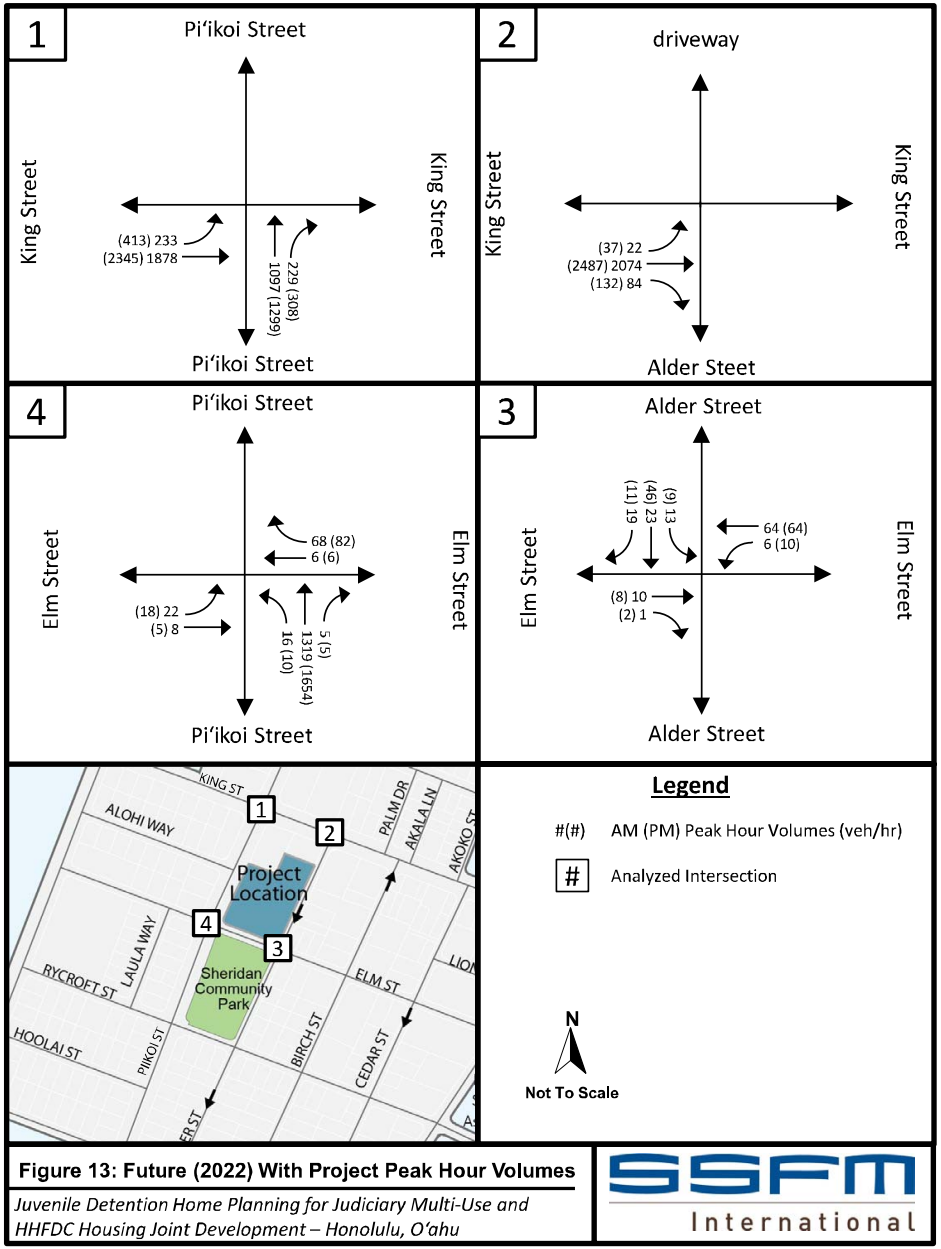

Figure 13: Future (2022) With Project Peak Hour Volumes

Juvenile Detention Home Planning for Judiciary Multi-Use and HHFDC Housing Joint Development – Honolulu, O'ahu

SSFM International

5. Multi-Modal Volumes

a) Buses and Heavy Vehicles

It is anticipated that for Future (2022) conditions, bus transit services will be rerouted, if necessary, to accommodate the changes in demand.

b) Pedestrians

It is anticipated that with additional TOD development in the area, pedestrian volumes will increase, as will the facilities and infrastructure to accommodate them with the redevelopment of parcels.

c) Bicycles

As with pedestrian increase, the TOD development in the area, as well as the additional dedicated bicycle facilities and bikeshare use will increase volumes in the area.

E. Level of Service

1. Future (2022) Without Project LOS

The LOS results for Future (2022) Without Project conditions will remain similar to Existing (2015) conditions.

2. Future (2022) With Project LOS

Future (2022) With Project LOS, v/c ratios and delay for the study intersections are shown in Tables 16 and 17. As with Existing conditions, at the intersection of Pi'ikoi Street and Elm Street, a lane configuration was used that has three lanes along Pi'ikoi Street. For Future (2022) With Project conditions, the intersections operated at acceptable LOS D or better. Detailed analysis reports for Future (2022) With Project conditions are provided in Appendix D.

Table 16: Future (2022) With Project Unsignalized Intersection Level of Service

Unsignalized Intersection	Approach	Movement	AM Peak Hour			PM Peak Hour		
			Delay (s/veh)	v/c	LOS	Delay (s/veh)	v/c	LOS
Alder Street and Elm Street	Eastbound	L	-	-	A	-	-	A
	Westbound	LT	7.2	0.01	A	7.2	0.01	A
	Southbound	LTR	9.1	0.07	A	9.1	0.08	A
Pi'ikoi Street and Elm Street*	Westbound	TR	21.2	0.27	C	27.8	0.37	D
* - Model limitations required that three lanes be analyzed instead of four lanes.								

Table 17: Future (2022) With Project Signalized Intersection Level of Service

Signalized Intersection		AM Peak Hour			PM Peak Hour		
Approach	Movement	Delay (s/veh)	v/c	LOS	Delay (s/veh)	v/c	LOS
Pi'ikoi Street and King Street		20.2	-	C	22.4	-	C
Eastbound	TL	24.7	0.70	C	27.3	0.81	C
	T	22.7	0.73	C	22.6	0.83	C
Northbound	T	15.4	0.38	B	19.8	0.50	B
	R	15.7	0.32	B	21.4	0.48	C

F. Mitigation

With the proposed redevelopment of the project site, best practices for multi-modal access should be constructed to improve access and reduce the demand for passenger vehicle use.

1. Pedestrians

Pedestrians should have wide sidewalks separated from vehicular travelways with landscaped buffers and street trees to provide shade. At corners, curb extensions should be added where possible to shorten the distance for pedestrian crossings. The marked crosswalk across Pi'ikoi Street at the intersection with Alohi Way should be considered for removal due to it being located less than 300 feet from the intersection (and crosswalk) at King Street. Due to the 60-foot crossing distance, the marked crosswalk across Pi'ikoi Street at Elm Street should be studied for potential improved protection by adding beacons or other pedestrian safety measures.

2. Bicycles

With the future potential of bike lanes on Pi'ikoi Street, the curb line should remain along the east side of Pi'ikoi Street, for the possible removal or relocation of on-street parking and installation of bike lanes. To improve accessibility and access, the development should ensure ease of access to the building as well as provide on-site bike storage.

3. Transit

With no transit stops directly adjacent to the project, pedestrian accessibility and access to these stops should be improved through pedestrian improvements noted previously.

4. Vehicles

The proposed vehicular access locations are over 150 feet from adjacent intersections on Alder Street and across from the intersection with Alohi Way on Pi'ikoi Street so as to reduce conflicts. This also results in a reduction in the number of access points to the project site. As shown with the acceptable LOS at all intersections, a reduction of one travel lane along Pi'ikoi Street would likely not result in unacceptable operations. Therefore, the ability to remove one travel lane in favor of a dedicated bikeway is feasible. The vehicle volume able to travel through the intersections is actually constrained by the lack of capacity at intersections further mauka. Therefore, vehicle demand is likely greater than actual volume counted. The limiting factor is in the ability to process vehicles at the H-1 entrance.

IV. SUMMARY

The Judiciary's Juvenile Detention Home Multi-Use and HHFDC's Housing Joint Development will include approximately 35,000 square foot juvenile services center and approximately 180 residential units at 902 Alder Street. The proposed completion and full occupancy are anticipated to occur in 2022 which follows the expected construction and operation of the Honolulu Rail Transit. With the proposed construction of the Ala Moana Rail Station, the project falls within a transit oriented development transit impact zone. Vehicular access to this facility will be through two driveways; one off of Alder Street and the other off of Pi'ikoi Street, across from Alohi Street.

Existing (2015) conditions resulted in appropriate LOS conditions for King Street and Pi'ikoi Street intersection and at Alder Street and Elm Street. With the development of the Honolulu Rail Transit and the resulting redevelopment in the TOD areas, including associated multi-modal infrastructure, more travelers will utilize alternative modes of transportation. This includes walking, bicycling, bus and rail transit. With the addition of project related traffic volumes, Future (2022) With Project conditions resulted in appropriate intersection operations.

In conclusion, the proposed Judiciary's Juvenile Detention Home Multi-Use and HHFDC's Housing Joint Development will have minimal impact on the transportation network. Multi-modal infrastructure could be improved by providing adequate sidewalks and pedestrian crossings as well as bicycle accessibility and storage on site.

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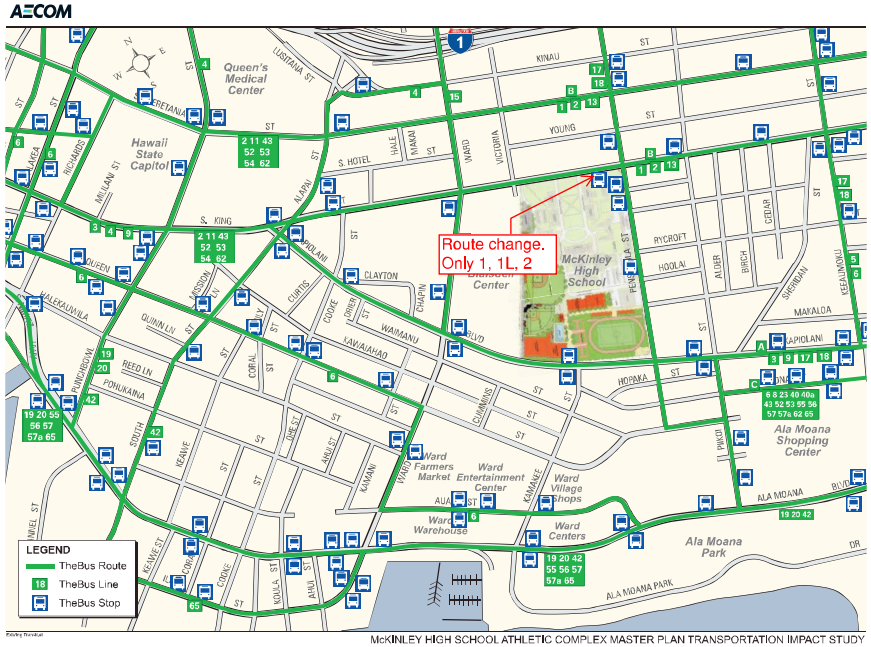
Appendix A

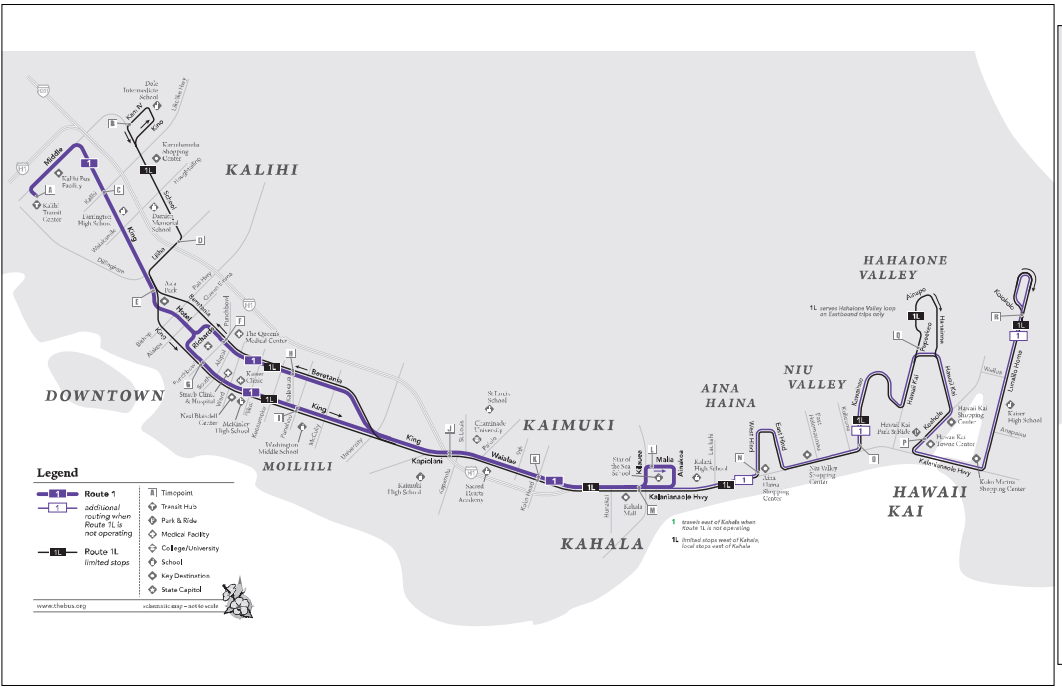
TheBus Route Maps

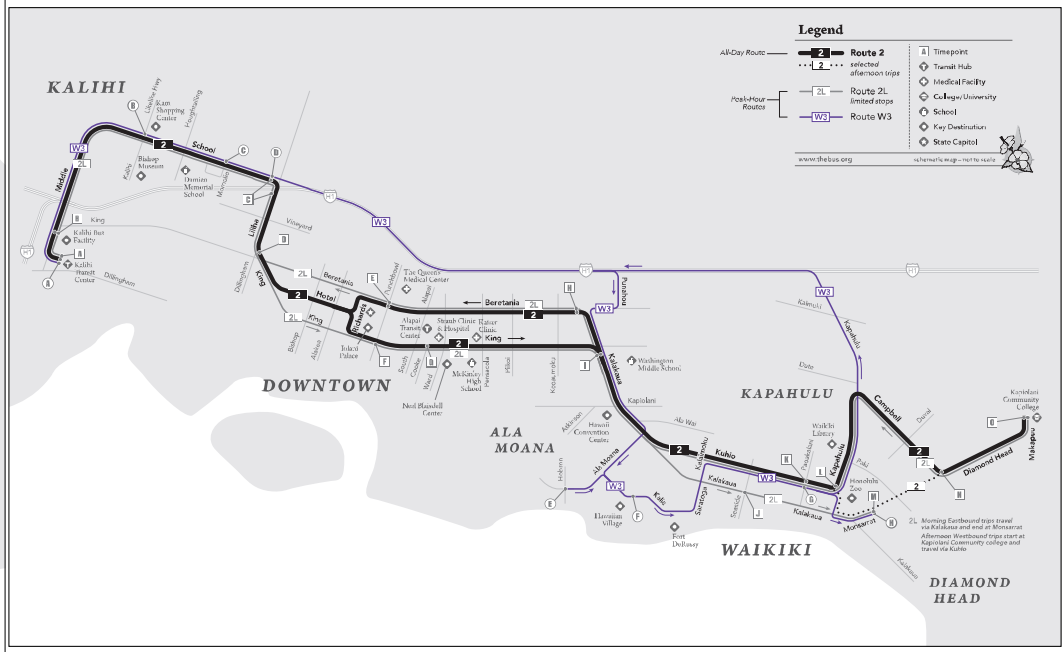


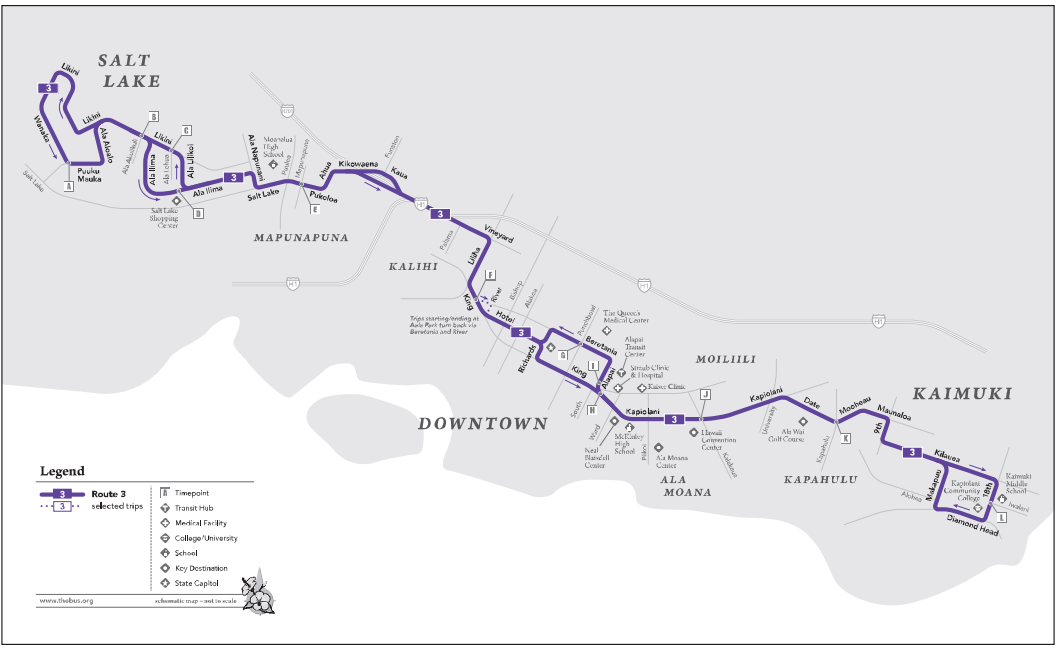
Source: TheBus, 2008
AECOM, 2008

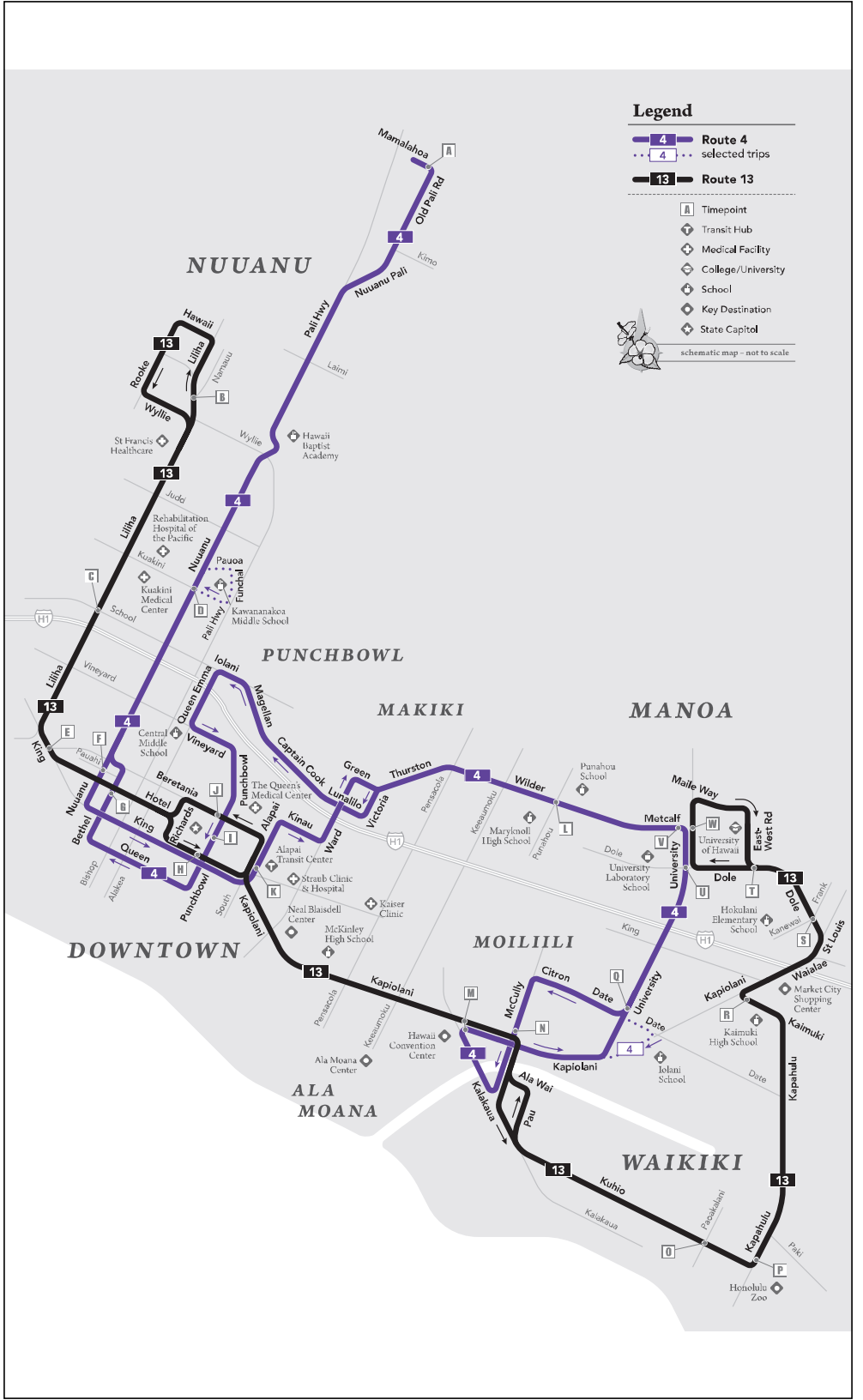
McKINLEY HIGH SCHOOL ATHLETIC COMPLEX MASTER PLAN TRANSPORTATION IMPACT STUDY

Figure 6
EXISTING TRANSIT NETWORK


KALIHI
DOWNTOWN
MOILIILI
KAIMUKI
KAHALA
AINA HAINA
NIU VALLEY
HAHAIONE VALLEY
HAWAII KAI
Legend
Route 1
additional routing when Route 1L is not operating
Route 1L limited stops
Timepoint
Transit Hub
Park & Ride
Medical Facility
College/University
School
Key Destination
State Capitol
www.thebus.org
schematic map – not to scale


Legend
All-Day Route
Route 2
selected afternoon trips
Peak-Hour Routes
Route 2L limited stops
Route W3
Timepoint
Transit Hub
Medical Facility
College/University
School
Key Destination
State Capitol
www.thebus.org
schematic map – not to scale
KALIHI
DOWNTOWN
ALA MOANA
KAPAHULU
WAIKIKI
DIAMOND HEAD


SALT LAKE
MAPUNAPUNA
KALIHI
DOWNTOWN
MOILIILI
ALA MOANA
KAPAHULU
KAIMUKI
Legend
Route 3
selected trips
Timepoint
Transit Hub
Medical Facility
College/University
School
Key Destination
State Capitol
www.thebus.org
schematic map – not to scale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Medical Facility
College/University
School
Key Destination
State Capitol
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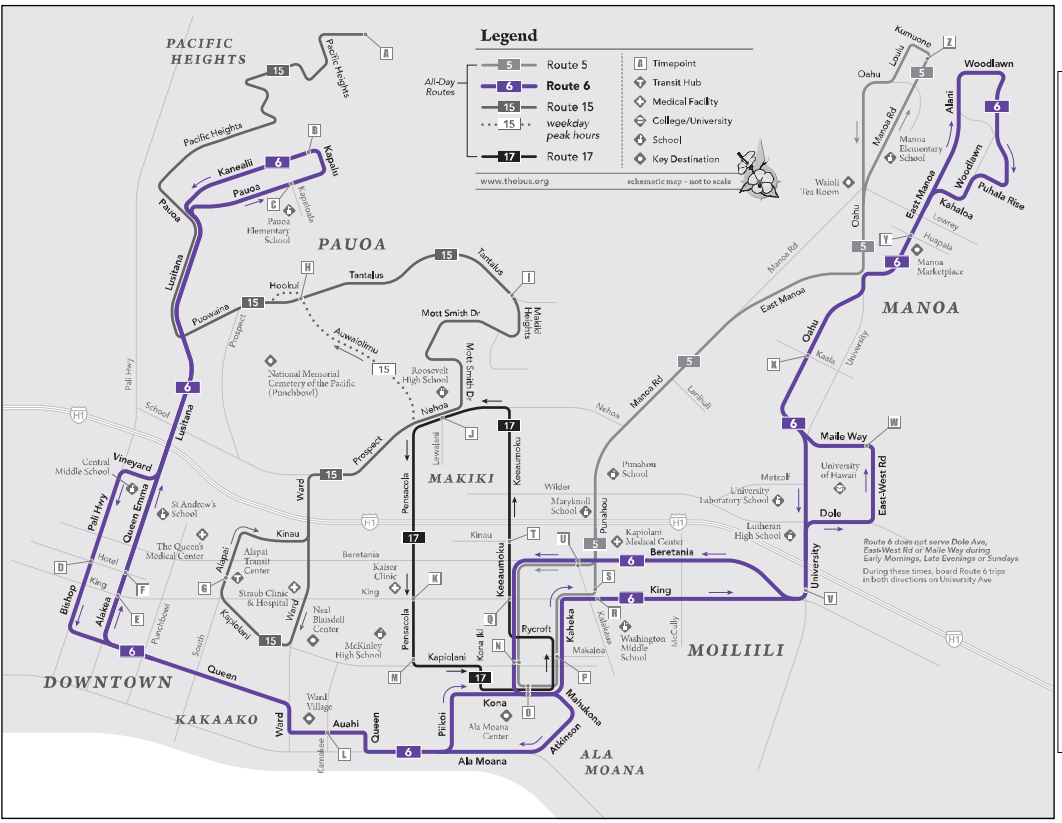
NUUANU
PUNCHBOWL
MAKIKI
MANOA
DOWNTOWN
MOILIILI
ALA MOANA
WAIKIKI
Mamalahoa
Old Pali Rd
Nuuanu Pali
Pali Hwy
Hawaii
Rooke
Wyllie
Liliha
Nuuanu
Pauoa
Funchal
Iolani
Magellan
Queen Emma
Vineyard
Beretania
Hotel
King
Richards
Punchbowl
Alapai
Kinau
Ward
Victoria
Green
Lunalilo
Thurston
Wilder
Metcalf
Maile Way
University of Hawaii
East-West Rd
Dole
University
Kapiolani
Citron
Date
McCully
Ala Wai
Kalakaua
Pau
Kuhio
Kapahulu
Waialae
St Louis
Kaimuki
Kapahulu
Honolulu Zoo
Kuakini Medical Center
Rehabilitation Hospital of the Pacific
St Francis Healthcare
Hawaii Baptist Academy
Kawananakoa Middle School
Central Middle School
The Queen's Medical Center
Alapai Transit Center
Straub Clinic & Hospital
Neal Blaisdell Center
McKinley High School
Kaiser Clinic
Maryknoll High School
Punahou School
University Laboratory School
Hokulani Elementary School
Market City Shopping Center
Kaimuki High School
Iolani School
Hawaii Convention Center
Ala Moana Center


