William P. Kenoi
Mayor

Tiffany Kai
Administrator

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County of Hawai'i
Mass Transit Agency
25 Aupuni Street • Hilo, Hawai'i 96720 • (808) 961-8343 • Fax (808) 961-8745

June 23, 2015

Jessica Wooley, Director
Office of Environmental Quality Control
Department of Health, State of Hawai'i
235 S. Beretania Street, Room 702
Honolulu, Hawai'i 96813

Dear Director Wooley:

With this letter, the County of Hawai'i Mass Transit Agency hereby transmits the final environmental assessment and finding of no significant impact (FEA-FONSI) for the Base Yard and Maintenance Facility situated at TMK (3) 2-1-013:148 (portion), in the South Hilo District on the island of Hawai'i for publication in the next available edition of the Environmental Notice.

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

If there are any questions, please contact Tiffany Kai at (808) 961-8343.

Sincerely,

Tiffany Kai

Enclosures:
- OEQC Publication Form
- FEA-FONSI (2 copies)
- CD with an Adobe Acrobat PDF file of the FEA-FONSI and a MS Word file of the publication form

AGENCY ACTIONS
SECTION 343-5(B), HRS
PUBLICATION FORM (FEBRUARY 2013 REVISION)

Project Name: County of Hawai‘i Mass Transit Agency Base Yard and Maintenance Facility
Island: Hawai‘i
District: South Hilo
TMK: (3) 2-1-013:0148 (portion)
Permits: Special Permit, Plan Approval, National Pollutant Discharge Elimination System Permit, Grading/Building Permits, Noise Permit

Proposing/Determination Agency:
County of Hawai‘i Mass Transit Agency
Attn: Tiffany Kai
25 Aupuni Street
Hilo, HI 96720
(808) 961-8343

Accepting Authority:
N/A

Consultant:
PBR HAWAII & Associates, Inc.
Attn: Vincent Shigekuni
1001 Bishop St., Suite 650
Honolulu, HI 96813
(808) 521-5631

Status (check one only):

__DEA-AFNSI	Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of DEA, a completed OEQC publication form, along with an electronic word processing summary and a PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov); a 30-day comment period ensues upon publication in the periodic bulletin.
X FEA-FONSI	Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and a PDF copy (send both summary and PDF to oeqchawaii@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.
__FEA-EISPN	Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and PDF copy (you may send both summary and PDF to oeqchawaii@doh.hawaii.gov); a 30-day consultation period ensues upon publication in the periodic bulletin.
__Act 172-12 EISPN	Submit the proposing agency notice of determination on agency letterhead, an OEQC publication form, and an electronic word processing summary (you may send the summary to oeqchawaii@doh.hawaii.gov). NO environmental assessment is required and a 30-day consultation period upon publication in the periodic bulletin.
__DEIS	The proposing agency simultaneously transmits to both the OEQC and the accepting authority, a hard copy of the DEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the DEIS (you may send both the summary and PDF to oeqchawaii@doh.hawaii.gov); a 45-day comment period ensues upon publication in the periodic bulletin.
__FEIS	The proposing agency simultaneously transmits to both the OEQC and the accepting authority, a hard copy of the FEIS, a completed OEQC publication form, a distribution list, along with an electronic word processing summary and PDF copy of the FEIS (you may send both the summary and PDF to oeqchawaii@doh.hawaii.gov); no comment period ensues upon publication in the periodic bulletin.

__ Section 11-200-23 Determination

The accepting authority simultaneously transmits its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS to both OEQC and the proposing agency. No comment period ensues upon publication in the periodic bulletin.

__Section 11-200-27 Determination

The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is not required. No EA is required and no comment period ensues upon publication in the periodic bulletin.

__Withdrawal (explain)

Summary (Provide proposed action and purpose/need in less than 200 words. Please keep the summary brief and on this one page)**:**

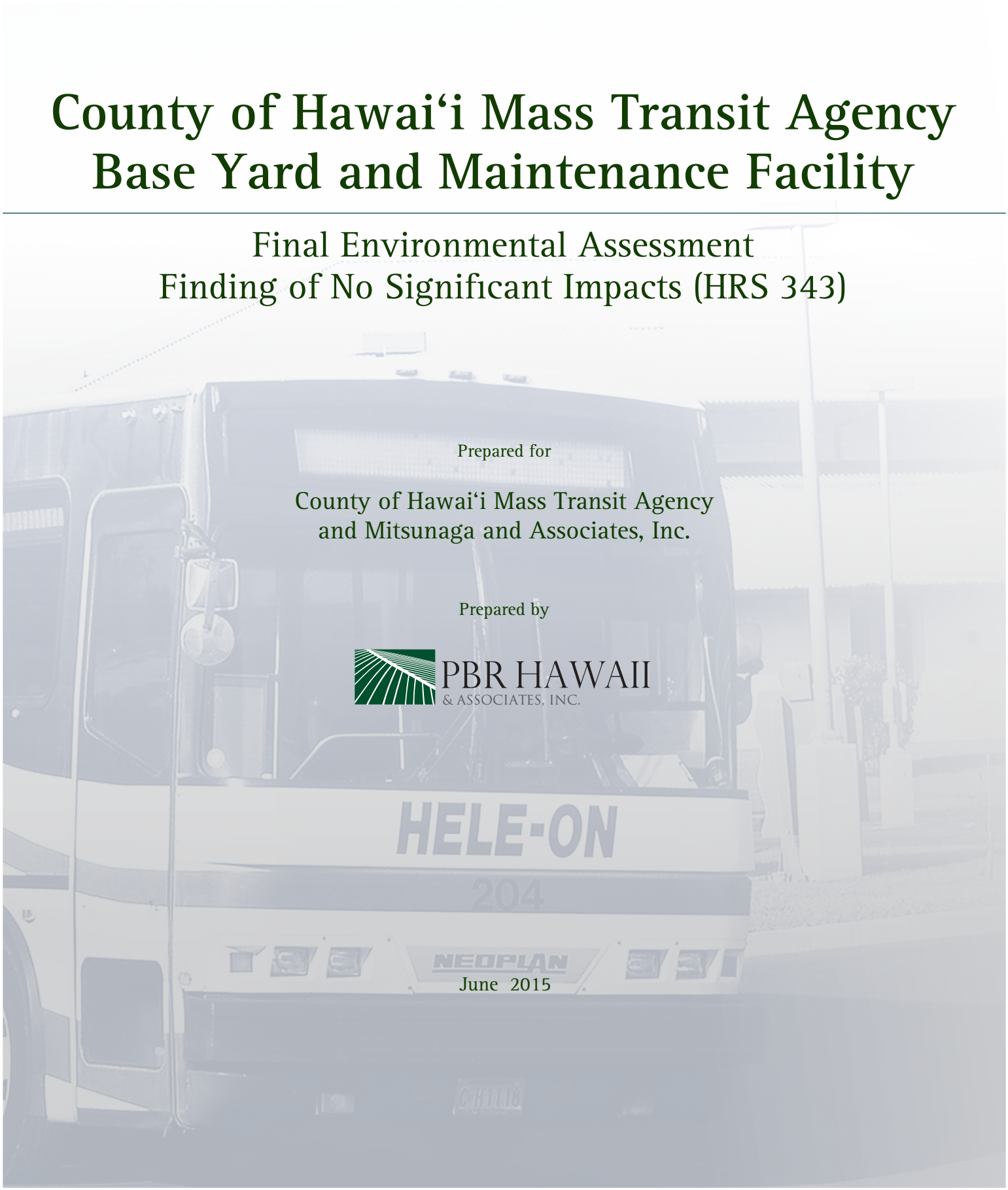
The County of Hawai‘i Mass Transit Authority (MTA) is proposing to construct a base yard and maintenance facility for transit operations (“the Base Yard and Maintenance Facility”). The proposed base yard will be located on a five-acre portion of tax map key (TMK) (3) 2-1-013:148 on Pana‘ewa Drag Strip Road in Waiākea, South Hilo, Island of Hawai‘i (“the Project Site”).

The purpose of the proposed Base Yard and Maintenance Facility is to better support the MTA’s operations, which include providing island-wide public transportation, administrative support to the Hawai‘i County Transportation Commission, and overseeing taxicab operators. The MTA has grown significantly over the years and is in need of its own facility to improve efficiency and the work environment. Currently, it is located in the Schultz Siding facility where it shares limited space with the Department of Public Works.

Development of the proposed Base Yard and Maintenance Facility will include construction of a 26,500 square foot building with 19,500 square feet of warehouse space for transit vehicle maintenance, washing, and repair. The building will also include office space for administrative staff who oversee daily transit operations as well as storage space.

County of Hawai‘i Mass Transit Agency Base Yard and Maintenance Facility

Final Environmental Assessment
Finding of No Significant Impacts (HRS 343)



Prepared for

County of Hawai‘i Mass Transit Agency
and Mitsunaga and Associates, Inc.

Prepared by

PBR HAWAII
& ASSOCIATES, INC.

June 2015

COUNTY OF HAWAIʻI MASS TRANSIT AGENCY BASE YARD AND MAINTENANCE FACILITY

Final Environmental Assessment –
Finding of No Significant Impacts
(HRS 343)

Prepared for:

County of Hawaiʻi Mass Transit Agency

and Mitsunaga and Associates, Inc.

Prepared by:

PBR HAWAII
& ASSOCIATES, INC.

June 2015

SUMMARY

Project Name:	Mass Transit Agency Base Yard and Maintenance Facility
Location:	Waiākea Homesteads, Waiākea, South Hilo, Island and County of Hawaiʻi
Judicial District:	South Hilo
Tax Map Key (TMK):	(3) 2-1-013:148 (portion)
Land Area:	5 acres
Proposing Agency:	County of Hawaiʻi Mass Transit Agency
Landowner:	State of Hawaiʻi
Existing Use:	Vacant land
Proposed Action:	Construction of a Base Yard and Maintenance Facility for County buses using state land and federal funds.
Current Land Use Designations:	*State Land Use:* Agriculture *County General Plan LUPAG:* Important Ag Lands and Extensive Agriculture *County Zoning*: Agriculture (A-20a) *Special Management Area (SMA)*: Not in SMA
Alternatives Considered:	Besides the proposed action, three alternatives were considered: • No action • Two other alternative sites
Potential Impacts and Mitigation Measures:	The Project will have beneficial impacts by enhancing the county's mass transit service. Mass transit reduces reliance on automobiles and serves those who do not drive. As a secondary benefit to surrounding county facilities (e.g., Panaʻewa Drag Strip), the extension of water and power to the Project Site may allow for these facilities to connect at a shorter distance than existing conditions. Any potential adverse impacts would be mitigated as follows: • Design measures:

Potential Impacts and Mitigation Measures (cont.):

- To mitigate stormwater impacts, on-site drainage design will incorporate low impact development practices such as vegetated buffer/filter strips, open vegetated channels, and infiltration.
- To mitigate erosion and sedimentation impacts during construction, the grading plans will specify some or all of the following best management practices:
  - Early construction of drainage control features;
  - Construction of temporary sediment basins to trap silt;
  - Use of temporary berms and cut-off ditches where needed; and
  - Use of temporary silt fences or straw bale barriers to trap silt.
- To minimize the potential for bird strikes, the stormwater management system will be designed and operated so as not to create above-ground standing water to attract wildlife that could cause hazardous wildlife movement into or across the airspace of Hilo International Airport.
- To maintain any of the existing levee's possible drainage utility, the on-site berm will be preserved but will be moved outside of the Project Site. Relocation of the levee will be coordinated with the Four Mile Creek Drainage Improvement Project currently under study by the Army Corps of Engineers.
- To mitigate potential impact to seabirds, the design will specify shielded outdoor lights in conformance with County Code outdoor lighting requirements (Chapter 14, Article 9, HCC).
- To protect low-flying, foraging bats, barbed wire not be used for fencing.
- The county will coordinate with the State Civil Defense to determine the need and responsibility for a warning siren to be installed on the Project Site.

Potential Impacts and Mitigation Measures (cont.):

- The Base Yard and Maintenance Facility will not include any reflective surfaces, including photovoltaic panels, which could impair pilots' vision unless coordinated with the Airports Division.
- The Individual Wastewater System permit approved by DOH will ensure the septic tank and leach field system has adequate capacity.
- To mitigate potential water quality impacts from petroleum products, the design will include catchment and isolation of petroleum products. Those products accumulated in catchment will be conveyed to oil-water separators.
- If the Base Yard and Maintenance Facility requires an injection well, it will conform with the regulations in Title 11, Chapter 23, HAR, including obtaining a UIC Permit or Permit Exemption.

- Construction measures:
  - To mitigate construction noise and dust, the construction contract will include standard measures such as ensuring mufflers are in proper operating condition, limiting construction hours, and wetting down exposed surfaces.
  - To mitigate potential impact to the native hawk, the construction contract will include a requirement to retain a biologist to check for nests if grubbing trees during March through September.
  - If construction will occur during the Hawaiian hoary bat breeding season (June 1 to September 15), construction documents will specify that woody plants greater than 15 feet tall should not be removed or trimmed.
  - The construction documents will include a provision that should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work will cease immediately in the immediate vicinity of the find and the find will

Potential Impacts and Mitigation Measures (cont.):

be protected. The contractor will immediately contact State Historic Preservation Division, which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

- Operational measures:
  - For hurricane events, county buses may play a critical role in evacuation and post-event recovery. MTA will have disaster preparedness procedures to protect the buses in the base yard from damage during the event, and to clear any debris that may block the access road post-event.

Determination: Finding of No Significant Impact (FONSI)

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ACRONYMS

AA	Archaeological Assessment
ALISH	Agricultural Lands of Importance to the State of Hawaiʻi
BLNR	Board of Land and Natural Resources
BMP	Best Management Practices
CZM	Coastal Zone Management
DBEDT	Department of Business, Economic Development, and Tourism, State of Hawaiʻi
DHHL	Department of Hawaiian Home Lands, State of Hawaiʻi
DLNR	Department of Land and Natural Resources, State of Hawaiʻi
DOE	Department of Education, State of Hawaiʻi
DOH	Department of Health, State of Hawaiʻi
DOT	Department of Transportation, State of Hawaiʻi
DWS	Department of Water Supply, County of Hawaiʻi
EA	Environmental Assessment
EPA	Environmental Protection Agency
EO	Executive Order
FAA	Federal Aviation Administration
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
gpd	Gallons per day
HAR	Hawaiʻi Administrative Rules
HCC	Hawaiʻi County Code
HELCO	Hawaiʻi Electric Light Company, Inc.
HMC	Hilo Medical Center
HRS	Hawaiʻi Revised Statutes
IBC	International Building Code
LID	Low Impact Development
LSB	Land Study Bureau, University of Hawaiʻi
LUC	State of Hawaiʻi Land Use Commission
LUPAG	County of Hawaiʻi General Plan Land Use Pattern Allocation Guide
MGD	Million gallons per day
MTA	County of Hawaiʻi Mass Transit Agency
mph	Miles per hour
NASA	National Aeronautics and Space Administration
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NGPC	Notice of General Permit Coverage
NPDES	National Pollutant Discharge Elimination Systems
NRCS	Natural Resources Conservation Service, USDA
SHPD	State of Hawaiʻi Historic Preservation Division
SMA	Special Management Area
TMK	Tax map key
TSS	Total suspended solids
UIC	Underground Injection Control
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1 INTRODUCTION

The County of Hawaiʻi Mass Transit Agency (MTA) is proposing to construct a base yard and maintenance facility for transit operations ("the Base Yard and Maintenance Facility"). The proposed base yard will be located on a five-acre portion of tax map key (TMK) (3) 2-1-013: 148 on Hoʻolaulima Road in Waiākea, South Hilo, Island of Hawaiʻi ("the Project Site") (Figure 1 and Figure 2).

1.1 LANDOWNER

The State of Hawaiʻi is the landowner of record. The County of Hawaiʻi MTA has a right-of-entry to process the applicable entitlements related to the Base Yard and Maintenance Facility.

1.2 PROPOSING/DETERMINING AGENCY

The County of Hawaiʻi Mass Transit Agency is the proposing/determining agency.

Contact: County of Hawaiʻi Mass Transit Agency
ATTN: Tiffany Kai, Administrator
Hilo, Hawaiʻi 96720
Phone: (808) 981-8356
Fax: (808) 981-2037

1.3 ENVIRONMENTAL CONSULTANT

PBR HAWAIʻI is the environmental planning consultant.

Contact: PBR HAWAII & Associates, Inc.
ATTN: Vincent Shigekuni
1001 Bishop Street, Suite 650
Honolulu, Hawaiʻi 96813
Telephone: (808) 521-5631
Fax: (808) 523-1402

1.4 COMPLIANCE WITH STATE OF HAWAIʻI ENVIRONMENTAL LAWS

Preparation of an Environmental Assessment (EA) is being undertaken to meet the applicable requirements of Chapter 343, Hawaiʻi Revised Statutes (HRS) and Title 11, Chapter 200, Hawaiʻi Administrative Rules (HAR). Section 343-5, HRS establishes nine "triggers" that require the completion of an EA. Because the Base Yard and Maintenance Facility involves state land and county funds, the trigger is §343-5(a)(1): "Propose the use of state or county lands or the use of state or county funds." Although very similar in content, environmental compliance documents for federal funding are formatted differently and are being processed separately.

1.5 STUDIES CONTRIBUTING TO THIS EA

The information contained in this report has been developed from site visits, generally available information regarding the characteristics of the proposed Base Yard and Maintenance Facility site and surrounding areas, and technical studies. Technical studies are provided as appendices to this EA. These studies include:

- Archaeological Assessment
- Civil, Electrical, and Mechanical Basis of Design
- Transportation Impact Analysis Report
- Noise Study

2 PROJECT DESCRIPTION

2.1 BACKGROUND INFORMATION

2.1.1 Location and Property Description

The Base Yard and Maintenance Facility is proposed to be located at 2299 Hoʻolaulima Road in Waiākea Homesteads, Waiākea *ahupuaʻa*, South Hilo District, Island and County of Hawaiʻi (Figure 1). The Project Site is identified as a five acre area in the northwest corner of the state-owned TMK (3) 2-1-013:148, which is 40 acres in total (Figure 2).

In 1964, the Board of Land and Natural Resources (BLNR) approved the issuance of Governor's Executive Order (EO) 1288 to set aside TMK (3) 2-1-013:148, consisting of 40 acres, for use as a County of Hawaiʻi quarry and borrow pit. In 2014, the County of Hawaiʻi requested withdrawal of a five-acre portion of TMK (3) 2-1-013:148 from EO 1288. The withdrawn area is to then be reset aside to the County for this proposed Mass Transit Agency Base Yard and Maintenance Facility. On September 12, 2014, the BLNR approved in concept the reset aside of the Project Site subject to several requirements, including compliance with Chapter 343, HRS and subdivision. The BLNR will grant final approval to the reset aside of the executive order upon publication of the Final EA and final subdivision approval.

Currently, the Project Site is vacant and not being used for quarry or borrow pit purposes. Access to the Project Site is over a 24-foot wide paved road with a 50-foot right-of-way that the County of Hawaiʻi maintains. The owner and constructor of this road are unknown. In addition to providing access to the Project Site, the road is also used to access other County of Hawaiʻi properties and facilities, including a quarry, borrow pits, landfill, drag strip, and sort station, in the area. The Project Site itself is bound on its west side by a 70-foot wide dirt road and has several four-wheel drive paths running through it. The road may have been used to access a flood control channel *mauka* of the Project Site.

According to the Archaeological Assessment performed by Haun and Associates for the Base Yard and Maintenance Facility (Appendix C), approximately 2.7 acres (54 percent) of the Project Site has been impacted by bulldozer disturbance. The remaining approximately 2.3 acres are relatively undisturbed and contain a mix of indigenous and introduced plant species. Figure 4 contains site photographs.

Elevations range from approximately 100 to 105 feet above mean sea level, with relatively flat slope.

2.1.2 Existing Land Use Designations

Current land use designations for the Base Yard and Maintenance Facility Project Site are:

- *State Land Use*: Agriculture (Figure 5);
- *County General Plan LUPAG*: Important Ag Lands and Extensive Agriculture (Figure 6);
- *County Zoning*: Agriculture (A-20a) (Figure 7);
- *Special Management Area (SMA)*: Not in SMA (Figure 8).

2.1.3 Surrounding Land Uses

A quarry run by the County of Hawaiʻi is directly north of the road that runs along the boundary of the Project Site. Beyond the quarry to the north is the county's South Hilo Sanitary Landfill. The Hilo International Airport is less than two miles due north of the Project Site. The National Guard's Keaukaha Military Reservation is less than one mile northeast of the Project Site.

Immediately to the east and south of the Project Site is the remainder of TMK (3) 2-1-013:148 adjacent to which is a state-owned property that is leased to the U.S. Department of Transportation, Federal Aviation Administration (FAA).

West of the Project Site is a large linear piece of undeveloped land owned by the Department of Hawaiian Home Lands (DHHL) designated "Unencumbered Lands." According to the Panaʻewa Regional Plan, "Unencumbered Lands", with "…their lack of infrastructure will make it a challenge to find a feasible way to utilize these parcels.". Beyond this parcel to the west is DHHL's Keaukaha-Panaʻewa Community, which is an existing agricultural subdivision.

Further south beyond the FAA property is another DHHL-owned property, which is identified as being part of the agency's Waiākea Community. However, there is currently no development on this property. To the southwest is the Hilo Drag Strip, which is a drag racing facility.

2.2 PURPOSE AND NEED

The purpose of the proposed base yard and maintenance facility is to better support the MTA's operations. The MTA provides island-wide public transportation for the County of Hawaiʻi, administrative support to the Hawaiʻi County Transportation Commission, and oversees taxicab operators.

The proposed base yard and maintenance facility is necessary because the MTA has grown significantly over the years and is in need of its own facility to improve efficiency and the work

environment. Currently, it is located on Railroad Avenue in the Schultz Siding facility where it shares limited space with the Department of Public Works.

2.3 PROJECT DESCRIPTION

The site plan of the proposed Base Yard and Maintenance Facility includes construction of a 26,500 square foot building with 19,500 square feet of warehouse space for transit vehicle maintenance, washing, and repair. The building will also include office space for administrative staff who oversee daily transit operations as well as storage space. The building will be built to meet the Silver accreditation level of the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) standards. The buildings are oriented toward the Hoʻolaulima Road. Two driveways will provide access to the Hoʻolaulima Road (Figure 9).

The majority of the Project Site will be paved to provide for bus staging and parking. Fifty-five bus stalls and 34 passenger vehicle stalls will be provided. This will be sufficient to accommodate MTA's fleet and the base yard employees' personal vehicles.

2.4 PERMITS AND APPROVALS

A listing of anticipated permits and approvals required for Base Yard and Maintenance Facility is presented below:

Table 1: Anticipated Approvals and Permits

Permit/Approval	Responsible Agency
Chapter 343, HRS Compliance	County of Hawaiʻi Department of Public Works Office of Environmental Quality Control
Special Permit	Hawaiʻi County Planning Department
Plan Approval	Hawaiʻi County Planning Department
Subdivision	Hawaiʻi County Planning Department
National Pollutant Discharge Elimination System (NPDES) Permit	State Department of Health
Individual Wastewater System Permit	Department of Health
Grading/Building Permits	Hawaiʻi Department of Public Works
Noise Permit	State Department of Health

2.5 DEVELOPMENT TIMETABLE AND PRELIMINARY COSTS

The Base Yard and Maintenance Facility will be constructed in one phase. The preliminary cost for construction is estimated at $8,965,490, 80% federal funding and 20% county funding.

3 DESCRIPTION OF THE NATURAL ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

This section describes existing conditions of the natural environment, potential impacts related to the Project and mitigation measures to minimize impacts.

3.1 CLIMATE

Hawaiʻi Island's geological features heavily influence its climate. Mauna Loa (13,679 foot summit elevation) and Mauna Kea (13,796 foot summit elevation) are the dominant ground-based atmospheric influences. Northeast trade winds typically occur during the day, while winds from the southwest typically occur during the night due to cold air drainage from the mountains. The mean annual wind speed at the airport is about 8 miles per hour (mph), and usually varies between about 4 and 12 mph during the day.

Average annual temperatures at the Hilo International Airport range from about 67 to 81 degrees Fahrenheit. The coolest month is generally February and the warmest is September (County of Hawaiʻi Data Book).

According to *The Rainfall Atlas of Hawaiʻi*, the Project receives an average annual rainfall of approximately 132 inches (Giambelluca, et al., 2012). Hilo's windward rainfall pattern is due to the climatic influences of Mauna Loa and the Kohala Mountains.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The construction of the Base Yard and Maintenance Facility will have no impact on the climate of the surrounding region; therefore no mitigation measures are planned or warranted.

3.2 GEOLOGY AND TOPOGRAPHY

Of the five volcanoes that formed the island of Hawaiʻi—Kohala, Hualālai, Mauna Kea, Mauna Loa, and Kīlauea—only Mauna Loa and Kīlauea are presently considered active; the other three are considered dormant.

Waiākea is located on the southeastern flank of Mauna Kea, the summit of which rises approximately 13,800 feet above mean sea level and provides the backdrop for Hilo town toward the west. The western slope of Mauna Kea is dry and unscathed by erosion; whereas the northeastern slope is exposed to the trade-wind rains creating canyons a few hundred yards deep. Mauna Loa deposited the lava underlying the Project Site between 750 and 1,500 years ago.

Elevations across the Project Site range from approximately 100 to 105 feet above mean sea level. The Project Site is generally flat with an average slope of one percent in a *mauka* to *makai*, west to east direction. A seven foot high bulldozed berm of soil and stones is present along the northern boundary of the Project Site. Approximately 2.7 acres (54 percent) of the Project Site has been impacted by bulldozer disturbance. There is also a heavily vegetated linear berm, oriented in an east-northeast by west-southwest direction, in the east-central portion of the Project Site. The berm is approximately 330 feet long, 25 to 50 feet wide, and eight to nine feet above the ground surface. Approximately 70-feet of the berm has been bulldozed and flattened on the western side of the Project Site. The berm corresponds to a levee, which originates at a drainage canal southwest of the Project Site, depicted on a 1995 U.S. Geological Survey (USGS) quadrangle. The levee does not appear on a 2013 USGS quadrangle, suggesting it is no longer in use.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The Project Site offers generally flat land that is optimal for development. Construction of the Base Yard and Maintenance Facility will fill the depression in the center of the Project Site. However, due to the Project Site's otherwise generally flat surface, minimal grading will be required. Any grading will be in conformance with the Hawaiʻi County Grading Ordinance and recommendations of the geotechnical engineer. On-site fill will be used wherever necessary and fill slopes will not exceed 2:1. To minimize potential impacts, grading will be segmented and exposed areas will be immediately grassed or landscaped before commencement of grading in the next phase, in compliance with Chapter 10 (Erosion and Sedimentation Control) of the Hawaiʻi County Code (HCC). Draft grading and erosion control plans are provided in Appendix D.

Although the levee on site does not appear to be in use, to maintain any of its possible drainage utility, the berm will be preserved but will be moved outside of the Project Site. Relocation of the levee will be coordinated with the Four Mile Creek Drainage Improvement Project currently under study by the Army Corps of Engineers.

3.3 SOILS

Three soil suitability studies prepared for Hawaiʻi describe the physical attributes of land and the relative productivity of different land types for agricultural production. The studies are: 1) the U.S. Department of Agriculture Natural Resource Conservation Services (NRCS) Soil Survey; 2) the University of Hawaiʻi Land Study Bureau (LSB) Detailed Land Classification; and 3) the State Department of Agriculture's Agricultural Lands of Importance to the State of Hawaiʻi (ALISH) system.

In addition, Hirata and Associates prepared a geotechnical report in March 2015. They performed borings and found basalt from ground level until a depth of approximately six feet. Surface soils were found to be a mixture of grayish brown clinker (sand, gravel, and cobbles) and volcanic ash. The surface ash is highly compressible with poor workability characteristics.

3.3.1 NRCS Soil Survey

The soil of the Project Site is classified by the U.S. Department of Agriculture Natural Resources Conservation Service as Papai extremely stony muck, 3 to 25 percent slopes (rPAE) (Figure 10). The Project Site is also defined as potentially highly erodible land.

Papai soils consist of a very dark brown, eight-inch thick surface layer that is underlain by *aʻa* lava. This well-drained soil is friable and slightly sticky, plastic, and acid. Runoff from Papai soils is slow while permeability is rapid. It has many roots and fine pores. In general Papai soils are used for woodland but some small areas are used for pasture, orchards, and truck crops (Soil Survey of the Island of Hawaiʻi, State of Hawaiʻi, 1973).

3.3.2 LSB Detailed Land Classification

The University of Hawaiʻi LSB Detailed Land Classification, Island of Hawaiʻi classifies soils based on a productivity rating. Letters indicate class of productivity with A representing the highest class and E the lowest. The soils of the Project Site are classified “E” or “not suitable” for agriculture (Figure 11).

3.3.3 Agricultural Lands of Importance to the State of Hawaiʻi

The ALISH system classifies agricultural lands as Prime, Unique, or Other Important Agricultural Land. The soils of the Project Site are classified “Other Important Agricultural Land,” which is defined as an area that can be farmed satisfactorily by applying greater inputs of fertilizer, improving drainage, practicing erosion control, and protecting the land from flooding (Figure 11).

POTENTIAL IMPACTS AND MITIGATION MEASURES

Based on the geotechnical study, the soils are suitable for the proposed use. Given the Project Site’s low productivity potential and need for high inputs, it is not suitable for agricultural activity. Therefore, construction of the Base Yard and Maintenance Facility will not reduce the inventory of productive lands available for agricultural uses.

As required for projects on land greater than one acre in size, a National Pollutant Discharge Elimination System (NPDES) Notice of General Permit Coverage (NGPC) for Storm Water

Associated with Construction Activity will be necessary. Grading will follow Best Management Practices (BMPs) as prescribed in the NPDES Permit. The contractor will submit a site-specific construction BMP plan to the State of Hawaiʻi Department of Health (DOH) before grading commences. Further discussion on stormwater impacts and BMPs are provided in Section 3.4 of this environmental assessment.

Short term soil impacts may include the potential for soil erosion and the generation of dust during grading and construction. All construction activities will comply with all applicable federal, state, and county regulations and rules for erosion control.

Any grading will be in conformance with the Hawaiʻi County Grading Ordinance and recommendations of the geotechnical engineer. On-site fill will be used wherever possible (clinker and volcanic ash are not acceptable for compacter fill) and fill slopes will not exceed 2:1. To minimize potential impacts, grading will be segmented and exposed areas will be immediately grassed or landscaped before commencement of grading in the next phase, in compliance with Chapter 10 (Erosion and Sedimentation Control), HCC. Draft grading and erosion control plans are provided in Appendix D. Measures to control erosion during the site development period may include:

- Minimizing the time of construction;
- Retaining existing ground cover as long as possible;
- Constructing drainage control features early;
- Using temporary area sprinklers in non-active construction areas when ground cover is removed;
- Providing a water truck on-site during the construction period to provide for immediate sprinkling, as needed;
- Using temporary berms and cut-off ditches, where needed, for control of erosion;
- Watering graded areas when construction activity for each day has ceased;
- Grassing or planting all cut and fill slopes immediately after grading work has been completed; and
- Installing silt screens, where appropriate.

3.4 HYDROLOGY

The Project Site is located within the Hilo Watershed, which measures 470 square miles. Watersheds captures rainfall and atmospheric moisture from the air and allows the water to drip slowly into underground aquifers or enter stream channels and eventually to the ocean. The Hilo watershed includes the combined eastern slopes of Mauna Kea and Mauna Loa reaching maximum elevations of 13,796 and 13,679 feet, respectively. The saddle between the two mountains drains mostly through Hilo into Hilo Bay. Within the Hilo Watershed are a

number of sub-watersheds. Most of the Project Site is within the Wailoa sub-watershed, but a small portion also falls within the Kaʻahakini sub-watershed.

Surface Water

The Project Site is located about one third of a mile from a flood channel of the perennial Kaʻahakini Stream (Figure 12). The headwaters of this stream are located to the southwest of the Project Site. The flood channel is known as the Waiākea-Uka Flood Control Channel. A berm that runs through the Project Site corresponds to a levee, which originates at the Flood Control Channel, depicted on a 1995 USGS quadrangle. The location of the levee downslope from the Flood Control Channel suggests it served to define the boundaries of a ponding basin, which is used to contain flood waters during periods of excessive rainfall. The levee and Flood Control Channel were likely constructed between 1965 and 1981. The levee does not appear on a 2013 USGS quadrangle, suggesting it is no longer in use.

There are no wetlands or intermittent steams on the Project Site. The nearest wetland is a small freshwater pond approximately three-quarters of a mile southeast of the Project Site (Figure 12).

Ground Water

Due to the relatively young and porous geology of Hawaiʻi Island, most of the rainfall infiltrates to groundwater. Hawaiʻi has classified groundwater in the state under an aquifer coding system to identify and describe these aquifers. The Project Area overlies the Keaʻau Aquifer System, a subset of the N.E. Mauna Loa Aquifer Sector. Groundwater within this aquifer exists primarily as basal groundwater followed by high level dike and perched water. Cap rock, although thick and extensive, does not play an important role in the coastal regions of the aquifer.

Sustainable yield is the amount of groundwater that can be pumped without depleting the source. The sustainable yield of the Hilo Aquifer System is 393 million gallons per day (MGD), and existing water use as of 2008 is 14.084 MGD (Wilson Okamoto Corporation, 2008). The Project Site is below the Underground Injection Control (UIC) line, which means that the underlying aquifer is not considered a drinking water source (Figure 13).

Marine Waters

The Site is approximately three miles inland from the nearest coastline. Near shore marine waters off the coast of Hilo Bay are classified as class “A” by the State DOH (2012). According to DOH Water Quality Standards, “It is the objective of class A waters that their use for

recreational purposes and aesthetic enjoyment be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters" (HAR §11-54-03).

POTENTIAL IMPACTS AND MITIGATION MEASURES

Construction of the Base Yard and Maintenance Facility is not anticipated to have significant adverse impact on groundwater or surface water resources.

Potable water will be supplied by the County Department of Water Supply's (DWS) Water System, which draws water from a series of surface water sources and groundwater wells. Section 4.8.1 (Water System) of this EA provides further information regarding anticipated water demands.

Construction of the Base Yard and Maintenance Facility will result in an increase in the amount of impervious surface on the Project Site. Direct discharge of storm water runoff into marine waters is not anticipated due to the inland location of the Site. Similarly, due to distance from existing streams, it is highly unlikely that any storm runoff from will impact surface water resources.

The Base Yard and Maintenance Facility storm drainage system will be designed to comply with the latest County of Hawaiʻi *Storm Drainage Standards and Standard Details for Public Works Construction*. To the extent practicable, the Base Yard and Maintenance Facility will be designed to maintain post-development peak runoff rate and average volume at levels that are similar to pre-development levels. Existing drainage patterns will be maintained as much as possible. Although the levee on site does not appear to be in use, to maintain any of its possible drainage utility, the berm will be preserved but will be moved outside of the Project Site. Relocation of the levee will be coordinated with the Four Mile Creek Drainage Improvement Project currently under study by the Army Corps of Engineers.

All NPDES permit requirements will be implemented. In accord with these requirements, the Base Yard and Maintenance Facility will utilize several best management practice categories, including infiltration practices, vegetated open channel practices, and filtering practices, defined in the Environmental Protection Agency's (EPA) guidance document entitled *National Management Measures to Control Nonpoint Source Pollution from Urban Areas* (November 2005, EPA-841-B-05-004). EPA has found these practices to be representative of the types of practices that can be applied successfully to achieve the new development runoff management measures specified in the Hawaiʻi Watershed Guidance.

In its Draft EA Early Consultation comments, the State Office of Planning requested that Low Impact Development (LID) be considered in the design of the Base Yard and Maintenance Facility. In particular, the State Office of Planning recommended examining Section 1.7 of the *Low Impact Development, A Practitioner's Guide*. Among the LID techniques that involve the utilization of natural features and source control for stormwater management listed, the Base Yard and Maintenance Facility will utilize at least three: Vegetated Buffer/Filter Strips, Open Vegetated Channels, and Infiltration.

The on-site drainage system will be designed for a ten-year recurrence interval and will consist of vegetated infiltration drainage swales along the perimeter of the Project Site. All stormwater will sheet flow to vegetated swales, which will store the flow until it percolates into the ground. The vegetated swales are intended to accomplish the following: (1) decrease the erosive potential of increased runoff volumes and velocities associated with development-induced changes in hydrology; (2) remove suspended solids and associated pollutants entrained in runoff that result from activities occurring during and after development; and (3) retain hydrological conditions to closely resemble those of the pre-disturbance condition. During the Draft EA public review period, the State Department of Transportation wrote:

> *"…FAA strongly recommends that off-airport storm water management systems located within five (5) miles of the airport be designed and operated so as not to not create above-ground standing water to attract wildlife that could cause hazardous wildlife movement into or across the airspace. Stormwater detention ponds should be designed, engineered, constructed, and maintained for a maximum 48-hour detention period after the design storm and remain completely dry between storms. We recommend that consideration should be given to the types of vegetation planted in or around the drainage swales so as not to attract wildlife which could impact aircraft operations at Hilo International Airport."*

The State Office of Planning has created the *Stormwater Impact Assessment* to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff occurrences. Mitigation measures and BMPs listed in this guidance can be applied to water runoff strategies to prevent damage to coastal ecosystems. As recommended by the State Office of Planning (in its Draft EA Early Consultation comments), the *Stormwater Impact Assessment* was examined. Appendix B of the *Stormwater Impact Assessment* includes a table of BMPs that address specific issues and include examples that, with foresight, can transition with a site through construction and into operation. Effectiveness of stormwater design and control techniques is dependent upon site conditions.

The Base Yard and Maintenance Facility will be constructed, to the extent feasible, with BMPs from the *Stormwater Impact Assessment*.

Based on the Project Site conditions, relevant BMPs from the *Stormwater Impact Assessment* that may be implemented during construction include:

- Early construction of drainage control features;
- Construction of temporary sediment basins to trap silt;
- Use of temporary berms and cut-off ditches where needed; and
- Use of temporary silt fences or straw bale barriers to trap silt.

All grading operations will be conducted in compliance with dust and erosion control requirements of Chapter 10 (Erosion and Sedimentation Control), HCC and applicable provisions of Chapter 11-60.1, HAR, Section 11-60.1-33 regarding Fugitive Dust. A watering program will be implemented during construction to minimize soil loss through fugitive dust emission. Other pollution control measures include cleaning job-site construction equipment and establishing groundcover as quickly as possible after grading. Permanent landscaping will also help to retain soil throughout the Project Site.

3.5 NATURAL HAZARDS

Hawaiʻi Island is susceptible to potential natural hazards, such as flooding, hurricanes, volcanic hazards, earthquakes, and wildfires. This section provides an analysis of the Project Site's vulnerability to such hazards.

The State of Hawaiʻi Department of Defense, Office of Civil Defense operates a system of civil defense sirens throughout the State to alert the public of emergencies and natural hazards, particularly tsunamis and hurricanes. The closest siren to the Site is the South Hilo Base Yard Siren (HA106) located approximately 1.8 miles from the Project Site.

Impacts from natural hazards can be further mitigated by adherence to appropriate civil defense measures as determined by the state and County of Hawaiʻi civil defense agencies.

3.5.1 Flood

The Federal Emergency Management Agency publishes flood information in the form of Flood Insurance Rate Maps (FIRM) used by government and insurance agencies to determine the relative potential for damage during flood events. According to the FIRM, the Project Site is within Zone X, which is an area of minimal hazard that is higher than the elevation of the 0.2-percent-annual-chance flood (Figure 14). This information was confirmed by the State

Department of Land and Natural Resources Engineering Division in their Draft EA Early Consultation comments: "The National Flood Insurance Program (NFIP) does not regulate developments within Zone X."

3.5.2 Tsunami

Twenty-five of the tsunamis recorded in Hawaiʻi since 1812 have had an adverse impact on the Island of Hawaiʻi; seven caused major damage and three were generated locally. The most recent tsunami to impact Hawaiʻi Island, which occurred on March 11, 2011, caused property damage at several locations on the Kona coast. The Project Site is well outside of the tsunami evacuation zone (Figure 15).

3.5.3 Hurricane

Since 1980, two hurricanes have had a devastating effect on Hawaiʻi: ʻIwa in 1982 and ʻIniki in 1992. While it is difficult to predict such natural occurrences, it is reasonable to assume that future incidents are likely, given historical events.

Several studies sponsored by the NASA Office of Earth Science have developed new models for estimating the probability of hurricanes in the Pacific. While the island of Hawaiʻi has not been in the direct path of a hurricane since recordation began in 1950, the models indicate that the island has a long-term hurricane hazard higher than any of the other islands.

3.5.4 Earthquake

In Hawaiʻi, most earthquakes are linked to volcanic activity, unlike in other places where a shift in tectonic plates is the cause of an earthquake. Each year, thousands of earthquakes occur in Hawaiʻi, the vast majority of which are so small they are detectable only with highly sensitive instruments. However, moderate and disastrous earthquakes have occurred in the islands, particularly on Hawaiʻi Island due to its geologically active nature.

Since 1868, nine disastrous earthquakes have occurred in Hawaiʻi County. The largest earthquake series occurred between March 27 and April 2, 1868 with an epicenter a few miles north of Pāhala in the district of Kaʻū. It is estimated that the magnitude of these earthquakes were 7.1 and 7.9. These earthquakes resulted in 77 deaths (46 from tsunami and 31 from landslides triggered by the earthquake). In 1929, an earthquake with an epicenter in Hualālai and a magnitude of 6.5 resulted in extensive damage. Another earthquake in 1951, with its epicenter in the Kona area and a magnitude of 6.9 also resulted in extensive damage. A series of earthquakes, with magnitudes of 6.7 and 6.0, occurred at Kīholo Bay on October 15, 2006.

These earthquakes resulted in more than $100 million in damages to the northwest area of the island (USGS, 2006).

3.5.5 Volcanic Hazards

Volcanic hazards include lava flows and emission of volcanic gases (vog).

Lava Flows. The volcanic hazard zone map for Hawaiʻi Island divides the island into zones ranked from one through nine, with one being the area of greatest hazard and nine being the area of least hazard. The zones are based chiefly on the location of active vents, frequency of past lava coverage, and topography. According to this map, the Project Site is within Zone 3, meaning only one to five percent of the area has been covered by lava since 1800 and 15-75 percent within the last 750 years (USGS, 1997). The Project Site is approximately 25 miles from Kīlauea, the nearest active vent.

Vog. Volcanic gases, which are visible as a fog known as vog, are emitted during all types of eruptions. Halemaʻumaʻu, the crater located at the summit of Kīlauea is currently erupting large amounts of volcanic gas. Any hazard posed by volcanic gases is greatest immediately downwind from active vents; the concentration of the gases quickly diminishes as the gases mix with air and are carried by winds away from the source (USGS, 1997).

The Project Site is located 25 miles northeast of Kīlauea Volcano. The prevailing northeasterly trade wind flow tends to push vog and any airborne particulates away from the Project Site. However, the amount of vog and other airborne particulates can significantly increase during periods when the winds are from the southwest.

3.5.6 Wildfires

Approximately 70 to 80 wildfires occur annually in Hawaiʻi County. Humans are the number one cause of fires in Hawaiʻi.

POTENTIAL IMPACTS AND MITIGATION MEASURES

During the Draft EA Early Consultation process, the State Department of Defense recommended that the proposed Base Yard and Maintenance Facility be designed to mitigate the effects of seismic and high-wind events. To minimize the potential hazard from earthquakes and hurricanes, structural elements in the proposed Base Yard and Maintenance Facility will be designed in accordance with the 2006 International Building Code (IBC) as amended by State of Hawaiʻi Building Code. The 2006 IBC provides minimum design criteria to address the potential for damage due to seismic disturbances.

For hurricane events, county buses may play a critical role in evacuation and post-event recovery. MTA will have disaster preparedness procedures to protect the buses in the base yard from damage during the event, and to clear any debris that may block the access road post-event.
Construction of the Base Yard and Maintenance Facility will not exacerbate any tsunami hazard conditions. The Project Site is not in a designated tsunami evacuation zone and is not expected to be adversely impacted by a tsunami.

The Project Site is approximately 25 miles away from the nearest active volcano. Hazard and risk potential of shield volcanoes like those on Hawaiʻi Island can be pinpointed reasonably well, unlike some other types of natural disasters (earthquakes and hurricanes). Therefore, it is unlikely that the Base Yard and Maintenance Facility will be impacted by or will exacerbate potential volcanic hazards.

During the Draft EA Early Consultation process, the State Department of Defense recommended the installation of one omni-directional siren. The Hawaiʻi Emergency Management Agency will work with MTA regarding the placement of the siren and technical requirements if it is deemed appropriate for the Project Site.

3.6 FLORA AND FAUNA

The Project Site has been heavily modified, possibly for quarrying and regional drainage purposes, but appears to be largely unused and is currently vacant.

3.6.1 Flora

The likely natural vegetation of the region around the Project Site is lowland mesic forest, which is dominated by ʻōhiʻa (*Metrosideros polymorpha*). According to the Archaeological Assessment performed by Haun and Associates for the Base Yard and Maintenance Facility (Appendix C), approximately 2.7 acres (54 percent) of the Project Site has been impacted by bulldozer disturbance. The remaining approximately 2.3 acres are relatively undisturbed. Haun found that the vegetation in the 2.3 acres was a mix of indigenous and introduced plant species including the following:

- Uluhe (*Dicranopteris linearis*)
- Ōhiʻa Lehua (*Metrosideros polymorpha*)
- Hala (*Pandanus tectorius*)
- Hala Pepe (*Pleomele spp*)
- Ti (*Cordyline fruticosa*)
- Trumpet Tree (*Cecropia obtusifolia*)
- Kaunaʻoa (*Cuscuta sandwiciana or Cassytha filiformis*)

- Bamboo Orchid (*Arundina graminifolia*)
- Octopus Tree (*Schefflera actinophylla*)
- Albizia (*Paraserianthes falcataria*)
- Rattlepod (*Crotalaria spp*)
- Wedelia (*Wedelia trilobata*)
- Sleeping Grass (*Mimosa pudica*)
- Rose Myrtle (*Rhodomyrtus tomentosa*)
- Macaranga (*Macaranga spp*)
- Koster's Curse (*Clidemia hirta*)
- Koa haole (*Leucaena leucocephala*)
- Miconia (*Miconia calvescens*)
- Giant Reed (*Arundo donax*)
- Philippine Ground Orchid (*Spathoglottis plicata*)
- Guava (*Psidium guajava*)
- Lantana (*Lantana camara*)
- Java Plum (*Syzygium cumini*)
- Molasses Grass (*Melinis minutiflora*)

No listed, candidate, or proposed endangered or threatened plant species were found in Haun's Archaeological Assessment or a 2007 Yamada and Sons Quarry Expansion EA biological survey that surveyed a thin strip of the Project Site along the road (Geometrician Associates LLC, 2007).

3.6.2 Fauna

Given the non-native vegetation and disturbed nature of the Project Site, it is likely that only non-native mammals, such as feral cats and Pacific rats, would frequent the Project Site. The U.S. Fish and Wildlife Service (USFWS) provided Draft EA Early Consultation comments that stated, in part:

> *"Based on the information you provided and pertinent information in our files…there are five listed species in the vicinity of the project area: the endangered Hawaiian hawk (*Buteo solitaries*), Hawaiian hoary bat (*Lasiurus cinereus semotus*), Hawaiian petrel (*Pterodroma phaepygia sandwichensis*), and Blackburn's sphinx moth (*Manduca blackburni*), and the threatened Newell's shearwater (*Puffinus auricularis newelli*). There is no critical habitat in the vicinity of the project area."*

POTENTIAL IMPACTS AND MITIGATION MEASURES

None of the vegetation on the Project Site is likely to be of biological importance. Landscaping will be done immediately after the construction phase.

The industrial activities near the Project Site make it fairly unlikely that the listed species would frequent the area. However, as part of the USFWS's Draft EA Early Consultation comments, they provided avoidance and impact minimization measures for each of the listed species:

> **Hawaiian hawk.** To avoid impacts to Hawaiian hawks, it is recommended that the contractor avoid brush and tree clearing during their breeding season (March through

September). If the Project Site must be cleared during Hawaiian hawk breeding season, we recommend a nest search of the area of the proposed construction site and surrounding area be conducted by a qualified ornithologist immediately prior to the advent of construction activities. Surveys should ensure that construction activity will not occur within 1,600 feet of any Hawaiian hawk nest.

Hawaiian hoary bat. It is recommended that woody plants greater than 15 feet tall should not be removed or trimmed during the Hawaiian hoary bat breeding season (June 1 to September 15). It is further recommended that barbed wire not be used for fencing to protect low-flying, foraging bats.

Seabirds. It is recommended that the Base Yard and Maintenance Facility avoid or minimize use of artificial lighting and avoid night work if possible. If artificial illumination must be used, we recommend this be shielded so the bulb is not visible at or above bulb-height. If night work must be conducted, it should take place outside the sea bird fledging season (September 15 through December 15) and should utilize shielded lighting.

Blackburn's sphinx moth. It is recommended that a qualified biologist surveys areas of proposed construction activities for Blackburn's sphinx moth and its host plants prior to work initiation. The survey should take place during the wettest portion of the year and immediately prior to construction. The survey should include searches for eggs, larvae, and signs of larval feeding (chewed stems, grass, or leaf damage). Any host plants of Blackburn's sphinx moth identified should not be cut or disturbed.

To the extent feasible, the contractor will be instructed to follow the above recommendations. In particular, Section 14-52, HCC requires all outdoor lights to be shielded, and so the contractor will be required to follow the seabird protection recommendation. However, the USFWS also stated in their comments that "implementation of these measures does not ensure that impacts to listed species can be avoided, and further coordination with the [USFWS] on compliance with the [Endangered Species Act] may be required." Therefore, prior to starting work, the contractor should coordinate with the USFWS regarding protection of the listed species.

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4 DESCRIPTION OF THE HUMAN ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION MEASURES

This section describes the existing conditions of the human environment, preliminary potential impacts of Base Yard and Maintenance Facility, and preliminary mitigation measures to minimize any impacts.

4.1 ARCHAEOLOGICAL AND HISTORIC RESOURCES

Haun and Associates conducted an Archaeological Assessment (AA) for the Project Site (Appendix C). The AA was conducted in compliance with Section 6E, HRS "Historic Preservation" to determine the presence/absence of archaeological sites and included test pits evaluating the soil horizons. The AA found that extensive bulldozer disturbance has impacted large portions of the Project Site, and that no sites or features are present in the Project Site. Due to the absence of sites, the Project Site was documented in an AA pursuant to Title 13, Subtitle 13, Chapter 284-5(5A), HAR.

Historical Background

The Project Site is located in the *ahupuaʻa* of Waiākea, Hilo Hanakāhi ʻOkana, in the *moku-o-loko* (district) of Hilo. The *ahupuaʻa* of Waiākea is large, consists of roughly 95,000 acres, and was regarded as a region of abundant natural resources and numerous fishponds. Waiākea was also an early important political center, notably under chief Kulukuluʻa. Kamehameha lived and often returned to his *ʻili kūpono* (independent land division where all tributes were paid to the chief of the *ʻili* and not the *ahupuaʻa*) lands of Piʻopiʻo in the *ahupuaʻa* of Waiākea. The *ʻili kūpono* lands and its royal fishpond were passed on to his son Liholiho after his death (Escott, 2014).

The Project Site is within Zone II "Upland Agricultural" according to McEldowney's historic period land use zones (1979). Early inhabitants of this zone practiced swidden (slash and burn) agriculture, which eventually resulted in an open plain. However, in the 1800s, the Panaʻewa forest extended from the existing Panaʻewa Forest Reserve nearly to the ocean between Hilo and Keaʻau. Therefore, it is unlikely that the Project Site was used for swidden agriculture. Clearings in the forest may have been used for small scale agriculture (McEldowney, 1979). There were also forest plantations (Handy & Handy, 1972).

Between 1845 and 1865, traditional land-use and settlement patterns underwent a change due to the regular use of Hilo Bay by foreign vessels, the whaling industry, the establishment of missions in the Hilo area, the introduction of the sandalwood trade, the legalization of private land ownership (the Mahele), the introduction of cattle ranching, and the introduction of

sugarcane cultivation. There were no *kuleana* claims in the immediate vicinity of the Project Site during the Mahele, but 26 claims were registered for lands in Waiākea. Most of Waiākea became Crown Lands (Geometrician Associates LLC, 2007).

Hilo became the center of population and traditional settlements along the shoreline in outlying regions declined or disappeared. While food was still grown for consumption, greater areas of land were continually given over to the specialized cultivation and processing of commercial foodstuffs for export (Escott, 2014). By the end of 1900, over 5,600 acres of sugar were cultivated in Waiākea. Sugarcane plantations and industrial facilities were established in areas that were once upland agricultural areas and coastal settlements, respectively (Escott, 2014). Waiākea Sugar Company operated in the Waiākea *ahupuaʻa* from 1879 to 1947 (Rechtman, 2009).Historic site types in the vicinity of the Project Site likely included plantation agriculture-related features and residences.

Archaeological Assessment Findings

As stated above, no archaeological sites or features were identified within the Project Site. The absence of sites is attributable to the extensive bulldozing that has occurred in the Project Site. In addition, the Project Site appears to have also been used as a dumping area for refuse. A berm that runs through the Project Site is a modern levee, which was constructed between 1965 and 1981 and used to contain flood waters during periods of excessive rainfall. Haun recommends no further archaeological work for the Project Site.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The Project Site will not impact any surface archaeological resources, sites, or features.

Given the extensive bulldozing that has occurred in the Project Site, it is very unlikely that subsurface resources will be encountered. However, the Mass Transit Agency and its contractors will comply with all state and county laws and rules regarding the preservation of archaeological and historic sites. The construction documents will include a provision that should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work will cease immediately in the immediate vicinity of the find and the find will be protected. The contractor will immediately contact State Historic Preservation Division (SHPD), which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

4.2 CULTURAL RESOURCES

PBR HAWAII attempted to identify traditional customary practices within the Project Site and its vicinity. This cultural impact analysis was conducted in accordance with the Office of Environmental Quality Control Guidelines for Assessing Cultural Impacts. Findings of the analysis and other relevant information are summarized below.

Letters of inquiry were sent to organizations whose expertise would include the Project Site. Consultation was sought from Robert K. Lindsey, Jr., Office of Hawaiian Affairs Hawaiʻi Island Trustee; Kauanoe Hoomanawanui, SHPD Burial Sites Specialist; Kimo Lee, Jr. Chairman of the Hawaiʻi Island Burial Council; Rick Gmirkin, Ala Kahakai National Historic Trail, National Park Service Archaeologist; Keaukaha-Panaʻewa Farmers Association; and Panaʻewa Hawaiian Home Lands Community Association.

POTENTIAL IMPACTS AND MITIGATION MEASURES

No responses were received from the letters of inquiry. Based on the historical research and the lack of response from knowledgeable people and organizations, the Project Site appears to have not been used for traditional cultural purposes within recent times. It is reasonable to conclude that Hawaiian rights related to gathering, access or other customary activities within the Project Site will not be affected and there will be no direct adverse effect upon cultural practices or beliefs.

4.3 AIRPORT HAZARDS

In their Draft EA Early Consultation comments, the County of Hawaiʻi Planning Department stated the following:

> *"The subject parcel is located within the 5-mile airport radius of the Hilo International Airport. As such, please contact the Hawaiʻi Department of Transportation, Airport Division for their review and comments, and include a discussion of airport hazards that may be related to the proposed development."*

The State of Hawaiʻi Department of Transportation was contacted as part of the Draft EA Early Consultation, but they did not have comments on the proximity of the airport.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The Base Yard and Maintenance Facility is not anticipated to have an impact on the operations of the Hilo International Airport. The Base Yard and Maintenance Facility is not located within the Accident Potential Zone or Runway Protection Zone/Clear Zone. Because construction of

the Base Yard and Maintenance Facility will remove vegetation from the Project Site, the Project Site is likely to become less attractive to wildlife that could potentially be a hazard to planes. Finally, the Base Yard and Maintenance Facility will not include any reflective surfaces, including photovoltaic panels that could impair pilots' vision unless coordinated with the Airports Division.

4.4 ROADWAYS AND TRAFFIC

The State of Hawaiʻi Department of Transportation's (DOT) Early Consultation comments stated that the EA "should discuss and evaluate the project's contribution to the cumulative traffic impacts on State highways facilities in the area." During the Draft EA public comment period, DOT wrote that the "DOT Highways Division is still conducting its review and has not yet provided comments." To further assist DOT Highways Division's review, Fehr & Peers was contracted to complete a transportation impact analysis (TIAR) for the proposed relocation of the County of Hawaii Mass Transit Agency Base Yard & Maintenance Facility from 630 East Lanikaula Street to 2299 Hoʻolualima Road. Please refer to Appendix E for a full copy of the TIAR.

Roadways

Regional access to the Project Site is provided by Kaneolehua Avenue, while local access is provided by Hoʻolaulima Road via Leilani Street. The following describes the key roadways in the project vicinity:

The primary corridors for vehicle access are briefly described below.

Mamalahoa Highway (Highway 11) is operated and maintained by DOT and is a six-lane highway in the vicinity of the project site, but includes five lanes (i.e., two northbound lanes) north and south of the immediate study area. Mamalahoa Highway is also known as Hawaii Belt Road which traverses around the entire island of Hawaii. The specific portion of it that passes along the proposed project site is identified as Route 11 and is oriented in a north-south direction. In the immediate vicinity of the site, this roadway includes a 20-foot buffer/median. The posted speed limit is 35 miles per hour (mph).

Leilani Street is under the jurisdiction of the County of Hawaii and is an east-west facility within the context of this study area with one lane in each direction. The western approach of Leilani Street provides access to residential neighborhoods. The posted speed limit is 25 mph. The eastern approach of Leilani Street provides access to a number of base yards and industrial facilities and leads to Hilo International Airport. The posted speed limit is 30 mph.

East Lanikaula Street is a County of Hawaii east-west facility within the context of this study area and has one lane in each direction. The western approach of East Lanikaula Street provides access to residential neighborhoods and some small businesses. The posted speed limit is 35

mph. The eastern approach provides direct access to the driveway of the existing County of Hawaii MTA facility. Past the facility, the road terminates at its intersection with Railroad Avenue. West of Mamalahoa Highway, Lanikaula Street has a posted speed limit of 35 mph.

Railroad Avenue is under the jurisdiction of the County of Hawaii and is a north-south facility and includes one lane in each direction. The southern section of Railroad Avenue provides access to base yards and facilities, commercial sites, residential areas and to agricultural and undeveloped land south of Kahaopea Street. The posted speed limit in the study area is 30 mph. The northern section of Railroad Avenue terminates at the T-intersection with Leilani Street.

Hoʻolaulima Road is a two-lane road that provides access to the Project Site. Beyond the Project Site to the east, a one-quarter mile stretch of the road is used for drag racing. The Drag Strip was opened in 1978 and is sanctioned by the International Hot Rod Association.

Auwae Road is a local road within the Keaukaha-Panaʻewa Community agricultural subdivision. It does not connect to any roads near the Project Site, but besides the Hoʻolaulima Road, it is the nearest road to the Project Site. Auwae Road is broken into two segments by the Waiʻanae Uka Flood Control Channel. The posted speed limit on Auwae Road is 25 mph.

The transportation impact analysis of the proposed project included the intersections of Mamalahoa Highway/East Lanikaula St, Mamalahoa Highway/Leilani Street, and Railroad Avenue/Leilani Street. Additionally, the driveway to the existing County of Hawaii Mass Transit Agency facility on East Lanikaula Street was observed to determine the flow of traffic in and out of the base yard. The study includes an analysis of AM and PM peak hour intersection operations, where the peak hour is the highest one-hour total of traffic between 6:00 am and 9:00am in the morning and between 3:00 pm and 6:00pm in the late afternoon/evening.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Fehr & Peers' TIAR reached the following conclusions:

- Under "Existing and Near Term, 2016, Conditions," all intersections studied operate and will operate acceptably at Level of Service (LOS) D or better. (Based on previous studies conducted for DOT and the County of Hawaii, the minimum desirable operating level for roadways is LOS D. If a facility operates or is projected to operate at LOS E or F, feasible capacity enhancements or other improvements may be needed to improve operations. Unacceptable vehicle operations may be permitted to occur if potential vehicle improvements will result in substantial secondary impacts to other travel modes including walking, bicycling and transit.)

- Total bus trips recording in the AM and PM peak hour total 6 inbound and outbound trips. The reassignment of these trips and associated employee vehicle trips in plus project conditions is negligible.
- Under "Near Term, 2016, plus Project Conditions," all intersections operate acceptably at LOS D or better, and therefore no intersections are impacted by the proposed project.

Based on the collected data and analysis, it is expected the relocation of the MTA Base Yard Facility will not result in an operational impact to the surrounding roadway network. Essentially, the relocation will shift bus and MTA staff-generated traffic currently using the existing facility driveway to new intersections and/or turning movements serving the proposed facility. This means the intersection of East Lanikaula Street and Mamalahoa Highway will receive less traffic passing through the northbound right turning movement and in turn, the intersection of Leilani Street and Mamalahoa Higway will note an increase for its northbound right turning movement. Traffic on Railroad Avenue will decrease as existing inbound traffic will be redirected eastward past the intersection of Railroad Avenue and Leilani Street.

The number of bus trips which arrive at and depart from the existing MTA Base Yard facility during the peak hour is minimal and therefore the impact of these redistributed trips in association with the relocated facility is negligible.

4.5 NOISE

During the Draft EA Public Review period, the Department of Hawaiian Home Lands (DHHL) requested more detailed discussion of noise impacts. As requested, a noise study was performed by Terry A. Hayes Associates (TAHA), and attached to this Final EA as Appendix F. According to TAHA:

> *"Noise is generally considered to be unwanted sound. Sound is what we hear when our ears are exposed to small pressure fluctuations in the air. There are many ways in which pressure fluctuations are generated, but typically they are caused by vibrating movement of a solid object. Noise can be described in terms of three variables: amplitude (loud or soft); frequency (pitch); and time pattern (variability).*
>
> *Sound is a fluctuation of air pressure. The number of times the fluctuation occurs in one second is called frequency. Our human hearing system does not respond equally to all frequencies of sound. Acoustical scientists measured and developed frequency response functions that characterize the way people respond to different frequencies. These are the so-called A-, B-, and C-weighted curves, representing the way people respond to sounds of normal, very loud, and extremely loud sounds, respectively. Environmental noise generally falls into the*

> *"normal" category so that the A-weighted sound level is considered best to represent the human response.*
>
> *The A-weighted sound level in decibels (dBA) describes noise at any moment in time. The noise analysis discusses sound levels in terms of the Day-Night Average Sound Level (L_{dn}), which describes a cumulative noise exposure from all events over a full 24 hours, with events between 10:00 p.m. and 7:00 a.m. increased by 10 decibels to account for greater nighttime sensitivity to noise."*

The primary sources of noise in the project vicinity include South Hilo Sanitary Landfill operations, quarry activity, vehicles associated with the Hilo Drag Strip, and aircraft associated with Hilo International Airport. Existing conditions were characterized over a 24-hour period using a SoundPro DL Sound Level Meter between 4:00 p.m. on Tuesday, June 9, 2015, and 4:00 p.m. on Wednesday, June 10, 2015. The L_{dn} (Day-Night Average Sound Level) in the project area was 54 dBA.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Noise levels were estimated using the FTA Noise Impact Assessment Spreadsheet. The FTA spreadsheet methodology accounts for activity at the Base Yard and Maintenance Facility and buses on the Panaʻewa Drag Strip Road. Regarding existing DHHL homesteads, the closest property to the Base Yard and Maintenance Facility is located at 889 Auwae Road, approximately 630 feet to the west. The homestead at 501 Auwae Road was used to represent the closest property to bus activity on Panaʻewa Drag Strip Road. Based on FTA impact criteria and the existing 54 dBA L_{dn}, a Moderate Impact would occur if the project-related noise exceeds 55 dBA L_{dn} and a Severe Impact would occur if project-related noise levels exceed 61 dBA L_{dn}. The estimated Total Noise Exposure from the proposed project for both 501 Auwae Road and 889 Auwae Road is estimated at 54 dBA $L_{dn.}$. The results of the analysis indicate that project-related noise would not impact existing land uses in accordance with FTA guidance. West of the Project Site is a large linear piece of undeveloped land owned by the Department of Hawaiian Home Lands (DHHL) designated "Unencumbered Lands." The project-related noise levels at the undeveloped strip of DHHL property would be 56 L_{dn}, and the combined project and existing noise level would be 58 dBA L_{dn}. This would be less than the HUD standard for an acceptable noise environment of 65 dBA L_{dn}, and, if DHHL were seeking HUD funds at this time, the proposed project would not interfere with procurement of those funds.

During the construction phase, there may be temporary noise impacts associated with the operation of heavy construction machinery, paving equipment, and material transport vehicles. Proper mitigation measures will be employed to minimize construction-related noise impacts and comply with all federal and state noise control regulations. Increased noise activity due to

construction will be limited to daytime hours and persist only during the construction period. Noise from construction activities will be short-term and will comply with State DOH noise regulations (Chapter 11-46, Community Noise Control, HAR). When construction noise exceeds, or is expected to exceed, the DOH's allowable limits, a permit must be obtained from the DOH. Specific permit restrictions for construction activities are:

- No permit shall allow any construction activities that emit noise in excess of the maximum permissible sound levels before 7:00 a.m. and after 6:00 p.m. of the same day, Monday through Friday;
- No permit shall allow any construction activities that emit noise in excess of the maximum permissible sound levels before 9:00 a.m. and after 6:00 p.m. on Saturday; and
- No permit shall allow any construction activities that would emit noise in excess of the maximum permissible sound levels on Sundays and holidays.

4.6 AIR QUALITY

Air quality in the Hilo area is generally considered to be good due to the prevailing northeasterly tradewinds that tend to disperse pollutants toward the mountains. However, the amount of particulates and other air pollutants can significantly increase during periods when the winds shift to a southwesterly direction. Air flow from this direction carrying vog can lead to an increase in pollution and a decrease in visibility.

DOH maintains a limited network of air monitoring stations around the state to gather data on certain regulated pollutants. Currently, no routine ambient air monitoring is conducted by DOH in the Hilo area. Historical monitoring during the 1970's and 1980's indicated very low pollutant levels in Hilo. The entire state has been an attainment area for the last several decades.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Long-term negative impacts related to air quality due to the Base Yard and Maintenance Facility are not expected. Because the proposed Base Yard and Maintenance Facility is in the same region as the existing transit facility, the regional air quality will not change. In addition, the proposed Project Site is more isolated than the existing facility, which is adjacent to a number of commercial businesses, and is in an existing industrial area. The remoteness of the Project Site will limit the potential for local air quality impacts on sensitive receptors and reduce the impacts over the existing condition. In addition, provision of public transportation in general improves air quality as it is a more energy-efficient and less pollution-producing mode of transportation for resort employees and other residents.

Construction activity will be the principal source of short-term air quality impact. Construction vehicle activity will temporarily increase automotive pollutant concentrations along the existing roadways as well as on the Project Site. Site preparation, earth moving, and building construction will create particulate emissions during the short term. Movement of construction vehicles on unpaved surfaces can also generate particulate emissions.

Although the potential for fugitive dust is low due to the wet climate and low wind speeds of Hilo, adequate dust control measures will be employed, particularly during construction during low-rainfall periods. Dust control will be accomplished by frequent watering of unpaved roads within the Project Site and areas of exposed soil surfaces. As soon as it is feasible, landscaping of completed areas will also be employed. Dust control measures will comply with applicable provisions of HAR section 11-60.1-33 and Chapter 10 (Erosion and Sedimentation Control), HCC. Measures to control dust during construction may include:

- Providing an adequate water source at the site prior to start-up construction activities;
- Irrigating the construction site during periods of drought or high winds and all dry conditions;
- Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;
- Disturbing only the areas of construction that are in the immediate zone of construction to limit the amount of time that the areas will be subject to erosion;
- Providing adequate dust control measures during weekends, after hours, and before daily start-up of construction activities; and
- Installing silt screening in the areas of disturbance.

4.7 VISUAL RESOURCES

The Project Site is quite flat with fairly dense vegetation. There is also dense vegetation on all neighboring properties. Due to the flat topography and state of the vegetation, there are no notable visual resources either on or visible from the Project Site (Figure 4).

In addition, the Project Site is not listed by the county as being in a scenic view plane or as a site of natural beauty, nor is it home to any of the exceptional trees listed in the County of Hawaiʻi's General Plan.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Any structures that are part of the Base Yard and Maintenance Facility will be designed and landscaped to be compatible with the character of the surrounding area.

Construction of the proposed Base Yard and Maintenance Facility will not block any identified scenic view planes or impact any areas of natural beauty. Other than grass landscaping no

mitigation measures are planned. The proposed Base Yard and Maintenance Facility will not be visible from Kaneolehua Road or Auwae Road and will not change the appearance of the rural character of the area east of Kaneolehua Road. The placement and height of the building will not obstruct any view planes towards any natural landmarks.

In accord with the USFWS's recommendations and in accord with Section 14-52, HCC, artificial illumination will be shielded so that the bulb is not visible at or above bulb-height to protect seabirds.

4.8 INFRASTRUCTURE AND UTILITIES

Mitsunaga and Associates prepared a civil, electrical, and mechanical basis of design (Appendix D).

4.8.1 Water System

According the County Department of Water Supply's (DWS) Draft EA Early Consultation comments, the Project Site: "does not have an existing water service…[and] the parcel does not front upon a [DWS] waterlines and is, therefore, considered out-of-bounds."

POTENTIAL IMPACTS AND MITIGATION MEASURES

According to DWS's Draft EA Early Consultation comments, "parcels that are out-of-bounds are limited to just one (1) unit of water…[or] an average daily usage of 400 gallons served through a 5/8-inch meter." Therefore, before determining appropriate service lateral and meter size required, DWS requested estimated maximum daily water usage calculations prepared by a professional engineer licensed in the State of Hawaiʻi for review and approval. Per the DWS' public review comments on the Draft EA, more detailed water usage calculations will be submitted prior to the Building Permit. In addition, during the Draft EA Public Review period, DWS wrote that it will determine the appropriate service connection size(s), facilities charges due, and other requirements for water service, based on the calculations.

