DEPARTMENT OF PUBLIC WORKS
TROY K. TANIGAWA, P.E., ACTING COUNTY ENGINEER
BOYD GAYAGAS, DEPUTY COUNTY ENGINEER

FILE COPY

JUL 23 2021

DEREK S.K. KAWAKAMI, MAYOR
MICHAEL A. DAHILIG, MANAGING DIRECTOR

July 13, 2021

Mr. Keith Kawaoka, Acting Director
Office of Environmental Quality Control
Department of Health, State of Hawaii
235 S. Beretania Street, Room 702
Honolulu, Hawaii 96813

Dear Mr. Kawaoka,

With this letter, the County of Kauai Department of Public Works hereby transmits the draft environmental assessment and anticipated finding of no significant impact (DEA – AFONSI) for the Kauai Police Department of Public Works Kapaa Substation situated at TMK: (4) 4-6-014: 013, in the Kapaa District on the island of Kauai for publication in the next available edition of the Environmental Notice.

Enclosed is a completed OEQC Publication Form, two copies of the DEA-AFONSI, an Adobe Acrobat PDF file of the same, and an electronic copy of the publication form in MS Word. Simultaneous with this letter, we have submitted the summary of the action in a text file by electronic mail to your office.

If there are any questions, please contact Doug Haigh, Building Division Chief at 808-241-4849.

Sincerely,

Troy Tanigawa Digitally signed by Troy Tanigawa Date: 2021.07.15 15:00:00 -10'00'
Troy K. Tanigawa
Acting County Engineer

Enclosures

4444 Rice Street, Suite 275 • Lihu'e, Hawai'i 96766 • (808) 241-4992 (b) • (808) 241-6604 (f)
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22 - 002

AGENCY
PUBLICATION FORM

Project Name:	Kauai Police Department Kapaa Substation
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 County of County Funds
Island(s):	Kauai
Judicial District(s):	Kapaa
TMK(s):	4-6-014: 013
Permit(s)/Approval(s):	Use Permit, Building Permits
Proposing/Determining Agency:	County of Kauai Department of Public Works
Contact Name, Email, Telephone, Address	Doug Haigh, Building Division Chief, dhaigh@kauai.gov , 808-241-4854 4444 Rice Street, Suite 175, Lihue, Hawaii 96766-1340
Accepting Authority:	(for EIS submittals only)
Contact Name, Email, Telephone, Address	
Consultant:	Environmental Communications, Inc.
Contact Name, Email, Telephone, Address	Taeyong Kim, tkim@environcom.com, 808-528-4661 P.O. Box 236097 Honolulu, Hawaii 96823

Status (select one)	**Submittal Requirements**
_X_ 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.
____ 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 project site consists of vacant land and a single story single-family dwelling that is used for overflow parking from the adjacent Samuel Mahelona Memorial Hospital. The site is open and grassed along its Kawaihau Road frontage and slopes towards a natural ravine.

The proposed action consists of the construction of a 7,020 square foot police substation. The building will include standard police functions such as administrative offices, locker rooms, training areas, holding cell and interview rooms, and a multipurpose room.

Appurtenant to the main building are 45 parking stalls including ADA accessible stalls and two spaces reserved for large police vehicles.

The subject facility is required to properly maintain police services within the growing Kapaa and North Shore population centers. Presently, the only structure where police officers can perform paperwork is a temporary location at the Armory building. Intake, briefings and other typical functions must presently occur at the Lihue Station.

The estimated construction cost for the project is $8,000,000.00.

DRAFT ENVIRONMENTAL ASSESSMENT

KAUAI POLICE DEPARTMENT
KAPAA SUBSTATION

TMK 4-6-014: 013

DEPARTMENT OF PUBLIC WORKS
FOR
KAUAI POLICE DEPARTMENT

PROJECT ARCHITECT:
AM PARTNERS, INC.

PROJECT PLANNING CONSULTANT:
ENVIRONMENTAL COMMUNICATIONS, INC.

JULY 2021

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Kauai Police Department

Kapaa Substation
Kapaa, Island of Kauai, Hawaii
Tax Map Keys: 4-6-014: 113

Draft Environmental Assessment

Prepared by the Department of Public Works Building Division pursuant to Chapter 343, Hawaii Revised Statutes (HRS)

Notice of availability of this document will be made in the Environmental Notice published by the Office of Environmental Quality Control.

For additional information concerning this document please contact:

Mr. Taeyong Kim
Environmental Communications, Inc.
P.O. Box 236097
Honolulu, HI 96823
Email: tkim@envirocom.com

A copy of any comments or requests should be made to:

Doug Haigh, Building Division Chief
Department of Public Works
County of Kauai
4444 Rice Street, Suite 175
Lihue, HI 96766-13450
Email: dhaigh@kauai.gov

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APPENDIX A Kapaa Substation Basis of Design
AM Partners, Inc.

APPENDIX B Traffic Impact Assessment Report
The Traffic Management Consultant

I. PROJECT SUMMARY

PROPOSING AGENCY:	Department of Public Works County of Kauai 4444 Rice Street, Suite 175 Lihue, Hawaii 96766-13450
PROJECT NAME:	Kauai Police Department Kapaa Substation
PROJECT LOCATION:	Open land and a vacant single-family dwelling located adjacent to the Samuel Mahelona Memorial Hospital on Kawaihau Road Kapaa, Kawaihau, Kauai, Hawaii
TAXMAPKEY/ OWNERSHIP:	4-6-014: 113 por. / Hawaii Health Systems Corp.
AREA:	33.742 acres / 1,469,802 square feet
ZONING:	R-4, ST-P Special Treatment District, Public Facilities
STATE LAND USE:	Urban District
CURRENT LAND USE:	The project site consists of vacant, maintained land and a single story single-family dwelling that is used for overflow parking from the adjacent Samuel Mahelona Memorial Hospital. The site is open and grassed along its Kawaihau Road frontage and slopes in the southeastern direction towards a natural ravine. It is not used for any recreational purpose.
PROJECT SCOPE:	The proposed action consists of the construction of a 7,020 square foot police substation. The building will include standard police functions such as administrative offices, locker rooms, and training areas. Appurtenant to the main building are 44 parking stalls for staff and public use. Included in this count are ADA stalls and two large spaces for large police vehicles . Two separate loading areas are also included within the site plan.

PURPOSE AND NEED:	The subject facility is required to properly maintain police services within the growing Kapaa and North Shore population centers. The Lihue Police Station's distance from the Kapaa service area would result in a decrease in the effectiveness of police services in the Kapaa District. Presently, police officers perform paperwork and administrative functions at a temporary space located within the Kapaa Armory building. Intake, briefings and other typical functions must presently occur at the Lihue Station.
PROJECT COST/PHASING	The estimated construction cost for the project is $8,000,000.00. The proposed project will be conducted in a single continuous phase with a projected commencement date of the Fall 2022 and a completion date in the Winter of 2023. The improvements should be completed in approximately 18 months.
PERMITS AND APPROVALS	State of Hawaii • Department of Health Community Noise Permit • National Pollutant Discharge Elimination System Permit (NPDES) if grading required exceeds 1 acre. County of Kauai • Class IV Zoning Permit • Building Permits

II. PROPOSED PROJECT AND STATEMENT OF OBJECTIVES

A. Project Location

The subject project consists of a vacant open area located on a parcel that includes the Samuel Mahelona Memorial Hospital (SMMH) campus in Kapaa, Kauai, Hawaii. The area is vacant, grassed and maintained and is partially used for unofficial overflow parking for the hospital. The project parcel is located immediately east of the Kawaihau Road and Iwaena Road juncture. The SMMH parking lot and main hospital building are located to the north. Single family dwellings and the Kawaihau Road and Iwaena Road traffic triangle lie to the immediate west. A ravine that runs to the south is located along the southern end of the site. Large open areas accessed by an SMMH driveway are located to the east. The project site is identified as Tax Map Key: 4-6-014: 113 and is not presently assigned with a street number. The site will be leased from Hawaii Health Systems Corporation.

The surrounding neighborhood located to the west is characterized as a low density single-family community located on a plateau with the bluffs anchored by SMMH and Kapaa Elementary and High Schools. The SMMH and the Kapaa Elementary and High Schools concentrate civic functions with excellent access to the community they serve. Areas further east of the site beyond the ravine and bluffs are primarily shoreline areas that do not contain residential areas.

B. Project Description

The proposed project consists of the construction of an approximately 7,020 square foot police substation to serve the Kapaa community and police service area. Presently police services in the area are not able to function optimally due to the very limited services available at the current temporary location within the Kapaa Armory building which serves essentially as a paperwork station rather than as a substation. The lack of basic operational functions such as a training area and locker rooms require that patrol officers must travel outside of the service area to the main station in Lihue to complete these functions. This distance and travel time adversely impacts the services that can be provided to the community.

The proposed structure will consist of a single-story with appurtenant support areas that is intended to provide excellent public access with a design that integrates with the surrounding community and provides a strong but accessible appearance. Core functions of the facility include general administrative spaces and offices, holding cell, and interview rooms, a break room, a squad room, men's and women's locker rooms, multipurpose training room, bathrooms and other support spaces.

The rear of the building will serve as the access point where detainees will enter the substation building and be led directly into the holding cell and interview room.

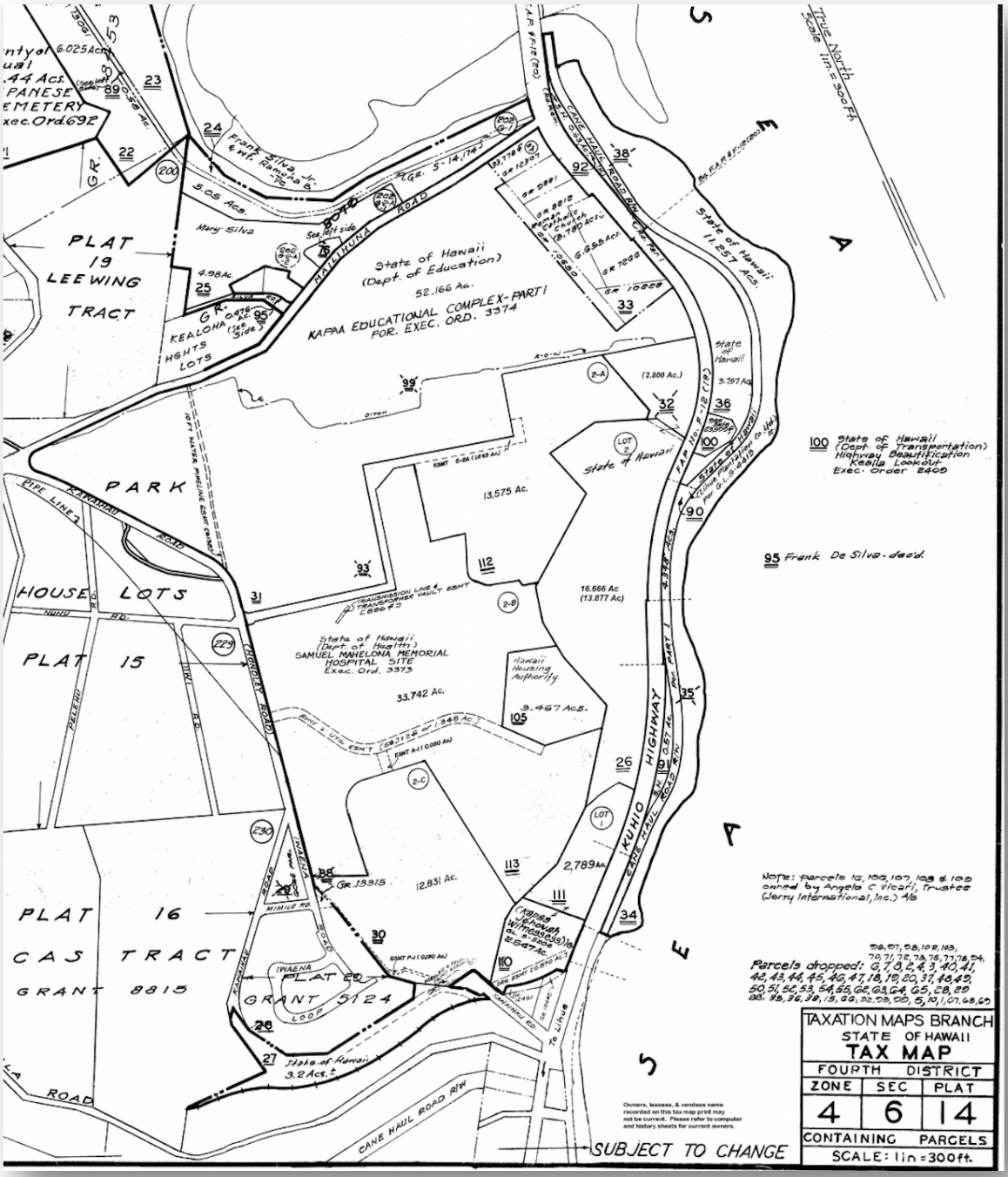
Access to the facility will be through two gated driveways off of Kawaihau and Iwaena Roads. Public parking and access to the police vehicle parking lot will be through the Kawaihau driveway, while only police and staff related vehicles will access the site through the Iwaena Road driveway. A total of 44 parking stalls will be provided including 2 large police vehicle and required ADA parking stalls. Parking was determined by allocating stalls for office staff, patrol stall personal vehicles, active patrol vehicles and shift change periods when staff doubling will occur. Additionally, parking for five spare patrol vehicles is provided ensuring that patrol services are not affected by maintenance or repair down-time.

No parking will be located in front of the building and the majority of police related parking stalls will be located on an easterly terraced lower level which will be less visible to the public. Parking located along the non-secured driveway will be used for training exercises in the multi-purpose space as well as for visitor parking or others conducting business at the station.

Other exterior appurtenant functions include a septic tank and drain field as the area is not served by a municipal sewer system, an emergency generator structure, and a trash dumpster enclosure.

Extensive landscaping and berms will be incorporated to the street facing front of the building. This will create visual interest and create a softer appearance while the berms will add a level of protection to the building and may slightly attenuate noise from traffic along the fronting roads.

Figure 1: Tax Plat Map



Source: County of Kauai Real Property Tax Office

Figure 2: Aerial Map of Project Area

Source: Google Earth

Building Components

The building structure will be comprised of concrete masonry bearing walls at the exterior wall supported on concrete foundations and concrete shallow footings. The exact design of the footings and foundations will be based on recommendations from the geotechnical investigation. Interior columns will be galvanized steel concealed within rated partitions to provide the required fire protection. Select interior walls may be of masonry for compliance with code or functional requirements. The floor shall be concrete slab-on-grade atop a granular base course.
The roof structure will be comprised of structural steel and gauge metal framing or trusses with structural metal decking with spray fire proofing. Metal standing seam roofing will be installed atop the structural deck with proper separation of materials. Metal standing seam or tile roofng will be installed atop the structural deck with proper insulation and separation of materials.

The exterior concrete masonry structural wall will comprise the building enclosure. This wall will be furred to the interior with rigid insulation and gypsum board sheathing for the required thermal compliance, and painted on the exterior. Windows and storefronts shall be aluminum frames and ballistic glazing for protection. Other exterior doors will either be aluminum or galvanized hollow metal core with ballistic resistant interior construction.

Site and Building Security

Security for the building will be provided by card reader access at all exterior doors to the building, as well as access to the evidence room, the arsenal, and interview room. Closed-circuit cameras will be provided at the entry, covered lobby, multipurpose meeting room, exterior entry/exits, view of the detention cell door, detainee processing room, and view of parking areas. Radio speakers will be provided in the squad room and adjoining offices, administration area and offices, meeting room, locker rooms, and breakroom. Speakers will have volume control at each location.

Exterior doors and windows shall be provided frames, panels and glazing with ballistic and attack resistance suitable for the location.

All administrative areas, squad room and offices shall be air conditioned. Process rooms and detention areas as well as locker room areas and exercise room will be air conditioned. Restrooms, shower and bath areas shall have exhaust air to the exterior, as will the arsenal. Other areas will have return air to the mechanical system.

Select power and emergency lighting, security systems, radio and refrigerator will be tied into the emergency power system. This system will

have an exterior pad mounted generator supplied by LNG tank on site. The LNG tank shall also provide fuel to the hot water system.

Exterior walls and roof shall be thermally insulated to at least the minimum standard dictated by the Energy Code.

Sanitary Sewer System

No public sewer is located nearby. The nearest existing sewer manhole is located at the SMMH and is located approximately 800 feet from the project boundary. This private sewerline connects to the public sewer system on Kuhio Highway. New direct sanitary sewer connection to the existing public sewer system is cost prohibitive. An Individual Wastewater System (IWS) with leaching beds will be provided. Preliminary IWS calculations estimate a 1,500 gal. septic tank with a 600 sq. ft. leach bed will be required for the new facility. The State Department of Health Wastewater Branch approval for IWS will be required. A leach field will also be installed on-site.

Water System

The facility water system will be provided in accordance with the Department of Water – Kauai County (DOW) Water System Standards. Domestic service will be connected to the existing 12-inch watermain along Kawaihau Road to the building with a water meter, reduced principle backflow preventer and pressure regulator valve.

Fire Hydrant Flow tests are needed to be conduct by the fire protection engineer. If there is not enough water flow for fire protection, off-site waterline improvements might be required to meet the fire protection requirements.

Site Grading and Drainage

The site is bordered by Kawaihau Road on the west side and Mahelona Hospital to the north. The site is currently undeveloped and storm water flows towards the makai direction. Site slopes diagonally from the west towards the east with an approximate four feet grade difference. Proposed design will be to “balance cut and fill”. The Geotechnical engineer’s soils investigation report and recommendations will be required for the site and grading design purposes.

In terms of the drainage requirements, since the site is currently undeveloped, new construction will result in an increase in impervious surfaces and increase in storm water runoff volume. A subsurface

infiltration system with overflow to the eastern direction appears to be the most feasible and would result in less maintenance.

Roof downspouts and on-site drain inlets will be piped underground to a subsurface drainage system located within the project site. The subsurface drainage system will be in the form a “leach bed” consisting of large size perforated HDPE pipes which will be encased with washed gravel and a geotextile filter fabric. Overflow and building perimeter drain line will be discharged at a new concrete headwall daylight at makai side of the site.

Electrical Systems

This project will include building electrical design for a new police station, including underground electric and telecommunications infrastructure to support the following: branch circuiting, receptacles, interior & exterior light fixture connections, telecommunication connections, a photo-voltaic system, fire alarm system, automatic transfer equipment and an emergency generator, parking lot lighting, radio transmitter and antenna, CCTV system, and a security system. Electric power will be brought to the site via the existing Kauai Island Utility Co-op (KIUC) overhead line running along Kawaihau Road. An enclosed emergency generator and fuel supply will be located in the parking area.

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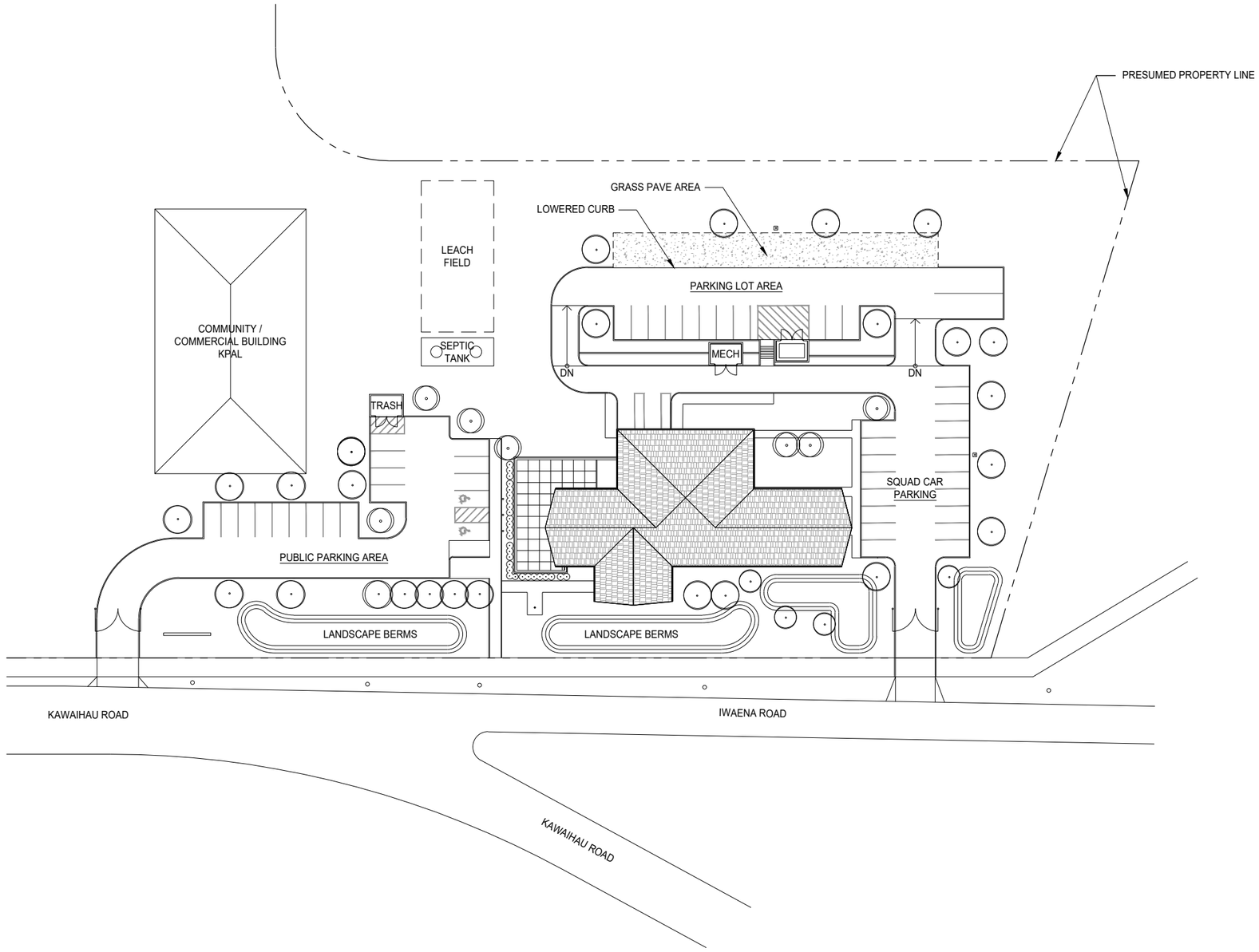

SITE PLAN

SCALE: 1/16"=1'-0"

64' 0 64' 128' 192'

SCALE: 1/64"=1'-0"

AM Partners, Inc.

architecture
planning
interiors
graphics

KAPA'A POLICE SUBSTATION

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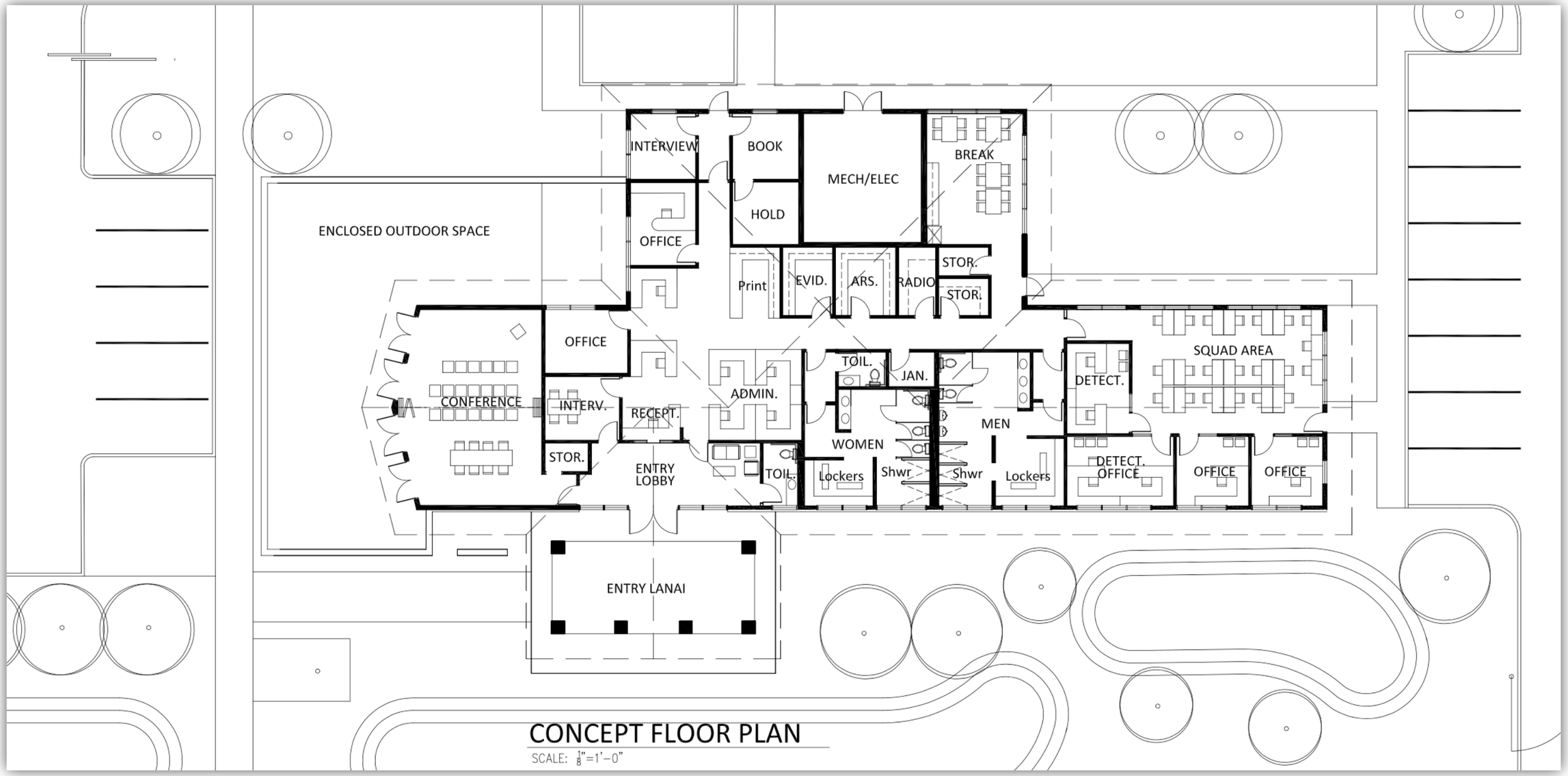