Legend
All-Day Routes
5 Route 5
6 Route 6
15 Route 15
15 weekday peak hours
17 Route 17
Timepoint
Transit Hub
Medical Facility
College/University
School
Key Destination
www.thebus.org
schematic map – not to scale
PACIFIC HEIGHTS
PAUOA
MANOA
MAKIKI
MOILIILI
DOWNTOWN
KAKAAKO
ALA MOANA
Pacific Heights
Kapalu
Kanealii
Pauoa
Pauoa Elementary School
Kamaiola
Lusitana
Puowaina
Hookui
Tantalus
Awaiolimu
National Memorial Cemetery of the Pacific (Punchbowl)
Roosevelt High School
Mott Smith Dr
Makiki Heights
Nehoa
Prospect
Pali Hwy
School
Vineyard
Central Middle School
Queen Emma
St Andrew's School
Punchbowl
Bishop
Hotel
King
Alakea
Queen
Ward
Kinau
Auloa
The Queen's Medical Center
Alapai Transit Center
Straub Clinic & Hospital
Beretania
Kaiser Clinic
Neal Blaisdell Center
McKinley High School
Kapiolani
Pensacola
Keeaumoku
Ward Village
Auahi
Piikoi
Kona
Ala Moana Center
Ala Moana
Kona St
Rycroft
Kaheka
Makalea
Mahukona
Atkinson
Wilder
Punahou
Punahou School
Kapiolani Medical Center
Lunalilo
Makiki
Maryknoll School
Metcalf
University Laboratory School
Lutheran High School
University of Hawai'i
University
Maile Way
Dole
East-West Rd
Manoa Rd
Pensacola
Lowrey
Huapala
Manoa Marketplace
East Manoa
Kahaloa
Woodlawn
Puhala Rise
Alani
Waioli Tea Room
Manoa Elementary School
Oahu
Kaala
Kumuone
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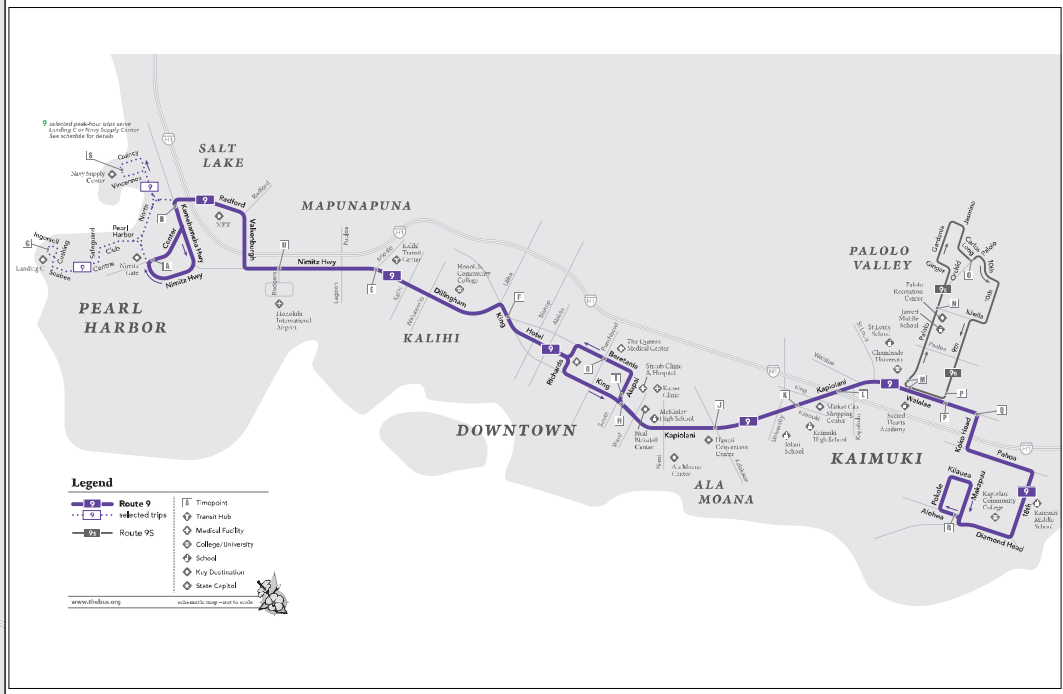
Route 6 does not serve Dole Ave, East-West Rd or Maile Way during Early Mornings, Late Evenings or Sundays
During these times, board Route 6 trips in both directions on University Ave


9 selected peak-hour trips serve Landing C or Navy Supply Center. See schedule for details
Legend
9 Route 9
9 selected trips
9s Route 9S
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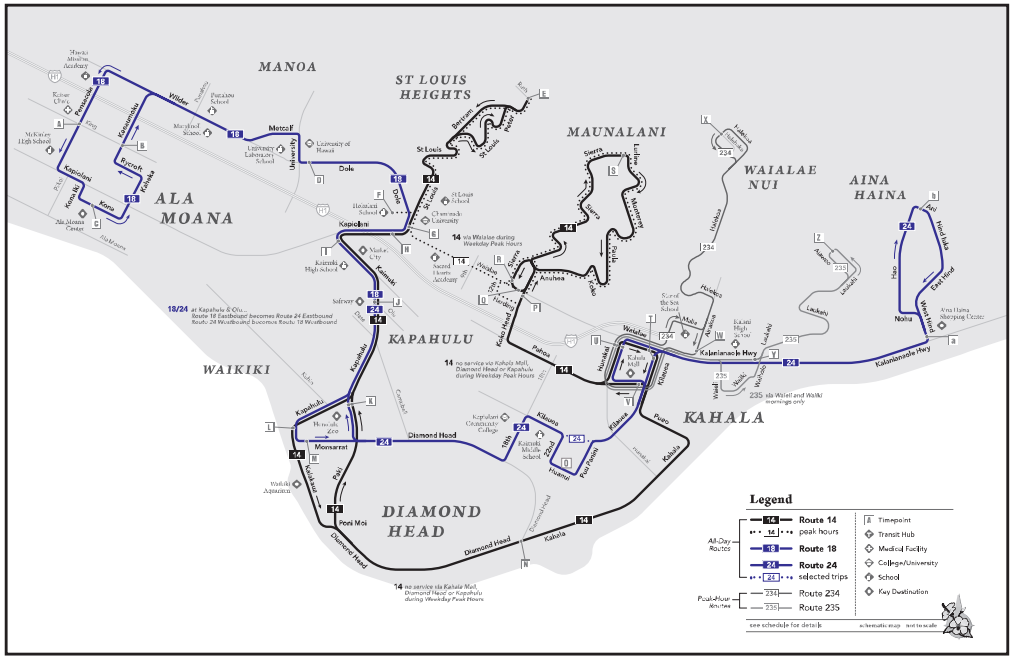
Transit Hub
Medical Facility
College/University
School
Key Destination
State Capital
www.thebus.org
schematic map – not to scale
SALT LAKE
MAPUNAPUNA
PEARL HARBOR
KALIHI
DOWNTOWN
ALA MOANA
PALOLO VALLEY
KAIMUKI
Navy Supply Corps
Gateway
Vincennes
Radford
Makalapa
Pearl Harbor Club
Safeguard
Landing
Inspiration
Cushing
Scabee
Gonsalves
Nimitz Gate
Nimitz Hwy
Kamehameha Hwy
NEX
Aolele
Transit Center
Residence
Lagoon
Dillingham
King
Hotel
Richards
Bethel
Alakea
Kapiolani
Pensacola
Keeaumoku
Waialae
Kaiser Clinic
McKinley High School
Neal Blaisdell Center
Ala Moana Center
Hawai'i Convention Center
Market City Shopping Center
Kaimuki High School
Sacred Hearts Academy
St Louis School
Chaminade University
Jarrett Middle School
Palolo Recreation Center
Palolo
Gardenia
Ohohia
Ohelo
Kilauea
Koko Head
Pahoa
Kealaolu
Aloha
Makapuu
Kaiser Medical Center
Kaiser Permanente Medical Center
Diamond Head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ALA MOANA
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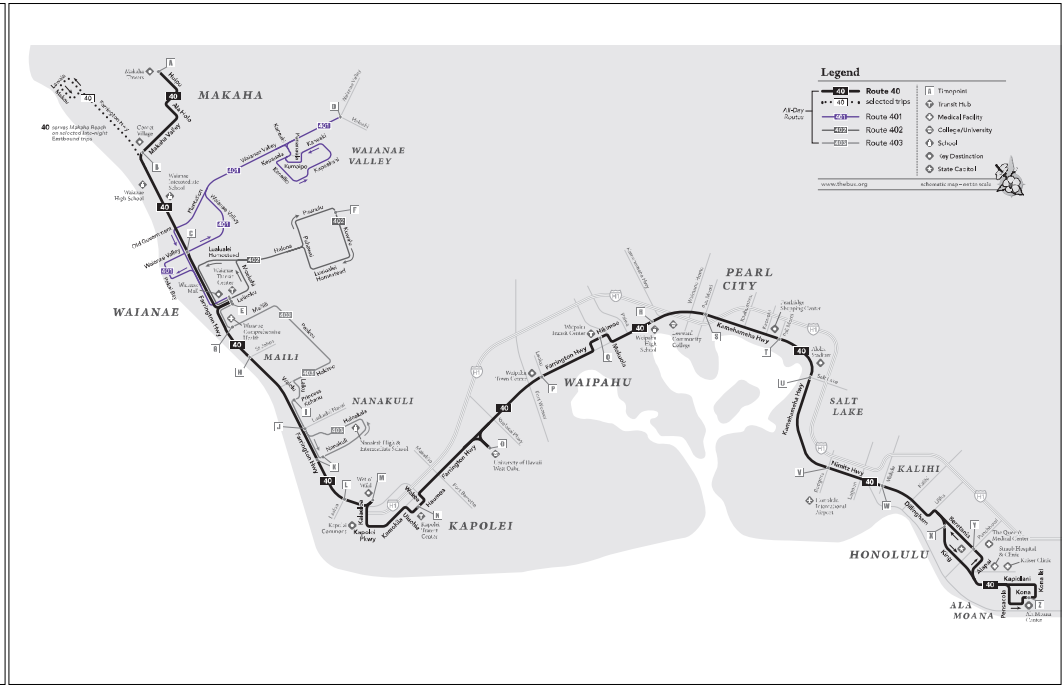
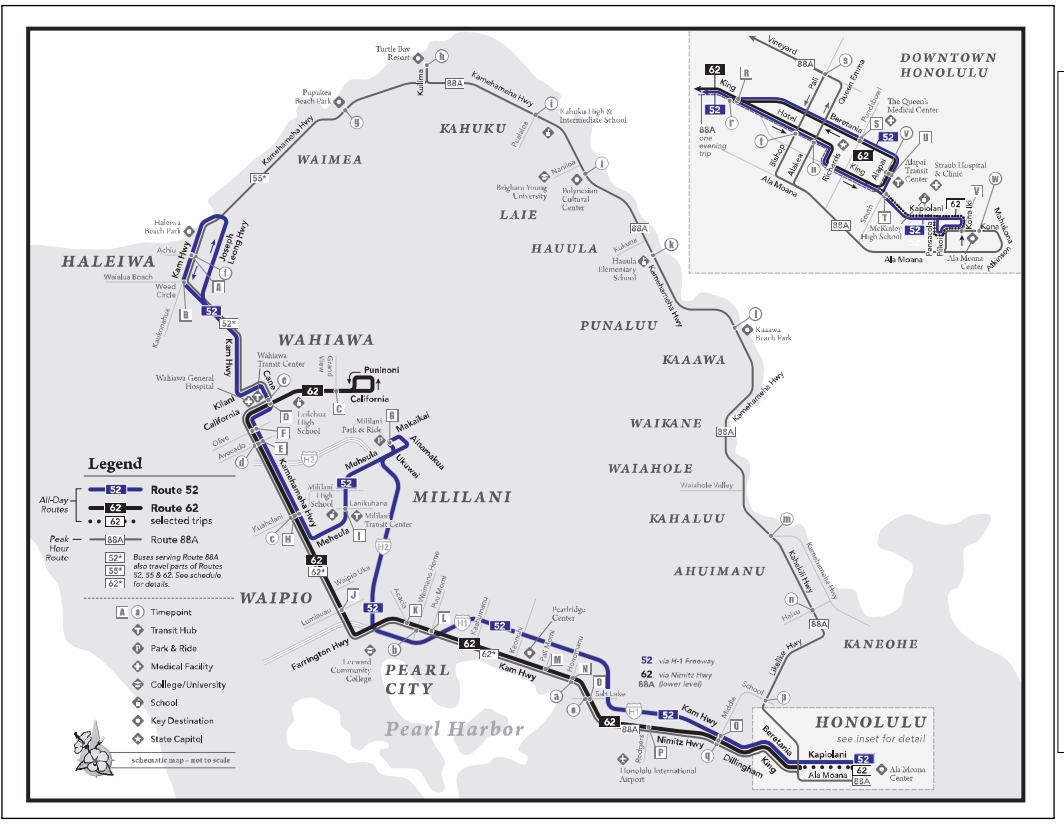
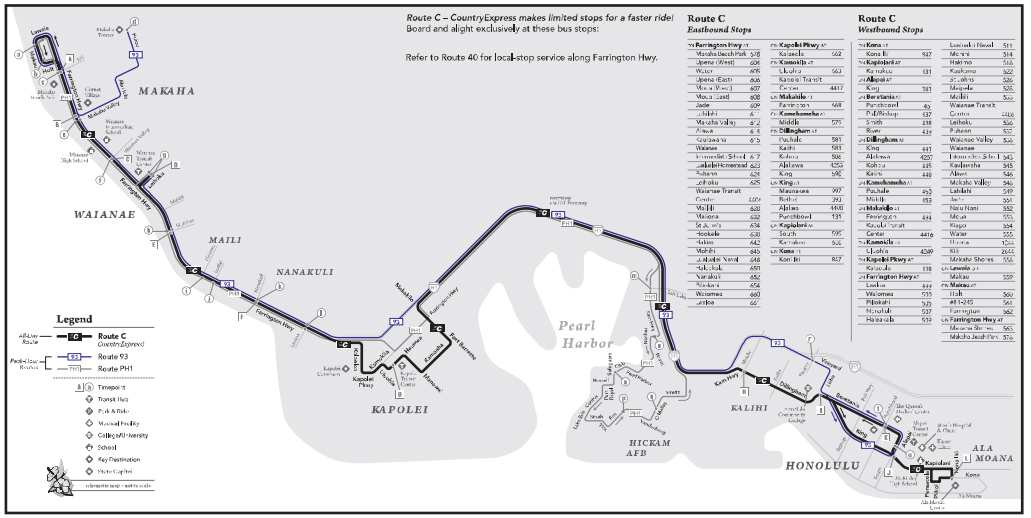
14 peak hours
Route 18
Route 24
24 selected trips
Route 234
Route 235
All-Day Routes
Peak-Hour Routes
Timepoint
Transit Hub
Medical Facility
College/University
School
Key Destination
see schedule for details
schematic map - not to scale


MAKAHA
WAIANAE VALLEY
WAIANAE
MAILI
NANAKULI
WAIPAHU
KAPOLEI
PEARL CITY
SALT LAKE
KALIHI
HONOLULU
ALA MOANA
Legend
Route 40
40 selected trips
Route 401
Route 402
Route 403
All-Day Routes
Timepoint
Transit Hub
Medical Facility
College/University
School
Key Destination
State Capitol
www.thebus.org
schematic map - not to scale


DOWNTOWN HONOLULU
HONOLULU
see inset for detail
HALEIWA
WAIMEA
KAHUKU
LAIE
HAUULA
PUNALUU
KAAAWA
WAIKANE
WAIAHOLE
KAHALUU
AHUIMANU
KANEOHE
WAHIAWA
MILILANI
WAIPIO
PEARL CITY
Pearl Harbor
Legend
Route 52
Route 62
selected trips
Route 88A
Timepoint
Transit Hub
Park & Ride
Medical Facility
College/University
School
Key Destination
State Capitol
schematic map – not to scale


Route C – CountryExpress makes limited stops for a faster ride!
Board and alight exclusively at these bus stops:
Refer to Route 40 for local-stop service along Farrington Hwy.
Route C
Eastbound Stops
Route C
Westbound Stops
MAKAHA
WAIANAE
MAILI
NANAKULI
KAPOLEI
Pearl Harbor
HICKAM AFB
KALIHI
HONOLULU
ALA MOANA
Legend
Route C CountryExpress
Route 93
Route PH1
Timepoint
Transit Hub
Park & Ride
Medical Facility
College/University
School
Key Destination
State Capitol
schematic map – not to scale

Appendix B

Intersection Peak Period Traffic Counts and 24-Hour Traffic Data

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 Piikoi_King AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Piikoi Street Southbound					King Street Westbound					Piikoi Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30 AM	0	0	0	4	4	0	0	0	9	9	0	204	29	7	240	24	213	0	3	240	493
06:45 AM	0	0	0	9	9	0	0	0	16	16	0	231	22	11	264	46	305	0	11	362	651
Total	0	0	0	13	13	0	0	0	25	25	0	435	51	18	504	70	518	0	14	602	1144
07:00 AM	0	0	0	16	16	0	0	0	17	17	0	293	48	15	356	49	386	0	8	443	832
07:15 AM	0	0	0	17	17	0	0	0	8	8	0	275	64	13	352	56	468	0	7	531	908
07:30 AM	0	0	0	4	4	0	0	0	11	11	0	263	59	29	351	49	507	0	10	566	932
07:45 AM	0	0	0	11	11	0	0	0	16	16	0	292	53	18	363	69	461	0	21	551	941
Total	0	0	0	48	48	0	0	0	52	52	0	1123	224	75	1422	223	1822	0	46	2091	3613
08:00 AM	0	0	0	15	15	0	0	0	22	22	0	249	45	25	319	59	417	0	9	485	841
08:15 AM	0	0	0	7	7	0	0	0	2	2	0	230	41	10	281	55	379	0	7	441	731
Grand Total	0	0	0	83	83	0	0	0	101	101	0	2037	361	128	2526	407	3136	0	76	3619	6329
Apprch %	0	0	0	100		0	0	0	100		0	80.6	14.3	5.1		11.2	86.7	0	2.1		
Total %	0	0	0	1.3	1.3	0	0	0	1.6	1.6	0	32.2	5.7	2	39.9	6.4	49.5	0	1.2	57.2	
Passenger Vehicles	0	0	0	83	83	0	0	0	101	101	0	1984	355	128	2467	394	3036	0	76	3506	6157
% Passenger Vehicles	0	0	0	100	100	0	0	0	100	100	0	97.4	98.3	100	97.7	96.8	96.8	0	100	96.9	97.3
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	53	6	0	59	13	100	0	0	113	172
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	2.6	1.7	0	2.3	3.2	3.2	0	0	3.1	2.7

	Piikoi Street Southbound					King Street Westbound					Piikoi Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	17	17	0	0	0	8	8	0	275	64	13	352	56	468	0	7	531	908
07:30 AM	0	0	0	4	4	0	0	0	11	11	0	263	59	29	351	49	507	0	10	566	932
07:45 AM	0	0	0	11	11	0	0	0	16	16	0	292	53	18	363	69	461	0	21	551	941
08:00 AM	0	0	0	15	15	0	0	0	22	22	0	249	45	25	319	59	417	0	9	485	841
Total Volume	0	0	0	47	47	0	0	0	57	57	0	1079	221	85	1385	233	1853	0	47	2133	3622
% App. Total	0	0	0	100		0	0	0	100		0	77.9	16	6.1		10.9	86.9	0	2.2		
PHF	.000	.000	.000	.691	.691	.000	.000	.000	.648	.648	.000	.924	.863	.739	.954	.844	.914	.000	.583	.942	.962
Passenger Vehicles	0	0	0	47	47	0	0	0	57	57	0	1046	219	85	1350	227	1800	0	47	2074	3528
% Passenger Vehicles	0	0	0	100	100	0	0	0	100	100	0	96.9	99.1	100	97.5	97.4	97.1	0	100	97.2	97.4
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	33	2	0	35	6	53	0	0	59	94
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	3.1	0.9	0	2.5	2.6	2.9	0	0	2.8	2.6

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 Piikoi_King PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Piikoi Street Southbound					King Street Westbound					Piikoi Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:45 PM	0	0	0	9	9	0	0	1	9	10	0	327	76	11	414	95	572	0	6	673	1106
Total	0	0	0	9	9	0	0	1	9	10	0	327	76	11	414	95	572	0	6	673	1106
04:00 PM	0	0	0	12	12	0	2	0	9	11	0	303	69	11	383	86	539	0	13	640	1046
04:15 PM	0	0	0	14	14	0	0	0	10	10	0	337	69	12	418	86	552	0	15	653	1095
04:30 PM	0	0	0	7	7	0	0	0	9	9	0	312	71	12	395	118	554	0	13	685	1096
04:45 PM	0	0	0	9	9	0	1	0	13	14	0	312	67	9	388	95	582	0	18	695	1106
Total	0	0	0	42	42	0	3	0	41	44	0	1264	276	44	1584	387	2227	0	59	2673	4343
05:00 PM	0	0	0	6	6	0	0	0	9	9	0	299	74	7	380	118	562	0	13	693	1088
05:15 PM	0	0	0	14	14	0	0	0	13	13	0	317	73	20	410	103	589	0	20	712	1149
05:30 PM	0	0	0	22	22	0	0	0	18	18	0	343	81	9	433	97	594	0	17	708	1181
Grand Total	0	0	0	93	93	0	3	1	90	94	0	2650	580	91	3221	800	4544	0	115	5459	8867
Approch %	0	0	0	100		0	3.2	1.1	95.7		0	79.2	18	2.8		14.7	83.2	0	2.1		
Total %	0	0	0	1	1	0	0	0	1	1.1	0	28.8	6.5	1	36.3	9	51.2	0	1.3	61.6	
Passenger Vehicles	0	0	0	93	93	0	1	1	90	92	0	2526	575	91	3192	798	4495	0	115	5408	8785
% Passenger Vehicles	0	0	0	100	100	0	33.3	100	100	97.9	0	99.1	99.1	100	99.1	99.8	98.9	0	100	99.1	99.1
Heavy Vehicles	0	0	0	0	0	0	2	0	0	2	0	24	5	0	29	2	49	0	0	51	82
% Heavy Vehicles	0	0	0	0	0	0	66.7	0	0	2.1	0	0.9	0.8	0	0.9	0.2	1.1	0	0	0.9	0.9

	Piikoi Street Southbound					King Street Westbound					Piikoi Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	9	9	0	1	0	13	14	0	312	67	9	388	95	582	0	18	695	1106
05:00 PM	0	0	0	6	6	0	0	0	9	9	0	299	74	7	380	118	562	0	13	693	1088
05:15 PM	0	0	0	14	14	0	0	0	13	13	0	317	73	20	410	103	589	0	20	712	1149
05:30 PM	0	0	0	22	22	0	0	0	18	18	0	343	81	9	433	97	594	0	17	708	1181
Total Volume	0	0	0	51	51	0	1	0	53	54	0	1271	295	45	1611	413	2327	0	68	2808	4524
% App. Total	0	0	0	100		0	1.9	0	98.1		0	78.9	18.3	2.8		14.7	82.9	0	2.4		
PHF	.000	.000	.000	.580	.580	.000	.250	.000	.736	.750	.000	.926	.910	.563	.930	.875	.979	.000	.850	.986	.958
Passenger Vehicles	0	0	0	51	51	0	1	0	53	54	0	1265	292	45	1602	412	2308	0	68	2788	4485
% Passenger Vehicles	0	0	0	100	100	0	100	0	100	100	0	99.5	99.0	100	99.4	99.8	99.2	0	100	99.3	99.4
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	6	3	0	9	1	19	0	0	20	39
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0.5	1.0	0	0.6	0.2	0.8	0	0	0.7	0.8

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 Piikoi_King AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Bikes

	Piikoi Street Southbound					King Street Westbound					Piikoi Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30 AM	0	1	0	0	1	0	11	0	0	11	0	1	0	0	1	0	6	0	0	6	19
06:45 AM	0	0	0	0	0	0	11	0	0	11	0	1	0	0	1	1	3	0	0	4	16
Total	0	1	0	0	1	0	22	0	0	22	0	2	0	0	2	1	9	0	0	10	35
07:00 AM	0	1	1	0	2	0	8	0	0	8	0	1	0	0	1	0	5	0	0	5	16
07:15 AM	0	1	0	0	1	0	14	1	0	15	0	0	0	0	0	0	6	0	0	6	22
07:30 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	1	7	0	0	8	25
07:45 AM	0	0	0	0	0	0	25	1	0	26	1	1	0	0	2	0	3	0	0	3	31
Total	0	2	1	0	3	0	64	2	0	66	1	2	0	0	3	1	21	0	0	22	94
08:00 AM	0	0	0	0	0	0	15	0	0	15	2	1	0	0	3	0	6	0	0	6	24
08:15 AM	0	1	0	0	1	0	17	0	0	17	0	3	0	0	3	0	4	0	0	4	25
Grand Total	0	4	1	0	5	0	118	2	0	120	3	6	0	0	11	2	40	0	0	42	178
Approch %	0	80	20	0		0	98.3	1.7	0		27.3	72.7	0	0		4.8	95.2	0	0		
Total %	0	2.2	0.6	0	2.8	0	66.3	1.1	0	67.4	1.7	4.5	0	0	6.2	1.1	22.5	0	0	23.6	

	Piikoi Street Southbound					King Street Westbound					Piikoi Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	1	7	0	0	8	25
07:45 AM	0	0	0	0	0	0	25	1	0	26	1	1	0	0	2	0	3	0	0	3	31
08:00 AM	0	0	0	0	0	0	15	0	0	15	2	1	0	0	3	0	6	0	0	6	24
08:15 AM	0	1	0	0	1	0	17	0	0	17	0	3	0	0	3	0	4	0	0	4	25
Total Volume	0	1	0	0	1	0	74	1	0	75	3	5	0	0	8	1	20	0	0	21	105
% App. Total	0	100	0	0		0	98.7	1.3	0		37.5	62.5	0	0		4.8	95.2	0	0		
PHF	.000	.250	.000	.000	.250	.000	.740	.250	.000	.721	.375	.417	.000	.000	.667	.250	.714	.000	.000	.656	.847

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 Piikoi_King PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Bikes

	Piikoi Street Southbound					King Street Westbound					Piikoi Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:45 PM	1	1	0	0	2	0	6	0	0	6	0	6	0	0	6	0	7	0	0	7	21
Total	1	1	0	0	2	0	6	0	0	6	0	6	0	0	6	0	7	0	0	7	21
04:00 PM	0	1	0	0	1	0	8	0	0	8	1	4	0	0	5	0	8	0	0	8	22
04:15 PM	0	1	0	0	1	0	10	0	0	10	0	1	0	0	1	0	18	0	0	18	30
04:30 PM	0	3	0	0	3	0	8	0	0	8	0	3	0	0	3	0	30	0	0	30	44
04:45 PM	0	0	0	0	0	0	5	1	0	6	0	2	0	0	2	2	28	0	0	30	38
Total	0	5	0	0	5	0	31	1	0	32	1	10	0	0	11	2	84	0	0	86	134
05:00 PM	0	0	0	0	0	0	7	0	0	7	0	7	0	0	7	0	18	0	0	18	32
05:15 PM	0	2	0	0	2	0	10	0	0	10	0	3	2	0	5	1	24	0	0	25	42
05:30 PM	0	3	0	0	3	0	4	0	0	4	0	2	0	0	2	0	21	2	0	23	32
Grand Total	1	11	0	0	12	0	58	1	0	59	1	28	2	0	31	3	154	2	0	159	261
Apprch %	8.3	91.7	0	0		0	98.3	1.7	0		3.2	90.3	6.5	0		1.9	96.9	1.3	0		
Total %	0.4	4.2	0	0	4.6	0	22.2	0.4	0	22.6	0.4	10.7	0.8	0	11.9	1.1	59	0.8	0	60.9	

	Piikoi Street Southbound					King Street Westbound					Piikoi Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	3	0	0	3	0	8	0	0	8	0	3	0	0	3	0	30	0	0	30	44
04:45 PM	0	0	0	0	0	0	5	1	0	6	0	2	0	0	2	2	28	0	0	30	38
05:00 PM	0	0	0	0	0	0	7	0	0	7	0	7	0	0	7	0	18	0	0	18	32
05:15 PM	0	2	0	0	2	0	10	0	0	10	0	3	2	0	5	1	24	0	0	25	42
Total Volume	0	5	0	0	5	0	30	1	0	31	0	15	2	0	17	3	100	0	0	103	156
% App. Total	0	100	0	0		0	96.8	3.2	0		0	88.2	11.8	0		2.9	97.1	0	0		
PHF	.000	.417	.000	.000	.417	.000	.750	.250	.000	.775	.000	.536	.250	.000	.607	.375	.833	.000	.000	.858	.886

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 King_Alder AM adj
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Alder Street Southbound					King Street Westbound					Alder Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30 AM	0	0	0	4	4	0	0	0	4	4	0	0	0	1	1	6	246	5	6	263	272
06:45 AM	0	0	0	1	1	0	0	0	10	10	0	0	0	1	1	6	362	6	4	378	390
Total	0	0	0	5	5	0	0	0	14	14	0	0	0	2	2	12	608	11	10	641	662
07:00 AM	0	0	0	0	0	0	0	0	6	6	0	0	0	2	2	4	467	37	9	517	525
07:15 AM	0	0	0	0	0	0	0	0	14	14	0	0	0	0	0	10	561	3	9	583	597
07:30 AM	0	0	0	0	0	0	0	0	10	10	0	0	0	1	1	4	549	9	7	569	580
07:45 AM	0	0	0	0	0	0	0	0	10	10	0	0	0	0	0	4	489	10	10	513	523
Total	0	0	0	0	0	0	0	0	40	40	0	0	0	3	3	22	2066	59	35	2182	2225
08:00 AM	0	0	0	0	0	0	0	0	5	5	0	0	0	1	1	4	443	9	9	465	471
08:15 AM	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	4	400	8	5	417	420
Grand Total	0	0	0	5	5	0	0	0	62	62	0	0	0	6	6	42	3517	87	59	3705	3778
Apprch %	0	0	0	100		0	0	0	100		0	0	0	100		1.1	94.9	2.3	1.6		
Total %	0	0	0	0.1	0.1	0	0	0	1.6	1.6	0	0	0	0.2	0.2	1.1	93.1	2.3	1.6	98.1	
Passenger Vehicles	0	0	0	5	5	0	0	0	62	62	0	0	0	6	6	42	3405	86	59	3592	3665
% Passenger Vehicles	0	0	0	100	100	0	0	0	100	100	0	0	0	100	100	100	96.8	98.9	100	97	97
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112	1	0	113	113
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.2	1.1	0	3	3