According to the Base Yard and Maintenance Facility civil engineer, the future employees are expected to generate an average demand of 160 gallons per day (gpd) and maximum demand of 588 gpd. The potable water system will comply with the County Board of Water Supply's current *Water System Standards* and *Standard Details for Water System Construction*. An existing 12-inch water line that runs along Leilani Street up to the Hilo Transfer Station will be extended approximately one mile to the Project Site and will provide a potable water supply and fire protection for the Base Yard and Maintenance Facility. The new water meter and water line will provide domestic service to the building, and a new 6-inch water meter and 6-inch

water line will provide water for the fire sprinklers. Potable water laterals will fulfill all mechanical requirements.

During the Draft EA Early Consultation process, Hawaiʻi County Councilmember Onishi wrote:

> *"Assuming water and electric will be installed, I request that we plan for additional power and water to help serve uses in the existing areas, for example, the Panaʻewa Drag Strip. This would overall improve the operations and efficiency of one of our most heavily utilized public facilities."*

The extended water line will terminate at the Project Site, but the extension will allow other users in the area to connect to a closer line.

One new fire hydrant will be located on the Project Site in order to meet the County Fire Department's coverage requirement. DWS's Draft EA Early Consultation comments state the standard for required fire flow at the Project Site's frontage is 2,000 gallons per minute with a velocity of less than 10 feet per second. This standard will be met for the Base Yard and Maintenance Facility.

DWS's Draft EA Early Consultation comments also noted that a reduced pressure type backflow prevention assembly will need to be installed on private property within five feet of any meter serving the Project Site. DWS must inspect and approve the installation before water service can be activated. A backflow prevention assembly will be installed on the Project Site. On May 4th 2015, plans (prepared by a professional engineer licensed in the State of Hawaii) were submitted showing the required water system improvements, appropriate service lateral installation(s) and backflow prevention assemblies.

4.8.2 Wastewater System

There is no existing municipal sewer service to the Project Site.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The future employees of the Base Yard and Maintenance Facility are expected to generate an estimated wastewater flow of 1,060 gpd. Treatment and disposal of wastewater from the proposed Base Yard and Maintenance Facility will be treated by a new, on-site septic tank and leach field. The approximate size of the septic tank is 2,000 gallons and the leach field is 371 square feet. Prior to construction of the septic tank and leach field, the civil engineer will prepare an Individual Wastewater System permit and submit it to DOH. The new sewer system will comply with Title 11, Chapter 62, HAR.

4.8.3 Drainage System

There is no existing municipal drainage system on or near the Project Site.

According to the FIRM, the Project Site is within Zone X, which is an area of minimal hazard that is higher than the elevation of the 0.2-percent-annual-changce flood (Figure 14).

POTENTIAL IMPACTS AND MITIGATION MEASURES

The proposed Base Yard and Maintenance Facility will involve paving of the majority of the five-acre Project Site, which will significantly increase the amount of impervious surface on the Project Site. The Base Yard and Maintenance Facility storm drainage system will be designed to comply with the latest County of Hawaiʻi *Storm Drainage Standards and Standard Details for Public Works Construction*. To the extent practicable, the Base Yard and Maintenance Facility will be designed to maintain post-development peak runoff rate and average volume at levels that are similar to pre-development levels. Existing drainage patterns will be maintained as much as possible. The on-site drainage system will be designed for a ten-year recurrence interval and will consist of vegetated infiltration drainage swales along the perimeter of the Project Site. All stormwater will sheet flow to vegetated swales, which will store the flow until it percolates into the ground. The finished floors of the building will be higher than the surrounding grades and runoff will be directed away from the building.

The vegetated swales are intended to accomplish the following: (1) decrease the erosive potential of increased runoff volumes and velocities associated with development-induced changes in hydrology; (2) remove suspended solids and associated pollutants entrained in runoff that result from activities occurring during and after development; and (3) retain hydrological conditions to closely resemble those of the pre-disturbance condition. During the Draft EA public review period, the State Department of Transportation wrote:

> *"…FAA strongly recommends that off-airport storm water management systems located within five (5) miles of the airport be designed and operated so as not to not create above-ground standing water to attract wildlife that could cause hazardous wildlife movement into or across the airspace. Stormwater detention ponds should be designed, engineered, constructed, and maintained for a maximum 48-hour detention period after the design storm and remain completely dry between storms. We recommend that consideration should be given to the types of vegetation planted in or around the drainage swales so as not to attract wildlife which could impact aircraft operations at Hilo International Airport."*

During the Draft EA Early Consultation process, the Hawaiʻi District Land Office of the State DLNR Land Division commented that the proposed Base Yard and Maintenance Facility may "…pose a potential risk of ground contamination from various petroleum products." The Base Yard and Maintenance Facility will include catchment and isolation of petroleum products. Those products accumulated in catchment will be conveyed to oil-water separators. During the Draft EA public review process, the Hawaiʻi District Land Office of the State DLNR Land Division noted that their previous comments have been addressed.

The Project Site is below the Underground Injection Control (UIC) line, which means that:

- Underlying aquifer not considered drinking water source
- Wider variety of wells allowed
- Injection wells need UIC Permit or Permit Exemption
- Permit limitations are imposed

If the Base Yard and Maintenance Facility requires an injection well, it will conform with the regulations in Title 11, Chapter 23, HAR, including obtaining a UIC Permit or Permit Exemption.

4.8.4 Solid Waste

The County of Hawaiʻi Solid Waste Division operates and maintains, either by county personnel or by contracted services, all solid waste collection and disposal facilities on the island. This includes two landfills, twenty-one transfer stations and island-wide hauling operations in accordance with local, state and federal guidelines and regulations.

The nearest solid waste facility to the Project Site is the South Hilo Sanitary Landfill, located less than a mile away. The county currently does not provide solid waste service to the Project Site. The Project Site appears to have also been used as an illegal dumping area for refuse.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Waste generated by site preparation will primarily consist of green waste from grading, and solid waste during construction. Soil and rocks displaced from grading and clearing will be used as fill within the site as needed. To reduce waste during construction, recycled materials and locally produced products will be used where possible.

After construction, the Base Yard and Maintenance Facility will generate solid waste related to daily use and operation. To minimize waste, recycling bins will be provided at the Base Yard and Maintenance Facility. Waste that cannot be recycled will be disposed of at the South Hilo Sanitary Landfill.

4.8.5 Utilities

The Hawaiʻi Electric Light Company, Inc. (HELCO), a privately-owned utility company regulated by the State Public Utilities Commission, provides electrical power to the island of Hawaiʻi. The HELCO network of power plants serving Hilo includes the Kanoelehua Power Plant, Puna Power Plant, Wailuku Hydro Power Plant, Hilo Coast Power Plant, and Shipman Power Plant.

Telecommunication services are provided by Verizon Hawaiʻi via overhead lines.

POTENTIAL IMPACTS AND MITIGATION MEASURES

Electrical and telephone services are currently sized, adequate, and available to supply the Project Site, but electrical work will include obtaining new, primary electrical service from HELCO. During the Draft EA Public Review period, HELCO wrote: "Hawaiian Electric Light Company (Hawaii Light) has no objection to the project. Should Hawaii Light have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities."

The electrical components of the proposed Base Yard and Maintenance Facility shall meet or exceed AHRAE Standard 90.1 (2013) Energy Standard for Buildings Except Low-Rise Residential Buildings. All aspects of mechanical design will conform to 2009 International Energy Conservation Code and will incorporate all applicable recommendations as specified in the LEED V3.0.

Energy conservation measures, in addition to the minimum required by applicable Standards and Criteria, will include:

- CO2 sensor controlled outside air intake for all air handling units
- AHU thermostat with a 7-day unoccupied setback scheduling capability
- VAV damper with thermostat control
- Use of premium efficiency motors on mechanical equipment
- Use of high efficiency lighting fixtures
- Use of building envelope components that exceed the minimum required insulation values

During the Draft EA Early Consultation process, Hawaiʻi County Councilmember Onishi wrote:

> *"Assuming water and electric will be installed, I request that we plan for additional power and water to help serve uses in the existing areas, for example, the Panaʻewa*

Drag Strip. This would overall improve the operations and efficiency of one of our most heavily utilized public facilities."

To provide service to the Base Yard and Maintenance Facility, the existing power line will be extended to a new pole near the Project Site. Although the MTA will not request additional power beyond the needs of the proposed Base Yard and Maintenance Facility, the extension will allow other users in the area to connect to a closer line should they need additional power.

4.9 SOCIO-ECONOMIC CHARACTERISTICS

The overall population of Hawaiʻi County has exhibited relatively stable growth over the past decade. The population of Hawaiʻi County was 190,821 people in 2013, a 28.3 percent increase from the 2000 population of 148,677 people (State of Hawaiʻi Department of Business, Economic Development, and Tourism, 2013).

The South Hilo district had a population of 50,927 in 2010 which represented approximately 28 percent of the total population for Hawaiʻi Island (County of Hawaiʻi, Current). The City of Hilo contains the main offices of the county government and branch offices of federal and state agencies. The island's major deep draft harbor and international airport are also located in Hilo. In addition to industrial, commercial and social service activities, the University of Hawaiʻi at Hilo and Hawaiʻi Community College and affiliated research programs play an important role in Hilo's economy.

As of December 2014, Hawaiʻi County's unemployment rate was 4.7 percent, compared to the state's overall rate of 4.0 percent. This was a decrease of 1.2 percent from a year prior (U.S. Bureau of Labor Statistics, 2014).

In addition, the County of Hawaiʻi and its residents are faced with an imbalance between the location of jobs and housing. Affordable residential growth is fastest on the east side of the island, and jobs growth is faster on the west side. As a result, many residents must commute long distances from Hilo and Puna to the resorts in Kohala and North Kona. The County MTA provides a cost-efficient mode of transportation for resort employees and other residents.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The proposed Base Yard and Maintenance Facility will have a beneficial socioeconomic impact by improving public transportation service. Construction of the facility will not require the relocation of residents, as the Project Site is currently vacant. During the Draft EA Early Consultation process, the State Department of Human Services (DHS) wrote: "…there are several DHS licensed family child care homes located in the near vicinity that may be impacted

by the construction project." On May 18, 2015, DHS wrote: "DHS has made the determination that only one home is in the near proximity of the Base Yard facility, and it is located in the 1300 block of Auwae Road, Hilo Hawaii." According to Google Earth, the project site is over 3,000 feet away from the 1300 block of Auwae Road. Additionally, a noise study has just been completed, and it found that the closest home (889 Auwae Road), which is approximately 630 feet west of the project site, would not be impacted by project-related noise. On that basis, it is anticipated that there will be no noise impact on the closest DHS licensed family child care home during construction.

Short-term employment benefits will be generated throughout the construction period as well as long-term employment benefits, such as potentially hiring new drivers and mechanics. The benefits however will not be significant relative to the overall economy of the island. No changes are expected to the overall economy and no mitigation measures are planned.

The proposed Base Yard and Maintenance Facility will not affect area population and will not create additional strain on other area facilities.

4.10 PUBLIC SERVICES AND FACILITIES

4.10.1 Schools

The closest State Department of Education (DOE) public schools are: Waiākeawaena Elementary School, Waiākea Elementary School, Waiākea Intermediate School, and Waiākea High School.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The Base Yard and Maintenance Facility will not generate new residents or introduce new school-aged children to the area. Therefore, no additional demands will be placed on DOE facilities. While the construction of the proposed Base Yard and Maintenance Facility will generate noise and may generate dust, the closest public school, Waiākeawaena Elementary School, is located nearly two miles away. The distance will block construction noise. In addition, the Waiākeawaena Elementary School, is upwind of the proposed Project Site during predominant trade wind conditions, and so even if airborne dust was generated, it would be unlikely to impact children attending classes at Waiākeawaena Elementary School.

4.10.2 Police, Fire and Medical Services

Police Protection. The Project Site is located in South Hilo, Patrol District 1, which is the Hawaiʻi Police Department's largest staffed division. The district extends from Hakalau in the north, to

the mid-point of Kanoelehua Avenue between Hilo and Keaʻau in the south, to the Saddle Road in the west. The district includes the main police station, located at 349 Kapiʻolani Street, approximately 3 miles from the Project Site. In fiscal year 2012-2013, police officers issued 13,474 traffic citations and responded to 2,328 reported thefts (an increase over 2011-2012), 370 burglaries, 80 cases of sexual assault, and 386 assaults (a nine percent decrease from 2011-2012).

Fire Protection. The Hawaiʻi County Fire Department Kawailani Fire Station provides fire protection and suppression services in Waiākea. The Kawailani Fire Station is an Engine Company with one engine, a 79-foot ladder truck, a tanker and a medic unit. Backup support is provided by 1) Central Fire Station, located 3.5 miles away in Hilo, with an Engine Company and an ALS medic unit; 2) Kaumana Fire Station, located 4.5 miles away, with an Engine Company and HAZMAT Response capabilities; and 3) Waiākea Fire Station, located 2.5 miles away in Keaukaha. In addition, a new fire station, Haihai, is being proposed less than three miles from the Project Site. Waiākea Fire Station is a Rescue Company providing firefighting response with an Engine, Light and Heavy Rescue, including helicopter response and ocean rescue response capabilities. At this time, no tanker vehicles are assigned to the Hilo area due to the adequate hydrant system and all of the Engines (also referred to as Pumpers) each carry 1,000 gallons of water. At any one time, there are five to six firefighters on duty at the Kawailani Fire Station.

Medical Services. Hilo Medical Center (HMC) is the primary health care facility serving the South Hilo district. HMC is located approximately five miles from the Project Site at 1190 Waiānuenue Avenue. Ambulance service in Hilo is provided by the Hawaiʻi Fire Department, which can serve the Project Site area (during construction) from the Kawailani Fire Station in two minutes. When the new Haihai Fire Station is operational, the site will have 24 hour trained Emergency Medical Service personnel on site. As mentioned above, Central Fire Station also provides ALS medic response to the Hilo area.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The renovations to the Center are not expected to create an increased demand on existing fire or medical services. During the Draft EA Early Consultation and the Draft EA Public Review processes, the Police Department wrote: “Staff, upon reviewing the provided documents, does not anticipate any significant impact to traffic and/or public safety concerns.”

The Base Yard and Maintenance Facility architect met with Battalion Chief Robert Perreira and Fire Inspector Kyle Vares of the County of Hawaiʻi Fire Department on March 26, 2015. The proposed maintenance facility will be designed to meet the National Fire Protection Association (NFPA) 1, Hawaiʻi State Fire Code, with County of Hawaiʻi amendments, as provided by the

Hawaiʻi Fire Department in their Early Consultation comments for the Draft EA. One new fire hydrant will be located on the Project Site in order to meet the County Fire Department's coverage requirement. The building will be sprinkled as required by §903.2.8 of the International Building Code. A new 6-inch water meter and 6-inch water line will provide water for the fire sprinklers. DWS's Draft EA Early Consultation comments state the standard for required fire flow at the Project Site's frontage is 2,000 gallons per minute with a velocity of less than 10 feet per second. This standard will be met for the Base Yard and Maintenance Facility.

4.10.3 Recreational Facilities

The entire South Hilo District contains 54 parks totaling 590 acres. The nearest recreational facilities to the Project Site are Panaʻewa Park and Malama Park. Other recreational facilities, parks, and open spaces in the Hilo area include Hilo Municipal Golf Course, Ainaola Park, Ahualani Park, Lokahi Park, Waiākea Uka Park, Kūhiō-Kalanianaʻole Park, Honoliʻi Beach Park, Liliʻuokalani Gardens, Reeds Bay, Onekahakaha Beach Park, Kealoha Beach Park, Carlsmith Beach Park and Richardson Ocean Park.

POTENTIAL IMPACTS AND MITIGATION MEASURES

The Base Yard and Maintenance Facility itself is not a direct generator of new residents requiring recreational facilities. No significant impacts to recreational facilities are anticipated as a result of the Base Yard and Maintenance Facility, and therefore no mitigation measures are proposed.

5 LAND USE CONFORMANCE

State of Hawaiʻi and Hawaiʻi County land use plans, policies, and ordinances relevant to the proposed Base Yard and Maintenance Facility are described below.

5.1 STATE OF HAWAIʻI

5.1.1 Chapter 343, Hawaiʻi Revised Statutes

Compliance with Chapter 343, HRS is required as described in Section 1.4.

5.1.2 State Land Use Law, Chapter 205, Hawaiʻi Revised Statutes

The State Land Use Law (Chapter 205, HRS), establishes the State Land Use Commission (LUC) and authorizes this body to designate all lands in the state into one of four Districts: Urban, Rural, Agricultural, or Conservation.

The proposed Base Yard and Maintenance Facility site is located within the State Agriculture District (Figure 5). According to §205-4.5(c), HRS "Within the agricultural district, all lands with soil classified by the land study bureau's detailed land classification as overall (master) productivity rating class C, D, E, or U shall be restricted to the uses permitted for agricultural districts as set forth in section 205-5(b)."

Section 205-5(b), HRS states that "Within agricultural districts, uses compatible to the activities described in section 205-2 as determined by the commission shall be permitted; provided that accessory agricultural uses and services described in sections 205-2 and 205-4.5 may be further defined by each county by zoning ordinance."

The proposed Base Yard and Maintenance Facility is not compatible with the uses listed in §205-5(b), HRS. Therefore, the County will submit a Special Permit to the County Planning Commission (as laid out in §205-6, HRS).

5.1.3 Coastal Zone Management Act, Chapter 205A, Hawaiʻi Revised Statutes

The entire state of Hawaiʻi is defined to be within the Coastal Zone Management (CZM) Area, pursuant to 205A-1, HRS (definition of "coastal zone management area"). As such, the proposed Base Yard and Maintenance Facility lies within the CZM Area.

As requested by the State Office of Planning, (in its Draft EA Early Consultation comments) a discussion of the proposed Base Yard and Maintenance Facility's ability to meet the objectives and policies set forth in HRS 205A-2, is provided below.

5.1.3.1 Recreational Resources

Objective*: Provide coastal recreational opportunities accessible to the public.*

Policies

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

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

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

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

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

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

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

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

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

(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and County authorities; and crediting such dedication against the requirements of section 46-6;

Discussion: The proposed Base Yard and Maintenance Facility is not a coastal development, is not located on the coastline, and is not in the SMA. Therefore, policies regarding shoreline recreation resources are not applicable. However, to protect marine resources for purposes including recreation, the State of Hawaiʻi has adopted water quality standards. Generally, these

standards will require the submittal and adherence to a NPDES permit. As required for projects on land greater than one acre in size, a NPDES NGPC for Storm Water Associated with Construction Activity will be necessary for the Base Yard and Maintenance Facility. Construction will follow erosion control and water quality BMPs as prescribed in the NPDES Permit. The contractor will submit a site-specific construction BMP plan to the State of Hawaiʻi DOH.

5.1.3.2 Historic Resources

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

Policies

- *(A) Identify and analyze significant archaeological resources;*
- *(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and*
- *(C) Support state goals for protection, restoration, interpretation, and display of historic resources;*

Discussion: Haun and Associates conducted an AA for the Project Site (Appendix C). The AA was conducted in compliance with Section 6E, HRS "Historic Preservation" to determine the presence/absence of archaeological sites and included test pits evaluating the soil horizons. The AA found that extensive bulldozer disturbance has impacted large portions of the Project Site, and that no sites or features are present in the Project Site. Due to the absence of sites, the Project Site was documented in an AA pursuant to Title 13, Subtitle 13, Chapter 284-5(5A), HAR. The County of Hawaiʻi MTA and its contractors will comply with all state and county laws and rules regarding the preservation of archaeological and historic sites. The construction documents will include a provision that should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work will cease immediately in the immediate vicinity of the find and the find will be protected. The contractor will immediately contact the State Historic Preservation Division, which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

5.1.3.3 Scenic and Open Space Resources

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

Policies

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

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

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

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

Discussion: The proposed Base Yard and Maintenance Facility site will be located inland, away from the shoreline; therefore, it is anticipated that there will be no effect on the quality of the coastal scenic resources.

5.1.3.4 Coastal Ecosystems

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

Policies

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

(B) Improve the technical basis for natural resource management;

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

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

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

Discussion: The proposed Base Yard and Maintenance Facility will be located far inland from the coastline. Therefore, it is anticipated that there will be no effect on the quality of the coastal ecosystems. However, to protect coastal ecosystems from nonpoint source pollution, the State of Hawaiʻi has adopted water quality standards. Generally, these standards will require the submittal and adherence to a NPDES permit. As required for projects on land greater than one acre in size, a NPDES NGPC for Storm Water Associated with Construction Activity will be necessary for the Base Yard and Maintenance Facility. Construction will follow

erosion control and water quality BMPs as prescribed in the NPDES Permit. The contractor will submit a site-specific construction BMP plan to the State of Hawaiʻi DOH.

5.1.3.5 Economic Uses

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

Policies

(A) Concentrate coastal dependent development in appropriate areas;
(B) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and
(C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:
    (i) Use of presently designated locations is not feasible;
    (ii) Adverse environmental effects are minimized; and
    (iii) The development is important to the State's economy.

Discussion: The proposed Base Yard and Maintenance Facility is not a coastal dependent development, is not located on the coastline, and is not in the SMA; therefore, these policies are not applicable.

5.1.3.6 Coastal Hazards

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

Policies

(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and non-point source pollution hazards;
(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and non-point source pollution hazards;
(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and
(D) Prevent coastal flooding from inland projects.

Discussion: The proposed Project Site is located far inland from the coastline and will not exacerbate any coastal hazards.

5.1.3.7 Managing Development

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

Policies

(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;
(B) Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and
(C) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Discussion: The proposed Base Yard and Maintenance Facility is not a coastal development, is not located on the coastline, and is not in the SMA; however, this EA, will provide opportunity for public input during the Draft EA Public Comment period.

Early consultation comments were obtained and are reproduced in Appendix B. In addition, this EA discusses potential impacts and mitigation measures of the proposed Base Yard and Maintenance Facility and will provide an opportunity for input during the Draft EA Public Comment period.

5.1.3.8 Public Participation

Objective: *Stimulate public awareness, education, and participation in coastal management.*

Policies

(A) Promote public involvement in coastal zone management processes;
(B) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and
(C) Organize workshops, policy dialogues, and site- specific mediations to respond to coastal issues and conflicts.

Discussion: The proposed Base Yard and Maintenance Facility is not a coastal development, is not located on the coastline, and is not in the SMA; however, this EA, will provide opportunity for public input during the Draft EA Public Comment period.

Early consultation comments were obtained and are reproduced in Appendix B. In addition, this EA discusses potential impacts and mitigation measures of the proposed Base Yard and

Maintenance Facility and will provide an opportunity for input during the Draft EA Public Comment period.

5.1.3.9 Beach Protection

Objective: *Protect beaches for public use and recreation.*

Policies

(A) Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;

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

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

Discussion: The proposed Base Yard and Maintenance Facility is not a coastal dependent development, is not located on the coastline, and is not in the SMA; therefore, these policies are not applicable.

5.1.3.10 Marine Resources

Objective: *Promote the protection, use, and development of marine and coastal resources to assure their sustainability.*

Policies

(A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

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

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

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

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

Discussion: The proposed Base Yard and Maintenance Facility is not a coastal development, is not located on the coastline, and is not in the SMA; therefore, policies regarding shoreline recreation resources are not applicable. However, to protect marine water quality, the State of

Hawaiʻi has adopted water quality standards. Generally, these standards will require the submittal and adherence to a NPDES permit. As required for projects on land greater than one acre in size, a NPDES NGPC for Storm Water Associated with Construction Activity will be necessary for the Base Yard and Maintenance Facility. Construction will follow erosion control and water quality BMPs as prescribed in the NPDES Permit. The contractor will submit a site-specific construction BMP plan to the State of Hawaiʻi DOH. In addition, the Base Yard and Maintenance Facility will be designed and built in compliance with all applicable federal, state, and county regulations pertaining to storm water management, including Chapter 10 (Erosion and Sedimentation Control).

5.1.4 Hawaiʻi State Plan

The Hawaiʻi State Plan (Chapter 226, HRS), establishes a set of goals, objectives and policies that serve as long-range guidelines for the growth and development of the state. As requested by the State Office of Planning, an analysis that addresses whether the proposed Base Yard and Maintenance Facility conforms to or is in conflict with relevant objectives, policies and priority guidelines of the Hawaiʻi State Plan follows:

OBJECTIVES AND POLICIES FOR FACILITY SYSTEMS—TRANSPORTATION (§226-17)

Objectives

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

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

Policies

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

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

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

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

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

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

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

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

Discussion: The County of Hawaiʻi and its residents are faced with an imbalance between the location of jobs and housing. Affordable residential growth is fastest on the east side of the island while job growth is faster on the west side. As a result, many residents must commute long distances from Hilo and Puna to the resorts in Kohala and North Kona. The County MTA provides a cost-efficient mode of transportation for resort employees and other residents.

OBJECTIVES AND POLICIES FOR FACILITY SYSTEMS—ENERGY (§226-18)

Objectives

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

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

Policies

(7) Promote alternate fuels and energy efficiency by encouraging diversification of transportation modes and infrastructure;

Discussion: By providing island-wide bus service, including over long distances between East Hawaiʻi and West Hawaiʻi, the County MTA provides not only a more energy-efficient and less pollution-producing mode of transportation for resort employees and other residents, but also reduces the demand for gasoline used by personal vehicles.

5.1.5 Hawaiʻi Watershed Guidance

According to the State Office of Planning (in its Draft EA Early Consultation comments), the proposed Base Yard and Maintenance Facility lies within the Wailoa watershed.

> *"This watershed in South Hilo is subject annually to heavy rainfall and is exposed to a range of human activities from agriculture, urban development, and activity along the shoreline. The Draft EA should consider watershed protection and management.*

The State Office of Planning has created the Hawaiʻi Watershed Guidance to provide direction on methods to safeguard Hawaiʻi's watersheds and implement watershed plans. This guidance provides a number of management measures that address polluted runoff from urban

activities, and summary and links to management measures that may be implemented to minimize coastal nonpoint pollution impact. As requested by the State Office of Planning (in its Draft EA Early Consultation comments), the following sections of the Hawaiʻi Watershed Guidance were examined:

Urban Runoff – New Development Management Measure

1. By design or performance:
   a. construction has been completed and the site is permanently stabilized, reduce the average annual total suspended solid (TSS) loadings by 80%. For the purposes of this measure, an 80% TSS reduction is to be determined on an average annual basis, or*
   b. Reduce the postdevelopment loadings of TSS so that the average annual TSS loadings are no greater than predevelopment loadings, and
2. To the extent practicable, maintain postdevelopment peak runoff rate and average volume at levels that are similar to predevelopment levels.

Discussion: To the extent practicable, the Base Yard and Maintenance Facility will be designed to maintain post-development peak runoff rate and average volume at levels that are similar to pre-development levels. By adhering to the BMPs required under an NPDES permit, the Base Yard and Maintenance facility will ensure that it is meeting the TSS loading standards in this measure. In accord with the NPDES BMPs, the Base Yard and Maintenance Facility will utilize several practice categories, including infiltration practices, vegetated open channel practices, and filtering practices, defined in the Environmental Protection Agency's (EPA) guidance document entitled *National Management Measures to Control Nonpoint Source Pollution from Urban Areas* (November 2005, EPA-841-B-05-004). EPA has found these practices to be representative of the types of practices that can be applied successfully to achieve the above new development management measures.

Urban Runoff – Watershed Protection Management Measure

Develop a watershed protection program to:
1. Avoid conversion, to the extent practicable, of areas that are particularly susceptible to erosion and sediment loss;
2. Preserve areas that provide important water quality benefits and/or are necessary to maintain riparian and aquatic biota; and
3. Site development, including roads, highways, and bridges, to protect to the extent practicable the natural integrity of waterbodies and natural drainage systems.

Discussion: The proposed Project Site is not: 1) particularly susceptible to erosion and sediment loss; 2) an area that provides important water quality benefits and/or are necessary to maintain riparian vegetation and aquatic biota; 3) located in an area with natural water bodies or natural drainage systems.

Urban Runoff – Site Development Management Measure

Plan, design, and develop sites to:

1. Protect areas that provide important water quality benefits and/or are particularly susceptible to erosion and sediment loss;

2. Limit increases of impervious areas, except where necessary;

3. Limit land disturbance activities such as clearing and grading, and cut and fill to reduce erosion and sediment loss; and

4. Limit disturbance of natural drainage features and vegetation.

Discussion: The proposed Project Site is not located in an area that provides important water quality benefits and/or is particularly susceptible to erosion and sediment loss. The Base Yard and Maintenance Facility involves a transit base yard, which inherently requires a large open area for the MTA's buses to circulate, turnaround and park. However, the Base Yard and Maintenance Facility will be designed to minimize the impact of the impervious area. While the proposed Base Yard and Maintenance Facility requires a large paved yard, it is flat and has been previously altered, so clearing and grading will be less than other areas of Hilo. The Project Site is not located in an area with natural drainage features.

5.1.6 Department of Hawaiian Home Lands Hawaiʻi Island Plan

In 2002, the Department of Hawaiian Home Lands (DHHL) published its Hawaiʻi Island Plan, which provided a summary description and evaluation of its landholdings on that island. The Plan also presented land use plans developed to meet DHHL beneficiary needs. The Project Site is not located on DHHL lands and the closest DHHL property (*mauka* and across the road) is designated "Subsistence Agriculture". According to Table 1.2 of the Hawaiʻi Island Plan, the "Setting/Intent/Purpose" of the "Subsistence Agriculture" land use designation is:

> *"Small agriculture/aquaculture lots. Marginal to good lands. Lifestyle areas intended to allow for home consumption of agricultural products. Occupancy required. Agriculture waiting list. Close proximity to existing infrastructure."*

It did not appear that this particular property was identified as a "Priority Tract" (for development) at the time the Hawaiʻi Island Plan was published (2002). What was identified as

a "Priority Tract" was a 176 acres parcel that abuts the Panaʻewa Drag Strip. According to the Hawaiʻi Island Plan, this parcel can feasibly accommodate a total of 1,107 lots of 10,000 square feet each, and was one of five tracts proposed to be developed in "Phase Two" (seven to 20-year DHHL planning period for Hawaiʻi Island.

5.1.7 DHHL Panaʻewa Regional Plan

DHHL published the Panaʻewa Regional Plan in 2009. This Regional Plan was "…prepared to facilitate the work of such partnerships as DHHL and others develop lands in Panaʻewa. Specifically, this report is intended to:

- Help identify opportunities for partnerships with DHHL in the development of its Panaʻewa lands;
- Provide information essential to the planning of projects, services, and entrepreneurial ventures;
- Identify key issues, opportunities, and constraints affecting regional development and area improvements;
- Assist in the efficient allocation of resources by DHHL and its partners; and
- Identify priority projects that are essential to moving development and community improvement projects forward.

The Project Site is not located on DHHL lands and the closest DHHL properties (to the west/across the road, and to the south) are designated "Unencumbered Lands." According to the Panaʻewa Regional Plan, "Unencumbered Lands", with "…their lack of infrastructure will make it a challenge to find a feasible way to utilize these parcels."

In regards to County of Hawaiʻi lands, the Panaʻewa Regional Plan reported that "…the County Council…is currently reconsidering all potential solutions…for the disposal of the County's solid waste…One potential solution involves the construction of a waste to energy site to the east of Panaʻewa farm lots." The site to the east of Panaʻewa Farm Lots is the property within which the proposed Base Yard and Maintenance Facility would be located. We understand that subsequently, the County dropped the waste-to-energy project. As of this writing, we understand the County Council is currently reconsidering solutions for the disposal of the County's solid waste.

The Panaʻewa Regional Plan also reported on the availability of bus service: "All bus routes that run through Hilo pass through or originate from Panaʻewa homestead lands in front of Prince Kuhio Plaza."

The most significant land use proposal of the Panaʻewa Regional Plan is the 140-acre "DHHL Industrial Development Opportunity" which abuts the Panaʻewa Farm Lots, and which was ranked the second highest of the "Priority Projects." The 140-acre area is 28 times larger than the 5 acre Project Site, and each of the 15 lots within the proposed "DHHL Industrial Development Opportunity" project area (the average size of each of the 15 lots will be 186% larger than the Project Site) can accommodate significantly larger and more intensive uses and activities than the Proposed Project.

5.2 COUNTY OF HAWAIʻI

County-specific land use plans and ordinances pertaining to the proposed Base Yard and Maintenance Facility include the General Plan of the County of Hawaiʻi and the HCC.

5.2.1 County of Hawaiʻi General Plan

The County of Hawaiʻi General Plan is the policy document for the long-range comprehensive development of the Island of Hawaiʻi. Among the purposes of the General Plan are to guide the pattern of development in Hawaiʻi County and to provide the framework for regulatory decisions and capital improvement projects. The General Plan undergoes a comprehensive review every ten years, with the last review being completed in 2005.

The policy land use map, referred to as the Land Use Pattern Allocation Guide (LUPAG) Map, is intended to guide the direction and quality of future developments in a coordinated and rational manner. The site for the proposed Base Yard and Maintenance Facility is designated as "Open Area" and "Low Density Urban" (Figure 6).

Specific General Plan goals, policies, and courses of action most applicable to the proposed Base Yard and Maintenance Facility are discussed below.

5.2.1.1 Flooding and Other Natural Hazards

5.2 GOALS
(a) Protect human life.
(b) Prevent damage to man-made improvements.
5.3 POLICIES
(l) Continue to promote public education programs on tsunami, hurricane, storm surge, and flood hazards.
(q) Consider natural hazards in all land use planning and permitting.

Discussion: According to the FIRM, the Project Site is within Zone X, which is an area of minimal hazard that is higher than the elevation of the 0.2-percent-annual-chance flood (Figure 14). There are no floodplains defined by FEMA on or near the Project Site.

5.2.1.2 Historic Sites

6.2 GOALS

(a) Protect, restore, and enhance the sites, buildings, and objects of significant historical and cultural importance to Hawaiʻi.

6.3 POLICIES

(a) Agencies and organizations, either public or private, pursuing knowledge about historic sites should keep the public apprised of projects.

(c) Require both public and private developers of land to provide historical and archaeological surveys and cultural assessments, where appropriate, prior to the clearing or development of land when there are indications that the land under consideration has historical significance.

(o) Recognize the importance of certain natural features in Hawaiian culture by incorporating the concept of "cultural landscapes" in land use planning.

Discussion: Haun and Associates conducted an AA for the Project Site (Appendix C). The AA was conducted in compliance with Section 6E, HRS "Historic Preservation" to determine the presence/absence of archaeological sites and included test pits evaluating the soil horizons. The AA found that extensive bulldozer disturbance has impacted large portions of the Project Site, and that no sites or features are present in the Project Site. Due to the absence of sites, the Project Site was documented in an AA pursuant to Title 13, Subtitle 13, Chapter 284-5(5A), HAR. The County of Hawaiʻi MTA and its contractors will comply with all state and county laws and rules regarding the preservation of archaeological and historic sites. The construction documents will include a provision that should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work will cease immediately in the immediate vicinity of the find and the find will be protected. The contractor will immediately contact the State Historic Preservation Division, which will assess the significance of the find and recommend appropriate mitigation measures, if necessary.

5.2.1.3 Natural Beauty

7.2 GOALS

(b) Protect scenic vistas and view planes from becoming obstructed.

(c) Maximize opportunities for present and future generations to appreciate and enjoy natural and scenic beauty.

7.3 POLICIES

(a) Increase public pedestrian access opportunities to scenic places and vistas.
(h) Protect the views of areas endowed with natural beauty by carefully considering the effects of proposed construction during all land use reviews.
(i) Do not allow incompatible construction in areas of natural beauty.

Discussion: The proposed Base Yard and Maintenance Facility will not be visible from Kaneolehua Road or Auwae Road and will not change the appearance of the rural character of the area east of Kaneolehua Road. The placement and height of the building will not obstruct any view planes towards any natural landmarks.

5.2.1.4 Public Facilities

10.1.2 Goal
(a) Encourage the provision of public facilities that effectively service community and visitor needs and seek ways of improving public service through better and more functional facilities in keeping with the environmental and aesthetic concerns of the community.

Discussion: The County of Hawaiʻi and its residents are faced with an imbalance between the location of jobs and housing. Affordable residential growth is fastest on the east side of the island while job growth is faster on the west side. As a result, many residents must commute long distances from Hilo and Puna to the resorts in Kohala and North Kona. The County MTA provides a cost-efficient mode of transportation for resort employees and other residents.

5.2.2 County of Hawaiʻi Zoning

Similar to the State Land Use Districts, the HCC regulates the type and location of development permitted on the island. Hawaiʻi County zoning designations, Chapter 25 HCC, are more specific in terms of describing permitted land uses. The Base Yard and Maintenance Facility Project Site is zoned A-20a (Figure 7). According to Section 25-5-70, HCC:

> *The A (agricultural) district provides for agricultural and very low density agriculturally-based residential use, encompassing rural areas of good to marginal agricultural and grazing land, forest land, game habitats, and areas where urbanization is not found to be appropriate.*

Uses permitted in the Agricultural District include "Public Uses and Structures," such as the proposed Base Yard and Maintenance Facility, with a Special Permit.

> *The following uses may be permitted in the A district, provided that a special permit is obtained for such use if the building site is located within the State land*

> *use agricultural district:…Public uses and structures, other than those necessary for agricultural practices, as provided under section 25-4-11*

According to Section 25-5-73 of the HCC, the height limit in the A district is 35 feet for any residential structure, including any single-family dwelling, or farm dwelling, and 45 feet for all other structures. According to the HCC, the minimum building site area in the A district shall be five acres, and each building site in the A district shall have a minimum average width of 200 feet for the first five acres of required area. According to Section 25-5-76 of the HCC, the minimum yards in the A district shall be thirty feet for front and rear yards, and twenty feet for side yards. The Base Yard and Maintenance Facility will meet all of these standards.

A Special Permit and a Plan Approval is required for the proposed Base Yard and Maintenance Facility.

5.2.3 Special Management Area

The Project Site is not located within the Special Management Area (SMA).

5.3 APPROVALS AND PERMITS

A listing of anticipated permits and approvals required for Base Yard and Maintenance Facility is presented below:

Table 2: Anticipated Approvals and Permits

Permit/Approval	**Responsible Agency**
Chapter 343, HRS Compliance	County of Hawaiʻi Department of Public Works Office of Environmental Quality Control
Special Permit	Hawaiʻi County Planning Department
Plan Approval	Hawaiʻi County Planning Department
Subdivision	Hawaiʻi County Planning Department
National Pollutant Discharge Elimination System (NPDES) Permit	State Department of Health
Individual Wastewater System Permit	Department of Health
Grading/Building Permits	Hawaiʻi Department of Public Works
Noise Permit	State Department of Health

6 ALTERNATIVES

This section identifies and evaluates a range of alternatives that could meet the purpose and need and possibly avoid, reduce, or minimize adverse environmental effects. The reference point to compare alternatives is the "no action" alternative.

6.1 NO ACTION ALTERNATIVE

The primary purpose for the Base Yard and Maintenance Facility, as discussed in Section 2.2, is to better support the MTA's operations. The MTA provides island-wide public transportation for the County of Hawaiʻi, administrative support to the Hawaiʻi County Transportation Commission, and oversees taxicab operators.

The proposed base yard and maintenance facility is necessary because the MTA has grown significantly over the years and is in need of its own facility to improve efficiency and the work environment. Currently, it is located on Railroad Avenue in the Schultz Siding facility where it shares limited space with the Department of Public Works.

With the "no action" alternative, the county's need to accommodate the varied functions of their bus transit facility would not be met; therefore this alternative has been eliminated.

6.2 ALTERNATE SITES

Two alternate sites in Hilo for the Base Yard and Maintenance Facility were considered: one on Kinoʻole Street and another on Kapiolani Street. The Kinoʻole Street location is 3.70 acres and is the former site of the Hilo Lanes Bowling Alley. The surface roads in the area were not conducive to bus maneuvering. This alternate site is near a number of residences and retail businesses that would have been affected by the noise generated by the Base Yard and Maintenance Facility.

The second alternate site on Kapiolani Street is too small to accommodate the needed facilities. The future extension of Kapiolani Street may have also impacted the available area on the site.

The proposed Project Site better meets the needs of the MTA while also being isolated enough that noise will not be an issue for sensitive receptors. Under the "Alternate Sites" alternative, the Base Yard and Maintenance Facility would have greater impacts and not meet the MTA's need for a larger space for its operations.

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7 FINDINGS AND ANTICIPATED DETERMINATION

To determine whether the construction of the Base Yard and Maintenance Facility may have a significant impact on the physical and human environment, all phases and expected consequences of the proposed Base Yard and Maintenance Facility have been evaluated, including potential primary, secondary, short-range, long-range, and cumulative impacts. Based on this evaluation, the Proposing Agency (County of Hawaiʻi MTA) anticipates issuing a Finding of No Significant Impact (FONSI). The supporting rationale for this finding is presented in this chapter.

7.1 SIGNIFICANCE CRITERIA

The discussion below evaluates the significance of the Project's impacts based upon the Significance Criteria set forth in Hawaiʻi Administrative Rules section 11-200-12. An action shall be determined to have a significant impact on the environment if it meets any one of the following criteria:

(1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

Discussion: The proposed Base Yard and Maintenance Facility is not anticipated to involve any construction activity that may lead to a loss or destruction of any natural or cultural resource. The Project Site has been the subject archaeological and cultural studies conducted in and around the Project Site. These studies have revealed the absence of any resource potentially subject to irrevocable loss as a result of construction.

(2) Curtails the range of beneficial uses of the environment;

Discussion: The Project Site has been heavily modified, possibly for quarrying and regional drainage purposes, but appears to be largely unused. Less than 13% of TMK (3) 2-1-013:0148 will be relinquished by the development of the MTA Base Yard and Maintenance Facility on this parcel. The remainder of the TMK can be used for quarry and borrow pit activities, even after the Base Yard and Maintenance Facility is operational.

(3) Conflicts with the State's long term environmental policies or goals and guidelines as expressed in Chapter 344, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders;

Discussion: The proposed Base Yard and Maintenance Facility is not in conflict with the long-term environmental policies, goals, and guidelines of the State of Hawaiʻi. As presented earlier in this EA, the Base Yard and Maintenance Facility's potential adverse impacts are associated only with the short-term construction-related activities, and such impacts can be mitigated through adherence to standard construction mitigation practices.

(4) Substantially affects the economic or social welfare of the community or State;

Discussion: The proposed Base Yard and Maintenance Facility will have no adverse effects on the economy or social welfare of Hilo town or the County of Hawaiʻi. The social welfare of the residents of Hilo and Puna (and the employers in West Hawaiʻi) could possibly benefit from the more efficient operations and siting of the Base Yard and Maintenance Facility, and its corresponding beneficial impacts on county bus service.

(5) Substantially affects public health;

Discussion: There will be temporary impacts to noise and air quality levels during the construction phase of the Base Yard and Maintenance Facility; however, these potential impacts will be short-term and are not expected to substantially affect public health, particularly because of the distance of the Project Site from the closest residences. All construction activities will comply with applicable regulations and will implement appropriate mitigation measures. After construction, the Base Yard and Maintenance Facility should have minimal impact on ambient noise levels or air and water quality, which may be offset by the beneficial impact of replacing motor vehicles with bus ridership.

(6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

Discussion: The proposed development will serve the existing residents of Hilo and its visitors. It will not induce any increases or shifts in population, and will not have a significant effect on any other public facilities.

(7) Involves a substantial degradation of environmental quality;

Discussion: Construction activities associated with the proposed Base Yard and Maintenance Facility are anticipated to result in negligible short-term impacts to noise, air-quality, and traffic in the immediate vicinity. With the incorporation of the recommended mitigation measures during the construction period, the Base Yard and Maintenance Facility will not result in

degradation of environmental quality. No long term negative impacts are expected from implementation.

(8) Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions;

Discussion: As documented throughout this EA, this Base Yard and Maintenance Facility will have no serious negative effects. It is a stand-alone project which does not involve a commitment for larger actions.

(9) Substantially affects a rare, threatened or endangered species or its habitat;

Discussion: There are no known, threatened, or endangered species of flora, fauna, or associated habitats located on the Project Site that could be adversely affected by the construction and operation of the proposed Base Yard and Maintenance Facility. According to the USFWS, it is possible that several endangered species of use or overfly the Project Site. Prior to starting work, the contractor should coordinate with the USFWS regarding protection of the listed species.

(10) Detrimentally affects air or water quality or ambient noise levels;

Discussion: Construction activities for development of the proposed Base Yard and Maintenance Facility could potentially impact noise and air and water quality levels on the Project Site. However, these impacts will be short-term and are not expected to be detrimental. All construction activities will comply with applicable regulations and will implement appropriate mitigation measures as necessary. After construction, the development is not expected to adversely impact ambient noise levels or water and air quality. There will be an increase in impervious surfaces over the Project Site's current vacant state; however, any increase in runoff will be accommodated by proposed drainage improvements and will not detrimentally affect water quality.

(11) Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;

Discussion: The development will not affect any environmentally sensitive area. The Base Yard and Maintenance Facility is located outside a FIRM-designated flood plain and inland from the coast. The proposed Base Yard and Maintenance Facility will be constructed in compliance with

County of Hawaiʻi building codes, and the drainage improvements will be designed to minimize any potential for localized flooding.

(12) Substantially affects scenic vistas and view planes identified in County or State plans or studies; or,

Discussion: The proposed Base Yard and Maintenance Facility will not alter the visual setting of the area, nor will it block any scenic vistas. The area is not listed as a scenic view plane or area of natural beauty by the county, and is not visible from the major state highway facility in the area, Kanoelehua Avenue.

(13) Requires substantial energy consumption.

Discussion: Construction and operation of the Base Yard and Maintenance Facility will not require substantial increases in energy consumption. The building will be built to the meet the Silver accreditation level of the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) standards. In accord with these standards, the building will incorporate a number of energy saving techniques.

7.2 DETERMINATION

Pursuant to Chapter 343, HRS, the determining agency, the County of Hawaiʻi Mass Transit Agency has reached a determination of a Finding of No Significant Impact (FONSI) for this environmental assessment. This finding was based on the basis of impacts and mitigation measures examined in this document, public comments received during the pre-assessment consultation and Draft EA Public Review phases, and analyzed under the above criteria.

8 CONSULTATION

8.1 EARLY CONSULTATION

A pre-assessment consultation was conducted from January 14, 2015 through April 7, 2015 prior to preparation of the Draft EA. The purpose of the pre-assessment consultation was to consult with agencies, organizations and individuals with technical expertise, or an interest or will be affected by the proposed Base Yard and Maintenance Facility. This process is part of the scoping process for the Draft EA. Comments and input received during this period were used to identify environmental issues and concerns to be addressed in the Draft EA, which in turn underwent a 30-day Public Review period.

As part of the Early Consultation process, the following agencies, organizations and individuals were sent pre-assessment consultation letters. Those that provided written comments (either by hardcopy or email) are highlighted in *italics*. Copies of the written comments and responses are reproduced in Appendix B.

8.1.1.1 State of Hawaiʻi

- Department of Agriculture
- *Department of Accounting and General Services*
- Department of Business, Economic Development & Tourism (DBEDT)
- DBEDT – Energy Division
- DBEDT – Hawaiʻi Housing Finance and Development Corporation
- *DBEDT – Office of Planning*
- *Department of Defense*
- *Department of Hawaiian Homelands*
- *Department of Health - Environmental Planning Office*
- *Department of Health - Hawaiʻi District*
- *Department of Human Services*
- *Department of Labor and Industrial Relations*
- *Department of Land and Natural Resources (DLNR)*
- *DLNR - State Historic Preservation Division*
- *Department of Transportation*
- Office of Environmental Quality Control
- Office of Hawaiian Affairs
- University of Hawaiʻi Water Resources Research Center
- State Representative R. Onishi
- State Senator Kauhale

8.1.1.2 Federal

- U.S. Army Corps of Engineers – Regulatory Branch
- *U.S. Federal Emergency Management Agency*
- U.S. Fish and Wildlife Service
- U.S. Geological Survey – Hawaiian Volcano Observatory

8.1.1.3 County of Hawaiʻi

- *Department of Environmental Management*
- Department of Parks & Recreation
- Department of Research & Development
- *Department of Water Supply*
- Fire Department
- Office of Housing and Community Development
- *Planning Department*
- *Police Department*
- *County Councilmember D. Onishi*

Private Organizations & Individuals

- *Hawaiian Electric Light Co.*

8.2 PUBLIC REVIEW

The Draft EA was published in the April 23, 2015 issue of OEQC's *Environmental Notice,* initiating a Public Review period ending May 25, 2015. The following agencies, organizations and individuals were sent copies of the Draft EA. Those that provided written comments (either by hardcopy or email) are highlighted in *italics*. Copies of the written comments and responses are reproduced in Appendix G.

8.2.1.1 State of Hawaiʻi

- Department of Agriculture
- *Department of Accounting and General Services*
- Department of Business, Economic Development & Tourism (DBEDT)
- DBEDT – Energy Division
- DBEDT – Hawaiʻi Housing Finance and Development Corporation
- *DBEDT – Office of Planning*
- Department of Defense
- Department of Education
- *Department of Hawaiian Homelands*
- *Department of Health - Environmental Planning Office*
- *Department of Human Services*
- Department of Labor and Industrial Relations

- *Department of Land and Natural Resources (DLNR)*
- DLNR - State Historic Preservation Division
- *Department of Transportation*
- Office of Environmental Quality Control
- Office of Hawaiian Affairs
- University of Hawaiʻi Water Resources Research Center
- State Representative R. Onishi
- State Senator Kauhale

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- U.S. Army Corps of Engineers – Regulatory Branch
- U.S. Federal Emergency Management Agency
- U.S. Fish and Wildlife Service
- U.S. Geological Survey – Hawaiian Volcano Observatory
- U.S. National Oceanic and Atmospheric Administration

8.2.1.3 County of Hawaiʻi

- Department of Environmental Management
- Department of Parks & Recreation
- Department of Research & Development
- *Department of Water Supply*
- *Fire Department*
- Office of Housing and Community Development
- Planning Department
- *Police Department*
- County Councilmember D. Onishi

Private Organizations & Individuals

- *Hawaiian Electric Light Co.*
- Hawaiian Telecom
- Oceanic Time Warner Cable

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Appendix A

FIGURES

Figure 1: Regional Location

Figure 2: Tax Map Key

Figure 3: Aerial Photo

Figure 4: Site Photos

Figure 5: State Land Use Districts

Figure 6: County of Hawai‘i General Plan LUPAG

Figure 7: County of Hawai‘i Zoning

Figure 8: Special Management Area

Figure 9: Site Plan

Figure 10: Soil Survey

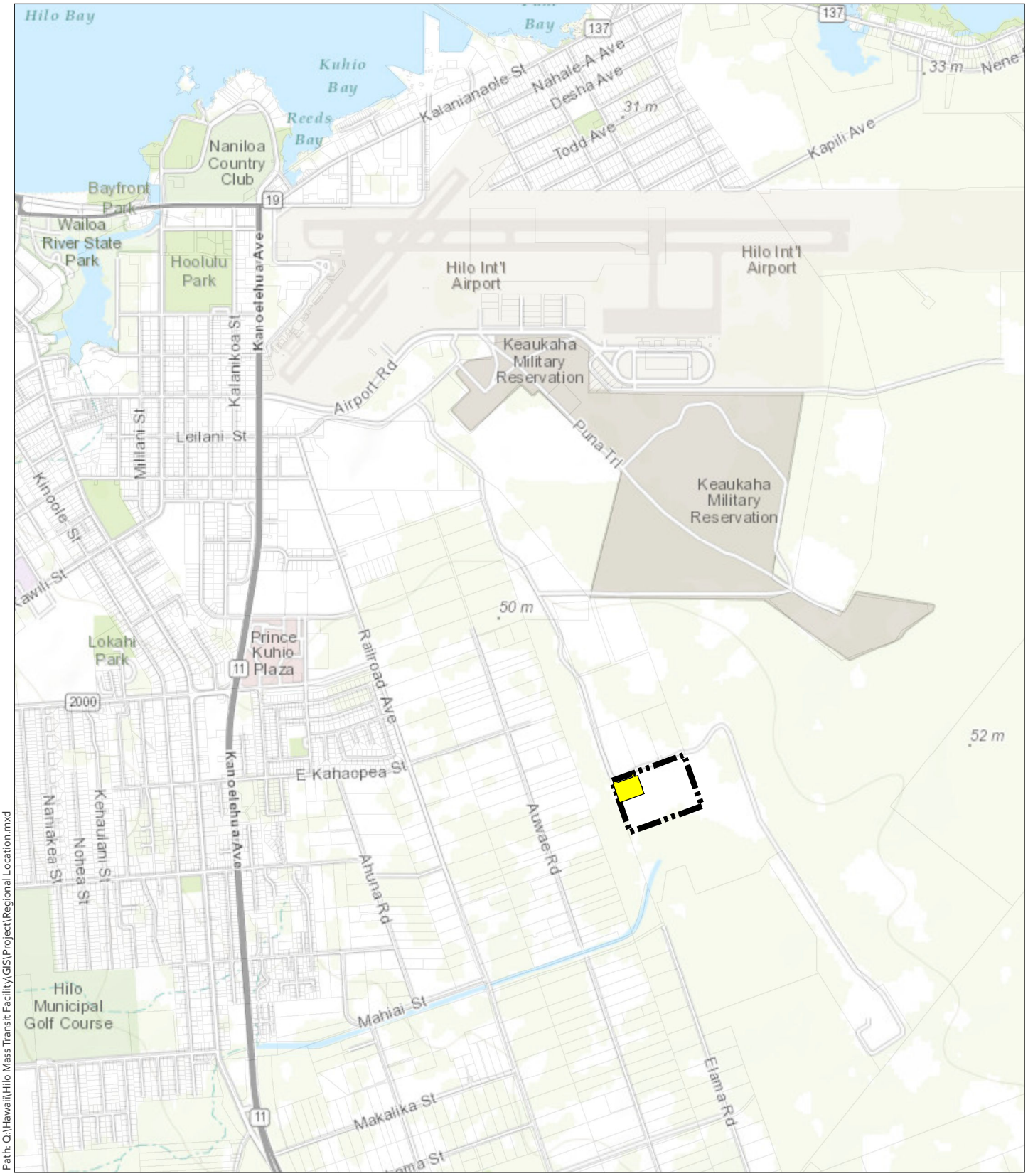
Figure 11: Agricultural Land Classifications

Figure 12: Surface Waters

Figure 13: Underground Injection Control

Figure 14: Flood Insurance Rate Map

Figure 15: Tsunami Evacuation Zone



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DATE: 3/12/2015

LEGEND

- Proposed Base Yard Site
- TMK (3) 2-1-013:148
- Tax Map Key Parcels

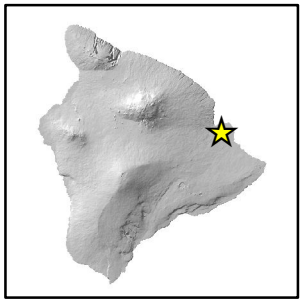


FIGURE 1 :
Regional Location

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Mass Transit Agency
Island of Hawai'i

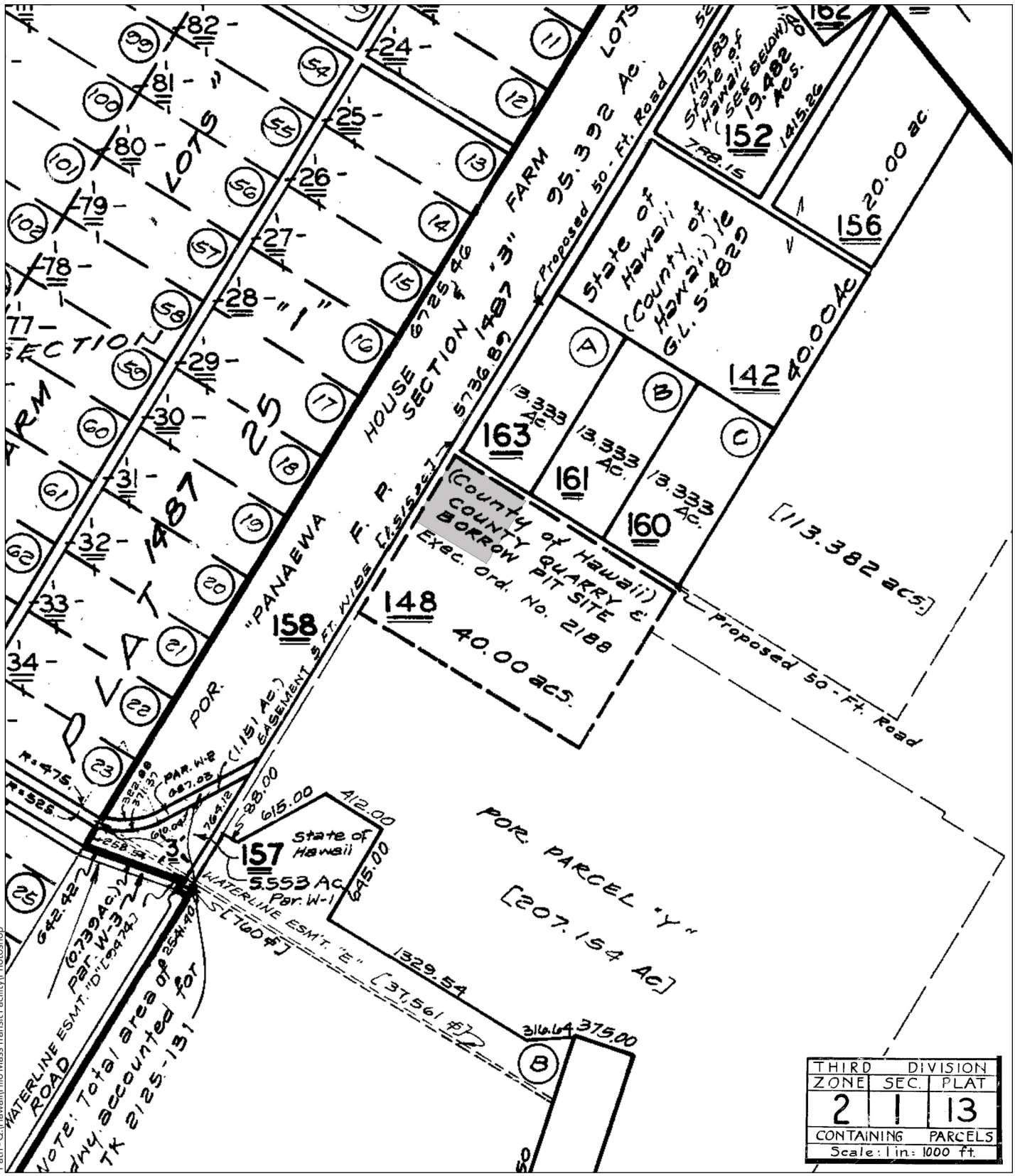
North

Linear Scale (feet)
0 750 1,500 3,000

PBR HAWAII & ASSOCIATES, INC.

Source: County of Hawai'i, 2014. ESRI Basemaps. Mitsunaga and Associates, 2015.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.



DRAFT 3/12/2015

LEGEND

Proposed Base Yard Site

FIGURE 2 :
Tax Map Key

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Mass Transit Agency — Island of Hawai'i

North

Linear Scale (in feet): 0 250 500 1,000

PBR HAWAII & ASSOCIATES, INC.

Source: City and County of Honolulu

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis beyond the limitations of the data.

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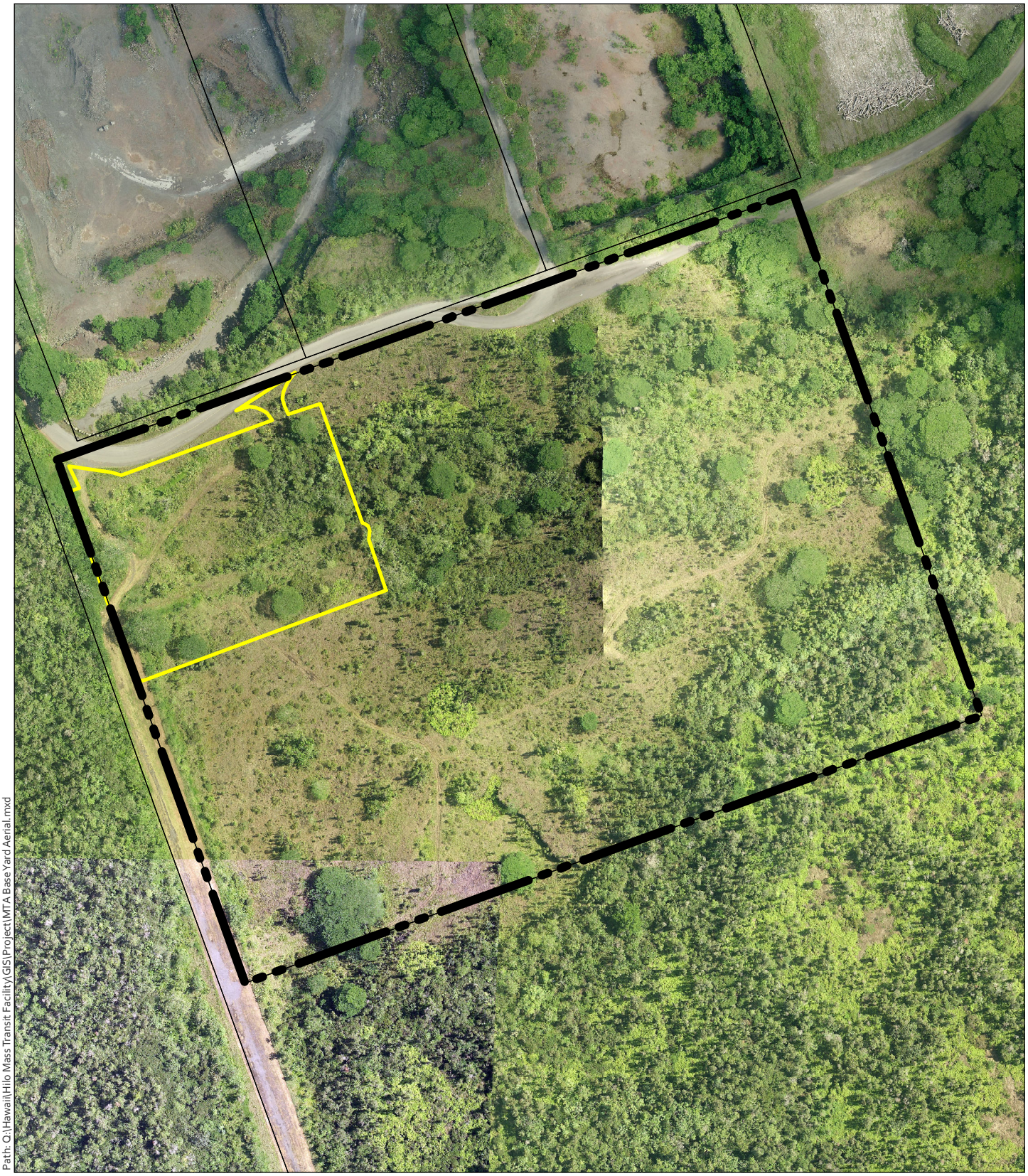

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DATE: 3/13/2015

LEGEND

- Proposed Base Yard Site
- TMK (3) 2-1-013:148
- Tax Map Key Parcels

FIGURE 3 :
Aerial Location

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Mass Transit Agency — Island of Hawai'i

North

Linear Scale (feet)
0 68.75 137.5 275

PBR HAWAII & ASSOCIATES, INC.

Source: County of Hawai'i, 2014. Pictometry, 2012. Mitsunaga and Associates, 2015.

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1. Project Site from Pana'ewa Drag Strip

2. Vegetation on Project Site

3. View looking east near eastern border of Project Site

4. Berm running roughly east-west through the Project Site

5. View south from bulldozed area of Project Site

6. Debris found on Project Site

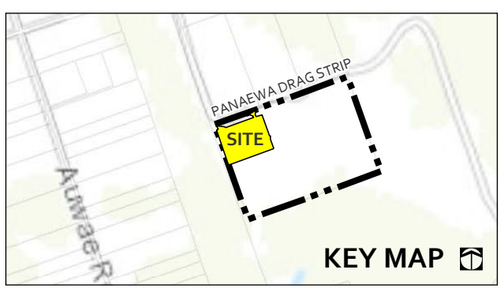

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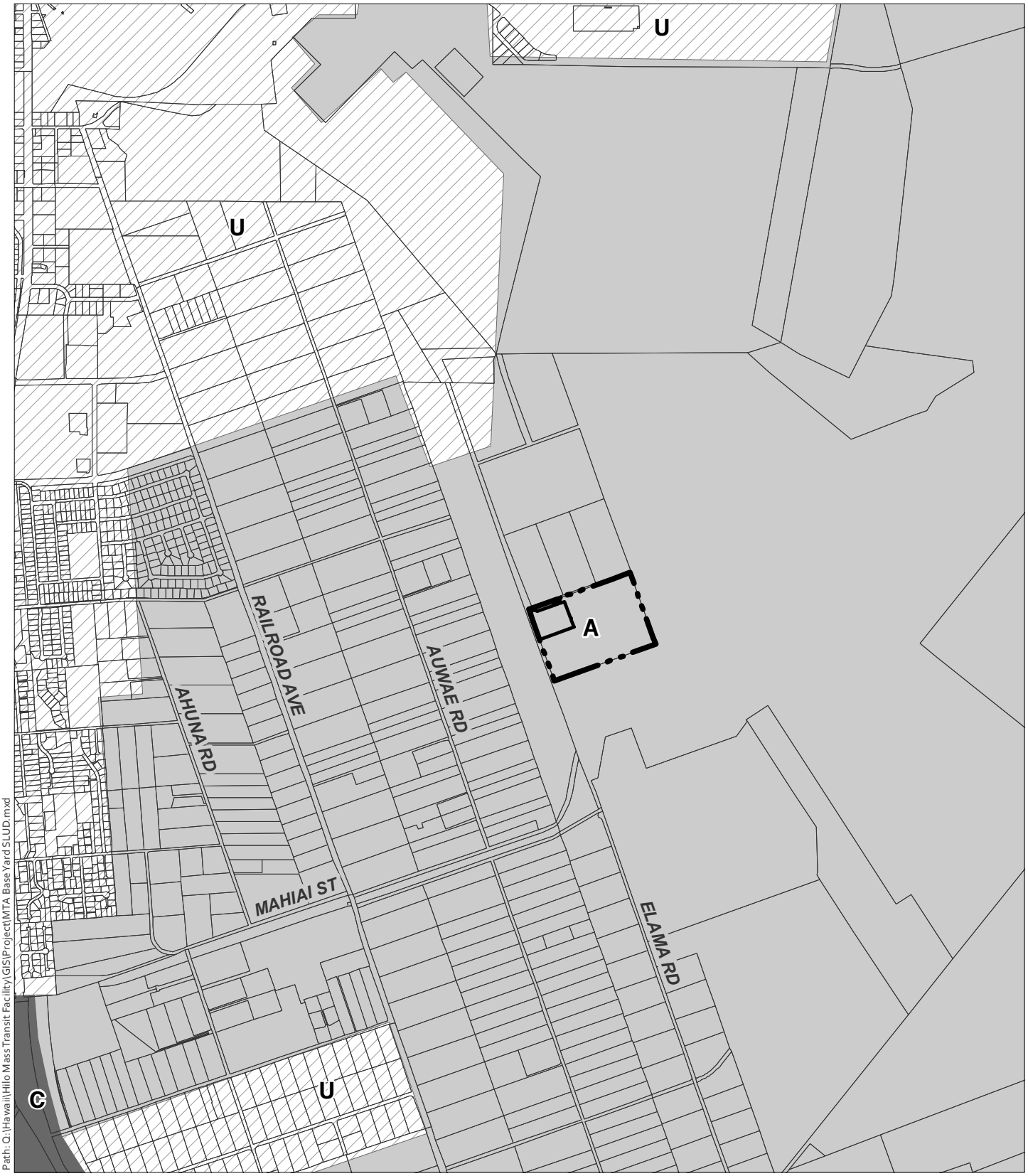
FIGURE 4 :
Site Photos

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Mass Transit Agency — Island of Hawai'i

Photos taken: 4/1/2015
Date prepared: 4/13/2015

PBR HAWAII & ASSOCIATES, INC.



