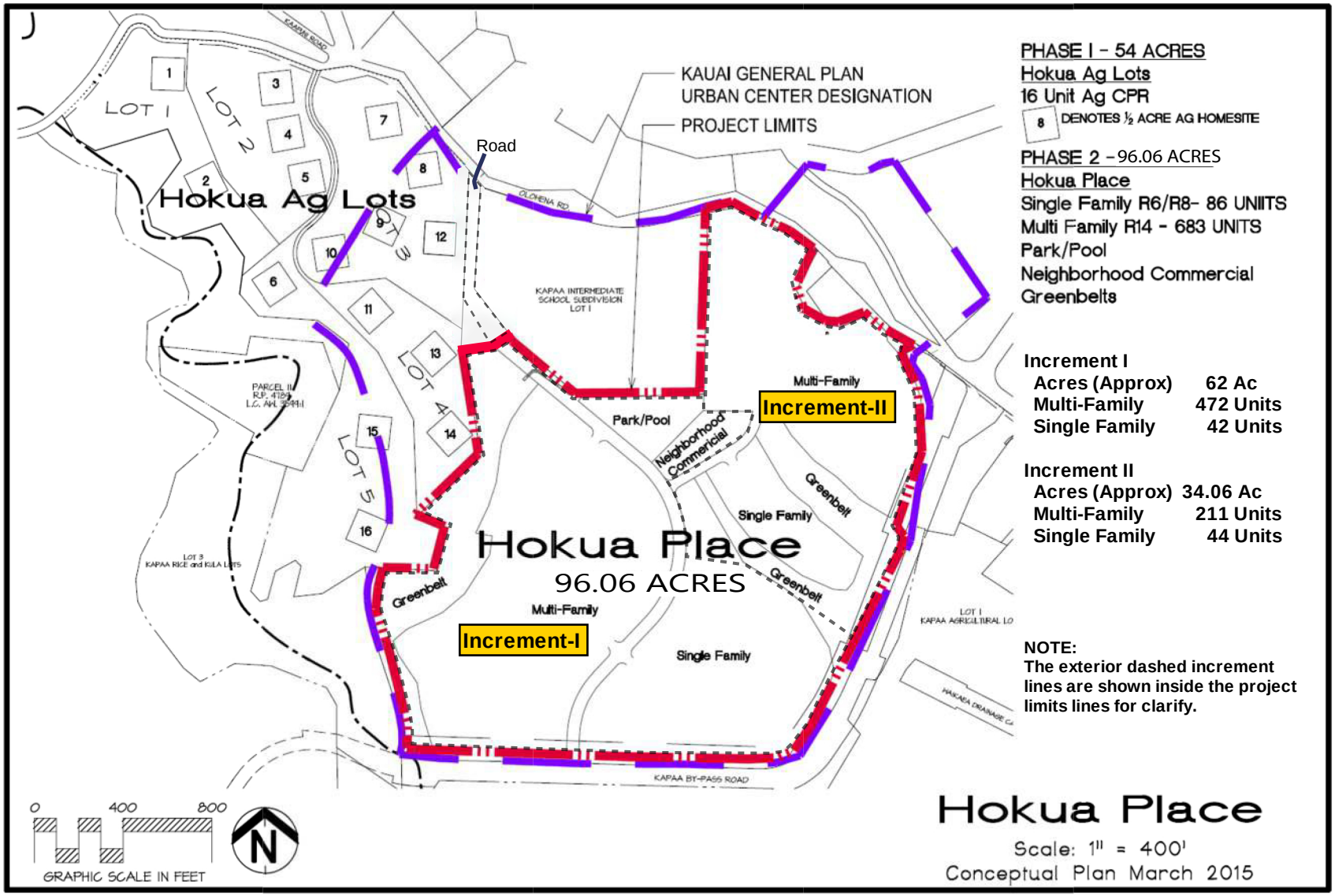


EXHIBIT "I-32"

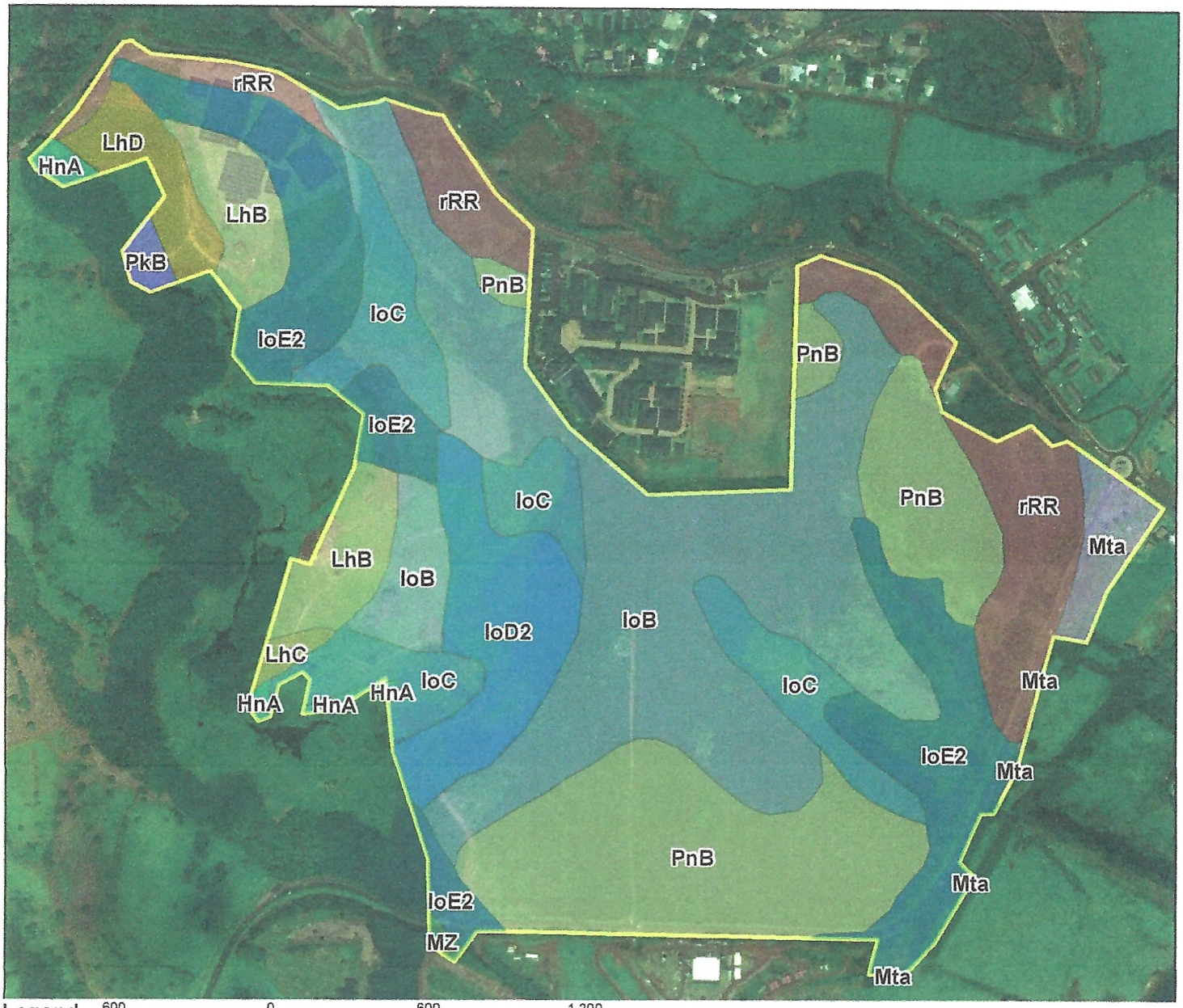
USDA

Soils Map

Date: 5/31/2018

Field Office: LIHUE SERVICE CENTER
Agency: USDA-NRCS
Assisted By: GENOA STARRS

State and County: HI, Kauai County, Hawaii
Land Units: (4) 4-3-003:001
Approximate Acres: 163.13



Legend

600 0 600 1,200 Feet

1 inch = 600 feet

Rice Soils Map

MUSYM, MUNAME

- HnA;Hanalei silty clay, 0 to 2 percent slopes, MLRA 167
- IoB;Ioleau silty clay loam, 2 to 6 percent slopes
- IoC;Ioleau silty clay loam, 6 to 12 percent slopes
- IoD2;Ioleau silty clay loam, 12 to 20 percent slopes, eroded
- IoE2;Ioleau silty clay loam, 20 to 30 percent slopes, eroded
- LhB;Lihue silty clay, 0 to 8 percent slopes
- LhC;Lihue silty clay, 8 to 15 percent slopes
- LhD;Lihue silty clay, 15 to 25 percent slopes
- MZ;Marsh
- Mta;Mokuleia clay loam, poorly drained variant
- PkB;Pohakupu silty clay loam, 0 to 8 percent slopes
- PnB;Puhi silty clay loam, 3 to 8 percent slopes
- rRR;Rough broken land
- Rice Poly Layer

N

EXHIBIT "I-33"

Chapter 1

Introduction

1.1 Project Information Summary

Type of Document:	Greenhouse Gas Assessment
Project Name:	HoKua Place
Applicant:	HG Kaua‘i Joint Venture LLC 9911 S. 78th Avenue Hickory Hills, IL 60457
Agent:	G70 111 S. King St., Suite 170 Honolulu, HI 96813
Approving Agency:	State of Hawai‘i Land Use Commission 235 South Beretania Street, Ste 406 Honolulu, Hawai‘i 96813
Project Location:	Kawaihau District, Kapa‘a, Kaua‘i
Tax Map Keys (TMK)	(4) 4-3-003:001 (por.)
State Land Use District:	Agriculture
Kaua‘i General Plan:	Neighborhood General
Kaua‘i County Zoning	Agriculture
Special Management Area:	Outside SMA
Flood Zone:	X: Area determined to be outside the 100-year floodplain with minimal flooding

1.2 Report Purpose and Scope

The purpose of this report is to evaluate the potential greenhouse gas (GHG) emissions impacts associated with the implementation of the planned HoKua Place Project (Project). This assessment was triggered by the Project's petition to the Land Use Commission (LUC) for a State Land Use Boundary Amendment. Specifically, the petition is to change the State's Land Use District from Agricultural Land Use District to Urban Land Use District. Per Hawai'i Administrative Rules (HAR) Chapter 15-15-50(c)(24)(C): Application Requirements for Boundary Amendment Petitions, *the petitioner shall prepare a statement and analysis addressing the overall carbon footprint of the proposed development and any mitigation measures or carbon footprint reductions proposed*.

This GHG Assessment describes the existing setting of the project site, describes the relevant regulatory setting, and discusses the methodology used to evaluate GHG emissions related to the Project. The assessment evaluates potential impacts related to GHGs that would result from construction and operations, and identifies mitigation measures as necessary related to implementation of the Project.

1.3 Regional and Local Setting

The Project site is located in the residential/resort town of Kapa'a along the eastern coast of the Island of Kaua'i (*Figure 1-1*). The Project area consists of an approximately 96-acre portion of the 163-acre parcel (TMK (4) 4-3-003:001). The site is located within the traditional moku of Kawaihau and the ahupua'a of Kapa'a.

The Project site is situated at the north-west corner of the Kapa'a Bypass Road and Olohena Road. The Kapa'a Bypass Road, located south and east of the property, separates the Project site from the Kapa'a' town center. Olohena Road runs along and adjacent to the northern boundary of the property. The Kapa'a Middle School is located on the northern end of the subject parcel, fronted by Olohena Road. The western boundary of the Project site is bordered by a small intermittent stream. The stream flows from north to south along the boundary, passes under a bridge on the Kapa'a Bypass Road at the southwest corner of the property, and empties into the Waiākea drainage canal downstream from the property.

The lands surrounding the Project to the north and east are designated as "Residential Community" and "Neighborhood General" by the Updated Kaua'i General Plan. The Property is contiguous to existing urban lands, to the south and across the Kapa'a Bypass Road. These existing lands are classified Urban by the State Land Use Commission and zoned Residential by the County of Kaua'i.

1.4 Proposed Project Description

HG Kaua'i Joint Venture LLC is planning to develop a residential community consisting of a mix of single-family and multi-family residential, market and affordably priced homes, commercial, community park, and open green space. The Project is designed as a sustainable community that aims to preserve the rural character of Kapa'a while accommodating Kaua'i's growing housing needs.

Approximately 96-acres will be subdivided into single family and multifamily lots providing for a total of 683-multi-family units and 86-single family lots and homes. Approximately 30 percent of the housing units are designated as affordable. The Project also includes open space encompassing 13.25-acres; a 3.1-acre park adjacent to the existing Kapa'a Middle School with an area for the county's proposed

relocation of the Kapa'a county swimming pool; and 1.4-acres for commercial use. In accordance with County and State Department of Transportation requirement, improvements will include an intersection on Kapa'a Bypass Road, bus stops, sidewalks and bike and walking paths to the existing Kapa'a Middle School.

The Project plans to share a portion of the infrastructure with the adjacent and adjoining HoKua Farm Lots. A 4-acre solar farm, located within the Farm Lots, generates 1.18 MW of electricity that feeds into the Kaua'i Island Utility Cooperative's (KIUC) distribution grid.

A Project's planned land uses are summarized in *Table 1-1* below and shown conceptually in *Figure 1-2*.

Table 1-1: Summary of Project Land Uses

Land Use	Acreage	Number of Units	Population*
Large Lot Single Family Homes (10,000 sf)	8.26	36	113
Medium Lot Single Family Homes (7,500 sf)	8.60	50	157
Multi-Family Dwelling (4 Plex)	45.82	452	1,415
Affordable Housing Dwellings (low-rise)	15.63	231	723
Commercial	1.40		
Community Park and Pool	3.10		
Open Space	13.25		
Total	96.06	769	2,408

*Populations estimates derived from average Kaua'i household size from 2008-2014, https://www.census.gov/quickfacts/kauaicountyhawaii

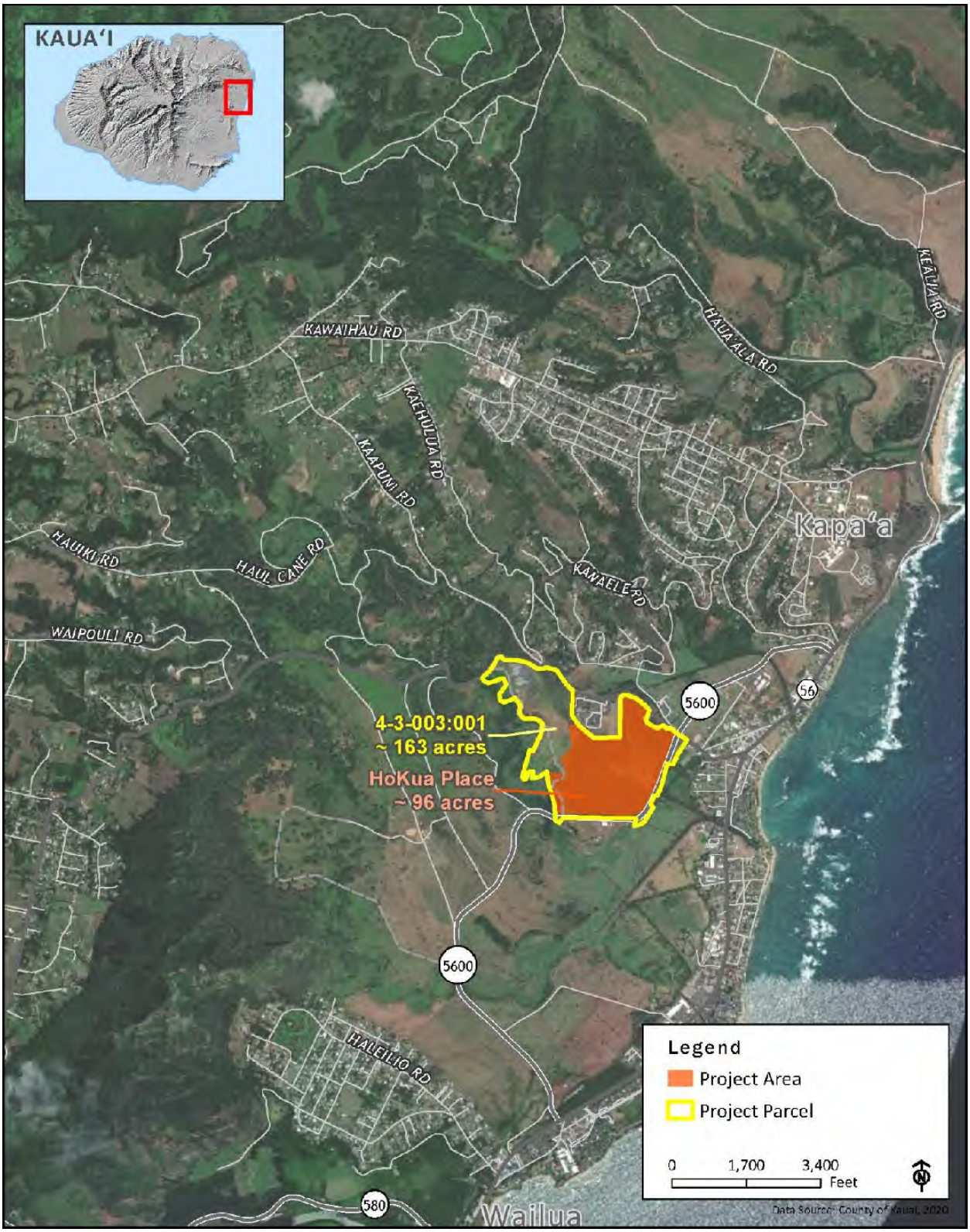


Figure 1-1 **County of Kaua'i, TMK Parcel Map of Project Area**

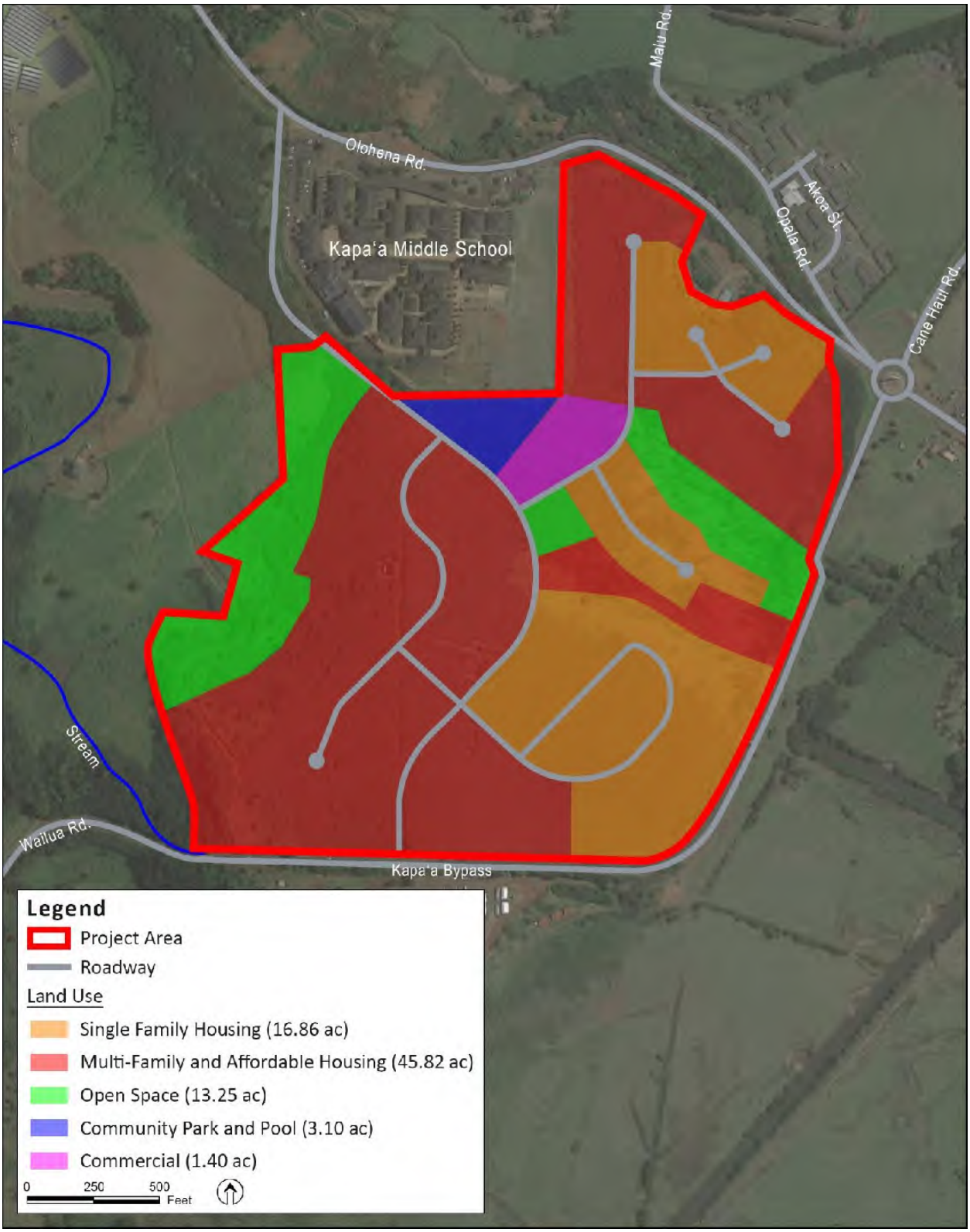


Figure 1-2 **Conceptual Land Use Plan of the Project Area**

Chapter 2

Environmental Setting

2.1 Climate Change Overview

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the Sun's energy reaching Earth, changes in the reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2017).

The greenhouse effect is the trapping and accumulation of heat in the Earth's atmosphere by gases and particulates known as GHGs. Approximately half of the Sun's light reaching Earth's atmosphere passes through the air and clouds to the surface, where it is absorbed and then radiated upward in the form of infrared heat. About 90 percent of this heat is then absorbed by the GHGs and radiated back towards the surface. The greenhouse effect is a naturally occurring process that contributes to the regulation of Earth's temperature and is what creates the comfortable, livable environment on the planet.

Human activities that emit additional GHGs to the atmosphere, increase the amount of infrared radiation that gets absorbed before escaping into space. A build-up of radiation in the atmosphere can enhance the greenhouse effect and cause the Earth's surface temperature to rise. The atmospheric concentrations of GHGs have increased to levels not seen in the last 800,000 years. The primary drivers for this increase in GHGs are fossil fuel emissions and emissions associated with land use changes (IPCC 2013). Continued emissions of GHGs will cause further warming and changes in all components of the climate system.

2.1.1 Greenhouse Gases and other Climate Forcing Substances

A GHG is any gas that absorbs infrared radiation in the atmosphere. GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), water vapor (H_2O), hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, HCFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. A summary of the most common GHGs and their sources is included below.

Carbon Dioxide CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing;

and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of fuels such as coal, oil, natural gas, and wood, and changes in land use.

Methane CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. CH_4 is produced through anaerobic (without oxygen) decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and using N_2O as a propellant (such as in rockets, race cars, and aerosol sprays).

Fluorinated Gases Fluorinated gases are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric O_3-depleting substances.

Sulfur Hexafluoride SF_6 is a colorless gas soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.

Chlorofluorocarbons CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere), and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

Hydrochlorofluorocarbons HCFCs are a large group of compounds, whose structure is very close to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Black Carbon Black carbon is a component of fine particulate matter (PM2.5), which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential (GWP). Diesel particulate matter emissions are a major source of black carbon and are toxic air contaminants.

Water Vapor The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone Tropospheric O_3, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O_2), plays a decisive role in the stratospheric

radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

2.1.2 SOURCES OF GREENHOUSE GAS EMISSIONS

Human activities are responsible for the majority of the increase in GHGs in the atmosphere over the last 150 years. The largest source of greenhouse gas emissions from human activities in the United States is from burning fossil fuels for electricity, heat, and transportation (EPA 2017).

According to Hawai'i Department of Health's (DOH) Greenhouse Gas Emissions Report (2019), total GHG emissions in Hawai'i were 19.58 million metric tons of carbon dioxide equivalent (MMT CO_2 Eq.) in the year 2016. Net emissions, which take into account carbon sinks, were 13.07 MMT CO_2 Eq. Emissions from the Energy sector accounted for the largest portion (87 percent) of total emissions in Hawai'i, followed by the Agriculture, Forestry, and Other Land Use (AFOLU) sector (6 percent), the Industrial Processes and Product Use (IPPU) sector (4 percent), and the Waste sector (4 percent). CO_2 was the largest single contributor to statewide GHG emissions in 2016, accounting for roughly 89 percent of total emissions. CH_4 is the second largest contributor (6 percent), followed closely by HFCs and PFCs (4 percent), N_2O (2 percent), and SF_6 (less than 0.1 percent). *Figure 2-1* below shows Hawai'i emissions for 2016 by sector and gas.

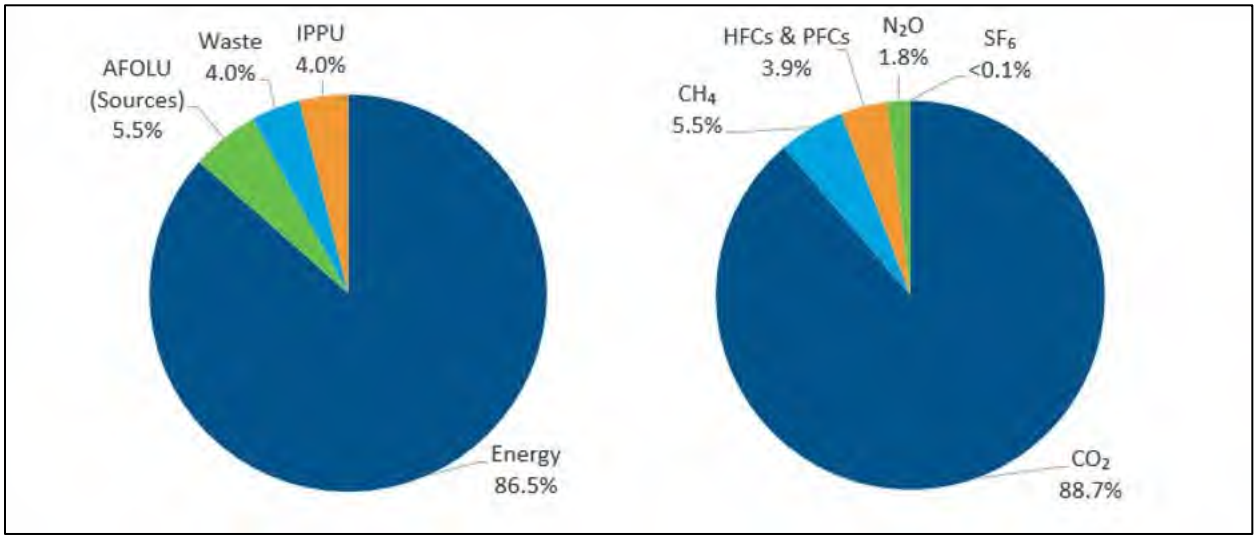


Figure 2-1 **Hawai'i 2016 GHG Emissions by Sector and Gas**

2.1.3 CARBON SEQUESTRATION

Carbon sequestration is the process by which atmospheric CO_2 is taken up by trees, grasses, and other plants through photosynthesis and stored as carbon in biomass (trunks, branches, foliage, and roots) and soils.

According to the Intergovernmental Panel on Climate Change's (IPCC) Climate Change and Land report (2019), when natural or forested areas are developed for urban land uses, a larger amount of CO_2 enters the atmosphere due to the absence of trees and their function in the carbon cycle. The development of the forested areas may also impact the surface temperature and evapotranspiration levels in the region. As sunlight reaches the land surface, a portion of light is reflected back into the atmosphere and a remaining portion is absorbed and converted into heat. Darker surfaces absorb more solar radiation than lighter surfaces, therefore, urban land uses will reflect a greater proportion of solar radiation into the atmosphere than the darker colored canopy of forests.

Conversely, planting new trees has the potential to capture CO_2 from the atmosphere and mitigate or reverse global warming. A mature hardwood tree can absorb as much as 48 pounds of carbon dioxide per year (SOER, 2015). The sink of carbon sequestration in forests and wood products helps to offset sources of CO_2 to the atmosphere, such as deforestation, forest fires, and fossil fuel emissions.

2.1.4 POTENTIAL EFFECTS OF CLIMATE CHANGE

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. The University of Hawai'i (UH), Center for Island Climate Adaptation and Policy published a Briefing Sheet summarizing specific changes observed in Hawai'i (Fletcher, 2010). Based on peer-reviewed scientific journals and government reports, it presents evidence of climate change in Hawai'i as:

1. Rising surface temperature,
2. Decreased rainfall and stream flow,
3. Increased rain intensity,
4. Increased sea level and sea surface temperatures, and
5. Ocean acidification.

Due to the heat-trapping effects of GHG, climate scientists project that if GHG emissions continue to accelerate at current output trends, then the average global temperature will likely increase by three to seven degrees Fahrenheit (1.7 to 3.9 degrees Celsius) by the year 2100. These figures were derived from a number of global climate models, which were based on various scenarios of changes in the concentrations of GHG in the Earth's atmosphere.

2.2 Existing Climate Conditions

Climate encompasses variable factors including temperature, humidity, wind, precipitation, and other meteorological measurements in a given region over time. Climate can be contrasted to weather, which is the present condition of these elements and their variations over shorter periods. A microclimate is a local atmospheric zone where the climate is distinct from the surrounding climate. In the present case the area of concern with respect to microclimatic effects is the area on and immediately adjacent to the 96-acre project site where such things as air temperature, wind speed/direction and humidity could be altered by construction and operation of the proposed facilities.

The Hawaiian Island chain is situated south of the large Eastern Pacific semi-permanent high-pressure cell, the dominant feature affecting air circulation in the region. This high-pressure cell produces very persistent winds over the islands called the northeast trade winds. During the winter months, cold fronts sweep across the north central Pacific Ocean, bringing rain to the Hawaiian Islands and intermittently modifying the trade wind regime. Thunderstorms, which are rare but most frequent in the mountains, also contribute to annual precipitation. There is great climatic variation across the island of Kaua‘i.

2.2.1 Winds

The northeast trade winds are the most important determinant of Kaua‘i’s climate. The trade wind zone moves north and south seasonally with the sun, so that it reaches its northernmost position in the summer. Consequently, the trade winds are strongest and most persistent from May through September, when the trades are prevalent 80 to 95 percent of the time. From October through April, Hawai‘i is located to the north of the heart of the trade winds, and their frequency decreases to about 50 percent (as a monthly average). Kaua‘i’s topography interacts with the winds to produce large variations in conditions from one locality to another. Air blowing inland as part of the trade wind flow is redirected horizontally and vertically by the mountains and valleys. This complex three-dimensional flow of air results in marked wind speed and directional differences from place to place in wind speed, cloudiness, and rainfall. The winds in the subject Project area typically vary between about 5 and 6 meters per second (*Figure 2-2*).

2.2.2 Temperature and Sunlight

Temperatures in the Project site are mild and comfortable. The average annual temperature is approximately 73 to 75 degrees Fahrenheit (*Figure 2-3*). Data from the Līhu‘e Airport, which is at a slightly lower elevation but otherwise similar to the Kapa‘a area, are shown in *Figure 2-5*. The average monthly low temperature is 68°F and the average monthly high is 76°F.

The length of the day in Kapa‘a varies over the course of the year. In 2020, the shortest day is December 21, with 10 hours, 47 minutes of daylight; and the longest day is June 20, with 13 hours, 29 minutes of daylight. The Project area receives an annual average of approximately 205-220 W/m^2 of solar radiation (*Figure 2-4*).

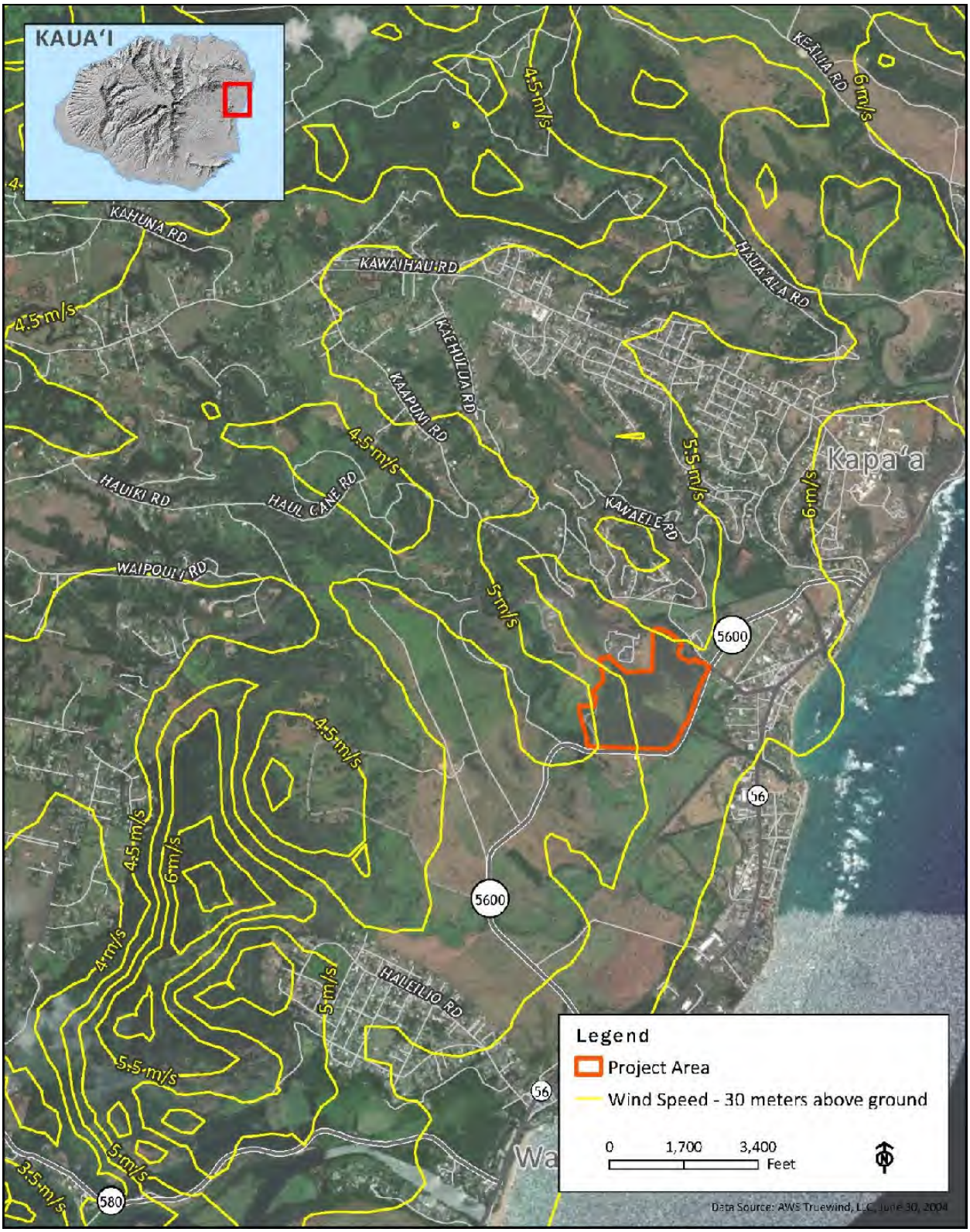


Figure 2-2 **Windspeed**

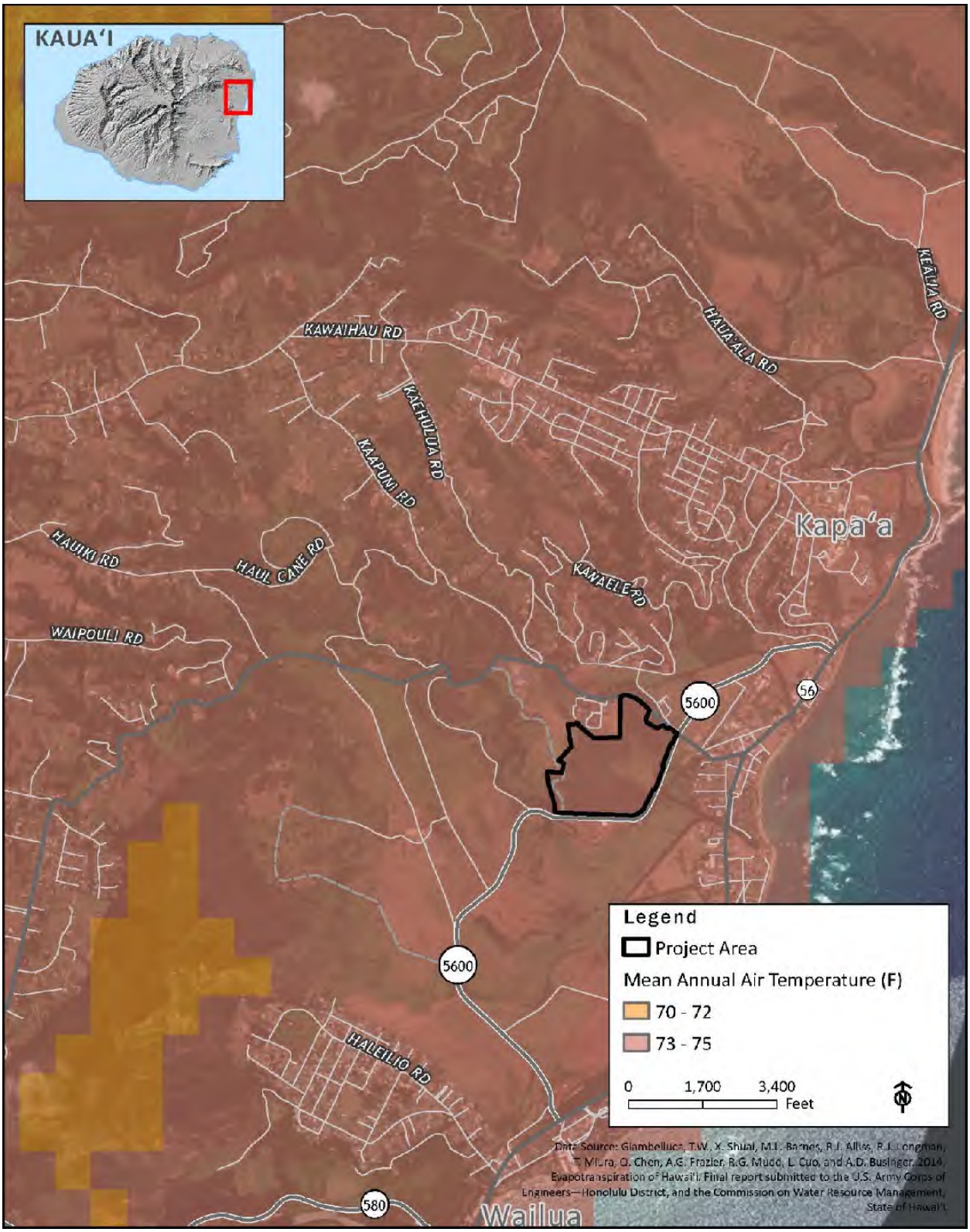


Figure 2-3 **Mean Annual Air Temperature**

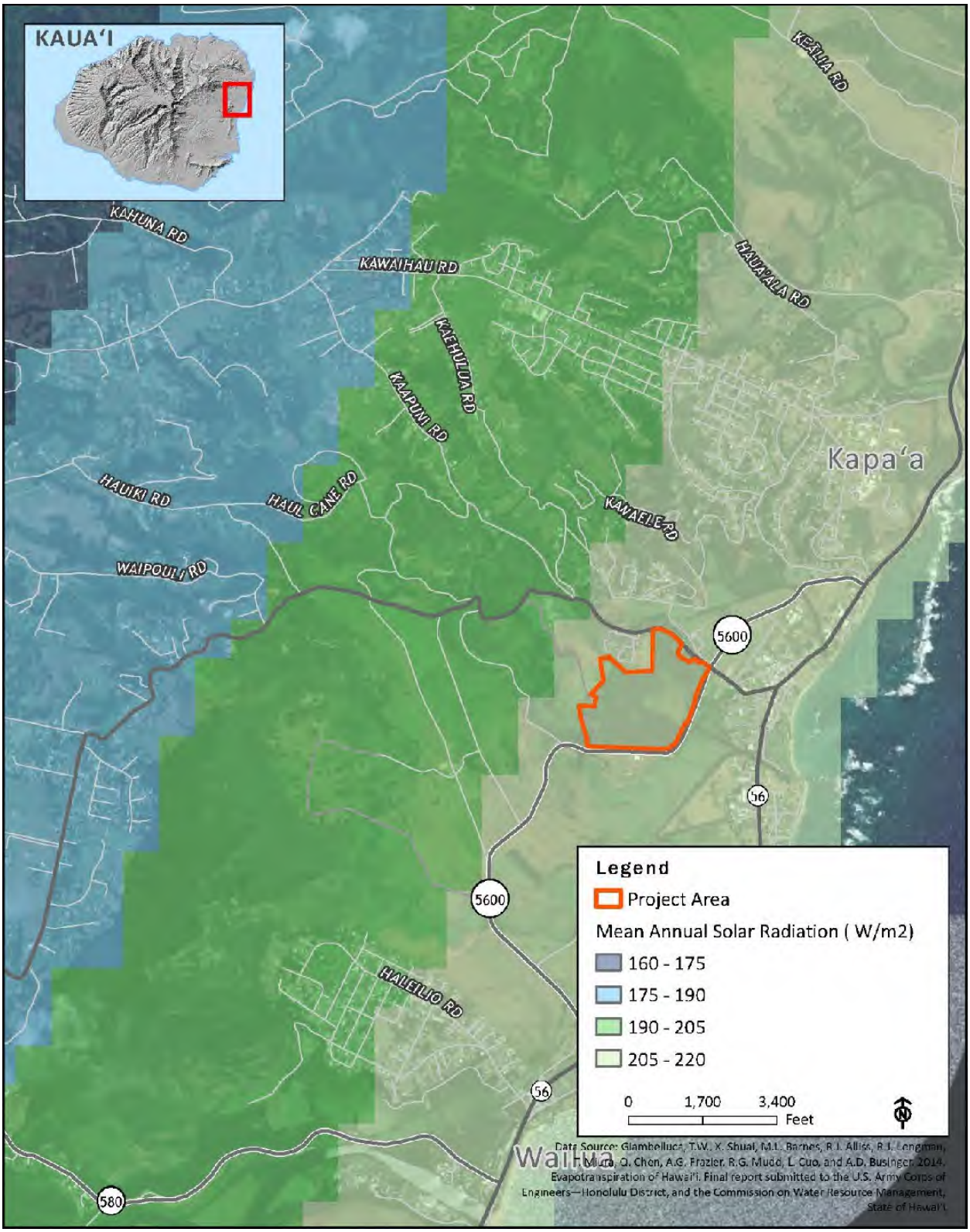


Figure 2-4 **Mean Annual Solar Radiation**

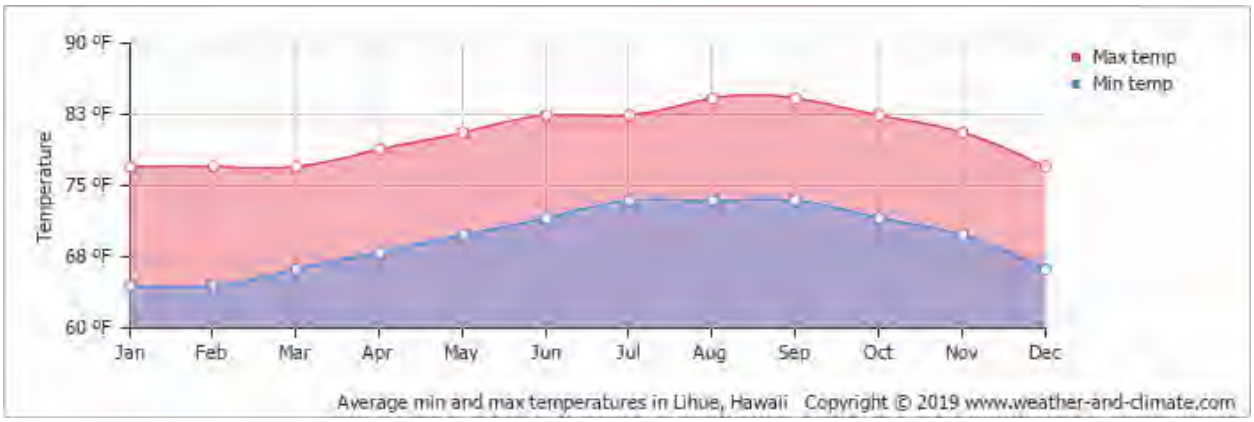


Figure 2-5 Average Minumum and Maximum Temperatures at the Līhu'e Airport

2.2.3 RAINFALL

The eastern and northern region of Kaua'i are typically wetter than the western and southern regions. The average annual rainfall at the Project site is approximately 45 to 50 inches (*Figure 2-6*).

The nearest rain gauging station to the proposed Project site is at Kapa'a Stables (Station 1104), just a few hundred feet mauka of the project site. The average annual precipitation at this location between 1940 and 1978 was approximately 55 inches. With average monthly rainfall of 6.8 inches and 7.3 inches, respectively, December and January were the wettest months during that period. With 2.1 inches, June was, on average, the driest month. Average annual rainfall data is summarized in *Table 2-1* below.

Table 2-1: Average Annual Rainfall: Kapa'a Stables Station 1104, 1940-1978

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Inches	7.3	5.2	5.8	5.4	3.6	2.1	2.4	2.6	2.5	4.8	6.4	6.8	54.9

*Source: http://www.worldclimate.com/cgi-bin/data.pl?ref=N22W159+2200+513159C; Kapa'a Stables 1104, Kaua'i data derived from NCDC Cooperative Stations. 33 complete years between 1940 and 1978.

2.2.4 BIOMES AND PLANT SPECIES RANGES

Climate in Hawai'i is often characterized in terms of the distribution of vegetation. Patterns of species distribution correlate with specific climate conditions that foster the emergence of natural ecosystems. A primary influence on the geographic range of plant species is moisture availability. Moisture Availability is a function of annual precipitation and potential evapotranspiration, which represents the moisture demand of the atmosphere as a function of temperature and humidity and is strongly driven by the amount of incoming solar radiation (HCSU, 2007). A Moisture Availability Index (MAI) is calculated by subtracting the potential evapotranspiration from the median annual precipitation.

There are seven moisture zones for the main Hawaiian Islands that represent general patterns of species distribution: Very Wet (MAI>3,161), Moderately Wet (3161>MAI>1661), Moist Mesic (1361>MAI>861), Seasonal Mesic (861>MAI>0), Moderately Dry (0>MAI>-389), Very Dry (-389>MAI>-689), an Arid (MAI<-689). The Project area is located in the region delineated as Moderately Dry (*Figure 2-7*).