	Alder Street Southbound					King Street Westbound					Alder Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	6	6	0	0	0	2	2	4	467	37	9	517	525
07:15 AM	0	0	0	0	0	0	0	0	14	14	0	0	0	0	0	10	561	3	9	583	597
07:30 AM	0	0	0	0	0	0	0	0	10	10	0	0	0	1	1	4	549	9	7	569	580
07:45 AM	0	0	0	0	0	0	0	0	10	10	0	0	0	0	0	4	489	10	10	513	523
Total Volume	0	0	0	0	0	0	0	0	40	40	0	0	0	3	3	22	2066	59	35	2182	2225
% App. Total	0	0	0	0		0	0	0	100		0	0	0	100		1	94.7	2.7	1.6		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.714	.714	.000	.000	.000	.375	.375	.550	.921	.399	.875	.936	.932
Passenger Vehicles	0	0	0	0	0	0	0	0	40	40	0	0	0	3	3	22	2004	59	35	2120	2163
% Passenger Vehicles	0	0	0	0	0	0	0	0	100	100	0	0	0	100	100	100	97.0	100	100	97.2	97.2
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	0	0	62	62
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.0	0	0	2.8	2.8

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 King_Alder PM adj
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Alder Street Southbound					King Street Westbound					Alder Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:45 PM	0	0	0	0	0	0	0	0	10	10	0	0	0	0	0	9	581	17	11	618	628
Total	0	0	0	0	0	0	0	0	10	10	0	0	0	0	0	9	581	17	11	618	628
04:00 PM	0	0	0	0	0	0	0	0	7	7	0	0	0	0	0	2	587	12	13	614	621
04:15 PM	0	0	0	0	0	0	0	0	12	12	0	0	0	1	1	5	620	17	14	656	669
04:30 PM	0	0	0	1	1	0	0	0	6	6	0	0	0	3	3	14	610	11	15	650	660
04:45 PM	0	0	0	0	0	0	0	0	10	10	0	0	0	2	2	11	602	60	20	693	705
Total	0	0	0	1	1	0	0	0	35	35	0	0	0	6	6	32	2419	100	62	2613	2655
05:00 PM	0	0	0	0	0	0	0	0	8	8	0	0	0	0	0	10	616	16	20	662	670
05:15 PM	0	0	0	0	0	0	0	0	14	14	0	0	0	2	2	9	632	17	13	671	687
05:30 PM	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	7	624	21	18	670	675
Grand Total	0	0	0	1	1	0	0	0	72	72	0	0	0	8	8	67	4872	171	124	5234	5315
Apprch %	0	0	0	100		0	0	0	100		0	0	0	100		1.3	93.1	3.3	2.4		
Total %	0	0	0	0	0	0	0	0	1.4	1.4	0	0	0	0.2	0.2	1.3	91.7	3.2	2.3	98.5	
Passenger Vehicles	0	0	0	1	1	0	0	0	72	72	0	0	0	8	8	67	4851	171	124	5213	5294
% Passenger Vehicles	0	0	0	100	100	0	0	0	100	100	0	0	0	100	100	100	99.6	100	100	99.6	99.6
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	21	21
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0.4	0.4

	Alder Street Southbound					King Street Westbound					Alder Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:15 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	0	0	10	10	0	0	0	2	2	11	602	60	20	693	705
05:00 PM	0	0	0	0	0	0	0	0	8	8	0	0	0	0	0	10	616	16	20	662	670
05:15 PM	0	0	0	0	0	0	0	0	14	14	0	0	0	2	2	9	632	17	13	671	687
05:30 PM	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	7	624	21	18	670	675
Total Volume	0	0	0	0	0	0	0	0	37	37	0	0	0	4	4	37	2474	114	71	2696	2737
% App. Total	0	0	0	0		0	0	0	100		0	0	0	100		1.4	91.8	4.2	2.6		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.661	.661	.000	.000	.000	.500	.500	.841	.979	.475	.888	.973	.971
Passenger Vehicles	0	0	0	0	0	0	0	0	37	37	0	0	0	4	4	37	2467	114	71	2689	2730
% Passenger Vehicles	0	0	0	0	0	0	0	0	100	100	0	0	0	100	100	100	99.7	100	100	99.7	99.7
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	7
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0	0.3	0.3

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 King_Alder AM adj
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Bikes

	Alder Street Southbound					King Street Westbound					Alder Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30 AM	0	0	0	0	0	0	14	0	1	15	0	0	0	0	0	0	7	0	0	7	22
06:45 AM	0	0	0	0	0	0	9	0	0	9	0	0	1	0	1	0	5	0	0	5	15
Total	0	0	0	0	0	0	23	0	1	24	0	0	1	0	1	0	12	0	0	12	37
07:00 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	3	0	1	4	21
07:15 AM	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	7	0	1	8	24
07:30 AM	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	9	0	1	10	25
07:45 AM	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	0	6	0	1	7	34
Total	0	0	0	0	0	0	75	0	0	75	0	0	0	0	0	0	25	0	4	29	104
08:00 AM	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	0	4	0	1	5	16
08:15 AM	0	0	0	0	0	0	12	1	0	13	0	0	0	0	0	0	4	0	0	4	17
Grand Total	0	0	0	0	0	0	121	1	1	123	0	0	1	0	1	0	45	0	5	50	174
Apprch %	0	0	0	0		0	98.4	0.8	0.8		0	0	100	0		0	90	0	10		
Total %	0	0	0	0	0	0	69.5	0.6	0.6	70.7	0	0	0.6	0	0.6	0	25.9	0	2.9	28.7	

	Alder Street Southbound					King Street Westbound					Alder Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	17	0	0	17	0	0	0	0	0	0	3	0	1	4	21
07:15 AM	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	7	0	1	8	24
07:30 AM	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	0	9	0	1	10	25
07:45 AM	0	0	0	0	0	0	27	0	0	27	0	0	0	0	0	0	6	0	1	7	34
Total Volume	0	0	0	0	0	0	75	0	0	75	0	0	0	0	0	0	25	0	4	29	104
% App. Total	0	0	0	0		0	100	0	0		0	0	0	0		0	86.2	0	13.8		
PHF	.000	.000	.000	.000	.000	.000	.694	.000	.000	.694	.000	.000	.000	.000	.000	.000	.694	.000	1.00	.725	.765

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 King_Alder PM adj
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Bikes

	Alder Street Southbound					King Street Westbound					Alder Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:45 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	7	0	2	9	14
Total	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	7	0	2	9	14
04:00 PM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	1	1	3	5	11
04:15 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	10	0	2	12	17
04:30 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	11	2	1	14	19
04:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	14	2	0	16	20
Total	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	0	36	5	6	47	67
05:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	12	1	2	15	18
05:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	16	1	0	17	21
05:30 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	11	0	1	12	16
Grand Total	0	0	0	0	0	0	36	0	0	36	0	0	0	0	0	0	82	7	11	100	136
Approch %	0	0	0	0		0	100	0	0		0	0	0	0		0	82	7	11		
Total %	0	0	0	0	0	0	26.5	0	0	26.5	0	0	0	0	0	0	60.3	5.1	8.1	73.5	

	Alder Street Southbound					King Street Westbound					Alder Street Northbound					King Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	11	2	1	14	19
04:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	14	2	0	16	20
05:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	12	1	2	15	18
05:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	16	1	0	17	21
Total Volume	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	53	6	3	62	78
% App. Total	0	0	0	0		0	100	0	0		0	0	0	0		0	85.5	9.7	4.8		
PHF	.000	.000	.000	.000	.000	.000	.800	.000	.000	.800	.000	.000	.000	.000	.000	.000	.828	.750	.375	.912	.929

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 Alder_Elm AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Alder Street Southbound					Elm Street Westbound					Alder Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30 AM	1	2	0	0	3	1	10	1	0	12	0	0	0	0	0	0	1	0	2	3	18
06:45 AM	2	10	4	1	17	2	8	0	1	11	0	0	0	3	3	0	1	1	2	4	35
Total	3	12	4	1	20	3	18	1	1	23	0	0	0	3	3	0	2	1	4	7	53
07:00 AM	5	0	2	0	7	3	15	0	0	18	0	0	0	1	1	0	2	0	1	3	29
07:15 AM	0	6	5	3	14	1	16	0	3	20	0	0	0	3	3	0	4	0	1	5	42
07:30 AM	4	2	6	2	14	0	13	0	0	13	0	0	0	1	1	0	4	1	0	5	33
07:45 AM	4	3	6	4	17	2	20	0	0	22	0	0	0	4	4	0	0	0	2	2	45
Total	13	11	19	9	52	6	64	0	3	73	0	0	0	9	9	0	10	1	4	15	149
08:00 AM	3	4	2	2	11	0	8	0	1	9	0	0	0	1	1	0	3	1	3	7	28
08:15 AM	4	4	2	1	11	0	8	0	0	8	0	0	0	1	1	0	1	0	6	7	27
Grand Total	23	31	27	13	94	9	98	1	5	113	0	0	0	14	14	0	16	3	17	36	257
Approch %	24.5	33	28.7	13.8		8	86.7	0.9	4.4		0	0	0	100		0	44.4	8.3	47.2		
Total %	8.9	12.1	10.5	5.1	36.6	3.5	38.1	0.4	1.9	44	0	0	0	5.4	5.4	0	6.2	1.2	6.6	14	
Passenger Vehicles	23	31	27	13	94	9	95	1	5	110	0	0	0	14	14	0	16	3	17	36	254
% Passenger Vehicles	100	100	100	100	100	100	96.9	100	100	97.3	0	0	0	100	100	0	100	100	100	100	98.8
Heavy Vehicles	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
% Heavy Vehicles	0	0	0	0	0	0	3.1	0	0	2.7	0	0	0	0	0	0	0	0	0	0	1.2

	Alder Street Southbound					Elm Street Westbound					Alder Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	5	0	2	0	7	3	15	0	0	18	0	0	0	1	1	0	2	0	1	3	29
07:15 AM	0	6	5	3	14	1	16	0	3	20	0	0	0	3	3	0	4	0	1	5	42
07:30 AM	4	2	6	2	14	0	13	0	0	13	0	0	0	1	1	0	4	1	0	5	33
07:45 AM	4	3	6	4	17	2	20	0	0	22	0	0	0	4	4	0	0	0	2	2	45
Total Volume	13	11	19	9	52	6	64	0	3	73	0	0	0	9	9	0	10	1	4	15	149
% App. Total	25	21.2	36.5	17.3		8.2	87.7	0	4.1		0	0	0	100		0	66.7	6.7	26.7		
PHF	.650	.458	.792	.563	.765	.500	.800	.000	.250	.830	.000	.000	.000	.563	.563	.000	.625	.250	.500	.750	.828
Passenger Vehicles	13	11	19	9	52	6	62	0	3	71	0	0	0	9	9	0	10	1	4	15	147
% Passenger Vehicles	100	100	100	100	100	100	96.9	0	100	97.3	0	0	0	100	100	0	100	100	100	100	98.7
Heavy Vehicles	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
% Heavy Vehicles	0	0	0	0	0	0	3.1	0	0	2.7	0	0	0	0	0	0	0	0	0	0	1.3

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 Alder_Elm PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Alder Street Southbound					Elm Street Westbound					Alder Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:45 PM	2	9	0	7	18	2	18	0	0	20	0	0	0	1	1	0	1	1	4	6	45
Total	2	9	0	7	18	2	18	0	0	20	0	0	0	1	1	0	1	1	4	6	45
04:00 PM	1	1	4	5	11	3	16	0	0	19	0	0	0	3	3	0	1	0	3	4	37
04:15 PM	3	11	3	1	18	3	10	0	1	14	0	0	0	2	2	0	1	1	6	8	42
04:30 PM	3	6	4	3	16	2	20	0	1	23	0	0	0	1	1	0	5	0	0	5	45
04:45 PM	4	5	3	0	12	3	16	0	1	20	0	0	0	0	0	0	1	0	1	2	34
Total	11	23	14	9	57	11	62	0	3	76	0	0	0	6	6	0	8	1	10	19	158
05:00 PM	1	6	5	0	12	1	23	0	0	24	0	0	0	0	0	0	1	2	2	5	41
05:15 PM	3	6	2	1	12	6	21	0	1	28	0	0	0	0	0	0	4	0	0	4	44
05:30 PM	2	8	1	1	12	5	15	0	0	20	0	0	0	0	0	0	2	1	2	5	37
Grand Total	19	52	22	18	111	25	139	0	4	168	0	0	0	7	7	0	16	5	18	39	325
Apprch %	17.1	46.8	19.8	16.2		14.9	82.7	0	2.4		0	0	0	100		0	41	12.8	46.2		
Total %	5.8	16	6.8	5.5	34.2	7.7	42.8	0	1.2	51.7	0	0	0	2.2	2.2	0	4.9	1.5	5.5	12	
Passenger Vehicles	19	52	22	18	111	24	138	0	4	166	0	0	0	7	7	0	14	5	18	37	321
% Passenger Vehicles	100	100	100	100	100	96	99.3	0	100	98.8	0	0	0	100	100	0	87.5	100	100	94.9	98.8
Heavy Vehicles	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	2	0	0	2	4
% Heavy Vehicles	0	0	0	0	0	4	0.7	0	0	1.2	0	0	0	0	0	0	12.5	0	0	5.1	1.2

	Alder Street Southbound					Elm Street Westbound					Alder Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:15 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	2	9	0	7	18	2	18	0	0	20	0	0	0	1	1	0	1	1	4	6	45
04:00 PM	1	1	4	5	11	3	16	0	0	19	0	0	0	3	3	0	1	0	3	4	37
04:15 PM	3	11	3	1	18	3	10	0	1	14	0	0	0	2	2	0	1	1	6	8	42
04:30 PM	3	6	4	3	16	2	20	0	1	23	0	0	0	1	1	0	5	0	0	5	45
Total Volume	9	27	11	16	63	10	64	0	2	76	0	0	0	7	7	0	8	2	13	23	169
% App. Total	14.3	42.9	17.5	25.4		13.2	84.2	0	2.6		0	0	0	100		0	34.8	8.7	56.5		
PHF	.750	.614	.688	.571	.875	.833	.800	.000	.500	.826	.000	.000	.000	.583	.583	.000	.400	.500	.542	.719	.939
Passenger Vehicles	9	27	11	16	63	10	64	0	2	76	0	0	0	7	7	0	6	2	13	21	167
% Passenger Vehicles	100	100	100	100	100	100	100	0	100	100	0	0	0	100	100	0	75.0	100	100	91.3	98.8
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25.0	0	0	8.7	1.2

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 Alder_Elm AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Bikes

	Alder Street Southbound					Elm Street Westbound					Alder Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
08:15 AM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
Grand Total	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	3
Apprch %	0	100	0	0		0	0	0	0		100	0	0	0		0	100	0	0		
Total %	0	33.3	0	0	33.3	0	0	0	0	0	33.3	0	0	0	33.3	0	33.3	0	0	33.3	

	Alder Street Southbound					Elm Street Westbound					Alder Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
08:15 AM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
Total Volume	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	3
% App. Total	0	100	0	0		0	0	0	0		100	0	0	0		0	100	0	0		
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.000	.250	.000	.000	.250	.375

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 Alder_Elm PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Bikes

	Alder Street Southbound					Elm Street Westbound					Alder Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:45 PM	0	0	0	0	0	1	1	0	0	2	1	0	0	0	1	0	0	2	0	2	5
Total	0	0	0	0	0	1	1	0	0	2	1	0	0	0	1	0	0	2	0	2	5
04:00 PM	1	1	0	0	2	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	4
04:15 PM	2	0	0	0	2	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	4
04:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Total	4	1	0	0	5	1	1	0	0	2	1	2	0	0	3	0	2	0	0	2	12
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	3
05:15 PM	0	1	0	0	1	1	0	0	0	1	0	0	1	0	1	0	0	1	0	1	4
05:30 PM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Grand Total	5	3	0	0	8	3	2	0	0	5	2	3	1	0	6	0	4	3	0	7	26
Approch %	62.5	37.5	0	0		60	40	0	0		33.3	50	16.7	0		0	57.1	42.9	0		
Total %	19.2	11.5	0	0	30.8	11.5	7.7	0	0	19.2	7.7	11.5	3.8	0	23.1	0	15.4	11.5	0	26.9	

	Alder Street Southbound					Elm Street Westbound					Alder Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	0	0	0	0	0	1	1	0	0	2	1	0	0	0	1	0	0	2	0	2	5
04:00 PM	1	1	0	0	2	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	4
04:15 PM	2	0	0	0	2	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	4
04:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Total Volume	4	1	0	0	5	2	2	0	0	4	2	0	0	0	2	0	2	2	0	4	15
% App. Total	80	20	0	0		50	50	0	0		100	0	0	0		0	50	50	0		
PHF	.500	.250	.000	.000	.625	.500	.500	.000	.000	.500	.500	.000	.000	.000	.500	.000	.500	.250	.000	.500	.750

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 Piikoi_Elm AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Piikoi Street Southbound					Elm Street Westbound					Piikoi Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30 AM	0	0	1	6	7	0	1	10	0	11	2	216	1	3	222	4	0	0	2	6	246
06:45 AM	0	0	0	8	8	0	1	9	0	10	2	266	1	6	275	5	1	0	4	10	303
Total	0	0	1	14	15	0	2	19	0	21	4	482	2	9	497	9	1	0	6	16	549
07:00 AM	0	0	0	10	10	0	0	18	0	18	1	294	1	1	297	5	0	0	1	6	331
07:15 AM	0	0	0	10	10	0	1	19	0	20	5	371	1	4	381	4	3	0	1	8	419
07:30 AM	0	0	0	3	3	0	0	19	0	19	3	327	3	21	354	7	2	0	0	9	385
07:45 AM	0	0	0	9	9	0	3	22	0	25	5	296	0	3	304	6	0	0	3	9	347
Total	0	0	0	32	32	0	4	78	0	82	14	1288	5	29	1336	22	5	0	5	32	1482
08:00 AM	0	0	0	5	5	0	2	8	0	10	3	296	1	8	308	5	3	0	1	9	332
08:15 AM	0	0	0	3	3	0	2	11	0	13	2	256	1	6	265	4	1	0	1	6	287
Grand Total	0	0	1	54	55	0	10	116	0	126	23	2322	9	52	2406	40	10	0	13	63	2650
Approch %	0	0	1.8	98.2		0	7.9	92.1	0		1	96.5	0.4	2.2		63.5	15.9	0	20.6		
Total %	0	0	0	2	2.1	0	0.4	4.4	0	4.8	0.9	87.6	0.3	2	90.8	1.5	0.4	0	0.5	2.4	
Passenger Vehicles	0	0	1	54	55	0	10	109	0	119	23	2261	7	52	2343	40	10	0	13	63	2580
% Passenger Vehicles	0	0	100	100	100	0	100	94	0	94.4	100	97.4	77.8	100	97.4	100	100	0	100	100	97.4
Heavy Vehicles	0	0	0	0	0	0	0	7	0	7	0	61	2	0	63	0	0	0	0	0	70
% Heavy Vehicles	0	0	0	0	0	0	0	6	0	5.6	0	2.6	22.2	0	2.6	0	0	0	0	0	2.6

	Piikoi Street Southbound					Elm Street Westbound					Piikoi Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	10	10	0	1	19	0	20	5	371	1	4	381	4	3	0	1	8	419
07:30 AM	0	0	0	3	3	0	0	19	0	19	3	327	3	21	354	7	2	0	0	9	385
07:45 AM	0	0	0	9	9	0	3	22	0	25	5	296	0	3	304	6	0	0	3	9	347
08:00 AM	0	0	0	5	5	0	2	8	0	10	3	296	1	8	308	5	3	0	1	9	332
Total Volume	0	0	0	27	27	0	6	68	0	74	16	1290	5	36	1347	22	8	0	5	35	1483
% App. Total	0	0	0	100		0	8.1	91.9	0		1.2	95.8	0.4	2.7		62.9	22.9	0	14.3		
PHF	.000	.000	.000	.675	.675	.000	.500	.773	.000	.740	.800	.869	.417	.429	.884	.786	.667	.000	.417	.972	.885
Passenger Vehicles	0	0	0	27	27	0	6	64	0	70	16	1252	5	36	1309	22	8	0	5	35	1441
% Passenger Vehicles	0	0	0	100	100	0	100	94.1	0	94.6	100	97.1	100	100	97.2	100	100	0	100	100	97.2
Heavy Vehicles	0	0	0	0	0	0	0	4	0	4	0	38	0	0	38	0	0	0	0	0	42
% Heavy Vehicles	0	0	0	0	0	0	0	5.9	0	5.4	0	2.9	0	0	2.8	0	0	0	0	0	2.8

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 Piikoi_Elm PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Piikoi Street Southbound					Elm Street Westbound					Piikoi Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:45 PM	0	0	0	6	6	0	0	18	0	18	3	391	1	5	400	3	1	0	0	4	428
Total	0	0	0	6	6	0	0	18	0	18	3	391	1	5	400	3	1	0	0	4	428
04:00 PM	0	0	0	16	16	0	1	17	0	18	2	383	1	3	389	3	1	0	0	4	427
04:15 PM	0	0	0	5	5	0	1	12	0	13	4	424	1	5	434	2	1	0	1	4	456
04:30 PM	0	0	0	9	9	0	0	24	0	24	3	420	2	3	428	4	3	0	2	9	470
04:45 PM	0	0	0	5	5	0	1	18	0	19	4	390	1	3	398	3	0	0	2	5	427
Total	0	0	0	35	35	0	3	71	0	74	13	1617	5	14	1649	12	5	0	5	22	1780
05:00 PM	0	0	0	6	6	0	3	26	0	29	1	393	2	3	399	8	1	0	2	11	445
05:15 PM	0	0	0	11	11	0	2	21	0	23	4	407	1	10	422	2	2	0	0	4	460
05:30 PM	0	0	0	9	9	0	0	17	0	17	1	443	1	6	451	5	2	0	2	9	486
Grand Total	0	0	0	67	67	0	8	153	0	161	22	3251	10	38	3321	30	11	0	9	50	3599
Approch %	0	0	0	100		0	5	95	0		0.7	97.9	0.3	1.1		60	22	0	18		
Total %	0	0	0	1.9	1.9	0	0.2	4.3	0	4.5	0.6	90.3	0.3	1.1	92.3	0.8	0.3	0	0.3	1.4	
Passenger Vehicles	0	0	0	67	67	0	8	153	0	161	22	3224	7	38	3291	30	11	0	9	50	3569
% Passenger Vehicles	0	0	0	100	100	0	100	100	0	100	100	99.2	70	100	99.1	100	100	0	100	100	99.2
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	27	3	0	30	0	0	0	0	0	30
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0.8	30	0	0.9	0	0	0	0	0	0.8

	Piikoi Street Southbound					Elm Street Westbound					Piikoi Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	5	5	0	1	18	0	19	4	390	1	3	398	3	0	0	2	5	427
05:00 PM	0	0	0	6	6	0	3	26	0	29	1	393	2	3	399	8	1	0	2	11	445
05:15 PM	0	0	0	11	11	0	2	21	0	23	4	407	1	10	422	2	2	0	0	4	460
05:30 PM	0	0	0	9	9	0	0	17	0	17	1	443	1	6	451	5	2	0	2	9	486
Total Volume	0	0	0	31	31	0	6	82	0	88	10	1633	5	22	1670	18	5	0	6	29	1818
% App. Total	0	0	0	100		0	6.8	93.2	0		0.6	97.8	0.3	1.3		62.1	17.2	0	20.7		
PHF	.000	.000	.000	.705	.705	.000	.500	.788	.000	.759	.625	.922	.625	.550	.926	.563	.625	.000	.750	.659	.935
Passenger Vehicles	0	0	0	31	31	0	6	82	0	88	10	1623	4	22	1659	18	5	0	6	29	1807
% Passenger Vehicles	0	0	0	100	100	0	100	100	0	100	100	99.4	80.0	100	99.3	100	100	0	100	100	99.4
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	10	1	0	11	0	0	0	0	0	11
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0.6	20.0	0	0.7	0	0	0	0	0	0.6

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 Piikoi_Elm AM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Bikes

	Piikoi Street Southbound					Elm Street Westbound					Piikoi Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
06:45 AM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	3
07:00 AM	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
07:15 AM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	1	1	0	0	0	0	0	0	2	0	1	3	0	0	0	0	0	4
Total	0	0	1	2	3	0	0	0	0	0	0	4	0	1	5	0	0	0	0	0	8
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	1	1	4
Grand Total	0	0	1	2	3	0	0	1	0	1	0	6	0	4	12	0	0	0	1	1	17
Approch %	0	0	33.3	66.7		0	0	100	0		0	66.7	0	33.3		0	0	0	100		
Total %	0	0	5.9	11.8	17.6	0	0	5.9	0	5.9	0	47.1	0	23.5	70.6	0	0	0	5.9	5.9	

	Piikoi Street Southbound					Elm Street Westbound					Piikoi Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	1	1	0	0	0	0	0	0	2	0	1	3	0	0	0	0	0	4
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	1	1	4
Total Volume	0	0	0	1	1	0	0	0	0	0	0	4	0	4	8	0	0	0	1	1	10
% App. Total	0	0	0	100		0	0	0	0		0	50	0	50		0	0	0	100		
PHF	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.500	.000	.500	.667	.000	.000	.000	.250	.250	.625

SSFM International

501 Sumner Street, Suite 620
Honolulu, HI 96817

File Name : 150916 Piikoi_Elm PM
Site Code : 00000000
Start Date : 9/16/2015
Page No : 1

Groups Printed- Bikes

	Piikoi Street Southbound					Elm Street Westbound					Piikoi Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
03:45 PM	0	0	0	2	2	0	0	1	0	1	0	0	0	3	3	0	0	0	0	0	6
Total	0	0	0	2	2	0	0	1	0	1	0	0	0	3	3	0	0	0	0	0	6
04:00 PM	0	0	0	2	2	0	1	0	0	1	0	0	0	3	3	0	0	0	2	2	8
04:15 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	5
04:30 PM	1	0	0	1	2	0	0	0	0	0	0	0	0	3	3	1	0	0	0	1	6
04:45 PM	0	0	0	1	1	0	0	0	0	0	1	0	0	1	2	0	0	0	0	0	3
Total	1	0	0	6	7	0	1	0	0	1	1	0	0	10	11	1	0	0	2	3	22
05:00 PM	0	0	0	1	1	0	0	0	0	0	0	0	1	8	7	0	0	0	1	1	9
05:15 PM	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	3	4	0	0	0	0	0	4
Grand Total	1	0	0	12	13	0	1	1	0	2	1	1	1	22	25	1	0	0	4	5	45
Apprch %	7.7	0	0	92.3		0	50	50	0		4	4	4	88		20	0	0	80		
Total %	2.2	0	0	26.7	28.9	0	2.2	2.2	0	4.4	2.2	2.2	2.2	48.9	55.6	2.2	0	0	8.9	11.1	

	Piikoi Street Southbound					Elm Street Westbound					Piikoi Street Northbound					Elm Street Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	0	0	0	2	2	0	0	1	0	1	0	0	0	3	3	0	0	0	0	0	6
04:00 PM	0	0	0	2	2	0	1	0	0	1	0	0	0	3	3	0	0	0	2	2	8
04:15 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	5
04:30 PM	1	0	0	1	2	0	0	0	0	0	0	0	0	3	3	1	0	0	0	1	6
Total Volume	1	0	0	7	8	0	1	1	0	2	0	0	0	12	12	1	0	0	2	3	25
% App. Total	12.5	0	0	87.5		0	50	50	0		0	0	0	100		33.3	0	0	66.7		
PHF	.250	.000	.000	.875	1.00	.000	.250	.250	.000	.500	.000	.000	.000	1.00	1.00	.250	.000	.000	.250	.375	.781

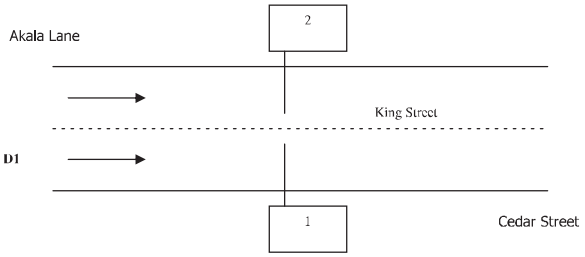
Traffic Data Service

Traffic Station Sketch

N

Island: Oahu
Area: Honolulu

Section ID/Station #: B72740200310



	Meter #	File Name	GPS
1.	bz97	D0120017_ B72740200310	21.29921, -157.8422
2.	w775		21.29921, -157.8422

Station Description:
King Street: Akala Lane to Cedar Street

Survey Beginning Date/Time:		Survey Ending Date/Time:
1/20/2011 @ 0000		1/21/2011 @ 2400

Survey Method:	Road Tube	Data Type:	Volume
Survey Crew:	LM		V5
Sketch Updated:		By:	SR
Remarks:			

FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE NO.	ROUTE MILE
King Street		3		7402	

D1= Direction to End
D2= Direction to Begin

D1: Cedar Street / Harding Avenue
D2: Akala Lane / Kalihi Street

Run Date: 2011/08/26

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**
2011 Program Count - Summary

Site ID: B72740200310 **Town:** Oahu **DIR 1:** +MP **DIR 2:** None **Final AADT:** 0
Functional Class: URBAN:PRINCIPAL ARTERIAL - OTHER **Count Type:** VOLUME **Counter Type:** Tube **Route No:** 7402
Location: King St b/t Alder St 7 Palm Dr.

