

# COUNTY OF MAUI WAIKAPU FACILITIES MASTER PLAN

Final Submission - April 2015

*On the cover: Croton Shrubs. Photo used with permission from Sally Maddock.*



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# EXECUTIVE SUMMARY

The County of Maui (COM) operates several base yard facilities located throughout Central Maui. Many of these facilities are critical to the operation of County functions and are utilizing substandard facilities. Some of the facilities have surpassed their service life or planned capacity. In addition, there are ongoing incurred costs to the County that result from inefficiencies in higher utilities and maintenance costs for the outdated infrastructure. Several of the existing base yard facilities are located in hazardous areas/flood zones which may limit the ability of the COM to respond in the event of a hurricane, tsunami, or other natural disaster. Most departments have overgrown their available space and working in undersized and inefficient areas. Several departments have been forced to provide expansion space on leased properties or on remote County-owned sites. This results in increased annual expenses and added inefficiencies for the departments operating out

of these facilities and creates a risk of losing the facility without adequate time to construct a new or replacement facility.

The existing base yard facilities in Central Maui are organized independently and exist as separate departments across various locations. The COM has a vision to create a single, consolidated base yard that co-locates departments and their facilities within a designated 100 acre industrial park. This will improve operational efficiency for each department and create stronger ties and new synergies between departments with similar functions. New facilities will meet or exceed current building and energy code requirements, and will require less maintenance – reducing annual operating costs to the County. There are additional operational efficiencies that the departments can achieve by working more closely together and sharing some facilities, infrastructure, and equipment. Lastly, asset management,



warehousing, fueling, and washing facilities and operations will be consolidated and automated resulting in additional cost savings to the COM.

In 2013, the County of Maui (COM) purchased a total of 309 acres of undeveloped land in Waikapu located in Central Maui to construct 100 acres of base yard facilities and 209 acres of park space.

The primary objectives for this project are to assess the County of Maui's (COM) existing base yard facilities in Central Maui, identify functions, unnecessarily duplicated functions, provide recommendations for consolidation of functions, and provide recommendations for the development of 100 acres of base yard facilities within the 309 acre parcel.

The following existing facilities and their respective departments were designated by the COM for review by the base yards facilities planning team to be included in the 100 acre base yard parcel:

- Kaohu Base Yard (DPW, DEM, DPR)
- Collection Station (DEM)
- Naska Base Yard (DWS)

- Kahului Station (MFD)
- Warehouse (MFD, MPD)
- War Memorial Civic Complex (DPR)
- Leased Site (DEM)
- Wailuku-Kahului Wastewater Reclamation Facility or "W-KWWRF" (DEM)
- Kalana O Maui Building (CDA)

The facilities planning team and COM staff visited the existing facilities to gain an understanding of the operation and State of Good Repair (SOGR) of each facility and inventory the existing facility and yard spaces, equipment, staff type, work type, and uses. Space descriptions and square footage measurements obtained from the field investigations were categorized into one of twenty nine functional categories. The functional categories were developed based on their unique purpose, typical use, and spatial characteristics.

The Waikapu Facility must be planned to accommodate future growth of each department. A 25-year design period was used resulting in space planning that is projected out to the year 2040. Space





projections were based on estimates for overall department growth provided by the Departments in their Strategic Plans. If growth estimates for the department were not known, a 30% increase over the existing space quantities was used. Projected spaces were back-checked with feedback from the COM and industry standard grossing factors.

Analysis of the existing space inventory resulted in the development of several consolidation strategies. It is recommended that the spaces for functional categories including: warehouse, vehicle maintenance, conference room, and office spaces, be consolidated at the Waikapu Facility with the exception of MFD facilities. It is recommended that MFD facilities and functions remain independent. MFD is a core service to ensure the safety of the COM community and must maintain functionality and full capability at all times.

The space program outlined in this report will provide each department with a right-sized facility projected out to the planning year, and includes a 'reserve' factor to accommodate growth beyond the 2040 design year and/or unforeseen increases in departmental growth.

The consolidation of warehouses, vehicle maintenance, and administrative functions across each department at a co-located facility may create opportunities to provide a collaborative environment, bringing diverse expertise into a single work area. The recommended space consolidation of shared functions will provide the starting point for greater operational efficiencies and synergies across these different departments over time.

A table summarizing the land area planned for each base yard facility is included below.

The 100 acre base yard facility site is proposed to be located along the south end of the 309 acre parcel. A roadway will be constructed within the 100 acre site connecting the DOT approved access point on Kuihelani Highway to the Waiale Road Extension. This road will serve as the division between the 100 acre and 209 acre parcel.

There are proposed residential and mixed used developments to the north and west of the 309 acre parcel. The DWS, DPW, DEM, Consolidated Warehouse, Consolidated Support Services Admin Office, and Consolidated Vehicle Maintenance facility are sited at the southeast corner of the 100 acre site

Summary of Acreage by Functional Area			
Dept/ Site	2040 Proposed Acreage	Beyond 2040 Acreage	Waikapu Total
CDA	6.00	0.00	6.00
DEM	3.00	3.00	6.00
DPR	3.00	3.00	6.00
DPW	4.00	4.00	8.00
DWS	4.00	4.00	8.00
MFD	3.00	0.00	3.00
Consolidated Warehouse	2.00	2.00	4.00
Consolidated Vehicle Maintenance	3.00	3.00	6.00
Consolidated Support Services Office	2.00	1.00	3.00
CONSOLIDATED TOTAL	7.00	6.00	13.00
<b>Total Site Acreage</b>	30.00	20.00	50.00*

*\*The total acreage does not add up to 100 acres because retention ponds, roads, setbacks, and other open space areas are not included in the acreage tabulation.*

away from the future development, and preserves the 209 acres for COM Parks & Recreation open space uses. The 100 acre location should reduce concerns for noise, dust, and odors from the base yard facilities affecting existing subdivisions and the proposed residential and mixed-use developments, and open space/parks. The MFD facility, CDA, and DPR base yard will be located along the roadway connecting Kuihelani Highway and Waiale Road Extension.

The 309 acre parcel is currently undeveloped. Infrastructure will need to be constructed to service

the base yard facility. To reduce the need for offsite improvements to provide utility service to the base yard facilities, it is recommended that the water, electrical, and telecommunication lines for the base yard connect to the utilities constructed as part of Waiale Road Extension. Water service will be provided to the base yard facility by the COM DWS water system. There are no existing sewer lines in the vicinity of the 100 acre site. It is recommended that septic systems be provided to treat wastewater generated by the base yard facilities. Storm water runoff from the site will be collected and discharged

Phase 1: Infrastructure and Base Yard Phasing Summary	
Key	Description
1A	Preliminary Site Work <ul style="list-style-type: none"> <li>• Mobilization</li> <li>• Field Office</li> <li>• Basic grading and fencing</li> </ul>
1B	Offsite Improvements - Kuihelani Highway Intersection improvements
1C	Site Work <ul style="list-style-type: none"> <li>• Road A - Kuihelani Highway to Road B intersection</li> <li>• Road A extension to Waiale Corridor is excluded.</li> <li>• Road B</li> <li>• Water Line from Waiale Corridor</li> <li>• Electrical/Communication Lines from Waiale Corridor</li> <li>• Storm Drainage along Road B</li> <li>• Retention Basin</li> </ul>
1D	Department of Water Supply Base Yard
1E	Consolidated Warehouse Facility Base Yard
1F	Consolidated Support Services Admin Office Facility
1G	Consolidated Vehicle Maintenance Facility Base Yard

Phase 2: Infrastructure and Base Yard Phasing Summary	
Key	Description
2A	Department of Public Works Base Yard
2B	Department of Environmental Management Base Yard

Phase 3: Infrastructure and Base Yard Phasing Summary	
Key	Description
3A	Site Work - Road A Extension from Road B intersection to Waiale Corridor Extension
3B	Maui Fire Department Base Yard
3C	Waikapu Fire Station (Excluded)
3D	Civil Defence Agency Facility (Excluded)

Phase 4: Infrastructure and Base Yard Phasing Summary	
Key	Description
4	Department of Parks and Recreation Base Yard



to a retention basin at the southeast corner of the site.

The phasing and build-out of the base yard facility can be fast tracked for a completion time of seven years for the entire facility or sooner depending upon the availability of funding and phasing / procurement strategies. The project is divided into four phases with Phases 1- 3 divided into additional sub-phases. Prioritization and sequence of individual department moves may also affect the phasing schedule of the base yard facility. The potential for future departmental reorganization was not a factor in the development of the phasing schedule, because this is an unknown.

Infrastructure for the base yard will be phased to match the build-out of the entire facility. Individual base yard facilities are divided into sub-phases to allow for flexibility in the development of the 100

acre site to align with the priorities and needs of the County of Maui and the individual Departments.

The rough order of magnitude (ROM) cost estimate for the full build-out of the site is approximately \$108,681,000 based on 2017 dollars. Design drawings were not created in the master planning phase. Therefore assumptions were made to develop costs for each base yard site. A 20% design contingency was included in the estimate to account for design details that cannot be specified at the master planning stage. A table summarizing the project phasing and associated ROM cost estimates is included in the table below.

The development of the Waikapu base yard facilities will be a significant financial commitment for the COM totaling approximately \$109 million. The COM will need to weigh the costs of the development of the base yard facilities against other county CIP needs.

Project Cost Summary by Phase and Department		
Phase	Description	Cost
1A	Preliminary Site Work	1,104,000
1B	Offsite Improvements - Kuihelani Highway Intersection Improvements	2,312,000
1C	Site Work	13,932,000
1D	Department of Water Supply (DWS)	9,257,000
1E	Consolidated Warehouse	7,650,000
1F	Consolidated Support Services Admin Office	12,080,000
1G	Consolidated Vehicle Maintenance	10,955,000
<b>1</b>	<b>PHASE 1 TOTAL</b>	<b>57,290,000</b>
2A	Department of Public Works (DPW) Yard	10,805,000
2B	Department of Environmental Management (DEM) Yard	7,250,000
<b>2</b>	<b>PHASE 2 TOTAL</b>	<b>18,055,000</b>
3A	Site Work -Road A (Road B to Waiale Corridor Extension)	4,522,000
3B	Maui Fire Department (MFD)	16,196,000
3C	Waikapu Fire Station (Excluded)	-
3D	Emergency Management Center (CDA - Excluded)	-
<b>3</b>	<b>PHASE 3 TOTAL</b>	<b>20,718,000</b>
4	Department of Parks and Recreation (DPR)	12,618,000
<b>4</b>	<b>PHASE 4 TOTAL</b>	<b>12,618,000</b>
<b>ALL</b>	<b>PROJECT TOTAL</b>	<b>\$108,681,000</b>

*Per Rough Order of Magnitude Cost Estimate performed by J. Uno and Associates. Refer to Appendix G for more details.*

A detailed analysis of the County's projected CIP budget and projects was not included as part of this project.

To reduce the financial impact of the project on the annual CIP budget, it may be beneficial for the COM to extend the time frame for the full build out of the facility. In addition, the phasing plan and ROM cost estimate shown in the previous tables may be further divided into additional sub-phases or projects to meet any CIP budget limitations.

As construction of the base yard facility progresses, cost savings through existing operations will be achieved as leased spaces are vacated. The money that is reserved for the payment of rent on these leased spaces may be programmed for the development of the base yard facilities in the CIP budget for the following year. The COM should also consider the sale of existing parcels that will be vacated as part of the relocation to Waikapu.

It is recommended that the following steps be taken to progress the build-out of the Waikapu base yard facilities:

- Finalize parcel extents within the 309 acres and submit subdivision application for processing.
- Retain a consultant to perform an Environmental Assessment and determine if an Environmental Impact Statement will be required for the parcel.
- Complete Change in Zoning Application Packet and submit to Department of Planning for processing.
- Initiate request to the State Land Use Commission for reclassification of the parcel from agricultural to urban or apply for a Special Use Permit.
- Develop contract approach for the design and construction of the base yard facilities.
- Modify the COM 6 year funding plan to implement full build-out of the site.
- Retain a consultant to perform the design of infrastructure required in Phase 1.
- Retain a consultant(s) to perform the design of the individual base yard facilities in Phase 1.
- Meet with the individual department leadership and key staff for each base yard facility to obtain acceptance for the relocation of the base

yard facilities to Waikapu. Evaluate individual department structure and COM long-term operation goals and vision to determine if the reorganization of staff will improve the operational efficiency of the COM.

- Each department should develop a relocation strategy to move from their existing facilities to Waikapu. This relocation strategy will be critical for DEM and DWS as they are core services to the county. In addition, it is anticipated that these departments will be required to fund their relocation internally through fees collected. Proper financial planning will be important for the successful relocation of these departments.

# 1. INTRODUCTION

Established in 1905, the County of Maui is comprised of the islands of Maui, Molokai, Lanai and Kahoolawe. It contains nine communities spread across the four islands. Maui, the largest of the four island contains six of these communities including Kihei – Makena, Paia – Haiku, Wailuku – Kahului, Makawao – Pukalani – Kula, Hana, and West Maui. The Wailuku – Kahului Community, also known as Central Maui, is the population, commercial, and government center for the County of Maui.

In 2013, the population of Maui was approximately 160,000, an increase of 3.5% from 2012<sup>1</sup>. The County also hosted over 2.4 million visitors in 2012, up 6.5% from 2011<sup>2</sup>.

The County of Maui currently has the following departments to serve residents and visitors.

## Departments:

- Civil Defense Agency
- Department of the Corporation Counsel
- Department of Environmental Management
- Department of Finance
- Department of Fire and Public Safety
- Department of Housing & Human Concerns
- Department of Liquor Control
- Department of Management
- Department of Parks and Recreation
- Department of Personnel Services
- Department of Planning
- Police Department
- Department of Prosecuting Attorney
- Department of Public Works
- Department of Transportation
- Department of Water Supply

In 2013, the County of Maui purchased a total of 309 acres of undeveloped land in Waikapu located in Central Maui. The land was acquired through two separate purchases; 209 acres were purchased using the County Open Space Fund and 100 acres

were purchased using the County General Fund. The intended land uses are 100 acres of base yard facilities and 209 acres of regional park space. However, the 100 acre tract of land may be shifted within the 309 acre boundary to achieve the optimal location for the new facilities.

The County's existing base yard facilities in Central Maui are separated by both department and location. The County's vision for the 100 acres is to provide a co-located base yard facility that will improve operational efficiency for each department and accommodate stronger ties between departments with similar functions.

## Objectives and Scope of Work

The primary objectives of this project are to assess the County's existing base yard facilities in Central Maui and develop a master plan for the development of 100 acres of base yard facilities within the County's 309 acre parcel.

The project scope of work includes the following tasks:

- Conduct existing conditions assessment on identified County facilities.
- Inventory existing base yard spaces
- Perform space needs assessment
- Identify opportunities for functional consolidation and efficiency gains across County departments.
- Utility planning for the development of the 100 acres.
- Develop conceptual phasing plan for relocation of existing base yard facilities to the 100 acres in Waikapu.
- Develop a master plan for base yard facilities using a design year of 2040.

The spatial requirements of portions of the following departments' Central Maui base yards were evaluated for relocation to Waikapu.

<sup>1</sup> United States Census Bureau, <http://quickfacts.census.gov/>

<sup>2</sup> Hawaii Tourism Authority. 2012 Annual Visitor Research Report. Page 10.

- Civil Defense Agency (CDA)
- Department of Environmental Management (DEM)
- Department of Fire and Public Safety (MFD)
- Department of Parks & Recreation (DPR)
- Police Department (MPD)
- Department of Public Works (DPW)
- Department of Water Supply (DWS)

## Organization of Report

The remaining chapters of the Waikapu Facilities Master Plan are organized as follows:

### Chapter 2 – Existing Facilities

- This chapter provides an overview of the location, acreage, and use of each existing facility.

### Chapter 3 – Space Use by Department

- This chapter gives a detailed description of the square footage of each department by functional category for the year 2014 and the 2040 projection.

### Chapter 4 – Functional Space Analysis

- Chapter four summarizes the total area of each functional category across all departments for the year 2040.

### Chapter 5 – Consolidation Planning

- This chapter scrutinizes the total areas for each functional category using industry standard back-checking techniques to verify appropriate square footages are planned for the new facility. Additional space types are added in this chapter which do not currently exist but are logical additions to the Waikapu facility. Finally, chapter five explores different conceptual ideas for consolidating the facilities by department, by function, or by a hybrid of both, and ranks them based of desired outcomes.

### Chapter 6 – Site Planning

- Chapter six focuses on factors affecting the development of the Waikapu site and how they influence the placement of the 100 acres within the 309 acre parcel. Utilizing the preferred conceptual consolidation plan from chapter five, the 100 acre parcel is populated with the new County facilities.

### Chapter 7 – Cost Estimate

- This chapter provides a high level cost

estimate for the total build-out of the project.

### Chapter 8 – Phasing

- Chapter eight describes opportunities to phase the project as a strategy to manage cost and to accommodate the needs of each department.

### Chapter 9 – Next Steps

- This chapter elaborates on the proposed process for moving the project forward following the conclusion of this report.



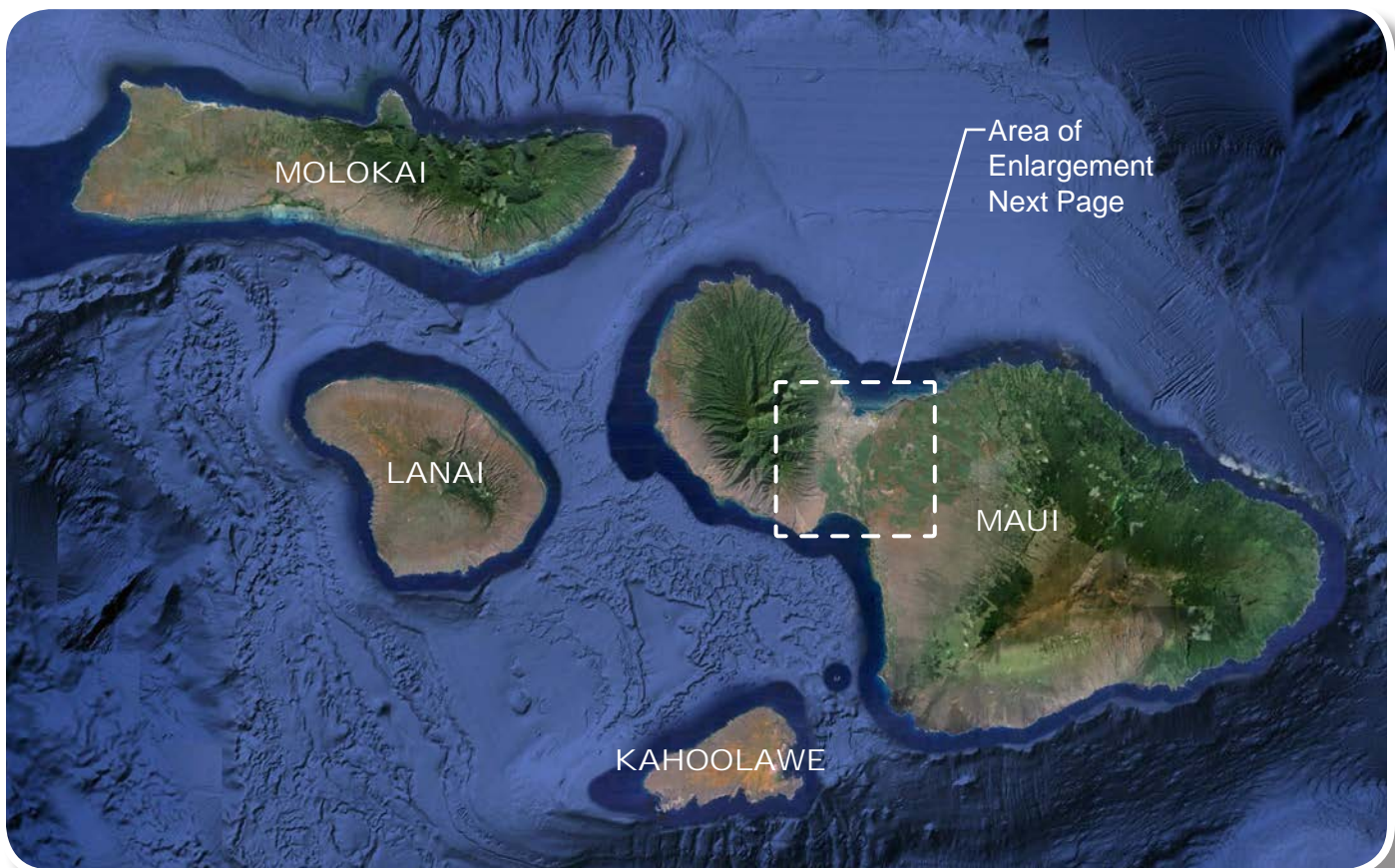
## 2. EXISTING FACILITIES

The departments of the County of Maui operate out of a variety of facilities scattered throughout its islands. The facilities examined in this report are all located in the Central Maui area and have synergies with other departments that make their co-location desirable. In many cases, the existing facilities are undersized, located in areas which are inappropriately zoned, or are located in shoreline areas that put them at risk of tsunami inundation. The following existing facilities and their respective departments were designated by the County of Maui for review:

1. Kaohu Base Yard (DPW, DEM, DPR)
2. Collection Station (DEM)
3. Naska Base Yard (DWS)
4. Kahului Station (MFD)
5. Warehouse (MFD, MPD)
6. War Memorial Civic Complex (DPR)

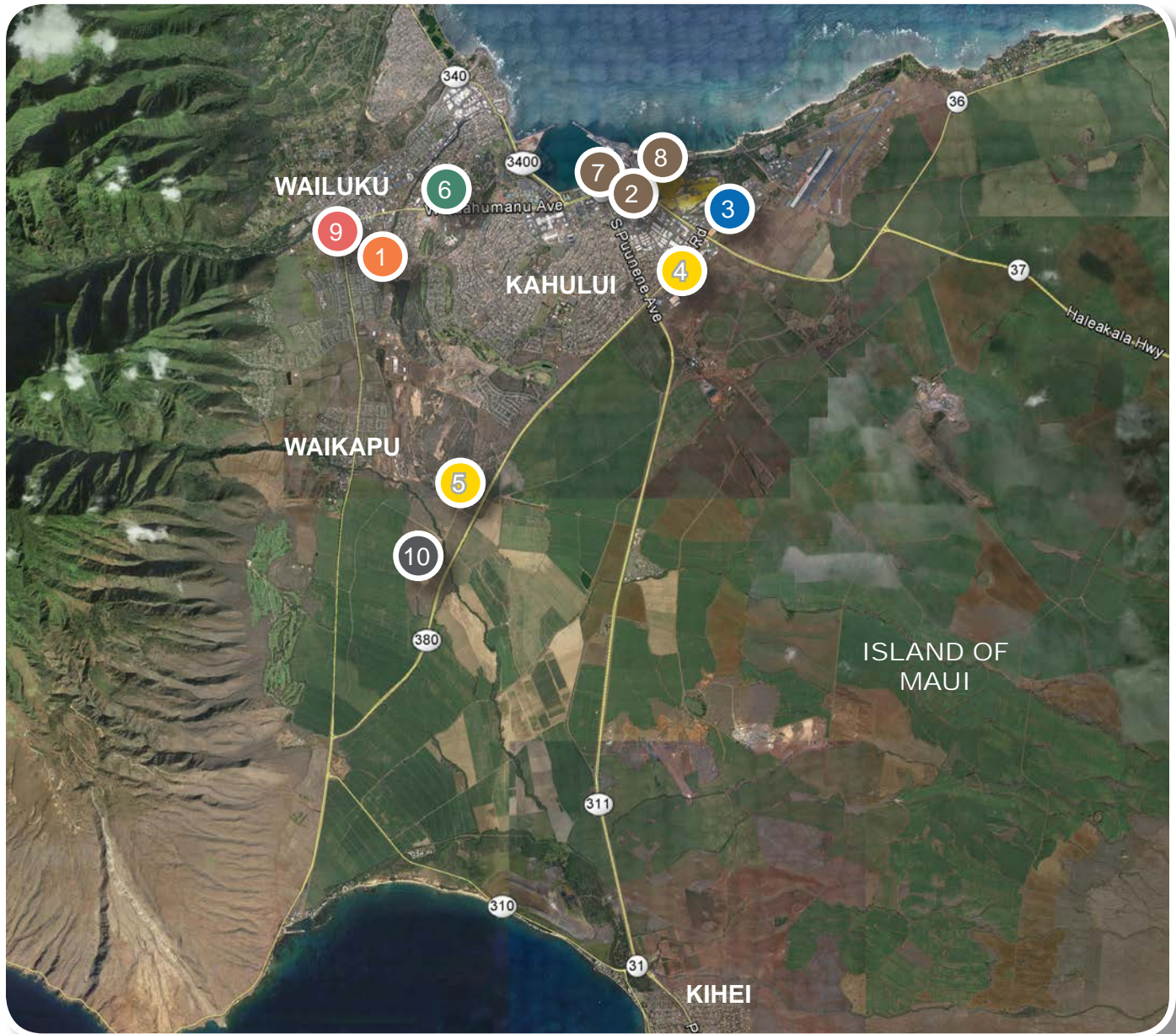
7. Leased Site (DEM)
8. Wailuku-Kahului Wastewater Reclamation Facility or "W-KWWRF" (DEM)
9. Kalana O Maui Building (CDA)
10. Waikapu 309 Acre Parcel

In February and April of 2014 the facilities planning team and County of Maui staff conducted a series of site visits to select existing facilities to document their existing space use. The facilities planning team walked key facilities with County staff to gain an understanding of their operations. County of Maui staff provided photos and a summary of the facilities not visited by the facilities planning team. This chapter gives an overview of each of the sites designated for review by the County of Maui.





# EXISTING FACILITY LOCATIONS EVALUATED



## Existing Facilities Legend

- |                                   |   |
|-----------------------------------|---|
| 1 Kaohu Base Yard (DPW, DEM, DPR) | 6 War Memorial Complex (DPR)                            |
| 2 Collection Station (DEM)        | 7 Leased Site (DEM)                                     |
| 3 Naska Base Yard (DWS)           | 8 Wailuku-Kahului Wastewater Reclamation Facility (DEM) |
| 4 Kahului Station (MFD)           | 9 Kalana O Maui Building (CDA)                          |
| 5 Warehouse (MFD, MPD)            | 10 Waikapu 309 Acre Parcel                              |

# A Note on Flood Zones<sup>1</sup>

The County of Maui participates in The National Flood Insurance Program (NFIP) which is a Federal program established to allow property owners in participating communities to purchase insurance protections against losses from flooding and tsunamis. The NFIP is administered by the Federal Insurance and Mitigation Administration (FIMA), formerly the Federal Insurance Administration (FIA) and the Mitigation Directorate, components of the Federal Emergency Management Agency (FEMA). In order for FIMA to determine the insurance premium rates, FEMA developed flood hazard rating maps called FIRMs (Flood Insurance Rate Maps). The FIRMs indicate assessed flood hazards using the zone categories indicated below. Properties located in zones listed under “special flood hazard areas subject to inundation by the 1% annual chance flood” are considered high risk and are inappropriate locations for County facilities providing disaster relief services.

<sup>1</sup> The State of Hawaii, DLNR. Engineering Division, National Flood Insurance Program. Accessed July 17, 2014. <https://dlnr.hawaii.gov/nfip/>

## 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.

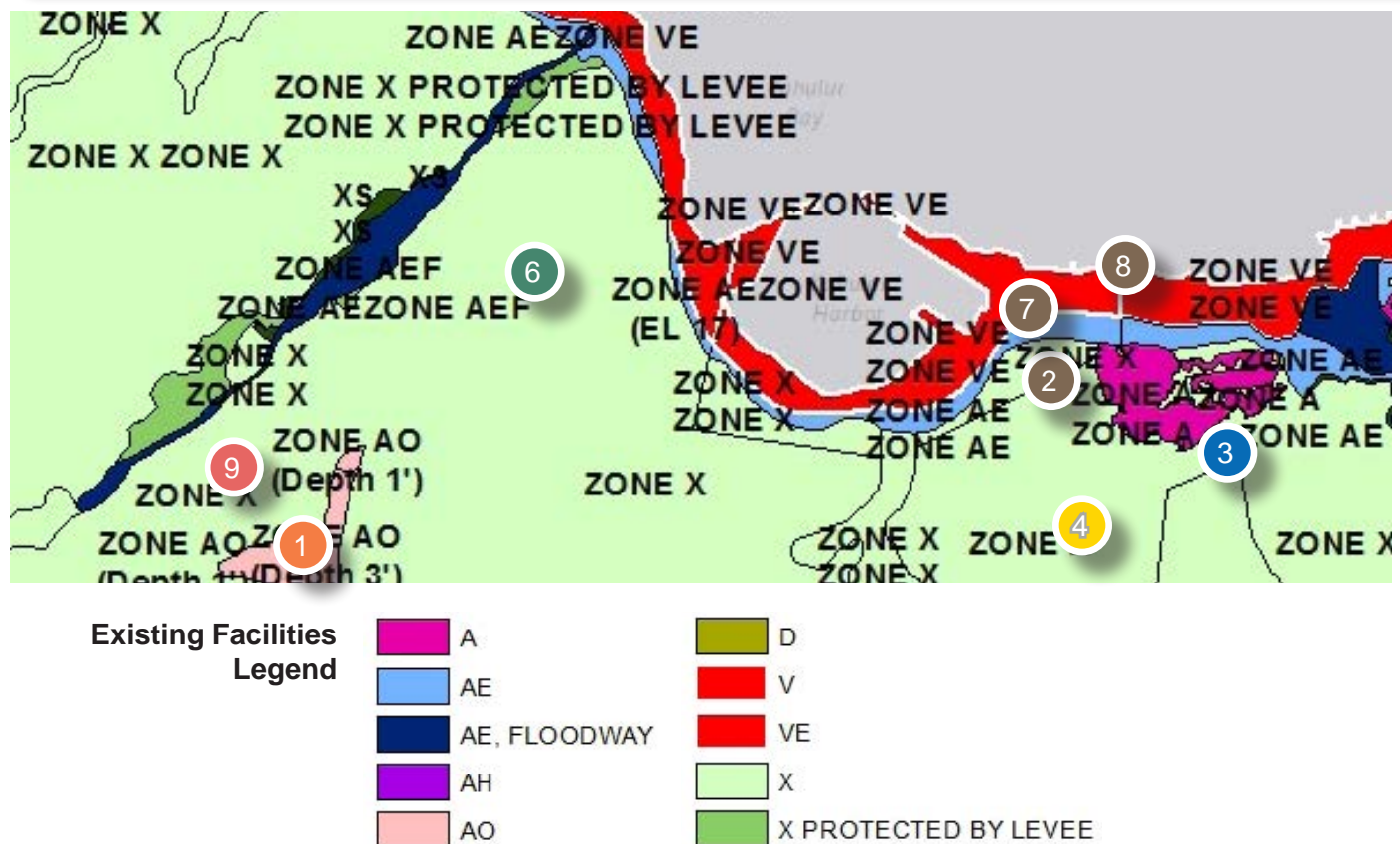
Zone AE: BFE determined.