Figure 2-6 **Annual Rainfall**

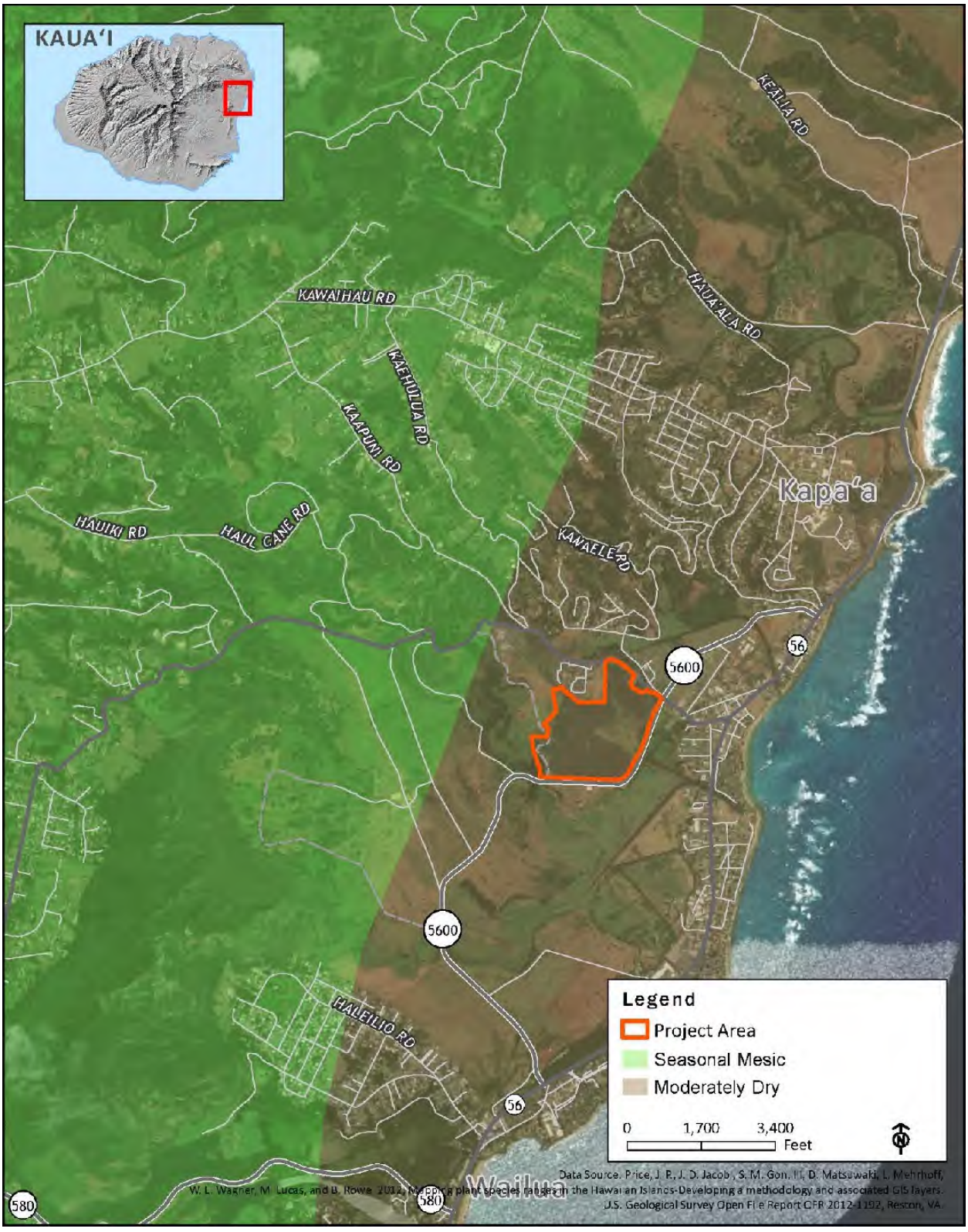


Figure 2-7 **Moisture Zone**

In 2017, the United States Geological Survey (USGS) conducted a national biologic carbon sequestration assessment throughout the country. The assessment was designed to meet the requirements of the Energy Independence and Security Act of 2007, which calls for coverage of all 50 states and all ecosystems (including forests, grasslands, wetlands, agricultural lands, and rivers, lakes, and estuaries). The assessment focused on current and potential amounts of carbon stored in the ecosystems, and effects of both natural and anthropogenic processes (such as fire, climate change, and land use change) on carbon sequestration.

As part of the USGS national carbon assessment, the Carbon Assessment of Hawai'i (CAH) Land Cover Biome Map was produced to serve as a base map for estimating current carbon stocks and potential change in carbon sequestration for the Hawaiian Islands under future climate change scenarios (2017). 13 CAH biome units were identified that incorporate a combination of vegetation structure (for example, forest, shrubland, and grassland) and moisture zones.

The study revealed that the majority of land on Kaua'i island is represented by Wet Forest (23.9 percent), Mesic Forest (20.4 percent), and Agriculture (10.6 percent). The land underlying the Project area was identified as Dry Grassland (*Figure 2-8*). In total, 2.4 percent of Kaua'i island's land cover was categorized as Dry Grassland.

Native Mesic and Wet Forests store the highest amount of total carbon among ecosystem types with an estimated 96.3 Teragrams of Carbon (TgC) statewide. Approximately 61 percent of the total carbon in Native Mesic and Wet Forests was in soil, 33 percent in live biomass, and 6 percent in dead biomass. In contrast, grasslands, shrublands, and bare ground, which together cover nearly three times the total area of Native Mesic and Wet Forests statewide, store a total of only 67.9 TgC combined, about 30 percent less than in Native Mesic and Wet Forests.

Another commonly used indicator of the influence of climate on plant growth and survival is the Hardiness Zone. Hardiness Zones are geographic areas defined to encompass a certain range of climatic conditions relevant to plant growth and survival. The United States Department of Agriculture (USDA) Plant Hardiness Zone Map is the standard by which gardeners and growers determine which plants are most likely to thrive at a location. The map is based on the average annual minimum winter temperature, divided into 10-degree Fahrenheit zones.

The Plant Hardiness Zone for the subject Project area is 12b (*Figure 2-9*). The range of minimum average temperatures for zone 12b is between 50 and 60 degree Fahrenheit. This Plant Hardiness Zones is represented by warm, tropical environments that are best suited for plants tolerant of intense heat. Zones 12 is the second warmest of all the USDA hardiness zones featuring tropical plants and exotic fruits.

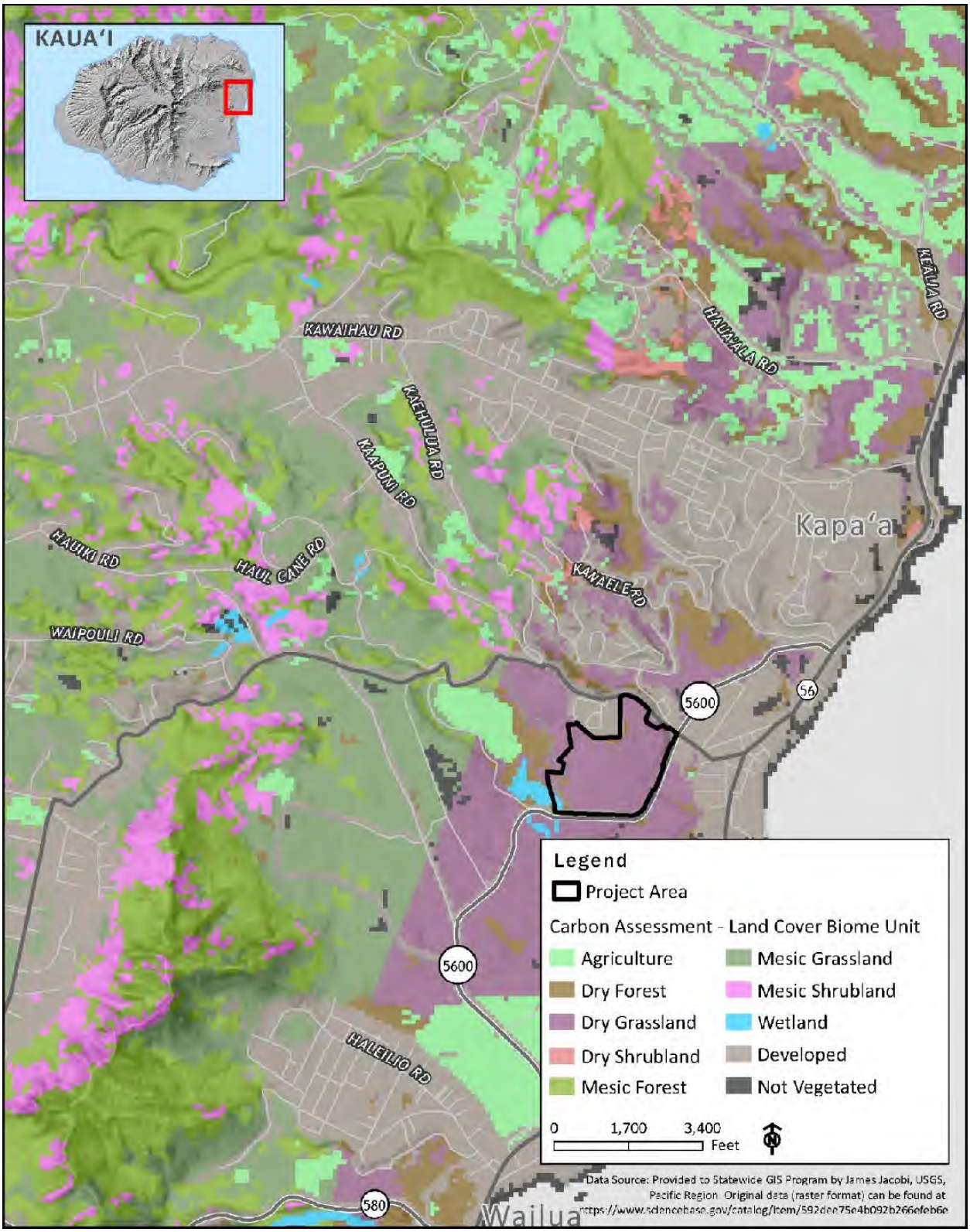


Figure 2-8 **Land Cover Biome Unit**

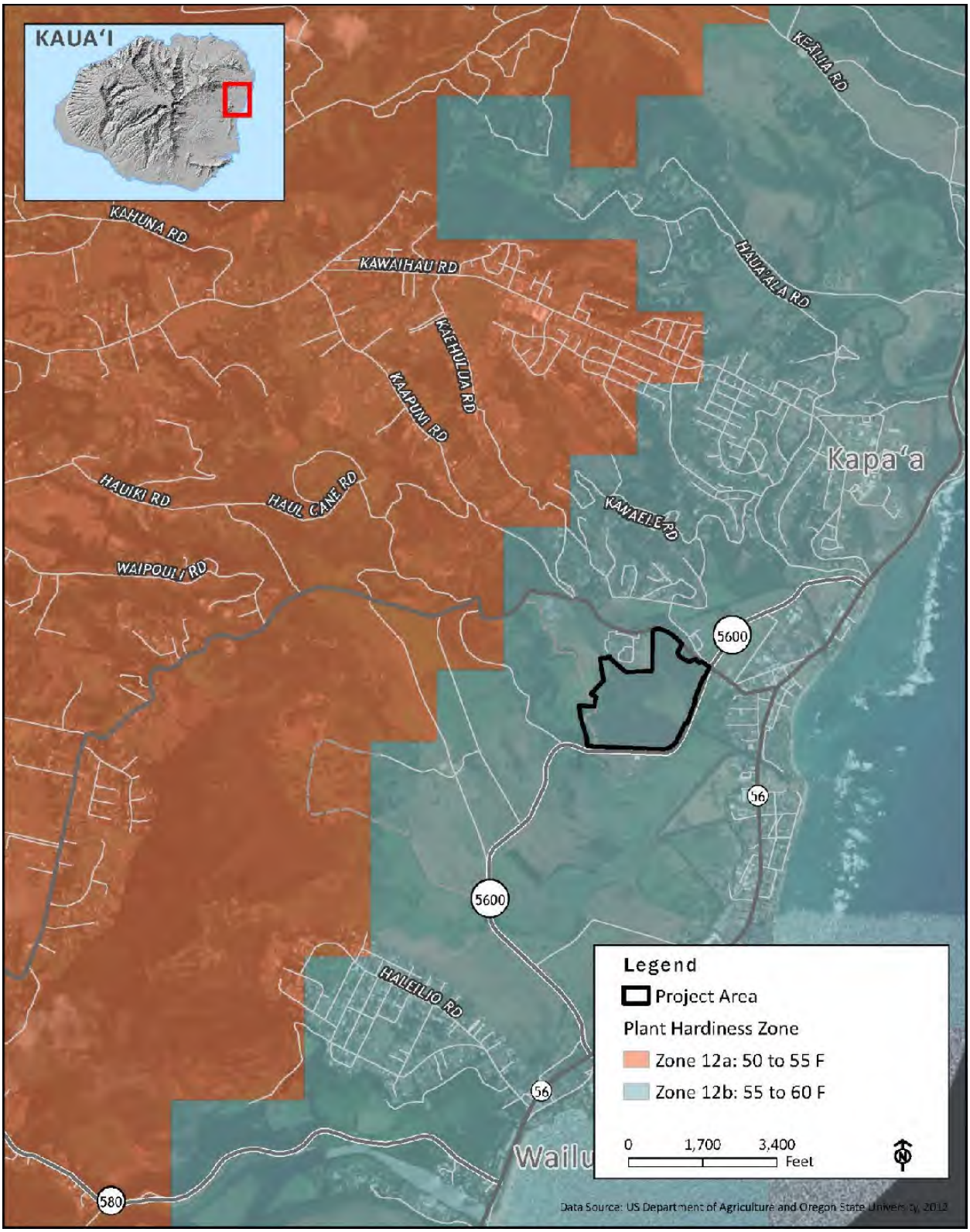


Figure 2-9 **Plant Hardiness Zone**

Chapter 3

Regulatory Setting

3.1 Hawai‘i’s Climate Action Policy

In 2007, Hawai‘i became the second state in the Nation to set a binding cap on GHG emissions through Act 234, Session Laws of Hawai‘i, which established the state’s policy framework and requirements to reduce GHG emissions statewide to 1990 levels by the year 2020. The Statewide GHG limit was set at 13.66 MMT CO_2 Eq based on 1990 levels. Act 234 directs to the State to adopt rules focused on the “maximum practically and technically feasible and cost-effective reductions in greenhouse gas emissions” (Act 234, Page 12, Line 12). Parts of Act 234 are codified in Hawai‘i Revised Statutes (HRS), Chapter 342B-72, Air Pollution Control Part IV: Greenhouse Gas Emissions rules (2011).

On June 30, 2014, the DOH amended HAR, Chapter 11-60.1 to adopt the Hawai‘i Greenhouse Gas Program with the purpose of combatting the threat of climate change and sea level rise. This program utilizes the Air Pollution Control Permit process of DOH’s Clean Air Branch to regulate GHG emissions statewide, in conjunction with other Federal and Hawai‘i State programs to mitigate GHGs.

On June 6, 2017, Governor Ige signed Act 32 (SB-559), which enshrined the principles and goals of the Paris Climate Agreement as the framework for Hawai‘i to pursue climate change planning. The act expanded the strategies and mechanisms the state could implement to reduce GHG emissions statewide.

3.2 Land Use Commission Rules HAR Chapter 15-15-50(c)

The Project has submitted a petition to LUC for a boundary amendment. The petition is to change the State’s Land Use District from Agricultural Land Use District to Urban Land Use District. Per HAR Chapter 15-15-50(c)(24)(C): Application Requirements for Boundary Amendment Petitions, *the petitioner shall prepare a statement and analysis addressing the overall carbon footprint of the proposed development and any mitigation measures or carbon footprint reductions proposed*.

This GHG assessment has been developed in support of the Project’s petition for State Land Use District Boundary Amendment, and to satisfy the intent of HAR Chapter 15-15-50(c)(24)(C).

3.3 Kaua‘i General Plan

The 2017 Kaua‘i General Plan expresses the island’s commitment towards mitigating the impacts of climate change by reducing and ultimately eliminating emissions caused by the burning of fossil fuels. The General Plan outlines five permitting actions and code changes aimed at reducing Kauai‘s overall carbon footprint.

1. Promote higher density residential development near job centers and amenities, while strongly discouraging development that will require residents to commute via automobile to jobs in other areas of the Island.

2. Reduce the carbon footprint of both new and existing buildings and infrastructure through policies and actions that maximize efficiency and minimize the use of fossil fuel resources on the grid.

3. Accelerate the transition to alternative, carbon-free fuels in the ground transportation sector with regulations and policies that support electric vehicle adoption and other alternative fuel infrastructure.

4. Require large new developments and infrastructure projects to include a project carbon footprint analysis estimating the anticipated change in emissions resultant from the proposed project and documenting the emissions reduction strategies deployed by the project to minimize its emissions.

5. Support continued reductions in emissions from local energy production.

This GHG assessment supports the county's effort to quantify the emissions produced by the construction and operations over the lifetime of the Project and to document the mitigation strategies deployed to minimize the overall carbon footprint. The Project's goal of developing a sustainable residential community near the Kapa'a town center is in alignment with the General Plans objective of increasing density near job centers and amenities. Various planned elements inclusive of bicycle routes, pedestrian pathways, bus stops, and local destinations are designed to reduce automobile dependence and reduce vehicle miles traveled. The Project has also been planned with energy conservation and efficiency measures aimed at reducing the community's long-term operational emissions. The Hokua Farm solar farm was constructed to offset the Project's energy consumption and support local energy production.

Chapter 4

Project GHG Analysis

For the planned HoKua Place project, emissions were calculated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 (CAPCOA 2017). The CalEEMod model provides a platform to calculate emissions generated from the construction and operations of a land use project, using equipment emission factors (mass of emissions per unit time) from sources such as United States Environmental Protection Agency (USEPA), California Air Resources Board (CARB) and site-specific information. CalEEMod also provides default values when site-specific information is not available. Modeling assumptions and results are presented in Appendix A. The estimated project lifetime was assumed to be 30 years.

4.1 Construction Related Greenhouse Gas Emissions

4.1.1 Construction Activities

For the purposes of modeling, it was assumed that construction of the Proposed project would commence in October 2022 and would occur over a period of approximately 10 years, ending in October 2031.

The Proposed Project would grade approximately 82.81 acres of the 96.06-acre site. Cut-and-fill quantities would be balanced on site (within the Project area) and no external soil export would be required. Soil balance would occur within each subset area and hauling would not be required between subset areas. Balancing activities are anticipated to be performed through the use of off-road construction equipment (e.g., excavators, graders, dozers, and scrapers). The analysis contained herein is based on the assumptions outlined in *Table 4-1* (duration of phases is approximate).

Table 4-1: Construction Phasing Assumptions

Proposed Project Construction Phase	Construction Start Month/Year	Construction End Month/Year
Site Preparation	10/03/2022	12/26/2023
Grading	12/27/2023	7/30/2024
Building Construction	7/31/2024	11/26/2030
Paving	11/27/2030	4/29/2031
Architectural Coating	5/01/2031	10/01/2031

The construction equipment mix used for estimating the construction emissions of the Proposed Project is shown in *Table 4-2*. Construction phasing specifications were provided by the project applicant, while the default values generated by CalEEMod were used for the construction equipment mix. This equipment mix accounts for both on-site construction equipment, as well as construction equipment required for off-site improvements. For the analysis, it was generally assumed that heavy construction equipment would be operating both on the project site and at the off-site improvement areas for approximately 8 hours per day, 5 days per week (22 days per month) during project construction. CalEEMod defaults were applied for the worker, haul, and vendor trips. Construction worker and vendor trips were calculated using the methodology presented in CalEEMod Users Guide, Appendix A (CAPCOA 2017). In CalEEMod, the estimate of worker trips for site preparation, grading, paving, and trenching are based on 1.25 workers per each individual piece of equipment. The CalEEMod worker rate was utilized for all phases of construction.

Table 4-2: Construction Scenario Assumptions

Construction Phase	One-way Vehicle Trips			Equipment		
	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Total Haul Truck Trips	Equipment Type	Quantity	Usage Hours
Site Preparation	18	0	0	Rubber Tired Dozers	3	8
				Tractors/Loaders/Backhoes	4	8
Grading	20	0	0	Excavators	2	8
				Graders	1	8
				Rubber Tired Dozers	1	8
				Scrapers	2	8
				Tractors/Loaders/Backhoes	2	8
Building Construction	861	216	0	Cranes	1	7
				Forklifts	3	8
				Generator Sets	1	8
				Tractors/Loaders/Backhoes	3	7
				Welders	1	8
Paving	15	0	0	Pavers	2	8
				Paving Equipment	2	8
				Rollers	2	8
Architectural Coating	172	0	0	Air Compressors	1	6

The CalEEMod software allows the user to select pre-programmed "Mitigations" to control certain emissions. The measures selected and assumed to be implemented are:

- Using soil stabilizers
- Replacing ground cover of area disturbed
- Applying water to disturbed surfaces and haul roads three times a day; and
- Reducing speed on unpaved roads to <15 miles per hour

These measures are common practices that are required by local and state regulations to control dust.

4.1.2 CONSTRUCTION GHG EMISSIONS

Table 4-3, shows the estimated annual GHG construction emissions associated with the Proposed Project by year.

Table 4-3: Estimated Annual Construction GHG Emissions				
Construction Year	CO_2	CH_4	N_2O	CO_2 Eq
	Metric Tons per Year			
2022	1.7496	0.0005	0.0000	1.7616
2023	112.1961	0.0352	0.0000	113.0759
2024	912.5224	0.1762	0.0000	916.9270
2025	1138.2663	0.0978	0.0000	1,140.7119
2026	1119.4066	0.0967	0.0000	1,121.8233
2027	1102.6743	0.0956	0.0000	1,105.0646
2028	1083.8769	0.0943	0.0000	1,086.2347
2029	1075.0353	0.0938	0.0000	1,077.3803
2030	1029.3391	0.0336	0.0000	1,030.1800
2031	152.2791	0.0059	0.0000	152.4273
Total	10,504.7842	0.7296	0	7,745.5866

As shown in *Table 4-3*, estimated total Project-generated construction GHG emissions are approximately 7,746 MT CO_2 Eq over 10 years (2022 through 2031). To interpret the amortized emission of the Project, CO_2 Eq was divided by a life time of 30 years, resulting in 258 MT CO_2 Eq annually.

4.2 Operational Related Greenhouse Gas Emissions

Emissions from the operational phase of the planned Project were estimated using the CalEEMod. Operational year 2032 was assumed as it would be the first full year following completion of construction.

4.2.1 Area Sources

CalEEMod was used to estimate operational emissions from area sources, including emissions from landscape maintenance equipment. Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers. The emissions associated from landscape equipment use are estimated based on CalEEMod default values for emission factors (grams per square foot of building space per day) and number of summer days (when landscape maintenance would generally be performed) and winter days. For the Project area, the average annual number of summer days is estimated at 180 days (CAPCOA 2017).

4.2.2 Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, because criteria pollutant emissions occur at the site of the power plant, which is typically off site.

The KIUC is the sole electric utility on Kuauʻi, serving over 23,300 customers. Approximately 92% of KIUC's electricity comes from the burning of imported fossil fuels.

It is the intent of the Project to develop a sustainable community. The Project will incorporate energy conservation and efficiency measures, inclusive of solar energy for water heating and encouraging photovoltaic (PV) systems and other renewable energy sources. To reduce net energy consumption and demand, the Project will consider the implementation of elements of the USEPA Energy Star Program, including efficient insulation, high performance windows, compact construction, efficient ventilation systems, and energy efficient lighting elements and appliances. Furthermore, the Project will seek to harness energy conservations and technologies to facilitate the possibility of net energy metering in building design to empower residents and tenants to reduce their electricity costs and provide energy back to the grid. As there are seldom cold weather days in Kapaʻa, the Project will not include the use of hearths of fireplaces for heating.

The Project is designed to share a portion of the infrastructure with the HoKua Farm Lots, an adjoining agricultural community. To date, the HoKua community has already been developed with an operational four-acre solar facility on the adjacent Farm Lots. The PV system spreads over five acres and includes 5,376-solar panels mounted on posts and piers. The system produces 1.18 megawatts of energy that feeds into the KIUC distribution grid. The electricity produced by these PV arrays will allow KIUC to reduce the output and fuel combustion at its existing fossil fuel-fired generating facilities while still meeting the needs of its customers. Since burning oil at power plants produces CO_2, CH_4, and other greenhouse gases, this will ultimately lower KIUC's emissions of those pollutants.

To allocate the appropriate energy consumption rate for each of the Project's land use type, default proportions in CalEEMod were used to calculate an energy intensity rate for each energy category (e.g., Title 24 electricity, Non-Title 24 Electricity, lighting electricity). The creation and long -term operation

of this associated solar energy facility represents a significant offset to anticipated GHG production by the HoKua project.

The Project's energy use rates input into CalEEMod are presented in *Table 4-4*.

Table 4-4: Energy Use Rates			
Land Use	Title 24 Electricity	Non-Title 24 Electricity	Lighting Electricity
	kWh per unit per year		
Single-Family	331.07	6,155.97	1,608.84
Multi-Family	227.22	3,795.01	1,001.10
Affordable Housing	260.86	3,172.76	810.36
Commercial	3.18	3.16	6.22
Community Park and Pool	0	0	0
Open Space	0	0	0

4.2.3 MOBILE SOURCES

To quantify emissions associated with the Project's operational mobile sources, trip generation rates and trip lengths for each analyzed land use were calculated in CalEEMod to estimate the overall weekday daily trips (5,740 trips) and the total average daily vehicle miles traveled (VMT) length data (10.8 miles per trip). Notably, because the Project includes a mix of uses including residential, recreational and commercial uses, the Project would include a mixed-use trips reduction (5% of the total trips). With the increase in population created by this Project in the area, more businesses will develop thus creating jobs where residents can live and work without the use of motor vehicle transportation. In order to account for the mixed-use reduction from the traffic analysis, the traffic mitigation section of CalEEMod was updated to reflect a VMT reduction of 5% by selecting suburban center and increase diversity options in CalEEMod.

The model was also adjusted to account for a reduction in internal vehicle trips based on the Project's pedestrian, bicycle, and transit improvements, assuming residents will walk, bus or ride bicycles to visit Kapa'a Town or the neighborhood parks and commercial area. The Project will meet the County recommendations of the "Complete Streets" and the "Multi-Model Land Transportation" Ordinances, as well as the proposed "Smart Code." The Project is designed with short residential blocks, pedestrian walkways at reasonable intervals within a block, two new bus stops, and walking and bicycle paths integrated with Kapa'a Town's future paths.

CalEEMod default data, including trip characteristics, variable start information and emissions factors were used for the model inputs. Project-related traffic was assumed to include a mixture of vehicles consistent with CalEEMod default vehicle fleet assumptions. Emission factors for 2032 (the first full year of project operation) were used to estimate emissions associated with full buildout of the Project.

4.2.4 SOLID WASTE

The Project will generate solid waste, and therefore, result in GHG emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste. To mitigate the amount of waste generated, the Project will include measures and provisions such as collection systems and storage for recyclables.

4.2.5 WATER AND WASTEWATER

Supply, conveyance, treatment, and distribution of water for the Project require the use of electricity, which will result in associated indirect GHG emissions. Similarly, wastewater generated by the Project requires the use of electricity for conveyance and treatment, along with GHG emissions generated during wastewater treatment. The total water demand for each land use type were allocated based on the default proportions from CalEEMod's indoor and outdoor water use. To reduce net water consumption and demand, the Project will implement water efficient landscape and irrigation systems, and low-flow faucets, toilets, and showerheads.

4.2.6 OPERATIONAL EMISSIONS

The Project will generate operational GHG emissions from area sources (landscape maintenance equipment), energy sources (electricity consumption), mobile sources (vehicle trips), water supply and wastewater treatment, and solid waste. *Table 4-5* presents the Project's operational GHG emissions. Emissions values are shown as unmitigated and with the mitigations discussed above, which includes energy offsets from on-site PV system production.

Table 4-5: Estimated Annual Operational GHG Emissions (2031)

Emissions Source	Category	CO_2	CH_4	N_2O	CO_2 Eq
		Metric Tons per year			
Area	Unmitigated	9.3271	0.00889	0	9.5493
	Mitigated	9.3271	0.00889	0	9.5493
Energy	Unmitigated	2141.187	0.062	0.0128	2146.559
	Mitigated	2095.602	0.0607	0.0126	2100.86
Mobile	Unmitigated	5205.116	0.2014	0	5210.15
	Mitigated	4536.848	0.1823	0	4541.405
Solid Waste	Unmitigated	85.2927	5.0407	0	211.3092
	Mitigated	68.2342	4.0325	0	169.0473
Water and Wastewater	Unmitigated	337.1608	0.0704	0.0406	351.0099
	Mitigated	284.8869	0.0568	0.0325	296.0043
Total	Unmitigated	7778.083	5.38339	0.0534	7928.578
	Mitigated	6994.898	4.34119	0.0451	7116.866

As shown in *Table 4-5*, the annual operational emissions for the Project with mitigation will be approximately 7,117 MT CO_2 Eq per year (or 237 MT CO_2 Eq per year when amortized over 30 years).

4.3 Carbon Sequestration

The Property is located on the north side of Kapa'a town on former sugarcane lands. Following the closing of Lihue Plantation, the Project area was fallowed, and has since been dominated by alien vegetation. The Project area is classified as the Dry Grassland biome unit (*Figure 2-8*).

The calculation methodology and default values provided in CalEEMod (CAPCOA 2017) were used to calculate potential GHG emissions associated with the one-time change in carbon sequestration capacity of a vegetation land use type. The calculation of the one-time loss of sequestered carbon is the product of the converted acreage value and the carbon content value for each land use type. The loss of sequestered carbon resulting from the removal of vegetation on site is estimated based on the carbon sequestration rate for the vegetation type and the approximate acreages.

It is conservatively assumed that all sequestered carbon from the removed vegetation will be returned to the atmosphere; that is, the vegetation will not be re-used in a solid form or another form that would retain carbon. GHG emissions generated during construction activities, including clearing, tree removal, and grading, are estimated in the construction emissions analysis.

CalEEMod calculates GHG emissions resulting from land conversion and uses six general IPCC land use classifications for assigning default carbon content values (in units of MT CO_2/acre). CalEEMod default carbon content values were assumed to estimate the loss of sequestered carbon (release of CO_2) from the removal of the grasslands (4.3 MT CO_2/acre) vegetation category, which is based on data and formulas provided in the IPCC reports. The Project would permanently disturb a total of 82.81 acres of the Project Area. It is assumed that the 13.25 acres of open space will remain undisturbed.

Table 4-6 presents the estimated one-time carbon-stock change resulting from the Project's land use change.

Table 4-6: Estimated Loss of Sequestered Carbon

Vegetation Land Use Category	Total Acres	Biogenic CO_2 Sequestered Factor (MT CO_2/Acre)	Sequestered CO_2 (MT CO_2)
Grassland	82.81	4.3	356.9111

The one-time carbon-stock change from planting new trees was also estimated based on the default values provided in CalEEMod. Trees sequester CO_2 while they are actively growing. Thereafter, the accumulation of carbon in biomass slows with age and is assumed to be offset by losses from clipping, pruning, and occasional death. Active growing periods are subject to, among other things, species, climate regime, and planting density; however, for modeling purposes, CalEEMod assumes the IPCC active growing period of 20 years (CAPCOA 2017).

CalEEMod calculates GHG sequestration that results from planting of new trees and has default carbon content values (in units of MT CO_2/tree/year) for ten different general tree species and a miscellaneous tree category. The Project estimates the planting of approximately 300 new trees throughout the site. Due to the potentially large number of different trees which will be planted within

the project site, the CO_2 sequestration rate for the miscellaneous category of 0.0354 MT CO_2/tree/year was assumed in this analysis. It is assumed that all 300 trees will grow for a minimum of 20 years.

Table 4-7 presents the estimated one-time carbon-stock change resulting from the planting of new trees.

Table 4-7: Estimated Gain of Sequestered Carbon				
Tree Category	**Growing Period (year)**	**Number of Trees**	**Tree CO_2 Sequestered Factor (MT CO_2/Tree/Year)**	**Gain of Sequestered CO_2 (MT CO_2)**
Miscellaneous	20	300	0.0354	212.4000

The Project will result in the removal of grassland vegetation of approximately 82.21 acres. The removal of vegetation will result in the one-time release of sequestered carbon of approximately 357MT CO_2 Eq. (or 11.9 MT CO_2 Eq per year when amortized over 30 years). The emissions associated with the removal of vegetation will be in most part offset by the planting of at least 300 new tress, which will result in the one-time sequestration of approximately 212 MT CO_2 Eq (or 7 MT CO_2 Eq per year when amortized over 30 years).

4.4 Conclusions

The Project represents a responsibly designed community that will help meet the housing needs for Kaua‘i while minimizing the overall carbon footprint. The Project is expected to generate GHG emissions related to construction, operations, and the one-time land use change from grassland to a residential neighborhood. There are numerous offsetting mitigating aspects of the Project, including energy efficient design, best management construction practices, planting new trees, multi-model transportation options, and a four-acre solar farm. The Project is not anticipated to interfere with the state’s commitment to reduce its emission levels to below 1990 levels.

Table 4-8 shows the Estimated Annual Net GHG Emissions for the Project.

Table 4-8: Estimated Annual Net GHG Emissions	
Emissions Source	**CO_2 Eq Metric Tons per Year**
Construction Emissions (Amortized Over 30 Years)	258
Annual Operational Emissions	7,117
Loss of Carbon from Vegetation Removal (Amortized Over 30 Years)	12
Annual Gain from Sequestered Carbon (Amortized Over 30 Years)	-7
Total Annual Emissions	**7,380**
Project Population	**2,408**
Service Person/Per Capita GHG Efficiency	**3.06**

The total Project emissions during operation were estimated to be approximately 7,117 MT CO_2 Eq per year which includes amortized construction emissions of 258 MT CO_2 Eq per year and the loss of carbon from vegetation removal of 12 MT CO_2 Eq per year. Furthermore, the planting of trees will reduce the amount of operational emissions by an estimated 7 MT CO_2 Eq per year resulting in an overall operational GHG impact of 7,380 MT CO_2 Eq per year. Based on a population of 2,408 people, the Project will result in GHG emissions of approximately 3.06 MT CO_2 Eq /person/yr.

WAILUA-KAPA'A
NEIGHBORHOOD
ASSOCIATION

FOR IMMEDIATE RELEASE

Contact Sid Jackson, Association Secretary
Phone: 821-2837
Email: sjackson23@hawaii.rr.com

Kapa'a Highlands: Housing on the Horizon

KAPA'A, KAUA'I – October 2, 2011. The Wailua-Kapa'a Neighborhood Association's October meeting will feature guest speaker Greg Allen Jr., Director of Kapa'a Highlands, Inc. discussing plans for a proposed 97-acre, single-family and multi-family residential development, on Saturday, October 22, 2011, 2:00 p.m. at the Kapa'a Library. The presentation is free and open to the public.

The mixed-use, planned community includes single-family lots, multi-family townhouse dwellings, and a small number of 2 to 3-acre estate lots, totaling between 600-800 housing units, along with community facilities, parks, and commercial uses.

Other features under consideration include multimodal roadway design and connectivity to the Kapa'a town core, underground utilities, preserving green space, maintaining current livestock operations, a county swimming pool adjacent to the school, a new roadway from the Bypass Road to Olohena Road, and neighborhood commercial amenities.

The project site is located near the Kapa'a town core, adjacent to Olohena Road and the Kapa'a Bypass Road (near the Kapa'a traffic circle) and behind the Kapa'a Middle School. A petition to the State Land Use Commission to reclassify the 97 acres of Agricultural District land to Urban District is required.

The Kaua'i General Plan designation for this agriculturally-zoned land has been "Urban Center" since the 1970's, with the intent for future urban development to accommodate a variety of uses and zoning to serve a larger region.

This is an excellent opportunity for residents to ask questions and offer early input that may influence the plan, says Wailua-Kapa'a Neighborhood Association Chair Rayne Regush, who also serves on the County's Citizens Advisory Committee for the East Kaua'i Development Plan Update. The meeting will also include updates on other local issues. For more information, contact Association Secretary Sid Jackson at 821-2837 or visit www.wkna.org.

EXHIBIT "I-35"

SMALL BUSINESS

NEWS AND EVENTS

Kapa'a Highlands: Housing on the Horizon development meeting Saturday

Greg Allen Jr., director of Kapa'a Highlands, will be discussing plans for a proposed 97-acre, single-family and multi-family residential development at 2 p.m. on Saturday at Kapa'a Library.

The presentation, hosted by Wailua-Kapa'a Neighborhood Association, is free and open to the public.

The project would require State Land Use Commission approval for reclassification of 97 acres from agricultural to urban. Kaua'i General Plan designation for land has been "Urban Center" since the 1970s, the release states.

The proposed mixed-use, planned community includes single-family lots, multi-family townhouse dwellings and a small number of two- and three-acre estate lots, totaling between 600 and 800 housing units, along with community facilities, parks and commercial uses, a news release states.

Other features under consideration include a multi-modal roadway connecting to Kapa'a town's core, underground utilities, preservation of green space, maintenance of current livestock operations, a county swimming pool adjacent to the school, a new roadway from the Bypass Road to Olohena Road, and neighborhood commercial amenities, the release states. The project site is located near Kapa'a town's core, adjacent to Olohena Road and Kapa'a Bypass Road, near the Kapa'a traffic circle and behind the Kapa'a Middle School.

The meeting is an opportunity for residents to ask questions and offer early input that may influence the plan, Wailua-Kapa'a Neighborhood Association Chair Rayne Regush said in the release. The meeting will also include updates on other local issues.

For more information, visit www.wkna.org or call association secretary Sid Jackson at 821-2837.

Contributed photo

An aerial view of the site *of Kapa'a Highlands housing development, proposed by landowner Greg Allen to comprise a 97-acre, mixed-use community with 600 to 800 housing units, community facilities, parks and commercial uses.*

WHAT'SUPCALENDAR

Wailua-Kapa'a Neighborhood Association: Housing On The Horizon

The Wailua-Kapa'a Neighborhood Association presents Greg Allen Jr., who will discuss the proposed 97-acre residential development with 600 to 800 housing units, community facilities, parks and commercial uses, Oct. 22 from 2 to 4 p.m. at the Kapa'a Library meeting room. Call 821-2837 or visit wkna.org for more information. Photo courtesy Kapa'a Highlands Inc.

Community Calendar

Things to do on the Garden Island

Saturday, Oct. 22

KAPA'A HIGHLANDS — 2 to 4 p.m. at the Kapa'a Library. Wailua-Kapa'a Neighborhood Association landowner Greg Allen discusses "Housing on the Horizon," a proposed 97-acre, mixed-use community with 600-800 housing units, community facilities, parks and commercial uses. Free. Call Sid Jackson at 821-2837 or visit www.wkna.org.

WHAT'SUP

A CALENDAR GUIDE TO FUN ON KAUA'I!

Compiled by MidWeek Kaua'i staff, calendar@midweekkauai.com

COMMUNITY

Housing on the Horizon
Kapa'a Library Meeting Room, 4-1464 Kuhio Hwy, Kapaa, 2-4 p.m., free. The Wailua-Kapa'a Neighborhood Association presents Greg Allen Jr., who discusses the proposed 97-acre residential development with 600-800 housing units, community facilities, parks and commercial uses. (821-2837, www.wkna.org)

Community Calendar

Things to do on the Garden Island

Saturday, Oct. 22

KAPA'A HIGHLANDS — 2 to 4 p.m. at the Kapa'a Library. Wailua-Kapa'a Neighborhood Association landowner Greg Allen discusses Housing on the Horizon, a proposed 97-acre, mixed-use community with 600-800 housing units, community facilities, parks, and commercial uses. Free. Call Sid Jackson at 821-2837 or visit www.wkna.org.

LETTERS

Concerns about Kapa'a Highlands

This Saturday, Oct. 22, at 2 p.m. in the Kapa'a Library, the developer for Kapa'a Highlands will be discussing his proposal. It's a super dense subdivision of Kapa'a off of Kapunni'i and Olehena, just behind the middle school.

They are talking about putting 800 homes on 97 acres, which averages about one house per one-tenth of an acre, or one house per 4,000 square feet. Granted, there are 683 town houses and 16 two- to three-acre lots. This is extremely dense and would probably be the highest populated area on the island.

I came from an area in California that was about as dense as this and it had several issues — narrow roads, no parking, traffic, schools, shopping and a negative impact on housing prices.

I would love to see the area developed — but 700 townhouses? The only upside I can envision is the increase in local property tax revenue.

If you are concerned, I encourage you as well as other community members to participate this Saturday.

Daniel Tuers
Kapa'a

ISLAND CALENDAR

THINGS TO DO ON THE GARDEN ISLAND

Saturday, Oct. 22

KAPA'A HIGHLANDS — 2 to 4 p.m. at the Kapa'a Library. Wailua-Kapa'a Neighborhood Association landowner Greg Allen discusses Housing on the Horizon, a proposed 97-acre, mixed-use community with 600-800 housing units, community facilities, parks, and commercial uses. Free. Call Sid Jackson at 821-2837 or visit www.wkna.org.

ISLAND CALENDAR

Today

KAPA'A HIGHLANDS — 2 to 4 p.m. at the Kapa'a Library. Wailua-Kapa'a Neighborhood Association landowner Greg Allen discusses Housing on the Horizon, a proposed 97-acre, mixed-use community with 600-800 housing units, community facilities, parks, and commercial uses. Free. Call Sid Jackson at 821-2837 or visit www.wkna.org.

Above: This aerial view shows the location of the proposed HoKua Place subdivision. (Contributed photo) Below: Kapaa High School ninth-grader Smith Elcar uses the sidewalk at the Kapaa roundabout. A portion of the lot proposed for development is in the background. (Photo by Dennis Fujimoto/The Garden Island)

Major Kapaa development proposed

UPCOMING MEETING

The Wailua-Kapaa Neighborhood Association meeting Saturday at 2 p.m. at the Kapaa Public Library will feature Greg Allen Jr., who will discuss the proposed plans for HoKua Place, formerly Kapaa Highlands, a 97-acre, mixed-use residential development with almost 800 housing units behind Kapaa Middle School. Info: 821-2837

HoKua Place calls for 769-home residential subdivision next to middle school

Darin Moriki
THE GARDEN ISLAND

KAPAA — It may be years in the making, but developers seeking to build a nearly 769-home residential subdivision next to Kapaa Middle School are laying their cards on the table by taking the first steps needed to get it off the ground.

The proposed development, called HoKua Place, now sits before the state Land Use Commission, which must determine if nearly 97 acres of state agricultural lands adjacent to the Olohena Road roundabout in Kapaa should be reclassified for urban use.

"The area needs housing," said Greg Allen Jr., who manages Harbor Mall and has been working to get the development, formerly known as Kapaa Highlands, off the ground for at least a decade. "This housing is in the right place — it's out of the flood zone, it supports Kapaa town, and sewer, water and roads are all in place."

Some residents, however, don't see it that way.

SEE **HOKUA**, A12

HoKua

Continued from A1

Kapaa resident Christie Monk, who lives near the proposed project site, said she does not believe it is an appropriate place for future housing and worries about the potential traffic impacts.

"I certainly wouldn't want them to develop there," Monk said. "That's sad. Don't bring more homes there — it's so beautiful and lush. I'd like to leave it green — we call it The Garden Isle for a reason."

Current plans for HoKua Place call for the development of 683-multi-family units and 86-single family lots and homes on now vacant agricultural land behind Kapaa Middle School.

Single family lots, according to preliminary development plans, would range in size from 7,500 to 10,000 square feet, while multi-family lots would range from 1-acre to 5-acre parcels.

Plans also include the construction of a 3.1-acre park next to Kapaa Middle School, which would have an area for a county-operated swimming pool, and a 1.4-acre commercial site that would house a country-type store and other small service stores.

One acre on the makai side of the Kapaa Bypass road — the southwest corner of Olohena and the bypass road — is also proposed for future commercial use or for police and fire department sub-stations.

Developers say they will also finance about $22 million in subdivision improvements, including roads, water systems, wastewater connections and utilities, once all of the necessary land entitlements and building permits have been secured.

"HoKua Place is proposed to be a sustainable community that preserves the rural-like character of Kapaa while meeting its growing housing needs," project consultants from Kailua-based planning firm Ho'okuleana, LLC wrote in a report to the state Land Use Commission. "Development of the property will address a portion of the significant demand for affordable housing in the County of Kauai, without significantly affecting reserve areas for foreseeable urban growth."

The development, however, has encountered its fair share of setbacks over the years.

Plans for HoKua Place date back to at least 2005, when Allen and two other men, Greg Allen Sr. and Jim Lull, started to lay down the groundwork for the planned community, which was then called Kapaa Highlands.

Between that time and 2013, State Land Use Commission Planner Scott Derrickson said the trio filed two separate petitions to reclassify state agricultural lands for urban use. Both attempts were denied.

"They just did not have sufficient information, one of which is that they have a trigger that required them to (get an Environmental Impact Statement)," Derrickson said. "Initially, they did not think that they had to go through that, but we pointed out that, yes, they did, and on top of that, they did not have authoritative information about a number of areas that they were talking about."

The property was then purchased from the three men by a Palos Hill, Illinois-based management firm, HG Kauai Joint Ventures, LLC, for $4 million in a March 2013 foreclosure auction, according to state Bureau of Conveyances documents.

Plans for the development now, Derrickson said, are still in the beginning stages.

The EIS process alone, he said, will require several public input opportunities before it can be submitted to the state Office of Environmental Quality Control and reviewed by Land Use Commission staff.

"A lot of it is up to them and the degree of agency comments as well as public comments that people identify as things they need to do — they may need to do some additional studies or hire additional consultants," Derrickson said.

Even if the Land Use Commission approves the land reclassification for HoKua Place, those same development plans may need to be reviewed and approved by the county Planning Commission.

Wailua-Kapaa Neighborhood Association Chair Rayne Regush said concerns about the density of the development, as well as worries about traffic in the surrounding area, have been expressed by residents in the past.

Kauai Skate Ohana Co-founder Mark Cooper, who uses the skate park in the Bryan J. Baptiste Sports Complex, said plans for the development probably won't affect people who use the skate park across the street or future plans by the Danny Way Foundation to upgrade the county-maintained facility.

"Right off the top of my head, I don't see any issues with it," Cooper said. "What I see is more kids who will need a place to play in that neighborhood that Kapaa New Town Park can benefit from."

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SUNDAY
December 28, 2014

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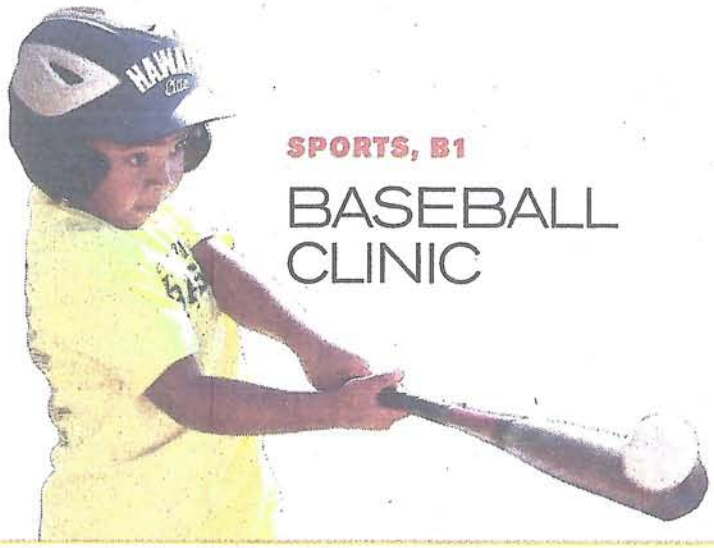


SPORTS, B1

BASEBALL CLINIC

HOKUA PLACE TALKS GROW HEATED

Residents spar, Kapaa project official defends 769-home proposal

Darin Moriki
THE GARDEN ISLAND

KAPAA — Tensions bubbled to the surface during a Wailua-Kapaa Neighborhood Association meeting on Saturday, where one of the main topics of the day was HoKua Place, a planned 769-home community behind Kapaa Middle School.