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 01/20/2011															
12:00-12:15	56	0	56	06:00-06:15	158	0	158	12:00-12:15	511	0	511	06:00-06:15	669	0	669
12:15-12:30	70	0	70	06:15-06:30	223	0	223	12:15-12:30	479	0	479	06:15-06:30	603	0	603
12:30-12:45	50	0	50	06:30-06:45	281	0	281	12:30-12:45	483	0	483	06:30-06:45	527	0	527
12:45-01:00	35	0	35	06:45-07:00	370	0	370	12:45-01:00	466	0	466	06:45-07:00	472	0	472
01:00-01:15	37	0	37	07:00-07:15	495	0	495	01:00-01:15	483	0	483	07:00-07:15	408	0	408
01:15-01:30	39	0	39	07:15-07:30	553	0	553	01:15-01:30	507	0	507	07:15-07:30	358	0	358
01:30-01:45	35	0	35	07:30-07:45	542	0	542	01:30-01:45	474	0	474	07:30-07:45	314	0	314
01:45-02:00	37	0	37	07:45-08:00	533	0	533	01:45-02:00	485	0	485	07:45-08:00	262	0	262
02:00-02:15	41	0	41	08:00-08:15	441	0	441	02:00-02:15	513	0	513	08:00-08:15	304	0	304
02:15-02:30	33	0	33	08:15-08:30	466	0	466	02:15-02:30	472	0	472	08:15-08:30	234	0	234
02:30-02:45	28	0	28	08:30-08:45	432	0	432	02:30-02:45	545	0	545	08:30-08:45	216	0	216
02:45-03:00	33	0	33	08:45-09:00	416	0	416	02:45-03:00	579	0	579	08:45-09:00	182	0	182
03:00-03:15	21	0	21	09:00-09:15	378	0	378	03:00-03:15	593	0	593	09:00-09:15	240	0	240
03:15-03:30	21	0	21	09:15-09:30	371	0	371	03:15-03:30	612	0	612	09:15-09:30	219	0	219
03:30-03:45	28	0	28	09:30-09:45	374	0	374	03:30-03:45	620	0	620	09:30-09:45	187	0	187
03:45-04:00	21	0	21	09:45-10:00	418	0	418	03:45-04:00	646	0	646	09:45-10:00	191	0	191
04:00-04:15	31	0	31	10:00-10:15	394	0	394	04:00-04:15	716	0	716	10:00-10:15	170	0	170
04:15-04:30	21	0	21	10:15-10:30	402	0	402	04:15-04:30	736	0	736	10:15-10:30	129	0	129
04:30-04:45	44	0	44	10:30-10:45	463	0	463	04:30-04:45	748	0	748	10:30-10:45	125	0	125
04:45-05:00	54	0	54	10:45-11:00	528	0	528	04:45-05:00	813	0	813	10:45-11:00	90	0	90
05:00-05:15	63	0	63	11:00-11:15	487	0	487	05:00-05:15	813	0	813	11:00-11:15	78	0	78
05:15-05:30	87	0	87	11:15-11:30	543	0	543	05:15-05:30	808	0	808	11:15-11:30	86	0	86
05:30-05:45	134	0	134	11:30-11:45	516	0	516	05:30-05:45	807	0	807	11:30-11:45	89	0	89
05:45-06:00	126	0	126	11:45-12:00	523	0	523	05:45-06:00	760	0	760	11:45-12:00	74	0	74

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK			TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:00 AM to 08:00 AM		PM - PEAK HR TIME	04:45 PM to 05:45 PM	
AM - PEAK HR VOLUME	2123		PM - PEAK HR VOLUME	3241	
AM - K FACTOR (%)			PM - K FACTOR (%)		-
AM - D (%)			PM - D (%)		
DIRECTIONAL PEAK			DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:00 AM to 08:00 AM		PM - PEAK HR TIME	04:45 PM to 05:45 PM	
AM - PEAK HR VOLUME	2123		PM - PEAK HR VOLUME	3241	

AM PERIOD (00:00-12:00)			PM PERIOD (12:00-24:00)		
TWO DIRECTIONAL PEAK			TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:00 AM to 08:00 AM		PM - PEAK HR TIME	04:45 PM to 05:45 PM	
AM - PEAK HR VOLUME	2123		PM - PEAK HR VOLUME	3241	
AM - K FACTOR (%)			PM - K FACTOR (%)		-
AM - D (%)			PM - D (%)		

NON-COMMUTER PERIOD (09:00-15:00)			6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK			AM 6-HR PERIOD (06:00-12:00)	10,309		
PEAK HR TIME	02:00 PM to 03:00 PM		AM 12-HR PERIOD (00:00-12:00)	11,454		
PEAK HR VOLUME	2109		PM 6-HR PERIOD (12:00-18:00)	14,649		
DIRECTIONAL PEAK			PM 12-HR PERIOD (12:00-24:00)	20,876		
PEAK HR TIME	02:00 PM to 03:00 PM		24 HOUR PERIOD	32,330		
PEAK HR VOLUME	2109		D (%)			

Run Date: 2011/08/26

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**
2011 Program Count - Summary

Site ID: B72740200310 **Town:** Oahu **DIR 1:** +MP **DIR 2:** None **Final AADT:** 0
Functional Class: URBAN:PRINCIPAL ARTERIAL - OTHER **Count Type:** VOLUME **Counter Type:** Tube **Route No:** 7402
Location: King St b/t Alder St 7 Palm Dr.

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 01/21/2011															
12:00-12:15	59	0	59	06:00-06:15	165	0	165	12:00-12:15	571	0	571	06:00-06:15	666	0	666
12:15-12:30	57	0	57	06:15-06:30	196	0	196	12:15-12:30	506	0	506	06:15-06:30	605	0	605
12:30-12:45	49	0	49	06:30-06:45	270	0	270	12:30-12:45	549	0	549	06:30-06:45	505	0	505
12:45-01:00	42	0	42	06:45-07:00	369	0	369	12:45-01:00	488	0	488	06:45-07:00	488	0	488
01:00-01:15	34	0	34	07:00-07:15	465	0	465	01:00-01:15	496	0	496	07:00-07:15	420	0	420
01:15-01:30	33	0	33	07:15-07:30	524	0	524	01:15-01:30	510	0	510	07:15-07:30	320	0	320
01:30-01:45	41	0	41	07:30-07:45	569	0	569	01:30-01:45	517	0	517	07:30-07:45	349	0	349
01:45-02:00	35	0	35	07:45-08:00	527	0	527	01:45-02:00	523	0	523	07:45-08:00	307	0	307
02:00-02:15	38	0	38	08:00-08:15	488	0	488	02:00-02:15	613	0	613	08:00-08:15	280	0	280
02:15-02:30	33	0	33	08:15-08:30	467	0	467	02:15-02:30	543	0	543	08:15-08:30	235	0	235
02:30-02:45	25	0	25	08:30-08:45	432	0	432	02:30-02:45	601	0	601	08:30-08:45	232	0	232
02:45-03:00	24	0	24	08:45-09:00	426	0	426	02:45-03:00	597	0	597	08:45-09:00	227	0	227
03:00-03:15	15	0	15	09:00-09:15	399	0	399	03:00-03:15	609	0	609	09:00-09:15	246	0	246
03:15-03:30	12	0	12	09:15-09:30	392	0	392	03:15-03:30	639	0	639	09:15-09:30	224	0	224
03:30-03:45	23	0	23	09:30-09:45	392	0	392	03:30-03:45	655	0	655	09:30-09:45	204	0	204
03:45-04:00	28	0	28	09:45-10:00	446	0	446	03:45-04:00	722	0	722	09:45-10:00	214	0	214
04:00-04:15	21	0	21	10:00-10:15	451	0	451	04:00-04:15	725	0	725	10:00-10:15	255	0	255
04:15-04:30	19	0	19	10:15-10:30	432	0	432	04:15-04:30	755	0	755	10:15-10:30	257	0	257
04:30-04:45	28	0	28	10:30-10:45	483	0	483	04:30-04:45	781	0	781	10:30-10:45	178	0	178
04:45-05:00	57	0	57	10:45-11:00	468	0	468	04:45-05:00	782	0	782	10:45-11:00	163	0	163
05:00-05:15	89	0	89	11:00-11:15	505	0	505	05:00-05:15	755	0	755	11:00-11:15	135	0	135
05:15-05:30	81	0	81	11:15-11:30	542	0	542	05:15-05:30	808	0	808	11:15-11:30	113	0	113
05:30-05:45	119	0	119	11:30-11:45	561	0	561	05:30-05:45	820	0	820	11:30-11:45	136	0	136
05:45-06:00	138	0	138	11:45-12:00	548	0	548	05:45-06:00	781	0	781	11:45-12:00	101	0	101

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK			TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:15 AM to 08:15 AM		PM - PEAK HR TIME	04:45 PM to 05:45 PM	
AM - PEAK HR VOLUME	2108		PM - PEAK HR VOLUME	3165	
AM - K FACTOR (%)			PM - K FACTOR (%)		-
AM - D (%)			PM - D (%)		
DIRECTIONAL PEAK			DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:15 AM to 08:15 AM		PM - PEAK HR TIME	04:45 PM to 05:45 PM	
AM - PEAK HR VOLUME	2108		PM - PEAK HR VOLUME	3165	

AM PERIOD (00:00-12:00)			PM PERIOD (12:00-24:00)		
TWO DIRECTIONAL PEAK			TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	11:00 AM to 12:00 PM		PM - PEAK HR TIME	04:45 PM to 05:45 PM	
AM - PEAK HR VOLUME	2156		PM - PEAK HR VOLUME	3165	
AM - K FACTOR (%)			PM - K FACTOR (%)		-
AM - D (%)			PM - D (%)		

NON-COMMUTER PERIOD (09:00-15:00)			6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
TWO DIRECTIONAL PEAK			AM 6-HR PERIOD (06:00-12:00)	10,517		
PEAK HR TIME	02:00 PM to 03:00 PM		AM 12-HR PERIOD (00:00-12:00)	11,597		
PEAK HR VOLUME	2354		PM 6-HR PERIOD (12:00-18:00)	15,346		
DIRECTIONAL PEAK			PM 12-HR PERIOD (12:00-24:00)	22,206		
PEAK HR TIME	02:00 PM to 03:00 PM		24 HOUR PERIOD	33,803		
PEAK HR VOLUME	2354		D (%)			

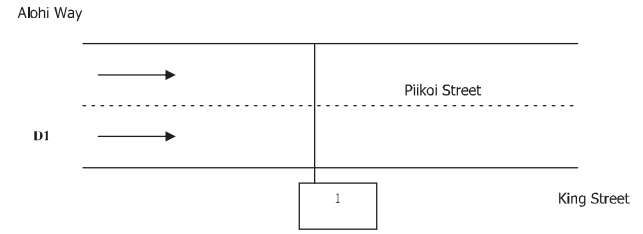
Traffic Data Service

Traffic Station Sketch

N

Island: Oahu
Area: Honolulu

Section ID/Station #: B72751300027



Meter #	File Name	GPS
1. bt47	D0210009_B72751300027	21.29953, -157.8443
2.		

Station Description: Piikoi Street: Alohi Way to King Street					
Survey Beginning Date/Time: 2/10/2011 @ 00.00			Survey Ending Date/Time: 2/11/2011 @ 24:00		
Survey Method:	Road Tube		Data Type:	Volume	
Survey Crew:	LM			V1	
Sketch Updated:			By:	SR	
Remarks:					
FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE NO.	MILE
Piikoi Street		16	2	7513	
D1= Direction to End D2= Direction to Begin			D1: King Street / Pensacola Street D2: Alohi Way / Ala Moana Boulevard		

Run Date: 2012/04/02

Hawaii Department of Transportation
Highways Division — **Highways Planning Survey Section**
2011 Program Count - Summary

Site ID: B72751300027 — **Town:** Oahu — **DIR 1:** +MP — **DIR 2:** None — **Final AADT:** 0
Functional Class: URBAN:MINOR ARTERIAL — **Count Type:** VOLUME — **Counter Type:** Tube — **Route No:** 7513
Location: Piikoi Street : Kapiolani Boulevard > Ki

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 02/10/2011															
12:00-12:15	97	0	97	06:00-06:15	115	0	115	12:00-12:15	400	0	400	06:00-06:15	379	0	379
12:15-12:30	62	0	62	06:15-06:30	163	0	163	12:15-12:30	415	0	415	06:15-06:30	363	0	363
12:30-12:45	69	0	69	06:30-06:45	165	0	165	12:30-12:45	409	0	409	06:30-06:45	411	0	411
12:45-01:00	58	0	58	06:45-07:00	237	0	237	12:45-01:00	397	0	397	06:45-07:00	369	0	369
01:00-01:15	66	0	66	07:00-07:15	304	0	304	01:00-01:15	407	0	407	07:00-07:15	414	0	414
01:15-01:30	68	0	68	07:15-07:30	383	0	383	01:15-01:30	451	0	451	07:15-07:30	354	0	354
01:30-01:45	55	0	55	07:30-07:45	348	0	348	01:30-01:45	394	0	394	07:30-07:45	351	0	351
01:45-02:00	73	0	73	07:45-08:00	350	0	350	01:45-02:00	429	0	429	07:45-08:00	341	0	341
02:00-02:15	61	0	61	08:00-08:15	312	0	312	02:00-02:15	482	0	482	08:00-08:15	343	0	343
02:15-02:30	51	0	51	08:15-08:30	260	0	260	02:15-02:30	489	0	489	08:15-08:30	338	0	338
02:30-02:45	48	0	48	08:30-08:45	307	0	307	02:30-02:45	434	0	434	08:30-08:45	333	0	333
02:45-03:00	36	0	36	08:45-09:00	264	0	264	02:45-03:00	414	0	414	08:45-09:00	337	0	337
03:00-03:15	36	0	36	09:00-09:15	274	0	274	03:00-03:15	358	0	358	09:00-09:15	370	0	370
03:15-03:30	53	0	53	09:15-09:30	227	0	227	03:15-03:30	402	0	402	09:15-09:30	372	0	372
03:30-03:45	29	0	29	09:30-09:45	295	0	295	03:30-03:45	410	0	410	09:30-09:45	367	0	367
03:45-04:00	61	0	61	09:45-10:00	367	0	367	03:45-04:00	392	0	392	09:45-10:00	251	0	251
04:00-04:15	40	0	40	10:00-10:15	360	0	360	04:00-04:15	434	0	434	10:00-10:15	311	0	311
04:15-04:30	42	0	42	10:15-10:30	359	0	359	04:15-04:30	388	0	388	10:15-10:30	236	0	236
04:30-04:45	44	0	44	10:30-10:45	381	0	381	04:30-04:45	412	0	412	10:30-10:45	194	0	194
04:45-05:00	87	0	87	10:45-11:00	354	0	354	04:45-05:00	392	0	392	10:45-11:00	195	0	195
05:00-05:15	83	0	83	11:00-11:15	380	0	380	05:00-05:15	469	0	469	11:00-11:15	170	0	170
05:15-05:30	100	0	100	11:15-11:30	385	0	385	05:15-05:30	457	0	457	11:15-11:30	140	0	140
05:30-05:45	80	0	80	11:30-11:45	435	0	435	05:30-05:45	378	0	378	11:30-11:45	95	0	95
05:45-06:00	108	0	108	11:45-12:00	399	0	399	05:45-06:00	347	0	347	11:45-12:00	98	0	98

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:15 AM to 08:15 AM	
AM - PEAK HR VOLUME	1393	
AM - K FACTOR (%)		
AM - D (%)		
DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:15 AM to 08:15 AM	
AM - PEAK HR VOLUME	1393	

PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		
PM - PEAK HR TIME	04:30 PM to 05:30 PM	
PM - PEAK HR VOLUME	1730	
PM - K FACTOR (%)		-
PM - D (%)		
DIRECTIONAL PEAK		
PM - PEAK HR TIME	04:30 PM to 05:30 PM	
PM - PEAK HR VOLUME	1730	

AM PERIOD (00:00-12:00)	
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	11:00 AM to 12:00 PM
AM - PEAK HR VOLUME	1599
AM - K FACTOR (%)	
AM - D (%)	

PM PERIOD (12:00-24:00)		
TWO DIRECTIONAL PEAK		
PM - PEAK HR TIME	01:45 PM to 02:45 PM	
PM - PEAK HR VOLUME	1834	
PM - K FACTOR (%)		-
PM - D (%)		

NON-COMMUTER PERIOD (09:00-15:00)	
TWO DIRECTIONAL PEAK	
PEAK HR TIME	01:45 PM to 02:45 PM
PEAK HR VOLUME	1834
DIRECTIONAL PEAK	
PEAK HR TIME	01:45 PM to 02:45 PM
PEAK HR VOLUME	1834

6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
AM 6-HR PERIOD (06:00-12:00)	7,424		
AM 12-HR PERIOD (00:00-12:00)	8,925		
PM 6-HR PERIOD (12:00-18:00)	9,960		
PM 12-HR PERIOD (12:00-24:00)	17,092		
24 HOUR PERIOD	26,017		
D (%)			

Run Date: 2012/04/02

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2011 Program Count - Summary

Site ID: B72751300027 **Town:** Oahu **DIR 1:** +MP **DIR 2:** None **Final AADT:** 0
Functional Class: URBAN:MINOR ARTERIAL **Count Type:** VOLUME **Counter Type:** Tube **Route No:** 7513
Location: Piikoi Street : Kapiolani Boulevard > Ki

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 02/11/2011															
12:00-12:15	111	0	111	06:00-06:15	144	0	144	12:00-12:15	441	0	441	06:00-06:15	402	0	402
12:15-12:30	89	0	89	06:15-06:30	161	0	161	12:15-12:30	480	0	480	06:15-06:30	424	0	424
12:30-12:45	82	0	82	06:30-06:45	172	0	172	12:30-12:45	441	0	441	06:30-06:45	404	0	404
12:45-01:00	61	0	61	06:45-07:00	240	0	240	12:45-01:00	473	0	473	06:45-07:00	392	0	392
01:00-01:15	66	0	66	07:00-07:15	295	0	295	01:00-01:15	463	0	463	07:00-07:15	418	0	418
01:15-01:30	56	0	56	07:15-07:30	390	0	390	01:15-01:30	481	0	481	07:15-07:30	393	0	393
01:30-01:45	53	0	53	07:30-07:45	373	0	373	01:30-01:45	489	0	489	07:30-07:45	368	0	368
01:45-02:00	50	0	50	07:45-08:00	376	0	376	01:45-02:00	498	0	498	07:45-08:00	353	0	353
02:00-02:15	63	0	63	08:00-08:15	271	0	271	02:00-02:15	553	0	553	08:00-08:15	348	0	348
02:15-02:30	42	0	42	08:15-08:30	301	0	301	02:15-02:30	681	0	681	08:15-08:30	427	0	427
02:30-02:45	44	0	44	08:30-08:45	299	0	299	02:30-02:45	797	0	797	08:30-08:45	375	0	375
02:45-03:00	48	0	48	08:45-09:00	279	0	279	02:45-03:00	549	0	549	08:45-09:00	393	0	393
03:00-03:15	38	0	38	09:00-09:15	251	0	251	03:00-03:15	443	0	443	09:00-09:15	486	0	486
03:15-03:30	40	0	40	09:15-09:30	286	0	286	03:15-03:30	419	0	419	09:15-09:30	470	0	470
03:30-03:45	39	0	39	09:30-09:45	312	0	312	03:30-03:45	434	0	434	09:30-09:45	368	0	368
03:45-04:00	49	0	49	09:45-10:00	301	0	301	03:45-04:00	489	0	489	09:45-10:00	335	0	335
04:00-04:15	38	0	38	10:00-10:15	356	0	356	04:00-04:15	417	0	417	10:00-10:15	334	0	334
04:15-04:30	53	0	53	10:15-10:30	381	0	381	04:15-04:30	407	0	407	10:15-10:30	295	0	295
04:30-04:45	34	0	34	10:30-10:45	365	0	365	04:30-04:45	511	0	511	10:30-10:45	289	0	289
04:45-05:00	76	0	76	10:45-11:00	375	0	375	04:45-05:00	497	0	497	10:45-11:00	250	0	250
05:00-05:15	82	0	82	11:00-11:15	403	0	403	05:00-05:15	593	0	593	11:00-11:15	203	0	203
05:15-05:30	79	0	79	11:15-11:30	428	0	428	05:15-05:30	589	0	589	11:15-11:30	219	0	219
05:30-05:45	81	0	81	11:30-11:45	386	0	386	05:30-05:45	555	0	555	11:30-11:45	166	0	166
05:45-06:00	93	0	93	11:45-12:00	443	0	443	05:45-06:00	457	0	457	11:45-12:00	147	0	147

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:00 AM to 08:00 AM	
AM - PEAK HR VOLUME	1434	
AM - K FACTOR (%)		
AM - D (%)		
DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:00 AM to 08:00 AM	
AM - PEAK HR VOLUME	1434	

PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		
PM - PEAK HR TIME	04:45 PM to 05:45 PM	
PM - PEAK HR VOLUME	2234	
PM - K FACTOR (%)		
PM - D (%)		
DIRECTIONAL PEAK		
PM - PEAK HR TIME	04:45 PM to 05:45 PM	
PM - PEAK HR VOLUME	2234	

AM PERIOD (00:00-12:00)	
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	11:00 AM to 12:00 PM
AM - PEAK HR VOLUME	1660
AM - K FACTOR (%)	
AM - D (%)	

PM PERIOD (12:00-24:00)	
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	02:00 PM to 03:00 PM
PM - PEAK HR VOLUME	2580
PM - K FACTOR (%)	
PM - D (%)	

NON-COMMUTER PERIOD (09:00-15:00)	
TWO DIRECTIONAL PEAK	
PEAK HR TIME	02:00 PM to 03:00 PM
PEAK HR VOLUME	2580
DIRECTIONAL PEAK	
PEAK HR TIME	02:00 PM to 03:00 PM
PEAK HR VOLUME	2580

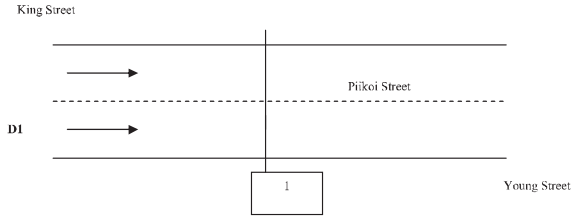
6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
AM 6-HR PERIOD (06:00-12:00)	7,568		
AM 12-HR PERIOD (00:00-12:00)	9,055		
PM 6-HR PERIOD (12:00-18:00)	12,157		
PM 12-HR PERIOD (12:00-24:00)	20,419		
24 HOUR PERIOD	29,474		
D (%)			

Traffic Data Service
Traffic Station Sketch

N

Island: Oahu
Area: Honolulu

Section ID/Station #: B72751300065



	Meter #	File Name	GPS
1.	bw61	D0430005_B72751300065	21.30039, -157.8438
2.			

Station Description: Piikoi Street: King Street to Young Street (One Way)			
Survey Beginning Date/Time: 4/30/2013 @ 0000		Survey Ending Date/Time: 5/1/2013 @ 2400	
Survey Method:	Road Tube	Data Type:	Volume
Survey Crew:	LM		V1
Sketch Updated:	5.16.13 - 439	By:	SR
Remarks:			

FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE NO.	ROUTE MILE
Piikoi Street		16		7513	

D1 = Direction to End
D2 = Direction to Begin
D1: Young Street / Pensacola Street

Run Date: 2014/05/21

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2013 Program Count - Summary

Site ID: B72751300065 **Town:** Oahu **DIR 1:** +MP **DIR 2:** None **Final AADT:** 28500
Functional Class: URBAN:MINOR ARTERIAL **Count Type:** VOLUME **Counter Type:** Tube **Route No:** 7513
Location: Piikoi Street: King St to Young St

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 04/30/2013															
12:00-12:15	98	0	98	06:00-06:15	122	0	122	12:00-12:15	492	0	492	06:00-06:15	608	0	608
12:15-12:30	68	0	68	06:15-06:30	138	0	138	12:15-12:30	481	0	481	06:15-06:30	624	0	624
12:30-12:45	69	0	69	06:30-06:45	163	0	163	12:30-12:45	482	0	482	06:30-06:45	656	0	656
12:45-01:00	55	0	55	06:45-07:00	209	0	209	12:45-01:00	467	0	467	06:45-07:00	421	0	421
01:00-01:15	52	0	52	07:00-07:15	280	0	280	01:00-01:15	560	0	560	07:00-07:15	420	0	420
01:15-01:30	41	0	41	07:15-07:30	258	0	258	01:15-01:30	501	0	501	07:15-07:30	379	0	379
01:30-01:45	58	0	58	07:30-07:45	337	0	337	01:30-01:45	525	0	525	07:30-07:45	339	0	339
01:45-02:00	40	0	40	07:45-08:00	279	0	279	01:45-02:00	713	0	713	07:45-08:00	455	0	455
02:00-02:15	67	0	67	08:00-08:15	257	0	257	02:00-02:15	744	0	744	08:00-08:15	400	0	400
02:15-02:30	26	0	26	08:15-08:30	278	0	278	02:15-02:30	613	0	613	08:15-08:30	320	0	320
02:30-02:45	35	0	35	08:30-08:45	232	0	232	02:30-02:45	510	0	510	08:30-08:45	322	0	322
02:45-03:00	28	0	28	08:45-09:00	283	0	283	02:45-03:00	513	0	513	08:45-09:00	349	0	349
03:00-03:15	38	0	38	09:00-09:15	242	0	242	03:00-03:15	504	0	504	09:00-09:15	352	0	352
03:15-03:30	32	0	32	09:15-09:30	275	0	275	03:15-03:30	590	0	590	09:15-09:30	317	0	317
03:30-03:45	32	0	32	09:30-09:45	255	0	255	03:30-03:45	560	0	560	09:30-09:45	295	0	295
03:45-04:00	28	0	28	09:45-10:00	314	0	314	03:45-04:00	615	0	615	09:45-10:00	300	0	300
04:00-04:15	41	0	41	10:00-10:15	382	0	382	04:00-04:15	663	0	663	10:00-10:15	335	0	335
04:15-04:30	35	0	35	10:15-10:30	434	0	434	04:15-04:30	604	0	604	10:15-10:30	251	0	251
04:30-04:45	64	0	64	10:30-10:45	380	0	380	04:30-04:45	560	0	560	10:30-10:45	185	0	185
04:45-05:00	46	0	46	10:45-11:00	423	0	423	04:45-05:00	550	0	550	10:45-11:00	160	0	160
05:00-05:15	72	0	72	11:00-11:15	428	0	428	05:00-05:15	589	0	589	11:00-11:15	181	0	181
05:15-05:30	70	0	70	11:15-11:30	421	0	421	05:15-05:30	613	0	613	11:15-11:30	140	0	140
05:30-05:45	82	0	82	11:30-11:45	526	0	526	05:30-05:45	594	0	594	11:30-11:45	142	0	142
05:45-06:00	75	0	75	11:45-12:00	480	0	480	05:45-06:00	562	0	562	11:45-12:00	106	0	106

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:00 AM to 08:00 AM	
AM - PEAK HR VOLUME	1154	
AM - K FACTOR (%)		
AM - D (%)		
DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:00 AM to 08:00 AM	
AM - PEAK HR VOLUME	1154	

PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		
PM - PEAK HR TIME	05:45 PM to 06:45 PM	
PM - PEAK HR VOLUME	2450	
PM - K FACTOR (%)		-
PM - D (%)		
DIRECTIONAL PEAK		
PM - PEAK HR TIME	05:45 PM to 06:45 PM	
PM - PEAK HR VOLUME	2450	

AM PERIOD (00:00-12:00)	
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	11:00 AM to 12:00 PM
AM - PEAK HR VOLUME	1855
AM - K FACTOR (%)	
AM - D (%)	

PM PERIOD (12:00-24:00)	
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	01:30 PM to 02:30 PM
PM - PEAK HR VOLUME	2595
PM - K FACTOR (%)	-
PM - D (%)	

NON-COMMUTER PERIOD (09:00-15:00)	
TWO DIRECTIONAL PEAK	
PEAK HR TIME	01:30 PM to 02:30 PM
PEAK HR VOLUME	2595
DIRECTIONAL PEAK	
PEAK HR TIME	01:30 PM to 02:30 PM
PEAK HR VOLUME	2595