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DATE: 3/27/2015

LEGEND

- Proposed Base Yard Site
- TMK (3) 2-1-013:148
- Tax Map Key Parcels

State Land Use District

- A - Agriculture
- C - Conservation
- R - Rural
- U - Urban

FIGURE 5 :
State Land Use Districts

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Mass Transit Agency — Island of Hawai'i

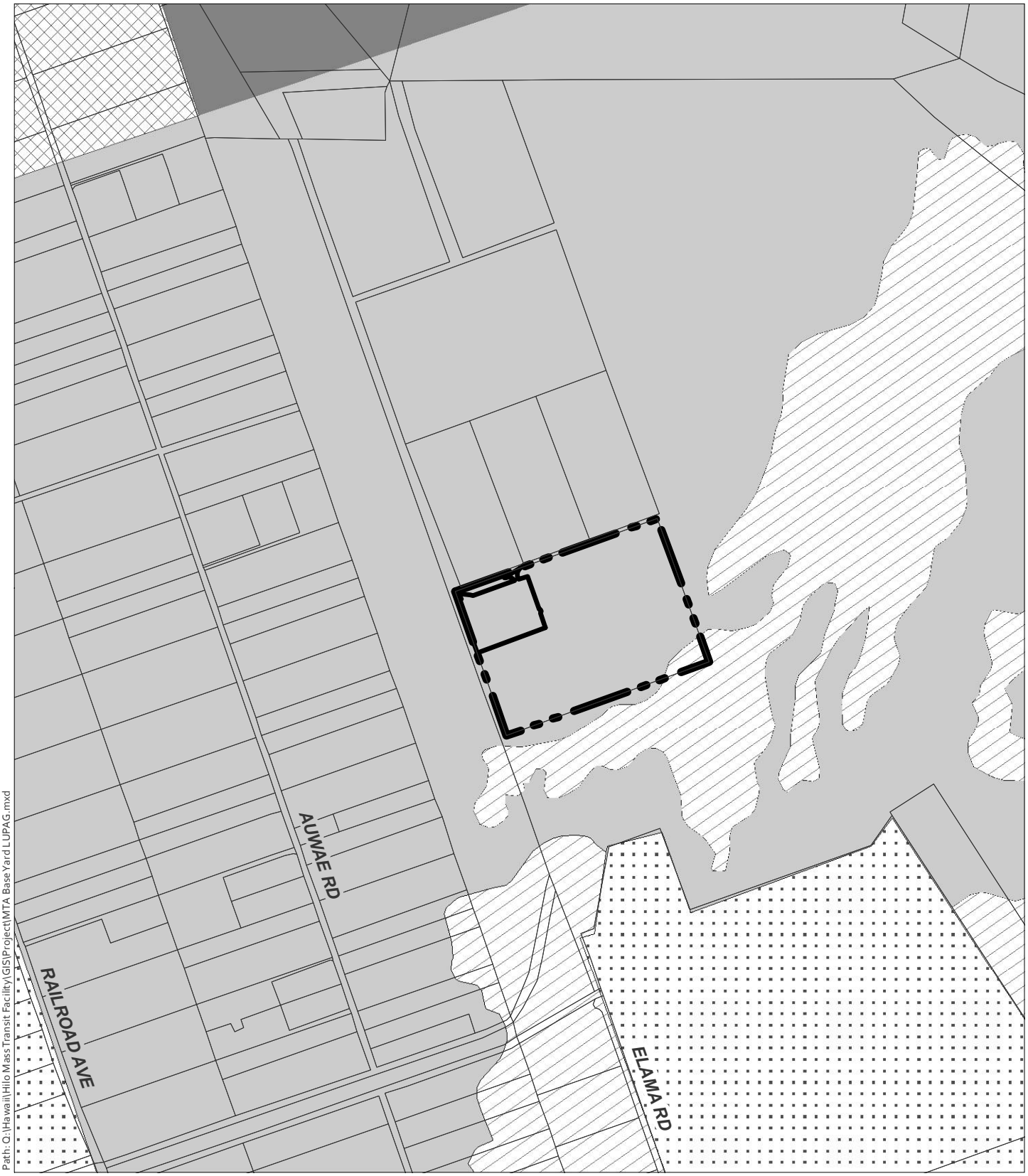
North

Linear Scale (feet)
0 500 1,000 2,000

PBR HAWAII & ASSOCIATES, INC

Source: County of Hawai'i, 2014. State Land Use Commission, 2014. Mitsunaga & Associates, 2015.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.



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DATE: 3/27/2015

LEGEND

- Proposed Base Yard Site
- TMK (3) 2-1-013:148
- Tax Map Key Parcels

Land Use Pattern Allocation Guide

- Extensive Agriculture
- Important Ag. Lands
- Industrial
- Low Density Urban
- Urban Expansion

FIGURE 6 :

County of Hawai'i General Plan Land Use Pattern Allocation Guide

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Mass Transit Agency — Island of Hawai'i

North

Linear Scale (feet): 0 250 500 1,000

PBR HAWAII & ASSOCIATES, INC

Source: County of Hawai'i, 2014 (TMK) & 2012 (LUPAG). Mitsunaga & Associates, 2015.

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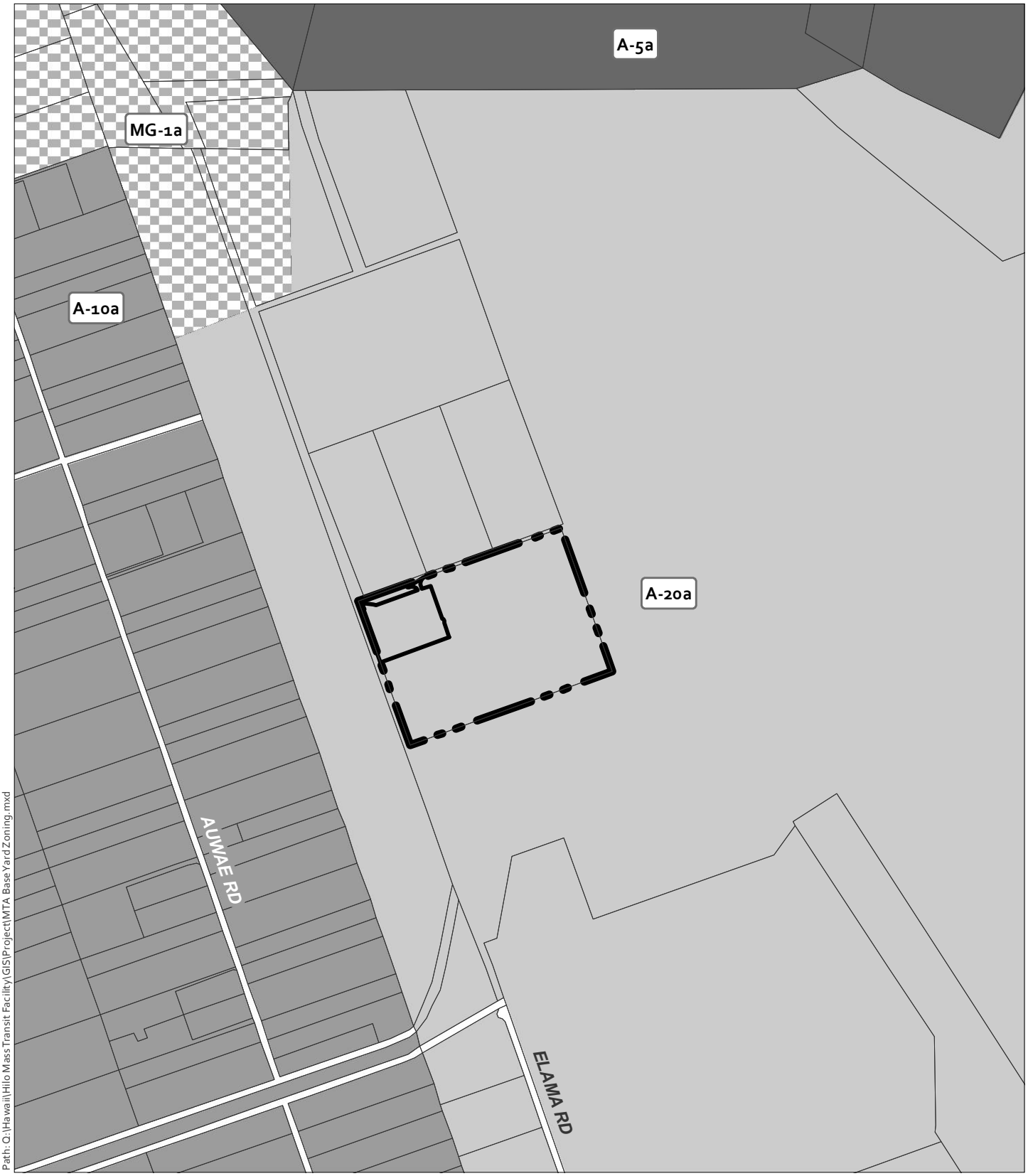

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DATE: 3/27/2015

LEGEND

- Proposed Base Yard Site
- TMK (3) 2-1-013:148
- Tax Map Key Parcels

County of Hawai'i Zoning

- A-20a
- A-10a
- A-5a
- MG-1a

FIGURE 7 :
County of Hawai'i Zoning

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Mass Transit Agency — Island of Hawai'i

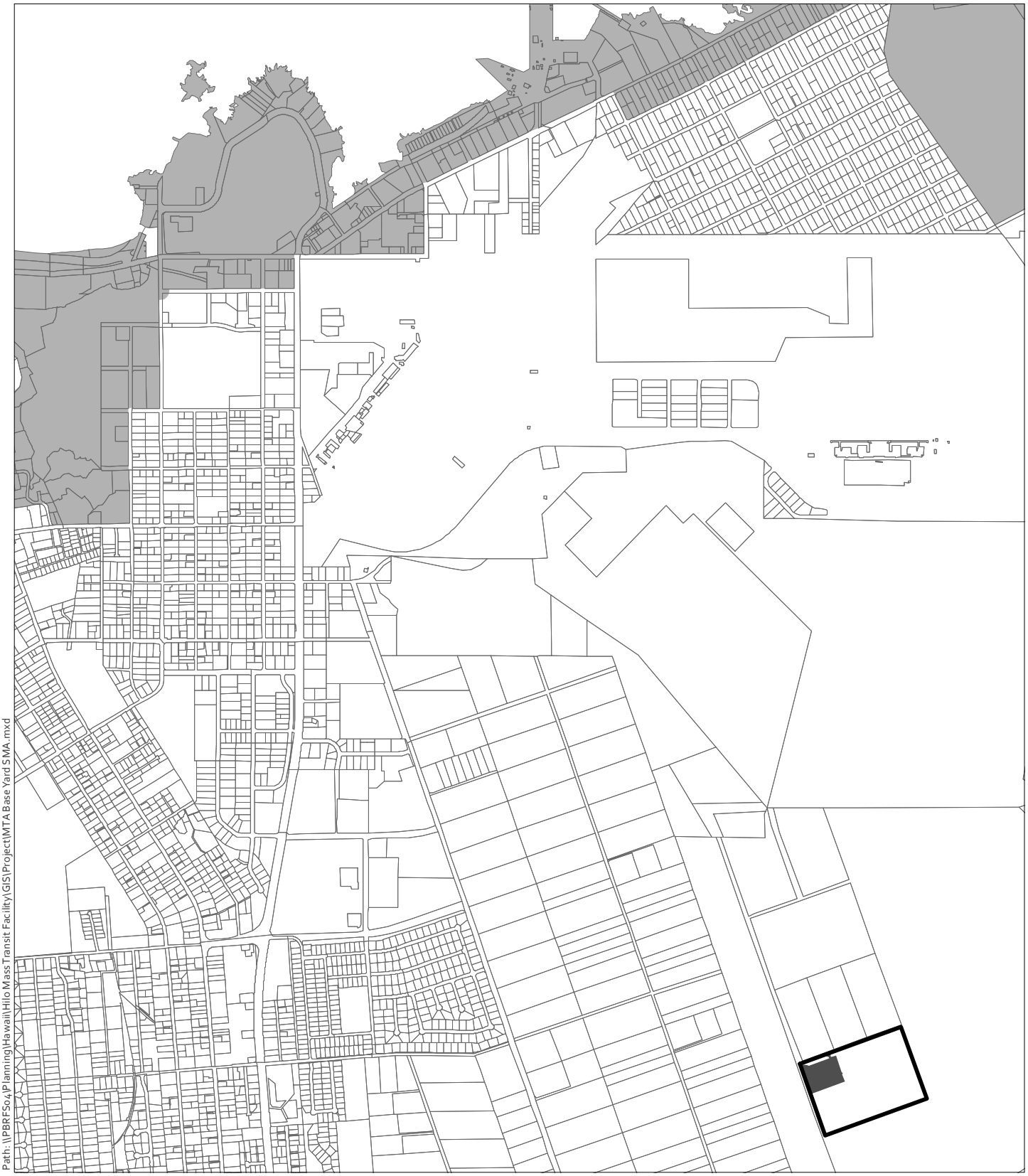
North

Linear Scale (feet)
0 250 500 1,000

PBR HAWAII & ASSOCIATES, INC

Source: County of Hawai'i, 2014. Mitsunaga & Associates, 2015.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.



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DATE: 4/13/2015

LEGEND

- Proposed Base Yard Site
- TMK (3) 2-1-013:148
- Tax Map Key Parcels
- Special Management Area

FIGURE 8 :
Special Management Area

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Mass Transit Agency — Island of Hawai'i

North

Linear Scale (feet)
0 500 1,000 2,000

PBR HAWAII & ASSOCIATES, INC

Source: County of Hawai'i, 2014 (TMK) & 2013 (SMA). Mitsunaga & Associates, 2015.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

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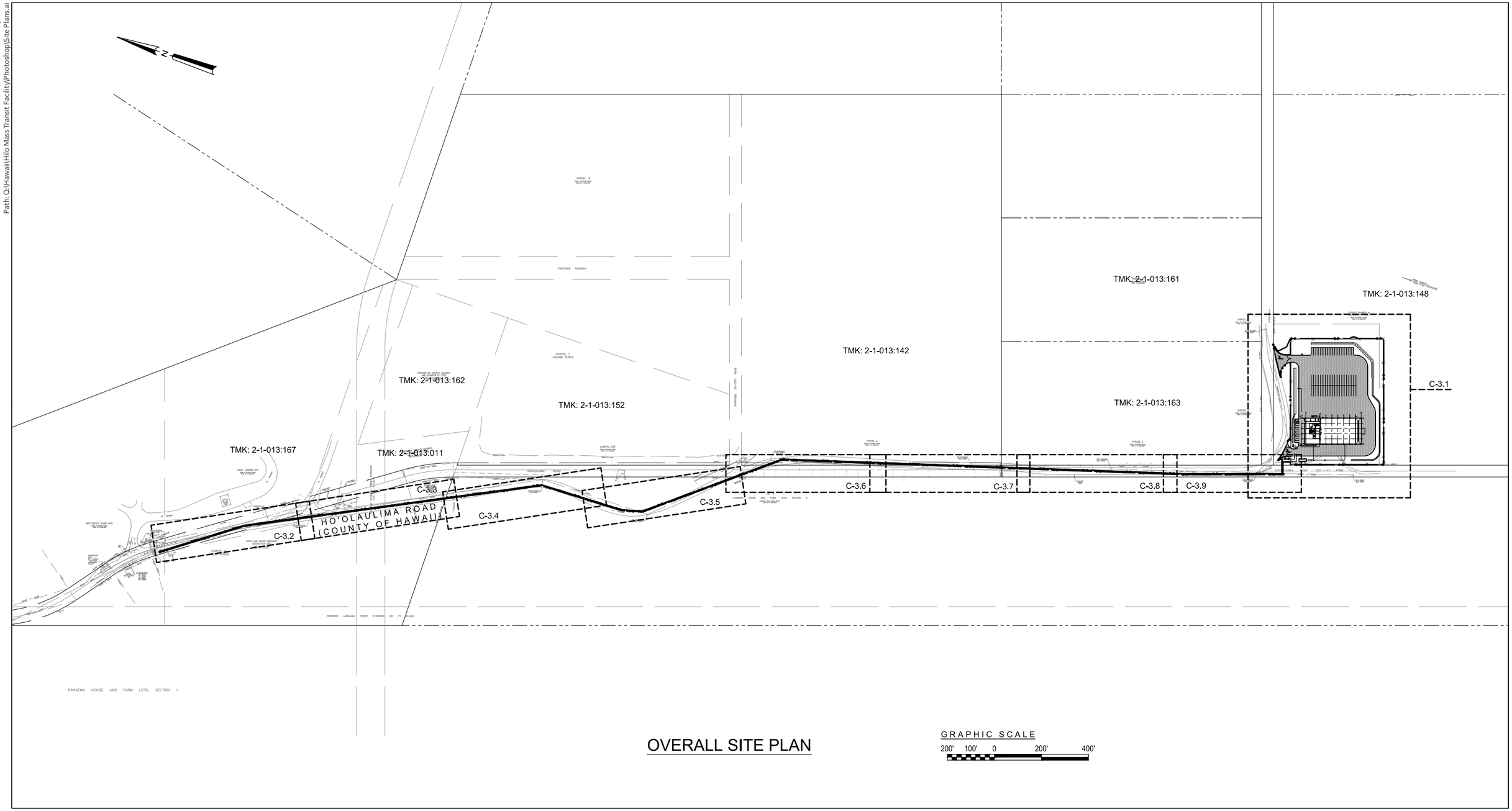

OVERALL SITE PLAN

DATE: 4/13/2015

LEGEND

- PROPERTY CONSTRUCTION EASEMENT
- PROPERTY LINE RIGHT OF WAY
- LIMITS OF CONSTRUCTION
- NEW FENCE
- STRUCTURE FOOTPRINT
- CONC. WALKWAY/ PAVEMENT
- A.C. PAVEMENT
- POROUS PAVEMENT

FIGURE 9A :
Overall Site Plan

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Mass Transit Agency — Island of Hawai'i

North

Linear Scale (feet)
0 100 200 400

PBR HAWAII & ASSOCIATES, INC.

Source: Mitsunaga & Associates, Inc., April 2015.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

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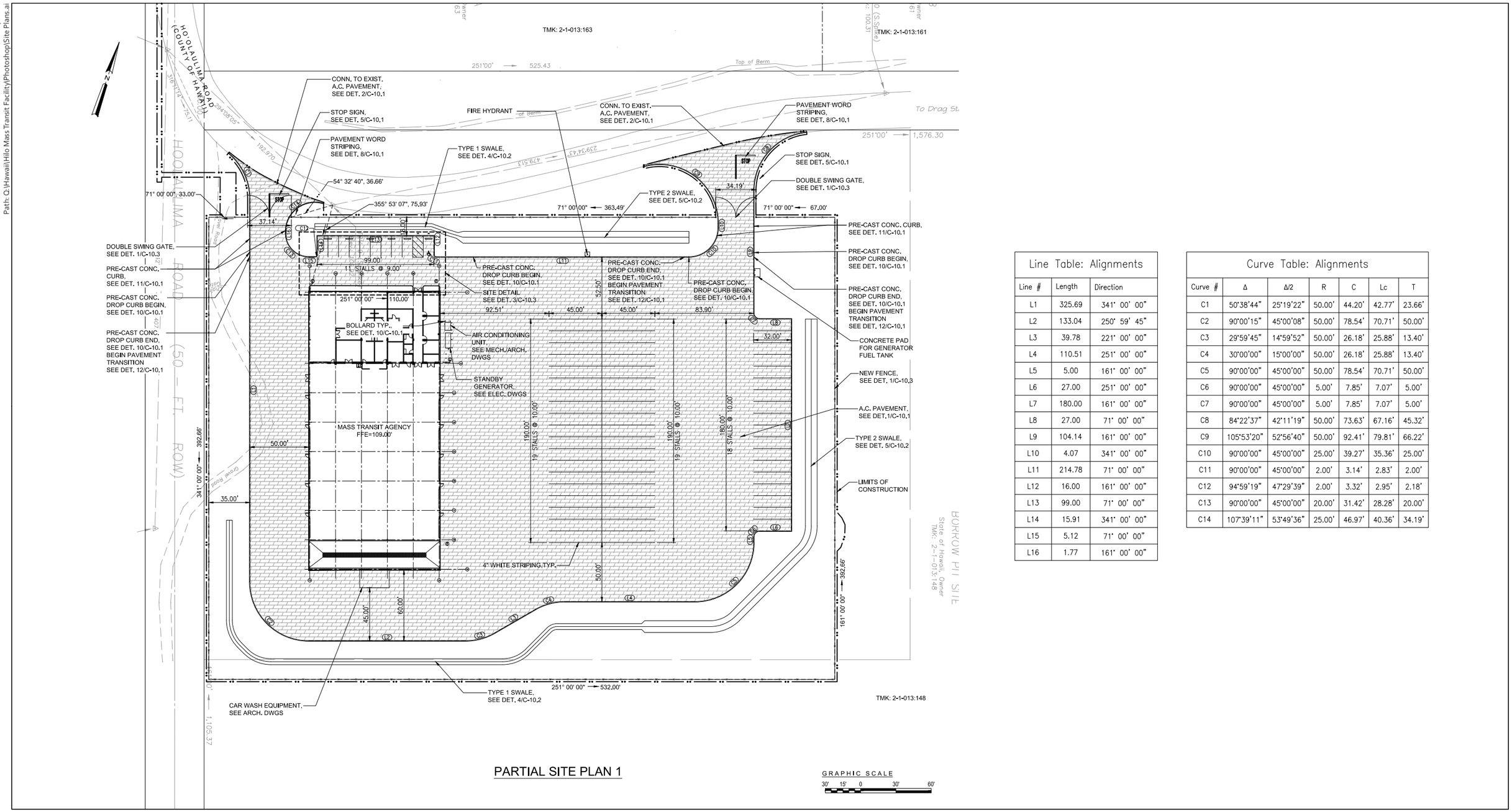


PARTIAL SITE PLAN 1

Line Table: Alignments		
Line #	Length	Direction
L1	325.69	341° 00' 00"
L2	133.04	250° 59' 45"
L3	39.78	221° 00' 00"
L4	110.51	251° 00' 00"
L5	5.00	161° 00' 00"
L6	27.00	251° 00' 00"
L7	180.00	161° 00' 00"
L8	27.00	71° 00' 00"
L9	104.14	161° 00' 00"
L10	4.07	341° 00' 00"
L11	214.78	71° 00' 00"
L12	16.00	161° 00' 00"
L13	99.00	71° 00' 00"
L14	15.91	341° 00' 00"
L15	5.12	71° 00' 00"
L16	1.77	161° 00' 00"

Curve Table: Alignments						
Curve #	Δ	Δ/2	R	C	Lc	T
C1	50°38'44"	25°19'22"	50.00'	44.20'	42.77'	23.66'
C2	90°00'15"	45°00'08"	50.00'	78.54'	70.71'	50.00'
C3	29°59'45"	14°59'52"	50.00'	26.18'	25.88'	13.40'
C4	30°00'00"	15°00'00"	50.00'	26.18'	25.88'	13.40'
C5	90°00'00"	45°00'00"	50.00'	78.54'	70.71'	50.00'
C6	90°00'00"	45°00'00"	5.00'	7.85'	7.07'	5.00'
C7	90°00'00"	45°00'00"	5.00'	7.85'	7.07'	5.00'
C8	84°22'37"	42°11'19"	50.00'	73.63'	67.16'	45.32'
C9	105°53'20"	52°56'40"	50.00'	92.41'	79.81'	66.22'
C10	90°00'00"	45°00'00"	25.00'	39.27'	35.36'	25.00'
C11	90°00'00"	45°00'00"	2.00'	3.14'	2.83'	2.00'
C12	94°59'19"	47°29'39"	2.00'	3.32'	2.95'	2.18'
C13	90°00'00"	45°00'00"	20.00'	31.42'	28.28'	20.00'
C14	107°39'11"	53°49'36"	25.00'	46.97'	40.36'	34.19'

DATE: 4/13/2015

LEGEND

- PROPERTY CONSTRUCTION EASEMENT
- PROPERTY LINE RIGHT OF WAY
- LIMITS OF CONSTRUCTION
- NEW FENCE
- STRUCTURE FOOTPRINT
- CONC. WALKWAY/ PAVEMENT
- A.C. PAVEMENT

FIGURE 9B :
Partial Site Plan

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Mass Transit Agency — Island of Hawai'i

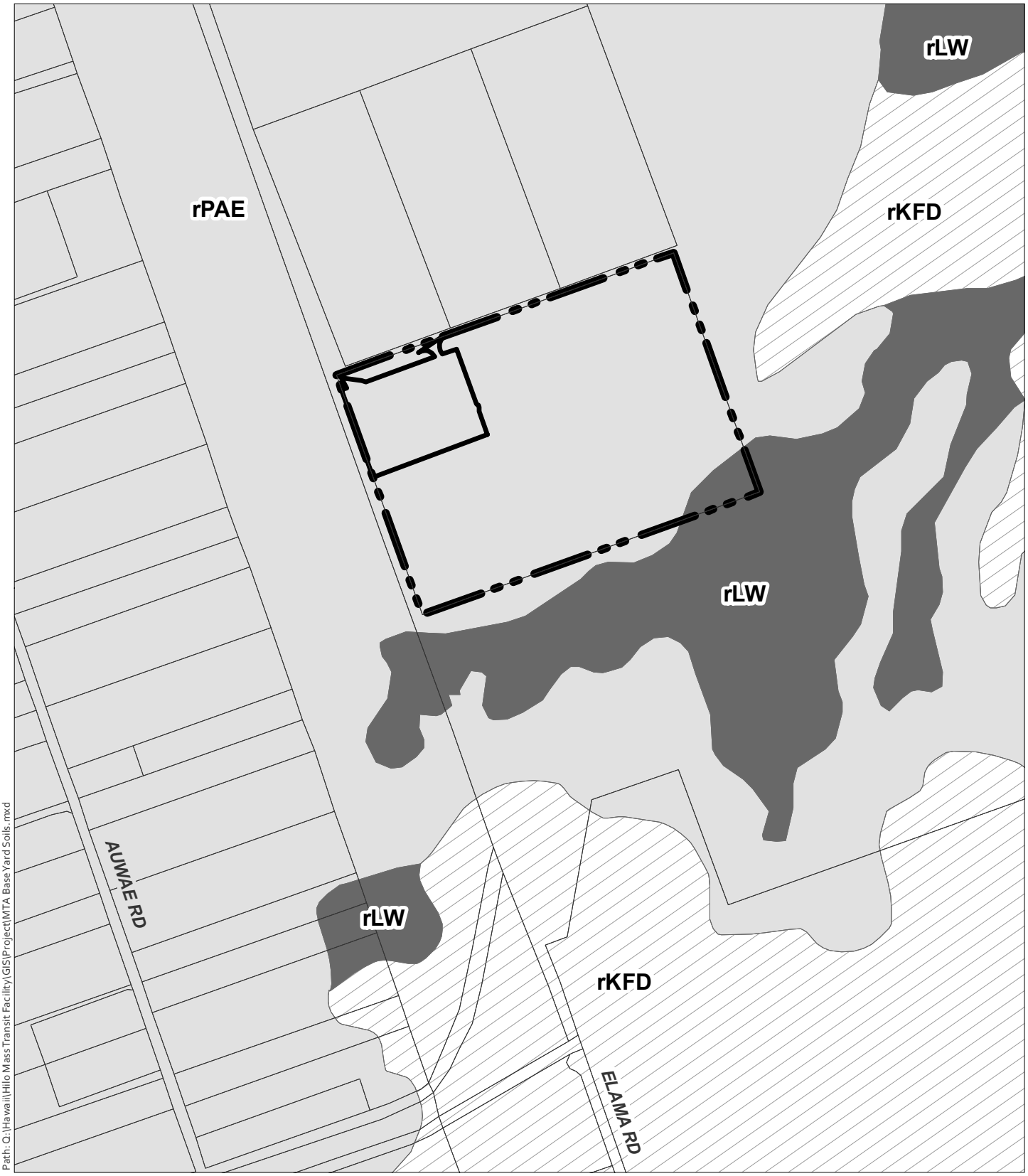
North

Linear Scale (feet) 0 20 40 80

PBR HAWAII & ASSOCIATES, INC.

Source: Mitsunaga & Associates, Inc., April 2015.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.



PDF - Q:\Hawaii\Hilo Mass Transit Facility\PDR\EA Figures
Path: Q:\Hawaii\Hilo Mass Transit Facility\GIS\Project\MTA Base Yard Soils.mxd

DATE: 3/27/2015

LEGEND

- Proposed Base Yard Site
- TMK (3) 2-1-013:148
- Tax Map Key Parcels

Soils

- rKFD - Keaukaha extremely rocky muck, 6 to 20 percent slopes
- rLW - Lava flows, pahoehoe
- rPAE - Papai extremely stony muck, 3 to 25 percent slopes

FIGURE 10 :

Soils

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Mass Transit Agency — Island of Hawai'i

North

Linear Scale (feet)

0 150 300 600

PBR HAWAII & ASSOCIATES, INC

Source: County of Hawai'i, 2014. U.S. Department of Agriculture Natural Resources Conservation Service. Mitsunaga & Associates, 2015.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

PDF - Q:\Hawaii\Hilo Mass Transit Facility\PDF\EA Figures
Path: Q:\Hawaii\Hilo Mass Transit Facility\GIS\Project\MTA Base Yard ALISH LSB.mxd

DATE: 3/27/2015

LEGEND

- Proposed Base Yard Site
- TMK (3) 2-1-013:148
- Tax Map Key Parcels

Agricultural Lands of Importance to the State of Hawai'i

- Other ALISH
- Unclassified

Land Study Bureau - Detailed Land Classification

- E - Very Poor

Source: County of Hawai'i, 2014. University of Hawai'i, 1973. State of Hawai'i Department of Agriculture, 1977. Mitsunaga & Associates, 2015.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

FIGURE 11 :

Agricultural Land Classifications

MASS TRANSIT AGENCY BASE YARD FACILITY

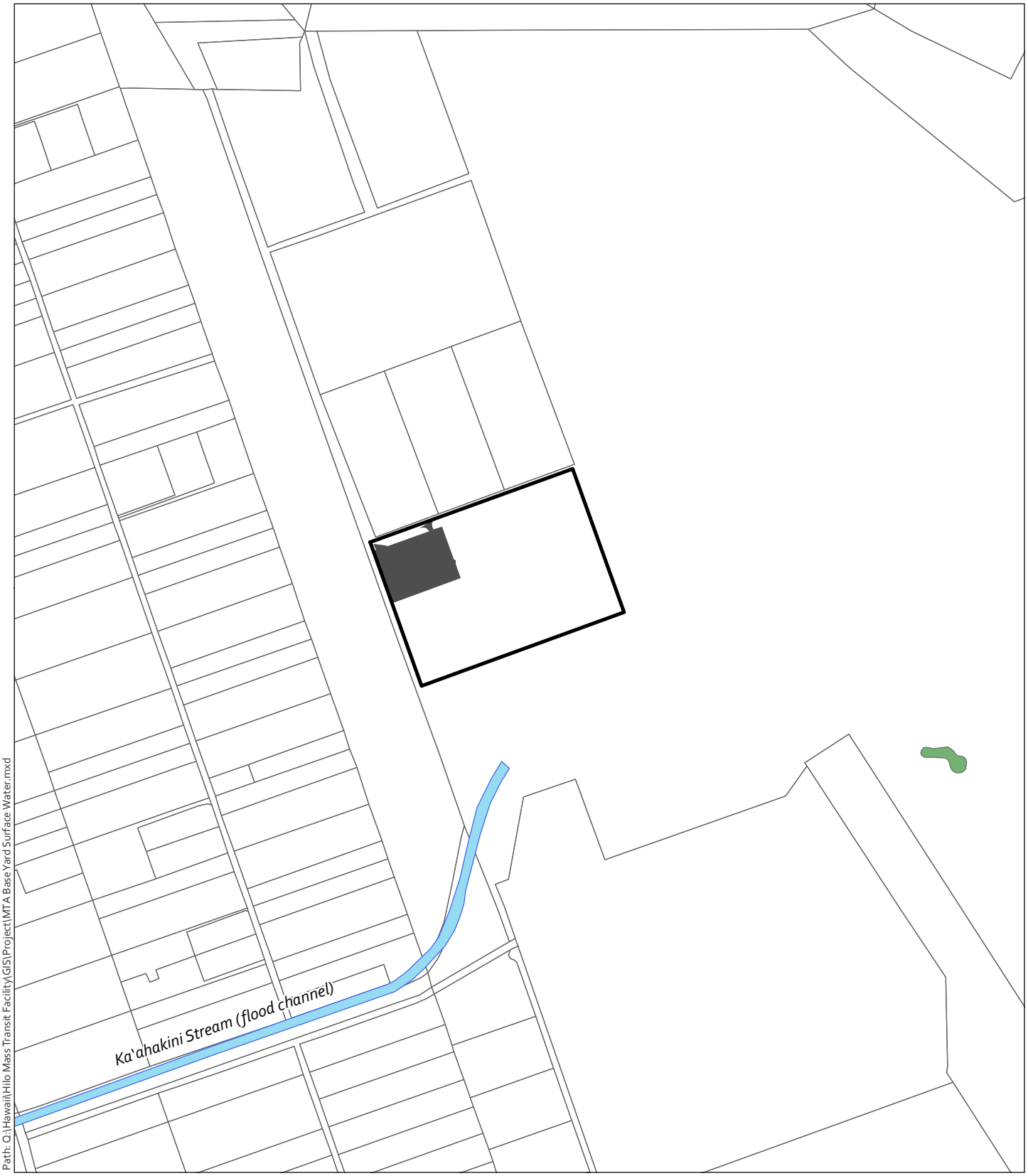
County of Hawai'i Mass Transit Agency — Island of Hawai'i

North

Linear Scale (feet)

0 150 300 600

PBR HAWAII & ASSOCIATES, INC



PDF - Q:\Hawaii\Hilo Mass Transit Facility\PDF\EA Figures
Path: Q:\Hawaii\Hilo Mass Transit Facility\GIS\Project\MTA Base Yard Surface Water.mxd

DATE: 3/13/2015

LEGEND

- Proposed Base Yard Site
- TMK (3) 2-1-013:148
- Tax Map Key Parcels
- Surface Water

Wetlands

- Freshwater Pond

FIGURE 12 :
Surface Water & Wetlands

MASS TRANSIT AGENCY BASE YARD FACILITY

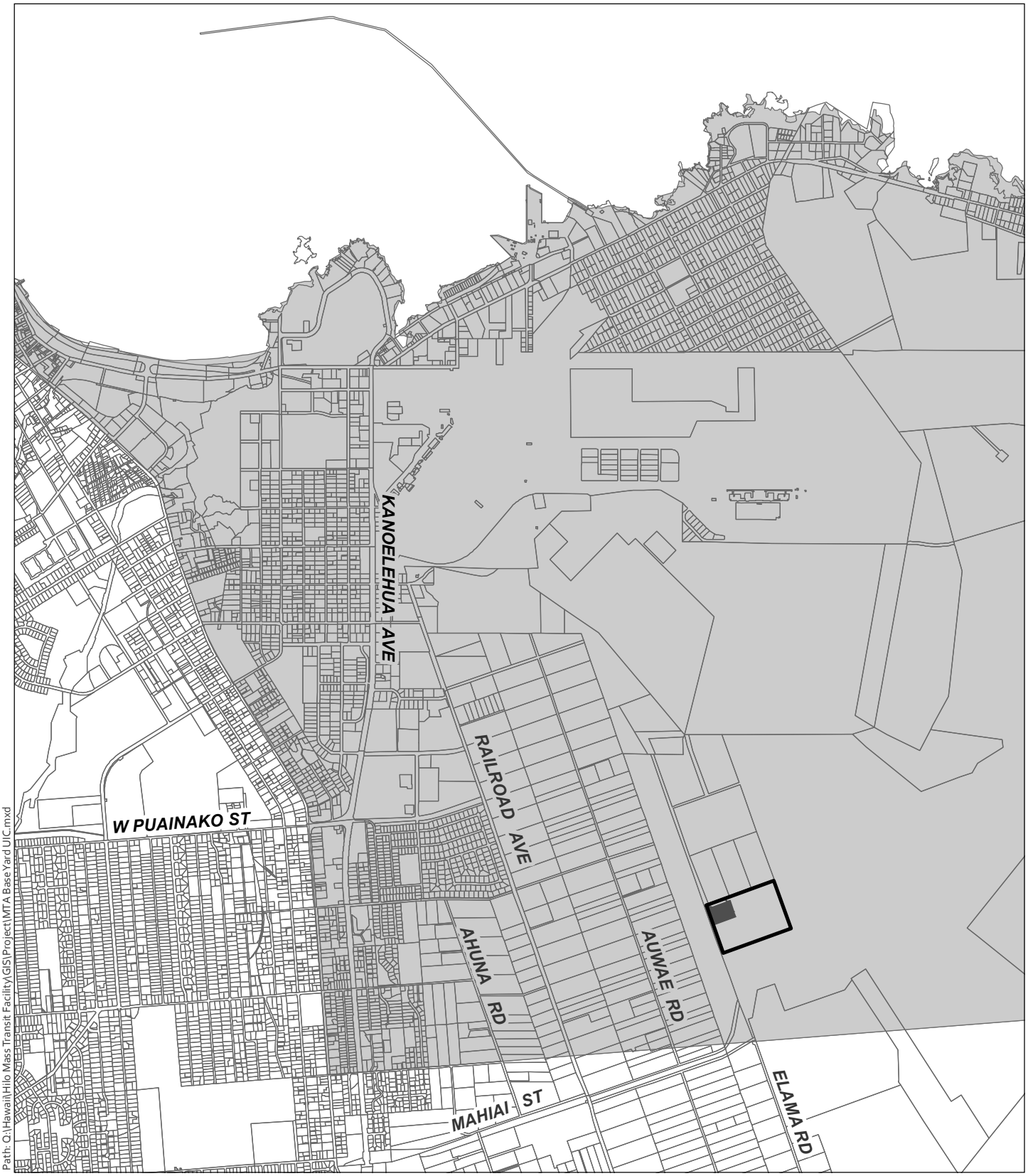
County of Hawai'i Mass Transit Agency — Island of Hawai'i

North

Linear Scale (feet): 0 250 500 1,000

PBR HAWAII & ASSOCIATES, INC.

Source: County of Hawai'i, 2014. State of Hawai'i Department of Land and Natural Resources. U.S. Fish and Wildlife Service National Wetlands Inventory. Mitsunaga & Associates, 2015.
Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.



PDF - Q:\Hawaii\Hilo Mass Transit Facility\PDF\EA Figures
Path: Q:\Hawaii\Hilo Mass Transit Facility\GIS\Project\MTA Base Yard UIC.mxd

DATE: 3/27/2015

LEGEND

- Proposed Base Yard Site
- TMK (3) 2-1-013:148
- Tax Map Key Parcels

Underground Injection Control (UIC) Areas

- Below (makai) UIC Line
- Above (mauka) UIC Line

FIGURE 13 :
Underground Injection Control

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Mass Transit Agency — Island of Hawai'i

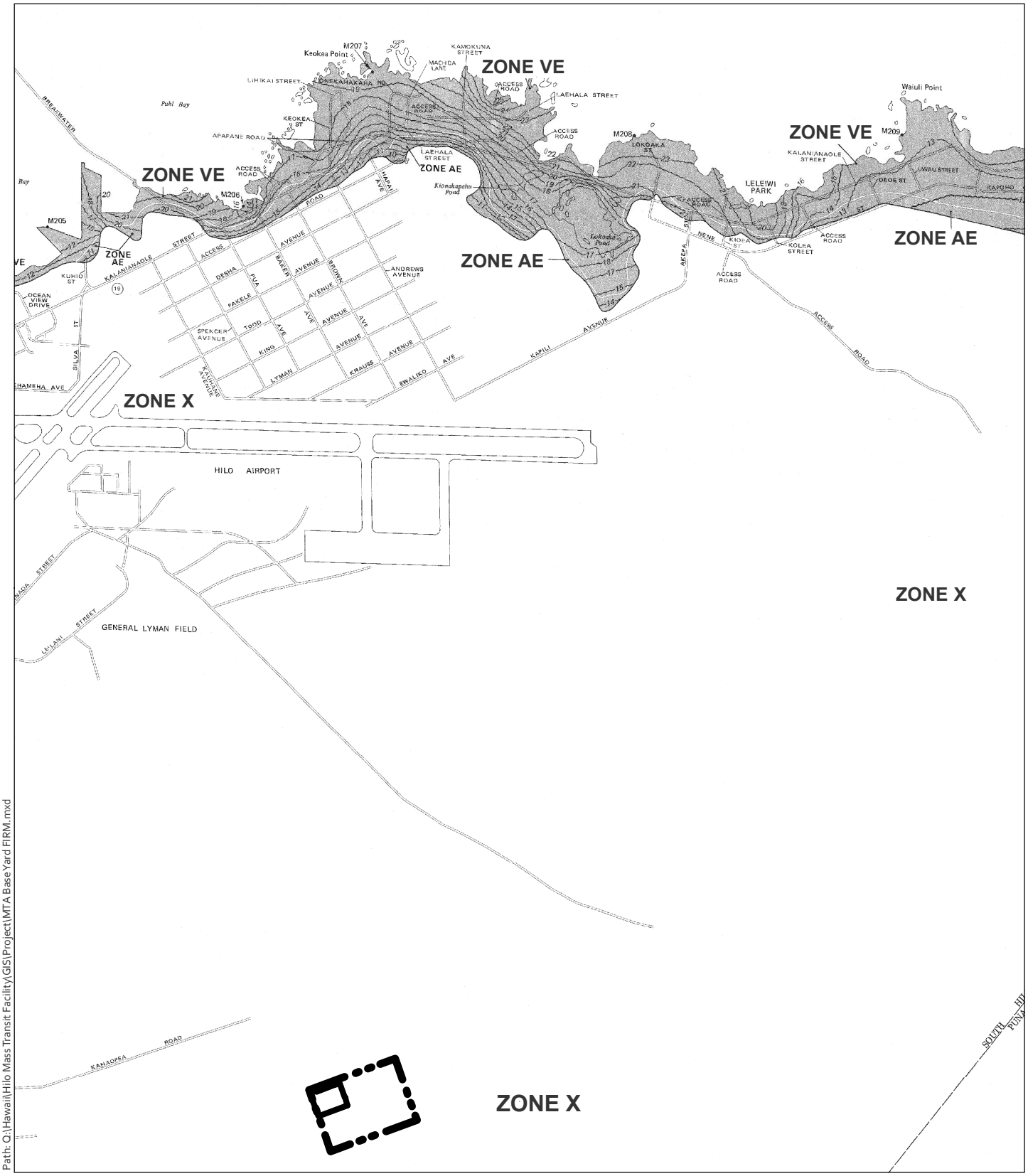
North

Linear Scale (feet)
0 750 1,500 3,000

PBR HAWAII & ASSOCIATES, INC.

Source: County of Hawai'i, 2014. State Department of Health Safe Drinking Water Branch, 2004.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.



PDF - Q:\Hawaii\Hilo Mass Transit Facility\PDF\EA Figures
Path: Q:\Hawaii\Hilo Mass Transit Facility\GIS\Project\MTA Base Yard FIRM.mxd

DATE: 4/13/2015

LEGEND

Proposed Base Yard Site

TMK (3) 2-1-013:148

Flood Zones

Zone X: Areas determined to be outside 0.2% annual change floodplain.

FIGURE 14 :
Flood Insurance Rate Map

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Mass Transit Agency — Island of Hawai'i

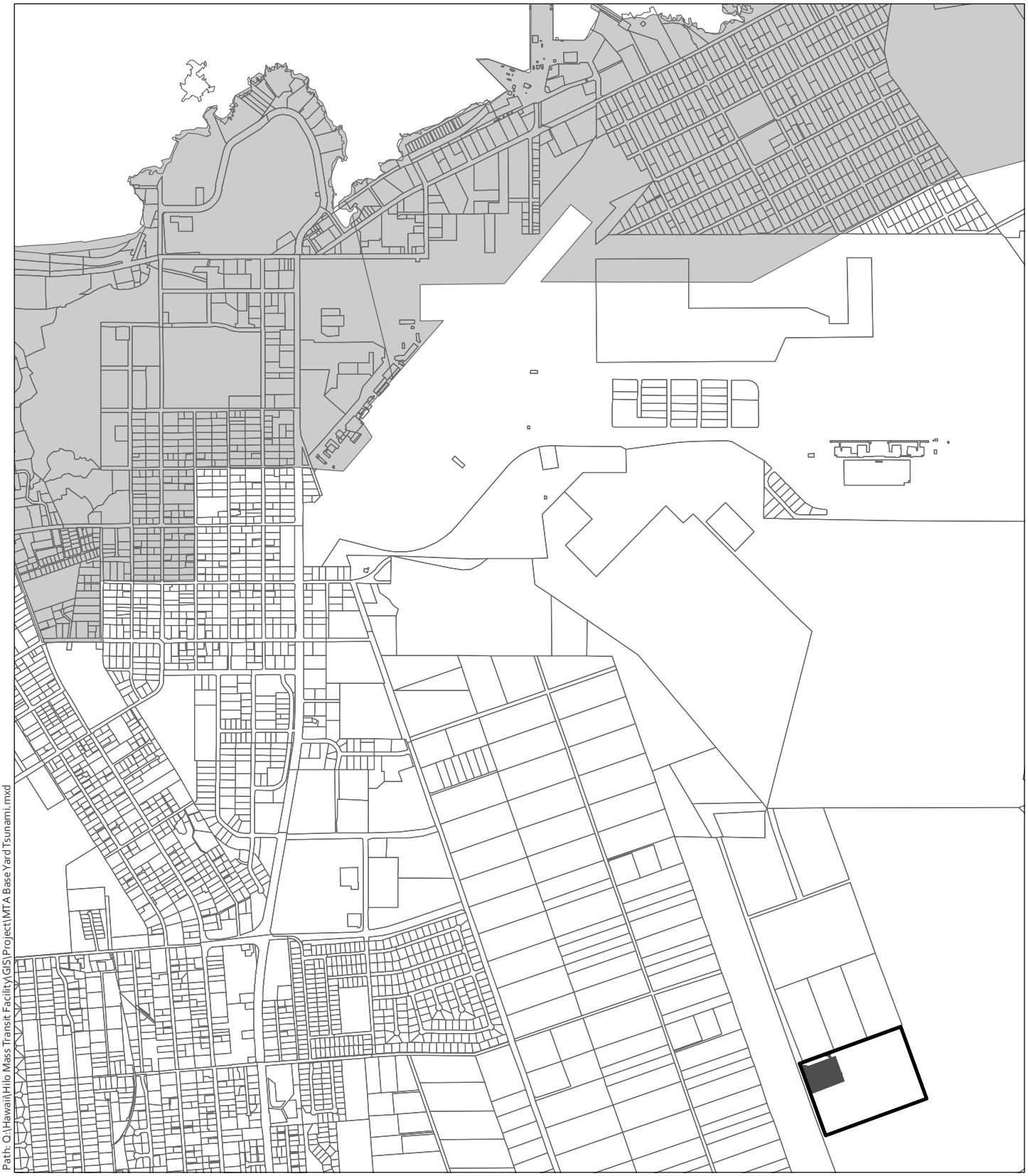
North

Linear Scale (feet): 0 625 1,250 2,500

PBR HAWAII & ASSOCIATES, INC.

Source: Federal Emergency Management Agency, Panel No. 155166 0885 C, 1988. Mitsunaga & Associates, 2015.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.



PDF - Q:\Hawaii\Hilo Mass Transit Facility\PDF\EA Figures
Path: Q:\Hawaii\Hilo Mass Transit Facility\GIS\Project\MTA Base Yard Tsunami.mxd

DATE: 3/13/2015

LEGEND

- Proposed Base Yard Site
- TMK (3) 2-1-013:148
- Tax Map Key Parcels
- Tsunami Evacuation Zone

FIGURE 15 :
Tsunami Evacuation Zone

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Mass Transit Agency — Island of Hawai'i

North

Linear Scale (feet)
0 500 1,000 2,000

PBR HAWAII & ASSOCIATES, INC.

Source: County of Hawai'i, 2014. State of Hawai'i Civil Defense, 2013. Mitsunaga & Associates, 2015.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

Appendix B

PRE-ASSESSMENT CONSULTATION

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
Comptroller

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

FEB 23 2015

(P)1029.5

Ms. Bethany Wylie, Planner
PBR Hawaii & Assoc., Inc.
1001 Bishop Street, Suite 650
Honolulu, HI 96813

Dear Ms. Wylie:

Subject: Early Consultation
County of Hawaii Mass Transit Agency Base Yard Facility
Waiakea, South Hilo, Island of Hawaii
TMK: (3) 2-1-013:148 por.

This is in response to your letter dated February 12, 2015 regarding the subject project. The proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and we have no comments to offer at this time.

If there are any questions, please call me at 586-0400, or your staff may call Mr. David DePonte of the Public Works Division at 586-0492.

Sincerely,

DOUGLAS MURDOCK
Comptroller

c: Mr. Jerry Watanabe, DAGS-Hawaii District Office

PBR HAWAII
& ASSOCIATES, INC.

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ROY TAKEMOTO
Managing Director - Hilo

SCOTT MURAKAMI, ASLA, LEED®AP
Associate

DACHENG DONG, LEED®AP
Associate

MARC SHIMATSU, ASLA
Associate

CATIE CULLISON, AICP
Associate

HONOLULU OFFICE
1001 Bishop Street, Suite 650
Honolulu, Hawai'i 96813-3484
Tel: (808) 521-5631
Fax: (808) 523-1402
E-mail: sysadmin@pbrhawaii.com

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Kapolei Building, Suite 313
Kapolei, Hawai'i 96707-2005
Tel: (808) 521-5631
Fax: (808) 535-3163

HILO OFFICE
1719 Haleloke Street
Hilo, Hawai'i 96720-1553
Tel/Cel: (808) 315-6878

printed on recycled paper

April 10, 2015

Mr. Douglas Murdock
Comptroller
State of Hawaii
Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawaii 96810-0119

Attn: Mr. David DePonte, Public Works Division

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Mr. Murdock,

Thank you for your letter dated February 23, 2015 (your reference no. (P)1029.5) regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We acknowledge that the proposed project does not impact any of the Department's projects or existing facilities, and that the Department has no comments to offer at this time.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

DAVID Y. IGE
GOVERNOR

RACHAEL WONG, DrPH
DIRECTOR

PANKAJ BHANOT
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
Benefit, Employment & Support Services Division
820 Mililani Street, Suite 606
Honolulu, Hawaii 96813

March 2, 2015

Re: 15-0083

PBR HAWAII & Associates, Inc.
Attn: Bethany Wylie, Planner
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Subject: Early Consultation for County of Hawaii Mass Transit Agency Base Yard Facility, Waiakea, South Hilo, Hawaii (TMK (3) 2-1-013:-148 POR)

Dear Ms. Wylie:

This is in response to your letter dated February 12, 2015 requesting the Department of Human Services (DHS) comment on the proposed project for the County of Hawaii Mass Transit Agency Base Yard Facility in Waiakea, South Hilo, Hawaii.

Please be advised that there are several DHS licensed family child care homes located in the near vicinity that may be impacted by the construction project.

If you have any questions or need further information, please contact Ms. Jill Arizumi, Child Care Program Specialist, at (808) 586-5240.

Sincerely,

Scott Nakasone
Assistant Division Administrator

c: Rachael Wong, DrPH, Director

PBR HAWAII & ASSOCIATES, INC.

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Managing Director - Hilo

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DACHENG DONG, LEED®AP
Associate

MARC SHIMATSU, ASLA
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HILO OFFICE
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Hilo, Hawai'i 96720-1553
Tel/Cell: (808) 315-6878

printed on recycled paper

April 10, 2015

Mr. Scott Nakasone
Assistant Division Administrator
State of Hawaii
Department of Human Services
Benefit, Employment & Support Services Division
820 Mililani Street, Suite 606
Honolulu, Hawaii 96813

Attn: Ms. Jill Arizumi, Child Care Program Specialist

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Mr. Nakasone,

Thank you for your letter dated March 2, 2015 (your reference no. 15-0083) regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We acknowledge the statement that "…there are several DHS licensed family child care homes located in the near vicinity that may be impacted by the construction project." We contacted Ms. Jill Arizumi to inquire about the locations of these homes and to determine the distances from the project. As of the sending of this letter, we have not receive that information. As you know, the closest residential/agricultural lot to the project site is approximately 750 feet away and is separated from the site by dense forest.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 12, 2015

PBR Hawaii & Associates, Inc.
Attn: Roy Takemoto
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

via email: rtakemoto@pbrhawaii.com

Dear Mr. Takemoto:

SUBJECT: Early Consultation for County of Hawaii Mass Transit Agency Base Yard Facility, PBR Hawaii & Associates, Inc. for County of Hawaii Mass Transit Agency, Applicant, Waiakea, South Hilo, Hawaii; TMK: (3) 2-1-013:148

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from the (i) Engineering Division, and (ii) Hawaii District Land Office on the subject matter. Should you have any questions, please feel free to call Kevin Moore at 587-0426.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 18, 2015

MEMORANDUM

TO: FR:

DLNR Agencies:
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
__Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: TO: Russell Y. Tsuji, Land Administrator
SUBJECT: Early Consultation for County of Hawaii Mass Transit Agency Base Yard Facility
LOCATION: Waiakea, South Hilo, Hawaii; TMK: (3) 2-1-013:148
APPLICANT: PBR Hawaii & Associates, Inc. for County of Hawaii Mass Transit Agency

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by March 11, 2015.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Kevin Moore at 587-0426. Thank you.

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: Chris Fukunaga
Print name: Carty S. Chang, Chief Engineer
Date: 3/6/15

cc: Central Files

'15 FEB 19 PM 10:40 ENGINEERING
RECEIVED
2015 MAR -5 AM 11:31
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII
LAND DIVISION

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/ Russell Y. Tsuji
Ref.: Early Consultation for County of Hawaii Mass Transit Agency Base Yard Facility, Waiakea Hawaii.014

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

(X) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The National Flood Insurance Program (NFIP) does not regulate developments within Zone X.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

( ) Please note that the project site must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

( ) Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
( ) Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.
( ) Mr. Carolyn Cortez at (808) 270-7253 of the County of Maui, Department of Planning.
( ) Mr. Stanford Iwamoto at (808) 241-4896 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

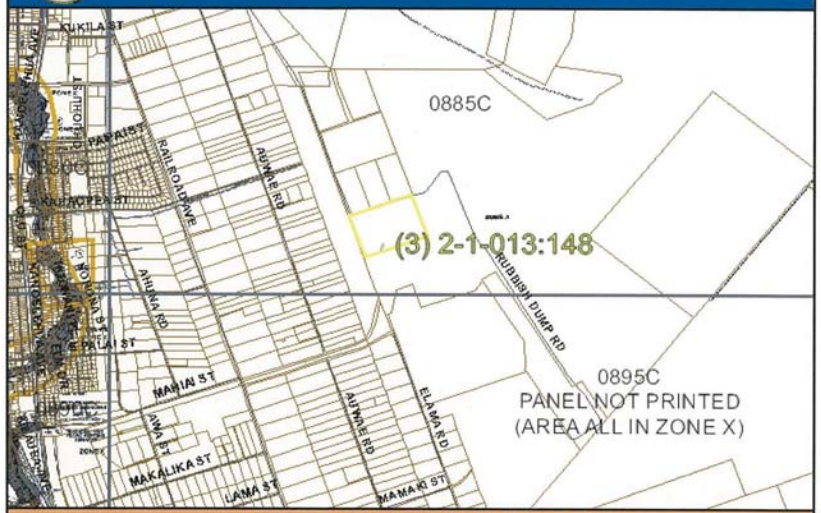
( ) Other: _____

Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed: Chris Takahashi
CARTY S. CHANG, CHIEF ENGINEER

Date: 3/6/15

State of Hawaii
FLOOD HAZARD ASSESSMENT REPORT



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD ZONE DEFINITIONS

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD – The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water-surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

- **Zone A:** No BFE determined.
- **Zone AE:** BFE determined.
- **Zone AH:** Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
- **Zone AO:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
- **Zone V:** Coastal flood zone with velocity hazard (wave action); no BFE determined.
- **Zone VE:** Coastal flood zone with velocity hazard (wave action); BFE determined.
- **Zone AEF:** Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

NON-SPECIAL FLOOD HAZARD AREA – An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

- **Zone XS (X shaded):** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- **Zone X:** Areas determined to be outside the 0.2% annual chance floodplain.

OTHER FLOOD AREAS

- **Zone D:** Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

PROPERTY INFORMATION

COUNTY:	HAWAII
TMK NO:	(3) 2-1-013-148
PARCEL ADDRESS:	
FIRM INDEX DATE:	APRIL 02, 2004
LETTER OF MAP CHANGE(S):	NONE
FEMA FIRM PANEL(S):	1551660885C
PANEL EFFECTIVE DATE:	SEPTEMBER 16, 1988
PARCEL DATA FROM:	JUNE 2013
IMAGERY DATA FROM:	MAY 2005

IMPORTANT PHONE NUMBERS

County NFIP Coordinator	
County of Hawaii	
Frank DeMarco, CFM	(808) 961-8042
State NFIP Coordinator	
Carol Tyau-Beam, P.E., CFM	(808) 587-0267

Disclaimer: The Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use of the information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR from any liability, which may arise from its use.

If this map has been identified as 'PRELIMINARY' or 'UNOFFICIAL', please note that it is being provided for informational purposes and is not to be used for official/legal decisions, regulatory compliance, or flood insurance rating. Contact your county NFIP coordinator for flood zone determinations to be used for compliance with local floodplain management regulations.

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

2015 FEB 23 A 11:18

RECEIVED
LAND DIVISION
HILO, HAWAII

February 18, 2015

MEMORANDUM

2015 MAR 11 AM 10:41
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

RECEIVED
LAND DIVISION

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
__Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Early Consultation for County of Hawaii Mass Transit Agency Base Yard Facility
LOCATION: Waiakea, South Hilo, Hawaii; TMK: (3) 2-1-013:148
APPLICANT: PBR Hawaii & Associates, Inc. for County of Hawaii Mass Transit Agency

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by March 11, 2015.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Kevin Moore at 587-0426. Thank you.

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed:

Print name: GORDON CHEE
Date: 3/9/15

cc: Central Files

3/10/15 Fax: Land-Admin.

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

75 Aupuni Street, Room 204
Hilo, Hawaii 96720
PHONE: (808) 961-9590
FAX: (808) 961-9599

March 10, 2015

MEMORANDUM

TO: Russell Y. Tsuji, Land Administrator

FROM: Candace Martin, Land Agent, HDLO

SUBJECT: Early Consultation for County of Hawaii Mass Transit Agency Base Yard Facility, Waiakea, South Hilo, Hawaii, TMK: (3) 2-1-013:148.

In response to your early consultation request for comments dated February 18, 2015 on the above referenced subject matter, we offer the following:

The subject 40 acre parcel is designated Agricultural by the State Land Use Commission. County of Hawaii zoning maps show the parcel as zoned Agricultural with minimum parcel size of 20 acres. The parcel is also classified as Agricultural Lands of Importance to the State of Hawaii (ALISH) by the State Department of Agriculture and the Soil Conservation Service.

The proposed use of the land by the County of Hawaii is not a permitted use of Agricultural land, but would require a change of zoning to Industrial. The conversion of ALISH lands to Industrial use may not be in the best interests of the Public Trust.

A motorized public transportation garage and base yard for a fleet of 55 transit buses would pose the potential risk of ground contamination from various petroleum products. The access to the parcel is currently via a pot-holed dirt/gravel road which may not be suitable for the proposed traffic.

If you have any questions, please feel free to contact me at (808) 961-9590. Thank you.

DAVID Y. IGE
GOVERNOR OF HAWAII

CARTY S. CHANG
INTERIM CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

75 Aupuni Street, Room 204
Hilo, Hawaii 96720
PHONE: (808) 961-9590
FAX: (808) 961-9599

March 10, 2015

MEMORANDUM

TO: Russell Y. Tsuji, Land Administrator

FROM: Candace Martin, Land Agent, HDLO

SUBJECT: Early Consultation for County of Hawaii Mass Transit Agency Base Yard Facility, Waiakea, South Hilo, Hawaii, TMK: (3) 2-1-013:148.

In response to your early consultation request for comments dated February 18, 2015 on the above referenced subject matter, we offer the following:

The subject 40 acre parcel is designated Agricultural by the State Land Use Commission. County of Hawaii zoning maps show the parcel as zoned Agricultural with minimum parcel size of 20 acres. The parcel is also classified as Agricultural Lands of Importance to the State of Hawaii (ALISH) by the State Department of Agriculture and the Soil Conservation Service.

The proposed use of the land by the County of Hawaii is not a permitted use of Agricultural land, but would require a change of zoning to Industrial. The conversion of ALISH lands to Industrial use may not be in the best interests of the Public Trust.

A motorized public transportation garage and base yard for a fleet of 55 transit buses would pose the potential risk of ground contamination from various petroleum products. The access to the parcel is currently via a pot-holed dirt/gravel road which may not be suitable for the proposed traffic.

If you have any questions, please feel free to contact me at (808) 961-9590. Thank you.

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printed on recycled paper

April 10, 2015

Mr. Russell Y. Tsuji
Land Administrator
State of Hawaii
Department of Land and Natural Resources, Land Division
Post Office Box 621
Honolulu, Hawaii 96809

Attn: Mr. Kevin Moore

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Mr. Tsuji,

Thank you for your letter dated March 12, 2015 regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We have reviewed the comment from the Engineering Division and the Hawaii District Land Office and offer the following comments:

1. We appreciate the flood insurance rate map and the information on the National Flood Insurance Program provided by the Engineering Division. We will include that information in the Draft Environmental Assessment (EA).
2. We appreciate the information provided by the Hawaii District Land Office on County zoning and had anticipated that a State Special Permit would need to be secured (and not a change of zoning).
3. We appreciate the opinion provided by the Hawaii District Land Office that the proposed project may "…pose a potential risk of ground contamination from various petroleum products." We will research the location of the project relative to the State Department of Health's Underground Injection Control (UIC) Line and address what measures may be incorporated into the design and construction of the base yard to reduce the potential for pollution.
4. We appreciate the assessment provided by the Hawaii District Land Office that access to the parcel is "a pot-holed dirt/gravel road." However, the road must have been recently repaved, because when one of our staff visited last week, a photograph taken shows a paved road that appears to be in very good condition.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

DAVID Y. IGE
GOVERNOR

ARTHUR J. LOGAN
BRIGADIER GENERAL
ADJUTANT GENERAL

KENNETH S. HARA
COLONEL
DEPUTY ADJUTANT GENERAL

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

February 27, 2015

Ms. Bethany Wylie, Planner
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Subject: Early Consultation for County of Hawai'i Mass Transit Agency Base Yard Facility, Waiakea, South Hilo, Hawai'i, Tax Map Key (3) 2-1-013:148 (por.)

Dear Ms. Wylie:

Thank you for the opportunity to comment on the above project.

The State of Hawai'i Department of Defense offers the following comments regarding the proposed development:

1. Recommend that one (1) 121 db(c) omni-directional siren be installed as there is inadequate to no siren coverage for the area. The Hawai'i Emergency Management Agency (HIEMA) will work with the Mass Transit Agency regarding the technical requirements and placement of the siren.

2. Recommend that the facilities be designed to mitigate the effects of seismic and high-wind events.

3. Due to the close proximity of the proposed facility to the Keaukaha Military Reservation, and access to the facility from Hawaii Belt Road to Leilani Street to Panaewa Dragstrip, please inform us of any proposed changes to the access routes.

If you have any questions or concerns, please have your staff contact Mr. Lloyd Maki, Assistant Chief Engineering Officer at (808) 733-8441.

Sincerely,

for ARTHUR J. LOGAN
Brigadier General
Hawaii National Guard
Adjutant General

c: Mr. Juan Williams, Director, Youth Challenge Academy
Mr. Havinne Okamura, Hawai'i Emergency Management Agency
Ms. Dawn Hegger, Hawai'i Army National Guard

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April 10, 2015

Mr. Arthur J. Logan
Brigadier General
State of Hawaii
Department of Defense
Office of the Adjutant General
3949 Diamond Head Road
Honolulu, Hawaii 96816-4495

Attn: Mr. Lloyd Maki, Assistant Chief Engineering Officer

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear General Logan,

Thank you for your letter dated February 27, 2015 regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We acknowledge the following:

1. The State Department of Defense (DOD) recommends the installation of one omni-directional siren and that the Hawaii Emergency Management Agency will assist in the placement of the siren and provide the technical requirements.
2. DOD recommends that the facilities be designed to mitigate the effects of seismic and high-wind events. To minimize the potential hazard from earthquakes and hurricanes, structural elements in the proposed Base Yard and Maintenance Facility will be designed in accordance with the 2006 International Building Code as amended by State of Hawai'i Building Code.
3. Due to the proximity of the proposed base yard facility to the Keaukaha Military Reservation, DOD requests being informed of any changes to proposed access routes.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

02042PCTM.15

February 24, 2015

Mr. Roy Takemoto
PBR Hawaii
1719 Haleloke Street
Hilo, Hawaii 96720-1553

Dear Mr. Takemoto:

SUBJECT: Comments on Early Consultation for County of Hawaii Mass Transit Agency Base Yard Facility Waiakea, Island of Hawaii, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated February 12, 2015, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.pdf

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).

   For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for a NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, you must submit the applicable form ("CWB Individual NPDES Form" or

   "CWB NOI Form") through the e-Permitting Portal and the hard copy certification statement with the respective filing fee ($1,000 for an individual NPDES permit or $500 for a Notice of General Permit Coverage). Please open the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/. You will be asked to do a one-time registration to obtain your login and password. After you register, click on the Application Finder tool and locate the appropriate form. Follow the instructions to complete and submit the form.

3. If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 835-4303) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and Hawaii Administrative Rules (HAR), Chapter 11-54.

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

5. It is the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:

   a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects natural ecosystems and traditional beneficial uses of State waters, like community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.

b. Clearly articulate the State's position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g. minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.

c. Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.

d. Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.

e. Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Particular consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

If you have any questions, please visit our website at:http://health.hawaii.gov/cwb/, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

ALEC WONG, P.E., CHIEF
Clean Water Branch

CTM:bk

c: DOH-EPO #15-034 [via e-mail only]

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& ASSOCIATES, INC.

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April 10, 2015

Mr. Alec Wong, P.E., Chief, Clean Water Branch
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801-3378

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Aloha Mr. Wong,

Thank you for your letter dated February 24, 2015 (your reference no. 02042PCTM.15) regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We reviewed and understand the standard comments provided on your website. In addition, we have addressed your specific comments below.

1. The Draft EA will acknowledge that any potential impacts to State waters caused by the construction and/or operation of the proposed project will meet the provisions of the:

   a) Anti-degradation policy (Chapter 11-54-1.1, Hawaii Administrative Rules (HAR));
   b) Designated uses (Chapter 11-54-3, HAR); and
   c) Water quality criteria (Chapter 11.54-4 through 11-54-8, HAR).

   However, direct discharges of stormwater runoff into marine waters are not expected to occur due to the project's distance from the coast.

2. A National Pollutant Discharge Elimination System (NPDES) permit for discharges of storm water runoff into State surface waters (Chapter 11-55, HAR) will be obtained as required. All NPDES permit requirements will be implemented.

3. It is not anticipated that the project will involve work in, over, or under the waters of the United States.

4. All discharges related to the construction and operation of the proposed project will comply with the State's Water Quality requirements contained in Chapters 11-54 and 11-55, HAR. In accordance with County standards, all runoff due to the proposed project will be detained on-site.

5. We acknowledge the State's position that all projects must reduce, reuse and recycle to protect, restore, and sustain water quality and beneficial uses of State waters.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

EPO 15-034

February 24, 2015

Ms. Bethany Wylie, Planner
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484
Via email only: sysadmin@pbrhawaii.com

Dear Ms. Wylie:

SUBJECT: Early Consultation (EC) for County of Hawai'i Mass Transit Agency Base Yard Facility, Waiakea, South Hilo, Hawai'i TMK: (3) 2-1-013:148 POR

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your EC to our office on February 12, 2015. Thank you for allowing us to review and comment on the proposed project. The EC was routed to relevant Offices and Branches. They will provide specific comments to you if necessary. EPO recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/home/landuse-planning-review-program/. Projects are required to adhere to all applicable standard comments.

We encourage you to examine and utilize the Hawaii Environmental Health Portal. The portal provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings. The Portal is continually updated. Please visit it regularly at: https://eha-cloud.doh.hawaii.gov

You may also wish to review the revised Water Quality Standards Maps that have been updated for all islands. The Water Quality Standards Maps can be found at: http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards/.

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

c: DHO Hawaii, CWB {via email only}

PBR HAWAII & ASSOCIATES, INC.

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April 10, 2015

Ms. Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801-3378

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Aloha Ms. McIntyre,

Thank you for your letter dated February 24, 2015 (your reference no. EPO 15-034) regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We have checked the links you provided and will incorporate pertinent new information into the Draft EA.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

DAVID Y. IGE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

FORD N. FUCHIGAMI
DIRECTOR

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

IN REPLY REFER TO:
STP 8.1767

March 6, 2015

Ms. Bethany Wylie
Planner
PBR HAWAII & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Ms. Wylie:

Subject: Hawaii Mass Transit Agency Base Yard Facility
Early Consultation
Waiakea, South Hilo, Hawaii
TMK: (3) 2-1-013:148 (por.)

Our Department of Transportation's (DOT) comments on the subject project are as follows:

The Draft Environmental Assessment (DEA) should discuss and evaluate the project's contribution to the cumulative traffic impacts on State highways facilities in the area.

If there are any questions, please contact Mr. Norren Kato of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7976.

Sincerely,

FORD N. FUCHIGAMI
Director of Transportation

PBR HAWAII
& ASSOCIATES, INC.

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April 10, 2015

Mr. Ford N. Fuchigami
Director
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Attn: Mr. Norren Kato, DOT Statewide Transportation Planning Office

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Aloha Mr. Fuchigami,

Thank you for your letter dated March 6, 2015 (your reference no. STP 8.1767) regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We acknowledge that the DEA should discuss and evaluate the project's contribution to the cumulative traffic impacts on State highways facilities in the area.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

DENNIS "FRESH" ONISHI
Council Member
District 3

PHONE: (808) 961-8396
FAX: (808) 961-8912
EMAIL: *donishi@co.hawaii.hi.us*

HAWAI'I COUNTY COUNCIL
25 Aupuni Street, Hilo, Hawai'i 96720

March 9, 2015

Bethany Wylie, Planner
PBR HAWAII & Associates, INC.
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

RE: EARLY CONSULTATION FOR COUNTY OF HAWAI'I MASS TRANSIT AGENCYBASE YARD FACILITY, WAIĀKEA, SOUTH HILO, HAWAI'I (TMK (3) 2-1-013:148 POR.)

Dear Ms. Wylie,

I am writing to you with comments in regards to the proposed construction of a transit base yard facility, located in South Hilo. I appreciate your hard work and on behalf of the residents of Hawai'i County, Council District 3, I thank you.

My only comments is in regards to infrastructure and power. Assuming water and electric will be installed, I request that we plan for additional power and water to help serve uses in the existing areas, for example, the Pana'ewa Drag Strip. This would overall improve the operations and efficiency of one of our most heavily utilized public facilities.

Thank you for the opportunity to provide comments.

Sincerely,

Dennis "Fresh" Onishi
Hawai'i County Council Member

Hawai'i County is an Equal Opportunity Provider and Employer.

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& ASSOCIATES, INC.