Voices were raised. Pointed remarks were made. Some attendees talked among each other while a project official discussed topics such as traffic and infrastructure improvements.

"I've got two lots in this place with money that I earned working hard like how you guys buy stuff, and I've had my butt kicked for the last 10 years," said the project official, Greg Allen Jr. "If you can get people to stop having kids, if you can get all of the people from the Mainland to stop moving here, then we don't need to do it, but that's not going to happen."

Allen

The 163-acre project now sits before the Land Use Commission, which is tasked with determining whether 97 acres of state agricultural lands within the proposed development should be set aside for urban use.

Some Eastside residents at the meeting mentioned one key concern repeatedly: traffic congestion.

"I think we all agree that this is the most congested area on the island," said Kapaa resident Gabriela Taylor, who has lived on Kauai for 42 years. "This is the wrong place for that development, any way you look at it. The traffic is going to be horrendous. I've been very tolerant of the growth up to this point, but this could go over the top."

As HoKua Place is currently proposed, about 97 acres of the development will be set aside for 683 multi-family units ranging from 7,500- to 10,000-square-feet, and 86 single-family lots ranging in size from 1- to 5-acre parcels.

About 183 units, Allen said, would be assigned as affordable housing options based on current county laws.

Sales prices for the market single-family lots are expected to range from $216,000 to $316,000 based on the size and location of the lots, according to state Office of Environmental Quality Control documents.

Market single-family houses would be in the $650,000 to $950,000 range, while market multi-family units are proposed to be sold in the $250,000 to $350,000 range, depending on size and location.

Affordable multi-family units, meanwhile, would be sold in the $125,000 to $175,000 price range.

The key, Allen said, is integrating all types of homes together to create a diverse community where residents from all types of backgrounds can live together.

"It is the best location in Kapaa for a development opportunity," Allen said. "If there's going to be no

SEE MEETING, A8

Meeting

Continued from A1

development, I understand that, but if there's going to be development, this is the best place for it to happen."

Some residents question whether some of the homes will be truly affordable.

Kapaa resident Anne Punohu said she lives in a low-income housing development near the Olohena Road roundabout and worries about the availability of affordable homes.

"We have not had any housing developed for low-income residents here in 30 years," Punohu said. "You have us extremely low-income residents right below you, and we have no opportunities to own up there because it's not for us. To me, I have to say, it's offensive."

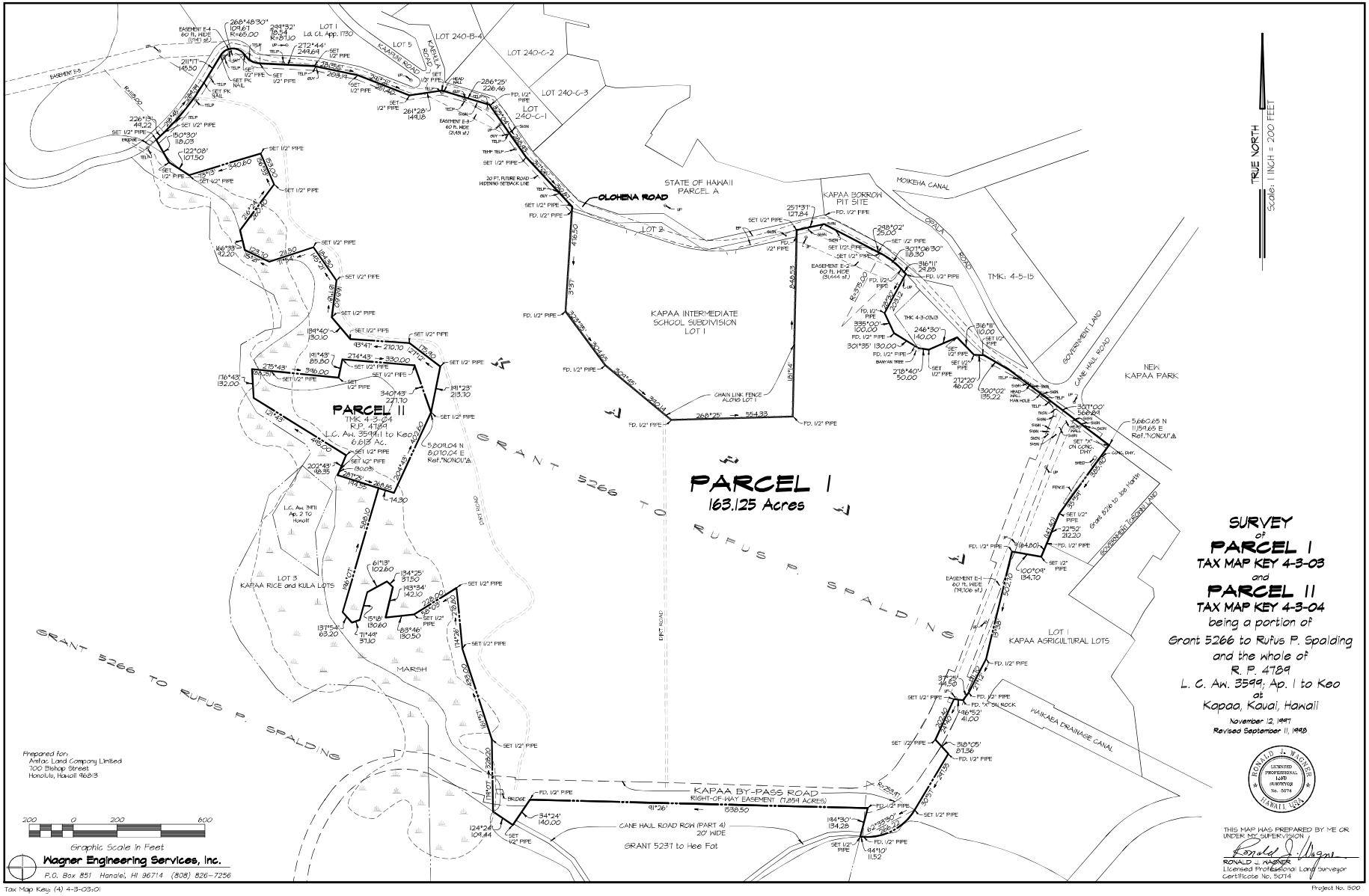
Other residents, however, say the affordable housing component will help provide local families with home ownership opportunities.

"We need more projects like yours," Kapaa resident Kenneth Ponce said to Allen. "You know what, I welcome you. This is my aina — you know, I was born and raised here. We're trying to fix some of the problems in the Kapaa areas from Kapaa all the way to Wailua because this is a bad corridor for traffic — we all know that. We all have to work together."

For more information, contact Allen at gallen@harbormall.net or Hookuleana, LLC project consultant Peter Young at info@hookuleana.com.

CONTRIBUTED PHOTO

This aerial view shows the location of the proposed HoKua Place subdivision.


PARCEL I
163.125 Acres
PARCEL II
TMK 4-3-04
R.P. 4789
L.C. Aw. 3599:1 to Keo
6.615 Ac.
GRANT 5266 TO RUFUS P. SPALDING
KAPAA BY-PASS ROAD
RIGHT-OF-WAY EASEMENT (7.854 ACRES)
CANE HAUL ROAD ROW (PART 4)
20' WIDE
GRANT 5237 to Hee Fat
OLOHENA ROAD
STATE OF HAWAII
PARCEL A
KAPAA INTERMEDIATE
SCHOOL SUBDIVISION
LOT 1
KAPAA BORROW
PIT SITE
LOT 2
LOT 3
KAPAA RICE and KULA LOTS
LOT 1
KAPAA AGRICULTURAL LOTS
NEW
KAPAA PARK
MARSH
MOIKEHA CANAL
KAPAA
TMK: 4-5-15
GOVERNMENT LAND
CANE HAUL ROAD
WAIKAEA DRAINAGE CANAL
LOT 240-B-4
LOT 240-C-2
LOT 240-C-3
LOT 240-C-1
LOT 5
KAAPEA ROAD
KAAPEA ROAD
TRUE NORTH
Scale: 1 INCH = 200 FEET
SURVEY
of
PARCEL I
TAX MAP KEY 4-3-03
and
PARCEL II
TAX MAP KEY 4-3-04
being a portion of
Grant 5266 to Rufus P. Spalding
and the whole of
R. P. 4789
L. C. Aw. 3599; Ap. 1 to Keo
at
Kapaa, Kauai, Hawaii
November 12, 1997
Revised September 11, 1998
Prepared for:
Amfac Land Company Limited
700 Bishop Street
Honolulu, Hawaii 96813
Graphic Scale in Feet
Wagner Engineering Services, Inc.
P.O. Box 851 Hanalei, HI 96714 (808) 826-7256
RONALD L. WAGNER
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Project No. 1500

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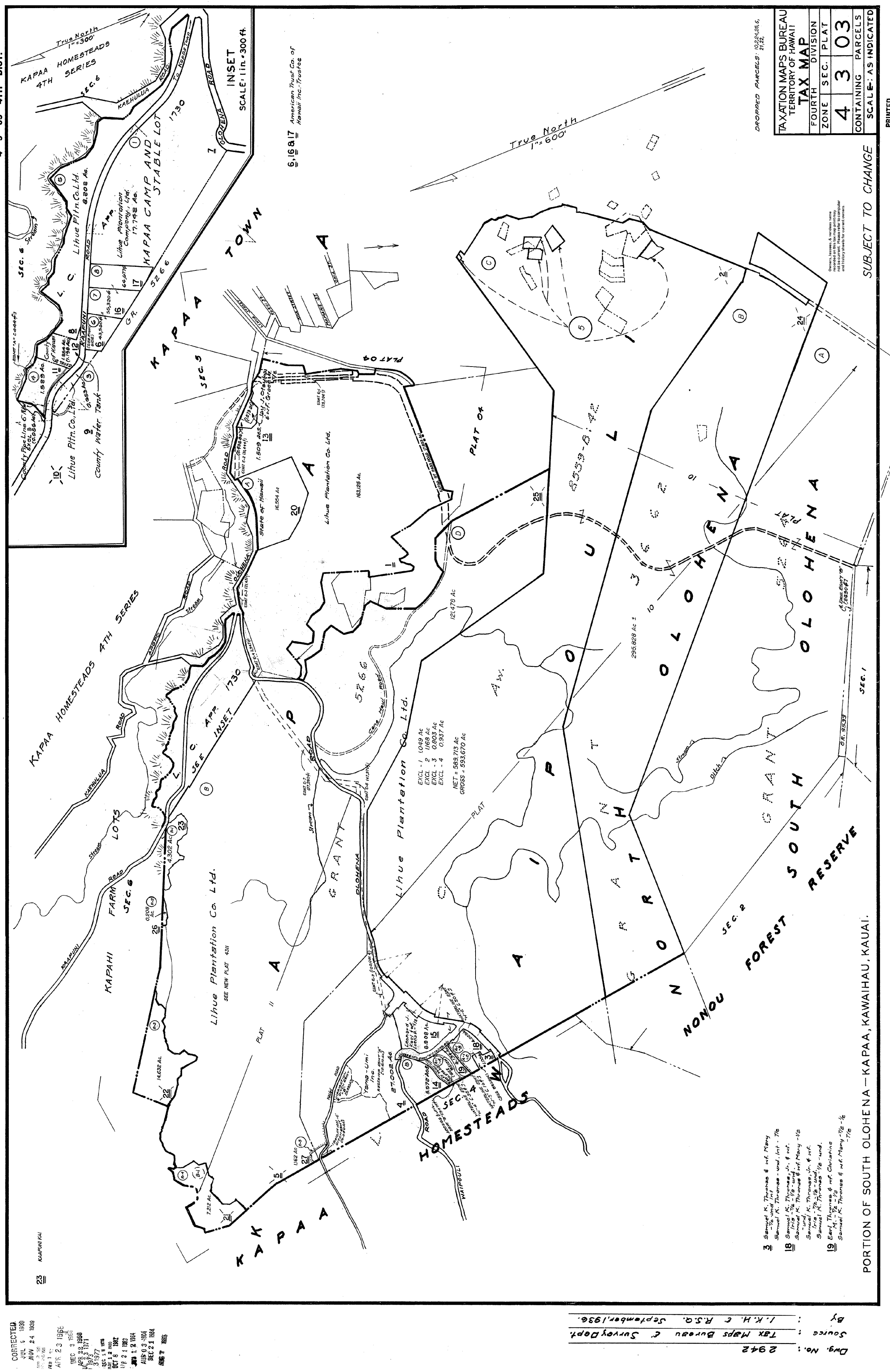
TAXATION MAPS BUREAU
TERRITORY OF HAWAII
TAX MAP
FOURTH DIVISION
ZONE SEC. PLAT
4 3 03
CONTAINING PARCELS
SCALE: AS INDICATED
PRINTED
SUBJECT TO CHANGE
True North
1"= 600'
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KAPAA HOMESTEADS 4TH SERIES
INSET
SCALE: 1 in. = 300 ft.
KAPAA CAMP AND STABLE LOT
KAPAA TOWN
Lihue Plantation Co. Ltd.
State of Hawaii
PLAT 04
SOUTH OLOHENA
NORTH OLOHENA
NONOU FOREST RESERVE
KAPAA HOMESTEADS
KAPAHI FARM LOTS
PORTION OF SOUTH OLOHENA—KAPAA, KAWAIHAU, KAUAI.
Dwg. No.: 2942
Source: Tax Maps Bureau & Survey Dept.
By: I.K.H. & R.S.Q. September, 1936.
CORRECTED

EXHIBIT "I-37"

AUSTIN, TSUTSUMI & ASSOCIATES, INC. CIVIL ENGINEERS • SURVEYORS
CONTINUING THE ENGINEERING PRACTICE FOUNDED BY H. A. R. AUSTIN IN 1934

TERRANCE S. ARASHIRO, P.E.
ADRIENNE W.L.H. WONG, P.E., LEED AP
DEANNA M.R. HAYASHI, P.E.
PAUL K. ARITA, P.E.
ERIK S. KANESHIRO, L.P.L.S., LEED AP
MATT K. NAKAMOTO, P.E.
GARRETT K. TOKUOKA, P.E.

DRAFT FINAL

TRAFFIC IMPACT ANALYSIS REPORT

KEALIA MAUKA HOMESITES

Kealia, Kauai, Hawaii

1. INTRODUCTION

This report documents the findings of a traffic study conducted by Austin, Tsutsumi & Associates, Inc. (ATA) to evaluate the potential traffic impacts resulting from the proposed Kealia Mauka Homesites in Kealia, Kauai, Hawaii (hereinafter referred to as the "Project"). This Traffic Impact Analysis Report (TIAR) is being prepared for inclusion in an Environmental Impact Study (EIS) with the intent to pursue a State Land Use District Boundary Amendment.

1.1 Location

The Project is located in Kealia on approximately 50 acres of land on the east side of the island of Kauai. The Project is north of Kaao Road and is bounded by Kuhio Highway to the east. See Figure 1.1 for the Project location.

1.2 Project Description

The Project proposes to develop 235 single-family dwellings in the Kealia area. Access to the Project will be provided via Kealia Road from Kuhio Highway. The Project will construct a new four-way, one-lane roundabout north of the Kealia Road/Hopoe Road intersection to connect Kealia Road to the Project site. Both the southern and western approaches of the roundabout will have connections to Kealia Road. Although there is currently a direct access to Kuhio Highway along the Makai side of the Project site, this access will be fully removed during Project construction. Construction and occupancy of homes in the proposed subdivision is anticipated in 2027.

See Figure 1.2 for the proposed Project site plan.

EXHIBIT "I-38"

REPLY TO:
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EMAIL : atahnl@atahawaii.com

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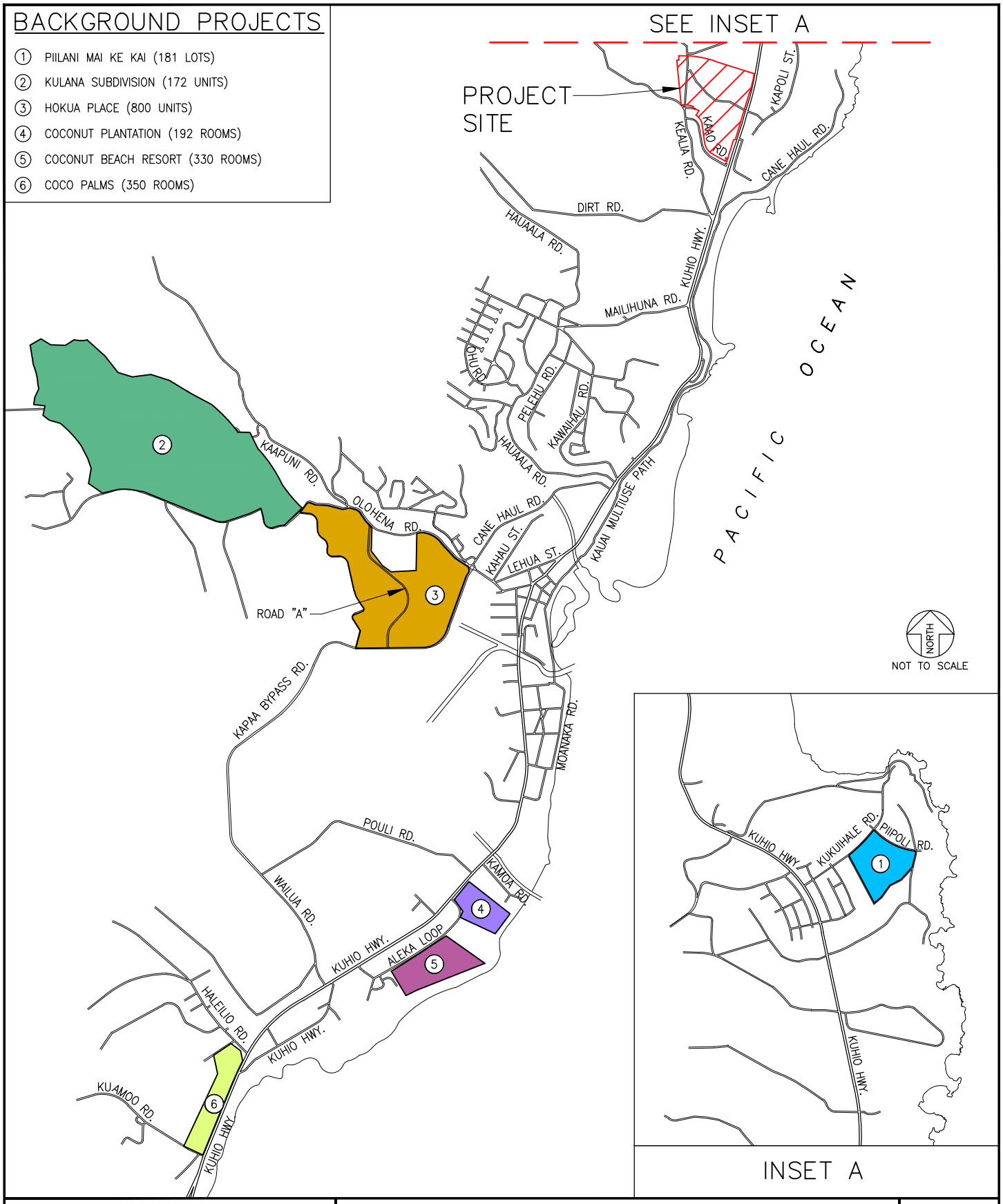
WAILUKU, MAUI, HAWAII
HILO, HAWAII



KEALIA MAUKA HOMESITES

TIAR

AUSTIN, TSUTSUMI & ASSOCIATES, INC.

ENGINEERS, SURVEYORS • HONOLULU, HAWAII

BACKGROUND DEVELOPMENTS

FIGURE

4.1

4. BASE YEAR 2027

Base Year 2027 was selected to reflect the full buildout and occupancy of the Project. The Base Year 2027 scenario represents the traffic conditions within the study area without the Project. Base Year traffic projections were formulated by applying a defacto growth rate to the existing 2017 traffic count volumes and adding trips generated by known future developments in the vicinity of the Project.

4.1 Defacto Growth Rate

Projections for Base Year 2027 traffic were based upon existing traffic counts performed by ATA, HDOT's Kauai Regional Travel Demand Model (KRTDM) growth for forecast years between 2007 and 2035, and nearby developments in the vicinity of the Project. A 1% annual growth rate was applied to Kuhio Highway, Cane Haul Road and Olohena Road, and a 2% annual growth rate was applied to Kukui Street.

4.2 Traffic Forecasts for Known Developments

By Year 2027, traffic in the Project area is expected to experience significant growth due to several residential and commercial developments in the nearby regions. The majority of trips generated from the known developments are accounted for in the KRTDM growth as described in Section 4.1.

The known developments that are projected to be complete by Year 2027 are illustrated in Figure 4.1 and listed below based on the best information available:

1. Piilani Mai Ke Kai – This project is located in Anahola on the makai side of Kuhio Highway on land owned by the Department of Hawaiian Home Lands (DHHL). The project began in 2006 and includes 181 single-family lots. The majority of the lots have already been awarded and were assumed to be fully occupied at the time of the traffic counts. Of the remaining lots, 22 lots were awarded in January 2017 and an additional 51 lots will be awarded by the end of 2017. Full buildout of the 73 lots is expected by 2027. This development is accounted for in the KRTDM growth rates described in Section 4.1 above.
2. Kulana Subdivision – This project is located north of Olohena Road and east of Hauiki Road. The project is an agricultural subdivision that will contain 172 single-family houses at full buildout. There is currently no expected completion date, however, the project is included in KRTDM forecasts. This development is accounted for in the KRTDM growth rates described in Section 4.1 above.
3. Hokua Place – This project is located between Olohena Road and Kapaa Bypass Road near Kapaa Middle School. The project plans to develop 100 single-family units, 700 multi-family units and 8,000 square feet of neighborhood retail. The project also plans to construct a roadway, Road "A", through the subdivision connecting Kapaa Bypass Road to Olohena Road just west of Kapaa Middle School. Once constructed, the roadway is expected to reduce traffic volumes at the Kapaa Bypass Road/Cane Halu Road/Olohena Road roundabout. The Hokua Place project was previously known as Kapaa Highlands Phase II. The Kapaa Highlands TIAR, dated December 2013, assumes a completion year of 2020. The Kapaa Highlands TIAR was used to determine trips generated and rerouted in the study area.

4. Coconut Plantation – This project is located along the makai side of Kuhio Highway between the Courtyard by Marriott Kauai at Coconut Beach Hotel and the Mokihana Lodge. The project proposes to develop 192 resort units. There is currently no expected completion date, however, for the purposes of this TIAR, the project was assumed to be completed by 2027. A summary of the trips generated may be found in Table 4.1 below.
5. Coconut Beach Resort – This project is located along the makai side of Kuhio Highway between the Courtyard by Marriott Kauai at Coconut Beach Hotel and Kauai Coast Resort at the Beachboy. The project proposes to develop 330 condo units as part of a new beachfront timeshare. Completion is anticipated in 2019. A summary of the trips generated may be found in Table 4.1 below.
6. Coco Palms – This project is located along the mauka side of Kuhio Highway north of Kuamoo Road. The project proposes to restore the old Coco Palms hotel into a 350-room resort. Completion is anticipated by the end of 2018. A summary of the trips generated may be found in Table 4.1 below.

Table 4.1: Background Development Trip Generation

Land Use (ITE Code)	Independent Variable	AM Peak Hour			PM Peak Hour		
		Enter (vph)	Exit (vph)	Total (vph)	Enter (vph)	Exit (vph)	Total (vph)
Coconut Plantation (330)	192 Rooms	26	10	36	35	46	81
Coconut Beach Resort (330)	330 Rooms	66	25	91	60	79	139
Coco Palms (330)	350 Rooms	71	28	99	63	84	147
Total		163	63	226	158	209	367

4.3 Planned Roadway Improvements

Roadway projects that are currently planned and expected to be completed by Year 2027 include:

Kuhio Highway/Mailihuna Road

According to the Final Environmental Impact Statement: Kapaa Stream Bridge & Mailihuna Intersection Improvements, Kuhio Highway (State Route 56), District of Kawaihau, Island of Kauai, "Improvements to the Mailihuna intersection: The existing three-legged intersection on Mailihuna Road, which currently has stop control only, would be reconfigured to improve safety by constructing a roundabout." The roundabout will provide a 130-foot diameter width roundabout with yield-controls on all approaches. Construction at the intersection is expected to begin in mid-2017 and be completed in 2019. For the purposes of this report, it was assumed that the roundabout alternative will be implemented by Base Year 2027 because it was identified as the preferred alternative.

Several roadway projects to relieve congestion along Kuhio Highway in the Wailua and Kapaa regions are currently in the planning stages. These roadway improvements are not expected to

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EDUCATION

University of Washington, Seattle, Washington
MMA, Masters of Marine Affairs (1997)
Program Focus: Coastal and Marine Resource Management, Planning and Policy

University of Kentucky, Lexington, Kentucky
MA, Education (1981)
Program Focus: Curriculum and Educational Program Development for Special Populations

PROFESSIONAL EXPERIENCE

Consultant and Sole Proprietor, Integrated Ocean Management
January 2016 - Present
Consulting contracts on coastal and marine resource management. Responsibilities include project design and content development, project management and project implementation. 2018-2019 projects include:

- *Yellow Sea Large Marine Ecosystem (YSLME), MPA Network Development Project*; contract with United Nations Office for Project Services (UNOPS); project countries: China, S. Korea and Japan
- *Women's Intergenerational Leadership Learning Forum;* contract with Coral Triangle Center, Bali, Indonesia; project countries: Indonesia, Timor Leste, Malaysia, Papua New Guinea, Philippines, Solomon Islands
- *Mediterranean Young Professionals Leadership Programme*; contract with WWF Mediterranean Regional Office, Rome, Italy; project countries: Morocco, Tunisia, Egypt, Lebanon, Turkey, Albania, Croatia, Greece
- *Transforming WWF-Turkey into an Innovative Work Place Model for the Mediterranean* (series of workshops in progress); contract with WWF-Turkey
- *Strategic Planning Workshops (2);* Conservation Council for Hawai'i
- *Strategic Planning Workshop;* Coherence Lab, Kaua'i
- *Strategic Planning Workshops (series);* Community Coalition Kaua'i
- *Strategic Planning Process (series of workshops);* KKCR Community Radio (Fall 2019)

***Program Manager, International Marine Protected Area (MPA) Management Capacity Building Program (IMPACBP),* NOAA, Office of National Marine Sanctuaries**
January 2005 – January 2016
Focal Regions: Mediterranean (N. Africa and Adriatic Sea), **Eastern Tropical Pacific** (Costa Rica, Panama, Colombia and Ecuador**), Coral Triangle** (Indonesia, Philippines, Timor Leste, PNG, Malaysia and Solomon Islands), **Pacific** (Kiribati), **Gulf of California** (Sea of Cortez), **South China Sea** (Vietnam, China and Cambodia), **Western Indian Ocean** (Kenya, Tanzania, Mozambique, Madagascar, Seychelles, Comoros)

As creator and Program Director for the IMPACBP, eleven years were spent building this worldwide program and integrating it within the global marine conservation community. The program was self-funding and serviced marine protected areas in 32 countries across six global regions. A minimum three-year commitment was made to develop in-country partnerships with governments and NGOs to deliver a tailored program to meet the learning needs, technical support and skill development required by coastal and marine resource managers to effectively manage marine protected areas. Program Director responsibilities included:

EXHIBIT "I-39"

- Developing and maintaining partnerships with local, regional and international NGOs and governments working within each of the six regions.
- Identifying and procuring funds from NGOs, government agencies, private foundations and global aid organizations to support regional programs.
- Designing a broad range of timely and topical core courses and activities appropriate to addressing priority natural resource management issues, and tailored to the capacity building needs of each region.
- Training trainers and mentoring promising individuals as a regional resource for continuing education, leadership and support within each partner country.
- Ensuring that communication links are established and maintained amongst the participating programs and regional network of MPAs, and that information and lessons learned will be shared between regions on an on-going basis.
- Leading international teams of trainers and subject experts in conducting in-country programs and providing on-going support.

Joint Management Plan Review Coordinator, **November 2001 – December 2005**
Gulf of the Farallones, Monterey Bay and Cordell Bank National Marine Sanctuaries
San Francisco, California

The Gulf of the Farallones, Cordell Bank and Monterey Bay National Marine Sanctuaries joined forces for a Joint Management Plan Review Process (JMPR). This process is was the first for NOAA in which policy and programmatic decisions were based on a bioregional approach to spatial planning, identifying areas of connectivity, large ecosystems and discreet ecological units, while making political boundaries a secondary consideration in regards to management decision-making. Coordination and oversight responsibilities included:

- Working with two Sanctuary Advisory Councils (stakeholder-based) to prioritize resource management issues and develop recommendations on priority issues to be addressed in the management plan.
- Facilitation of eleven year-long, issue-based and programmatic stakeholder-based working groups and internal teams comprised of Sanctuary Advisory Council members, user groups, sanctuary staff, technical experts and agency representatives.
- Facilitation of Sanctuary Advisory Council retreats to review and comment on working group recommendations.
- Drafting revisions to: existing regulations, proposed new regulations, justifications for proposed new regulations, and proposed amendments to the Designation Document.
- Drafting of new management plan including strategies for addressing resource management issues through: Education and Outreach; Research and Monitoring; and Marine Resource Protection (Policy and Management).
- Conducting formal consultation with local, state and federal agencies.

Management Plan Coordinator**, December 1998 - September 2001**
Channel Islands National Marine Sanctuary, Santa Barbara, California

The Channel Islands National Marine Sanctuary (CINMS) was one of the first of thirteen National Marine Sanctuaries to go through a Congressionally mandated five-year management plan review process. This process served as a model for subsequent management plan reviews. Coordination and oversight responsibilities included:

- Directing the sanctuary manager and staff to perform analysis and advisory assignments related to the effectiveness of programs and/or efficiency of the management of operations at the Channel Islands Sanctuary.
- Conducting, coordinating and facilitating meetings, public hearing and workshops while working with the Sanctuary Advisory Council, stakeholders and interest groups.
- Leading the sanctuary manager, sanctuary staff and Management Plan Review Team in evaluating outcomes from scoping meetings and identifying current and emerging resource management issues.

- Developing on-going constituent and agency relationships to support the management plan review process.
- Using qualitative and quantitative techniques for conducting studies and establishing criteria for proposed rulemaking.
- Drafting revisions to: existing regulations, proposed new regulations, justifications for proposed new regulations, and proposed amendments to the Designation Document.
- Working with the sanctuary manager and staff to establish criteria and performance standards for the management plan.
- Coordinating with sanctuary staff on development of the non-regulatory component of the management plan, and drafted action plans for: research and monitoring; education and outreach; marine resource protection (policy); cultural resource protection; and administration.

***Education Coordinator*, March 1997 - December 1998**
Channel Islands National Marine Sanctuary, Santa Barbara, California
As Education Specialist, then Coordinator, for the Channel Islands National Marine Sanctuary, responsibilities included interpretive education, outreach, developing and maintaining partnerships and grant writing. Education has been the primary program-based resource management tool for the Sanctuary since the time of designation in 1980. As an offshore site, CINMS' Education Coordinator's job is to bring the experience of the richness and diversity of the Sanctuary to the public through outreach and interpretation, and to encourage the public to visit Sanctuary waters through participation in education programs. The Education Specialist and Coordinator responsibilities included:

- Serving as primary point of contact for education and outreach efforts including oral, interactive and written communication with interest and user groups.
- Serving as an education liaison between the regional marine education institutions and organizations (MERA).
- Coordinating the implementation of multi-cultural education programs (Los Marineros).
- Developing relationships and effective coordination with community, institutional and agency partnerships (Sea Center, proposed Aquarium).
- Developing creative outreach tools such as interpretive enforcement volunteer programs (Sanctuary Marine Watch).
- Development of an advisory committee including representatives from educators to dive shop owners.
- Fund raising to support projects.
- Developing and delivering a curriculum and training program products for Sanctuary Marine Watch. These products were not only information manuals, but contained instructive material on data collection protocols, data collection forms, a bioregional overview, resource management issues and lesson plans.

■ FIELD WORK

Embassy Science Fellow, United States Embassy, Hanoi, Vietnam, 2005.

Integrated Coastal Zone Management for the North Tonkin Archipelago, Ha Long Bay, 2002, 2003, 2004, project supported by NOAA, State Department –USAID, IUCN and Vietnam Ministry of Fisheries.

Barracuda Behavior, Papau, New Guinea, 1997, Shane Patterson, Principal Investigator.

Reef Environmental Education Foundation, Florida Keys, Flower Gardens, Channel Islands National Marine Sanctuaries, and Navassa, 1996 -2000, fish diversity and abundance surveys.

Butterfly Fish as Indicators of Coral Reef Disturbance, Dravuni, Fiji, 1996, Denis Gulet, Primary Investigator.

Measuring Changes in Coastal Environments, Southern Turkey, 1995, Peter Reynolds, Principal Investigator.

Humpback and Right Whale Census, Indian Ocean off Madagascar, 1994, Peter Best, Principal Investigator.

■ TRAINING CURRICULUM DEVELOPMENT

Authored/ designed curriculum for marine protected area capacity development (each curriculum content includes manual, handouts, worksheets, powerpoints and posters) in the following areas:

Coastal and Marine Spatial Planning for Resource Managers

Advanced Marine Spatial Planning for Coastal and Marine Resource Managers

Planning for Sustainable Tourism in Marine Protected Areas

Planning for Sustainable Fisheries in Marine Protected Areas

Planning for Climate Change in Marine Protected Areas

Management Planning for Marine Protected Areas

Stakeholder Engagement

Sustainable Financing for Marine Protected Areas

MPA-101 for MPA Practitioners

Developing MPA Network-wide Monitoring and Evaluation Programs

Needs Assessment and Capacity Building Program Design

Communications Training for MPA Practitioners

Leadership Training for Natural Resource Managers

Solutions Labs for Addressing Conservation Challenges

Strategic Planning for NGOs

■ SAMPLING OF OTHER RELATED PUBLICATIONS

Flower, K, Katz, L, Atkinson, S, Walton, A, Gunawan, T, Sondita, MF, Djunaidi, A, Paat, R, Mongdong, M, Clement, K, and S Sukoyono. (2015). *Capacity Development for Marine Protected Area Management in Indonesia Guide Series: Facilitators Guide for Capacity Assessment and Development Planning*. Developed by Conservation International, the U.S. National Oceanic and Atmospheric Administration, and the Government of Indonesia's Ministry of Marine Affairs and Fisheries.

Flower, K, Katz, L, Atkinson, S, Walton, A, Gunawan, T, Sondita, MF, Djunaidi, A, Paat, R, Mongdong, M, Clement, K, and S Sukoyono. (2015). *Capacity Development for Marine Protected Area Management in Indonesia Guide Series: Capacity Assessment and Development Planning Guide*. Developed by Conservation International, the U.S. National Oceanic and Atmospheric Administration, and the Government of Indonesia's Ministry of Marine Affairs and Fisheries.

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Fish, Thomas E. and Anne H. Walton. 2012. Sustainable Tourism Capacity Building for Marine Protected Areas. Parks 2012, vol 18.2, U.S. Dept. of Interior, National Park Service

■ OTHER SKILLS & TRAINING

PADI, certified scuba dive master
certified nitrox diver
certified dry suit diver

NOAA, certified scientific diver
certified in CPR
certified in oxygen administration

ESL, certified English as a Second Language Teacher

HAZMAT, Hazwopper trained in emergency oil response protocols

Conflict Resolution and Mediation Training, June 2001

Effective Public Speaking Training, August 2001

Public Issues and Conflict Resolution Training, June 2002

Multi-party Conflict Resolution Training, September 2004

Mediation Training, October 2004

Kauai Economic Opportunity (KEO) Certified Court Mediator*, July 2018*

■ VOLUNTEER BOARD MEMBER

Resource Institute, Seattle, WA: 1993-1999

Reef Environmental Education Foundation, Key Largo, FL: 1998-present

Conservation Council for Hawaii, Honolulu, HI: 2016-present

References and full list of publications available upon request.

State Land Use Commission
235 Beretania St., #406
Honolulu, HI 96813

February 1, 2020

Aloha Chair Scheuer and Land Use Commissioners;

For some context, I spent my career working for NOAA on natural resource management and planning. The first half as the management plan coordinator for the west coast national marine sanctuaries. During the last 13 years I worked for both the Pacific Islands region (Hawaii and American Samoa) and taught planning for NOAA's international program in 32 countries around the globe.

I reviewed and commented on nine drafts of the Kauai General Plan Update (GPU) document during the review process by the Kauai County Planning Commission, and reviewed an equal number of drafts brought before the Kauai County Council, all documents contained the proposed HoKua Place project. I also reviewed and commented on the HoKua Place 2015 and 2018 DEISs and the 2019 FEIS.

Since a significant portion of the HoKua Place FEIS cross-references information in the 2018 General Plan, much of my testimony refers to both documents. My comments reflect what was known when the 2018 for the General Plan was going through its final review, and what was known when the 2019 HoKua Place FEIS was under review. This is particularly important to my comments on inaccurate or missing data sets. My comments will be focused in two particular areas: 1) infrastructure, and 2) environmental impacts.

1. INFRASTRUCTURE

I would like to speak to both HAR §15-15-18(7) (referring to the proposed project's necessitation of unreasonable investment in public infrastructure or support services); and HAR §15-15-18(2)(B) (referring to the availability of basic services for the subject parcel - such as schools, parks, wastewater systems, solid waste disposal, drainage, water, transportation systems, public utilities, and police and fire protection).

2006 Kaloko Reservoir dam burst on Kauai, killing seven people

Missing and/or Out-dated Data Sets Used as the Basis for the FEIS Analysis

In order to understand whether existing infrastructure can meet both current and projected future demands, one has to work with accurate data. Some key data points referred to in the 2019 FEIS, many of them based on the 2018 Kauai General Plan Update, are inaccurate or in some cases altogether absent.

Sample of inaccurate data:

- Kauai population: FEIS – 52,000; actual – 71,780 (2019)
- Annual visitor numbers: FEIS – 955,112 (2010); actual – 1,388,302 (2018)
- Source for Sewer Design Standards is from 1973 (County of Kauai), too old to provide accurate information and analysis in the FEIS
- The Wailua Facility Plan data is from 2008, too old to provide accurate information and analysis in the FEIS

Kulana Project mauka HoKua Place project.

Sample of missing data:

- **No Residential and Commercial Entitlements**: Entitlements already in place at time of FEIS, yet not accounted for in the FEIS analysis include: Kealia Mauka,

  Coconut Beach Resort, Coconut Plantation Village, Coco Palms, Kulana, Pi'ilani Mai He Kai.

- **No Instream Flow Standards Data:** "The development of instream flow standards (IFS) is a scientific process which analyzes hydrologic conditions and non-stream uses. Continued stream diversion and lack of IFS, along with decreasing stream levels in some areas, are issues of concern for some communities" (GPU 2017). How can we accurately project whether we will have enough potable water for our current needs, plus future development, without an IFS study? This is important information because Hawaii's drinking water systems are comprised of groundwater, surface water, water catchment, wastewater injection, and desalinization. Kauai's water system provides over 12.7 MGD of potable water to over 70 thousand people. Of the 12.7 MGD average, approximately 10.4 MGD is from groundwater and 2.3 MGD is from surface water.

- **Lack of Information on Deteriorating Water Delivery Systems***:* Kauai's Water Plan 2020, which provides a comprehensive plan for addressing aging and deteriorating infrastructure, indicated that major structural deficiencies were found in three of the six water districts. As a result, 250 actions/projects were identified and prioritized to address deficiencies, long-term needs, system resiliency, and projected growth. In 2017, deficiencies were identified in five of the six districts due to a lack of replacement or rehabilitation actions. As of March 2019, the status of the 250 projects initially identified are as follows: 81 completed; 5 under construction; 17 under design; 147 no action.

  The Kauai DOW reports that overall the water distribution system is in poor condition due to inaccessibility for maintenance and undersized pipelines. Over 100 miles of pipeline will be due for replacement within the next 20 years. For Kauai DOW, approximately $70 million is needed to address current deficiencies in the system within the next five years. It is estimated that an additional $80 to 130 million is needed to address water infrastructure needs within the next 20 years.

Kauai DOW's ability to implement their 2020 Plan is impacted by their ability to fund capital improvement projects in any given year. (Source: 2019 ASCE Infrastructure Report Card for Hawaii)

- **No Accurate Inventory and Characterization of the Condition of Kauai's Current Infrastructure System as a Whole:** Although the GPU acknowledges that critical infrastructure capacity is insufficient for estimated de facto population growth, the GPU remains overly vague in terms of specific infrastructure improvements that will be scheduled and funded to expand Kauai's potable water services, wastewater treatment capacity services, and solid waste disposal services for each specific Kauai Community. It also became clear during the October 25, 2017 Planning Committee meeting, there was no clear understanding by the department heads on the serviceable extant of our current infrastructure, the condition of the infrastructure or how relevant and appropriate the infrastructure it is in terms of meeting our current built environment needs or entitlement obligations (with some exceptions like solid waste disposal system (landfill) and the known need for a new waste disposal site).

- **Not a Complete Discussion on Housing Development Projections:** The "housing need" projections do no include at least a discussion on all of the entitled residential projects (see list above). This applies to the housing development projections laid out in both the GPU and FEIS. Additionally, Kauai does not actually have a housing shortage. As stated in both the Hokua Place DEIS and the County's General Plan, we actually have a high vacancy rate when it comes to housing. This means a house is largely unoccupied for a good portion of the year (as in second home or investment property), or it is an illegal transient vacation rental (TVR), so considered unoccupied until otherwise shown to be in violation of the law, and in any case missing from the inventory pool for long term rentals (one of our areas where we do have major housing shortage). Additionally, until COVID, the average number of houses for sale in the MLS over the previous 5 years was between 600-800+ listings, that does not include for sale by owner listings, or "FSBOs". Not only that, currently, an approximate 41% of residential sales on this island are either to mainlanders or foreigners. So what is missing from the mix is affordable housing - low and middle income housing (including housing for special groups like the elderly and farm workers). This information was also missing from both the GPU and FEIS.

Without accurate data and growth projections, how can the GPU and HoKua Place FEIS estimate future infrastructure needs – from water to waste management to airport infrastructure? This is basic and necessary to good planning and has significant implications in regards to access to and availability of water, solid waste management, airport redevelopment, etc.

Demands on an Aging and Inadequate Infrastructure

A. FRESH WATER

In addition to what was pointed out above (pgs. 2-3) as missing data on fresh water resources, there are also the following issues in regards to water:

Nearly a quarter of the Kauai utility's water lines were installed more than half a century ago and there are still miles of pipe that date back as early as the 1920s.

- The FEIS does not take into account other potential demands on the Anahola Aquifer System by new developments in the area such Kulana, Kealia Mauka, Coconut Beach Resort, Coconut Plantation Village and Coco Palms – all within the Kapaa – Wailua corridor.
- The Water Board hasn't given HoKua Place a permit, rather, they say that HoKua Place must use a well on the property, which is at a lower elevation than some of the dwellings, and could potentially be contaminated.

B. SEWAGE

- The data sources used for this analysis were from 1973 and 2008, too old to be relevant today, especially given the population of Kauai in 1970 (closest calculation to 1973) was 29,524 and today it is 71,780. This increase in population has enormous implications in regards to increases in wastewater. Projected forward, additional inputs from Kulana, Kealia Mauka, Coconut Beach Resort, Coconut Plantation Village and Coco Palms needs to be a part of the calculation.
- The 2018 General Plan Update projects that the Wailua WWTP to be over capacity by the year 2035.

The Wailua Wastewater Treatment Plant sits between the Wailua River and Lydgate Park, both locations subject to spills.

- The aging waste water treatment system failures can best be illustrated by the Nov. 2018 spill of over a 1,000 gallons of sewage into the Wailua River estuary and the March 2020 spill of 65,000 gallons into Lydgate Park, both from the Wailua Wastewater Treatment Plant.
- As has already been seen on Kauai, climate change is expected to increase the frequency and intensity of extreme rainfall events, as well as contributing to sea level rise. With this, higher wet-weather flows from increased infiltration and inflow of groundwater and rainwater into sewers will add to wastewater system over-capacity. In the analysis of the Wailua WWT plant, these events are not part of the calculation of both the capacity of the system and increased likelihood of a sewage spill. Between 2016-2018, Kauai had a total of 10 sewage spills or 6.7 spills per year per 100 miles of sewer, the highest spill rate in the state.

C. SOLID WASTE

- The current landfill only has between 4-7 years of capacity left (depending on the information source), with no confirmed new site secured. And, again, with 4+ new developments coming online, how will we accommodate another development of the magnitude of HoKua Place which will be contributing additional household waste to the landfill?
- Additionally, one of the major contributing sources of waste to our landfill is from construction materials. What is the plan for HoKua Place so they won't be further exacerbating an already seemingly unmanageable stream of waste burdening our landfill?
- Kauai will need $15 million to close the Kekaha landfill, and an additional $625,000 annually for post- closure monitoring and maintenance. The county recently implemented a "pay as you throw" program for residential refuse collection and a base Refuse Transfer Station fee. Funding of landfill closure and post-closure activities, however, will remain a challenge for the county. (2019 ASCE Infrastructure Report Card for Hawaii)

The Kekaha landfill mountain.

- Kauai is planning to construct a new landfill at Maalo. The new landfill and access road is estimated to cost $80 million. The life of the existing and new landfills may be extended with the implementation of curbside recycling, green waste collection, and a Materials Recovery Facility (MRF) at a cost of $18 million. (Source: 2019 ASCE Infrastructure Report Card for Hawaii)

D. PUBLIC SCHOOLS

Our public schools on the east side (which also service the north shore) are already at capacity, and have a deficit of teachers.

- The data for the 2019-2020 school year shows different numbers than the FEIS, revealing that Kapaa Elementary School is actually at capacity (936 students), Kapaa High School is also just about at capacity (1041 students), and Kapaa Middle School has increased, but not yet at capacity (638 students).
- Additionally, teachers are leaving the state of Hawaii at a higher rate than before: of the 1,116 teachers who separated from the Hawaii Department of Education in 2017-18, 423 left for the mainland, a 70% increase from five years prior.