6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
AM 6-HR PERIOD (06:00-12:00)	7,396		
AM 12-HR PERIOD (00:00-12:00)	8,649		
PM 6-HR PERIOD (12:00-18:00)	13,605		
PM 12-HR PERIOD (12:00-24:00)	21,662		
24 HOUR PERIOD	30,311		
D (%)			

Run Date: 2014/05/21

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2013 Program Count - Summary

Site ID: B72751300065 **Town:** Oahu **DIR 1:** +MP **DIR 2:** None **Final AADT:** 28500
Functional Class: URBAN:MINOR ARTERIAL **Count Type:** VOLUME **Counter Type:** Tube **Route No:** 7513
Location: Piikoi Street: King St to Young St

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/01/2013															
12:00-12:15	97	0	97	06:00-06:15	161	0	161	12:00-12:15	609	0	609	06:00-06:15	636	0	636
12:15-12:30	102	0	102	06:15-06:30	139	0	139	12:15-12:30	553	0	553	06:15-06:30	683	0	683
12:30-12:45	91	0	91	06:30-06:45	160	0	160	12:30-12:45	533	0	533	06:30-06:45	662	0	662
12:45-01:00	68	0	68	06:45-07:00	183	0	183	12:45-01:00	467	0	467	06:45-07:00	507	0	507
01:00-01:15	72	0	72	07:00-07:15	286	0	286	01:00-01:15	636	0	636	07:00-07:15	405	0	405
01:15-01:30	65	0	65	07:15-07:30	290	0	290	01:15-01:30	562	0	562	07:15-07:30	439	0	439
01:30-01:45	47	0	47	07:30-07:45	336	0	336	01:30-01:45	458	0	458	07:30-07:45	440	0	440
01:45-02:00	38	0	38	07:45-08:00	302	0	302	01:45-02:00	479	0	479	07:45-08:00	422	0	422
02:00-02:15	48	0	48	08:00-08:15	323	0	323	02:00-02:15	483	0	483	08:00-08:15	405	0	405
02:15-02:30	40	0	40	08:15-08:30	335	0	335	02:15-02:30	520	0	520	08:15-08:30	361	0	361
02:30-02:45	30	0	30	08:30-08:45	266	0	266	02:30-02:45	549	0	549	08:30-08:45	387	0	387
02:45-03:00	48	0	48	08:45-09:00	333	0	333	02:45-03:00	634	0	634	08:45-09:00	372	0	372
03:00-03:15	43	0	43	09:00-09:15	606	0	606	03:00-03:15	689	0	689	09:00-09:15	368	0	368
03:15-03:30	52	0	52	09:15-09:30	366	0	366	03:15-03:30	662	0	662	09:15-09:30	335	0	335
03:30-03:45	38	0	38	09:30-09:45	347	0	347	03:30-03:45	643	0	643	09:30-09:45	315	0	315
03:45-04:00	56	0	56	09:45-10:00	382	0	382	03:45-04:00	610	0	610	09:45-10:00	270	0	270
04:00-04:15	53	0	53	10:00-10:15	350	0	350	04:00-04:15	740	0	740	10:00-10:15	259	0	259
04:15-04:30	48	0	48	10:15-10:30	456	0	456	04:15-04:30	724	0	724	10:15-10:30	251	0	251
04:30-04:45	72	0	72	10:30-10:45	462	0	462	04:30-04:45	583	0	583	10:30-10:45	204	0	204
04:45-05:00	60	0	60	10:45-11:00	489	0	489	04:45-05:00	636	0	636	10:45-11:00	161	0	161
05:00-05:15	75	0	75	11:00-11:15	473	0	473	05:00-05:15	605	0	605	11:00-11:15	203	0	203
05:15-05:30	95	0	95	11:15-11:30	531	0	531	05:15-05:30	607	0	607	11:15-11:30	169	0	169
05:30-05:45	70	0	70	11:30-11:45	544	0	544	05:30-05:45	582	0	582	11:30-11:45	128	0	128
05:45-06:00	70	0	70	11:45-12:00	423	0	423	05:45-06:00	641	0	641	11:45-12:00	91	0	91

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:30 AM to 08:30 AM	
AM - PEAK HR VOLUME	1296	
AM - K FACTOR (%)		
AM - D (%)		
DIRECTIONAL PEAK		
AM - PEAK HR TIME	07:30 AM to 08:30 AM	
AM - PEAK HR VOLUME	1296	

PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2
TWO DIRECTIONAL PEAK		
PM - PEAK HR TIME	03:30 PM to 04:30 PM	
PM - PEAK HR VOLUME	2717	
PM - K FACTOR (%)		-
PM - D (%)		
DIRECTIONAL PEAK		
PM - PEAK HR TIME	03:30 PM to 04:30 PM	
PM - PEAK HR VOLUME	2717	

AM PERIOD (00:00-12:00)	
TWO DIRECTIONAL PEAK	
AM - PEAK HR TIME	10:45 AM to 11:45 AM
AM - PEAK HR VOLUME	2037
AM - K FACTOR (%)	
AM - D (%)	

PM PERIOD (12:00-24:00)	
TWO DIRECTIONAL PEAK	
PM - PEAK HR TIME	03:30 PM to 04:30 PM
PM - PEAK HR VOLUME	2717
PM - K FACTOR (%)	-
PM - D (%)	

NON-COMMUTER PERIOD (09:00-15:00)	
TWO DIRECTIONAL PEAK	
PEAK HR TIME	12:30 PM to 01:30 PM
PEAK HR VOLUME	2198
DIRECTIONAL PEAK	
PEAK HR TIME	12:30 PM to 01:30 PM
PEAK HR VOLUME	2198

6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
AM 6-HR PERIOD (06:00-12:00)	8,543		
AM 12-HR PERIOD (00:00-12:00)	10,021		
PM 6-HR PERIOD (12:00-18:00)	14,205		
PM 12-HR PERIOD (12:00-24:00)	22,678		
24 HOUR PERIOD	32,699		
D (%)			

Appendix C

Analysis Reports
Existing (2015) Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	1853	0	0	0	0	0	1079	221	0	0	0
Future Volume (veh/h)	233	1853	0	0	0	0	0	1079	221	0	0	0
Number	7	4	14				5	2	12			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1845	0				0	1845	1845			
Adj Flow Rate, veh/h	243	1930	0				0	1124	230			
Adj No. of Lanes	0	5	0				0	4	1			
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96			
Percent Heavy Veh, %	3	3	0				0	3	3			
Cap, veh/h	380	2647	0				0	3035	750			
Arrive On Green	0.42	0.42	0.00				0.00	0.48	0.48			
Sat Flow, veh/h	762	6597	0				0	6604	1568			
Grp Volume(v), veh/h	511	1662	0				0	1124	230			
Grp Sat Flow(s),veh/h/ln	1601	1360	0				0	1586	1568			
Q Serve(g_s), s	24.4	22.9	0.0				0.0	10.1	8.1			
Cycle Q Clear(g_c), s	24.4	22.9	0.0				0.0	10.1	8.1			
Prop In Lane	0.48		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	734	2293	0				0	3035	750			
V/C Ratio(X)	0.70	0.72	0.00				0.00	0.37	0.31			
Avail Cap(c_a), veh/h	780	2447	0				0	3035	750			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	22.1	21.7	0.0				0.0	14.9	14.4			
Incr Delay (d2), s/veh	2.5	1.0	0.0				0.0	0.3	1.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	11.3	8.7	0.0				0.0	4.4	3.7			
LnGrp Delay(d),s/veh	24.6	22.7	0.0				0.0	15.2	15.4			
LnGrp LOS	C	C						B	B			
Approach Vol, veh/h		2173						1354				
Approach Delay, s/veh		23.1						15.3				
Approach LOS		C						B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		47.5		42.5				
Change Period (Y+Rc), s		4.5		4.5				
Max Green Setting (Gmax), s		40.5		40.5				
Max Q Clear Time (g_c+I1), s		12.1		26.4				
Green Ext Time (p_c), s		11.1		11.6				

Intersection Summary	
HCM 2010 Ctrl Delay	20.1
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	10	1	6	64	0	0	0	0	13	11	19
Future Vol, veh/h	0	10	1	6	64	0	0	0	0	13	11	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	12	1	7	77	0	0	0	0	16	13	23

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	77	0	0	13	0	0				105	105	77
Stage 1	-	-	-	-	-	-				92	92	-
Stage 2	-	-	-	-	-	-				13	13	-
Critical Hdwy	4.11	-	-	4.11	-	-				6.41	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-				5.41	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.41	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-				3.509	4.009	3.309
Pot Cap-1 Maneuver	1528	-	-	1612	-	-				895	787	987
Stage 1	-	-	-	-	-	-				934	821	-
Stage 2	-	-	-	-	-	-				1012	887	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1528	-	-	1612	-	-				891	0	987
Mov Cap-2 Maneuver	-	-	-	-	-	-				891	0	-
Stage 1	-	-	-	-	-	-				929	0	-
Stage 2	-	-	-	-	-	-				1012	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0.6	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1528	-	-	1612	-	-	946
HCM Lane V/C Ratio	-	-	-	0.004	-	-	0.055
HCM Control Delay (s)	0	-	-	7.2	0	-	9
HCM Lane LOS	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	22	8	0	0	6	68	16	1290	5	0	0	0
Future Vol, veh/h	22	8	0	0	6	68	16	1290	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	25	9	0	0	7	76	18	1449	6	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	619	1491	0	1492	1488	727	0	0	0
Stage 1	0	0	-	1488	1488	-	-	-	-
Stage 2	619	1491	-	4	0	-	-	-	-
Critical Hdwy	5.76	6.56	-	5.76	6.56	7.16	-	-	-
Critical Hdwy Stg 1	-	-	-	6.66	5.56	-	-	-	-
Critical Hdwy Stg 2	6.06	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.83	4.03	-	3.83	4.03	3.93	-	-	-
Pot Cap-1 Maneuver	477	121	-	172	122	313	-	-	-
Stage 1	-	-	-	119	184	-	-	-	-
Stage 2	453	184	-	-	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	477	0	-	172	0	313	-	-	-
Mov Cap-2 Maneuver	477	0	-	172	0	-	-	-	-
Stage 1	-	0	-	119	0	-	-	-	-
Stage 2	453	0	-	-	0	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s		20.6	
HCM LOS	-	C	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	-	-	313
HCM Lane V/C Ratio	-	-	-	-	0.266
HCM Control Delay (s)	-	-	-	-	20.6
HCM Lane LOS	-	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	-	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	413	2327	0	0	0	0	0	1271	295	0	0	0
Future Volume (veh/h)	413	2327	0	0	0	0	0	1271	295	0	0	0
Number	7	4	14				5	2	12			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1881	0				0	1881	1881			
Adj Flow Rate, veh/h	430	2424	0				0	1324	307			
Adj No. of Lanes	0	5	0				0	4	1			
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96			
Percent Heavy Veh, %	1	1	0				0	1	1			
Cap, veh/h	556	2918	0				0	2720	672			
Arrive On Green	0.48	0.48	0.00				0.00	0.42	0.42			
Sat Flow, veh/h	1020	6407	0				0	6735	1599			
Grp Volume(v), veh/h	656	2198	0				0	1324	307			
Grp Sat Flow(s),veh/h/ln	1555	1387	0				0	1618	1599			
Q Serve(g_s), s	34.1	30.7	0.0				0.0	13.4	12.4			
Cycle Q Clear(g_c), s	34.1	30.7	0.0				0.0	13.4	12.4			
Prop In Lane	0.66		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	812	2661	0				0	2720	672			
V/C Ratio(X)	0.81	0.83	0.00				0.00	0.49	0.46			
Avail Cap(c_a), veh/h	818	2681	0				0	2720	672			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	21.1	20.2	0.0				0.0	19.0	18.7			
Incr Delay (d2), s/veh	6.0	2.2	0.0				0.0	0.6	2.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	15.9	12.2	0.0				0.0	6.1	5.9			
LnGrp Delay(d),s/veh	27.0	22.4	0.0				0.0	19.6	20.9			
LnGrp LOS	C	C						B	C			
Approach Vol, veh/h		2854						1631				
Approach Delay, s/veh		23.5						19.9				
Approach LOS		C						B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		42.3		47.7				
Change Period (Y+Rc), s		4.5		4.5				
Max Green Setting (Gmax), s		37.5		43.5				
Max Q Clear Time (g_c+I1), s		15.4		36.1				
Green Ext Time (p_c), s		12.0		7.1				

Intersection Summary	
HCM 2010 Ctrl Delay	22.2
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	8	2	10	64	0	0	0	0	9	27	11
Future Vol, veh/h	0	8	2	10	64	0	0	0	0	9	27	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	9	2	11	68	0	0	0	0	10	29	12

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	68	0	0	11	0	0	99	100	68
Stage 1	-	-	-	-	-	-	89	89	-
Stage 2	-	-	-	-	-	-	10	11	-
Critical Hdwy	4.11	-	-	4.11	-	-	6.41	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	5.41	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.41	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309
Pot Cap-1 Maneuver	1540	-	-	1615	-	-	902	792	998
Stage 1	-	-	-	-	-	-	937	823	-
Stage 2	-	-	-	-	-	-	1016	888	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1540	-	-	1615	-	-	896	0	998
Mov Cap-2 Maneuver	-	-	-	-	-	-	896	0	-
Stage 1	-	-	-	-	-	-	930	0	-
Stage 2	-	-	-	-	-	-	1016	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1540	-	-	1615	-	-	949
HCM Lane V/C Ratio	-	-	-	0.007	-	-	0.053
HCM Control Delay (s)	0	-	-	7.2	0	-	9
HCM Lane LOS	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	18	5	0	0	6	82	10	1633	5	0	0	0
Future Vol, veh/h	18	5	0	0	6	82	10	1633	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	19	5	0	0	6	87	11	1737	5	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	719	1764	0	1764	1761	870	0	0	0
Stage 1	0	0	-	1761	1761	-	-	-	-
Stage 2	719	1764	-	3	0	-	-	-	-
Critical Hdwy	5.72	6.52	-	5.72	6.52	7.12	-	-	-
Critical Hdwy Stg 1	-	-	-	6.62	5.52	-	-	-	-
Critical Hdwy Stg 2	6.02	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.81	4.01	-	3.81	4.01	3.91	-	-	-
Pot Cap-1 Maneuver	431	84	-	127	84	255	-	-	-
Stage 1	-	-	-	82	138	-	-	-	-
Stage 2	406	137	-	-	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	431	0	-	127	0	255	-	-	-
Mov Cap-2 Maneuver	431	0	-	127	0	-	-	-	-
Stage 1	-	0	-	82	0	-	-	-	-
Stage 2	406	0	-	-	0	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s		27.1	
HCM LOS	-	D	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	-	-	255
HCM Lane V/C Ratio	-	-	-	-	0.367
HCM Control Delay (s)	-	-	-	-	27.1
HCM Lane LOS	-	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	-	1.6

Appendix D

Analysis Reports
Future (2022) With Project Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	1878	0	0	0	0	0	1097	229	0	0	0
Future Volume (veh/h)	233	1878	0	0	0	0	0	1097	229	0	0	0
Number	7	4	14				5	2	12			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1845	0				0	1845	1845			
Adj Flow Rate, veh/h	243	1956	0				0	1143	239			
Adj No. of Lanes	0	5	0				0	4	1			
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96			
Percent Heavy Veh, %	3	3	0				0	3	3			
Cap, veh/h	378	2664	0				0	3023	747			
Arrive On Green	0.42	0.42	0.00				0.00	0.48	0.48			
Sat Flow, veh/h	754	6607	0				0	6604	1568			
Grp Volume(v), veh/h	517	1682	0				0	1143	239			
Grp Sat Flow(s),veh/h/ln	1604	1360	0				0	1586	1568			
Q Serve(g_s), s	24.7	23.2	0.0				0.0	10.4	8.5			
Cycle Q Clear(g_c), s	24.7	23.2	0.0				0.0	10.4	8.5			
Prop In Lane	0.47		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	738	2304	0				0	3023	747			
V/C Ratio(X)	0.70	0.73	0.00				0.00	0.38	0.32			
Avail Cap(c_a), veh/h	781	2447	0				0	3023	747			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	22.1	21.6	0.0				0.0	15.0	14.6			
Incr Delay (d2), s/veh	2.6	1.1	0.0				0.0	0.4	1.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	11.4	8.8	0.0				0.0	4.6	3.9			
LnGrp Delay(d),s/veh	24.7	22.7	0.0				0.0	15.4	15.7			
LnGrp LOS	C	C						B	B			
Approach Vol, veh/h		2199						1382				
Approach Delay, s/veh		23.2						15.5				
Approach LOS		C						B				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		47.4		42.6				
Change Period (Y+Rc), s		4.5		4.5				
Max Green Setting (Gmax), s		40.5		40.5				
Max Q Clear Time (g_c+I1), s		12.4		26.7				
Green Ext Time (p_c), s		11.3		11.5				

Intersection Summary	
HCM 2010 Ctrl Delay	20.2
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	10	1	6	64	0	0	0	0	13	23	19
Future Vol, veh/h	0	10	1	6	64	0	0	0	0	13	23	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	12	1	7	77	0	0	0	0	16	28	23

Major/Minor	Major1			Major2			Minor2		
Conflicting Flow All	77	0	0	13	0	0	105	105	77
Stage 1	-	-	-	-	-	-	92	92	-
Stage 2	-	-	-	-	-	-	13	13	-
Critical Hdwy	4.11	-	-	4.11	-	-	6.41	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	5.41	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.41	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.509	4.009	3.309
Pot Cap-1 Maneuver	1528	-	-	1612	-	-	895	787	987
Stage 1	-	-	-	-	-	-	934	821	-
Stage 2	-	-	-	-	-	-	1012	887	-
Platoon blocked, %		-	-		-	-			
Mov Cap-1 Maneuver	1528	-	-	1612	-	-	891	0	987
Mov Cap-2 Maneuver	-	-	-	-	-	-	891	0	-
Stage 1	-	-	-	-	-	-	929	0	-
Stage 2	-	-	-	-	-	-	1012	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0.6	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1528	-	-	1612	-	-	946
HCM Lane V/C Ratio	-	-	-	0.004	-	-	0.07
HCM Control Delay (s)	0	-	-	7.2	0	-	9.1
HCM Lane LOS	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	22	8	0	0	6	68	16	1319	5	0	0	0
Future Vol, veh/h	22	8	0	0	6	68	16	1319	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	25	9	0	0	7	76	18	1482	6	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	632	1524	0	1525	1521	743	0	0	0
Stage 1	0	0	-	1521	1521	-	-	-	-
Stage 2	632	1524	-	4	0	-	-	-	-
Critical Hdwy	5.76	6.56	-	5.76	6.56	7.16	-	-	-
Critical Hdwy Stg 1	-	-	-	6.66	5.56	-	-	-	-
Critical Hdwy Stg 2	6.06	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.83	4.03	-	3.83	4.03	3.93	-	-	-
Pot Cap-1 Maneuver	470	116	-	166	116	305	-	-	-
Stage 1	-	-	-	114	178	-	-	-	-
Stage 2	446	177	-	-	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	470	0	-	166	0	305	-	-	-
Mov Cap-2 Maneuver	470	0	-	166	0	-	-	-	-
Stage 1	-	0	-	114	0	-	-	-	-
Stage 2	446	0	-	-	0	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s		21.2	
HCM LOS	-	C	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	-	-	305
HCM Lane V/C Ratio	-	-	-	-	0.273
HCM Control Delay (s)	-	-	-	-	21.2
HCM Lane LOS	-	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	-	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	413	2345	0	0	0	0	0	1299	308	0	0	0
Future Volume (veh/h)	413	2345	0	0	0	0	0	1299	308	0	0	0
Number	7	4	14				5	2	12			
Initial Q (Qb), veh	0	0	0				0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1881	0				0	1881	1881			
Adj Flow Rate, veh/h	430	2443	0				0	1353	321			
Adj No. of Lanes	0	5	0				0	4	1			
Peak Hour Factor	0.96	0.96	0.96				0.96	0.96	0.96			
Percent Heavy Veh, %	1	1	0				0	1	1			
Cap, veh/h	553	2924	0				0	2717	671			
Arrive On Green	0.48	0.48	0.00				0.00	0.42	0.42			
Sat Flow, veh/h	1014	6415	0				0	6735	1599			
Grp Volume(v), veh/h	660	2213	0				0	1353	321			
Grp Sat Flow(s),veh/h/ln	1557	1387	0				0	1618	1599			
Q Serve(g_s), s	34.5	31.1	0.0				0.0	13.8	13.1			
Cycle Q Clear(g_c), s	34.5	31.1	0.0				0.0	13.8	13.1			
Prop In Lane	0.65		0.00				0.00		1.00			
Lane Grp Cap(c), veh/h	814	2663	0				0	2717	671			
V/C Ratio(X)	0.81	0.83	0.00				0.00	0.50	0.48			
Avail Cap(c_a), veh/h	819	2681	0				0	2717	671			
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00				0.00	1.00	1.00			
Uniform Delay (d), s/veh	21.1	20.2	0.0				0.0	19.1	18.9			
Incr Delay (d2), s/veh	6.2	2.3	0.0				0.0	0.7	2.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	16.1	12.3	0.0				0.0	6.2	6.2			
LnGrp Delay(d),s/veh	27.3	22.6	0.0				0.0	19.8	21.4			
LnGrp LOS	C	C						B	C			
Approach Vol, veh/h		2873						1674				
Approach Delay, s/veh		23.7						20.1				
Approach LOS		C						C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				
Phs Duration (G+Y+Rc), s		42.3		47.7				
Change Period (Y+Rc), s		4.5		4.5				
Max Green Setting (Gmax), s		37.5		43.5				
Max Q Clear Time (g_c+I1), s		15.8		36.5				
Green Ext Time (p_c), s		12.2		6.7				

Intersection Summary	
HCM 2010 Ctrl Delay	22.4
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	8	2	10	64	0	0	0	0	9	46	11
Future Vol, veh/h	0	8	2	10	64	0	0	0	0	9	46	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	9	2	11	68	0	0	0	0	10	49	12

Major/Minor	Major1			Major2						Minor2		
Conflicting Flow All	68	0	0	11	0	0				99	100	68
Stage 1	-	-	-	-	-	-				89	89	-
Stage 2	-	-	-	-	-	-				10	11	-
Critical Hdwy	4.11	-	-	4.11	-	-				6.41	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-				5.41	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-				5.41	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-				3.509	4.009	3.309
Pot Cap-1 Maneuver	1540	-	-	1615	-	-				902	792	998
Stage 1	-	-	-	-	-	-				937	823	-
Stage 2	-	-	-	-	-	-				1016	888	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1540	-	-	1615	-	-				896	0	998
Mov Cap-2 Maneuver	-	-	-	-	-	-				896	0	-
Stage 1	-	-	-	-	-	-				930	0	-
Stage 2	-	-	-	-	-	-				1016	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	1	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1540	-	-	1615	-	-	949
HCM Lane V/C Ratio	-	-	-	0.007	-	-	0.074
HCM Control Delay (s)	0	-	-	7.2	0	-	9.1
HCM Lane LOS	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0	-	-	0	-	-	0.2

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	18	5	0	0	6	82	10	1654	5	0	0	0
Future Vol, veh/h	18	5	0	0	6	82	10	1654	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	19	5	0	0	6	87	11	1760	5	0	0	0

Major/Minor	Minor2			Minor1			Major1		
Conflicting Flow All	728	1786	0	1787	1784	881	0	0	0
Stage 1	0	0	-	1784	1784	-	-	-	-
Stage 2	728	1786	-	3	0	-	-	-	-
Critical Hdwy	5.72	6.52	-	5.72	6.52	7.12	-	-	-
Critical Hdwy Stg 1	-	-	-	6.62	5.52	-	-	-	-
Critical Hdwy Stg 2	6.02	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.81	4.01	-	3.81	4.01	3.91	-	-	-
Pot Cap-1 Maneuver	426	81	-	123	82	250	-	-	-
Stage 1	-	-	-	79	134	-	-	-	-
Stage 2	401	134	-	-	-	-	-	-	-
Platoon blocked, %								-	-
Mov Cap-1 Maneuver	426	0	-	123	0	250	-	-	-
Mov Cap-2 Maneuver	426	0	-	123	0	-	-	-	-
Stage 1	-	0	-	79	0	-	-	-	-
Stage 2	401	0	-	-	0	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s		27.8	
HCM LOS	-	D	

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1
Capacity (veh/h)	-	-	-	-	250
HCM Lane V/C Ratio	-	-	-	-	0.374
HCM Control Delay (s)	-	-	-	-	27.8
HCM Lane LOS	-	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	-	1.7

Appendix I:
Preliminary Engineering Report

PRELIMINARY ENGINEERING REPORT

for

JOINT DEVELOPMENT FOR AFFORDABLE RENTAL HOUSING AND JUVENILE SERVICES CENTER/SHELTER

HONOLULU, OAHU, HAWAII 96814

TMK: 2-3-012:019

March 2, 2016

Submitted By

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Statement of SSFM International, Inc.'s Quality Process

It is the policy of SSFM to have a consistent and systematic approach to the development and review of its reports and other project deliverables.

All projects and products of our service are subject to a quality process and in no case will the quality review be eliminated. The main purpose of this process is to assure:

- Clarity, completeness, coordination, and accuracy of documents.
- That the project, study or investigation meets the Client's objectives.
- That the requirements of our Agreement with the Client have been met, and the Client has received the value of the fee to be paid.

The Preparation of This Report Was The Responsibility Of and Completed By:

Signature — Date: 3/2/16

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PE-16019
Exp. 4/30/16

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TABLE OF CONTENTS

I. INTRODUCTION 2
II. BACKGROUND 2
III. DRAINAGE 3
EXISTING CONDITIONS 3
MODIFICATIONS AFTER DEVELOPMENT 3
IV. GRADING AND SOILS 4
V. ROADS, SIDEWALKS AND DRIVEWAYS 5
EXISTING CONDITIONS 5
MODIFICATIONS AFTER DEVELOPMENT 5
VI. WATER 7
EXISTING CONDITIONS 7
PROJECTED WATER DEMAND 8
VII. WASTEWATER 10
EXISTING CONDITIONS 10
PROJECTED WASTEWATER FLOWS 10
VIII. ELECTRICAL AND TELECOM 11
IX. REFERENCES 12

APPENDICES

Appendix A: Figures
Figure 1: Project Location Map
Figure 2: Land Title Survey
Figure 3: Architectural Scheme
Figure 4: Storm Sewer GIS Map
Figure 5: FEMA FIRM
Figure 6: Soil Map
Figure 7: BWS GIS Map
Figure 8: 2012 Existing Juvenile Detention Floor Plan
Figure 9: DPP HoLIS GIS Sanitary Sewer Map

Appendix B: Approved Sewer Connection Application

Appendix C: Proposed Fixture Units (Preliminary)

Appendix D: BWS Water System Pressure and Flow Data (Calculated)

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Joint Development for Affordable Rental
Housing and Juvenile Services Center/Shelter
Preliminary Engineering Report
March 2, 2016

I. INTRODUCTION

The State of Hawaii Judiciary and Housing Finance Development Corporation (HHFDC) are proposing to jointly redevelop the property at 902 Alder Street. The proposed redevelopment is a mixed use facility to include workforce family affordable rental housing and a juvenile shelter/ services center.

The objectives of this preliminary engineering report are to discuss the infrastructure requirements, design constraints, and availability of utilities to service the redevelopment project. Utility discussion will include water, sewer, drainage, and electrical utilities. The water design discussion will include an estimated count of existing plumbing fixture units that would be applied to future fees.

II. BACKGROUND

The property is located in urban Honolulu in the Ala Moana neighborhood. The land is zoned A-2 Medium-density Apartment District. The parcel is 1.45 acres, fronted by Pi'ikoi Street, Elm Street and Alder Street. See Figure 1 for project location. The site is presently developed. It contains low-rise structures with existing utility connections, constructed in various additions dating from the 1940's to the 1980's. The site is a partially occupied government facility, housing a juvenile shelter in one building and a defunct juvenile detention home in another building.

The proposed redevelopment project will significantly change the site in terms of occupancy and use. The site will be razed. The new project will construct a mixed-use tower and accompanying multi-level parking garage. The site will remain government owned, housing a juvenile shelter and services center on three floors, and 187 affordable rental housing units on 16 floors. It is assumed any existing utility pipes and structures within the parcel will be demolished or abandoned and new connections will be made to utility service laterals at the property line.

Figures 2 and 3 show the existing and proposed site plans. Figure 2 is a preliminary ALTA/ACSM Land Title Survey dated July 24, 2015 (survey) showing parcel and surface feature information of the existing conditions. Figure 3 shows the architect's proposed site plan scheme superimposed on the survey.