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

## NFIP FIRM - KAHULUI AND WAILUKU AREA





(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.

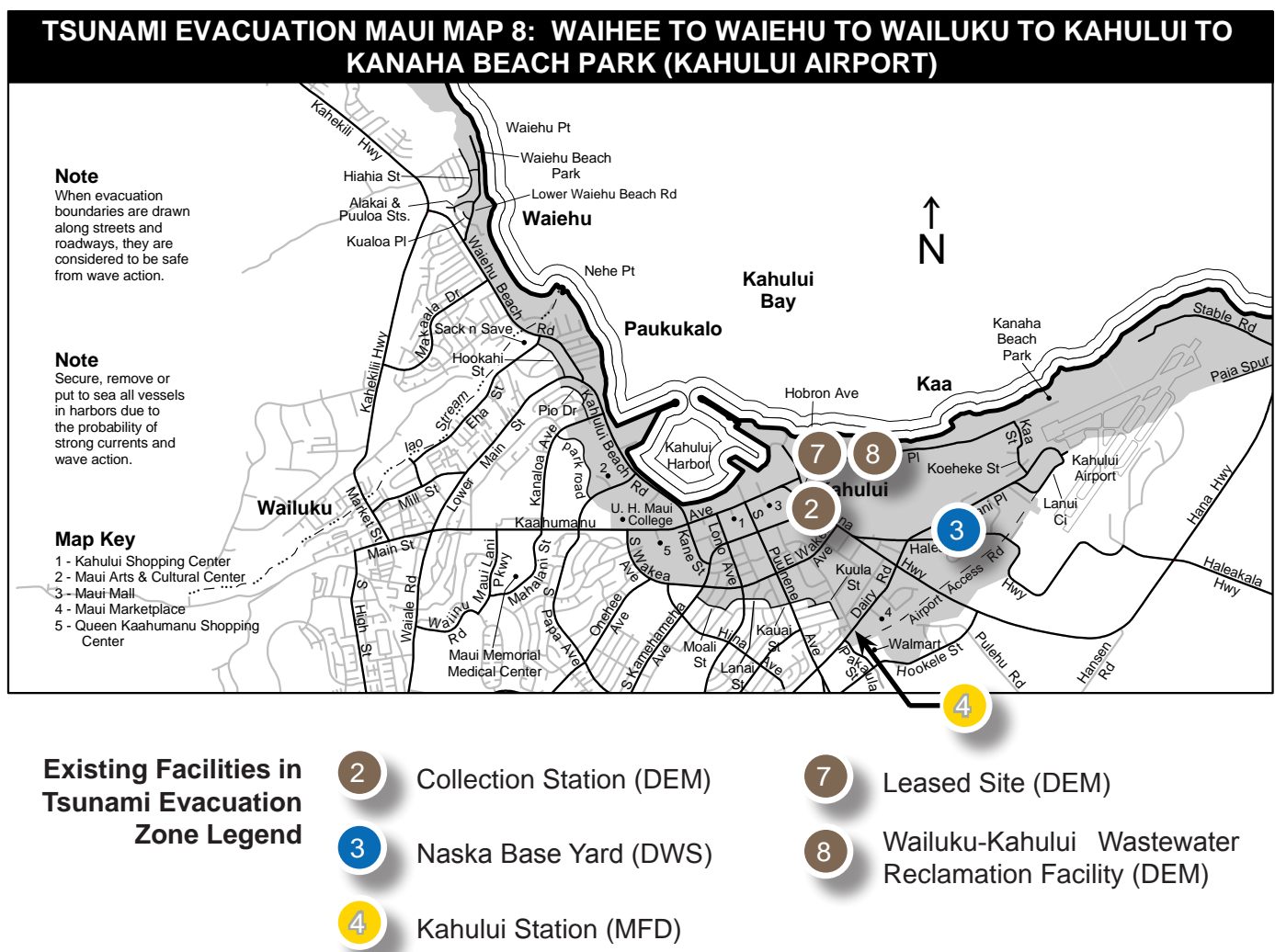
Zone X: Areas determined to be outside the 0.2% annual chance floodplain.

## 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.

## TSUNAMI EVACUATION ZONE

Tsunami Evacuation Zones (TEZ's) are determined by the Maui County Civil Defense Agency. Although the areas typically overlap the NFIP FIRM maps, they are issued and maintained by separate entities, for separate purposes. Tsunami evacuation areas are inappropriate locations for County facilities that must maintain operations critical during tsunami events.

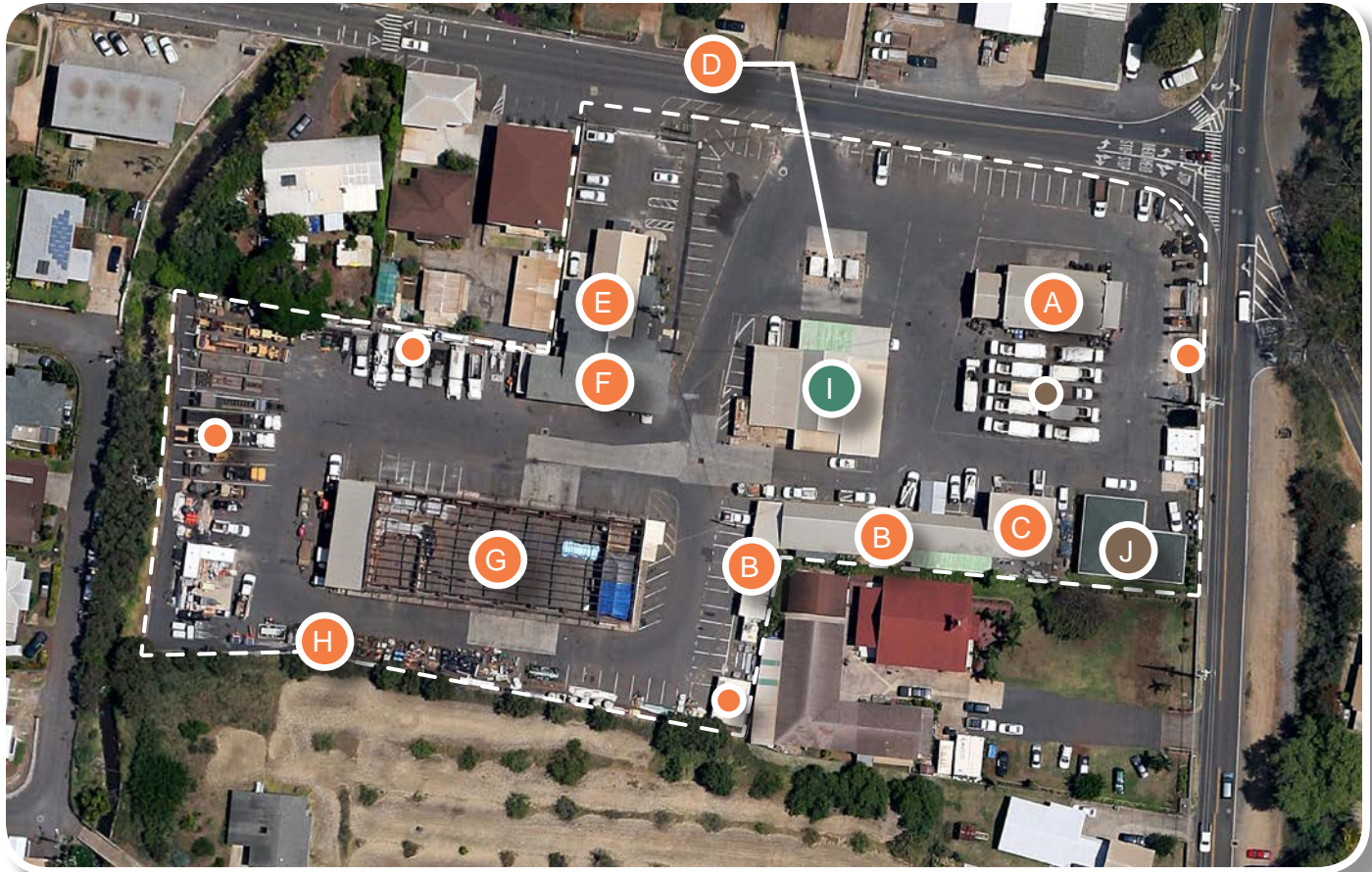




# 1. KAOHU BASE YARD

Address: 1827 Kaohu Street  
Wailuku, HI 96793  
TMK: 234003001, 234003022

Property Owner: County of Maui  
Acreage: 3.78  
Hazards: Flood Zone AO



## Departments:



Department of Public Works (DPW)



Department of Environmental Management (DEM)



Department of Parks and Recreation (DPR)

## Primary Functions:



Tire Shop



Traffic Signal & Sign Shop



Body Shop



Fuel Station



Highways Administration  
Offices



Training Rooms, Offices,  
Kitchen, and Lockers



Mechanic Shop and Offices



Bone Yard



Building Maintenance & Repair  
(New facility under construction at War  
Memorial Stadium)



Office, Workshop, Storage





*DPW Tire Shop*



*Typical DPW Shop Office*



*DPW Locker Room*



*DPW Mechanic Shop*



*DPW Fuel Station*



*DPW Large Vehicle Parking*





DPW Hazardous Material Storage in Signal/Sign Shop



DPW Signal Shop



DPW Used Oil Storage



DPW Materials Stockpiles



DPW Commercial Kitchen



DPW Training Room




## 2. COLLECTION STATION






Address: 58 Hana Highway  
Kahului, HI 96732  
TMK: 237009002

Property Owner: County of Maui  
Acreage: 0.59  
Hazards: TEZ, Flood Zone X



**Departments:**  Department of Environmental Management (DEM)

**Primary Functions:**

-  Large Truck & Equip Parking, Office, Lockers, Showers
-  Pump Station (to remain)
-  Staff Offices, Meeting Room, Kitchen
-  Vehicle Garage, Misc Equipment and Tool Storage
-  Hazardous Materials Storage Shed





DEM Equipment Bay



DEM Locker Room



DEM Kitchen



DEM Foreman's Office



DEM Meeting Room



DEM Plans Storage



### 3. NASKA BASE YARD

Address: 614 Palapala Drive  
Kahului, HI 96732  
TMK: 238079001B

Property Owner: State of Hawaii  
Acreage: Approx. 4.5 of 22.44  
Hazards: TEZ, Flood Zone X, XS, AE



**Departments:** ● Department of Water Supply (DWS)

**Primary Functions:**

- |                              |                               |
|------------------------------|-------------------------------|
| ● A Parts Warehouse          | ● H Pump and Lighting Storage |
| ● B Meter Shop               | ● I Bone Yard                 |
| ● C Vehicle Maintenance Shop | ● J Storage Containers        |
| ● D Plant Operations         | ● K Secure Employee Parking   |
| ● E Field Operations         |                               |
| ● F Administration and Labs  |                               |
| ● G Fuel Station             |                               |





*DWS Administration Office*



*DWS SCADA Control Room*



*DWS Water Testing Lab*



*DWS Secure Entry Gates*



*DWS Naska Base Yard Panorama Looking Southeast*





*DWS Field Operations Briefing Room and Lockers*



*DWS Vehicle Maintenance Shop*



*DWS Warehouse*



*DWS Exterior Warehouse Storage*



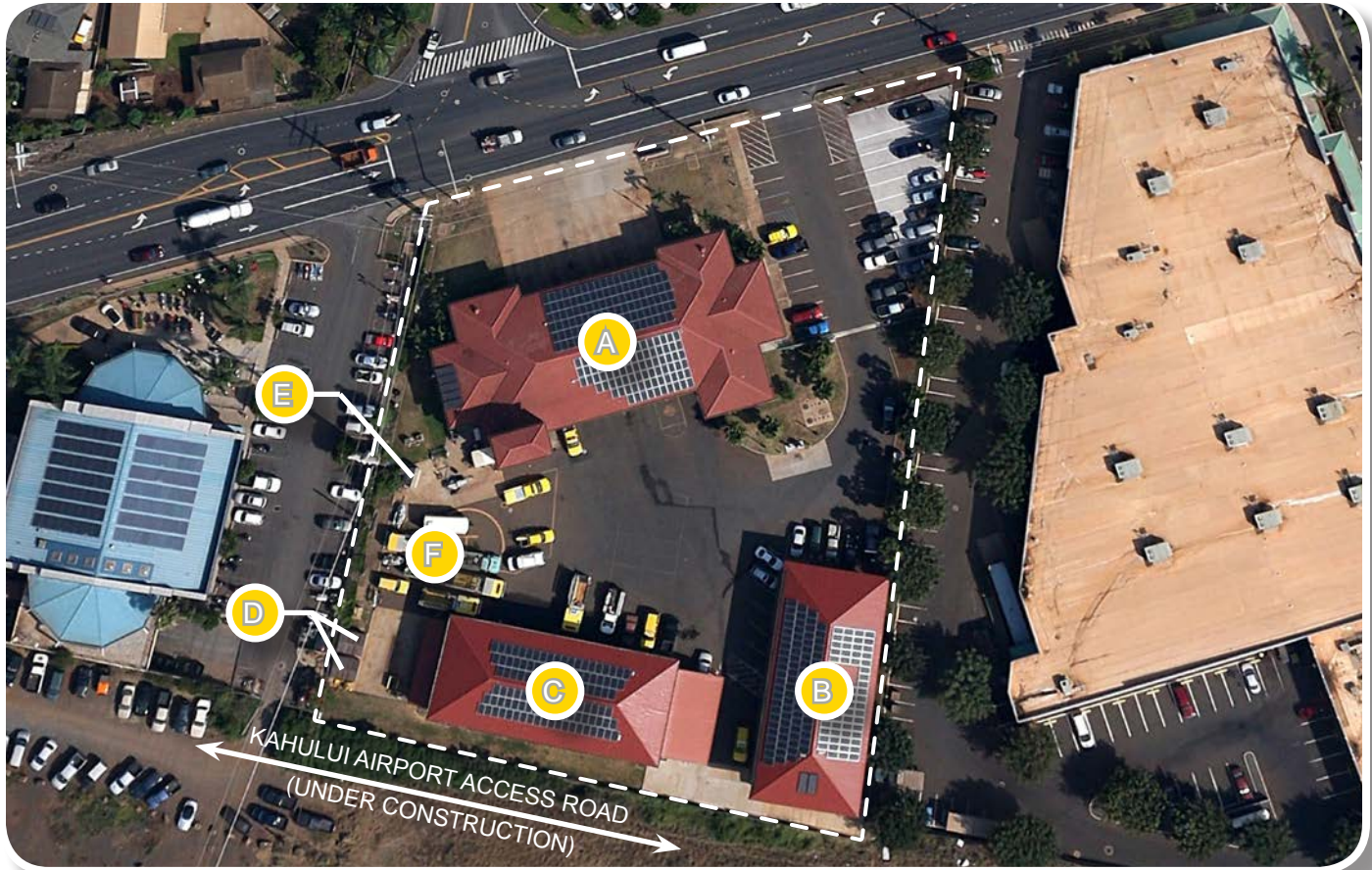
*DWS Naska Base Yard Panorama Looking Northwest*



## 4. KAHULUI STATION







Address: 200 Dairy Road  
Kahului, HI 96732  
TMK: 238080003

Property Owner: County of Maui  
Acreage: 2  
Hazards: TEZ, Kahului Airport Access Road



**Departments:**  Maui Fire Department (MFD)

**Primary Functions:**

-  Main Station (to remain)
-  Administration Building
-  Vehicle Mechanic Garage
-  Tire and Miscellaneous Storage
-  Pump Test Pit
-  Vehicle Staging





MFD Mechanic Offices



MFD Vehicle Parts Warehouse



MFD Mechanic Garage



MFD Waste Oil Storage



MFD Tire Storage Shed



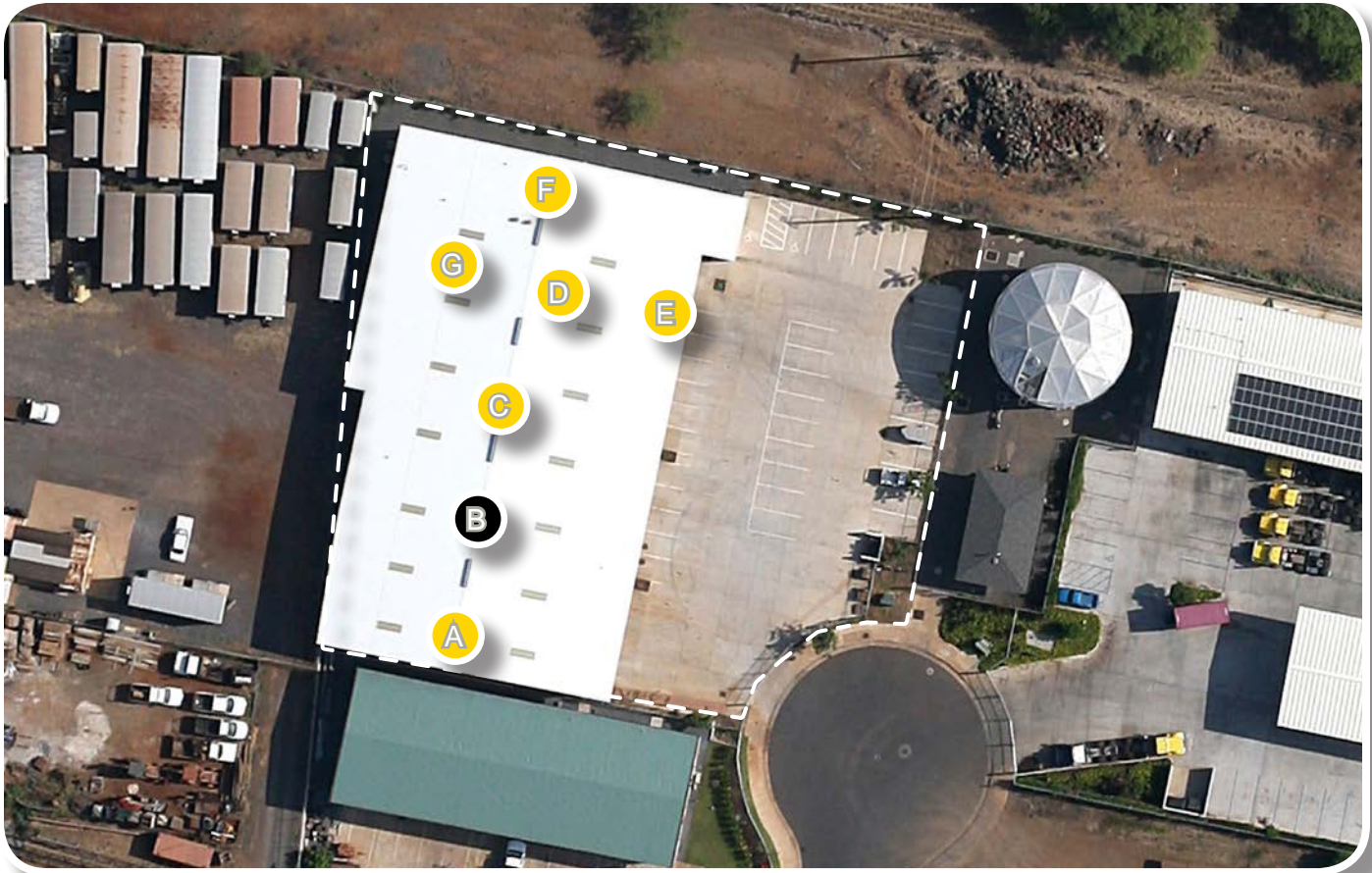
MFD Recirculating Hose Pump Test Pit



## 5. WAREHOUSE








Address: 313 Manea Place  
Wailuku, HI 96793  
TMK: 238094013

Property Owner: County of Maui  
Acreage: 0.92  
Hazards: n/a



Departments:  Maui Fire Department (MFD)

### Primary Functions:

- |  |   |
|--|---|
|  General Warehouse                |  Fire Prevention and Plans Review Office |
|  Fire/Police Command Vehicle Cage |  Locker and Shower Areas                 |
|  Fire Prevention Warehouse        |   |
|  Public Education Warehouse       |   |
|  Warehouse Storekeeper Office     |   |



*MFD Warehouse Exterior*



*MFD Fire Prevention Plan Review Office*



*MFD Locker and Shower Area*



*MPD Police Command Vehicle Cage*



*Forklift and dummies in MFD Fire Prevention Warehouse*



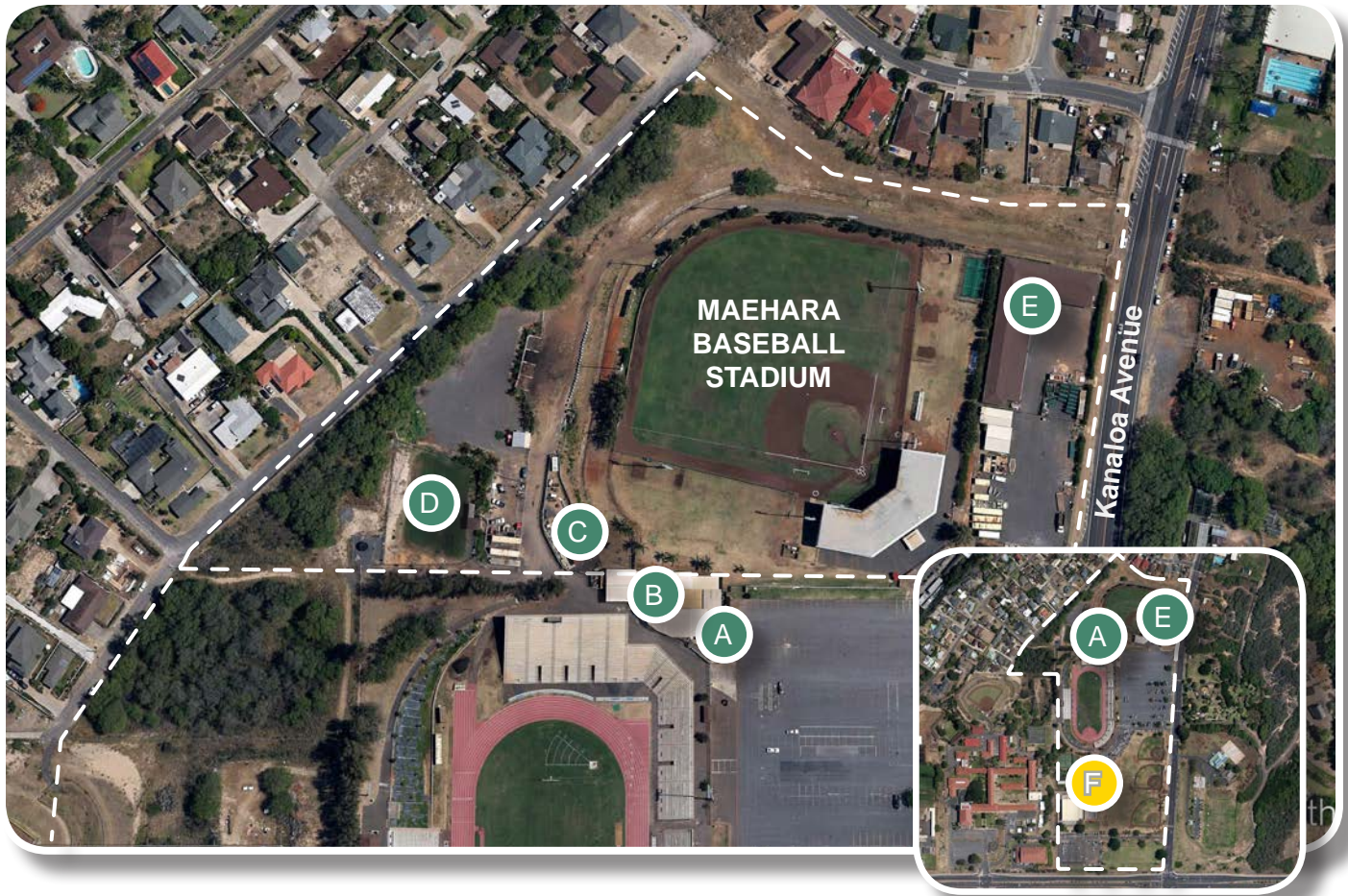
*Antique Truck and Safety Trailer in MFD Public Education Warehouse*



## 6. WAR MEMORIAL COMPLEX

Address: 1580 W Kaahumanu  
Wailuku, HI 96793  
TMK: 238007093, 238007094

Owner: County of Maui  
Acreage: 51.11  
Hazards: n/a



### Departments:



Department of Parks and Recreation (DPR)



Maui Fire Department (MFD)

### Primary Functions:



Offices, Break Area



Mechanic Shop



Caretaker Storage



Sod Farm (to remain)



Building Maintenance & Repair  
(under construction)



Ocean Safety Corral and  
Office





*PMD Central Office*



*PMD Mechanic Garage*



*PMD Exterior Stockpiles*



*PMD Beautification Sod Farm*



*PMD Caretaker Storage*



*PMD Building Maintenance and Repair (BMR) Construction*




## 7. LEASED SITE

Address: 180 Hobron Ave.  
Kahului, HI 96732  
TMK: 237011017

Property Owner: Private  
Acreage: 9.99  
Hazards: TEZ, Flood Zone VE



**Departments:**  Department of Environmental Management (DEM)

**Primary Functions:**  Refuse Cart Storage



*DEM Leased Site for Cart Storage*




## 8. WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY

Address: 281 Amala Place  
Kahului, HI 96732  
TMK: 238001188

Owner: County of Maui  
Acreage: 18.76  
Hazards: TEZ, Flood Zone VE



**Departments:**  Department of Environmental Management (DEM)

**Primary Functions:**  Specialty Truck Garage

 Bulk Materials Stockpile



*DEM Specialty Truck Garage*



*DEM Specialty Truck Garage*



*DEM Specialty Truck Garage*



*DEM Bulk Materials Stockpile*



## 9. KALANA O MAUI BUILDING

Address: 200 South High Street  
Wailuku, HI 96793  
TMK: 234008042, 234008053, 234008041

Property Owner: County of Maui  
Acreage: 2.31, 0.47, 0.55  
Hazards: Basement flooding



**Departments:**  Civil Defense Agency (CDA)

**Primary Functions:**  Emergency Management Center or "EOC" (Basement)

 Data Center (Second Floor)





*EOC Watch-floor*



*EOC Conference Center*



*Data Center*



## 10. WAIKAPU 309 ACRE PARCEL

Address: -  
TMK: 236002003, 238005023

Owner: County of Maui  
Acreage: 309 Acres  
Hazards: -



Departments:



DPW



None

Primary Functions:



Leased for agriculture



DPW Fill Materials Storage



Not utilized

*\*For the purpose of this report, we assume all fill materials currently stored by DPW will be relocated off site.*

Kihei

Maalaea



*Panoramic view of the Waikapu Property - View towards Maalaea*

Wailuku

Kahului



*Panoramic view of the Waikapu Property - View towards Wailuku*

Haleakala



*Panoramic view of the Waikapu Property - View towards Haleakala*





*Kuihelani Highway Access Point - View looking West*



*DPW Fill Area - View looking West*



*Plantation Remnants*





*Kuihelani Highway Bridge - View from Kuihelani Highway Median*



*Kuihelani Highway Bridge - View looking East from 209 Acres*



### 3. SPACE USE BY DEPARTMENT

Following the initial site investigation described in chapter two, the County of Maui provided space descriptions and square footage measurements for each facility. The information amounted to over 275 different spaces with area summaries. Although critical to understanding the baseline space requirements for current operations, this volume of information was unmanageable from an organizational standpoint. For the purpose of creating a simplified spatial inventory, 29 functional categories were developed. In addition to categorizing the functions of current County spaces planned for relocation, functional categories were made for spaces the County would like to add in the future as well, indicated with an asterisk below. The functional categories included in this report are as follows:

1. Conference Room
2. Covered Parking - Heavy Vehicles
3. Covered Parking - Light Vehicles
4. Covered Storage
5. Document Storage
6. Emergency Management Center (EMC)
7. Fire Station\*
8. Fuel Pump
9. Gym
10. Horticulture
11. IT Room
12. Kitchen / Break Room
13. Laboratory
14. Locker
15. Mechanical / Electrical Room
16. Office
17. Restroom
18. Shower
19. Stockpile
20. Uncovered Parking - Employee
21. Uncovered Parking - Heavy Vehicles
22. Uncovered Parking - Light Vehicles
23. Uncovered Parking - Machinery
24. Uncovered Storage
25. Vehicle Maintenance Bay
26. Vehicle Paint Shop
27. Vehicle Wash\*

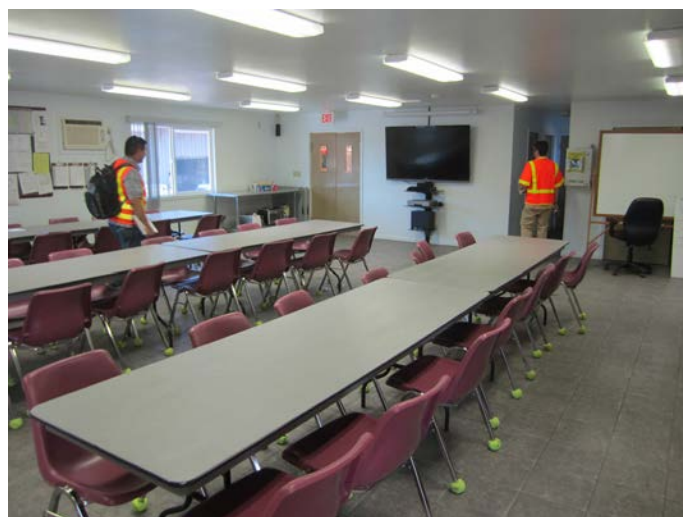
28. Warehouse

29. Workshop

These functional categories were developed because they represent areas of distinct, unique purpose with typical use and spatial characteristics. The physical similarities of spaces of these functions translate to areas that may consolidate and represent similar costs per square foot of construction. Where areas of varying functions are inextricable from each other, the secondary function is included in the prime functional category as an accessory. For example, an open office may include shelving and other storage areas that are not categorized separately. For a full explanation of how functional categories were assigned to existing spaces, refer to Appendix A. A detailed definition of each functional category follows.