E. TRAFFIC & ROADS

- The traffic count data set is from 2010, and therefore obsolete due to the age of the data. Given that the population data is also off (reported in FEIS as 52,000 vs the actual current population of 71,780) then correspondingly so will the traffic data as population data is the basis for estimating the number of cars on the road. In addition to the residential population data, in 2010 visitor numbers were 955,112; and for 2018 1,388,302. There needs to be accounting for how that translates into additional (rental) cars on the road.
- Projecting forward, and without considering the potential for new entitlement projects coming onboard, the traffic count data will also be incorrect in regards to what it might look like 5-10 years from now if one includes the following eastside developments:
    a) Pi'ilani Mai Ke Kai (181 single family lots)
    b) Kulana Subdivision (172 single family homes)
    c) Coconut Plantation (192 resort units)
    d) Coconut Beach Resort (330 condo units)
    e) Coco Palms (350 resort units)

  At an average of 2 cars per household, and 1 car per visitor unit, that puts an additional 1,908 cars on the road originating from eastside locations.
- In addition to the entitlement developments indicated above for the eastside of Kauai exacerbating the traffic situation, across Kauai in other locations there are a total of 2,829 units that are also in the pipeline (some permitted as far back as 2002). These number include master planned zoned projects and zoned projects with no subdivision or final zoning approvals. These data are derived from projects permitted between 2000-2015. Nowhere in the traffic count data is there information on the additional traffic generated from these developments that will be contributing to the overall already stunted traffic flow on Kauai.
- Traffic data was based on "volume per hour" rather than "how long it takes to travel one mile" during peak hours would give us a better estimation of what the real problem is – it's not just the number of cars, but rather the flow/pace of traffic – which tells the real story of our traffic problem. It should also be noted that Kapaa no longer experiences "daily" or "seasonal" variation in traffic. Traffic is consistently log jammed in the Kapaa-Wailua corridor, day or night and all year round.

Traffic in Kapa'a in the middle of the day (left), potholes on county roads (lower left) and state roads (lower right)

- The FEIS mentions "Potential Traffic Solutions" to be taken by DOT and the County. This is a wish list by the developer rather than a reality and should not be used in the traffic analysis.
- North bound and southbound traffic frequently backs up from Kuamoo Road in Wailua to the end of Kapaa town at Kawaihau Road. DOT promises roads, such as the one from Bypass Road to Kuamoo Road, which will have little effect on the daily traffic jams we experience now. The other big jam is Olohena Road to the roundabout, which will be impacted even more due to the HoKua Place road that runs from the Bypass to Olohena Road. Driveways from the most expensive homes ($650 to $1, 250,000) will exit onto Olohena Rd.
- Traffic operations across the entire state are expected to worsen. By 2035, the percentage of arterial lane miles operating at the lowest LOS is projected to increase to 25% in Kauai County. At the lowest LOS, heavy traffic, roadway delays and unpredictable traffic conditions are frequent occurrences. (Source: 2019 ASCE Infrastructure Report Card for Hawaii)

F. ELECTRICAL POWER

In 2005, KIUC signed off on the plans for HoKua Place. Only in 2005 this project was not called HoKua Place and since then the scope of the project, including the amount of acreage, number of units and types of units has changed at least 4 times. Perhaps KIUC should review the latest plans before this kind of declaration is made in the FEIS (the confirmation indicated in the FEIS was made in 2007 and applied to the sign-off in 2005).

CONCLUSION ON THE KAUAI'S EASTSIDE INFRASTRCUTURE

The majority of Kauai's infrastructure has been operating beyond its functional life, with some components of the system over 100 years old. Due to a lack of funding, it has been difficult to effectively maintain and improve the existing infrastructure systems to keep up with increasing usage, and rapidly changing lifestyles. With Kauai's population growth, economic growth, and expansion of development, the strain on the infrastructure continues to escalate with much of it struggling to stay in operable condition.

Without a clear growth management model in the General Plan, it is extremely difficult to project out what kind of infrastructure (aka development) needs Kauai wants to support into the future. Does Kauai want a "build it and they will come" model; or "let's maintain the rural character and quality of life" model. In regards to HAR §15-15-18(7), I do believe the HoKua Place project will require unreasonable investment in public infrastructure or support services; and in regards to HAR §15-15-18(2)(B) there will need to be an increase the need for basic services for the subject parcel - such as schools, parks, wastewater systems, solid waste disposal, drainage, water, transportation systems, etc.

2. IMPACTS ON THE ENVIRONMENT

The following comments are directed at the 2018 General Plan Update's stewardship goal to: "Protect natural, historical, and cultural resources in perpetuity". Also being cited are specific state and federal regulatory protections on natural resources.

A. ENDANGERED SPECIES

Comments are in reference to the authority of the Endangered Species Act of 1973 (ESA), as amended (16 USC 1531 *et seq.*), and pertaining specifically to protected species. The following listed or candidate species are known to occur in the area of or transit through the proposed project site and include:

HAWAIIAN SEABIRDS:
- Endangered Hawaiian petrel
- Threatened Newell's shearwater
- Candidate for listing banned-rump storm-petrel

HAWAIIAN BIRDS:
- Endangered Hawaiian goose
- Endangered Hawaiian hoary bat

HAWAIIAN WATERFOWL:
- Endangered black neck stilt
- Hawaiian moorhen
- Hawaiian coot
- Hawaiian duck

Seabirds: The three listed and/or candidate seabird species breed seasonally in Hawai'i: the Newell's Shearwater (*Puffinus auricularis newelli*, Hawaiian name: 'a'o), the Hawaiian Petrel (*Pterodroma sandwichensis*, Hawaiian name: 'ua'u), and the Hawai'i distinct population segment (DPS) of the band-rumped storm-petrel (*Oceanodroma castro*, Hawaiian name: 'akē'akē), making the islands essential to the conservation of these species. (Source: Kauai Seabird Habitat Conservation Plan (HCP))

Kaua'i holds 90% of the world's population of Newell's shearwater and a significant proportion of the world's population of Hawaiian Petrel in which an analysis of long-term radar studies on Kauai (1993-2013) show massive declines on Kauai of the populations of the island's two listed seabirds, particularly on the south and east sides of the island. Kauai's endangered seabirds are under threat from a whole suite of land-based impacts, including introduced predators such as feral cats, powerline collisions, light attraction and invasive plants. (Source: Kauai Seabird Recovery Program)

The FEIS (pg. 135) states that: " A temporary increase in noise during construction is anticipated, however, the impact will be a minor, short term inconvenience and will be minimized by the limitations on the hours of construction activity and plans to reduce impacts of construction activity." Nowhere in the analysis does it mention noise or light impacts on wildlife.

The three listed and/or candidate seabird species fly at night and are attracted to artificially-lighted areas resulting in disorientation and subsequent fallout due to exhaustion. Seabird attraction to artificial lights is a commonly observed phenomenon affecting petrel and shearwater species around the world, in many cases negatively altering their behavior. Once grounded, the seabirds experience difficulty in resuming flight, and are vulnerable to introduced predators and vehicle traffic, such that unless rescued, they are assumed to have died, based on decades of seabird observations and reports. The Kaua'i Seabird Habitat Conservation Plan (KSHCP) has been developed to address light attraction impacts to the listed seabirds on the island of Kaua'i. The KSHCP also addresses the impacts of lights on the Central North Pacific distinct population segment (DPS) of the green sea turtle (*Chelonia mydas*, Hawaiian name: honu, hereafter honu).

As recommended by the National Fish and Wildlife Service (NFWS) in their December 17, 2014 comments on the EIS, that in order for this project to address the potential impacts from artificial-lighting on seabirds, construction activities should only take place during daylight hours. Additionally, the development street lights should be placed low to the ground, be motioned triggered and shielded. Poles and powerlines are also of concern, and the project would be best advised to place the poles and lines underground to avoid seabird collision. In any case, and under consideration that the Kauai Seabird Habitat Conservation Plan was released in 2020, it will be necessary for the HoKua Place project to contact NFWS to ensure compliance with the ESA.

Seabirds were an integral part of daily life and were of cultural significance to ancient Hawaiians. Seabirds that feed at sea and return to shore at night were used to navigate back to land from fishing or trading voyages. Fishermen used gatherings of feeding seabirds to lead them to schools of fish, and still do today. Hawaiians also observed

Kupuna Sabre Kauka releasing of the native Newell's Shearwater (forkauaionline.org)

seabird behavior to indicate changing weather patterns. On land, 'Ua'u (Hawaiian Petrel) chicks were harvested from their burrows as food for the Ali'i, or Royal classes. Seabird feathers were used for intricate featherwork in capes and lei making. Seabirds also appeared in ancient Hawaiian legends, proverbs, and expressions. For example, a Hawaiian proverb for a family that only had one child was, *"Hoʻokahi nō hua a ka ʻaʻo"*, or, 'For the 'a'o (Newell's Shearwater) lays but a single egg.' (Source: Kauai Endangered Seabird Recovery Project)

Hawaiian Birds: Prior to the initiation of work in a given area of the property, the land should be surveyed to determine any indication of Hawaiian goose nesting sites. If there is an indication, NFWS should be notified. If at any time during the project any Hawaiian Goose is present within 100 feet of the project, all activity should temporarily cease until the Hawaiian goose (geese) leaves on its own accord. (Source: NFWS, 2014 Comments on DEIS).

Site clearing should be timed to avoid the Hawaiian hoary bat nesting season. Bats will nest in both native and exotic woody vegetation, and while foraging will leave their unattended in nursery trees and shrubs. NFWS recommends adhering to their guidance of not disturbing, removing or trimming woody plants greater than 15 feet tall from June 1 through September 15.

Hawaiian Waterfowl: In particular, the Hawaiian stilt is known to nest in locations that are sub-optimal, as long as water is present (e.g., any ponding water). In doing so, they face a greater chance of predation and reduced reproductive success. The project may create an attractive nuisance to the stilt, so it is recommended that any grading activities take into consideration the potential for ponding water or the elimination of naturally occurring aquatic habitats.

B. WATER QUALITY IMPACTS ON NEARSHORE WATERS

Kauai's stormwater systems drain directly into the ocean, affecting marine life in the nearshore waters. This system necessitates the need to continuously control the runoff that enters stormwater systems. Based on the Environmental Protection Agency's 2018 assessment, 88 of the 108 marine water bodies in Hawaii did not meet water quality standards.

Kauai's storm drainage systems are separate from sanitary sewer systems. Instead of being treated to the same water quality standards, stormwater is a separate system draining unfiltered into the ocean. As a result, it is important that Kauai's stormwater systems are maintained, and landowners and developers follow best management practices to reduce the amount of trash, debris and pollutants that enter these systems. If stormwater systems are not properly maintained or retrofitted to meet current needs, during heavy rainfall events, these systems may clog with debris or overflow creating flooding hazards and damages to roads, residences and businesses – in addition to impacting nearshore waters.

In 2015, Act 042 – Relating to Stormwater Management (HB 1325 HD1 SD1) was signed into state law. This law authorized the counties to establish and charge user fees to create and maintain any stormwater management system or infrastructure. There are currently no user fees or charge rates in place.

Kauai is prone to flash flooding and has had three major 100-year storms since 2006.

Due to the scope of the HoKua Place project, including the elevation, slope and proximity to the coastline, the development of an integrated watershed-based management plan and implementation of multi-benefit projects which also address flood control and water quality issues should be required. Using the County's current Storm Water Runoff System Manual (July 2001) as guidance will not suffice given the amount of entitlement development and the changing nature of the area. Drainage will be an issue on this property, for example the high level of risk for flooding in the stream crossing under

the Bypass Road, at the south end of the property. There are also additional gullies on the property that are designated as "open space", but are actually intended for drainage. This would need to be re-engineered to prevent erosion and runoff into lower elevations and nearshore waters.

During construction of the project, turbidity and siltation from project-related work should be minimized and contained within the project area by silt containment devices and reducing/ eliminating work during flooding or adverse weather conditions. Work should not resume until erosion and turbidity have been stabilized. Additionally, all deliberately exposed soil or under layer materials used in the project near water should be protected from erosion and stabilized.

CONCLUSION ON THE PROTECTION OF NATURAL AND CULTURAL RESOURCES

2018 General Plan Update's stewardship goal to: "Protect natural, historical, and cultural resources in perpetuity" is not well met by the proposed HoKua Place project. The potential impacts to listed and/or candidate Hawaiian birds is a risk, as well as the potential water quality impacts on the nearshore environment.

ANNE HUGGINS WALTON

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EDUCATION

University of Washington, Seattle, Washington
MMA, Masters of Marine Affairs (1997)
Program Focus: Coastal and Marine Resource Management, Planning and Policy

University of Kentucky, Lexington, Kentucky
MA, Education (1981)
Program Focus: Curriculum and Educational Program Development for Special Populations

PROFESSIONAL EXPERIENCE

Consultant and Sole Proprietor, Integrated Ocean Management
January 2016 - Present
Consulting contracts on coastal and marine resource management. Responsibilities include project design and content development, project management and project implementation. 2018-2019 projects include:

- *Yellow Sea Large Marine Ecosystem (YSLME), MPA Network Development Project*; contract with United Nations Office for Project Services (UNOPS); project countries: China, S. Korea and Japan
- *Women's Intergenerational Leadership Learning Forum;* contract with Coral Triangle Center, Bali, Indonesia; project countries: Indonesia, Timor Leste, Malaysia, Papua New Guinea, Philippines, Solomon Islands
- *Mediterranean Young Professionals Leadership Programme*; contract with WWF Mediterranean Regional Office, Rome, Italy; project countries: Morocco, Tunisia, Egypt, Lebanon, Turkey, Albania, Croatia, Greece
- *Transforming WWF-Turkey into an Innovative Work Place Model for the Mediterranean* (series of workshops in progress); contract with WWF-Turkey
- *Strategic Planning Workshops (2);* Conservation Council for Hawai'i
- *Strategic Planning Workshop;* Coherence Lab, Kaua'i
- *Strategic Planning Workshops (series);* Community Coalition Kaua'i
- *Strategic Planning Process (series of workshops);* KKCR Community Radio (Fall 2019)

***Program Manager, International Marine Protected Area (MPA) Management Capacity Building Program (IMPACBP),* NOAA, Office of National Marine Sanctuaries**
January 2005 – January 2016
Focal Regions: Mediterranean (N. Africa and Adriatic Sea), **Eastern Tropical Pacific** (Costa Rica, Panama, Colombia and Ecuador**), Coral Triangle** (Indonesia, Philippines, Timor Leste, PNG, Malaysia and Solomon Islands), **Pacific** (Kiribati), **Gulf of California** (Sea of Cortez), **South China Sea** (Vietnam, China and Cambodia), **Western Indian Ocean** (Kenya, Tanzania, Mozambique, Madagascar, Seychelles, Comoros)

As creator and Program Director for the IMPACBP, eleven years were spent building this worldwide program and integrating it within the global marine conservation community. The program was self-funding and serviced marine protected areas in 32 countries across six global regions. A minimum three-year commitment was made to develop in-country partnerships with governments and NGOs to deliver a tailored program to meet the learning needs, technical support and skill development required by coastal and marine resource managers to effectively manage marine protected areas. Program Director responsibilities included:

- Developing and maintaining partnerships with local, regional and international NGOs and governments working within each of the six regions.
- Identifying and procuring funds from NGOs, government agencies, private foundations and global aid organizations to support regional programs.
- Designing a broad range of timely and topical core courses and activities appropriate to addressing priority natural resource management issues, and tailored to the capacity building needs of each region.
- Training trainers and mentoring promising individuals as a regional resource for continuing education, leadership and support within each partner country.
- Ensuring that communication links are established and maintained amongst the participating programs and regional network of MPAs, and that information and lessons learned will be shared between regions on an on-going basis.
- Leading international teams of trainers and subject experts in conducting in-country programs and providing on-going support.

Joint Management Plan Review Coordinator, **November 2001 – December 2005**
Gulf of the Farallones, Monterey Bay and Cordell Bank National Marine Sanctuaries
San Francisco, California

The Gulf of the Farallones, Cordell Bank and Monterey Bay National Marine Sanctuaries joined forces for a Joint Management Plan Review Process (JMPR). This process is was the first for NOAA in which policy and programmatic decisions were based on a bioregional approach to spatial planning, identifying areas of connectivity, large ecosystems and discreet ecological units, while making political boundaries a secondary consideration in regards to management decision-making. Coordination and oversight responsibilities included:

- Working with two Sanctuary Advisory Councils (stakeholder-based) to prioritize resource management issues and develop recommendations on priority issues to be addressed in the management plan.
- Facilitation of eleven year-long, issue-based and programmatic stakeholder-based working groups and internal teams comprised of Sanctuary Advisory Council members, user groups, sanctuary staff, technical experts and agency representatives.
- Facilitation of Sanctuary Advisory Council retreats to review and comment on working group recommendations.
- Drafting revisions to: existing regulations, proposed new regulations, justifications for proposed new regulations, and proposed amendments to the Designation Document.
- Drafting of new management plan including strategies for addressing resource management issues through: Education and Outreach; Research and Monitoring; and Marine Resource Protection (Policy and Management).
- Conducting formal consultation with local, state and federal agencies.

Management Plan Coordinator**, December 1998 - September 2001**
Channel Islands National Marine Sanctuary, Santa Barbara, California

The Channel Islands National Marine Sanctuary (CINMS) was one of the first of thirteen National Marine Sanctuaries to go through a Congressionally mandated five-year management plan review process. This process served as a model for subsequent management plan reviews. Coordination and oversight responsibilities included:

- Directing the sanctuary manager and staff to perform analysis and advisory assignments related to the effectiveness of programs and/or efficiency of the management of operations at the Channel Islands Sanctuary.
- Conducting, coordinating and facilitating meetings, public hearing and workshops while working with the Sanctuary Advisory Council, stakeholders and interest groups.
- Leading the sanctuary manager, sanctuary staff and Management Plan Review Team in evaluating outcomes from scoping meetings and identifying current and emerging resource management issues.

- Developing on-going constituent and agency relationships to support the management plan review process.
- Using qualitative and quantitative techniques for conducting studies and establishing criteria for proposed rulemaking.
- Drafting revisions to: existing regulations, proposed new regulations, justifications for proposed new regulations, and proposed amendments to the Designation Document.
- Working with the sanctuary manager and staff to establish criteria and performance standards for the management plan.
- Coordinating with sanctuary staff on development of the non-regulatory component of the management plan, and drafted action plans for: research and monitoring; education and outreach; marine resource protection (policy); cultural resource protection; and administration.

***Education Coordinator*, March 1997 - December 1998**
Channel Islands National Marine Sanctuary, Santa Barbara, California
As Education Specialist, then Coordinator, for the Channel Islands National Marine Sanctuary, responsibilities included interpretive education, outreach, developing and maintaining partnerships and grant writing. Education has been the primary program-based resource management tool for the Sanctuary since the time of designation in 1980. As an offshore site, CINMS' Education Coordinator's job is to bring the experience of the richness and diversity of the Sanctuary to the public through outreach and interpretation, and to encourage the public to visit Sanctuary waters through participation in education programs. The Education Specialist and Coordinator responsibilities included:

- Serving as primary point of contact for education and outreach efforts including oral, interactive and written communication with interest and user groups.
- Serving as an education liaison between the regional marine education institutions and organizations (MERA).
- Coordinating the implementation of multi-cultural education programs (Los Marineros).
- Developing relationships and effective coordination with community, institutional and agency partnerships (Sea Center, proposed Aquarium).
- Developing creative outreach tools such as interpretive enforcement volunteer programs (Sanctuary Marine Watch).
- Development of an advisory committee including representatives from educators to dive shop owners.
- Fund raising to support projects.
- Developing and delivering a curriculum and training program products for Sanctuary Marine Watch. These products were not only information manuals, but contained instructive material on data collection protocols, data collection forms, a bioregional overview, resource management issues and lesson plans.

FIELD WORK

Embassy Science Fellow, United States Embassy, Hanoi, Vietnam, 2005.

Integrated Coastal Zone Management for the North Tonkin Archipelago, Ha Long Bay, 2002, 2003, 2004, project supported by NOAA, State Department –USAID, IUCN and Vietnam Ministry of Fisheries.

Barracuda Behavior, Papau, New Guinea, 1997, Shane Patterson, Principal Investigator.

Reef Environmental Education Foundation, Florida Keys, Flower Gardens, Channel Islands National Marine Sanctuaries, and Navassa, 1996 -2000, fish diversity and abundance surveys.

Butterfly Fish as Indicators of Coral Reef Disturbance, Dravuni, Fiji, 1996, Denis Gulet, Primary Investigator.

Measuring Changes in Coastal Environments, Southern Turkey, 1995, Peter Reynolds, Principal Investigator.

Humpback and Right Whale Census, Indian Ocean off Madagascar, 1994, Peter Best, Principal Investigator.

TRAINING CURRICULUM DEVELOPMENT

Authored/ designed curriculum for marine protected area capacity development (each curriculum content includes manual, handouts, worksheets, powerpoints and posters) in the following areas:

Coastal and Marine Spatial Planning for Resource Managers

Advanced Marine Spatial Planning for Coastal and Marine Resource Managers

Planning for Sustainable Tourism in Marine Protected Areas

Planning for Sustainable Fisheries in Marine Protected Areas

Planning for Climate Change in Marine Protected Areas

Management Planning for Marine Protected Areas

Stakeholder Engagement

Sustainable Financing for Marine Protected Areas

MPA-101 for MPA Practitioners

Developing MPA Network-wide Monitoring and Evaluation Programs

Needs Assessment and Capacity Building Program Design

Communications Training for MPA Practitioners

Leadership Training for Natural Resource Managers

Solutions Labs for Addressing Conservation Challenges

Strategic Planning for NGOs

SAMPLING OF OTHER RELATED PUBLICATIONS

Flower, K, Katz, L, Atkinson, S, Walton, A, Gunawan, T, Sondita, MF, Djunaidi, A, Paat, R, Mongdong, M, Clement, K, and S Sukoyono. (2015). *Capacity Development for Marine Protected Area Management in Indonesia Guide Series: Facilitators Guide for Capacity Assessment and Development Planning*. Developed by Conservation International, the U.S. National Oceanic and Atmospheric Administration, and the Government of Indonesia's Ministry of Marine Affairs and Fisheries.

Flower, K, Katz, L, Atkinson, S, Walton, A, Gunawan, T, Sondita, MF, Djunaidi, A, Paat, R, Mongdong, M, Clement, K, and S Sukoyono. (2015). *Capacity Development for Marine Protected Area Management in Indonesia Guide Series: Capacity Assessment and Development Planning Guide*. Developed by Conservation International, the U.S. National Oceanic and Atmospheric Administration, and the Government of Indonesia's Ministry of Marine Affairs and Fisheries.

Anne Walton , Alan T. White , Stacey Tighe , Porfirio M. Aliño , Lynette Laroya , Agus Dermawan, Ahsanal Kasasiah , Shahima Abdul Hamid , Agnetha Vave-Karamui , Viniu Genia , Lino De Jesus Martins & Alison L. Green (2014*) Establishing a Functional Region- Wide Coral Triangle Marine*

Protected Area System, Coastal Management, 42:2, 107-127

Fish, Thomas E. and Anne H. Walton. 2013. *Marine Protected Area Management and Capacity Development: Assessing and Responding to Local and Regional Needs*. The George Wright Forum, vol. 30, no. 2, pp. 171-181

Walton A. Gomei M. and Di Carlo G. 2013. *STAKEHOLDER ENGAGEMENT. Participatory Approaches for the Planning and Development of Marine Protected Areas*. World Wide Fund for Nature and NOAA— National Marine Sanctuary Program. 36 pages.

Fish, Thomas E. and Anne H. Walton. 2012. Sustainable Tourism Capacity Building for Marine Protected Areas. Parks 2012, vol 18.2, U.S. Dept. of Interior, National Park Service

OTHER SKILLS & TRAINING

PADI, certified scuba dive master
certified nitrox diver
certified dry suit diver

NOAA, certified scientific diver
certified in CPR
certified in oxygen administration

ESL, certified English as a Second Language Teacher

HAZMAT, Hazwopper trained in emergency oil response protocols

Conflict Resolution and Mediation Training, June 2001

Effective Public Speaking Training, August 2001

Public Issues and Conflict Resolution Training, June 2002

Multi-party Conflict Resolution Training, September 2004

Mediation Training, October 2004

Kauai Economic Opportunity (KEO) Certified Court Mediator*, July 2018*

VOLUNTEER BOARD MEMBER

Resource Institute, Seattle, WA: 1993-1999

Reef Environmental Education Foundation, Key Largo, FL: 1998-present

Conservation Council for Hawaii, Honolulu, HI: 2016-present

References and full list of publications available upon request.

Witness Statement of Jim Edmonds
February 10, 2021

Q. Please state your name and place of residence.

A. My name is Jim Edmonds. I am a resident of Kauaʻi county. I came to Kauaʻi from Oʻahu in 1985 to raise my family.

Q. Please discuss your background relevant to residential development.

A. I am the Principal Broker of Emerald Isle Properties, which I founded in 1990. I am a Developer who has completed around 20 subdivisions, development projects, and condominium property regimes (CPRs), both personally and for my clients. My curriculum vitae is attached below.
About 5 years ago, I was compelled by the increasing need for affordable housing and recruited others to form PAL Kauaʻi, a 501(c)(3) nonprofit with the mission of providing "P-A-L" – Permanently Affordable LIVING. In late 2019 the other principals of PAL and I recruited all of the affordable housing developers on Kauaʻi (and two from Oʻahu who have done projects here) and we joined together to form KAHA – the Kauaʻi Affordable Housing Alliance – in an effort to solve Kauai's severe affordable housing crisis.

Q. Please discuss your experience and background in regard to the proposed HoKua Place development in Kapaʻa.

A. The urgent question is: Does the proposed subdivision of Hokua Place serve the needs of the Kaua'i community? Absolutely not. Not at this time . . . or in its currently proposed form. The current developers are telling this community that this subdivision will be "A sustainable community that preserves the rural-like character of Kapaʻa". I must disagree, based on my experience. I met with Mr. Greg Allen several times, who was the lead on Kapaʻa Highlands and I believe is still involved in some capacity with HoKua Place, with various associates and other PAL board members, beginning maybe four years ago, to encourage him to let us share our extensive research into crafting *truly* sustainable communities. We told him that we work toward protecting the environment and lifestyle on Kauaʻi, and we are driven to save our beleaguered local people, who are currently being forced off the island, rapidly, by encroaching gentrification and "resortification". The current plan does not do this.

First and foremost, we need housing for the workforce on Kauaʻi and at prices that are affordable to our residents. In the plan for HoKua Place, the developer has amended their Petition to Redistrict and now represents that 231 of the 769 units they plan to build will be affordable.

Based on their development plan, and based on my experience and training, the only way this will pencil out and allow the units to be sold "affordably" is if the sales are priced at 120% of AMI, which the County considers affordable. However, the reality is that 120% of AMI for a 3 bedroom/2 bath home for a family of four is currently at least $624,000 and will increase. This figure is not affordable for the workforce on Kauaʻi.

Kauaʻi Habitat for Humanity is a member of our KAHA alliance, and they are selling 4 bedroom/2 baths for $232,000 today! That is *truly affordable.* Whereas Kauaʻi Habitat for Humanity is a mission-driven 501(c)(3) nonprofit organization, who have a track record of successfully developing affordable housing on Kauaʻi for about 29 years, HG Kauaʻi Joint Venture, LLC operates a for-profit business. The representation in their FEIS was that they would sell their affordable units between $125,000-$175,000. That representation, however, was not made in the Amended Petition filed August 27, 2020. Rather, HG Kauai Joint Venture LLC now states that the affordable units will be priced, "at prices that satisfy the affordable housing requirement." The Kauai County Housing Policy range for affordable/workforce housing is 80 to 120% of AMI. The likely purchase price in this range would be at least $356,000 to $624,000. In order to be illegible for purchase at 80% of AMI, the total income for a family of four cannot exceed $77,500/year. In order to live on Kauaʻi a family of four could not make it on $77,500/year. The reality is that the cost of living on Kauaʻi and the cost of construction on Kauaʻi will require the affordable units to be sold at 120% of AMI. If Habitat for Humanity, a non-profit, needs to sell their family of four home for at least $232,000, there is no way a for profit developer like HG Kauai Joint Venture LLC would be able to produce multi-family units between $125,000 to $175,000 as they represent in their FEIS.

Very few local people will ever be able to pay between 80 to 120% of AMI for their home. These homes are likely to be sold to those coming from off-island. As a Broker, I am only too aware that more than half of the homes being sold on Kauaʻi are being purchased by newcomers. This project, as it stands, will add more people, more cars and take valuable agricultural resources away from Kauaʻi forever. This is a bad project for our island home.

Another major concern is that the developers have stated that they will follow the guidelines of the County's Affordable Housing requirements. Since the very recent passage of Bill 2774 by the Kauaʻi County Council, if the developers are granted R-10 zoning or above, they will be exempt from all affordability requirements under Kauaʻi County Code §7A-1.4.2. Is this a "Bait and switch" tactic? HoKua Place proposes 769 units on 96 acres, but this could become 855 units because accessory dwelling units would be allowed on the 86 single family lots. That would be 9 units per

acre. The residential density would be calculated based on the overall acreage submitted as part of the subdivision application, which may not include all of the open space because park requirements for 2,678 persons would be about 4.68 acres, resulting in a R-10 designation. What I'm saying is that the LUC would have to closely watch this project because, under the current county ordinances, the project may not have to have affordable housing at all.

Q. Do you support redistricting of approximately 96 acres of agricultural land for the proposed HoKua Place development in Kapa'a?

A. No. Some groups have done research that convinces me that this project does not have adequate water or waste infrastructure and that this plan will further stress our island's infrastructure, particularly in East Kaua'i.

PAL proposed a REAL, functioning Sustainable, Cooperative, Agricultural Community. We met fairly recently with current Kaua'i County Planning Director Kaaina Hull about developing affordable housing on a different piece of agricultural district land. He said that he is not interested in supporting a variance or rezoning of any agricultural parcel – unless the developer can bring him a direct nexus to agriculture. We think that is a very wise approach and we agree. We cannot and should not convert agricultural land to housing unless the land is used to provide food and ag-based commerce.

Based on all of the above, I would have to say that I would encourage you to reject this subdivision as is it presented. This is not the right subdivision for the right time. It does not serve the needs of this Island. If the developers would make a sincere effort to include community needs, walking and bicycling access to town, shared cars, cooperative Agriculture with shared equipment and a community food hub, a much lower footprint and committed efforts to make it truly environmentally sensitive and sustainable and *truly* affordable, I would put all of my – and PAL's – support behind a different and inspiring vision for the Kapa'a Highlands. The project, as it currently stands, harms, rather than serves, the community. It sells out our future in exchange for housing that most of our local residents cannot afford. It takes away valuable agricultural resources forever and it is not environmentally sustainable. Therefore, I implore you to deny the applicant's proposal. Please send them back to the drawing board. This proposed development is not good for our island.

Q. Does this conclude your testimony?

A. Yes.

Jim Edmonds (James Brunson Edmonds)
Principal Broker, Emerald Isle Properties – 1988 to present
President, PAL Kaua‘i – Permanently Affordable Living – 501(c)(3) nonprofit – Oct. 2018 to present
PO Box 679, Kilauea, Kaua‘i 96754
(808) 443-8848 – Jim@PAL-Kauai.org

Education:

BA – English Literature and Poetry – 1968 – University of South Carolina (the original USC 😊)

Real Estate License – 1988

Real Estate Broker’s License – 1990

Teaching Experience:

English Literature, Poetry, American History and Mountain Climbing – 1969 – 71 – Leysin American School, Leysin, Switzerland.

Real Estate – 1991 to present – as Principal Broker of Emerald Isle Properties

Businesses Owned and/or Managed:

Good Sam’s (as in Samaritan) Second Hand and Antique Store – 1972 – 74 – San Francisco.

Possibilities Unlimited, small construction coalition – 1974 – 79 – Hawaii Island and Oahu.

Alpha Data Systems Vice President of Marketing – 1981 – 84 - Honolulu.

Development Experience:

Completion of at least 25 subdivisions, CPR’s and projects, personally and for clients – 1990 – present.

Remodel of 15 vintage buildings, Hawaii Island and Kaua‘i – 1995 – present.

Development of Affordable Housing Projects – 2018 – present.

Foundation and directorship of KAHA – Kauaʻi Affordable Housing Alliance – 2019 – present.

Memberships / Affiliations:

Kauaʻi Board of Realtors

Hawaii Association of Realtors

National Association of Realtors

KAHA – Kauaʻi Affordable Housing Alliance

EXHIBIT “H”

Updated Traffic Impact Report (TIAR)

By Traffic Management Consultant

Response to State DOT Comments

Comments by State DOT

Response to County DPW Comments

Comments by County DPW

EXHIBIT "I-42"

THE TRAFFIC MANAGEMENT CONSULTANT

Randall S. Okaneku, P.E., Principal * 1188 Bishop Street, Suite 1907 * Honolulu, Hawaii 96813
Telephone: (808) 536-0223 * Facsimile: (808) 537-2985 * Email: TMCHawaii@aol.com

TMC Job No. 201708
October 3, 2017

State of Hawaii
Department of Transportation
Highways Division-Kauai District
1720 Haleukana Street
Lihu`e, Kauai, Hawai`i 96766

Attn.: Mr. Larry Dill, P.E., District Engineer

Dear Mr. Dill:

Subject: Traffic Impact Analysis Report Update
For the Proposed Hokua Place
Tax Map Key: (4) 4-3-003: Portion of 001
Kapa`a, Kauai, Hawaii

Thank you for the review comments in your letter, dated September 29, 2017, on the subject traffic study. Our responses follow:

Comment No. 1

Noted.

Comment No. 2

Noted.

Comment No. 3

The AM and PM Peak Hour Traffic Without Project rows of Table 6 summarize the capacity analysis under existing roadway conditions. The AM and PM Peak Hour Traffic With Project rows of Table 6 summarize the capacity analysis with the recommended site access improvements under Section V.B. of the TIAR Update. The AM and PM Peak Hour Traffic With Project – Improved rows in Table 6 summarize the capacity analysis of the recommended traffic improvements under Section V.A. of the TIAR Update.

Comment No. 4

Noted.

Comment No. 5

Noted.

If you require clarification on any of the above material or have any other questions, please do not hesitate to call me.

Very truly yours,

The Traffic Management Consultant

By 

Randall S. Okaneku, P. E.
Principal

DAVID Y. IGE
GOVERNOR

FORD N. FUCHIGAMI
DIRECTOR

Deputy Directors
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:

HWAY-K 4.170445

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
KAUAI DISTRICT
1720 HALEUKANA STREET
LIHUE, HAWAII 96766

September 29, 2017

Randall S. Okaneku, P.E.
The Traffic Management Consultant
1188 Bishop Street, Suite 1907
Honolulu, Hawaii 96813

Dear Mr. Okaneku:

Subject: Traffic Impact Analysis Report Update
Hokua Place
Kapa'a, Kawaihau District, Island of Kaua'i
TMK: (4) 4-3-03: Por. 001

Thank you for submitting the updated Traffic Impact Analysis Report(TIAR) update that was transmitted via email on June 15, 2017. We have circulated the TIAR for comment through the Highways Division Planning Branch as well as the Traffic Branch. We have also reviewed the comments provided by the County of Kauai Department of Public Works Engineering Division on September 1, 2017.

The combined comments for the Hawaii Department of Transportation Highways Division are as follows:

1. The report discussed the projects that are proposed in the Kapaa Transportation Solutions Report dated August 2015. It should be noted that these projects may not be completed on schedule. Therefore, they should not be considered in this report.
2. It is understood that the proposed Road A will be funded and constructed by the developer.
3. Please clarify the scenarios in Table 7, Summary of Capacity Analysis. What assumed improvements are completed for AM/PM peak hour traffic without project, with project, and with project-improved.
4. Section V of the TIAR recommends traffic improvements without the project. Although these recommendations are appreciated, they are not a consideration for this development.
5. We concur with the comments provided by the County of Kauai Department of Engineering Division.

Please contact Raymond McCormick at 808-241-3015 by telephone or by email at Raymond.j.mccormick@hawaii.gov if you have comments or questions regarding this letter.

Sincerely,

Larry Dill, P.E.
District Engineer
for

THE TRAFFIC MANAGEMENT CONSULTANT

Randall S. Okaneku, P.E., Principal * 1188 Bishop Street, Suite 1907 * Honolulu, Hawaii 96813
Telephone: (808) 536-0223 * Facsimile: (808) 537-2985 * Email: TMCHawaii@aol.com

TMC Job No. 201708
October 3, 2017

Department of Public Works
County of Kauai
4444 Rice Street, Suite 275
Lihu`e, Kauai, Hawai`i 96766

Attn.: Mr. Michael Moule, P.E., Chief, Engineering Division

Dear Mr. Moule:

Subject: Traffic Impact Analysis Report Update
For the Proposed Hokua Place
Tax Map Key: (4) 4-3-003: Portion of 001
Kapa`a, Kauai, Hawaii

Thank you for the thorough review comments in your letter, dated September 1, 2017, on the subject traffic study. Our responses follow:

Comment No. 1 – Introduction, Project Description

a. Concur. The design of the intersection between the Phase 1 access road and Olohena Road, mauka of its intersection with Ka`apuni Road, will include the appropriate vertical and horizontal sight distances in accordance with the AASHTO A Policy on Geometric Design of Highways and Streets and the Hawaii Statewide Uniform Design Manual for Streets and Highways.

Comment No. 2 – Existing Roadways

a. Concur. The stated speed limits are intended to provide guidance to the design of the intersection of Road A and the Kapa`a Bypass Road.

b. Concur.

c. Concur.

Comment No. 3 – Existing Peak Hour Traffic Volumes and Operation Conditions

a. Noted. The traffic impact analysis is based upon the methodology presented in the Highway Capacity Manual (HCM). The HCM methodology consists of a series of mathematical calculations to determine roadway capacity, vehicle delay, vehicle queuing, etc. The LOS concept was defined in the HCM to translate the results of the complex calculations into a simplified "A" through "F" grading system.

b. Corrected. The second sentence in the last paragraph on Page 10 should read "South of Ulu Street, Kuhio Highway carried over 1,700 vph…".

c. Corrected. The revised Figure 6 is attached. The PM peak hour of traffic from 3:45 PM to 4:45 PM on March 15, 2015 was selected for the intersection of Kuhio Highway and the Kapa`a Bypass Road because it corresponded with of the commuter PM peak hour traffic at the intersections in Kapa`a Town. The revised traffic data sheets for the intersection of Kuhio Highway and Kapa`a Bypass Road also are attached.

d. LOS, by definition, is the result of a series of mathematical calculations. For the purpose of the traffic impact analysis, the HCM methodology provides a common basis for comparing future traffic conditions without the proposed project and future traffic conditions with the proposed project.

Comment No. 4 – Kapa`a Transportation Solutions

a. Noted. The Kapa`a Transportation Solutions, cited in the TIAR Update, is dated August 2015. Please transmit the latest version of the Kapa`a traffic study.

b. Noted.

Comment No. 5 – Trip Generation Characteristics

a. Noted. The revised Table 6 is shown below:

Table 1. Hokua Place Trip Generation Characteristics

Land Use (ITE Code)	Units	AM Peak Hour (vph)			PM Peak Hour (vph)		
		Enter	Exit	Total	Enter	Exit	Total
Single-Family Phase 1 (265)	16 DU	5	16	21	13	7	20
Single-Family Phase 2 (265)	100 DU	20	60	80	66	38	104
Condominium/ Townhouse (230)	700 DU	52	256	308	244	120	364
Retail Center (820)	8,000 SFGFA	21	13	34	53	57	110
	Pass-By	0	0	0	(-)45	(-)45	(-)90
Total External Trips		**98**	**345**	**443**	**331**	**177**	**509**

b. The ITE Trip Generation Handbook cites a 9,000-square foot retail center, where 20 percent of the trip generation were primary trips. Comparing the retail center to smaller convenience markets, the Trip Generation Handbook listed sites where the primary trip percentages ranged from 8 percent to 28 percent of the PM peak period trip generation. The retail center is described in the DEIS as a neighborhood-oriented commercial center. Therefore, it is reasonable to assume that a significant portion of the retail trips will be generated from within the proposed project, which can be defined as "internal capture" or "diverted trips".

Comment No. 6 – Site Access Improvements

a. Noted. The AM and PM peak hour traffic demands at the Olohena Road intersections at the Phase 1 Driveway and at Road A do not meet the AASHTO left-turn lane guidelines. During the AM peak hour of traffic, the advancing (mauka bound) volumes on Olohena Road do not meet the AASHTO minimum requirements. The left-turn demands at Road A and at the Phase 1 Driveway do not meet the AASHTO minimum left-turn volumes, during the PM peak hour of traffic. The Olohena Road intersections at Road A and the Phase 1 Driveway are expected to operate at satisfactory LOS during the AM peak hour of traffic. The Phase 1 Driveway also is expected to operate at satisfactory LOS at Olohena Road, during the PM peak hour of traffic. Road A is expected to operate at LOS "D", during the PM peak hour of traffic. However, the average delay of 26.7 seconds/vehicle on Road A is in the upper range of LOS "D". Therefore, a median refuge lane at Road A was not recommended at this time. Furthermore, separate left-turn and right-turn lanes on Road A would not improve the LOS.

Comment No. 7 – Traffic Assignment

a. The traffic assignment for the proposed project was primarily based upon the direction of peak hour traffic at the roundabout intersection of the Kapa`a Bypass Road and Olohena Road, where only about one third of Olohena Road traffic turns to/from the south leg of the Kapa`a Bypass Road. The Phase 2 development is concentrated on the makai half of the project site. Only the trips generated from the mauka-most portion of the site and the estimated AM peak hour school trips are expected to use the mauka access of Road A at Olohena Road.

b. The peak hour trip destinations, mauka of the Ka`apuni Road/Olohena Road intersection, are virtually nil, as observed in mauka bound/makai bound directional splits on Olohena Road. The retail trips generated from the mauka neighboring communities are represented in the "pass-by" trips using Road A.

Comment No. 8 – Figures 11 through 14 (Traffic Assignment)

a. The diverted peak hour trips on Road A are depicted on the attached Figures 12.1 and 14.1.

b. The revised Figure 11 is attached.

c. The revised Figure 13 is attached.

d. The revised Figure 14 is attached.

Comment No. 9 – PM Peak Hour Traffic Analysis With Project

a. The recommendation of extending the median refuge lane/two-way left-turn lane in Section V.A.7. of the TIAR Update is expected to mitigate the "bottle-neck" on Kuhio Highway, north of Lehua Street. Ultimately, the improvement of the north leg of the Kapa`a Bypass Road from a one-way roadway to a two-way bypass road is expected to improve traffic operations in Kapa`a Town.

Comment No. 10 – Recommendation of Traffic Improvements Without Project

a. Noted.

Comment No. 11 – Recommendation of Traffic Improvements With Project

a. Noted. While the MUTCD does not provide warrants for roundabout intersections, it does advise that a roundabout intersection can be considered as an alternative to traffic signal control. Based upon the TIAR Update, the intersection of Olohena Road and Road A is not expected to warrant all-way stop controls or traffic signals. Therefore, a roundabout intersection was not considered. However, a reassessment of the traffic operations at the Road A intersection at Olohena Road may be considered after the project is fully built out and occupied. A roundabout intersection was considered at the intersection of Olohena Road, Ka`apuni Road, and Kaehulua Road. However, based upon a preliminary assessment of the horizontal and vertical alignments of the intersecting roadways, it was determined that a roundabout intersection would not be feasible. The realignment of Kaehulua Road to form a four-legged intersection with the Olohena Road and Ka`apuni Road was recommended in Section V.A.6.

If you require clarification on any of the above material or have any other questions, please do not hesitate to call me.

Very truly yours,

The Traffic Management Consultant

By 

Randall S. Okaneku, P. E.
Principal

Attachments:
Figure 6-Revised
Kuhio Hwy Kapa`a Bypass Rd Traffic Count Data-Revised
Figure 12.1
Figure 14.1
Figure 11-Revised
Figure 13-Revised
Figure 14-Revised

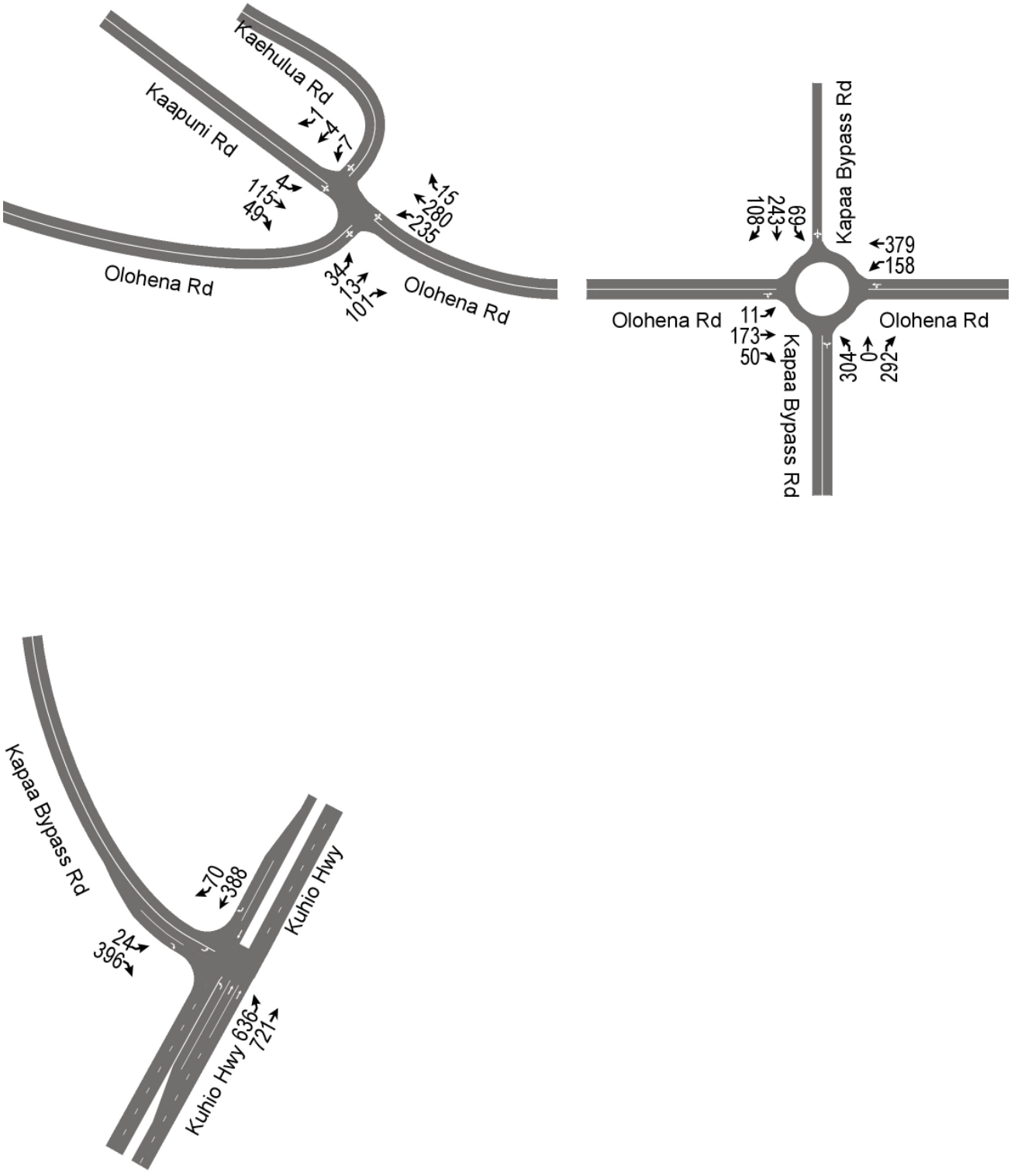

Figure 6. Existing PM Peak Hour Traffic (Cont'd.)