CONCEPT FLOOR PLAN

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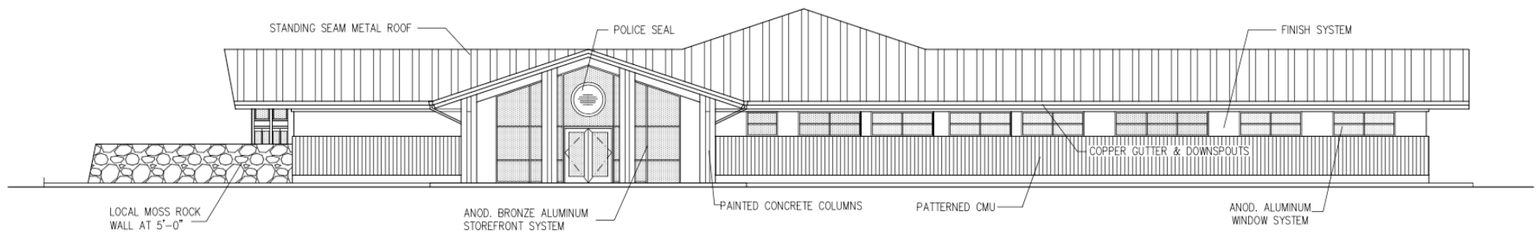

FRONT ELEVATION

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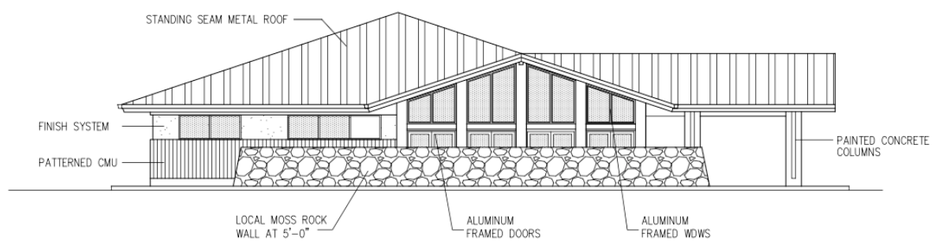

LEFT SIDE ELEVATION

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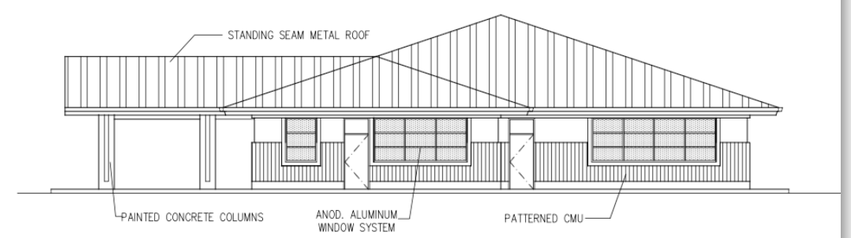
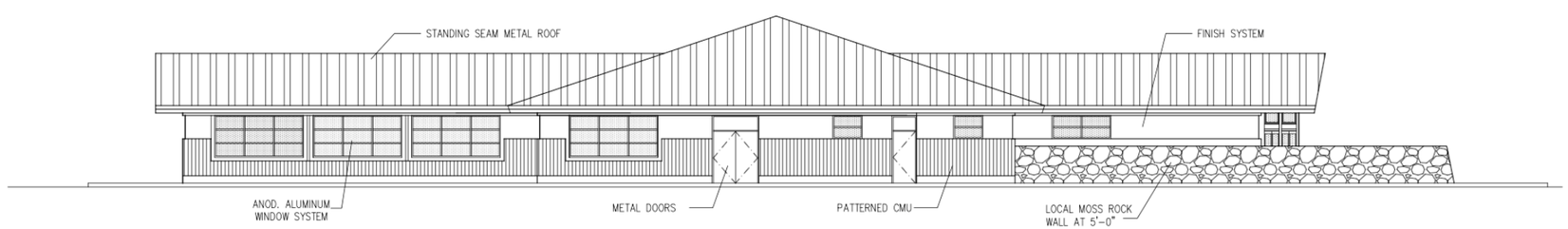


RIGHT SIDE ELEVATION

SCALE: $\frac{1}{8}$"=1'-0"



REAR ELEVATION

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C. Project Objective and Need for Action

The temporary Kapaa Substation services the east side of the island which is one of the most populous areas of the island. The urbanization and increasing density of the area has increasing demand for police services and is also an important gateway for traffic to northern districts served by the Hanalei Substation. With this greater service area, a temporary office is no longer desirable nor suitable and a larger permanent location is required not only for current levels of service, but also for future population growth and demand for additional police services.

The objective of the proposed action is to provide a permanent facility for service area. Presently, many administrative functions, personnel activities and holding functions must be handled at the Lihue Station. This geographic separation results in a loss of time and efficiency, and most importantly, the reduction of beat patrol time lost to travel.

The need for a new substation has been recognized for years and formal use needs assessment and site selection processed was conducted in 2014.

The subject Environmental Assessment is prepared in conformance with Chapter 343 Hawaii Revised Statutes, as the project will involve the use of County funds. The project parcel is owned by the Hawaii Health Care Systems but the project will be funded by the County of Kauai.

D. Alternatives Considered

The current temporary office located in the Armory Building is not considered a optimally functional solution in providing a work and service facility for this busy district. The present location also imposes on the optimal functions of the Armory Building. Additionally, the Armory Building is loacted within a flood zone and may also be subject to sea level rise impacts. Permanent Police Department presence is an important community function and the proposed facility will not only provide a permanent and highly functional operations base, the facility will include community spaces to promote the concept of the community and the Police Department working together in close proximity.

An extensive search for alternative sites was conducted in 2014. In addition to the proposed site, other sites included privately owned lands adjacent to Kapaa Middle School, and the National Guard Armory grounds. Suitable County and State lands are not readily available and agreements with privately owned lands proved to be cost prohibitive or functionally

challenged. By process of elimination, the vacant lands next to SMMH proved to be ideal not only due to availability but also because the civic functions of the adjacent SMMH and Kapaa Elementary and High Schools help create a mauka civic center complex.

No action is not considered an alternative as the Kapaa patrol area has proven to be one of the busier locations with heavy demand for services. By law, rapid police response is required and any decrease in services is not in the public interest and jeopardizes health, safety and welfare of the surrounding community.

III. DESCRIPTION OF ANTICIPATED IMPACTS AND MITIGATION MEASURES

A. Environmental Setting

The project site consists of vacant maintained land owned by the Samuel M. Mahelona Hospital through Hawaii Health Care Systems, a State of Hawaii entity. The site is part of a single, large 33.742 acre tax parcel. All areas of the parcel not presently occupied by active health care facility functions are relatively level with gentle slopes towards the ravine and in the makai direction. The site proposed for the police substation is also grassed and vacant except for a single-family dwelling which is no longer occupied and an area that is used for additional parking when needed by the hospital. Parking on the subject area is a matter of convenience since is located adjacent to Kawaihau and Iwaena Roads and is a very short walk to the main hospital building. Other areas suitable for this parking can be found throughout the hospital campus. The site is well located as a base for police patrols as Kawaihau and Iwaena roads provide quick access towards Kapaa's business areas as well as the upland residential areas. Kuhio Highway leading to both north and south area is also located minutes from the proposed site.

B. Surrounding Uses

The area surrounding the project site is characterized by single-family dwelling user the prevailing R-4 residential zoning. The proposed residential scale improvements are consistent with the immediate surroundings as well as the general character of the entire district. The substation along with the SMMH and school frontages immediately identify this strip of land as a civic center. As vehicular traffic moves from Kuhio Highway in the northerly direction, the sequence of institutional uses will start with the substation, then the SMMH, followed by Kapaa Elementary School, and finally Kapaa High School, all located immediately to the east. In the western direction along the same path, single-family residences line the west side of the road.

C. Environmental Considerations

1. Geological Characteristics

<u>Topography</u>

The project improvement area consists of a site that gently sloping lands from west to east and from north to south. The project site is devoid of any structures other than a vacant single-family structure, geographic features, drains, swales or other variations from the smooth grassed surface and

overgrown plants. Ornamental trees, shrubs and weeds are located on the proposed development area. The sites wayfinding coordinates are latitude 22.0865 and longitude -159.3127. The center of the site is located approximately 112 feet above mean sea level.

Climate

According to NOAA, the long term climate data for Lihue represents the closest recorded long-term climate data for the project site. The daily average temperature from this recording site is 71 to 80 degrees with an average annual temperature of 76.2 degrees. The coolest month of the year is February while the warmest is August. The average annual rainfall is approximately 40 inches with a wet season from October to April. Northeasterly tradewinds predominate this area with occasional southerly "Kona" winds approaching from the south. Air conditions are very good, particularly due to the site's eastern location. The project site is outside of any area subject to rising sea levels.

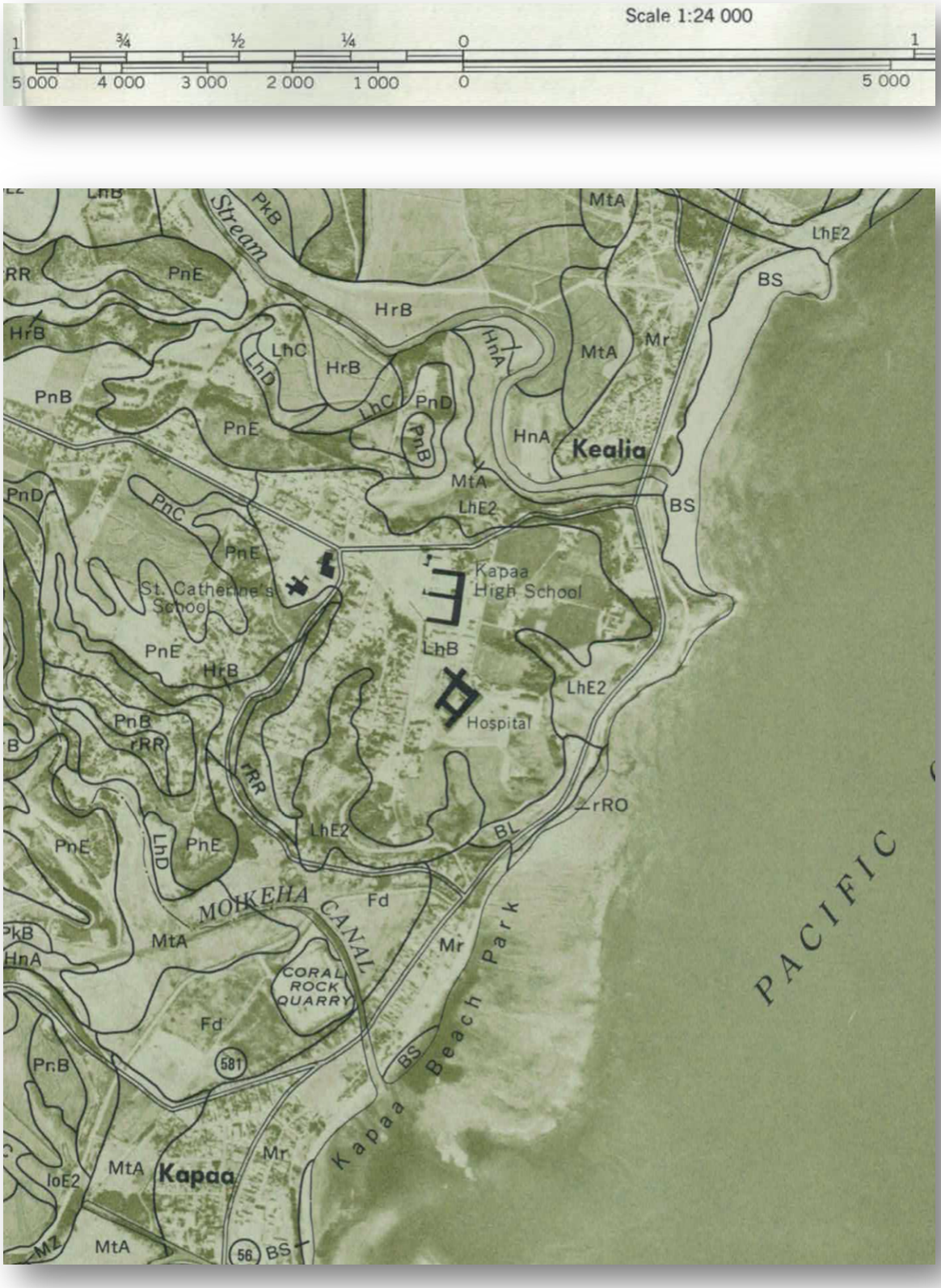
Soil Conditions

According to the Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii by the US Department of Agriculture Soil Conservation Service, the project site is located primarily on soils classified as Lihue silty clay, 0 to 8 percent slopes (LhB).

This series consists of well-drained soils on upland on the island of Kauai. These soils developed in material weathered igneous rock. The soil type is located on gently sloping land to steep lands with elevations ranging from sea level to 800 feet. These soils were used for irrigated sugarcane, pineapple, pasture and truck crops. In the case of the project site, cane was the predominant use.

The LhB soil type lays on the top of broad interfluves. Representative samples of this soil type consist of dusky-red silty clay about 12-inches thick. The subsoil is more than 48 inches thick and is dark-red to dark reddish-brown compact silty clay. The substratum consists of soft, weathered rock. The surface layer of the soil tends to be acidic while the sub-soils are slightly acidic to neutral. Permeability is moderately rapid and runoff is slow. Erosion hazard for this soil type is no more than slight.

Figure 7 Soils Map



Source: U.S. Soil Conservation Service

Air Quality and Noise Environment

The ambient air quality of the project site is typical of the low-density residential character of the site. No point source pollution sources have been identified in the general area and typical trade winds ensure that air quality remains within acceptable standards as recorded by the Department of Health air quality monitors.

Air quality impacts from the construction and operation of the substation and community meeting facility are expected to be minimal to insignificant. During the construction period, gasoline or diesel powered heavy equipment will be required for the demolition and construction of the improvements. Air quality degradation from the operation of this equipment will be negligible and temporary. No long-term air impacts will occur as a result of the project.

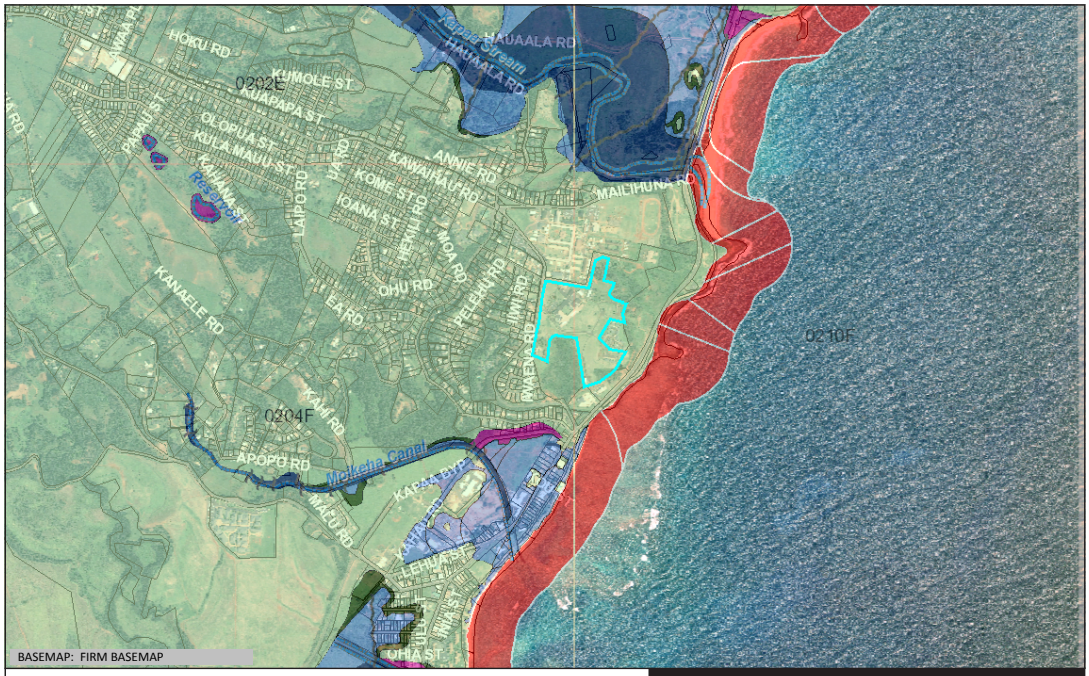
The noise environment will be affected during the construction period. Heavy equipment will be used during site grading and construction. All activities will continue to adhere to State Department of Health community noise standards. Upon completion of all construction related activities, no long-term noise impacts are expected from the facility itself. Police vehicles are not anticpated to use sirens upon exiting the facillity to minimize any noise impacts to the surrounding neighborhood. Emergency response vehicles are required to turn on their lights and sirens when responding to an emergency call however this typically occurs outhside of the surrounding residential neighborhood. As previously stated, access to Kuhio Highway to the south and residential areas to the north and west is excellent so any possible siren noise will be quickly minimized. Noise disruption from emergency calls will be temporary and brief.

2. Water Resources

Hydrologic Hazards and Resources

According to Panel 1500020204F of the Federal Emergency Management Agency Flood Insurance Rate Map, the entire project area is located in Zone X. This is an area determined to be outside of the annual 0.2% annual chance floodplain (Figure 8). The project is not in a tsunami evacuation area or a dam evacuation area. According to the Kauai Climate Change and Coastal Hazards assessment prepared for the County of Kauai, sea level rise due to climate change is 1-foot by year 2050 and 3l-feet by year 20100. The project site will not be impacted by sea level change.

Figure 8: Flood Hazard Map



Flood Hazard Assessment Report

www.hawaiinfip.org

Property Information

COUNTY:	KAUAI
TMK NO:	(4) 4-6-014:113
WATERSHED:	MOIKEHA
PARCEL ADDRESS:	ADDRESS NOT DETERMINED KAPAA, HI 96746

Notes:

Flood Hazard Information

FIRM INDEX DATE:	NOVEMBER 26, 2010
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL - EFFECTIVE DATE:	1500020204F - NOVEMBER 26, 2010 1500020210F - NOVEMBER 26, 2010

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 0.30 0.60 mi

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.

Source: State of Hawaii Department of Land and Natural Resources

Special Management Area

The project site is not located within the Special Management Area (SMA).

Water Quality

The project will not adversely affect water quality. The proposed improvements will be surrounded by gravel or grassed areas where high permeability will be maintained. The site will increase impervious surfaces however storm drainage is expected to be retained on-site in a leach field type of system. The project site is not located over an aquifer recharge area.

During the construction phase, best management practices will be used to keep the site clean and prevent any adverse discharges from affecting adjacent properties. These measures will include an erosion plan consisting of construction access pads and filters along the project perimeter.

3. Archaeological, Cultural, Botanical and Faunal Resources

Archaeological and Historic Resources

The project site was formerly in agricultural use and had been severely disturbed during its active cultivation period. It is highly unlikely that any archaeological artifacts remain in the project site. Subsequent to its period of active agricultural production, the site is maintained as open space adjacent to SMMH.

A literature search of nearby projects including the recent Kealia Mauka Homesites Environmental Impact Statement indicate that the presence of archaeological remains within the project site is unlikely. In the unlikely event that any archaeological remains are encountered during the construction period, all work will immediately cease and the Kauai Police Department and the Department of Land and Natural Resources Historic Preservation Division will be notified for appropriate action.

Cultural Resources

The project site has been open space use since the development of the Samuel Mahelona Memorial Hospital. Prior use in sugarcane production would not have allowed for any native cultural practices to occur on the project site since the turn of the 20th century. There are no current cultural practices in the project area and no need for access, therefore, no impact on cultural practices.

Flora

The project site is predominantly covered with maintained lawn grass. Other vegetation and ornamental plants located on the site include: coconut, blue latan palm, royal palm, Formosa koa, mango, octopus tree, koa haole, ti, croton, Tahitian gardenia, hibiscus, wedelia, and California grass. No rare, threatened or endangered species of flora were observed within the project site.

The proposed action will include landscape improvements including a landscaped berm and open space along the street frontage, as well as landscaping around the sides and parking areas of the site.

Fauna

The site does not serve as an endangered wildlife habitat although avifauna, feral cats, and rodents may be found on-site.

4. Infrastructure and Utilities

The proposed improvements are not expected to have a significant impact on existing infrastructure and utilities. No sewer, water, electrical or other utilities will be impacted or require relocation. No disruption in utility services is anticipated. All required utilities are available via underground and overhead connection points along Kawaihau and Iwaena Roads.

Vehicular Access and Traffic Conditions

Vehicular access to the project site will be through new driveways located along Kawaihau Road and Iwaena Road. Both roads are two-lane bi-directional with a very wide right-of-way that are not curbed. A draft Traffic Impact Analysis Report for the project was conducted by The Traffic Management Consultant dated August 2020. It should be noted that this study was conducted during the Spring and Summer of 2020 when traffic had been significantly impacted by COVID-19 closures for both local and visitor traffic. The contribution of visitor and normative school traffic has not resumed at the time of this writing therefore the traffic section of this report is based upon traffic data provided by the County of Kauai as typical of pre-COVID-19 conditions. The following is a summarization of the Traffic Impact Analysis Report.

Existing Traffic Volumes and Operating Conditions

The construction of the roundabout intersection of Kuhio Highway and Mailihuna Road is detouring traffic from Mailihuna Road to Kawaihau

Road and Hauaala Road, at this writing. Furthermore, the COVID-19 pandemic shutdown has dramatically reduced peak hour commuter traffic, school trips, and visitor traffic.

The Traffic Impact Analysis Report Kealia Mauka Homesites, dated May 10, 2019, was prepared by Austin, Tsutsumi & Associates, Inc. The Kealia traffic study collected peak period traffic count data at the Kuhio Highway intersections at Kawaihau Road, Hauaala Road, and Kapaa Bypass Road in April 2017. The 2017 peak hour traffic count data were adopted for use in this traffic impact analysis to establish the existing peak hour traffic conditions.

Existing AM Peak Hour Traffic

The existing AM peak hour of traffic occurred from 7:15 AM to 8:15 AM. Kuhio Highway carried between 1,100 vehicles per hour (vph), north of Kawaihau Road, and 2,200 vph north of Kappa's Bypass Road, total for both directions, during the AM peak hour of traffic. Kawaihau Road carried about 700 vph, while Hauaala Road carried about 400 vph, total for both directions. Kapaa Bypass Road carried about 400 vph in the southbound direction.

The heavy right-turn volume from makai bound Kawaihau Road onto southbound Kuhio Highway resulted in LOS "F" conditions and long delays on Kawaihau Road, during the existing AM peak hour traffic. The heavy left-turn volume from northbound Kuhio Highway onto Kawaihau Road resulted in LOS "B" conditions.

The heavy right-turn volume from makai bound Hauaala Road onto southbound Kuhio Highway also resulted in LOS "F" conditions, and even longer delays on Hauaala Road. The left-turn movement from northbound Kuhio Highway onto Hauaala Road operated at LOS "B", during the existing AM peak hour of traffic.