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April 10, 2015

Councilmember Dennis "Fresh" Onishi
Hawai'i County Council
25 Aupuni Street
Hilo, Hawai'i 96720

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Councilmember Onishi,

Thank you for your letter dated March 9, 2015 regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard Facility. Your comment regarding planning for additional power and water to help serve uses in the existing area, such as the Panaewa Drag Strip has been forwarded to the MTA and the project designer, Mitsunaga & Associates, Inc.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

February 25, 2015

Ms. Bethany Wylie, Planner
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

EARLY CONSULTATION FOR COUNTY OF HAWAI'I MASS TRANSIT AGENCY BASEYARD FACILITY
WAIĀKEA, SOUTH HILO, HAWAI'I
TAX MAP KEY 2-1-013:148

We have reviewed the subject request and have the following comments.

The subject parcel does not have an existing water service with the Department. Please be informed that the parcel does not front upon a Department of Water Supply waterline and is, therefore, considered out-of-bounds. Parcels that are out-of-bounds are limited to just one (1) unit of water. One (1) unit of water allows for an average daily usage of 400 gallons served through a 5/8-inch meter and is suitable for one (1) single-family dwelling.

Therefore, the Department requests that the applicant submit estimated maximum daily water usage calculations for the proposed uses, prepared by a professional engineer licensed in the State of Hawai'i, for review and approval. The water usage calculations should include the estimated peak flow in gallons per minute and the total estimated maximum daily water usage in gallons per day. After review of the calculations, the Department will determine the appropriate service lateral and meter size required.

Based on the proposed land use, a reduced pressure type backflow prevention assembly would have to be installed on private property within five (5) feet of any meter serving the property. The installation must be inspected and approved by the Department before water service can be activated.

For your information, the Department's Standard for the required fire flow at the property's frontage is 2,000 gallons per minute with a velocity less than 10 feet per second. The fire-flow requirements for the buildings on the parcel are determined by the Fire Department.

Should there be any questions, please contact Mr. Troy Samura of our Water Resources and Planning Branch at 961-8070, extension 255.

Sincerely yours,

Quirino Antonio, Jr., P.E.
Manager–Chief Engineer

TS:dfg

. . .Water, Our Most Precious Resource . . . Ka Wai A Kane . . .

The Department of Water Supply is an Equal Opportunity provider and employer.

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printed on recycled paper

April 10, 2015

Mr. Quirino Antonio, Jr., P.E.
Manager-Chief Engineer
County of Hawai'i
Department of Water Supply
345 Kekūanaō'a Street, Suite 20
Hilo, HI 96720

Attn: Mr. Tony Samura

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Mr. Antonio,

Thank you for your letter dated February 25, 2015 regarding the early consultation for the proposed County of Hawai'i Mass Transit Authority (MTA) Base Yard Facility. As the planning consultant for the MTA, we are responding to your comments.

Thank you for confirming that the subject parcel does not have an existing water service with the Department of Water Supply. As requested, the estimated maximum daily water usage calculations for the proposed project will be submitted to the Department of Water Supply (DWS) for review and approval prior to receiving a water commitment. Before activating water service, a reduced pressure type backflow prevention assembly will be installed within five feet of the meter for inspection and approval by DWS.

We appreciate the information provided on the DWS' Standard for the required fire flow at the property's frontage and the fire flow requirements for any buildings on the project site will be determined by the Fire Department.

Thank you for participating in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

William P. Kenoi
Mayor

Darren J. Rosario
Fire Chief

Renwick J. Victorino
Deputy Fire Chief

County of Hawai'i

HAWAI'I FIRE DEPARTMENT
25 Aupuni Street • Room 2501 • Hilo, Hawai'i 96720
(808) 932-2900 • Fax (808) 932-2928

March 4, 2015

Ms. Bethany Wylie
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

SUBJECT: EARLY CONSULTATION FOR COUNTY OF HAWAII MASS TRANSIT AGENCY BASE YARD FACILITY, WAIAKEA, SOUTH HILO HAWAII TAX MAP KEY (3) 2-1-013:148 POR.

In regards to the above-mentioned project, the following shall be in accordance:

NFPA 1, UNIFORM FIRE CODE, 2006 EDITION
Note: NFPA 1, Hawai'i State Fire Code with County amendments. County amendments are identified with a preceding "C~" of the reference code.

Chapter 18 Fire Department Access and Water Supply

18.1 General. Fire department access and water supplies shall comply with this chapter.

For occupancies of an especially hazardous nature, or where special hazards exist in addition to the normal hazard of the occupancy, or where access for fire apparatus is unduly difficult, or areas where there is an inadequate fire flow, or inadequate fire hydrant spacing, and the AHJ may require additional safeguards including, but not limited to, additional fire appliance units, more than one type of appliance, or special systems suitable for the protection of the hazard involved.

18.1.1 Plans.

18.1.1.1 Fire Apparatus Access. Plans for fire apparatus access roads shall be submitted to the fire department for review and approval prior to construction.

18.1.1.2 Fire Hydrant Systems. Plans and specifications for fire hydrant systems shall be submitted to the fire department for review and approval prior to construction.

C~ 18.1.1.2.1 Fire Hydrant use and Restrictions. No unauthorized person shall use or operate any Fire hydrant unless such person first secures permission or a permit from the owner or representative of the department, or company that owns or governs that water supply or system. Exception: Fire Department personnel conducting firefighting operations, hydrant testing, and/or maintenance, and the flushing and acceptance of hydrants witnessed by Fire Prevention Bureau personnel.

18.2 Fire Department Access.

18.2.1 Fire department access and fire department access roads shall be provided and maintained in accordance with Section 18.2.

18.2.2* Access to Structures or Areas.

18.2.2.1 Access Box(es). The AHJ shall have the authority to require an access box(es) to be installed in an accessible location where access to or within a structure or area is difficult because of security.

18.2.2.2 Access to Gated Subdivisions or Developments. The AHJ shall have the authority to require fire department access be provided to gated subdivisions or developments through the use of an approved device or system.

18.2.2.3 Access Maintenance. The owner or occupant of a structure or area, with required fire department access as specified in 18.2.2.1 or 18.2.2.2, shall notify the AHJ when the access is modified in a manner that could prevent fire department access.

18.2.3 Fire Department Access Roads. (*may be referred as FDAR)

18.2.3.1 Required Access.

18.2.3.1.1 Approved fire department access roads shall be provided for every facility, building, or portion of a building hereafter constructed or relocated.

18.2.3.1.2 Fire Department access roads shall consist of roadways, fire lanes, parking lots lanes, or a combination thereof.

18.2.3.1.3* When not more than two one- and two-family dwellings or private garages, carports, sheds, agricultural buildings, and detached buildings or structures 400ft^2 (37 m^2) or less are present, the requirements of 18.2.3.1 through 18.2.3.2.1 shall be permitted to be modified by the AHJ.

18.2.3.1.4 When fire department access roads cannot be installed due to location on property, topography, waterways, nonnegotiable grades, or other similar conditions, the AHJ shall be authorized to require additional fire protection features.

18.2.3.2 Access to Building.

18.2.3.2.1 A fire department access road shall extend to within in 50 ft (15 m) of at least one exterior door that can be opened from the outside that provides access to the interior of the building. Exception: 1 and 2 single-family dwellings.

18.2.3.2.1.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13D, or NFPA 13R, the distance in 18.2.3.2.1 shall be permitted to be increased to 300 feet.

18.2.3.2.2 Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 ft (46 m) from fire department access roads as measured by an approved route around the exterior of the building or facility.

18.2.3.2.2.1 When buildings are protected throughout with an approved automatic sprinkler system that is installed in accordance with NFPA 13, NFPA 13D, or NFPA 13R, the distance in 18.2.3.2.2 shall be permitted to be increased to 450 ft (137 m).

18.2.3.3 Multiple Access Roads. More than one fire department access road shall be provided when it is determined by the AHJ that access by a single road could be impaired by vehicle congestion, condition of terrain, climatic conditions, or other factors that could limit access.

18.2.3.4 Specifications.

18.2.3.4.1 Dimensions.

C~ 18.2.3.4.1.1 FDAR shall have an unobstructed width of not less than 20ft with an approved turn around area if the FDAR exceeds 150 feet. **Exception:** FDAR for one and two family dwellings shall have an unobstructed width of not less than 15 feet, with an area of not less than 20 feet wide within 150 feet of the structure being protected. An approved turn around area shall be provided if the FDAR exceeds 250 feet.

C~ 18.2.3.4.1.2 FDAR shall have an unobstructed vertical clearance of not less then 13ft 6 in.

C~ 18.2.3.4.1.2.1 Vertical clearances may be increased or reduced by the AHJ, provided such increase or reduction does not impair access by the fire apparatus, and approved signs are installed and maintained indicating such approved changes.

18.2.3.4.1.2.2 Vertical clearances shall be increased when vertical clearances or widths are not adequate to accommodate fire apparatus.

C~ 18.2.3.4.2 Surface. Fire department access roads and bridges shall be designed and maintained to support the imposed loads (25 Tons) of the fire apparatus. Such FDAR and shall be comprised of an all-weather driving surface.

18.2.3.4.3 Turning Radius.

C~ 18.2.3.4.3.1 Fire department access roads shall have a minimum inside turning radius of 30 feet, and a minimum outside turning radius of 60 feet.

18.2.3.4.3.2 Turns in fire department access road shall maintain the minimum road width.

18.2.3.4.4 Dead Ends. Dead-end fire department access roads in excess of 150 ft (46 m) in length shall be provided with approved provisions for the fire apparatus to turn around.

18.2.3.4.5 Bridges.

18.2.3.4.5.1 When a bridge is required to be used as part of a fire department access road, it shall be constructed and maintained in accordance with county requirements.

18.2.3.4.5.2 The bridge shall be designed for a live load sufficient to carry the imposed loads of fire apparatus.

18.2.3.4.5.3 Vehicle load limits shall be posted at both entrances to bridges where required by the AHJ.

18.2.3.4.6 Grade.

C~ 18.2.3.4.6.1 The maximum gradient of a Fire department access road shall not exceed 12 percent for unpaved surfaces and 15 percent for paved surfaces. In areas of the FDAR where a Fire apparatus would connect to a Fire hydrant or Fire Department Connection, the maximum gradient of such area(s) shall not exceed 10 percent.

18.2.3.4.6.2* The angle of approach and departure for any means of fire department access road shall not exceed 1 ft drop in 20 ft (0.3 m drop in 6 m) or the design limitations of the fire apparatus of the fire department, and shall be subject to approval by the AHJ.

18.2.3.4.6.3 Fire department access roads connecting to roadways shall be provided with curb cuts extending at least 2 ft (0.61 m) beyond each edge of the fire lane.

18.2.3.4.7 Traffic Calming Devices. The design and use of traffic calming devices shall be approved the AHJ.

18.2.3.5 Marking of Fire Apparatus Access Road.

18.2.3.5.1 Where required by the AHJ, approved signs or other approved notices shall be provided and maintained to identify fire department access roads or to prohibit the obstruction thereof of both.

18.2.3.5.2 A marked fire apparatus access road shall also be known as a fire lane.

18.2.4* Obstruction and Control of Fire Department Access Road.

18.2.4.1 General.

18.2.4.1.1 The required width of a fire department access road shall not be obstructed in any manner, including by the parking of vehicles.

18.2.4.1.2 Minimum required widths and clearances established under 18.2.3.4 shall be maintained at all times.

18.2.4.1.3* Facilities and structures shall be maintained in a manner that does not impair or impede accessibility for fire department operations.

18.2.4.1.4 Entrances to fire departments access roads that have been closed with gates and barriers in accordance with 18.2.4.2.1 shall not be obstructed by parked vehicles.

18.2.4.2 Closure of Accessways.

18.2.4.2.1 The AHJ shall be authorized to require the installation and maintenance of gates or other approved barricades across roads, trails, or other accessways not including public streets, alleys, or highways.

18.2.4.2.2 Where required, gates and barricades shall be secured in an approved manner.

18.2.4.2.3 Roads, trails, and other accessways that have been closed and obstructed in the manner prescribed by 18.2.4.2.1 shall not be trespassed upon or used unless authorized by the owner and the AHJ.

18.2.4.2.4 Public officers acting within their scope of duty shall be permitted to access restricted property identified in 18.2.4.2.1.

18.2.4.2.5 Locks, gates, doors, barricades, chains, enclosures, signs, tags, or seals that have been installed by the fire department or by its order or under its control shall not be removed, unlocked, destroyed, tampered with, or otherwise vandalized in any manner.

18.3 Water Supplies and Fire Hydrants

18.3.1* A water supply approved by the county, capable of supplying the required fire flow for fire protection shall be provided to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when required by the AHJ. For on-site fire hydrant requirements see section 18.3.3.

EXCEPTIONS:

1. When facilities or buildings, or portions thereof, are completely protected with an approved automatic fire sprinkler system the provisions of section 18.3.1 may be modified by the AHJ.
2. When water supply requirements cannot be installed due to topography or other conditions, the AHJ may require additional fire protection as specified in section 18.3.2 as amended in the code.
3. When there are not more than two dwellings, or two private garage, carports, sheds and agricultural. Occupancies, the requirements of section 18.3.1 may be modified by AHJ.

18.3.2* Where no adequate or reliable water distribution system exists, approved reservoirs, pressure tanks, elevated tanks, fire department tanker shuttles, or other approved systems capable of providing the required fire flow shall be permitted.

18.3.3* The location, number and type of fire hydrants connected to a water supply capable of delivering the required fire flow shall be provided on a fire apparatus access road on the site of the premises or both, in accordance with the appropriate county water requirements.

18.3.4 Fire Hydrants and connections to other approved water supplies shall be accessible to the fire department.

18.3.5 Private water supply systems shall be tested and maintained in accordance with NFPA 25 or county requirements as determined by the AHJ.

18.3.6 Where required by the AHJ, fire hydrants subject to vehicular damage shall be protected unless located within a public right of way.

18.3.7 The AHJ shall be notified whenever any fire hydrant is placed out of service or returned to service. Owners of private property required to have hydrants shall maintain hydrant records of approval, testing, and maintenance, in accordance with the respective county water requirements. Records shall be made available for review by the AHJ upon request.

C~ 18.3.8 Minimum water supply for buildings that do not meet the minimum County water standards:

Buildings up to 2000 square feet, shall have a minimum of 3,000 gallons of water available for Firefighting.

Buildings 2001- 3000 square feet, shall have a minimum of 6,000 gallons of water available for Firefighting.

Buildings, 3001- 6000 square feet, shall have a minimum of 12,000 gallons of water available for Firefighting.

Buildings, greater than 6000 square feet, shall meet the minimum County water and fire flow requirements.

Multiple story buildings shall multiply the square feet by the amount of stories when determining the minimum water supply.

Commercial buildings requiring a minimum fire flow of 2000gpm per the Department of Water standards shall double the minimum water supply reserved for firefighting.

Fire Department Connections (FDC) to alternative water supplies shall comply with 18.3.8 (1)-(6) of *this code.*

NOTE: In that water catchment systems are being used as a means of water supply for firefighting, such systems shall meet the following requirements:

(1) In that a single water tank is used for both domestic and firefighting water, the water for domestic use shall not be capable of being drawn from the water reserved for firefighting;

(2) Minimum pipe diameter sizes from the water supply to the Fire Department Connection (FDC) shall be as follows:
   (a) 4" for C900 PVC pipe;
   (b) 4" for C906 PE pipe;
   (c) 3" for ductile Iron;
   (d) 3' for galvanized steel.

(3) The Fire Department Connection (FDC) shall:
   (a) be made of galvanized steel;
   (b) have a gated valve with 2-1/2 inch, National Standard Thread male fitting and cap;
   (c) be located between 8 ft and 16 ft from the Fire department access. The location shall be approved by the AHJ;
   (d) not be located less than 24 inches, and no higher than 36 inches from finish grade, as measured from the center of the FDC orifice;
   (e) be secure and capable of withstanding drafting operations. Engineered stamped plans may be required;
   (f) not be located more than 150 feet of the most remote part, but not less than 20 feet, of the structure being protected;
   (g) also comply with section 13.1.3 and 18.2.3.4.6.1 of *this code;*

(4) Commercial buildings requiring a fire flow of 2000gpm shall be provided with a second FDC. Each FDC shall be independent of each other, with each FDC being capable of flowing 500gpm by engineered design standards. The second FDC shall be located in an area approved by the AHJ with the idea of multiple Fire apparatus' conducting drafting operations at once, in mind.

(5) Inspection and maintenance shall be in accordance to NFPA 25.

(6) The owner or lessee of the property shall be responsible for maintaining the water level, quality, and appurtenances of the system.

EXCEPTIONS TO SECTION 18.3.8:

(1) Agricultural buildings, storage sheds, and shade houses with no combustible or equipment storage.

(2) Buildings less than 800 square feet in size that meets the minimum Fire Department Access Road requirements.

(3) For one and two family dwellings, agricultural buildings, storage sheds, and detached garages 800 to 2000 square feet in size, and meets the minimum Fire Department Access Road requirements, the distance to the Fire Department Connection may be increased to 1000 feet.

(4) For one and two family dwellings, agricultural buildings, and storage sheds

greater than 2000square feet, but less than 3000 square feet and meets the minimum Fire Department Access Road requirements, the distance to the Fire Department Connection may be increased to 500 feet.

(5) For buildings with an approved automatic sprinkler system, the minimum water supply required may be modified.

If there are any questions regarding these requirements, please contact the Fire Prevention Bureau at (808) 932-2911.

DARREN J. ROSARIO
Fire Chief

RP/lc

PBR HAWAII
& ASSOCIATES, INC.

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R. STAN DUNCAN, ASLA
President

RUSSELL Y. J. CHUNG, FASLA, LEED®AP BD+C
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Tel/Cel: (808) 315-6878

printed on recycled paper

April 10, 2015

Mr. Darren J. Rosario
Fire Chief
County of Hawaii
Hawaii Fire Department
25 Aupuni Street, Room 2501
Hilo, Hawai'i 96720

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Chief Rosario,

Thank you for your letter dated March 4, 2015 regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard Facility and the information of the NFPA Uniform Fire Code, 2006 Edition.

Thank you for your Department's participation in the environmental review process. Your letter and a citation to the Uniform Fire Code will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

William P. Kenoi
Mayor

Susan Akiyama
Housing Administrator

Anne M. Bailey
Assistant Housing Administrator

County of Hawai'i
Office of Housing and Community Development
50 Wailuku Drive • Hilo, Hawai'i 96720 • (808) 961-8379 • Fax (808) 961-8685
KONA: 74-5044 Ane Keohokalole Highway • Kailua-Kona, Hawai'i 96740
(808) 323-4305 • Fax (808) 323-4301

February 19, 2015

Bethany Wylie, Planner
PBR HAWAII & ASSOCIATES, INC.
1001 Bishop Street, Suite 650
Honolulu, Hawai`i 96813-3484

SUBJECT: EARLY CONSULTATION FOR COUNTY OF HAWAI`I MASS TRANSIT AGENCY BASE YARD FACILITY, WAIĀKEA, SOUTH HILO, HAWAI`I (TMK: (3) 2-1-013:148 POR.)

The Office of Housing and Community Development has no comments at this time. Thank you for the opportunity to comment.

Susan K. Akiyama
Housing Administrator

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2321pasr

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February 12, 2015

Mr. Stephen Arnett, Administrator
County of Hawai'i
Office of Housing and Community Development
50 Wailuku Drive
Hilo, Hawai'i 96720

SUBJECT: EARLY CONSULTATION FOR COUNTY OF HAWAI'I MASS TRANSIT AGENCY BASE YARD FACILITY, WAIĀKEA, SOUTH HILO, HAWAI'I (TMK (3) 2-1-013:148 POR.)

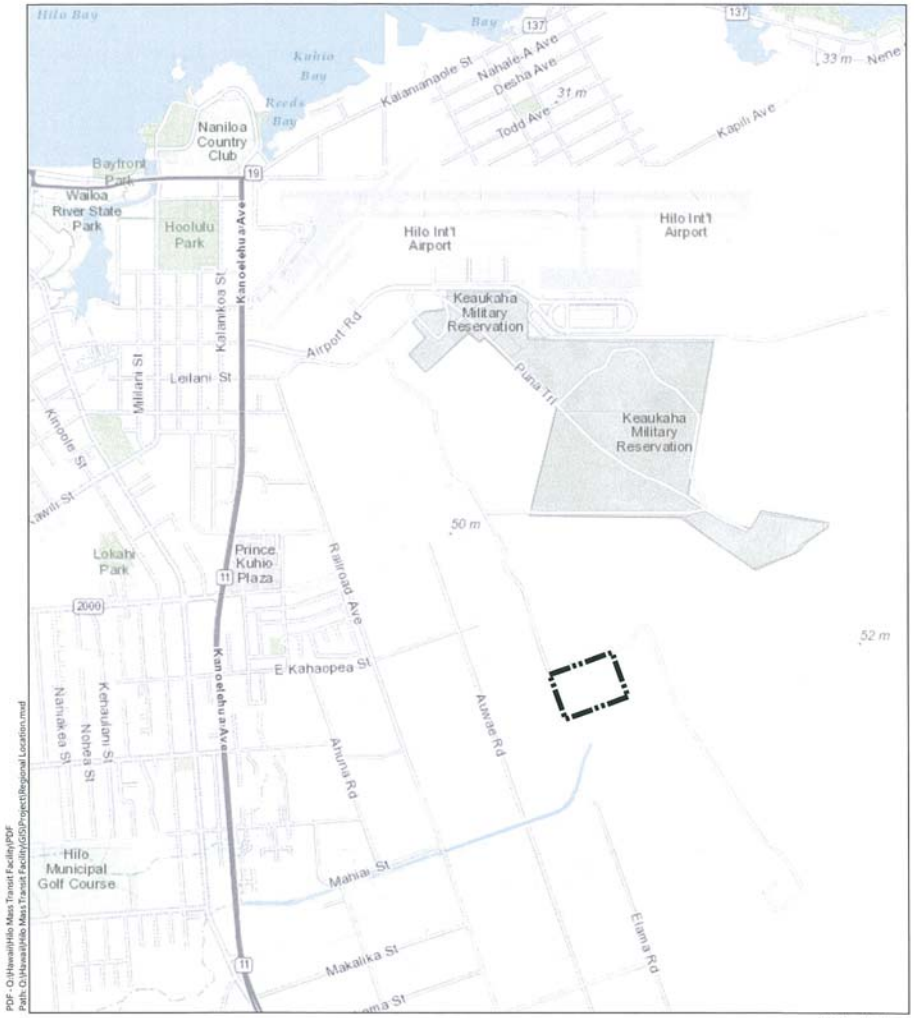
Dear Mr. Arnett,

The County of Hawai'i Mass Transit Agency is proposing to construct a transit base yard facility on a five acre portion of TMK (3) 2-1-013:148 in Waiākea, South Hilo (see enclosed map). The property is owned by the State of Hawai'i and some of the funding will come from the Federal Transit Administration. Therefore, this project is being assessed under the provisions of Chapter 343, Hawai'i Revised Statutes; Title 11, Chapter 200, Hawai'i Administrative Rules; and the National Environmental Policy Act of 1969, as amended. This letter is to advise you and your staff of the conceptual plans and consult with you regarding the proposed project.

The Mass Transit Agency provides island-wide public transportation for the County of Hawai'i, administrative support to the Hawai'i County Transportation Commission, and oversees taxicab operators. Currently, the Mass Transit Agency is located on Railroad Avenue in the Schultz Siding facility where it shares limited space with the Department of Public Works. The Agency has grown significantly over the years and is in need of its own facility to improve efficiency and the work environment.

Development of the proposed transit base yard facility will include construction of office space for administrative staff who oversee daily transit operations and a garage for repair and maintenance of transit vehicles. The base yard will have space to accommodate parking for the fleet of 55 transit buses and for employees' personal vehicles. The proposed base yard site is not known to be located within designated floodplains, floodways, wetlands, or critical habitats.

With this letter, we seek your comments as to whether the proposed transit base yard may have an impact on any of your existing or proposed projects, plans, policies, or programs. If you have any information that you feel is relevant to share or comment on as it applies to this project, please submit a written response within 30 days. If you have any questions, do not hesitate to contact me at (808) 521-5631. Thank you for taking the time to review the information provided.



DATE: 1/22/2015

LEGEND

Proposed 5-acre Base Yard within 40-acre TMK (3) 2-1-013:148

Tax Map Key Parcels

Regional Location

MASS TRANSIT AGENCY BASE YARD FACILITY

County of Hawai'i Dept. of Public Works — Island of Hawai'i

North — Linear Scale (feet) 0 750 1,500 3,000 — PBR HAWAII & ASSOCIATES, INC.

Source: County of Hawai'i, 2014, ESRI Basemaps.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

PDF: Q:\Hawaii\Hilo Mass Transit Facility\PDF
Path: Q:\Hawaii\Hilo Mass Transit Facility\GIS\Project\Regional Location.mxd

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April 10, 2015

Ms. Susan K. Akiyama
Housing Administrator
County of Hawaii
Office of Housing and Community Development
50 Wailuku Drive
Hilo, Hawai'i 96720

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Ms. Akiyama,

Thank you for your letter dated February 19, 2015 regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard Facility noting that your Office does not have any comments at this time.

Thank you for your Office's participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

William P. Kenoi
Mayor

West Hawai'i Office
74-5044 Ane Keohokalole Hwy
Kailua-Kona, Hawai'i 96740
Phone (808) 323-4770
Fax (808) 327-3563

County of Hawai'i
PLANNING DEPARTMENT

Duane Kanuha
Director

Bobby Command
Deputy Director

East Hawai'i Office
101 Pauahi Street, Suite 3
Hilo, Hawai'i 96720
Phone (808) 961-8288
Fax (808) 961-8742

March 12, 2015

Ms. Bethany Wylie, Planner
PBR Hawai'i & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

Dear Ms. Wylie:

SUBJECT: Pre-Consultation for Draft Environmental Assessment
Project: County of Hawai'i Mass Transit Agency Base Yard Facility
TMK: (3) 2-1-013:148; Waiākea, South Hilo, Hawai'i

Thank you for your letter dated February 12, 2015, requesting comments from this office regarding the preparation of a Draft Environmental Assessment (DEA) for the subject project.

The County of Hawai'i is proposing to construct a transit base yard facility. Development of the proposed transit base yard facility will include construction of office space for administrative staff who oversee daily transit operations and a garage for repair and maintenance of transit vehicles. The base yard will have space to accommodate parking for the fleet of fifty-five (55) transit buses and for employees' personal vehicles.

The subject property is zoned Agricultural (A-20a) by the County. The property is situated within the State Land Use Agricultural District. In addition, the Hawai'i County General Plan Land Use Pattern Allocation Guide (LUPAG) Map designates the parcels as Important Agricultural Land and Extensive Agriculture. The subject parcel is not located within the Special Management Area.

The subject parcel is located within the 5-mile airport radius of the Hilo International Airport. As such, please contact the Hawai'i Department of Transportation, Airport Division for their review and comments, and include a discussion of airport hazards that may be related to the proposed development in the DEA.

Section 25-5-72 (c) (4) of the Hawai'i County Code (Zoning) states that community buildings, as permitted under section 25-4-11, may be permitted in the Agricultural district, provided that a special permit is obtained. In addition, Section 25-4-11 (c) states in part that plan approval is

required for any public use, structures, and buildings and community buildings. Therefore, the transit base yard facility will require a special permit and plan approval.

We have no further comments to offer, at this time. However, please provide our department with a copy of the Draft Environmental Assessment for our review and comment.

If you have any questions, or if you need further assistance, please feel free to contact Bethany Morrison of this office at (808) 961-8138.

Sincerely,

DUANE KANUHA
Planning Director

BJM:cs
\\COH33\planning\public\wpwin60\Bethany\EA-EIS Review\preconsultdraftea Hawaii Mass Transit base yard.doc

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April 10, 2015

Mr. Duane Kanuha
Director
County of Hawai‘i
Planning Department
101 Pauahi Street, Suite 3
Hilo, HI 96720

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI‘I (TMK: (3) 2-1-013:148 (POR)

Dear Mr. Kanuha,

Thank you for your letter dated March 12, 2015 regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We can provide the following responses to your comments:

1. Since the proposed project is located with the State Agricultural Land Use District boundaries, a Special Permit will be sought from the County. A Plan Approval will also be sought from the County.

2. We acknowledge and appreciate confirmation of the parcel’s LUPAG and SMA status.

3. We spoke with a representative of the the Hawai‘i Department of Transportation, Airport Division on April 2, 2015. We will make the Draft EA available specifically to the Airports Division for comment. Additionally, the Draft EA will include a discussion of airport hazards that are related to the proposed facility.

Thank you for your Department’s participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai‘i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

William P. Kenoi
Mayor

Harry S. Kubojiri
Police Chief

Paul K. Ferreira
Deputy Police Chief

County of Hawai`i
POLICE DEPARTMENT
349 Kapi'olani Street • Hilo, Hawai'i 96720-3998
(808) 935-3311 • Fax (808) 961-2389

February 20, 2015

PBR Hawai'i & Associates, Inc.
Attention: Ms. Bethany Wylie, Planner
1719 Haleloke Street
Hilo, HI 96720-1553

Dear Ms. Wylie:

SUBJECT: EARLY CONSULTATION FOR COUNTY OF HAWAI'I MASS TRANSIT AGENCY BASE YARD FACILITY, WAIAKEA, SOUTH HILO, HAWAI'I TMK: (3) 2-1-013:148 POR.

Staff, upon reviewing the provided documents, does not anticipate any significant impact to traffic and/or public safety concerns.

Thank you for allowing us the opportunity to comment.

If you have any questions, please contact Captain Richard Sherlock, S. Hilo Patrol, at 961-2214.

Sincerely,

HENRY J. TAVARES, JR.
ASSISTANT POLICE CHIEF
AREA I OPERATIONS

RS:lli
150108

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& ASSOCIATES, INC.

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Managing Director - Hilo

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April 10, 2015

Mr. Henry Tavares, Jr.
Assistant Police Chief
County of Hawaii
Police Department
349 Kapiolani Street
Hilo, Hawai'i 96720-3998

Attn: Captain Richard Sherlock, South Hilo Patrol

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Chief Tavares,

Thank you for your letter dated February 20, 2015 regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard Facility and your staff's determination that it does not anticipate any significant impact to traffic and/or public safety concerns.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

DAVID Y. IGE
GOVERNOR OF HAWAII

JESSICA E. WOOLEY
DIRECTOR

STATE OF HAWAI'I
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
Department of Health
235 South Beretania Street, Suite 702
Honolulu, Hawai'i 96813
Telephone (808) 586-4185
Facsimile (808) 586-4186
Email: oeqchawaii@doh.hawaii.gov

File No.
OEQC 15-037
Hawaii –Base Yard Facility

March 3, 2015

PBR Hawaii
Attn: Bethany Wylie, Planner
1001 Bishop St., Suite 650
Honolulu, HI 96813-3484

Dear Ms. Wylie,

SUBJECT: Early Consultation Request for County of Hawaii Mass Transit Agency Base Yard Facility, Waiakea, South Hilo, Hawaii

The Office of Environmental Quality Control has reviewed the brief information contained in your February 12, 2015 letter about the subject project, and offers the following comments for your consideration.

We acknowledge your present assessment of the subject project under the provisions of Chapter 343, Hawaii Revised Statutes and Chapter 11-200, Hawaii Administrative Rules. As an Agency Action by the County of Hawaii Mass Transit Agency, they would be considered the "Proposing and Determination agency" that initiates the environmental review process by making the determination on 1) whether the project qualifies for an exemption, 2) whether a Finding of No Significant Impact is anticipated and then prepares a Draft Environmental Assessment (EA) for public review and comment, or 3) based on their judgment and experience, whether to by-pass the EA step and proceed directly to the Environmental Impact Statement (EIS) Preparation Notice step if significant effects may or will occur.

In the event that the agency makes such a determination to prepare an EIS, either initially or after significant impacts are identified in the Final EA, then the County Mayor, as the "accepting authority," would determine the acceptability of the subsequent Final EIS.

Thank you for the opportunity to comment. If you have any questions as you navigate the environmental review process, please consult our website at http://health.hawaii.gov/oeqc (see in particular the link to the Environmental Assessment Preparation Toolkit on the right panel) or contact our office at (808) 586-4185.

Sincerely,

Jessica Wooley

Jessica E. Wooley, Director
Office of Environmental Quality Control

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& ASSOCIATES, INC.

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April 10, 2015

Ms. Jessica E. Wooley
Director
State of Hawaii
Office of Environmental Quality Control
Department of Health
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Ms. Wooley,

Thank you for your letter dated March 3, 2015 (your reference no. OEQC 15-037 Hawaii – Base Yard Facility) regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We appreciate the information provided and can confirm that the MTA anticipates a Finding of No Significant Impact and will be submitting a Draft Environmental Assessment for public review and comment.

Thank you for your Office's participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

PHONE (808) 594-1888

FAX (808) 594-1938

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
560 N. NIMITZ HWY., SUITE 200
HONOLULU, HAWAI'I 96817

HRD15/7384

February 23, 2015

Ms. Bethany Wylie
Planner
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawai'i 96813-3484

Re: Early Consultation for County of Hawai'i Mass Transit Agency Base Yard Facility
Waiākea Ahupua'a, Hilo Moku, Hawai'i
TMK: (3) 2-1-013:148, POR

Aloha Ms. Wylie:

The Office of Hawaiian Affairs (OHA) is in receipt of your letter of February 12, 2015 requesting early consultation for the construction of the County of Hawai'i Mass Transit Agency Base Yard Facility. OHA has no comments or concerns for inclusion in the environmental assessment (EA) at this time but would like to be included in the review of the draft EA.

Mahalo for the opportunity to consult at this early stage of the project. Should you have any questions, please contact Jerry B. Norris at 594-0227 or by email at jerryn@oha.org.

'O wau iho nō me ka 'oia 'i'o,

Kamana'opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KC:jbn

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& ASSOCIATES, INC.

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April 10, 2015

Mr. Kamanaopono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer
State of Hawaii
Office of Hawaiian Affairs
560 N. Nimitz Hwy., Suite 200
Honolulu, Hawaii 96817

Attn: Mr. Jerry B. Norris

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Aloha Mr. Crabbe,

Thank you for your letter dated February 23, 2015 regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We acknowledge that OHA has no comments or concerns for inclusion in the Draft Environmental Assessment (DEA) but would like to be included in the DEA.

Thank you for your Department's participation in the environmental review process, and for responding to our subsequent request for assistance in identifying cultural practitioners who may be aware of cultural practices on the project site. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: OHA Trustee Robert K. Lindsey, Jr.
Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

OFFICE OF PLANNING
STATE OF HAWAII

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

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GOVERNOR

LEO R. ASUNCION
ACTING DIRECTOR
OFFICE OF PLANNING

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: http://planning.hawaii.gov/

Ref. No. P-14655

February 19, 2015

Ms. Bethany Wylie, Planner
PBR Hawaii
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Ms. Wylie:

Subject: Early Consultation for County of Hawaii Mass Transit Agency Baseyard Facility, Waiakea, South Hilo, Hawaii TMK: 4-4-005:008 and 009

With regard to the proposed project, the Office of Planning offers the following comments:

1. Inadequate information regarding existing land use, zoning, and permitting was provided to allow any meaningful comments to be offered at this time. The proposed use is not permitted within the State Agricultural District.

2. If the source of the federal funding is from the Federal Transit Administration Federal Transit – Capital Improvement Grants program, Catalog of Federal Domestic Assistance (CFDA) number 20.500, then Coastal Zone Management (CZM) federal consistency review will be required. Please contact John Nakagawa of our Hawaii CZM Program at 587-2878 or jnakagaw@dbedt.hawaii.gov for information about the federal consistency review procedures and requirements.

Thank you for the opportunity to review this project.

Sincerely,

Leo R. Asuncion
Acting Director

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& ASSOCIATES, INC.

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April 10, 2015

Mr. Leo Asuncion
Acting Director
State of Hawaii
Office of Planning
P.O. Box 2359
Honolulu, Hawaii 96804

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Mr. Asuncion,

Thank you for your letter dated February 19, 2015 (your reference no. P-14655) regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We can provide the following responses to your comments:

1. Since the proposed project is located with the State Agricultural Land Use District boundaries, a Special Permit will be sought from the County.
2. It is acknowledged that CZM Federal Consistency Review will be required and coordinated with Mr. John Nakagawa.

Thank you for your Office's participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

OFFICE OF PLANNING
STATE OF HAWAII

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
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DAVID Y. IGE
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LEO R. ASUNCION
ACTING DIRECTOR
OFFICE OF PLANNING

Telephone: (808) 587-2846
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Ref. No. P-14674

March 9, 2015

Ms. Bethany Wylie
PBR HAWAII & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Ms. Wylie:

Subject: Pre-Assessment Consultation for County of Hawaii Mass Transit Agency Baseyard Facility, Waiakea, South Hilo, Hawaii; TMK: (3) 2-1-013:148 (por)

Thank you for the opportunity to provide comments on the pre-consultation request for a Draft Environmental Assessment (Draft EA) on the Hawaii County Mass Transit Agency Baseyard Facility, transmitted to our office by letter, dated February 12, 2015.

It is our understanding that this project proposes to develop a transit base yard facility that can accommodate a fleet of 55 transit buses, the construction of office space for administrative support, and a garage for repair and maintenance of transit vehicles. This facility will replace the current transit facility which is limited in space and is shared with the County of Hawaii, Department of Public Works.

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. OP provides technical assistance to state and county agencies in administering the statewide planning system in Hawaii Revised Statutes (HRS) Chapter 226, the Hawaii State Plan. The Hawaii State Plan provides goals, objectives, priorities, and priority guidelines for growth, development, and the allocation of resources throughout the State. The Hawaii State Plan includes diverse policies and objectives of state interest including but not limited to the economy, agriculture, the visitor industry, federal expenditure, the physical environment, facility systems, socio-cultural advancement, climate change adaptation, and sustainability.

   The Draft EA should include an analysis that addresses whether the proposed project conforms or is in conflict with the objectives, policies, and priority guidelines listed in the Hawaii State Plan.

2. The coastal zone management area is defined as "all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the U.S. territorial sea" see HRS § 205A-1 (definition of "coastal zone management area").

   HRS Chapter 205A requires all State and county agencies to enforce the coastal zone management (CZM) objectives and policies. The assessment on compliance with HRS Chapter 205A is an important component for satisfying the requirements of HRS Chapter 343. The Draft EA shall include an assessment as to how the proposed project conforms to the CZM objectives and its supporting policies set forth in HRS § 205A-2. These objectives and policies include: recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, public participation, beach protection, and marine resources.

3. According to data sources available to OP, this parcel lies within the Wailoa watershed. This watershed in South Hilo is subject annually to heavy rainfall and is exposed to a range of human activities from agriculture, urban development, and activity along the shoreline. The Draft EA should consider watershed protection and management.

   OP has created the Hawaii Watershed Guidance to provide direction on methods to safeguard Hawaii's watersheds and implement watershed plans. This guidance provides a number of management measures that address polluted runoff from urban activities, and summary and links to management measures that may be implemented to minimize coastal nonpoint pollution impact. Although this parcel is zoned as Agriculture, the nonpoint pollution impacts from the proposed baseyard may affect the urbanized region of South Hilo. For more detail on urban polluted runoff control methods, please examine the management measures listed for Urban Runoff - Section B, pages 120-122. The document can be viewed or downloaded from the Office of Planning website at http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI Watershed Guidance Final.pdf.

4. OP has reviewed the maps of the proposed project site and compared them to known coastal resources in the area: the parcel is approximately three miles from the nearshore waters of Hilo Bay, and the parcel appears to be heavily vegetated with limited drainage infrastructure. The vision for this parcel is develop it into a heavy vehicle baseyard for transit vehicles. Development and land use activities can create erosion, increased stormwater runoff, and pollution that cause direct, secondary, and

cumulative impacts to Hawaii's natural resources. Therefore, a stormwater impact evaluation should be considered for inclusion in the Draft EA.

Please consider OP's Stormwater Impact Assessment in your stormwater impact evaluation for this project. This document can be used to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff occurrences. Mitigation measures and best management practices (BMP) listed in this guidance can be applied to water runoff strategies to prevent damage to coastal ecosystems. This document will assist in integrating stormwater impact assessment within the planning and environmental review process of a project. The document can be found at http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_stormwater_impact_assessments_guidance.pdf.

5. Because this proposal calls for new development, please consider Low-Impact Development (LID) design practices in the planning process. The use of LID design and BMP's will be an effective means to expedite the permitting process, reduce construction costs, and reduce operation and maintenance overhead. LID techniques promote a range of structural BMP's for stormwater control management and urban layout that minimizes negative impacts to the environment. LID techniques can be classified as: the preservation of natural features and conservation design, the reduction of impervious cover, and utilizing natural features and source control for stormwater management. OP has devised a guidance document where these design practices can be found: Low Impact Development, A Practitioners Guide. For a complete list of LID - Best Management Practices, please examine Section 1.7, pgs. 1-4 to 1-11. This guidance can be viewed or downloaded from the OP website at http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf

If you have any questions regarding this comment letter, please contact Josh Hekekia of our office at 587-2845.

Sincerely,

Leo R. Asuncion
Acting Director

PBR HAWAII
& ASSOCIATES, INC.

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April 10, 2015

Mr. Leo Asuncion
Acting Director
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P.O. Box 2359
Honolulu, Hawaii 96804

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Mr. Asuncion,

Thank you for your letter dated March 9, 2015 (your reference no. P-14674) regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We can provide the following responses to your comments:

1. The Draft EA will include an analysis that addresses whether the proposed project conforms to or is in conflict with relevant objectives, policies and priority guidelines of the Hawaii State Plan.
2. The Draft EA will also include an analysis that addresses whether the proposed project conforms to or is in conflict with relevant objectives and policies of the Coastal Zone Management.
3. As recommended, the Draft EA will address watershed protection, including the management measures listed for Urban Runoff – Section B, pages 120-122 of OP's Hawaii Watershed Guidance.
4. As recommended, the Draft EA will also include a stormwater impact evaluation based on OP's Stormwater Impact Assessment.
5. As recommended, the project civil engineer has been asked to consider Low-Impact Development (LID) design practices in the planning process, including those provided in OP's Low Impact Development, A Practitioner's Guide.

Thank you for your Office's participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

In Reply Refer To:
01EPIF00-2015-TA-0163

MAR 16 2015

Ms. Bethany Wylie
PBR Hawaii
1719 Haleloke Street
Hilo, Hawaii 96720-1553

Subject: Technical Assistance for the Proposed County of Hawaii Mass Transit Agency Base Yard Facility, Waiakea, South Hilo, Hawaii

Dear Ms. Wylie:

The U.S. Fish and Wildlife Service (Service) received your correspondence on February 13, 2015, requesting comments on the County of Hawaii Mass Transit Agency proposal to construct a transit base yard facility on a five acre portion of TMK (3) 2-1-013:148 in Waiakea, South Hilo, Hawaii. Development of the proposed transit base yard would include construction of office space for administrative staff who oversee daily transit operations and a garage for repair and maintenance of transit vehicles. The base yard will have space to accommodate parking for the fleet of 55 transit buses and for employees' personal vehicles.

Based on information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Project, there are five listed species in the vicinity of the project area: the endangered Hawaiian hawk (*Buteo solitarius*), Hawaiian hoary bat (*Lasiurus cinereus semotus*), Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*), and Blackburn's sphinx moth (*Manduca blackburni*), and the threatened Newell's shearwater (*Puffinus auricularis newelli*). There is no critical habitat in the vicinity of the project area.

To help you minimize potential impacts to listed species, the Service is providing you the following avoidance and minimization measures. Please note that implementation of these measures does not ensure that impacts to listed species can be avoided, and further coordination with the Service on compliance with the ESA may be required.

Hawaiian hawk
Loud, irregular and unpredictable activities, such as using heavy equipment or building a structure, near an endangered Hawaiian hawk nest may cause nest failure. Harassment of Hawaiian hawk nesting sites can alter feeding and breeding patterns or result in nest or chick

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abandonment. Nest disturbance can also increase exposure of chicks and juveniles to inclement weather or predators. To avoid impacts to Hawaiian hawks we recommend avoiding brush and tree clearing during their breeding season (March through September). If you must clear the property during the Hawaiian hawk breeding season, we recommend a nest search of the area of the proposed construction site and surrounding area should be conducted by a qualified ornithologist immediately prior to the advent of construction activities. Surveys should ensure that construction activity will not occur within 1,600 feet of any Hawaiian hawk nest.

Hawaiian hoary bat
The Hawaiian hoary bat is known to occur across a broad range of habitats throughout the State of Hawaii. This bat roosts in both exotic and native woody vegetation and, while foraging, leaves young unattended in "nursery" trees and shrubs. If trees or shrubs suitable for bat roosting are cleared during the Hawaiian hoary bat breeding season (June 1 to September 15), there is a risk that young bats that cannot yet fly on their own could inadvertently be harmed or killed. As a result, the Service recommends that woody plants greater than 15 feet tall should not be removed or trimmed during the Hawaiian hoary bat breeding season. Additionally, Hawaiian hoary bats forage for insects from as low as three feet to higher than 500 feet above the ground. When barbed wire is used in fencing, Hawaiian hoary bats can become entangled. The Service, therefore, recommends that barbed wire not be used for fencing as part of this proposed action.

Seabirds
Hawaiian petrels and Newell's shearwaters (collectively known as seabirds) may transit over the project area when flying between the ocean and nesting sites in the mountains during their breeding season (March through November). Seabird fatalities resulting from collisions with artificial structures that extend above the surrounding vegetation have been documented in Hawaii where high densities of transiting seabirds occur. Additionally, artificial lighting such as flood lighting for construction work and site security, can adversely impact seabirds by causing disorientation which may result in collision with utility lines, buildings, fences and vehicles. Fledging seabirds are especially affected by artificial lighting and have a tendency to exhaust themselves while circling the light sources and become grounded. Too weak to fly, these birds become vulnerable to depredation by feral predators such as small Indian mongoose (*Herpestres auropunctatus*), cats (*Felis catus*), and dogs (*Canis familiaris*). We therefore recommend avoiding or minimizing use of artificial lighting and avoiding night work if possible. If artificial illumination must be used we recommend this be shielded so the bulb is not visible at or above bulb-height. If night work must be conducted this should take place outside the sea bird fledging season (September 15 through December 15) and should utilize shielded lighting.

Blackburn's sphinx moth
The Blackburn's sphinx moth could potentially be in the vicinity of the proposed project area. Adult moths feed on nectar from native plants, including beach morning glory (*Ipomoea pes-caprae*), iliee (*Plumbago zeylanica*), and maiapilo (*Capparis sandwichiana*); larvae feed upon non-native tree tobacco (*Nicotiana glauca*) and native aiea (*Nothocestrum latifolium*). To pupate, the larvae burrow into the soil and can remain in a state of torpor for up to a year (or more) before emerging from the soil. Soil disturbance can result in death of the pupae. The Service recommends that a qualified biologist survey areas of proposed construction activities for Blackburn's sphinx moth and its host plants prior to work initiation. We recommend these surveys be conducted during the wettest portion of the year (usually November-April or several weeks after a significant rain) and immediately prior to construction. Surveys should include

searches for eggs, larvae, and signs of larval feeding (chewed stems, frass, or leaf damage). Any host plants of Blackburn's sphinx moth identified should not be cut or disturbed.

Thank you for your efforts to conserve listed species and native habitats. Please contact Fish and Wildlife Biologist Jay Nelson (808-792-9441) if you have any questions or for further guidance.

Sincerely,

Michelle Bogardus
Island Team Leader
Maui Nui and Hawaii Island

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April 10, 2015

Ms. Michelle Bogardus
Island Team Leader
U.S. Fish and Wildlife Service
Maui Nui and Hawaii Island
Milepost 6 Mokulele Highway
Kihei, Hawai'i 96793

Attn: Mr. Jay Wilson

SUBJECT: EARLY CONSULTATION FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Ms. Bogardus:

Thank you for your letter dated March 16, 2015 (your reference no. 01EPIF00-2015-TA-0163) regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. As the planning consultant for the MTA, we are responding to your comments.

We appreciate your participation in the environmental review process and the avoidance and minimization measures you have provided regarding the five species protected by the Endangered Species Act (ESA) that may occur within, or transit through, the proposed area. We will implement these minimization measures and continue to coordinate with the U.S. Fish and Wildlife Service to ensure compliance with the ESA.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Draft EA.

Sincerely,

PBR HAWAII

Bethany Wylie, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

Appendix C

ARCHAEOLOGICAL ASSESSMENT

1102-040915

ARCHAEOLOGICAL ASSESSMENT

MASS TRANSIT AGENCY BASEYARD

WAIAKEA AHUPUAʻA, SOUTH HILO DISTRICT

ISLAND OF HAWAIʻI

TMK: [3] 2-1-13: PORTION 148

HAUN & ASSOCIATES

ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL RESOURCE MANAGEMENT SERVICES

73-1168 KAHUNA AʻO ROAD, KAILUA-KONA HI 96740

PHONE: 808-325-2402 FAX: 808-325-1520

1102-040915

ARCHAEOLOGICAL ASSESSMENT
MASS TRANSIT AGENCY BASEYARD
WAIAKEA AHUPUA'A,
SOUTH HILO DISTRICT
ISLAND OF HAWAI'I
TMK: [3] 2-1-13: PORTION 148

Prepared by:

Alan E. Haun, Ph.D.
and
Dave Henry, B.S.

Prepared for:

PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
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April 2015

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MANAGEMENT SUMMARY

Haun & Associates has completed an Archaeological Assessment of an approximately 5.0 acre portion of the 40.0 acre TMK: (3) 2-1-13:148 located in Waiakea Ahupuaʻa, South Hilo District, Island of Hawaiʻi. The objective of the survey is to satisfy historic preservation regulatory review requirements of the National Historic Preservation Act Section 106 and the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD) assessment survey requirements contained within Hawaiʻi Administrative Rules, Title 13, DLNR, Subtitle 13, State Historic Preservation Rules.

The survey revealed that extensive bulldozer disturbance has impacted large portions of the project area. No sites or features are present in the subject parcel and no further work is recommended.

Cover photo: Overview of project area, view to east-northeast

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INTRODUCTION

At the request of the PBR Hawaii & Associates, Inc., Haun & Associates has prepared an archaeological assessment for a five (5.0) acre portion of the 40 acre TMK: (3) 2-1-13:148, in Waiakea Ahupuaʻa, South Hilo District, Island of Hawaiʻi. (**Figure 1** and **Figure 2**). The assessment was conducted in conjunction with an Environmental Assessment for a Mass Transit Agency Base Yard and Maintenance Facility in Hilo. The objective of the survey is to satisfy historic preservation regulatory review requirements of the National Historic Preservation Act Section 106 and the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD) assessment survey requirements contained within Hawaiʻi Administrative Rules, Title 13, DLNR, Subtitle 13, State Historic Preservation Rules.

No archaeological sites or features were identified during the survey, therefore the project is documented as an archaeological assessment pursuant to Chapter 13-284-5(5A). As required, this report contains a description of the project area, field methods and a brief background description.

PROJECT AREA DESCRIPTION

The project area is a roughly rectangular-shaped parcel located in the northwestern corner of Parcel 148 (**Figure 3**). The project area ranges in elevation from approximately 100 to 105 ft and is bordered along the north by the Panaewa Drag Strip Road. A 2.0 meter high bulldozed berm of soil and stones extends along the northern project boundary, south of the road. The area north of the road is an active quarry.

The examination of the project area indicates that approximately 2.7 acres (54%) of the project area has been impacted by bulldozer disturbance (**Figure 4**)**.** This is evidenced by the mechanically leveled surface and push piles of soil stone and debris. The debris was likely dumped in the area by local residents. Examples of this disturbance are depicted in **Figure 5** and **Figure 6**. The tax map of the area (see **Figure 2**), indicates that Parcel 148 functioned as a County of Hawaiʻi quarry and borrow pit site.

The remaining 2.3 acres of the project area are relatively undisturbed. The vegetation in the parcel is a mix of indigenous and introduced plant species including *Uluhe* (*Dicranopteris linearis*), *Ōhiʻa Lehua* (*Metrosideros polymorpha*), *Hala* (*Pandanus tectorius*), *Hala Pepe* (*Pleomele* spp), *Ti (Cordyline fruticosa*), Trumpet Tree (*Cecropia obtusifolia), Kaunaʻoa* (*Cuscuta sandwiciana* or *Cassytha filiformis*), Bamboo Orchid (*Arundina graminifolia*), Octopus Tree (*Schefflera actinophylla*), Albizia (*Paraserianthes falcataria*), Rattlepod (*Crotalaria* spp), Wedelia (*Wedelia trilobata*), Sleeping Grass (*Mimosa pudica*), Rose Myrtle (*Rhodomyrtus tomentosa*), Marcanga (*Macaranga* spp), Koster's Curse (*Clidemia hirta*), *Koa haole* (*Leucaena leucocephala*), Miconia (*Miconia calvescens*), Giant Reed (*Arundo donax*), Philippine Ground Orchid (*Spathoglottis plicata*), Guava (*Psidium guajava*), Lantana (*Lantana camara*), Java Plum (*Syzygium cumini*) and Molasses Grass (*Melinis minutiflora*). An example of the project area vegetation is presented in **(Figure 7)**.

A heavily vegetated linear berm is located in the east-central portion of the parcel, oriented in an east-northeast by west-southwesterly direction (see **Figure 4**). The berm is approximately 100 meters long, 3.0 meters wide and 1.0 meters in height. An excavated depression parallels the berm on the north side, likely representing the source of the berm material (**Figure 8**). The area to the west of the berm has been impacted by bulldozer disturbance.

Figure 1. Portion of 2013 USGS 7.5' Hilo quadrangle showing project area

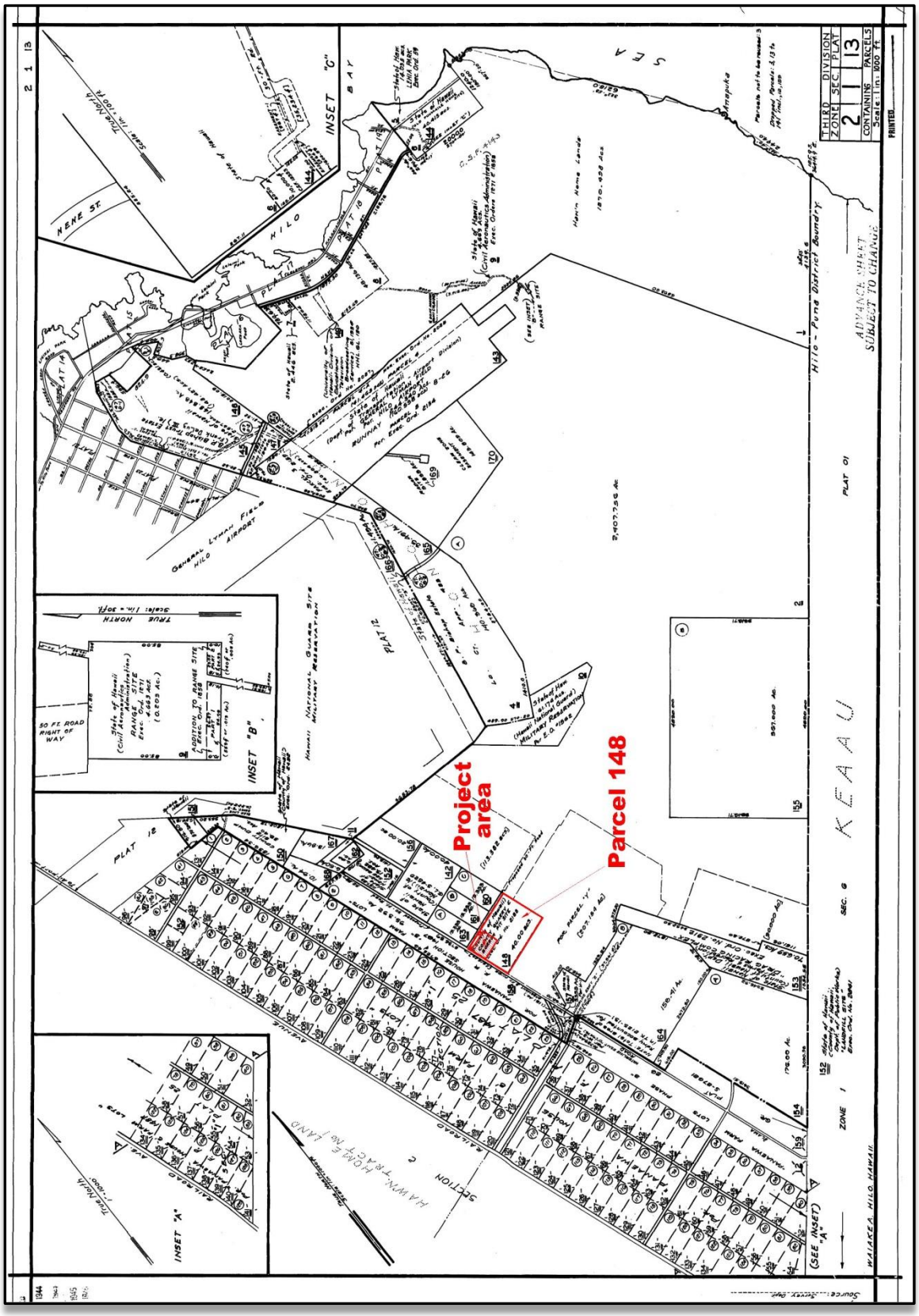

Figure 2. Tax Map Key 2-1-13 showing project area

Figure 3. January 21, 2013 aerial photograph of project area (from Google Earth)

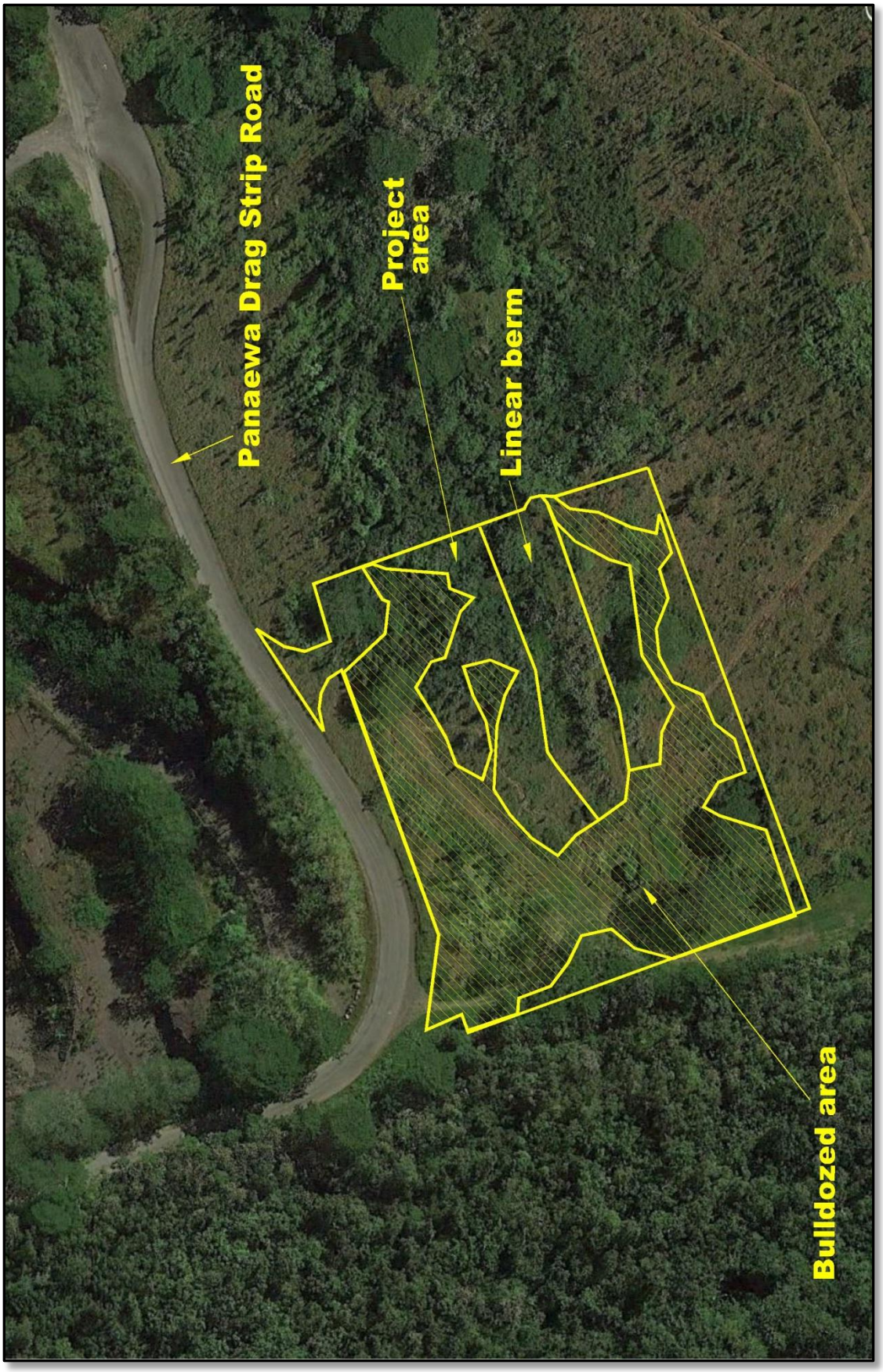

Figure 4. Aerial view of project area showing disturbance and berm

Figure 5. Bulldozed area (view to east)

Figure 6. Push pile of soil stones and debris (view to east-northeast)

Figure 7. Project area vegetation (view to east)

Figure 8. Linear berm (view to west)

This berm appears to correspond to a "Levee" depicted on the 1995 USGS quadrangle of the area (**Figure 9**). The levee originates at a drainage channel located to the south of the project area. The levee extends to the north-northwest from the channel for 560 meters, then angles to the northeast through the project area. The levee terminates 380 meters to the northeast of the project area. According to a map in a 1991 environmental assessment for the Panaewa Farm Lots (Barrett Consulting Group 1991), this canal is the Waiakea-Uka Flood Control Channel (**Figure 10**).

Figure 11 is a portion of the 1981 USGS Hilo quadrangle. This map also depicts the flood control channel and the levee, indicating it was in use at the time this map was created. **Figure 12** is a portion of the 1963 USGS Hilo quadrangle. The flood control channel and levee are not present on this map, although the quarry to the north of the project area is depicted. **Figure 13** is an aerial photograph of the Hilo taken on January 16, 1965 by the U.S. Geological Survey and obtained from the University of Hawaii at Manoa online library (http://magis.manoa.hawaii.edu). The flood control channel and levee are not present on this photograph.

The location of the levee downslope from the flood control channel, suggests it served to define the boundaries of a ponding basin, used to contain flood waters during periods of excessive rainfall. The absence of the levee and channel on **Figure 12** and **Figure 13** indicates they were constructed after 1965 and are therefore not historic properties. The 2013 USGS Hilo Quadrangle does not show the levee (see **Figure 1**), suggesting it is no longer in use.

The soil in the project area is Papai extremely stony muck on 3-25% slopes. This soil has an 8 inch thick surface layer of very dark brown extremely stony muck over a fragmental a'a lava substrate (Sato et al. 1973:46). This soil has a rapid permeability, a slow runoff and a slight erosion hazard and is classified as suitable primarily for woodlands. The underlying lava was deposited 750 to 1,500 years ago from Mauna Loa Volcano (Wolfe and Morris 2001).

METHODS

The survey fieldwork was conducted on March 17, 2015 under the direction of Dr. Alan Haun. Approximately 4 labor-days were required to complete the fieldwork portion of the project. The archaeological survey of the project area consisted of a 100% surface examination with the surveyors walking transects at 10-meter intervals. Ground surface visibility throughout the project area was fair to excellent.

BACKGROUND

The project area is situated in the *ahupua'a* of Waiakea in South Hilo District. The *ahupua'a* is one of the largest in the district covering over 95,000 acres. The *ahupua'a* extends along the coast from the west side of Hilo Bay to the Puna District boundary and inland to approximately 6,000 ft elevation. Much of the following is summarized from *Hilo Bay: A Chronological History* (Kelly et al. 1981), an extensive and thorough compendium of historical information about Hilo including Waiakea.