The Traffic Management Consultant
1188 Bishop Street, Suite 1907

Honolulu, Hawaii, United States 96813
808-536-0223 tmchawaii@aol.com

Count Name: Kuhio Hwy Kapaa Bypass 3-15-17 to 3-17-17
Site Code: Hokua Place
Start Date: 03/15/2017

Turning Movement Data

Start Time	Kapaa Bypass Rd Koko Head Bound				Kuhio Hwy Mauka Bound				Kuhio Hwy Makai Bound					
	Left-Turn	Right-Turn	Peds	App. Total	Left-Turn	Thru	Peds	App. Total	Left-Turn	Thru	Right-Turn	Peds	App. Total	Int. Total
3:00 PM	1	105	0	106	99	191	0	290	0	106	5	0	111	507
3:15 PM	3	100	0	103	122	210	0	332	0	88	7	0	95	530
3:30 PM	8	93	0	101	120	207	0	327	0	73	8	0	81	509
3:45 PM	8	104	0	112	148	201	0	349	0	88	21	0	109	570
Hourly Total	20	402	0	422	489	809	0	1298	0	355	41	0	396	2116
4:00 PM	1	108	0	109	168	161	0	329	0	91	16	0	107	545
4:15 PM	9	94	0	103	154	172	0	326	0	97	14	0	111	540
4:30 PM	6	90	0	96	166	187	0	353	0	112	19	0	131	580
4:45 PM	2	95	0	97	146	176	0	322	0	112	15	0	127	546
Hourly Total	18	387	0	405	634	696	0	1330	0	412	64	0	476	2211
5:00 PM	5	88	0	93	149	232	0	381	0	138	27	0	165	639
5:15 PM	2	91	0	93	149	192	0	341	0	152	25	0	177	611
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	7	179	0	186	298	424	0	722	0	290	52	0	342	1250
6:30 AM	0	78	0	78	14	124	0	138	0	203	0	0	203	419
6:45 AM	2	116	0	118	8	124	0	132	0	190	1	0	191	441
Hourly Total	2	194	0	196	22	248	0	270	0	393	1	0	394	860
7:00 AM	1	161	0	162	20	129	0	149	0	233	0	0	233	544
7:15 AM	1	184	0	185	25	155	0	180	0	200	1	0	201	566
7:30 AM	2	152	0	154	24	152	0	176	0	167	0	0	167	497
7:45 AM	1	155	1	156	33	180	0	213	0	135	0	0	135	504
Hourly Total	5	652	1	657	102	616	0	718	0	735	1	0	736	2111
8:00 AM	0	150	0	150	24	187	0	211	0	132	1	0	133	494
8:15 AM	3	131	0	134	21	177	0	198	0	165	0	0	165	497
8:30 AM	3	130	0	133	33	191	0	224	0	161	1	0	162	519
8:45 AM	1	108	0	109	25	209	0	234	0	189	0	0	189	532
Hourly Total	7	519	0	526	103	764	0	867	0	647	2	0	649	2042
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	5	103	0	108	97	217	0	314	0	96	6	0	102	524
3:15 PM	8	117	0	125	131	156	0	287	0	84	9	0	93	505
3:30 PM	6	83	0	89	138	227	0	365	1	76	8	0	85	539
3:45 PM	2	87	1	89	119	182	0	301	0	76	7	0	83	473
Hourly Total	21	390	1	411	485	782	0	1267	1	332	30	0	363	2041
4:00 PM	2	122	0	124	126	152	0	278	0	96	7	0	103	505
4:15 PM	6	109	1	115	136	158	0	294	0	95	6	0	101	510
4:30 PM	6	96	1	102	143	174	0	317	0	78	2	0	80	499
4:45 PM	5	93	0	98	138	181	0	319	0	83	6	0	89	506
Hourly Total	19	420	2	439	543	665	0	1208	0	352	21	0	373	2020
5:00 PM	2	98	0	100	146	204	0	350	0	85	3	0	88	538
5:15 PM	4	113	0	117	121	159	0	280	0	92	2	0	94	491
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hourly Total	6	211	0	217	267	363	0	630	0	177	5	0	182	1029
6:30 AM	0	82	0	82	11	115	0	126	0	185	0	0	185	393
6:45 AM	0	89	0	89	10	126	0	136	0	164	3	0	167	392
Hourly Total	0	171	0	171	21	241	0	262	0	349	3	0	352	785
7:00 AM	1	131	0	132	17	133	0	150	0	219	1	0	220	502
7:15 AM	3	168	0	171	32	158	0	190	0	182	3	0	185	546
7:30 AM	1	125	0	126	40	146	0	186	0	166	2	0	168	480
7:45 AM	1	123	0	124	30	165	0	195	0	138	0	0	138	457
Hourly Total	6	547	0	553	119	602	0	721	0	705	6	0	711	1985
8:00 AM	4	116	0	120	20	169	0	189	0	150	0	0	150	459
8:15 AM	1	125	0	126	28	158	0	186	0	133	2	0	135	447
Grand Total	116	4313	4	4429	3131	6537	0	9668	1	5030	228	0	5259	19356
Approach %	2.6	97.4	-	-	32.4	67.6	-	-	0.0	95.6	4.3	-	-	-
Total %	0.6	22.3	-	22.9	16.2	33.8	-	49.9	0.0	26.0	1.2	-	27.2	-
Lights	114	4214	-	4328	3083	6353	-	9436	1	4901	225	-	5127	18891
% Lights	98.3	97.7	-	97.7	98.5	97.2	-	97.6	100.0	97.4	98.7	-	97.5	97.6
Mediums	2	91	-	93	47	171	-	218	0	115	3	-	118	429
% Mediums	1.7	2.1	-	2.1	1.5	2.6	-	2.3	0.0	2.3	1.3	-	2.2	2.2
Articulated Trucks	0	8	-	8	1	13	-	14	0	14	0	-	14	36
% Articulated Trucks	0.0	0.2	-	0.2	0.0	0.2	-	0.1	0.0	0.3	0.0	-	0.3	0.2
All Pedestrians	-	-	4	-	-	-	0	-	-	-	-	0	-	-
% All Pedestrians	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-

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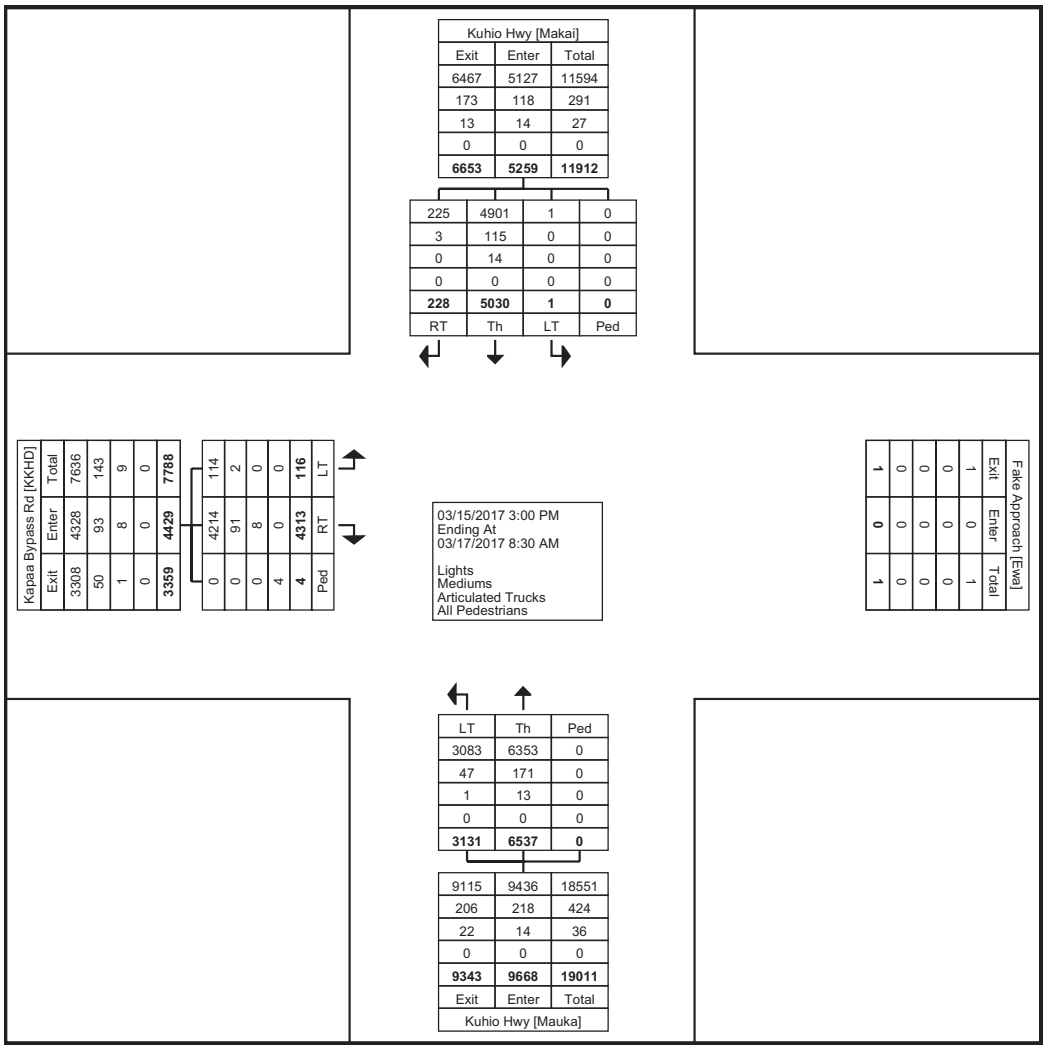
808-536-0223 tmchawaii@aol.com

Count Name: Kuhio Hwy Kapaa
Bypass 3-15-17 to 3-17-17
Site Code: Hokua Place
Start Date: 03/15/2017



Turning Movement Data Plot

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Count Name: Kuhio Hwy Kapaa Bypass 3-15-17 to 3-17-17
Site Code: Hokua Place
Start Date: 03/15/2017

Turning Movement Peak Hour Data (3:45 PM)

Start Time	Kapaa Bypass Rd Koko Head Bound				Kuhio Hwy Mauka Bound				Kuhio Hwy Makai Bound					
	Left-Turn	Right-Turn	Peds	App. Total	Left-Turn	Thru	Peds	App. Total	Left-Turn	Thru	Right-Turn	Peds	App. Total	Int. Total
3:45 PM	8	104	0	112	148	201	0	349	0	88	21	0	109	570
4:00 PM	1	108	0	109	168	161	0	329	0	91	16	0	107	545
4:15 PM	9	94	0	103	154	172	0	326	0	97	14	0	111	540
4:30 PM	6	90	0	96	166	187	0	353	0	112	19	0	131	580
Total	24	396	0	420	636	721	0	1357	0	388	70	0	458	2235
Approach %	5.7	94.3	-	-	46.9	53.1	-	-	0.0	84.7	15.3	-	-	-
Total %	1.1	17.7	-	18.8	28.5	32.3	-	60.7	0.0	17.4	3.1	-	20.5	-
PHF	0.667	0.917	-	0.938	0.946	0.897	-	0.961	0.000	0.866	0.833	-	0.874	0.963
Lights	24	390	-	414	633	712	-	1345	0	377	69	-	446	2205
% Lights	100.0	98.5	-	98.6	99.5	98.8	-	99.1	-	97.2	98.6	-	97.4	98.7
Mediums	0	6	-	6	3	9	-	12	0	11	1	-	12	30
% Mediums	0.0	1.5	-	1.4	0.5	1.2	-	0.9	-	2.8	1.4	-	2.6	1.3
Articulated Trucks	0	0	-	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
All Pedestrians	-	-	0	-	-	-	0	-	-	-	-	0	-	-
% All Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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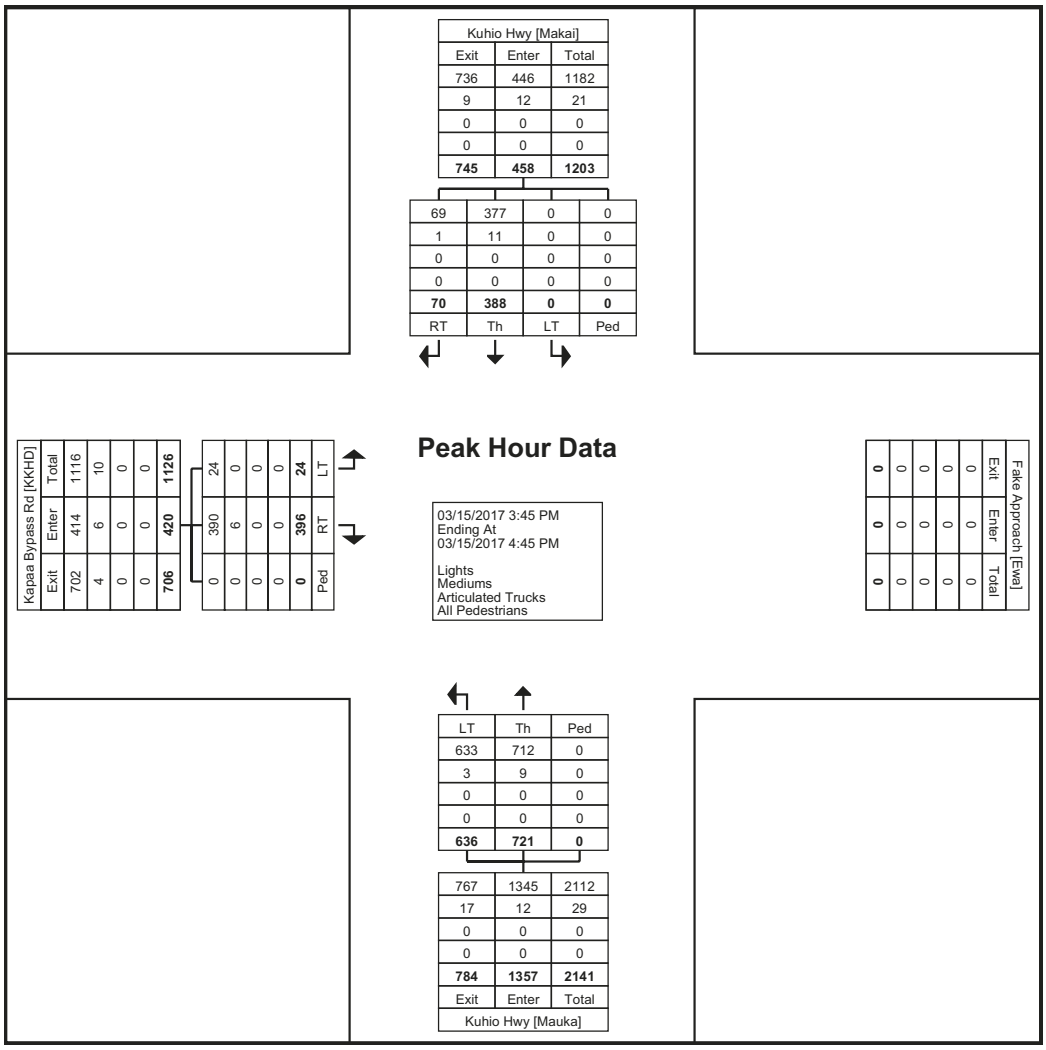
Count Name: Kuhio Hwy Kapaa
Bypass 3-15-17 to 3-17-17
Site Code: Hokua Place
Start Date: 03/15/2017



Turning Movement Peak Hour Data Plot (3:45 PM)

The Traffic Management Consultant
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Count Name: Kuhio Hwy Kapaa Bypass 3-15-17 to 3-17-17
Site Code: Hokua Place
Start Date: 03/15/2017

Turning Movement Peak Hour Data (7:00 AM)

Start Time	Kapaa Bypass Rd Koko Head Bound				Kuhio Hwy Mauka Bound				Kuhio Hwy Makai Bound					
	Left-Turn	Right-Turn	Peds	App. Total	Left-Turn	Thru	Peds	App. Total	Left-Turn	Thru	Right-Turn	Peds	App. Total	Int. Total
7:00 AM	1	161	0	162	20	129	0	149	0	233	0	0	233	544
7:15 AM	1	184	0	185	25	155	0	180	0	200	1	0	201	566
7:30 AM	2	152	0	154	24	152	0	176	0	167	0	0	167	497
7:45 AM	1	155	1	156	33	180	0	213	0	135	0	0	135	504
Total	5	652	1	657	102	616	0	718	0	735	1	0	736	2111
Approach %	0.8	99.2	-	-	14.2	85.8	-	-	0.0	99.9	0.1	-	-	-
Total %	0.2	30.9	-	31.1	4.8	29.2	-	34.0	0.0	34.8	0.0	-	34.9	-
PHF	0.625	0.886	-	0.888	0.773	0.856	-	0.843	0.000	0.789	0.250	-	0.790	0.932
Lights	4	635	-	639	100	600	-	700	0	711	1	-	712	2051
% Lights	80.0	97.4	-	97.3	98.0	97.4	-	97.5	-	96.7	100.0	-	96.7	97.2
Mediums	1	14	-	15	2	16	-	18	0	23	0	-	23	56
% Mediums	20.0	2.1	-	2.3	2.0	2.6	-	2.5	-	3.1	0.0	-	3.1	2.7
Articulated Trucks	0	3	-	3	0	0	-	0	0	1	0	-	1	4
% Articulated Trucks	0.0	0.5	-	0.5	0.0	0.0	-	0.0	-	0.1	0.0	-	0.1	0.2
All Pedestrians	-	-	1	-	-	-	0	-	-	-	-	0	-	-
% All Pedestrians	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-

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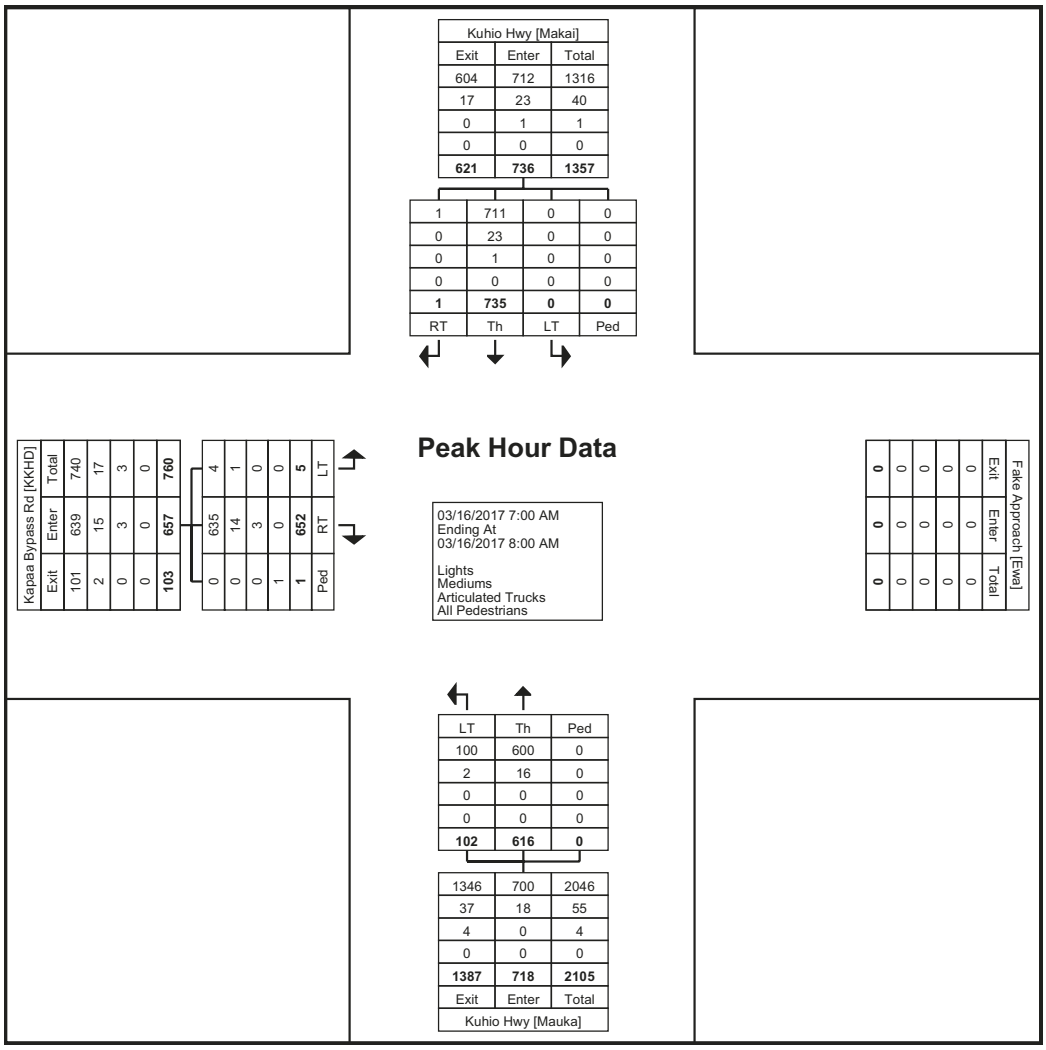

Turning Movement Peak Hour Data Plot (7:00 AM)

The Traffic Management Consultant
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Count Name: Kuhio Hwy Kapaa Bypass 3-15-17 to 3-17-17
Site Code: Hokua Place
Start Date: 03/15/2017

Turning Movement Peak Hour Data (4:15 PM)

Start Time	Kapaa Bypass Rd Koko Head Bound				Kuhio Hwy Mauka Bound				Kuhio Hwy Makai Bound					
	Left-Turn	Right-Turn	Peds	App. Total	Left-Turn	Thru	Peds	App. Total	Left-Turn	Thru	Right-Turn	Peds	App. Total	Int. Total
4:15 PM	6	109	1	115	136	158	0	294	0	95	6	0	101	510
4:30 PM	6	96	1	102	143	174	0	317	0	78	2	0	80	499
4:45 PM	5	93	0	98	138	181	0	319	0	83	6	0	89	506
5:00 PM	2	98	0	100	146	204	0	350	0	85	3	0	88	538
Total	19	396	2	415	563	717	0	1280	0	341	17	0	358	2053
Approach %	4.6	95.4	-	-	44.0	56.0	-	-	0.0	95.3	4.7	-	-	-
Total %	0.9	19.3	-	20.2	27.4	34.9	-	62.3	0.0	16.6	0.8	-	17.4	-
PHF	0.792	0.908	-	0.902	0.964	0.879	-	0.914	0.000	0.897	0.708	-	0.886	0.954
Lights	19	385	-	404	558	710	-	1268	0	337	17	-	354	2026
% Lights	100.0	97.2	-	97.3	99.1	99.0	-	99.1	-	98.8	100.0	-	98.9	98.7
Mediums	0	11	-	11	5	7	-	12	0	4	0	-	4	27
% Mediums	0.0	2.8	-	2.7	0.9	1.0	-	0.9	-	1.2	0.0	-	1.1	1.3
Articulated Trucks	0	0	-	0	0	0	-	0	0	0	0	-	0	0
% Articulated Trucks	0.0	0.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	-	0.0	0.0
All Pedestrians	-	-	2	-	-	-	0	-	-	-	-	0	-	-
% All Pedestrians	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-

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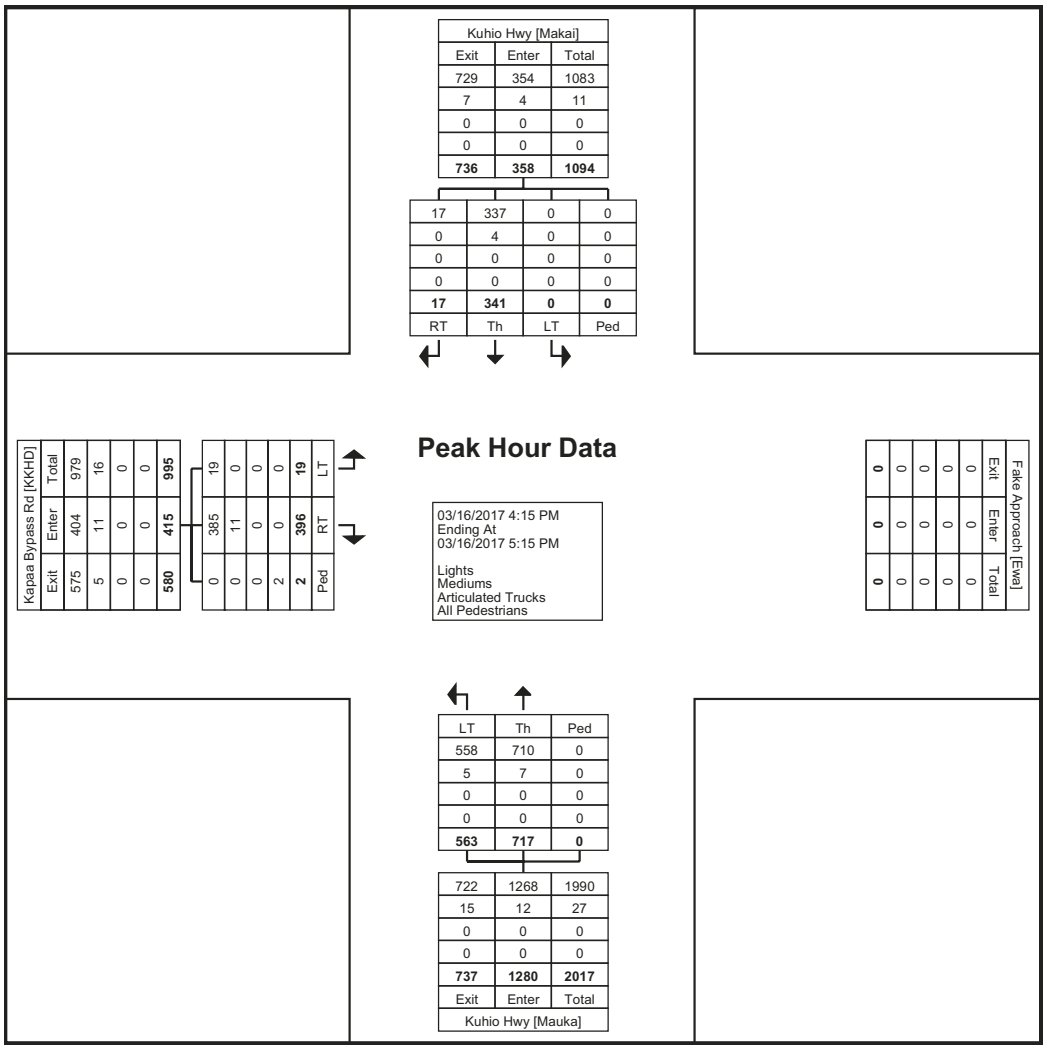
Count Name: Kuhio Hwy Kapaa
Bypass 3-15-17 to 3-17-17
Site Code: Hokua Place
Start Date: 03/15/2017



Turning Movement Peak Hour Data Plot (4:15 PM)

The Traffic Management Consultant
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Turning Movement Peak Hour Data (7:00 AM)

Start Time	Kapaa Bypass Rd Koko Head Bound				Kuhio Hwy Mauka Bound				Kuhio Hwy Makai Bound					
	Left-Turn	Right-Turn	Peds	App. Total	Left-Turn	Thru	Peds	App. Total	Left-Turn	Thru	Right-Turn	Peds	App. Total	Int. Total
7:00 AM	1	131	0	132	17	133	0	150	0	219	1	0	220	502
7:15 AM	3	168	0	171	32	158	0	190	0	182	3	0	185	546
7:30 AM	1	125	0	126	40	146	0	186	0	166	2	0	168	480
7:45 AM	1	123	0	124	30	165	0	195	0	138	0	0	138	457
Total	6	547	0	553	119	602	0	721	0	705	6	0	711	1985
Approach %	1.1	98.9	-	-	16.5	83.5	-	-	0.0	99.2	0.8	-	-	-
Total %	0.3	27.6	-	27.9	6.0	30.3	-	36.3	0.0	35.5	0.3	-	35.8	-
PHF	0.500	0.814	-	0.808	0.744	0.912	-	0.924	0.000	0.805	0.500	-	0.808	0.909
Lights	5	535	-	540	113	569	-	682	0	688	6	-	694	1916
% Lights	83.3	97.8	-	97.6	95.0	94.5	-	94.6	-	97.6	100.0	-	97.6	96.5
Mediums	1	10	-	11	5	29	-	34	0	15	0	-	15	60
% Mediums	16.7	1.8	-	2.0	4.2	4.8	-	4.7	-	2.1	0.0	-	2.1	3.0
Articulated Trucks	0	2	-	2	1	4	-	5	0	2	0	-	2	9
% Articulated Trucks	0.0	0.4	-	0.4	0.8	0.7	-	0.7	-	0.3	0.0	-	0.3	0.5
All Pedestrians	-	-	0	-	-	-	0	-	-	-	-	0	-	-
% All Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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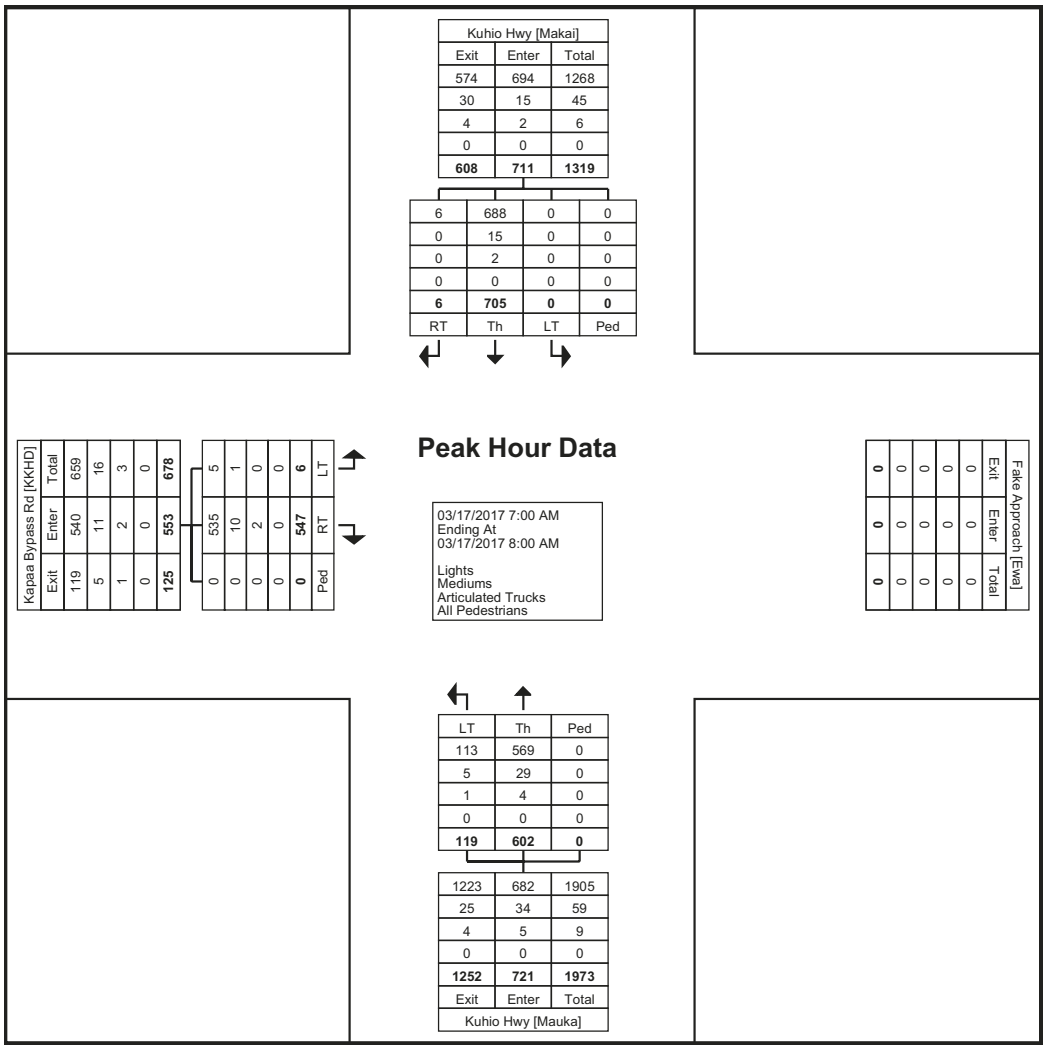

Turning Movement Peak Hour Data Plot (7:00 AM)

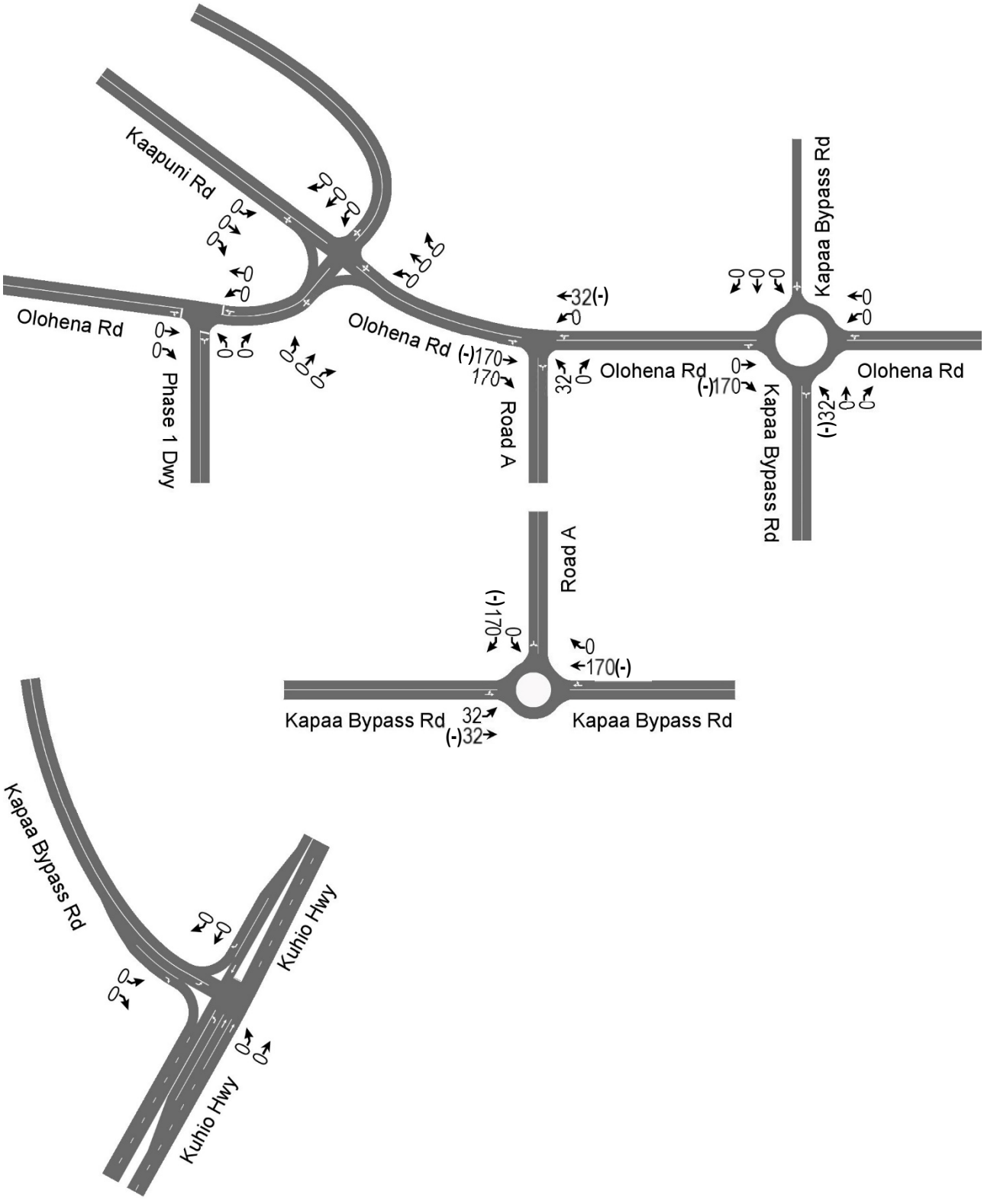

Figure 12.1 AM Peak Hour Diverted Traffic Assignment

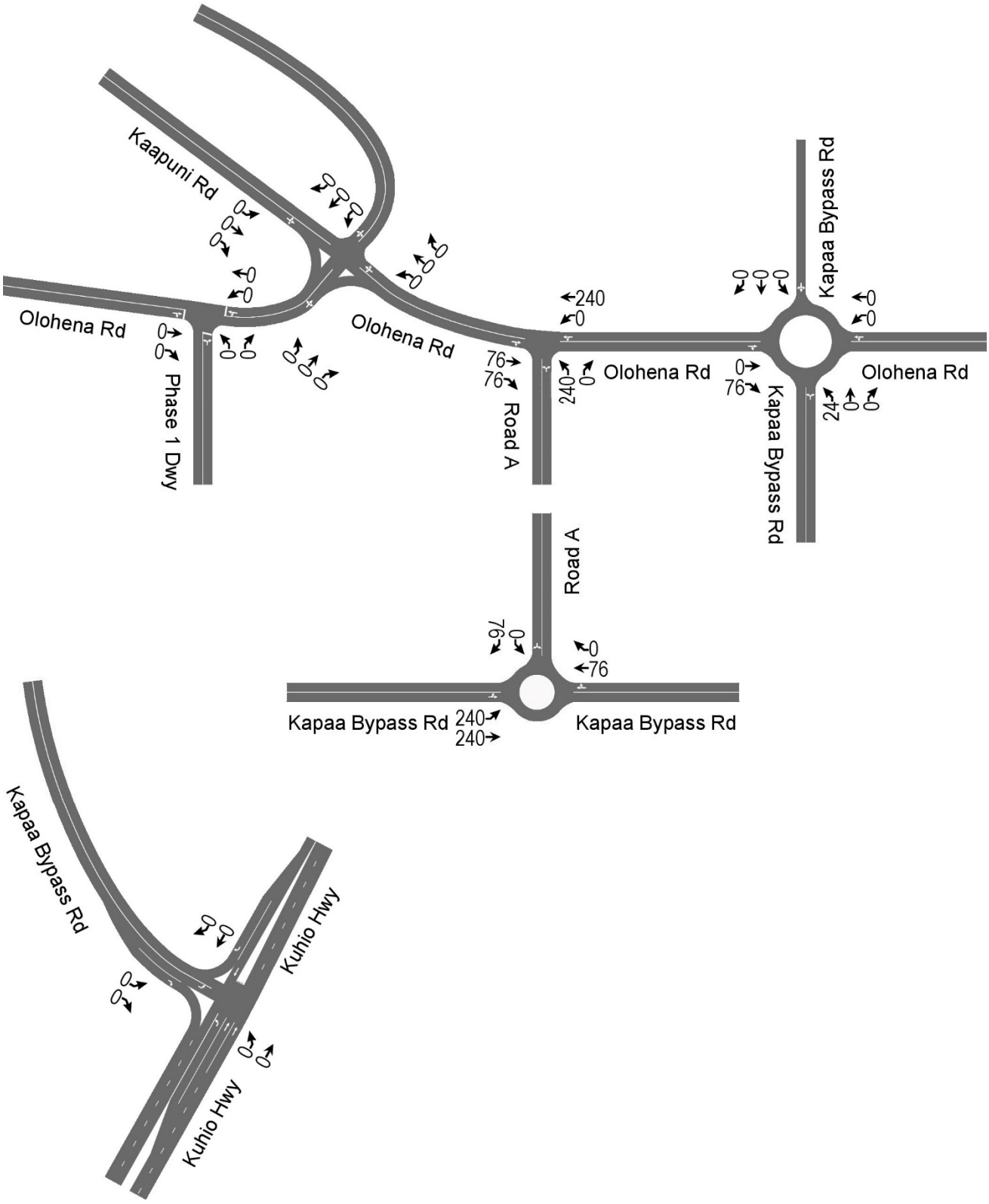

Figure 14.1 PM Peak Hour Diverted Traffic Assignment

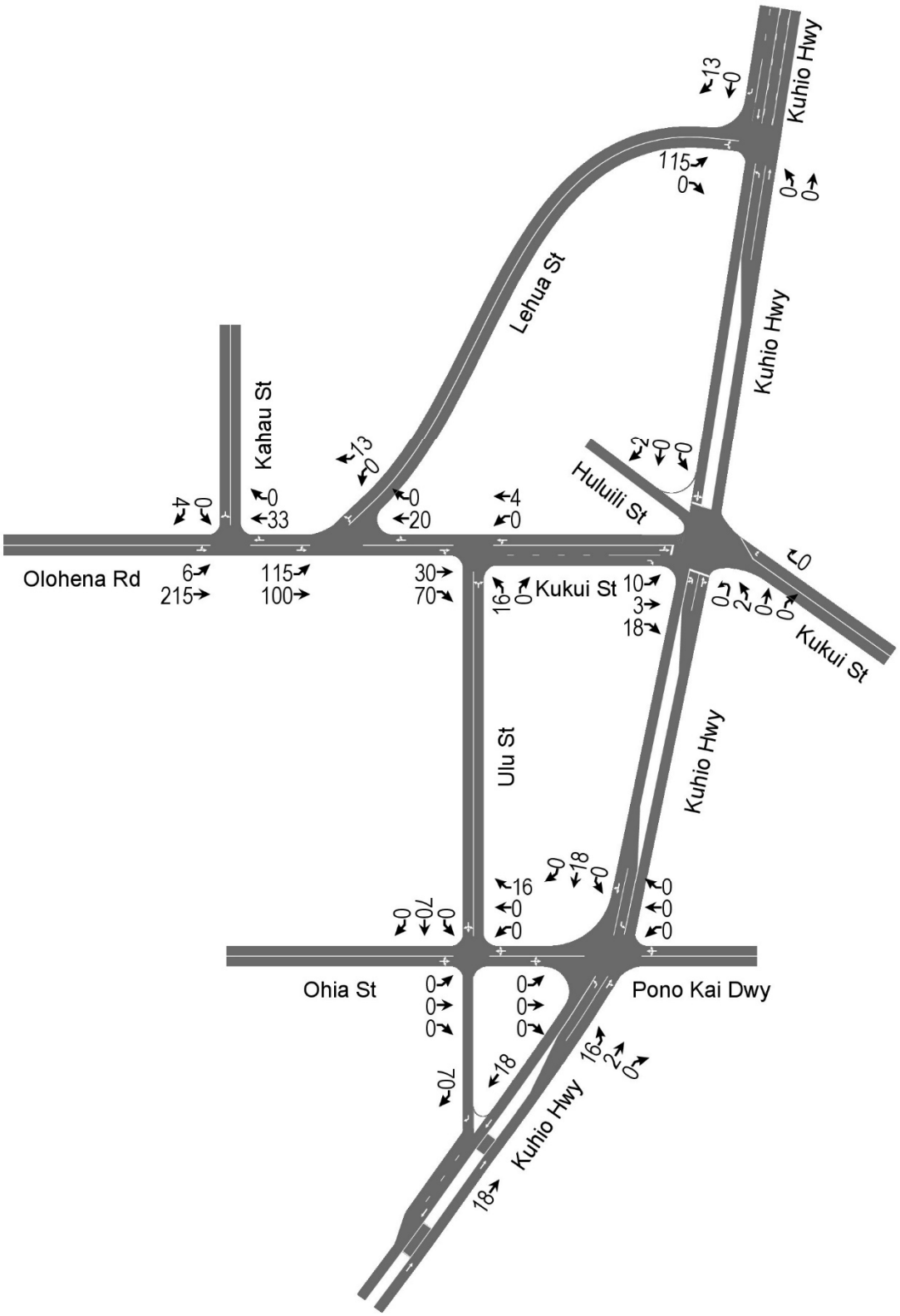

Figure 11. AM Peak Hour Site Traffic Assignment

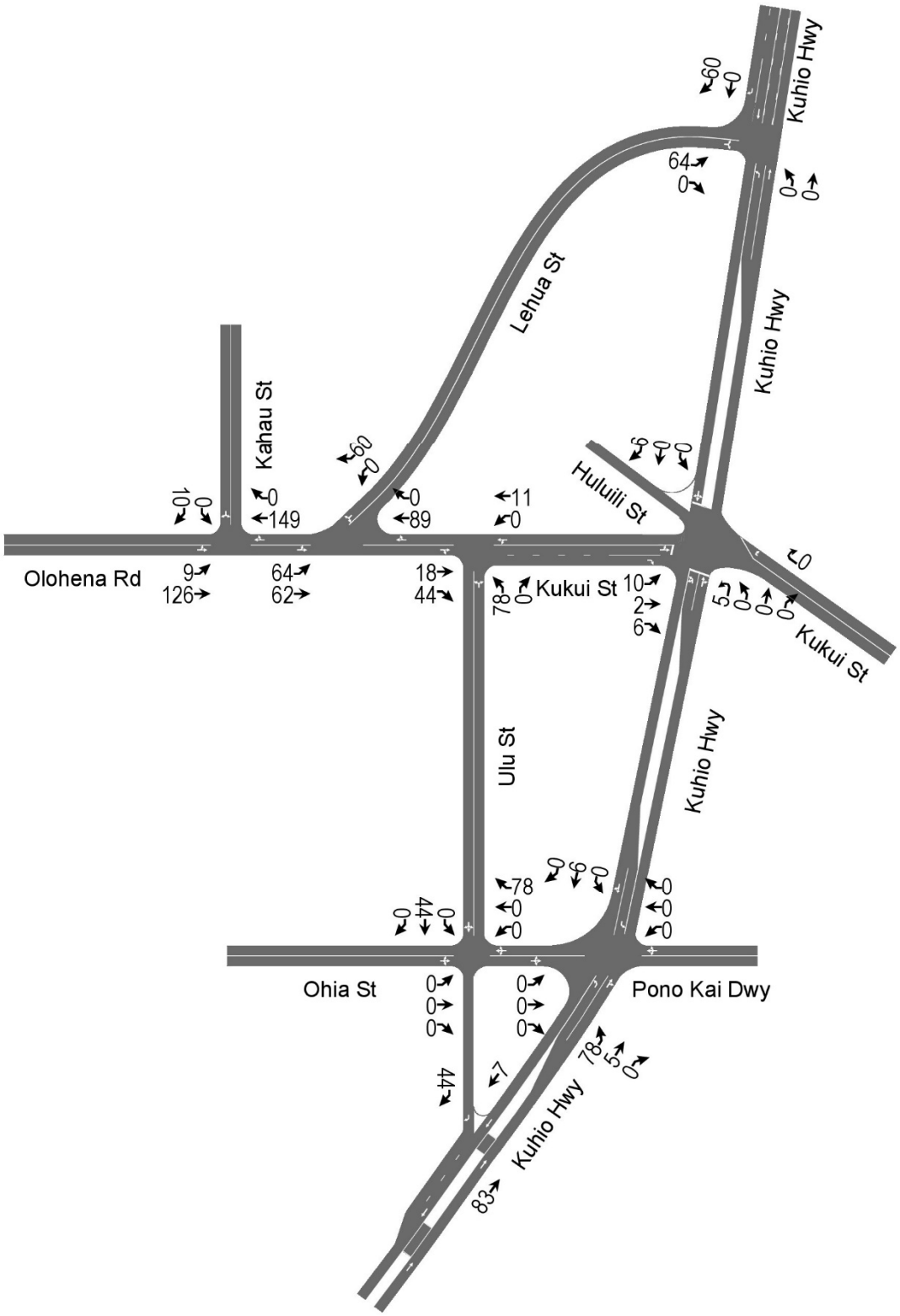

Figure 13. PM Peak Hour Site Traffic Assignment

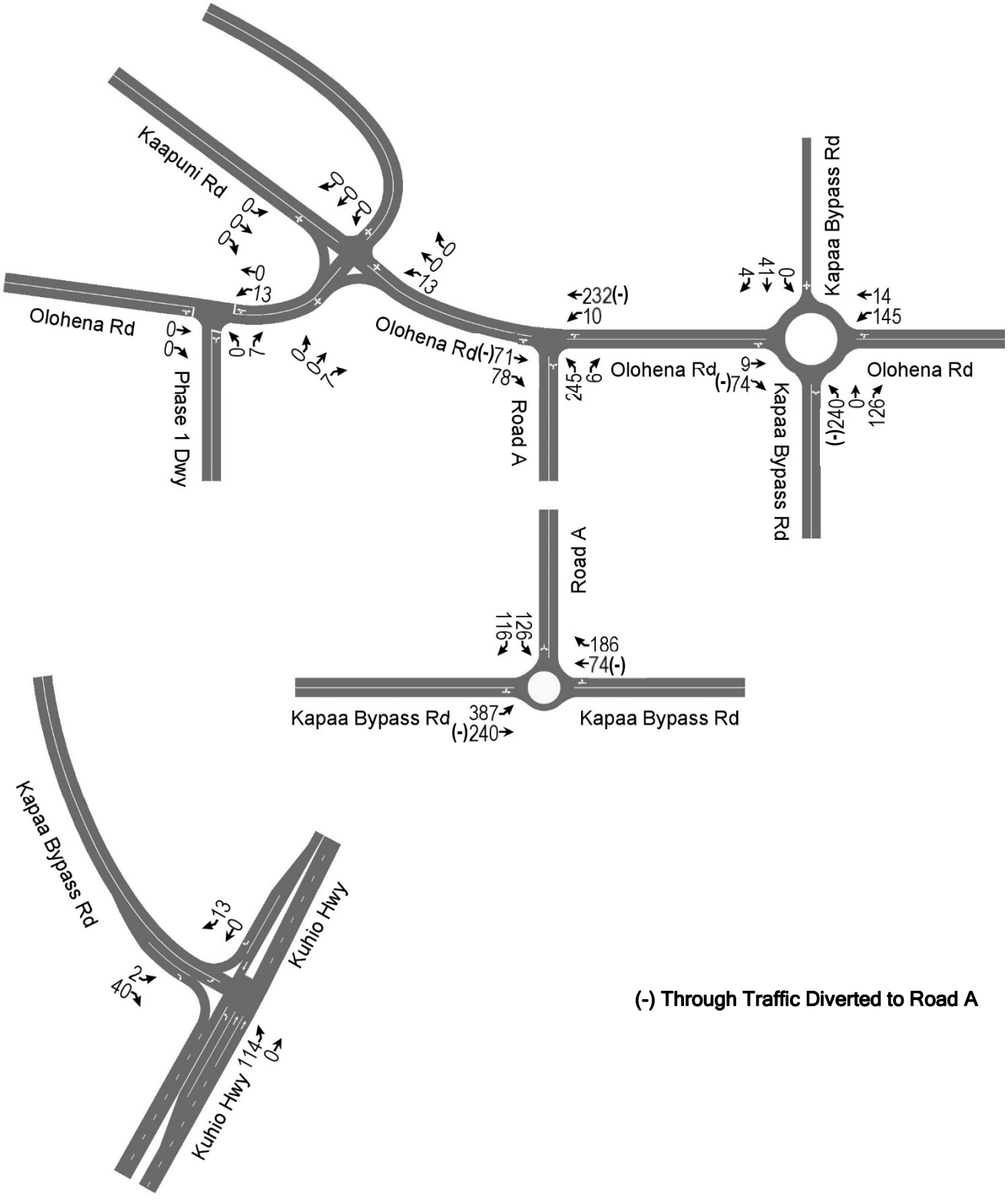

Figure 14. PM Peak Hour Site Traffic Assignment (Cont'd.)