The left-turn movement from northbound Kuhio Highway onto Kapaa Bypass Road also operated at LOS "B".

Existing PM Peak Hour Traffic

The existing PM peak hour of traffic occurred from 3:45 PM to 4:45 PM. During the existing PM peak hour of traffic, Kuhio Highway carried between 1,300 vph and 1,900 vph, total for both directions. Kawaihau Road carried about 500 vph, while Hauaala Road carried about 300 vph, total for both directions. Kapaa Bypass Road carried 300 vph in the southbound direction.

Kawaihau Road operated at LOS “D” at Kuhio Highway, during the existing PM peak hour of traffic. The heavy left-turn volume from northbound Kuhio Highway onto Kawaihau Road continued to result in LOS “B” conditions.

During the existing PM peak hour of traffic, Hauaala Road operated at LOS “E” at Kuhio Highway. The left-turn movement from northbound Kuhio Highway onto Hauaala Road operated at LOS “B”.

The left-turn movement from northbound Kuhio Highway onto Kapaa Bypass Road operated at LOS “B”.

Future Traffic Conditions

The Kauai Long-Range Land Transportation Plan (KLRLTP) was prepared by the State of Hawaii Department of Transportation (DOT), in cooperation with the Kauai County Department of Public Works and Planning Department. The KLRLTP developed long- range travel forecasts for the island of Kauai. The KLRLTP anticipated that traffic in the Kapaa area would increase by about 30 percent between the Base Year 2007 and the Horizon Year 2035. For the purpose of this analysis, the average annual growth of 1.1 percent was uniformly applied to the existing (Year 2017) AM and PM peak hour traffic volumes to estimate the Year 2023 peak hour traffic without the proposed project.

The Kapaa Transportation Solutions (KTS) was prepared for the State Department of Transportation, dated August 2015. The KTS was prepared for DOT in cooperation with the Kauai County Department of Public Works, Planning Department, and Transportation Agency, and the U.S. Department of Transportation Federal Highways Administration. The KTS included input from the Kapaa Citizens Advisory Committee, which is comprised of the Kapaa Business Association, Kapaa High School and Middle School, Wailua-Kapa`a Neighborhood Association, Kauai Visitors and Convention Bureau, and Kauai Path.

The KTS placed a high priority (less than 5-year implementation) on the Kapaa Bypass Road Extension, which would add a northbound lane between Olohena Road and Kuhio Highway to provide a two-way, two-lane Kapaa Bypass Road. As part of the Kapaa Bypass Road Extension, Hauaala Road is proposed to be realigned to connect to the proposed two-way, two-lane Kapaa Bypass Road Extension. The existing Hauaala Road at Kuhio Highway would be terminated with a cul-de-sac. However, the State of Hawaii Department of Transportation has indicated that the Kapaa Bypass Road Extension is beyond the development time frame of the proposed Kapaa Police Substation. Therefore, the Kapaa Bypass Road Extension is not included in this traffic impact analysis.

The KTS also recommends restriping the existing left-turn lanes on Kuhio Highway at the closely-spaced intersections with Kawaihau Road, Hauaala Road, and Kapaa Bypass Road into a continuous two-way left-turn lane (TWLTL). Left-turn traffic from northbound Kuhio Highway into Kawaihau Road, Hauaala Road, and Kapaa Bypass Road would be permitted to form a continuous queue in the TWLTL. The TWLTL also would provide a median refuge lane for left-turn traffic from Kawaihau Road and Hauaala Road onto northbound Kuhio Highway. The TWLTL on Kuhio Highway is prioritized for a 5- to 10- year implementation.

Trip Generation Characteristics

Trip generation characteristics for the traffic study were based on models available for similarly sized stations on the mainland US. The trip generation characteristics for the proposed Kapaa Police Substation (11,550 SFGFA) were based upon the weighted-average trip rates in Table 2. The following table summarizes the trip generation characteristics of the proposed Kapaa Police Substation.

Kapaa Police Substation Trip Generation Characteristics					
AM Peak Hour (VPH)			PM Peak Hour (VPH)		
Enter	Exit	Total	Enter	Exit	Total
19	4	23	7	20	27

Traffic Mitigation Measures

Kawaihau Road operates at LOS “F”, during the existing AM peak hour of traffic. Therefore, the following traffic mitigation measures are recommended:

1. Widen/restripe Kuhio Highway, north of Kawaihau Road, to provide a median refuge lane.
2. Widen makai bound Kawaihau Road at Kuhio Highway to provide separate left-turn and right-turn lanes.

Traffic Without the Project

During the AM peak hour of traffic with the proposed project, the separate left-turn and right-turn lanes on Kawaihau Road are expected to operate at LOS “D” and LOS “E”, respectively, at Kuhio Highway. The other study intersections are expected to operate at the same Levels of Service as during the AM peak hour of traffic without the proposed project.

The left-turn and right-turn lanes on Kawaihau Road are expected to operate at LOS “D”, during the PM peak hour of traffic with the proposed project. The other study intersections are expected to operate at the same Levels of Service as during the PM peak hour of traffic without the

Levels of Service as during the PM peak hour of traffic without the proposed project.

Recommendations and Conclusions

The following traffic improvements are recommended to mitigate the existing traffic congestion on Kawaihau Road at Kuhio Highway:

1. The existing median on Kuhio Highway, north of Kawaihau Road, should be widened/restriped to provide a median refuge lane to facilitate the left-turn movement from Kawaihau Road.

2. Makai bound Kawaihau Road should be widened at Kuhio Highway to provide separate left-turn and right-turn lanes.

3. The geometrics of the intersection of Kawaihau Road and Iwaena Road should be improved to accommodate the vehicle turning movements, as neccessary.

The proposed median refuge lane will permit a two-stage left-turn movement from Kawaihau Road, where a vehicle crosses the southbound lane of Kuhio Highway and queues in the median refuge lane until it can merge into an acceptable gap in northbound traffic. The proposed left-turn and right-turn lanes on Kawaihau Road will permit the heavy right-turn traffic to bypass the left-turn queue. The recommended traffic improvements are expected to improve the traffic operations on Kawaihau Road at Kuhio Highway from the existing LOS “F” to LOS “D” and LOS “E” on the left-turn and right- turn lanes, respectively, during the AM peak hour of traffic.

The proposed project is expected to increase peak hour traffic at the intersection of Kuhio Highway and Kawaihau Road by less than 1.5 percent, during the AM and PM peak hours of traffic. Therefore, the development of the proposed Kapa`a Police Substation is not expected to significantly impact peak hour traffic on Kuhio Highway.

Water

The proposed improvements will not have any impact on municipal potable water resources. Water service is available through a 12-inch main located along Kawaihau Road. Only minor increase demand for potable water will be required.

Wastewater

The project is not served by the municipal sewer system therefore an Individual Wastewater System (IWS) will be installed for the facility. This system will include a 1,500 gallon septic tank and a 600 sf leach field. An existing 8-inch sewer line is located on the northeastern side of the hospital building however no plans to extend this line to the project area have been made at the time of this report.

Drainage

A county storm drainage system does not serve the property therefore a subsurface infiltration system will be installed to prevent runoff from the site.

Solid Waste

The project area is served by the municipal refuse service. Any construction waste associated with the project will be removed by the project contractor and disposed at an approved waste disposal site.

Telephone and Electrical Services

Telephone and electrical services are readily available through Kawaihau Road connection points.

5. Public Facilities

The proposed project will provide significant community benefit through improved police protection services that are facilitated by a new substation building. Other public facilities including schools and health care services will not be adversely affected by the proposed facility. No demand for fire protection services is anticipated. In addition to the expanded police services offered, the project will provide the benefit of a new community meeting facility which will enhance the community's opportunity to meet in a dedicated contemporary meeting facility.

The Kaiakea Fire Station No. 8 provides fire protection and first response emergency and rescue service to the project area. The station is located at 4-1881 Kuhio Highway immediately east of the project site below the bluffs area. The station is located in Response Zone 2 and response time to the site is approximately 3 to 5 minutes. An engine, a brush truck and a Hazmat vehicle serves this station.

The project will not increase any demand for educational or recreational facilities.

D. Social and Economic Characteristics

The proposed action will have a positive and significant social impact to the surrounding area. The construction of a permanent facility that is highly visible to the community will provide a sense of safety that is beneficial as a significant component of community.

The project will have some beneficial economic impacts. The construction of the improvements will create short-term employment, the purchase of goods and services, the generation of excise and income taxes, and other secondary and tertiary effects as a result of the project expenditures.

In the short-term, some traffic disruption will occur as a result of the construction in and along Kawaihau and Iwaena Roads when utility connections are made. The selected contractor will be required to provide appropriate traffic controls to ensure safe passage around the work areas.

The long-term operations of a permanent substation facility are fully warranted given the level of service required in this vicinity. The facility should be considered a long-term asset of the community.

E. Relationship to Plans, Codes and Ordinances

The project property will be acquired by the County of Kauai from Hawaii Health Systems Corporation. The site was formerly conveyed to the Department of Health by Executive Order for the Samuel Mahelona Memorial Hospital, formerly a State Hospital, and was intended for public use. The zoning for the site is R-4, ST-P Special Treatment District, Public Facilities on the County of Kauai Zoning Maps. The proposed substation facility is considered a public use and structure which is allowed as a principal use as a Special Treatment Use in the R-4 district.

The County of Kauai General Plan provides the blueprint for Kauai's future. While the proposed project is consistent will all policies addressed in the Plan, of particular relevance is Sector: IX. Public Safety and Hazards Resiliency, Objective 1., to ensure adequate coverage of public safety and emergency services as Kauai grows. Subsection 1.1 Ensuring the Safety of the Resident and Visitor Population states that Kauai's three police stations in Hanalei, Waimea and Lihue had 161 police positions in 2018. Since that time, further growth has occurred and by the year 2035 an additional 109 officers would be required. The proposed substation project will partially accommodate such growth facilitating the objectives of this policy.

The State Land Use Boundary Maps show the project locations to be in Urban use. The project is not located within the Special Management Area (SMA).

The project is also consistent with the objectives of the Hawaii State Plan particularly with respect to the objectives and policies for facility systems and socio-cultural advancement – public safety (HRS § 226-26) where the objective promoted state that (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. The proposed facility will further these stated objectives directly by providing the infrastructure to support police services.

The project is also subject to conformance with HRS § 205A-2, the Hawaii Coastal Zone Management (CZM) Act where the objectives and policies state that State resources should be managed and that growth should include public participation. While none of the objectives and policies specifically address public health and safety facilities, the proposed project will indirectly support all policies of the CZM.

The proposed improvements will require ministerial permits and the State of Hawaii and the County of Kauai.

<u>State of Hawaii</u>

- Department of Health Community Noise Permit
- National Pollutant Discharge Elimination System Permit (NPDES) if grading required exceeds 1 acre.

<u>County of Kauai</u>

- Planning Division, Class IV Zoning Permit
- Building Division, Building Permits

Work on the proposed improvements will not commence until all permits have been obtained and the environmental assessment process is completed.

F. Probable Impact on the Environment

The proposed improvements will result in any change in use and intensity of the project site. The proposed action is a long-term public facility improvement project and is an essential facility that is located in an effective response area and will minimally impact the adjacent neighborhood residential district. The noise associated with the patrol vehicles is a necessary impact but it will be very short in duration as the facility is located very close to access roads that will be minimally disrupted by the associated siren noise.

The proposed improvements will have short-term construction related impacts. Traffic will be impacted during work within and along the roadway but traffic control measures will ensure that there are no major inconveniences to local traffic. Beyond the inconvenience of some minor traffic disruption and associated noise from the use of heavy equipment, no adverse long-term impacts are expected. Any traffic diversions and roadway construction must conform with applicable State and County construction regulations. Work will also be limited to daytime non-peak traffic hours.

Benefits beyond an improved drainage system is the creation of short-term and employment both on and off property, the generation of additional revenues to the State of Hawaii and County of Kauai and the resultant secondary and tertiary spending and tax collections that will likely be experienced in the community. Most significantly, the completed project will provide a permanent facility to an essential community service that has been planned for over 10 years.

G. Adverse Impacts Which Cannot be Avoided

Adverse impacts that cannot be avoided are generally related to short-term construction activities. These impacts can be minimized by sound construction practices, adherence to applicable construction regulations as prescribed by the Department of Health, and coordination with applicable State and County agencies.

Minor grading will be required for the construction of the project improvements. This work will create dust, noise and a minor traffic nuisance during the course of construction. Paving of the roadways will also require the use of heavy machines that will enter the project site. Traffic control measures will be used to minimize the disruption of traffic during the construction period.

H. Alternatives to the Proposed Action

The current Armory Building office is not considered a permanent solution in providing a work and service facility for this busy district. The present location does not meet the functional requirements for an efficient district police operation. The site is also paritially located within a flood zone and is also fully within the tsunami evacuation zone. Sea level rise impacts are also a concern that may impede long-term functionality at this site. Permanent Police Department presence is an important community function and the proposed facility will not only provide a permanent and highly functional operations base, the facility will include community spaces to promote the concept of the community and the Police Department working together in close proximity.

An extensive search for alternative sites was conducted in 2014. In addition to the proposed site, other sites included privately owned lands adjacent to Kapaa Middle School, and the National Guard Armory grounds. Suitable County and State lands are not readily available and agreements with privately owned lands proved to be cost prohibitive or functionally challenged. By process of elimination, the vacant lands next to SMMH proved to be ideal not only due to availability but also because the civic functions of the adjacent SMMH and Kapaa Elementary and High Schools help create a mauka civic center complex.

No action is not considered an alternative as the Kapaa patrol area has proven to be one of the busier locations with heavy demand for services. By law, rapid police response is required and any decrease in services is not in the public interest and jeopardizes health, safety and welfare of the surrounding community.

I. Mitigation Measures

Long-term impacts resulting from the proposed improvements are expected to be minimal or positive based upon the subject environmental assessment. Long-term air and noise impacts are not expected to change significantly after improvements are completed. Traffic conditions will not change, as there will not be any new demand for access to the project site. Short-term construction-related noise and air quality impact mitigation measures include general good housekeeping practices and avoidance of a prolonged construction period. The contractor will be directed to use best management practices (BMP) wherever applicable.

Examples of BMPs that may be implemented include watering during demolition, clearing and grubbing to control fugitive dust and the containment and controlled release of any runoff during the construction

period. All waste materials will be securely contained and appropriately disposed.

BMP and erosion control measures include the use of compost filter socks the use of a sand bag cofferdam, and the addition of a stabilized construction entrance/exit point. Compost filter socks will be used at the catch basin inlets as well as around the perimeter of work areas. The construction ingress/egress located at the entrance to the property will be stabilized with a fabric barrier topped with large aggregate which will be removed when construction is completed.

J. Irreversible and Irretrievable Commitment of Resources

Implementation of the proposed project will result in the irreversible and irretrievable commitment of resources in the use of non-recyclable energy expenditure and labor. Materials used for new construction may have salvage value; however, it is unlikely that such efforts will be cost-effective. The expenditure of these resources is offset by gains in construction-related wages, increased tax base and tertiary spending.

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IV. REASONS SUPPORTING FINDING OF NO SIGNIFICANT IMPACT

As stated in Section 11-200-12, EIS Rules, Significance Criteria: in determining whether an action may have a significant effort on the environment, every phase of a proposed action shall be considered. The expected consequences of an action, both primary and secondary, and the cumulative as well as the short-term and long-term effects must be assessed in determining if an action shall have significant effect on the environment. Each of the significance criteria is listed below and is followed by the means of compliance or conflict (if extant).

- Involves the loss or destruction of any natural or cultural resource.

The proposed action will not involve the loss or destruction of any natural or cultural resource. The project site is presently a vacant open space presently owned by a private entity but will be leased by the County of Kauai for the purposes of locating the substation in Kapaa.

- Curtails the range of beneficial uses of the environment.

The proposed installation will not curtail any beneficial uses of the environment. The project area is not generally used by the public nor is it used as a recreational or cultural resource by the public.

- Conflicts with the State's long-term goals or guidelines as expressed in Chapter 343, Hawaii Revised Statutes.

The proposed action is consistent with the goals and guidelines expressed in Chapter 343, Hawaii Revised Statutes. The proposed action is triggered by the use of County funds. The subject Environmental Assessment has been developed in compliance with the Chapter 343.

- Substantially affects the economic or social welfare of the community or state.

The proposed action will make a positive contribution to the welfare of the County and State by creating employment during the construction period and will also benefit the State through increased tax revenue. Most significantly, the completed project will make a major contribution to the social, health and safety welfare of the general public. The physical requirements of police protection services within the district will be fully supported by the construction of this facility.

- Substantially affects public health.

The proposed is will not have direct impact on public health but will benefit public safety by promoting enhanced police services.

- Involves substantial or adverse secondary impacts, such as population changes or effect on public facilities.

The proposed action will not produce secondary impacts resulting in population changes or significantly increase use of public facilities.

- Involves substantial degradation of environmental quality.

The proposed improvements will not involve the substantial degradation of environmental quality. The improvements proposed will have short-term impact on the environment; however, this is temporary in nature.

- Cumulatively have a considerable effect upon the environment or involve a commitment for larger actions.

The proposed action is not a first phase of any larger action nor will it have a considerable effect on the environment. The project is expected to remain for the long-term and has been sized to allow for additional staffing as the Police Department sees fit and as funding for additional staffing becomes available.

- Affect rare, threatened or endangered species, or their habitats.

The proposed action will not affect any rare, threatened or endangered species of flora or fauna. The project improvements are not anticipated to create any additional wildlife habitat. Any loss of wildlife is largely associated with introduced wildlife that are found in the project area but are not associated with the proposed action.

- Detrimentally affect air or water quality or ambient noise levels.

The proposed action is not expected to negatively impact ambient air or water quality. Long-term ambient noise will increase due to the use of sirens in an area adjacent to residential use. This impact is necessary and unavoidable but is offset by the invaluable and essential service for the general welfare of the public. This noise impact is very short in duration.

Minimal impacts on air, noise and water quality are anticipated during construction. These impacts will be limited by best management construction practices and compliance with Department of Health construction mitigation standards.

- Affect scenic vistas and view planes identified in County or State plans or studies.

The proposed action will not affect any scenic vistas or view planes identified by the County or State.

- Require substantial energy consumption.

The project will not significantly increase energy consumption. Patrols are active within the district beat areas and only administrative staff and management staff will be stationed at the facility during on business hours. Energy utilization during the construction phase will increase through the use of fossil fuels used by construction vehicles. Operation of the infrastructure will not require any energy.

- 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 waters.

The project is not located in an environmentally sensitive location.

Anticipated Finding of No Significant Impact

Based on the above stated criteria, it is anticipated that the County of Kauai will determine that the proposed project will not have any significant adverse environmental impacts and that an Environmental Impact Statement will not be required for the proposed action. A Finding of No Significant Impact is therefore anticipated as prescribed by Chapter 343 Hawaii Revised Statutes.

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V. LIST OF PARTIES CONSULTED PRIOR TO DEVELOPMENT OF THE DRAFT ENVIRONMENTAL ASSESSMENT

Agencies with ministerial or specific interests regarding the proposed project were contacted or their public information was used to develop the subject Draft Environmental Assessment.

Police Department
County of Kauai

Building Division
County of Kauai

Planning Department
County of Kauai

Fire Department
Kauai Fire Deparment

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APPENDIX A

KAPAA SUBSTATION
BASIS OF DESIGN

AM PARTNERS, INC.

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KAPA'A POLICE SUBSTATION

BASIS OF DESIGN

FEBRUARY 2020

AM Partners, Inc.

Kapa’a Police Substation

Mahelona Hospital Site
Kapa’a, Kauai, Hawaii

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Kapaa Police Substation
Conceptual Design Report

Basis of Design

Basis of Design

1. Architectural Basis of Design

A. Reference Documents:

- 2012 International Building Code as amended
- 2010 American With Disabilities Act Standards for Accessible Design
- 2011 Jail Design Guide, US Department of Justice, National Institute of Corrections
- 2016 International Energy Code as amended

B. General Project Parameters:

Per the 2012 IBC, the building occupancy and construction requirements are identified as the following:

- Occupancy Type: Police Function Areas: Office – B
  Detention Functions: Institutional – I-3, Condition 5 (restricted free movement of occupants)
  Sallyport Function: Utility – U (garage/carport)

- Construction Type: V-A (least restrictive construction allowed by occupancy and building area).

Allowable Area/Heights				
Use	Allowable Area	Actual Area	Allowable Height	Actual Height
Office	18,000 SF	6,320 SF	3 story	1 story
Institutional	7.500 SF	480 SF	2 Story	1 story

Secondary occupancy building areas may be considered ancillary to the main occupancy when area is no more than 10% of the total building area for construction type analysis and requirements. Building area equals 11,550 SF of which the Institutional Occupancy area is 9% of the building area, and the Utility Occupancy area is 8.5% of the building area.

A 2 hour separation wall is required between the detention area and the office area and between the detention and the utility areas.

Construction Requirements:

Fire Resistant Rating for Building Elements	
Building Element	Rating (in hours)
Exterior Walls	0 (>30 FT separation)
Exterior Bearing Building Walls	1
Interior Bearing Building Walls	1
Interior Wall and Partitions	0
Roof Construction	1

The code does not require the building to be fire sprinklered.

C. Improvement Construction Criteria:

Structure:

The building structure will be comprised of concrete masonry bearing walls at the exterior wall supported on concrete foundations and concrete shallow footings. The exact design of the footings and foundations will be based on recommendations from the geotechnical investigation. Interior columns will be galvanized steel concealed within rated partitions to provide the required fire protection. Select interior walls may be of masonry for compliance with code or functional requirements. The floor shall be concrete slab-on-grade atop a granular base course.

The roof structure will be comprised of structural steel and gauge metal framing or trusses with structural metal decking with spray fire proofing. Metal standing seam roofing will be installed atop the structural deck with proper separation of materials.

Exterior:

The exterior concrete masonry structural wall will comprise the building enclosure. This wall will be furred to the interior with rigid insulation and gypsum board sheathing for the required thermal compliance, and painted on the exterior. Windows and storefronts shall be aluminum frames and ballistic glazing for protection. Other exterior doors will either be aluminum or galvanized hollow metal core with ballistic resistant interior construction.

Interior:

The general interior partitions shall be constructed of gauge metal framing with gypsum board sheathing and acoustic batt insulation. Select partitions, such as the enclosures around the arsenal, evidence room or the detention areas, shall be constructed of either metal framing with security metal mesh and cement plaster or concrete masonry. The detention holding area shall be comprised of concrete masonry walls and detention level metal doors and frames. Wet areas shall have ceramic tile or fiber reinforced polymer panels for moisture protection.

Interior doors shall be stained solid core wood in hollow metal frames in administrative and general areas and painted hollow metal doors in hollow metal frames in detention and service areas. All metal doors and frames shall be galvanized.

Ceilings in the office areas shall be suspended acoustical panels with restrooms being painted suspended gypsum board. In secure areas, the ceilings shall be painted suspended cement plaster over security metal mesh. Detention cells shall be comprised of factory fabricated metal composite panels attached to cell partitions. Eaves shall be fiber-mesh reinforced gypsum sheathing with an elastomeric coating; entry and lanai areas will have an applied finish panel over the gypsum sheathing.

Floor finishes shall predominantly be resilient flooring with resilient base throughout all areas with the exception of tile floors and base in wet areas of the locker rooms and restrooms, and fluid-applied industrial epoxy flooring in the detention and processing areas. Utility rooms shall have sealed concrete floors.

Security:

Security for the building will be provided by card reader access at all exterior doors to the building, as well as access to the evidence room, the arsenal, and interview room. Closed-circuit cameras will be provided at the entry, covered lanai, lobby, meeting room, view of the interview and holding doors, and detainee processing room, and view of parking areas. Radio speakers will be provided in the squad room and adjoining offices, administration area and offices, multi-purpose room, locker rooms, and breakroom. Speakers will have volume control at each location.

Exterior doors and windows shall be provided with frames, panels and glazing having ballistic and attack resistance suitable for the location.

Environment:

All administrative areas, squad room, detective offices and offices shall be air conditioned. Process rooms and holding areas as well as locker room areas and evidence room will be air conditioned. Restrooms, shower and bath areas shall have exhaust air to the exterior, as will the arsenal. Other areas will have return air to the mechanical system.

Select power and emergency lighting, security systems, radio and refrigerator will be tied into the emergency power system. This system will have an exterior pad mounted generator supplied by LNG tank on site. The LNG tank shall also provide fuel to the hot water system.

Exterior walls and roof shall be thermally insulated to at least the minimum standard dictated by the Energy Code.