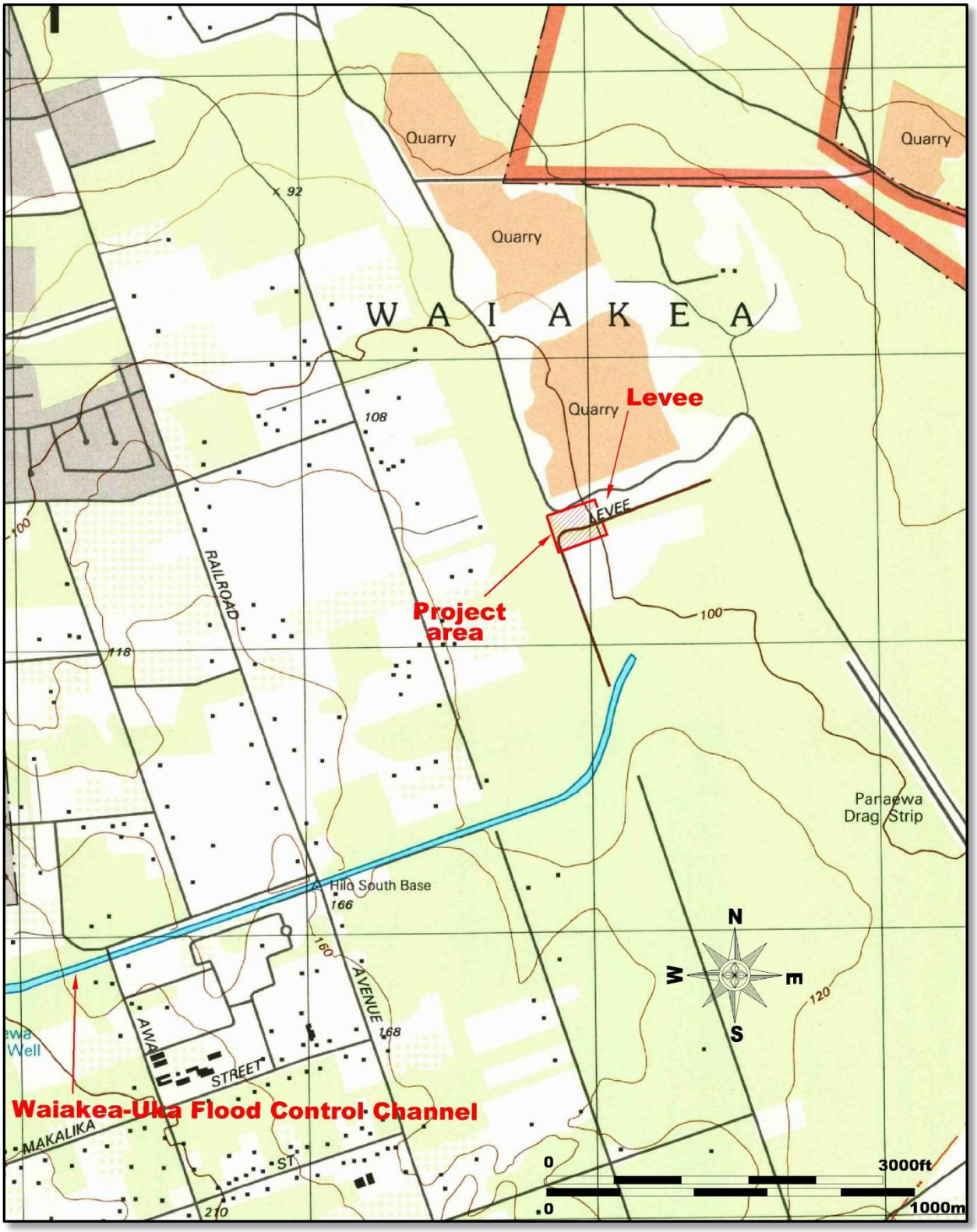

Figure 9. Portion of 1995 USGS 7.5' Hilo quadrangle showing project area

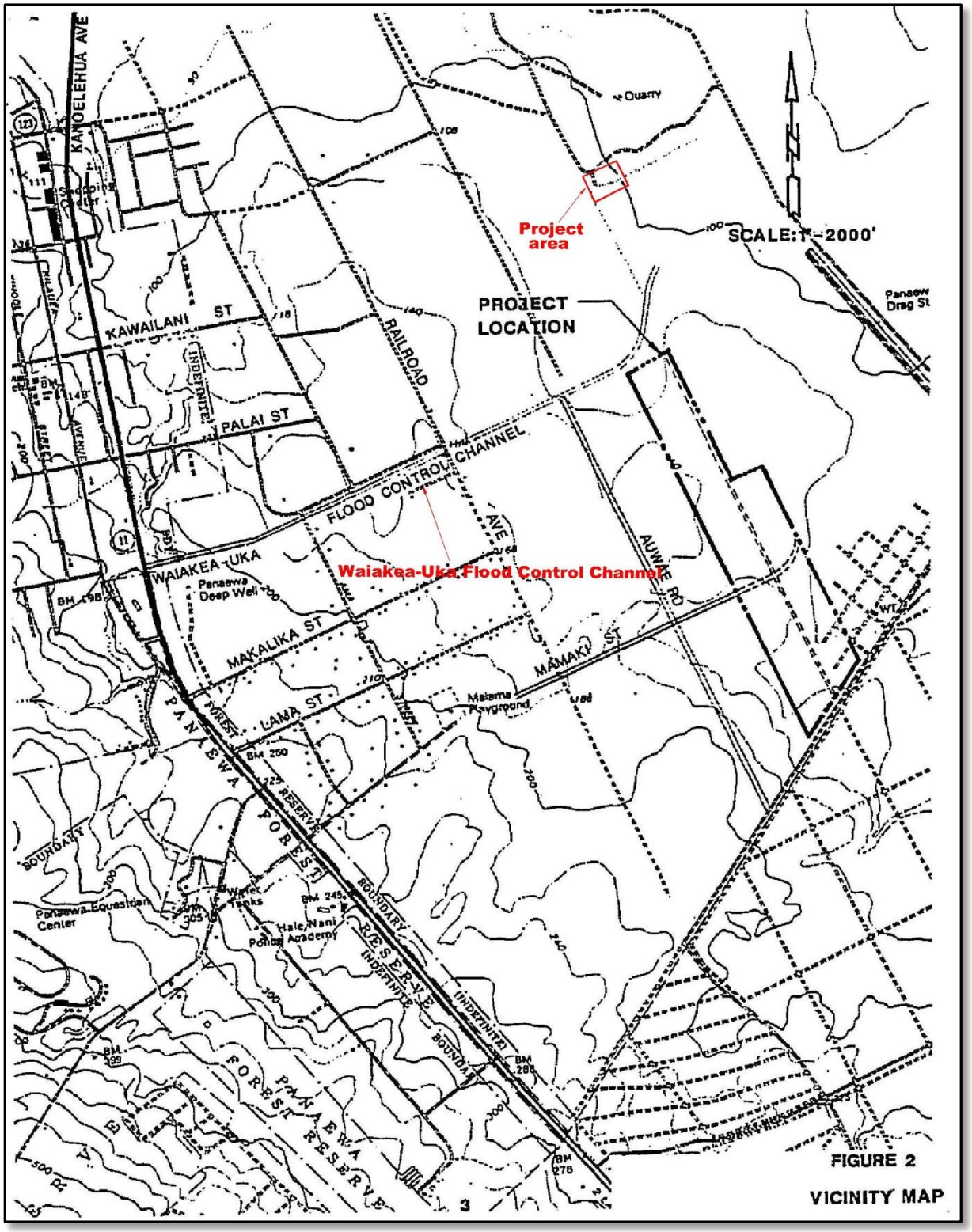

Figure 10. Map depicting Waiakea-Uka Flood Control Channel (from Barrett Consulting Group 1991:3)

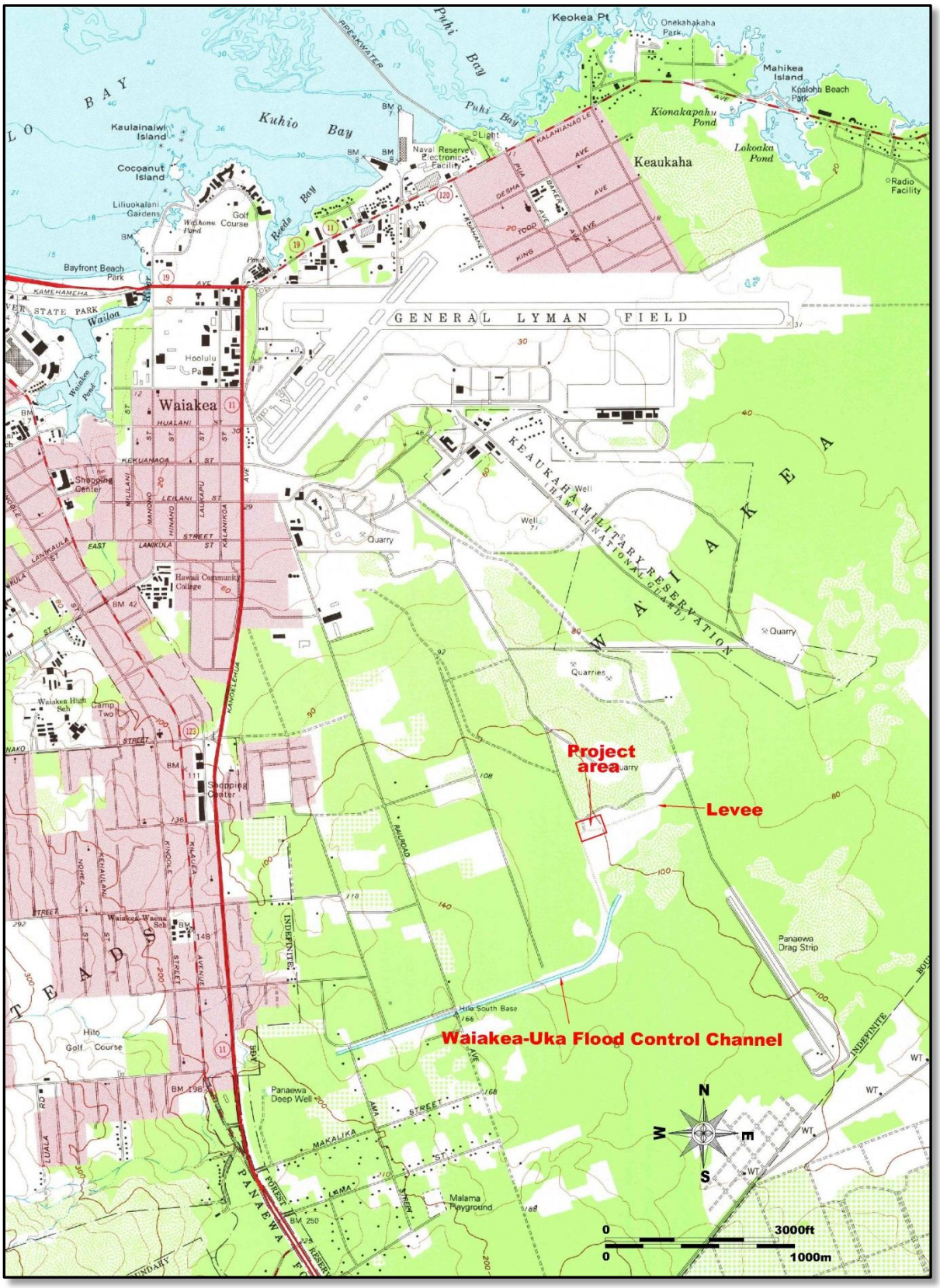

Figure 11. Portion of 1981 USGS 7.5' quadrangle showing project area, levee and flood control channel

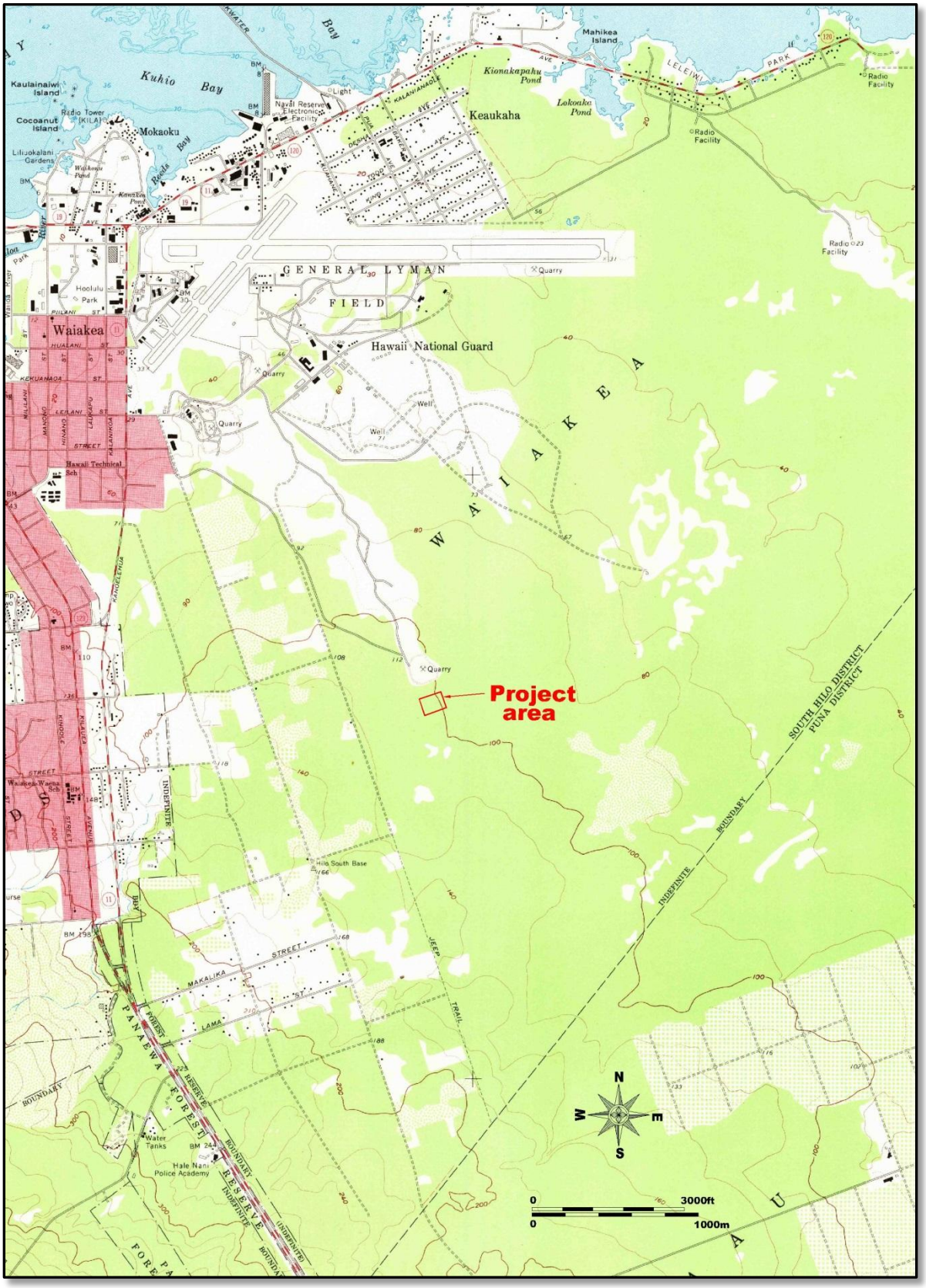

Figure 12. Portion of 1963 USGS 7.5' quadrangle showing project area

Figure 13. January 16, 1965 aerial view of project area

Hawaiian traditional and legendary accounts attest to the longstanding importance of Waiakea. The chief of the Hilo region, Kulukulu'a, who resided in Waiakea, was the first conquest of 'Umi-a-Liloa in his campaign to unify the districts of Hawaii Island. Hilo with its large bay, fishponds, wet taro fields, and abundant freshwater was a population center for commoners and royalty. Kamehameha I and his court resided in Hilo in the 1890s. In preparation for his planned invasion of Kauai in 1802, Kamehameha built a canoe fleet at Hilo, reportedly consisting of 800 vessels.

In 1824, a missionary station was established in Waiakea. Soon after, churches and schools were established. Whalers began stopping at Hilo in the mid-1820s. In the 1830s, a sawmill was built, and two stores were opened. By the end of the decade, a sugar cane plantation and mill were established on Ponahawai lands. By 1857, there were three sugar cane mills in the Hilo area. Large tracts of land were put in cane cultivation and sugar cane was also grown by individuals around their houses. A sugar mill was established in Waiakea at the inland end of Waiakea Fishpond in the late 1870s. By 1880, 1,400 acres of sugar cane were in cultivation and by the end of the decade over 5,600 acres were cultivated. In the 1900s, the population of Hilo grew dramatically with the expansion of sugar cane cultivation, pineapple production, the timber industry, and other commercial developments.

McEldowney (1979) used limited site inventory and historic documentary evidence to develop a traditional Hawaiian land use and settlement pattern model for the Hilo area. The model consists of five elevation-defined zones: Coastal Settlement, Upland Agricultural, Lower Forest, Rainforest, and Sub-Alpine or Montane. The Coastal Settlement Zone extended approximately 0.5 miles inland from the shoreline between sea level and 50 ft elevation. The zone was the most densely populated with both permanent and temporary habitations, high status chiefly residences, and *heiau*. Settlements were concentrated at Hilo Bay and sheltered bays and coves.

The Upland Agricultural Zone was situated between approximately 50 ft and 1,500 ft elevation. Settlement in the zone consisted of scattered residences among economically beneficial trees and agricultural plots of dryland taro and bananas. Lava tubes were utilized for shelter. A pattern of shifting cultivation is believed to have converted the original forest cover to parkland of grass and scattered groves of trees. Wetland cultivation of taro occurred along streams.

The Lower Forest Zone ranged from 1,500 ft to 2,500 ft elevation. Timber and other forest resources such as medicinal plants, *olona*, and birds were gathered from the zone. Site types consisted of temporary habitations, trials, shrines, and minor agricultural features in forest clearings and along streams. Sites in the Rainforest Zone (2,500-5,000 ft elevation) and Sub-alpine or Montane Zone (5,000-9,000 ft) were limited to trails and associated temporary habitations. These zones were used for intra-island travel and gathering of valued resources including hardwoods, birds, and stone for tool making.

The project area is situated within the lower portion of McEldowney's Upland Agricultural Zone where scattered residences and agricultural plots were situated in prehistoric to early historic times. Historic site types in the project area vicinity likely included plantation agriculture-related features and residences.

FINDINGS

No archaeological sites or features were identified within the project area. The absence of sites is potentially attributed to the extensive bulldozing that has occurred in the parcel. The tax map of the area (see **Figure 2**) indicates the parcel is used as a County of Hawaiʻi quarry and borrow pit area. The parcel appears to have also been used as a dumping area for refuse. The linear berm in the parcel, constructed between 1965 and 1981, is a modern levee used to control flood waters during periods of excessive rainfall. The 2013 USGS Hilo Quadrangle does not show the levee (see **Figure 1**), suggesting it is no longer in use. No further archaeological work is recommended for the property based on the survey results.

REFERENCES

Barrett Consulting Group

1991 State of Hawai'i, Department of Hawaiian Homelands, Environmental Assessment for the Improvements of Existing Road Right-of-ways for Panaewa Farm Lots, Phase 3, Waiakea, South Hilo, Island of Hawai'I, Hawai'I, TMK: 2-1-13:12 & 159. Homelots

DLNR (Department of Land and Natural Resources)

2003 Hawaii Administrative Rules, Title 13, Department of Land and Natural Resources, Subtitle 13, State Historic Preservation Division Rules.

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Kelly, M.

1983 Na Mala O Kona. A History of Land Use in Kona, Hawai'i. *Departmental Report Series 83-2.* Department of Anthropology, B.P. Bishop Museum, Honolulu. Prepared for the Department of Transportation, State of Hawai'i.

McEldowney, H.

1979 Archaeological and Historical Literature Search and Research Design: Lava Flow Control Study, Hilo, Hawai'i. Prepared for the U.S. Army Engineer District, Honolulu. Department of Anthropology. Bishop Museum.

Sato, H.H., W. Ikeda, R. Paeth, R. Smythe, and M. Takehiro, Jr.

1973 *Soil Survey of the Island of Hawaii, State of Hawaii.* U.S. Department of Agriculture, Soil Conservation Service and University of Hawaii Agricultural Experiment Station. Washington, D.C.: Government Printing Office.

University of Hawaii at Manoa online library

2013 http://magis.manoa.hawaii.edu

Wolfe, E.W., and J. Morris

1996 Geologic Map of the Island of Hawaii. U.S. Department of the Interior, U.S. Geological Survey. Miscellaneous Investigations Series.

Appendix D

CIVIL, ELECTRICAL, & MECHANICAL BASIS OF DESIGN

2.0 CIVIL DESIGN

A. Site Accessibility and Parking

The new Mass Transit Agency Baseyard and Maintenance Facility will be located in Hilo on the Island of Hawai'i (TMK: (3) 2-1-013: 148). The proposed facility has a project area of 5.0 acres. To access the site, continue along Leilani Street past the Hilo Transfer Station towards the Hilo Drag Strip. The State land use classification is agricultural and it is zoned A-20a, agricultural. The proposed project is currently owned by the State of Hawaii Department of Land and Natural Resources (DHHL) and will be transferred to the County of Hawai'i, Department of Public Works.

The project site is surrounded by the Panaewa Forest, there is a quarry to the north, the Hilo Drag Strip to the south and DHHL agricultural lots to the west. The existing site is undeveloped forest.

The new 26,500 square-foot maintenance building will include 19,500 square-feet of warehouse space for bus maintenance, washing and repair. In addition the building will provide administrative, office and storage space. A majority of the 5.0 acre site will be paved to provide bus staging and parking. A total of 56 bus parking stalls and eleven (11)

passenger vehicle stalls are provided. There are no utilities available on site, a 12-inch water line will be extended from the Hilo Transfer Station and a septic system and leech field will be constructed on the property.

The project will comply with Americans with Disabilities (ADA) Guidelines. Final plans will be submitted to the Disability and Communication Access Board (DCAB) for ADA review and compliance.

B. Grading and Drainage

The grading of the 5.0-acre site will be in conformance with the Hawai‘i County Grading Ordinance and the recommendations of the geotechnical engineer. On-site fill will be used wherever necessary, fill slopes will not exceed 2:1. Erosion and dust control will adhere to the Erosion Control Plan provided by the engineer and approved by the County of Hawai‘i.

The grading will follow Best Management Practices (BMP) as prescribed in the Nationwide Pollution Discharge Elimination System (NPDES) Permit. The contractor will submit a site specific construction BMP Plan to the State of Hawai‘i Department of Health before grading commences.

The project storm drainage system will be designed to comply with the latest County of Hawai‘i *Storm Drainage Standards* and *Standard Details for Public Works Construction*. The on-site drainage system will be designed for a 10-year recurrence interval and will consist of infiltration drainage swales along the perimeter of the site. There is no existing municipal drainage system. Therefore, all storm drainage will sheet flow to swales, which will store the flow until it percolates into the ground.

Existing drainage patterns will be maintained as much as possible, runoff will sheet flow across the site to landscaped areas where the drainage swales are located. Building finished floors will be higher than the surrounding grades and runoff will be directed away from the buildings.

The project site is located in Zone X – Areas determined to be outside 500-year flood plain as determined by the Federal Emergency Management Agency (FIRM Map 1551660885C, dated September 16, 1988).

C. Water System

The potable water system will comply with the current *Water System Standards* and *Standard Details for Water System Construction,* Board of Water Supply. An existing 12" water line that runs along Leilani Street up to the Hilo Transfer Station will be extended approximately one (1) mile to the site and will provide service for the new facility's potable water supply and fire protection. The new water meter and water line will provide domestic service to the building, and a new 6" water meter and 6" water line will provide water for the fire sprinklers. Potable water laterals will fulfill all mechanical requirements. New fire hydrants will be accessible on-site, in order to meet the Hawai'i County Fire Department's coverage requirement. The static water pressure at the Hilo Transfer Station is assumed to be 90 psi, as determined by the overflow elevation of the Puainako Tank at 290-feet. See mechanical design for the estimated potable design water demand for the proposed building.

The estimated water demand for the proposed project is 160 gallons per day (gpd) (see Appendix).

D. Sewer System

The sewer system design will comply with Hawai'i Administrative Rules (HAR) Title 11, Chapter 62.

There is no existing municipal sewer system. A new septic tank and leech field will be added on-site for treatment of the waste created by the occupants of the new facility. An Individual Wastewater System (IWS) permit will be prepared and processed with the State Department of Health. The approximate size of the septic tank is 2,000 gallons and the leach field is 371 square feet (See Appendix).

E. Environmental Permits and Controls

Applicable Regulations

In order to provide for abatement and control of environmental pollution arising from the construction activities of the Contractor and his subcontractors in the performance of this contract, the work performed will be required to comply with the intent of the applicable Federal, State, and local laws and regulations concerning environmental pollution control and abatement, including, but not limited to the following regulations:

1. State of Hawai‘i, Department of Health, Administrative Rules, Chapter 55, WATER POLLUTION CONTROL: Chapter 54, WATER QUALITY STANDARDS.

2. State of Hawai‘i, Department of Health, Administrative Rules, Chapter 59, AMBIENT AIR QUALITY: Chapter 60, AIR POLLUTION CONTROL LAW.

3. State of Hawai‘i, Department of Health, Administrative Rules, Chapter 44A, VEHICULAR NOISE CONTROL.

4. Erosion and Sedimentation Control Standards and Guidelines, Department of Public Works, County of Hawai‘i.

Permits

The Contractor will be required to comply with the following conditions and requirements of the NPDES Permit for Discharges of Storm Water Associated with Construction Activity from the State Department of Health (Notice of Intent, NOI Form C) as needed and complete any information required therein to effectuate the permit:

a. HAR Chapter 11-55, Chapter C, NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activities;

b. HAR Chapter 11-55, Appendix A, Department of Health Standard General Permit Conditions;

c. HAR Chapter 11-55-34.04(a), 11-55-34.07, 11-55-34.11, 11-55-34.12, and any other applicable sections of HAR Chapter 11-55

Best Management Practices (BMP) Plan

A BMP will be included and implemented as part of the NPDES requirements and consists of, but not be limited to, the application of the following mitigation and/or corrective measures by the Contractor:

a. Properly controlling fugitive dust from entering State waters.

b. Wash-out of concrete trucks will be done in such a way (preferably off-site) as to ensure that neither wastewater nor surplus concrete enters State Waters.

c. Construction of berms, sandbags, filter fences, catchments, etc., as needed to contain/filter storm water runoff.

d. If during construction, water quality parameters exceed respective State standards, all construction activities that were identified as contributing to water quality degradation shall be stopped immediately. The causes shall be established, and if related to construction activity, remedial action for the non-compliance should be taken to fix the problem prior to commencing work.

e. Other measures as required to prevent pollution of State waters as recommended in the Best Management Practices Manual for Construction Sites.

References:

1. *Water System Standards*. Board of Water Supply, Department of Water Supply, County of Hawaii, State of Hawaii, 2002.

2. *Design Standards of the Department of Wastewater Management, Volume I*. City and County of Honolulu, July 1993.

3. *Storm Drainage Standards*. Department of Public Works, County of Hawaiʻi, October 1970.

4. *Erosion and Sedimentation Control Standards and Guidelines*, Department of Public Works, County of Hawaiʻi.

5. *Hawaiʻi County Code*. Department of Public Works, County of Hawaiʻi, June 2005.

Water System Calculations

Light Industry (DWS Planning Criteria):
4,000 gallons / acre (Table 100-18)
Project Development Area = 5.0 acres

Average Daily Demand:	4,000 gpd/ac. x 5.0 ac. = 20,000 gpd
Maximum Daily Demand:	1.5 x 20,000 gpd = 30,000 gpd (Table 100-20)
Peak Hour Demand:	5.0 x 20,000 gpd = 100,000 gpd (Table 100-20)
Fire Flow Requirement:	2000 gpm for 2 hour duration (Table 100-19)
Total Fire Flow:	2000 gpm x 2 hrs x 60 min/hr = 240,000 gallons
Pipeline Sizing (Fire line):	Provide required fire flow at a minimum of 20 psi residual pressure at fire hydrants.
Fire Hydrant Spacing:	300 feet maximum for Light Industry

Project Demand Requirements:
Total f/u count = 32.5 f/u
Total flow volume = 23 gpm = 800 gpd (Peak Demand)

Average Daily Demand:	800 gpd/5 = **160 gpd**
Maximum Daily Demand:	800 gpd/1.5 = 533 gpd

References:

1. *Water System Standards*. Board of Water Supply, Department of Water Supply, County of Hawaii, State of Hawaii, 2002.

SEWER DESIGN CALCULATIONS

Mass Transit Agency Baseyard and Maintenance Facility
County of Hawaii
Waiakea, South Hilo, Island of Hawaii
TMK: 3rd Div. 2-1-013: 148 (Portion)

(Reference: Manual of Septic Tank Practice)

Estimated Design Flow:

- 1 employee (24-hrs.) @ 75 gallons per day = 75 gpd
- 14 employees @ 40 gallons per day per employee = 560 gpd
- 40 employees (field) @ 10 gallons per day per employee = 400 gpd
- 5 customers @ 5 gallons per day per customer = 25 gpd
- Total estimated flow = 1060 gpd

Equivalent Bedroom = (1060 gpd)/ (200 gpd per bedroom) = 5.3 bedrooms

Calculate Volume (V) Required for Septic System:

V = 1,125 + (0.75)Q → (For flows greater than 1,500 gpd)
V = 1.5 (Q) → (For flows between 500 and 1,500 gpd)
V = 1.5 (1060) = 1,590 Gallons (minimum)

Septic Tank Selection:

- One – 2,000 Gallon Septic Tank

Leaching Field Calculation:

Percolation Rate: 0.2 minutes / inch
0.2 minutes/inch relates to an area of 70 square feet / bedroom
Area = (70 sf/bedroom) x (5.3 bedrooms) = 371 sf

Leaching Field (Absorption Bed) Area:

Area required = 371 sf (minimum)
Assume two distribution lines @ 6 ft. spacing w/ 3 ft. wall offset.
Bed width = 3+6+3 = 12 ft.
Bed Length = 371/12 = 30.9 ft.

3.0 ELECTRICAL DESIGN

A. Design Criteria

Electrical work will be designed and provided in accordance with the requirements of the County of Hawaii and the following standards:

A. NFPA 70, National Electrical Code, 2008 Edition
B. ANSI C2, National Electrical Safety Code, 2007 Edition
C. Electrical and Electronics (IEEE) C2
D. NFPA 101, Life Safety Code, 2006 Edition
E. Uniform Fire Code (NFPA 1), 2012 Edition
F. Illuminating Engineering Society of North America (IESNA) Lighting Handbook, Ninth Edition, 2000
G. International Energy Conservation Code, 2006

B. Electrical work will include, but not be limited to the following:

1. New primary electrical service from HELCO.
2. New electrical service equipment, including metering equipment, building disconnect and electrical panel.
3. “Super” T-8 lamps with low ballast factor electronic ballasts for all areas except high bay areas. LED Lighting for high bay areas. All areas except the utility rooms and high bay areas will utilize occupancy sensors to control the lights in each individual area.
4. General use receptacles and wiring at all structures.
5. Infrastructure for telecommunication system, including service, main cabinets, handholes, ductlines, backboards, empty raceways and outlet boxes.
6. Fire alarm system for building to monitor fire sprinkler risers.
7. Power wiring and connections for all HVAC equipment, bus washing equipment and paint spraying equipment.

.

HAWAII COUNTY CODE – CHAPTER 5 – BUILDING
2006 IECC & ORDINANCES 09-48 & 10-68
BUILDING ENERGY EFFICIENCY STANDARDS

I CERTIFY THAT THE DESIGN IS IN CONFORMANCE WITH THE BUILDING ENERGY EFFICIENCY STANDARDS PERTAINING TO:

SECTION 506 ELECTRICAL POWER AND LIGHTING SYSTEMS

BRIAN T. ITOZAKI
LICENSED PROFESSIONAL ENGINEER
No. 9058-E
HAWAII, U.S.A.

SIGNATURE: _____ DATE: _____
NAME: BRIAN T. ITOZAKI
TITLE: ELECTRICAL ENGINEER
LICENSE NO.: 9058-E

BUILDING ENERGY EFFICIENCY STANDARDS

EXTERIOR LIGHTING POWER ALLOWANCE 40,877 W INSTALLED 12,893 W

INTERIOR LIGHTING POWER ALLOWANCE 259,144 W INSTALLED 256,982 W

CALCULATIONS: SEPARATE X ON DRAWINGS
(CHECK ONE)

INTERIOR LIGHTING POWER ALLOWANCE

ILPA = ULPA x GLA
WHERE
ILPA = INTERIOR LIGHTING POWER ALLOWANCE (W)
ULPA = UNIT POWER LIGHTING ALLOWANCE (W/FT.^{2})
GLA = GROSS LIGHTED AREA (FT. ^{2})

ILPA = 1.00 W/FT.^{2} x 9,362 FT.^{2} = 11,844 W
INSTALLED = 3/48: (114 FIXT. x 86 WATTS/FIXT.) = 1,568 W
2/48: (28 FIXT. x 56 WATTS/FIXT.) = 9,804 W
2/13: (1 FIXT. x 30 WATTS/FIXT.) = 30 W
11,402 W

EXTERIOR LIGHTING POWER ALLOWANCE

ELPA = ELUPA X GLA
WHERE
ELPA = EXTERIOR LIGHTING POWER ALLOWANCE (W)
EULPA = EXTERIOR UNIT LIGHTING POWER ALLOWANCE
GLA = GROSS LIGHTED AREA

	EULPA	GLA	ELPA	INSTALLED
PUBLIC PARKING LOT	0.10 W/FT.	159,600 FT.^{2}	15,960 W	3,433 W
PUBLIC ROAD/WALKWAYS	0.15 W/FT.	12,849 FT.^{2}	1,927 W	4,884 W
PRIVATE ROAD	0.10 W/FT.	10,200 FT.^{2}	1,020 W	940 W
BUILDING EXTERIOR	0.25 W/FT.	840 FT.^{2}	210 W	180 W
LIGHT TRAFFIC W/CANOPY	4 W/FT.	3,280 FT.^{2}	13,120 W	1,897 W
			40,877 W	12,893 W

NOTES:
1. SERVICE VOLTAGE 208Y/120V, 3 PHASE, 4W.
2. LOAD DATA: CONNECTED: 404.8 KVA ESTIMATED DEMAND: 248.5 KVA.
3. SERVICE CONDUCTORS: 2(4-500 MCM).
4. METERING: HELCO METER STD. B-16, RATE SCHEDULE: "J".
5. TYPE: UNDERGROUND
6 BILLING INFORMATION:

ELECTRICAL SYMBOL LIST

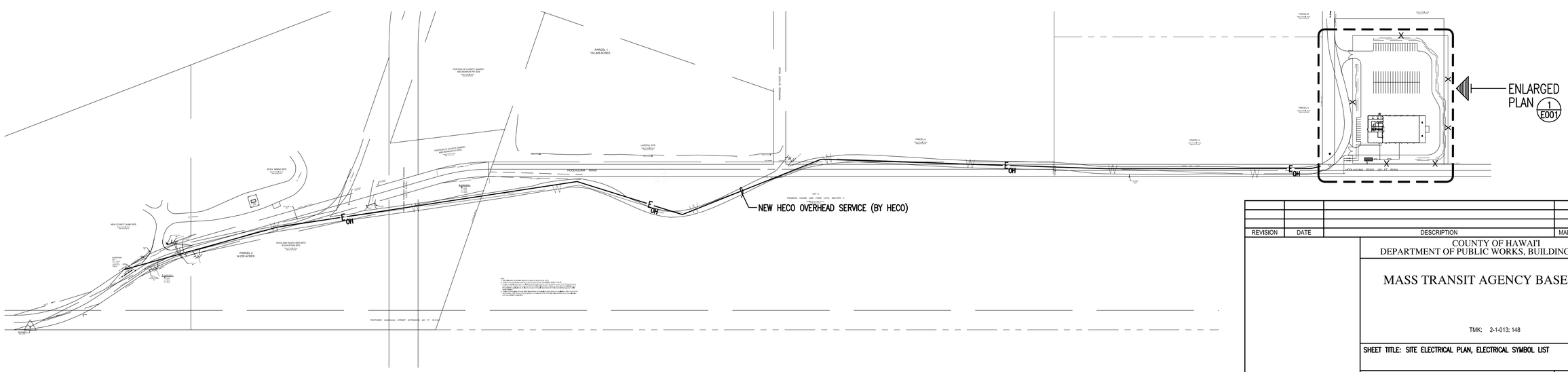
SYMBOL	DESCRIPTION
	LIGHT, FLUORESCENT, CEILING RECESSED MOUNTED.
	LIGHT, FLUORESCENT, CEILING SURFACE MOUNTED.
	LIGHT, CEILING RECESSED MOUNTED.
	LIGHT, CEILING SURFACE MOUNTED.
	LIGHT, WALL MOUNTED.
	NIGHT LIGHT, WALL MOUNTED.
	LIGHT, FLUORESCENT, CEILING RECESSED MOUNTED, WITH EMERGENCY BALLAST.
	LIGHT, FLUORESCENT, CEILING SURFACE MOUNTED, WITH EMERGENCY BALLAST.
	ROADWAY LIGHT, POLE MOUNTED WITH BRACKET ARM.
	PARKING LOT LIGHT, POLE TOP MOUNTED.
	EXIT SIGN, SINGLE FACE, WALL SURFACE MOUNTED.
$	SWITCH, FLUSH TUMBLER, WALL MOUNTED.
$3	SWITCH, 3-WAY, WALL MOUNTED.
OS	OCCUPANCY SENSOR SWITCH, WALL MOUNTED.
	OCCUPANCY SENSOR, WALL/CEILING MOUNTED.
OS	OCCUPANCY SENSOR, CEILING MOUNTED.
"a"	INDICATES FIXTURE OR DEVICE CONTROLLED BY SW. "a", OTHER LETTERS SIMILAR.
J	JUNCTION BOX, CEILING MOUNTED.
J	JUNCTION BOX, WALL MOUNTED.
	RECEPTACLE, DUPLEX, WALL MOUNTED, 20A, 125V, NEMA 5-20.
	RECEPTACLE, DUPLEX, G.F.I. TYPE, WALL MTD., 20A, 125V, NEMA 5-20.
	RECEPTACLE, SINGLE, CEILING MOUNTED, 15A, 125V, NEMA 5-15, LOCKING TYPE.
E	EQUIPMENT CONNECTION.
M	MOTOR CONNECTION.
FS	FIRE SPRINKLER FLOW SWITCH CONNECTION.
TS	FIRE SPRINKLER SUPERVISORY TAMPER SWITCH CONNECTION.

SYMBOL	DESCRIPTION
PS	FIRE SPRINKLER PRESSURE SWITCH CONNECTION.
SV	FIRE SPRINKLER SOLENOID VALVE CONNECTION.
	RACEWAY, CONCEALED ABOVE FINISH FLOOR, NUMBER OF HASHMARKS INDICATE NUMBER OF WIRES WITHIN.
	RACEWAY, CONCEALED BELOW FINISH FLOOR, NO HASHMARKS INDICATES TWO WIRES WITHIN.
	EXPOSED RACEWAY.
	FLEXIBLE RACEWAY.
	ARROW, HOMERUN TO PANEL OR CABINET.
	RACEWAY, STUBBED AND CAPPED.
F	FIRE ALARM RACEWAY, CONCEALED.
F	FIRE ALARM RACEWAY, EXPOSED.
TC	TELECOM RACEWAY, CONCEALED.
V	TELEVISION RACEWAY, CONCEALED.
2	ELECTRICAL NOTE INDICATOR.
A	DUCT SECTION INDICATOR.
1/48	FIXTURE INDICATOR UPPER HALF: FIXTURE TYPE. LOWER HALF: NO. OF LAMPS & WATTS OR LENGTH.
2/E2	DETAIL INDICATOR UPPER HALF: DETAIL NUMBER. LOWER HALF: SHEET NUMBER, DETAIL LOCATION.
WP	INDICATES WEATHERPROOF.
NL	INDICATES NIGHT LIGHT.

MOUNTING HEIGHT SCHEDULE

DEVICE ON PLAN	MOUNTING HEIGHT	REFERENCE POINT					REMARKS
		FLOOR	CEILING	TO	CL	TOP	
OS $ $3	45"	•				•	MOUNTING HEIGHT SHALL BE TO TOP OF OPERABLE PART.
	18" *	•				BOTTOM	MOUNTING HEIGHT SHALL BE TO BOTTOM OF PLATE.
	5'-6"	•				•	

* SPECIAL MOUNTING HEIGHTS INDICATED ON PLAN.



NORTH

1 E000 SITE ELECTRICAL PLAN
SCALE: 1" = 200'

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

COUNTY OF HAWAI'I
DEPARTMENT OF PUBLIC WORKS, BUILDING DIVISION

MASS TRANSIT AGENCY BASEYARD

TMK: 2-1-013: 148

SHEET TITLE: SITE ELECTRICAL PLAN, ELECTRICAL SYMBOL LIST

REVIEWED:

DIVISION CHIEF
BUILDING DIVISION
DEPARTMENT OF PUBLIC WORKS

DATE
2015 FEB XX

DESIGN BY: BI
DRAWN BY: STAFF
CHECKED BY: SM
SHEET NO.
E000
OF X SHTS

368.224

4.0 MECHANICAL DESIGN

A. References

A. ASHRAE Standard 62 (2013) Ventilation For Acceptable Indoor Air Quality

B. ASHRAE Standard 90.1 (2013) Energy Standard for Buildings Except Low Rise Residential Buildings

C. ASHRAE Handbooks, Latest Editions

D. International Building Code (2006)

E. International Mechanical Code (2006)

F. Uniform Plumbing Code (2006)

G. International Fire Code (2006)

H. Sheet Metal and Air Conditioning Contractors National Association (SMACNA), HVAC Duct Construction Standard (2005)

I. National Fire Codes, National Fire Protection Association Standards including:

NFPA 90A Air-Conditioning and Ventilating Systems, 2013

NFPA 13 Standard for the Installation of Sprinkler Systems, 2013

J. American Conference of Governmental Industrial Hygienists (AIGIH)

L. County of Hawaii Ordinances

B. General Parameters

1. Water Supply pressure: The available pressure in the utility system may not be adequate for the domestic water service and fire protection (sprinkler) system for this project. A general service domestic cold water booster pumping and fire pump may be required. See civil design analysis for further discussion of the water distribution systems.

2. Planned sanitary sewer capacities: New septic tank and leaching field system is adequate to service this building. See civil design analysis for the sanitary sewer system. For exterior sewerage systems beyond 1.5 meter (5 feet) from the building, refer to civil drawings.

3. Central cooling system: Central cooling system will be provided with direct expansion (DX) split air conditioning system with variable air volume (VAV) air distribution system. The DX split system consists of a single DX air cooled condensing unit (ACCU) and a DX air handling units (AHU).

4. Ventilation, and Air Conditioning System & Controls Description:

4.1 Ventilation Systems

The following ventilation systems will be provided:

Overhead tail pipe vehicle exhaust system
Janitor closet, public toilets, electrical room, mechanical room and kitchen range hoods.

Roof mounted gravity ridge vent will be provided for the repair bay exhaust system.

The overhead tail pipe exhaust systems will be provided for the vehicles in the repair bays. Each exhaust system consists of a utility type exhaust fan with an explosion proof motor and fan wheel, hose wheel assembly, minimum of 30 feet long flexible hose, support frame, ratchet mechanism, spring pack assembly, hose guide, drum and hose stop. The entire system will be constructed to withstand up to 600 degree F.

Air circulation by exhaust fans will be provided for the mechanical equipment and electrical rooms to limit the temperature rise in these spaces.

Janitor closet, public toilets and kitchen range hoods will be provided with exhaust fans to control temperature and control odor migration. Make-up air for these spaces will be provided via transfer (infiltration) from the spaces pressurized by the OA ventilation air.

4.1 Air Conditioning Systems for Administration Offices:

Central cooling system will be provided with direct expansion (DX) split air conditioning system with variable air volume (VAV) air distribution system. The DX split system consists of a single DX air cooled condensing unit (ACCU) and a DX air handling units (AHU).. The air handling unit will be a constant volume fan with a bypass

damper to accommodate VAV air distribution system. VAV dampers and individual thermostat will be provided for the temperature control of occupying spaces. Fresh air intake will be controlled by a modulating damper utilizing CO2 sensor by measuring the CO2 level in the return air system.

5. Energy conservation:

Heat transfer U-values shall meet or exceed AHRAE Standard 90.1 (2013) Energy Standard for Buildings Except Low-Rise Residential Buildings. All aspects of mechanical design shall conform to 2009 International Energy Conservation Code (IECC) and shall incorporate all applicable recommendations as specified in the LEED V3.0.

Energy conservation measures in addition to the minimum required by applicable Standards and Criteria includes:

- CO2 Sensor controlled outside air intake for all air handling units.
- AHU thermostat with a 7-day unoccupied setback scheduling capability.
- VAV damper with thermostat control
- Use of premium efficiency motors on mechanical equipment
- Use of high efficiency lighting fixtures.
- Use of building envelope components that exceed the minimum required insulation values.

6. Standby heating and cooling and emergency environmental systems: Standby or back up heating cooling will not be provided.

7. Fire sprinkler system: Automatic, wet-pipe, fire sprinkler system will be provided for this facility in accordance with NFPA 13.

8. Plumbing Systems

The plumbing systems will be provided for the new maintenance facility. The plumbing work includes:

- Domestic hot and cold water distribution system
- Sanitary waste and vent piping system
- Plumbing fixtures
- Trench drains around the repair bays
- Oil-Water separator
- Emergency shower/eyewash stations

- Compressed air system for tools and cleaning of equipment
- A hose bibb at each compressed air station

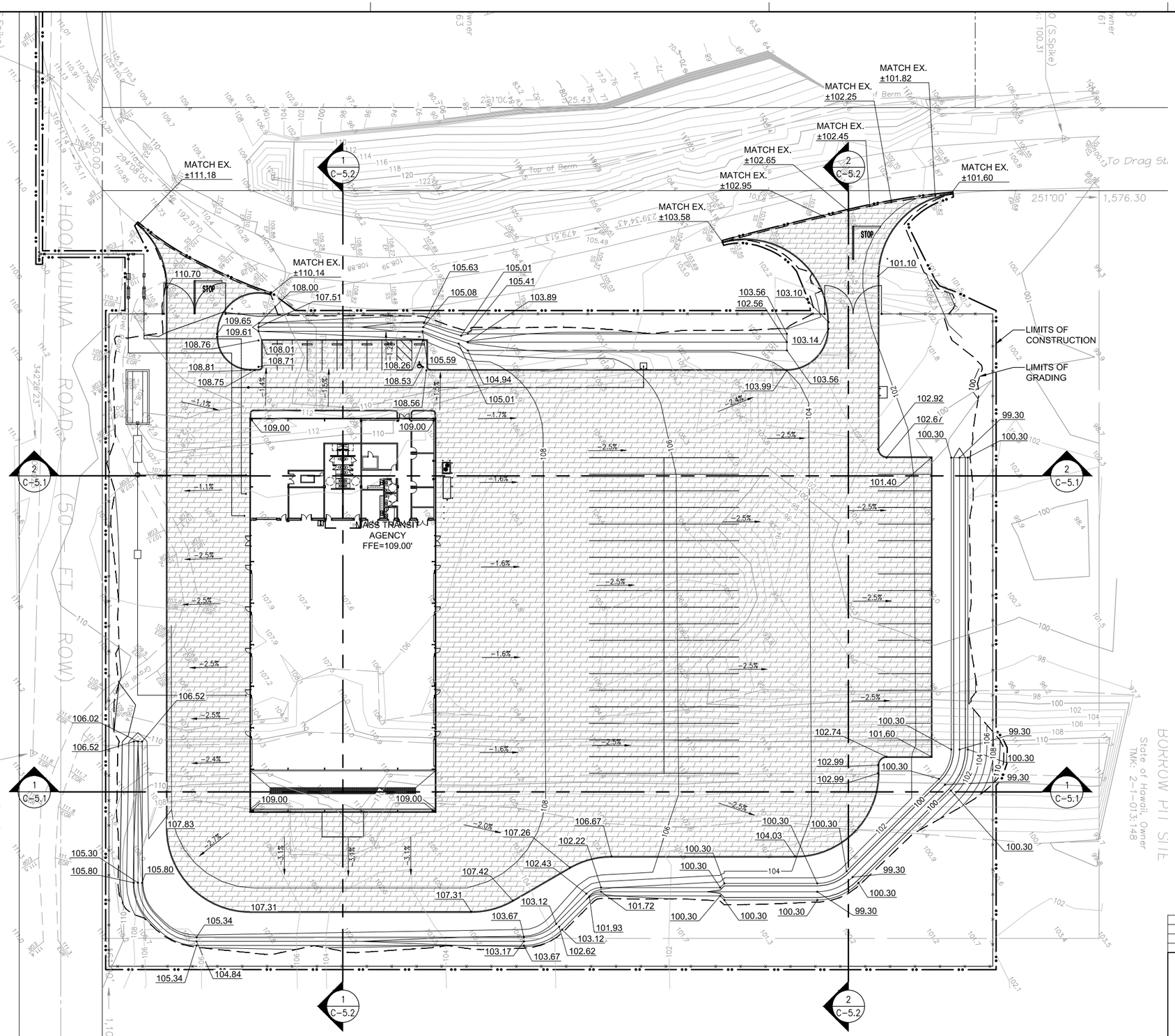
8.1 Domestic Water Distribution: All water piping will be sized in accordance with methods outlined in UPC 2006 to limit water velocity in the pipe to 8 ft/sec unless a lower velocity is recommended by the plumbing fixture manufacturer. Domestic hot water will be supplied to all plumbing fixtures in the kitchen, showers, lavatories, break room sinks and utility sinks. A hot water re-circulation system will be provided for the domestic hot water system, and all hot water supply and return piping will be insulated. The heater will be high efficiency type electric heater since natural or propane gas is not available.

8.2 Sanitary waste and vent piping: A sanitary waste and vent system will serve all plumbing fixtures and equipment as required by the Uniform Plumbing Code. Sanitary waste will be piped to an exterior sewage discharge connection provided by the site utilities. Special pretreatment prior to discharging to the site sanitary sewer is required. An oil interceptor will be provided for the repair area drainage system.

8.3 Plumbing Fixtures: All plumbing fixtures will be of commercial grade, ultra low flow water-conserving type. ADAAG compliant fixtures will be provided as required for the disable. Exterior hose bibs and interior hose bibs in restrooms will be provided. All hose bibbs will be provided with a vacuum breaker.

8.4 Piping Materials: Water piping will be type K, hard drawn copper tubing for underground installation and type L, hard drawn copper for aboveground areas. Fittings for copper tubing will be cast bronze or copper with soldered ends using tin-antimony solder since lead solder is not permitted. Drainage, waste and vent (DWV) piping will be PVC pipe and drainage fittings for underground installation, and no-hub cast iron with hubless fittings or PVC pipe with drainage fittings for aboveground installation. A gravity type oil interceptor will be provided for the maintenance area and trench drain to pre-treat the effluent.

8.5 Compressed Air System: 100 psi compressed air system will be provided for the tools and equipment cleaning. The system consists of rotary screw type compressors, ASME constructed air receiver tank, refrigerated air dryers and filters.



LEGEND

- PROPERTY CONSTRUCTION EASEMENT
- PROPERTY LINE RIGHT OF WAY
- LIMITS OF CONSTRUCTION
- LIMITS OF GRADING AND DISTURBED AREA
- 570 FINISH GRADE CONTOUR
- SD DRAIN LINE
- STRUCTURE FOOTPRINT
- FLOW ARROW
- DRAIN INLET

OVERALL GRADING PLAN

SCALE: 1" = 30'

GRAPHIC SCALE

1" = 30' 30' 15' 0 30' 60'

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS, BUILDING DIVISION

MASS TRANSIT AGENCY BASEYARD

X

TMK: 2-1-013: 148

SHEET TITLE: **OVERALL GRADING PLAN**

REVIEWED:

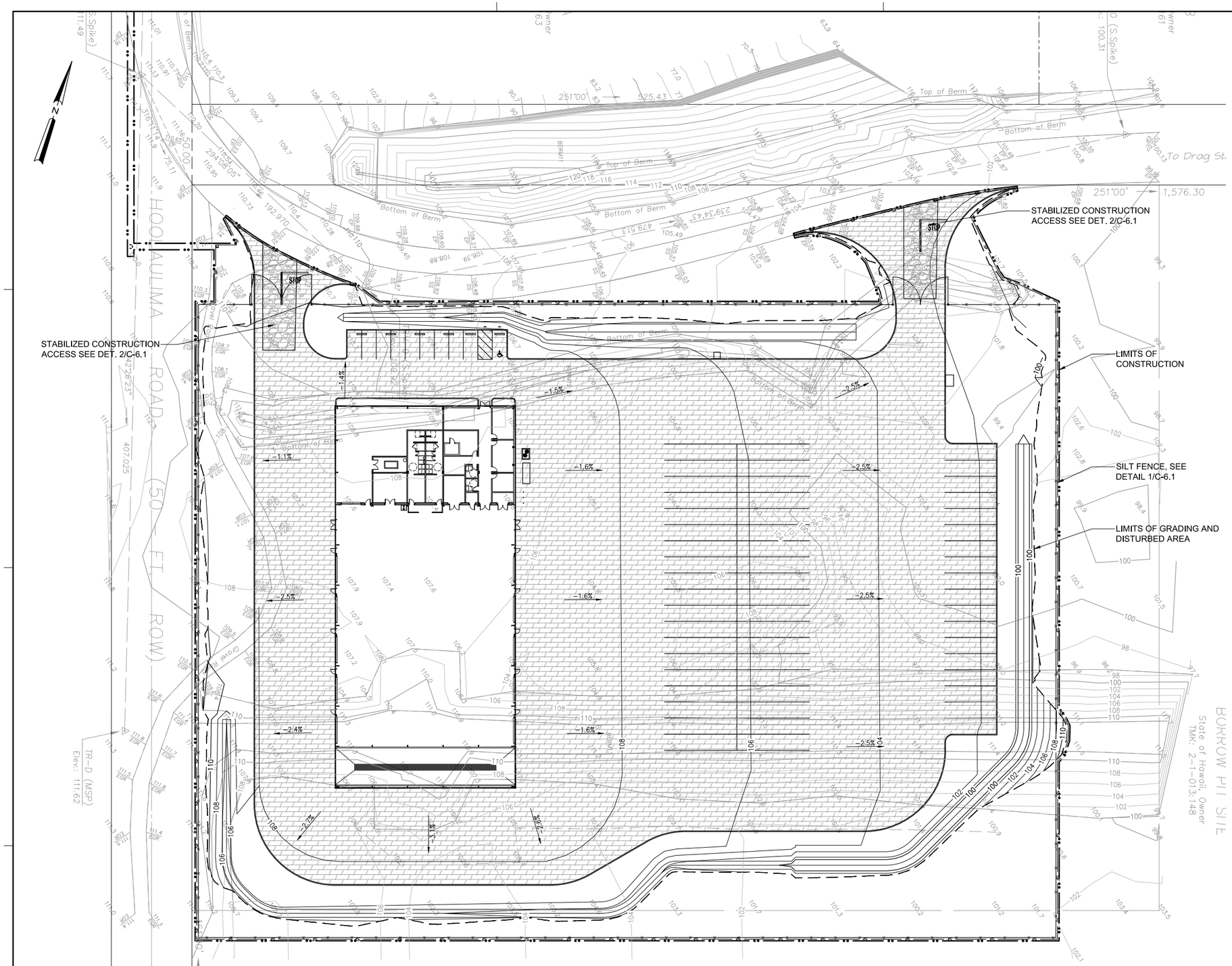
DIVISION CHIEF
BUILDING DIVISION
DEPARTMENT OF PUBLIC WORKS

DATE 2015 FEB XX

DESIGN BY: CB
DRAWN BY: STAFF
CHECKED BY: CM

SHEET NO. C-4.0

13 OF X SHTS



LEGEND

- LIMITS OF CONSTRUCTION
- LIMITS OF GRADING AND DISTURBED AREA
- 570 — FINISH GRADE CONTOUR
- SF — SILT FENCE SEE DETAIL 1/C-6.1
- STRUCTURE FOOTPRINT
- STABILIZED CONSTRUCTION ACCESS, SEE DETAIL 2/C-6.1
- FLOW ARROW

EROSION CONTROL PLAN

SCALE: 1" = 30'

GRAPHIC SCALE

1" = 30' 30' 15' 0 30' 60'

REVISION	DATE	DESCRIPTION	MADE BY	APPROVED

COUNTY OF HAWAII
DEPARTMENT OF PUBLIC WORKS, BUILDING DIVISION

MASS TRANSIT AGENCY BASEYARD

X

TMK: 2-1-013: 148

SHEET TITLE: **EROSION CONTROL PLAN**

REVIEWED:

DIVISION CHIEF
BUILDING DIVISION
DEPARTMENT OF PUBLIC WORKS

DATE 2015 FEB XX

DESIGN BY: CB
DRAWN BY: STAFF
CHECKED BY: CM

SHEET NO.
C-6.0
16 OF X SHTS

Appendix E

TRANSPORTATION IMPACT ANALYSIS REPORT

FEHR PEERS

MEMORANDUM

Date: June 11, 2015

To: Vincent Shigekuni, Vice-President, PBR Hawaii

From: Anjuli Bakhru and Secundino Arellano

Subject: ***Hilo Mass Transit Agency Baseyard & Maintenance Facility Relocation Transportation Impact Analysis Report (TIAR)***

SD15-0161

Fehr & Peers has completed a transportation impact analysis for the proposed relocation of the Hilo Mass Transit Agency Baseyard & Maintenance Facility from 630 E Lanikaula Street to 2299 Ho'olualima Road (also known as Panaewa Drag Strip) in Hilo on the island of Hawaii. This report includes an assessment of existing conditions, as well as future conditions with the proposed project in place. A summary of potential transportation issues and recommended improvements is presented below, followed by details of our analysis.

SUMMARY OF FINDINGS

The following findings resulted from the TIAR:

- Under Existing and Near Term 2016 Conditions, all study intersections operate acceptably at LOS D or better.
- Total bus trips recording in the AM and PM peak hour total 6 inbound and outbound trips. The reassignment of these trips and associated employee vehicle trips in plus project conditions is negligible.
- Under Near Term 2016 plus Project Conditions all intersections operate acceptably at LOS D or better, and therefore no intersections are impacted by the proposed project.

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DETAILED TECHNICAL ANALYSIS

The purpose of this analysis is to identify transportation impacts of the proposed project on the surrounding transportation system. The following scenarios are presented in this report:

- **Scenario 1: Existing Conditions** – Existing volumes obtained from new counts.
- **Scenario 2**: **Near Term Conditions** –Existing peak-hour volumes increased to account for approved (but not yet occupied) development projects and growth in the area to the year of anticipated project occupancy in 2016. Traffic growth was estimated based on a comparison of historic Hawaii Department of Transportation (HDOT) traffic count data. This scenario forms the baseline for identifying project impacts.
- **Scenario 3: Near Term Plus Project Conditions** – Traffic projections from Scenario 2 plus traffic volumes from the proposed project users and existing site trips reassigned due to the relocation of the transit baseyard facility.

Project Description

The proposed project development scheme includes the relocation of the Mass Transit Agency (MTA) from its current location on Railroad Avenue in the Schultz Siding facility to Parcel 321013148 as shown in **Figure 1**. The subject parcel consists of 40 acres, though the MTA will take up only 5 acres. As shown in **Figure 8,** vehicles will access the site via two full-access project driveways located on Ho'olaulima Road.

The site will include the construction of a transit baseyard facility, which will include office space and a maintenance garage (see **Figure 8**). The office space will be used for administrative staff to oversee daily transit operations, while the maintenance garage will be used to maintain and repair transit vehicles. On-site parking must accommodate a fleet of fifty-five (55) transit buses and employees' personal vehicles. Access to the project site is a proposed 50-foot wide road which is currently maintained by the County. The roadway is also used to access other properties/facilities in the area, which include a quarry, borrow pits, landfill, drag strip, and sort station.

Transportation Evaluation Overview

The project site is located in Hilo and will mainly serve MTA staff. The project will incorporate use of existing roads for regional vehicle access. Regional access to the relocated MTA Facility will be provided by Mamalahoa Highway (Highway 11). Analysis of the proposed project includes the intersections of Mamalahoa Highway/E Lanikaula St, Mamalahoa Highway/Leilani St, and Railroad Avenue/Leilani St. Additionally, the driveway to the existing MTA Facility on E Lanikaula Street was observed to determine the flow of traffic in and out of the baseyard. The study includes an analysis of AM and PM peak hour intersection operations, where the peak hour is the highest one-hour total of traffic between 6:00 am and 9:00am in the morning and between 3:00 pm and 6:00pm in the late afternoon/evening. Existing conditions are described below, followed by a description of conditions with the proposed project.

Figure 1

Proposed Project Site Location

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Operations Methodology

This section presents the methodologies used to analyze the operations of the unsignalized and signalized study intersections.

Unsignalized Intersection Analysis

Both Mamalahoa Highway/E Lanikaula St and Railroad Avenue/Leilani St are currently side-street stop controlled. The operations of this unsignalized intersection were evaluated using the method contained in Chapter 9 of the *2000 Highway Capacity Manual (HCM)* published by the Transportation Research Board (TRB). LOS ratings for stop-sign-controlled intersections are based on the average control delay expressed in seconds per vehicle. At two-way or side-street-controlled intersections, the average control delay is calculated for each stopped movement, not for the intersection as a whole. For approaches composed of a single lane, the control delay is computed as the average of all movements in that lane. For approaches with multiple lanes, the control delay is computed for each movement; the movement with the worst (i.e., longest) delay is presented. The average control delay for unsignalized intersections is calculated using SYNCHRO 8.0 analysis software and is correlated to a LOS designation as shown in **Table 1**.

TABLE 1
LOS CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Little or no delay.	≤ 10.0
B	Short traffic delay.	10.1 to 15.0
C	Average traffic delays.	15.1 to 25.0
D	Long traffic delays.	25.1 to 35.0
E	Very long traffic delays.	35.1 to 50.0
F	Extreme traffic delays with intersection capacity exceeded.	> 50.0

Source: 2000 Highway Capacity Manual, TRB Special Report 2009

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Signalized Intersection Analysis

The only signalized study intersection in this study is Mamalahoa Highway/Leilani Street.

Signalized intersections were analyzed using methodology described by the HCM 2000 which was used to prepare the level of service calculations for the study intersections. This level of service method, which is used for studies by the Hawaii DOT (HDOT), analyzes a signalized intersection's operation based on average control delay per vehicle. Control delay includes the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections is calculated using SYNCHRO analysis software and is correlated to a LOS designation as shown in **Table 2**.

TABLE 2
LOS CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service	Description	Average Control Delay Per Vehicle (Seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 to 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	55.1 to 80.0
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	> 80.0

Source: 2000 Highway Capacity Manual, TRB Special Report 2009

LOS Standards and Thresholds

Based on previous studies conducted for HDOT and the County of Hawaii, the minimum desirable operating level for roadways is LOS D. If a facility operates or is projected to operate at LOS E or F, feasible capacity enhancements or other improvements may be needed to improve operations. Unacceptable vehicle operations may be permitted to occur if potential vehicle improvements will result in substantial secondary impacts to other travel modes including walking, bicycling and transit.

Significant Impact Criteria

Based on previous studies conducted for the City of Hawaii, the desirable minimum operating standard for a signalized intersection is LOS D. Additionally, HDOT strives to maintain LOS D intersection operations. Both agencies typically define a significant intersection impact when project implementation causes the operation of an intersection, turning movement/approach, or roadway segment to degrade from LOS D or better to LOS E or F. This change is deemed a direct project-related impact.

For unsignalized intersections, if the addition of project traffic causes the intersection to degrade from LOS D or better to LOS E or F and satisfies the peak hour signal warrant criteria published in the 2009 edition of the *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD), then the impact is considered project-specific. The project is determined to have a significant cumulative impact when it adds traffic to a study location that includes a controlled approach that operates at an unacceptable level (i.e., LOS E or F), <u>and</u> satisfies the peak hour signal warrant. In the evaluation of an intersection's approach LOS at any location, other factors should be considered in the analysis, such as traffic volumes, volume-to-capacity (V/C) ratios (should ideally be less than 1.00), and secondary impacts to pedestrian, bicycle, and transit travel.

In addition, an impact at a signalized intersection is deemed to be significant if a project exacerbates operations on facilities already operating at LOS E or F and changes the corresponding volume-to-capacity (V/C) ratio by at least 0.01. This impact is deemed a cumulative project-related impact since the already poor operations are caused by traffic generated from other sources, as well as from the proposed project. When evaluating operations at any location, other factors should be considered in the analysis, such as traffic volumes, volume-to-capacity (V/C) ratios (which should ideally be less than 1.00), and secondary impacts to pedestrian, bicycle, and transit travel

Neither the County of Hawaii, nor HDOT, specify impact criteria for pedestrian, bicycle, and transit impacts. However, these impacts are generally evaluated based on whether a proposed project would: 1) conflict with existing or planned pedestrian, bicycle, or transit facilities, or 2) create walking, bicycling, or transit use demand without providing adequate and appropriate facilities for non-motorized mobility. The existing amenities for pedestrians, bicycles, and transit users were inventoried to evaluate the quality of the facilities in place today.

Existing Conditions

The location of the project site and immediate study area are shown on **Figure 2**.

Study Roadways

The primary corridors for vehicle access are briefly described below.

Mamalahoa Highway (Highway 11) is operated and maintained by Hawaii Department of Transportation (HDOT) and is a six-lane highway in the vicinity of the project site, but includes five lanes (i.e., two northbound lanes) north and south of the immediate study area. Mamalahoa Highway is also known as Hawaii Belt Road which traverses around the entire island of Hawaii. The specific portion of it that passes along the proposed project site is identified as Route 11 and is oriented in a north-south direction. In the immediate vicinity of the site, this roadway includes a 20-foot buffer/median. The posted speed limit is 35 miles per hour (mph).

Leilani Street is under the jurisdiction of the County of Hawaii and is an east-west facility within the context of this study area with one lane in each direction. The western approach of Leilani Street provides access to residential neighborhoods. The posted speed limit is 25 mph. The eastern approach of Leilani Street provides access to a number of base yards and industrial facilities and leads to Hilo International Airport. The posted speed limit is 30 mph.

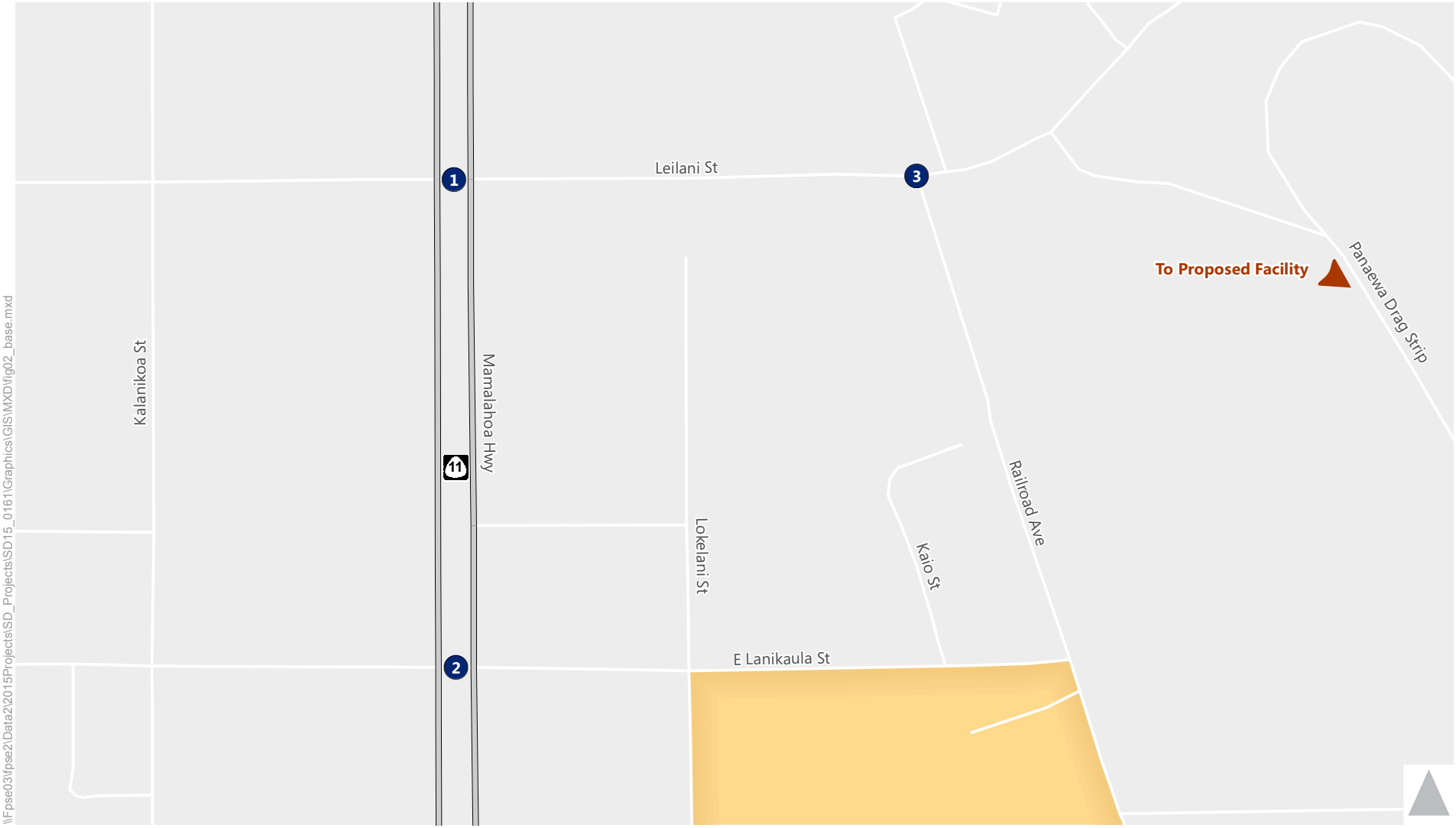
E Lanikaula Street is a County of Hawaii east-west facility within the context of this study area and has one lane in each direction. The western approach of E Lanikaula Street provides access to residential neighborhoods and some small businesses. The posted speed limit is 35 mph. The eastern approach provides direct access to the driveway of the existing Hilo MTA facility. Past the facility, the road terminates at its intersection with Railroad Avenue. West of Mamalahoa Highway, Lanikaula Street has a posted speed limit of 35 mph.

Railroad Avenue is under the jurisdiction of the County of Hawaii and is a north-south facility and includes one lane in each direction. The southern section of Railroad Avenue provides access to base yards and facilities, commercial sites, residential areas and to agricultural and undeveloped land south of Kahaopea Street. The posted speed limit in the study area is 30 mph. The northern section of Railroad Avenue terminates at the T-intersection with Leilani Street.

Pedestrian, Bicycle, and Transit Access

Pedestrian infrastructure, such as sidewalks, is currently very limited in the study area. No formal sidewalks are currently provided on E. Lanikaula Street leading to the existing baseyard and so pedestrians typically use the shoulder to reach their destination. Furthermore, there are no existing sidewalks on Ho'olualima Road and so pedestrians are forced to walk in the shoulder. High visibility crosswalks are provided across all four legs of the Mamalahoa Highway/Leilani Street intersection and across the northern and western legs of the Mamalahoa Highway/E Lanikaula Street intersection.

No separate bicycle facilities are provided on the streets in the immediate vicinity of either the existing site or the proposed site. Bicyclists are required to share the roadway.



1 Study Intersection

Existing Site

Figure 2

Study Intersections

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Existing Conditions

Traffic counts were conducted in April of 2015 at all three study intersections. Counts were conducted on a Tuesday for the AM peak period of 6:00 AM to 9:00 AM and for the PM peak period of 3:00 to 6:00 PM to evaluate the peak traffic volumes for the intersections near the existing project site. Additional counts were conducted at the existing site driveway for the same periods to determine the number of inbound and outbound vehicles broken down by vehicle type. Existing traffic count data is included in **Appendix A**.

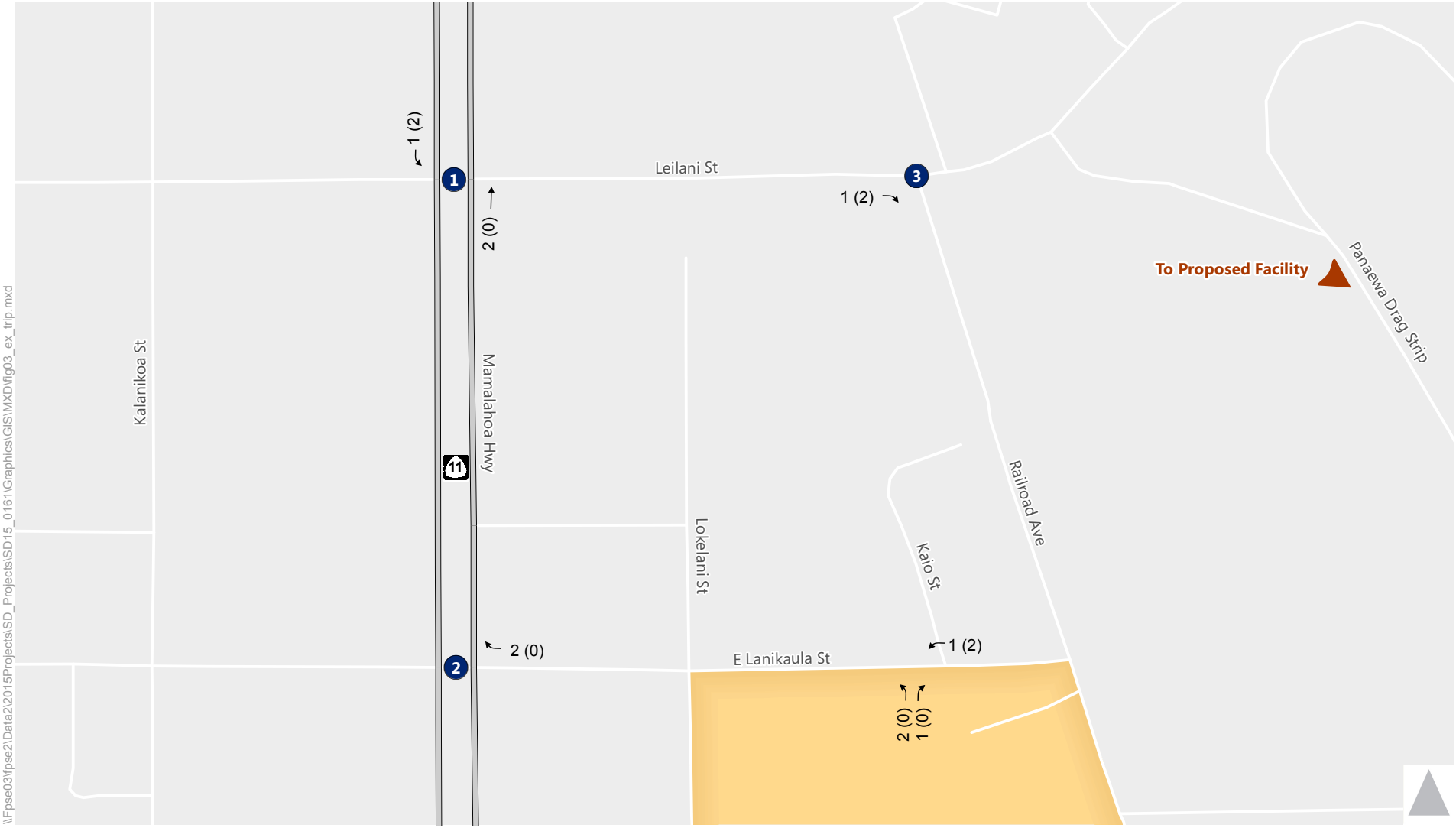
Figure 3 illustrates the Existing traffic volumes. Peak hour intersection capacity analysis was performed for the study intersections using the methodology described above and based on the recently collected traffic count data. **Table 3** below shows the results of the intersection operations analysis for Existing Conditions, and the detailed LOS Worksheet can be found in **Appendix B**. It is important to note that the LOS for the unsignalized intersection represents the worst case controlled movement or approach and not the entire intersection.