Bernard P. Carvalho, Jr.
Mayor

Wallace G. Rezentes, Jr.
Managing Director

Lyle Tabata
Acting County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

September 1, 2017

Randall S. Okaneku, P. E.
The Traffic Management Consultant
1188 Bishop Street, Suite 1907
Honolulu, Hawaii 96813

SUBJECT: Traffic Impact Analysis Report Update
For the Proposed Hokua Place
Kapa`a, Kawaihau District, Island of Kaua'i
TMK: (4) 4-3-03: Por. 001

Dear Mr. Okaneku:

The Engineering Division of the Department of Public Works received the subject Traffic Impact Analysis Report (TIAR) Update that was transmitted via email on June 15, 2017. We appreciate the opportunity to review the TIAR and offer the following comments on the TIAR:

1. **Introduction, Project Description:**
   a. The TIAR indicates that the driveway for phase 1 is proposed to be located on Olohena Road mauka of its intersection with Ka'apuni Road. We have concerns with a proposed intersection at this location, including the proximity to the intersection of Ka'apuni Road as well as concerns about intersection sight distance due to nearby horizontal and vertical curves. Prior to approval of a driveway at this location, additional information will need to be provided about this driveway location, to show that appropriate sight lines can be achieved and that no safety or other problems will be created by the proximity to the intersection of Olohena Road and Ka'apuni Road.
2. **Existing Conditions, Roadways:**
   a. The report states that the Kapa'a Bypass Road speed limit is reduced to 25 mph south of the proposed intersection with Road A. The report should also mention that further south the speed limit is again increased to 35 mph.
   b. The report incorrectly indicates that the posted speed limit for Olohena Road is reduced to 15 mph as it approaches Kapa'a Middle School. The correct statement should be that there is a 15 mph school zone within the vicinity of Kapa'a Middle School during school hours.
   c. Kukui Street and Ulu Street should both be described as collector streets.

3. **Existing Conditions, Existing Peak Hour Traffic Volumes and Operating Conditions:**
    a. The language throughout this segment of the TIAR indicates that intersections "operated at LOS...." However, if we understand correctly, the LOS values given are based on the analysis of the traffic conditions, not actual empirical observations of delay for vehicles at these intersections. The TIAR should instead use language such as "calculated to operate at LOS ...." This is an important distinction given that observations of Kūhiō Highway during peak hours of traffic appear to show LOS along the highway worse than the LOS A for movements along Kūhiō Highway as reported in the TIAR, potentially due to other factors than the control delay at the intersections.
    b. Check the traffic volume of 1,500 shown on page 10 for Kūhiō Highway south of Ulu Street in the PM Peak. The volumes shown in Figure 6 do not match.
    c. Figure 6 (Existing PM Peak Hour Traffic) has an error for the southbound through movement on Kūhiō Highway at the Kapa'a Bypass Road. The figure shows an hourly volume of 38, which is way too low for this through movement. The data shown for this intersection in figure 6 does not appear to match either of the two PM peak hour traffic count plots (or their average) in the appendix.
    d. Related to comment "a" above recommending different language for the calculated LOS values, we recommend that the TIAR include some statements comparing the observed traffic conditions with the calculated delays and level of service, ideally offering explanations for the difference in observed level of service and calculated level of service.
4. **Future Traffic Conditions, Kapa'a Transportation Solutions:**
    a. Page 17 of the TIAR refers to removal of on-street parking on Kūhiō Highway. The Kapa'a Transportation Solutions study rejected any potential solutions that removed parking on Kūhiō Highway, since such a change would be detrimental to the economic vitality, multimodal, and safety goals of the study. Removal of parking should not be discussed in the TIAR, as HDOT is not considering removal of parking to add travel lanes or turn lanes.
    b. With respect to a new connector road in the approximate location of Road A, page 18 of the TIAR states, "The construction cost of the connector road was estimated at $25,824,000." The costs in the Kapa'a Transportation Solutions report include right-of-way costs as well as construction cost; therefore it is misleading to state that the full cost shown in the study is the estimated construction cost.
5. **Traffic Impact Analysis, Trip Generation Characteristics:**
    a. The project description in the TIAR's introduction states that there are 700 multi-family dwelling units, but the trip generation calculations are based on 800 multi-family dwelling units. This discrepancy must be corrected, and the accurate trip generation should be reflected in the study.
    b. The pass-by trip percentage of 81.2% is too high, especially given the relatively small amount of traffic traveling through the development on Road A. The diverted volume of 45 vehicles represents approximately 15% of the estimated through vehicles on Road A during the PM Peak Hour. The 8,000 square feet of the Hokua Place shopping center is outside of the sample size in the pass-by trip

chart for shopping centers in the ITE Trip Generation Handbook. A pass-by trip percentage of approximately 30% or 40% would be more reasonable, given the data available in the Trip Generation Handbook. It would also be reasonable for the TIAR to include a calculation of an internal capture rate for trips between the retail portion and the residential portion of the Hokua Place development. However, the combination of the traffic reduction for internal capture and pass-by trips should still be less than 81%.

6. **Traffic Impact Analysis, Site Access Improvements:**
   a. The recommendations for the stop controlled Tee-intersections of Olohena Road with Road A and the phase 1 driveway do not include any statements regarding the recommended lane assignments for these new intersections. The methodologies section of the report describes the use of AASHTO Left-Turn Lane Guidelines, but no such analyses are included in the TIAR for left turn lanes on Olohena Road at these intersections. We believe that at a minimum, a left turn lane would be necessary on Olohena Road at Road A, but analyses must be provided for both intersections. A median refuge lane should also be included on Olohena Road to facilitate the left-turn movement from Road A to Olohena Road. In addition, we believe that Road A should have two approach lanes at Olohena Road, one for right turn movements and one for left turn movements.
7. **Traffic Impact Analysis, Traffic Assignment:**
   a. In the previous TIAR for this project, no traffic was assigned to the left turn movement from southbound Road A to eastbound Kapa'a Bypass (and likewise for the right turn from the Kapa'a Bypass to Road A). In our earlier comments, we recommended that some traffic be assigned to these movements. In almost a complete reversal, the current TIAR assigned nearly all of the traffic to these movements. In the current TIAR, only about 5% to 10% of the project traffic that goes through the existing Kapa'a Bypass roundabout is assigned to go through the intersection of Road A and Olohena Road. A more equitable distribution of traffic should be made, to accurately represent the traffic impact on Olohena Road.
   b. The TIAR assigns no traffic between the project and Olohena Road or Ka'apuni Road north of the project (Wailua Homesteads and Upper Kapahi area). There are relatively few destinations on those roads for the residential traffic from the project, but a small amount of residential traffic is likely to travel to those areas. In addition, much of the traffic generated by the retail portion of the development would have its origin or destination in the residential areas of Wailua Homesteads and Upper Kapahi area. A reasonable (albeit small) amount of traffic must be assigned to those areas.
8. **Figures 11 Through 14 (Traffic Assignment)**
   a. For clarity, the TIAR must show the reassignment of existing traffic on separate figures from the figures for traffic assignment from this project.
   b. On Figure 11, the 989 vehicles shown for northbound Kūhiō Highway at Ulu Street is incorrect. It appears that this volume should be 20.
   c. On Figure 13, the 1,274 vehicles shown for northbound Kūhiō Highway at Ulu Street is incorrect. It appears that this volume should be 92.
   d. On Figure 14, the 30 vehicles shown for the Kapa'a Bypass Road left turn and the

447 vehicles for the Kapa'a Byapss Road right turn appear to be incorrect.

9. **Traffic Impact Analysis, PM Peak Hour Traffic Analysis With Project:**
    a. We recommend that the TIAR further analyze and discuss the impact of the project on the intersection of Kūhi'ō Highway and Lehua Street and recommend measures to mitigate this impact. The TIAR states that "Makai bound Lehua Street is expected to continue at LOS F at Kūhiō Highway during the PM peak hour of traffic with the proposed project." However, Table 7 shows the PM peak hour of traffic without the project to be LOS E. Additionally, while the AM peak hour of traffic with the project continues to be LOS F, the delay increases significantly.
10. **Recommendations and Conclusions, Recommended Traffic Improvements Without Project:**
    a. Item number 3 recommends restricting parking along Kūhiō Highway within Kapa'a Town in order to provide additional through lanes or left turn lanes on Kūhiō Highway. This should not be recommended in the TIAR, because HDOT is not considering removal of parking to add travel lanes. Removal of parking has been determined to be detrimental to businesses and the economic vitality of Kapa'a Town. Discussion of parking removal on Kūhiō Highway in Kapa'a Town should also be removed from other sections of the report, including the conclusions.
11. **Recommendations and Conclusions, Recommended Traffic Improvements With Project:**
    a. Our comments above include several concerns about the intersection of Road A and Olohena Road, including the possibility that additional traffic should be assigned to this intersection. We are concerned that the one-way stop control Tee-intersection proposed will not be sufficient to address traffic operations and safety at intersection. The installation of a roundabout at this intersection shall be evaluated as part of the TIAR, including traffic operations analysis for a roundabout as well as a safety comparison of a roundabout and a one-way stop control intersection. The federal Manual on Uniform Traffic Control Devices (MUTCD) does not include traffic warrants for roundabouts. However, evaluation of the MUTCD's multi-way stop control warrants and/or signal warrants would be instructive with respect to evaluating whether a one-way stop control intersection would be sufficient or if a roundabout is needed instead. Alternatively, we may also accept an evaluation of the need for a roundabout based on roundabout evaluation guidelines from another jurisdiction or research document.
    Consideration should also be given to the construction of a roundabout that combines the intersections of Olohena Road with Ka'apuni Road and Road A (with Kaehulua Road designed as a T intersection with either Ka'apuni Road or Olohena Road). Traffic operations analysis of a roundabout that combines these intersections shall be included in the TIAR.

The comments in this letter should not be construed to be inclusive of all County of Kaua'i recommendations for road improvements required to be constructed as part of the Hokua Place

project. Recommendations and requirements for road improvements will be included as part of future review phases for the project, such as zoning amendments, subdivision applications, and construction plan review. If you have any questions or need additional information, please contact me at (808) 241-4891 or Stanford Iwamoto at (808) 241-4896.

Very truly yours,

MICHAEL MOULE, P.E.
Chief, Engineering Division

MM/SI

Copies to: DPW-Design & Permitting
Lyle Tabata, Acting County Engineer
Larry Dill, HDOT Kaua'i District Engineer

TRAFFIC IMPACT ANALYSIS REPORT UPDATE

FOR THE PROPOSED

HOKUA PLACE

KAPA`A, KAUAI, HAWAII
TAX MAP KEY: (4) 4-3-03: 01

PREPARED FOR

HG KAUAI JOINT VENTURE, LLC

MAY 22, 2017

PREPARED BY

TMC

THE TRAFFIC MANAGEMENT CONSULTANT

TRAFFIC IMPACT ANALYSIS REPORT UPDATE

FOR THE PROPOSED

HOKUA PLACE

KAPA`A, KAUAI, HAWAII
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THE TRAFFIC MANAGEMENT CONSULTANT

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

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EXECUTIVE SUMMARY

TRAFFIC IMPACT ANALYSIS REPORT UPDATE

FOR THE PROPOSED

HOKUA PLACE

Project Description

The proposed Hokua Place will be developed into an 816-unit residential subdivision in Kapa`a, Kauai, Hawaii. The project is situated immediately to the south of Kapa`a Middle School and to the west (mauka) of Kapa`a Town. The primary access will be provided by a new connector roadway between Olohena Road, immediately mauka of Kapa`a Middle School, and the Kapa`a Bypass Road, southwest of its roundabout intersection with Olohena Road.

The Draft Environmental Impact Statement for the Proposed Hokua Place (DEIS) was published in May 2015. The Traffic Impact Assessment Report Kapa`a Highlands Subdivision, dated December 9, 2013, was attached to the DEIS. The purpose of this Traffic Impact Analysis Report Update is to update the DEIS traffic study, and to respond to comments received from the State of Hawaii Department of Transportation and the County of Kauai Department of Public Works, during their review of the DEIS traffic study.

Existing Traffic Conditions

The field investigation was conducted in March 2017, to update the existing traffic conditions from the DEIS traffic study. The study area was expanded to include Lehua Street and Ulu Street. The field investigation indicated that Lehua Street and Ulu Street were used as alternate routes between Kuhio Highway and Olohena Road/Kukui Street to avoid the delays at the intersection of Kuhio Highway and Kukui Street.

Since the preparation of the DEIS traffic study, the peak hour traffic at the roundabout intersection of the Kapa`a Bypass Road and Olohena Road increased by about 12 percent and 22 percent, during the AM and PM peak hours of traffic, respectively.

Trip Generation

Hokua Place is expected to generate 487 vehicle trips per hour (vph) and 560 vph, during the AM and PM peak hours of traffic, respectively. The AM and PM peak hour trip generation characteristics for Hokua Place were increased by about 90± vph over the DEIS traffic study, primarily due to the use of the average peak hour trip rates for the multi-family dwelling units.

Traffic Impact Analysis

The construction of the connector roadway through Hokua Place, between Olohena Road and the Kapa`a Bypass Road, is expected to mitigate the project's traffic impacts at the roundabout intersection of the Kapa`a Bypass Road and Olohena Road. The other intersections in the study area will require the following traffic improvements to mitigate the traffic impacts without and with the proposed project.

Recommendations Without Project

1. Widen Kuhio Highway between the Kapa`a Bypass Road (South Junction) and Kuamoo Road to provide two through lanes in each direction.
2. Restripe the median on the north leg of Kuhio Highway at the Kapa`a Bypass Road (South Junction) to provide a median refuge lane.
3. Restripe parking and shoulder lanes on Kuhio Highway through Kapa`a Town to provide additional through and/or left-turn lanes.
4. Modify the traffic signal operations at the intersection of Kuhio Highway and Kukui Street to reduce queuing and delays.
5. Add a right-turn bypass lane from southbound Kapa`a Bypass Road to mauka bound Olohena Road at their roundabout intersection.
6. Realign Kaehulua Road to intersect Olohena Road and Kaapuni Road to create a four-legged, channelized intersection.
7. Extend the median refuge lane/two-way left-turn lane on the north leg of Kuhio Highway at Lehua Street.

Recommendations With Project

1. Construct Road A from Olohena Road to the Kapa`a Bypass Road.
2. Construct a roundabout at the intersection of Road A and the Kapa`a Bypass Road.

Conclusions

The existing traffic congestion on Kuhio Highway through Kapa`a Town can be mitigated by restricting on-street parking and restriping the shoulder lanes to provide for additional through lanes/median left-turn lanes. The existing southbound traffic demand through Kapa`a Town is reduced by the Kapa`a Bypass Road. Dedication of the Kapa`a Bypass Road right-of-way along the Hokua Place frontage would assure the continued usage of the existing Kapa`a Bypass Road.

The construction of the proposed Road A will provide additional mauka-makai roadway capacity between Kapa`a Valley and the Kapa`a Bypass Road. Road A is expected to mitigate the Hokua Place traffic impacts at the roundabout intersection of the Kapa`a Bypass Road and Olohena Road. The Hokua Place access intersections on Olohena Road and on the Kapa`a Bypass Road are expected to operate at satisfactory Levels of Service, during the AM and PM peak hours of traffic.

TRAFFIC IMPACT ANALYSIS REPORT UPDATE

FOR THE PROPOSED

HOKUA PLACE

KAPA`A, KAUAI, HAWAII
TAX MAP KEY: (4) 4-3-03: 01

I. Introduction

A. Project Description

Hokua Place is planned as an 816-unit residential development in Kapa`a, Kauai, Hawaii. Hokua Place will consist of 116 single-family detached units, 700 multi-family condominiums, a neighborhood retail center consisting of 8,000 square feet of gross floor area (SFGFA), and a community park and recreation center. The project site is located on the southwest quadrant of the roundabout intersection of the Kapa`a Bypass Road and Olohena Road. The project is situated immediately to the south of Kapa`a Middle School and to the west (mauka) of Kapa`a Town. Figure 1 depicts the project location and vicinity map.

Phase 1 of Hokua Place will consist of 16 single-family detached units, which will be located on the mauka portion of the project site. The Phase 1 access driveway is proposed on Olohena Road, mauka of its intersection with Kaapuni Road. Phase 2 will consist of the remaining 800 dwelling units. Phase 2 access is proposed via a collector street between Olohena Road, immediately mauka of Kapa`a Middle School, and the Kapa`a Bypass Road, about 3,000 feet southwest of its intersection with Olohena Road (hereinafter referred to as Road A). The project site is depicted on Figure 2.

The construction of Hokua Place is expected to begin by the Year 2020. For the purpose of this Traffic Impact Analysis Report Update, full occupancy is assumed to occur by the Year 2030.

B. 2015 Draft Environmental Impact Statement

The Draft Environmental Impact Statement for the Proposed Hokua Place (DEIS) was published in May 2015. Hokua Place was formerly known as the Kapa`a Highlands Subdivision. The Traffic Impact Assessment Report Kapa`a Highlands Subdivision was prepared by Phillip Rowell and Associates, dated December 9, 2013, and was attached to the DEIS as Exhibit H.

Figure 1. Location Map and Vicinity Map

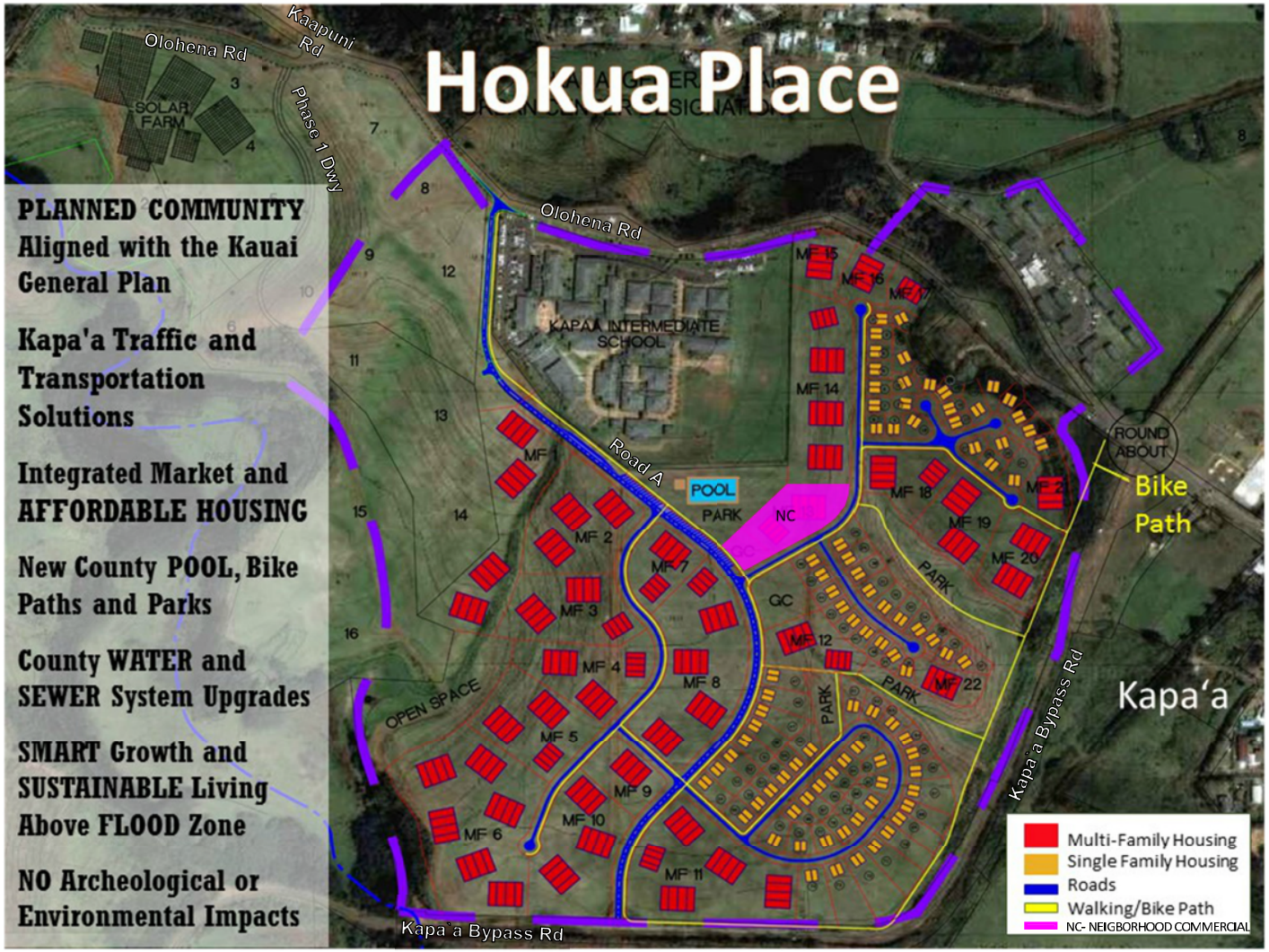

Figure 2. Proposed Site Plan

The State of Hawaii Department of Transportation (DOT) issued comments on the Rowell study in a letter dated March 26, 2014 (HWY-PS 2.6887). Responses to DOT's comments were transmitted via email from Mr. Greg Allen on April 9, 2014. The responses were acceptable to DOT per its letter, dated June 6, 2014 (HWY-PS 2.7311).

The County of Kauai Department of Public Works (DPW) issued its comments on the DEIS in its letter dated June 22, 2015. This TIAR addresses DPW's comments on the DEIS.

C. Purpose and Scope of the Study

The purpose of this study is to update the traffic impact analysis resulting from the development of the proposed Hokua Place. 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 roadways and traffic conditions.
3. The analysis of the future traffic conditions without the proposed project.
4. The development of trip generation characteristics of the proposed project.
5. The identification and analysis of the traffic impacts resulting from the development of the proposed project.
6. The recommendation of roadway improvements, which would mitigate the traffic impacts identified in this study.

D. 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 system for the purpose of simplifying the roadway performance for non-technical decision makers.

The HCM 6th Edition has updated the highway capacity analysis since the HCM 2010 methodology, utilized in the DEIS traffic study. The most significant change in the HCM 6th Edition occurred in the analysis of roundabouts. The widespread construction of roundabouts throughout the United States, since the development of the HCM 2010, resulted in changes in driver behavior, entering and exiting a roundabout.

The data collected at United States roundabouts improved the HCM 6th Edition methodology for analyzing roundabouts, where the calculated delays were reduced by about one half, when compared with the previous HCM 2010 methodology.

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). The delays at unsignalized intersections, which includes stop-controlled intersections and roundabouts, are generally longer than signalized intersections, due to the drivers' expectation and acceptance of longer delays at higher-volume signalized intersections. Table 1 summarizes the HCM LOS criteria.

Table 1. Intersection Level of Service Criteria (HCM)

LOS	Signalized Control	Unsignalized Control	Description
	Delay d (sec/veh)		
A	d≤10	d≤10	Control delay is minimal.
B	10<d ≤20	10<d≤15	Control delay is not significant.
C	20<d≤35	15<d≤25	Stable operation. Queuing begins to occur.
D	35<d≤55	25<d≤35	Less stable condition. Increase in delays, decrease in travel speeds.
E	55<d≤80	35<d≤50	Unstable operation, significant delays.
F	d>80	d>50	High delays, extensive queuing.

HCM utilizes a peak hour factor (PHF) to convert the peak 15-minute traffic into an hourly volume. For the purpose of this study, the peak hour traffic analysis is based directly upon the peak 15-minute traffic flows entering the study intersection, which is multiplied by four (4) to convert the 15-minute peak volumes into the peak hour volumes.

Synchro is a traffic analysis software that was developed by Trafficware Corporation. Synchro is an intersection analysis program that is based upon the HCM 6th Edition methodology. Synchro was used to calculate the Levels of Service for the intersections in the study area. Worksheets for the capacity analysis, performed throughout this report, are compiled in the Appendix.

2. Trip Generation

The trip generation methodology is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in Trip Generation Manual, 9th Edition, 2012. The ITE trip generation methodology has been updated since the Trip Generation, 7th Edition, utilized in the DEIS traffic study. The ITE trip 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 dwelling unit (DU).

A portion of the peak hour trips generated by a retail center is considered to be "pass-by" trips, i.e., traffic already on the roadway stopping by at a "secondary" destination enroute to its primary destination. The percentages of pass-by trips were compared with the gross leasable floor areas of the shopping centers, which were collected from traffic studies and compiled by ITE. The results of the analysis were published in the Trip Generation Handbook, 3rd Edition, dated August 2014. The percentage of pass-by trips is generally inversely proportional to the size of the shopping center, e.g., a regional shopping center is a primary destination with a low pass-by trip percentage, while a convenience store is a secondary destination with a high pass-by trip percentage. About 81.2 percent of the total PM peak hour trips generated by the proposed 8,000 square foot retail center are expected to be pass-by trips. The AM peak hour pass-by trip rate for a retail center was not published by ITE.

3. AASHTO Left-Turn Lane Guidelines

The left-turn lane assessment on a two-lane highway is based upon A Policy on Geometric Design of Highways and Streets, 2011, published by the American Association of State Highway and Transportation Officials (AASHTO). The AASHTO guide analyzes the combination of the left-turn volume (minimum 5%), the advancing volume (left-turn, through and right-turn volumes), the opposing volume (left-turn, through and right-turn volumes), and the operating speed. The AASHTO guide is based upon the "Volume Warrants for Left-Turn Storage Lanes at Unsignalized Grade Intersections", Highway Research Record 211, Highway Research Board, 1967, by M. D. Harmelink. The Harmelink left-turn volume warrant analyzes the probability of the arrival of an advancing vehicle slowing and/or stopping behind a vehicle, which is waiting to turn left from the through lane.

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 on-street parking on both sides of the roadway. Kuhio Highway is signalized at its intersection with Kukui Street.

Exclusive left-turn lanes are provided on Kuhio Highway at major intersections in Kapa`a Town. The posted speed limit on Kuhio Highway in Kapa`a Town is 25 miles per hour (mph).

The Kapa`a Bypass Road provides an alternative southbound route around Kapa`a Town. The Kapa`a Bypass Road is a one-lane, one-way, southbound roadway between its north junction at Kuhio Highway and Olohena Road, with a posted speed limit of 25 mph. The Kapa`a Bypass Road intersects Olohena Road at a single-lane roundabout. South of Olohena Road, the Kapa`a Bypass Road becomes a two-way, two-lane roadway, with a posted speed limit of 35 mph. A 3,700± foot section of the Kapa`a Bypass Road, south of Olohena Road, was constructed on a roadway easement, which is currently owned by the developer of Hokua Place. Hokua Place, LLC has a Memorandum of Understanding with the State of Hawaii Department of Transportation (DOT) to dedicate the roadway easement to State DOT upon the approval of the Hokua Place subdivision.

South of the proposed intersection with Road A, the posted speed limit on the Kapa`a Bypass Road is reduced to 25 mph. At its south junction, the Kapa`a Bypass Road intersects Kuhio Highway at an unsignalized Tee-intersection. The Kapa`a Bypass Road provides separate left-turn and right-turn lanes at its south junction with Kuhio Highway. Exclusive left-turn and right-turn lanes are provided on Kuhio Highway at the Kapa`a Bypass Road in the northbound and southbound directions, respectively. A median refuge lane is not delineated on the north leg of Kuhio Highway at the Kapa`a Bypass Road. However, the striped median provide sufficient refuge space for one vehicle turning left from the Kapa`a Bypass Road.

South of the Kapa`a Bypass Road, the center northbound lane of Kuhio Highway is coned to provide a southbound contra-flow lane, during the AM peak period of weekday traffic, resulting in two lanes in the southbound direction and one lane in the northbound direction. During the field investigation, the contra-flow operation occurred from 5:45 AM to 10:30 AM. The contra-flow lane provides a “free” right-turn movement from the Kapa`a Bypass Road onto southbound Kuhio Highway, during the AM peak period of weekday traffic.

Olohena Road is a two-way, two-lane collector roadway with a posted speed limit of 25 mph. The posted speed limit on Olohena Road is reduced to 15 mph as it approaches Kapa`a Middle School. Olohena Road intersects the Kapa`a Bypass Road at a single-lane roundabout. Makai of Lehua Street, Olohena Road continues as Kukui Street to Kuhio Highway.

Kaapuni Road is a two-way, two-lane, collector road which intersects Olohena Road at a stop-controlled, skewed Tee-intersection. The Kaapuni Road approach has a limited sight distance to the right, due to the vertical alignment of the mauka leg of Olohena Road. Immediately mauka of Olohena Road, the two-way, two-lane Kaehulua Road intersects Kaapuni Road at a stop-controlled, skewed Tee-intersection.

Kukui Street is a two-way, two-lane roadway between Kuhio Highway and Ulu Street with a posted speed limit of 15 mph. Kukui Street is signalized at its intersection with Kuhio Highway with a shared left-turn lane and exclusive right-turn lane.

Ulu Street is a two-way, two-lane local street between Kukui Street and Ohia Street. South of Ohia Street, Ulu Street becomes a one-lane, one-way southbound roadway to Kuhio Highway. Ohia Street is a local street, which intersects Ulu Street and Kuhio Highway at stop-controlled intersections. Exclusive left-turn lanes are provided in both directions on Kuhio Highway at Ohia Street/Pono Kai Driveway. Ulu Street provides an alternate route to the south between Kuhio Highway and Kukui Street.

Lehua Street is a two-way, two-lane local street between Olohena Road and Kuhio Highway. Lehua Street intersects Olohena Road at a stop-controlled Tee-intersection. Lehua Street intersects Kuhio Highway at a stop-controlled, channelized Tee-intersection. Lehua Street provides an alternate route to the north between Kuhio Highway and Olohena Road.

Kahau Street is a two-way, two-lane cul-de-sac street. Kahau Street intersects Olohena Road at a stop-controlled Tee-intersection, immediately mauka of Lehua Street.

B. Public Transit

The Kauai County Transportation Agency operates a public bus service in the region with a stop on Olohena Road at the Kapa`a New Town Park, between the Kapa`a Bypass Road and Kahau Street. The Kauai bus service also stops at Kapa`a Middle School. On Kuhio Highway, the Kauai Bus service stops at Lehua Street, at Ohia Street, and at the Coconut Marketplace near the Kapa`a Bypass Road (South Junction). The Kauai Bus service is provided at hourly intervals Monday through Friday from 6 AM to 9 PM and on weekends and holidays every two hours from 8 AM to 5 PM.

C. Existing Peak Hour Traffic Volumes and Operating Conditions

1. Field Investigation and Data Collection

Turning movement traffic count surveys were conducted at the following intersections in the study area, during the week of March 13, 2017:

a. Kapa`a Bypass Road and Olohena Road

b. Olohena Road and Kaapuni Road

c. Kaapuni Road and Kaehulua Road

d. Kuhio Highway and Kukui Street

e. Kuhio Highway and Kapa`a Bypass Road (South Junction)

f. Kuhio Highway and Lehua Street

g. Olohena Road and Lehua Street

h. Olohena Road and Kahau Street

i. Kukui Street and Ulu Street

j. Ulu Street and Ohia Street

k. Kuhio Highway and Ohia Street/Pono Kai Driveway

l. Kuhio Highway and Ulu Street

Each intersection was surveyed during the peak periods of traffic over a two-day period. On March 14, 2017, a stalled vehicle partially blocked the circulatory roadway of the roundabout intersection of Olohena Road and the Kapa`a Bypass Road from 3:00 PM to 4:00 PM. The blockage limited traffic flows, and this data were excluded from the analysis. Otherwise, the higher peak hour volumes on the survey days at each study intersection were selected for the analysis to establish the existing conditions. The peak hours of traffic varied from intersection to intersection and from day to day.

2. Existing AM Peak Hour Traffic

The existing AM peak hour of traffic in the study area generally occurred from 7:15 AM to 8:15 AM. Table 2 summarizes the changes in the AM peak hour traffic between the DEIS traffic study and the existing AM peak hour traffic data.

Table 2. AM Peak Hour Traffic Comparison

Study Intersection	Intersection Volumes (vph)		Increase (+) Decrease (-)
	2012-2013	2017	
Olohena Road/Kapa`a Bypass Road	1,447	1,628	+181
Kuhio Highway/Kukui Street	1,441	1,410	-31
Kuhio Hwy/Kapa`a Bypass Road	1,990	2,111	+121

In Kapa`a Town, Kuhio Highway carried about 1,400 vehicles per hour (vph), total for both directions, during the AM peak hour of traffic. South of Ulu Street, Kuhio Highway carried over 1,750 vph, total for both directions. The Kapa`a Bypass Road carried about 800 vph, total for both directions, south of Olohena Road. Mauka of the Kapa`a Bypass Road, Olohena Road carried about 1,000 vph, total for both directions. South of the Kapa`a Bypass Road (South Junction), Kuhio Highway carried about 2,100 vph.

The traffic signal timing cycle lengths at the intersection of Kuhio Highway and Kukui Street resulted in long delays on Kukui Street. Makai bound traffic on Olohena Road and Kukui Street were diverted to alternate routes to Kuhio Highway. About 54 percent of makai bound traffic on Olohena Road turned left onto Lehua Street to continue in the northbound direction. About 33 percent of makai bound traffic turned right onto Ulu Street to continue in the southbound direction. The remaining 13 percent

of the makai bound traffic on Olohena Road continued onto Kukui Street to Kuhio Highway.

During the existing AM peak hour of traffic, the overall intersection of Kuhio Highway and Kukui Street operated at LOS "A". However, the left-turn movement on makai bound Kukui Street operated at LOS "F", with a relatively low traffic demand (32 vph). All the traffic movements in both directions on Kuhio Highway operated at LOS "A" at Kukui Street, during the existing AM peak hour of traffic.

The left-turn movement on makai bound Lehua Street operated at LOS "E" at Kuhio Highway, during the existing AM peak hour of traffic. Makai bound Ohia Street also operated at LOS "E" at Kuhio Highway at a very low volume.

Makai bound Olohena Road operated at LOS "D" at the Kapa`a Bypass Road. Kaapuni Road operated at LOS "D" at Olohena Road. The other intersections in the study area operated at satisfactory Levels of Service, i.e., LOS "C" or better, during the existing AM peak hour of traffic. Figures 3 and 4 depict the existing AM peak hour traffic data.

3. Existing PM Peak Hour Traffic

The existing PM peak hour of traffic in the study area varied between the hours of 3:00 PM and 6:00 PM. Table 3 summarizes the changes in the PM peak hour traffic between the DEIS traffic study and the existing (2017) PM peak hour traffic data.

Table 3. PM Peak Hour Traffic Comparison

Study Intersection	Intersection Volumes (vph)		Increase (+) Decrease (-)
	2012-2013	2017	
Olohena Rd/Kapa`a Bypass Rd	1,459	1,787	+328
Kuhio Hwy/Kukui St	1,370	1,295	-75
Kuhio Hwy/Kapa`a Bypass Rd	2,176	2,235	+62

During the existing PM peak hour of traffic, Kuhio Highway carried about 1,200 vph, total for both directions in Kapa`a Town. South of Ulu Street, Kuhio Highway carried over 1,500 vph, total for both directions. The Kapa`a Bypass Road carried over 1,000 vph, total for both directions, south of Olohena Road. Mauka of the Kapa`a Bypass Road, Olohena Road carried about 1,000 vph, total for both directions. Kuhio Highway carried over 2,100 vph, total for both directions, south of the Kapa`a Bypass Road.

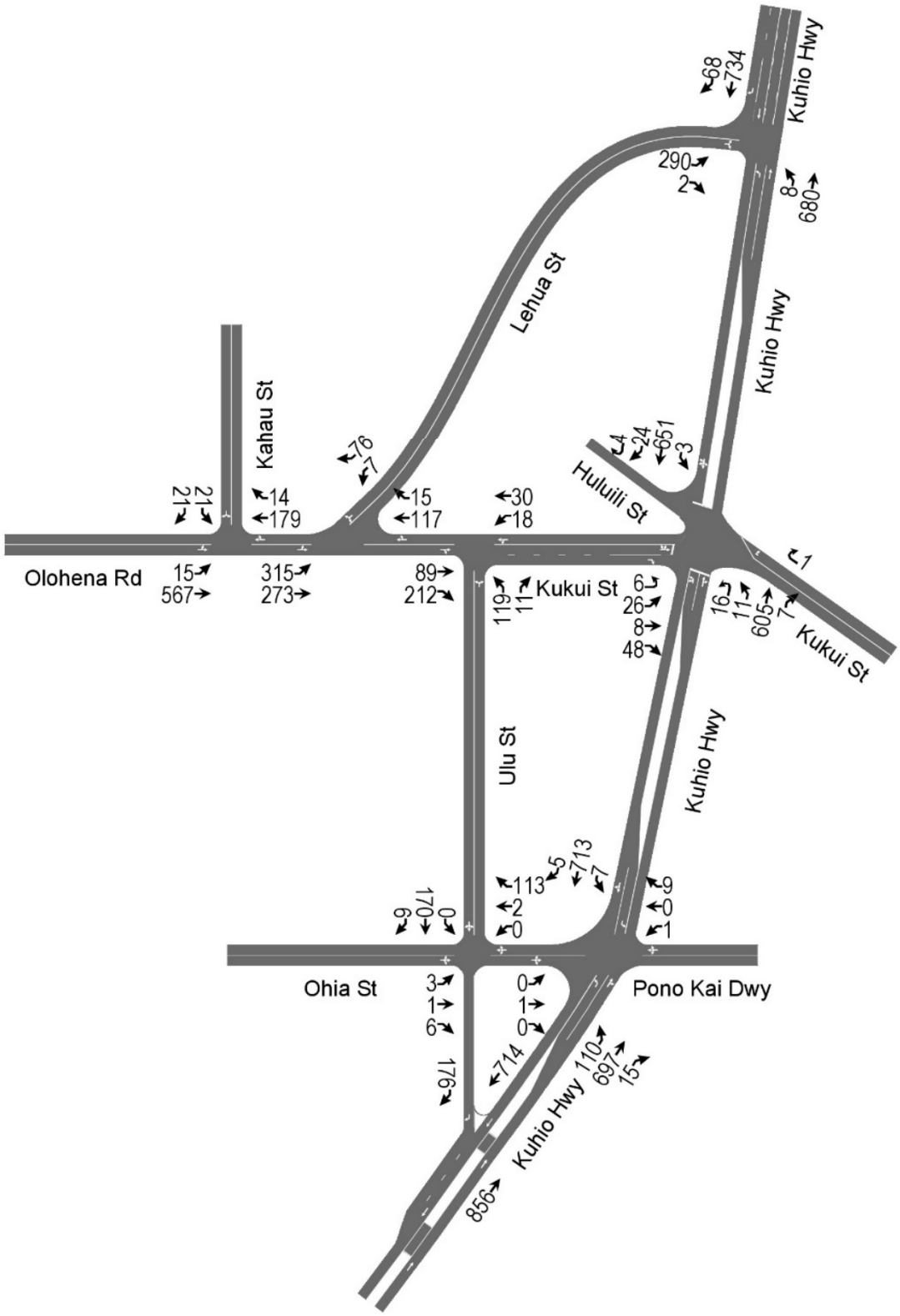

Figure 3. Existing AM Peak Hour Traffic

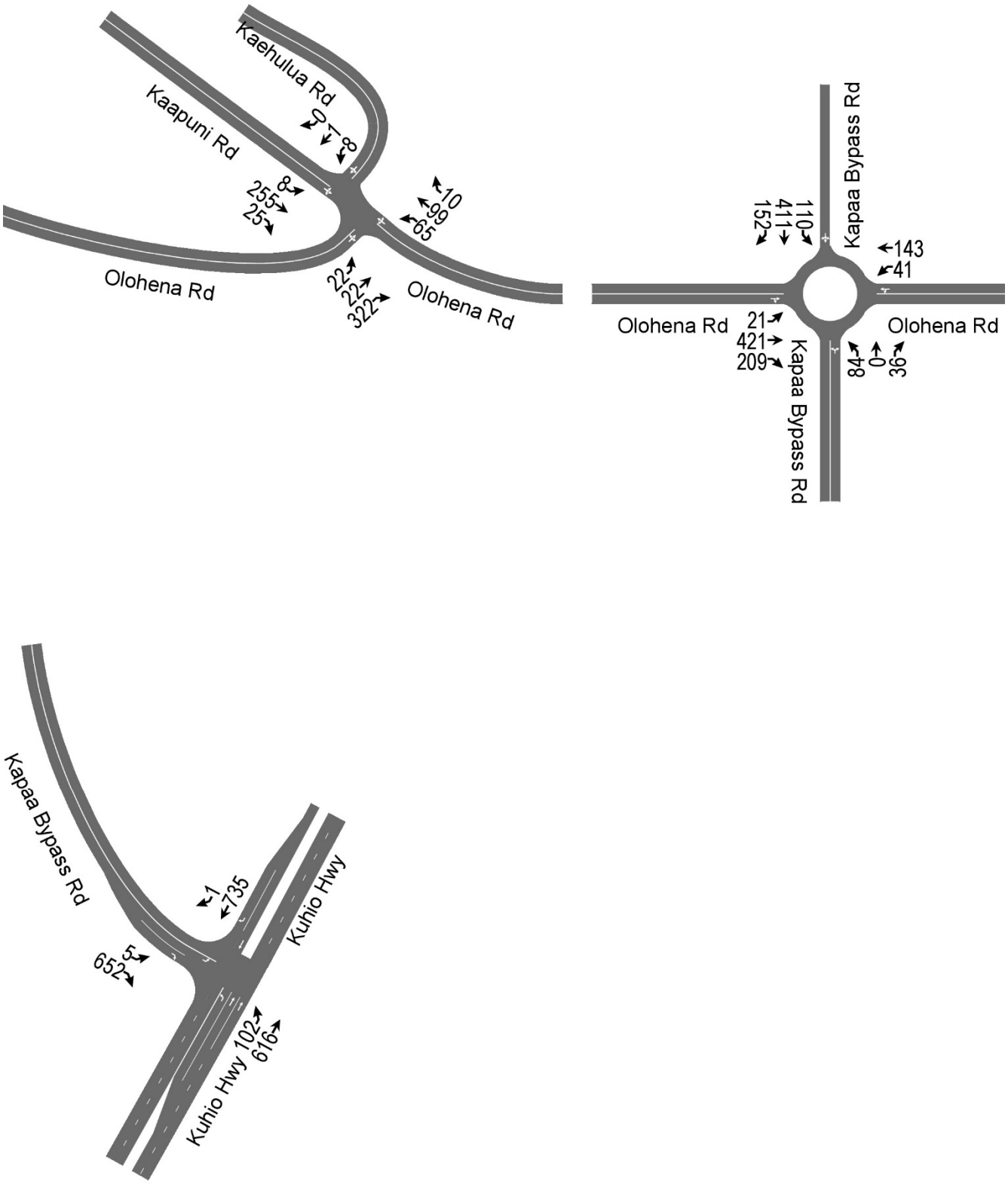

Figure 4. Existing AM Peak Hour Traffic (Cont'd.)