2. Civil Basis of Design

A. Site Furnishings:

Provide dumpster pad and enclosure. This will be discussed in section below.

B. Driveways, Parking and Service Yard:

Two new access driveways with security gates and parking will be based on 2 loading stalls (12 ft x 35 ft), 16 public and 48 staff standard stalls, (9.0 ft x 18 ft) feet, 4 ADA stalls with 2 van access aisle (8 ft x 18 ft). Internal gates will allow dividing parking in favor of public during special events if added parking is warranted. A new dumpster enclosure will be provided. Minimum 6 feet wide ADA and pedestrian walkways will be provided. New emergency generator and fuel tank will be provided within an enclosure. Detainee drop-off access and public traffic circulation for the building will be provided. Proposed entries to the project site have been accepted by Kauai County.

Preliminary design recommendations are as follows:

- AC Pavement: 2-1/2 inch Asphaltic Concrete pavement, State Highways Mix V over 6-inch Aggregate Base Course
- Concrete Pavement: 6-inch reinforced concrete pavement, 3500 psi, #4 rebars @ 12" oc.
- Concrete Curbs and Gutters: 2,500 psi concrete, # 4 rebars, continuous.
- Concrete Sidewalks: Preliminary design recommendations, 4-inch thick, 2500 psi concrete with 6x6 w2.9 x w2.9 WWF over 4-inches of aggregate base course. Thickened edges turned down 10-inches. Finish match to existing County walkways.
- Wheel Stops: Precast concrete.
- Pavement Markings: Curbs at loading areas painted yellow. ADA parking painted blue, standard stalls and pavement arrows, painted white.
- Signs: In accordance with MUTCD.
- Bollards: 4 foot high, concrete filled steel pipe, painted OHSA yellow.
- Dumpster: Provide for two-6 cubic yard front load dumpsters, allow walking space around dumpsters, 8-inch reinforced concrete pavement, 6 foot high CMU wall with lockable gate.

C. Sanitary Sewer System:

No public sewer nearby. Nearest existing sewer manhole at the Mahelona Hospital is located approximately 800 feet from the project boundary, which is a private sewerline that connects to the public sewer system on Kuhio Highway. New direct sanitary sewer connection to the existing public sewer system is cost prohibit
Individual Wastewater System (IWS) with leaching beds will be provided.
Preliminary IWS calculations estimate a 1,500 gal. septic tank with a 600 sq. ft. leach bed.
The State DOH Wastewater Branch approval for IWS will be required. Leach bed design will require the soil percolation test data.

Preliminary design recommendations as follows:

- Septic Tank: 1,500 Gal. Fiberglass Dual Chamber Tank with Effluent Filter.
- Leach Bed: High Capacity Infiltration H-20 Chamber.
- Sewer Pipe: PVC sewer pipe, AWWA C900.

D. Water System:

Water system will be provided in accordance with the Department of Water – Kauai County (DOW) Water System Standards. Domestic service will be connected to the existing 12-inch watermain along Kuwaihau Road to the building with a water meter, reduced principle backflow preventer and pressure regulator valve.

Fire Hydrant Flow tests are needed to be conduct by the fire protection engineer.
If there is not enough water flow for fire protection, off-site waterline improvements might be required to meet the fire protection requirements.

Preliminary design recommendations are as follows:

- Waterlines 6-inch and larger: PVC Pipe AWWA C900, Ductile iron pipe AWWA C151, Pressure Class 200 with AWWA C105 polyethylene encasement.
- Copper service lines: Copper tubing or pipe, Type K.
- Valves: 3-inch and larger: AWWA C509 non rising stem for underground. OSY for above ground.
- Valves: less than 3-inches: MSS SP80 Class 150, solid wedge.
- Backflow preventer: DOW standards
- Post Indicator Valve: UL-789
- Fire Hydrants: DOW standards-AWWA C503 or UL 246 ;Wet barrel. To be painted with one coat of primer and two coats of enamel paint. Fire hydrant no to be stenciled in black paint.
- Water meter: DOW standards-Advance type with remove reading.
- Pipe to be chlorinated and pressure tested: DOW standards.

E. Site Grading and Drainage:

The site is bordered by Kawaihau Road on the west side and Mahelona Hospital to the north. The site is currently undeveloped and storm water flows towards the makai direction. Site slopes diagonally from the west towards the east with an approximate four feet grade difference. Proposed design will be to “balance cut and fill”. The Geotechnical engineer’s soils investigation report and recommendations will be required for the site and grading design purposes.

In terms of the drainage requirements, since the site is currently undeveloped, new construction will result in an increase in impervious surfaces and increase in storm water runoff volume. A subsurface infiltration system with overflow to the eastern direction appears to be the most feasible and would result in less maintenance.

Roof downspouts and on-site drain inlets will be piped underground to a subsurface drainage system located within the project site. The subsurface drainage system will be in the form a “leach bed” consisting of large size perforated HDPE pipes which will be encased with

washed gravel and a geotextile filter fabric. Overflow and building perimeter drain line will be discharged at a new concrete headwall daylight at makai side of the site.

Preliminary design recommendations are as follows:

- Drain Pipes: 12-inch and larger High Density Polyethyelene (HDPE) pipe, AASHTO M 284
- Drain Pipes: 12-inch and less: PVC Schedule 80.
- Drain Manholes: Pre-cast Concrete-Kauai County standards. Standard Detail D-22 with type DA cast iron frames and covers.
- Catch Basins: Pre-cast-Kauai County Standards. Type D-catch basins. Standard Detail D-11
- Drain Inlets: Pre-cast concrete with galvanized steel grates.
- Drain headwall: Reinforced concrete.
- Trench drains: Pre-slope-NDS, ACO drain or equal, with ADA grates.
- Perimeter sub-drain: 6-inch HDPE perforated pipe.
- On site LID subsurface drainage system: 48-inch HDPE perforated pipe within 1-1/2 inch to 2-1/2-inch washed gravel. Enclosed the entire leach bed within geotextile fabric.

3. Structural Basis of Design

A. General Project Description

The structural design for the Kapaa Police Station will be done in accordance with the International Building Code (IBC) 2012 edition as amended by Kaua'i County. The superstructure and foundation systems will be designed for all applicable gravity, seismic and hurricane loads as required by the IBC 2012. Per the IBC 2012 police stations fall under Risk Category IV. The seismic and hurricane loads will be calculated based on the higher importance factors required per the code for Occupancy Category IV structures. Various structural systems for the superstructure (walls, floors, roof, etc.) will be reviewed for this project and the most suitable structural system will be confirmed through the design development process. The foundation system that will support the superstructure will need to be confirmed by the project Geotechnical Engineer.

B. Structural Systems:

1. New Building

a. Foundations

The Geotechnical Engineer for the project will need to advise on the required foundation to support the new building although it is expected that the foundations will consist of shallow spread and continuous concrete footings. The slab-on-grade is expected to consist of a mildly reinforced 5" thick concrete slab-on-grade.

b. Superstructure

- Ground Floor: The ground floor structure will consist of an exterior concrete masonry bearing wall system with interior steel columns embedded within partitions. Select interior walls may be constructed of masonry for fire or security reasons.

- Roof: The roof construction may consist of metal or steel roof trusses and beams supporting roof metal decking.

- Lateral System: The seismic/hurricane lateral resisting system may consist reinforced concrete or masonry block shear walls.

C. General Design Criteria

- Building Code: The current applicable code is the IBC 2006 as amended by Kaua'i County but it is expected that the IBC 2012 with amendments will be adopted in the near future and would be used for this project.

- Loads:

  - Dead Loads:

    - Actual loads for walls, columns, and roof and ceiling components.

- Building Live Loads (reduced as allowed per IBC):
  - Ground Floor: 100 psf
  - Roof: 20 psf
- Wind Loads:
  - Effective Ultimate Wind Speed (Veff-ult): 150 mph (for Category IV structure)
  - Exposure Type: C
  - Topographic Factor, Kzt: 1.2
- Seismic Loads:
  - Site Class: To be confirmed by the Geotechnical Engineer
  - Seismic Design Category: To be confirmed based on Site Class.
  - Importance Factor: 1.5

4. Mechanical Basis of Design

A. References

1. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 62.1-2015 Ventilation Required for Acceptable Indoor Air
2. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standards 90.1-2013
3. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Fundamental Handbooks
4. Americans with Disabilities Act (ADA)
5. National Fire Protection Association (NFPA) 90A, Installation of Air Conditioning and Ventilation Systems
6. All systems shall be designed to conform to the requirement of the Americans with Disabilities Act Architectural Guidelines (ADAAG)

B. Description

The project consists of the design and construction of the air conditioning and ventilation system for the entire building.

C. Design

1. HVAC Design Criteria
   - Outdoor design conditions: 84.4 degrees F DB, 74.5 degrees F WB.
   - Indoor design conditions: 75 degrees F DB, 50% relative humidity.
   - Mechanical equipment energy efficiencies shall meet or exceed ASHRAE 90.1-2013 requirements.
   - Ductwork shall be galvanized sheet metal and installed per SMACNA, Class A.
   - Seismic restraints for the specific site location shall be incorporated into the design.
   - The air distribution system will be designed to maintain noise criteria at an acceptable level.
2. HVAC Systems
   - Building shall be served by Indoor Packaged Units; unit will operate 24 hours, 7 days a week. A dedicated outside air (DOA) indoor packaged unit will be provided to condition the makeup air for the Locker Rooms. All units will be located in the mechanical room.
   - The HVAC and refrigerant system will not use any CFC refrigerants.
   - DX Split System shall be used in addition to the Indoor Package Unit for the Radio Room to provide standby air conditioning.
   - Holding Cells, Arsenal, Recycle, Exercise and Battery Rooms air conditioned air will not be recirculated.

3. Mechanical Ventilation System
   - Outside air shall be provided in accordance with ASHRAE 62.1 requirements.
   - Toilet Rooms shall be mechanically ventilated at 2 cfm/sf.
   - Locker Rooms shall be mechanically ventilated at minimum 0.5 cfm/sf.
   - Holding Cells, Arsenal, Exercise, and Radio Rooms shall be mechanically ventilated 100 percent of the air conditioned air.
4. Corrosion Protection
   - All outdoor equipment (Package Units, Air Cooled Condensing Units, etc.) will be treated with corrosion protection to protect against salt air damage.
5. Ductwork
   - All ducts shall be galvanized sheet metal and shall be fabricated and installed in accordance with ASHRAE Handbooks.
6. **Duct Insulation**
   - All ducts shall be insulated with 2” thick flexible fiberglass duct wrap with factory applied all-purposed jacket with integral vapor retarder.
   - All ducts exposed to weather shall be insulated with 1” thick duct liner.
7. Refrigerant Piping and Accessories
   - Refrigerant piping shall be seamless copper tubing, hard drawn, type K for underground and type L for above ground conforming to ASTM B88.
   - Pipe fittings shall conform to ANSI B16.22.
   - All valves shall conform to ANSI B2.1.
8. Condensate Drain Piping and Accessories
   - Condensate drain piping shall be hard drawn copper tubing, Type “K” for underground and Type “L” for aboveground.
   - Pipe fittings shall be wrought copper or cast bronze sweat type with 95-5 tin-antimony soldered joints.
9. Pipe Insulation
   - Pipe insulation shall be fiberglass with all service jacket.
   - Insulation exposed to weather or exposed within 7’-0” of floor shall be provided with an aluminum jacket system.

5. Plumbing Basis of Design

A. References

1. Uniform Plumbing Code, 2012
2. Americans with Disabilities (ADA)
3. All systems are designed to conform to the requirement of the Americans with Disabilities Act Architectural Guidelines (ADAAG)

B. Description

1. The project consists of the design and construction of a complete new plumbing system.

C. Design

1. Plumbing systems will be provided in accordance with the Uniform Plumbing Code.
2. Piping
   - Water piping will be type L with soldered fittings and lead free material above grade and type K below grade.
   - Soil, waste and plumbing vent piping system to support plumbing fixture requirements will be provided and will be connected to the wastewater system. Soil, waste and vent piping above grade shall be cast iron with no-hub fittings. Soil, waste and vent piping underground will be cast iron hub and spigot soil pipe and fittings.
3. Fixtures

   All plumbing fixtures and faucets will be low flow water conservation type.

   Plumbing fixtures will have the following:

   - Water Closet: Wall Hung and Floor Mounted, Manual flush valve, 1.6 gpf. Wall Hung water closets will be provided with minimum 14” clear inside plumbing walls.
   - Urinal: Wall Hung, 0.125 gpf high efficiency
   - Lavatory: Wall Hung and Countertop, 0.5 gpm
   - Shower Heads: 2.5 gpm
   - Sink: Single Bowl, Stainless Steel, 2.0 gpm
   - Service Sink: Wall Mounted type, 3.0 gpm
   - Electric Water Cooler: Wall Mounted, Dual Height
   - Water Closet/Lavatory Penal-Ware: Stainless Steel
4. Hot Water System

   Gas water heaters shall be the primary hot water source serving the building. The system shall consist of the following.

   - Highly efficient condensing gas tank type water heaters.
   - Building Hot Water Circulation Pump: In-line type.
   - Hot water storage temperature shall be 140°F to combat legionella growth. Thermostatic mixing valve shall be provided to circulate 110°F hot water to fixtures.
   - Gas water heater and circulation pumps will be located in the mechanical room.

- Gas will be supplied to the water heaters via the LPG storage tank that also serves the emergency generator.

5. Insulation

- Pipe insulation shall be fiberglass with all service jacket.
- Tank Insulation shall be 3” thick fiberglass.
- Insulation exposed to weather or exposed within 7’-0” of the floor shall be provided with an aluminum jacket system.

6. Emergency Generator Fuel System

The emergency generator fueling system will be supported by an aboveground propane storage tank.

- Storage Tank: Will be sized for 3 days runtime, steel construction for aboveground installation, located on grade adjacent to parking lot.
- Piping: Double wall fuel lines.
- Monitoring: Leak detection monitoring system.
- Daytank: Package system including double wall secondary containment tank construction, pump, filling, and filtration system, leak detection and digital controller.

6. Fire Protection Basis of Design

A. Design Reference

1. International Building Code, 2012
2. NFPA 1, Fire Code
3. NFPA 13, Standard for the Installation of Sprinkler Systems
4. NFPA 101 Life Safety Code
5. NFPA 72, National Fire Alarm Code
6. NFPA 10, Standard for Portable Fire Extinguishers
7. NFPA 2001, Standard on Clean Agent Extinguishing Systems

B. Description

The project consists of the design and construction of a complete new fire protection system.

C. Design

1. Provide a complete wet pipe fire sprinkler system to comply with NFPA 13.
2. The building contains a mix of Group B and Group I-3 occupancies. Per IBC 2012, automatic wet pipe fire sprinkler protection is required throughout buildings with a Group I-3 occupancy.
3. Piping and Fittings
   - Above Ground: Schedule 40 steel pipe and fittings conforming to NFPA 13.
   - Underground: Ductile iron pipe and fittings conforming to NFPA 24.
4. Fire Department Connection shall be located within 20 feet of the fire access lane.
5. Sprinkler Heads
   - Chrome plated, ½" orifice.
   - UL and FM approved.
   - Tamper resistant type shall be used in Holding and Processing areas.
6. Fire Extinguishers
   - Dry Chemical, UL Listed for 40A:60B:C 10 lb. extinguisher.
   - Fire extinguisher cabinet shall be semi-recessed steel cabinet and aluminum door with breakglass.
   - Detention type cabinets shall be used in all Holding and Processing areas.
7. Gas Suppression System
   - Provide a complete FM-200 gas suppression system for Radio and Battery Rooms.
     - Clean agent storage containers, UL Listed FM approved.
     - Discharge Nozzles with deflector plates, system controller.
     - System Controller.

7. Electrical Basis of Design

A. References

1. NFPA 70 “2017 National Electrical Code”.
2. NFPA 101, Life Safety Code, 2012 Edition.
3. NFPA 1, Fire Code, 2012 Edition
4. International Building Code, 2012.
5. International Energy Conservation Code, 2015.

B. Electrical Work

1. This project will include building electrical design for a new police station, including underground electric and telecommunications infrastructure to support the following: branch circuiting, receptacles, interior & exterior light fixture connections, telecommunication connections, a photo-voltaic system, fire alarm system, automatic transfer equipment and an emergency generator, parking lot lighting, radio transmitter and antenna, CCTV system, and a security system.

2. KIUC (Kauai Island Utility Co-op)

   - New KIUC service will be brought to the building from an overhead line along Kawaihau Road to a new deadfront, pad mounted transformer and kWh meter located on the property.

3. Electrical Site Work:

   - Underground electrical and telecommunications concrete encased ductlines will be provided for the utility service feeders.
   - Secondary underground electrical ductlines will be provided for the following: automatic transfer equipment and emergency generator, parking lot lighting, branch circuits, and fire alarm system. Handholes and pullboxes will be provided as required. Conduit & conductors will be sized to compensate for voltage drop.

4. Electrical Building Power Distribution:

   - All panelboards will be located in a dedicated electrical room and provided with copper bussing and a minimum of 20% spare capacity. Electrical panelboards and electrical distribution conduits & conductors will provide power for: electrical power connections for HVAC equipment, miscellaneous electrical and mechanical equipment, interior and exterior light fixture connections, and receptacles.
   - All electrical wiring will be provided in metal conduits. If required, all exposed conduits will be painted to match adjacent finish. Galvanized rigid steel conduits will be provided in exterior locations and where subject to damage. Wiring in exterior locations will be RHW-USE. Wiring in interior locations will be THHN.

- Interior lighting system will utilize LED light fixtures to meet recommended illumination levels identified in the Illuminating Engineering Society of North America (IESNA) Lighting Handbook and to conform to IECC requirements.
- All exterior lighting will consist of full cut-off light fixtures to minimize light pollution and will utilize energy efficient LED light sources. Exterior lighting will be time switch or photoelectric cell controlled.
- Lighting controls will be coordinated with space use and work zones and may be manual or automatic. Manual light switches used in conjunction with occupancy sensors will be utilized in spaces such as mechanical and electrical rooms, storage rooms, and restrooms.

5. Electrical Equipment

- All equipment mounted in damp or wet locations or located on the exterior of the building will be weatherproof. Stainless steel (type 316) enclosures and mounting hardware will be used where available.
- All electrical equipment will be U.L. Listed.

6. Emergency Generator:

- A new emergency generator will be sized to accommodate critical loads identified by the County and will be a packaged unit, complete with a corrosion resistant, weather protective, sound attenuated enclosure, exhaust system, and day tank. Electrical
- connections to support an above ground fuel storage tank, fuel transfer pump system, and alarm and monitoring system controls will be provided. Fuel storage tank and piping will be designed by the mechanical engineer.
- An automatic transfer switch (ATS) will be provided to transfer critical load connections between the utility source of power and the emergency generator.
- An equipment pad for the emergency generator will be designed by a structural engineer and provided on our drawings for coordination.

7. Photovoltaic (PV) System:

- PV panels will be rigid poly-crystalline panels. The nominal size of each panel will be 58” L x 37”W and weigh 37 pounds, which is typical for panels. Each panel is totally enclosed with a weatherproof low reflectance glass superstrate top and high quality (low corrosion) aluminum sides and bottom.
- Individual PV panels will be connected in groups called “strings”. The number of panels on every roof will be a multiple of the number of panels in a string.
- The inverters will automatically match the voltage and frequency of the host power distribution system to ensure the electrical characteristics of each system is compatible before PV power is fed into the power distribution system.
- The inverters will be energy efficient and will include digital signal processor based controls; self diagnostics; an LCD display of operating status; shut-off and reset switches; over and under voltage/frequency protection; and anti-islanding protection.
- Inverters will be located close to the point of connection to the existing electrical distribution system to minimize the alternating current voltage drop. The inverter has a useful life of 10 years and will be located where personnel can easily access and replace the inverter.

8. Fire Alarm:

    - The fire alarm system will consist of a manual addressable ADA compliant fire alarm system with voice evacuation and will be located in the main electrical room with an annunciator panel located in the building lobby.
    - The audible and visual signaling devices will be provided with adjustable outputs on the strobe lights and speakers to suit various room sizes.
    - Manual pull stations will be provided at each required building exit.
    - Smoke detectors will be provided at each fire alarm control panel and other areas as required by the fire code.

9. Communication and Security:

    - Power and telecommunication connection will be provided to support the following:

        - A radio transmitter and antenna, which will include a remote receive/transmit station that will be tied into a radio rack located in the building.
        - CCTV system, including cameras located at various rooms and corridors.
        - Security system that will include card readers at building entrances and various rooms and other equipment as required.

Partners, Inc.
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1100 Alakea Street
Suite 800
Honolulu, Hawaii
96813

Tel: (808) 526-2828
Fax: (808) 538-0027

Room Designation: **Entry/Exterior Lobby**

Spatial Definition:

Area:	580 square feet
Room Dimensions:	+/- 18 x 32 feet
Ceiling Height:	9 – 18 feet

Construction Requirements:

Walls:	concrete masonry. Concrete, and decorative metal grilles
Windows:	not applicable
Doors:	exterior bullet proof-bullet-proof & secured with card access
Ceiling:	plaster and furred decorative wood/aluminum panels

Equipment Requirements:

camera surveillance at entry

card reader at doors

concrete benches for waiting

Utilities:

Electrical:	convenience power for maintenance
Telcom:	not applicable
Lighting:	exterior LED down lighting
Air Conditioning:	not applicable
Plumbing:	lockable hose bib for maintenance
Security:	camera surveillance, remote entry door release

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Room Designation: **Entry/Lobby/Waiting**

Spatial Definition:

Area:	280 square feet
Room Dimensions:	+/- 10 x 28 feet
Ceiling Height:	9 – 12 feet

Construction Requirements:

Walls:	exterior walls hardened & bullet-proof; interior walls hardened and bullet-proof up to deck above
Windows:	exterior bullet-proof, non-operable; interior bullet-proof glass at counter
Doors:	exterior bullet proof-bullet-proof & secured with card access
Ceiling:	suspended gypsum board and acoustic panel

Equipment Requirements:

chairs for waiting

camera surveillance at entry

wall clock

Utilities:

Electrical:	general convenience power
Telcom:	not applicable
Lighting:	suspended/decorative LED
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	water-cooled drinking fountain
Security:	camera surveillance, remote door release

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Kapa'a Police Sub-Station
Building Area and Equipment Program
May 2021

Room Designation: **Service Counter** (subset area of Lobby/Administration)

Spatial Definition:

Area:	50 square feet
Room Dimensions:	+/-10 x 5 feet
Ceiling Height:	9 – 10 feet

Construction Requirements:

Walls:	hardened wall division to Lobby
Windows:	bullet-proof glass at counter
Doors:	bullet-proof secured with card access to public side
Ceiling:	suspended gypsum board/acoustic panel

Equipment Requirements:

desk chair for counter personnel

dual-height service counter with secure pass-through drawer

computer work station (by others)

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED
Telcom:	data ports for LAN network; telephone port
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	none
Security:	camera surveillance, bullet-proof glazing with secure speaker, remote door release

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Room Designation: **Administration**

Spatial Definition:

Area:	670 square feet
Room Dimensions:	+/- 28 x 28 feet
Ceiling Height:	9 – 15 feet

Construction Requirements:

Walls:	metal stud and gypsum board walls dividing functional spaces
Windows:	secured glazing at service counter area
Doors:	interior secured with card access to secure area; commercial hardware elsewhere
Ceiling:	suspended gypsum board/acoustic panel

Equipment Requirements:

desks and chairs, office furnishing system

file cabinets

1 medium volume copier

Utilities:

Electrical:	general convenience power dedicated circuit for copier (if required)
Lighting:	general ceiling LED, task lighting
Telcom:	data ports at desks for LAN network; telephone port at each desk; centralized fax port, port for remote radio receiver-transmitter
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	none
Security:	not applicable

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Room Designation: **Administration Storage / Printing**

Spatial Definition:

Area:	80 square feet
Room Dimensions:	+/- 11 x 8 feet
Ceiling Height:	8 feet

Construction Requirements:

Walls:	metal stud and gypsum board walls dividing functional spaces
Windows:	not applicable
Doors:	not applicable
Ceiling:	not applicable
Cabinet:	commercial grade cabinet with adjustable shelves and locks

Equipment Requirements:

Adjustable shelving, work counters

Utilities:

Electrical:	equipment and convenience power
Lighting:	shared with administration
Telcom:	data connection to equipment
Air Conditioning:	shared with administration
Plumbing:	none
Security:	none

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Room Designation: **Administration Offices – 2 rooms**

Spatial Definition:

Area:	130 square feet
Room Dimensions:	+/- 10 x 13 feet
Ceiling Height:	9 feet

Construction Requirements:

Walls:	hardened walls dividing shared function spaces; metal stud and gypsum board walls dividing functional spaces
Windows:	none
Doors:	commercial grade door and hardware
Ceiling:	suspended acoustic