TABLE 3
EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour	Intersection Control	Delay[1]	LOS[2]
1. Mamalahoa Hwy / Leilani St	AM	Signalized	28.9	C
	PM		29.5	C
2. Mamalahoa Hwy / E Lanikaula St	AM	SSSC[3]	13.5	B
	PM		12.4	B
3. Railroad Ave / Leilani St	AM	SSSC[3]	20.2	C
	PM		22.5	C

Notes:
1 Delay is whole intersection weighted average control delay expressed in seconds per vehicle for signalized and all-way stop controlled intersections. Total control delay for the worst movement is presented for side-street stop-controlled intersections
2 LOS = Level of Service. LOS calculations conducted using the Synchro level of service analysis software package, which applies the methodology described in the *2000HCM*.
3 SSSC = Side Street Stop Control.
Source: Fehr & Peers, May 2015.

Table 3 shows that all intersections currently operate at an acceptable Level of Service (LOS) of C or better during both peak hours.



1 Study Intersection

AM (PM) Peak Hour Bus Volume

Turn Lane

Existing Site

Figure 3

Existing Trip Assignment

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Existing Baseyard Trip Generation

Existing trip generation at the MTA baseyard facility was calculated based on the existing driveway traffic counts conducted April of 2015, which accounted for buses, as well as personal vehicles. The results are shown in **Table 4** below.

TABLE 4
EXISTING TRIP GENERATION

Vehicle Type	AM Peak Hour			PM Peak Hour		
	Total	In	Out	Total	In	Out
Passenger Vehicles	88	73	15	99	11	88
Heavy Vehicles	21	8	13	2	1	1
Buses	4	1	3	2	2	0
Total	**113**	**82**	**31**	**103**	**14**	**89**

As can be seen in **Table 4**, a total of 113 vehicle trips were made in and out of the existing baseyard driveway during the AM peak hour, while the PM peak hour included 103 total vehicle trips. When counts were conducted, vehicle classification was taken into account to identify heavy vehicles, cars, and buses entering and leaving the facility. Within the AM peak hour, only one (1) bus entered and three (3) buses left the facility. The PM peak hour included a total of two (2) inbound bus trips.

Based on the detailed turning movement counts, the majority of the traffic leaving the facility turned left onto westbound E. Lanikaula Street towards Mamalahoa Highway in order to travel northbound. Most of the inbound traffic arrived from the north by way of Mamalahoa Highway, Leilani Street and Railroad Avenue since a southbound left-turn is not provided on Mamalahoa Avenue at E. Lanikaula Street. Vehicles traveling from the south on Mamalahoa Highway access the site by making a right-turn on E. Lanikaula Street and then a right-turn into the existing driveway.

Figure 4 shows the existing trip assignment at the current MTA Baseyard facility.

1 Study Intersection

AM (PM) Peak Hour Bus Volume

Turn Lane

Existing Site

Figure 4

Proposed Trip Assignment

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Near Term (2016) Conditions

The relocated facility is expected to be constructed and fully occupied in 2016. We do not foresee a significant change in development and traffic growth in the surrounding area by 2016. Therefore, Near Term (2016) volumes were calculated by applying a 1% annual growth rate to the existing traffic volumes at all three study intersections to account for general growth in the area. This annual growth rate was estimated based on a comparison of historic HDOT traffic count data from 2010 and 2013. Near Term (2016) traffic volumes are displayed in **Figure 5**.

Table 5 below shows the results of the peak hour intersection capacity analysis for all three study intersections based on Near Term (2016) traffic volumes. As the table shows, all intersections under Near Term (2016) Conditions are projected to operate at LOS C or better for both AM and PM peak hours. Near Term (2016) LOS worksheets are included in **Appendix C**.

TABLE 5
NEAR TERM (2016) CONDITIONS INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour	Intersection Control	Delay[1]	LOS[2]
1. Mamalahoa Hwy / Leilani St	AM	Signal	29.4	C
	PM		30	C
2. Mamalahoa Hwy / E Lanikaula St	AM	SSSC[3]	13.6	B
	PM		12.5	B
3. Railroad Ave / Leilani St	AM	SSSC[3]	20.7	C
	PM		23.2	C

Notes:
1 Delay is whole intersection weighted average control delay expressed in seconds per vehicle
2 LOS = Level of Service. LOS calculations conducted using the Synchro level of service analysis software package, which applies the methodology described in the *2000 HCM*.
3 SSSC = Side Street Stop Control.
Source: Fehr & Peers, June 2015.

1 Study Intersection

AM (PM) Peak Hour Traffic Volume

Turn Lane

Existing Site

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Figure 5

Existing Peak Hour Volumes

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Near Term (2016) Plus Project Conditions

Traffic volumes under this scenario include the Near Term (2016) Conditions traffic volumes with the existing bus volumes reassigned to and from the relocated baseyard facility. Counts collected at the driveway for AM and PM peak hours were reassigned from Mamalahoa Highway/E Lanikaula Street to Mamalahoa Highway/Leilani Street and will now travel eastbound through the Railroad Avenue/Leilani Street intersection to get to the project site. **Figure 6** shows the AM and PM bus trip assignment with the proposed project for all study intersections.

It should be noted that existing bus volumes from the baseyard facility were not increased from 2015 to 2016 since the frequency of service is expected to remain the same at the new facility at least in the near-term. Based on this expectation, bus volumes from the existing baseyard facility driveway were subtracted from specific turning movements of the three study intersections and reassigned to the appropriate turning movements associated with the relocated baseyard facility. In addition to the bus trips, vehicle trips generated by bus drivers and maintenance personnel in their personal vehicles will also be relocated to the new facility. For purposes of this analysis, a total of two vehicle trips per peak hour were re-assigned for the proposed project. It is understood that more employees would arrive to and depart from the baseyard through the course of the day, but only a fraction of these trips would actually occur during the AM or PM peak hours. **Table 6** below shows the results of the peak hour intersection analysis for Near Term (2016) plus Project Conditions.

TABLE 6
NEAR TERM (2016) PLUS PROJECT INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour	Intersection Control	Without Project		With Project	
			Delay[1]	LOS[2]	Delay[1]	LOS[2]
1. Mamalahoa Hwy / Leilani St	AM	Signal	29.4	C	29.7	C
	PM		30	C	30.2	C
2. Mamalahoa Hwy / E Lanikaula St	AM	SSSC[3]	13.6	B	13.5	B
	PM		12.5	B	12.5	B
3. Railroad Ave / Leilani St	AM	SSSC[3]	20.7	C	21	C
	PM		23.2	C	23.3	C

Notes:
1 Delay is whole intersection weighted average control delay expressed in seconds per vehicle
2 LOS = Level of Service. LOS calculations conducted using the Synchro level of service analysis software package, which applies the methodology described in the *2000 HCM*.
3 SSSC = Side Street Stop Control.
Source: Fehr & Peers, June 2015.

As the table above shows, all intersections are expected to operate acceptably under Near Term (2016) plus Project Conditions, and therefore the project does not result in any impacts to the roadway network. **Figure 7** shows the Near Term (2016) plus Project traffic volumes. LOS worksheets for this scenario are included in **Appendix D**.

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1 Study Intersection

AM (PM) Peak Hour Traffic Volume

Turn Lane

Existing Site

Figure 6

Near Term (2016) Peak Hour Volumes

1 Study Intersection

AM (PM) Peak Hour Traffic Volume

Turn Lane

Existing Site

Figure 7

Near Term (2016) Plus Project Peak Hour Volumes

\\Fpse03\fpse2\Data2\2015Projects\SD_Projects\SD15_0161\Graphics\GIS\MXD\fig07_phtv_2016_pp.mxd

Pedestrian, Bicyclist and Transit Facilities

As noted previously, no existing pedestrian facilities connect to the proposed/relocated facility. Given the operation of the proposed baseyard as an employment center and that it is nearly one mile to the closest residential area and 1.5 miles to the closest commercial area, pedestrian demand generated by the site is expected to be negligible. Thus, no off-site pedestrian enhancements are recommended as part of the project.

Bike Plan Hawaii (2003), a State master plan for bikeways, is intended to serve as the basis for future bikeway planning and development decisions. Within the project study area, Bike Plan Hawaii indicates Railroad Avenue between Leilani St and Kaaahi Road is planned as a bicycle lane under County jurisdiction. No designated bike facility has been identified or proposed for Ho'olaulima Road.

It is possible that some drivers and other baseyard employees may commute to the site by bicycle or may travel to the adjacent commercial areas for lunch. Since the traffic volume and travel speeds on Ho'olaulima Road will be relatively low, it will be possible for bicyclists to share the road with vehicles. Accordingly, signage should be installed indicating that drivers and bicyclists need to share the roadway. In addition, bicycle parking should be provided at the site to encourage the use of cycling. Initially, a minimum of two bike parking spaces or rack slots should be provided.

While it is possible that some baseyard employees currently take transit to the existing baseyard, the new baseyard will not be conducive to transit use given the lengthy distance to the closest transit stop. Employees desiring to access the site without driving alone will have to carpool or bicycle to the site. In the end, implementation of the project is not expected to significantly impact or conflict with existing or planned service.

With the recommended features described above, the project is not anticipated to result in any significant impacts to pedestrian, bicycle, or transit facilities within the study area.

Traffic Impacts

Based on the collected data and analysis, it is expected the relocation of the MTA Baseyard Facility will not result in an operational impact to the surrounding roadway network. Essentially, the relocation will shift bus and MTA staff-generated traffic currently using the existing facility driveway to new intersections and/or turning movements serving the proposed facility. This means the intersection of E Lanikaula St and Mamalahoa Highway will receive less traffic passing through the northbound right turning movement and in turn, the intersection of Leilani Street and Mamalahoa Higway will note an increase for its northbound right turning movement. Traffic on Railroad Avenue will decrease as existing inbound traffic will be redirected eastward past the intersection of Railroad Avenue and Leilani Street.

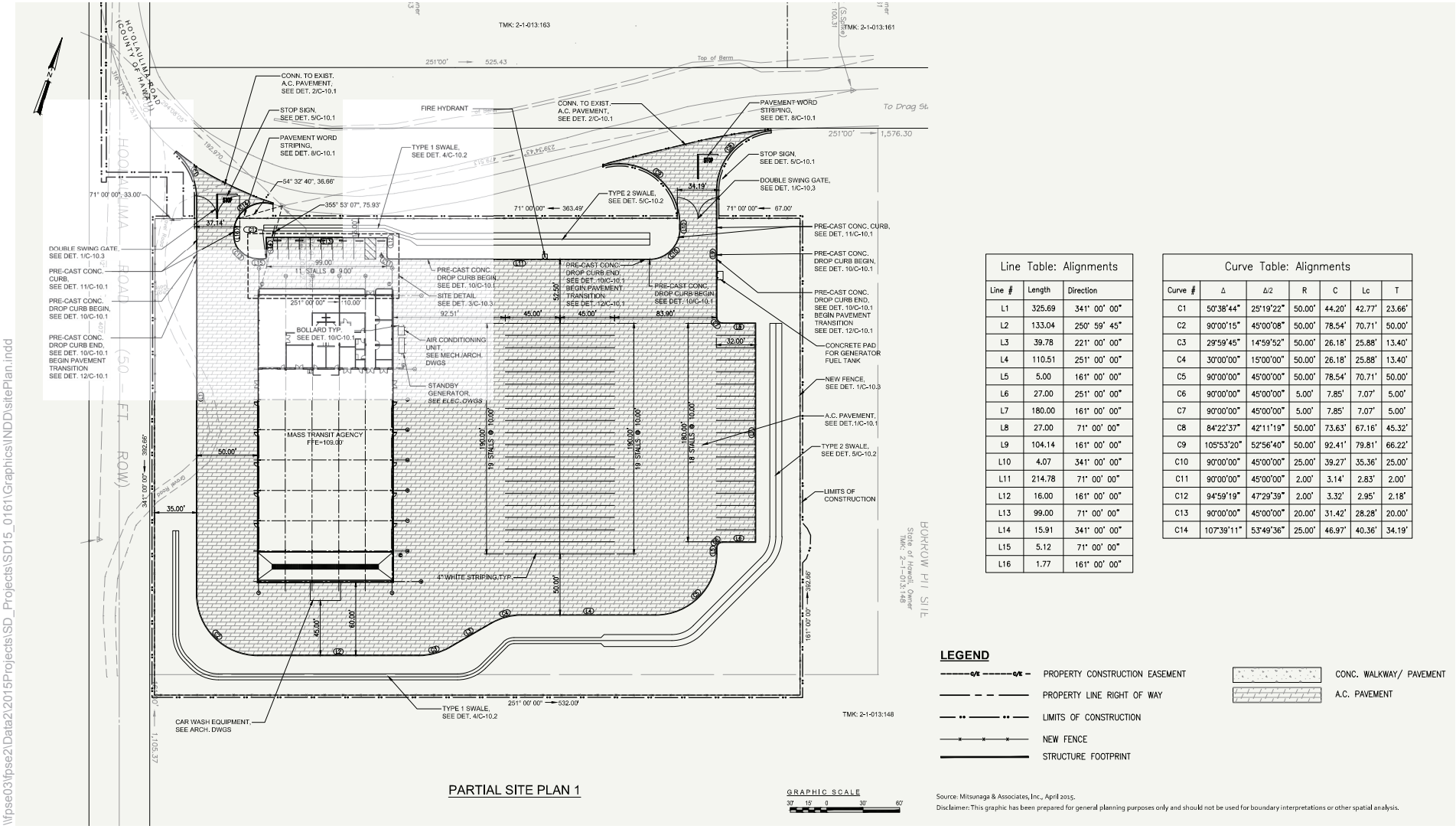
The number of bus trips which arrive at and depart from the existing MTA baseyard facility during the peak hour is minimal and therefore the impact of these redistributed trips in association with the relocated facility is negligible.

Site Access, Circulation and Parking

Figure 8 shows the proposed site plan, which was reviewed to determine if modifications are needed to provide adequate site access, on-site circulation, and parking supply. Vehicles will access the site via two full-access project driveways located on Ho'olaulima Road.

The existing section of Ho`olaulima Road south of Leilani Street varies in width. With the addition of two-way bus traffic, a minimum pavement section of 22 feet (i.e., two 11-foot opposing lanes) should be maintained along the entire length between the site and Leilani Street. A double yellow center line stripe should be installed along the entire length, and shoulder lines should be striped where possible to clearly designate the traveled way.

The main demand for parking on site will be for MTA staff and for the fleet of buses that will be stored and maintained. The site will provide 10 parking stalls located on the northern side of the site, one of which will be ADA-compliant. The western driveway extends towards the back of the building and directs buses to the car wash equipment followed by the bus parking. The proposed site does not include any dead end parking aisles, which maximizes circulation and mobility within the site as it is intended for large vehicles. The driveways are roughly 30 feet in width to allow for additional room for the buses that will enter and exit the site. Given the low volumes and multiple access points, no modifications to the propose site plan are recommended.



Line Table: Alignments		
Line #	Length	Direction
L1	325.69	341° 00' 00"
L2	133.04	250° 59' 45"
L3	39.78	221° 00' 00"
L4	110.51	251° 00' 00"
L5	5.00	161° 00' 00"
L6	27.00	251° 00' 00"
L7	180.00	161° 00' 00"
L8	27.00	71° 00' 00"
L9	104.14	161° 00' 00"
L10	4.07	341° 00' 00"
L11	214.78	71° 00' 00"
L12	16.00	161° 00' 00"
L13	99.00	71° 00' 00"
L14	15.91	341° 00' 00"
L15	5.12	71° 00' 00"
L16	1.77	161° 00' 00"

Curve Table: Alignments						
Curve #	Δ	Δ/2	R	C	Lc	T
C1	50°38'44"	25°19'22"	50.00'	44.20'	42.77'	23.66'
C2	90°00'15"	45°00'08"	50.00'	78.54'	70.71'	50.00'
C3	29°59'45"	14°59'52"	50.00'	26.18'	25.88'	13.40'
C4	30°00'00"	15°00'00"	50.00'	26.18'	25.88'	13.40'
C5	90°00'00"	45°00'00"	50.00'	78.54'	70.71'	50.00'
C6	90°00'00"	45°00'00"	5.00'	7.85'	7.07'	5.00'
C7	90°00'00"	45°00'00"	5.00'	7.85'	7.07'	5.00'
C8	84°22'37"	42°11'19"	50.00'	73.63'	67.16'	45.32'
C9	105°53'20"	52°56'40"	50.00'	92.41'	79.81'	66.22'
C10	90°00'00"	45°00'00"	25.00'	39.27'	35.36'	25.00'
C11	90°00'00"	45°00'00"	2.00'	3.14'	2.83'	2.00'
C12	94°59'19"	47°29'39"	2.00'	3.32'	2.95'	2.18'
C13	90°00'00"	45°00'00"	20.00'	31.42'	28.28'	20.00'
C14	107°39'11"	53°49'36"	25.00'	46.97'	40.36'	34.19'

Source: PBR HAWAII & ASSOCIATES, INC.

Figure 8

Proposed Facility Site Plan

APPENDIX A

TRAFFIC COUNTS

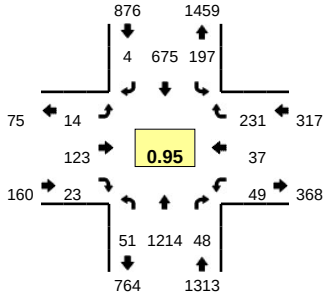
Type of peak hour being reported: Intersection Peak

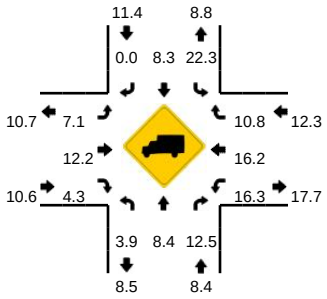
Method for determining peak hour: Total Entering Volume

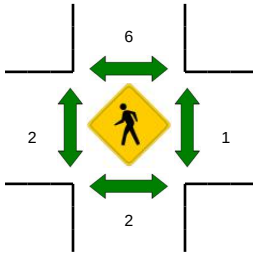
LOCATION: Mamalahoa Hwy (Hwy 11) -- Leilani St
CITY/STATE: Hilo, HI

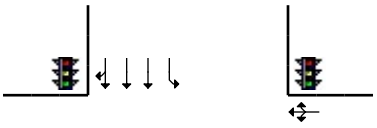
QC JOB #: 13361607
DATE: Tue, Apr 21 2015

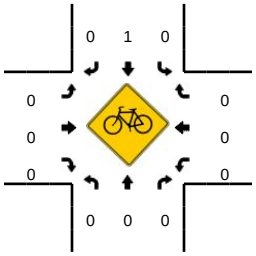
Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

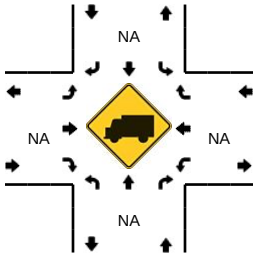


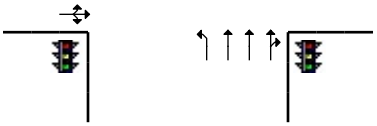


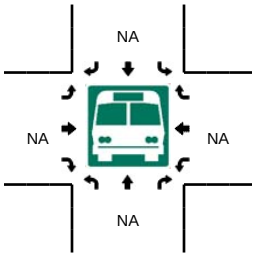












5-Min Count Period Beginning At	Mamalahoa Hwy (Hwy 11) (Northbound)				Mamalahoa Hwy (Hwy 11) (Southbound)				Leilani St (Eastbound)				Leilani St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:55 AM	3	89	3	1	13	33	1	0	2	9	7	0	4	3	15	0	183	1674
7:00 AM	1	110	3	1	8	24	0	0	3	11	1	0	2	2	12	0	178	1756
7:05 AM	6	102	2	2	7	55	0	0	3	4	5	0	4	5	15	0	210	1876
7:10 AM	0	108	4	2	4	37	0	0	2	8	2	0	3	2	22	0	194	1972
7:15 AM	3	105	3	1	10	28	0	0	0	3	4	0	3	4	32	0	196	2050
7:20 AM	3	141	6	0	13	32	0	0	0	9	1	0	1	7	10	0	223	2141
7:25 AM	3	98	4	1	18	51	1	0	3	10	1	0	3	1	21	0	215	2223
7:30 AM	3	134	5	0	10	48	0	0	0	9	0	0	1	1	22	0	233	2320
7:35 AM	4	78	2	1	19	49	0	0	1	9	4	0	6	2	24	0	199	2369
7:40 AM	3	117	7	0	12	34	1	0	0	11	1	0	3	6	23	0	218	2443
7:45 AM	1	91	5	0	22	57	1	0	3	12	2	0	2	3	21	0	220	2477
7:50 AM	3	122	7	0	12	52	0	0	2	13	2	0	4	4	20	0	241	2510
7:55 AM	2	84	3	5	27	75	0	0	2	6	2	0	4	4	29	0	243	2570
8:00 AM	3	64	0	2	19	62	0	0	2	13	2	0	7	3	13	0	190	2582
8:05 AM	2	119	6	3	17	64	0	0	0	11	0	0	5	1	12	0	240	2612
8:10 AM	7	81	3	3	13	59	0	0	1	9	4	0	7	4	20	0	211	2629
8:15 AM	0	102	5	2	18	68	0	0	0	6	1	0	6	4	13	0	225	2658
8:20 AM	3	124	1	0	10	56	1	0	0	14	4	0	1	4	13	0	231	2666
8:25 AM	4	70	2	4	21	56	0	0	0	6	1	0	4	2	17	0	187	2638
8:30 AM	3	68	1	3	20	50	1	0	0	7	5	0	7	4	16	0	185	2590
8:35 AM	1	77	6	1	13	84	0	0	1	9	4	0	5	0	16	0	217	2608
8:40 AM	0	80	4	2	5	60	0	0	1	6	3	0	4	5	18	0	188	2578
8:45 AM	1	89	2	1	17	54	0	0	0	7	0	0	5	4	15	0	195	2553
8:50 AM	2	74	6	3	14	62	0	1	0	10	5	0	3	1	14	0	195	2507

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	1188	60	20	244	736	4	0	28	124	24	0	40	44	280	0	2816
Heavy Trucks	0	104	12		64	44	0		0	12	4		4	8	20		272
Pedestrians		0				16				0				4			20
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/7/2015 11:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

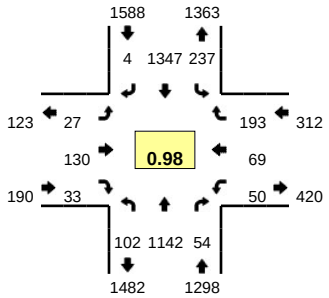
Type of peak hour being reported: Intersection Peak

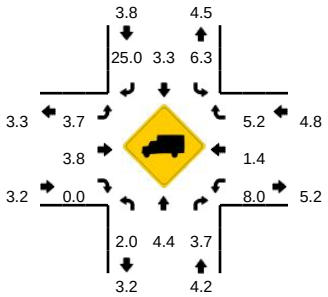
Method for determining peak hour: Total Entering Volume

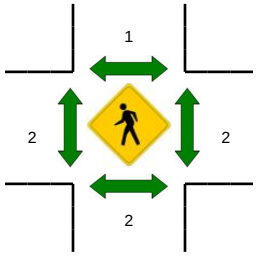
LOCATION: Mamalahoa Hwy (Hwy 11) -- Leilani St
CITY/STATE: Hilo, HI

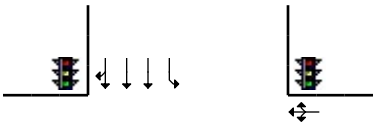
QC JOB #: 13361608
DATE: Tue, Apr 21 2015

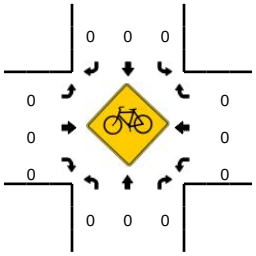
Peak-Hour: 3:40 PM -- 4:40 PM
Peak 15-Min: 3:40 PM -- 3:55 PM

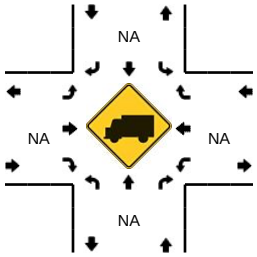


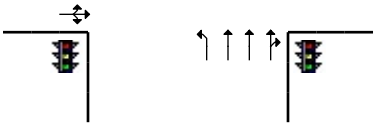


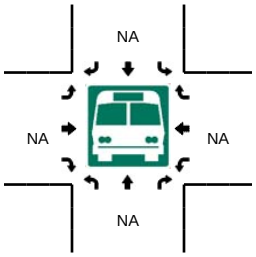












5-Min Count Period Beginning At	Mamalahoa Hwy (Hwy 11) (Northbound)				Mamalahoa Hwy (Hwy 11) (Southbound)				Leilani St (Eastbound)				Leilani St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:10 PM	3	106	5	3	15	119	0	0	2	13	5	0	4	1	14	0	290	
3:15 PM	4	84	3	8	15	92	0	0	1	14	3	0	8	4	16	0	252	
3:20 PM	6	98	4	3	21	78	1	0	0	7	5	0	7	5	19	0	254	
3:25 PM	3	107	3	8	16	93	0	0	0	9	4	0	3	0	8	0	254	
3:30 PM	3	122	5	5	22	99	1	0	0	8	2	0	6	2	22	0	297	
3:35 PM	9	71	7	1	20	102	3	0	1	10	3	0	7	8	22	0	264	
3:40 PM	7	121	5	7	23	123	1	0	2	14	4	0	6	5	11	0	329	
3:45 PM	4	106	7	5	16	112	0	0	0	5	1	0	6	5	18	0	285	
3:50 PM	3	68	3	3	18	94	1	0	6	15	5	0	6	6	21	0	249	
3:55 PM	3	98	4	7	28	114	0	0	2	11	4	0	1	7	12	0	291	3254
4:00 PM	5	116	3	1	16	118	0	0	0	14	2	0	2	2	9	0	288	3307
4:05 PM	1	88	4	1	12	101	0	0	3	11	3	0	9	8	18	0	259	3312
4:10 PM	7	72	5	5	31	100	1	0	2	9	1	0	4	4	19	0	260	3282
4:15 PM	5	99	4	3	19	119	0	0	3	9	3	0	1	2	11	0	278	3308
4:20 PM	4	108	1	5	19	112	0	1	4	12	0	0	2	7	12	0	287	3341
4:25 PM	5	78	4	7	20	89	1	0	1	13	2	0	7	6	30	0	263	3350
4:30 PM	3	96	10	3	19	119	0	0	3	11	5	0	3	6	17	0	295	3348
4:35 PM	3	92	4	5	15	146	0	0	1	6	3	0	3	11	15	0	304	3388
4:40 PM	4	79	1	1	17	99	0	0	2	19	1	0	7	2	21	0	253	3312
4:45 PM	2	107	2	5	24	110	2	0	1	9	3	0	3	3	12	0	283	3310
4:50 PM	2	95	3	2	22	138	1	0	0	7	1	0	5	1	10	0	287	3348
4:55 PM	0	80	1	6	19	113	0	0	0	14	2	0	10	4	19	0	268	3325
5:00 PM	2	78	2	6	27	107	0	1	0	11	3	0	4	2	9	0	252	3289
5:05 PM	3	72	1	2	13	142	0	0	0	6	2	0	3	3	11	0	258	3288

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	56	1180	60	60	228	1316	8	0	32	136	40	0	72	64	200	0	3452
Heavy Trucks	4	68	0		20	32	0		0	0	0		8	0	20		152
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/7/2015 11:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

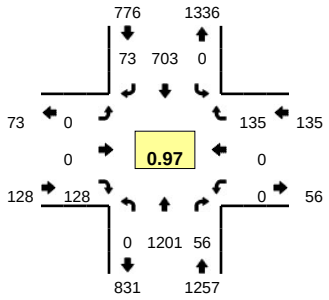
LOCATION: Mamalahoa Hwy (Hwy 11) -- E Lanikaula St

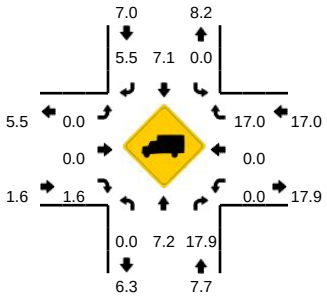
CITY/STATE: Hilo, HI

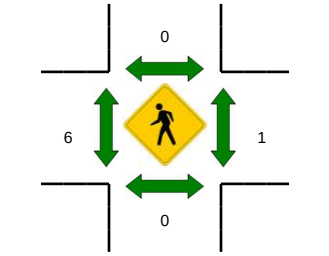
QC JOB #: 13361603

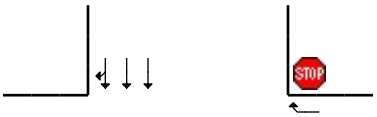
DATE: Tue, Apr 21 2015

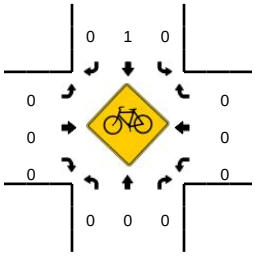
Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:55 AM -- 8:10 AM

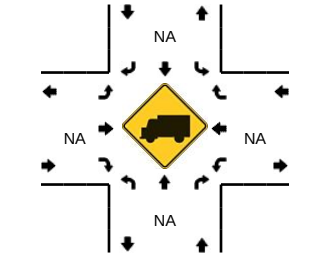


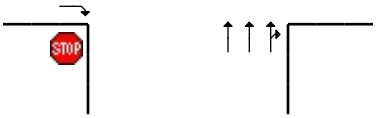


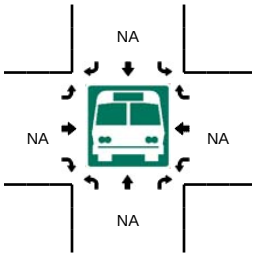












5-Min Count Period Beginning At	Mamalahoa Hwy (Hwy 11) (Northbound)				Mamalahoa Hwy (Hwy 11) (Southbound)				E Lanikaula St (Eastbound)				E Lanikaula St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:55 AM	0	108	1	0	0	26	6	0	0	0	5	0	0	0	3	0	149	1423
7:00 AM	0	94	3	0	0	35	1	0	0	0	10	0	0	0	10	0	153	1496
7:05 AM	0	108	1	0	0	48	5	0	0	0	6	0	0	0	12	0	180	1600
7:10 AM	0	101	5	0	0	56	4	0	0	0	11	0	0	0	16	0	193	1691
7:15 AM	0	130	6	0	0	25	4	0	0	0	4	0	0	0	17	0	186	1768
7:20 AM	0	95	2	0	0	51	3	0	0	0	15	0	0	0	14	0	180	1842
7:25 AM	0	117	6	0	0	46	5	0	0	0	9	0	0	0	13	0	196	1924
7:30 AM	0	106	5	0	0	54	8	0	0	0	7	0	0	0	15	0	195	1995
7:35 AM	0	105	5	0	0	47	2	0	0	0	14	0	0	0	15	0	188	2081
7:40 AM	0	83	1	0	0	51	8	0	0	0	6	0	0	0	10	0	159	2121
7:45 AM	0	114	3	0	0	48	8	0	0	0	5	0	0	0	16	0	194	2133
7:50 AM	0	88	11	0	0	60	8	0	0	0	11	0	0	0	16	0	194	2167
7:55 AM	0	99	5	0	0	72	6	0	0	0	8	0	0	0	9	0	199	2217
8:00 AM	0	75	5	0	0	68	13	0	0	0	14	0	0	0	14	0	189	2253
8:05 AM	0	107	2	0	0	64	2	0	0	0	13	0	0	0	13	0	201	2274
8:10 AM	0	87	3	0	0	53	5	0	0	0	8	0	0	0	6	0	162	2243
8:15 AM	0	91	8	0	0	85	4	0	0	0	13	0	0	0	6	0	207	2264
8:20 AM	0	129	2	0	0	55	4	0	0	0	20	0	0	0	2	0	212	2296
8:25 AM	0	72	7	0	0	64	5	0	0	0	10	0	0	0	5	0	163	2263
8:30 AM	0	80	3	0	0	63	5	0	0	0	11	0	0	0	8	0	170	2238
8:35 AM	0	66	1	0	0	87	8	0	0	0	8	0	0	0	4	0	174	2224
8:40 AM	0	80	4	0	0	49	6	0	0	0	13	0	0	0	8	0	160	2225
8:45 AM	0	81	3	0	0	68	8	0	0	0	14	0	0	0	6	0	180	2211
8:50 AM	0	90	5	0	0	57	5	0	0	0	11	0	0	0	1	0	169	2186

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1124	48	0	0	816	84	0	0	0	140	0	0	0	144	0	2356
Heavy Trucks	0	80	4		0	48	12		0	0	0		0	0	28		172
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/7/2015 11:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

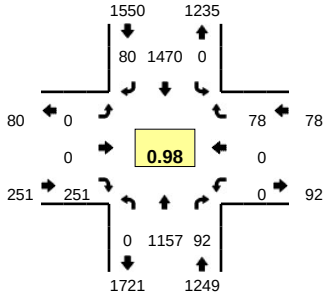
LOCATION: Mamalahoa Hwy (Hwy 11) -- E Lanikaula St

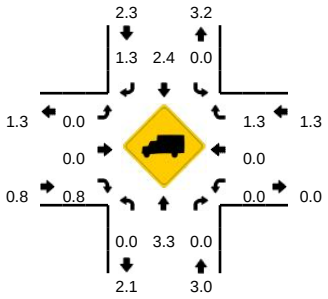
CITY/STATE: Hilo, HI

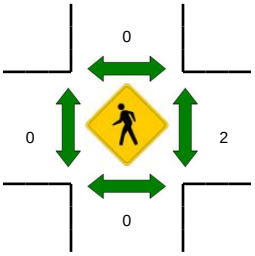
QC JOB #: 13361604

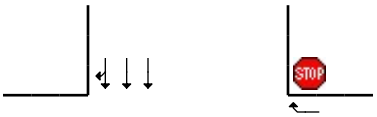
DATE: Tue, Apr 21 2015

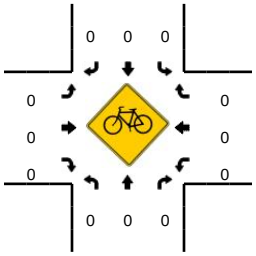
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:20 PM -- 4:35 PM

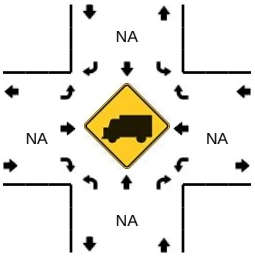


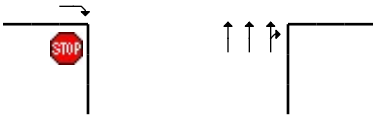


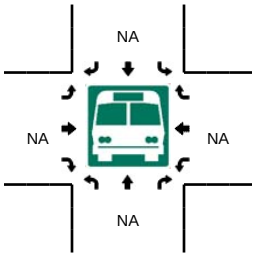












5-Min Count Period Beginning At	Mamalahoa Hwy (Hwy 11) (Northbound)				Mamalahoa Hwy (Hwy 11) (Southbound)				E Lanikaula St (Eastbound)				E Lanikaula St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:30 PM	0	113	11	0	0	111	10	0	0	0	20	0	0	0	17	0	282	
3:35 PM	0	106	28	0	0	112	9	0	0	0	21	0	0	0	11	0	287	
3:40 PM	0	101	11	0	0	112	7	0	0	0	19	0	0	0	9	0	259	
3:45 PM	0	103	7	0	0	117	6	0	0	0	25	0	0	0	13	0	271	
3:50 PM	0	80	2	0	0	113	7	0	0	0	23	0	0	0	6	0	231	
3:55 PM	0	92	5	0	0	100	8	0	0	0	21	0	0	0	8	0	234	3021
4:00 PM	0	113	9	0	0	130	4	0	0	0	10	0	0	0	8	0	274	3044
4:05 PM	0	94	6	0	0	134	5	0	0	0	23	0	0	0	5	0	267	3089
4:10 PM	0	86	9	0	0	98	9	0	0	0	25	0	0	0	4	0	231	3068
4:15 PM	0	88	9	0	0	121	8	0	0	0	9	0	0	0	9	0	244	3053
4:20 PM	0	122	6	0	0	122	5	0	0	0	25	0	0	0	12	0	292	3122
4:25 PM	0	96	7	0	0	91	7	0	0	0	23	0	0	0	7	0	231	3103
4:30 PM	0	107	8	0	0	132	5	0	0	0	19	0	0	0	6	0	277	3098
4:35 PM	0	97	8	0	0	134	8	0	0	0	16	0	0	0	4	0	267	3078
4:40 PM	0	86	4	0	0	115	8	0	0	0	30	0	0	0	3	0	246	3065
4:45 PM	0	105	8	0	0	107	7	0	0	0	29	0	0	0	6	0	262	3056
4:50 PM	0	77	6	0	0	137	8	0	0	0	17	0	0	0	8	0	253	3078
4:55 PM	0	86	12	0	0	149	6	0	0	0	25	0	0	0	6	0	284	3128
5:00 PM	0	80	2	0	0	95	8	0	0	0	21	0	0	0	2	0	208	3062
5:05 PM	0	71	7	0	0	154	3	0	0	0	17	0	0	0	2	0	254	3049
5:10 PM	0	74	2	0	0	124	6	0	0	0	20	0	0	0	5	0	231	3049
5:15 PM	0	76	6	0	0	88	4	0	0	0	24	0	0	0	6	0	204	3009
5:20 PM	0	75	0	0	0	97	3	0	0	0	20	0	0	0	7	0	202	2919
5:25 PM	0	74	3	0	0	108	6	0	0	0	17	0	0	0	3	0	211	2899

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1300	84	0	0	1380	68	0	0	0	268	0	0	0	100	0	3200
Heavy Trucks	0	32	0		0	52	0		0	0	4		0	0	4		92
Pedestrians		0				0				0				8			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/7/2015 11:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

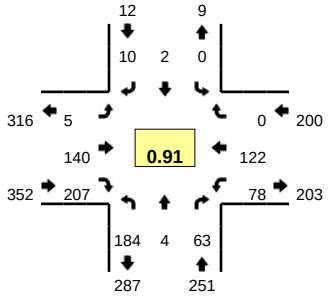
Type of peak hour being reported: Intersection Peak

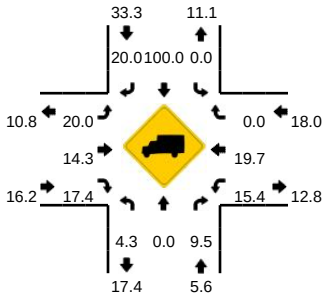
Method for determining peak hour: Total Entering Volume

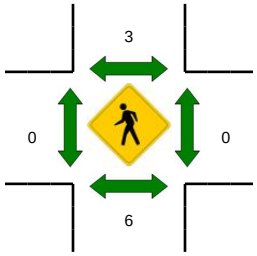
LOCATION: Railroad Ave -- Leilani St
CITY/STATE: Hilo, HI

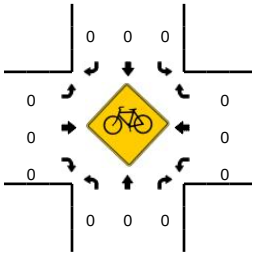
QC JOB #: 13361605
DATE: Tue, Apr 21 2015

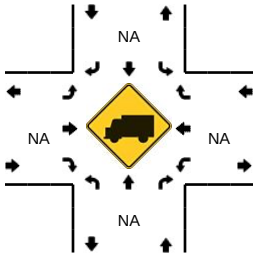
Peak-Hour: 7:20 AM -- 8:20 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

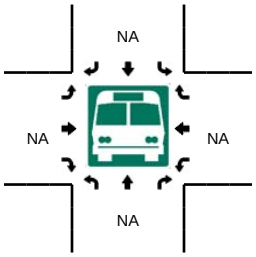












5-Min Count Period Beginning At	Railroad Ave (Northbound)				Railroad Ave (Southbound)				Leilani St (Eastbound)				Leilani St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:50 AM	8	2	10	0	0	0	0	0	7	9	13	0	6	7	0	0	62	
6:55 AM	15	3	7	0	0	1	1	0	2	7	15	0	2	5	0	0	58	536
7:00 AM	7	0	7	0	0	1	1	0	2	8	13	0	5	6	0	0	50	565
7:05 AM	16	0	10	0	0	0	0	0	0	5	6	0	0	11	0	0	48	590
7:10 AM	16	0	10	0	0	0	2	0	1	5	4	0	9	15	0	0	62	621
7:15 AM	17	0	6	0	0	1	1	0	0	7	7	0	10	10	0	0	59	644
7:20 AM	19	1	6	0	0	0	1	0	0	12	16	0	2	12	0	0	69	667
7:25 AM	14	0	6	0	0	0	1	0	0	9	18	0	10	4	0	0	62	688
7:30 AM	23	0	8	0	0	0	0	0	0	14	7	0	7	15	0	0	74	710
7:35 AM	16	1	6	0	0	0	1	0	0	11	15	0	5	11	0	0	66	713
7:40 AM	17	1	5	0	0	0	0	0	1	13	19	0	11	12	0	0	79	740
7:45 AM	18	1	2	0	0	0	1	0	1	11	25	0	3	6	0	0	68	757
7:50 AM	19	0	8	0	0	0	1	0	1	11	15	0	6	16	0	0	77	772
7:55 AM	9	0	4	0	0	1	2	0	1	8	28	0	5	6	0	0	64	778
8:00 AM	12	0	3	0	0	0	1	0	0	16	15	0	7	6	0	0	60	788
8:05 AM	7	0	7	0	0	0	2	0	1	17	15	0	12	9	0	0	70	810
8:10 AM	17	0	4	0	0	0	0	0	0	6	17	0	5	12	0	0	61	809
8:15 AM	13	0	4	0	0	1	0	0	0	12	17	0	5	13	0	0	65	815
8:20 AM	10	0	5	0	0	0	0	0	0	10	11	0	6	7	0	0	49	795
8:25 AM	12	1	12	0	0	0	0	0	0	10	21	0	3	10	0	0	69	802
8:30 AM	9	0	5	0	0	0	0	0	0	15	10	0	6	15	0	0	60	788
8:35 AM	14	0	10	0	0	0	2	0	0	6	17	0	9	9	0	0	67	789
8:40 AM	13	0	7	0	0	0	2	0	2	6	8	0	3	10	0	0	51	761
8:45 AM	10	0	9	0	0	0	0	0	0	8	16	0	9	10	0	0	62	755

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	216	8	60	0	0	0	8	0	12	140	236	0	80	136	0	0	896
Heavy Trucks	16	0	4		0	0	0		0	28	60		4	16	0		128
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/7/2015 11:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

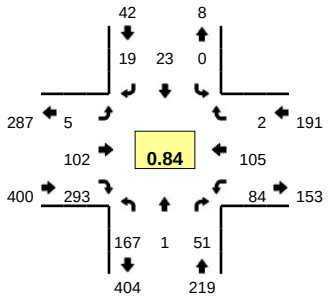
Type of peak hour being reported: Intersection Peak

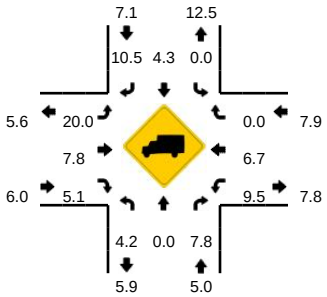
Method for determining peak hour: Total Entering Volume

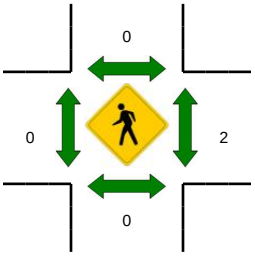
LOCATION: Railroad Ave -- Leilani St
CITY/STATE: Hilo, HI

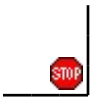
QC JOB #: 13361606
DATE: Tue, Apr 21 2015

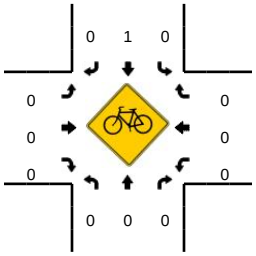
Peak-Hour: 3:30 PM -- 4:30 PM
Peak 15-Min: 3:30 PM -- 3:45 PM

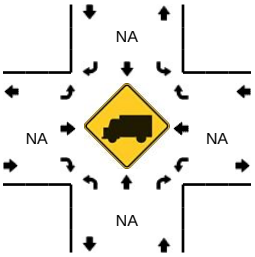


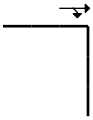


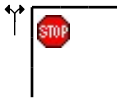


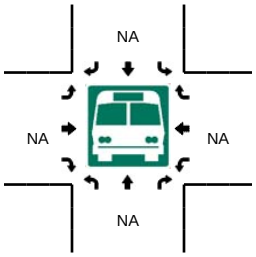












5-Min Count Period Beginning At	Railroad Ave (Northbound)				Railroad Ave (Southbound)				Leilani St (Eastbound)				Leilani St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	8	1	1	0	0	0	1	0	1	6	21	0	4	6	0	0	49	
3:05 PM	15	0	8	0	0	0	0	0	0	12	23	0	5	7	1	0	71	
3:10 PM	18	0	4	0	0	0	0	0	2	11	19	0	7	13	0	0	74	
3:15 PM	14	0	3	0	0	0	1	0	2	8	16	0	8	11	0	0	63	
3:20 PM	13	0	4	0	0	1	0	0	0	10	20	0	7	5	0	0	60	
3:25 PM	8	1	2	0	0	1	2	0	0	6	20	0	3	9	0	0	52	
3:30 PM	19	0	4	0	0	5	6	0	0	8	25	0	9	9	1	0	86	
3:35 PM	18	0	4	1	0	3	8	0	1	8	22	0	6	10	0	0	81	
3:40 PM	13	1	4	1	0	2	3	0	0	8	34	0	8	12	1	0	87	
3:45 PM	16	0	2	1	0	0	0	0	0	7	17	0	8	5	0	0	56	
3:50 PM	10	0	0	0	0	1	0	0	0	13	20	0	8	2	0	0	54	
3:55 PM	12	0	7	0	0	2	0	0	1	9	33	0	5	10	0	0	79	812
4:00 PM	11	0	5	0	0	0	0	0	0	9	26	0	8	6	0	0	65	828
4:05 PM	17	0	3	0	0	2	0	0	0	7	24	0	4	7	0	0	64	821
4:10 PM	14	0	10	0	0	1	0	0	0	13	23	0	8	7	0	0	76	823
4:15 PM	9	0	7	0	0	3	0	0	0	6	25	0	6	12	0	0	68	828
4:20 PM	7	0	4	1	0	2	1	0	0	4	25	0	6	10	0	0	60	828
4:25 PM	17	0	1	0	0	2	1	0	3	10	19	0	8	15	0	0	76	852
4:30 PM	16	0	5	0	0	2	1	0	0	10	26	0	9	12	0	0	81	847
4:35 PM	10	0	4	0	0	1	1	0	1	4	23	0	2	8	0	0	54	820
4:40 PM	14	0	7	0	0	0	1	0	0	9	27	0	5	10	0	0	73	806
4:45 PM	9	0	2	0	0	2	1	0	0	5	27	0	5	8	0	0	59	809
4:50 PM	11	0	0	0	0	0	0	0	0	8	21	0	6	7	0	0	53	808
4:55 PM	13	0	5	0	0	0	0	0	0	2	26	0	4	6	0	0	56	785

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	200	4	48	8	0	40	68	0	4	96	324	0	92	124	8	0	1016
Heavy Trucks	16	0	4		0	0	8		0	16	16		12	16	0		88
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/7/2015 11:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

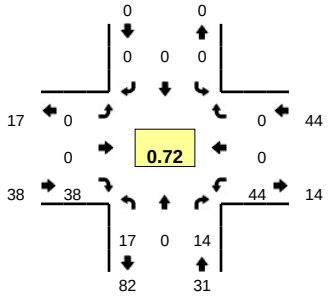
LOCATION: Base Yard Dwy -- E Lanikaula St

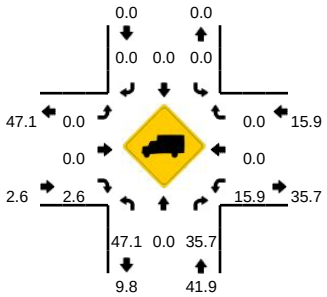
CITY/STATE: Hilo, HI

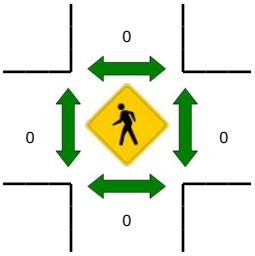
QC JOB #: 13361601

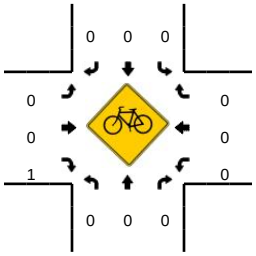
DATE: Tue, Apr 21 2015

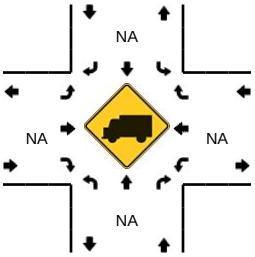
Peak-Hour: 6:10 AM -- 7:10 AM
Peak 15-Min: 6:50 AM -- 7:05 AM

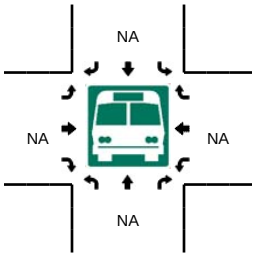












5-Min Count Period Beginning At	Base Yard Dwy (Northbound)				Base Yard Dwy (Southbound)				E Lanikaula St (Eastbound)				E Lanikaula St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	0	4	
6:05 AM	0	0	1	0	0	0	0	0	0	0	2	0	2	0	0	0	5	
6:10 AM	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	6	
6:15 AM	0	0	0	0	0	0	0	0	0	0	7	0	4	0	0	0	11	
6:20 AM	0	0	3	0	0	0	0	0	0	0	6	0	6	0	0	0	15	
6:25 AM	1	0	0	0	0	0	0	0	0	0	7	0	4	0	0	0	12	
6:30 AM	1	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	7	
6:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
6:40 AM	1	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	4	
6:45 AM	2	0	1	0	0	0	0	0	0	0	5	0	3	0	0	0	11	
6:50 AM	2	0	1	0	0	0	0	0	0	0	4	0	6	0	0	0	13	
6:55 AM	2	0	2	0	0	0	0	0	0	0	0	0	6	0	0	0	10	99
7:00 AM	4	0	5	0	0	0	0	0	0	0	2	0	5	0	0	0	16	111
7:05 AM	4	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	7	113
7:10 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	109
7:15 AM	1	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	4	102
7:20 AM	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	3	90
7:25 AM	2	0	1	0	0	0	0	0	0	0	2	0	1	0	0	0	6	84
7:30 AM	2	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	6	83
7:35 AM	1	0	3	0	0	0	0	0	0	0	1	0	2	0	0	0	7	89
7:40 AM	1	0	3	0	0	0	0	0	0	0	0	0	2	0	0	0	6	91
7:45 AM	2	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	6	86
7:50 AM	1	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	4	77
7:55 AM	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	69

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	32	0	32	0	0	0	0	0	0	0	24	0	68	0	0	0	156
Heavy Trucks	16	0	20		0	0	0		0	0	0		16	0	0		52
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments: Ins and Outs Only (separate Buses from other vehicles)

Report generated on 5/7/2015 11:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

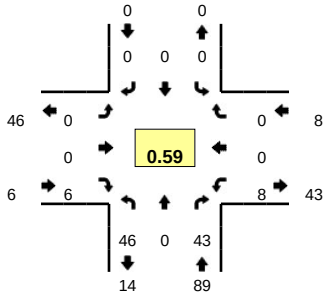
LOCATION: Base Yard Dwy -- E Lanikaula St

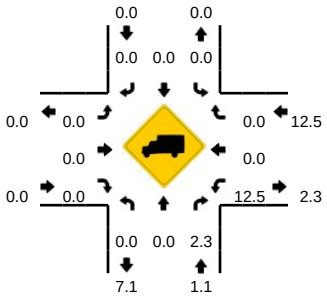
CITY/STATE: Hilo, HI

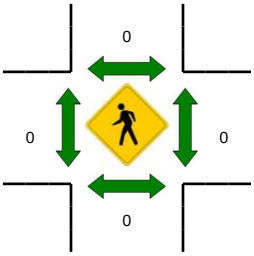
QC JOB #: 13361602

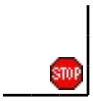
DATE: Tue, Apr 21 2015

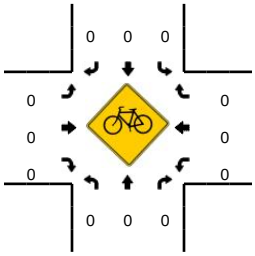
Peak-Hour: 3:00 PM -- 4:00 PM
Peak 15-Min: 3:00 PM -- 3:15 PM

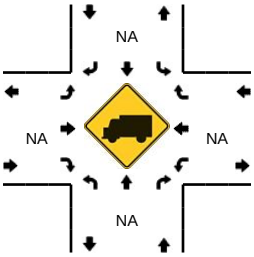


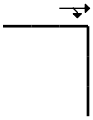


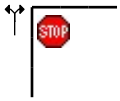


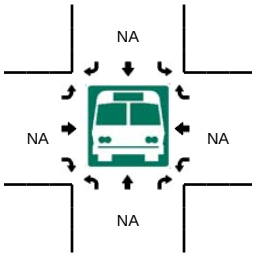












5-Min Count Period Beginning At	Base Yard Dwy (Northbound)				Base Yard Dwy (Southbound)				E Lanikaula St (Eastbound)				E Lanikaula St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	16	0	16	0	0	0	0	0	0	0	0	0	1	0	0	0	33	
3:05 PM	5	0	4	0	0	0	0	0	0	0	1	0	0	0	0	0	10	
3:10 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
3:15 PM	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	3	
3:20 PM	1	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	5	
3:25 PM	6	0	8	0	0	0	0	0	0	0	0	0	2	0	0	0	16	
3:30 PM	8	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	15	
3:35 PM	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	5	
3:40 PM	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	4	
3:45 PM	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
3:50 PM	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	5	
3:55 PM	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	103
4:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	3	73
4:05 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	65
4:10 PM	2	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	4	68
4:15 PM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	67
4:20 PM	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	65
4:25 PM	1	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0	4	53
4:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	40
4:35 PM	1	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	5	40
4:40 PM	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	4	40
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31
4:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	30

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	88	0	80	0	0	0	0	0	0	0	4	0	4	0	0	0	176
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments: Ins and Outs Only (separate Buses from other vehicles)

Report generated on 5/7/2015 11:13 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

7409 SW Tech Center Dr, Ste B150
Tigard, OR 97224
971-223-0003
www.qualitycounts.net

Site Code: 13361601
Location: Base Yard Dwy -- E Lanikaula St
Date: 4/21/2015

	Base Yard Dwy (Southbound)			E Lanikaula St (Westbound)			Base Yard Dwy (Northbound)			E Lanikaula St (Eastbound)					
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Interval Totals	Hourly Totals	15-minute Totals
6:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1		
6:05 AM	0	0	0	0	2	0	0	0	0	0	0	0	2		
6:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		3
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		2
6:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0
6:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		0
6:35 AM	0	0	0	0	1	0	0	0	0	0	0	0	1		1
6:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		1
6:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	1		2
6:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0		1
6:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	5	1
7:05 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	4	2
7:10 AM	0	0	0	0	0	0	1	0	0	0	0	0	1	5	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	5	2
7:20 AM	0	0	0	0	0	1	0	0	0	0	0	0	1	6	2
7:25 AM	0	0	0	0	0	0	0	0	1	0	1	0	2	8	3
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	8	3
7:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	7	2
7:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	7	1
7:50 AM	0	0	0	0	0	1	0	0	0	0	0	0	1	8	2
7:55 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	8	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	7	1
8:05 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
8:10 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0
8:20 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
8:25 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
8:35 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
8:40 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:50 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:55 AM	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1
Totals	0	0	0	0	4	3	1	0	2	0	4	0			

Trip Gen Total	In	Out
	8	3

Peak Hour Volumes

7409 SW Tech Center Dr, Ste B150
Tigard, OR 97224
971-223-0003
www.qualitycounts.net

Site Code: 13361602
Location: Base Yard Dwy -- E Lanikaula St
Date: 4/21/2015

	Base Yard Dwy (Southbound)			E Lanikaula St (Westbound)			Base Yard Dwy (Northbound)			E Lanikaula St (Eastbound)					
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Interval Totals	Hourly Totals	15-minute Totals
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
3:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		
3:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		0
3:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		0
3:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		0
3:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		0
3:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		0
3:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0		0
3:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:55 PM	0	0	0	0	0	2	0	0	0	0	0	0	2	2	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
5:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
5:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
5:20 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
5:25 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
5:35 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
5:40 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
5:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
5:55 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	2	0	0	0	0	0	0			

Peak Hour Volumes

Trip Gen Total	In	Out
	2	0

APPENDIX B

LOS WORKSHEETS – EXISTING CONDITIONS

HCM Signalized Intersection Capacity Analysis
1: Mamalahoa Hwy & Leilani St

6/3/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	14	123	23	49	37	231	17	34	1214	48	197	675
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8			6.8			4.0	6.2		4.0	6.2
Lane Util. Factor		1.00			1.00			1.00	0.91		1.00	0.91
Frt		0.98			0.90			1.00	0.99		1.00	1.00
Flt Protected		1.00			0.99			0.95	1.00		0.95	1.00
Satd. Flow (prot)		1819			1667			1770	5056		1770	5081
Flt Permitted		0.89			0.86			0.95	1.00		0.95	1.00
Satd. Flow (perm)		1620			1437			1770	5056		1770	5081
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	15	129	24	52	39	243	18	36	1278	51	207	711
RTOR Reduction (vph)	0	6	0	0	91	0	0	0	3	0	0	0
Lane Group Flow (vph)	0	162	0	0	243	0	0	54	1326	0	207	715
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4			8								
Actuated Green, G (s)		23.8			23.8			6.4	61.7		17.5	72.8
Effective Green, g (s)		23.8			23.8			6.4	61.7		17.5	72.8
Actuated g/C Ratio		0.20			0.20			0.05	0.51		0.15	0.61
Clearance Time (s)		6.8			6.8			4.0	6.2		4.0	6.2
Vehicle Extension (s)		2.8			2.8			1.0	2.0		2.0	2.0
Lane Grp Cap (vph)		321			285			94	2599		258	3082
v/s Ratio Prot								0.03	c0.26		c0.12	0.14
v/s Ratio Perm		0.10			c0.17							
v/c Ratio		0.51			0.85			0.57	0.51		0.80	0.23
Uniform Delay, d1		42.9			46.4			55.5	19.2		49.6	10.8
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		1.1			21.1			5.2	0.7		15.4	0.2
Delay (s)		44.0			67.6			60.7	19.9		65.0	11.0
Level of Service		D			E			E	B		E	B
Approach Delay (s)		44.0			67.6				21.5			23.1
Approach LOS		D			E				C			C

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Volume (vph)	4
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	4
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	128	0	0	135	0	1201	56	0	703	73
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	0	132	0	0	139	0	1238	58	0	725	75
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											858	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	1175	2001	279	1641	2067	442	800			1238		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1027	1889	91	1513	1959	442	635			1238		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	85	100	100	75	100			100		
cM capacity (veh/h)	136	67	908	67	60	564	904			558		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	132	139	495	495	305	290	290	220
Volume Left	0	0	0	0	0	0	0	0
Volume Right	132	139	0	0	58	0	0	75
cSH	908	564	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.15	0.25	0.29	0.29	0.18	0.17	0.17	0.13
Queue Length 95th (ft)	13	24	0	0	0	0	0	0
Control Delay (s)	9.6	13.5	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	B						
Approach Delay (s)	9.6	13.5	0.0			0.0		
Approach LOS	A	B						

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	39.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	140	207	78	122	184	63
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	154	227	86	134	202	69
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	813					
pX, platoon unblocked			0.97		0.97	0.97
vC, conflicting volume			381		573	268
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			352		549	235
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		55	91
cM capacity (veh/h)			1176		449	783

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	381	220	271
Volume Left	0	86	202
Volume Right	227	0	69
cSH	1700	1176	504
Volume to Capacity	0.22	0.07	0.54
Queue Length 95th (ft)	0	6	79
Control Delay (s)	0.0	3.6	20.2
Lane LOS		A	C
Approach Delay (s)	0.0	3.6	20.2
Approach LOS			C

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	38	44	0	17	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	0	53	61	0	24	19
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			53		149	26
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			53		149	26
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		97	98
cM capacity (veh/h)			1553		810	1049

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	53	61	43
Volume Left	0	61	24
Volume Right	53	0	19
cSH	1700	1553	903
Volume to Capacity	0.03	0.04	0.05
Queue Length 95th (ft)	0	3	4
Control Delay (s)	0.0	7.4	9.2
Lane LOS		A	A
Approach Delay (s)	0.0	7.4	9.2
Approach LOS			A

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
1: Mamalahoa Hwy & Leilani St

6/3/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	27	130	33	50	69	193	52	50	1142	54	237	1347
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8			6.8			4.0	6.2		4.0	6.2
Lane Util. Factor		1.00			1.00			1.00	0.91		1.00	0.91
Frt		0.98			0.92			1.00	0.99		1.00	1.00
Flt Protected		0.99			0.99			0.95	1.00		0.95	1.00
Satd. Flow (prot)		1806			1693			1770	5051		1770	5083
Flt Permitted		0.81			0.85			0.95	1.00		0.95	1.00
Satd. Flow (perm)		1475			1443			1770	5051		1770	5083
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	28	133	34	51	70	197	53	51	1165	55	242	1374
RTOR Reduction (vph)	0	7	0	0	55	0	0	0	4	0	0	0
Lane Group Flow (vph)	0	188	0	0	263	0	0	104	1216	0	242	1378
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4			8								
Actuated Green, G (s)		25.2			25.2			10.5	57.9		19.9	67.3
Effective Green, g (s)		25.2			25.2			10.5	57.9		19.9	67.3
Actuated g/C Ratio		0.21			0.21			0.09	0.48		0.17	0.56
Clearance Time (s)		6.8			6.8			4.0	6.2		4.0	6.2
Vehicle Extension (s)		2.8			2.8			1.0	2.0		2.0	2.0
Lane Grp Cap (vph)		309			303			154	2437		293	2850
v/s Ratio Prot								0.06	0.24		c0.14	c0.27
v/s Ratio Perm		0.13			c0.18							
v/c Ratio		0.61			0.87			0.68	0.50		0.83	0.48
Uniform Delay, d1		42.9			45.8			53.1	21.2		48.4	15.9
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		3.2			22.2			8.8	0.7		16.3	0.6
Delay (s)		46.1			68.0			61.9	21.9		64.7	16.5
Level of Service		D			E			E	C		E	B
Approach Delay (s)		46.1			68.0				25.0			23.7
Approach LOS		D			E				C			C

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Volume (vph)	4
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	4
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	251	0	0	78	0	1157	92	0	1470	80
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	0	0	256	0	0	80	0	1181	94	0	1500	82
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											858	
pX, platoon unblocked	0.84	0.84	0.84	0.84	0.84		0.84					
vC, conflicting volume	1934	2721	541	1984	2809	440	1582			1181		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1448	2384	0	1507	2489	440	1029			1181		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	72	100	100	86	100			100		
cM capacity (veh/h)	67	28	912	50	24	564	564			587		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	256	80	472	472	330	600	600	382
Volume Left	0	0	0	0	0	0	0	0
Volume Right	256	80	0	0	94	0	0	82
cSH	912	564	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.28	0.14	0.28	0.28	0.19	0.35	0.35	0.22
Queue Length 95th (ft)	29	12	0	0	0	0	0	0
Control Delay (s)	10.5	12.4	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B						
Approach Delay (s)	10.5	12.4	0.0			0.0		
Approach LOS	B	B						

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	102	293	84	105	167	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	121	349	100	125	199	61
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	813					
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			470		621	296
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			451		604	273
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		52	92
cM capacity (veh/h)			1089		411	751

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	470	225	260
Volume Left	0	100	199
Volume Right	349	0	61
cSH	1700	1089	460
Volume to Capacity	0.28	0.09	0.56
Queue Length 95th (ft)	0	8	85
Control Delay (s)	0.0	4.3	22.5
Lane LOS		A	C
Approach Delay (s)	0.0	4.3	22.5
Approach LOS			C

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	6	8	0	46	43
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.59	0.59	0.59	0.59	0.59	0.59
Hourly flow rate (vph)	0	10	14	0	78	73
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			10		32	5
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			10		32	5
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		92	93
cM capacity (veh/h)			1609		973	1078

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	10	14	151
Volume Left	0	14	78
Volume Right	10	0	73
cSH	1700	1609	1021
Volume to Capacity	0.01	0.01	0.15
Queue Length 95th (ft)	0	1	13
Control Delay (s)	0.0	7.3	9.1
Lane LOS		A	A
Approach Delay (s)	0.0	7.3	9.1
Approach LOS			A

Intersection Summary			
Average Delay	8.5		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX C

LOS WORKSHEETS – NEAR TERM (2016) CONDITIONS

HCM Signalized Intersection Capacity Analysis
1: Mamalahoa Hwy & Leilani St

6/3/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	15	125	24	50	38	234	18	35	1226	49	199	682
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8			6.8			4.0	6.2		4.0	6.2
Lane Util. Factor		1.00			1.00			1.00	0.91		1.00	0.91
Frt		0.98			0.90			1.00	0.99		1.00	1.00
Flt Protected		1.00			0.99			0.95	1.00		0.95	1.00
Satd. Flow (prot)		1818			1667			1770	5056		1770	5080
Flt Permitted		0.88			0.85			0.95	1.00		0.95	1.00
Satd. Flow (perm)		1609			1431			1770	5056		1770	5080
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	16	132	25	53	40	246	19	37	1291	52	209	718
RTOR Reduction (vph)	0	6	0	0	89	0	0	0	3	0	0	0
Lane Group Flow (vph)	0	167	0	0	250	0	0	56	1340	0	209	723
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4			8								
Actuated Green, G (s)		24.2			24.2			6.5	61.2		17.6	72.3
Effective Green, g (s)		24.2			24.2			6.5	61.2		17.6	72.3
Actuated g/C Ratio		0.20			0.20			0.05	0.51		0.15	0.60
Clearance Time (s)		6.8			6.8			4.0	6.2		4.0	6.2
Vehicle Extension (s)		2.8			2.8			1.0	2.0		2.0	2.0
Lane Grp Cap (vph)		324			288			95	2578		259	3060
v/s Ratio Prot								0.03	c0.27		c0.12	0.14
v/s Ratio Perm		0.10			c0.17							
v/c Ratio		0.52			0.87			0.59	0.52		0.81	0.24
Uniform Delay, d1		42.7			46.3			55.4	19.6		49.6	11.1
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		1.3			22.8			5.9	0.8		15.7	0.2
Delay (s)		43.9			69.1			61.4	20.4		65.3	11.2
Level of Service		D			E			E	C		E	B
Approach Delay (s)		43.9			69.1				22.0			23.4
Approach LOS		D			E				C			C

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Volume (vph)	5
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	130	0	0	137	0	1214	57	0	711	74
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	0	134	0	0	141	0	1252	59	0	733	76
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											858	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	1188	2023	282	1659	2090	447	809			1252		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1035	1908	87	1527	1978	447	638			1252		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	85	100	100	75	100			100		
cM capacity (veh/h)	133	65	912	66	58	559	900			552		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	134	141	501	501	309	293	293	223
Volume Left	0	0	0	0	0	0	0	0
Volume Right	134	141	0	0	59	0	0	76
cSH	912	559	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.15	0.25	0.29	0.29	0.18	0.17	0.17	0.13
Queue Length 95th (ft)	13	25	0	0	0	0	0	0
Control Delay (s)	9.6	13.6	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	B						
Approach Delay (s)	9.6	13.6	0.0			0.0		
Approach LOS	A	B						

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	142	209	79	124	186	64
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	156	230	87	136	204	70
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	813					
pX, platoon unblocked			0.97		0.97	0.97
vC, conflicting volume			386		581	271
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			355		556	237
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		54	91
cM capacity (veh/h)			1171		444	780

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	386	223	275
Volume Left	0	87	204
Volume Right	230	0	70
cSH	1700	1171	499
Volume to Capacity	0.23	0.07	0.55
Queue Length 95th (ft)	0	6	82
Control Delay (s)	0.0	3.6	20.7
Lane LOS		A	C
Approach Delay (s)	0.0	3.6	20.7
Approach LOS			C

Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	38	44	0	17	14
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	0	53	61	0	24	19
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			53		149	26
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			53		149	26
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		97	98
cM capacity (veh/h)			1553		810	1049

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	53	61	43
Volume Left	0	61	24
Volume Right	53	0	19
cSH	1700	1553	903
Volume to Capacity	0.03	0.04	0.05
Queue Length 95th (ft)	0	3	4
Control Delay (s)	0.0	7.4	9.2
Lane LOS		A	A
Approach Delay (s)	0.0	7.4	9.2
Approach LOS			A

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	19.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
1: Mamalahoa Hwy & Leilani St