#### 1. Conference Room

Existing spaces were designated as the Conference Room functional category if they were designed to seat large or small groups of individuals for meetings, seminars, briefings or trainings. These spaces are not regularly occupied by any specific full time employees.



*Training/Conference Room at DPW Kaohu Base Yard.*



*Covered Parking - Heavy Vehicles garage at DEM Hana Highway.*

Covered Parking is assumed to be assigned to a specific vehicle, trailer or piece of machinery, unlike a Vehicle Maintenance Bay which has a rotating occupancy of vehicles and equipment from the entire fleet.

#### **4. Covered Storage**

Covered Storage includes all storage area that are protected from the environment but not located in a permanent buildings. It is typically comprised of 20 and 40 foot shipping containers. Covered Storage does not include interior storage which is an accessory to other spaces. Functions listed such as offices, workshops, warehouses, etc include their accessory storage spaces within their square foot totals and are not a part of the covered storage calculation.

#### **5. Document Storage**

The County of Maui currently has a large volume of Document Storage in makeshift storage areas such as on-site shipping containers. Future document storage areas are envisioned to be areas designated for high density file storage for all County departments. Document Storage should be located in a climate controlled building to preserve paper and miscellaneous media files.

#### **6. Emergency Management Center (EMC)**

The Emergency Management Center (EMC) should be considered a distinctly separate, stand-alone building which includes all the functions necessary to operations within its perimeter. This includes control rooms, offices, break rooms, conference rooms, restrooms, sleeping quarters, mechanical /electrical rooms, etc. The County of Maui provided a copy of a 2007 feasibility report for the facility. The report sited the EMC on a different site in the vicinity of the 100 acre parcel. The EMC facility site is estimated to be 6 acres. The 20,000 square foot building would house 70 full time employees and 200 occupants during emergency operations. For more information please refer to the Civil Defense Agency section in this chapter.

#### **7. Fire Station**

The Fire Station functional category is assigned to areas designated for the new Waikapu Fire Station. For the purposes of this report we will assume the station requires 1 acre of land.



*Emergency Management Center at CDA Kalana O Maui Building.*

#### **2. Covered Parking - Heavy Vehicles**

The Covered Parking - Heavy Vehicles functional category includes lean-tos, sheds, and garages with the specific purpose of housing mobile vehicles and equipment of a large 12'x30' parking stall size. Covered Parking is assumed to be assigned to a specific vehicle, trailer or piece of machinery, unlike a Vehicle Maintenance Bay which has a rotating occupancy of vehicles and equipment from the entire fleet.

#### **3. Covered Parking - Light Vehicles**

The Covered Parking - Light Vehicles functional category includes lean-tos, sheds, and garages with the specific purpose of housing mobile vehicles and equipment of a standard 9'x18' parking stall size.



## 8. Fuel Pump

The Fuel Pump functional category is assigned to existing and future County operated fueling stations. These include fuel storage tanks for diesel and unleaded.

## 9. Gym

The Gym functional category is a small area designated for weights and other fitness needs of County employees.

## 10. Horticulture

The Horticulture functional category is assigned to areas designated for the cultivation and management of plants. This includes sod farms and nurseries currently operated by DPR.

## 11. IT Room

The IT Room functional category is assigned to support and operation spaces of servers, SCADA, DVRs, CCTV and other digital devices.

## 12. Kitchen / Break Room

The Kitchen / Break Room functional category is assigned to any space currently being used for food preparation or consumption. Existing lounges for field workers or “bonus areas” would also be in the Kitchen / Break room functional category.

## 13. Laboratory

The Laboratory functional category is limited to areas designated to precise scientific testing and analysis. A laboratory is typically constructed of fire resistant materials and must be equipped with an emergency eyewash shower and chemical resistant materials. Additional mechanical and electrical requirements will be required for laboratory areas.

## 14. Locker

Existing facilities are included in the Locker functional category if the primary purpose of the space is devoted to employee lockers or personal item storage.

## 15. Mechanical / Electrical Room

Mechanical / Electrical Rooms are dedicated to facility support. They should not be used for any other purpose including long term storage. They



*Fuel Pump at DWS Naska Base Yard.*



*Gym at MFD Warehouse.*



*Water Testing Laboratory at DWS Naska Base Yard.*



*Lockers at DWS Naska Base Yard.*

typically house infrastructure and equipment to keep the building systems functioning.

## **16. Office**

Existing spaces dedicated solely to office or administrative functions are categorized as the Office functional category. Where office areas exist within rooms primarily dedicated to other functions, such as Warehouse, the office would be included in the space's primary functional category as an accessory to that function.

## **17. Restroom**

The Restroom functional category is assigned to any restroom space, including unisex and dedicated men's and women's facilities. Where existing shower and locker functions are included within restroom functions the areas are divided and accounted for separately. Restrooms are never counted as an accessory within another functional space type.



*Administration Office at DPW Kaohu Base Yard.*

## **18. Shower**

The Shower functional category is assigned to spaces dedicated to employee showers. These spaces usually adjoin a locker room and restroom.

## **19. Stockpile**

The Stockpile functional category is assigned to areas designated for bulk storage of aggregate and fill materials such as dirt, gravel, sand, etc. These areas should be accessible by dump truck and heavy machinery.

## **20. Uncovered Parking - Employee**

Uncovered Parking - Employee is comprised of standard 9'x18' uncovered parking stalls with 24'-0" wide drive aisles for use by employee personal vehicles only.

## **21. Uncovered Parking - Heavy Vehicles**

The Uncovered Parking - Heavy Vehicles functional category is assigned to all exterior parking for County heavy vehicles. Stalls are anticipated to be 12'-0"x30'-0" for large vehicles and 20'-0"x55'-0" for extra-large vehicles such as fire trucks.



*Tire Shop Restroom at DPW Kaohu Base Yard.*



## 22. Uncovered Parking - Light Vehicles

Uncovered Parking - Light Vehicles is comprised of standard 9'x18' uncovered parking stalls with 24'-0" wide drive aisles for use by county vehicles only.

## 23. Uncovered Parking - Equipment

The Uncovered Parking - Equipment functional category is assigned to all exterior parking for County equipment/heavy machinery. Stalls are anticipated to be 20'-0"x55'-0" and shall be of heavy duty construction to support the weight of the equipment.

## 24. Uncovered Storage

The Uncovered Storage functional category is assigned to exterior, open air storage and lay-down areas. These spaces may be gated or walled off from the remaining site but are not weather protected. These areas are differentiated from the Uncovered Parking area by the types of items being stored. Mobile items such as machinery and vehicles stored outdoors would be classified as Uncovered Parking. Non-mobile items such as raw materials, steel fittings, and collection bins stored outdoors would be classified as Uncovered Storage.

## 25. Vehicle Maintenance Bay

Vehicle Maintenance Bays are covered garages equipped with tools and infrastructure for maintenance and mechanical repair of vehicles and equipment. Vehicle Maintenance Bays include areas which can physically accommodate at least a standard sized car. They generally have either a vehicle lift or pit and include specialized services such as on-demand compressed air, cranes, and other equipment.

## 26. Vehicle Paint Shop

The County of Maui does not currently have a Vehicle Paint Shop. A shared Vehicle Paint Shop will be beneficial to all Departments engaging in vehicle body work. The Vehicle Paint Shop will consist of 1 large vehicle bay (20'-0"x40'-0"), storage, and small office area with specialty mechanical equipment to meet code and user design requirements. The Vehicle Paint Shop will be part of the centralized County Vehicle Maintenance Facility.

## 27. Vehicle Wash

An on-site Car Wash does not currently exist but is desired by several departments. DEM has the



*Uncovered Storage at DPW Kaohu Base Yard.*



*Vehicle Maintenance Bay at MFD Kahului Station.*



*MFD Warehouse.*



*Sign Workshop at DPW Kaohu Base Yard.*

greatest need for a car wash for cleaning of refuse collection trucks. As part of a Centralized County Vehicle Maintenance Facility, a car wash would provide savings on outsourcing of vehicle washes and improve man-hour and resource efficiency for in-house washes. For planning purposes we will include a Car Wash area complete with 1 automatic car wash for standard size vehicles and 2 manual wash bays that will accommodate large and extra large vehicles and equipment. Two commercial vacuums will also be available on site. We will assume a built area of 2,000 square feet for this function and a site area of 0.5 acres.

## **28. Warehouse**

The Warehouse function is assigned to any interior area designated for the storage and distribution of goods within a department or division. Warehouses may include accessory vehicle parking, storage and office areas. In some cases they allow forklift operation and in others they are strictly for hand carried goods.

## **29. Workshop**

Workshop functions are areas where repairs, fabrication, and other on-site manufacturing takes place. Workshops also serve as hubs for field personnel.



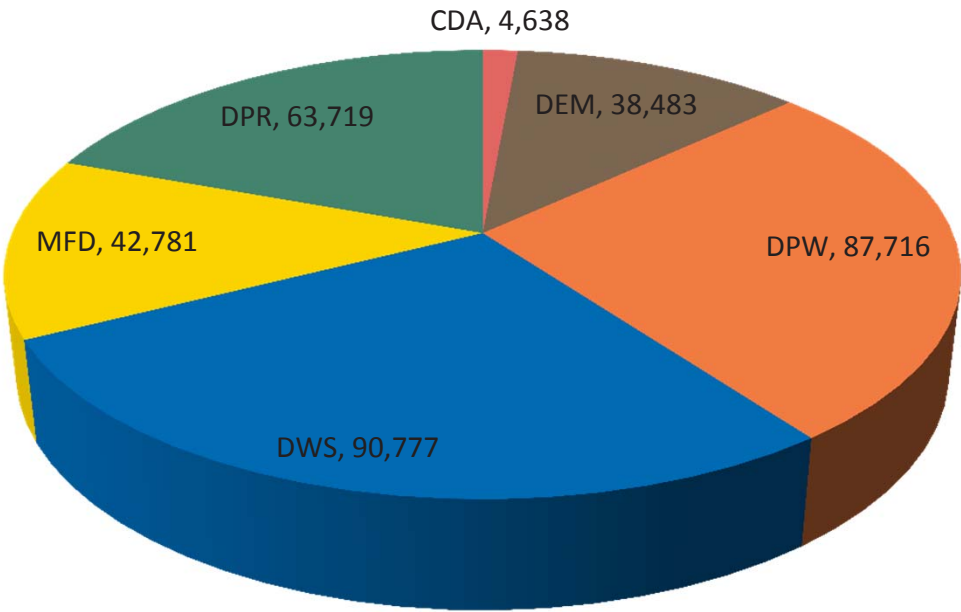
# 2014 Areas

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The existing County Facilities recognized in this report constitute 329,829 sf of programmed area. Unprogrammed areas at existing sites such as vehicular and pedestrian circulation, interior hallways, a miscellaneous site infrastructure is not accounted for in the data collection. For this reason, the actual site area of the existing facilities is larger than the areas of the data collected.

This chapter will go on to address the existing data collected at each site including square footages and spatial relationships. For a detailed list of all the existing spaces included in the existing data, please refer to Appendix A.

## 2014 Areas



# 2040 Projected Areas

The Waikapu Facility must be designed with the future in mind or it will be undersized and outdated before construction can be completed. In addition to planning for new spaces and expansion from the current space requirements, provisions should be made for a baseline level of spatial flexibility across the facility. According to the International Facilities Management Association (IFMA), City/County Institutional Facilities have an average space vacancy rate of 4% which is significantly lower than the all-industry average of 13%.<sup>1</sup> The County of Maui is currently operating with zero vacancy and is leasing land to overcome its lack of growth and swing space. To overcome this deficit, projections were made regarding the future space needs of the departments.

The projections included in this chapter were either provided by the County of Maui on a space by space basis or by overall departmental growth estimate. Where no estimate for growth was provided by the

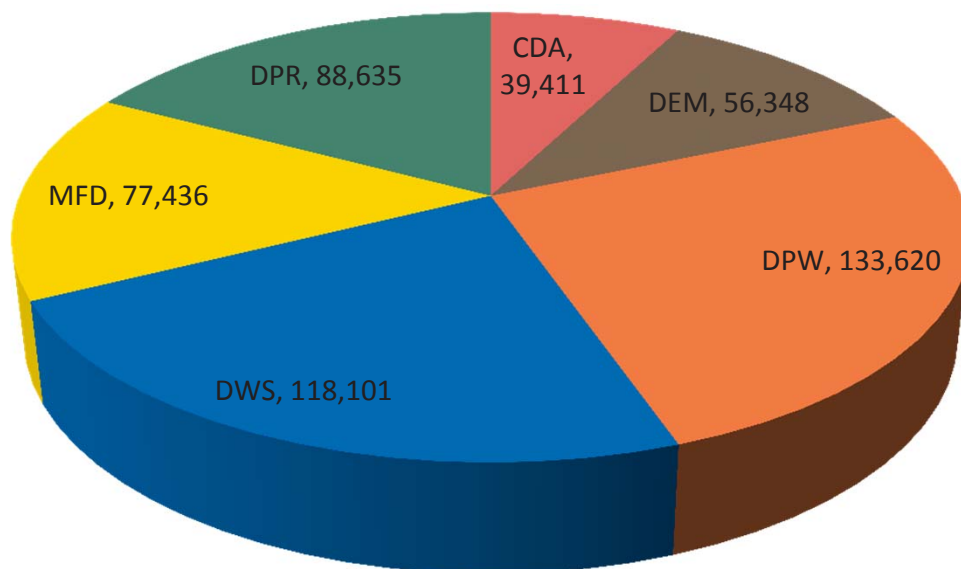
County of Maui, a straight 30% increase over the existing space quantities. The 30% increase is a general assumption derived in part from employee growth projections from the Maui County Civic Center Master Plan<sup>2</sup> and in part from the IFMA guidance for swing space.

In rare cases the 2040 Projection represents a reduction from the 2014 Area. These are strictly in place where requested by the County of Maui or the individual department.

<sup>1</sup> Epstein, S. F. *Space and Project Management Benchmarks*, IFMA Research Report #34, 2010, pg 41.

<sup>2</sup> Maui County Civic Center Master Plan by Group 70 International. Cover page not available- Approximate date of report 2013.

## 2040 PROJECTION







# CIVIL DEFENSE AGENCY (CDA)

In 2007 the County of Maui commissioned a study for a new Emergency Management Center<sup>1</sup>. The study outlined a new joint use facility for the County of Maui's Management Information Systems (MIS), Civil Defense Agency (CDA), Maui Police Department (MPD), and Maui Fire Department (MFD). The 6 acre, 40,000 square foot secure compound was intended to host the following programmatic elements:

- Facility Security to maintain a safe, uninterrupted work environment.
- MIS Data Center to allow expansion space for the existing data center in the Kalana O Maui Building
- CDA Emergency Operations Center (EOC) to upgrade and expand the existing EOC in the Kalana O Maui Building.
- MPD Dispatch Center and Data Center to upgrade and expand the existing facility.
- MFD new dedicated Dispatch Center for fire

and EMT services.

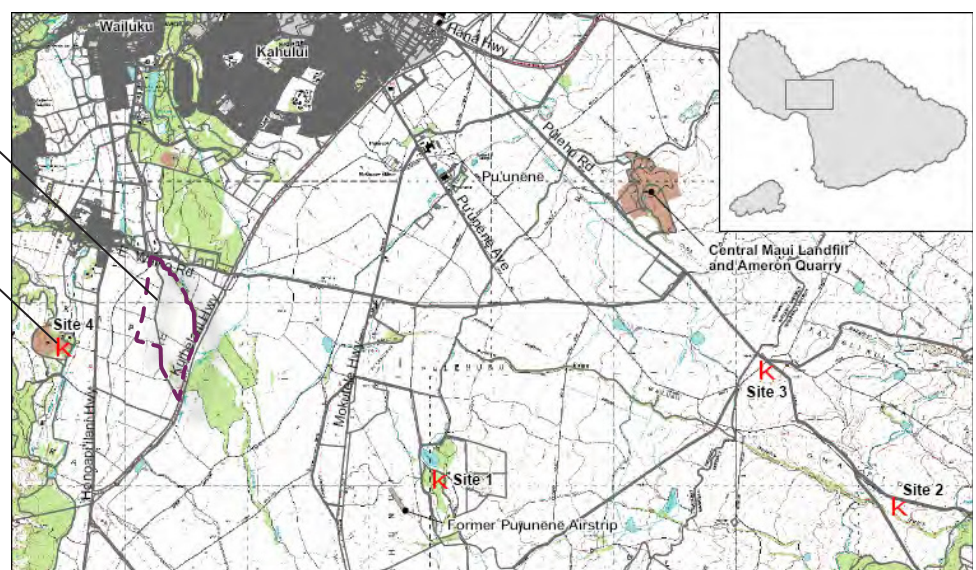
- Radio Shop to maintain communication devices in County of Maui vehicles.
- Support Facility providing human accommodations for periods of 24-7 operations.
- Central Plant to operate redundant electrical and mechanical cooling systems.

As part of the study four sites in the Central Maui area were analyzed for appropriateness. Criteria for site selection were many but key factors to operational feasibility include proximity to airports and harbors, ability to serve as "base camp" during an emergency, line of sight to various communication antennas, and a location outside of any flooding, tsunami, or other zone at increased risk of natural disaster. Another interesting selection criteria was proximity to a 2 mile highway straightaway so planes could use that as secondary runway or access point in the event that the airport was no longer viable (inundated by tsunami or otherwise). The report concluded

<sup>1</sup> County of Maui Data Center Report. April 2007 by EYP MCF, PBR Hawaii and CJS Group Architects

WAIKAPU 309 ACRE SITE

WAIKAPU QUARRY SITE - ORIGINALLY SELECTED



## Legend

K Proposed Sites

Proposed Maui Data Center Locations	
Site 1	Pujunene
Site 2	Pihou Road / Oma'opio Road Intersection
Site 3	Pihou Road / Spanish Road Intersection
Site 4	Waikapu

FIGURE 2

Selected Candidate Sites

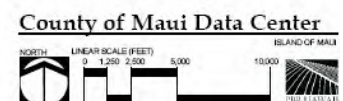


Image Source: See footnote 1 above,  
page 4 - 8

Source: U.S. Geological Survey, Maui Top Map May 2008  
Disclaimer: This graphic is intended for general planning purposes only.



## CIVIL DEFENSE AGENCY (CDA)

that a site in Waikapu Quarry adjacent to the King Kamehameha Club would be the most desirable for the facility. The Waikapu Quarry site is just over a mile from the Waikapu Facilities' 309 acre plot.

The cost estimate portion of the report for the facility noted a 33 month construction period for a built cost of 43.5 million dollars. This included only 10% contingency. An evaluation would have to be done

to escalate these dollars to 2014 costs and evaluate changes in design and construction cost between the two sites.

For the purposes of this report, we will assume a 6 acre site area will be set aside for a future Civil Defense Agency Emergency Management Center equitable to the facility described above and in greater detail in the 2007 report.

### *EXISTING SUMMARY - KALANA O MAUI BUILDING*

CDA - KALANA O MAUI BUILDING	Sum of 2014 AREA (sf)
<b>BASEMENT</b>	<b>4248</b>
EMERGENCY MANAGEMENT CENTER	4248
<b>SECOND FLOOR</b>	<b>390</b>
EMERGENCY MANAGEMENT CENTER	390
<b>Grand Total</b>	<b>4638</b>

### *GROWTH ANALYSIS*

CDA SPACES	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)	% CHANGE
<b>EMERGENCY MANAGEMENT CENTER</b>	<b>4638</b>	<b>39411</b>	<b>850%</b>
Grand Total	4638	39411	431%





## DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (DEM)

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### *EXISTING SUMMARY - KAOHU BASE YARD*

DEM - KAOHU BASE YARD	Sum of 2014 AREA (sf)
<b>SOLID WASTE OFFICE</b>	<b>12642</b>
CONFERENCE ROOM	420
KITCHEN/BREAK ROOM	170
LOCKER	64
OFFICE	526
RESTROOM	130
SHOWER	42
STOCKPILE	1200
UNCOVERED PARKING - HEAVY V	5000
UNCOVERED STORAGE	1160
WORKSHOP	180
UNCOVERED PARKING - EMPLOYEE	3750
<b>Grand Total</b>	<b>12642</b>



# DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (DEM)

## EXISTING SUMMARY - HANA HIGHWAY

DEM - HANA HIGHWAY	Sum of 2014 AREA (sf)
<b>HAZMAT STORAGE SHED</b>	<b>144</b>
COVERED STORAGE	144
<b>MISC. EQUIPMENT AND STORAGE</b>	<b>800</b>
COVERED PARKING - LIGHT V	800
<b>OUTDOOR SPACE</b>	<b>8762</b>
COVERED STORAGE	680
KITCHEN/BREAK ROOM	382
UNCOVERED PARKING - LIGHT V	2800
UNCOVERED PARKING - EMPLOYEE	4900
<b>STAFF OFFICES AND LOCKER ROOMS</b>	<b>1255</b>
CONFERENCE ROOM	400
KITCHEN/BREAK ROOM	200
OFFICE	330
RESTROOM	325
<b>VEHICLE PARKING AND EQUIPMENT STORAGE</b>	<b>4180</b>
COVERED PARKING - LIGHT V	1600
COVERED STORAGE	640
KITCHEN/BREAK ROOM	200
LOCKER	300
OFFICE	540
RESTROOM	100
WORKSHOP	800
<b>Grand Total</b>	<b>15141</b>





## DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (DEM)

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### *EXISTING SUMMARY - TEMPORARY LEASED SITE*

DEM - TEMPORARY LEASED SITE	Sum of 2014 AREA (sf)
<b>LEASED WAREHOUSE</b>	<b>1600</b>
COVERED STORAGE	1600
<b>Grand Total</b>	<b>1600</b>



## DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (DEM)

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### *EXISTING SUMMARY - W-K WRF*

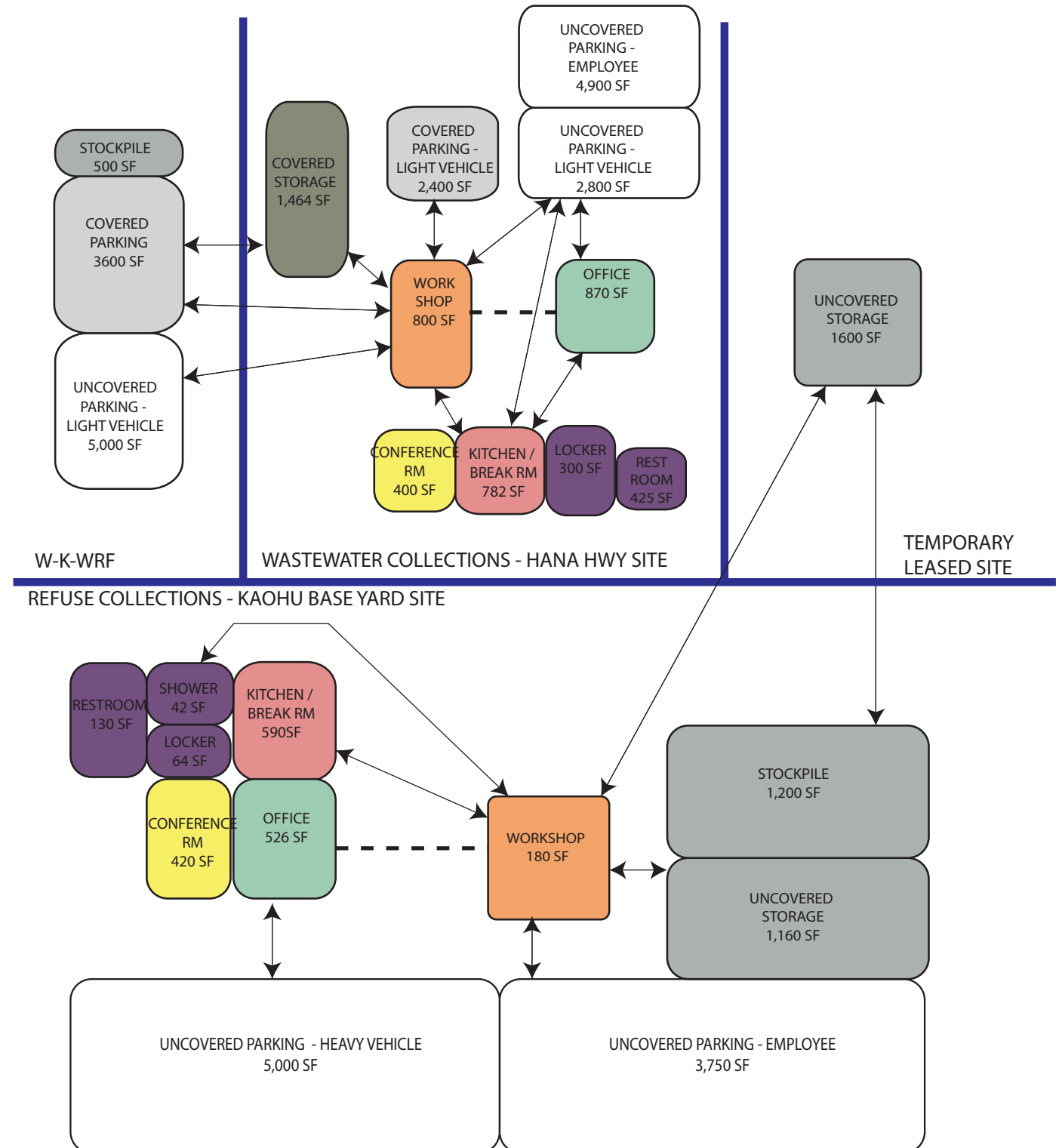
DEM - W-KWRF	Sum of 2014 AREA (sf)
<b>OUTDOOR SPACE</b>	<b>5500</b>
STOCKPILE	500
UNCOVERED PARKING - LIGHT V	5000
<b>SPECIALTY TRUCK GARAGE</b>	<b>3600</b>
COVERED PARKING - HEAVY V	3600
<b>Grand Total</b>	<b>9100</b>





# DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (DEM)

## 2014 FUNCTIONAL ADJACENCIES





## DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (DEM)

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### *FUTURE SITE*

DEM - FUTURE SITE	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)
<b>WAREHOUSE</b>	<b>0</b>	<b>2700</b>
WAREHOUSE	0	2700
<b>REFUSE TRUCK WASH</b>	<b>0</b>	<b>600</b>
VEHICLE WASH	0	600
<b>GARAGE</b>	<b>0</b>	<b>1800</b>
COVERED PARKING - HEAVY V	0	1800
<b>Grand Total</b>	<b>0</b>	<b>5100</b>





# DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (DEM)

## SUMMARY - ALL SITES COMBINED

DEM - ALL SITES COMBINED	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)
<b>CONFERENCE ROOM</b>	<b>820</b>	<b>1066</b>
HANA HWY COLLECTION STATION	400	520
KAOHU BASE YARD	420	546
<b>COVERED PARKING - HEAVY V</b>	<b>3600</b>	<b>5400</b>
W-K-WWRF	3600	3600
FUTURE SITE	0	1800
COVERED PARKING - LIGHT V	2400	3400
HANA HWY COLLECTION STATION	2400	3400
<b>COVERED STORAGE</b>	<b>3064</b>	<b>3503</b>
HANA HWY COLLECTION STATION	1464	1903
LEASED SITE	1600	1600
<b>KITCHEN/BREAK ROOM</b>	<b>952</b>	<b>1238</b>
HANA HWY COLLECTION STATION	782	1017
KAOHU BASE YARD	170	221
<b>LOCKER</b>	<b>364</b>	<b>473</b>
HANA HWY COLLECTION STATION	300	390
KAOHU BASE YARD	64	83
<b>OFFICE</b>	<b>1396</b>	<b>1815</b>
HANA HWY COLLECTION STATION	870	1131
KAOHU BASE YARD	526	684
<b>RESTROOM</b>	<b>555</b>	<b>722</b>
HANA HWY COLLECTION STATION	425	553
KAOHU BASE YARD	130	169
<b>SHOWER</b>	<b>42</b>	<b>55</b>
KAOHU BASE YARD	42	55



# DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (DEM)

## SUMMARY - ALL SITES COMBINED

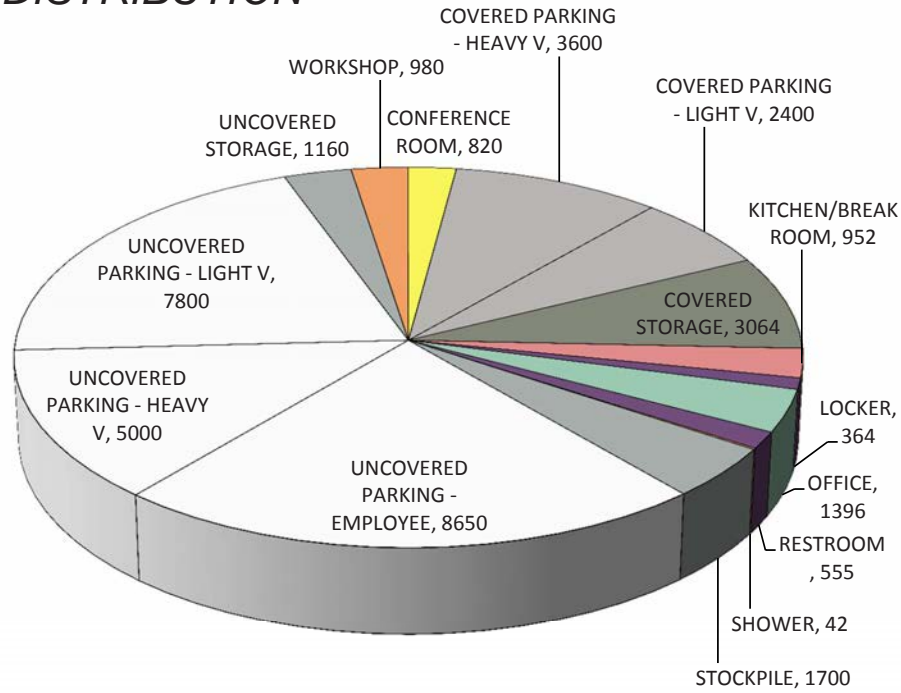
DEM - ALL SITES COMBINED	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)
<b>STOCKPILE</b>	<b>1700</b>	<b>2210</b>
KAOHU BASE YARD	1200	1560
W-K-WWRF	500	650
<b>UNCOVERED PARKING - HEAVY V</b>	<b>5000</b>	<b>9000</b>
KAOHU BASE YARD	5000	9000
<b>UNCOVERED PARKING - LIGHT V</b>	<b>7800</b>	<b>10140</b>
HANA HWY COLLECTION STATION	2800	3640
W-K-WWRF	5000	6500
<b>UNCOVERED STORAGE</b>	<b>1160</b>	<b>1508</b>
KAOHU BASE YARD	1160	1508
<b>WAREHOUSE</b>	<b>0</b>	<b>2700</b>
FUTURE SITE	0	2700
<b>WORKSHOP</b>	<b>980</b>	<b>1274</b>
HANA HWY COLLECTION STATION	800	1040
KAOHU BASE YARD	180	234
<b>VEHICLE WASH</b>	<b>0</b>	<b>600</b>
FUTURE SITE	0	600
<b>UNCOVERED PARKING - EMPLOYEE</b>	<b>8650</b>	<b>11245</b>
HANA HWY COLLECTION STATION	4900	6370
KAOHU BASE YARD	3750	4875
<b>Grand Total</b>	<b>38483</b>	<b>56348</b>



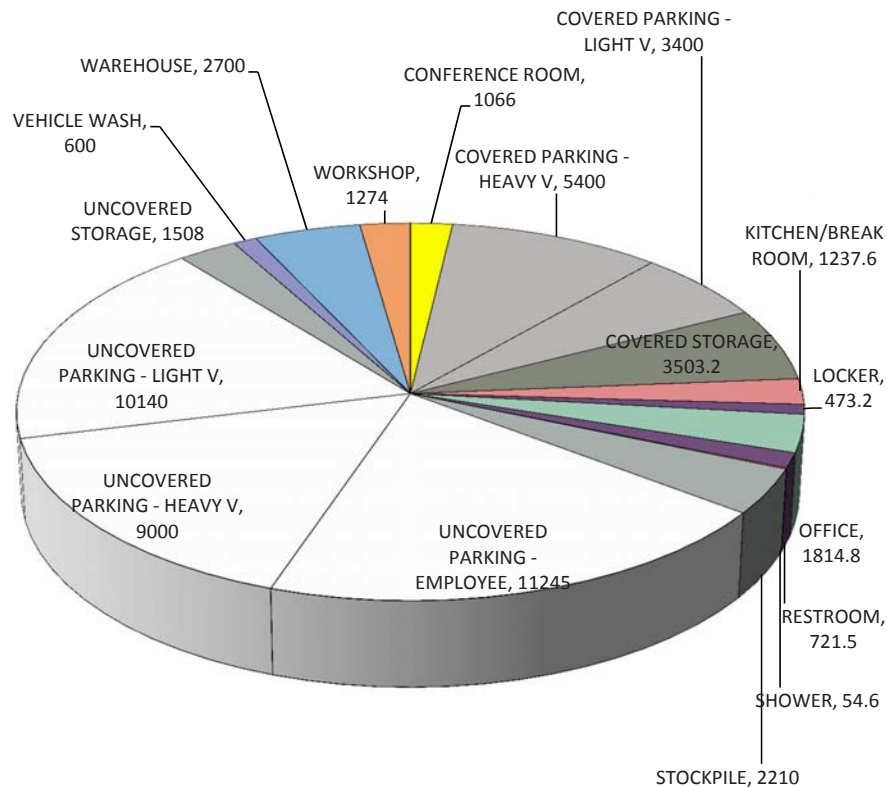


## DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (DEM)

### 2014 SPACE DISTRIBUTION



### 2040 PROJECTED SPACE DISTRIBUTION





## DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (DEM)

### GROWTH ANALYSIS

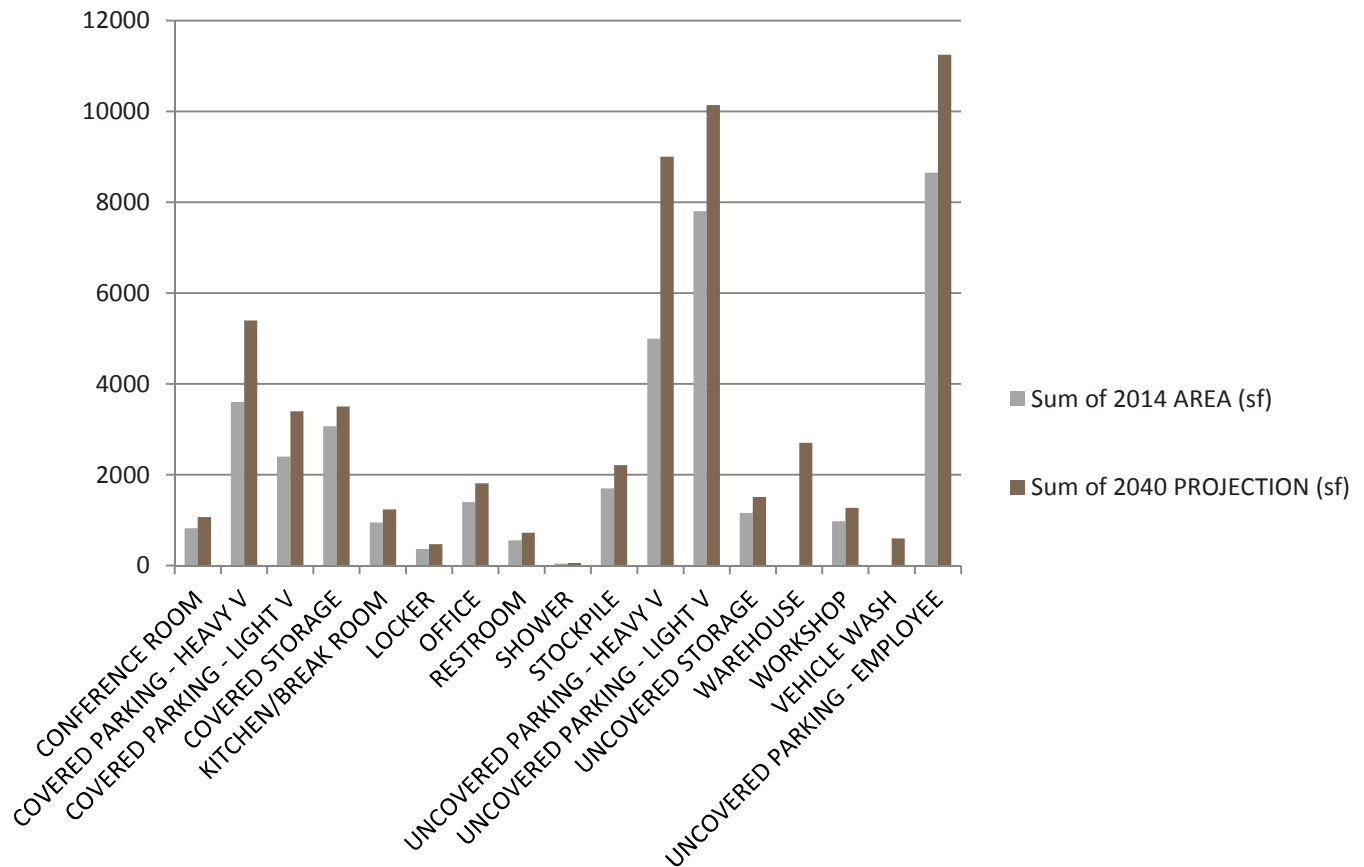
DEM SPACES	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)	% CHANGE
CONFERENCE ROOM	820	1066	130%
COVERED PARKING - HEAVY V	3600	5400	150%
COVERED PARKING - LIGHT V	2400	3400	142%
COVERED STORAGE	3064	3503	114%
KITCHEN/BREAK ROOM	952	1238	130%
LOCKER	364	473	130%
OFFICE	1396	1815	130%
RESTROOM	555	722	130%
SHOWER	42	55	130%
STOCKPILE	1700	2210	130%
UNCOVERED PARKING - HEAVY V	5000	9000	180%
UNCOVERED PARKING - LIGHT V	7800	10140	130%
UNCOVERED STORAGE	1160	1508	130%
WAREHOUSE	0	2700	
WORKSHOP	980	1274	130%
VEHICLE WASH	0	600	
UNCOVERED PARKING - EMPLOYEE	8650	11245	130%
<b>Grand Total</b>	<b>38483</b>	<b>56348</b>	<b>146%</b>





## DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (DEM)

### GROWTH ANALYSIS





## DEPARTMENT OF PARKS AND RECREATION - PARKS MAINTENANCE DIVISION (DPR)

### EXISTING SUMMARY - WAR MEMORIAL

DPR - WAR MEMORIAL COMPLEX	Sum of 2014 AREA (sf)
<b>BEAUTIFICATION</b>	<b>27620</b>
HORTICULTURE	25000
KITCHEN/BREAK ROOM	200
LOCKER	20
OFFICE	800
STOCKPILE	1600
<b>BMR</b>	<b>32999</b>
COVERED PARKING - LIGHT V	1836
COVERED STORAGE	14500
KITCHEN/BREAK ROOM	660
OFFICE	444
RESTROOM	174
UNCOVERED PARKING - HEAVY V	8939
WORKSHOP	6446
<b>MECHANIC SHOP</b>	<b>3100</b>
COVERED STORAGE	1600
VEHICLE MAINTENANCE BAY	1500
<b>Grand Total</b>	<b>63719</b>





## DEPARTMENT OF PARKS AND RECREATION - PARKS MAINTENANCE DIVISION (DPR)

### *FUTURE SITES*

DPR - FUTURE SITE	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)
<b>BEAUTIFICATION</b>	<b>0</b>	<b>4000</b>
WORKSHOP	0	4000
<b>WAREHOUSE</b>	<b>0</b>	<b>1800</b>
WAREHOUSE	0	1800
<b>Grand Total</b>	<b>0</b>	<b>5800</b>



# DEPARTMENT OF PARKS AND RECREATION - PARKS MAINTENANCE DIVISION (DPR)

## SUMMARY - ALL SITES COMBINED

Row Labels	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)
<b>COVERED PARKING - LIGHT V</b>	<b>1836</b>	<b>2387</b>
STADIUM AND WAR MEMORIAL	1836	2387
<b>COVERED STORAGE</b>	<b>16100</b>	<b>20930</b>
STADIUM AND WAR MEMORIAL	16100	20930
<b>HORTICULTURE</b>	<b>25000</b>	<b>32500</b>
STADIUM AND WAR MEMORIAL	25000	32500
<b>KITCHEN/BREAK ROOM</b>	<b>860</b>	<b>1118</b>
STADIUM AND WAR MEMORIAL	860	1118
<b>LOCKER</b>	<b>20</b>	<b>26</b>
STADIUM AND WAR MEMORIAL	20	26
<b>OFFICE</b>	<b>1244</b>	<b>1617</b>
STADIUM AND WAR MEMORIAL	1244	1617
<b>RESTROOM</b>	<b>174</b>	<b>226</b>
STADIUM AND WAR MEMORIAL	174	226
<b>STOCKPILE</b>	<b>1600</b>	<b>2080</b>
STADIUM AND WAR MEMORIAL	1600	2080
<b>UNCOVERED PARKING - HEAVY V</b>	<b>8939</b>	<b>11621</b>
STADIUM AND WAR MEMORIAL	8939	11621
<b>VEHICLE MAINTENANCE BAY</b>	<b>1500</b>	<b>1950</b>
STADIUM AND WAR MEMORIAL	1500	1950
<b>WAREHOUSE</b>	<b>0</b>	<b>1800</b>
FUTURE SITE	0	1800



## DEPARTMENT OF PARKS AND RECREATION - PARKS MAINTENANCE DIVISION (DPR)

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### *SUMMARY - ALL SITES COMBINED*

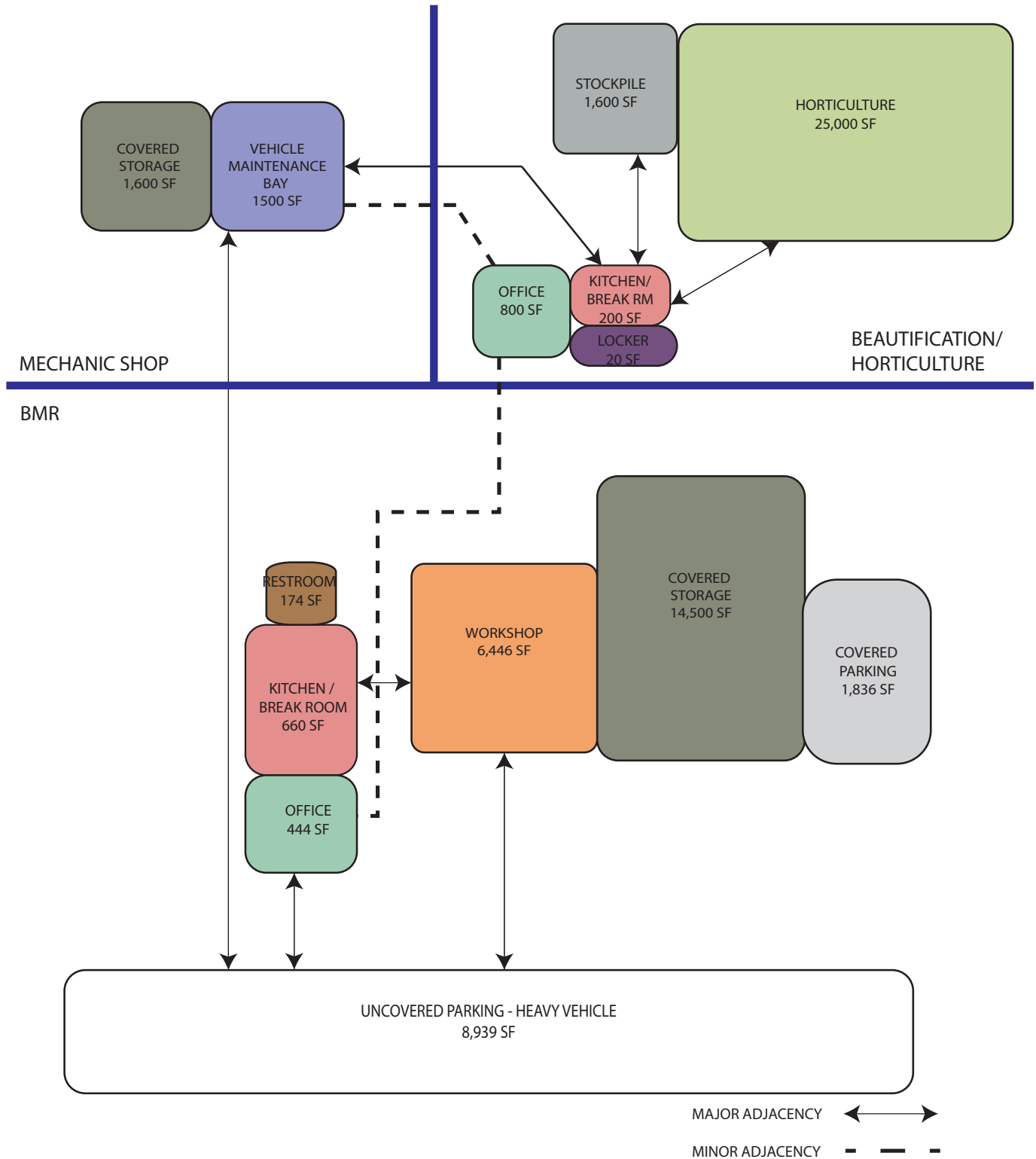
Row Labels	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)
<b>WORKSHOP</b>	<b>6446</b>	<b>12380</b>
FUTURE SITE	0	4000
STADIUM AND WAR MEMORIAL	6446	8380
<b>Grand Total</b>	<b>63719</b>	<b>88635</b>





# DEPARTMENT OF PARKS AND RECREATION - PARKS MAINTENANCE DIVISION (DPR)

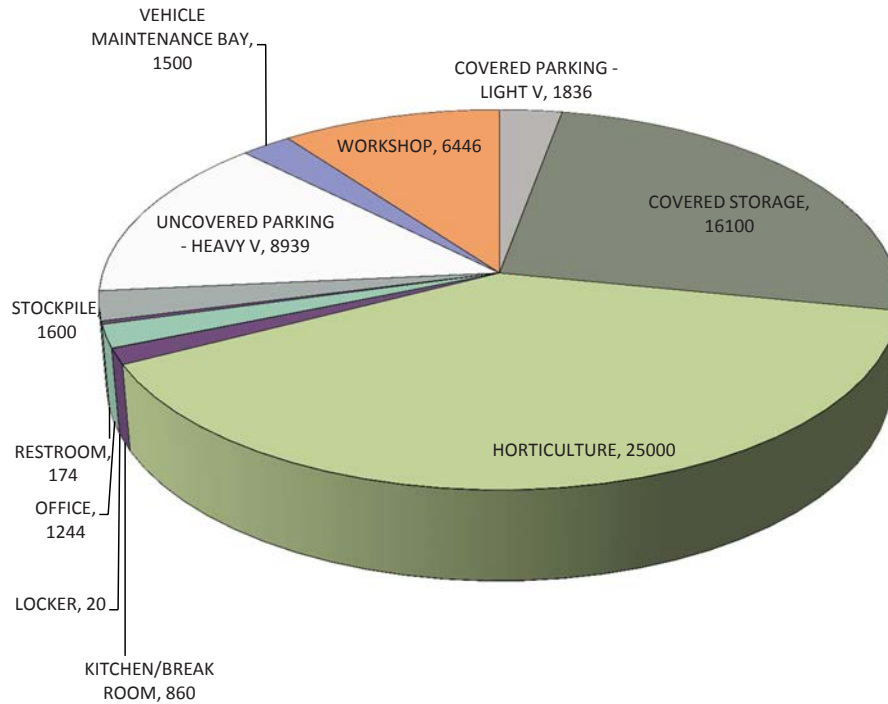
## 2014 FUNCTIONAL ADJACENCIES



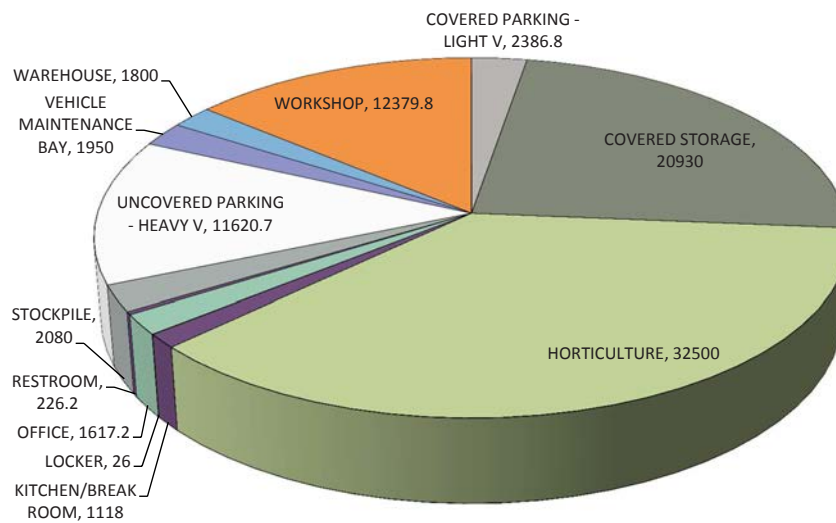


## DEPARTMENT OF PARKS AND RECREATION - PARKS MAINTENANCE DIVISION (DPR)

### 2014 SPACE DISTRIBUTION



### 2040 PROJECTED SPACE DISTRIBUTION





## DEPARTMENT OF PARKS AND RECREATION - PARKS MAINTENANCE DIVISION (DPR)

### GROWTH ANALYSIS

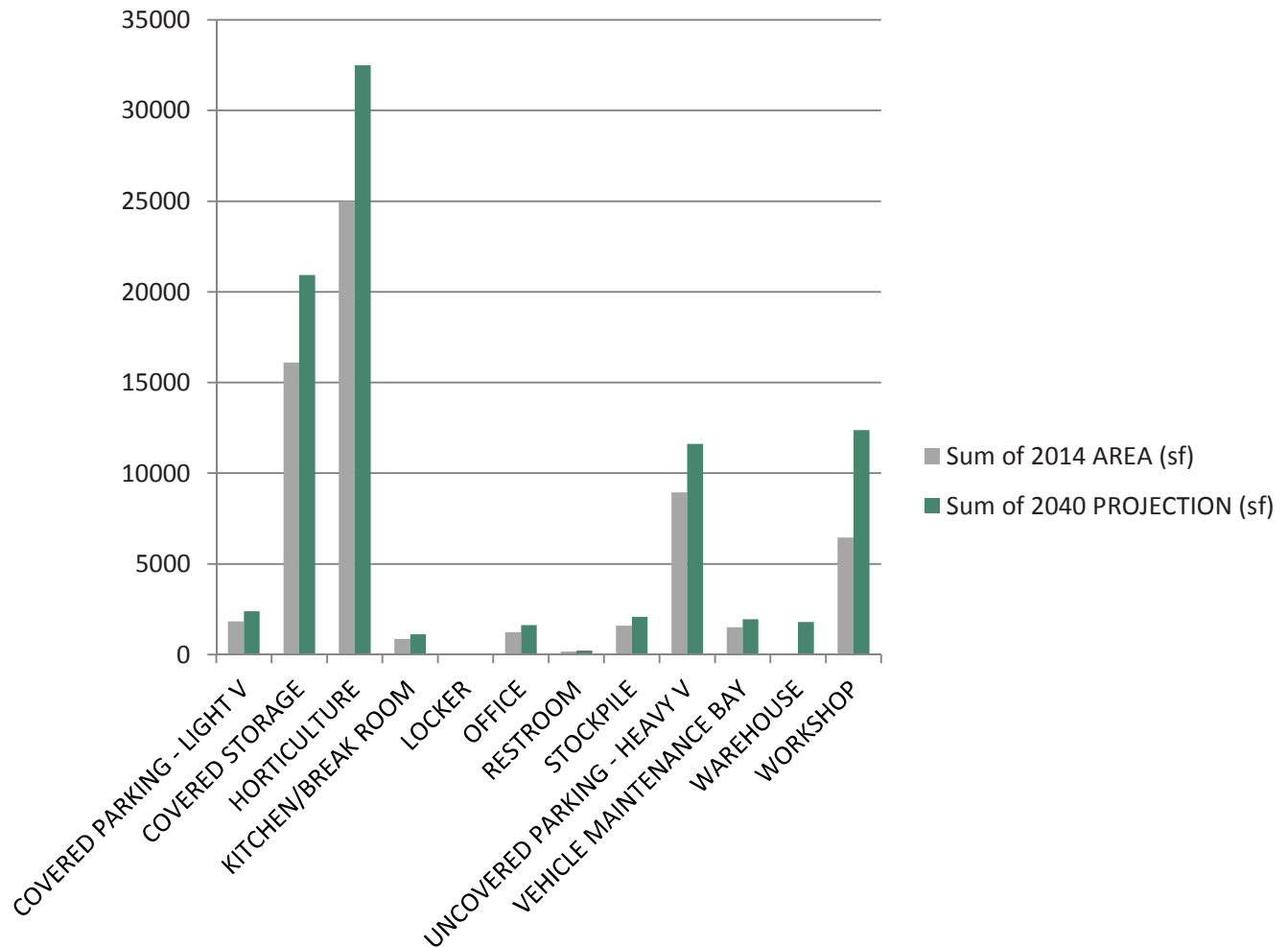
DPR SPACES	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)	% CHANGE
COVERED PARKING - LIGHT V	1836	2387	130%
COVERED STORAGE	16100	20930	130%
HORTICULTURE	25000	32500	130%
KITCHEN/BREAK ROOM	860	1118	130%
LOCKER	20	26	130%
OFFICE	1244	1617	130%
RESTROOM	174	226	130%
STOCKPILE	1600	2080	130%
UNCOVERED PARKING - HEAVY V	8939	11621	130%
VEHICLE MAINTENANCE BAY	1500	1950	130%
WAREHOUSE	0	1800	
WORKSHOP	6446	12380	192%
<b>Grand Total</b>	<b>63719</b>	<b>88635</b>	<b>139%</b>