Equipment Requirements:

desk with chair

credenza

file cabinet

side chairs

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED
Telcom:	data port at desk for connection to LAN network; telephone port
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	none
Security:	lock on door

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Room Designation: **Interview Room**

Spatial Definition:

Area:	110 square feet
Room Dimensions:	+/- 11 x 11 feet
Ceiling Height:	9 feet

Construction Requirements:

Walls:	hardened walls at exterior and dividing functional police spaces; metal stud and gypsum board walls dividing functional spaces
Windows:	interior laminated safety glass
Doors:	commercial grade door and hardware, remote access electric lock from lobby
Ceiling:	suspended acoustic

Equipment Requirements:

Table with chairs

side chairs

wall clock

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED
Telcom:	data port for connection to LAN network; telephone port
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	none
Security:	CCTV camera, card reader door access to administration

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Room Designation: **Squad Room**

Spatial Definition:

Area:	670 square feet
Room Dimensions:	+/- 22 x 28 feet
Ceiling Height:	9 feet

Construction Requirements:

Walls:	hardened walls at exterior; metal stud and gypsum board walls dividing functional spaces
Windows:	bullet-proof, non-operable
Doors:	bullet-proof exterior entry; commercial grade door and hardware
Ceiling:	suspended acoustic

Equipment Requirements:

desks and chairs

work table

white board and tack boards

counter and shelving

wall clock

security CCTV monitors

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED/task lighting
Data/Telephone:	data port for computer interface with LAN network; telephone port at each desk
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	none
Security:	security camera; card reader access at exterior door

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Room Designation: **Squad Offices - 2**

Spatial Definition:

Area:	140 square feet
Room Dimensions:	+/- 12 x 12 feet
Ceiling Height:	9 feet

Construction Requirements:

Walls:	hardened walls at exterior; metal stud and gypsum board walls dividing functional spaces
Windows:	exterior bullet proof, non-operable glazing; interior laminated safety glass
Doors:	exterior bullet-proof entry door; interior commercial grade door and hardware
Ceiling:	suspended acoustic

Equipment Requirements:

desk with chair

credenza

file cabinet

side chairs

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED
Telcom:	data port at desk for connection to LAN network; telephone port
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	none
Security:	locks on doors

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May 2021

Room Designation: **Detective Offices - 2**

Spatial Definition:

Area:	180 square feet
Room Dimensions:	+/- 11 x 16 feet
Ceiling Height:	9 feet

Construction Requirements:

Walls:	hardened walls at exterior; metal stud and gypsum board walls dividing functional spaces
Windows:	exterior bullet proof, non-operable glazing; interior laminated safety glass
Doors:	exterior bullet-proof entry door; interior commercial grade door and hardware
Ceiling:	suspended acoustic

Equipment Requirements:

desks and chairs

tackboard / white board

file cabinets

side chairss

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED
Telcom:	data port at desk for connection to LAN network; telephone port
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	none
Security:	locks on doors

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Room Designation: **Evidence Room**

Spatial Definition:

Area:	90 square feet
Room Dimensions:	+/- 8 x 11 feet
Ceiling Height:	9 feet

Construction Requirements:

Walls:	hardened walls at exterior and interior functional areas
Windows:	none
Doors:	hardened commercial grade door and locking hardware
Ceiling:	hardened gypsum board/plaster

Equipment Requirements:

lockable storage lockers, various sizes

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED light
Telcom:	none
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	none
Security:	card reader access and electric lock on door; locks on individual cabinets

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Room Designation: **Arsenal**

Spatial Definition:

Area:	110 square feet
Room Dimensions:	+/- 10 x 11 feet
Ceiling Height:	9 feet

Construction Requirements:

Walls:	hardened gypsum board walls
Windows:	none
Doors:	hardened commercial grade door with secure access
Ceiling:	suspended hardened gypsum board

Equipment Requirements:

lockable gun racks and drawers

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED
Telcom:	none
Air Conditioning:	ventilation only
Plumbing:	none
Security:	card reader and electric lock access

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Room Designation: **Staff Break Room**

Spatial Definition:

Area:	320 square feet
Room Dimensions:	+/- 16 x 20 feet
Ceiling Height:	9 feet

Construction Requirements:

Walls:	metal stud and gypsum board walls dividing functional spaces
Windows:	none
Doors:	commercial grade door and hardware interior
Ceiling:	suspended acoustic

Equipment Requirements:

service counter and cabinets with sink

refrigerator

microwave

small cooktop with recirculation hood

table with chairs

tackboard

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED
Telcom:	none
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	water and waste for sink
Security:	none

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Room Designation: **Men's Locker Room, Showers and Restroom**

Spatial Definition:

Area:	500 square feet
Room Dimensions:	+/- 20 x 25 feet
Ceiling Height:	9 - 12 feet

Construction Requirements:

Walls:	metal stud and gypsum board walls dividing functional spaces
Windows:	bullet-proof non-operable glazing
Doors:	commercial grade door and hardware interior
Ceiling:	suspended gypsum board

Equipment Requirements:

dressing lockers and accessible bench

shower stalls with rods and curtains

toilet compartments

bath hardware & accessories

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED
Telcom:	none
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	water and waste for lavatories, urinals, toilets and showers, floor drain

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Room Designation: **Women's Locker Room, Showers and Restrooms**

Spatial Definition:

Area:	420 square feet
Room Dimensions:	+/- 21 x 20 feet
Ceiling Height:	9 - 12 feet

Construction Requirements:

Walls:	metal stud and gypsum board walls dividing functional spaces
Windows:	bullet-proof non-operational glazing
Doors:	commercial grade door and hardware interior
Ceiling:	suspended gypsum board

Equipment Requirements:

dressing lockers and accessible bench

shower stall with rods and curtains

toilet compartments

bath hardware & accessories

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED
Telcom:	none
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	water and waste for lavatories, toilets and showers, floor drain
Security:	none

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Room Designation: **Accessible Restroom**

Spatial Definition:

Area:	70 square feet
Room Dimensions:	+/- 7 x 10 feet
Ceiling Height:	8 feet

Construction Requirements:

Walls:	metal stud and gypsum board walls dividing functional spaces
Windows:	none
Doors:	commercial grade door and hardware interior
Ceiling:	suspended gypsum board

Equipment Requirements:

bath hardware & accessories

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED
Data/Telephone:	none
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	water and waste for lavatory and toilet; floor drain
Telcom:	none
Security:	none

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Room Designation: **Custodial Closet**

Spatial Definition:

Area:	45 square feet
Room Dimensions:	+/- 6 x 7 feet
Ceiling Height:	8 feet

Construction Requirements:

Walls:	metal stud and gypsum board walls dividing functional spaces
Windows:	none
Doors:	commercial grade door and hardware
Ceiling:	suspended gypsum board

Equipment Requirements:

shelving

service sink

mop/broom holder

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED
Telcom:	none
Air Conditioning:	ventilation only
Plumbing:	water and waste, floor drain
Security:	none

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Building Area and Equipment Program
May 2021

Room Designation: **Individual Holding Cell**

Spatial Definition:

Area:	100 square feet
Room Dimensions:	+/- 10 x 10 feet
Ceiling Height:	9 feet

Construction Requirements:

Walls:	hardened walls
Windows:	view-port through security cell doo
Doors:	security door
Ceiling:	suspended hardened ceiling

Equipment Requirements:

1 security lav/toilet

1 concrete bed bunk

Utilities:

Electrical:	none
Lighting:	security LED lighting
Telcom:	none
Air Conditioning:	secure ceiling diffuser
Plumbing:	water and waste to secure toilet/lav and hose bib, floor drain
Security:	none

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Room Designation: **Interview Rooms**

Spatial Definition:

Area:	100 square feet
Room Dimensions:	+/- 10 x 10 feet
Ceiling Height:	9 feet

Construction Requirements:

Walls:	hardened walls
Windows:	none
Doors:	hardened commercial grade door and security access hardware
Ceiling:	suspended cement plaster with reinforcing

Equipment Requirements:

table and chairs

recessed hose bid to wash out room

Utilities:

Electrical:	general convenience power
Lighting:	security LED fixtures
Telcom:	none
Air Conditioning:	secured supply diffusers & return grilles at ceiling
Plumbing:	water for hose bib and floor drain
Security:	none

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Room Designation: **Processing Room**

Spatial Definition:

Area:	100 square feet
Room Dimensions:	+/- 10 x 10 feet
Ceiling Height:	9 feet

Construction Requirements:

Walls:	hardened walls
Windows:	exterior bullet proof, non-operable glazing; interior laminated safety glass
Doors:	hardened commercial grade door and security access hardware
Ceiling:	suspended cement plaster with reinforcing

Equipment Requirements:

table and chairs

counter

Utilities:

Electrical:	general convenience power
Lighting:	security LED fixtures
Telcom:	data port at desk for connection to LAN network; telephone port
Air Conditioning:	secured supply diffusers & return grilles at ceiling
Plumbing:	none
Security:	none

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Building Area and Equipment Program
May 2021

Room Designation: **Detention Hallway**

Spatial Definition:

Area:	60 square feet
Room Dimensions:	+/- 6 x 10 feet
Ceiling Height:	9 feet

Construction Requirements:

Walls:	hardened walls
Windows:	none
Doors:	hardened commercial grade door and security access hardware
Ceiling:	suspended cement plaster with reinforcing

Equipment Requirements:

Security cameras

Utilities:

Electrical:	general convenience power
Lighting:	security fixtures
Telcom:	none
Air Conditioning:	secured supply diffusers & return grilles at ceiling
Plumbing:	none
Security:	CCTV cameras monitoring cells

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Room Designation: **General Circulation**

Spatial Definition:

Area:	280 square feet
Room Dimensions:	5 feet minimum width
Ceiling Height:	9 feet

Construction Requirements:

Walls:	metal stud and gypsum board walls dividing functional spaces; hardened walls at exterior
Windows:	none
Doors:	commercial grade door and hardware interior; hardened commercial grade doors with secure access card hardware exterior
Ceiling:	suspended acoustic panel

Equipment Requirements:

none

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED
Telcom:	none
Air Conditioning:	none (supplied via adjoining areas)
Plumbing:	none
Security:	card reader door access at exterior

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Room Designation: **Mechanical Room**

Spatial Definition:

Area:	400 square feet
Room Dimensions:	+/- 20 x 20 feet
Ceiling Height:	open to structure

Construction Requirements:

Walls:	hardened walls at exterior and secure areas; metal stud and gypsum board walls dividing functional spaces to deck
Windows:	none
Doors:	commercial grade door and hardware
Ceiling:	none

Equipment Requirements:

none

Utilities:

Electrical:	general convenience power
Lighting:	suspended LED
Telcom:	none
Air Conditioning:	ventilation only
Plumbing:	none
Security:	locking hardware on door

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Room Designation: **Radio Room**

Spatial Definition:

Area:	50 square feet
Room Dimensions:	+/- 6 x 7 feet
Ceiling Height:	open to structure

Construction Requirements:

Walls:	metal stud and gypsum board walls dividing functional spaces to deck; chain link fence divider between radio equipment and electrical room
Windows:	none
Doors:	commercial grade door and hardware interior
Ceiling:	none

Equipment Requirements:

rack for radio equipment (by others)

support bracket for radio antenna

plywood backer board for communication terminals

Utilities:

Electrical:	general convenience power dedicated power for radio UPS and battery back-up (by others)
Lighting:	suspended LED
Telcom:	hub for LAN network and connection regional network
Air Conditioning:	dedicated system 24/7 with redundant back-up; supply diffusers & return grilles at ceiling
Plumbing:	none
Security:	locking hardware access

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Room Designation: **Electrical Room**

Spatial Definition:

Area:	90 square feet
Room Dimensions:	+/- 8 x 11 feet
Ceiling Height:	open to structure

Construction Requirements:

Walls:	hardened walls at exterior and secure areas; metal stud and gypsum board walls dividing functional spaces to deck
Windows:	none
Doors:	commercial grade door and hardware
Ceiling:	none

Equipment Requirements:

none

Utilities:

Electrical:	general convenience power
Lighting:	suspended LED
Telcom:	plywood backer board for phone board
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	none
Security:	locking hardware on door

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Room Designation: **Meeting Room**

Spatial Definition:

Area:	640 square feet
Room Dimensions:	+/- 20 x 32 feet
Ceiling Height:	9 – 12 feet

Construction Requirements:

Walls:	exterior hardened wall; hardened metal stud and gypsum board walls dividing functional spaces
Windows:	bullet-proof non-operation glazing
Doors:	exterior lockable door; interior secured with card access to secure area; commercial hardware elsewhere
Ceiling:	suspended gypsum board/acoustic panel

Equipment Requirements:

Movable conference table segments

Stackable chairs

Projection screen and ceiling mounted digital projector

Plastic laminate counter with sink and storage cabinets

Utilities:

Electrical:	general convenience power
Lighting:	general and decorative ceiling LED
Telcom:	data ports for interface with digital projector from lectern area
Air Conditioning:	supply diffusers & return grilles at ceiling
Plumbing:	water and drain for sink
Security:	locking door hardware

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Room Designation: **Public Restroom**

Spatial Definition:

Area:	60 square feet
Room Dimensions:	+/- 7 x 8 feet
Ceiling Height:	8 feet

Construction Requirements:

Walls:	hardened walls to exterior and common walls
Windows:	none
Doors:	commercial grade door and hardware
Ceiling:	suspended cement plaster

Equipment Requirements:

bath hardware & accessories

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED
Telcom:	none
Air Conditioning:	ventilation only
Plumbing:	water and waste for lavatory and toilet; floor drain
Security:	locking door hardware

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Building Area and Equipment Program
December 2019

Room Designation: **Community Lanai**

Spatial Definition:

Area:	1,600 square feet
Room Dimensions:	+/- 20 x 80 feet
Ceiling Height:	14 feet

Construction Requirements:

Walls:	hardened walls to building; low wall to exterior
Windows:	none
Doors:	hardened door at building
Ceiling:	plaster and decorative wood/aluminum panels

Equipment Requirements:

Coiling door vehicle access

Utilities:

Electrical:	general convenience power
Lighting:	general ceiling LED
Data/Telephone:	none
Air Conditioning:	none
Plumbing:	none
Security:	CCTV

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Room Designation: **Detainee Transfer Area**

Spatial Definition:

Area:	860 square feet
Room Dimensions:	+/- 24 x 36 feet
Ceiling Height:	14 feet

Construction Requirements:

Exterior area with asphalt paving and concrete curbs and walks to detainee transfer to Interview and Bookimng

Equipment Requirements:

none

Utilities:

Electrical:	general convenience power
Lighting:	general area lighting
Data/Telephone:	none
Air Conditioning:	none
Plumbing:	none
Security:	CCTV at vehicle entry and interior; electronic locks and card access

KAPA'A POLICE SUBSTATION

MAHELONA HOSPITAL SITE
KAPA'A, KAUAI, HAWAII
FOR
COUNTY OF KAUAI
KAUAI POLICE DEPARTMENT

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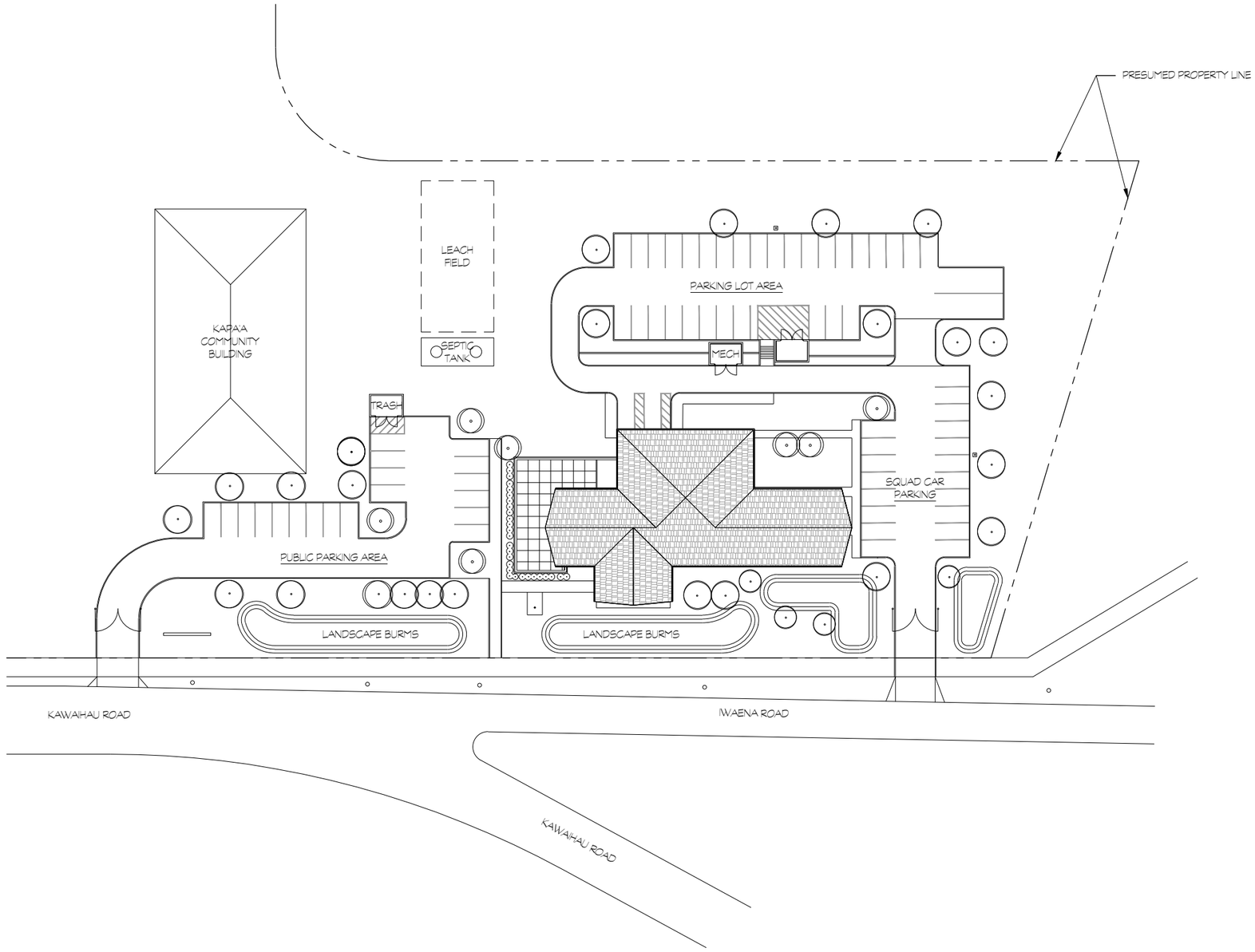

SITE PLAN

SCALE: 1/16"=1'-0"

64' 0 64' 128' 192'

SCALE: 1/64"=1'-0"

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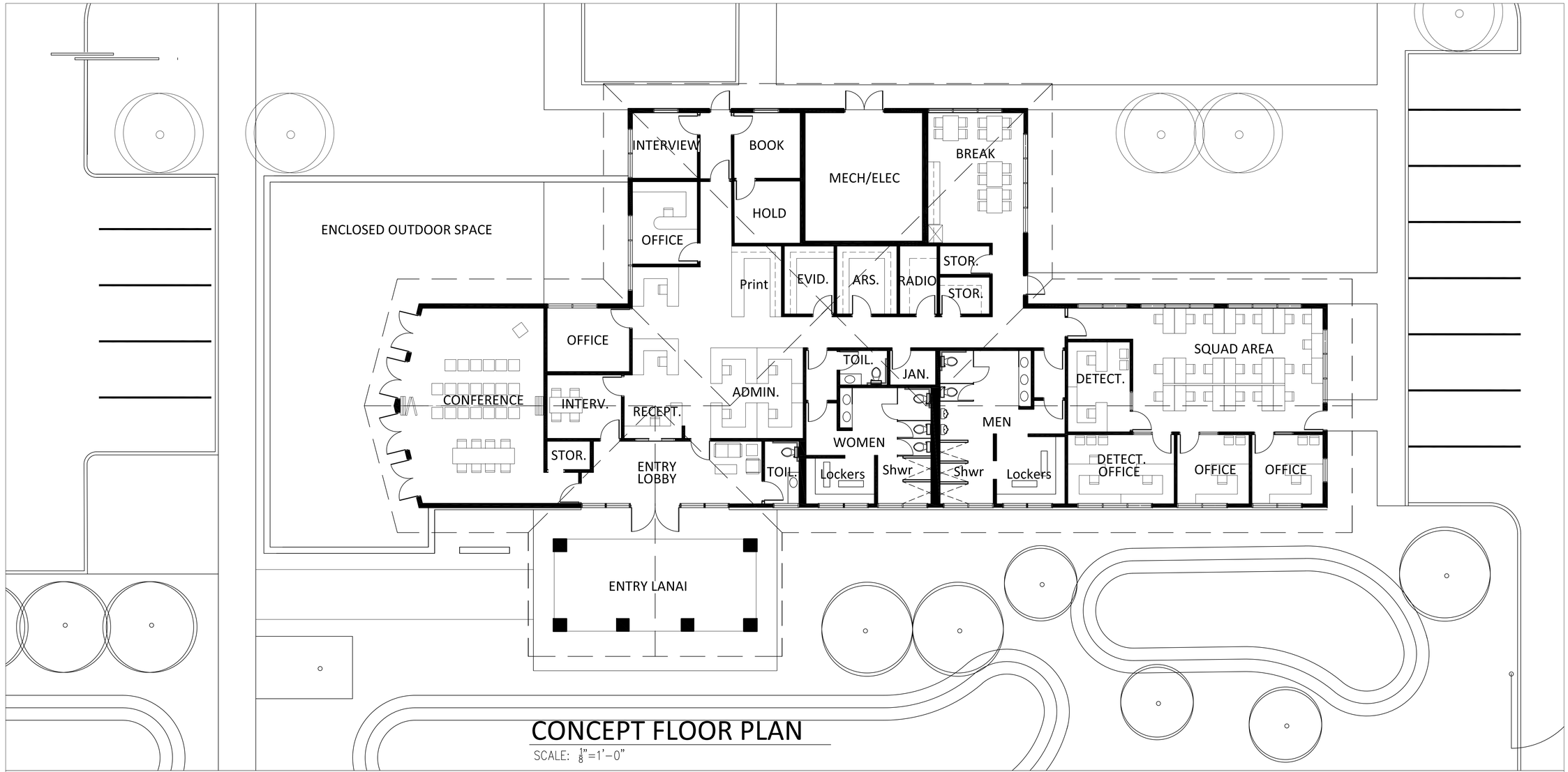
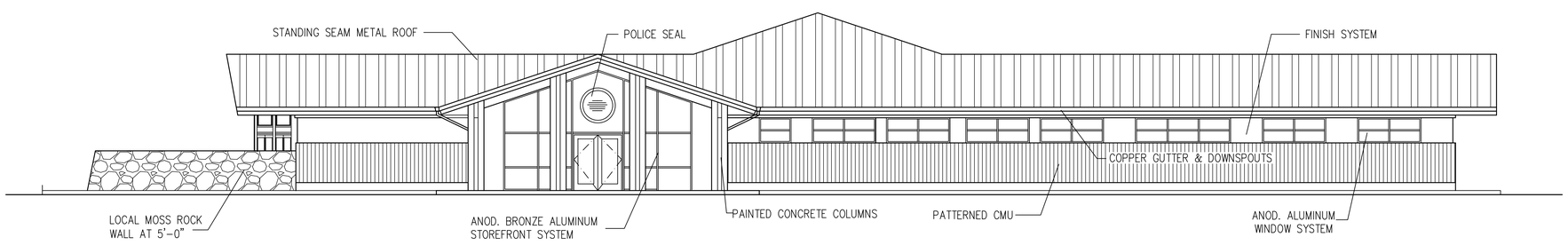
KAPA'A POLICE SUBSTATION



CONCEPT FLOOR PLAN

SCALE: $\frac{1}{8}$"=1'-0"



FRONT ELEVATION

SCALE: $\frac{1}{8}$"=1'-0"

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TEL: (808) 526-2828

Signature
Expiration Date: 4-30-2022

This work was prepared by me or under my supervision. Construction of this project will be under my observation.

Observation as defined in Section 16-115-2 of Hawaii Administrative Rules 9-12-02 Title 16, Chapter 115, Professional Engineers, Architects, Surveyors, and Landscape Architects.