6/3/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	28	132	34	51	70	195	53	51	1153	55	240	1361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8			6.8			4.0	6.2		4.0	6.2
Lane Util. Factor		1.00			1.00			1.00	0.91		1.00	0.91
Frt		0.98			0.92			1.00	0.99		1.00	1.00
Flt Protected		0.99			0.99			0.95	1.00		0.95	1.00
Satd. Flow (prot)		1805			1694			1770	5051		1770	5083
Flt Permitted		0.81			0.84			0.95	1.00		0.95	1.00
Satd. Flow (perm)		1467			1437			1770	5051		1770	5083
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	29	135	35	52	71	199	54	52	1177	56	245	1389
RTOR Reduction (vph)	0	7	0	0	54	0	0	0	4	0	0	0
Lane Group Flow (vph)	0	192	0	0	268	0	0	106	1229	0	245	1394
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4			8								
Actuated Green, G (s)		25.5			25.5			10.6	57.5		20.0	66.9
Effective Green, g (s)		25.5			25.5			10.6	57.5		20.0	66.9
Actuated g/C Ratio		0.21			0.21			0.09	0.48		0.17	0.56
Clearance Time (s)		6.8			6.8			4.0	6.2		4.0	6.2
Vehicle Extension (s)		2.8			2.8			1.0	2.0		2.0	2.0
Lane Grp Cap (vph)		311			305			156	2420		295	2833
v/s Ratio Prot								0.06	0.24		c0.14	c0.27
v/s Ratio Perm		0.13			c0.19							
v/c Ratio		0.62			0.88			0.68	0.51		0.83	0.49
Uniform Delay, d1		42.8			45.7			53.1	21.5		48.4	16.2
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		3.4			23.4			8.9	0.8		17.0	0.6
Delay (s)		46.2			69.2			61.9	22.3		65.3	16.8
Level of Service		D			E			E	C		E	B
Approach Delay (s)		46.2			69.2				25.4			24.1
Approach LOS		D			E				C			C

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Volume (vph)	5
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	254	0	0	79	0	1169	93	0	1485	81
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	0	0	259	0	0	81	0	1193	95	0	1515	83
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											858	
pX, platoon unblocked	0.84	0.84	0.84	0.84	0.84		0.84					
vC, conflicting volume	1954	2749	546	2005	2838	445	1598			1193		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1457	2407	0	1517	2513	445	1031			1193		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	71	100	100	86	100			100		
cM capacity (veh/h)	65	27	907	49	23	561	560			581		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	259	81	477	477	333	606	606	386
Volume Left	0	0	0	0	0	0	0	0
Volume Right	259	81	0	0	95	0	0	83
cSH	907	561	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.29	0.14	0.28	0.28	0.20	0.36	0.36	0.23
Queue Length 95th (ft)	30	12	0	0	0	0	0	0
Control Delay (s)	10.5	12.5	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B						
Approach Delay (s)	10.5	12.5	0.0			0.0		
Approach LOS	B	B						

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	104	296	85	107	169	52
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	124	352	101	127	201	62
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	813					
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			476		630	300
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			456		613	276
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		50	92
cM capacity (veh/h)			1083		406	748

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	476	229	263
Volume Left	0	101	201
Volume Right	352	0	62
cSH	1700	1083	454
Volume to Capacity	0.28	0.09	0.58
Queue Length 95th (ft)	0	8	90
Control Delay (s)	0.0	4.3	23.2
Lane LOS		A	C
Approach Delay (s)	0.0	4.3	23.2
Approach LOS			C

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	6	8	0	46	43
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.59	0.59	0.59	0.59	0.59	0.59
Hourly flow rate (vph)	0	10	14	0	78	73
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			10		32	5
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			10		32	5
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		92	93
cM capacity (veh/h)			1609		973	1078

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	10	14	151
Volume Left	0	14	78
Volume Right	10	0	73
cSH	1700	1609	1021
Volume to Capacity	0.01	0.01	0.15
Queue Length 95th (ft)	0	1	13
Control Delay (s)	0.0	7.3	9.1
Lane LOS		A	A
Approach Delay (s)	0.0	7.3	9.1
Approach LOS			A

Intersection Summary			
Average Delay	8.5		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX D

LOS WORKSHEETS – NEAR TERM (2016) PLUS PROJECT CONDITIONS

HCM Signalized Intersection Capacity Analysis
1: Mamalahoa Hwy & Leilani St

6/3/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	15	125	24	51	38	236	18	35	1224	50	200	682
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8			6.8			4.0	6.2		4.0	6.2
Lane Util. Factor		1.00			1.00			1.00	0.91		1.00	0.91
Frt		0.98			0.90			1.00	0.99		1.00	1.00
Flt Protected		1.00			0.99			0.95	1.00		0.95	1.00
Satd. Flow (prot)		1818			1667			1770	5055		1770	5080
Flt Permitted		0.88			0.85			0.95	1.00		0.95	1.00
Satd. Flow (perm)		1611			1429			1770	5055		1770	5080
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	16	132	25	54	40	248	19	37	1288	53	211	718
RTOR Reduction (vph)	0	6	0	0	89	0	0	0	3	0	0	0
Lane Group Flow (vph)	0	167	0	0	253	0	0	56	1338	0	211	723
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4			8								
Actuated Green, G (s)		24.4			24.4			6.5	60.9		17.7	72.1
Effective Green, g (s)		24.4			24.4			6.5	60.9		17.7	72.1
Actuated g/C Ratio		0.20			0.20			0.05	0.51		0.15	0.60
Clearance Time (s)		6.8			6.8			4.0	6.2		4.0	6.2
Vehicle Extension (s)		2.8			2.8			1.0	2.0		2.0	2.0
Lane Grp Cap (vph)		327			290			95	2565		261	3052
v/s Ratio Prot								0.03	c0.26		c0.12	0.14
v/s Ratio Perm		0.10			c0.18							
v/c Ratio		0.51			0.87			0.59	0.52		0.81	0.24
Uniform Delay, d1		42.5			46.3			55.4	19.8		49.5	11.1
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		1.2			23.6			5.9	0.8		15.7	0.2
Delay (s)		43.7			69.9			61.4	20.6		65.3	11.3
Level of Service		D			E			E	C		E	B
Approach Delay (s)		43.7			69.9				22.2			23.5
Approach LOS		D			E				C			C

Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Volume (vph)	5
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.95
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	130	0	0	135	0	1214	56	0	711	74
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	0	134	0	0	139	0	1252	58	0	733	76
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											858	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	1188	2023	282	1659	2090	446	809			1252		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1034	1907	86	1526	1977	446	637			1252		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	85	100	100	75	100			100		
cM capacity (veh/h)	134	65	913	66	58	560	900			552		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	134	139	501	501	308	293	293	223
Volume Left	0	0	0	0	0	0	0	0
Volume Right	134	139	0	0	58	0	0	76
cSH	913	560	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.15	0.25	0.29	0.29	0.18	0.17	0.17	0.13
Queue Length 95th (ft)	13	24	0	0	0	0	0	0
Control Delay (s)	9.6	13.5	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	B						
Approach Delay (s)	9.6	13.5	0.0			0.0		
Approach LOS	A	B						

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	145	207	79	127	186	64
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	159	227	87	140	204	70
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	813					
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			387		586	273
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			358		563	242
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		54	91
cM capacity (veh/h)			1170		440	777

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	387	226	275
Volume Left	0	87	204
Volume Right	227	0	70
cSH	1700	1170	495
Volume to Capacity	0.23	0.07	0.55
Queue Length 95th (ft)	0	6	83
Control Delay (s)	0.0	3.6	21.0
Lane LOS		A	C
Approach Delay (s)	0.0	3.6	21.0
Approach LOS			C

Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	37	42	0	15	13
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Hourly flow rate (vph)	0	51	58	0	21	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			51		142	26
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			51		142	26
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		97	98
cM capacity (veh/h)			1555		818	1050

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	51	58	39
Volume Left	0	58	21
Volume Right	51	0	18
cSH	1700	1555	912
Volume to Capacity	0.03	0.04	0.04
Queue Length 95th (ft)	0	3	3
Control Delay (s)	0.0	7.4	9.1
Lane LOS		A	A
Approach Delay (s)	0.0	7.4	9.1
Approach LOS			A

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
1: Mamalahoa Hwy & Leilani St

6/3/2015

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	28	132	34	52	70	196	53	51	1154	55	242	1361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.8			6.8			4.0	6.2		4.0	6.2
Lane Util. Factor		1.00			1.00			1.00	0.91		1.00	0.91
Frt		0.98			0.92			1.00	0.99		1.00	1.00
Flt Protected		0.99			0.99			0.95	1.00		0.95	1.00
Satd. Flow (prot)		1805			1694			1770	5051		1770	5083
Flt Permitted		0.81			0.84			0.95	1.00		0.95	1.00
Satd. Flow (perm)		1473			1436			1770	5051		1770	5083
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	29	135	35	53	71	200	54	52	1178	56	247	1389
RTOR Reduction (vph)	0	7	0	0	53	0	0	0	4	0	0	0
Lane Group Flow (vph)	0	192	0	0	271	0	0	106	1230	0	247	1394
Turn Type	Perm	NA		Perm	NA		Prot	Prot	NA		Prot	NA
Protected Phases		4			8		5	5	2		1	6
Permitted Phases	4			8								
Actuated Green, G (s)		25.8			25.8			10.6	57.0		20.2	66.6
Effective Green, g (s)		25.8			25.8			10.6	57.0		20.2	66.6
Actuated g/C Ratio		0.22			0.22			0.09	0.48		0.17	0.55
Clearance Time (s)		6.8			6.8			4.0	6.2		4.0	6.2
Vehicle Extension (s)		2.8			2.8			1.0	2.0		2.0	2.0
Lane Grp Cap (vph)		316			308			156	2399		297	2821
v/s Ratio Prot								0.06	0.24		c0.14	c0.27
v/s Ratio Perm		0.13			c0.19							
v/c Ratio		0.61			0.88			0.68	0.51		0.83	0.49
Uniform Delay, d1		42.5			45.6			53.1	21.9		48.3	16.4
Progression Factor		1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2		3.1			23.4			8.9	0.8		17.0	0.6
Delay (s)		45.6			69.0			61.9	22.7		65.2	17.0
Level of Service		D			E			E	C		E	B
Approach Delay (s)		45.6			69.0				25.8			24.3
Approach LOS		D			E				C			C

Intersection Summary			
HCM 2000 Control Delay	30.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Volume (vph)	5
Ideal Flow (vphpl)	1900
Total Lost time (s)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	5
RTOR Reduction (vph)	0
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Actuated Green, G (s)	
Effective Green, g (s)	
Actuated g/C Ratio	
Clearance Time (s)	
Vehicle Extension (s)	
Lane Grp Cap (vph)	
v/s Ratio Prot	
v/s Ratio Perm	
v/c Ratio	
Uniform Delay, d1	
Progression Factor	
Incremental Delay, d2	
Delay (s)	
Level of Service	
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	254	0	0	80	0	1169	93	0	1485	81
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	0	0	259	0	0	82	0	1193	95	0	1515	83
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)											858	
pX, platoon unblocked	0.84	0.84	0.84	0.84	0.84		0.84					
vC, conflicting volume	1954	2749	546	2005	2838	445	1598			1193		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1453	2405	0	1513	2511	445	1027			1193		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	71	100	100	85	100			100		
cM capacity (veh/h)	65	27	906	49	23	561	562			581		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	259	82	477	477	333	606	606	386
Volume Left	0	0	0	0	0	0	0	0
Volume Right	259	82	0	0	95	0	0	83
cSH	906	561	1700	1700	1700	1700	1700	1700
Volume to Capacity	0.29	0.15	0.28	0.28	0.20	0.36	0.36	0.23
Queue Length 95th (ft)	30	13	0	0	0	0	0	0
Control Delay (s)	10.6	12.5	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	B	B						
Approach Delay (s)	10.6	12.5	0.0			0.0		
Approach LOS	B	B						

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	106	294	85	107	169	52
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	126	350	101	127	201	62
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	813					
pX, platoon unblocked			0.98		0.98	0.98
vC, conflicting volume			476		631	301
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			456		614	278
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		50	92
cM capacity (veh/h)			1083		405	746

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	476	229	263
Volume Left	0	101	201
Volume Right	350	0	62
cSH	1700	1083	454
Volume to Capacity	0.28	0.09	0.58
Queue Length 95th (ft)	0	8	90
Control Delay (s)	0.0	4.3	23.3
Lane LOS		A	C
Approach Delay (s)	0.0	4.3	23.3
Approach LOS			C

Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	0	6	6	0	45	42
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.59	0.59	0.59	0.59	0.59	0.59
Hourly flow rate (vph)	0	10	10	0	76	71
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			10		25	5
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			10		25	5
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		92	93
cM capacity (veh/h)			1609		984	1078

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	10	10	147
Volume Left	0	10	76
Volume Right	10	0	71
cSH	1700	1609	1027
Volume to Capacity	0.01	0.01	0.14
Queue Length 95th (ft)	0	0	13
Control Delay (s)	0.0	7.3	9.1
Lane LOS		A	A
Approach Delay (s)	0.0	7.3	9.1
Approach LOS			A

Intersection Summary			
Average Delay	8.4		
Intersection Capacity Utilization	16.7%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix F

NOISE STUDY

June 18, 2015

Technical Memorandum

TO: Mitsunaga & Associates, Inc.
Attn: Mr. Chad McDonald, P.E., LEED AP
747 Amana St #216
Honolulu, HI 96814

FROM: Sam Silverman, Senior Associate
Dr. Seyedehsan Hosseini, Ph.D., Environmental Scientist
Terry A. Hayes Associates Inc.

DATE: June 18, 2015

Re: County of Hawai'i Mass Transit Agency Base Yard and Maintenance Facility Noise Study

Terry A. Hayes Associates Inc. (TAHA) completed a Noise Study for the County of Hawai'i Mass Transit Agency (MTA) Base Yard and Maintenance Facility. The State of Hawai'i Department of Hawaiian Homelands (DHHL) submitted a comment letter related to the Environmental Assessment (EA) prepared for the proposed facility. The DHHL asserts that the EA does not adequately assess noise levels at existing homestead lots in Panaʻewa, and future noise levels could compromise the ability to use U.S. Department of Housing and Urban Development (HUD) funds at adjacent undeveloped homesteads. This Noise Study discusses the fundamentals of noise, defines existing conditions, and identifies future noise levels associated with the proposed facility.

PROJECT DESCRIPTION

The Base Yard and Maintenance Facility is proposed to be located in Waiākea Homesteads, Waiākea ahupuaʻa, South Hilo District, Island and County of Hawaiʻi (**Figure 1**). The project site is identified as a five-acre area in the northwestern corner of the State-owned 40-acre lot.

The proposed facility includes construction of a 26,500-square-foot building with 19,500 square feet of warehouse space for transit vehicle maintenance, washing, and repair. The building would also include office space for administrative staff who oversee daily transit operations, as well as storage space. The building would be built to meet the Silver accreditation level of the U.S. Green Building Council Leadership in Energy and Environmental Design standards. The buildings would be oriented toward the Panaʻewa Drag Strip Road. Two driveways of the proposed facility would provide access to the Panaʻewa Drag Strip Road.

The majority of the project site would be paved to provide for bus staging and parking. Fifty-six bus stalls and 11 passenger vehicle stalls would be provided. This would be sufficient to accommodate MTA's fleet and the base yard employees' personal vehicles.

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w e b t a h a . c o m

FUNDAMENTALS OF NOISE[1]

Noise is generally considered to be unwanted sound. Sound is what we hear when our ears are exposed to small pressure fluctuations in the air. There are many ways in which pressure fluctuations are generated, but typically they are caused by vibrating movement of a solid object. Noise can be described in terms of three variables: amplitude (loud or soft); frequency (pitch); and time pattern (variability).

Sound is a fluctuation of air pressure. The number of times the fluctuation occurs in one second is called frequency. Our human hearing system does not respond equally to all frequencies of sound. Acoustical scientists measured and developed frequency response functions that characterize the way people respond to different frequencies. These are the so-called A-, B-, and C-weighted curves, representing the way people respond to sounds of normal, very loud, and extremely loud sounds, respectively. Environmental noise generally falls into the "normal" category so that the A-weighted sound level is considered best to represent the human response.

The A-weighted sound level in decibels (dBA) describes noise at any moment in time. The noise analysis discusses sound levels in terms of the Day-Night Average Sound Level (L_{dn}), which describes a cumulative noise exposure from all events over a full 24 hours, with events between 10:00 p.m. and 7:00 a.m. increased by 10 decibels to account for greater nighttime sensitivity to noise.

Noise levels decrease as the distance from the noise source to the receiver increases. Noise generated by a stationary noise source, or "point source," decreases by approximately 6 dBA over hard surfaces (e.g., reflective surfaces, such as parking lots or smooth bodies of water) and 7.5 dBA over soft surfaces (e.g., absorptive surfaces, such as soft dirt, grass, or scattered bushes and trees) for each doubling of the distance. For example, if a noise source produces a noise level of 89 dBA at a reference distance of 50 feet, then the noise level is 83 dBA at a distance of 100 feet from the noise source, 77 dBA at a distance of 200 feet, and so on. Noise generated by a mobile source decreases by approximately 3 dBA over hard surfaces and 4.8 dBA over soft surfaces for each doubling of the distance. Generally, noise is most audible when the source is in a direct line-of-sight of the receiver. Barriers, such as walls, berms, or buildings, that break the line-of-sight between the source and the receiver greatly reduce noise levels from the source since sound can only reach the receiver by bending over the top of the barrier.

Studies have shown that the smallest perceptible change in sound level for a person with normal hearing sensitivity is approximately 3 dBA. A change of at least 5 dBA would be noticeable and may evoke a community reaction. A 10-dBA increase is subjectively heard as a doubling in loudness and would likely cause a community response.

EXISTING CONDITIONS

Existing Sound Levels. The primary sources of noise in the project vicinity include South Hilo Sanitary Landfill operations, quarry activity, vehicles associated with the Hilo Drag Strip, and aircraft associated with Hilo International Airport. Existing conditions were characterized over a 24-hour period using a SoundPro DL Sound Level Meter between 4:00 p.m. on Tuesday, June 9, 2015, and 4:00 p.m. on Wednesday, June 10, 2015. The noise monitoring location is shown in **Figure 2**. The L_{dn} in the project area was 54 dBA.

[1]Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006.

Surrounding Land Uses. A quarry run by the County of Hawai‘i is directly north of the road that runs along the boundary of the project site. Beyond the quarry to the north is the County's South Hilo Sanitary Landfill. The Hilo International Airport is less than two miles due north of the project site. The National Guard's Keaukaha Military Reservation is less than one mile northeast of the project site.

Immediately to the east and south of the project site is a State-owned property that is leased to the U.S. Department of Transportation, Federal Aviation Administration (FAA).

West of the project site is a large linear piece of undeveloped land owned by DHHL and designated in their island plan for future Subsistence Agricultural homestead leases. Beyond this parcel to the west is DHHL's Keaukaha-Pana‘ewa Community, which is an existing agricultural subdivision.

Further south beyond the FAA property is another DHHL-owned property, which is identified as being part of the agency's Waiākea Community. However, there is currently no development on this property. To the southwest is the Hilo Drag Strip, which is a drag racing facility.

The Federal Transit Administration (FTA) defines sensitive receptors as land uses where the noise level is quiet because it is an essential element in their intended purpose, such as residences and buildings where people sleep, and institutional land uses with primarily daytime and evening uses. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas are noise-sensitive receptors and may warrant unique measures for protection from intruding noise. Existing homesteads and undeveloped DHHL land are shown in **Figure 1**. These are the closest noise-sensitive land uses to the project site and have the most potential to be impacted by the proposed project.

REGULATORY FRAMEWORK

Federal Regulations. The following summarizes relevant regulations established by the FTA and HUD.

FTA. All transit projects receiving federal transit funding must use the FTA's Noise Impact and Vibration Assessment to predict and assess potential noise impacts. The guidance includes impact criteria to identify potential adverse effects. As ambient levels increase, smaller and smaller increments of noise are recommended to limit community annoyance. This is because, in areas with high ambient noise, it takes a smaller increase in noise to attain the same percentage increase in human annoyance levels as a larger increase in noise in areas with low ambient noise. The impact criteria are shown in **Figure 3**.

The noise impact criteria are defined by two curves, which allow increasing project noise levels as existing noise increases up to a point, beyond which impact is determined based on project noise alone. Below the lower curve, a proposed project is considered to have no noise impact since, on the average, the introduction of the project would result in an insignificant increase in the number of people highly annoyed by the new noise. Project noise above the upper curve is considered to cause Severe Impact since a significant percentage of people would be highly annoyed by the new noise. Between the two curves, the proposed project is judged to have Moderate Impact. The change in the cumulative noise level is noticeable to most people but may not be sufficient to cause strong, adverse reactions from the community. In this transitional area, other project-specific factors must be considered to determine the magnitude of the impact and the need for mitigation, such as the existing level, predicted level of increase over existing noise levels and the types and numbers of noise-sensitive land uses affected. Refer to the FTA *Noise Impact and Vibration Assessment* (2006) for a detailed discussion of the impact criteria.

HUD. HUD regulations include exterior noise standards for new housing construction assisted or supported by the department.[2] HUD states that an acceptable noise level is 65 dBA L_{dn} or less, a normally unacceptable noise level exceeds 65 dBA L_{dn} but does not exceed 75 dBA L_{dn} (appropriate sound attenuation measures must be provided to achieve an acceptable status), and an unacceptable noise level exceeds 75 dBA L_{dn}. HUD regulations do not contain standards for interior noise levels. The noise environment inside a building is considered acceptable if the noise environment external to the building is acceptable and the building is constructed in a manner common to the area.

State and Local Regulations. The State of Hawaii established Community Noise Control rules in the Hawaii Administrative Rules in 1996.[3] The purpose of Title 11, Chapter 46 of the Hawaii Administrative Rules is to define the maximum permissible sound levels, and to provide for the prevention, control, and abatement of noise pollution. The State Department of Health published a Noise Reference Manual for the Big Island.[4] The manual describes various kinds of noise, their sources, and how complaints can be resolved. Neither the Community Noise Control rules nor the Noise Reference Manual contain operational standards relevant to the proposed project.

PROJECT-RELATED NOISE

Project-related noise was assessed in accordance with FTA and HUD guidance. Neither agency provides methodology for assessing potential impacts to undeveloped, future land uses. FTA provides impact criteria for existing land uses based on the incremental change in existing noise levels caused by a project. HUD provides land use compatibility guidelines for projects actively requesting HUD funds.

The Keaukaha-Pana‘ewa Community contains the closest existing residences to the project site. These residences were assessed using the FTA methodology. Directly to the west, a large linear piece of undeveloped land owned by DHHL is designated future Subsistence Agricultural homesteads although the homesteads are not being designed or developed at this time. HUD land use compatibility criteria do not directly apply to these unplanned homesteads although the analysis below presents the project-related noise levels at this undeveloped land.

Noise levels were estimated using the FTA Noise Impact Assessment Spreadsheet. The FTA spreadsheet methodology accounts for activity at the Base Yard and Maintenance Facility and buses on the Pana‘ewa Drag Strip Road. Passenger vehicles are not included in the FTA methodology as the bus facility and associated bus activity would be the dominant noise sources. The following FTA Noise Impact Assessment Spreadsheet variables were used based on input provided by the project team:

- FTA Land Use Category - 2 (Residential)
- Stationary Source - Bus Operating Facility
  - Average number of buses during daytime hours - 2.0
  - Average number of buses serviced during daytime hours - 1.4
  - Average number of buses during nighttime hours - 2.7
  - Average number of buses serviced during nighttime hours - 0.6

[2]U.S. Code of Federal Regulations, Title 24, Part 51, Section 103.

[3]State of Hawaii, Hawaii Administrative Rules, Title 11, Chapter 46, Community Noise Control, September 23, 1996.

[4]Hawaii Department of Health, *Noise Reference Manual - Big Island Edition*, 2008.

- Highway/Transit Source - Buses (Diesel-Powered)
  - Speed - 25 miles per hour
  - Average number of events during daytime hours - 2.0
  - Average number of events during nighttime hours - 1.4

Regarding existing DHHL homesteads, the closest property to the Base Yard and Maintenance Facility is located at 889 Auwae Road, approximately 630 feet to the west. The homestead at 501 Auwae Road was used to represent the closest property to bus activity on Pana‘ewa Drag Strip Road. Based on FTA impact criteria and the existing 54 dBA L_{dn}, a Moderate Impact would occur if the project-related noise exceeds 55 dBA L_{dn} and a Severe Impact would occur if project-related noise levels exceed 61 dBA L_{dn}. As shown in **Table 1**, the project would not result in Moderate or Severe Impacts. Refer to the appendix for detailed calculations.

TABLE 1: FTA NOISE ASSESSMENT FOR EXISTING LAND USES

Location	Estimated dBA, L_{dn}			
	Existing Conditions	Total Project Noise Level	Total Noise Exposure	Impact?
889 Auwae Road	54	41	54	No
501 Auwae Road	54	34	54	No

SOURCE: TAHA, 2015.

Regarding future DHHL homesteads, the project-related noise levels at the undeveloped strip of DHHL property would be 56 L_{dn}, and the combined project and existing noise level would be 58 dBA L_{dn}. This would be less than the HUD standard for an acceptable noise environment of 65 dBA L_{dn}, and, if DHHL were seeking HUD funds at this time, the proposed project would not interfere with procurement of those funds.

SUMMARY

The Noise Study examined and evaluated future possible noise impacts at the existing and future DHHL homesteads due to operations of the proposed Base Yard and Maintenance Facility. The results of the analysis indicate that project-related noise would not impact existing land uses in accordance with FTA guidance. In addition, project-elated noise would comply with HUD compatibility standards at future DHHL homesteads.

LEGEND:

● Noise Monitoring Location

Project Site

SOURCE: TAHA, 2015.

Approx. Scale

N

0 150 250 Feet

taha environmental planners

Base Yard and Maintenance Facility Noise Study

COUNTY OF HAWAI'I MASS TRANSIT AGENCY

FIGURE 1

NOISE MONITORING LOCATION

LEGEND:

Project Site | Existing Homesteads | Undeveloped Lands

Approx. Scale

N

0 150 250 Feet

SOURCE: TAHA, 2015.

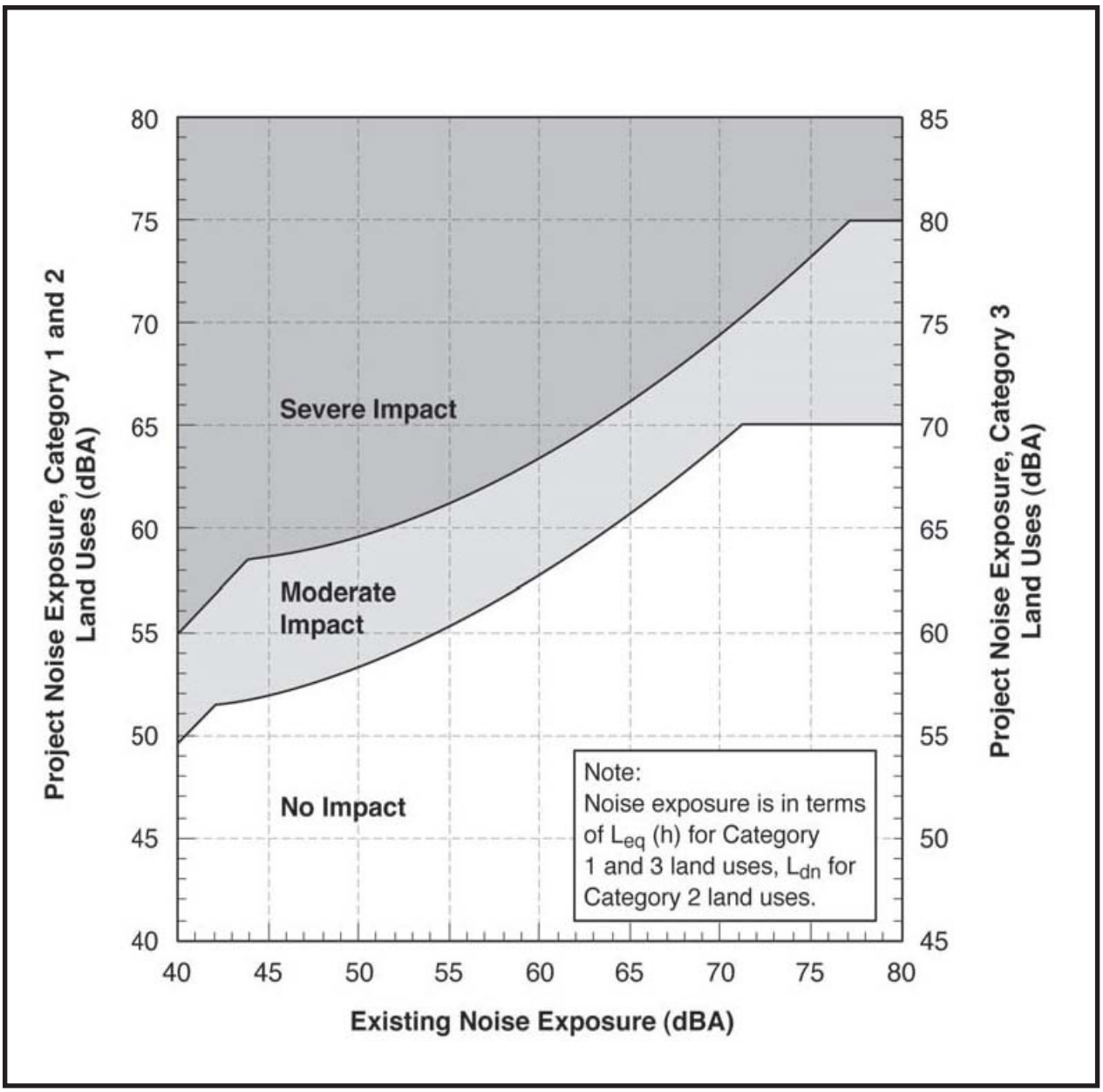
taha environmental planners

Base Yard and Maintenance Facility Noise Study

COUNTY OF HAWAI'I MASS TRANSIT AGENCY

FIGURE 2

EXISTING HOMESTEADS AND UNDEVELOPED DHHL



SOURCE: FTA, 2006.

Base Yard and Maintenance Facility Noise Study
COUNTY OF HAWAI'I MASS TRANSIT AGENCY

FIGURE 3

NOISE IMPACT CRITERIA

Appendix

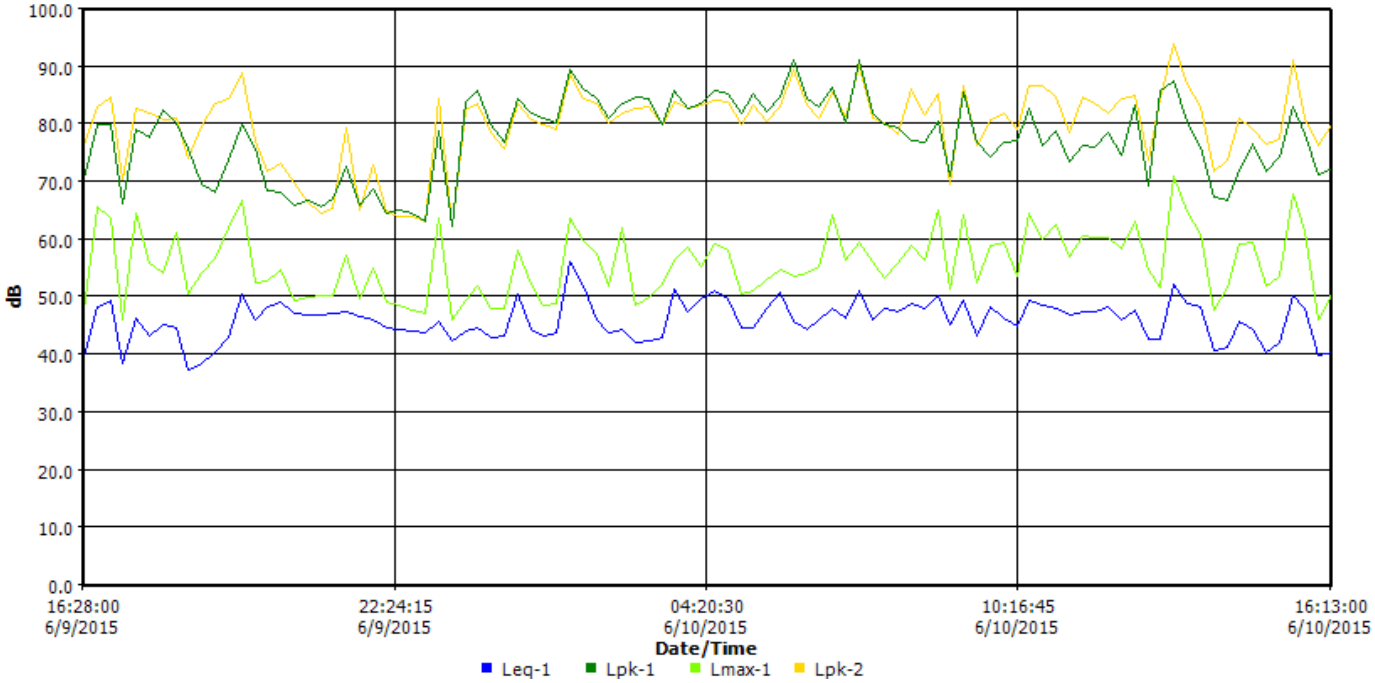
Study Report

6/18/2015

General Data Panel

Description	Meter/Sensor	Value	Description	Meter/Sensor	Value
Lmin	1	31 dB	Lmax	1	71.1 dB
Leq	1	47.3 dB	CNEL	1	54.3 dB
SEL	1	96.6 dB	LDN	1	54 dB

Logged Data Chart



Leq-1	Timestamp
39.6	6/9/2015 4:28:00 PM
48.2	6/9/2015 4:43:00 PM
49.3	6/9/2015 4:58:00 PM
38.4	6/9/2015 5:13:00 PM
46.4	6/9/2015 5:28:00 PM
43.2	6/9/2015 5:43:00 PM
45.1	6/9/2015 5:58:00 PM
44.6	6/9/2015 6:13:00 PM
37.3	6/9/2015 6:28:00 PM
38.6	6/9/2015 6:43:00 PM
40.4	6/9/2015 6:58:00 PM
43.0	6/9/2015 7:13:00 PM
50.7	6/9/2015 7:28:00 PM
46.0	6/9/2015 7:43:00 PM
48.2	6/9/2015 7:58:00 PM
49.2	6/9/2015 8:13:00 PM
47.2	6/9/2015 8:28:00 PM
47.0	6/9/2015 8:43:00 PM
46.9	6/9/2015 8:58:00 PM
47.1	6/9/2015 9:13:00 PM
47.6	6/9/2015 9:28:00 PM
46.5	6/9/2015 9:43:00 PM
46.0	6/9/2015 9:58:00 PM
44.8	6/9/2015 10:13:00 PM
44.5	6/9/2015 10:28:00 PM
44.0	6/9/2015 10:43:00 PM
43.8	6/9/2015 10:58:00 PM
45.9	6/9/2015 11:13:00 PM
42.4	6/9/2015 11:28:00 PM
44.0	6/9/2015 11:43:00 PM
44.6	6/9/2015 11:58:00 PM
43.1	6/10/2015 12:13:00 AM
43.2	6/10/2015 12:28:00 AM

Leq-1	Timestamp
50.7	6/10/2015 12:43:00 AM
44.3	6/10/2015 12:58:00 AM
43.2	6/10/2015 1:13:00 AM
43.7	6/10/2015 1:28:00 AM
56.3	6/10/2015 1:43:00 AM
52.0	6/10/2015 1:58:00 AM
46.2	6/10/2015 2:13:00 AM
43.9	6/10/2015 2:28:00 AM
44.4	6/10/2015 2:43:00 AM
42.2	6/10/2015 2:58:00 AM
42.5	6/10/2015 3:13:00 AM
43.0	6/10/2015 3:28:00 AM
51.4	6/10/2015 3:43:00 AM
47.5	6/10/2015 3:58:00 AM
49.7	6/10/2015 4:13:00 AM
51.1	6/10/2015 4:28:00 AM
49.7	6/10/2015 4:43:00 AM
44.6	6/10/2015 4:58:00 AM
44.7	6/10/2015 5:13:00 AM
47.9	6/10/2015 5:28:00 AM
50.8	6/10/2015 5:43:00 AM
45.8	6/10/2015 5:58:00 AM
44.3	6/10/2015 6:13:00 AM
46.1	6/10/2015 6:28:00 AM
47.9	6/10/2015 6:43:00 AM
46.4	6/10/2015 6:58:00 AM
51.1	6/10/2015 7:13:00 AM
46.1	6/10/2015 7:28:00 AM
47.9	6/10/2015 7:43:00 AM
47.5	6/10/2015 7:58:00 AM
49.0	6/10/2015 8:13:00 AM
48.1	6/10/2015 8:28:00 AM
50.4	6/10/2015 8:43:00 AM
45.3	6/10/2015 8:58:00 AM
49.5	6/10/2015 9:13:00 AM
43.2	6/10/2015 9:28:00 AM
48.4	6/10/2015 9:43:00 AM
46.4	6/10/2015 9:58:00 AM
45.0	6/10/2015 10:13:00 AM
49.4	6/10/2015 10:28:00 AM
48.6	6/10/2015 10:43:00 AM
48.1	6/10/2015 10:58:00 AM
46.8	6/10/2015 11:13:00 AM
47.5	6/10/2015 11:28:00 AM
47.5	6/10/2015 11:43:00 AM
48.2	6/10/2015 11:58:00 AM
46.1	6/10/2015 12:13:00 PM
47.7	6/10/2015 12:28:00 PM
42.8	6/10/2015 12:43:00 PM
42.7	6/10/2015 12:58:00 PM
52.2	6/10/2015 1:13:00 PM
48.8	6/10/2015 1:28:00 PM
48.4	6/10/2015 1:43:00 PM
40.7	6/10/2015 1:58:00 PM
41.4	6/10/2015 2:13:00 PM
45.8	6/10/2015 2:28:00 PM
44.5	6/10/2015 2:43:00 PM
40.6	6/10/2015 2:58:00 PM
42.2	6/10/2015 3:13:00 PM
50.3	6/10/2015 3:28:00 PM
48.0	6/10/2015 3:43:00 PM
39.8	6/10/2015 3:58:00 PM
40.6	6/10/2015 4:13:00 PM

Bus Departue and Arrival Frequencies	Time	# per hour Departing	Incoming	Total
Departing:	0			
3:00 a.m. - 5:30 a.m. - 10 buses departing base	1			
6:30 a.m. - 1	2			
7:00 - 2	3	4		4
8:45 - 1	4	4		4
9:30 - 1	5	4		4
11:30 - 4	6	1		1
12:00 p.m. - 1	7	2		2
1:00 p.m. - 1	8	1	1	2
2:00 p.m. - 1	9	1	2	3
Incoming:	10		3	3
8:00 a.m. - 1	11	4		4
9:00 - 10:00 a.m. - 2	12	1		1
10:00 - 11:00 a.m. - 3	13	1	2	3
1:00 - 2:00 p.m. - 2	14	1		1
4:30 p.m. - 6:45 p.m. - 10 buses	15			
7:15 p.m. - 2	16		5	5
10:00 - 11:00 p.m. - 2	17			
	18			
	19		2	2
	20			
	21			
	22		2	2
	23			
	Day Time	0.8	1.2	2.0
	Night Time	1.2	0.2	1.4

From 5 a.m. - 5 p.m. the average number of buses serviced is 15, while from 5 p.m. - 10 p.m. the average is 4 buses. Please keep in mind that not all services, repairs, and maintenance require electrical tools that will have a significant impact on the noise level. Use of an air gun will be the "loudest" tool to contribute to the noise level. The air gun is most often used to replace tires and broken wheel studs. The average amount of time we would use the air gun is once a day. Other tools include grinders, blow guns, & hammers. We have a compressor that will be enclosed in a storage and a generator will be used in the event electricity shuts down. In addition, I believe we were insulating the building to absorb some of the noise(?).

	Time	Number of Buses Repaired
	0	0.0
	1	0.0
	2	0.0
	3	0.0
	4	0.0
	5	3
	6	3
	7	3
	8	3
	9	3
	10	3
	11	3
	12	3
	13	3
	14	3
	15	3
	16	3
	17	3
	18	1
	19	1
	20	1
	21	0.0
	22	0.0
	23	0.0
Ave	Day Time	2.7
Ave	Night Time	0.6

Federal Transit Administration
Noise Impact Assessment Spreadsheet
Copyright 2007 HMMH Inc.
version: 7/3/2007

Project:	**Hawaii Mass Transit Agency Base Yard and Maintenance Facility**

Receiver Parameters	
Receiver:	**889 Auwae Road**
Land Use Category:	**2. Residential**
Existing Noise (Measured or Generic Value):	**54 dBA**

Noise Source Parameters	
Number of Noise Sources:	**2**

Noise Source Parameters		**Source 1**
	Source Type:	Stationary Source
	Specific Source:	Bus Operating Facility
Daytime hrs	**Avg. Number of Buses/hr**	2
	Avg. Number of Buses Serviced/hr	2.7
Nighttime hrs	**Avg. Number of Buses/hr**	1.4

	Avg. Number of Buses Serviced/hr	0.6
Distance	**Distance from Source to Receiver (ft)**	670
	Number of Intervening Rows of Buildings	0
Adjustments	**Noise Barrier?**	No

Noise Source Parameters		**Source 2**
	Source Type:	Highway/Transit
	Specific Source:	Buses (diesel-powered)
Daytime hrs		
	Speed (mph)	25
	Avg. Number of Events/hr	2
Nighttime hrs		
	Speed (mph)	25
	Avg. Number of Events/hr	1.4
Distance	**Distance from Source to Receiver (ft)**	630
	Number of Intervening Rows of Buildings	0
Adjustments	**Noise Barrier?**	No

Project Results Summary

Existing Ldn:	54 dBA
Total Project Ldn:	41 dBA
Total Noise Exposure:	54 dBA
Increase:	0 dB
Impact?:	None

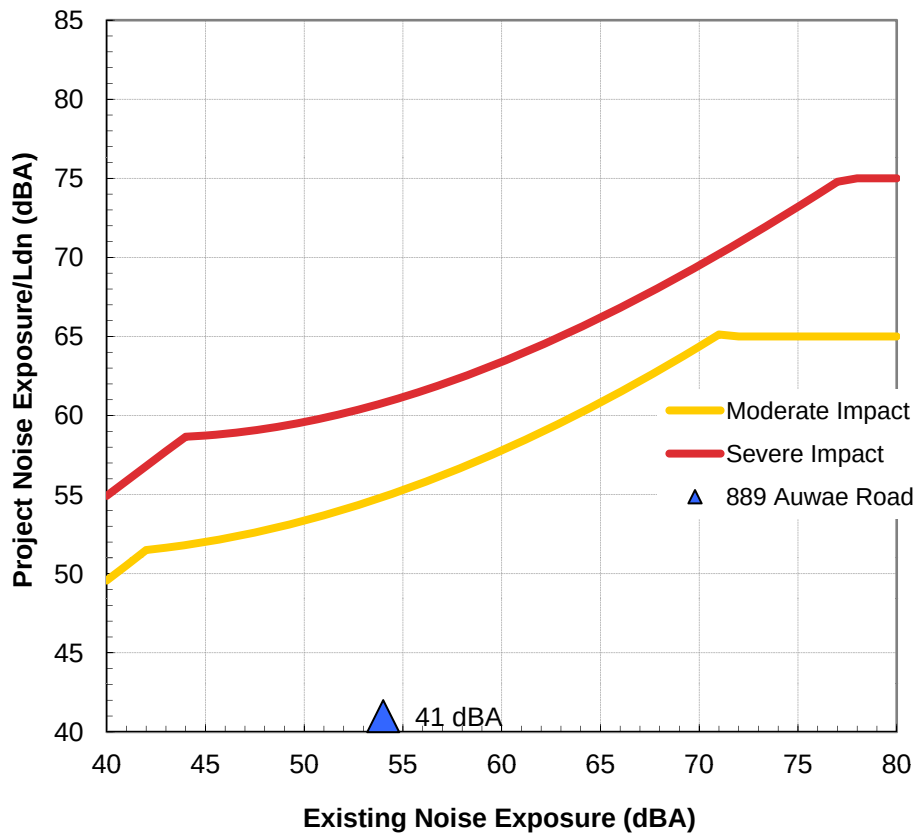
Distance to Impact Contours

Dist to Mod. Impact Contour (Sources 1+2):	--
Dist to Sev. Impact Contour (Sources 1+2):	--

Source 1 Results

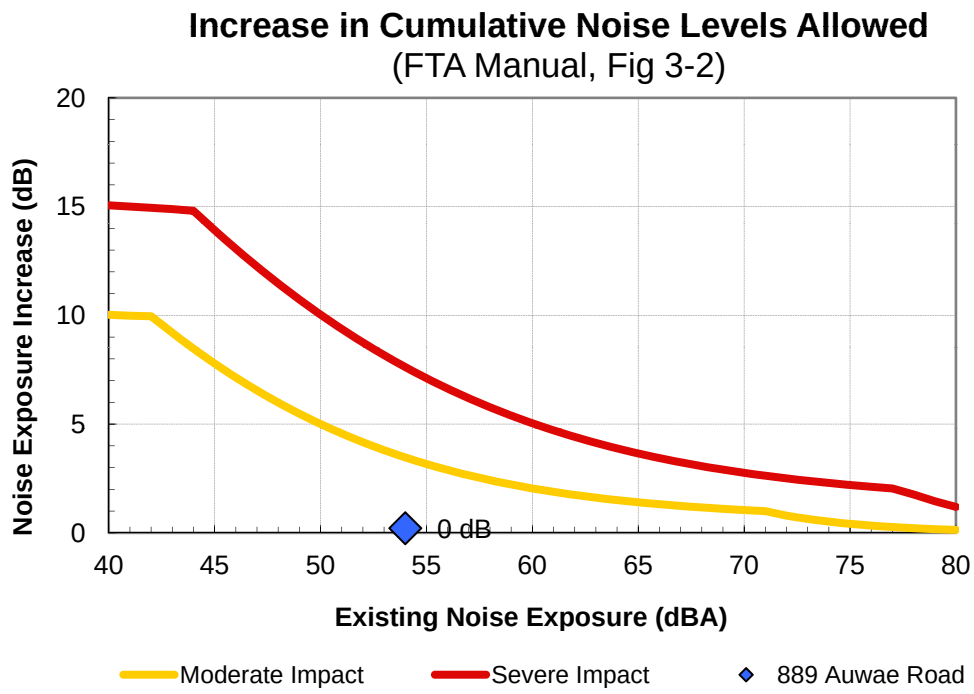
Leq(day):	37.6 dBA
Leq(night):	32.5 dBA
Ldn:	40.1 dBA

Noise Impact Criteria
(FTA Manual, Fig 3-1)



Source 2 Results

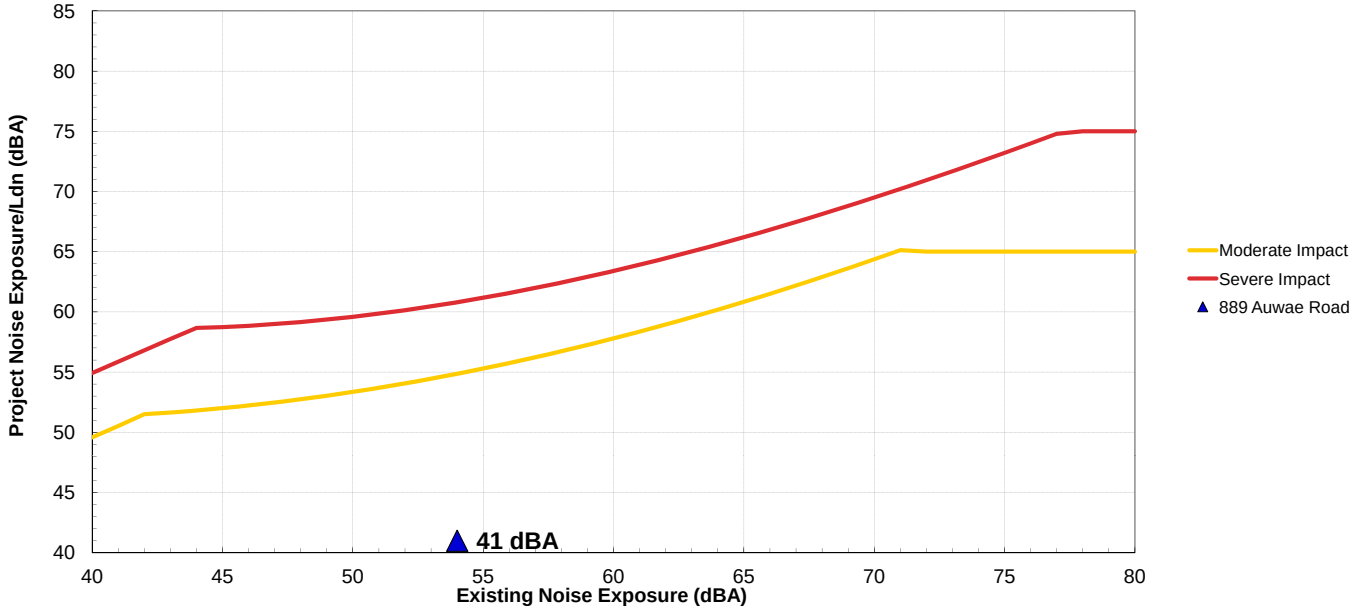
Leq(day):	28.4 dBA
Leq(night):	26.8 dBA
Ldn:	33.5 dBA
Incremental Ldn (Src 1-2):	41.0 dBA



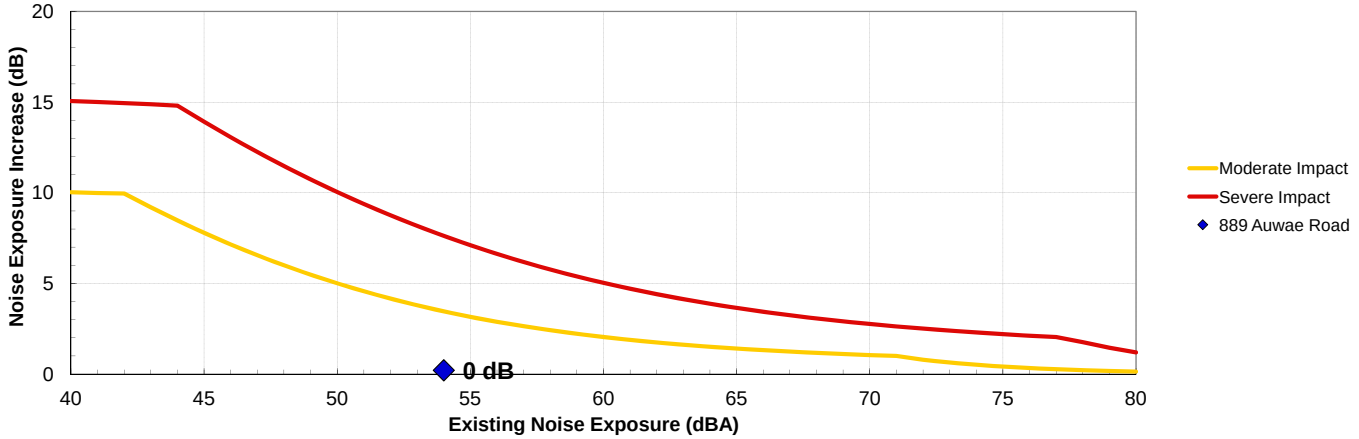
Project: Hawaii Mass Transit Agency Base Yard and Maintenance Facility
Receiver: 889 Auwae Road

				Noise Criteria		
Source	**Distance**	**Project Ldn**	**Existing Ldn**	**Mod. Impact**	**Sev. Impact**	**Impact?**
1 Bus Operating Facility	670 ft	40.1 dBA	54 dBA	55 dBA	61 dBA	None
2 Buses (diesel-powered)	630 ft	33.5 dBA	54 dBA	55 dBA	61 dBA	None
3 --	ft		54 dBA	55 dBA	61 dBA	
4 --	ft		54 dBA	55 dBA	61 dBA	
5 --	ft		54 dBA	55 dBA	61 dBA	
6 --	ft		54 dBA	55 dBA	61 dBA	
Combined Sources		**41 dBA**	**54 dBA**	**55 dBA**	**61 dBA**	**None**

Noise Impact Criteria
(FTA Manual, Fig 3-1)



Increase in Cumulative Noise Levels Allowed
(FTA Manual, Fig 3-2)



Federal Transit Administration
Noise Impact Assessment Spreadsheet
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version: 7/3/2007

Project:	**Hawaii Mass Transit Agency Base Yard and Maintenance Facility**

Receiver Parameters	
Receiver:	**501 Auwae Road**
Land Use Category:	**2. Residential**
Existing Noise (Measured or Generic Value):	**54 dBA**

Noise Source Parameters	
Number of Noise Sources:	**2**

Noise Source Parameters		**Source 1**
	Source Type:	Stationary Source
	Specific Source:	Bus Operating Facility
Daytime hrs	**Avg. Number of Buses/hr**	2
	Avg. Number of Buses Serviced/hr	2.7
Nighttime hrs	**Avg. Number of Buses/hr**	1.4
	Avg. Number of Buses Serviced/hr	0.6
Distance	**Distance from Source to Receiver (ft)**	2041
	Number of Intervening Rows of Buildings	0
Adjustments	**Noise Barrier?**	No

Noise Source Parameters		**Source 2**
	Source Type:	Highway/Transit
	Specific Source:	Buses (diesel-powered)
Daytime hrs		
	Speed (mph)	25
	Avg. Number of Events/hr	2
Nighttime hrs		
	Speed (mph)	25
	Avg. Number of Events/hr	1.4
Distance	**Distance from Source to Receiver (ft)**	650
	Number of Intervening Rows of Buildings	0
Adjustments	**Noise Barrier?**	No

Project Results Summary

Existing Ldn:	54 dBA
Total Project Ldn:	34 dBA
Total Noise Exposure:	54 dBA
Increase:	0 dB
Impact?:	None

Distance to Impact Contours

Dist to Mod. Impact Contour (Sources 1+2):	--
Dist to Sev. Impact Contour (Sources 1+2):	--

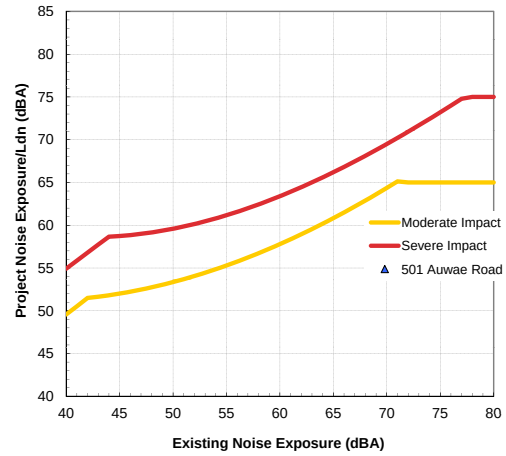
Source 1 Results

Leq(day):	25.5 dBA
Leq(night):	20.4 dBA
Ldn:	28.0 dBA

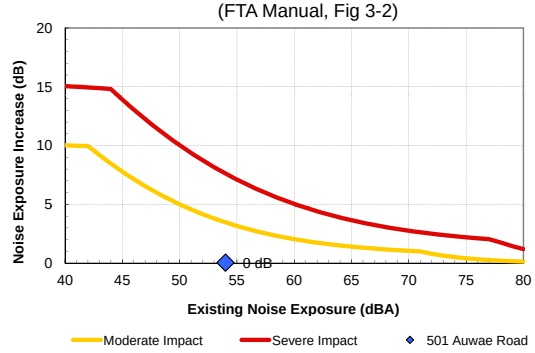
Source 2 Results

Leq(day):	28.2 dBA
Leq(night):	26.6 dBA
Ldn:	33.3 dBA
Incremental Ldn (Src 1-2):	34.4 dBA

Noise Impact Criteria
(FTA Manual, Fig 3-1)



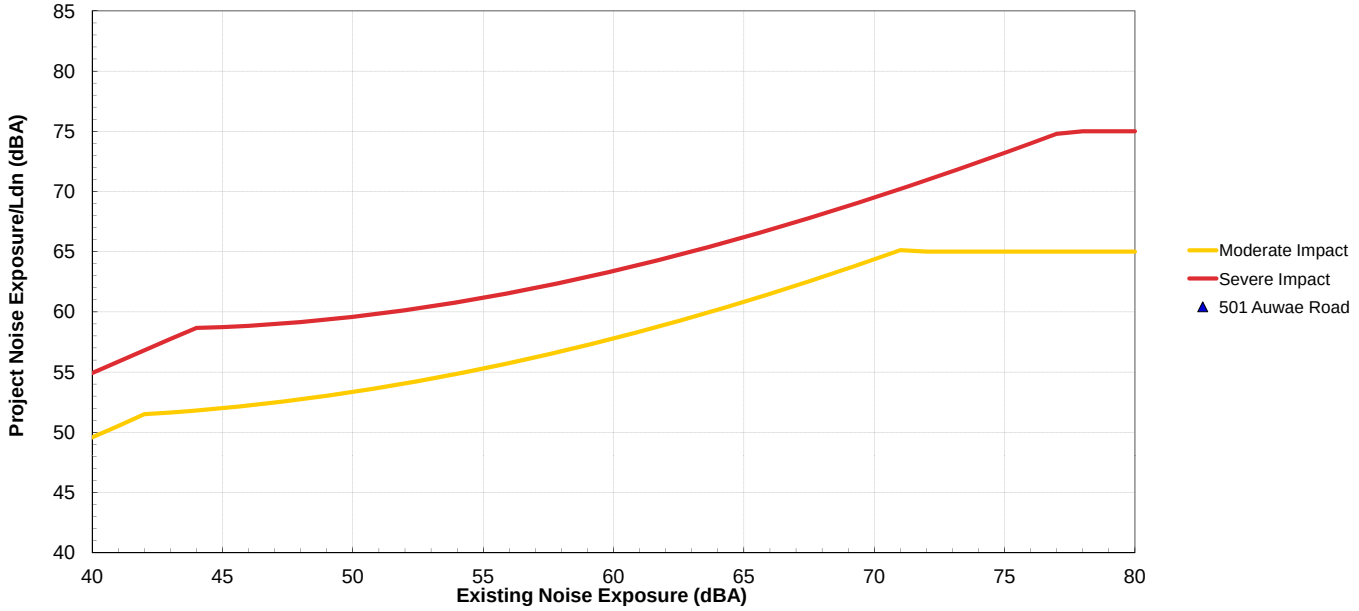
Increase in Cumulative Noise Levels Allowed
(FTA Manual, Fig 3-2)



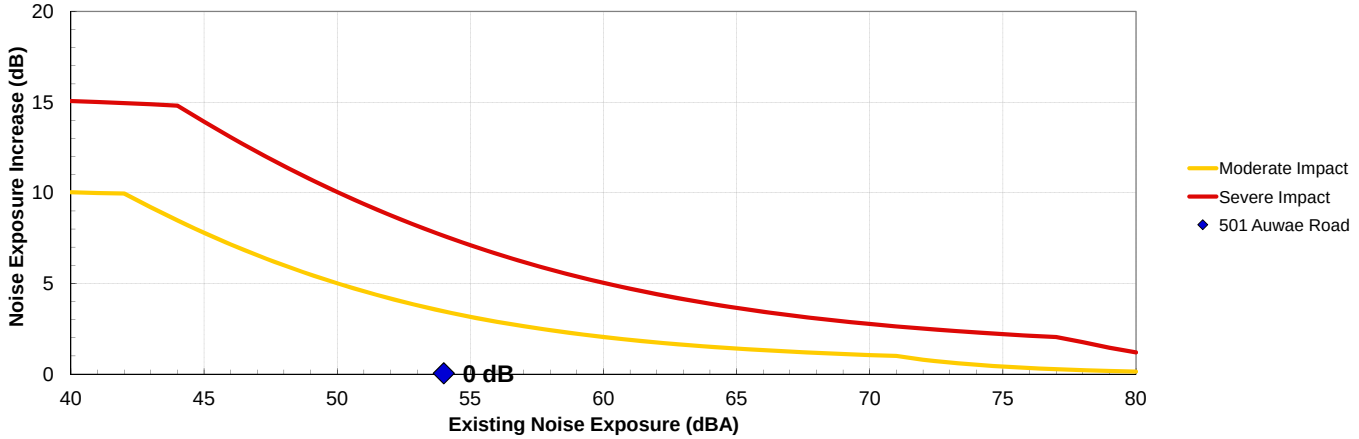
Project: Hawaii Mass Transit Agency Base Yard and Maintenance Facility
Receiver: 501 Auwae Road

				Noise Criteria		
Source	**Distance**	**Project Ldn**	**Existing Ldn**	**Mod. Impact**	**Sev. Impact**	**Impact?**
1 Bus Operating Facility	2041 ft	28.0 dBA	54 dBA	55 dBA	61 dBA	None
2 Buses (diesel-powered)	650 ft	33.3 dBA	54 dBA	55 dBA	61 dBA	None
3 --	ft		54 dBA	55 dBA	61 dBA	
4 --	ft		54 dBA	55 dBA	61 dBA	
5 --	ft		54 dBA	55 dBA	61 dBA	
6 --	ft		54 dBA	55 dBA	61 dBA	
Combined Sources		**34 dBA**	**54 dBA**	**55 dBA**	**61 dBA**	**None**

Noise Impact Criteria
(FTA Manual, Fig 3-1)



Increase in Cumulative Noise Levels Allowed
(FTA Manual, Fig 3-2)



Federal Transit Administration
Noise Impact Assessment Spreadsheet
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version: 7/3/2007

Project:	**Hawaii Mass Transit Agency Base Yard and Maintenance Facility**

Receiver Parameters	
Receiver:	**Undeveloped DHHL land**
Land Use Category:	**2. Residential**
Existing Noise (Measured or Generic Value):	**54 dBA**

Noise Source Parameters	
Number of Noise Sources:	**2**

Noise Source Parameters		**Source 1**
	Source Type:	Stationary Source
	Specific Source:	Bus Operating Facility
Daytime hrs	**Avg. Number of Buses/hr**	2
	Avg. Number of Buses Serviced/hr	2.7
Nighttime hrs	**Avg. Number of Buses/hr**	1.4
	Avg. Number of Buses Serviced/hr	0.6
Distance	**Distance from Source to Receiver (ft)**	280
	Number of Intervening Rows of Buildings	0
Adjustments	**Noise Barrier?**	No

Noise Source Parameters		**Source 2**
	Source Type:	Highway/Transit
	Specific Source:	Buses (diesel-powered)
Daytime hrs		
	Speed (mph)	25
	Avg. Number of Events/hr	2

Project Results Summary

Existing Ldn:	54 dBA
Total Project Ldn:	56 dBA
Total Noise Exposure:	58 dB
Increase:	4 dBA

Distance to Impact Contours

Dist to Mod. Impact Contour (Sources 1+2):	--
Dist to Sev. Impact Contour (Sources 1+2):	--

Source 1 Results

Leq(day):	47.1 dBA
Leq(night):	42.0 dBA
Ldn:	49.6 dBA

Source 2 Results

Leq(day):	49.4 dBA
Leq(night):	47.9 dBA
Ldn:	54.5 dBA

Nighttime hrs		
	Speed (mph)	25
	Avg. Number of Events/hr	1.4
Distance	**Distance from Source to Receiver (ft)**	25
	Number of Intervening Rows of Buildings	0
Adjustments	**Noise Barrier?**	No

Incremental Ldn (Src 1-2): 55.7 dBA

Appendix G

DRAFT EA PUBLIC REVIEW COMMENTS AND RESPONSES

DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
Comptroller

AUDREY HIDANO
Deputy Comptroller

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

MAY 26 2015

(P)1122.5

Mr. Vincent Shigekuni
PBR Hawaii & Assoc., Inc.
1001 Bishop Street, Suite 650
Honolulu, HI 96813

Dear Mr. Shigekuni:

Subject: Draft Environmental Assessment
County of Hawaii Mass Transit Agency Base Yard Facility
Waiakea, South Hilo, Island of Hawaii
TMK: (3) 2-1-013:148 por.

This is in response to your letter dated April 23, 2015 regarding the subject project. The proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and we have no comments to offer at this time.

If there are any questions, please call me at 586-0400, or your staff may call Mr. David DePonte of the Public Works Division at 586-0492.

Sincerely,

FOR DOUGLAS MURDOCK
Comptroller

c: Ms. Tiffany Kai, County of Hawaii Mass Transit Agency
Mr. Jerry Watanabe, DAGS-Hawaii District Office

PBR HAWAII
& ASSOCIATES, INC.

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KIMI MIKAMI YUEN, LEED®AP BD+C
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Managing Director - Kapolei

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June 19, 2015

Mr. Douglas Murdock
Comptroller
State of Hawaii
Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawaii 96810-0119

Attn: Mr. David DePonte, Public Works Division

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Mr. Murdock,

Thank you for your letter dated May 26, 2015 (your reference no. (P)1122.5) regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We acknowledge that the proposed project does not impact any of the Department's projects or existing facilities, and that the Department has no comments to offer at this time.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Final EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

OFFICE OF PLANNING
STATE OF HAWAII

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
ACTING DIRECTOR
OFFICE OF PLANNING

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: http://planning.hawaii.gov/

Ref. No. P-14753

May 18, 2015

Mr. Vincent Shigekuni
Vice President
PBR HAWAII & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Shigekuni:

Subject: Draft Environmental Assessment for the County of Hawaii Mass Transit Agency Base Yard and Maintenance Facility, Waiakea, South Hilo, Hawaii; Tax Map Key (3) 2-1-013: 148 (por)

Thank you for the opportunity to provide comments on the Draft Environmental Assessment (Draft EA) for the County of Hawaii Mass Transit Authority (MTA) Base Yard and Maintenance Facility which was transmitted to our office by letter dated April 30, 2015. It is our understanding that the County of Hawaii intends to construct a base yard and maintenance facility for its county bus system. The purpose of the base yard and maintenance facility is to better support MTA's island-wide public transportation operations. This facility will include the construction of a 26,500 square foot administration building with 19,500 square feet of warehouse space for transit vehicles. This facility will use state lands, and financed by using federal funds.

The Draft EA addresses our comments made in previous letters dated February 19, 2015 (reference number P-14655) and March 9, 2015 (reference number P-14674). We have no further comments to offer at this time.

If you have any questions regarding this comment letter, please contact Josh Hekekia of our office at 587-2845.

Sincerely,

Leo R. Asuncion
Acting Director

c: Tiffany Kai, County of Hawaii Mass Transit Agency

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& ASSOCIATES, INC.

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MARC SHIMATSU, ASLA
Associate

CATIE CULLISON, AICP
Associate

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June 19, 2015

Mr. Leo Asuncion
Acting Director
State of Hawaii
Office of Planning
P.O. Box 2359
Honolulu, Hawaii 96804

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Mr. Asuncion,

Thank you for your letter dated May 18, 2015 (your reference no. P-14753) regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We acknowledge your agency's comments that "The Draft EA addresses our comments made in previous letters dated February 19, 2015…and March 9, 2015…We have no further comments to offer at this time."

Thank you for your Office's participation in the environmental review process. Your letter will be included in the Final EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

DAVID Y. IGE
GOVERNOR
STATE OF HAWAII

SHAN S. TSUTSUI
LT. GOVERNOR
STATE OF HAWAII

JOBIE M. K. MASAGATANI
CHAIRMAN
HAWAIIAN HOMES COMMISSION

WILLIAM J. AILA, JR.
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1879
HONOLULU, HAWAII 96805

May 20, 2015

Mr. Vincent Shigekuni
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

Aloha Mr. Shigekuni:

Subject: Draft Environmental Assessment re: County of Hawaii Mass Transit Agency Base Yard & Maintenance Facility; Waiakea, Hawaii TMK (3)-2-1-013:148 por.

Thank you for the opportunity to review the Draft Environmental Assessment (DEA) for the proposed County of Hawaii Mass Transit Agency Base Yard and Maintenance Facility. As noted in the DEA, the Department of Hawaiian Home Lands (DHHL) has land holdings of approximately 95 acres (TMK (3)-2-1-013:158) that directly border the project area. However DHHL also has over 3,000 acres of land in the surrounding region including its Panaewa homesteads. DHHL is concerned that the proposed project may negatively impact the health and well-being of families in its Panaewa community. DHHL's comments below are related to this concern.

In section 4.5, "Noise", the DEA states that the existing DHHL Keaukaha-Panaewa community is "relatively far" from the proposed project area. That statement is misleading as the project area is roughly 1,000 feet straight line distance from existing DHHL homestead lots in Panewa. This section also lacks sufficient technical detail describing the existing noise level in A-weighted decibels (dBA) as well as the anticipated future noise level in dBA that will be generated by the proposed project. To simply describe the existing and anticipated noise levels in a descriptive manner without actual statistics is insufficient because of the project's close proximity to existing DHHL agricultural homesteads. Furthermore, the FEA should compare the anticipated noise level generated by the proposed project with existing federal and state guidelines and standards for assessing environmental noise impacts. In particular, the

FEA should discuss the anticipated noise level of the proposed project as it relates to the U.S. Department of Housing and Urban Development's (HUD) environmental noise criteria and standards in 24 CFR 51. Should noise levels exceed these standards, DHHL's ability to utilize HUD funding in this region may be greatly compromised.

In section 5 of the DEA, "Land Use Conformance", the EA does not mention the proposed project's impact or compatibility with the DHHL Hawaii Island Plan or Panaewa Regional Plan. These plans have the same weight and bearing as other State or County land use plans. A full discussion of these plans is warranted in the final EA.

In section 6.2, the DEA discusses alternate sites for the proposed project, one of which is the former Hilo Lanes Bowling Alley. Among the reasons why the bowling alley site was deemed unsuitable for the Mass Transit Base Yard and Maintenance Facility is because the bowling alley site "is near a number of residences and retail businesses that would have been affected by the noise generated by the base yard and maintenance facility." For the exact same reason, the preferred site for the base yard and maintenance facility should also be questioned as DHHL has existing agricultural homesteads near the project area. As mentioned previously, including statistics in the FEA related to noise level and comparing those statistics to applicable federal and state guidelines and standards related to noise will greatly help to alleviate DHHL's concerns.

DHHL notes that the proposed project area is sited in the northwest portion of TMK (3)-2-1-013:148 and will directly border DHHL lands. DHHL strongly recommends that the proposed site be relocated to the eastern boundary of the TMK parcel so that the proposed base yard does not directly border DHHL land. Locating the project area on the eastern boundary of the TMK will create a buffer area between the proposed project and future DHHL homesteads and may help to further mitigate any negative impacts caused by the project to future DHHL homesteaders.