III. DRAINAGE

EXISTING CONDITIONS

City and County of Honolulu (City) drainage infrastructure is in place adjacent to the property. Catch basins are located at the intersections makai of the property. The catch basin at the southeast corner of the lot, at the intersection of Elm Street and Alder Street, connects to a 42 inch RCP drainline that runs south on Alder from Elm. The catch basin near the southwest corner of the property discharges into the 36 inch x 96 inch box culvert flowing south under Pi'ikoi Street. The City has a GIS database which provides utility maps. A GIS map of the drainage system in the vicinity of the project site is shown on Figure 4. Overland flow is to the southwest on generally flat terrain. The existing site has approximately 60% impervious cover.

The project's site location has been designated to be within flood zone "X" under the Federal Emergency Management Agency (FEMA). The FEMA Flood Insurance Rate Map (FIRM) for the site is shown in Figure 5, release date January 19, 2011, Panel 15003C0362G. Zone "X" is an area that has been determined to be outside of the 0.2% annual chance (500-year) floodplain.

MODIFICATIONS AFTER DEVELOPMENT

The drainage system shall be designed for both storm water quantity and quality in accordance with the Department of Planning and Permitting, City and County of Honolulu, Rules Relating to Storm Drainage Standards, amended June 1, 2013, hereinafter referred to as City Drainage Standards.

For storm water quantity, the rational method shall be used with a 10 year design storm. 10 year storm rainfall intensities for the vicinity are moderate at approximately 2.5 inches per hour. City Drainage Standards require storm water runoff rates and volumes be limited to pre-development values. The proposed site will be approximately 65% impervious, an increase from the existing condition, which will likely cause a slight increase in runoff rates and volumes. The project should therefore anticipate to retain and/or detain the increase in peak storm water flows.

The project will likely disturb more than one acre of area, therefore for water quality design, the project will be classified as Type A2, projects that disturb between one and five acres. Type A2 projects must implement the following practices to meet water quality criteria:

1. Incorporate appropriate Low Impact Development site design strategies. An example is incorporating landscaped areas into the site design.
2. Incorporate appropriate Source Control BMPs. An example is including drain inlet stencils that discourage illegal dumping into drain inlets.

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Joint Development for Affordable Rental
Housing and Juvenile Services Center/Shelter
Preliminary Engineering Report
March 2, 2016

3. Retain or Biofilter the water quality volume with appropriate post construction treatment control BMPs. Examples include subsurface perforated chambers and vegetated swales. The water quality volume is calculated based on surface area, ground cover, a standard design storm (1 inch depth for retention facilities and 0.4 inches per hour for biofiltration facilities). Unlike storm water quantity, water quality design does not take into account the existing condition, therefore the design is not based on an increase in flow, but rather total flow from the developed condition.

Item 3, Treatment Control BMPs, will have the most impact in terms of design effort and construction and facility maintenance cost. The project should anticipate obtaining services of a geotechnical engineer to measure soil percolation rates. The owner will have obligations to the City to maintain water quality facilities that are constructed on site.

IV. GRADING AND SOILS

A topographic survey is not yet available for the site, however it is evident from site observations that the parcel and vicinity lie on relatively flat terrain. City GIS 5 foot contours show overland slopes of approximately 1% in the vicinity.

Grading operations shall be in conformance with the Revised Ordinances of the City and County of Honolulu 1990 (ROH), however it is not anticipated that site earthwork will be a major component of construction.

The site shall be graded for accessibility in accordance with the Americans with Disabilities Accessibility Act Guidelines (ADAAG). Requirements include, in part, providing at least one accessible route from public transportation stops, accessible parking spaces, passenger loading zones if provided, and public streets or sidewalks, to an accessible building entrance. Given the gentle terrain at the site it is anticipated that the site design would be able to comply with ADAAG with little difficulty.

According to the U.S. Department of Agriculture (USDA) Soil Survey Geographic (SSURGO) database (2001) and soil survey data gathered by Foote et al. (1972), the project area's soils consist of Makiki Clay Loam, 0 to 2% slopes (MkA). See Figure 6 for the Soil Survey Map. Makiki Clay Loam soils are generally described as well-drained soils on alluvial fans and terraces and are nearly level. Permeability is moderately rapid, and runoff is slow with an erosion hazard no more than slight. The hydrologic soil group is B.

A detailed soil analysis will be performed as planning of the project proceeds. Mitigative measures, if required, will be recommended by the project's soils engineers as building design and

final locations are further defined. Mitigative measures may include removal of unsuitable soils under foundations and/or special foundation design.

V. ROADS, SIDEWALKS AND DRIVEWAYS

EXISTING CONDITIONS

The property is fronted by three streets owned by the City, Alder Street on the east (Diamond Head), Elm Street on the south (makai), and Pi'ikoi Street on the west (Ewa). The property is also fronted by a T-intersection on the west side, where Alohi Way, a City-owned street, meets Pi'ikoi Street. The table below summarizes the cross sectional elements of the surrounding streets.

Table 1
Roadway Summary

Surrounding Street Cross Section Summary			
	Pi'ikoi Street	Elm Street	Alder Street
Width	64 ft.	28 ft.	20 ft.
# lanes	4	2	1
Direction	one-way (northbound)	two-way	one-way (southbound)
Street Parking (parallel)	115 ft. unmetered (except no parking 3:30 pm - 5:30 pm)	130 ft. unmetered	40 ft. unmetered, 50 ft. restricted for police use only
Curb & Gutter	Lava rock curb, Concrete gutter	Concrete curb & gutter	Concrete curb & gutter
Sidewalk	4 ft. concrete sidewalk 1 ½ ft. landscape strip	5 ½ ft. concrete	5 ½ ft. concrete
Ownership	City and County of Honolulu	City and County of Honolulu	City and County of Honolulu

The property has four driveway aprons, three on Alder Street and one on Pi'ikoi Street. A gate and driveway on Pi'ikoi Street allows service access. One of the driveways on Alder provides access to a small parking lot. Another driveway apron provides access to a pad of illegal parking stalls that encroach onto the sidewalk. The third Alder driveway apron presently provides no vehicle access to the property.

MODIFICATIONS AFTER DEVELOPMENT

The project will modify the layout of roadways, sidewalks and driveways. Modifications are subject to approval by the City Department of Planning and Permitting (DPP), and shall be in accordance with the ROH and Hawaii Administrative Rules. Generally, designs shall conform to the City standard details and specifications, and AASHTO design guides.

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Housing and Juvenile Services Center/Shelter
Preliminary Engineering Report
March 2, 2016

The proposed site plan has two driveway aprons, one on Pi'ikoi Street opposite Alohi Way, and one on Alder Street. The two driveway alignments are shown as co-linear on either side of the parking garage. The City is authorized to designate the location of driveways in areas zoned for hotel-apartment use, as is this project. Through an informal preliminary review, the DPP Traffic Review Branch did not see any immediate concerns regarding the proposed layout of the driveways. The Pi'ikoi Street driveway apron may conflict or not meet clearance requirements with existing utilities, specifically a fire hydrant, a utility pole and a water meter. This may require a variance from the City as well as utility relocations. Geometric design of the driveways should be straightforward with minimal challenges, given the gentle site grades and long frontage of the property.

The proposed site plan shows proposed sidewalk curb extensions (bulb outs/bump outs) into the parking lane on the mauka side of Elm Street between Pi'ikoi Street and Alder Street. The City will need to be provided a rationale for adding the curb extensions as well as impacts to the two-way traffic flow on Elm Street. Curb extensions are a feature of Complete Street design generally intended to increase pedestrian safety, enhance sidewalk use and provide traffic calming. Construction of the curb extensions will also have impacts to various existing infrastructure features, such as curb ramps, utility structures, and traffic striping and signage. These features will need to be relocated and constructed in accordance with City standards.

Segments of sidewalk, curb and gutter shall be restored where existing driveway aprons are abandoned.

The Pi'ikoi Street driveway improvements may disturb existing lava rock curb. These curbs are considered historic and therefore any disruption to them will require special handling. In some cases they are embedded deeper than standard curbs. Below grade the finish may be found to be roughhewn rather than squared off. Mitigations will need to be coordinated with the City and may include reusing the lava rock curbs, or salvaging the curb and replacing with a new curb of similar finish.

A traffic impact analysis report (TIAR) is being prepared separately in support of the environmental assessment report. Existing operating conditions were evaluated during the AM and PM peak hours. Future conditions were evaluated for the year 2022 for determination of project impact as well as the completion of the Honolulu Rail Transit project.

VI. WATER

EXISTING CONDITIONS

The Honolulu Board of Water Supply (BWS) provides water service to the existing project site. Based on BWS system as-built plans, domestic water service is currently provided by a 4-inch lateral (3-inch compound meter no. 04094081) connected to an existing 6-inch water main along Alohi Way. A City GIS water map in the vicinity of the project site was provided by BWS and is exhibited on Figure 7.

The total existing plumbing fixture units (FU) are estimated to be 251.5 FU. The fixture count is based on an existing floor plan from the 2012 Assessment Survey Report by Pacific Architects, Inc. as shown in Figure 8 and the survey (Figure 2). The fixture counts will need to be confirmed during the construction document phase. The following table provides an estimated breakdown of the existing fixtures and corresponding total fixture units. Fixture units per each fixture type are values designated by BWS for non-low flow fixtures. Per the 2012 Assessment Report, all the existing plumbing fixtures are non-low flow.

Table 2
Estimated Existing Fixture Units

	Lavatory	Sink	Laundry Tray	Washing Machine	Water Closet	Urinal	Shower	Hose bibs (1st)	Hose Bibs (additional)
Quantity of Fixtures	46	5	2	1	38	7	22	1	8
Fixture Units (FU) Each	1	2	2	2	3	3	2	2.5	1
Total FU	46	10	4	2	114	21	44	2.5	8

Total Existing FU: 251.5

Three existing fire hydrants are located within the parcel frontage. FH M02662 is located on the near side of Pi'ikoi; FH M06177 is located on the near side of Elm: and FH M06176 is located across Alder. Additionally, FH M03919 is located within the next block makai on Pi'ikoi and is closer to portions of the parcel than the other fire hydrants.

SSFM INTERNATIONAL

Joint Development for Affordable Rental
Housing and Juvenile Services Center/Shelter
Preliminary Engineering Report
March 2, 2016

Calculated flow data obtained from BWS for the three hydrants within the parcel frontage indicates static pressures ranging 74-75 psi, residual pressures ranging 55-56 psi and flows of 2000 gpm. The data are based on BWS models of the existing water system and assumptions of a full reservoir and no demands on the water system. The static pressure represents the theoretical pressure based on the assumptions. To determine flow available at the site, on-site pressure readings will need to be taken and correlated to the provided data. See the Appendix for the December 28, 2015 letter from BWS which provided the pressure and flow data.

The existing building does not have fire sprinklers.

PROJECTED WATER DEMAND

Domestic water, irrigation and fire sprinkler line connections will be supplied by the BWS system. The proposed project development will create significant additional water demands on the BWS system. An inquiry has been made to BWS as to whether the system has capacity to accommodate the redevelopment.

Domestic water demand planning estimates for this project, based upon BWS Water System Standards 2002, Table 100-18, Domestic Consumption Guidelines, are summarized below.

Table 3
Projected Water Demand

Zoning Designation	*Demand Rate*	*Quantity*	*Domestic Consumption gal/day*
Multi-Family High Rise (HHFDC Housing)	300 gal/unit	187 units	56,100
Commercial/Residential Mix (Juvenile Shelter and Services Center)	120 gals/1000 sf	35,452 sf	4,254
Total Average Daily Demand			**60,354**
Maximum Daily Demand (1.5x factor)			**90,531**
Peak Hour Demand (3x factor)			**181,063**

The preliminary estimated total proposed fixture units provided by the architect is 2,036.3 FU, broken down into 1,814.7 FU for the rental housing, and 221.6 FU for the juvenile services center and shelter. See the Appendix for a breakdown of proposed fixture unit estimates.

All existing fixtures will be demolished. These existing fixture units to be removed will be taken into account by BWS when determining water charges and capacity of the system to accommodate the redevelopment. The BWS Flow Requirements worksheet used to account for new, demolished and remaining fixtures is shown below in Table 4.

Table 4
BWS Flow Requirements

WATER FOR LIFE
Ka Wai Ola

Board of Water Supply
City and County of Honolulu

Residential and Non-Residential Flow Requirements

("Rapid Approval Process" and "Rapid Permit Review Process")

For projects that involve removal and/or installation of new water fixtures, the FLOW REQUIREMENTS shall be placed on the construction plan (NO STICKY BACK) prior to submittal for BWS review. Please use the format as shown below:

BWS FLOW REQUIREMENTS

Premise ID #: 1014335

Meter Number (M/N): 04094081

Description		fu	gpm	gpd
A. Proposed Domestic: (All fixtures being installed)		1,838.3	305	
B. B. Proposed Irrigation:		98.0	45	
C. Other	Pool makeup	100.0	45	
D. Total Proposed: (Do Not include irrigation gpm if less than domestic and done during off-peak hours)		1,938.3	315	
E. Demolition: (All fixtures being removed)		251.5	75	
Demo Permit # _____ Date: _____				
F. Net Change: (Subtract "E" from "D" above)		1,686.8	290	
G. Existing to Remain: (Other fixtures serviced by this meter but not affected by project)		0	0	
H. GRAND TOTAL (Add "D" and "G" above)		1,938.3	315	

NOTE:
Utilize UPC to convert fixture units to gpm. GPM's shall not be added or subtracted. All gpm flow rate without specific fixture unit designations shall be converted on the tank type curve for computation purposes.

www.BoardOfWaterSupply.com

630 S. Beretania St. • Honolulu, HI 96843 • ContactUs@hbws.org

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Housing and Juvenile Services Center/Shelter
Preliminary Engineering Report
March 2, 2016

Total Proposed fixture units from line D in the worksheet above is 1,938.3 FU. This equates to a flow of approximately 315 gpm, (UPC 2015, Appendix A, Chart A 103.1(1) Estimate Curves for Demand Load). A 3-inch meter typically accommodates a maximum flow of 320 gpm (AWWA Manual M22, Table 6-1 Meter Standards). The existing 3-inch meter may be sufficient to service the proposed project, however due to the close values for flow requirement and capacity it's possible the meter will need to be upsized to a 4-inch meter when fixture unit counts are finalized.

Fire protection will be in accordance with BWS standards and the National Fire Protection Association (NFPA) Fire Code. For high rise apartments, BWS standards require a fire hydrant flow capacity of 2000 gpm for 2 hours, and a maximum hydrant spacing of 250 feet. The existing fire hydrant spacing does not appear to meet the maximum spacing requirements. Additional hydrants may need to be added for the project.

The location of the existing fire hydrants in relation to the proposed building meets the 400 ft. maximum distance to the closest point on a structure requirement of the NFPA 1 Fire Code. The hydrant on Pi'ikoi Street may be in conflict with the location of the proposed driveway, and therefore may need to be relocated.

A new fire sprinkler water service connection and DC meter will be required.

VII. WASTEWATER

EXISTING CONDITIONS

The existing facility is serviced by at least one 6 inch sewer lateral. Limited as-built information shows one 6 inch lateral flowing south on the property adjacent to Alder Street. The City GIS sewer map as shown in Figure 9 shows multiple 6 inch laterals connecting to the property. One lateral connects on Elm near Alder to a manhole at the Elm/Alder intersection. Another lateral connects to an 8 inch main on Alder near Elm, with an assumed wye connection. The 8 inch main on Alder changes direction at Elm, continuing to the east on Elm, however at an apparently smaller diameter of 6 inches. The pipe diameters will need to be verified in the field. Two laterals connect to a 12 inch main on Pi'ikoi, with an assumed wye connection.

PROJECTED WASTEWATER FLOWS

The quantity of wastewater and design of the sewer system will be in accordance with the Design Standards of the Department of Wastewater Management, City and County of Honolulu, dated July 1993.

The estimated quantity of wastewater from the proposed project is shown below.

Table 5
Projected Wastewater Flow

Category	*Quantity of Wastewater (GPD)*
HHFDC Housing (187 units)	43,424
Juvenile Shelter and Services Center (35,452 sf)	8,981
Average Wastewater Flow	52,405
Design Average Wastewater Flow	**75,332**
Design Maximum Flow	**284,951**
Design Peak Flow	**288,940**

Reuse of the existing sewer laterals will be assessed during the design. Where reuse of existing laterals is not feasible or insufficient, new sewer lateral(s) will be installed. Size and slope of the laterals will be based on meeting capacity and maximum velocity requirements for the Design Peak Flow, and minimum scouring velocity requirements for the Design Average Flow.

Preliminary approval to connect to the City wastewater system has been given by DPP Wastewater Branch in response to a Sewer Connection Application (SCA). The approval directs the project to connect to the 8-inch main on Alder Street. Wastewater system facility charges will be assessed during the design phase. The SCA will need to be updated and resubmitted if project parameters change, such as number of residential units, number of anticipated employees in the office space, number of shelter rooms, and water meter size. The approval is valid for two years. If construction plans are not completed and approved within this timeframe, the SCA will need to be resubmitted. See the Appendix for the approval document.

VIII. ELECTRICAL AND TELECOM

Electrical service is available in the area. Utility poles and underground boxes are shown on the survey. An electrical assessment was done as part of the 2012 Assessment Report. The report states the existing facility has four Hawaiian Electric Company (HECO) meter boxes, all with active service. The table below summarizes the electrical service findings in the report.

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Joint Development for Affordable Rental
Housing and Juvenile Services Center/Shelter
Preliminary Engineering Report
March 2, 2016

Redevelopment of the site would require the existing incoming electrical service and distribution be upgraded or replaced to meet new electrical load requirements.

Table 6
Existing HECO Service Summary

HECO Meter No.	*Electrical Service*
385291	120/240 volts, single phase, three wires for general lighting and receptacle loads for the detention facility.
473366	240 volts, three phase, three wires for air conditioning and refrigeration loads for the detention facility.
412101	100 ampere service. 120/208 volts, three phase, four wires for lighting and receptacle loads for the shelter facility.
487541	100 ampere service. Electrical service is 120/208 volts, three phase, four wires for air conditioning and heating/cooling type loads for the shelter facility.

A HECO underground box is located on Alder just mauka of the property.

Telephone and cable service are active at the existing facility. A Hawaiian Telcom underground box is located on Alder near Elm as shown on the survey. The survey indicates telephone and cable service is provided to the property from this box.

Coordination with and submittal to HECO, Hawaiian Telcom and Oceanic Time Warner Cable shall be coordinated as the design progresses.

IX. REFERENCES

1. Americans with Disabilities Accessibility Act Guidelines for Buildings and Facilities, as amended through 2002, U.S. Architectural and Transportation Barriers Compliance Board (Access Board)

2. Assessment Survey Report for Juvenile Detention Home Planning for Redevelopment, Pacific Architects Inc., January 20, 2012

3. Design Standards of the Department of Wastewater Management, Volume I, Department of Wastewater Management, City and County of Honolulu, Hawaii, July 1993

4. National Fire Protection Association, NFPA 1: Fire Code

5. Revised Ordinances of the City and County of Honolulu 1990, Chapter 14 Public Works Infrastructure

6. Rules Relating to Storm Drainage Standards, Department of Planning and Permitting, City and County of Honolulu, Amended June 1, 2013

7. Sizing Water Service Lines and Meters, AWWA Manual M22, Second Edition, 2004, American Water Works Association

8. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii. U.S. Department of Agriculture, Soil Conservation Service, August 1972

9. Uniform Plumbing Code 2015, International Association of Plumbing and Mechanical Officials

10. Water System Standards, Board of Water Supply, City and County of Honolulu, Hawaii 2002

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Joint Development for Affordable Rental
Housing and Juvenile Services Center/Shelter
Preliminary Engineering Report
March 2, 2016

APPENDICES

APPENDIX A: Figures

Figure 1: Project Location Map
Figure 2: Land Title Survey
Figure 3: Architectural Scheme
Figure 4: Storm Sewer GIS Map
Figure 5: FEMA FIRM
Figure 6: Soil Map
Figure 7: BWS GIS Map
Figure 8: 2012 Existing Juvenile Detention Floor Plan
Figure 9: DPP HoLIS GIS Sanitary Sewer Map

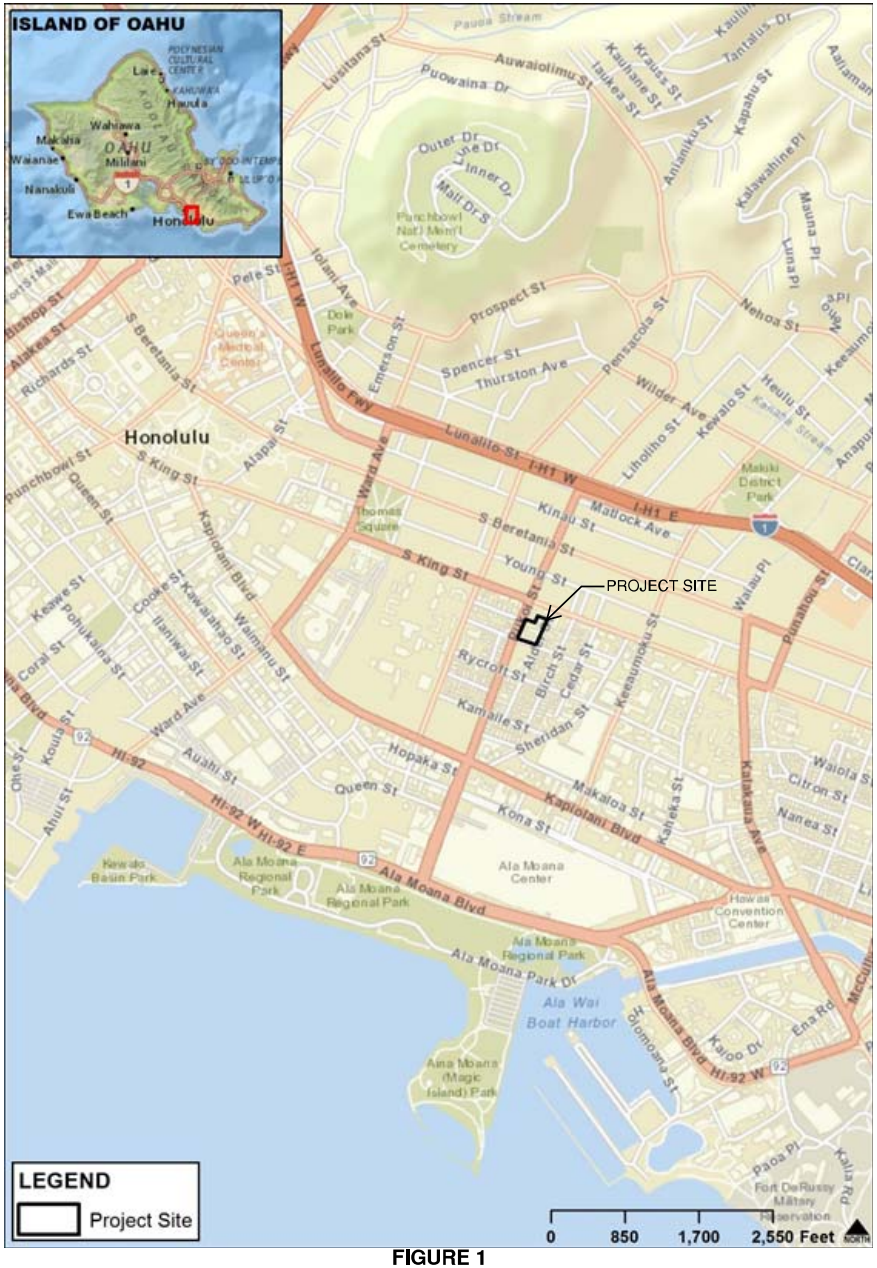
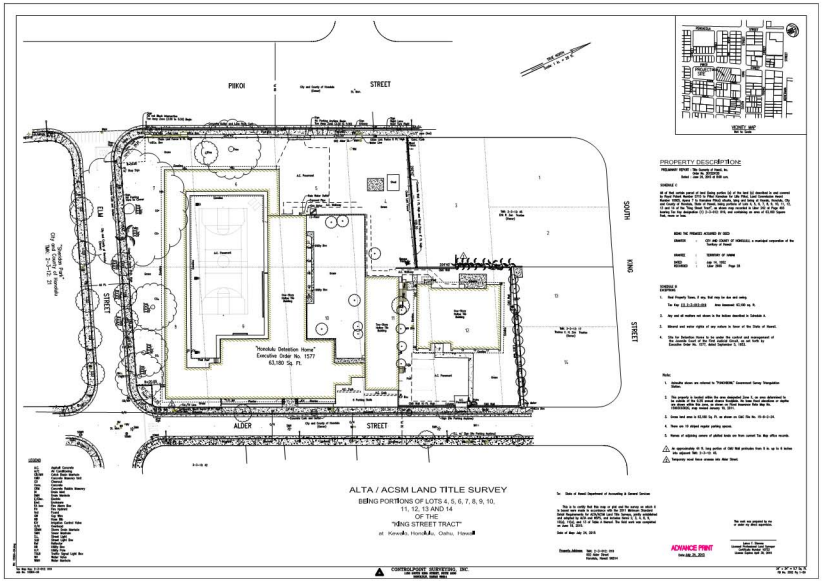
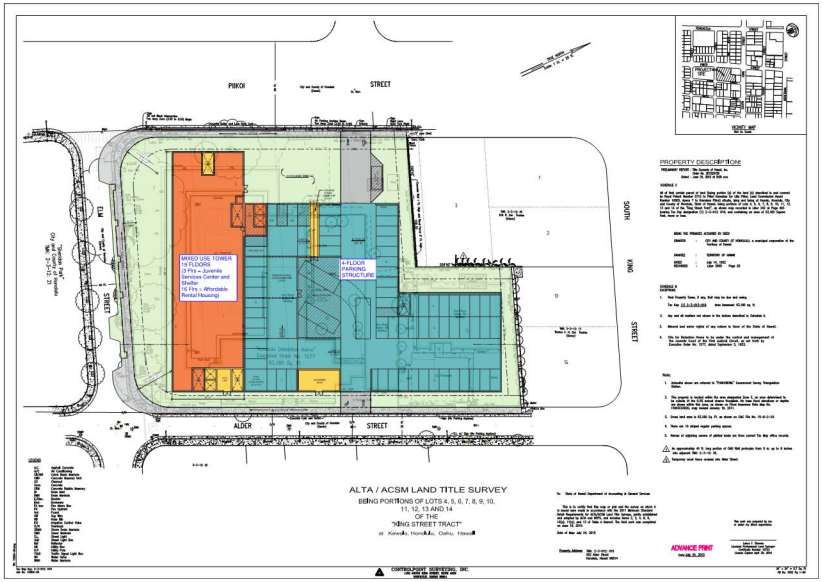


FIGURE 1
PROJECT LOCATION MAP



Scale: 1"=80 ft (8.5x11")

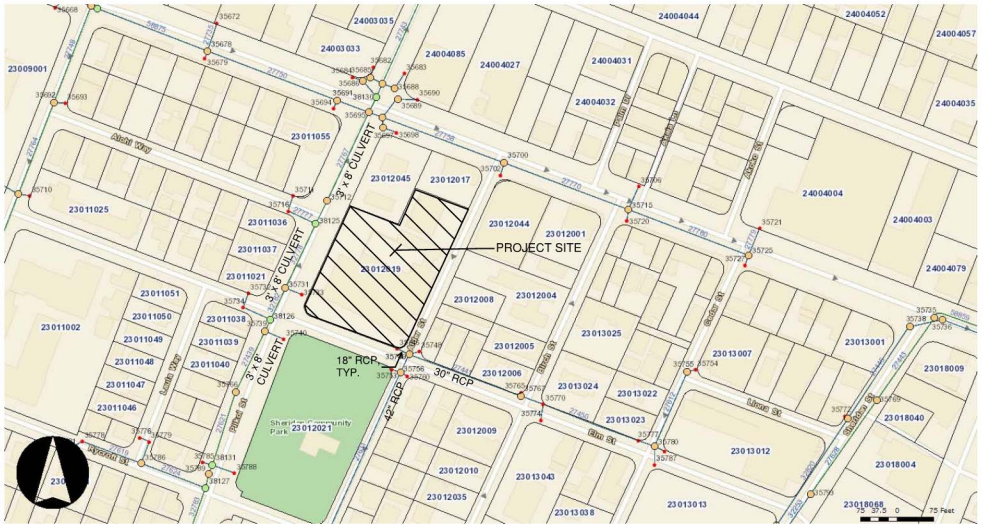
FIGURE 2
EXISTING CONDITION



Scale: 1"=80 ft (8.5x11")

FIGURE 3
ARCHITECT'S PROPOSED SCHEME

11/25/2015 DPP HoLIS GIS - STORM SEWER



Tax Parcel
Sewer Manhole
Sewer Mains
Force
Gravity
Model Link
Outfall
Siphon
Treatment
Low Pressure Force
Sewer Laterals
Storm Water Structure
Catch Basin
Storm Water Structure (continued)
Inlet/Outlet
Man Hole
Other
Unknown
Storm Water Conduit
Arch Pipe
Box Culvert
Corrugated Metal Pipe
Ditch
Prefabricated Bend
Reinforced Concrete Pipe
Swale
Other
Unknown

Notes: From DPP HoLIS Advanced Interactive GIS Map

DPP HoLIS GIS - STORM SEWER
Author: SSFM INTERNATIONAL
Date: 11/24/2015

Powered by ArcGIS Server 10
© City & County of Honolulu, HI Rights Reserved. 2015
Note: Data represented on this map is not intended to replace site survey.