Revisions:

KAPA'A POLICE STATION

KAPA'A, KAUAI, HAWAII

CONCEPT SITE PLAN

Job No:

Drawn by: AMP

Date:

Drawing No:

_____ of _____ Sheets

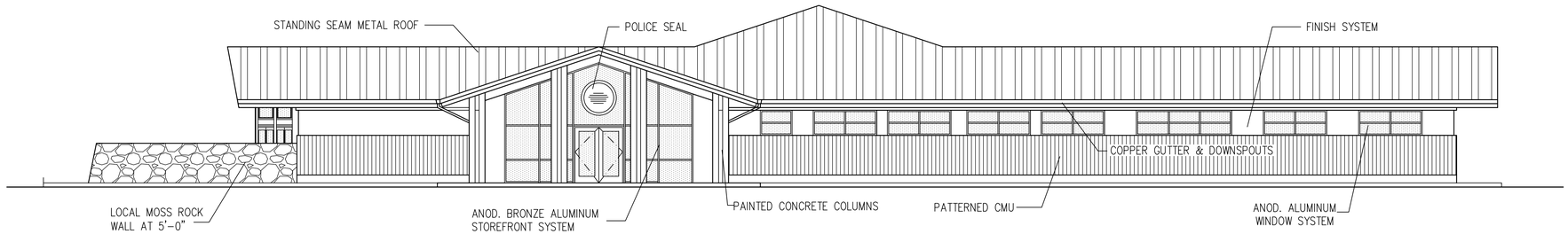
Bid Set Date

Date

Bldg. Permit Date

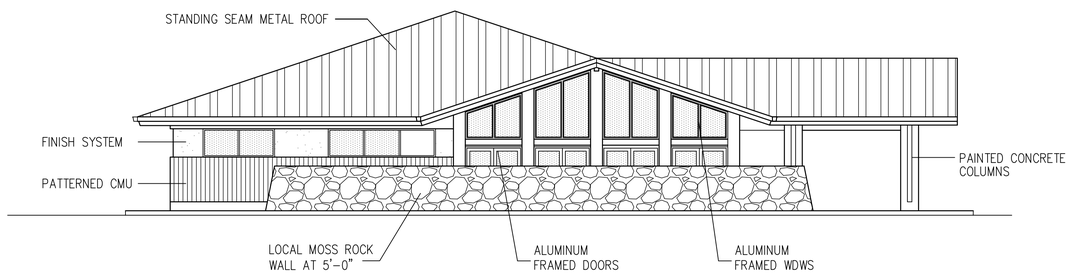
Production Date

Design Date



FRONT ELEVATION

SCALE: $\frac{1}{8}$"=1'-0"



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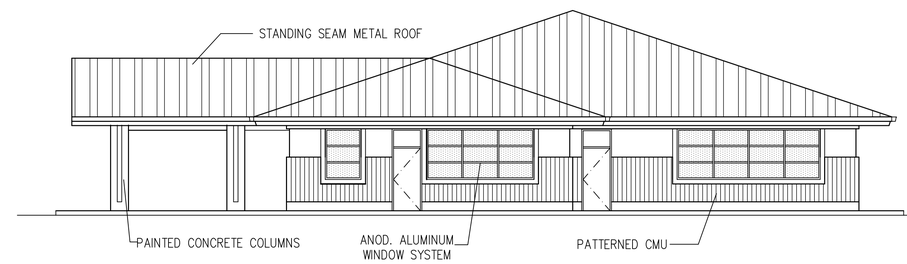

RIGHT SIDE ELEVATION

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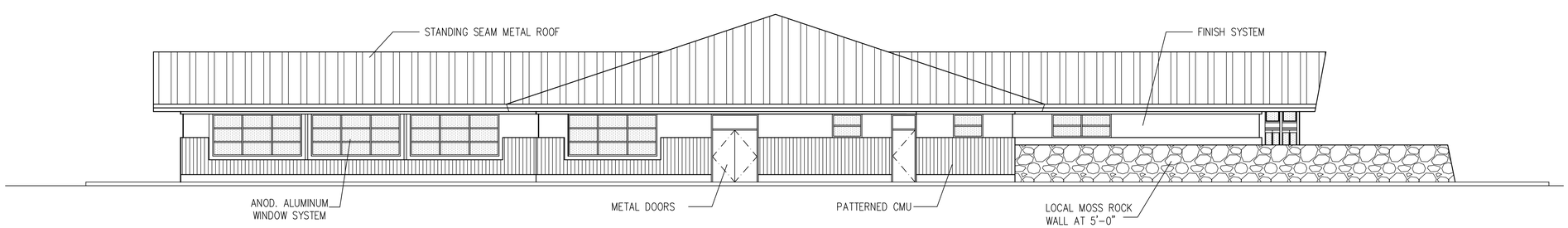

REAR ELEVATION

SCALE: $\frac{1}{8}$"=1'-0"

Partners Inc.

architecture
planning
interiors
graphics

1210 Ward Avenue
Suite 202
Honolulu, Hawaii
96814

TEL: (808) 526-2828

Signature
Expiration Date: 4-30-2022

This work was prepared by me or under my supervision. Construction of this project will be under my observation.

Observation as defined in Section 16-115-2 of Hawaii Administrative Rules 9-12-02 Title 16, Chapter 115, Professional Engineers, Architects, Surveyors, and Landscape Architects.

Revisions:

KAPA'A POLICE STATION

KAPA'A, KAUAI, HAWAII

CONCEPT SITE PLAN

Job No:
Drawn by: AMP
Date:
Drawing No:

____ of ____ Sheets

Bid Set	Date
	Date
Bldg. Permit	Date
Production	Date
Design	Date

APPENDIX B

TRAFFIC IMPACT ASSESSMENT REPORT
KAPAA POLICE SUBSTATION

THE TRAFFIC MANAGEMENT CONSULTANT

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TRAFFIC IMPACT ANALYSIS REPORT

FOR THE PROPOSED

KAPA`A POLICE SUBSTATION

KAPA`A, KAUAI, HAWAII

TAX MAP KEY: (4) 4-6-014:113

PREPARED FOR

ENVIRONMENTAL COMMUNICATIONS, INC.

OCTOBER 14, 2020

PREPARED BY

THE TRAFFIC MANAGEMENT CONSULTANT

TRAFFIC IMPACT ANALYSIS REPORT

FOR THE PROPOSED

KAPA`A POLICE SUBSTATION

KAPA`A, KAUAI, HAWAII

TAX MAP KEY: (4) 4-6-014:113

PREPARED FOR

ENVIRONMENTAL COMMUNICATIONS, INC.

OCTOBER 14, 2020

RANDALL S. OKANEKU
LICENSED PROFESSIONAL ENGINEER
No. 4922-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE

4/30/2022
EXPIRATION DATE OF LICENSE

PREPARED BY

TMC

THE TRAFFIC MANAGEMENT CONSULTANT

RANDALL S. OKANEKU, P.E., PRINCIPAL * 1188 BISHOP STREET, SUITE 1907 * HONOLULU, HI 96813

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TRAFFIC IMPACT ANALYSIS REPORT

FOR THE PROPOSED

KAPA`A POLICE SUBSTATION

KAPA`A, KAUAI, HAWAII
TAX MAP KEY: (4) 4-6-014:113

I. Introduction

A. Project Description

County of Kauai is planning to relocate its Kauai Police Department Kapa`a Substation from its current location on Kahau Street to the proposed site, which is located on the east side of Kawaihau Road/Iwaena Road, immediately south of Mahelona Medical Center. Figure 1 depicts the project location and vicinity map.

The 33.742-acre project site is identified as Tax Map Key: (4) 4-6-014:113. The proposed project will consist of 11,550 square feet of gross floor area and approximately 80 parking stalls. Access is proposed by two driveways: a public driveway on Kawaihau Road and a police and staff driveway on Iwaena Road. The project site is depicted on Figure 2.

The Kapa`a Police Substation is expected to be staffed by a total of about 36 police officers and administrative personnel, spread over three (3) watches. The proposed Kapa`a Police Substation is expected to be completed in the Fall of 2022. For the purpose of this traffic impact analysis, the Year 2023 is assumed to be the first full year of operation of the proposed Kapa`a Police Substation.

B. Purpose and Scope of the Study

The purpose of this study is to analyze the traffic impacts resulting from the development of the proposed Kapa`a Police Substation. This report presents the findings and recommendations of the study, the scope of which includes:

1. A description of the proposed project.
2. An evaluation of existing roadway and transportation conditions.
3. The analysis of the future transportation conditions without the proposed project.
4. The development of trip generation characteristics of the proposed project.

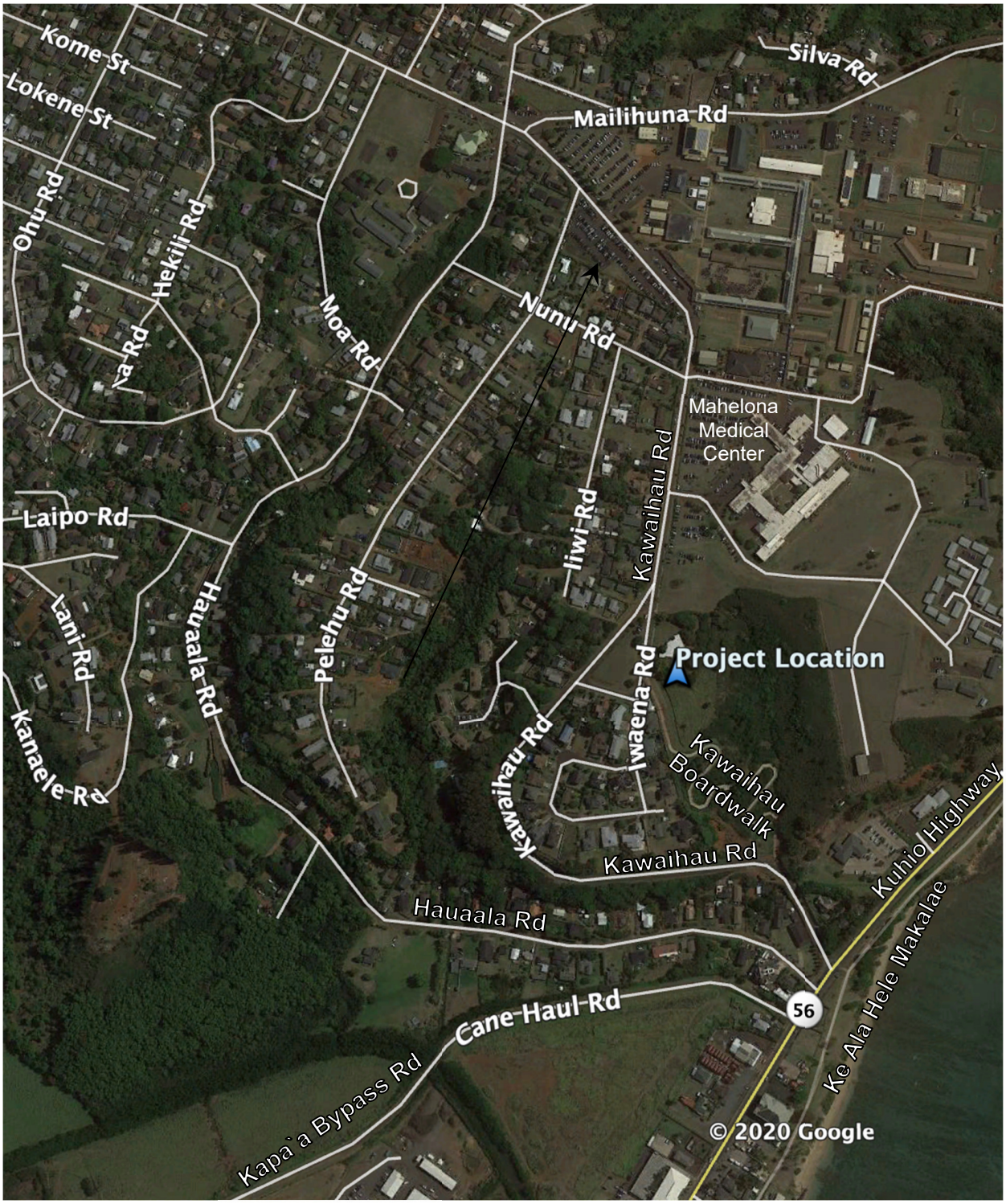

Figure 1. Location and Vicinity Map

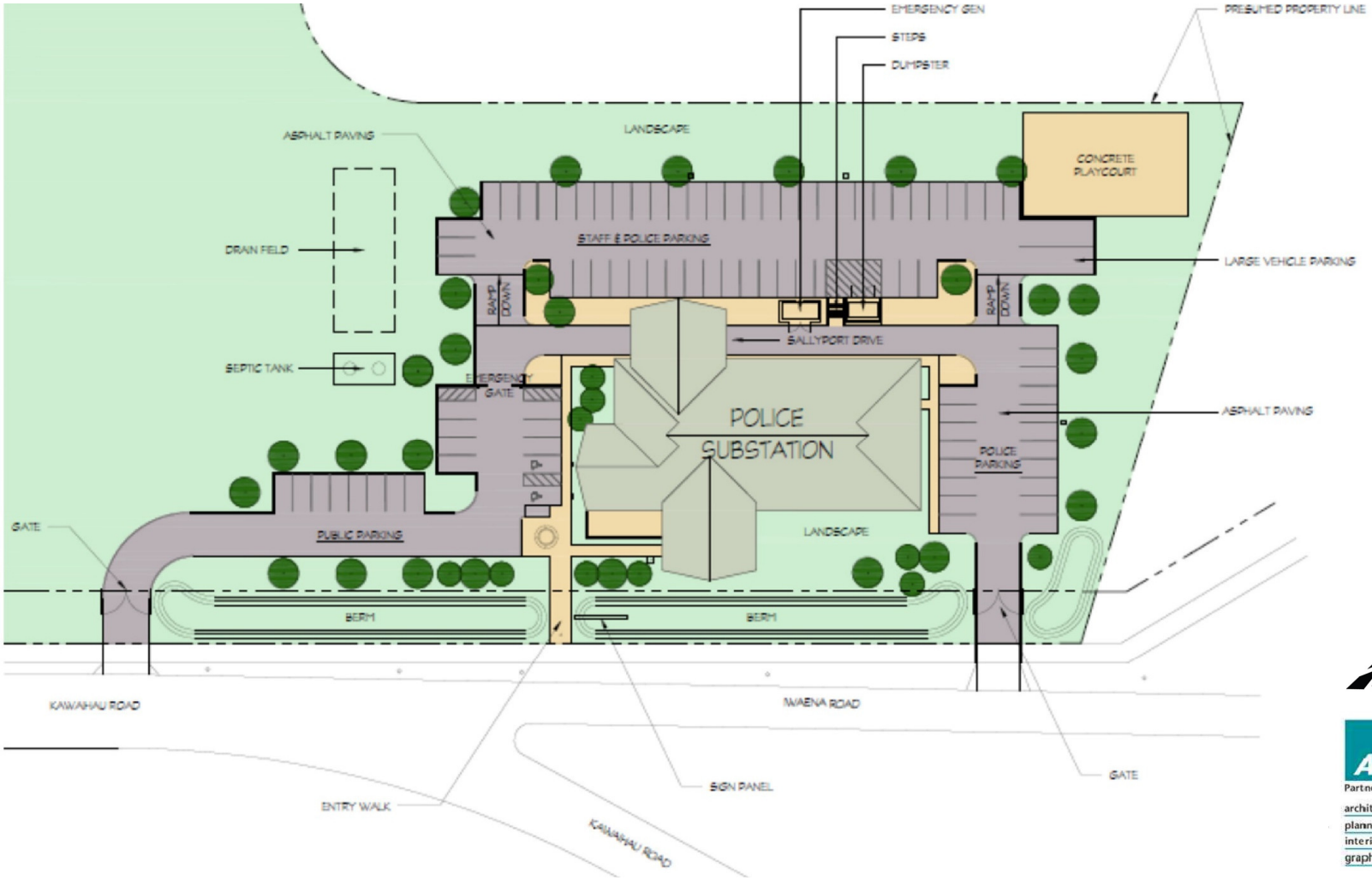

Figure 2. Kapa`a Police Substation Site Plan

5. The identification and analysis of the traffic impacts resulting from the development of the proposed project.
6. The recommendation of improvements, which would mitigate the traffic impacts identified in this study.

C. Methodologies

1. Capacity Analysis

The highway capacity analysis, performed in this study, is based upon procedures presented in the Highway Capacity Manual 6th Edition (HCM), published by the Transportation Research Board. HCM defines the Level of Service (LOS) as "a quantitative stratification of a performance measure or measures representing quality of service." HCM defines the six (6) Levels of Service from the traveler's perspective, ranging from the best LOS "A" to the worst LOS "F". LOS translates the complex mathematical results of highway capacity analysis into an A through F grading system for the purpose of simplifying the roadway performance for decision makers.

LOS's "A", "B", and "C" are considered satisfactory Levels of Service. LOS "D" is generally considered a "desirable minimum" operating Level of Service. LOS's "E" and "F" are undesirable conditions. Intersection LOS is primarily based upon average delay (d) in seconds per vehicle (sec/veh). Table 1 summarizes the HCM LOS criteria for unsignalized intersections.

Table 1. Intersection Level of Service Criteria (HCM)

LOS	Unsignalized Control	Description
A	d≤10	Control delay is minimal.
B	10<d≤15	Control delay is not significant.
C	15<d≤25	Stable operation. Queuing begins to occur.
D	25<d≤35	Less stable condition. Increase in delays, decrease in travel speeds.
E	35<d≤50	Unstable operation, significant delays.
F	d>50	High delays, extensive queuing.

Synchro is a traffic analysis software that was developed by Trafficware. Synchro is an intersection analysis program that is based upon the HCM methodology. Synchro was used to calculate the Levels of Service for the intersections in the study area.

2. Trip Generation

Trip Generation Manual, 10th Edition, published by the Institute of Transportation Engineers (ITE), is the generally accepted trip generation methodology for traffic impact analysis. The ITE trip generation rates were developed by correlating the total vehicle trip generation data with various land use activities/characteristics, such as the vehicle trips per hour (vph) per 1,000 square feet of gross floor area (SFGFA). However, the Trip Generation Manual does not provide trip generation rates for stand-alone police stations. Therefore, the trip generation characteristics for the proposed Kapa`a Police Substation were based upon trip generation studies, which were conducted at three (3) stand-alone police stations in the mainland United States.

II. Existing Conditions

A. Roadways

Kuhio Highway is the primary arterial highway along the east coast of Kauai. Through Kapa`a Town, Kuhio Highway is a two-lane roadway with exclusive left-turn lanes at major intersections. Kuhio Highway intersects Kawaihau Road, Hauaala Road, and Kapa`a Bypass Road at three closely-spaced, unsignalized Tee-intersections. A continuous left-turn lane is provided at each study intersection on Kuhio Highway. The posted speed limit on Kuhio Highway in Kapa`a Town is 25 miles per hour (mph). A concrete sidewalk on the west (mauka) side of Kuhio Highway provide a pedestrian walkway, while a paved shoulder on the east (makai) side of the Highway provides limited pedestrian and bicycle facilities.

Ke Ala Hele Makalae (Kauai Multi-Use Path) provides a shared bicycle/pedestrian path, which is situated between Kuhio Highway and the shoreline along the entire length of Kapa`a Town.

Kawaihau Road is a two-way, two-lane collector roadway, which provides access to the Mahelona Medical Center, Kapa`a Elementary School, Kapa`a High School, St. Catherine School, and the surrounding residential area. Kawaihau Road is stop-controlled at its Tee-intersection with Kuhio Highway. The posted speed on Kawaihau Road is 25 mph. The narrow grass shoulders on both sides of Kawaihau Road provide limited pedestrian and bicycle facilities.

The Kawaihau Spur is a shared bicycle/pedestrian path along the north side of Kawaihau Road between Kuhio Highway and the Kawaihau Boardwalk. The Kawaihau Boardwalk is an American with Disabilities Act-compliant shared bicycle/pedestrian route, which extends from the Kawaihau Spur up to Iwaena Road, immediately south of the proposed Kapa`a Police Substation. A concrete sidewalk continues along the east side of Iwaena Road and Kawaihau Road to Kapa`a Elementary School.

Iwaena Road is a two-way, two-lane local road. Iwaena Road intersects Kawaihau Road at a stop-controlled, skewed Tee-intersection. Mimilo Road is a two-way, two-lane local road between Iwaena Road and Kawaihau Road. Mimilo Road is stop-controlled at its Tee-intersections with Kawaihau Road and Iwaena Road.

Hauaala Road is a two-way, two-lane collector roadway, which provides access to the surrounding residential area. The posted speed on Hauaala Road is 25 mph. Grass/gravel shoulders are provided on both sides of Hauaala Road.

Kapa`a Bypass Road provides an alternative southbound route around Kapa`a Town. Kapa`a Bypass Road is a one-lane, one-way, southbound roadway between its north junction at Kuhio Highway and its roundabout intersection with Olohena Road. The posted speed limit on the one-way section of Kapa`a Bypass Road is 25 mph.

B. Public Transit

The Kauai County Transportation Agency operates a public bus service on Kauai. The Kauai Bus Routes 400 and 500 provide daily regional service at hourly intervals from 6:00 AM to 9:00 PM, with stops along Kuhio Highway. The Kauai Bus Route 60 provides daily local service at hourly intervals from 6:30 AM to 8:30 PM, between Kapa`a Town and Kapahi Park, with stops along Kawaihau Road at Mahelona Medical Center and Kapa`a High School.

C. Existing Peak Hour Traffic Volumes and Operating Conditions

1. Data Collection

Due to the construction of the roundabout intersection of Kuhio Highway and Mailihuna Road at this writing, Mailihuna Road traffic is being detoured to Kawaihau Road and Hauaala Road. Furthermore, the COVID-19 pandemic shutdown has dramatically reduced the peak hour commuter traffic, school trips, and visitor traffic in Kapa`a. As such, the existing traffic conditions were based upon the most recent available pre-pandemic peak hour traffic count data, which were collected along Kuhio Highway.

The Traffic Impact Analysis Report Kealia Mauka Homesites, dated May 10, 2019, was prepared by Austin, Tsutsumi & Associates, Inc. The Kealia traffic study collected peak period traffic count data at the Kuhio Highway intersections at Kawaihau Road, Hauaala Road, and Kapa`a Bypass Road in April 2017. The 2017 peak hour traffic count data were adopted for use in this traffic impact analysis to establish the existing peak hour traffic conditions.

2. Existing AM Peak Hour Traffic

The existing AM peak hour of traffic occurred from 7:15 AM to 8:15 AM. Kuhio Highway carried between 1,100 vehicles per hour (vph), north of Kawaihau Road, and 2,200 vph north of Kapa`a Bypass Road, total for both directions, during the AM peak hour of traffic. Kawaihau Road carried about 700 vph, while Hauaala Road carried over 400 vph, total for both directions. Kapa`a Bypass Road carried over 400 vph in the southbound direction.

The heavy right-turn volume from makai bound Kawaihau Road onto southbound Kuhio Highway resulted in LOS "F" conditions and long delays on Kawaihau Road, during the existing AM peak hour traffic. The left-turn volume from northbound Kuhio Highway onto Kawaihau Road resulted in LOS "B" conditions.

The heavy right-turn volume from makai bound Hauaala Road onto southbound Kuhio Highway also resulted in LOS "F" conditions, and long delays on Hauaala Road. The left-turn movement from northbound Kuhio Highway onto Hauaala Road operated at LOS "B", during the existing AM peak hour of traffic.

The left-turn movement from northbound Kuhio Highway onto Kapa`a Bypass Road also operated at LOS "B". Figure 3 depicts the existing AM peak hour traffic data.

3. Existing PM Peak Hour Traffic

The existing PM peak hour of traffic occurred from 3:45 PM to 4:45 PM. During the existing PM peak hour of traffic, Kuhio Highway carried between 1,300 vph and 1,900 vph, total for both directions. Kawaihau Road carried about 500 vph, while Hauaala Road carried about 300 vph, total for both directions. Kapa`a Bypass Road carried 300 vph in the southbound direction.

Kawaihau Road operated at LOS "C" at Kuhio Highway, during the existing PM peak hour of traffic. The heavy left-turn volume from northbound Kuhio Highway onto Kawaihau Road continued to result in LOS "B" conditions.

During the existing PM peak hour of traffic, Hauaala Road operated at LOS "D" at Kuhio Highway. The left-turn movement from northbound Kuhio Highway onto Hauaala Road operated at LOS "B".

The left-turn movement from northbound Kuhio Highway onto Kapa`a Bypass Road operated at LOS "B". The existing PM peak hour traffic data are depicted on Figure 4.