The northbound and southbound traffic on Kuhio Highway avoided the traffic signal delays at Kukui Street by diverting to alternate routes to Olohena Road. Less than 10 percent of the mauka bound traffic on Olohena Road at the Kapa`a Bypass Road turned from Kuhio Highway via Kukui Street. About 35 percent of the mauka bound traffic on Olohena Road turned right from Lehua Street to continue in the mauka bound direction, during the existing PM peak hour of traffic. About 55 percent of the mauka bound traffic turned left from Ulu Street onto Kukui Street to continue in the mauka bound direction on Olohena Road.

The overall intersection of Kuhio Highway and Kukui Street operated at LOS "A", during the existing PM peak hour of traffic. The left-turn movement on makai bound Kukui Street operated at LOS "E" with a relatively low traffic demand (36 vph). The other traffic movements at the intersection operated at LOS "A", during the existing PM peak hour of traffic.

The left-turn movement on makai bound Lehua Street operated at LOS "D" at Kuhio Highway, during the existing PM peak hour of traffic. Makai bound Ohia Street operated at LOS "F" at Kuhio Highway with a very low volume. The mauka bound Pono Kai Driveway operated at LOS "D", also with a very low volume.

Southbound Lehua Street operated at LOS "E" at Olohena Road, during the existing PM peak hour of traffic. Southbound Kapa`a Bypass Road operated at LOS "D" at Olohena Road. The other intersections in the study area operated at satisfactory Levels of Service, during the existing PM peak hour of traffic. The existing PM peak hour traffic data are depicted on Figures 5 and 6.

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 over 30 percent between the Base Year 2007 and the Horizon Year 2035. For the purpose of this analysis, an average growth factor of 1.14 was uniformly applied to the existing (Year 2017) AM and PM peak hour traffic volumes to estimate the Year 2030 peak hour traffic without the proposed project.

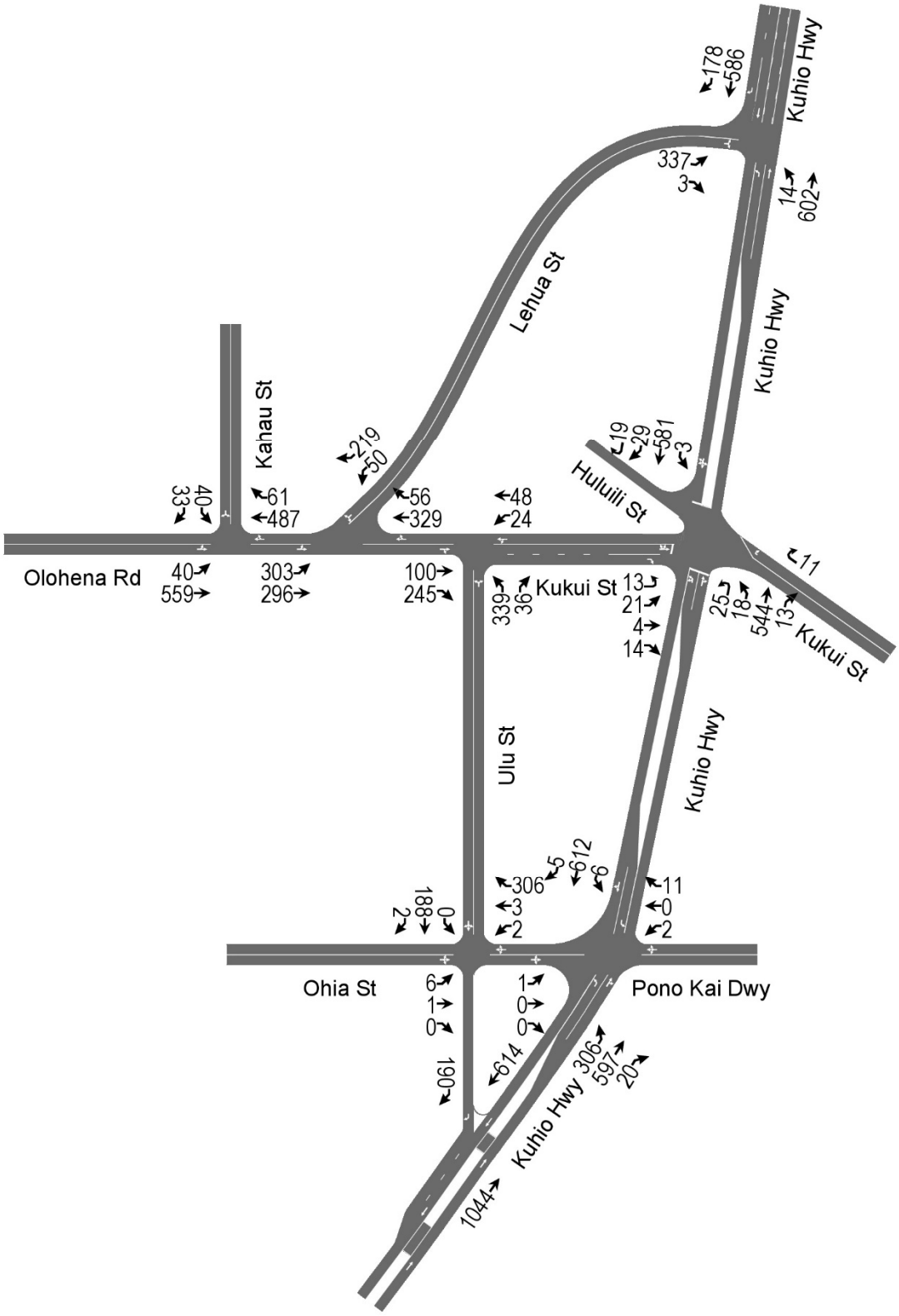

Figure 5. Existing PM Peak Hour Traffic

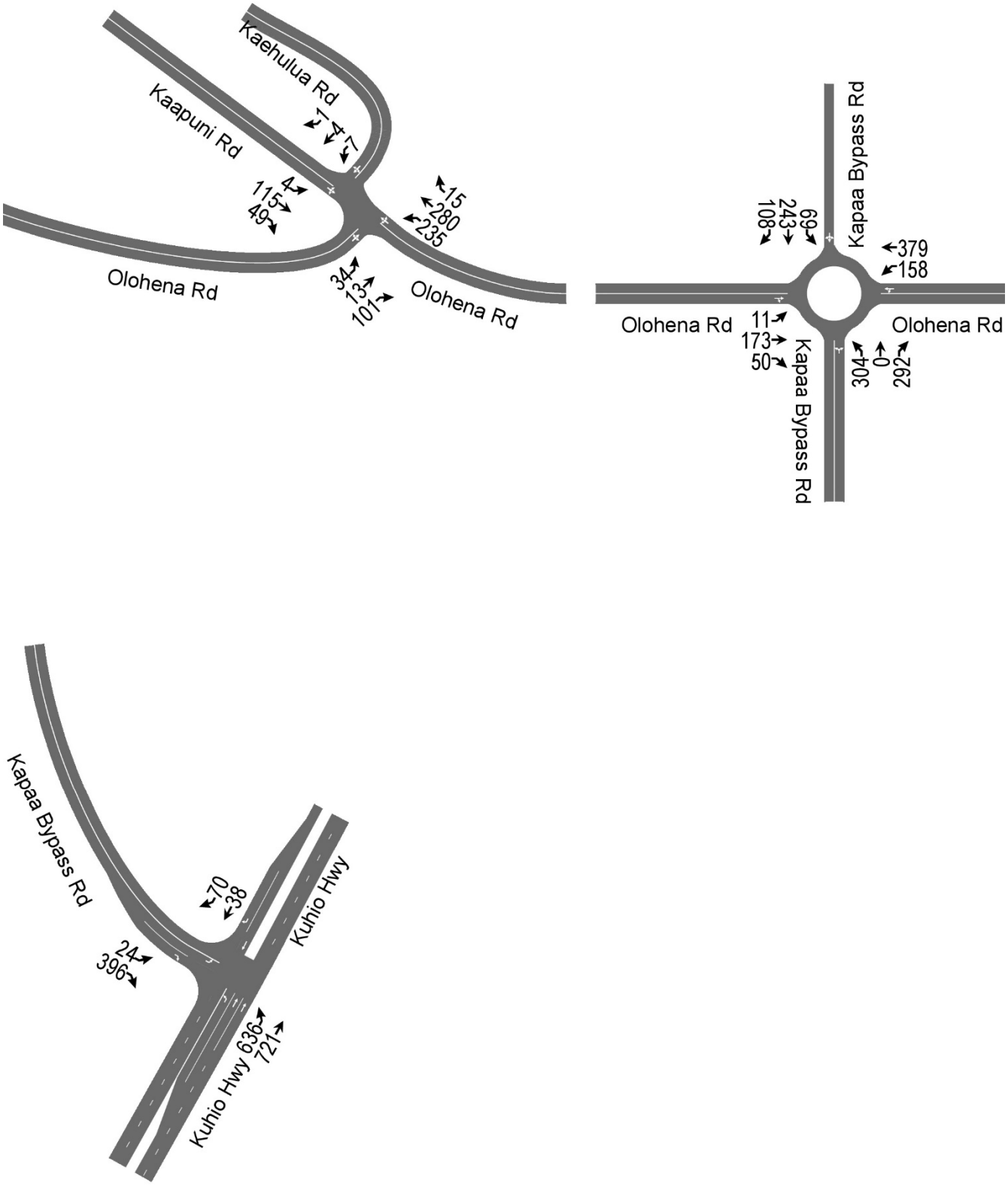

Figure 6. Existing PM Peak Hour Traffic (Cont'd.)

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B. Daily and Seasonal Adjustment Factors

The existing peak hour traffic data were adjusted for the daily and seasonal variation in traffic in the region. The adjustment factors were based upon the 2016 traffic count data, which were collected at DOT's continuous traffic count station at Mile Post 2.4 on Kuhio Highway (Route 56) in Hanamaulu, which is located about 6 miles south of Kapa`a Town. Table 4 summarizes the adjustment factors, which were applied to the existing AM and PM peak hour traffic data, to account for the daily and seasonal variation in traffic from the annual average weekday traffic (AAWDT).

Table 4. Day of the Week and Seasonal Adjustment Factors

Date	Day	24-Hour Data	Adjustment Factors
3/14/2016	Monday	15,881	1.03
3/15/2016	Tuesday	15,824	1.03
3/16/2016	Wednesday	16,611	0.98
3/17/2016	Thursday	16,467	0.99
3/18/2016	Friday	16,652	0.98
	2016 AAWDT	16,301	1.00

C. Kuhio Highway Widening

The Final Environmental Assessment Kuhio Highway Short-Term Improvements Kuamoo Road to Temporary Bypass Road (Kuhio Highway EA), was prepared for DOT, by Wilson Okamoto Corporation, dated September 2009. The Kuhio Highway EA recommended the widening of Kuhio Highway from three lanes to four lanes to provide a permanent second southbound lane between the Kapa`a Bypass Road and Kuamoo Road. The additional lane will provide a "free" right-turn movement from the Kapa`a Bypass Road onto southbound Kuhio Highway throughout the day.

DOT is planning to complete the widening of Kuhio Highway by the Year 2019. The widening of Kuhio Highway from the Kapa`a Bypass Road to Kuamoo Road is included in this traffic impact analysis.

D. Kapa`a Transportation Solutions

The Kapa`a 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 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 cited traffic congestion in the downtown/historic district of Kapa`a Town, which resulted from on-street parking in the curb lanes in both directions on Kuhio Highway. In addition, to the delays caused by vehicles maneuvering into and out of the parallel parking stalls along Kuhio Highway, the on-street parking occupies valuable highway space, which could otherwise provide additional through traffic lanes and/or median left-turn lanes. Table 5 summarizes the roadway improvements relevant to this traffic study, which were prioritized in the Kapa`a Transportation Solutions.

Table 5. Potential Traffic Solutions

Location	Description	Priority
Kapa`a Bypass Road	Widen the Kapa`a Bypass Road to provide one lane in the northbound direction from Olohena Road to Kuhio Highway.	<5 Years
Kuhio Highway and Kukui Street	Modify traffic signal timings.	<5 Years
Kuhio Hwy and Kapa`a Bypass Road	Intersection improvements.	<5 Years
Olohena Road at Kapa`a Middle School	Improve crosswalk.	<5 Years
Kapa`a Bypass Road and Olohena Road Roundabout	Add a separate (bypass) right-turn lane at the roundabout from makai bound Olohena Road to southbound Kapa`a Bypass Road.	<5 Years
Kuhio Highway	Provide an additional southbound lane on Kuhio Highway from Kapa`a Bypass Road to Kuamoo Road (scheduled for construction).	<5 Years
Kuhio Highway and Kukui Street	Close the makai leg of Kukui Street to provide business parking. Implement vehicular and pedestrian improvements on Kukui Street (mauka leg) and Huluili Street at Kuhio Highway.	5-10 Years
Kapa`a New Town Park	Provide direct access from the Kapa`a New Town Park to the Kapa`a Bypass Road.	5-10 Years
Kuhio Highway and Lehua Street	Improve the left-turn movement from Lehua Street onto Kuhio Highway.	5-10 Years
Kapa`a Bypass Rd and Kuhio Highway	Re-align the Kapa`a Bypass Road (South Junction) to intersect Kuhio Highway opposite Aleka Loop or Papaloa Road.	5-10 Years

Table 5. Potential Traffic Solutions (Cont'd.)		
Location	**Description**	**Priority**
Kapa`a Bypass Road South of Olohena Road	Improve the horizontal alignment and shoulders of the Kapa`a Bypass Road, south of Olohena Road, to Kuhio Highway.	5-10 Years
Kuhio Highway Between Kawaihau Road and Lehua Street	Provide a two-way median left-turn lane along Kuhio Highway.	5-10 Years
Olohena Rd at Kahau St and Lehua St	Implement intersection improvements and bicycle/pedestrian improvements to Kuhio Highway.	5-10 Years
Olohena Rd at Kaapuni Rd and Kaehulua Rd	Implement intersection improvements	5-10 Years
Kaapuni Road	Upgrade/improve Kaapuni Road to major collector standards, including bicycle lanes.	5-10 Years
Olohena Road Between Kuhio Highway and Kamalu Road	Improve Olohena Road to accommodate non-motorized modes.	5-10 Years
Kapa`a Bus Hub	Relocate the Kapa`a bus hub from its existing location near the skate park to a new location on or near the Kuhio Highway mainline, with amenities.	5-10 Years

Improving the horizontal alignment and providing shoulders on the Kapa`a Bypass Road, south of Olohena Road may impact the proposed Hokua Place frontage. Any widening and realignment should be coordinated with Hokua Place. The Kapa`a Transportation Solutions also identifies Road A as a new connector road between Olohena Road and the Kapa`a Bypass Road, which was prioritized beyond the 10-year time frame. The construction cost of the connector road was estimated at $25,824,000.

E. Peak Hour Traffic Analysis Without Project

1. AM Peak Hour Traffic Without Project

During the AM peak hour of traffic without the proposed project, the overall intersection of Kuhio Highway and Kukui Street is expected to continue to operate at LOS "A". The left-turn movement on makai bound Kukui Street is expected to continue to operate at LOS "F". The traffic movements in both directions on Kuhio Highway are expected to continue to operate at LOS "A" at Kukui Street, during the AM peak hour of traffic without the proposed project.

Makai bound Lehua Street is expected to operate at LOS "F" at Kuhio Highway, during the AM peak hour of traffic without the proposed project. Makai bound Ohia Street is expected to operate at LOS "E" at Kuhio Highway.

During the AM peak hour of traffic without the proposed project, makai bound Olohena Road is expected to operate at LOS "F" at the Kapa`a Bypass Road. Southbound Kapa`a Bypass Road is expected to operate at LOS "D" at Olohena Road. Kaapuni Road is expected to operate at LOS "F" at Olohena Road. The other intersections in the study area are expected to operate at satisfactory Levels of Service, during the AM peak hour of traffic without the proposed project. Figures 7 and 8 depict the AM peak hour volumes without the proposed project.

2. PM Peak Hour Traffic Without Project

The overall intersection of Kuhio Highway and Kukui Street is expected to operate at LOS "A", during the PM peak hour of traffic without the proposed project. The left-turn movement on makai bound Kukui Street is expected to continue to operate at LOS "E". The other traffic movements at the intersection are expected to operate at LOS "A", during the PM peak hour of traffic without the proposed project.

The left-turn movement on makai bound Lehua Street is expected to operate at LOS "E" at Kuhio Highway, during the PM peak hour of traffic without the proposed project. Makai bound Ohia Street also is expected to operate at LOS "F" at Kuhio Highway. Mauka bound Pono Kai Driveway is expected to operate at LOS "E", during the PM peak hour of traffic without the proposed project.

Southbound Lehua Street is expected to continue to operate at LOS "F" at Olohena Road, during the PM peak hour of traffic without the proposed project. Southbound Kapa`a Bypass Road is expected to operate at LOS "F" at Olohena Road. The right-turn movement from the Kapa`a Bypass Road onto Kuhio Highway is expected to operate LOS "D". The other intersections in the study area are expected to operate at satisfactory Levels of Service, during the PM peak hour of traffic without the proposed project.

The PM peak hour traffic demands at the intersection of Olohena Road and Kaapuni Road without the proposed project are expected to meet the AASHTO guideline for an exclusive left-turn lane on makai bound Olohena Road. The PM peak hour volumes without the proposed project is depicted on Figures 9 and 10.

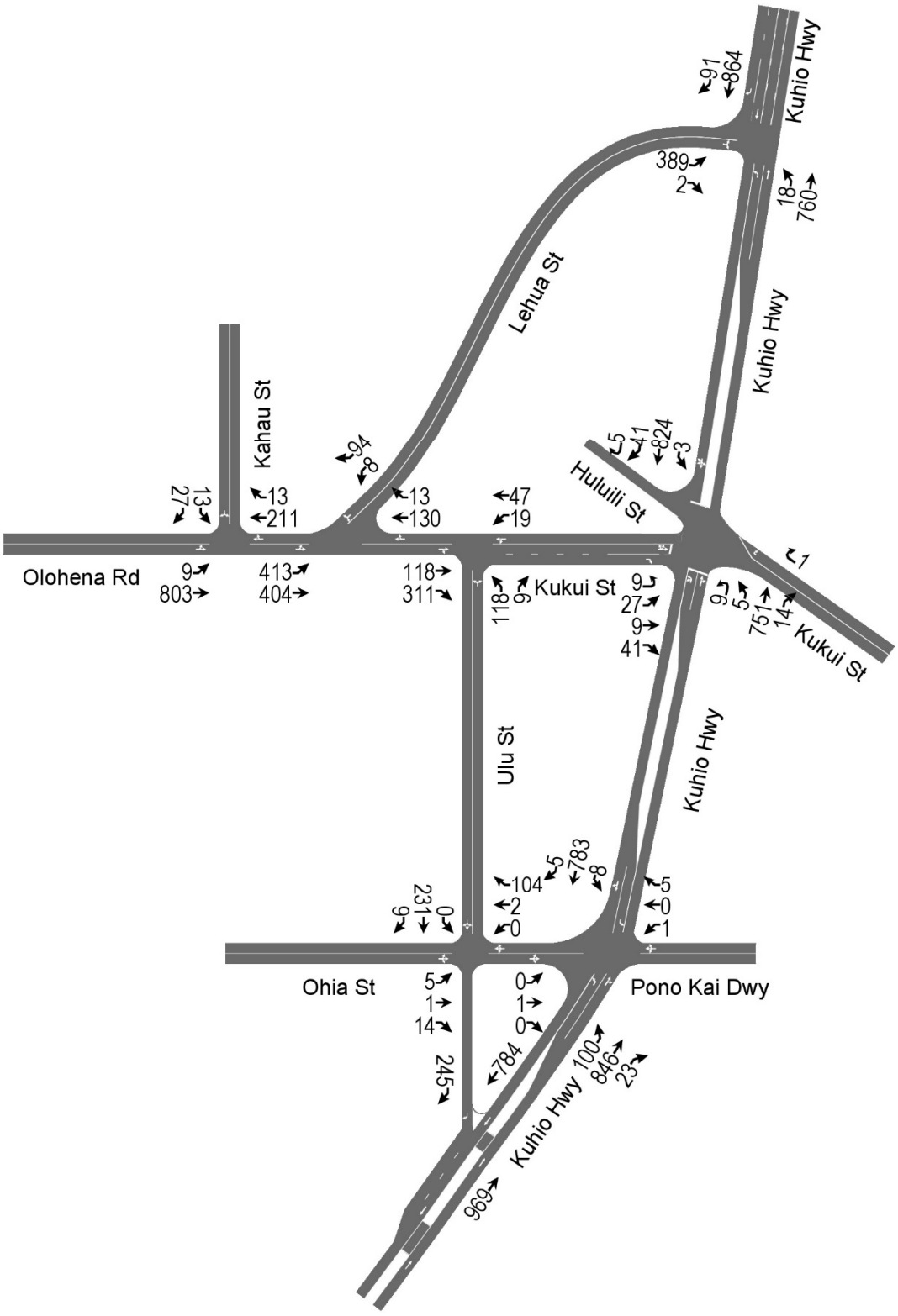

Figure 7. AM Peak Hour Volumes Without Project

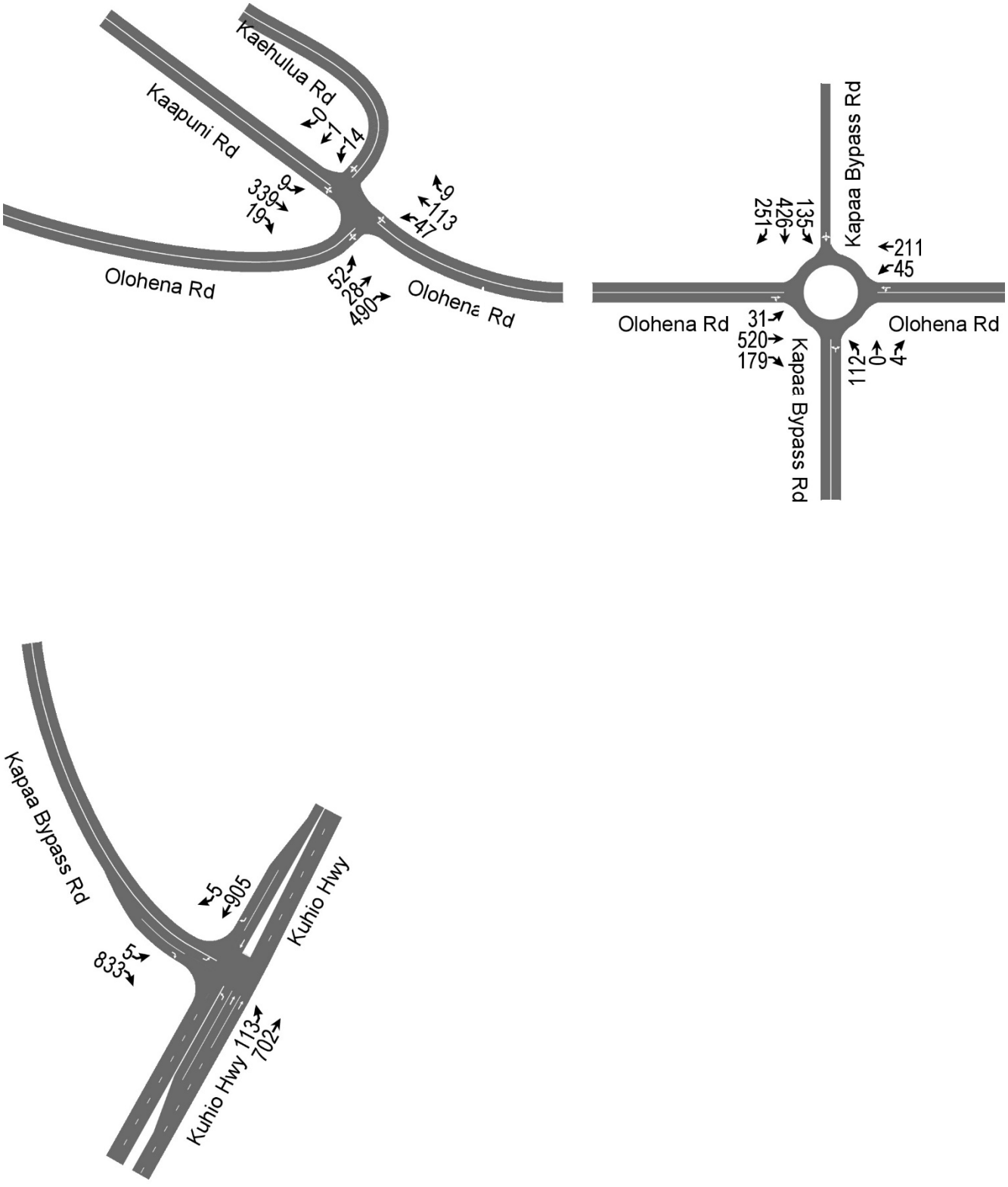

Figure 8. AM Peak Hour Volumes Without Project (Cont'd.)

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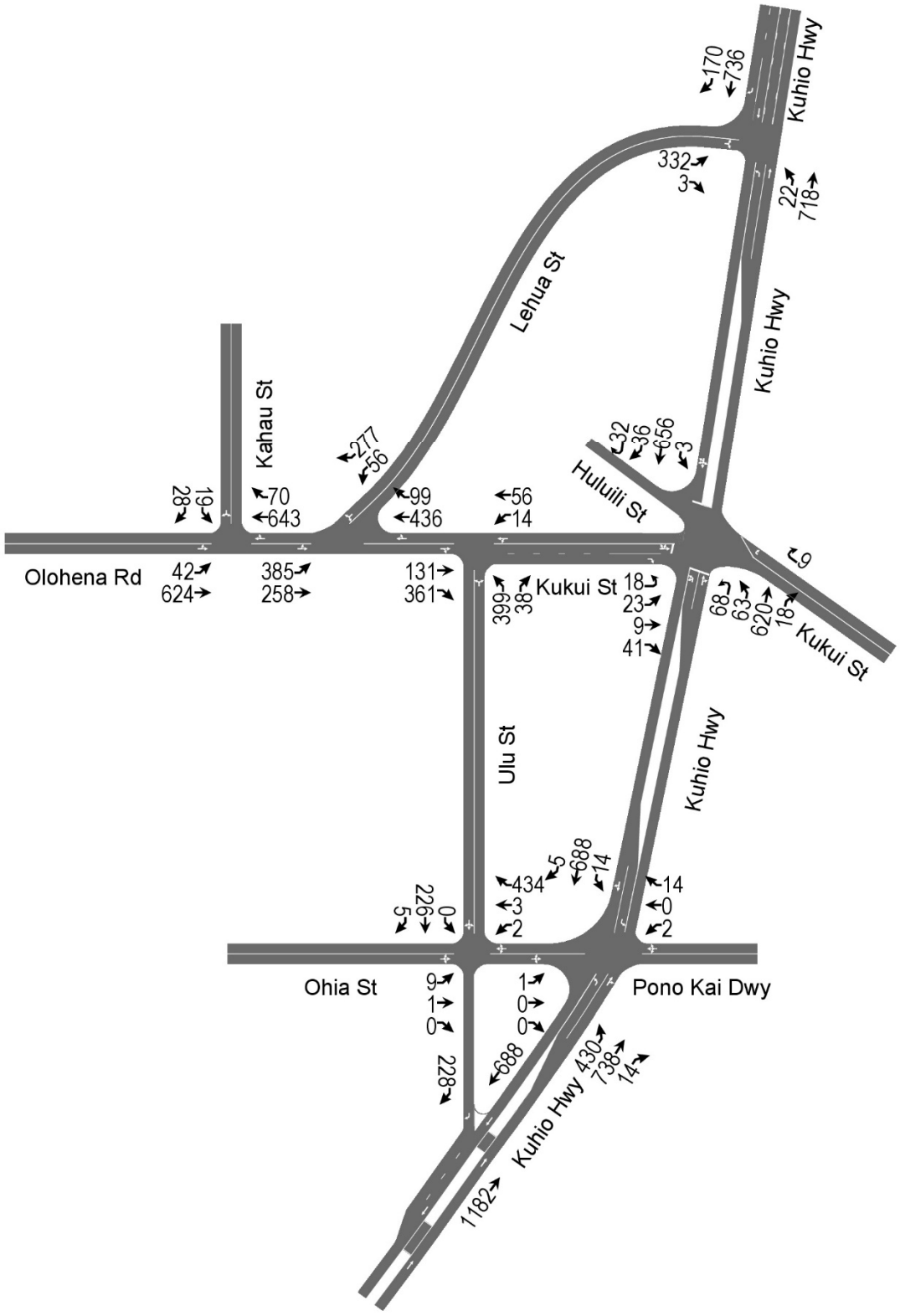

Figure 9. PM Peak Hour Volumes Without Project

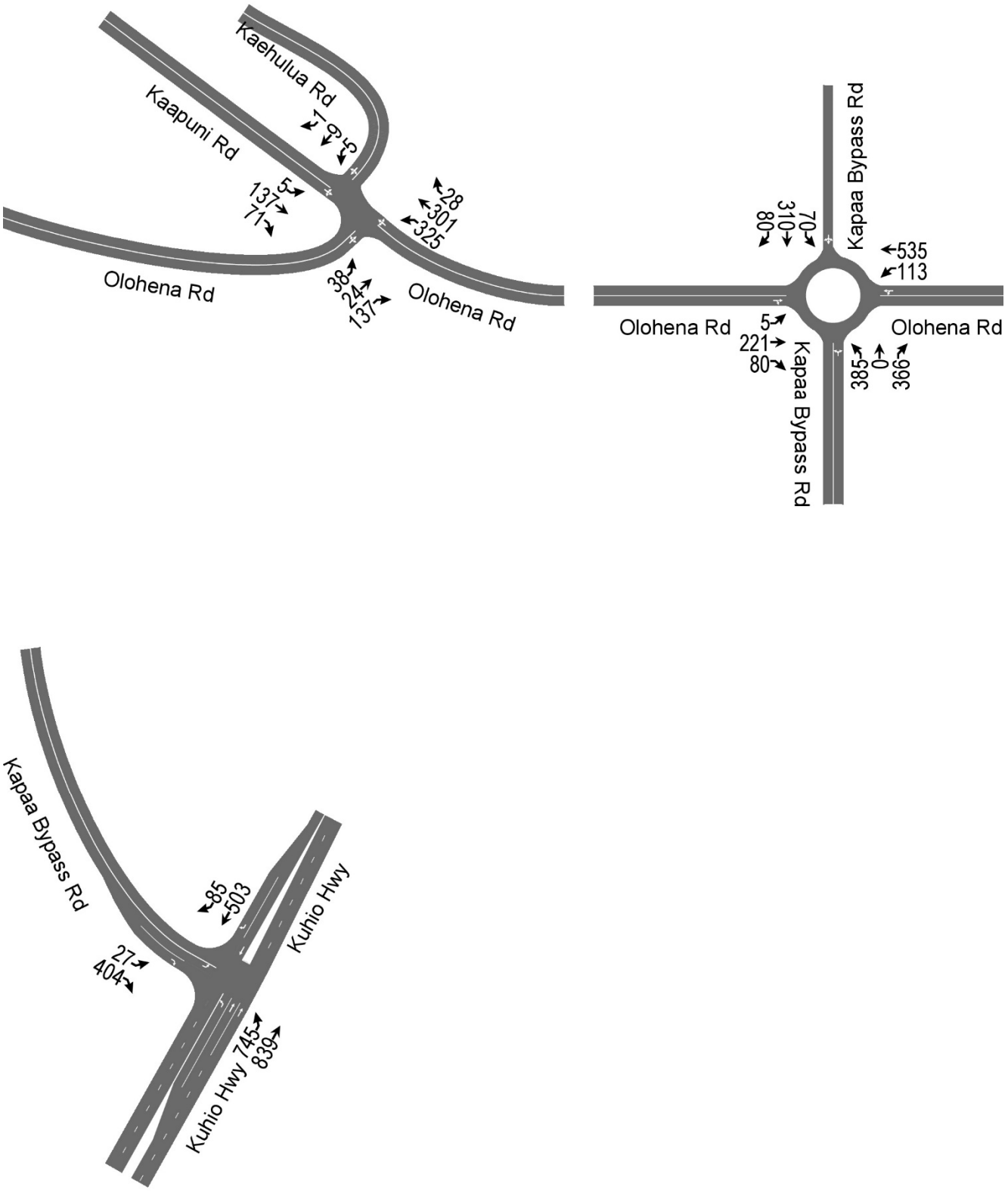

Figure 10. PM Peak Hour Volumes Without Project (Cont'd.)

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IV. Traffic Impact Analysis

A. Trip Generation Characteristics

The trip generation characteristics were based upon the ITE trip rates for single-family detached dwelling units (DU) and residential condominium/townhouse units. The weekday ITE trip rates, during the AM peak hour and the PM peak hour of adjacent street traffic, were used for this traffic impact analysis. The ITE regression equations were used to derive the trip rates for the single-family detached dwellings in this analysis. Although ITE recommends the use of the regression equations to derive trip rates, the average peak hour trips rates for the residential condominium/townhouse were used in this analysis. The 800 DU is outside the range of the ITE trip generation data that were utilized to develop the regression equations for condominiums. Furthermore, the average condominium/townhouse rates are higher (more conservative) than the rates that are derived by the regression equations.

The ITE trip generation rates for a shopping center were developed from the regression equations to estimate the trip generation from the proposed 8,000 SFGFA retail center. The pass-by trip rate of 81.2 percent was applied to the PM peak hour trip generation. The ITE pass-by trip rate is reasonable given the size of Hokua Place and the volume of through traffic on Road A. Hokua Place is expected to generate totals of 487 vph and 560 vph, during the AM and PM peak hours of traffic, respectively. The trip generation characteristics for the proposed project are summarized in Table 6.

Table 6. Hokua Place Trip Generation Characteristics

Land Use (ITE Code)	Units	AM Peak Hour (vph)			PM Peak Hour (vph)		
		Enter	Exit	Total	Enter	Exit	Total
Single-Family Phase 1 (265)	16 DU	5	16	21	13	7	20
Single-Family Phase 2 (265)	100 DU	20	60	80	66	38	104
Condominium/ Townhouse (230)	800 DU	60	292	352	279	137	416
Retail Center (820)	8,000 SFGFA	21	13	34	53	57	110
	Pass-By	0	0	0	(-)45	(-)45	(-)90
Total External Trips		**106**	**381**	**487**	**366**	**194**	**560**

B. Site Access Improvements

A conventional channelized, Tee-intersection was considered at the intersection of Road A and the Kapa`a Bypass, with left-turn and right-turn deceleration/storage lanes and a median refuge lane on the Kapa`a Bypass Road. Under unsignalized traffic control, the left-turn lane from Road A onto the Kapa`a Bypass Road is expected to operate at LOS "F", during the PM peak hour of traffic. As an alternative to traffic signalization, a roundabout intersection is recommended Road A and the Kapa`a Bypass Road. The following site access improvements are recommended for the proposed project:

1. Construct a stop-controlled Tee-intersection between Road A and Olohena Road.
2. Construct a stop-controlled Tee-intersection between the Phase 1 Driveway and Olohena Road.
3. Construct a single-lane roundabout at the intersection of Road A and the Kapa`a Bypass Road.

C. Traffic Assignment

The traffic assignments were based upon the existing traffic patterns along Olohena Road and Kukui Street. The traffic assignments also included through traffic demands, which are expected to be diverted from makai bound Olohena Road and from northbound Kapa`a Bypass Road to the proposed Road A. Road A is expected to reduce the traffic demands at the roundabout intersection of the Kapa`a Bypass Road and Olohena Road. Figures 11 and 12 depict the AM peak hour traffic assignments. The PM peak hour traffic assignments are depicted on Figures 13 and 14.

D. AM Peak Hour Traffic Analysis With Project

The roundabout intersection of the Kapa`a Bypass Road and Road A is expected to operate at satisfactory Levels of Service, during the AM peak hour of traffic with the proposed project. Road A is expected to operate at LOS "C" at Olohena Road. The Phase 1 driveway on Olohena Road is expected to operate at LOS "B".

The overall intersection of Kuhio Highway and Kukui Street is expected to continue to operate at LOS "A", during the AM peak hour of traffic with the proposed project. The left-turn movement on makai bound Kukui Street is expected to continue to operate at LOS "F". The traffic movements in both directions on Kuhio Highway are expected to operate at LOS "A" at Kukui Street, during the AM peak hour of traffic with the proposed project.

Makai bound Lehua Street is expected to continue to operate at LOS "F" at Kuhio Highway, during the AM peak hour of traffic with the proposed project. Makai bound Ohia Street also is expected to operate at LOS "F" at Kuhio Highway. The Pono Kai Driveway is expected to operate at LOS "D".

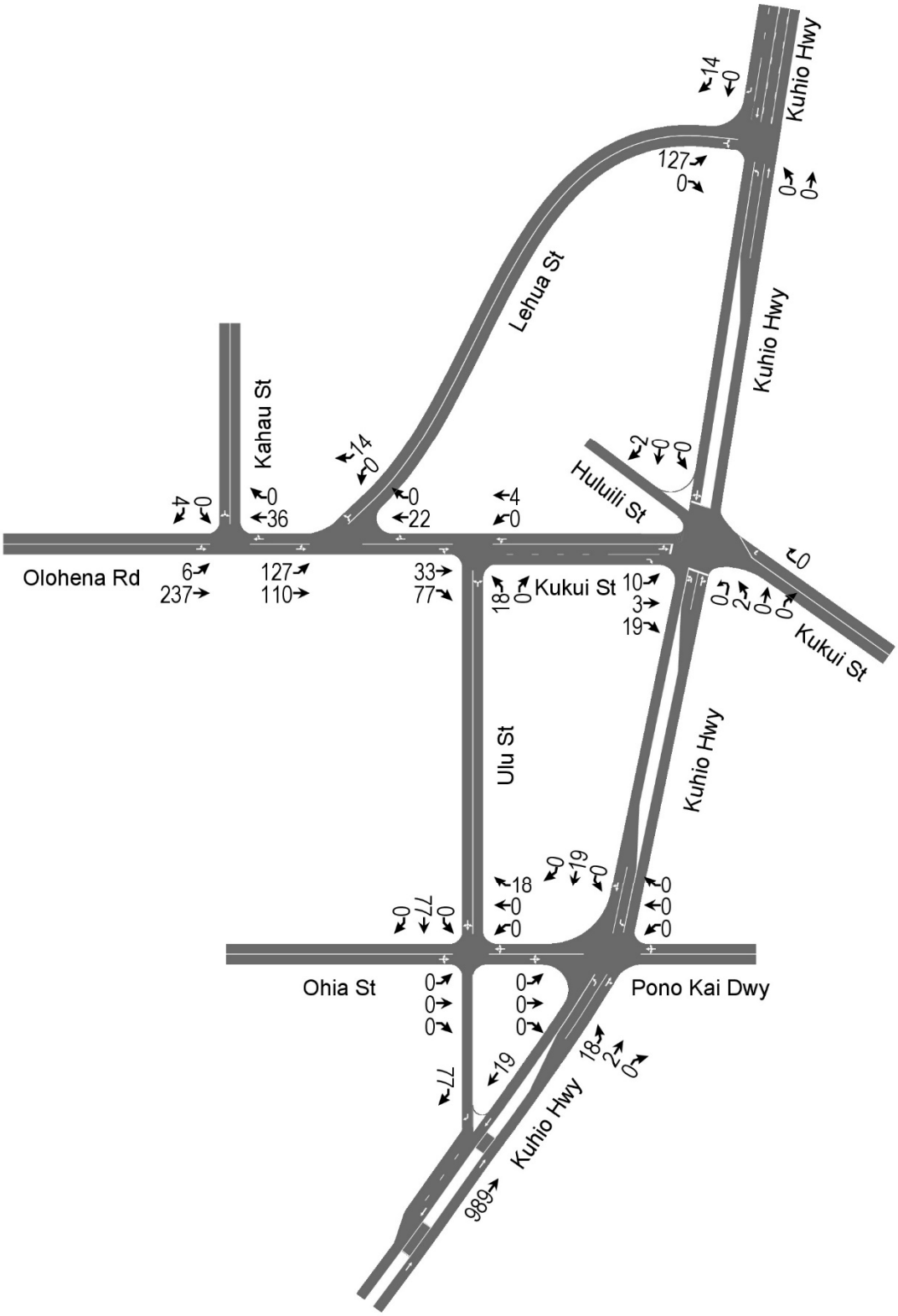

Figure 11. AM Peak Hour Site Traffic Assignment

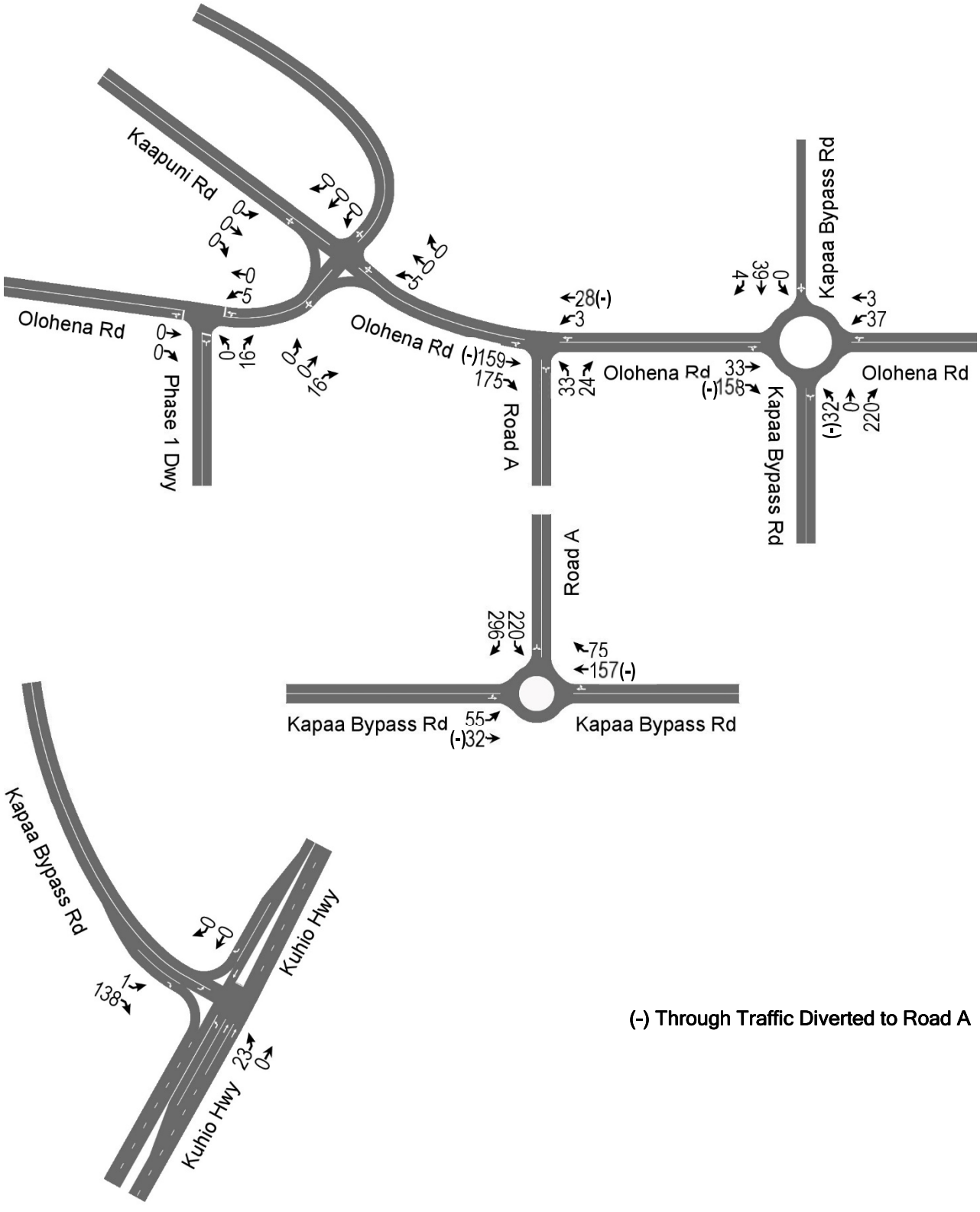

Figure 12. AM Peak Hour Site Traffic Assignment (Cont'd.)