# DEPARTMENT OF PARKS AND RECREATION - PARKS MAINTENANCE DIVISION (DPR)

## GROWTH ANALYSIS





## DEPARTMENT OF PUBLIC WORKS (DPW)

### EXISTING SUMMARY - KAOHU BASE YARD

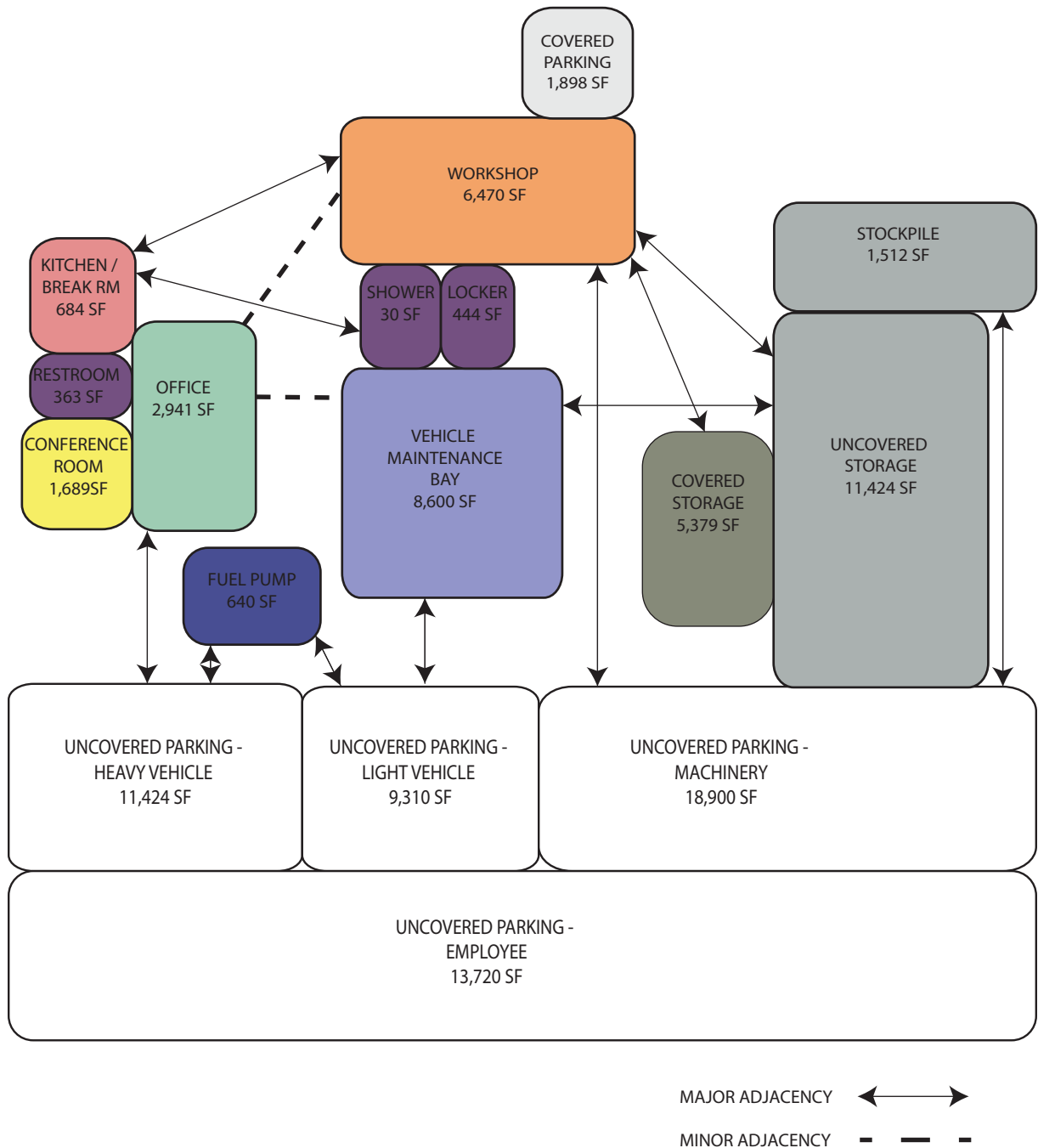
DPW - KAOHU BASE YARD	Sum of 2014 AREA (sf)
<b>HIGHWAY ADMIN. OFFICE</b>	<b>1448</b>
CONFERENCE ROOM	225
COVERED STORAGE	82
KITCHEN/BREAK ROOM	72
OFFICE	1024
RESTROOM	45
<b>HIGHWAY TRAINING ROOM &amp; GARAGE</b>	<b>4142</b>
CONFERENCE ROOM	1044
COVERED PARKING - LIGHT V	1460
COVERED STORAGE	30
KITCHEN/BREAK ROOM	312
LOCKER	114
OFFICE	532
RESTROOM	70
WORKSHOP	580
<b>MECHANIC SHOP &amp; OFFICE</b>	<b>10955</b>
CONFERENCE ROOM	420
OFFICE	527
RESTROOM	188
SHOWER	30
VEHICLE MAINTENANCE BAY	7200
WORKSHOP	2590
<b>OUTDOOR SPACE</b>	<b>59946</b>
COVERED STORAGE	1440
FUEL PUMP	640
STOCKPILE	1512
UNCOVERED PARKING - HEAVY V	11424
UNCOVERED PARKING - LIGHT V	9310
UNCOVERED STORAGE	3000

DPW - KAOHU BASE YARD	Sum of 2014 AREA (sf)
UNCOVERED PARKING - MACHINERY	18900
UNCOVERED PARKING - EMPLOYEE	13720
<b>SIGN SHOP</b>	<b>3362</b>
COVERED STORAGE	2178
KITCHEN/BREAK ROOM	300
LOCKER	330
OFFICE	144
RESTROOM	60
WORKSHOP	350
<b>TIRE SHOP</b>	<b>4098</b>
COVERED STORAGE	884
OFFICE	64
RESTROOM	0
UNCOVERED STORAGE	350
VEHICLE MAINTENANCE BAY	1400
WORKSHOP	1400
<b>TRAFFIC SIGNAL SHOP</b>	<b>2070</b>
COVERED STORAGE	610
OFFICE	540
WORKSHOP	920
<b>VEHICLE BODY SHOP</b>	<b>1695</b>
COVERED STORAGE	155
OFFICE	110
RESTROOM	0
UNCOVERED STORAGE	800
WORKSHOP	630
<b>Grand Total</b>	<b>87716</b>



## DEPARTMENT OF PUBLIC WORKS (DPW)

### 2014 FUNCTIONAL ADJACENCIES







## DEPARTMENT OF PUBLIC WORKS (DPW)

### FUTURE SITE

DPW - FUTURE SITE	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)
<b>PAVEMENT PRESERVATION OFFICE</b>	<b>0</b>	<b>950</b>
KITCHEN/BREAK ROOM	0	300
LOCKER	0	140
OFFICE	0	250
RESTROOM	0	200
SHOWER	0	60
<b>VEHICLE PAINT SHOP</b>	<b>0</b>	<b>1600</b>
VEHICLE PAINT SHOP	0	1600
<b>WAREHOUSE</b>	<b>0</b>	<b>1800</b>
WAREHOUSE	0	1800
<b>GARAGE</b>	<b>0</b>	<b>2880</b>
COVERED PARKING - HEAVY V	0	2880
<b>Grand Total</b>	<b>0</b>	<b>7230</b>



## DEPARTMENT OF PUBLIC WORKS (DPW)

### SUMMARY - ALL SITES COMBINED

Row Labels	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)
<b>CONFERENCE ROOM</b>	<b>1689</b>	<b>2000</b>
KAOHU BASE YARD	1689	2000
<b>COVERED PARKING - HEAVY V</b>	<b>0</b>	<b>2880</b>
FUTURE SITE	0	2880
<b>COVERED PARKING - LIGHT V</b>	<b>1460</b>	<b>2190</b>
KAOHU BASE YARD	1460	2190
<b>COVERED STORAGE</b>	<b>5379</b>	<b>7813</b>
KAOHU BASE YARD	5379	7813
<b>FUEL PUMP</b>	<b>640</b>	<b>832</b>
KAOHU BASE YARD	640	832
<b>KITCHEN/BREAK ROOM</b>	<b>684</b>	<b>1188</b>
FUTURE SITE	0	300
KAOHU BASE YARD	684	888
<b>LOCKER</b>	<b>444</b>	<b>717</b>
FUTURE SITE	0	140
KAOHU BASE YARD	444	577
<b>OFFICE</b>	<b>2941</b>	<b>3229</b>
FUTURE SITE	0	250
KAOHU BASE YARD	2941	2979
<b>RESTROOM</b>	<b>363</b>	<b>780</b>
FUTURE SITE	0	200
KAOHU BASE YARD	363	580
<b>SHOWER</b>	<b>30</b>	<b>99</b>
FUTURE SITE	0	60
KAOHU BASE YARD	30	39



# DEPARTMENT OF PUBLIC WORKS (DPW)

## SUMMARY - ALL SITES COMBINED

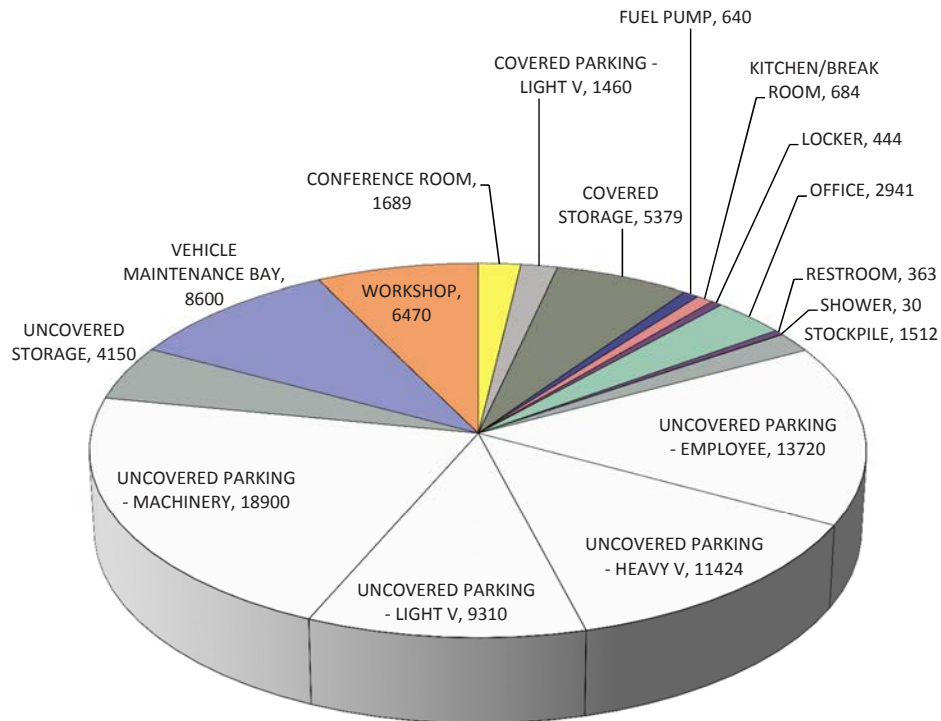
<b>STOCKPILE</b>	<b>1512</b>	<b>1966</b>
KAOHU BASE YARD	1512	1966
<b>UNCOVERED PARKING - HEAVY V</b>	<b>11424</b>	<b>17472</b>
KAOHU BASE YARD	11424	17472
<b>UNCOVERED PARKING - LIGHT V</b>	<b>9310</b>	<b>13965</b>
KAOHU BASE YARD	9310	13965
<b>UNCOVERED STORAGE</b>	<b>4150</b>	<b>5500</b>
KAOHU BASE YARD	4150	5500
<b>VEHICLE MAINTENANCE BAY</b>	<b>8600</b>	<b>10600</b>
KAOHU BASE YARD	8600	10600
<b>WAREHOUSE</b>	<b>0</b>	<b>1800</b>
FUTURE SITE	0	1800
<b>WORKSHOP</b>	<b>6470</b>	<b>9170</b>
KAOHU BASE YARD	6470	9170
<b>VEHICLE PAINT SHOP</b>	<b>0</b>	<b>1600</b>
FUTURE SITE	0	1600
<b>UNCOVERED PARKING - MACHINERY</b>	<b>18900</b>	<b>28350</b>
KAOHU BASE YARD	18900	28350
<b>UNCOVERED PARKING - EMPLOYEE</b>	<b>9800</b>	<b>14700</b>
KAOHU BASE YARD	9800	14700
<b>Grand Total</b>	<b>83796</b>	<b>126851</b>



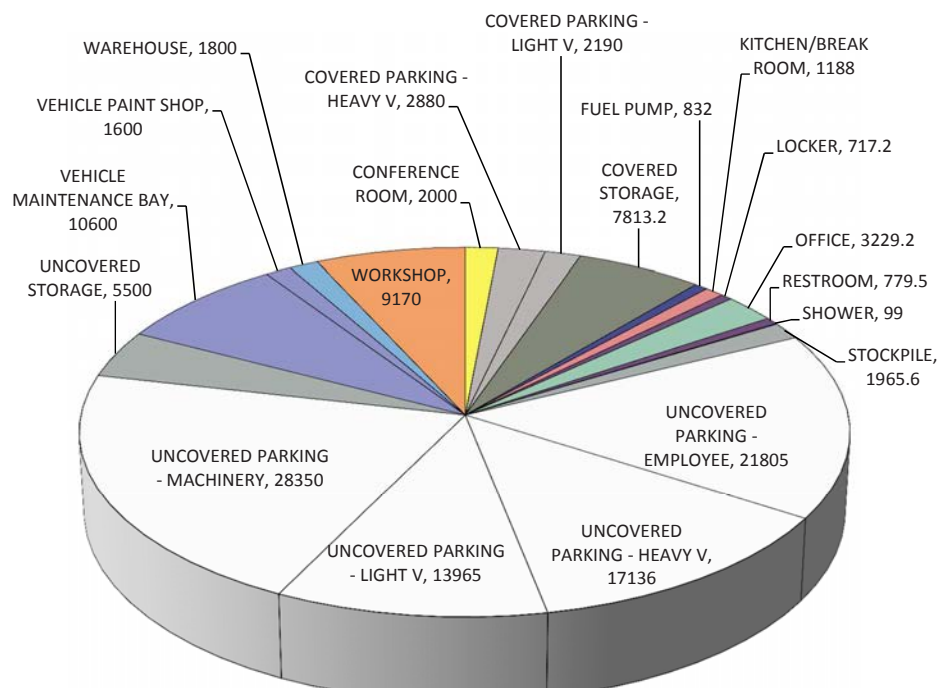


# DEPARTMENT OF PUBLIC WORKS (DPW)

## 2014 SPACE DISTRIBUTION



## 2040 PROJECTED SPACE DISTRIBUTION





## DEPARTMENT OF PUBLIC WORKS (DPW)

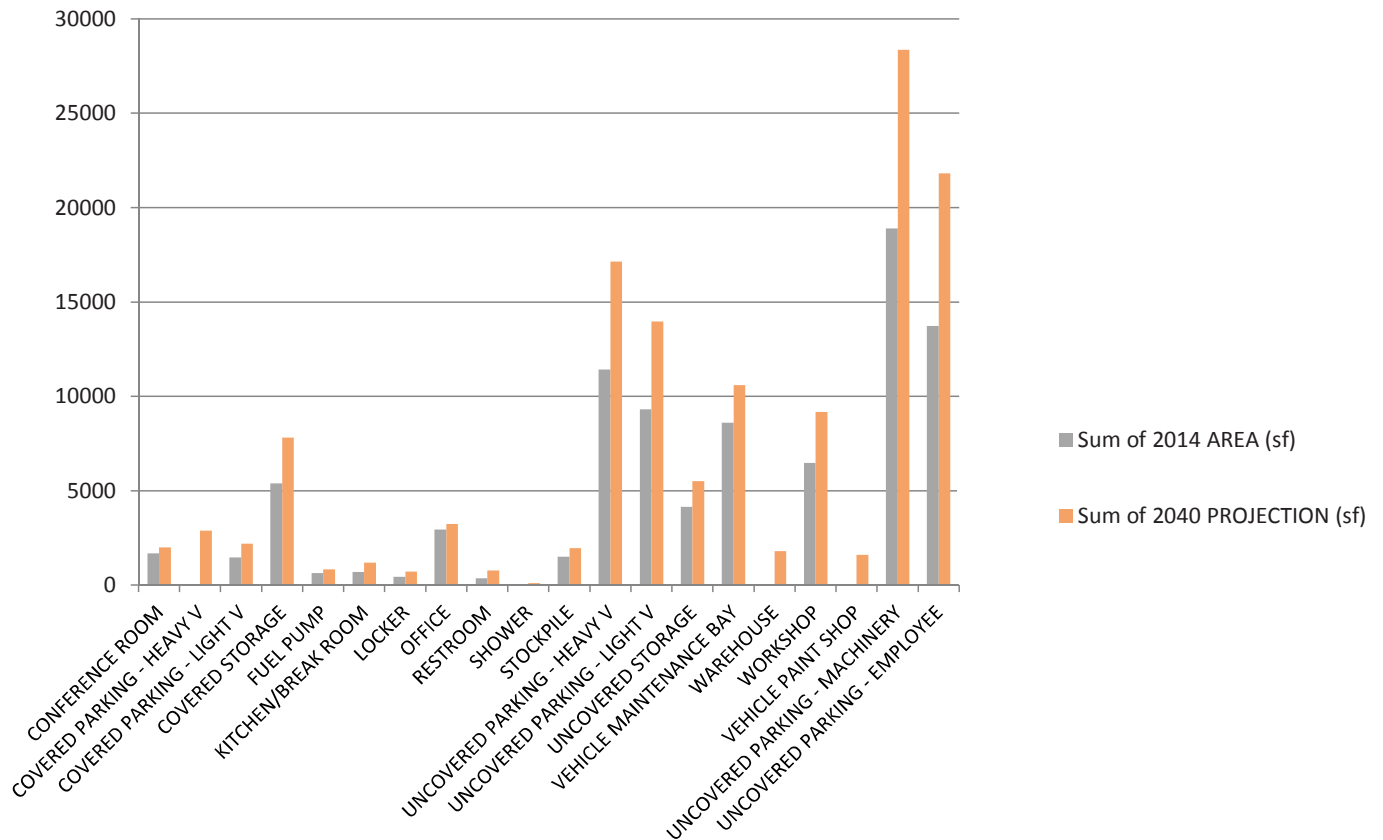
### GROWTH ANALYSIS

DPW SPACES	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)	% CHANGE
CONFERENCE ROOM	1689	2000	118%
COVERED PARKING - HEAVY V	0	2880	
COVERED PARKING - LIGHT V	1460	2190	150%
COVERED STORAGE	5379	7813	145%
FUEL PUMP	640	832	130%
KITCHEN/BREAK ROOM	684	1188	174%
LOCKER	444	717	162%
OFFICE	2941	3229	110%
RESTROOM	363	780	215%
SHOWER	30	99	330%
STOCKPILE	1512	1966	130%
UNCOVERED PARKING - HEAVY V	11424	17136	150%
UNCOVERED PARKING - LIGHT V	9310	13965	150%
UNCOVERED STORAGE	4150	5500	133%
VEHICLE MAINTENANCE BAY	8600	10600	123%
WAREHOUSE	0	1800	
WORKSHOP	6470	9170	
VEHICLE PAINT SHOP	0	1600	
UNCOVERED PARKING - MACHINERY	18900	28350	150%
UNCOVERED PARKING - EMPLOYEE	13720	21805	159%
<b>Grand Total</b>	<b>87716</b>	<b>133620</b>	<b>152%</b>



## DEPARTMENT OF PUBLIC WORKS (DPW)

### GROWTH ANALYSIS







## DEPARTMENT OF WATER SUPPLY (DWS)

### EXISTING SUMMARY - NASKA BASE YARD

DWS - NASKA BASE YARD	Sum of 2014 AREA (sf)
<b>ADMIN &amp; LAB BUILDING</b>	<b>5500</b>
CONFERENCE ROOM	440
COVERED STORAGE	90
IT ROOM	288
KITCHEN/BREAK ROOM	150
LABORATORY	3150
MECH / ELEC RM	500
OFFICE	768
RESTROOM	114
<b>OUTDOOR SPACE</b>	<b>67341</b>
COVERED STORAGE	2900
DOCUMENT STORAGE	750
FUEL PUMP	1000
STOCKPILE	5000
UNCOVERED PARKING - HEAVY V	8736
UNCOVERED PARKING - LIGHT V	15435
UNCOVERED STORAGE	10000
UNCOVERED PARKING - EMPLOYEE	23520
<b>PARTS WAREHOUSE</b>	<b>6760</b>
OFFICE	360
WAREHOUSE	6400
<b>METAL/VEHICLE MAINTENANCE SHOP</b>	<b>6970</b>
COVERED STORAGE	160
OFFICE	350
RESTROOM	230
VEHICLE MAINTENANCE BAY	3200
WORKSHOP	3030
<b>FIELD OPERATIONS</b>	<b>2326</b>
CONFERENCE ROOM	550
COVERED STORAGE	1000
KITCHEN/BREAK ROOM	230



## DEPARTMENT OF WATER SUPPLY (DWS)

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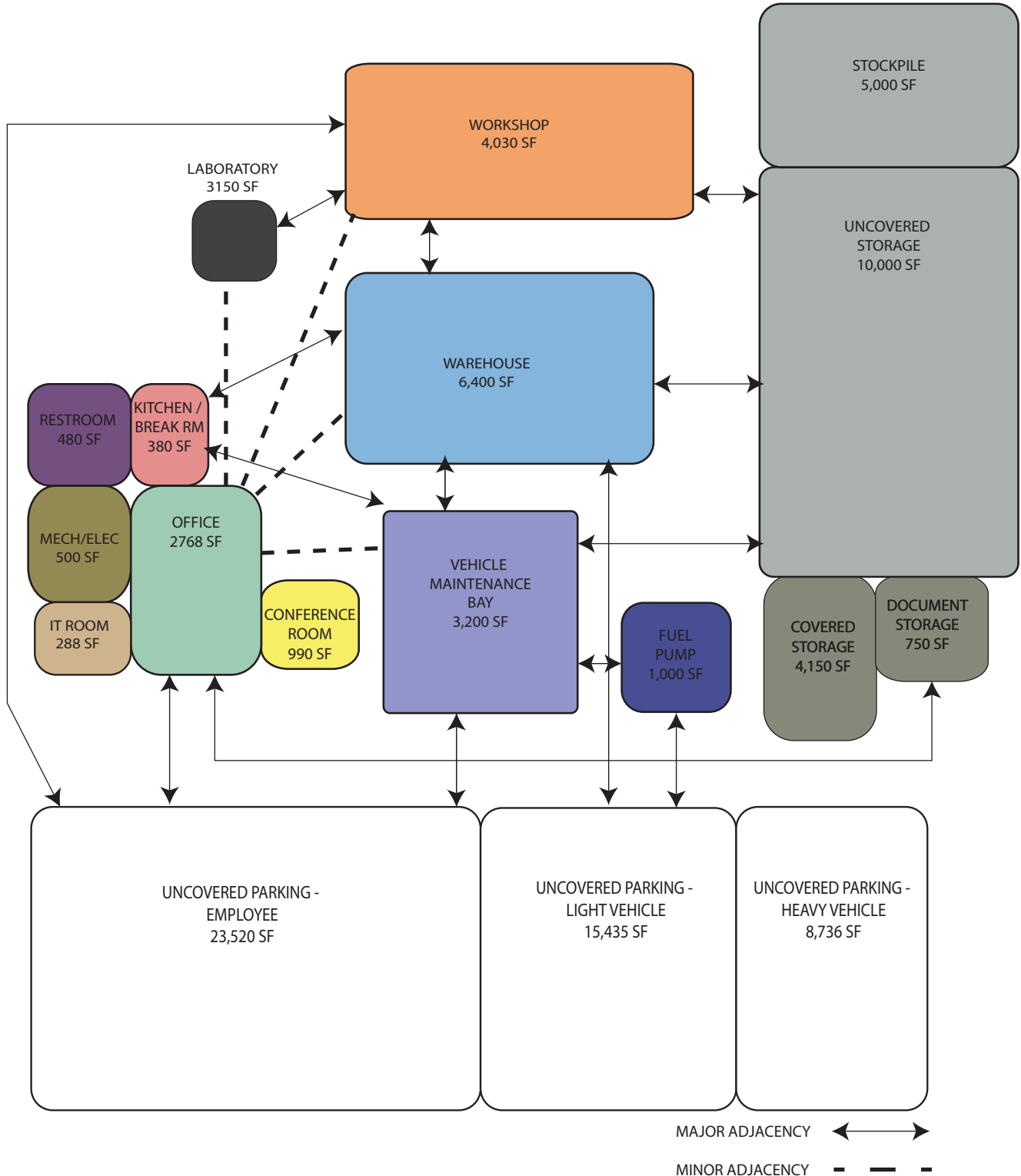
### *EXISTING SUMMARY - NASKA BASE YARD*

DWS - NASKA BASE YARD	Sum of 2014 AREA (sf)
OFFICE	410
RESTROOM	136
<b>PLANT OPERATIONS</b>	<b>1880</b>
OFFICE	880
WORKSHOP	1000
<b>Grand Total</b>	<b>90777</b>



# DEPARTMENT OF WATER SUPPLY (DWS)

## EXISTING FUNCTIONAL ADJACENCIES

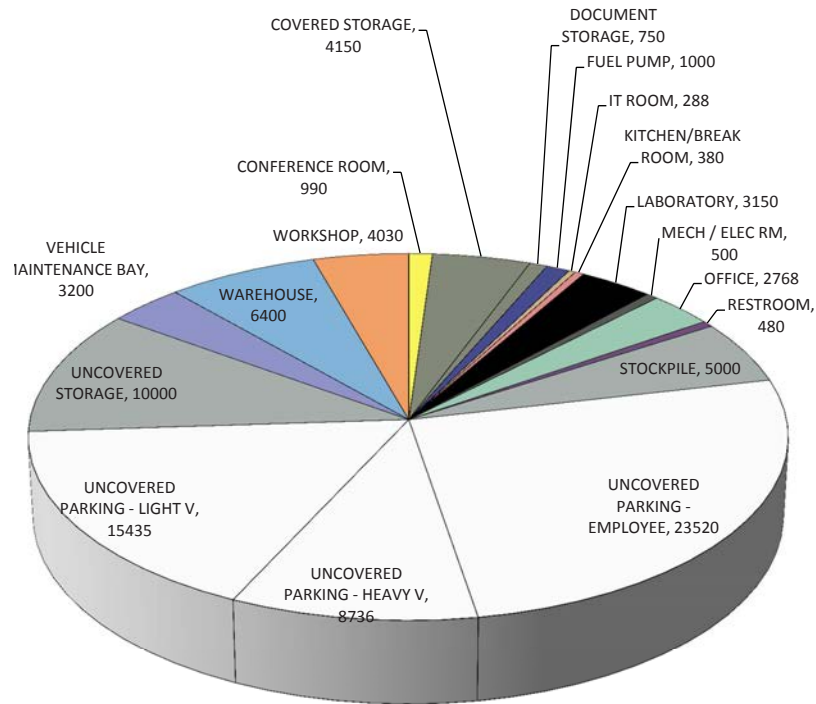




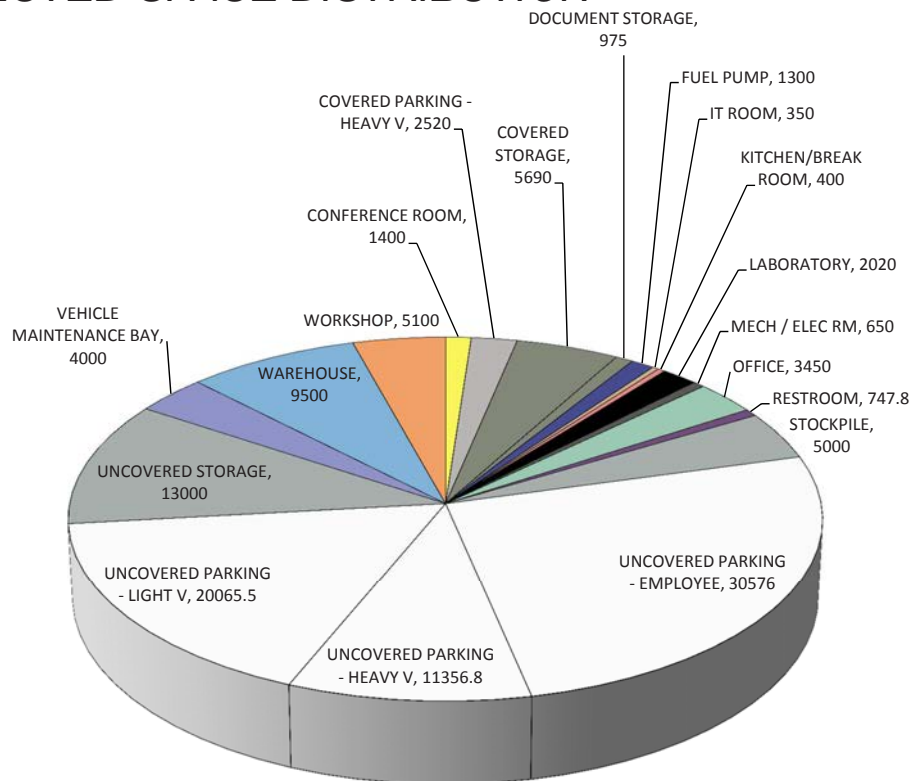


# DEPARTMENT OF WATER SUPPLY (DWS)

## 2014 SPACE DISTRIBUTION



## 2040 PROJECTED SPACE DISTRIBUTION





## DEPARTMENT OF WATER SUPPLY (DWS)

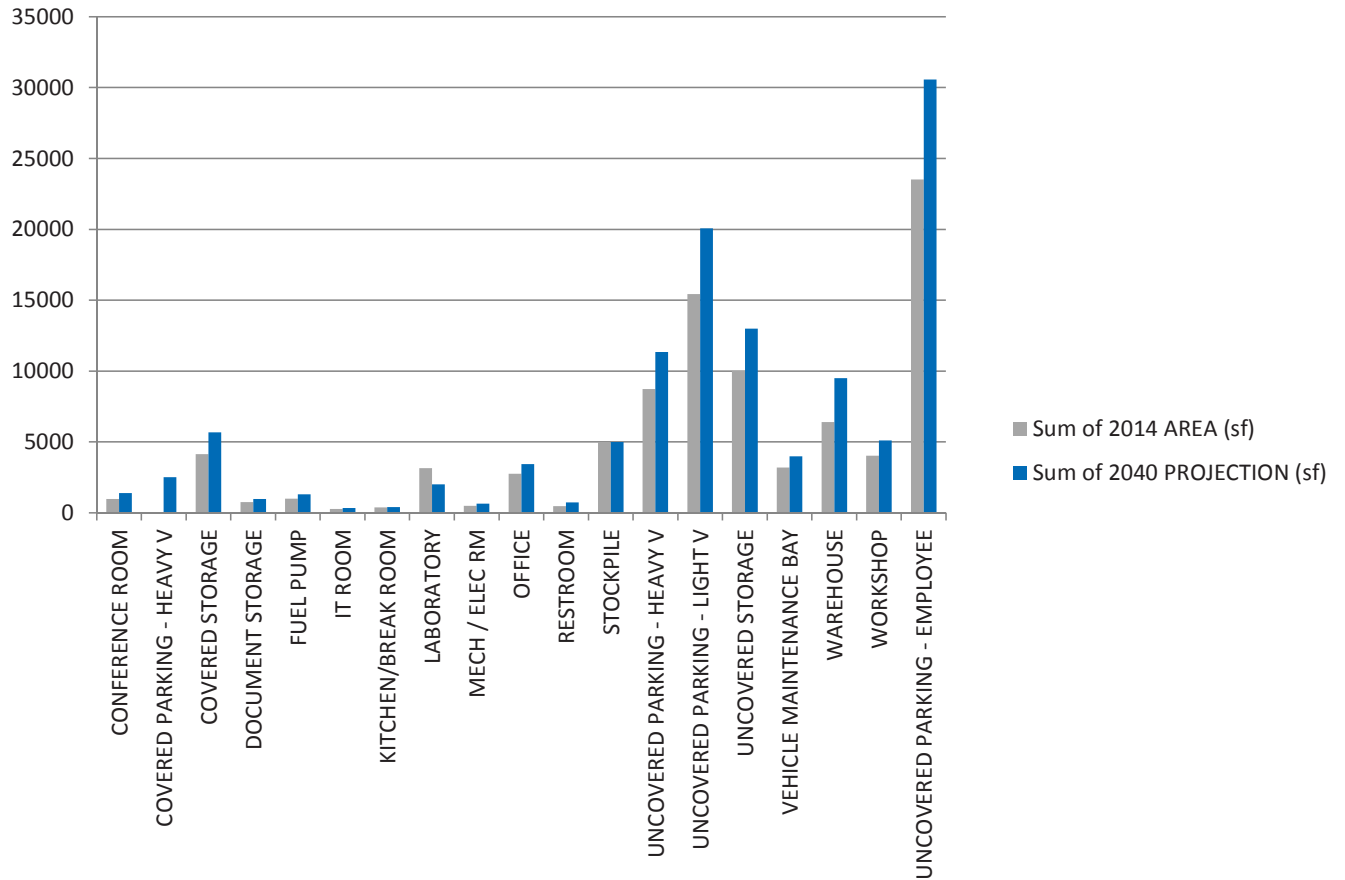
### GROWTH ANALYSIS

DWS SPACES	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)	% CHANGE
CONFERENCE ROOM	990	1400	141%
COVERED PARKING - HEAVY V	0	2520	
COVERED STORAGE	4150	5690	137%
DOCUMENT STORAGE	750	975	130%
FUEL PUMP	1000	1300	130%
IT ROOM	288	350	122%
KITCHEN/BREAK ROOM	380	400	105%
LABORATORY	3150	2020	64%
MECH / ELEC RM	500	650	130%
OFFICE	2768	3450	125%
RESTROOM	480	748	156%
STOCKPILE	5000	5000	100%
UNCOVERED PARKING - HEAVY V	8736	11357	130%
UNCOVERED PARKING - LIGHT V	15435	20066	130%
UNCOVERED STORAGE	10000	13000	130%
VEHICLE MAINTENANCE BAY	3200	4000	125%
WAREHOUSE	6400	9500	148%
WORKSHOP	4030	5100	127%
UNCOVERED PARKING - EMPLOYEE	23520	30576	130%
<b>Grand Total</b>	<b>90777</b>	<b>118101</b>	<b>130%</b>