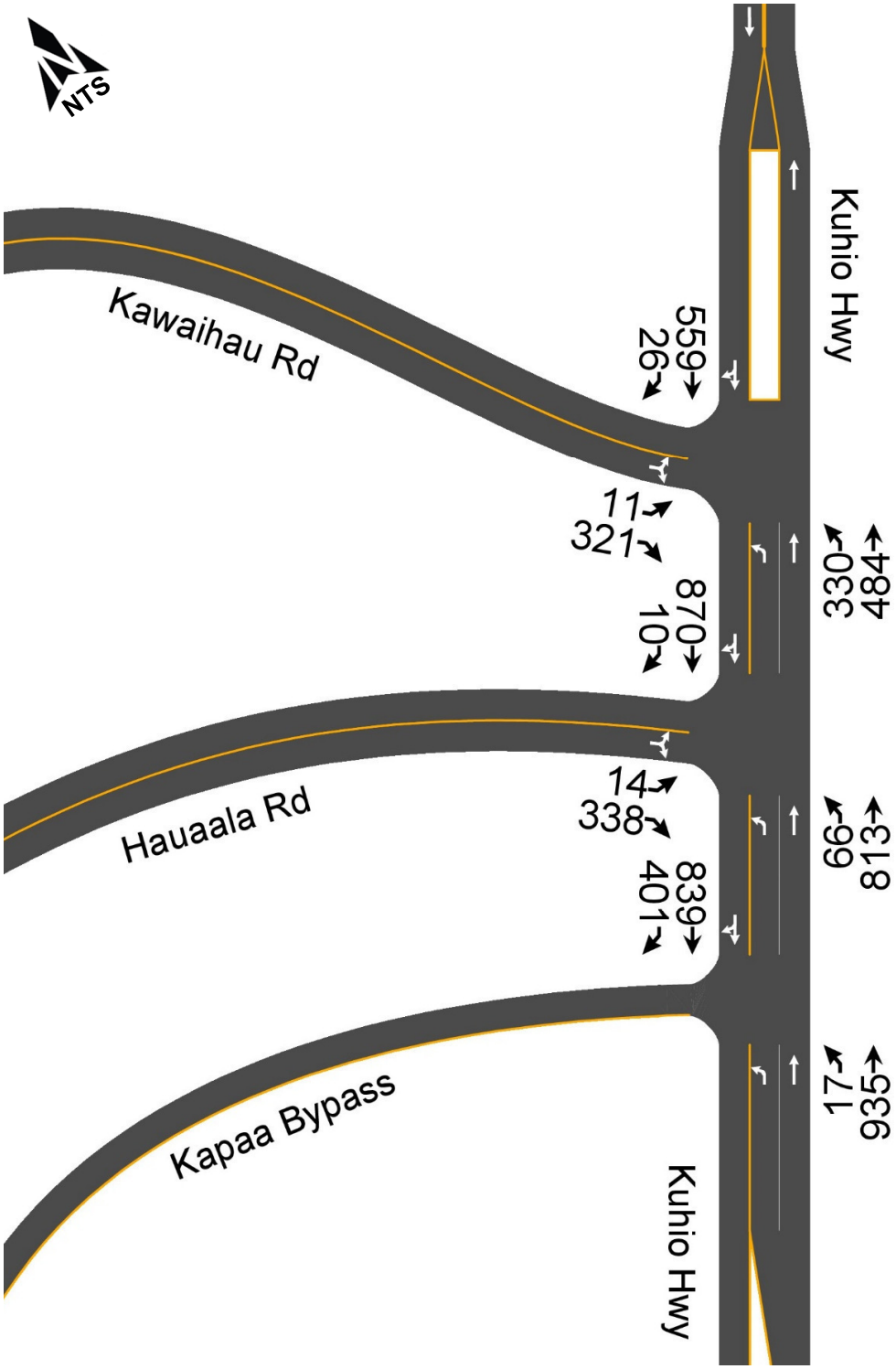

Figure 3. Existing AM Peak Hour Traffic (2017)

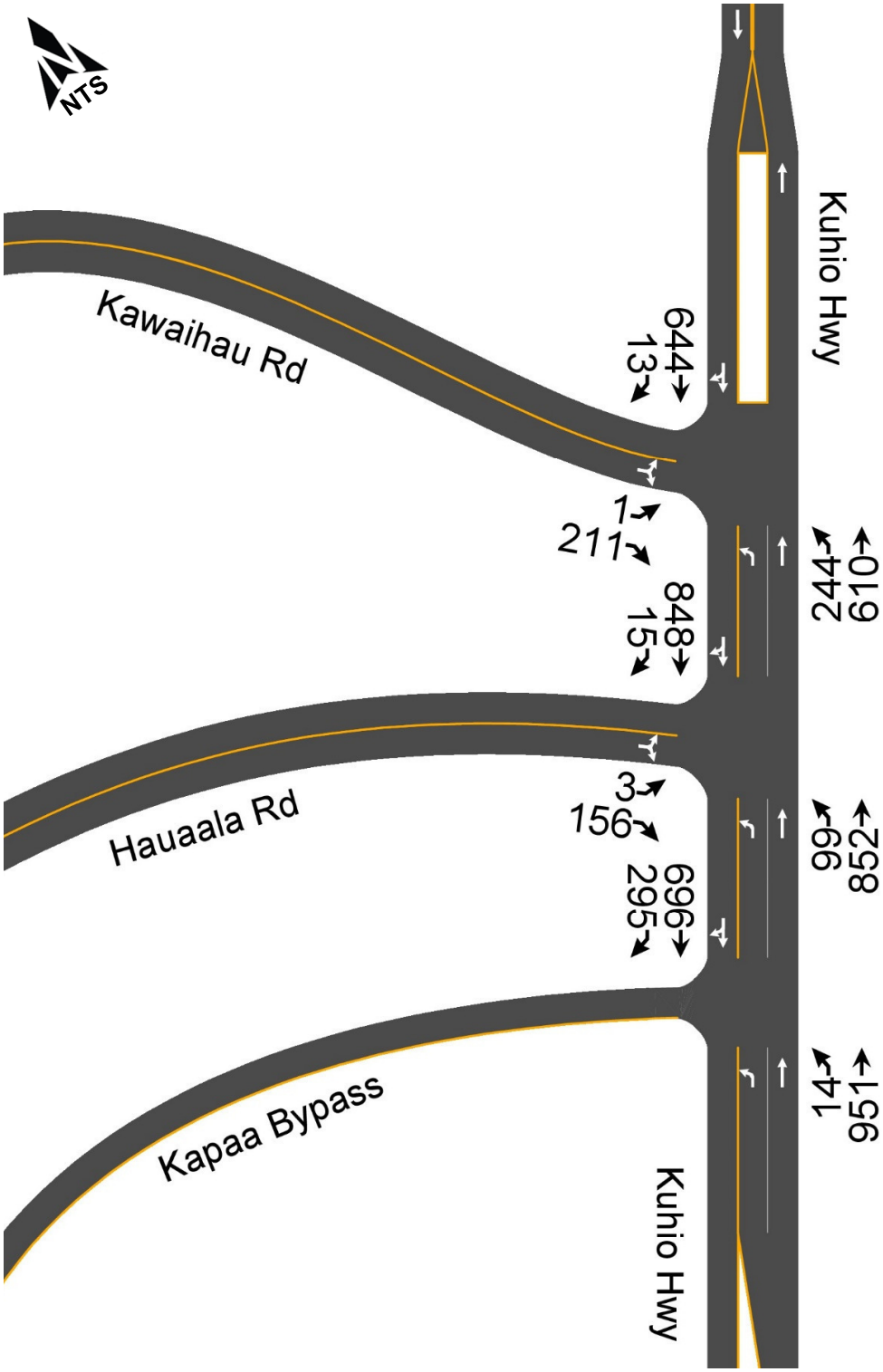

Figure 4. Existing PM Peak Hour Traffic (2017)

III. Future Traffic Conditions

A. Background Growth in Traffic

The Kauai Long-Range Land Transportation Plan (KLRLTP) was prepared by the State of Hawaii Department of Transportation (DOT), in cooperation with the Kauai County Department of Public Works and Planning Department. The KLRLTP developed long-range travel forecasts for the island of Kauai. The KLRLTP anticipated that traffic in the Kapa`a area would increase by about 30 percent between the Base Year 2007 and the Horizon Year 2035. For the purpose of this analysis, the average annual growth of 1.1 percent was uniformly applied to the existing (Year 2017) AM and PM peak hour traffic volumes to estimate the Year 2023 peak hour traffic without the proposed project.

B. Kapa`a Transportation Solutions

The Kapa`a Transportation Solutions (KTS), dated August 2015, was prepared for the State Department of Transportation. The KTS was prepared for DOT in cooperation with the Kauai County Department of Public Works, Planning Department, and Transportation Agency, and the U.S. Department of Transportation Federal Highways Administration. The KTS included input from the Kapa`a Citizens Advisory Committee, which is comprised of the Kapa`a Business Association, Kapa`a High School and Middle School, Wailua-Kapa`a Neighborhood Association, Kauai Visitors and Convention Bureau, and Kauai Path.

The KTS placed a high priority (less than 5-year implementation) on the Kapa`a Bypass Road Extension, which would add a northbound lane between Olohena Road and Kuhio Highway to provide a two-way, two-lane Kapa`a Bypass Road. As part of the Kapa`a Bypass Road Extension, Hauaala Road is proposed to be realigned to connect to the proposed two-way, two-lane Kapa`a Bypass Road Extension. The existing Hauaala Road at Kuhio Highway would be terminated with a cul-de-sac. However, the State of Hawaii Department of Transportation has indicated that the Kapa`a Bypass Road Extension is beyond the development time frame of the proposed Kapa`a Police Substation. Therefore, the Kapa`a Bypass Road Extension is not included in this traffic impact analysis.

The KTS also recommends restriping the existing left-turn lanes on Kuhio Highway at the closely-spaced intersections with Kawaihau Road, Hauaala Road, and Kapa`a Bypass Road into a continuous two-way left-turn lane (TWLTL). Left-turn traffic from northbound Kuhio Highway into Kawaihau Road, Hauaala Road, and Kapa`a Bypass Road would be permitted to form a continuous queue in the TWLTL. The TWLTL also would provide a median refuge lane for left-turn traffic from Kawaihau Road and Hauaala Road onto northbound Kuhio Highway. The TWLTL on Kuhio Highway is prioritized for a 5- to 10-year implementation, which is beyond the development timeframe of the proposed project. Therefore, the proposed two-way left-turn lane along Kuhio Highway is not included in this traffic impact analysis.

C. 2023 AM Peak Hour Traffic Analysis Without Project

During the AM peak hour of traffic without the proposed project, the study intersections along Kuhio Highway are expected to operate at the same Levels of Service as during the existing AM peak hour of traffic. Figure 5 depict the AM peak hour volumes without the proposed project.

D. 2023 PM Peak Hour Traffic Analysis Without Project

Kawaihau Road and Hauaala Road are expected to operate at LOS "D" and LOS "E" at Kuhio Highway, respectively, during the PM peak hour of traffic without the proposed project. The left-turn movements on Kuhio Highway at the study intersections are expected to operate at the same Levels of Service as during the existing PM peak hour of traffic. The PM peak hour volumes without the proposed project is depicted on Figure 6.

IV. Traffic Impact Analysis

A. Trip Generation Characteristics

The trip generation characteristics for a police station were based upon three (3) trip generation studies conducted at police stations in the mainland United States: Traffic Study Analysis for the Tillson Farm Road/Eastman Lane Intersections with East Pleasant Street, prepared by Traffic Engineering Solutions, P.C., dated November 2008, analyzed a new police station at the University of Massachusetts Amherst; Municipal Services Campus TIS Trip Generation Town of Chapel Hill; and Mammoth Police Station Traffic and Parking Impact Study, prepared by RBF Consulting, dated September 21, 2007. Table 2 summarizes the trip generation characteristics from three trip generation studies. The weighted average trip rates were derived from the trip generation studies.

Table 2. Police Station Trip Generation Characteristics

Location (1000 SFGFA)	Units	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Chapel Hill (72.8)	vph	126	16	142	38	150	188
	vph/1000 SFGFA	1.73	0.22	1.95	0.52	2.06	2.58
Mammoth Lakes (11.6)	vph	N/A	N/A	28	14	13	27
	vph/1000 SFGFA	N/A	N/A	2.41	1.21	1.12	2.33
Amherst (27.7)	vph	30	18	48	18	32	50
	vph/1000 SFGFA	1.08	0.65	1.73	0.65	1.16	1.81
Weighted-Average	**vph/1000 SFGFA**	**1.60**	**0.35**	**1.95**	**0.62**	**1.74**	**2.36**

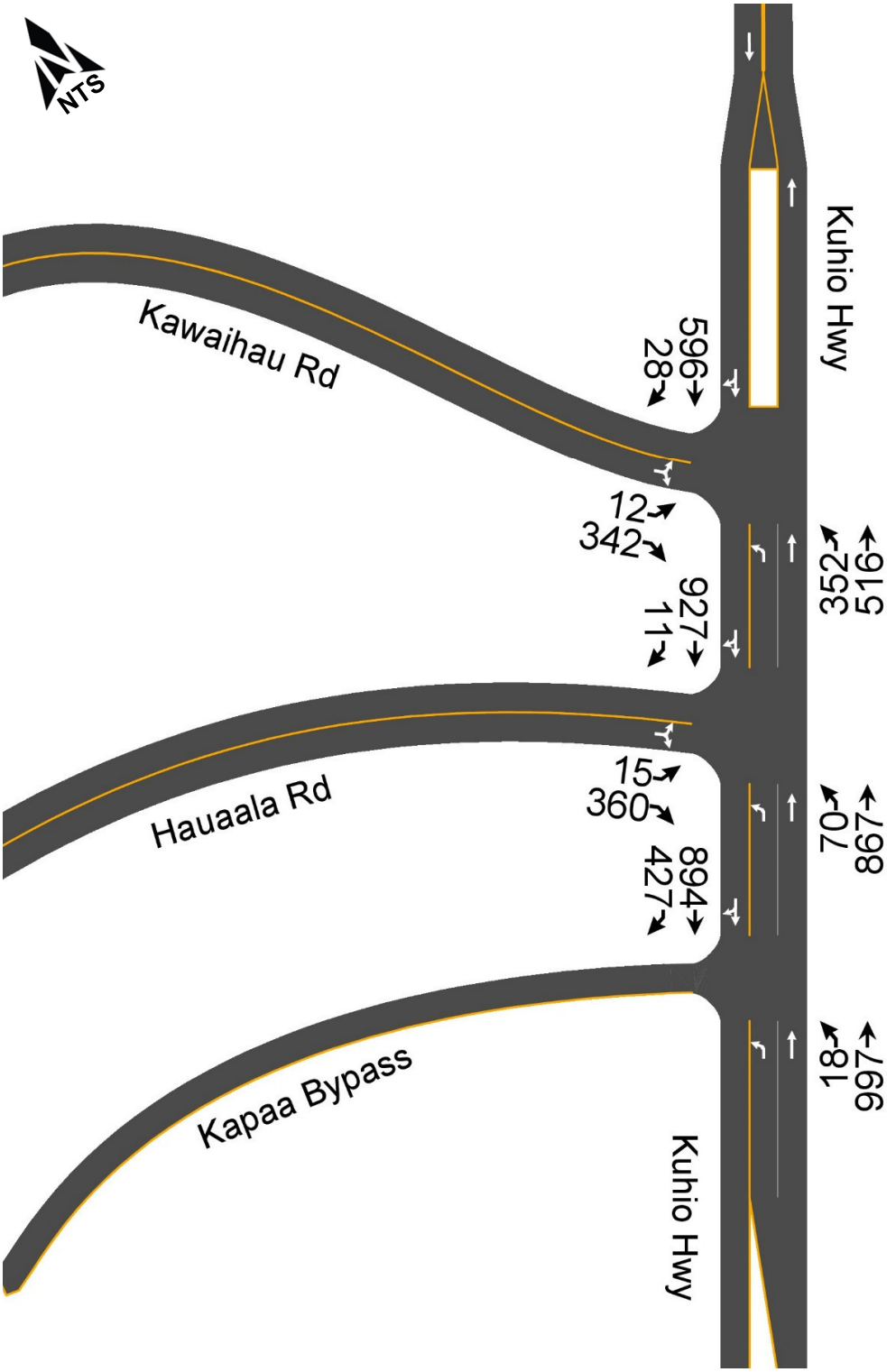

Figure 5. AM Peak Hour Volumes Without Project

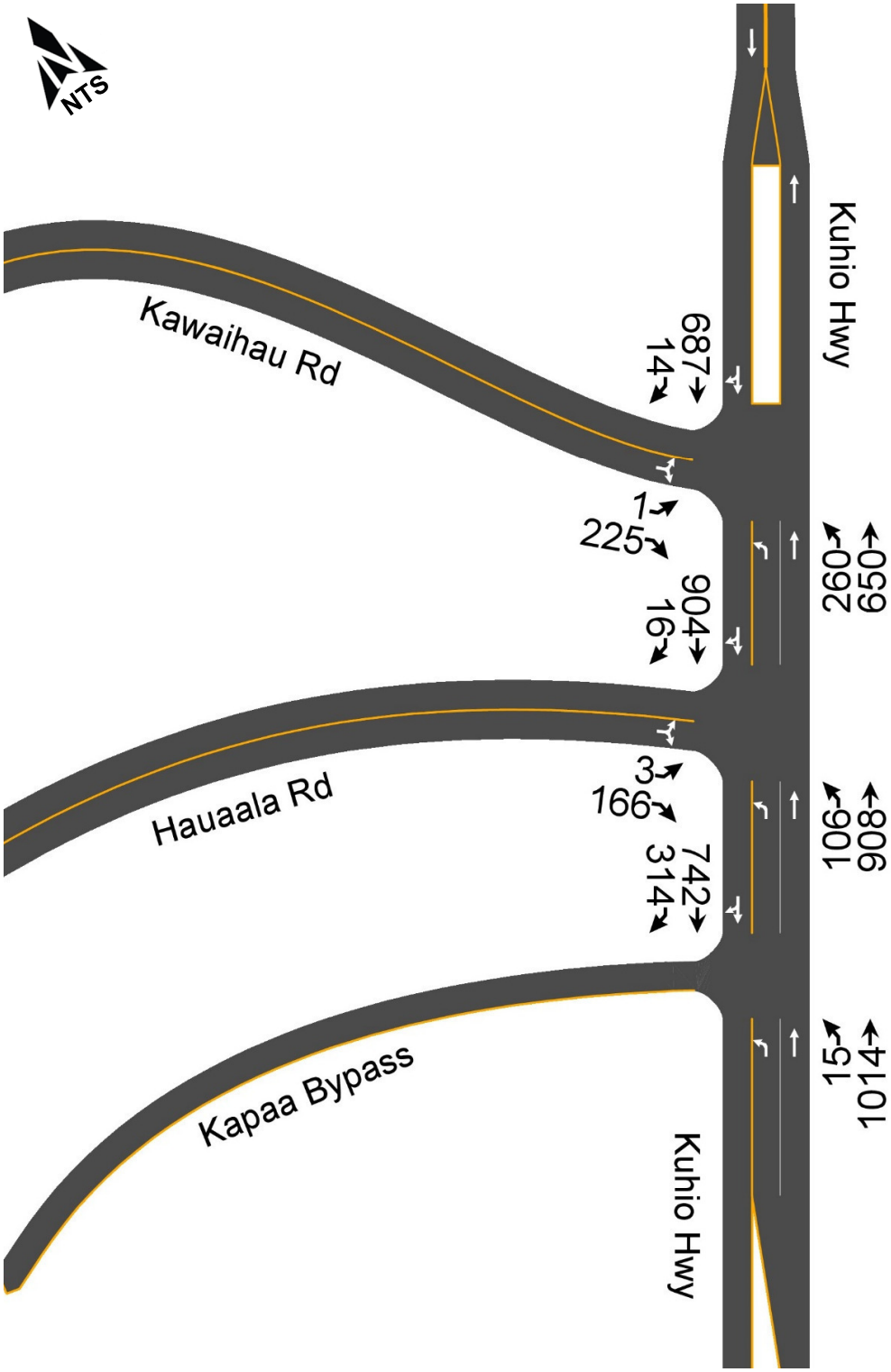

Figure 6. PM Peak Hour Volumes Without Project

The trip generation characteristics for the proposed Kapa`a Police Substation (11,550 SFGFA) were based upon the weighted-average trip rates in Table 2. Table 3 summarizes the trip generation characteristics of the proposed Kapa`a Police Substation.

Table 3. Kapa`a Police Substation Trip Generation Characteristics

AM Peak Hour (vph)			PM Peak Hour (vph)		
Enter	**Exit**	**Total**	**Enter**	**Exit**	**Total**
19	4	23	7	20	27

B. Traffic Mitigation Measures

Kawaihau Road operates at LOS "F", during the existing AM peak hour of traffic. Therefore, the following traffic mitigation measures are recommended:

1. Widen/restripe Kuhio Highway, north of Kawaihau Road, to provide a median refuge lane.
2. Widen makai bound Kawaihau Road at Kuhio Highway to provide separate left-turn and right-turn lanes.

C. Traffic Assignment

The traffic assignments were based upon the existing traffic patterns along Kuhio Highway. Figures 7 and 8 depict the AM and PM peak hour traffic assignments, respectively.

D. AM Peak Hour Traffic Analysis With Project

During the AM peak hour of traffic with the proposed project, the separate left-turn and right-turn movements on Kawaihau Road at Kuhio Highway are expected to operate at LOS "D" and LOS "E", respectively. The other study intersections are expected to operate at the same Levels of Service as during the AM peak hour of traffic without the proposed project. The AM peak hour traffic with the proposed project and the recommended traffic mitigation measures are depicted on Figure 9.

E. PM Peak Hour Traffic Analysis With Project

The study intersections are expected to operate at the same Levels of Service as during the PM peak hour of traffic without the proposed project. Figure 10 depicts the PM peak hour traffic with the proposed project.