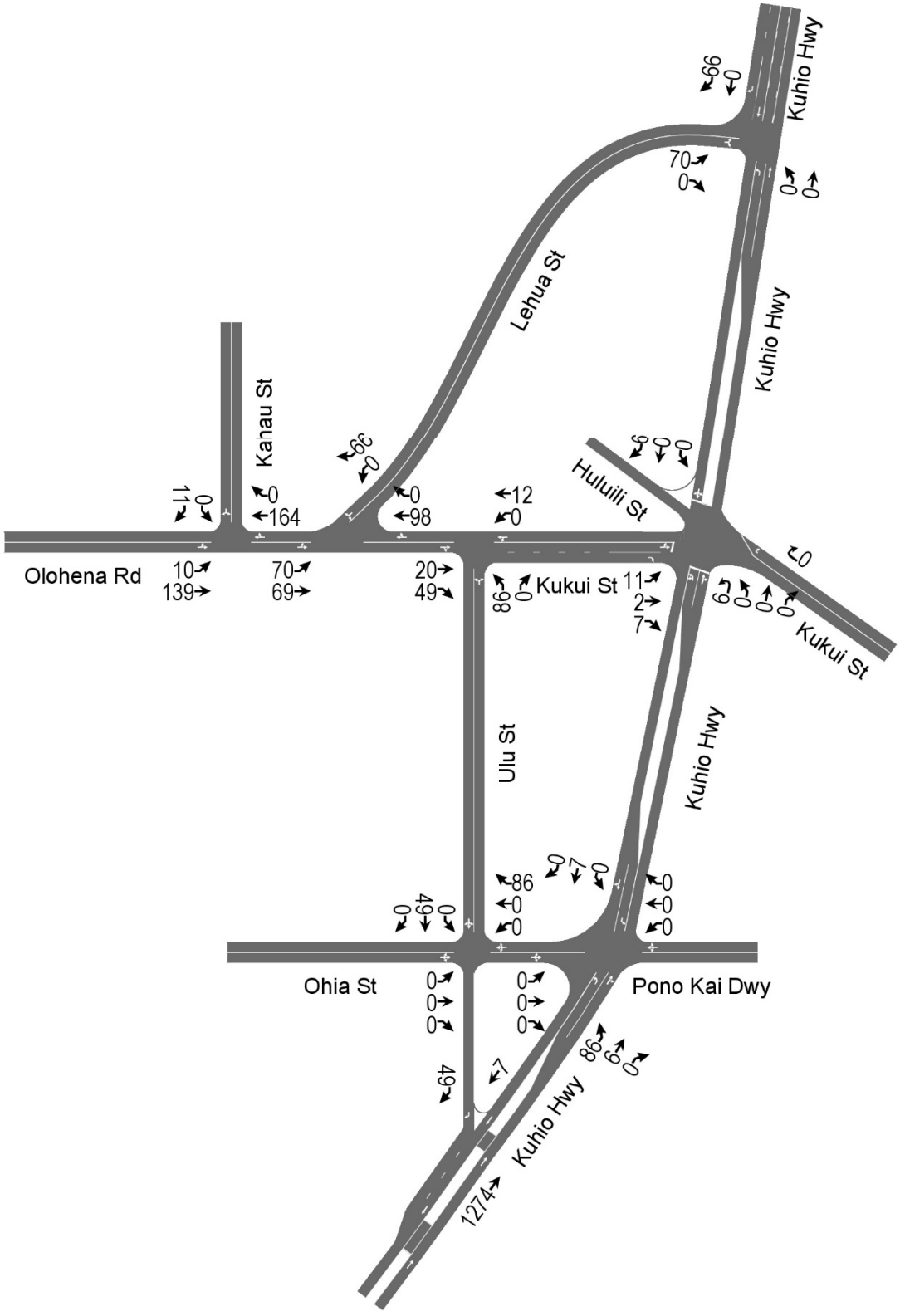

Figure 13. PM Peak Hour Site Traffic Assignment

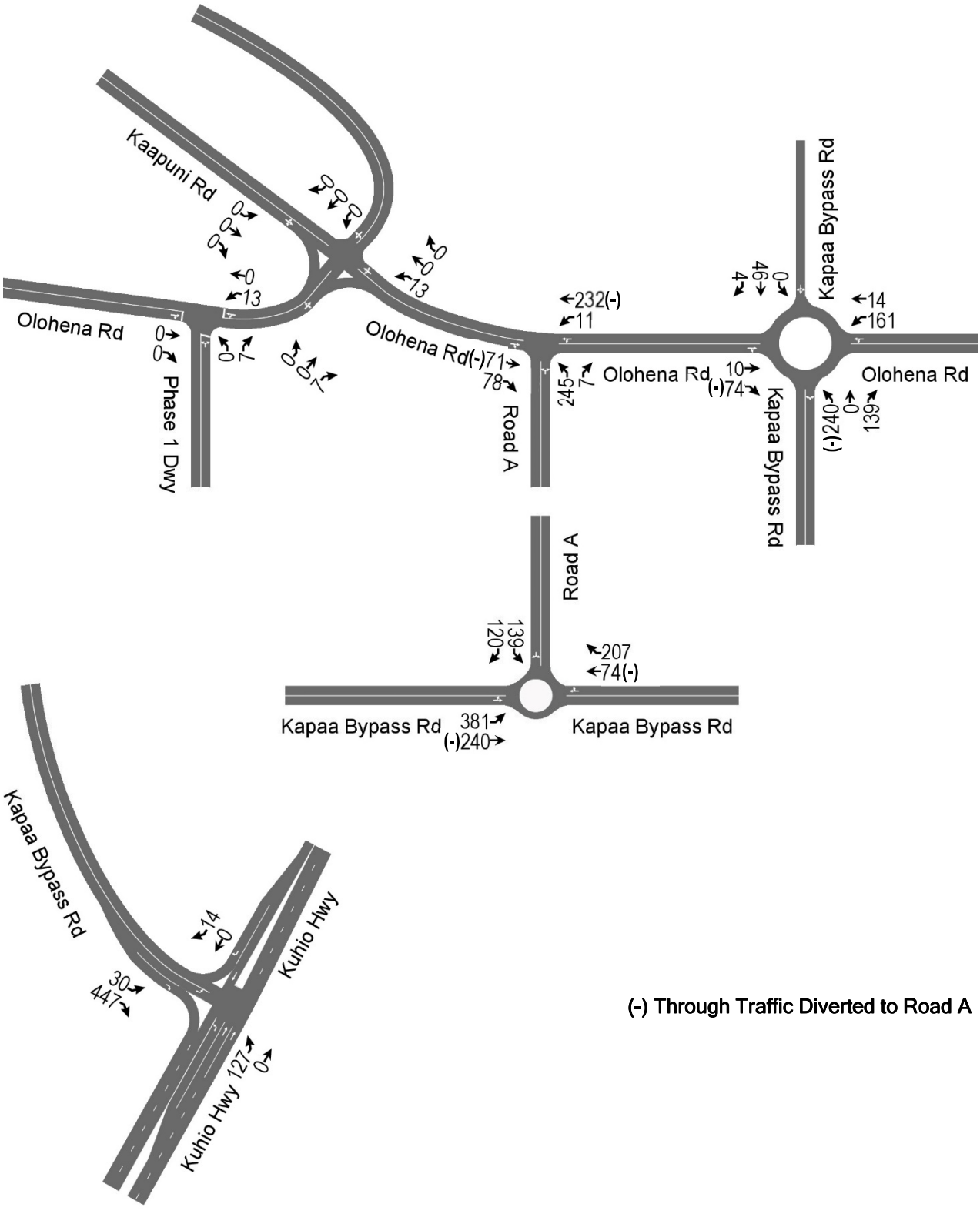

Figure 14. PM Peak Hour Site Traffic Assignment (Cont'd.)

During the AM peak hour of traffic with the proposed project, the overall roundabout intersection of the Kapa`a Bypass Road and Olohena Road is expected to improve from LOS "E" to LOS "D", during the AM peak hour of traffic with the proposed project. Makai bound Olohena Road is expected to improve from LOS "F" to LOS "E", due to the diversion of makai bound traffic to Road A. Southbound Kapa`a Bypass Road is expected to worsen from LOS "D" to LOS "E" at Olohena Road.

Kaapuni Road is expected to continue to operate at LOS "F" at Olohena Road. The left-turn movement from the Kapa`a Bypass Road onto Kuhio Highway is expected to operate at LOS "F", during the AM peak hour of traffic with the proposed project. Figures 15 and 16 depict the AM peak hour volumes with the proposed project.

E. PM Peak Hour Traffic Analysis With Project

During the PM peak hour of traffic with the proposed project, the roundabout intersection of the Kapa`a Bypass Road and Road A is expected to operate at satisfactory Levels of Service. Road A is expected to operate at LOS "D" at Olohena Road. The Phase 1 driveway on Olohena Road is expected to operate at LOS "A".

The overall intersection of Kuhio Highway and Kukui Street is expected to continue to operate at LOS "A", during the PM peak hour of traffic with the proposed project. The left-turn movement on makai bound Kukui Street is expected to continue to operate at LOS "F". The traffic movements in both directions on Kuhio Highway are expected to operate at LOS "A" at Kukui Street, during the PM peak hour of traffic with the proposed project.

Makai bound Lehua Street is expected to continue to operate at LOS "F" at Kuhio Highway, during the PM peak hour of traffic with the proposed project. Makai bound Ohia Street also is expected to operate at LOS "F" at Kuhio Highway. The Pono Kai Driveway is expected to operate at LOS "D" at Kuhio Highway.

During the PM peak hour of traffic with the proposed project, southbound Kapa`a Bypass Road is expected to continue to operate at LOS "F" at its roundabout intersection with Olohena Road. The left-turn and right-turn movements on the Kapa`a Bypass Road (South Junction) at Kuhio Highway are expected to operate at LOS "E" and LOS "D", respectively. The other intersections in the study area are expected to operate at satisfactory Levels of Service, during the PM peak hour of traffic with the proposed project. Figures 17 and 18 depict the PM peak hour volumes with the proposed project.

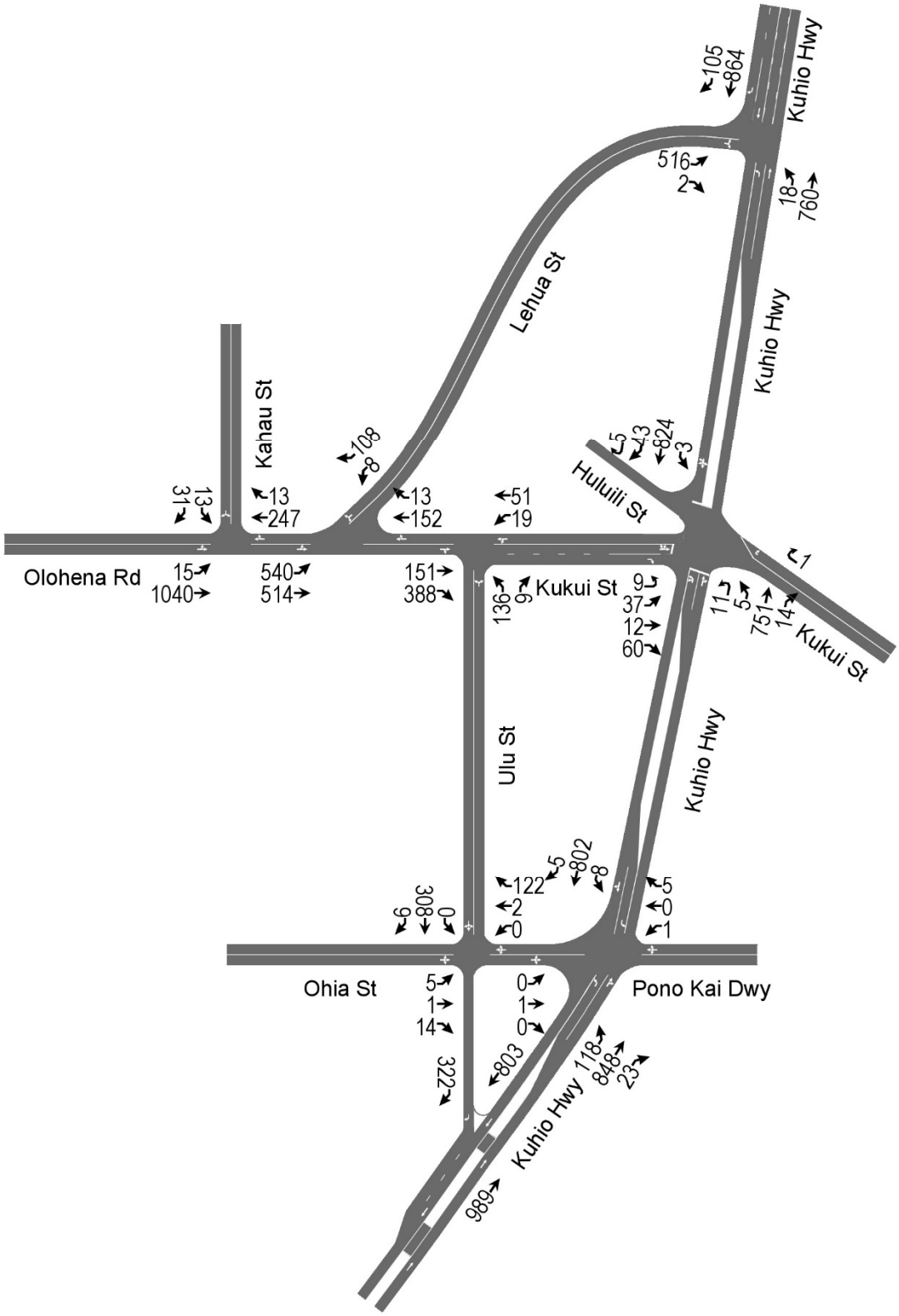

Figure 15. AM Peak Hour Volumes With Project

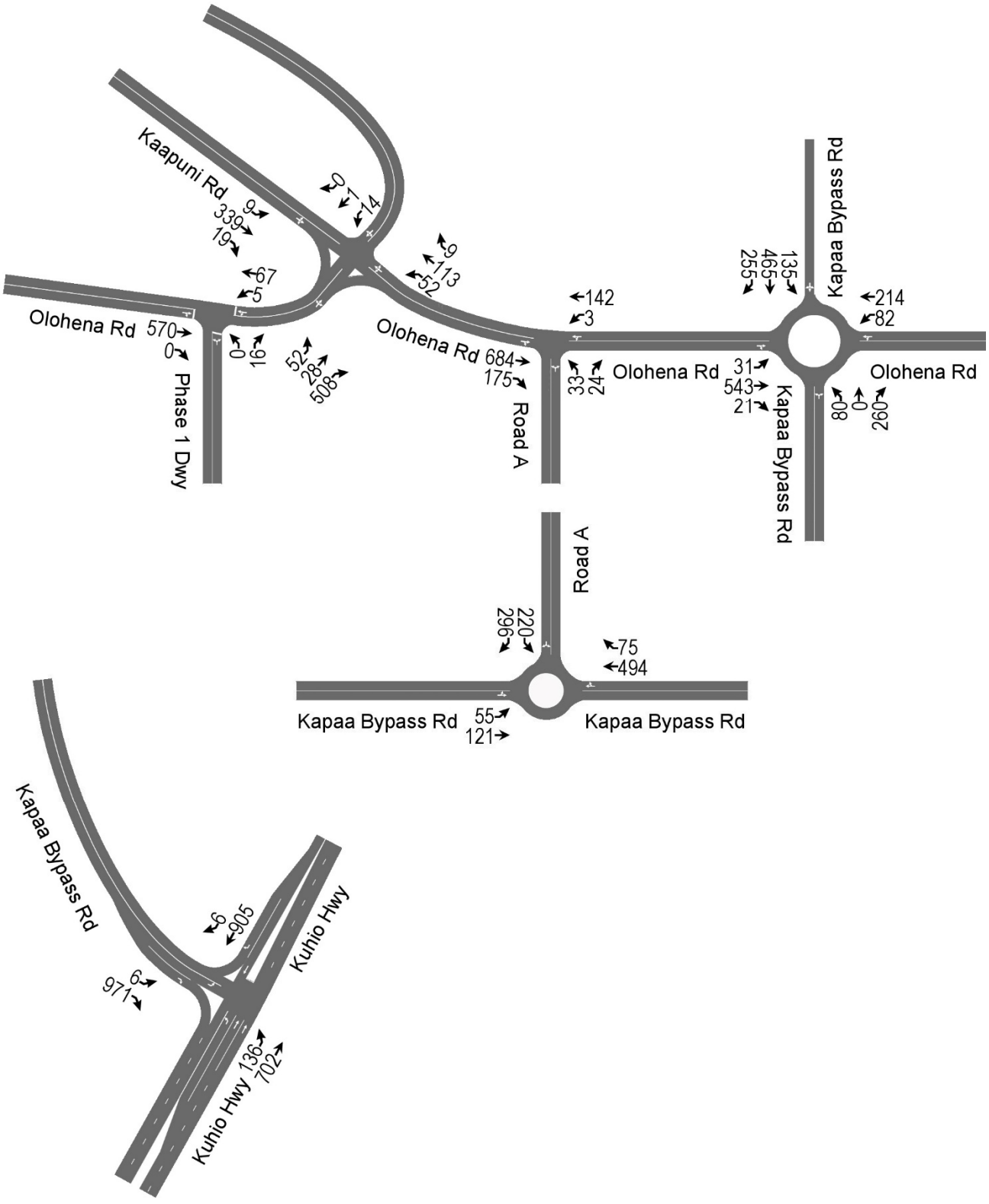

Figure 16. AM Peak Hour Volumes With Project (Cont'd.)

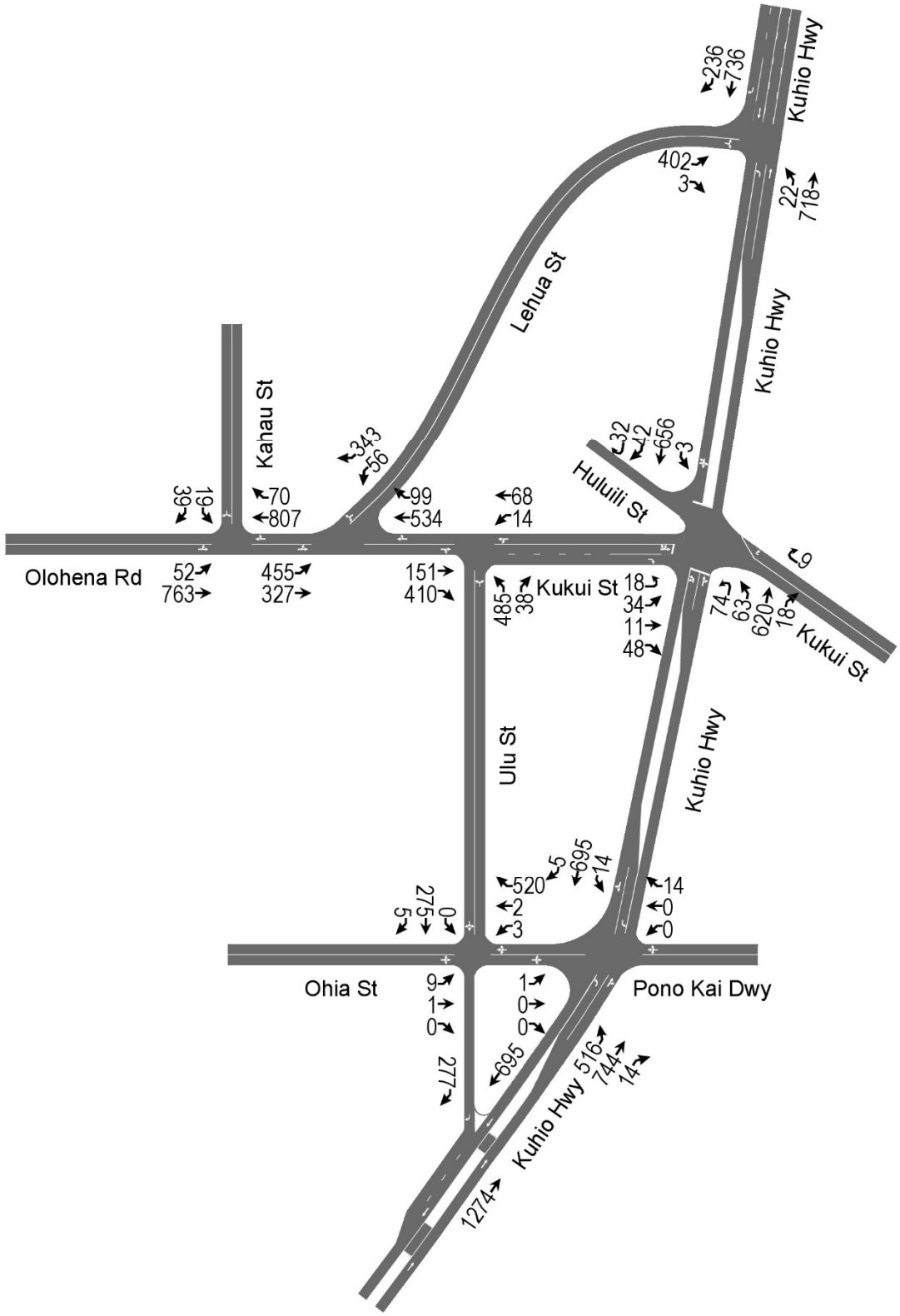

Figure 17. PM Peak Hour Volumes With Project

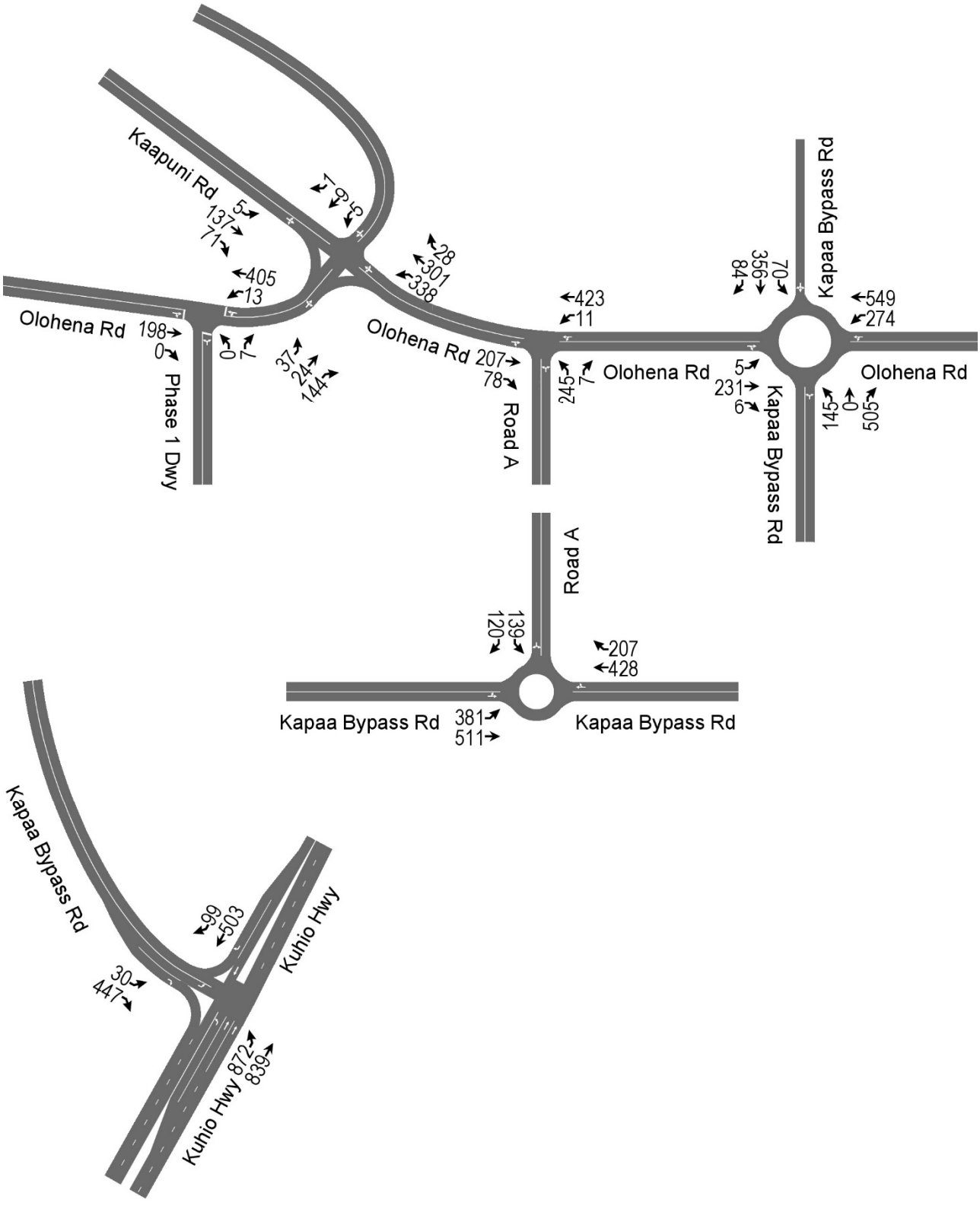

Figure 18. PM Peak Hour Volumes With Project (Cont'd.)

V. Recommendations and Conclusions

A. Recommended Traffic Improvements Without Project

The following traffic improvements expand upon the potential traffic solutions, which were cited in the Kapa`a Transportation Solutions, and are recommended to mitigate the existing and expected traffic congestion without the proposed project:

1. Widen Kuhio Highway between the Kapa`a Bypass Road (South Junction) and Kuamoo Road to provide two through lanes in each direction (DOT).
2. Restripe the median on the north leg of Kuhio Highway at the Kapa`a Bypass Road (South Junction) to provide a median refuge lane to facilitate the left-turn movement from the Kapa`a Bypass Road onto northbound Kuhio Highway.
3. Restrict on-street parking along Kuhio Highway within Kapa`a Town. Provide off-street business parking to replace the restricted parking along Kuhio Highway. Restripe Kuhio Highway to provide additional through and/or left-turn lanes.
4. Modify the traffic signal traffic operations at the intersection of Kuhio Highway and Kukui Street to reduce queuing and delays.
5. Add a right-turn bypass lane at the roundabout intersection from southbound Kapa`a Bypass Road to mauka bound Olohena Road.
6. Realign Kaehulua Road to intersect Olohena Road and Kaapuni Road opposite the mauka leg of Olohena Road to create a four-legged intersection with stop-controls on Kaehulua Road and the mauka leg of Olohena Road. Realign/channelize the mauka leg of Olohena Road to intersect Kaapuni Road and the makai leg of Olohena Road to improve the intersection sight distance. Channelize the right-turn movements on the makai bound approaches of Kaapuni Road and Olohena Road.
7. Extend the median refuge lane/two-way left-turn lane on Kuhio Highway from Lehua Street to Kawaihau Road.

DOT is in the process of widening Kuhio Highway from the Kapa`a Bypass Road to Kuamoo Road (Item No. 1 above). The above Item Nos. 2, 3, and 7 are expected to improve the capacity of Kuhio Highway through Kapa`a Town.

Consolidating the intersections of Olohena Road, Kaapuni Road, and Kaehulua Road (Item No. 6 above) into a single four-legged intersection is expected to improve the traffic operations and safety at the intersection. A roundabout intersection was considered for Olohena Road, Kaapuni Road, and Kaehulua Road. However, the existing roadway slopes would have required extensive grading to provide adequate sight distances at a roundabout intersection.

B. Recommended Traffic Improvements With Project

The following traffic improvements are recommended to mitigate traffic impacts with the proposed project:

1. Construct Road A from Olohena Road to the Kapa`a Bypass Road, as recommended in the Kapa`a Transportation Solutions.
2. Construct a single-lane roundabout at the intersection of Road A and the Kapa`a Bypass Road.

C. Conclusions

An interim solution to the existing traffic congestion in Kapa`a Town is recommended in the Kapa`a Transportation Solutions. Constructing additional off-street parking areas would provide the opportunity to restripe the existing on-street parking lanes and striped shoulders along Kuhio Highway to provide for additional through traffic lanes and/or median left-turn lanes.

The existing southbound traffic demand in Kapa`a Town is reduced by the Kapa`a Bypass Road. Dedication of the Kapa`a Bypass Road right-of-way along the Hokua Place frontage would assure the continued usage of the existing Kapa`a Bypass Road. Any horizontal realignment and/or widening of the Kapa`a Bypass Road along the project frontage should be coordinated with the development of Hokua Place. Widening of the north leg of the Kapa`a Bypass Road between Olohena Road and Kuhio Highway (North Junction) to provide at a two-way, two-lane roadway would provide additional capacity in the northbound direction.

The construction of the proposed Road A is recommended in the Kapa`a Transportation Solutions to provide additional mauka-makai roadway capacity between Kapa`a Valley and the Kapa`a Bypass Road. By diverting through traffic between Olohena Road and the Kapa`a Bypass Road, Road A is expected to mitigate the project's traffic impacts, during the AM and PM peak hour of traffic with the proposed project at the roundabout intersection of the Kapa`a Bypass Road and Olohena Road.

The roundabout at the intersection of the Kapa`a Bypass Road and Road A will increase the intersection capacity, in anticipation of the increase in demand resulting from the future two-lane widening of the Kapa`a Bypass Road between Olohena Road and Kuhio Highway (North Junction). The proposed roundabout intersection of the Kapa`a Bypass Road and Olohena Road is expected to operate at satisfactory Levels of Service, during the AM and PM peak hours of traffic with the proposed project. Table 7 summarizes the measures of effectiveness (MOE) from the traffic analysis of the intersections in the study area.

Study Name Kuhio Hwy Kukui ST 3-15-17 to 3-17-17
Start Date 3/15/17
Start Time 3:00 PM
Site Code Hokua Place

Start	Kukui St Makai Bound				Kukui St Mauka Bound				Kuhio Hwy Northbound				Kuhio Hwy Southbound				Intersection	
3/15/17	LT-Huluili	LT-Kuhio	Thru	Right-Turn	Left-Turn	Thru	Thru-Huluili	RT-Kuhio	LT-Kukui	LT-Huluili	Thru	Right-Turn	Left-Turn	Thru	RT-Kukui	RT-Huluili	15-Min Totals	Hourly Totals
3:00 PM	4	11	6	12	0	0	0	4	4	1	121	2	3	126	14	1	309	1160
3:15 PM	1	16	1	9	0	0	0	7	4	1	89	2	1	129	16	0	276	1136
3:30 PM	10	12	0	9	0	0	0	7	5	0	86	0	3	144	12	1	289	1142
3:45 PM	9	15	4	16	1	0	0	1	11	2	99	1	1	113	13	0	286	1125
4:00 PM	7	18	6	11	0	0	0	2	7	0	96	1	3	111	18	5	285	1136
4:15 PM	4	16	4	11	0	0	0	8	7	1	97	0	1	112	20	1	282	1123
4:30 PM	3	9	1	13	0	0	0	2	8	0	110	1	2	107	15	1	272	1153
4:45 PM	2	12	1	11	0	0	0	1	5	0	103	2	3	136	17	4	297	1177
5:00 PM	4	13	4	4	0	0	0	2	7	7	82	1	2	133	10	3	272	1144
5:15 PM	12	9	5	16	0	0	0	1	4	5	109	0	2	134	9	6	312	
5:30 PM	4	3	3	6	0	0	0	2	6	6	123	2	0	133	7	1	296	
5:45 PM	2	7	5	6	0	0	0	3	1	1	108	0	1	124	5	1	264	
3/16/17																		
7:00 AM	0	8	2	8	0	0	0	2	1	1	124	1	0	184	2	2	335	1397
7:15 AM	2	6	0	9	0	0	0	0	2	1	166	3	0	182	9	0	**380**	**1410**
7:30 AM	0	6	1	15	0	0	0	0	7	5	143	1	1	153	6	1	339	1367
7:45 AM	2	3	3	15	0	0	0	0	4	4	153	1	0	151	7	0	343	1399
8:00 AM	2	11	4	9	0	0	0	1	3	1	143	2	2	165	2	3	348	1397
8:15 AM	0	0	1	3	0	0	0	4	4	1	143	4	3	172	2	0	337	
8:30 AM	0	5	3	6	0	0	0	9	7	0	153	9	1	170	7	1	371	
8:45 AM	3	9	0	8	0	0	0	9	2	2	151	5	2	143	6	1	341	
3/16/17																		
3:00 PM	7	7	2	9	1	0	0	1	5	1	93	3	2	134	10	4	279	1182
3:15 PM	2	11	2	3	0	0	0	3	10	2	129	1	2	125	9	3	302	1203
3:30 PM	2	7	4	18	0	0	0	4	7	3	105	3	2	144	14	1	314	1160
3:45 PM	3	8	5	7	0	0	0	10	2	1	96	0	1	148	5	1	287	1160
4:00 PM	3	3	4	9	0	0	0	0	3	4	113	4	2	139	10	6	300	1162
4:15 PM	2	8	1	6	0	0	0	0	3	3	111	1	2	114	8	0	259	1176
4:30 PM	1	9	1	3	0	0	0	0	4	0	136	2	1	148	7	2	314	1269
4:45 PM	6	5	2	3	0	0	0	0	10	1	114	2	3	134	8	1	289	1281
5:00 PM	7	4	1	8	0	0	0	6	4	3	119	3	2	144	10	3	314	**1305**
5:15 PM	4	5	2	9	0	0	0	2	15	14	137	4	0	145	8	7	**352**	
5:30 PM	2	6	0	0	0	0	0	2	3	1	154	3	0	145	5	5	326	
5:45 PM	0	6	1	7	0	0	0	1	3	0	134	3	1	147	6	4	313	
3/17/17																		
6:45 AM	0	4	1	6	0	0	0	2	2	0	104	1	1	167	6	0	294	1326
7:00 AM	1	3	1	8	0	0	0	3	3	0	101	2	0	179	7	0	308	1386
7:15 AM	0	4	0	11	0	0	0	2	5	0	172	2	0	170	5	0	371	1415
7:30 AM	1	10	1	12	0	0	0	3	9	1	141	2	1	167	5	0	353	1395
7:45 AM	1	7	2	12	0	0	0	2	3	0	145	2	2	164	14	0	354	1364
8:00 AM	1	9	0	14	0	0	0	4	11	2	135	3	2	149	7	0	337	
8:15 AM	3	5	1	7	0	0	0	11	5	0	146	4	2	155	12	0	351	
8:30 AM	0	6	0	6	0	0	0	2	4	0	125	3	2	164	10	0	322	

AM Peak Hour Traffic			3/16/17															
7:15 AM	6	26	8	48	0	0	0	1	16	11	605	7	3	651	24	4	1410	
PHF	0.75	1.08	N/A	1.33	N/A	N/A	N/A	N/A	2.00	2.75	0.91	0.58	N/A	0.89	0.67	N/A	0.93	
PHV	8	24	0	36	0	0	0	0	8	4	664	12	0	728	36	0	1520	
T Factor	0%	15%	0%	4%	N/A	N/A	N/A	0%	6%	9%	4%	0%	0%	1%	4%	0%		
PM Peak Hour Traffic			3/16/17															
5:00 PM	13	21	4	24	0	0	0	11	25	18	544	13	3	581	29	19	1305	
PHF	0.81	1.05	0.50	0.67	N/A	N/A	N/A	1.38	0.42	0.32	0.99	0.81	N/A	1.00	0.91	0.68	0.93	
PHV	16	20	8	36	0	0	0	8	60	56	548	16	0	580	32	28	1408	
T Factor	0%	0%	0%	0%	N/A	N/A	N/A	0%	0%	0%	0%	0%	0%	1%	0%	0%		

Witness Statement of Sharon Goodwin
February 10, 2021

Q. Please state your name and place of residence.

A. My name is Sharon Goodwin. I am a resident of Kauaʻi County. I live along Olohena Road in Kapaʻa, Kauaʻi.

Q. Is the HoKua Place revised Traffic Impact Assessment Report, dated September 29, 2017 (TIAR) based on accurate characterization of traffic schedules in Kapaʻa and the greater area?

A. No. I reviewed the 2017 revised TIAR and found multiple inconsistencies. The revised TIAR stated that the peak P.M. hours on weekdays begins at 3:00 p.m., but parents drive to the school earlier than that to pick up their children when school lets out at 2:55 p.m. Vendors and patrons of the farmer's market, which takes place on Kahau Road often arrive earlier than the market's opening time of 3:00 p.m. to set up and to scope out good produce.

I also noted the TIAR "turning movement data" lumped together vehicular patterns over Sunday, Monday, and Tues (March 13-15, 2017) and the inclusion of a weekend day would have made the weekday traffic seem less than it actually is. Day-by-day data would have been easier to understand and compare.

The revised TIAR also appears to exclude vehicular accidents from its review, including an accident on March 14, 2017 that occurred in the Roundabout. Accidents are not uncommon and are part of the reality that we would have to address and so it is unclear why the increased travel times and traffic would not be incorporated into a weekly or monthly average so as to give a more accurate picture of traffic patterns.

I do not believe the TIAR assumption that the Hokua Place project would generate only "…487 vehicle trips per hour (vpr) in the AM and 560 vpr in the PM" during peak traffic times. What I have observed is that most homes have at least two adults living in them, each with different places of work and activities, such that 769 units, assuming that no further accessory dwelling units are placed on the single-family lots, would generate at least 800 trips during peak traffic hours.

Q. Do you agree with representations that traffic impacts of the proposed HoKua Place project will be minimal and mitigated? Why or why not?

A. No. I do not believe that the eight or so substantial transportation projects would be completed and paid for by the time the HoKua Project comes online. The project relies heavily on the Department of Transportation and the County completing the following traffic projects:

EXHIBIT[1] "I-43"

1. Widen Kuhio Highway between the Kapa`a Bypass Road (South Junction) and Kuamoo Road to provide two through lanes in each direction.
2. Restripe the median on the north leg of Kuhio Highway at the Kapa`a Bypass Road (South Junction) to provide a median refuge lane.
3. Restripe parking and shoulder lanes on Kuhio Highway through Kapa`a Town to provide additional through and/or left-turn lanes.
4. Modify the traffic signal operations at the intersection of Kuhio Highway and Kukui Street to reduce queuing and delays.
5. Add a right-turn bypass lane from southbound Kapa'a Bypass Road to mauka bound Olohena Road at their roundabout intersection.
6. Realign Kaehulua Road to intersect Olohena Road and Kaapuni Road to create a four-legged, channelized intersection.
7. Extend the median refuge lane/two-way left-turn lane on the north leg of Kuhio Highway at Lehua Street.

Additionally, HoKua Place represents it would complete two more road projects:

1. Construct Road A from Olohena Road to the Kapa`a Bypass Road.
2. Construct a roundabout at the intersection of Road A and the Kapa`a Bypass Road.

These projects would take a lot of public money to complete. I do not believe so many improvements facilitating so much more vehicular traffic through and around Kapa'a is desirable in any case.

The community is highly concerned about traffic impacts. I, with the assistance of another interested community member, counted vehicles passing along Kapa'a Bypass Road, entering and exiting the Kapa'a roundabout, and along the roads closest to the roundabout. We conducted our vehicle count on Wednesday May 27, 2015 for 45 minutes from 2:30 pm to 3:15 pm.

In addition to those on Kapa'a Bypass Road, we counted vehicles along Olohena Road, Malu Road, Kahau Road, Kukui Street, and Lehua Street. Traffic from Kapa'a Middle School enters the roundabout from Olohena Road. Kahau Road receives traffic from the Wednesday Kapa`a Farmers' Market (KFM), the Recycling Center, and the Kapa`a Police Station.

Kapa'a Middle School dismisses students at 2:55 pm and KFM begins at 3:00 pm. We were situated across from the School's entrance along Olohena Road for the school data and adjacent to Kapa'a skate park to tally the roundabout information. We compiled the following information:

- 60 vehicles parked on the school grounds
- 23 vehicles entered the School from the mauka direction
- 48 vehicles exited the School and drove mauka
- 236 vehicles drove mauka along Olohena road without entering the school
- 35 vehicles entered the School from the makai direction

- 44 vehicles exited the School and drove makai
- 192 vehicles drove directly makai.
- 251 vehicles, including at least six school buses, drove from Olohena Road into the roundabout
- 248 vehicles entered the roundabout from the South Entrance Bypass Road
- 84 vehicles drove from the roundabout onto Kahau Road

Additionally, there were vehicles entering the Kahau Road from Kukui and Lehua Streets and vehicles from the Kapa'a Bypass Road but these were not tallied. The overwhelming feeling was that there were too many cars for the two of us to count. Traffic at times was extremely intense.

Further exacerbating the traffic jam, the Kaua'i Bus route stop is on Olohena Road at the Skate Park. Bicyclists have full use of the lane they are traveling. Also, there is a precarious situation in which the crosswalk located on Olohena Road near Kapa'a Middle School where walking students can get over from schoolside closer to home-side on a busy street both interrupts traffic and could lead to accidents. The overall on-the-ground picture of traffic in the proposed project area is one of roads and sidewalks overburdened with activity. Even with certain widening, signals, and other improvements, I believe traffic would not abate sufficiently and, additionally, improvement to the flow and speed of traffic would change the ability of people to walk, bike, and skate as modes of transportation.

Q. Does this conclude your testimony?

A. Yes.

Sharon Goodwin
P.O. Box 446
Kapa`a, Hawai'i 96746

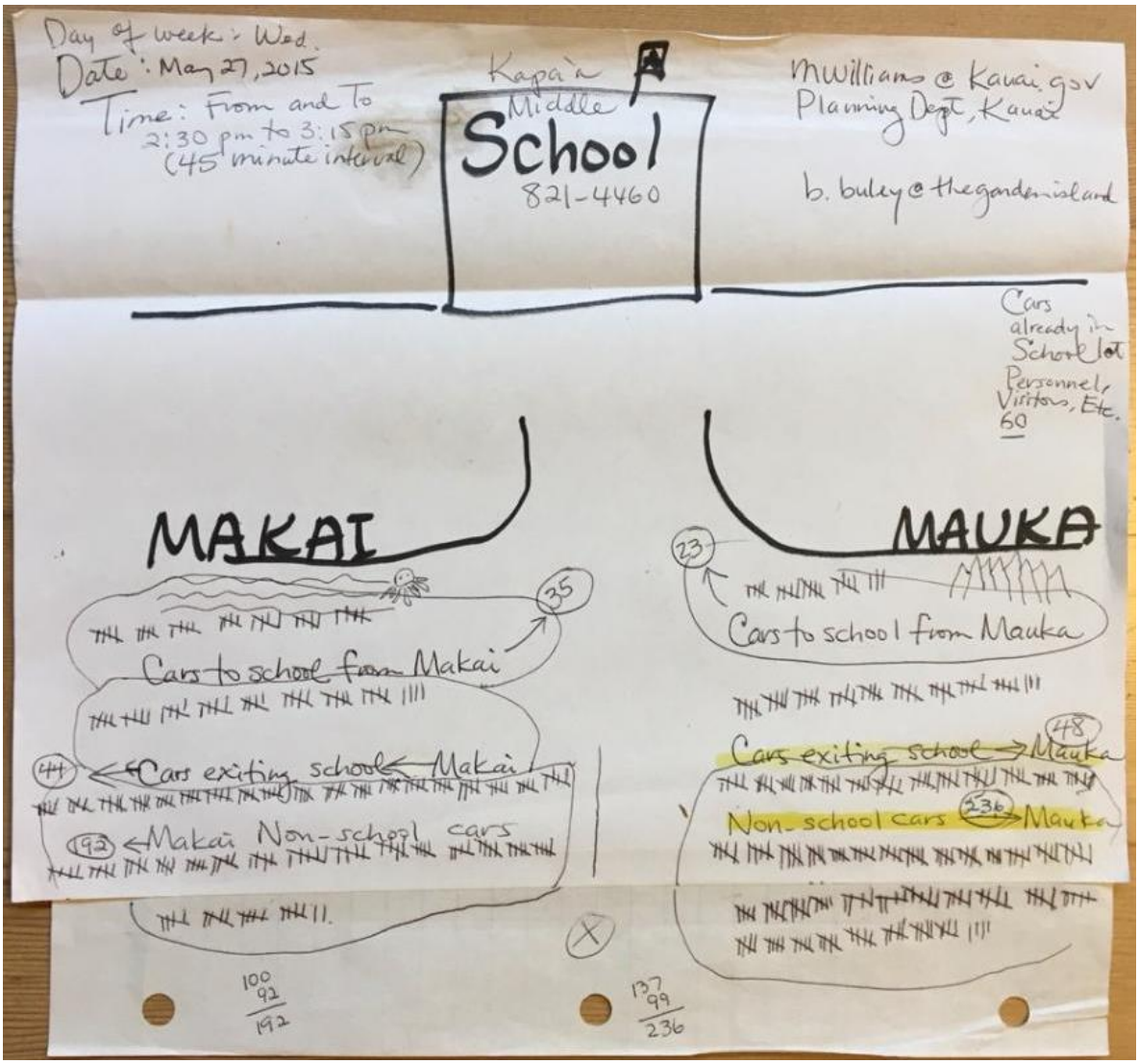
Day of week: Wed.
Date: May 27, 2015
Time: From and To
2:30 pm to 3:15 pm
(45 minute interval)
Kapa'a Middle School
821-4460
mwilliams@kauai.gov
Planning Dept, Kauai
b.buley@thegardenisland
Cars already in School lot
Personnel, Visitors, Etc.
60
MAKAI
MAUKA
35
Cars to school from Makai
41
Cars exiting school Makai
192
Makai Non-school cars
100
92
192
23
Cars to school from Mauka
48
Cars exiting school Mauka
236
Non-school cars Mauka
137
99
236

EXHIBIT "I-44"

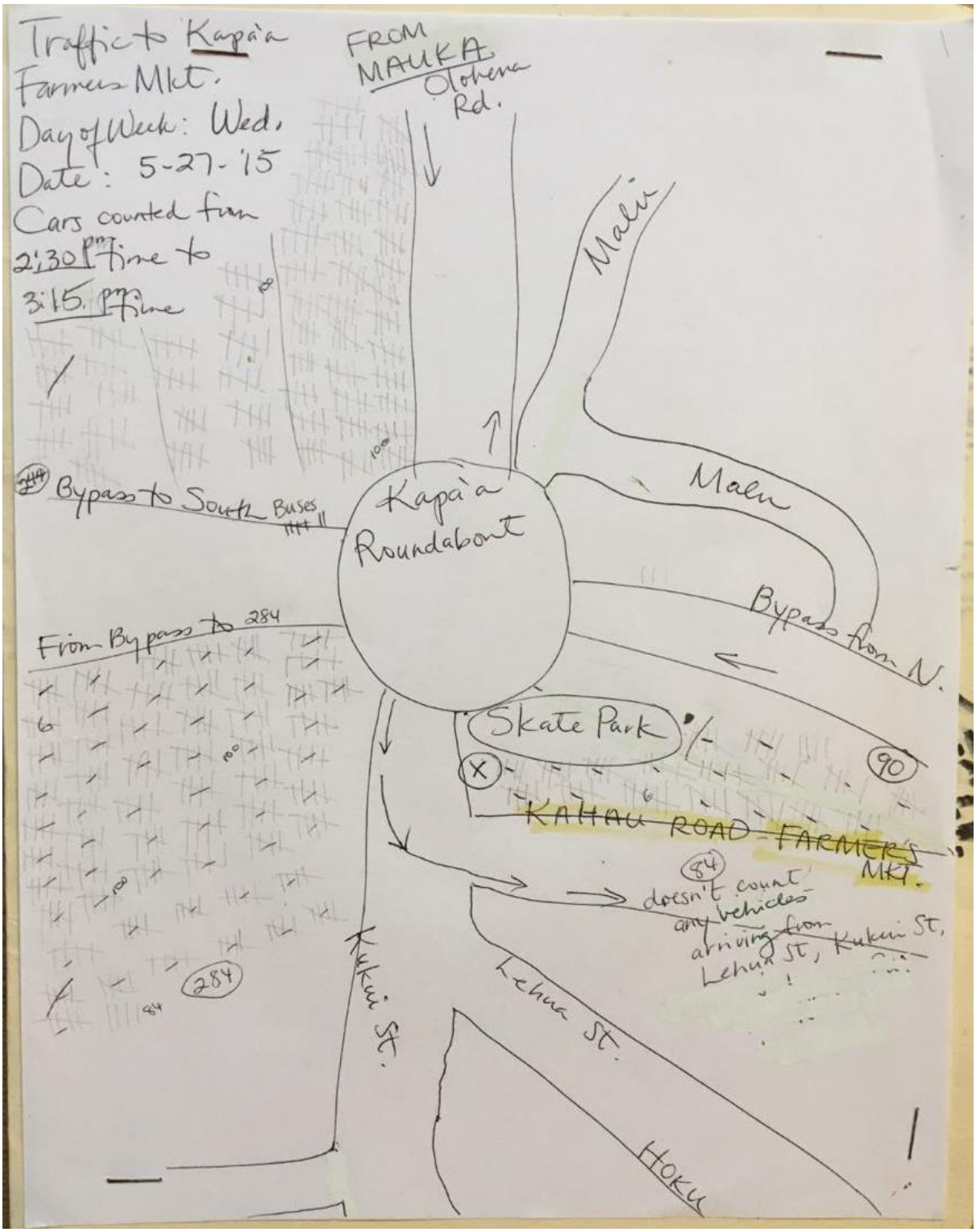
Traffic to Kapa'a Farmers Mkt.
Day of Week: Wed.
Date: 5-27-15
Cars counted from 2:30 PM time to 3:15 PM time
FROM MAUKA
Olohena Rd.
Malu
Malu
Bypass to South Buses
Kapa'a Roundabout
From Bypass to 284
Bypass from N.
Skate Park
KAHAU ROAD - FARMERS MKT.
doesn't count any vehicles arriving from Kukui St, Lehua St,
Kukui St.
Lehua St.
HOKU
284
56
90

EXHIBIT "I-45"