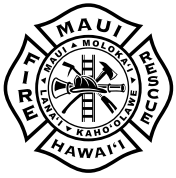


## DEPARTMENT OF WATER SUPPLY (DWS)

### GROWTH ANALYSIS







## MAUI FIRE DEPARTMENT (MFD)

### EXISTING SUMMARY - KAHULUI STATION

MFD - KAHULUI STATION	Sum of 2014 AREA (sf)
MECHANIC SHOP	5626
COVERED STORAGE	1020
OFFICE	566
RESTROOM	60
VEHICLE MAINTENANCE BAY	3200
WAREHOUSE	780
UNCOVERED PARKING - EMPLOYEE	
<b>Grand Total</b>	<b>5626</b>

*Note: The MFD Administration Building at the Kahului Station was considered for relocation to the Waikapu Base Yard to accommodate MFD's desire to have all administrative employees under one roof. We do not anticipate the MFD Administration Building being relocated to the Waikapu Base Yard prior to 2040, but instead anticipate that the newly vacated Mechanic Shop can be built out to provide additional MFD administrative offices. We recommend the need for relocation be revisited in planning exercises extending past the year 2040.*

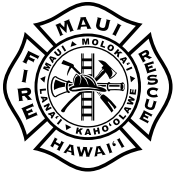


## MAUI FIRE DEPARTMENT (MFD)

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### EXISTING SUMMARY - WAREHOUSE

<b>MFD - WAREHOUSE</b>	<b>Sum of 2014 AREA (sf)</b>
<b>WAREHOUSE</b>	<b>34855</b>
COVERED PARKING - HEAVY V	2371
GYM	600
LOCKER	200
MECH / ELEC RM	67
OFFICE	5282
RESTROOM	569
SHOWER	200
WAREHOUSE	13406
UNCOVERED PARKING - EMPLOYEE	12160
<b>Grand Total</b>	<b>34855</b>



## MAUI FIRE DEPARTMENT (MFD)

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### EXISTING SUMMARY - WAR MEMORIAL

Row Labels	Sum of 2014 AREA (sf)
STADIUM AND WAR MEMORIAL	2300
OFFICE	300
UNCOVERED STORAGE	2000
Grand Total	2300





## MAUI FIRE DEPARTMENT (MFD)

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### *FUTURE SITE*

<b>MFD - FUTURE SITE</b>	<b>Sum of 2014 AREA (sf)</b>	<b>Sum of 2040 PROJECTION (sf)</b>
<b>WAIKAPU FIRE STATION</b>	<b>0</b>	<b>20000</b>
FIRE STATION	0	20000
<b>Grand Total</b>	<b>0</b>	<b>20000</b>



# MAUI FIRE DEPARTMENT (MFD)

## SUMMARY - ALL SITES COMBINED

MFD - ALL SITES COMBINED	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)
<b>COVERED PARKING - HEAVY V</b>	<b>2371</b>	<b>3082</b>
WAREHOUSE	2371	3082
<b>COVERED STORAGE</b>	<b>1020</b>	<b>1326</b>
KAHULUI STATION	1020	1326
<b>GYM</b>	<b>600</b>	<b>780</b>
WAREHOUSE	600	780
<b>LOCKER</b>	<b>200</b>	<b>260</b>
WAREHOUSE	200	260
<b>MECH / ELEC RM</b>	<b>67</b>	<b>87</b>
WAREHOUSE	67	87
<b>OFFICE</b>	<b>6148</b>	<b>7473</b>
KAHULUI STATION	566	736
STADIUM AND WAR MEMORIAL	300	390
WAREHOUSE	5282	6348
<b>RESTROOM</b>	<b>629</b>	<b>818</b>
KAHULUI STATION	60	78
WAREHOUSE	569	740
<b>SHOWER</b>	<b>200</b>	<b>260</b>
WAREHOUSE	200	260
<b>UNCOVERED STORAGE</b>	<b>2000</b>	<b>2600</b>
STADIUM AND WAR MEMORIAL	2000	2600
<b>VEHICLE MAINTENANCE BAY</b>	<b>3200</b>	<b>6500</b>
KAHULUI STATION	3200	6500
<b>WAREHOUSE</b>	<b>14186</b>	<b>18442</b>
KAHULUI STATION	780	1014



## MAUI FIRE DEPARTMENT (MFD)

### *SUMMARY - ALL SITES COMBINED*

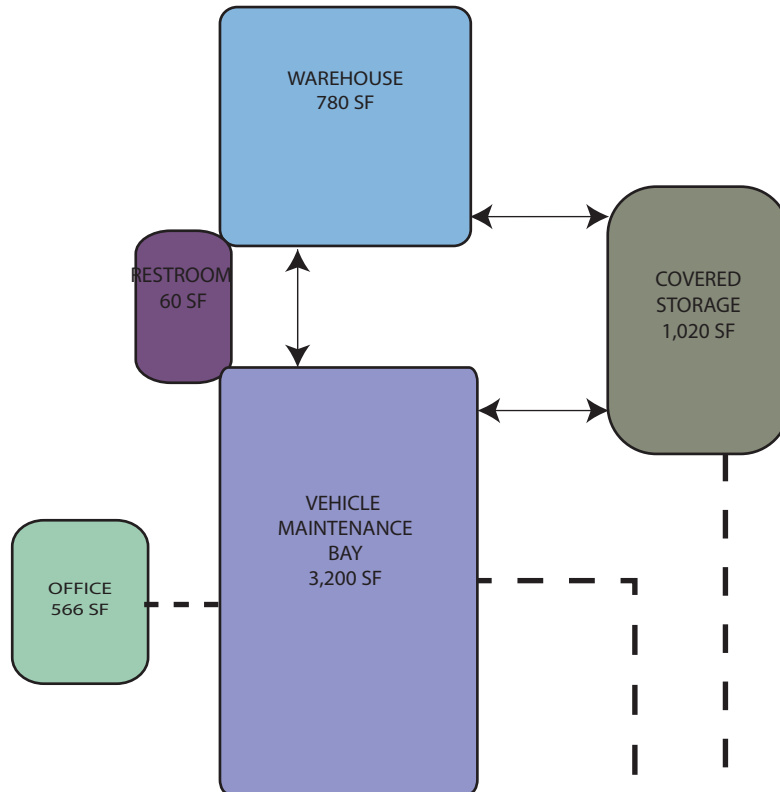
<b>MFD - ALL SITES COMBINED</b>	<b>Sum of 2014 AREA (sf)</b>	<b>Sum of 2040 PROJECTION (sf)</b>
WAREHOUSE	13406	17428
<b>FIRE STATION</b>	<b>0</b>	<b>20000</b>
FUTURE SITE	0	20000
<b>UNCOVERED PARKING - EMPLOYEE</b>	<b>12160</b>	<b>15808</b>
KAHULUI STATION		
WAREHOUSE	12160	15808
<b>Grand Total</b>	<b>42781</b>	<b>77436</b>





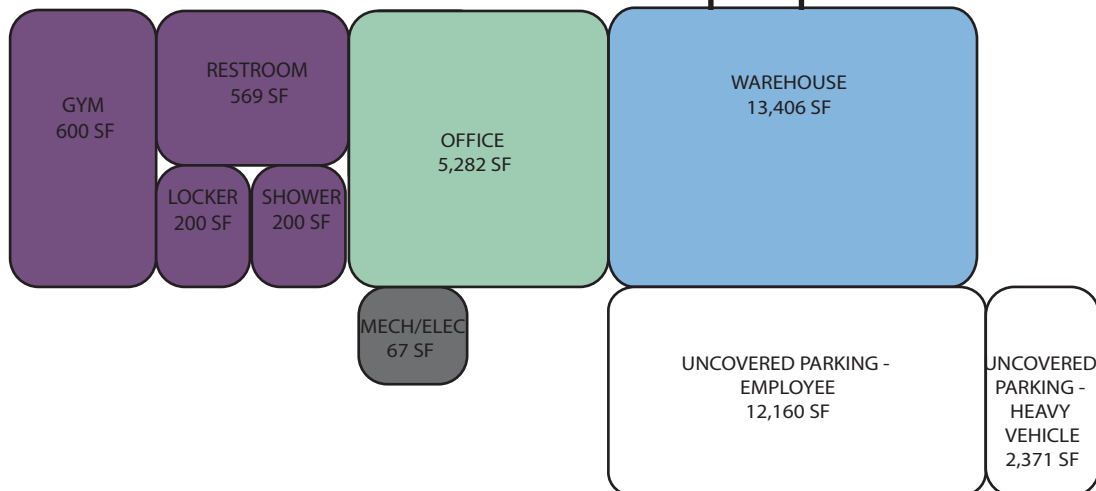
# MAUI FIRE DEPARTMENT (MFD)

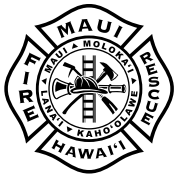
## EXISTING FUNCTIONAL ADJACENCIES



KAHULUI STATION

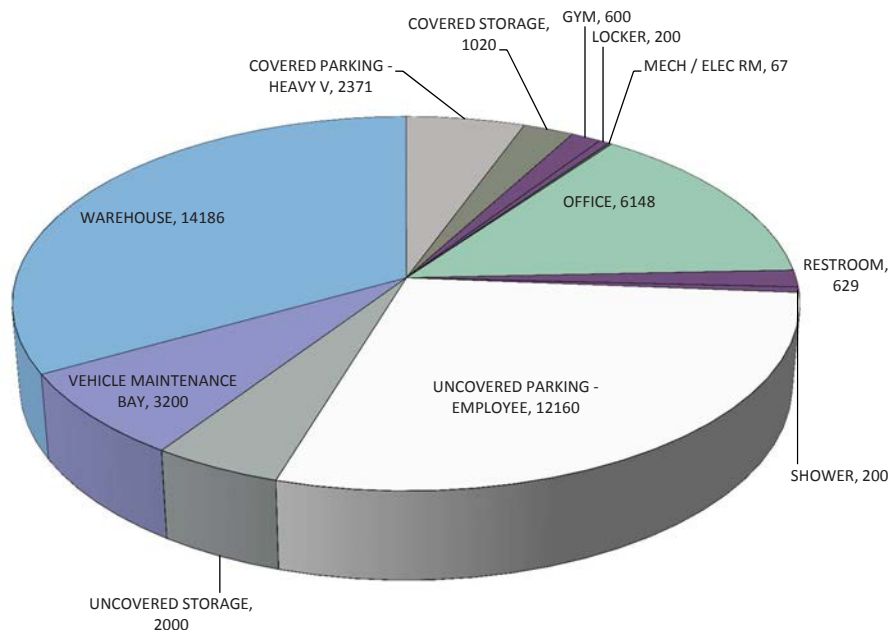
WAREHOUSE



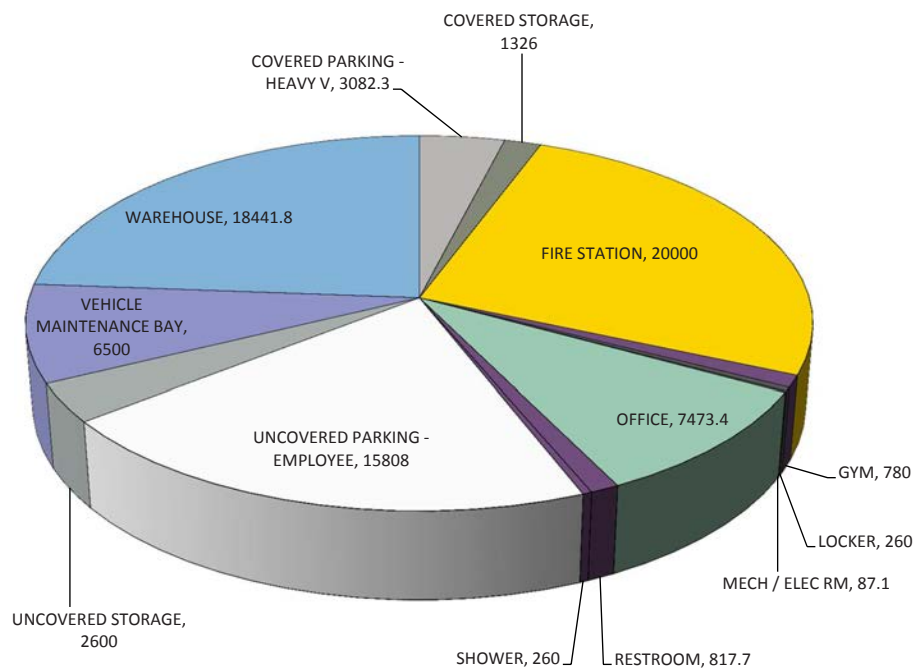


# MAUI FIRE DEPARTMENT (MFD)

## 2014 SPACE DISTRIBUTION



## 2040 PROJECTED SPACE DISTRIBUTION





## MAUI FIRE DEPARTMENT (MFD)

### GROWTH ANALYSIS

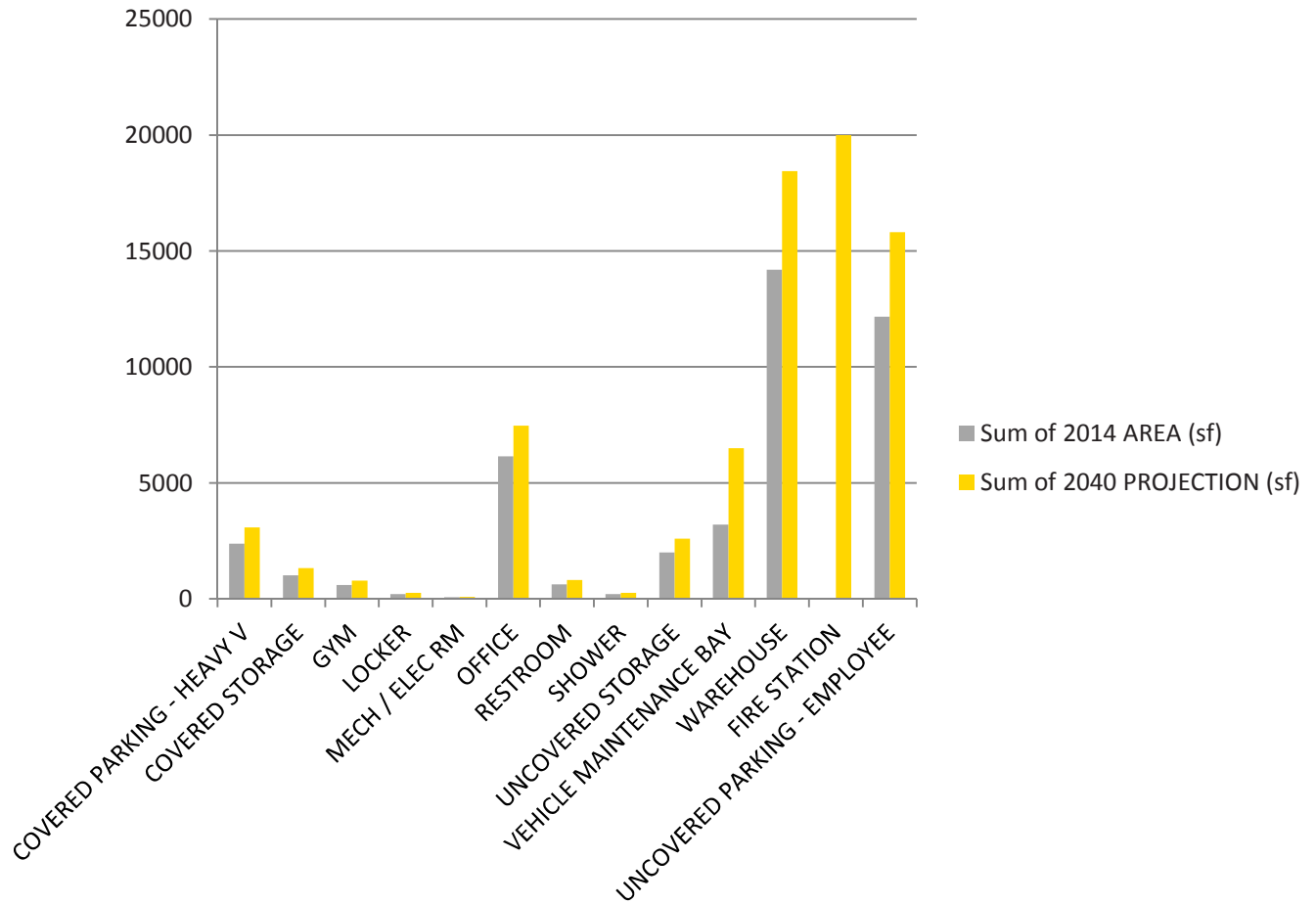
MFD SPACES	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)	% CHANGE
COVERED PARKING - HEAVY V	2371	3082	130%
COVERED STORAGE	1020	1326	130%
GYM	600	780	130%
LOCKER	200	260	130%
MECH / ELEC RM	67	87	130%
OFFICE	6148	7473	122%
RESTROOM	629	818	130%
SHOWER	200	260	130%
UNCOVERED STORAGE	2000	2600	130%
VEHICLE MAINTENANCE BAY	3200	6500	203%
WAREHOUSE	14186	18442	130%
FIRE STATION	0	20000	
UNCOVERED PARKING - EMPLOYEE	12160	15808	130%
<b>Grand Total</b>	<b>42781</b>	<b>77436</b>	<b>181%</b>





# MAUI FIRE DEPARTMENT (MFD)

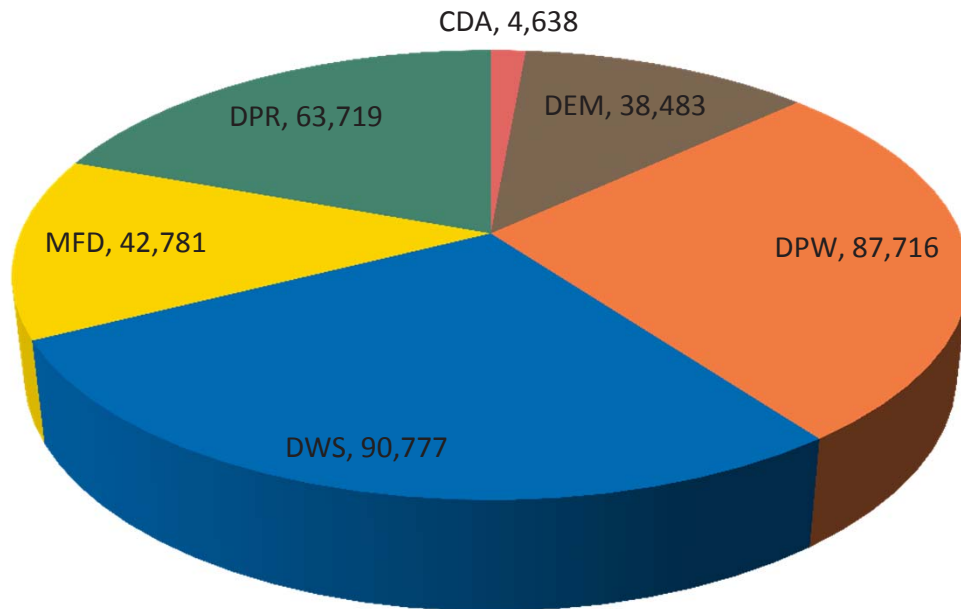
## GROWTH ANALYSIS



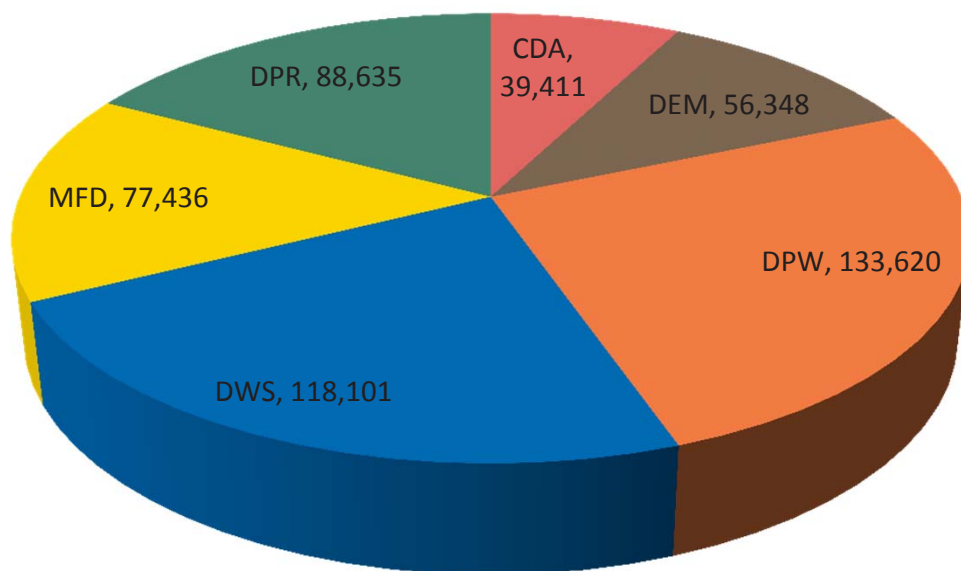


# OVERALL SPACE REQUIREMENTS BY DEPARTMENT

## EXISTING



## 2040 PROJECTION



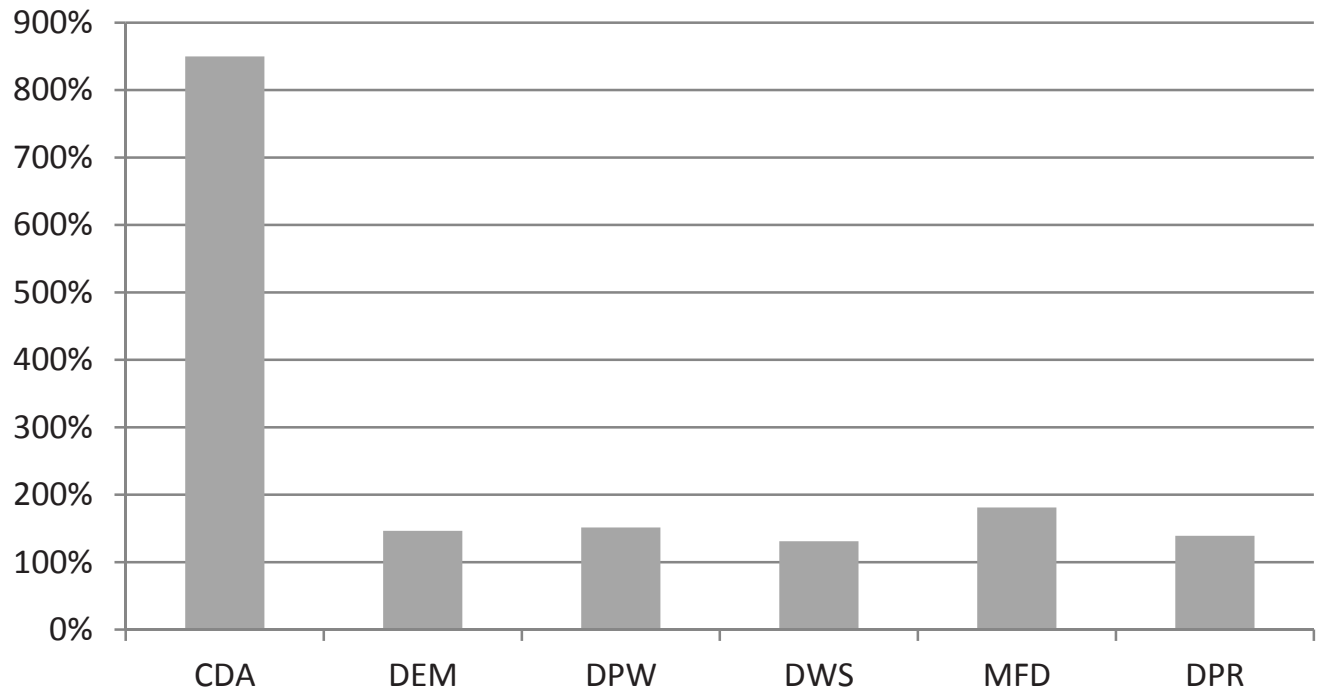


## OVERALL SPACE REQUIREMENTS BY DEPARTMENT

### GROWTH ANALYSIS BY DEPARTMENT

ALL DEPARTMENTS	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)	% CHANGE
CDA	4638	39411	850%
DEM	38483	56348	146%
DPW	83796	126851	151%
DWS	96412	126215	131%
MFD	42781	77436	181%
DPR	63719	88635	139%
<b>Grand Total</b>	<b>329829</b>	<b>514895</b>	<b>156%</b>

### GROWTH ANALYSIS BY PERCENT CHANGE

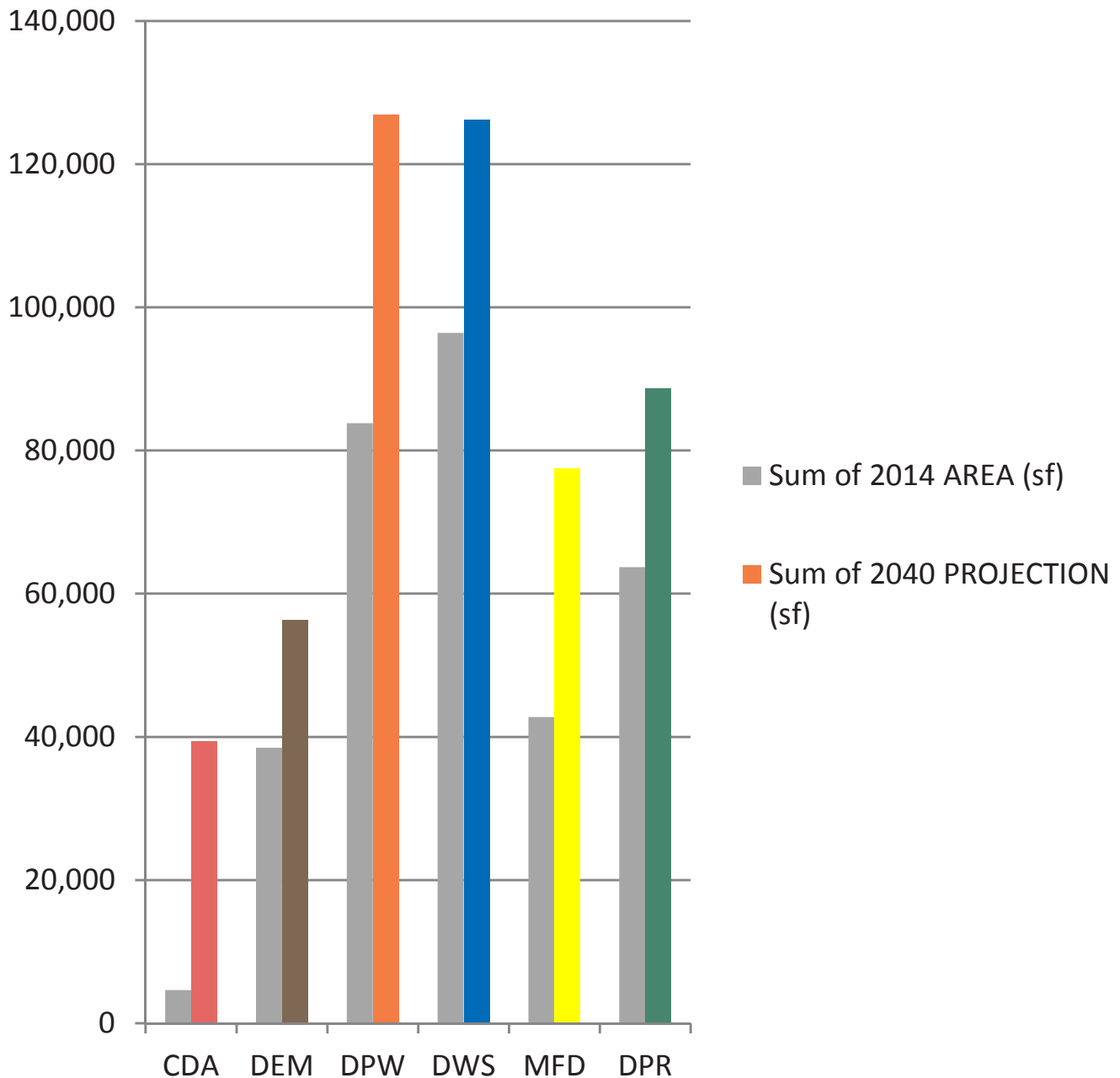






## OVERALL SPACE REQUIREMENTS BY DEPARTMENT

### GROWTH ANALYSIS BY DEPARTMENT



## 4. SPACE USE BY FUNCTION

This chapter will restate the 2040 projected total space requirements for the Waikapu Facility by functional category. The functional categories are:

1. Conference Room
2. Covered Parking - Heavy Vehicles
3. Covered Parking - Light Vehicles
4. Covered Storage
5. Document Storage
6. Emergency Management Center (EMC)
7. Fire Station\*
8. Fuel Pump
9. Gym
10. Horticulture
11. IT Room
12. Kitchen / Break Room
13. Laboratory
14. Locker
15. Mechanical / Electrical Room
16. Office
17. Restroom
18. Shower
19. Stockpile
20. Uncovered Parking - Employee
21. Uncovered Parking - Heavy Vehicles
22. Uncovered Parking - Light Vehicles
23. Uncovered Parking - Machinery
24. Uncovered Storage
25. Vehicle Maintenance Bay
26. Vehicle Paint Shop
27. Vehicle Wash\*
28. Warehouse
29. Workshop

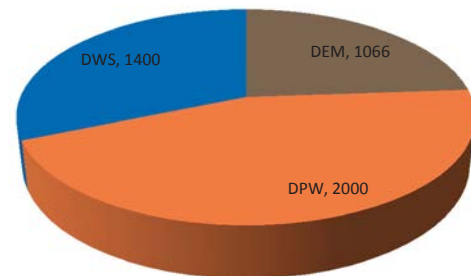
The space allotted to each department will be represented as a subset of the functional category totals. The areas will be represented in multiple formats which are intended to give the reader an understanding of the magnitude of the various spatial requirements relative to each other.