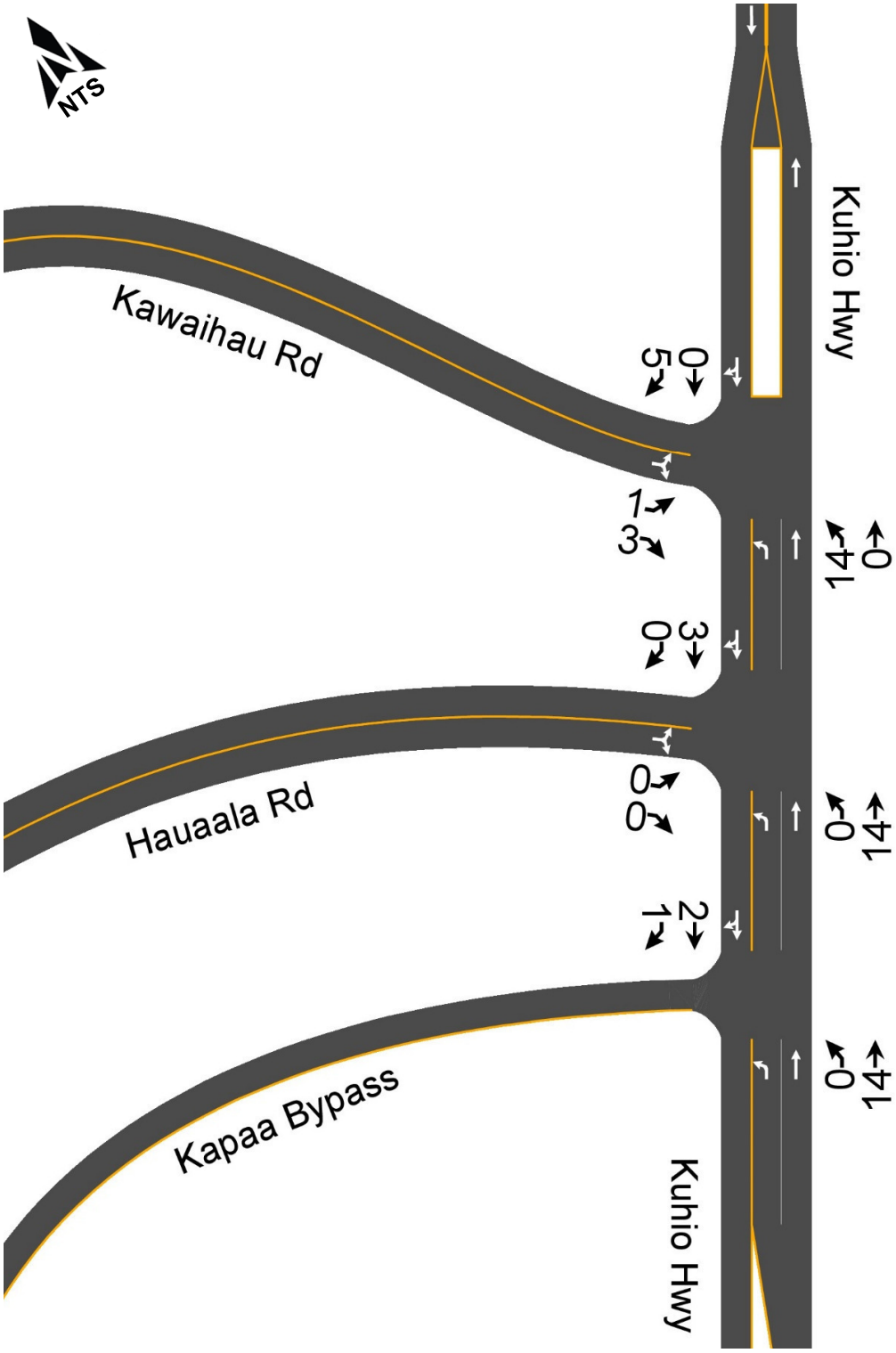

Figure 7. AM Peak Hour Site Traffic Assignment

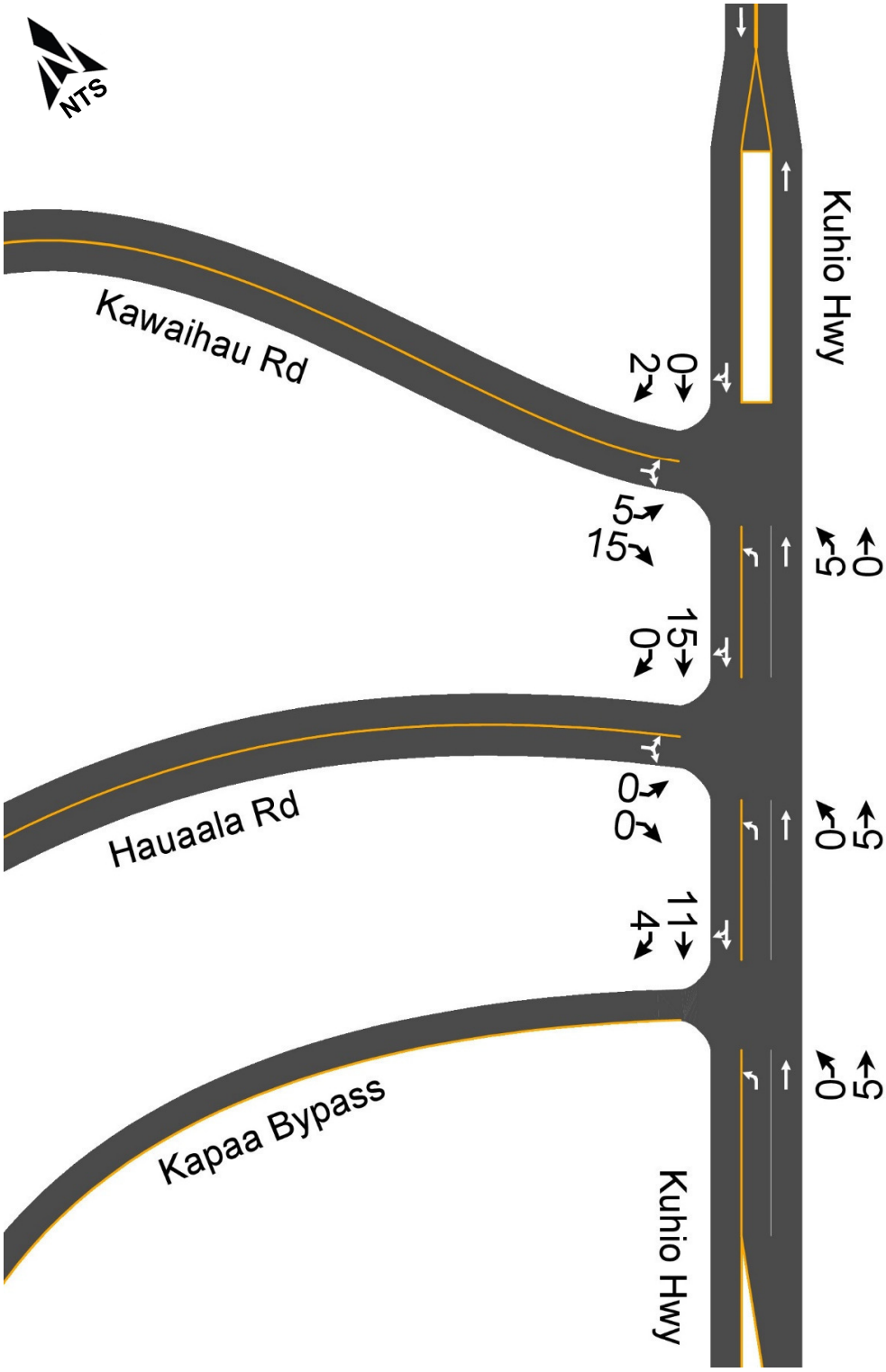

Figure 8. PM Peak Hour Site Traffic Assignment

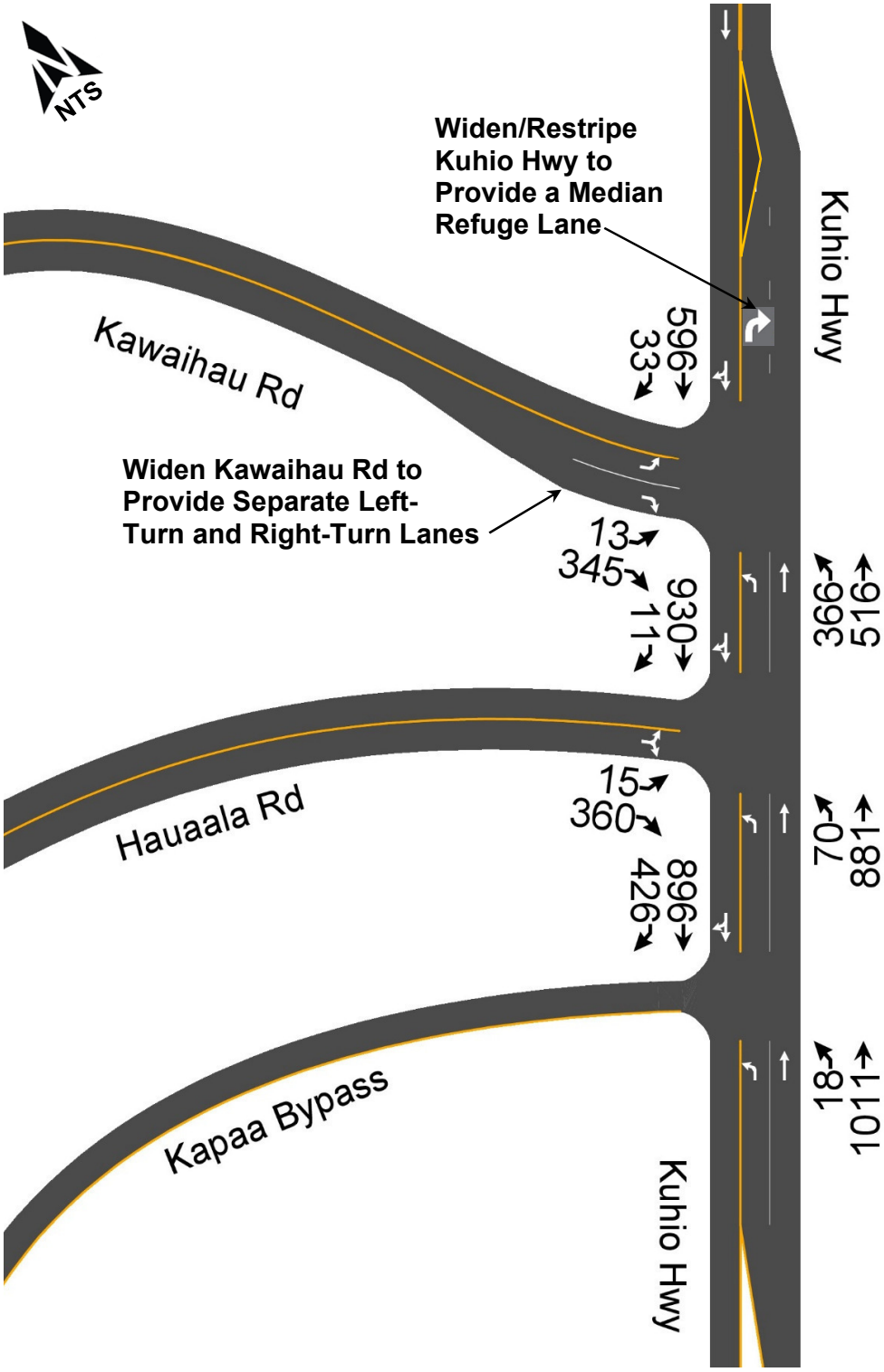

Figure 9. AM Peak Hour Volumes With Project

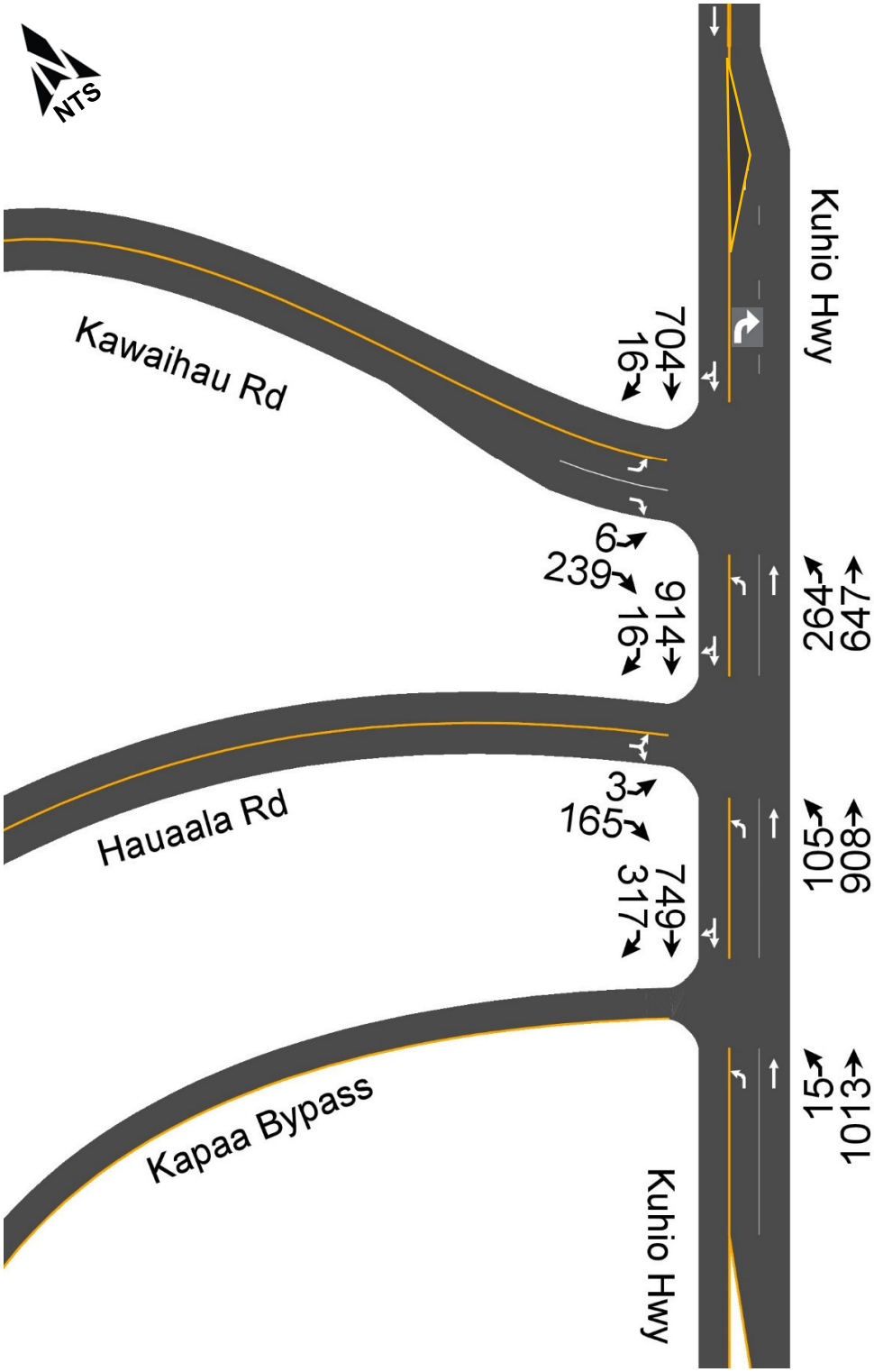

Figure 10. PM Peak Hour Volumes With Project

V. Recommendations and Conclusions

A. Recommended Traffic Improvements

The following traffic improvements are recommended to mitigate the existing roadway and traffic deficiencies along Kawaihau Road:

1. The existing median on Kuhio Highway, north of Kawaihau Road, should be widened/ restriped to provide a median refuge lane to facilitate the left-turn movement from Kawaihau Road.
2. Makai bound Kawaihau Road should be widened at Kuhio Highway to provide separate left-turn and right-turn lanes.
3. The geometrics of the intersection of Kawaihau Road and Iwaena Road should be improved to accommodate the vehicle turning movements, as necessary.

B. Conclusions

The proposed median refuge lane will permit a two-stage left-turn movement from Kawaihau Road, where a vehicle crosses the southbound lane of Kuhio Highway and queues in the median refuge lane until it can merge into an acceptable gap in northbound traffic. The proposed left-turn and right-turn lanes on Kawaihau Road will permit the heavy right-turn traffic to bypass the left-turn queue. The recommended traffic improvements are expected to improve the traffic operations on Kawaihau Road at Kuhio Highway from the existing LOS "F" to LOS "D" and LOS "E" on the left-turn and right-turn lanes, respectively, during the AM peak hour of traffic.

The Kauai County Transportation Agency provides transit service in the vicinity of the proposed Kapa`a Police Substation. The Ke Ala Hele Makalae, Kawaihau Spur, and the Kawaihau Boardwalk provides a continuous multi-use path for bicycles and pedestrians between the proposed project and the Kapa`a Town.

The proposed project is expected to increase peak hour traffic at the intersection of Kuhio Highway and Kawaihau Road by less than 1.5 percent, during the AM and PM peak hours of traffic. Therefore, the development of the proposed Kapa`a Police Substation is <u>not</u> expected to significantly impact peak hour traffic on Kuhio Highway.

TRAFFIC IMPACT ANALYSIS REPORT

FOR THE PROPOSED

KAPA`A POLICE SUBSTATION

KAPA`A, KAUAI, HAWAII
TAX MAP KEY: (4) 4-6-014:113

APPENDIX A

CAPACITY ANALYSIS WORKSHEETS

EXISTING TRAFFIC CONDITIONS

Intersection	
Int Delay, s/veh	16.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	321	330	484	559	26
Future Vol, veh/h	11	321	330	484	559	26
Conflicting Peds, #/hr	9	0	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	349	359	526	608	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1883	630	644	0	-	0
Stage 1	630	-	-	-	-	-
Stage 2	1253	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	78	482	941	-	-	-
Stage 1	531	-	-	-	-	-
Stage 2	269	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	47	478	934	-	-	-
Mov Cap-2 Maneuver	47	-	-	-	-	-
Stage 1	324	-	-	-	-	-
Stage 2	267	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	77	4.6	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	934	-	367	-	-
HCM Lane V/C Ratio	0.384	-	0.983	-	-
HCM Control Delay (s)	11.2	-	77	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	1.8	-	11.3	-	-

Intersection	
Int Delay, s/veh	41

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	338	66	813	870	10
Future Vol, veh/h	14	338	66	813	870	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	367	72	884	946	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1980	952	957	0	-	0
Stage 1	952	-	-	-	-	-
Stage 2	1028	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	68	~ 315	719	-	-	-
Stage 1	375	-	-	-	-	-
Stage 2	345	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	61	~ 315	719	-	-	-
Mov Cap-2 Maneuver	61	-	-	-	-	-
Stage 1	338	-	-	-	-	-
Stage 2	345	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$243.7	0.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	719	-	270	-	-
HCM Lane V/C Ratio	0.1	-	1.417	-	-
HCM Control Delay (s)	10.6	-	243.7	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.3	-	20.9	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	211	244	610	644	13
Future Vol, veh/h	1	211	244	610	644	13
Conflicting Peds, #/hr	8	0	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	229	265	663	700	14

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1916	715	722	0	-	0
Stage 1	715	-	-	-	-	-
Stage 2	1201	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	74	431	880	-	-	-
Stage 1	485	-	-	-	-	-
Stage 2	285	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	51	428	873	-	-	-
Mov Cap-2 Maneuver	51	-	-	-	-	-
Stage 1	335	-	-	-	-	-
Stage 2	283	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.1	3.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	873	-	414	-	-
HCM Lane V/C Ratio	0.304	-	0.557	-	-
HCM Control Delay (s)	10.9	-	24.1	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	1.3	-	3.3	-	-

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	156	99	852	848	15
Future Vol, veh/h	3	156	99	852	848	15
Conflicting Peds, #/hr	0	0	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	170	108	926	922	16

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2080	938	946	0	-	0
Stage 1	938	-	-	-	-	-
Stage 2	1142	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	59	321	725	-	-	-
Stage 1	381	-	-	-	-	-
Stage 2	304	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	49	319	719	-	-	-
Mov Cap-2 Maneuver	49	-	-	-	-	-
Stage 1	321	-	-	-	-	-
Stage 2	302	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	34.4	1.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	719	-	289	-	-
HCM Lane V/C Ratio	0.15	-	0.598	-	-
HCM Control Delay (s)	10.9	-	34.4	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.5	-	3.6	-	-

TRAFFIC IMPACT ANALYSIS REPORT

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KAPA`A POLICE SUBSTATION

KAPA`A, KAUAI, HAWAII
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APPENDIX B

CAPACITY ANALYSIS WORKSHEETS

2023 PEAK HOUR TRAFFIC WITHOUT PROJECT

Intersection	
Int Delay, s/veh	29.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	342	352	516	596	28
Future Vol, veh/h	12	342	352	516	596	28
Conflicting Peds, #/hr	9	0	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	372	383	561	648	30

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2007	671	686	0	-	0
Stage 1	671	-	-	-	-	-
Stage 2	1336	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	65	456	908	-	-	-
Stage 1	508	-	-	-	-	-
Stage 2	245	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	37	453	901	-	-	-
Mov Cap-2 Maneuver	37	-	-	-	-	-
Stage 1	290	-	-	-	-	-
Stage 2	243	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	140.4	4.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	901	-	328	-	-
HCM Lane V/C Ratio	0.425	-	1.173	-	-
HCM Control Delay (s)	11.9	-	140.4	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	2.1	-	16.1	-	-

Intersection	
Int Delay, s/veh	59.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	360	70	867	927	11
Future Vol, veh/h	15	360	70	867	927	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	391	76	942	1008	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2108	1014	1020	0	-	0
Stage 1	1014	-	-	-	-	-
Stage 2	1094	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	56	~ 290	680	-	-	-
Stage 1	350	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	50	~ 290	680	-	-	-
Mov Cap-2 Maneuver	50	-	-	-	-	-
Stage 1	311	-	-	-	-	-
Stage 2	321	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 357.7	0.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	680	-	243	-	-
HCM Lane V/C Ratio	0.112	-	1.677	-	-
HCM Control Delay (s)	11		$ 357.7	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.4	-	26.4	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	225	260	650	687	14
Future Vol, veh/h	1	225	260	650	687	14
Conflicting Peds, #/hr	8	0	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	245	283	707	747	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2044	763	770	0	-	0
Stage 1	763	-	-	-	-	-
Stage 2	1281	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	62	404	844	-	-	-
Stage 1	460	-	-	-	-	-
Stage 2	261	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	40	401	838	-	-	-
Mov Cap-2 Maneuver	40	-	-	-	-	-
Stage 1	302	-	-	-	-	-
Stage 2	259	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.3	3.3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	838	-	386	-	-
HCM Lane V/C Ratio	0.337	-	0.636	-	-
HCM Control Delay (s)	11.5	-	29.3	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	1.5	-	4.2	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	166	106	908	904	16
Future Vol, veh/h	3	166	106	908	904	16
Conflicting Peds, #/hr	0	0	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	180	115	987	983	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2217	1000	1008	0	-	0
Stage 1	1000	-	-	-	-	-
Stage 2	1217	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	48	295	687	-	-	-
Stage 1	356	-	-	-	-	-
Stage 2	280	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	39	293	682	-	-	-
Mov Cap-2 Maneuver	39	-	-	-	-	-
Stage 1	293	-	-	-	-	-
Stage 2	278	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	45.2	1.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	682	-	263	-	-
HCM Lane V/C Ratio	0.169	-	0.698	-	-
HCM Control Delay (s)	11.3	-	45.2	-	-
HCM Lane LOS	B	-	E	-	-
HCM 95th %tile Q(veh)	0.6	-	4.7	-	-

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KAPA`A POLICE SUBSTATION

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APPENDIX C

CAPACITY ANALYSIS WORKSHEETS

2023 PEAK HOUR TRAFFIC WITH PROJECT

WITH IMPROVEMENTS

Intersection	
Int Delay, s/veh	10.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	345	366	516	596	33
Future Vol, veh/h	13	345	366	516	596	33
Conflicting Peds, #/hr	9	0	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	0	-	-	-
Veh in Median Storage, #2		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	375	398	561	648	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2040	674	692	0	-	0
Stage 1	674	-	-	-	-	-
Stage 2	1366	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	62	455	903	-	-	-
Stage 1	506	-	-	-	-	-
Stage 2	237	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	34	452	896	-	-	-
Mov Cap-2 Maneuver	172	-	-	-	-	-
Stage 1	279	-	-	-	-	-
Stage 2	235	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	40.8	5.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	896	-	172	452	-	-
HCM Lane V/C Ratio	0.444	-	0.082	0.83	-	-
HCM Control Delay (s)	12.2	-	27.8	41.3	-	-
HCM Lane LOS	B	-	D	E	-	-
HCM 95th %tile Q(veh)	2.3	-	0.3	8	-	-

Intersection	
Int Delay, s/veh	41.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	360	70	881	930	11
Future Vol, veh/h	15	360	70	881	930	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	391	76	958	1011	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2127	1017	1023	0	-	0
Stage 1	1017	-	-	-	-	-
Stage 2	1110	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	55	~ 288	679	-	-	-
Stage 1	349	-	-	-	-	-
Stage 2	315	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	49	~ 288	679	-	-	-
Mov Cap-2 Maneuver	213	-	-	-	-	-
Stage 1	310	-	-	-	-	-
Stage 2	315	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$248.9	0.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	679	-	284	-	-
HCM Lane V/C Ratio	0.112	-	1.435	-	-
HCM Control Delay (s)	11	-	248.9	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.4	-	22.3	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	240	265	650	708	1
Future Vol, veh/h	6	240	265	650	708	1
Conflicting Peds, #/hr	8	0	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	50	0	-	-	-
Veh in Median Storage, #2		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	261	288	707	770	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2070	779	779	0	-	0
Stage 1	779	-	-	-	-	-
Stage 2	1291	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	59	396	838	-	-	-
Stage 1	452	-	-	-	-	-
Stage 2	258	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	38	393	832	-	-	-
Mov Cap-2 Maneuver	184	-	-	-	-	-
Stage 1	293	-	-	-	-	-
Stage 2	256	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	30.4	3.4	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	832	-	184	393	-	-
HCM Lane V/C Ratio	0.346	-	0.035	0.664	-	-
HCM Control Delay (s)	11.6	-	25.3	30.5	-	-
HCM Lane LOS	B	-	D	D	-	-
HCM 95th %tile Q(veh)	1.6	-	0.1	4.6	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	166	106	913	919	16
Future Vol, veh/h	3	166	106	913	919	16
Conflicting Peds, #/hr	0	0	8	0	0	8
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	0	-	-	-
Veh in Median Storage, #2		-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	180	115	992	999	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2238	1016	1024	0	-	0
Stage 1	1016	-	-	-	-	-
Stage 2	1222	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	47	289	678	-	-	-
Stage 1	350	-	-	-	-	-
Stage 2	278	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	38	287	673	-	-	-
Mov Cap-2 Maneuver	190	-	-	-	-	-
Stage 1	288	-	-	-	-	-
Stage 2	276	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	38.2	1.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	673	-	284	-	-
HCM Lane V/C Ratio	0.171	-	0.647	-	-
HCM Control Delay (s)	11.5	-	38.2	-	-
HCM Lane LOS	B	-	E	-	-
HCM 95th %tile Q(veh)	0.6	-	4.1	-	-

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SITE PHOTOGRAPHS

AM PARTNERS, INC.

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Juncture of Kawaihau Road and Iwaena Road looking north

Project Site looking east

Project site looking southeast

Vacant structure located on project site