FIGURE 4
STORM DRAIN GIS MAP

http://gis.hicentral.com/PubWebsite/ 1/2



Flood Hazard Assessment Report

www.hawaiinfip.org

FIRM Map

Property Information

COUNTY:	HONOLULU
TMK NO:	(1) 2-3-012:019
WATERSHED:	ALA WAI
PARCEL ADDRESS:	902 ALDER ST HONOLULU, HI 96814

Flood Hazard Information

FIRM INDEX DATE:	NOVEMBER 05, 2014
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL:	15003C0362G
PANEL EFFECTIVE DATE:	JANUARY 19, 2011

THIS PROPERTY IS WITHIN A TSUNAMI EVACUTION ZONE: NO
FOR MORE INFO, VISIT: http://www.scd.hawaii.gov/

THIS PROPERTY IS WITHIN A DAM EVACUATION ZONE: NO
FOR MORE INFO, VISIT: http://dlnreng.hawaii.gov/dam/

N 0 400 800 ft

Disclaimer: The Hawaii Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use, accuracy, completeness, and timeliness of any information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR, its officers, and employees from any liability which may arise from its use of its data or information.

If this map has been identified as 'PRELIMINARY', please note that it is being provided for informational purposes and is not to be used for flood insurance rating. Contact your county floodplain manager for flood zone determinations to be used for compliance with local floodplain management regulations.

Notes:

FLOOD HAZARD ASSESSMENT TOOL LAYER LEGEND
(*Note: legend does not correspond with NFHL*)

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD - The 1% annual chance flood (100-year), also know as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. SFHAs include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- **Zone A**: No BFE determined.
- **Zone AE**: BFE determined.
- **Zone AH**: Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- **Zone AO**: Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- **Zone V**: Coastal flood zone with velocity hazard (wave action); no BFE determined.
- **Zone VE**: Coastal flood zone with velocity hazard (wave action); BFE determined.
- **Zone AEF**: Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

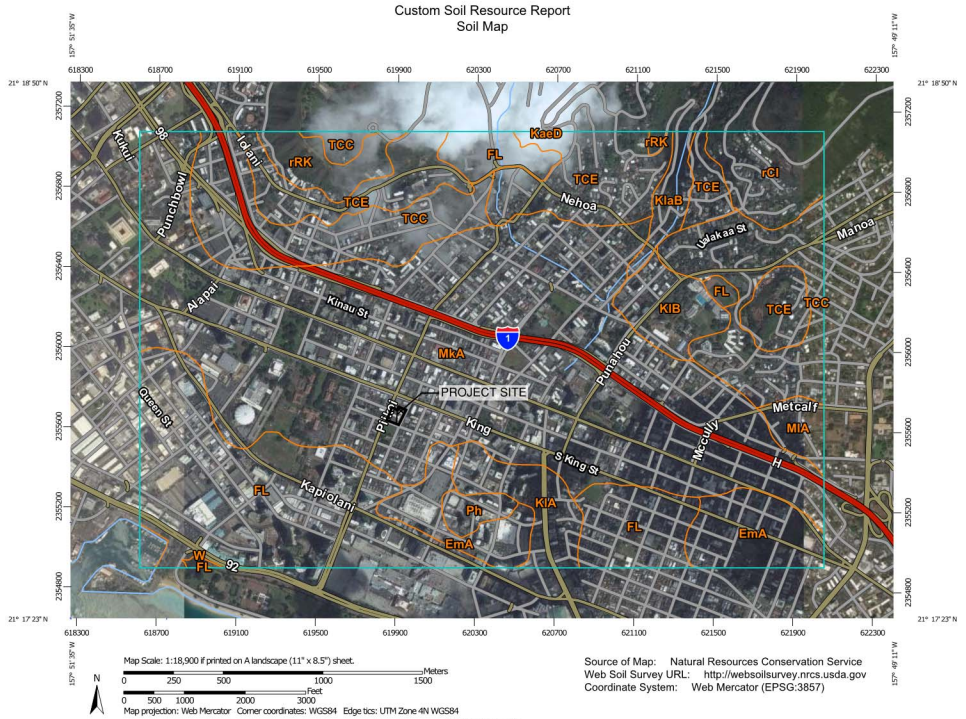
NON-SPECIAL FLOOD HAZARD AREA - An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- **Zone XS (X shaded)**: Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- **Zone X**: Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

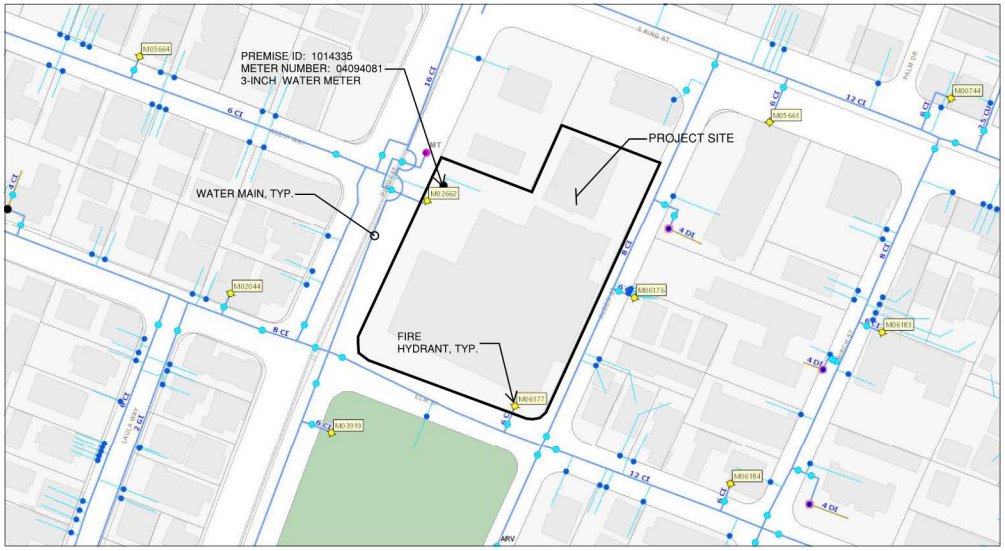
- **Zone D**: Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase apply, but coverage is available in participating communities.

FIGURE 5 - FLOOD INSURANCE RATE MAP



Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

FIGURE 6
SOIL SURVEY MAP



Honolulu Board of Water Supply
City and County of Honolulu

Printed By: MDOMION
November 24, 2015

1:900
0 0.01 0.02 0.04 mi
0 0.015 0.03 0.06 km

FIGURE 7
WATER GIS MAP

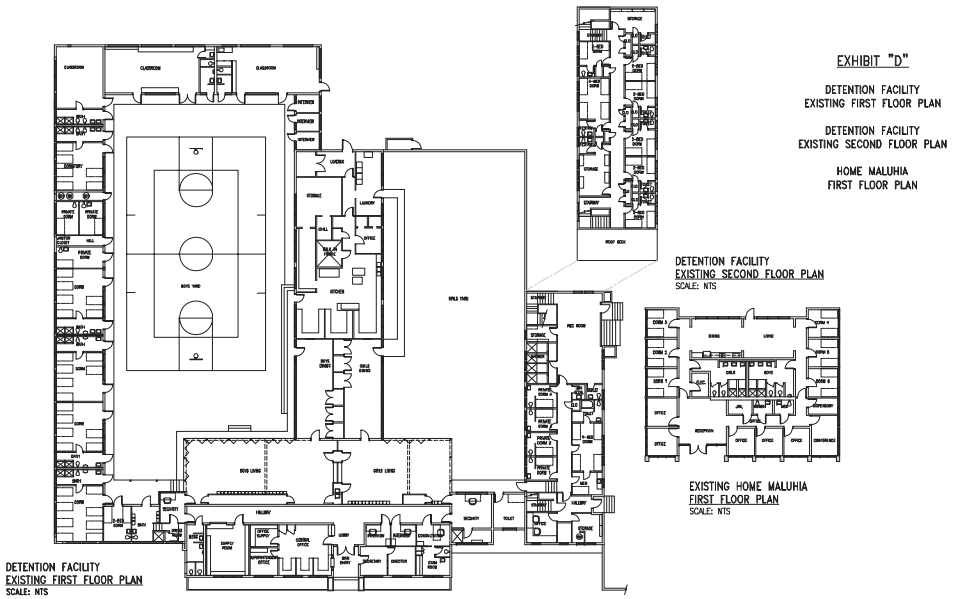


FIGURE 8
EXISTING FLOOR PLAN



Copyright
Main Map
Building Footprints (NGA 2009): National Geospatial-Intelligence Agency

FIGURE 9
SANITARY SEWER GIS MAP

APPENDIX B: Approved Sewer Connection Application

DEPARTMENT OF PLANNING AND PERMITTING

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET * HONOLULU, HAWAII 96813
Phone: (808) 768-8209 * Fax: (808) 768-4210

SEWER CONNECTION APPLICATION

APPLICATION NO.: **2015/SCA-0935** STATUS: **Approved with conditions**

DATE RECEIVED: **12/02/2015** IWDP APP. NO.:

PROJECT NAME: **2015/SCA-0935 Judiciary Multi-Use and HHFDC Housing Joint Development**

$840,901.60
Estimated Wastewater System Facility Charge*

LOCATION:

Zone	Section	Plat	Parcel
2	3	012	019

902 ALDER ST Honolulu / Downtow **63,180** Sq. Ft.

SPECIFIC LOCATION: **902 Alder St.**

APPLICANT: **SSFM Engineers, Inc.**
Attn: Lori Koennecke
501 Sumner Street, Suite 620
Honolulu, HI 96817

DEVELOPMENT TYPE: **Dwelling, Multi-family** SEWER CONNECTION WORK DESIRED: **Existing**

OTHER USES: **Dormitory - 12 Rooms**
Government Offices - 35 Employees

NON-RESIDENTIAL AREA: s.f. APPROXIMATE DATE OF CONNECTION: **01/01/2018**

PROPOSED UNITS	EXISTING UNITS	UNITS TO BE DEMOLISHED
No. of New Units: **187**	No. of Existing Units: **0**	No. of Units to be Demolished: **0**
Studios: **0**	Studios:	Studios:
1-Bedroom: **108**	1-Bedroom:	1-Bedroom:
2-Bedroom: **63**	2-Bedroom:	2-Bedroom:
3-Bedroom: **16**	3-Bedroom:	3-Bedroom:
4-Bedroom:	4-Bedroom:	4-Bedroom:
5-Bedroom:	5-Bedroom:	5-Bedroom:
6-Bedroom:	6-Bedroom:	6-Bedroom:

REMARKS **Connect to the 8-inch main on Alder Street. WSFC pending on increase in WM size.**

APPROVAL DATE: **12/07/2015**

EXPIRATION DATE: **12/06/2017**

Valid 2-years after approval date. Construction plans shall be completed and approved within this 2-year period. Construction shall commence within 1-year after approval of plans.
** Applicable WSFC shall be collected at the prevailing rate in accordance with ROH 1990, Chapter 14, Sections 14-10.3, 14-10.4, 14-10.5 and Appendix 14-D.*

REVIEWED BY: ***Mindy Yoneshige***

Site Development Division, Wastewater Branch

ExternalID: **056400505-001** JobId: **56400505**

Initial Print Date: Monday December 7, 2015 9:09 am

APPENDIX C: Proposed Fixture Units (Preliminary)

PLUMBING FIXTURE SUMMARY - PROPOSED PLUMBING FIXTURES FOR HHFDC:

	DWELLING UNIT TYPE/USE	FIXTURES PER UNIT: SINK	LAVATORY	WATER CLOSET	SHOWER	TOTAL # OF HHFDC UNITS	TOTAL # QTY OF FIXTURES: SINK	LAVATORY	WATER CLOSET	SHOWER	HOSE BIB (1st)	HOSE BIB (each additional)	WATER FOUNTAIN	LAUNDRY TRAY	WASHING MACHINE	SERVICE SINK	POOL MAKEUP	LANDSCAPE
HHFDC	1 Bedroom Unit	1	2	2	1	108	108	216	216	108	--	--	--	--	--	--	--	--
	2 Bedroom Unit	1	2	2	2	63	63	126	126	126	--	--	--	--	--	--	--	--
	3 Bedroom Unit	1	3	2	2	16	16	48	32	32	--	--	--	--	--	--	--	--
	Ground Fl/Rec	--	--	--	--	--	--	--	--	--	1	4	--	--	--	--	--	--
	Commons/Rec	--	--	--	--	--	3	4	4	1	--	3	2	1	20	1	1	1
							190	394	~~460~~	267	1	7	2	1	20	1	1	1
									378									

FIXTURE UNITS (FU) EACH	1,8	0,6	1,7	1,6	2,5	1,0	1,0	2,0	2,0	2,0	100,0	49,0
TOTAL FU	304,0	236,4	~~295,4~~	427,2	2,5	7,0	2,0	2,0	40,0	2,0	100,0	49,0
			642.6									

TOTAL PROPOSED FIXTURE UNITS: ~~1,442,5~~ FU
1,814.7

PLUMBING FIXTURE SUMMARY - PROPOSED PLUMBING FIXTURES FOR JUD:

	SPACE USE	TOTAL # QTY OF FIXTURES: SINK	LAVATORY	WATER CLOSET	URINAL	SHOWER	HOSE BIB (1st)	HOSE BIB (each additional)	WATER FOUNTAIN	LAUNDRY TRAY	WASHING MACHINE	SERVICE SINK	POOL MAKEUP	LANDSCAPE
JUD	Admin/Offices	3	10	9	1	0	1	1	2	--	--	2	--	--
	Holding Room	0	2	2	--	--	--	--	--	--	--	--	--	--
	Shelter	2	15	12	3	14	--	2	1	1	8	2	--	--
	Rec/ Visitation	0	6	7	2	6	--	2	2	--	--	1	--	--
	Conference Rm	0	1	1	--	--	--	--	--	--	--	--	--	--
	Outdoor Rec	3	--	--	--	--	--	3	1	--	--	--	--	1
		8	34	31	~~6~~	20	~~6~~	8	6	1	8	5	0	1
					6		1							

FIXTURE UNITS (FU) EACH	1,6	0,6	1,7	1,7	1,6	2,5	1,0	1,0	2,0	2,0	2,0	100,0	49,0
TOTAL FU	12,8	20,4	52,7	~~0,5~~	32,0	~~15,0~~	8,0	6,0	2,0	16,0	10,0	0,0	49,0
				10.2		2.5							

TOTAL PROPOSED FIXTURE UNITS: ~~282,4~~ FU
221.6

14-077
JUVENILE SERVICES CENTER AND HOUSING: MASSING STUDY
(Collocated Residential Tower and JUD w/ separate Parking Structure)
902 ALDER ST, HONOLULU, HI 96814
DATE: 10/30/15

RMA ARCHITECTS INC.

A07

APPENDIX D: BWS Water System Pressure and Flow Data (Calculated)

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

SSFM INTERNATIONAL, INC
RECEIVED
JAN 04 2016
FILE

December 28, 2015

KIRK CALDWELL, MAYOR

DUANE R. MIYASHIRO, Chair
ADAM C. WONG, Vice Chair
DAVID C. HULIHEE
KAPUA SPROAT
BRYAN P. ANDAYA

ROSS S. SASAMURA, Ex-Officio
FORD N. FUCHIGAMI, Ex-Officio

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

ELLEN E. KITAMURA, P.E.
Deputy Manager and Chief Engineer

Mr. Timothy Guerrero
SSFM International
501 Sumner Street, Suite 620
Honolulu, HI 96817

Dear Mr. Guerrero:

Subject: Your Email Dated November 19, 2015 Requesting Flow and Pressure Data for the Proposed Multi-Use and Housing Development Located Between Piikoi Street and Alder Street – Tax Map Key: 2-3-012: 019

The Board of Water Supply has suspended fire flow tests on fire hydrants as a water conservation measure. However, you may use the following calculated flow data for Fire Hydrant Nos. M-02662, M-06176, and M-06177:

Fire Hydrant Number	Location	Static Pressure (psi)	Residual Pressure (psi)	Flow (gpm)
M-02662	Piikoi Street	74	56	2000
M-06176	Alder Street	74	55	2000
M-06177	Elm Street	75	56	2000

The data are based on the existing water system, and the static pressure represents the theoretical pressure at the point of calculation with the reservoir full and no demands on the water system. The static pressure is not indicative of the actual pressure in the field. Therefore, in order to determine the flows that are available to the site, you will have to determine the actual field pressure by taking on-site pressure readings at various times of the day and correlating that field data with the above hydraulic design data.

The map showing the location of the fire hydrants is attached.

If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at 748-5443.

Very truly yours,

Robert Chun

Robert Chun
Project Review Branch

Attachment



23011010
23011009
23011008
23011007
23011006
23011005
23011004
23011017
23011018
23011055
M05664
23011031
23011032
23011033
23011034
23011035
23011036
23011024
23011023
23011022
23011037
23011021
23011051
23011050
23011038
23011049
23011039
23011048
23011040
23011047
23011041
23011046
23011053
23011042
23011043
Alohi Way
S King St
Elm St
Alder St
Pilkoi St
MT
M02662
23012019
M06176
M06177
M03919
23012021
23012045
23012017
23012044
23012008
23012007
23012005
23012006
M06184
23012014
23012015
23012009
ARV
24004027
24004026

Appendix J:
Electrical Power and Communications Report

DOUGLAS
ENGINEERING PACIFIC, INC.

REBUILD OF JUVENILE DETENTION CENTER (BETWEEN PIIKOI STREET/ALDER STREET)

Anticipated Electrical Scope of Work

Electrical Power Requirements

The State of Hawai'i Housing Finance Development Corporation (HHFDC) and the Judiciary Courts of the State of Hawai'i, Juvenile Detention Facility Redevelopment Planning are proposing a joint development project at 902 Alder Street, in Honolulu. The site, at Tax Map Key (TMK) #2-3-012-019, is on the south side of the block bordered by King Street (N), Piikoi Street (W), Elm Street (S), and Alder Street (E).

The proposed facility includes a 35,452 square foot facility which will house administrative services, a recreational center, a supervised visitation area, shelter classrooms, a laundry area, restrooms, and storage space. The HHFDC is also proposing to construct an affordable housing complex on the same site, in combination with the Juvenile Detention Facility, which includes 187 residential units, currently a mix of one, two, and three-bedroom designs.

For the purposes of our calculations, we were asked to consider each of the residential units as fully-furnished apartments, with a kitchen and water heater, and air conditioning. We provisioned for 2 washers/dryers per floor, in a space to be determined, for communal use; if the intent shifts to provide more machines, the load calculation will go up. The building also features 5 elevators - 3 in the residential wing and 2 in the other. These are also major loads factored into the calculations.

Using these parameters, we did several load calculations to determine some ranges of expected load. We did the load calculations per the 2008 National Electrical Code (NEC).

Assuming all equipment will be electrical, which we feel represents the high end of the estimate, the calculation yields an expected demand of 3910 kVA.

However, on our initial site assessment, we did note the presence of gas service to a few properties on Alder Street - if that gas service can be extended to this building as well, we could have the ranges, dryers, and water heating all on gas, which reduces the expected electrical demand on the building.

Assuming that gas service takes care of the ranges, water heating, and dryers, the NEC calculation yields a smaller expected demand of 2670 kVA - this is about 30% less power, which will also reduce the size of the service equipment and the HECO transformer.

Both options will require the installation of a large transformer by HECO, which will likely go in one of the wings, on the ground floor, in a dedicated HECO vault. Inside, a transformer pad and underground ductbank, encased in concrete, from the transformer pad to the point of nearest utility power (likely the base of a power pole with overhead power lines) will be required by HECO, and provided by the Contractor during construction. Two medium-voltage lines will then be pulled directly into this vault. We are anticipating the size of the HECO transformer at 2000 kVA; however, HECO will be the one to make the call on the actual size provided, meaning that it could be bigger or smaller. With gas service, our estimate on the HECO transformer drops to 1500 kVA.

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To reduce the size of conduit and wiring, and because of the size of the power requirements, we are initially looking at distributing the power through the building at 480V, and transforming down to 208V near the intended end-user points. The main electrical room, with the large switchboard, will most likely be next to the HECO vault, and additional electrical rooms will be distributed throughout the buildings to house distribution panels and transformers.

The elevators will likely be powered by direct feeds from the switchgear or first level distribution, and will likely accept 480V power. Any A/C serving common areas or large areas, such as the office spaces, can be selected to accommodate 480V power as well.

As actual loads are decided, and equipment is selected, the overall power demand may change.

Communications Requirements

The JDC will require communications services, which will likely be provided by either Hawaiian Telcom (HTEL) or Oceanic / Time Warner Cable (OTWC).

Both companies currently offer television, telephone, and internet services via their network, so selecting a single provider is an option, and one we recommend. Unless specifically desired for some reason, we discourage having both utilities, since this will impose two sets of requirements on the comm infrastructure design and placement of equipment that will need to be met.

In addition, because this is a government facility, the managers may also want to restrict the residents' ability to have free reign on internet searches - similar to schools, which institute their own system of firewalls, search restrictions, and site blocking. The cable TV service to each room will also want to be filtered for young adults. This can be achieved two ways - either the utility institutes some general blocks and restrictions on their equipment, to filter what is allowed, and sets this on their main distribution frame in a central comm room, likely on one of the office floors; or the owner provides the backbone and mainframe, and the utility just provides the service to the main comm room.

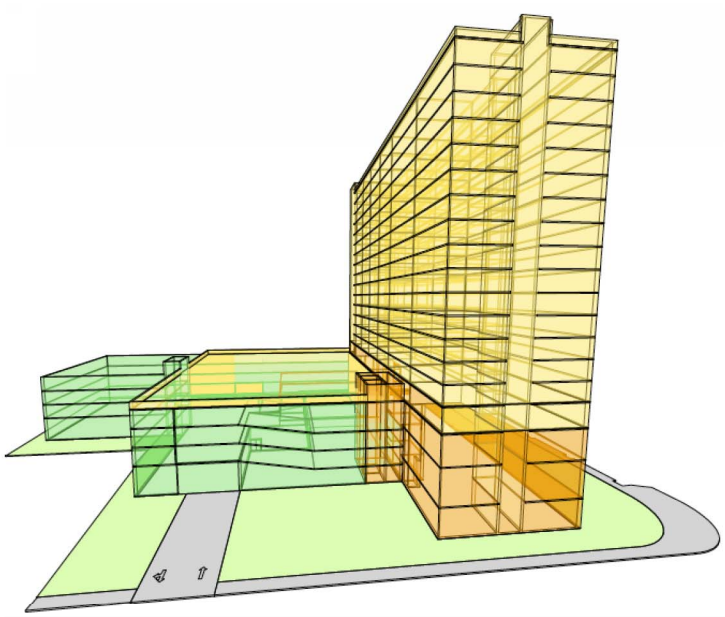
Residential Service (to the units) should include:
- Telephone
- Cable TV
- Internet

Office/Administrative Service should include:
Telephone
Cable TV
Internet
Security
Parking Access

Per our study of the site, both HTEL and OTWC have handholes in the area - OTWC has a sizeable handhole on Piikoi Street, and HTEL has at least two telephone lines, one at the corner of Alder Street and Elm Street, and one along Piikoi Street. These are the most likely points of connection, and underground infrastructure for the building will most likely be laid in once the site prepwork begins.

Appendix K:
Population, Economic and Fiscal Impacts

ALDER STREET PROJECT:
POPULATION, ECONOMIC AND FISCAL IMPACTS



ALDER STREET PROJECT:
POPULATION, ECONOMIC AND FISCAL IMPACTS

PREPARED FOR:

Judiciary Courts of the State of Hawai'i

and

Hawai'i Housing Finance & Development Corporation

PREPARED BY:

Plasch Econ Pacific LLC

UNDER SUBCONTRACT TO:

SSFM International

March 2016

CONTENTS

EXECUTIVE SUMMARY **ES-1**

1. INTRODUCTION **1**

a. Content and Purpose 1

b. Methodology 1

c. Organization of the Report 2

d. Economic Consultant 2

2. PROJECT DESCRIPTION **2**

3. ECONOMIC IMPACTS OF DEVELOPMENT **3**

a. Construction Period 3

b. Construction Expenditures 4

c. Other Development Costs 4

d. Indirect Sales Generated by Construction Activity 4

e. Summary of Development Expenditures and Related Sales 4

f. Profits Related to Development Activity 4

g. Construction Employment and Related Jobs 5

h. Payroll Related to Development Activity 5

i. Population and Housing Supported by Construction Activity 5

j. Sources of Construction Workers 6

4. ECONOMIC IMPACTS OF OPERATIONS **6**

a. Juveniles Served 6

b. Housing, Residents and Students 6

c. Employment 6

d. Payroll 7

e. Operating Expenditures 7

f. Residents and Homes Supported by Increased Economic Activity 7

g. Regional Sales, Profits and Payroll 7

h. Assessed Property Values 7

5. IMPACTS ON COUNTY REVENUES AND EXPENDITURES **8**

a. Impacts of Development Activity 8

b. Impacts of Operations 8

6. IMPACTS ON STATE REVENUES AND EXPENDITURES **8**

a. Impacts of Development Activity 8

b. Impacts of Operations 9

7. SUMMARY OF COMMUNITY BENEFITS **9**

8. REFERENCES **9**

TABLES

1. Project Plans
2. Economic Impacts of Development Activities
3. Economic Impacts of Operations
4. Impacts on County Revenues and Expenditures
5. Impacts on State Revenues and Expenditures

EXECUTIVE SUMMARY

1. PROJECT PLANS

The Judiciary Courts of the State of Hawai'I and the Hawai'i Housing Finance Development Corporation are jointly proposing to develop (1) a 19-story, mixed-use structure housing a juvenile services/shelter center (Juvenile Center) and affordable rental housing (187 units); and (2) a 4-story parking structure (283 stalls)—("the **Project**"). The Project will replace an older Juvenile Center that is partially vacant.

2. MAJOR ECONOMIC IMPACTS

a. Residents

The Project will provide affordable housing for about 390 residents.

b. Employment

Construction and Related Employment

Development of the Project will provide an average of about 140 construction jobs over the 2-year construction period, plus about 275 indirect jobs, for a total of about 410 direct-plus-indirect jobs.

Operations

Operations will result in a negligible increase in regional employment because most workers are already at the existing site, or will relocate from nearby State offices.

c. Tax Revenues

Construction Activity

Most of the tax revenues generated by development will be paid to the State, not the County. In total, the State will receive an estimated $5 million from excise taxes, corporate income taxes, and personal income taxes. The County will receive about $180,000 from the excise tax surcharge. Due to the exemption for qualifying low-income rental projects, this amount does not include any excise tax or surcharge on the construction costs of the residential portion of the Project.

For both the State and the County, support expenditures are expected to be negligible inasmuch as (1) no expensive government infrastructure for the Project will be required; (2)

no expensive schools improvements will be required: and (3) and State and County services are already provided to workers directly or indirectly involved with Project development, and to the families of these workers.

Operations

Both the State and the County will receive negligible tax revenues from operations. This is because (1) the property will be exempt from paying property taxes; (2) rental income will be exempt from the excise tax and surcharge; (3) the rental units will be managed by a non-profit organization (no income taxes); and (4) the regional increase in employment, payroll, and personal income taxes will be negligible.

The change in State and County support expenditures are expected to be negligible, given that both already provide services to the employees who will be working in the Project buildings, as well as to residents living in the the rental units.

3. SUMMARY OF COMMUNITY BENEFITS

The primary community benefits of the Project will include:

- A new Juvenile Center that will expand the capacity of the former facility, and improve services for youth and families at risk, and for juveniles entering into or progressing through the juvenile justice system.
- About 187 affordable rental housing units for working families and seniors.
- An average of about 410 direct and indirect jobs during construction.

ALDER STREET PROJECT:
POPULATION, ECONOMIC AND FISCAL IMPACTS

1. INTRODUCTION

a. Content and Purpose

This report addresses the population, economic, and fiscal benefits and impacts of the Alder Street Project ("the **Project**"), which is planned for a site in Honolulu. The purpose of the report is to provide State and County officials with information relevant to their decisions about the Project.