### DEPARTMENT KEY

- Civil Defense Agency (CDA)
- Department of Environmental Management (DEM)
- Department of Fire and Public Safety (MFD)
- Department of Parks and Recreation - Parks Maintenance Division (DPR)
- Maui Police Department (MPD)
- Department of Public Works (DPW)
- Department of Water Supply (DWS)

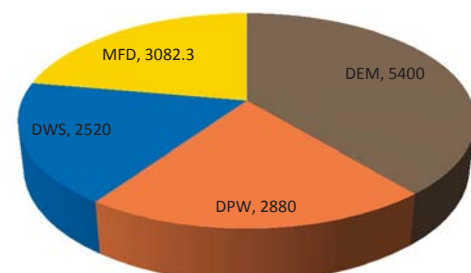
### 1. CONFERENCE ROOM - 2040

Total Square Feet: 4,466 sf

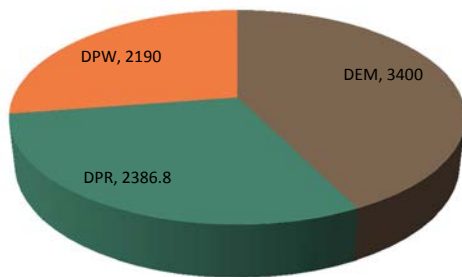


### 2. COVERED PARKING - HEAVY VEHICLES - 2040

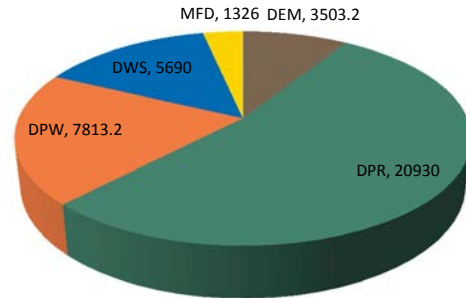
Total Square Feet: 13,882 sf



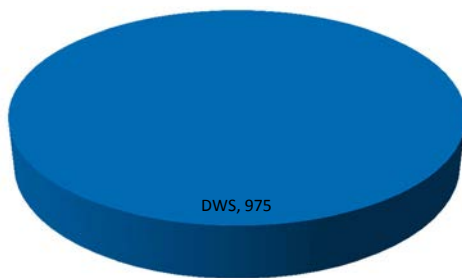
3. COVERED PARKING - LIGHT VEHICLES - 2040  
Total Square Feet: 7,977 sf



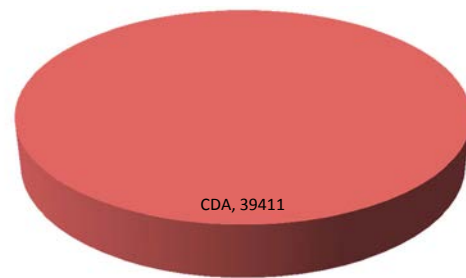
4. COVERED STORAGE - 2040  
Total Square Feet: 39,256 sf



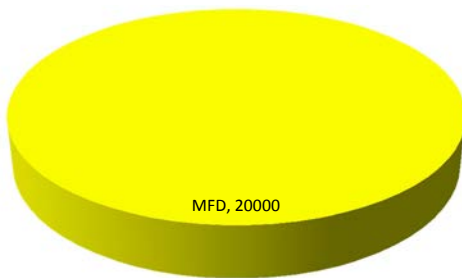
5. DOCUMENT STORAGE - 2040  
Total Square Feet: 975 sf



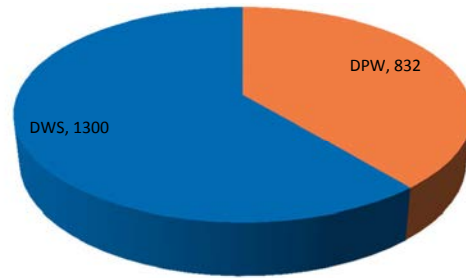
6. EMERGENCY MANAGEMENT CENTER (EMC) - 2040  
Total Square Feet: 39,411 sf



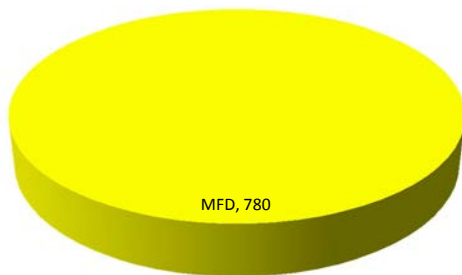
7. FIRE STATION - 2040  
Total Square Feet: 20,000 sf



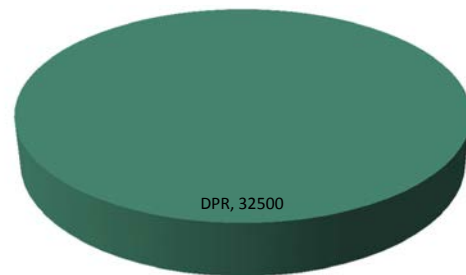
8. FUEL PUMP - 2040  
Total Square Feet: 2,132 sf



9. GYM - 2040  
Total Square Feet: 780 sf



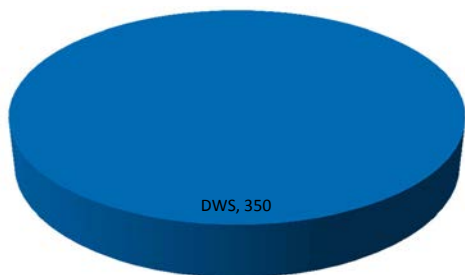
10. HORTICULTURE - 2040  
Total Square Feet: 32,500 sf





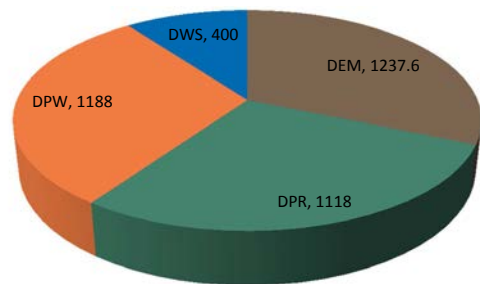
#### 11. IT ROOM - 2040

Total Square Feet: 350 sf



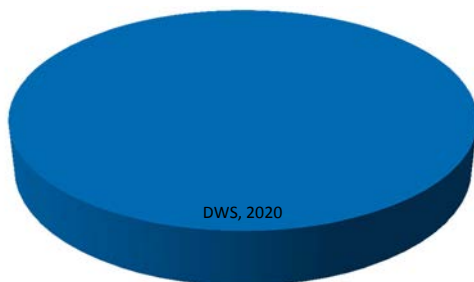
#### 12. KITCHEN / BREAK ROOM - 2040

Total Square Feet: 3,944 sf



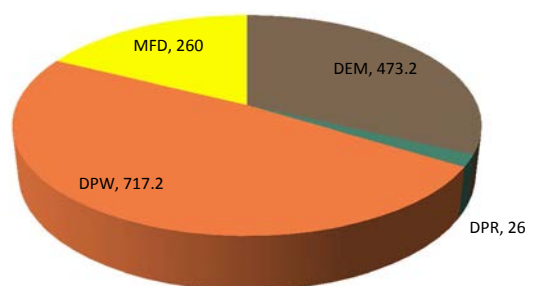
#### 13. LABORATORY - 2040

Total Square Feet: 2,020 sf



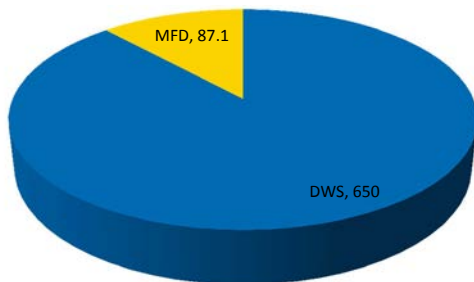
#### 14. LOCKER - 2040

Total Square Feet: 1,476 sf



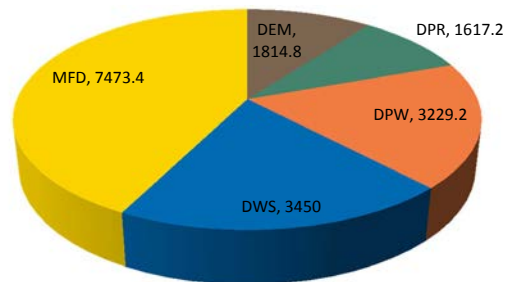
#### 15. MECHANICAL/ELECTRICAL ROOM - 2040

Total Square Feet: 737 sf



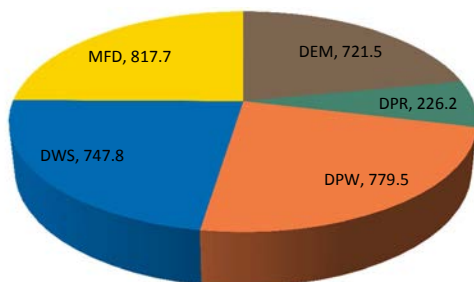
#### 16. OFFICE - 2040

Total Square Feet: 17,585 sf



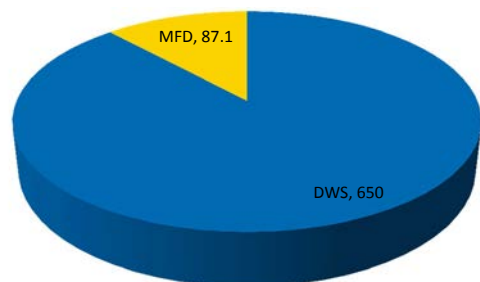
#### 17. RESTROOM - 2040

Total Square Feet: 3,293 sf

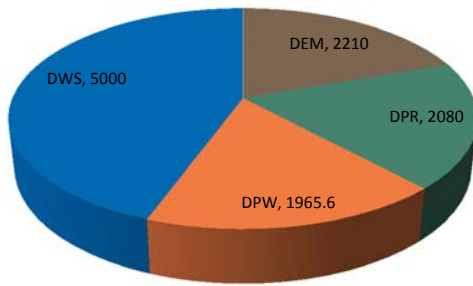


#### 18. SHOWER - 2040

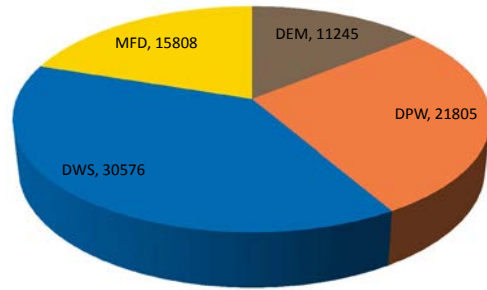
Total Square Feet: 414 sf



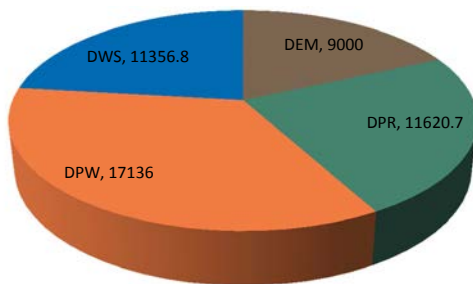
19. STOCKPILE - 2040  
Total Square Feet: 11,256 sf



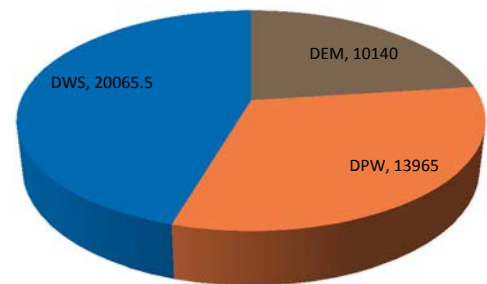
20. UNCOVERED PARKING - EMPLOYEE - 2040  
Total Square Feet: 79,679 sf



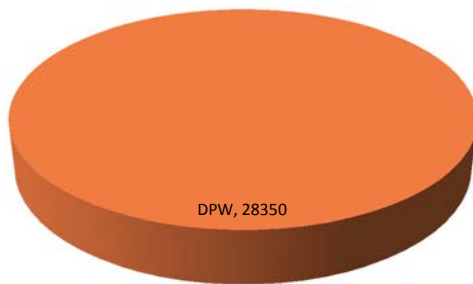
21. UNCOVERED PARKING - HEAVY VEHICLES - 2040  
Total Square Feet: 50,189 sf



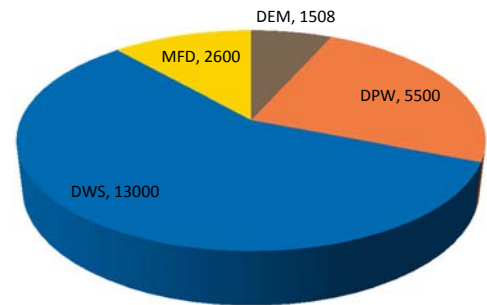
22. UNCOVERED PARKING - LIGHT VEHICLES - 2040  
Total Square Feet: 44,195 sf



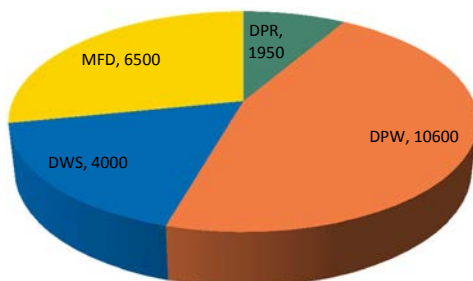
23. UNCOVERED PARKING - MACHINERY - 2040  
Total Square Feet: 28,350 sf



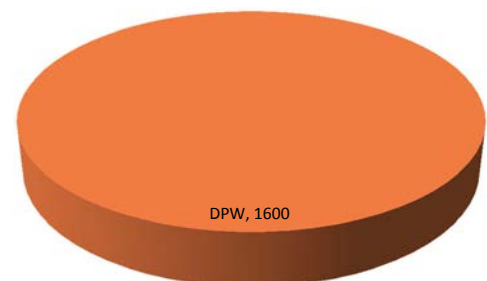
24. UNCOVERED STORAGE - 2040  
Total Square Feet: 22,608 sf



25. VEHICLE MAINTENANCE BAY - 2040  
Total Square Feet: 23,050 sf

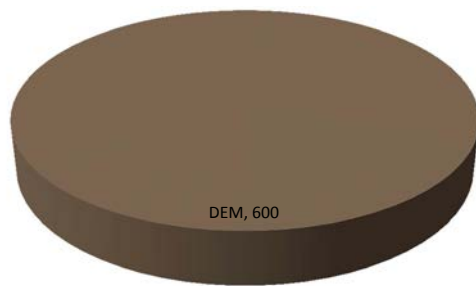


26. VEHICLE PAINT SHOP - 2040  
Total Square Feet: 600 sf



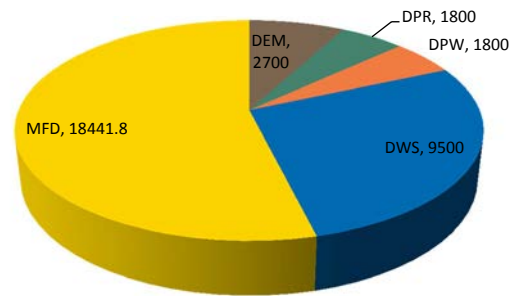
#### 27. VEHICLE WASH - 2040

Total Square Feet: 600 sf



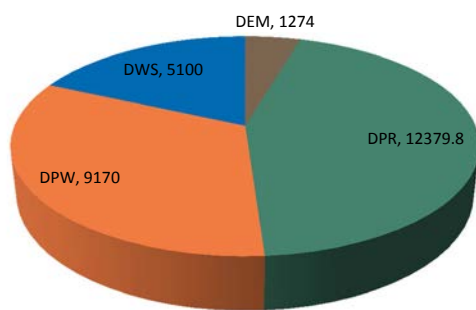
#### 28. WAREHOUSE - 2040

Total Square Feet: 34,242 sf



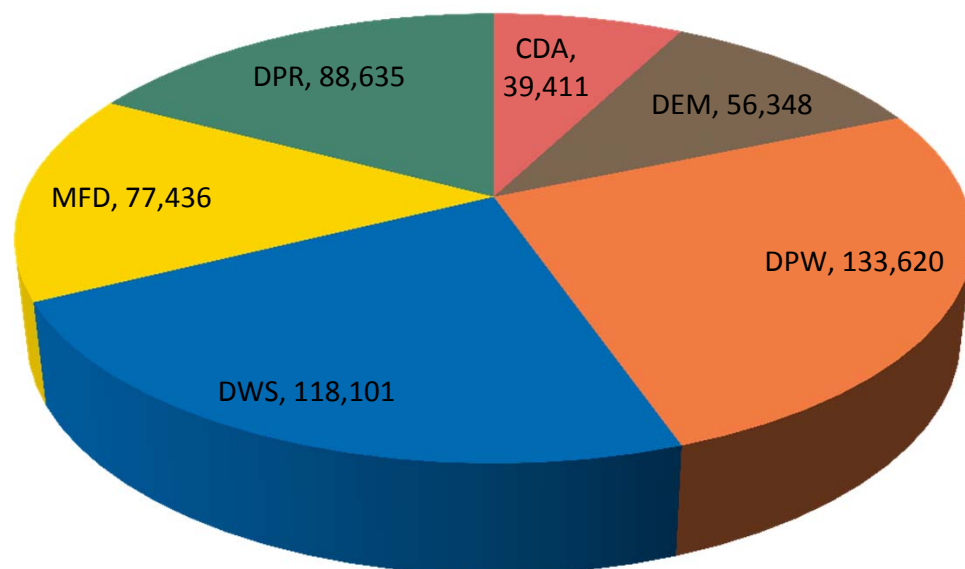
#### 29. WORKSHOP - 2040

Total Square Feet: 27,924 sf



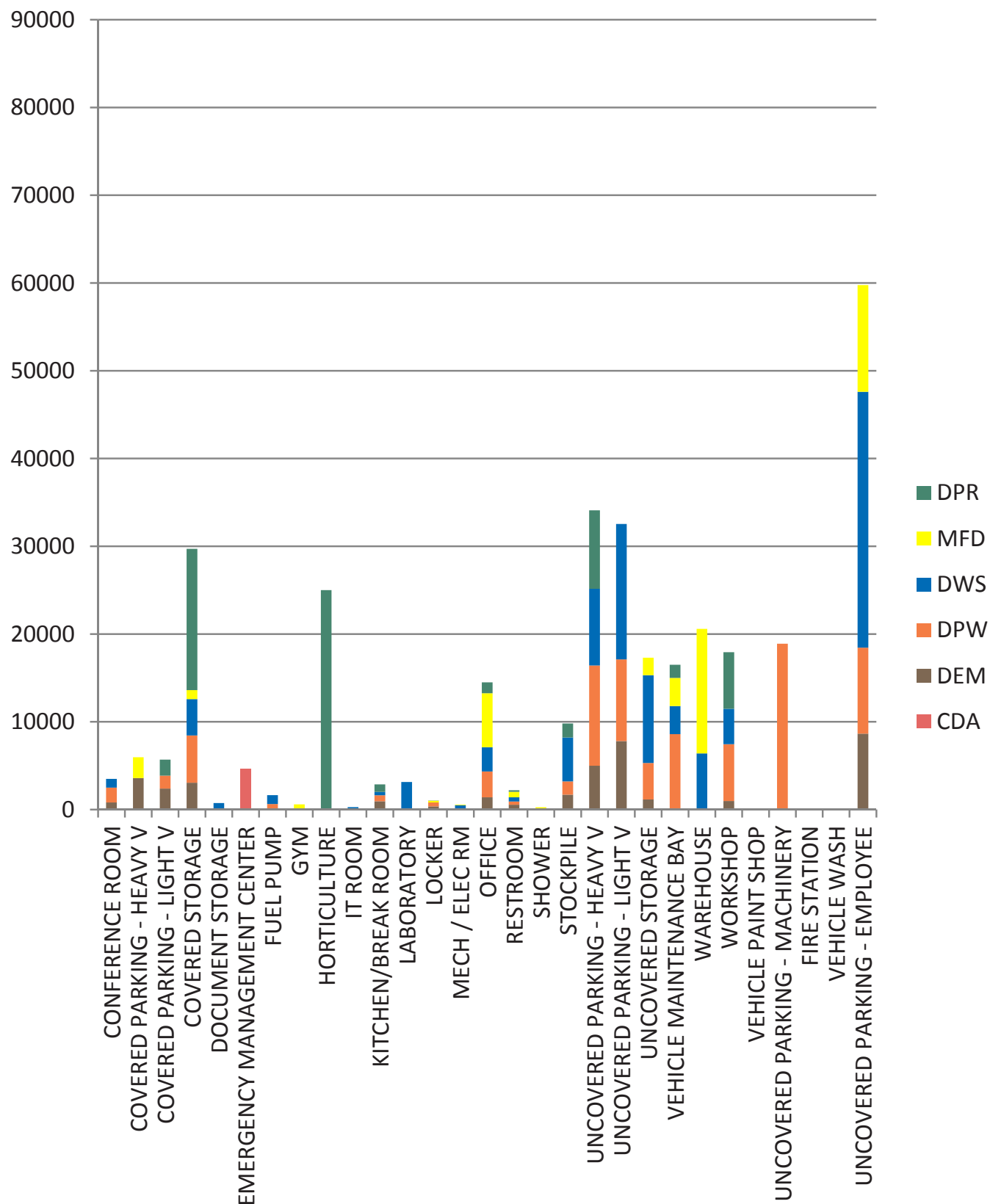
### OVERALL SUMMARY - 2040

Total Square Feet: 514,895 sf



# OVERALL SPACE USE BY FUNCTION

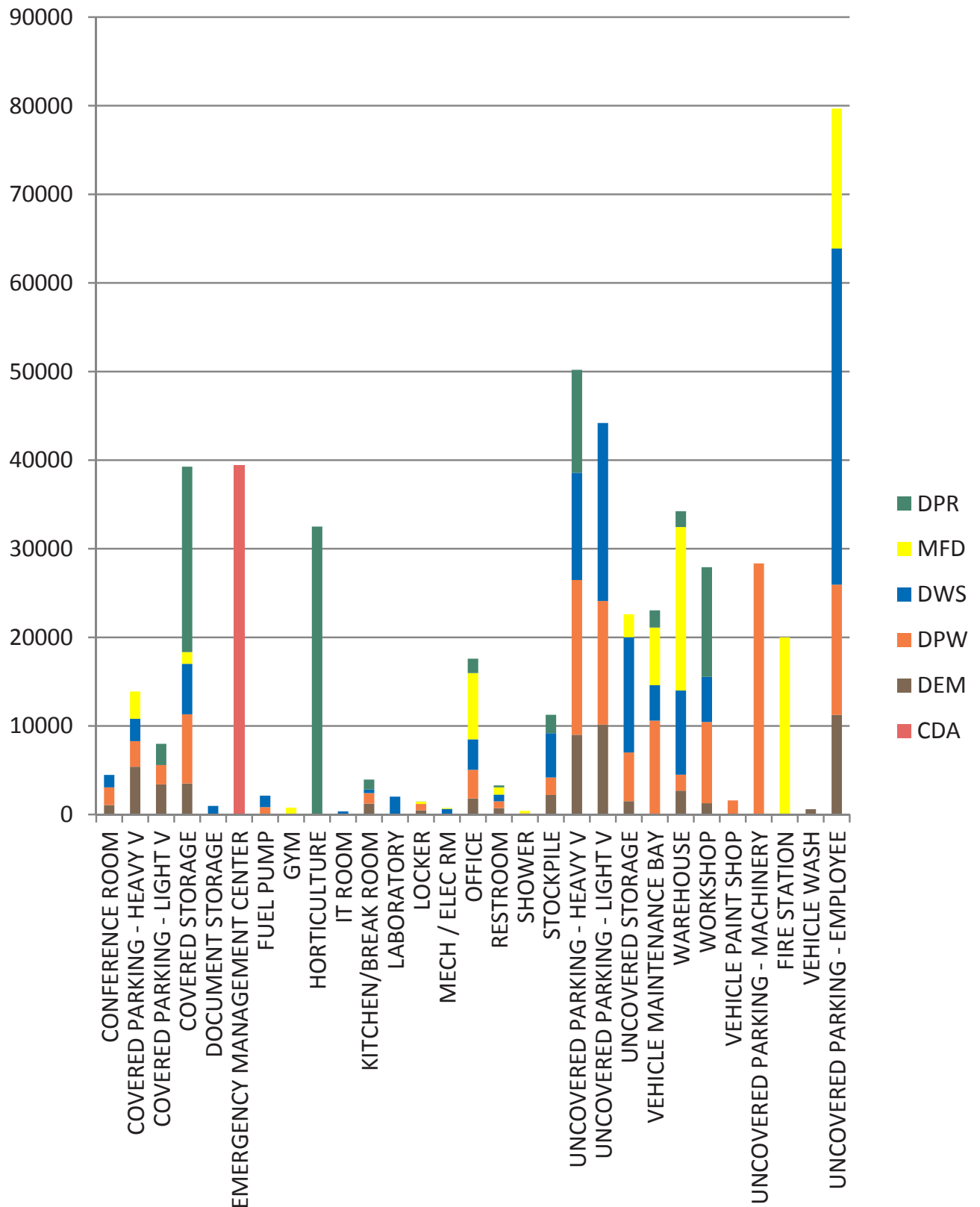
2014





# OVERALL SPACE USE BY FUNCTION

2040 PROJECTED



# OVERALL SPACE USE BY FUNCTION

2014

Functional Categories	CDA (sf)	DEM (sf)	DPW (sf)	DWS (sf)	MFD (sf)	DPR (sf)	Grand Total (sf)
CONFERENCE ROOM		820	1689	990			3499
COVERED PARKING - HEAVY V		3600	0	0	2371		5971
COVERED PARKING - LIGHT V		2400	1460			1836	5696
COVERED STORAGE		3064	5379	4150	1020	16100	29713
DOCUMENT STORAGE				750			750
EMERGENCY MANAGEMENT CENTER	4638						4638
FUEL PUMP			640	1000			1640
GYM					600		600
HORTICULTURE						25000	25000
IT ROOM				288			288
KITCHEN/BREAK ROOM		952	684	380		860	2876
LABORATORY				3150			3150
LOCKER		364	444		200	20	1028
MECH / ELEC RM				500	67		567
OFFICE		1396	2941	2768	6148	1244	14497
RESTROOM		555	363	480	629	174	2201
SHOWER		42	30		200		272
STOCKPILE		1700	1512	5000		1600	9812
UNCOVERED PARKING - HEAVY V		5000	11424	8736		8939	34099
UNCOVERED PARKING - LIGHT V		7800	9310	15435			32545
UNCOVERED STORAGE		1160	4150	10000	2000		17310
VEHICLE MAINTENANCE BAY			8600	3200	3200	1500	16500
WAREHOUSE		0	0	6400	14186	0	20586
WORKSHOP		980	6470	4030		6446	17926
VEHICLE PAINT SHOP			0				0
UNCOVERED PARKING - MACHINERY			18900				18900
FIRE STATION					0		0
VEHICLE WASH		0					0
UNCOVERED PARKING - EMPLOYEE		8650	9800	29155	12160		59765
<b>Grand Total</b>	<b>4638</b>	<b>38483</b>	<b>83796</b>	<b>96412</b>	<b>42781</b>	<b>63719</b>	<b>329829</b>