The DEA notes that the proposed project will only be permitted in the County Agriculture District via County Special Permit. Should DHHL's above comments not be adequately addressed in the FEA, DHHL as the neighboring landowner will strongly consider opposing the project during the Special Permit approval process as the project could potentially adversely impact DHHL's existing Panaewa homestead community.

Mahalo for the opportunity to comment on the DEA. If you have further questions, please contact Andrew Choy at (808) 620-9279 or email him at andrew.h.choy@hawaii.gov.

Aloha,

Jobie M. K. Masagatani, Chairman
Hawaiian Homes Commission

c: DHHL East Hawaii District Office
Keaukaha-Panaewa Community Alliance
Keaukaha-Panaewa Farmers Association
Panaewa Hawaiian Home Lands Association
County of Hawaii Planning Department

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& ASSOCIATES, INC.

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June 19, 2015

Ms. Jobie M.K. Masagatani, Chairman
Hawaiian Homes Commission
State of Hawaii
Department of Hawaiian Home Lands
Post Office Box 1879
Honolulu, Hawaii 96805

Attn: Mr. Andrew Choy

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Ms. Masagatani,

Thank you for your letter postmarked May 27, 2015 regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We have reviewed your Department's letter and offer the following responses:

- A noise study will be conducted and will be incorporated into the Final EA;
- Section 5 of the EA, "Land Use Conformance," will be revised to include a discussion of the DHHL Hawaii Island Plan and Panaewa Regional Plan; and
- To address your suggestion to create a buffer, the site will be designed so that building will be located along the mauka (western) edge of the site, so that ~~the building's openings will face makai (eastward) and~~ the building itself will act as a wall to buffer most of the noise from the open yard.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Final EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

EPO 15-088

May 12, 2015

PBR Hawaii & Associates, Inc.
Attn: Bethany Wylie
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Bethany:

SUBJECT: Draft Environmental Assessment (DEA) for Hawaii County Mass Transit Agency Base Yard and Maintenance Facility

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your DEA via: The OEQC website link:
http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Hawaii/2010s/2015-04-23-HA-5B-DEA-Hawaii-County-Mass-Transit-Agency-Base-Yard-and-Maintenance-Facility.pdf

The DEA was electronically routed to the District Health Office on Hawaii. They will provide specific comments to you if necessary. EPO recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/home/landuse-planning-review-program. Projects are required to adhere to all applicable standard comments.

We encourage you to examine and utilize the Hawaii Environmental Health Portal. The portal provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings. The Portal is continually updated. Please visit it regularly at: https://eha-cloud.doh.hawaii.gov

You may also wish to review the revised Water Quality Standards Maps that have been updated for all islands. The Water Quality Standards Maps can be found at:
http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

c: County of Hawaii Mass Transit Agency
DHO Hawaii

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& ASSOCIATES, INC.

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June 19, 2015

Ms. Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801-3378

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Aloha Ms. McIntyre,

Thank you for your letter dated May 21, 2015 (your reference no. EPO 15-088) regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We have checked the links you provided and will incorporate pertinent new information into the Final EA.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Final EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

DAVID Y. IGE
GOVERNOR

RACHAEL WONG, DrPH
DIRECTOR

PANKAJ BHANOT
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
Benefit, Employment & Support Services Division
820 Mililani Street, Suite 606
Honolulu, Hawaii 96813

May 18, 2015

Re: 15-0236

PBR HAWAII & Associates, Inc.
Attn: Vincent Shigekuni, VP
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

Subject: County of Hawaii Mass Transit Agency Base Yard Facility
Waiakea, South Hilo, Hawaii (TMK (3) 2-1-013:-148 POR)

This is in response to your letter dated April 23, 2015 requesting the Department of Human Services (DHS) comment on the proposed project for the County of Hawaii Mass Transit Agency Base Yard Facility in Waiakea, South Hilo, Hawaii.

In our letter dated March 2, 2015 you were advised that there are several DHS licensed family child care homes located in the near vicinity that may be impacted by the construction project.

During your conversation with Ms. Arizumi on May 14, 2015, you stated you had been waiting for her response back and had no success in reaching her as was stated in your letter dated April 10, 2015. Ms. Arizumi does not have any record of messages left or voicemails of any calls from your organization. You requested from Ms. Arizumi the TMK number of these DHS licensed family child care homes in order to determine their proximity to the Base Yard Facility project. Additionally you stated that in our March 2 letter that using the term "may" is ambivalent and does not inform PBR of the concerns.

The DHS does not track TMK numbers in the licensing of licensed and registered child care homes and facilities. The DHS uses the word "may" as there is the possibility of a project's impact on child care homes and facilities in the area, but the full extent of the impact cannot be determined by the DHS since we are only the regulatory agency. The DHS has made the determination that only one home is in the near proximity of the Base Yard facility, and it is located in the 1300 block of Auwae Road, Hilo, Hawaii.

If you have any questions or need further information, please contact Ms. Jill Arizumi, Child Care Program Specialist, at (808) 586-5240.

Sincerely,

Scott Nakasone
Acting Division Administrator

c: Rachael Wong, DrPH, DHS Director

PBR HAWAII
& ASSOCIATES, INC.

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June 19, 2015

Mr. Scott Nakasone
Acting Division Administrator
State of Hawaii
Department of Human Services
Benefit, Employment & Support Services Division
820 Mililani Street, Suite 606
Honolulu, Hawaii 96813

Attn: Ms. Jill Arizumi, Child Care Program Specialist

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Mr. Nakasone,

Thank you for your letter dated May 18, 2015 (your reference no. 15-0236) regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We appreciate the information provided that "DHS has made the determination that only one home is in the near proximity of the Base Yard facility, and it is located in the 1300 block of Auwae Road, Hilo Hawaii." According to Google Earth, the project site is over 3,000 feet away from the 1300 block of Auwae Road. Additionally, a noise study has just been completed, and it found that the closest home (889 Auwae Road), which is approximately 630 feet west of the project site, would not be impacted by project-related noise. On that basis, it is anticipated that there will be no noise impact on the closest DHS licensed family child care home during construction.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Final EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 26, 2015

PBR Hawaii & Associates, Inc.
Attn: Roy Takemoto
1001 Bishop Street, Suite 650
Honolulu, HI 96813-3484

via email: rtakemoto@pbrhawaii.com

Dear Mr. Takemoto:

SUBJECT: Draft Environmental Assessment (DEA) for County of Hawaii Mass Transit Agency Base Yard and Maintenance Facility, PBR Hawaii & Associates, Inc. for County of Hawaii Mass Transit Agency, Applicant, Waiakea, South Hilo, Hawaii; TMK: (3) 2-1-013:148

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from the (i) Engineering Division, and (ii) Hawaii District Land Office on the subject matter. Should you have any questions, please feel free to call Kevin Moore at 587-0426.

Sincerely,

for Russell Y. Tsuji
Land Administrator

Enclosure(s)

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
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LAND DIVISION '15 MAY 05 AM 10:54 ENGINEERING

2015 MAY 22 AM 10:42
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

May 4, 2015

MEMORANDUM

TO: FR:

DLNR Agencies:
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
__Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (DEA) for County of Hawaii Mass Transit Agency Base Yard and Maintenance Facility
LOCATION: Waiakea, South Hilo, Hawaii; TMK: (3) 2-1-013:148
APPLICANT: PBR Hawaii & Associates, Inc. for County of Hawaii Mass Transit Agency

Transmitted for your review and comment is information on the above-referenced project. The DEA may be viewed on-line at the Office of Environmental Quality Control's website http://health.hawaii.gov/oeqc/ in the April 23, 2015 issue of The Environmental Notice. We would appreciate your comments on this project. Please submit any comments by May ~~23~~, 26 2015.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Kevin Moore at 587-0426. Thank you.

( ) We have no objections.
(✓) We have no additional comments.
( ) Comments are attached.

Signed: Chris Takahashi
Print name: Carty S. Chang, Chief Engineer
Date: 5/21/15

cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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May 4, 2015

MEMORANDUM

2015 MAY 18 AM 11:15
DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII
RECEIVED LAND DIVISION

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
__Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Hawaii District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Assessment (DEA) for County of Hawaii Mass Transit Agency Base Yard and Maintenance Facility
LOCATION: Waiakea, South Hilo, Hawaii; TMK: (3) 2-1-013:148
APPLICANT: PBR Hawaii & Associates, Inc. for County of Hawaii Mass Transit Agency

Transmitted for your review and comment is information on the above-referenced project. The DEA may be viewed on-line at the Office of Environmental Quality Control's website http://health.hawaii.gov/oeqc/ in the April 23, 2015 issue of The Environmental Notice. We would appreciate your comments on this project. Please submit any comments by May 23, 2015.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Kevin Moore at 587-0426. Thank you.

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Previous comments have been addressed.

Signed:

Print name: GORDON ALLEN
Date: 5/18/15

cc: Central Files

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& ASSOCIATES, INC.

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June 19, 2015

Mr. Russell Y. Tsuji
Land Administrator
State of Hawaii
Department of Land and Natural Resources, Land Division
Post Office Box 621
Honolulu, Hawaii 96809

Attn: Mr. Kevin Moore

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Mr. Tsuji,

Thank you for your letter dated March 26, 2015 regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We have reviewed the memorandums from the Engineering Division and the Hawaii District Land Division, and acknowledge that the Engineering Division has no additional comments, and that the Land Division, Hawaii District Office noted that their previous comments have been addressed.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Final EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
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IN REPLY REFER TO:
STP 8.1801

May 26, 2015

Mr. Vincent Shigekuni
Vice President
PBR HAWAII & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813-3484

Dear Mr. Shigekuni:

Subject: Hawaii County Mass Transit Agency Base Yard and Maintenance Facility
Draft Environmental Assessment (DEA)
Waiakea, South Hilo, Hawaii
TMK: (3) 2-1-013:148 (por.)

Our Department of Transportation's (DOT) comments on the subject project are as follows:

Airports Division

In accordance with the attached Federal Aviation Administration (FAA) Advisory Circular 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*, FAA strongly recommends that off-airport storm water management systems located within five (5) miles of the airport be designed and operated so as not to create above-ground standing water to attract wildlife that could cause hazardous wildlife movement into or across the airspace. Stormwater detention ponds should be designed, engineered, constructed, and maintained for a maximum 48-hour detention period after the design storm and remain completely dry between storms. We recommend that consideration should be given to the types of vegetation planted in or around the drainage swales so as not to attract wildlife which could impact aircraft operations at Hilo International Airport.

Highways Division

The DOT Highways Division is still conducting its review and has not yet provided comments. The Statewide Transportation Planning Office will inform you of any further DOT comments once received.

If there are any questions, please contact Mr. Norren Kato of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7976.

Sincerely,

FORD N. FUCHIGAMI
Director of Transportation

Attachment: FAA Advisory Circular 150/5200-33B

c: Tiffany Kai, County of Hawaii, Mass Transit Agency

U.S. Department of Transportation

Federal Aviation Administration

Advisory Circular

Subject: HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS	**Date:** 8/28/2007	**AC No:** 150/5200-33B
	Initiated by: AAS-300	**Change:**

1. PURPOSE. This Advisory Circular (AC) provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. It also discusses airport development projects (including airport construction, expansion, and renovation) affecting aircraft movement near hazardous wildlife attractants. Appendix 1 provides definitions of terms used in this AC.

2. APPLICABILITY. The Federal Aviation Administration (FAA) recommends that public-use airport operators implement the standards and practices contained in this AC. The holders of Airport Operating Certificates issued under Title 14, Code of Federal Regulations (CFR), Part 139, Certification of Airports, Subpart D (Part 139), may use the standards, practices, and recommendations contained in this AC to comply with the wildlife hazard management requirements of Part 139. Airports that have received Federal grant-in-aid assistance must use these standards. The FAA also recommends the guidance in this AC for land-use planners, operators of non-certificated airports, and developers of projects, facilities, and activities on or near airports.

3. CANCELLATION. This AC cancels AC 150/5200-33A, *Hazardous Wildlife Attractants on or near Airports*, dated July 27, 2004.

4. PRINCIPAL CHANGES. This AC contains the following major changes, which are marked with vertical bars in the margin:

a. Technical changes to paragraph references.

b. Wording on storm water detention ponds.

c. Deleted paragraph 4-3.b, *Additional Coordination.*

5. BACKGROUND. Information about the risks posed to aircraft by certain wildlife species has increased a great deal in recent years. Improved reporting, studies, documentation, and statistics clearly show that aircraft collisions with birds and other wildlife are a serious economic and public safety problem. While many species of wildlife can pose a threat to aircraft safety, they are not equally hazardous. Table 1

ranks the wildlife groups commonly involved in damaging strikes in the United States according to their relative hazard to aircraft. The ranking is based on the 47,212 records in the FAA National Wildlife Strike Database for the years 1990 through 2003. These hazard rankings, in conjunction with site-specific Wildlife Hazards Assessments (WHA), will help airport operators determine the relative abundance and use patterns of wildlife species and help focus hazardous wildlife management efforts on those species most likely to cause problems at an airport.

Most public-use airports have large tracts of open, undeveloped land that provide added margins of safety and noise mitigation. These areas can also present potential hazards to aviation if they encourage wildlife to enter an airport's approach or departure airspace or air operations area (AOA). Constructed or natural areas—such as poorly drained locations, detention/retention ponds, roosting habitats on buildings, landscaping, odor-causing rotting organic matter (putrescible waste) disposal operations, wastewater treatment plants, agricultural or aquaculture activities, surface mining, or wetlands—can provide wildlife with ideal locations for feeding, loafing, reproduction, and escape. Even small facilities, such as fast food restaurants, taxicab staging areas, rental car facilities, aircraft viewing areas, and public parks, can produce substantial attractions for hazardous wildlife.

During the past century, wildlife-aircraft strikes have resulted in the loss of hundreds of lives worldwide, as well as billions of dollars in aircraft damage. Hazardous wildlife attractants on and near airports can jeopardize future airport expansion, making proper community land-use planning essential. This AC provides airport operators and those parties with whom they cooperate with the guidance they need to assess and address potentially hazardous wildlife attractants when locating new facilities and implementing certain land-use practices on or near public-use airports.

6. MEMORANDUM OF AGREEMENT BETWEEN FEDERAL RESOURCE AGENCIES. The FAA, the U.S. Air Force, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture - Wildlife Services signed a Memorandum of Agreement (MOA) in July 2003 to acknowledge their respective missions in protecting aviation from wildlife hazards. Through the MOA, the agencies established procedures necessary to coordinate their missions to address more effectively existing and future environmental conditions contributing to collisions between wildlife and aircraft (wildlife strikes) throughout the United States. These efforts are intended to minimize wildlife risks to aviation and human safety while protecting the Nation's valuable environmental resources.

DAVID L. BENNETT
Director, Office of Airport Safety
and Standards

Table 1. Ranking of 25 species groups as to relative hazard to aircraft (1=most hazardous) based on three criteria (damage, major damage, and effect-on-flight), a composite ranking based on all three rankings, and a relative hazard score. Data were derived from the FAA National Wildlife Strike Database, January 1990–April 2003.[1]

Species group	Ranking by criteria			Composite ranking[2]	Relative hazard score[3]
	Damage[4]	Major damage[5]	Effect on flight[6]		
Deer	1	1	1	1	100
Vultures	2	2	2	2	64
Geese	3	3	6	3	55
Cormorants/pelicans	4	5	3	4	54
Cranes	7	6	4	5	47
Eagles	6	9	7	6	41
Ducks	5	8	10	7	39
Osprey	8	4	8	8	39
Turkey/pheasants	9	7	11	9	33
Herons	11	14	9	10	27
Hawks (buteos)	10	12	12	11	25
Gulls	12	11	13	12	24
Rock pigeon	13	10	14	13	23
Owls	14	13	20	14	23
H. lark/s. bunting	18	15	15	15	17
Crows/ravens	15	16	16	16	16
Coyote	16	19	5	17	14
Mourning dove	17	17	17	18	14
Shorebirds	19	21	18	19	10
Blackbirds/starling	20	22	19	20	10
American kestrel	21	18	21	21	9
Meadowlarks	22	20	22	22	7
Swallows	24	23	24	23	4
Sparrows	25	24	23	24	4
Nighthawks	23	25	25	25	1

[1] Excerpted from the *Special Report for the FAA, "Ranking the Hazard Level of Wildlife Species to Civil Aviation in the USA: Update #1, July 2, 2003"*. Refer to this report for additional explanations of criteria and method of ranking.
[2] Relative rank of each species group was compared with every other group for the three variables, placing the species group with the greatest hazard rank for ≥ 2 of the 3 variables above the next highest ranked group, then proceeding down the list.
[3] Percentage values, from Tables 3 and 4 in Footnote 1 of the *Special Report*, for the three criteria were summed and scaled down from 100, with 100 as the score for the species group with the maximum summed values and the greatest potential hazard to aircraft.
[4] Aircraft incurred at least some damage (destroyed, substantial, minor, or unknown) from strike.
[5] Aircraft incurred damage or structural failure, which adversely affected the structure strength, performance, or flight characteristics, and which would normally require major repair or replacement of the affected component, or the damage sustained makes it inadvisable to restore aircraft to airworthy condition.
[6] Aborted takeoff, engine shutdown, precautionary landing, or other.

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SECTION 1.

GENERAL SEPARATION CRITERIA FOR HAZARDOUS WILDLIFE ATTRACTANTS ON OR NEAR AIRPORTS.

1-1. INTRODUCTION. When considering proposed land uses, airport operators, local planners, and developers must take into account whether the proposed land uses, including new development projects, will increase wildlife hazards. Land-use practices that attract or sustain hazardous wildlife populations on or near airports can significantly increase the potential for wildlife strikes.

The FAA recommends the minimum separation criteria outlined below for land-use practices that attract hazardous wildlife to the vicinity of airports. Please note that FAA criteria include land uses that cause movement of hazardous wildlife onto, into, or across the airport's approach or departure airspace or air operations area (AOA). (See the discussion of the synergistic effects of surrounding land uses in Section 2-8 of this AC.)

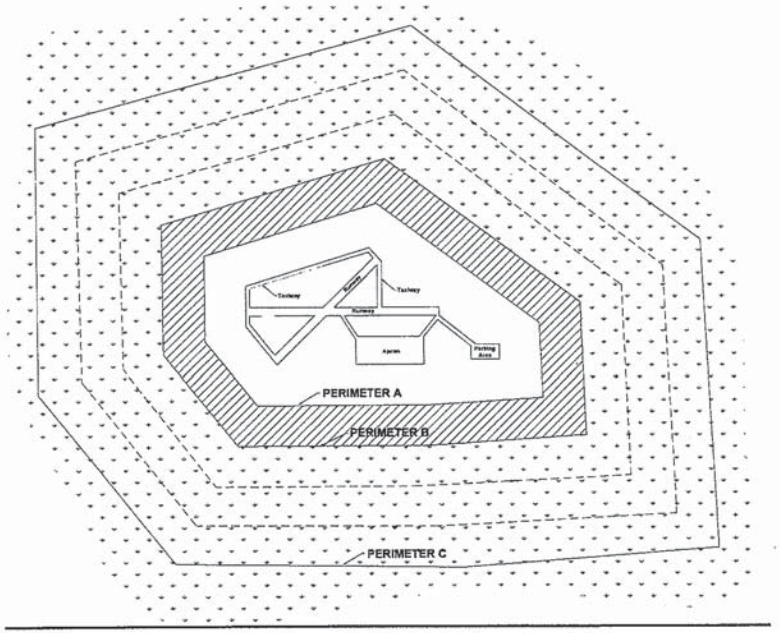
The basis for the separation criteria contained in this section can be found in existing FAA regulations. The separation distances are based on (1) flight patterns of piston-powered aircraft and turbine-powered aircraft, (2) the altitude at which most strikes happen (78 percent occur under 1,000 feet and 90 percent occur under 3,000 feet above ground level), and (3) National Transportation Safety Board (NTSB) recommendations.

1-2. AIRPORTS SERVING PISTON-POWERED AIRCRAFT. Airports that do not sell Jet-A fuel normally serve piston-powered aircraft. Notwithstanding more stringent requirements for specific land uses, the FAA recommends a separation distance of 5,000 feet at these airports for any of the hazardous wildlife attractants mentioned in Section 2 or for new airport development projects meant to accommodate aircraft movement. This distance is to be maintained between an airport's AOA and the hazardous wildlife attractant. Figure 1 depicts this separation distance measured from the nearest aircraft operations areas.

1-3. AIRPORTS SERVING TURBINE-POWERED AIRCRAFT. Airports selling Jet-A fuel normally serve turbine-powered aircraft. Notwithstanding more stringent requirements for specific land uses, the FAA recommends a separation distance of 10,000 feet at these airports for any of the hazardous wildlife attractants mentioned in Section 2 or for new airport development projects meant to accommodate aircraft movement. This distance is to be maintained between an airport's AOA and the hazardous wildlife attractant. Figure 1 depicts this separation distance from the nearest aircraft movement areas.

1-4. PROTECTION OF APPROACH, DEPARTURE, AND CIRCLING AIRSPACE. For all airports, the FAA recommends a distance of 5 statute miles between the farthest edge of the airport's AOA and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace.

Figure 1. Separation distances within which hazardous wildlife attractants should be avoided, eliminated, or mitigated.



PERIMETER A: For airports serving piston-powered aircraft, hazardous wildlife attractants must be 5,000 feet from the nearest air operations area.

PERIMETER B: For airports serving turbine-powered aircraft, hazardous wildlife attractants must be 10,000 feet from the nearest air operations area.

PERIMETER C: 5-mile range to protect approach, departure and circling airspace.

SECTION 2.

LAND-USE PRACTICES ON OR NEAR AIRPORTS THAT POTENTIALLY ATTRACT HAZARDOUS WILDLIFE.

2-1. GENERAL. The wildlife species and the size of the populations attracted to the airport environment vary considerably, depending on several factors, including land-use practices on or near the airport. This section discusses land-use practices having the potential to attract hazardous wildlife and threaten aviation safety. In addition to the specific considerations outlined below, airport operators should refer to *Wildlife Hazard Management at Airports,* prepared by FAA and U.S. Department of Agriculture (USDA) staff. (This manual is available in English, Spanish, and French. It can be viewed and downloaded free of charge from the FAA's wildlife hazard mitigation web site: http://wildlife-mitigation.tc.FAA.gov.). And, *Prevention and Control of Wildlife Damage,* compiled by the University of Nebraska Cooperative Extension Division. (This manual is available online in a periodically updated version at: ianrwww.unl.edu/wildlife/solutions/handbook/.)

2-2. WASTE DISPOSAL OPERATIONS. Municipal solid waste landfills (MSWLF) are known to attract large numbers of hazardous wildlife, particularly birds. Because of this, these operations, when located within the separations identified in the siting criteria in Sections 1-2 through 1-4, are considered incompatible with safe airport operations.

a. **Siting for new municipal solid waste landfills subject to AIR 21.** Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Public Law 106-181) (AIR 21) prohibits the construction or establishment of a new MSWLF within 6 statute miles of certain public-use airports. Before these prohibitions apply, both the airport and the landfill must meet the very specific conditions described below. These restrictions do not apply to airports or landfills located within the state of Alaska.

   The airport must (1) have received a Federal grant(s) under 49 U.S.C. § 47101, et. seq.; (2) be under control of a public agency; (3) serve some scheduled air carrier operations conducted in aircraft with less than 60 seats; and (4) have total annual enplanements consisting of at least 51 percent of scheduled air carrier enplanements conducted in aircraft with less than 60 passenger seats.

   The proposed MSWLF must (1) be within 6 miles of the airport, as measured from airport property line to MSWLF property line, and (2) have started construction or establishment on or after April 5, 2001. Public Law 106-181 only limits the construction or establishment of some new MSWLF. It does not limit the expansion, either vertical or horizontal, of existing landfills.

   NOTE: Consult the most recent version of AC 150/5200-34, *Construction or Establishment of Landfills Near Public Airports,* for a more detailed discussion of these restrictions.

b. **Siting for new MSWLF not subject to AIR 21.** If an airport and MSWLF do not meet the restrictions of Public Law 106-181, the FAA recommends against locating MSWLF within the separation distances identified in Sections 1-2 through 1-4. The separation distances should be measured from the closest point of the airport's AOA to the closest planned MSWLF cell.

c. **Considerations for existing waste disposal facilities within the limits of separation criteria.** The FAA recommends against airport development projects that would increase the number of aircraft operations or accommodate larger or faster aircraft near MSWLF operations located within the separations identified in Sections 1-2 through 1-4. In addition, in accordance with 40 CFR 258.10, owners or operators of existing MSWLF units that are located within the separations listed in Sections 1-2 through 1-4 must demonstrate that the unit is designed and operated so it does not pose a bird hazard to aircraft. (See Section 4-2(b) of this AC for a discussion of this demonstration requirement.)

d. **Enclosed trash transfer stations.** Enclosed waste-handling facilities that receive garbage behind closed doors; process it via compaction, incineration, or similar manner; and remove all residue by enclosed vehicles generally are compatible with safe airport operations, provided they are not located on airport property or within the Runway Protection Zone (RPZ). These facilities should not handle or store putrescible waste outside or in a partially enclosed structure accessible to hazardous wildlife. Trash transfer facilities that are open on one or more sides; that store uncovered quantities of municipal solid waste outside, even if only for a short time; that use semi-trailers that leak or have trash clinging to the outside; or that do not control odors by ventilation and filtration systems (odor masking is not acceptable) do not meet the FAA's definition of fully enclosed trash transfer stations. The FAA considers these facilities incompatible with safe airport operations if they are located closer than the separation distances specified in Sections 1-2 through 1-4.

e. **Composting operations on or near airport property.** Composting operations that accept only yard waste (e.g., leaves, lawn clippings, or branches) generally do not attract hazardous wildlife. Sewage sludge, woodchips, and similar material are not municipal solid wastes and may be used as compost bulking agents. The compost, however, must never include food or other municipal solid waste. Composting operations should not be located on airport property. Off-airport property composting operations should be located no closer than the greater of the following distances: 1,200 feet from any AOA or the distance called for by airport design requirements (see AC 150/5300-13, *Airport Design*). This spacing should prevent material, personnel, or equipment from penetrating any Object Free Area (OFA), Obstacle Free Zone (OFZ), Threshold Siting Surface (TSS), or Clearway. Airport operators should monitor composting operations located in proximity to the airport to ensure that steam or thermal rise does not adversely affect air traffic. On-airport disposal of compost by-products should not be conducted for the reasons stated in 2-3f.

f. **Underwater waste discharges.** The FAA recommends against the underwater discharge of any food waste (e.g., fish processing offal) within the separations identified in Sections 1-2 through 1-4 because it could attract scavenging hazardous wildlife.

g. **Recycling centers.** Recycling centers that accept previously sorted non-food items, such as glass, newspaper, cardboard, or aluminum, are, in most cases, not attractive to hazardous wildlife and are acceptable.

h. **Construction and demolition (C&D) debris facilities.** C&D landfills do not generally attract hazardous wildlife and are acceptable if maintained in an orderly manner, admit no putrescible waste, and are not co-located with other waste disposal operations. However, C&D landfills have similar visual and operational characteristics to putrescible waste disposal sites. When co-located with putrescible waste disposal operations, C&D landfills are more likely to attract hazardous wildlife because of the similarities between these disposal facilities. Therefore, a C&D landfill co-located with another waste disposal operation should be located outside of the separations identified in Sections 1-2 through 1-4.

i. **Fly ash disposal.** The incinerated residue from resource recovery power/heat-generating facilities that are fired by municipal solid waste, coal, or wood is generally not a wildlife attractant because it no longer contains putrescible matter. Landfills accepting only fly ash are generally not considered to be wildlife attractants and are acceptable as long as they are maintained in an orderly manner, admit no putrescible waste of any kind, and are not co-located with other disposal operations that attract hazardous wildlife.

   Since varying degrees of waste consumption are associated with general incineration (not resource recovery power/heat-generating facilities), the FAA considers the ash from general incinerators a regular waste disposal by-product and, therefore, a hazardous wildlife attractant if disposed of within the separation criteria outlined in Sections 1-2 through 1-4.

2-3. WATER MANAGEMENT FACILITIES. Drinking water intake and treatment facilities, storm water and wastewater treatment facilities, associated retention and settling ponds, ponds built for recreational use, and ponds that result from mining activities often attract large numbers of potentially hazardous wildlife. To prevent wildlife hazards, land-use developers and airport operators may need to develop management plans, in compliance with local and state regulations, to support the operation of storm water management facilities on or near all public-use airports to ensure a safe airport environment.

a. **Existing storm water management facilities.** On-airport storm water management facilities allow the quick removal of surface water, including discharges related to aircraft deicing, from impervious surfaces, such as pavement and terminal/hangar building roofs. Existing on-airport detention ponds collect storm water, protect water quality, and control runoff. Because they slowly release water

after storms, they create standing bodies of water that can attract hazardous wildlife. Where the airport has developed a Wildlife Hazard Management Plan (WHMP) in accordance with Part 139, the FAA requires immediate correction of any wildlife hazards arising from existing storm water facilities located on or near airports, using appropriate wildlife hazard mitigation techniques. Airport operators should develop measures to minimize hazardous wildlife attraction in consultation with a wildlife damage management biologist.

Where possible, airport operators should modify storm water detention ponds to allow a maximum 48-hour detention period for the design storm. The FAA recommends that airport operators avoid or remove retention ponds and detention ponds featuring dead storage to eliminate standing water. Detention basins should remain totally dry between rainfalls. Where constant flow of water is anticipated through the basin, or where any portion of the basin bottom may remain wet, the detention facility should include a concrete or paved pad and/or ditch/swale in the bottom to prevent vegetation that may provide nesting habitat.

When it is not possible to drain a large detention pond completely, airport operators may use physical barriers, such as bird balls, wires grids, pillows, or netting, to deter birds and other hazardous wildlife. When physical barriers are used, airport operators must evaluate their use and ensure they will not adversely affect water rescue. Before installing any physical barriers over detention ponds on Part 139 airports, airport operators must get approval from the appropriate FAA Regional Airports Division Office.

The FAA recommends that airport operators encourage off-airport storm water treatment facility operators to incorporate appropriate wildlife hazard mitigation techniques into storm water treatment facility operating practices when their facility is located within the separation criteria specified in Sections 1-2 through 1-4.

b. **New storm water management facilities.** The FAA strongly recommends that off-airport storm water management systems located within the separations identified in Sections 1-2 through 1-4 be designed and operated so as not to create above-ground standing water. Stormwater detention ponds should be designed, engineered, constructed, and maintained for a maximum 48–hour detention period after the design storm and remain completely dry between storms. To facilitate the control of hazardous wildlife, the FAA recommends the use of steep-sided, rip-rap lined, narrow, linearly shaped water detention basins. When it is not possible to place these ponds away from an airport's AOA, airport operators should use physical barriers, such as bird balls, wires grids, pillows, or netting, to prevent access of hazardous wildlife to open water and minimize aircraft-wildlife interactions. When physical barriers are used, airport operators must evaluate their use and ensure they will not adversely affect water rescue. Before installing any physical barriers over detention ponds on Part 139 airports, airport operators must get approval from the appropriate FAA Regional Airports Division Office. All vegetation in or around detention basins that provide food or cover for hazardous wildlife should be eliminated. If soil conditions and other requirements allow, the FAA encourages

the use of underground storm water infiltration systems, such as French drains or buried rock fields, because they are less attractive to wildlife.

c. **Existing wastewater treatment facilities.** The FAA strongly recommends that airport operators immediately correct any wildlife hazards arising from existing wastewater treatment facilities located on or near the airport. Where required, a WHMP developed in accordance with Part 139 will outline appropriate wildlife hazard mitigation techniques. Accordingly, airport operators should encourage wastewater treatment facility operators to incorporate measures, developed in consultation with a wildlife damage management biologist, to minimize hazardous wildlife attractants. Airport operators should also encourage those wastewater treatment facility operators to incorporate these mitigation techniques into their standard operating practices. In addition, airport operators should consider the existence of wastewater treatment facilities when evaluating proposed sites for new airport development projects and avoid such sites when practicable.

d. **New wastewater treatment facilities.** The FAA strongly recommends against the construction of new wastewater treatment facilities or associated settling ponds within the separations identified in Sections 1-2 through 1-4. Appendix 1 defines wastewater treatment facility as "any devices and/or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes." The definition includes any pretreatment involving the reduction of the amount of pollutants or the elimination of pollutants prior to introducing such pollutants into a publicly owned treatment works (wastewater treatment facility). During the site-location analysis for wastewater treatment facilities, developers should consider the potential to attract hazardous wildlife if an airport is in the vicinity of the proposed site, and airport operators should voice their opposition to such facilities if they are in proximity to the airport.

e. **Artificial marshes.** In warmer climates, wastewater treatment facilities sometimes employ artificial marshes and use submergent and emergent aquatic vegetation as natural filters. These artificial marshes may be used by some species of flocking birds, such as blackbirds and waterfowl, for breeding or roosting activities. The FAA strongly recommends against establishing artificial marshes within the separations identified in Sections 1-2 through 1-4.

f. **Wastewater discharge and sludge disposal.** The FAA recommends against the discharge of wastewater or sludge on airport property because it may improve soil moisture and quality on unpaved areas and lead to improved turf growth that can be an attractive food source for many species of animals. Also, the turf requires more frequent mowing, which in turn may mutilate or flush insects or small animals and produce straw, both of which can attract hazardous wildlife. In addition, the improved turf may attract grazing wildlife, such as deer and geese. Problems may also occur when discharges saturate unpaved airport areas. The resultant soft, muddy conditions can severely restrict or prevent emergency vehicles from reaching accident sites in a timely manner.

2-4. WETLANDS. Wetlands provide a variety of functions and can be regulated by local, state, and Federal laws. Normally, wetlands are attractive to many types of wildlife, including many which rank high on the list of hazardous wildlife species (Table 1).

NOTE: If questions exist as to whether an area qualifies as a wetland, contact the local division of the U.S. Army Corps of Engineers, the Natural Resources Conservation Service, or a wetland consultant qualified to delineate wetlands.

a. **Existing wetlands on or near airport property.** If wetlands are located on or near airport property, airport operators should be alert to any wildlife use or habitat changes in these areas that could affect safe aircraft operations. At public-use airports, the FAA recommends immediately correcting, in cooperation with local, state, and Federal regulatory agencies, any wildlife hazards arising from existing wetlands located on or near airports. Where required, a WHMP will outline appropriate wildlife hazard mitigation techniques. Accordingly, airport operators should develop measures to minimize hazardous wildlife attraction in consultation with a wildlife damage management biologist.

b. **New airport development.** Whenever possible, the FAA recommends locating new airports using the separations from wetlands identified in Sections 1-2 through 1-4. Where alternative sites are not practicable, or when airport operators are expanding an existing airport into or near wetlands, a wildlife damage management biologist, in consultation with the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the state wildlife management agency should evaluate the wildlife hazards and prepare a WHMP that indicates methods of minimizing the hazards.

c. **Mitigation for wetland impacts from airport projects.** Wetland mitigation may be necessary when unavoidable wetland disturbances result from new airport development projects or projects required to correct wildlife hazards from wetlands. Wetland mitigation must be designed so it does not create a wildlife hazard. The FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Sections 1-2 through 1-4.

(1) **Onsite mitigation of wetland functions.** The FAA may consider exceptions to locating mitigation activities outside the separations identified in Sections 1-2 through 1-4 if the affected wetlands provide unique ecological functions, such as critical habitat for threatened or endangered species or ground water recharge, which cannot be replicated when moved to a different location. Using existing airport property is sometimes the only feasible way to achieve the mitigation ratios mandated in regulatory orders and/or settlement agreements with the resource agencies. Conservation easements are an additional means of providing mitigation for project impacts. Typically the airport operator continues to own the property, and an easement is created stipulating that the property will be maintained as habitat for state or Federally listed species.

Mitigation must not inhibit the airport operator's ability to effectively control hazardous wildlife on or near the mitigation site or effectively maintain other aspects of safe airport operations. Enhancing such mitigation areas to attract hazardous wildlife must be avoided. The FAA will review any onsite mitigation proposals to determine compatibility with safe airport operations. A wildlife damage management biologist should evaluate any wetland mitigation projects that are needed to protect unique wetland functions and that must be located in the separation criteria in Sections 1-2 through 1-4 before the mitigation is implemented. A WHMP should be developed to reduce the wildlife hazards.

(2) Offsite mitigation of wetland functions. The FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Sections 1-2 through 1-4 unless they provide unique functions that must remain onsite (see 2-4c(1)). Agencies that regulate impacts to or around wetlands recognize that it may be necessary to split wetland functions in mitigation schemes. Therefore, regulatory agencies may, under certain circumstances, allow portions of mitigation to take place in different locations.

(3) Mitigation banking. Wetland mitigation banking is the creation or restoration of wetlands in order to provide mitigation credits that can be used to offset permitted wetland losses. Mitigation banking benefits wetland resources by providing advance replacement for permitted wetland losses; consolidating small projects into larger, better-designed and managed units; and encouraging integration of wetland mitigation projects with watershed planning. This last benefit is most helpful for airport projects, as wetland impacts mitigated outside of the separations identified in Sections 1-2 through 1-4 can still be located within the same watershed. Wetland mitigation banks meeting the separation criteria offer an ecologically sound approach to mitigation in these situations. Airport operators should work with local watershed management agencies or organizations to develop mitigation banking for wetland impacts on airport property.

2-5. DREDGE SPOIL CONTAINMENT AREAS. The FAA recommends against locating dredge spoil containment areas (also known as Confined Disposal Facilities) within the separations identified in Sections 1-2 through 1-4 if the containment area or the spoils contain material that would attract hazardous wildlife.

2-6. AGRICULTURAL ACTIVITIES. Because most, if not all, agricultural crops can attract hazardous wildlife during some phase of production, the FAA recommends against the used of airport property for agricultural production, including hay crops, within the separations identified in Sections 1-2 through 1-4. . If the airport has no financial alternative to agricultural crops to produce income necessary to maintain the viability of the airport, then the airport shall follow the crop distance guidelines listed in the table titled "Minimum Distances between Certain Airport Features and Any On-Airport Agricultural Crops" found in AC 150/5300-13, *Airport Design*, Appendix 17. The cost of wildlife control and potential accidents should be weighed against the income produced by the on-airport crops when deciding whether to allow crops on the airport.

a. **Livestock production.** Confined livestock operations (i.e., feedlots, dairy operations, hog or chicken production facilities, or egg laying operations) often attract flocking birds, such as starlings, that pose a hazard to aviation. Therefore, The FAA recommends against such facilities within the separations identified in Sections 1-2 through 1-4. Any livestock operation within these separations should have a program developed to reduce the attractiveness of the site to species that are hazardous to aviation safety. Free-ranging livestock must not be grazed on airport property because the animals may wander onto the AOA. Furthermore, livestock feed, water, and manure may attract birds.

b. **Aquaculture.** Aquaculture activities (i.e. catfish or trout production) conducted outside of fully enclosed buildings are inherently attractive to a wide variety of birds. Existing aquaculture facilities/activities within the separations listed in Sections 1-2 through 1-4 must have a program developed to reduce the attractiveness of the sites to species that are hazardous to aviation safety. Airport operators should also oppose the establishment of new aquaculture facilities/activities within the separations listed in Sections 1-2 through 1-4.

c. **Alternative uses of agricultural land.** Some airports are surrounded by vast areas of farmed land within the distances specified in Sections 1-2 through 1-4. Seasonal uses of agricultural land for activities such as hunting can create a hazardous wildlife situation. In some areas, farmers will rent their land for hunting purposes. Rice farmers, for example, flood their land during waterfowl hunting season and obtain additional revenue by renting out duck blinds. The duck hunters then use decoys and call in hundreds, if not thousands, of birds, creating a tremendous threat to aircraft safety. A wildlife damage management biologist should review, in coordination with local farmers and producers, these types of seasonal land uses and incorporate them into the WHMP.

2-7. GOLF COURSES, LANDSCAPING AND OTHER LAND-USE CONSIDERATIONS.

a. **Golf courses.** The large grassy areas and open water found on most golf courses are attractive to hazardous wildlife, particularly Canada geese and some species of gulls. These species can pose a threat to aviation safety. The FAA recommends against construction of new golf courses within the separations identified in Sections 1-2 through 1-4. Existing golf courses located within these separations must develop a program to reduce the attractiveness of the sites to species that are hazardous to aviation safety. Airport operators should ensure these golf courses are monitored on a continuing basis for the presence of hazardous wildlife. If hazardous wildlife is detected, corrective actions should be immediately implemented.

b. **Landscaping and landscape maintenance.** Depending on its geographic location, landscaping can attract hazardous wildlife. The FAA recommends that airport operators approach landscaping with caution and confine it to airport areas not associated with aircraft movements. A wildlife damage management biologist should review all landscaping plans. Airport operators should also monitor all landscaped areas on a continuing basis for the presence of hazardous wildlife. If

hazardous wildlife is detected, corrective actions should be immediately implemented.

Turf grass areas can be highly attractive to a variety of hazardous wildlife species. Research conducted by the USDA Wildlife Services' National Wildlife Research Center has shown that no one grass management regime will deter all species of hazardous wildlife in all situations. In cooperation with wildlife damage management biologist, airport operators should develop airport turf grass management plans on a prescription basis, depending on the airport's geographic locations and the type of hazardous wildlife likely to frequent the airport

Airport operators should ensure that plant varieties attractive to hazardous wildlife are not used on the airport. Disturbed areas or areas in need of re-vegetating should not be planted with seed mixtures containing millet or any other large-seed producing grass. For airport property already planted with seed mixtures containing millet, rye grass, or other large-seed producing grasses, the FAA recommends disking, plowing, or another suitable agricultural practice to prevent plant maturation and seed head production. Plantings should follow the specific recommendations for grass management and seed and plant selection made by the State University Cooperative Extension Service, the local office of Wildlife Services, or a qualified wildlife damage management biologist. Airport operators should also consider developing and implementing a preferred/prohibited plant species list, reviewed by a wildlife damage management biologist, which has been designed for the geographic location to reduce the attractiveness to hazardous wildlife for landscaping airport property.

c. **Airports surrounded by wildlife habitat.** The FAA recommends that operators of airports surrounded by woodlands, water, or wetlands refer to Section 2.4 of this AC. Operators of such airports should provide for a Wildlife Hazard Assessment (WHA) conducted by a wildlife damage management biologist. This WHA is the first step in preparing a WHMP, where required.

d. **Other hazardous wildlife attractants.** Other specific land uses or activities (e.g., sport or commercial fishing, shellfish harvesting, etc.), perhaps unique to certain regions of the country, have the potential to attract hazardous wildlife. Regardless of the source of the attraction, when hazardous wildlife is noted on a public-use airport, airport operators must take prompt remedial action(s) to protect aviation safety.

2-8. SYNERGISTIC EFFECTS OF SURROUNDING LAND USES. There may be circumstances where two (or more) different land uses that would not, by themselves, be considered hazardous wildlife attractants or that are located outside of the separations identified in Sections 1-2 through 1-4 that are in such an alignment with the airport as to create a wildlife corridor directly through the airport and/or surrounding airspace. An example of this situation may involve a lake located outside of the separation criteria on the east side of an airport and a large hayfield on the west side of an airport, land uses that together could create a flyway for Canada geese directly across the airspace of the airport. There are numerous examples of such situations;

therefore, airport operators and the wildlife damage management biologist must consider the entire surrounding landscape and community when developing the WHMP.

SECTION 3.

PROCEDURES FOR WILDLIFE HAZARD MANAGEMENT BY OPERATORS OF PUBLIC-USE AIRPORTS.

3.1. INTRODUCTION. In recognition of the increased risk of serious aircraft damage or the loss of human life that can result from a wildlife strike, the FAA may require the development of a Wildlife Hazard Management Plan (WHMP) when specific triggering events occur on or near the airport. Part 139.337 discusses the specific events that trigger a Wildlife Hazard Assessment (WHA) and the specific issues that a WHMP must address for FAA approval and inclusion in an Airport Certification Manual.

3.2. COORDINATION WITH USDA WILDLIFE SERVICES OR OTHER QUALIFIED WILDLIFE DAMAGE MANAGEMENT BIOLOGISTS. The FAA will use the Wildlife Hazard Assessment (WHA) conducted in accordance with Part 139 to determine if the airport needs a WHMP. Therefore, persons having the education, training, and expertise necessary to assess wildlife hazards must conduct the WHA. The airport operator may look to Wildlife Services or to qualified private consultants to conduct the WHA. When the services of a wildlife damage management biologist are required, the FAA recommends that land-use developers or airport operators contact a consultant specializing in wildlife damage management or the appropriate state director of Wildlife Services.

NOTE: Telephone numbers for the respective USDA Wildlife Services state offices can be obtained by contacting USDA Wildlife Services Operational Support Staff, 4700 River Road, Unit 87, Riverdale, MD, 20737-1234, Telephone (301) 734-7921, Fax (301) 734-5157 *(http://www.aphis.usda.gov/ws/)*.

3-3. WILDLIFE HAZARD MANAGEMENT AT AIRPORTS: A MANUAL FOR AIRPORT PERSONNEL. This manual, prepared by FAA and USDA Wildlife Services staff, contains a compilation of information to assist airport personnel in the development, implementation, and evaluation of WHMPs at airports. The manual includes specific information on the nature of wildlife strikes, legal authority, regulations, wildlife management techniques, WHAs, WHMPs, and sources of help and information. The manual is available in three languages: English, Spanish, and French. It can be viewed and downloaded free of charge from the FAA's wildlife hazard mitigation web site: http://wildlife-mitigation.tc.FAA.gov/. This manual only provides a starting point for addressing wildlife hazard issues at airports. Hazardous wildlife management is a complex discipline and conditions vary widely across the United States. Therefore, qualified wildlife damage management biologists must direct the development of a WHMP and the implementation of management actions by airport personnel.

There are many other resources complementary to this manual for use in developing and implementing WHMPs. Several are listed in the manual's bibliography.

3-4. WILDLIFE HAZARD ASSESSMENTS, TITLE 14, CODE OF FEDERAL REGULATIONS, PART 139. Part 139.337(b) requires airport operators to conduct a Wildlife Hazard Assessment (WHA) when certain events occur on or near the airport.

Part 139.337 (c) provides specific guidance as to what facts must be addressed in a WHA.

3-5. WILDLIFE HAZARD MANAGEMENT PLAN (WHMP). The FAA will consider the results of the WHA, along with the aeronautical activity at the airport and the views of the airport operator and airport users, in determining whether a formal WHMP is needed, in accordance with Part 139.337. If the FAA determines that a WHMP is needed, the airport operator must formulate and implement a WHMP, using the WHA as the basis for the plan.

The goal of an airport's Wildlife Hazard Management Plan is to minimize the risk to aviation safety, airport structures or equipment, or human health posed by populations of hazardous wildlife on and around the airport.

The WHMP must identify hazardous wildlife attractants on or near the airport and the appropriate wildlife damage management techniques to minimize the wildlife hazard. It must also prioritize the management measures.

3-6. LOCAL COORDINATION. The establishment of a Wildlife Hazards Working Group (WHWG) will facilitate the communication, cooperation, and coordination of the airport and its surrounding community necessary to ensure the effectiveness of the WHMP. The cooperation of the airport community is also necessary when new projects are considered. Whether on or off the airport, the input from all involved parties must be considered when a potentially hazardous wildlife attractant is being proposed. Airport operators should also incorporate public education activities with the local coordination efforts because some activities in the vicinity of your airport, while harmless under normal leisure conditions, can attract wildlife and present a danger to aircraft. For example, if public trails are planned near wetlands or in parks adjoining airport property, the public should know that feeding birds and other wildlife in the area may pose a risk to aircraft.

Airport operators should work with local and regional planning and zoning boards so as to be aware of proposed land-use changes, or modification of existing land uses, that could create hazardous wildlife attractants within the separations identified in Sections 1-2 through 1-4. Pay particular attention to proposed land uses involving creation or expansion of waste water treatment facilities, development of wetland mitigation sites, or development or expansion of dredge spoil containment areas. At the very least, airport operators must ensure they are on the notification list of the local planning board or equivalent review entity for all communities located within 5 miles of the airport, so they will receive notification of any proposed project and have the opportunity to review it for attractiveness to hazardous wildlife.

3-7 COORDINATION/NOTIFICATION OF AIRMEN OF WILDLIFE HAZARDS. If an existing land-use practice creates a wildlife hazard and the land-use practice or wildlife hazard cannot be immediately eliminated, airport operators must issue a Notice to Airmen (NOTAM) and encourage the land–owner or manager to take steps to control the wildlife hazard and minimize further attraction.

SECTION 4.

FAA NOTIFICATION AND REVIEW OF PROPOSED LAND-USE PRACTICE CHANGES IN THE VICINITY OF PUBLIC-USE AIRPORTS

4-1. FAA REVIEW OF PROPOSED LAND-USE PRACTICE CHANGES IN THE VICINITY OF PUBLIC-USE AIRPORTS.

a. The FAA discourages the development of waste disposal and other facilities, discussed in Section 2, located within the 5,000/10,000-foot criteria specified in Sections 1-2 through 1-4.

b. For projects that are located outside the 5,000/10,000-foot criteria but within 5 statute miles of the airport's AOA, the FAA may review development plans, proposed land-use changes, operational changes, or wetland mitigation plans to determine if such changes present potential wildlife hazards to aircraft operations. The FAA considers sensitive airport areas as those that lie under or next to approach or departure airspace. This brief examination should indicate if further investigation is warranted.

c. Where a wildlife damage management biologist has conducted a further study to evaluate a site's compatibility with airport operations, the FAA may use the study results to make a determination.

4-2. WASTE MANAGEMENT FACILITIES.

a. **Notification of new/expanded project proposal.** Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Public Law 106-181) limits the construction or establishment of new MSWLF within 6 statute miles of certain public-use airports, when both the airport and the landfill meet very specific conditions. See Section 2-2 of this AC and AC 150/5200-34 for a more detailed discussion of these restrictions.

The Environmental Protection Agency (EPA) requires any MSWLF operator proposing a new or expanded waste disposal operation within 5 statute miles of a runway end to notify the appropriate FAA Regional Airports Division Office and the airport operator of the proposal (40 CFR 258, *Criteria for Municipal Solid Waste Landfills*, Section 258.10, *Airport Safety*). The EPA also requires owners or operators of new MSWLF units, or lateral expansions of existing MSWLF units, that are located within 10,000 feet of any airport runway end used by turbojet aircraft, or within 5,000 feet of any airport runway end used only by piston-type aircraft, to demonstrate successfully that such units are not hazards to aircraft. (See 4-2.b below.)

When new or expanded MSWLF are being proposed near airports, MSWLF operators must notify the airport operator and the FAA of the proposal as early as possible pursuant to 40 CFR 258.

b. **Waste handling facilities within separations identified in Sections 1-2 through 1-4.** To claim successfully that a waste-handling facility sited within the separations identified in Sections 1-2 through 1-4 does not attract hazardous wildlife and does not threaten aviation, the developer must establish convincingly that the facility will not handle putrescible material other than that as outlined in 2-2.d. The FAA strongly recommends against any facility other than that as outlined in 2-2.d (enclosed transfer stations). The FAA will use this information to determine if the facility will be a hazard to aviation.

c. **Putrescible-Waste Facilities.** In their effort to satisfy the EPA requirement, some putrescible-waste facility proponents may offer to undertake experimental measures to demonstrate that their proposed facility will not be a hazard to aircraft. To date, no such facility has been able to demonstrate an ability to reduce and sustain hazardous wildlife to levels that existed before the putrescible-waste landfill began operating. For this reason, demonstrations of experimental wildlife control measures may not be conducted within the separation identified in Sections 1-2 through 1-4.

4-3. OTHER LAND-USE PRACTICE CHANGES. As a matter of policy, the FAA encourages operators of public-use airports who become aware of proposed land use practice changes that may attract hazardous wildlife within 5 statute miles of their airports to promptly notify the FAA. The FAA also encourages proponents of such land use changes to notify the FAA as early in the planning process as possible. Advanced notice affords the FAA an opportunity (1) to evaluate the effect of a particular land-use change on aviation safety and (2) to support efforts by the airport sponsor to restrict the use of land next to or near the airport to uses that are compatible with the airport.

The airport operator, project proponent, or land-use operator may use FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, or other suitable documents similar to FAA Form 7460-1 to notify the appropriate FAA Regional Airports Division Office. Project proponents can contact the appropriate FAA Regional Airports Division Office for assistance with the notification process.

It is helpful if the notification includes a 15-minute quadrangle map of the area identifying the location of the proposed activity. The land-use operator or project proponent should also forward specific details of the proposed land-use change or operational change or expansion. In the case of solid waste landfills, the information should include the type of waste to be handled, how the waste will be processed, and final disposal methods.

a. **Airports that have received Federal grant-in-aid assistance.** Airports that have received Federal grant-in-aid assistance are required by their grant assurances to take appropriate actions to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations. The FAA recommends that airport operators to the extent practicable oppose off-airport land-use changes or practices within the separations identified in Sections 1-2 through 1-4 that may attract hazardous wildlife. Failure to do so may lead to noncompliance with applicable grant assurances. The FAA will not approve the placement of airport

development projects pertaining to aircraft movement in the vicinity of hazardous wildlife attractants without appropriate mitigating measures. Increasing the intensity of wildlife control efforts is not a substitute for eliminating or reducing a proposed wildlife hazard. Airport operators should identify hazardous wildlife attractants and any associated wildlife hazards during any planning process for new airport development projects.

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APPENDIX 1. DEFINITIONS OF TERMS USED IN THIS ADVISORY CIRCULAR.

1. **GENERAL.** This appendix provides definitions of terms used throughout this AC.

   1. **Air operations area.** Any area of an airport used or intended to be used for landing, takeoff, or surface maneuvering of aircraft. An air operations area includes such paved areas or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiways, or apron.

   2. **Airport operator.** The operator (private or public) or sponsor of a public-use airport.

   3. **Approach or departure airspace.** The airspace, within 5 statute miles of an airport, through which aircraft move during landing or takeoff.

   4. **Bird balls.** High-density plastic floating balls that can be used to cover ponds and prevent birds from using the sites.

   5. **Certificate holder.** The holder of an Airport Operating Certificate issued under Title 14, Code of Federal Regulations, Part 139.

   6. **Construct a new MSWLF.** To begin to excavate, grade land, or raise structures to prepare a municipal solid waste landfill as permitted by the appropriate regulatory or permitting agency.

   7. **Detention ponds.** Storm water management ponds that hold storm water for short periods of time, a few hours to a few days.

   8. **Establish a new MSWLF.** When the first load of putrescible waste is received on-site for placement in a prepared municipal solid waste landfill.

   9. **Fly ash.** The fine, sand-like residue resulting from the complete incineration of an organic fuel source. Fly ash typically results from the combustion of coal or waste used to operate a power generating plant.

   10. **General aviation aircraft.** Any civil aviation aircraft not operating under 14 CFR Part 119, Certification: Air Carriers and Commercial Operators.

   11. **Hazardous wildlife.** Species of wildlife (birds, mammals, reptiles), including feral animals and domesticated animals not under control, that are associated with aircraft strike problems, are capable of causing structural damage to airport facilities, or act as attractants to other wildlife that pose a strike hazard

   12. **Municipal Solid Waste Landfill (MSWLF).** A publicly or privately owned discrete area of land or an excavation that receives household waste and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under 40 CFR § 257.2. An MSWLF may receive

other types wastes, such as commercial solid waste, non-hazardous sludge, small-quantity generator waste, and industrial solid waste, as defined under 40 CFR § 258.2. An MSWLF can consist of either a stand alone unit or several cells that receive household waste.

   13. **New MSWLF.** A municipal solid waste landfill that was established or constructed after April 5, 2001.

   14. **Piston-powered aircraft.** Fixed-wing aircraft powered by piston engines.

   15. **Piston-use airport.** Any airport that does not sell Jet-A fuel for fixed-wing turbine-powered aircraft, and primarily serves fixed-wing, piston-powered aircraft. Incidental use of the airport by turbine-powered, fixed-wing aircraft would not affect this designation. However, such aircraft should not be based at the airport.

   16. **Public agency.** A State or political subdivision of a State, a tax-supported organization, or an Indian tribe or pueblo (49 U.S.C. § 47102(19)).

   17. **Public airport.** An airport used or intended to be used for public purposes that is under the control of a public agency; and of which the area used or intended to be used for landing, taking off, or surface maneuvering of aircraft is publicly owned (49 U.S.C. § 47102(20)).

   18. **Public-use airport.** An airport used or intended to be used for public purposes, and of which the area used or intended to be used for landing, taking off, or surface maneuvering of aircraft may be under the control of a public agency or privately owned and used for public purposes (49 U.S.C. § 47102(21)).

   19. **Putrescible waste.** Solid waste that contains organic matter capable of being decomposed by micro-organisms and of such a character and proportion as to be capable of attracting or providing food for birds (40 CFR §257.3-8).

   20. **Putrescible-waste disposal operation.** Landfills, garbage dumps, underwater waste discharges, or similar facilities where activities include processing, burying, storing, or otherwise disposing of putrescible material, trash, and refuse.

   21. **Retention ponds.** Storm water management ponds that hold water for several months.

   22. **Runway protection zone (RPZ).** An area off the runway end to enhance the protection of people and property on the ground (see AC 150/5300-13). The dimensions of this zone vary with the airport design, aircraft, type of operation, and visibility minimum.

   23. **Scheduled air carrier operation.** Any common carriage passenger-carrying operation for compensation or hire conducted by an air carrier or commercial

operator for which the air carrier, commercial operator, or their representative offers in advance the departure location, departure time, and arrival location. It does not include any operation that is conducted as a supplemental operation under 14 CFR Part 119 or as a public charter operation under 14 CFR Part 380 (14 CFR § 119.3).

24. **Sewage sludge.** Any solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment process; and a material derived from sewage sludge. Sewage does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works. (40 CFR 257.2)

25. **Sludge.** Any solid, semi-solid, or liquid waste generated form a municipal, commercial or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect. (40 CFR 257.2)

26. **Solid waste.** Any garbage, refuse, sludge, from a waste treatment plant, water supply treatment plant or air pollution control facility and other discarded material, including, solid liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved material in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear, or by product material as defined by the Atomic Energy Act of 1954, as amended, (68 Stat. 923). (40 CFR 257.2)

27. **Turbine-powered aircraft.** Aircraft powered by turbine engines including turbojets and turboprops but excluding turbo-shaft rotary-wing aircraft.

28. **Turbine-use airport.** Any airport that sells Jet-A fuel for fixed-wing turbine-powered aircraft.

29. **Wastewater treatment facility.** Any devices and/or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes, including Publicly Owned Treatment Works (POTW), as defined by Section 212 of the Federal Water Pollution Control Act (P.L. 92-500) as amended by the Clean Water Act of 1977 (P.L. 95-576) and the Water Quality Act of 1987 (P.L. 100-4). This definition includes any pretreatment involving the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. (See 40 CFR Section 403.3 (q), (r), & (s)).

30. **Wildlife.** Any wild animal, including without limitation any wild mammal, bird, reptile, fish, amphibian, mollusk, crustacean, arthropod, coelenterate, or other invertebrate, including any part, product, egg, or offspring thereof (50 CFR 10.12, *Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants*). As used in this AC, wildlife includes feral animals and domestic animals out of the control of their owners (14 CFR Part 139, Certification of Airports).

31. **Wildlife attractants.** Any human-made structure, land-use practice, or human-made or natural geographic feature that can attract or sustain hazardous wildlife within the landing or departure airspace or the airport's AOA. These attractants can include architectural features, landscaping, waste disposal sites, wastewater treatment facilities, agricultural or aquaculture activities, surface mining, or wetlands.

32. **Wildlife hazard.** A potential for a damaging aircraft collision with wildlife on or near an airport.

33. **Wildlife strike.** A wildlife strike is deemed to have occurred when:

    a. A pilot reports striking 1 or more birds or other wildlife;

    b. Aircraft maintenance personnel identify aircraft damage as having been caused by a wildlife strike;

    c. Personnel on the ground report seeing an aircraft strike 1 or more birds or other wildlife;

    d. Bird or other wildlife remains, whether in whole or in part, are found within 200 feet of a runway centerline, unless another reason for the animal's death is identified;

    e. The animal's presence on the airport had a significant negative effect on a flight (i.e., aborted takeoff, aborted landing, high-speed emergency stop, aircraft left pavement area to avoid collision with animal) (Transport Canada, Airports Group, *Wildlife Control Procedures Manual*, Technical Publication 11500E, 1994).

2. RESERVED.

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printed on recycled paper

June 19, 2015

Mr. Ford N. Fuchigami, Director
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Honolulu, Hawaii 96813-5097

Attn: Mr. Norren Kato, DOT Statewide Transportation Planning Office

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Aloha Mr. Fuchigami,

Thank you for your letter dated May 26, 2015 (your reference no. STP 8.1801) regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We have reviewed the comments and provide the following responses:

- Per the DOT Airports Division concerns, the proposed storm water management will be designed and operated so as not to not create above-ground standing water to attract wildlife that could cause hazardous wildlife movement into or across the airspace. Any stormwater detention pond(s) will be designed, engineered, constructed, and maintained for a maximum 48-hour detention period after the design storm and remain completely dry between storms. In addition, consideration will be given to the types of vegetation planted in or around the drainage swales so as not to attract wildlife which could impact aircraft operations at Hilo International Airport.
- We acknowledge that the DOT Highways Division is still conducting its review and that the DOT Statewide Transportation Planning Office will inform us of any further DOT comments once received. To assist this Office's review of the project, a Transportation Impact Analysis Report has been contracted and will be included in the Final EA. Additionally, we believe that enhancing public bus transportation service will inherently result in reducing single-occupancy personal vehicles on State Highways. The County of Hawai'i and its residents are faced with an imbalance between the location of jobs and housing. Affordable residential growth is fastest on the east side of the island while job growth is faster on the west side. As a result, many residents must commute long distances from Hilo and Puna to the resorts in South Kohala and North Kona. The County MTA provides a cost-efficient mode of transportation for resort and other employees.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Final EA.

Sincerely,
PBR HAWAII

Vincent Shigekuni
Vice President

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

May 22, 2015

Mr. Vincent Shigekuni
PBR Hawaii
ASB Tower, Suite 650
1001 Bishop Street
Honolulu, HI 96813

DRAFT ENVIRONMENTAL ASSESSMENT
PROPOSED COUNTY OF HAWAI'I MASS TRANSIT AGENCY BASE YARD AND MAINTENANCE FACILITY
TAX MAP KEY 2-1-013:148

We have reviewed the subject Draft Environmental Assessment (DEA) and have the following comments.

Based on the estimated average daily demand of 160 gallons per day for the project, as shown in the Engineering Design Report in Appendix D of the DEA, it appears that it conflicts with the estimated sewer design flow and is missing the demand for the washing facility. In order to determine if water is available for this project, we will require that more detailed water usage calculations be submitted and stamped by a professional engineer licensed in the State of Hawai'i. Particularly, the calculations should include the estimated maximum daily potable water usage for the project, in gallons per day, including any irrigation/landscaping/non-potable use.

The Department will determine the appropriate service connection size(s), facilities charges due, and other requirements for water service, based on the calculations.

We will also require that plans be submitted, prepared by a professional engineer licensed in the State of Hawai'i, showing the required water system improvements, appropriate service lateral installation(s) and backflow prevention assemblies.

Should there be any questions, please contact Ryan Quitoriano of our Water Resources and Planning Branch at 961-8070, extension 256.

Sincerely yours,

Quirino Antonio, Jr., P.E.
Manager-Chief Engineer

RQ:dfg

copy – County of Hawai'i, Mass Transit Agency

. . .Water, Our Most Precious Resource . . . Ka Wai A Kāne . . .

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Tel/Cel: (808) 315-6878

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June 19, 2015

Mr. Quirino Antonio, Jr., P.E.
Manager-Chief Engineer
County of Hawai'i
Department of Water Supply
345 Kekūanaō'a Street, Suite 20
Hilo, HI 96720

Attn: Mr. Ryan Quitoriano

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMET FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Mr. Antonio,

Thank you for your letter dated May 22, 2015 regarding the proposed County of Hawai'i Mass Transit Authority (MTA) Base Yard Facility. As the planning consultant for the MTA, we are providing the following responses to your comments:

- As requested, more detailed water usage calculations, stamped by a professional engineer licensed in the State of Hawaii will be submitted to your Department prior to the application for a Building Permit.
- We acknowledge the Department of Water Supply will determine the appropriate service connection size(s), facilities charges due, and other requirements for water service, based on the calculations.
- On May 4th 2015, plans (prepared by a professional engineer licensed in the State of Hawaii) were submitted showing the required water system improvements, appropriate service lateral installation(s) and backflow prevention assemblies.

Thank you for participating in the environmental review process. Your letter will be included in the Final EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President, Planner

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

William P. Kenoi
Mayor

Darren J. Rosario
Fire Chief

Renwick J. Victorino
Deputy Fire Chief

County of Hawai'i
HAWAI'I FIRE DEPARTMENT
25 Aupuni Street • Room 2501 • Hilo, Hawai'i 96720
(808) 932-2900 • Fax (808) 932-2928

May 21, 2015

Mr. Vincent Shigekuni
PBR Hawaii & Associates, Inc.
1001 Bishop Street, Suite 650
Honolulu, Hawaii 96813

Dear Mr. Shigekuni,

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR COUNTY OF HAWAII MASS TRANSIT AGENCY BASE YARD AND MAINTENANCE FACILITY
TMK: (3) 2-1-013:148 (5-ACRE PORTION)

The Hawaii Fire Department does not have any comments to offer at this time regarding the above-referenced project.

Thank you for the opportunity to comment.

Sincerely,

DARREN J. ROSARIO
Fire Chief

KV:lpc

CC: Tiffany Kai, County of Hawaii Mass Transit Agency

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Managing Director - Hilo

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MARC SHIMATSU, ASLA
Associate

CATIE CULLISON, AICP
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June 19, 2015

Mr. Darren J. Rosario
Fire Chief
County of Hawaii
Hawaii Fire Department
25 Aupuni Street, Room 2501
Hilo, Hawai'i 96720

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Chief Rosario,

Thank you for your letter dated May 21, 2015 regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard Facility. We acknowledge the Hawaii Fire Department does not have any comments to offer at this time regarding the project.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Final EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

William P. Kenoi
Mayor

Harry S. Kubojiri
Police Chief

Paul K. Ferreira
Deputy Police Chief

County of Hawai`i
POLICE DEPARTMENT
349 Kapi'olani Street • Hilo, Hawai'i 96720-3998
(808) 935-3311 • Fax (808) 961-2389

May 7, 2015

PBR Hawai'i & Associates, Inc.
Attention: Mr. Vincent Shigekuni, Vice President
1001 Bishop Street, Suite 650
Honolulu, HI 96813

County of Hawaii Mass Transit Agency
Attention: Ms. Tiffany Kai
25 Aupuni Street
Hilo, HI 96720

SUBJECT: COUNTY OF HAWAII MASS TRANSIT AGENCY BASE YARD AND MAINTENANCE FACILITY, WAIAKEA, HAWAII, SOUTH HILO TAX MAP KEY: (3)2-1-013:148 (5-ACRE PORTION)

Staff, upon reviewing the provided documents, does not anticipate any significant impact to traffic and/or public safety concerns.

Thank you for allowing us the opportunity to comment.

If you have any questions, please contact Captain Richard Sherlock, S. Hilo Patrol, at 961-2214.

Sincerely,

HENRY J. TAVARES, JR.
ASSISTANT POLICE CHIEF
AREA I OPERATIONS

RS:lli
150108

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June 19, 2015

Mr. Henry Tavares, Jr.
Assistant Police Chief
County of Hawaii
Police Department
349 Kapiolani Street
Hilo, Hawai'i 96720-3998

Attn: Captain Richard Sherlock, South Hilo Patrol

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Chief Tavares,

Thank you for your letter dated May 7, 2015 regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard Facility and your staff's determination that it does not anticipate any significant impact to traffic and/or public safety concerns.

Thank you for your Department's participation in the environmental review process. Your letter will be included in the Final EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.

From: Liu, Rouen
To: sysadmin; Vincent Shigekuni
Cc: Kuwaye, Kristen; Cummins, Tom; Okamura, Dave; Elders, Barney; Tamayo, Rudy
Subject: Draft EA for County of Hawaii Mass Transit Agency Base Yard and Maintenance Facility
Date: Friday, May 22, 2015 4:02:36 PM

Dear Mr. Vincent Shigekuni,

Thank you for the opportunity to comment on the subject project. Hawaiian Electric Light Company (Hawaii Light) has no objection to the project. Should Hawaii Light have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities.
We appreciate your efforts to keep us apprised of the subject project in the planning process. As the proposed County of Hawaii Mass transit Agency Base Yard and Maintenance Facility Project comes to fruition, please continue to keep us informed. Further along in the design, we will be better able to evaluate the effects on our system facilities.
If you have any questions, please call me at 543-7245.

Sincerely,
Rouen Q. W. Liu
Permit Engineer

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June 19, 2015

Mr. Rouen Q.W. Liu (WA3-BA)
Permits Engineer
Hawaiian Electric Company
P.O. Box 2750
Honolulu, HI 96840-0001

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED COUNTY OF HAWAII MASS TRANSIT AUTHORITY BASE YARD FACILITY, WAIAKEA, SOUTH HILO DISTRICT, HAWAI'I (TMK: (3) 2-1-013:148 (POR)

Dear Mr. Liu,

Thank you for your email dated May 22, 2015 regarding the proposed County of Hawaii Mass Transit Authority (MTA) Base Yard. We acknowledge that:

> *"Hawaiian Electric Light Company (Hawaii Light) has no objection to the project. Should Hawaii Light have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities."*

Thank you for your Company's participation in the environmental review process. Your letter will be included in the Final EA.

Sincerely,

PBR HAWAII

Vincent Shigekuni
Vice President

cc: Tiffany Kai, County of Hawai'i Mass Transit Authority
Chris Ball, P.E., Mitsunaga & Associates, Inc.