The population impacts address the number of people housed at the Project, as well as the changes in number of people supported by the increased economic activity associated with the Project. The economic impacts cover expenditures and sales, profits, employment, and payroll related to (1) Project construction and related activities, and (2) Project operations and related activities. Fiscal impacts address the impact of the Project on State and County revenues and expenditures.

b. Methodology

Multipliers

The proposed development is translated into economic and fiscal impacts based on a number of multipliers (e.g, indirect sales generated per $1 million in construction expenditures, construction jobs per $1 million in construction expenditures, indirect jobs per direct job, average salary per job, tax rates, etc.). These multipliers reflect the professional judgment of the consultant, and are based on information from the following sources: *The Hawai'i State Input-Output Study: Benchmark Report;* U.S. Census data; the *State of Hawai'i Data Book;* employment and labor rates from the State Department of Labor and Industrial Relations (DLIR); County and State tax rates; and revenue and expenditure data from the State and County.

2015 Dollars

Throughout the report, dollar amounts are expressed in terms of mid-year 2015 purchasing power and market conditions. Values, prices, costs, and dollar amounts for prior years are adjusted for inflation to 2015 dollars based on the Honolulu Consumer Price Index (CPI) for Urban Consumers. Dollar amounts after 2015 are not increased to account for inflation, appreciation in property values, changes in labor rates, changes in building costs, or other changes in market conditions.

Accuracy of Estimates

Much of the analysis contained in this report is quantitative in nature, where numbers are used to help communicate anticipated impacts. However, these numbers should not be interpreted as precise predictions. Rather, they represent the best estimates of what is expected to occur based on available information about future development, market conditions, and tax rates. As a general rule, economic and fiscal impact estimates in this report are accurate within about 20%.

c. Organization of the Report

The material below gives the following information about the Project and its economic and fiscal impacts: a description of the Project, the economic impacts of construction and related activities, the economic impacts of Project operations and related activities, and the impact on State and County finances.

The detailed assumptions, multipliers, and calculations are shown in five tables at the end of the report. These tables cover the following:

- Table 1: Project Plans
- Table 2: Economic Impacts of Development Activities
- Table 3: Economic Impacts of Operations
- Table 4: Impacts on County Revenues and Expenditures
- Table 5: Impacts on State Revenues and Expenditures

In the tables, the quantities appearing in **bold** highlight the more significant population, economic and fiscal impacts.

d. Economic Consultant

The analysis was conducted by Plasch Econ Pacific LLC, a Hawai'i-based economic-consulting firm specializing in economic development, land and housing economics, feasibility studies, valuations, market analyses, public policy analyses, and the economic and fiscal impacts of projects.

2. PROJECT DESCRIPTION

The Judiciary Courts of the State of Hawai'i ("**Judiciary**") and the Hawai'i Housing Finance & Development Corporation ("**HHFDC**") are jointly proposing to redevelop the 1.45-acre parcel located at 902 Alder Street in Honolulu, Hawai'i (TMK 23012019).

Currently, there are two buildings on the site. The smaller building remains occupied by the Home Maluhia shelter facility for girls. The larger building consists of a main structure

and three wings that housed the former juvenile detention facilities. The larger building has been vacant since 2010 when the detention facilities were relocated to Kapolei.

The Judiciary and HHFDC are partnering in order to redevelop the underutilized State-owned property at Alder Street into a mixed-use development that will simultaneously help address the State's juvenile justice and affordable rental housing needs.

The proposed project will involve demolishing the existing buildings and replacing them with two new structures: (1) a 19-story, mixed-use structure housing a juvenile services/shelter center (Juvenile Center) and affordable housing; and (2) a 4-story parking structure.

The Juvenile Center will occupy the first three stories of the taller of the two buildings, and will offer a combination of therapeutic counseling and rehabilitative services for juveniles. It will expand the capacity of the former facility, and will incorporate current national best practices that emphasize (1) services for youth and families at risk, and (2) juveniles entering into or progressing through the juvenile justice system. The Juvenile Center will provide more shelter services for youths at risk who cannot live with their families in the short term due to safety or other concerns.

The top 16 stories of the high-rise will have approximately 187 affordable rental housing units for working families and seniors.

Parking (283 stalls) for residents, employees, and visitors would be located in the abutting lower structure.

The roof of the parking structure will be used as a recreational deck. Another recreational area will be located outdoors, adjacent to Pi'ikoi Street.

Additional information on the Project is provided in Table 1.

3. ECONOMIC IMPACTS OF DEVELOPMENT

Development of the Project will involve site preparation, construction of the two buildings, and finishing of the buildings (furniture, fixtures, equipment, etc.). Table 2 summarizes the direct and indirect economic impacts of development activities. The material in this table gives the development period, construction expenditures, indirect sales generated by the construction activity, profits, employment and payroll, and the number of residents and homes supported by construction activity.

a. Construction Period

The Project will be completed in two or more phases. Phase I, which will last about 20 months, will include construction of the apartment building, all housing units, about 24,000 square feet ("**sf**") of office and shelter space for the Juvenile Center, about 10,000 sf of an incomplete shell for the Judiciary, and the parking structure. The build-out of the shell will be completed in Phase II and in possible subsequent phases. Construction could require more or less time, depending on circumstances.

For the analysis shown in Tables 1 to 5, a 2-year construction period is assumed since most of the expenditures and economic impacts occur during construction.

b. Construction Expenditures

Total construction expenditures for the Project—including demolition of the existing facilities and site remediation—are estimated at about $83.4 million, or about $41.7 million per year. In practice, construction expenditures will vary over time.

c. Other Development Costs

Other development costs (furniture, fixtures, equipment, and professional fees) are estimated at about $5 million.

d. Indirect Sales Generated by Construction Activity

In addition to construction expenditures, construction activity will generate indirect sales associated with supplying goods and services to construction companies and to the families of construction workers. In turn, the companies supplying goods and services, and the families of their employees, will purchase goods and services from other companies, and so on. These indirect sales will include sales by companies that supply building materials (cement, steel, lumber, roofing materials, plumbing equipment, electrical equipment, hardware supplies, lighting, flooring, etc.); rent out construction equipment; repair equipment; provide warehousing services; provide shipping and trucking services; etc. Indirect sales also include sales by grocery stores, drugstores, restaurants, service stations, beauty salons, medical providers, accountants, attorneys, insurance agents, etc.

Based on State economic multipliers, these indirect sales are expected to average about $48.8 million per year.

e. Summary of Development Expenditures and Related Sales

Section 2.e of Table 2 summarizes anticipated expenditures and sales related to development activity. As indicated, development expenditures plus indirect sales related to construction are expected to average about $93 million per year. About $38.5 million will be exempt from excise taxes (the share of development costs for the low-income rental housing portion of the Project, with the share based on the square footage of the building used for housing); about $17.8 million per year will be subject to the State 4% excise tax on final sales; and about $36.7 million will be subject to the 0.5% excise tax on intermediate sales.

f. Profits Related to Development Activity

Profits on construction and indirect sales are estimated to average about $10.1 million per year (see Section 2.f of Table 2).

g. Construction Employment and Related Jobs

Construction employment is expected to average about 140 jobs over the construction period (see Section 2.g of Table 2). Construction jobs will include supervisors, equipment operators, cement workers to lay foundations, metal workers, carpenters, plumbers, electricians, roofers, glass and window installers, cabinet makers, carpet and tile layers, painters, equipment installers, interior decorators, landscapers, etc. Other jobs related to construction will include architects, civil engineers, draftsmen, government inspectors, etc. These jobs will range over a variety of skill levels, including entry-level, semi-skilled, skilled, management, and professional positions.

As with indirect sales, construction activity will generate indirect jobs associated with supplying goods and services to construction companies and to the families of construction workers. In turn, the companies supplying goods and services, and the families of their employees, will purchase goods and services from other companies, and so on. Indirect jobs will include those at companies supplying building materials (cement, steel, lumber, roofing materials, plumbing equipment, electrical equipment, hardware supplies, lighting, flooring, etc.); rent construction equipment; repair equipment; provide warehousing services; provide shipping and trucking services; etc. Other indirect jobs will include those involved with supplying goods and services to employees and their families: grocery workers, store clerks, restaurant workers, service-station workers, beauty technicians, barbers, bankers, pharmacists, veterinarians, computer technicians, medical workers, accountants attorneys, etc. The jobs will range over a variety of skill levels, including entry-level, semi-skilled, skilled, and management positions.

Based on State employment multipliers, indirect employment related construction is expected to average about 275 jobs.

Thus, total direct-plus-indirect employment associated with construction activity will average about 410 jobs.

h. Payroll Related to Development Activity

Construction activity is expected to generate a total payroll of about $22 million per year, of which about $8.7 million will be for construction workers, about $13.3 million for indirect employment (see Section 2.h of Table 2). These estimates are based on the average number of direct and indirect jobs multiplied by average wages as reported to the DLIR.

Annual wages will range from about $30,000 to over $100,000 per year, and are expected to average about $63,000 for construction jobs, and about $48,300 for indirect jobs.

i. Population and Housing Supported by Construction Activity

During the development period, direct and indirect jobs provided by construction activity will support about 910 residents housed in about 300 homes (see Sections 2.i and 2.j of Table 2).

j. Sources of Construction Workers

As noted above, construction employment is expected to average about 140 jobs, or about 0.7% of the total number of 20,660 construction workers on O'ahu. In view of this low percentage, it is expected that the construction jobs will be filled mostly by workers who are already living on O'ahu. As other construction projects are completed on the island, construction workers will be hired to work on various components of the Project, then move on to other projects. Thus, the Project will help keep existing O'ahu construction workers employed.

Special programs to increase the number of construction workers appear to be unwarranted since a sufficient number of workers are already available.

4. ECONOMIC IMPACTS OF OPERATIONS

Table 3 summarizes the population, economic, and related impacts of Project operations.

a. Juveniles Served

The Juvenile Center will shelter 12 juveniles per night, which is five more than the old facility (see Table 3, Section 3.a). Also, the Center will serve an undetermined number of juveniles during the day.

b. Housing, Residents and Students

As shown in Table 3, Section 3.b., the Project will provide 187 rental units of various sizes. These units will house an estimated 390 residents, including about 23 students who will attend nearby public schools. These numbers could be higher or lower, depending on (1) the mix of unit sizes (e.g., how many 1-bedroom, 2-bedroom, 3-bedroom units); and (2) the mix of tenants (e.g., how many young families versus seniors).

The units will be rented at rates affordable to families and seniors having incomes up to 60% of the median income for Honolulu. Maximum family incomes by family size, and maximum rent by type of unit, are shown in the Table. Total rental income is estimated at $2.7 million per year.

c. Employment

The Juvenile Center will provide an estimated 65.5 full-time equivalent jobs (see Table 3, Section 3.c). Although this is a significant increase over the number of jobs at the old facility, nearly all of the new jobs will relocate from other facilities in the area. Also, a few jobs some will be transferred from contract workers to State employees. Thus, the net change in regional employment is anticipated to be zero.

An estimated 6 workers will be needed to management and maintain the rental units. Indirect employment will add another 3.5 jobs, for a total of about 9.5 direct plus indirect jobs.

d. Payroll

The new Juvenile Center have a higher payroll than the old facility, but this is mostly because of the additional employees who will be transferred from nearby facilities. For the region, the net change in payroll will be negligible—see Table 3, Section 3.d

The payroll for the direct and indirect jobs provided by the rental complex is projected at about $410,000 per year.

e. Operating Expenditures

Operating expenditures for the Project are shown in Table 3, Section 3.e. For the Juvenile Center, these expenditures will decrease by a small amount, largely because the contracted custodial workers will be replaced by State workers.

Information is not available on the operating expenditures of the rental units.

f. Residents and Homes Supported by Increased Economic Activity

The number of residents and homes supported by the increased economic activity related to operations are not estimated because the numbers are insignificant (Table 3, Section 3.f).

g. Regional Sales, Profits and Payroll

The Project will increase final sales for Honolulu by about $2.9 million per year, most of which will be related to rental income and the remainder for consumption expenditures by additional workers and their families—see Table 3, Section 3.g. However, since rental income from a qualifying low-income housing projects is tax exempt, only about $225,000 will be subject to excise taxes.

Profits are anticipated to exceed $20,000 per year. The number is small because of the apartments will be managed by a non-profit organization.

The regional payroll will increase by about $410,000 per year.

h. Assessed Property Value

The assessed property value will be zero because both the State-owned Juvenile Center and the low-income rental apartments will be exempt from property taxes.

5. IMPACTS ON COUNTY REVENUES AND EXPENDITURES

Table 4 shows the impact of the Project on the finances of the City and County of Honolulu (the "**County**"), including the change in the tax and expenditure base, tax revenues and expenditures related to development activity, and tax revenues and expenditures related to operations.

a. Impacts of Development Activity

The County will receive an estimated $180,000 from the 0.5% excise tax surcharge on final sales related to the development of the Project (Table 4, Section 4.b). The amount is low because of the excise tax exemption on construction costs for qualifying low-income rental projects. The funds are to be used for constructing of the Honolulu Rail Transit Project. Other County taxes related to development are negligible.

Support expenditures are expected to be negligible inasmuch as no expensive County infrastructure for the Project will be required, and County services are already provided to workers who are directly or indirectly involved with Project development, and to the families of these workers.

b. Impacts of Operations

The Project will provide no property tax revenue to the County since the Project is exempt (Table 3, Section 3.c). The excise tax surcharge will generate about $1,000 per year in additional revenue to the County, an amount which reflects the tax on consumption expenditures by the small increase in the number of employees. As mentioned previously, the rental income from a qualifying low-income housing project is tax exempt. Other County income sources related to Project operations are expected to be negligible due to the small change in regional employment and expenditures.

Also, the change in County support expenditures are expected to be negligible given that the County already provides services to the employees who will be working within the Project buildings, and to residents living in the the rental units.

6. IMPACTS ON STATE REVENUES AND EXPENDITURES

Table 5 shows the impact of the Project on the finances of the State of Hawai'i (the "**State**"), including the change in the tax and expenditure base, tax revenues and expenditures related to development activity, and tax revenues and expenditures related to operations.

a. Impacts of Development Activity

Most of the tax revenues generated by development will be paid to the State, not the County. In total, the State will receive an estimated $5 million from excise taxes, corporate income taxes, and personal income taxes—see Table 5, Section 5.b. Due to the exemption

for qualifying low-income rental projects, this amount does not include any excise tax on the construction costs of the residential portion of the Project.

Support expenditures are expected to be negligible inasmuch as (1) no expensive State infrastructure for the Project will be required; (2) no expensive schools improvements will be required; and (3) State services are already provided to workers directly or indirectly involved with Project development, and to the families of these workers.

Students living at the Alder Street Project will attend Ka'ahumanu Elementary School, Washington Middle School, and McKinley High School. Based on information from the Hawai'i Department of Education, all three of these schools have sufficient capacity to accommodate the projected increase in the number of students living in the Project.

b. Impacts of Operations

The Project will generate about $31,000 per year in taxes to the State, most of which will come from excise taxes on the increase in consumption expenditures, and personal income taxes paid by the additional workers involved with managing and maintaining the apartments (Table 5, Section 5.b). Again, the rental income from a qualifying low-income housing project is tax exempt.

The change in State support expenditures are expected to be negligible given that the State already provides services to the employees who will be working in the Project buildings, as well as to residents living in the the rental units.

7. SUMMARY OF COMMUNITY BENEFITS

The primary community benefits of the Project will include:

- A new Juvenile Center that will expand the capacity of the former facility, and improve services for youth and families at risk, and for juveniles entering into or progressing through the juvenile justice system.
- About 187 affordable rental housing units for working families and seniors.
- An average of about 410 direct and indirect jobs during construction.

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Table 1. Project Plans

(Values in 2015 dollars)

Item	Source or Multiplier		New Facility				Units
1.a. LAND	County		1.45				acres
1.b. JUVENILE CENTER AND HOUSING STRUCTURE	RMA Architects						
Floors							
Juvenile Center			3				floors
Affordable Housing			16				"
Total Floors			19				floors
Area							
Juvenile Center			35,452				sq. ft.
Affordable Housing			230,761				"
Total Area			266,213				sq. ft.
Bedrooms, Juvenile Center			12				rooms
Affordable Housing Units			187				units
Multipurpose/Common Area for Residents			3,481				sq. ft.
Recreation Deck for Residents			19,300				"
1.c. PARKING STRUCTURE	RMA Architects						
Floors			4				floors
Parking							
Juvenile Center			58				stalls
Affordable Housing			225				"
Total Parking			283				stalls

Table 2. Economic Impacts of Development Activities

(Values in 2015 dollars)

Item	Source or Multiplier		New Facility			Net Change	Units
2.a. CONSTRUCTION PERIOD	PEP		2.0				years
2.b. CONSTRUCTION EXPENDITURES	RMA Architects						
Demolition and Remediation			$ 1,000,000				
Site Development			$ 2,000,000				
Judiciary's Offices & Children's Residential Facilities			$ 10,800,000				
Residential Tower			$ 57,600,000				
Parking Structure			$ 12,000,000				
Total Construction Expenditures			**$ 83,400,000**			**$ 83,400,000**	
Annual Construction Expenditures (average)			**$ 41,700,000**			**$ 41,700,000**	
2.c. OTHER DEVELOPMENT COSTS	RMA Architects						
Furniture, Fixtures, and Equipment			$ 1,000,000				
Professional Fees			$ 4,000,000				
Total Expenditures on Other Development Costs			**$ 5,000,000**			**$ 5,000,000**	
Annual Expenditures on Other Development Costs			**$ 2,500,000**			**$ 2,500,000**	
2.d. INDIRECT SALES GENERATED BY CONSTRUCTION	117% of const. exp.		**$ 48,789,000**			**$ 48,789,000**	**per year**
2.e. SUMMARY OF EXPENDITURES & SALES							
Final Sales							
Construction Expenditures	Section 2.b		$ 41,700,000				per year
Other Development Costs	Section 2.c		$ 2,500,000				"
Consumption Expenditures	55% of payroll, Section 2.i		$ 12,087,075				"
Total Final Sales			$ 56,287,075			$ 56,287,075	per year
Exemption, Low and Moderate Inc. Rental Housing	87% of const. & other		$ (38,454,000)				"
Final Sales Taxed at 4%			$ 17,833,075			$ 17,833,075	per year
Intermediate Sales							
Indirect Sales Related to Construction	Section 2.d		$ 48,789,000				"
Less Consumption	above		$ (12,087,075)				"
Total Sales at Taxed at 0.5%			$ 36,701,925			$ 36,701,925	per year
Total Sales			**$ 92,989,000**			**$ 92,989,000**	**per year**
2f. PROFITS							
Profits on Total Sales	10.0% of sales		$ 9,298,900				per year
Risk Premium for Construction	2.0% of construction		$ 834,000				"
Total Profit from Construction & Related Activity			**$ 10,132,900**			**$ 10,132,900**	**per year**

Table 2. Economic Impacts of Development Activities

(Values in 2015 dollars)
(continued)

Item	Source or Multiplier		New Facility			Net Change	Units
2.g. EMPLOYMENT (on-site & off-site)							
Construction Jobs	3.31 x sales/$1 mil		138			138	jobs
Indirect Jobs Generated by Construction	1.99 x direct jobs		275			275	"
Total Employment			**413**			**413**	**jobs**
2.h. PAYROLL							
Construction Payroll	$ 63,000 per job		$ 8,694,000			$ 8,694,000	per year
Payroll for Indirect Employment	$ 48,300 "		$ 13,282,500			$ 13,282,500	"
Total Payroll			**$ 21,976,500**			**$ 21,976,500**	**per year**
2.i. POPULATION SUPPORTED BY DEVELOPMENT ACTIVITIES							
Supported by Construction Jobs	2.2 per job		304				residents
Supported by Indirect Jobs	2.2 "		605				"
Total Residents Supported			**909**			**909**	**residents**
2.j. HOUSING FOR SUPPORTED POPULATION							
Supported by Construction Jobs	0.33 per resident		100				homes
Supported by Indirect Jobs	0.33 "		200				"
Total Homes Supported			**300**			**300**	**homes**

Table 3. Economic Impacts of Operations

(Values in 2015 dollars)

Item	Source or Multiplier	Old Facility	New Facility	Change	Change, Nearby Facilities	Net Change	Units
3.a. JUVENILES SERVED							
Number Sheltered							
Capacity	Judiciary	10	12	2	-	2	per day
Average	"	7	12	5	-	5	per day
Daily Reporting		n.e.	n.e.	n.e.	n.e.	n.e.	
3.b. HOUSING, RESIDENTS AND STUDENTS							
Rental Units			**187**			**187**	**units**
Residents	2.1 residents/unit		**393**			**393**	**people**
Students							
Elementary School Students	0.06 students per unit		11				students
Middle School Students	0.03 "		6				"
High School Students	0.03 "		6				"
Total Students			**23**			**23**	**students**
Maximum Income (60% of median)							
1 Person	HHFDC		$ 40,260				per year
2 Persons	"		$ 46,020				"
3 Persons	"		$ 51,780				"
4 Persons	"		$ 57,480				"
5 Persons	"		$ 62,100				"
6 Persons	"		$ 66,720				"
Maximum Monthly Rent							
1-Bedroom	HHFDC		$ 1,078				"
2-Bedroom	"		$ 1,294				"
3-Bedroom	"		$ 1,494				"
Rental Income	$ 1,200 per unit per month		**$ 2,692,800**			**$ 2,692,800**	**per year**

n.e.: not estimated

Table 3. Economic Impacts of Operations

(Values in 2015 dollars)
(continued)

Item	Source or Multiplier	Old Facility	New Facility	Change	Change, Nearby Facilities	Net Change	Units
3.c. EMPLOYMENT							
Jobs, Juvenile Center							
Management/Supervisors ($49,056 to $81,756/yr)	Judiciary	4.0	8.0	4.0	(4.0)	-	jobs
Instructors/Teachers (average $56,000/yr)	"	1.5	1.5	-	-	-	"
Juvenile Counselors ($38,772 to $67,188/yr)	"	13.0	15.0	2.0	-	2.0	"
Counselors, part-time ($18 to $19/hr)	"	11.0	11.0	-	-	-	"
Social Workers ($47,400 to $70,188/yr)	"	2.0	26.0	24.0	(24.0)	-	"
Nurses, part-time (average $42/hr)	"	1.0	1.0	-	-	-	"
Janitors ($36,684 to $39,240/yr)	"	-	3.0	3.0	-	3.0	"
Kitchen Helpers	"	2.0	-	(2.0)	2.0	-	"
Juvenile Counselors, contract employees	"	3.0	-	(3.0)	-	(3.0)	
Janitors, contract employees	"	2.0	-	(2.0)	-	(2.0)	"
Total Employment, Juvenile Center		39.5	65.5	26.0	(26.0)	-	jobs
Jobs, Affordable Housing	PEP		6.0	6.0		6.0	"
Total Project and Related Jobs		39.5	71.5	32.0	(26.0)	**6.0**	**jobs**
Indirect Jobs	0.59 per direct job, housing		3.5	3.5		3.5	"
Total Employment		39.5	75.0	35.5	(26.0)	**9.5**	**jobs**
3.d. PAYROLL							
Juvenile Center							
State Employees, On-site	Judiciary	$ 1,448,956	$ 1,823,188	$ 374,232	$ -	$ 374,232	per year
Relocated State Employees & Contract Employees	"				$ (374,232)	$ (374,232)	"
Total Payroll		$ 1,448,956	$ 1,823,188	$ 374,232	$ (374,232)	$ -	per year
Affordable Housing	$ 40,000 per job		$ 240,000	$ 240,000		$ 240,000	"
Indirect Jobs	$ 48,300 "		$ 169,050	$ 169,050		$ 169,050	
Total Payroll		$ 1,448,956	$ 2,232,238	$ 783,282	$ (374,232)	**$ 409,050**	**per year**

Table 3. Economic Impacts of Operations

(Values in 2015 dollars)
(continued)

Item	Source or Multiplier	Old Facility	New Facility	Change	Change, Nearby Facilities	Net Change	Units
3.e. OPERATING EXPENDITURES							
Juvenile Center							
Utilities	Judiciary	$ 57,000	$ 57,000	$ -		$ -	per year
Meals	"	$ 38,000	$ 40,000	$ 2,000	$ -	$ 2,000	"
Supplies (office, cleaning, etc.)	"	$ 6,000	$ 10,000	$ 4,000	$ -	$ 4,000	"
Nurse Contract	"	$ 50,000	$ 50,000	$ -		$ -	"
Motor Pool Cars	"	$ 14,000	$ 14,000	$ -		$ -	"
Custodial Services Contract	"	$ 45,036	$ -	$ (45,036)		$ (45,036)	"
Total		$ 210,036	$ 171,000	$ (39,036)		$ (39,036)	per year
Affordable Housing		n.e.	n.e.	n.e.	n.e.	n.e.	
3f. RESIDENTS AND HOMES SUPPORTED BY INCREASED ECONOMIC ACTIVITY						insignificant	
3g. REGIONAL SALES, PROFITS & PAYROLL							
Final Sales							
Rent	Section 3.b					$ 2,692,800	per year
Consumption	55% of payroll					$ 224,978	"
Total Final Sales						$ 2,917,778	per year
Exemption, Low and Moderate Inc. Rental Housing						-$ 2,692,800	"
Final Sales Taxed at 4%						$ 224,978	per year
Indirect Sales (taxed at 0.5%)						n.e.	
Profits	10% of consumption					$ 22,498	"
Payroll						$ 409,050	"
3h. ASSESSED PROPERTY VALUE (exempt)		$ -	$ -	$ -		$ -	

n.e.: not estimated

Table 4. Impacts on County Revenues and Expenditures

(Values in 2015 dollars)

Item	Source or Multiplier		New Facility			Net Change	Units
4.a. CHANGE IN TAX & EXPENDITURE BASE							
Duration	Table 2, Section 2.a		2.0				years
Development Activities							
Final Sales Subject to Surcharge							
Annual Average	Table 2, Section 2.e		$ 17,833,075				per year
Cumulative			$ 35,666,150			$ 35,666,150	
Operations							
Final Sales Subject to Surcharge	Table 3, Section 3.g					$ 224,978	
Assessed Property Value	Table 3, Section 3.h					exempt	
4.b. DEVELOPMENT ACTIVITIES							
Additional County Revenues							
Excise Tax Surcharge	0.5% of final sales					$ 178,331	
Additional Expenditures							
Infrastructure (provided by developer)						$ -	
Services						$ -	
Net Revenues						**$ 178,331**	
4.c. OPERATIONS							
Additional County Revenues							
Excise Tax Surcharge	0.5% of final sales					$ 1,125	per year
Property Taxes	$ 3.50 per $1,000 of Value					$ -	per year
Additional Expenditures							
Debt Service						$ -	
Services						$ -	
Net Revenues						**$ 1,125**	**per year**

Table 5. Impacts on State Revenues and Expenditures

(Values in 2015 dollars)

Item	Source or Multiplier		New Facility			Net Change	Units
5.a.CHANGE IN TAX & EXPENDITURE BASE							
Development Activities							
Duration	Table 2, Section 2.a		2.0				years
Final Sales Subject to Excise Tax							
Annual Average	Table 2, Section 2.e		$ 17,833,075				per year
Cumulative			$ 35,666,150			$ 35,666,150	
Intermediate Sales (taxed at 0.5%)							
Annual Average	Table 2, Section 2.e		$ 36,701,925				per year
Cumulative			$ 73,403,850			$ 73,403,850	
Profits							
Annual Average	Table 2, Section 2.f		$ 10,132,900				per year
Cumulative			$ 20,265,800			$ 20,265,800	
Payroll							
Annual Average	Table 2, Section 2.h		$ 21,976,500				per year
Cumulative			$ 43,953,000			$ 43,953,000	
Operations							
Final Sales Subject to Excise Tax	Table 3, Section 3.f					$ 224,978	per year
Indirect Sales	"					n.e.	"
Profits	"					$ 22,498	"
Payroll	"					$ 409,050	"

n.e.: not estimated

Table 5. Impacts on State Revenues and Expenditures

(Values in 2015 dollars)
(continued)

Item	Source or Multiplier		New Facility			Net Change	Units
5.b. DEVELOPMENT ACTIVITIES							
Additional State Revenues							
Excise Tax							
Final Sales	4.0% of sales					$ 1,426,646	
Intermediate Sales	0.5% "					$ 367,019	
Total Excise Tax						$ 1,793,665	
Corporate Income Taxes	5.0% of profits					$ 1,013,290	
Personal Income Taxes	5.1% of income					$ 2,241,603	
Total State Tax Revenues						$ 5,048,558	
Additional Expenditures							
Infrastructure (provided by developer)						$ -	
Schools Improvements						$ -	
Services						$ -	
Net Revenues, Cumulative						**$ 5,048,558**	
5.c. OPERATIONS							
Additional State Revenues							
Excise Tax Generated by:							
Final Sales	4.0% of final sales					$ 8,999	per year
Indirect Sales	0.5% of int. sales					n.e.	"
Corporate Income Tax	5.0% of profit					$ 1,125	"
Personal Income Tax	5.1% of income					$ 20,862	"
Total Revenues						**$ 30,986**	**per year**
Additional Expenditures							
Debt Service						$ -	
Services						$ -	
Net Revenues, Annual						**$ 30,986**	**per year**

n.e.: not estimated