# OVERALL SPACE USE BY FUNCTION

## 2040 PROJECTED

Functional Catagories	CDA (sf)	DEM (sf)	DPW (sf)	DWS (sf)	MFD (sf)	DPR (sf)	Grand Total (sf)
CONFERENCE ROOM		1066	2000	1400			4466
COVERED PARKING - HEAVY V		5400	2880	2520	3082		13882
COVERED PARKING - LIGHT V		3400	2190			2387	7977
COVERED STORAGE		3503	7813	5690	1326	20930	39262
DOCUMENT STORAGE				975			975
EMERGENCY MANAGEMENT CENTER	39411						39411
FUEL PUMP			832	1300			2132
GYM					780		780
HORTICULTURE						32500	32500
IT ROOM				350			350
KITCHEN/BREAK ROOM		1238	1188	400		1118	3944
LABORATORY				2020			2020
LOCKER		473	717		260	26	1476
MECH / ELEC RM				650	87		737
OFFICE		1815	3229	3450	7473	1617	17585
RESTROOM		722	780	748	818	226	3293
SHOWER		55	99		260		414
STOCKPILE		2210	1966	5000		2080	11256
UNCOVERED PARKING - HEAVY V		9000	17472	12096		11621	50189
UNCOVERED PARKING - LIGHT V		10140	13965	20090			44195
UNCOVERED STORAGE		1508	5500	13000	2600		22608
VEHICLE MAINTENANCE BAY			10600	4000	6500	1950	23050
WAREHOUSE		2700	1800	9500	18442	1800	34242
WORKSHOP		1274	9170	5100		12380	27924
VEHICLE PAINT SHOP			1600				1600
UNCOVERED PARKING - MACHINERY			28350				28350
FIRE STATION					20000		20000
VEHICLE WASH		600					600
UNCOVERED PARKING - EMPLOYEE		11245	14700	37926	15808		79679
<b>Grand Total</b>	<b>39411</b>	<b>56348</b>	<b>126851</b>	<b>126215</b>	<b>77436</b>	<b>88635</b>	<b>514895</b>

# PROJECTED SPACE USE BY FUNCTION

## GROWTH ANALYSIS BY FUNCTION

Functional Categories by All Departments	Sum of 2014 AREA (sf)	Sum of 2040 PROJECTION (sf)	% CHANGE
CONFERENCE ROOM	3499	4466	128%
COVERED PARKING - HEAVY V	5971	13882	232%
COVERED PARKING - LIGHT V	5696	7977	140%
COVERED STORAGE	29713	39262	132%
DOCUMENT STORAGE	750	975	130%
EMERGENCY MANAGEMENT CENTER	4638	39411	850%
FIRE STATION	0	20000	0%
FUEL PUMP	1640	2132	
GYM	600	780	130%
HORTICULTURE	25000	32500	130%
IT ROOM	288	350	122%
KITCHEN/BREAK ROOM	2876	3944	137%
LABORATORY	3150	2020	64%
LOCKER	1028	1476	144%
MECH / ELEC RM	567	737	130%
OFFICE	14497	17585	121%
RESTROOM	2201	3293	150%
SHOWER	272	414	152%
STOCKPILE	9812	11256	115%
UNCOVERED PARKING - HEAVY V	34099	50189	147%
UNCOVERED PARKING - LIGHT V	32545	44195	136%
UNCOVERED PARKING - MACHINERY	18900	28350	150%
UNCOVERED STORAGE	17310	22608	131%
VEHICLE MAINTENANCE BAY	16500	23050	140%
VEHICLE PAINT SHOP	0	1600	0%
VEHICLE WASH	0	600	
WAREHOUSE	20586	34242	
WORKSHOP	17926	27924	156%
UNCOVERED PARKING - EMPLOYEE	59765	79679	133%
<b>Grand Total</b>	<b>329829</b>	<b>514895</b>	<b>156%</b>



## 5. CONSOLIDATION PLANNING

The data collected on the 2040 projected space needs addresses all the departments and their divisions as a whole. To further refine the information, the various spaces needed were assigned to specific areas within the Waikapu facility. The assigned areas are follows:

1. Admin. Office
2. Emergency Management Center (CDA)
3. Vehicle Maintenance
4. Waikapu Fire Station (MFD)
5. Warehouse
6. DWS Yard
7. DPW Yard
8. DEM Yard
9. MFD Vehicle Maintenance
10. MFD Warehouse
11. MFD Yard
12. MFD Admin. Office
13. DPR Yard

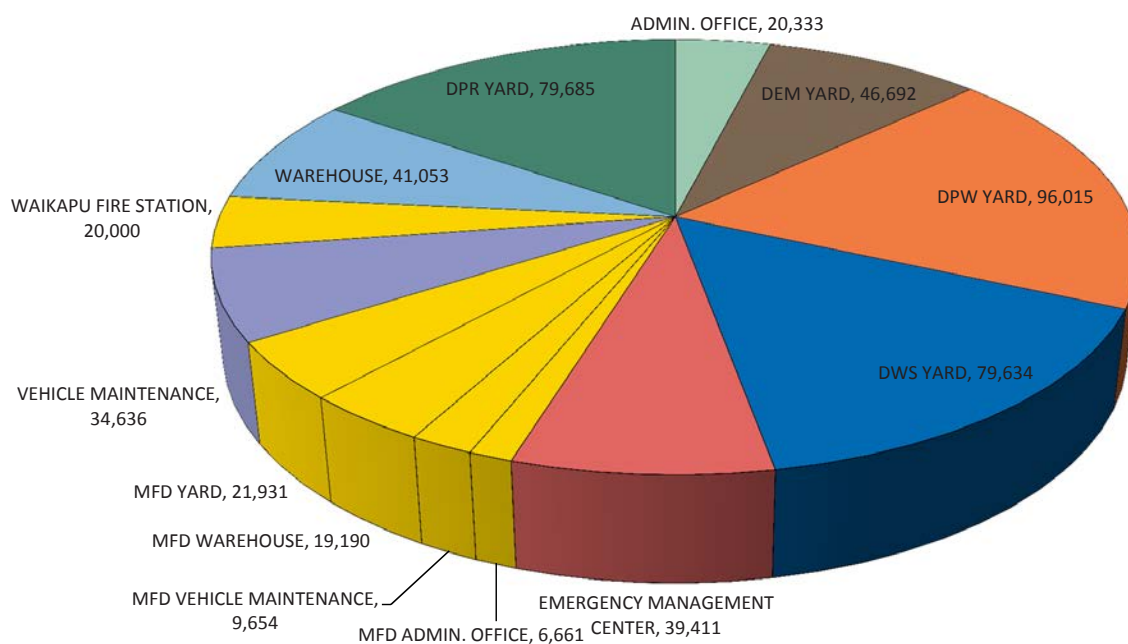
These areas were developed by working closely with County of Maui staff to understand the areas of greatest inefficiency and operational challenges

County departments currently face. Although only one assignment of spaces is represented here, many different possible space arrangements were considered. For more information, please refer to Appendix E.

The proposed strategy provides each department with a separate yard area specific to their operational needs. Additionally, three consolidated areas have been introduced. The consolidated areas are:

- Admin. Office
- Warehouse
- Vehicle Maintenance

Each of these consolidated areas were driven by different issues. The Admin. Office will provide space and maintenance efficiencies for all departments and improve the overall quality of work space for County employees. The Warehouse will provide opportunities for enhanced inventory controls to reduce losses from disorganization and theft across all departments. The introduction of more modern inventory tracking technology will also



# CONSOLIDATION STRATEGIES

## 2040 PROJECTED SITE ORGANIZATION

2040 Consolidation Summary	Sum of 2040 PROJECTION (sf)	% of Total
ADMIN. OFFICE	20333	4%
DEM YARD	46692	9%
DPW YARD	96015	19%
DWS YARD	79634	15%
EMERGENCY MANAGEMENT CENTER	39411	8%
MFD ADMIN. OFFICE	6661	1%
MFD VEHICLE MAINTENANCE	9654	2%
MFD WAREHOUSE	19190	4%
MFD YARD	21931	4%
VEHICLE MAINTENANCE	34636	7%
WAIKAPU FIRE STATION	20000	4%
WAREHOUSE	41053	8%
DPR YARD	79685	15%
<b>Grand Total</b>	<b>514895</b>	

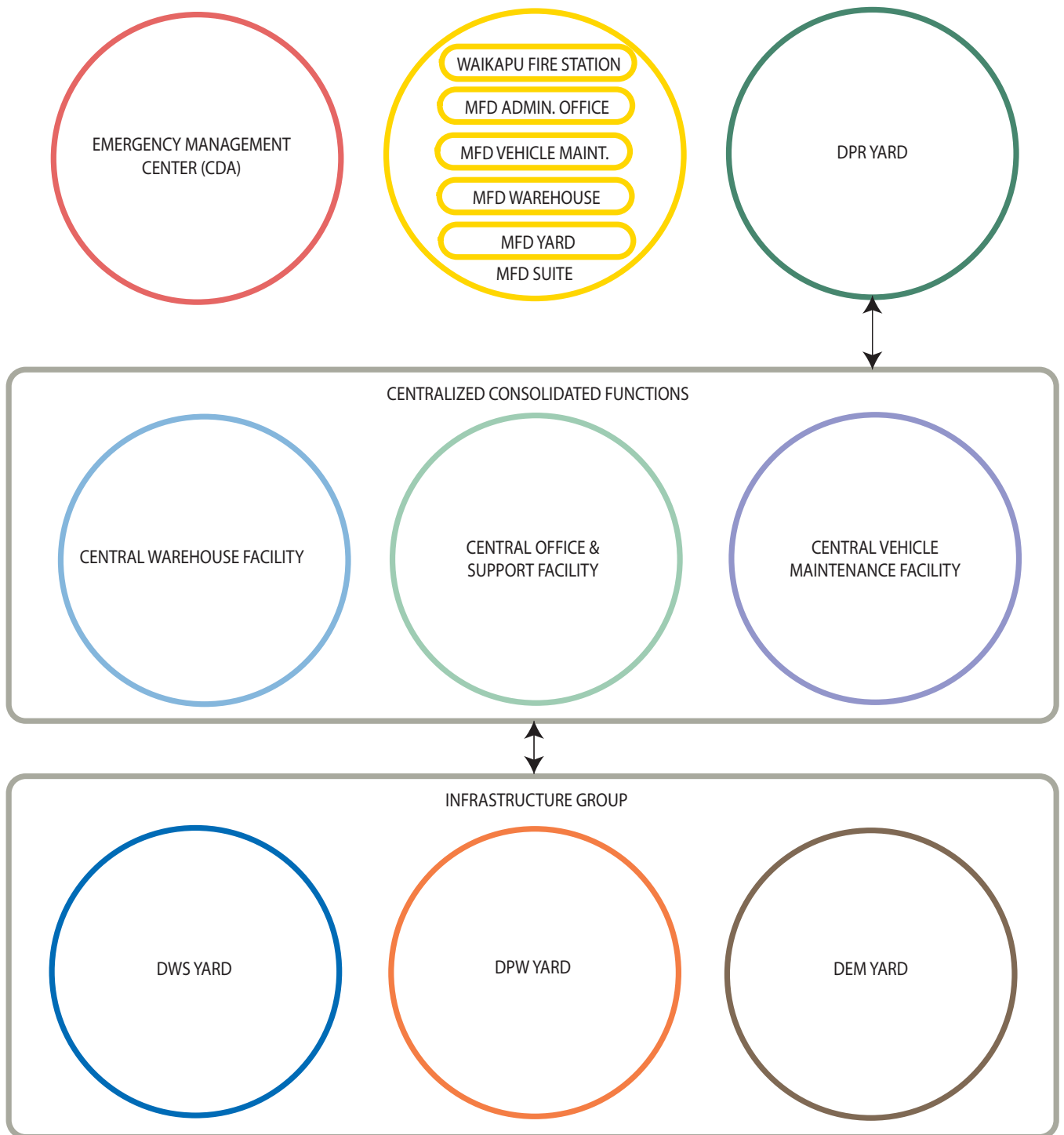
provide departments more accurate information on which parts need to be ordered to promote faster turnaround on task orders. Lastly, the consolidated Vehicle Maintenance area will create operational efficiencies for the County of Maui while generating a shared knowledge pool for difficult maintenance issues. The Vehicle Maintenance area could also be a stepping stone to a future pooled vehicles program for the County to make more efficient use of their vehicle inventory.

Most difficult of all the departments to be relocated to the Waikapu Facility is the Maui Fire Department. Due to the high priority of the functionality of MFD in emergency situations, the case has been made that the department is not appropriate for consolidation with other groups and should be maintained separately, especially in the case of the MFD Vehicle Maintenance group. For this reason MFD's various functional groups have been itemized for consolidation separately so the implications of their standalone status can be more readily understood. For example, the MFD Admin. Office 2040 Projected square footage is 6,661 sf, or nearly 25% the area of the Centralized Admin. Office. While from an efficiency perspective, consolidation would be logical

for both the MFD Admin. Office and the MFD Vehicle Maintenance groups and concerns over functionality currently limit the ability to maximize efficiencies. For the purpose of this report, MFD will be assumed to require a separate suite within the Waikapu facility.

# CONSOLIDATION STRATEGIES

## 2040 PROJECTED SITE ORGANIZATION



# CONSOLIDATION STRATEGIES

## DETAILED CONSOLIDATION BREAKDOWN

Functional Catagories	CDA (sf)	DEM (sf)	DPR (sf)	DPW (sf)	DWS (sf)	MFD (sf)	Grand Total (sf)
<b>ADMIN. OFFICE</b>		<b>4146</b>	<b>1040</b>	<b>3888</b>	<b>11260</b>		<b>20333</b>
CONFERENCE ROOM		520		1500	600		2620
COVERED STORAGE		832		150	120		1102
DOCUMENT STORAGE					975		975
IT ROOM					350		350
KITCHEN/BREAK ROOM		260		498	150		908
LABORATORY					2020		2020
MECH / ELEC RM					650		650
OFFICE		1131	1040	1590	760		4521
RESTROOM		423		150	245		817
UNCOVERED PARKING - EMPLOYEE		980			5390		6370
<b>EMERGENCY MANAGEMENT CENTER</b>	<b>39411</b>						<b>39411</b>
EMERGENCY MANAGEMENT CENTER	39411						39411
<b>VEHICLE MAINTENANCE</b>		<b>600</b>	<b>4030</b>	<b>23182</b>	<b>6824</b>		<b>34636</b>
CONFERENCE ROOM				500			500
COVERED STORAGE			2080	1981			4061
FUEL PUMP				832	1300		2132
OFFICE				380	250		630
RESTROOM				330			330
SHOWER				39			39
UNCOVERED STORAGE				4300			4300
VEHICLE MAINTENANCE BAY			1950	10600	4000		16550
VEHICLE PAINT SHOP				1600			1600
VEHICLE WASH		600					600
WORKSHOP				2620			2620
UNCOVERED PARKING - EMPLOYEE					1274		1274
<b>WAIKAPU FIRE STATION</b>						<b>20000</b>	<b>20000</b>
FIRE STATION						20000	20000



# CONSOLIDATION STRATEGIES

## DETAILED CONSOLIDATION BREAKDOWN

Functional Catagories	CDA (sf)	DEM (sf)	DPR (sf)	DPW (sf)	DWS (sf)	MFD (sf)	Grand Total (sf)
<b>WAREHOUSE</b>		<b>4910</b>	<b>3880</b>	<b>3766</b>	<b>28497</b>		<b>41053</b>
OFFICE					360		360
STOCKPILE		2210	2080	1966	5000		11256
UNCOVERED STORAGE					13000		13000
WAREHOUSE		2700	1800	1800	9500		15800
UNCOVERED PARKING - EMPLOYEE					637		637
<b>DWS YARD</b>					<b>79634</b>		<b>79634</b>
CONFERENCE ROOM					800		800
COVERED PARKING - HEAVY V					2520		2520
COVERED STORAGE					5570		5570
KITCHEN/BREAK ROOM					250		250
OFFICE					2080		2080
RESTROOM					503		503
UNCOVERED PARKING - HEAVY V					12096		12096
UNCOVERED PARKING - LIGHT V					20090		20090
WORKSHOP					5100		5100
UNCOVERED PARKING - EMPLOYEE					30625		30625
<b>DPW YARD</b>				<b>96015</b>			<b>96015</b>
COVERED PARKING - HEAVY V				2880			2880
COVERED PARKING - LIGHT V				2190			2190
COVERED STORAGE				5682			5682
KITCHEN/BREAK ROOM				690			690
LOCKER				717			717
OFFICE				1259			1259
RESTROOM				300			300
SHOWER				60			60
UNCOVERED PARKING - HEAVY V				17472			17472

# CONSOLIDATION STRATEGIES

## DETAILED CONSOLIDATION BREAKDOWN

DPW Continued

Functional Categories	CDA (sf)	DEM (sf)	DPR (sf)	DPW (sf)	DWS (sf)	MFD (sf)	Grand Total (sf)
UNCOVERED PARKING - LIGHT V				13965			13965
UNCOVERED PARKING - MACHINERY				28350			28350
UNCOVERED STORAGE				1200			1200
WORKSHOP				6550			6550
UNCOVERED PARKING - EMPLOYEE				14700			14700
<b>DEM YARD</b>		<b>46692</b>					<b>46692</b>
CONFERENCE ROOM		546					546
COVERED PARKING - HEAVY V		5400					5400
COVERED PARKING - LIGHT V		3400					3400
COVERED STORAGE		2671					2671
KITCHEN/BREAK ROOM		978					978
LOCKER		473					473
OFFICE		684					684
RESTROOM		299					299
SHOWER		55					55
UNCOVERED PARKING - HEAVY V		9000					9000
UNCOVERED PARKING - LIGHT V		10140					10140
UNCOVERED STORAGE		1508					1508
WORKSHOP		1274					1274
UNCOVERED PARKING - EMPLOYEE		10265					10265
<b>MFD VEHICLE MAINTENANCE</b>						<b>9654</b>	<b>9654</b>
COVERED STORAGE						1326	1326
OFFICE						736	736
RESTROOM						78	78
VEHICLE MAINTENANCE BAY						6500	6500
WAREHOUSE						1014	1014

# CONSOLIDATION STRATEGIES

## DETAILED CONSOLIDATION BREAKDOWN

Functional Catagories	CDA (sf)	DEM (sf)	DPR (sf)	DPW (sf)	DWS (sf)	MFD (sf)	Grand Total (sf)
UNCOVERED PARKING - EMPLOYEE							
<b>MFD WAREHOUSE</b>						<b>19190</b>	<b>19190</b>
OFFICE						300	300
WAREHOUSE						3082	3082
UNCOVERED PARKING - EMPLOYEE						15808	15808
<b>MFD YARD</b>						<b>21931</b>	<b>21931</b>
COVERED PARKING - HEAVY V						3082	3082
GYM						780	780
LOCKER						260	260
RESTROOM						603	603
SHOWER						260	260
UNCOVERED STORAGE						2600	2600
WAREHOUSE						14346	14346
<b>MFD ADMIN. OFFICE</b>						<b>6661</b>	<b>6661</b>
MECH / ELEC RM						87	87
OFFICE						6438	6438
RESTROOM						137	137
UNCOVERED PARKING - EMPLOYEE							
<b>DPR YARD</b>			<b>79685</b>				<b>79685</b>
COVERED PARKING - LIGHT V			2387				2387
COVERED STORAGE			18850				18850
HORTICULTURE			32500				32500
KITCHEN/BREAK ROOM			1118				1118
LOCKER			26				26
OFFICE			577				577
RESTROOM			226				226
UNCOVERED PARKING - HEAVY V			11621				11621
WORKSHOP			12380				12380

# CONSOLIDATION STRATEGIES

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## AREA REVIEW & STRATEGIC EFFICIENCIES

Through the previous Chapters the needs of the various facilities have been quantified by function for the design year 2040 when they are considered to be independently functioning and using their current operations. The projections were based on growth estimates from the County of Maui where provided, and where not provided a standard 30% growth factor was applied. In this chapter those numbers will be re-examined to see where efficiencies of co-location may in some cases decrease the square footage required. Where possible, the projected 2040 square footages will be back-checked using employee & vehicle growth projections provided from the County of Maui and industry standard grossing factors for different space types. A summary of the “reconciled 2040” square footages is available on the last page of this Chapter. The “reconciled 2040” square footages will be used for design and cost exercises moving forward.

### 1. Conference Room

The 2040 projected Conference Room square footage for the Waikapu Base Yard is 4,466 sf. The new facility will provide a variety of conference and training rooms in a shared suite accessible to all departments, as well as individual departmental conference rooms as needed. An Online reservation system is recommended to be implemented via the Internet or other electronic medium for user convenience. This is in-line with national trends for conference space reservation<sup>1</sup>. Given the deficit of existing conference and training space, it may be reasonable that the end numbers do not reflect a decrease in total square footage, only an efficiency in how often those spaces are used. The projected employee count for users who may be sharing the Conference Room space type is 312 employees (EMC employees excluded). The referenced space standard indicates 26.95 sf/occupant is a reasonable planning benchmark, which would equate to 8,408 sf. We thereby anticipate the 2040 projection is inadequate and should be increased to 8,408 sf.

### 2. Covered Parking - Heavy Vehicles

The 2040 projected Covered Parking - Heavy Vehicles square footage for the Waikapu Base Yard is 13,882 sf. The new facility will provide covered parking for machinery and heavy vehicles on a priority basis. Adequate covered parking will extend the life of County equipment and reduce maintenance demands on existing staff. It is unlikely that co-location of covered parking will allow for a reduction in overall covered parking area because the equipment count will remain unchanged and hours of use are primarily overlapping. Given a total of 13 large vehicles assigned to the Covered Parking - Heavy Vehicles category, we would expect to see a total of 4,690 sf assigned to this category (Refer to Parking Area Verification table, page 107). However, it is likely that all intended vehicles were not included in the data analysis. In general, new and specialized equipment/vehicles are desired to have covered parking to help extend their service life. Therefore we will use the larger number, 13,882 sf to be conservative for the purposes of the report.

### 3. Covered Parking - Light Vehicles

The 2040 projected Covered Parking - Light Vehicles square footage for the Waikapu Base Yard is 7,977 sf. The new facility will provide covered parking for light vehicles on a priority basis. It is unlikely that co-location of covered parking will allow for a reduction in overall covered parking area because the equipment count will remain unchanged and hours of use are primarily overlapping. Given a total of 33 large vehicles assigned to the Covered Parking - Light Vehicles category, we would expect to see a total of 5,346 sf assigned to this category. However, it is likely that all intended vehicles were not included in the data analysis. In general, new and more light vehicles are desired to have covered parking to help extend their service life. Therefore we will use the larger number, 7,977 sf to be conservative for the purposes of the report.

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<sup>1</sup> Epstein, S. F. *Space and Project Management Benchmarks*, IFMA Research Report #34, 2010, pg 37



Employee Count by Function			
#	Function	Full Time Employees	
		2014	2040
1	Conference Room	23	30
2	Covered Parking - Heavy Vehicles	-	-
3	Covered Parking - Light Vehicles	-	-
4	Covered Storage	-	-
5	Document Storage	-	-
6	Emergency Management Center (EMC)*	0	0/70/200*
7	Fire Station	-	-
8	Fuel Pump	-	-
9	Gym	-	-
10	Horticulture	-	-
11	IT Room	1	2
12	Kitchen / Break Room	19	13
13	Laboratory	5	7
14	Locker	45	22
15	Mechanical / Electrical Room	-	-
16	Office	66	92
17	Restroom	-	-
18	Shower	-	-
19	Stockpile	-	-
20	Uncovered Parking - Employee	-	-
21	Uncovered Parking - Heavy Vehicles	-	-
22	Uncovered Parking - Light Vehicles	-	-
23	Uncovered Parking - Machinery	-	-
24	Uncovered Storage	-	-
25	Vehicle Maintenance Bay	16	21
26	Vehicle Paint Shop	-	-
27	Vehicle Wash	-	-
28	Warehouse	-	-
29	Workshop	53	54
	<b>Total</b>	<b>228</b>	<b>312</b>

*\*The Emergency Management Center has been conceptually designed under a previous report which included 70 full time employees and 200 occupants during emergency situations. The Emergency Management Center is not anticipated to have any functions consolidated with the base yard so its employee count is listed as 0 for the purpose of our analysis.*

Referenced Space Standards for Data Verification			
#	Function	Space Standard	Source/Methodology
1	Conference Room	26.95 sf/occupant	Headquarter Conference/Training space allocated per person. Epstein, S. F. Space and Project Management Benchmarks, IFMA Research Report #34, 2010, pg 38.
2-3	Covered Parking	Refer to Parking Area Verification Table	
12	Kitchen / Break Room	12.53 sf/occupant	Headquarter Amenity Space allocated per person for cafeteria/food service and oasis combined. Epstein, S. F. Space and Project Management Benchmarks, IFMA Research Report #34, 2010, pg 40.
13	Laboratory	396 sf/occupant	Mean assignable area for Research facility use. Epstein, S. F. Space and Project Management Benchmarks, IFMA Research Report #34, 2010, pg 29.
15	Mechanical / Electrical Room	7%  (4% floor space for air handling equipment, 1% building space for HVAC plant, assumed 2% for electrical room because it is not specified)	5.7 Arrangement of Mechanical Spaces, GSA 2003 Facilities Standards (P100). <a href="http://www.gsa.gov/portal/content/101232">http://www.gsa.gov/portal/content/101232</a>
16	Office	121 sf/occupant  (no grossing factor applied)	City/County Office Size by Industry average of all types of workers space allocations. Epstein, S. F. Space and Project Management Benchmarks, IFMA Research Report #34, 2010, pg 35.
17	Restroom	+/-64 sf per 2,500 sf (Business occupancy) or 10,000 sf (Industrial)	Designer's conservative interpretation of 2006 International Building Code and 2006 International Plumbing Code.
20-23	Uncovered Parking	Refer to Parking Area Verification Table	
25	Vehicle Maintenance Bay	Refer to Vehicle Maintenance Bay Verification Table	
28	Warehouse	614 sf/occupant	Mean assignable area for Warehouse facility use. Epstein, S. F. Space and Project Management Benchmarks, IFMA Research Report #34, 2010, pg 29.
29	Workshop	401 sf/occupant	Mean assignable area for Manufacturing facility use. Epstein, S. F. Space and Project Management Benchmarks, IFMA Research Report #34, 2010, pg 29.

On space standards: Many Federal, State and local government agencies and private entities have created standards. For the purposes of this document a number of space standards were evaluated including the General Services Administration (GSA), Department of Veterans Affairs (VA), Department of Defense (DoD), etc. The International Facilities Management Association and prevailing local building codes were also investigated. The standards selected for back-checking this document were selected for their applicability to the County of Maui's operational needs.

#### 4. Covered Storage

The 2040 projected Covered Storage square footage is 39,262 sf. Due to the varying nature of storage requirements throughout the existing departments, there is not a square footage standard that will provide an appropriate back-check of the previous chapter's projected space needs.

#### 5. Document Storage

The 2040 projected Document Storage square footage is 975 sf. This only includes indoor climate controlled storage for all County departments. The existing document storage containers, offices, and other covered storage areas will remain within each department yard. Since document storage practices vary wildly, there is not a square footage standard that will provide an appropriate back-check of the previous chapter's projected space needs.

#### 6. Emergency Management Center (EMC)

The 2040 projected Emergency Management Center (EMC) square footage is 39,411 sf per a previously completed study. The overall site area is 6 acres. Using the projected employee count for users who may be sharing that space type of 70 full time employees and 200 occupants during emergency operations, the planning team assumes the 2040 projection is adequate and appropriate.

#### 7. Fire Station

The Waikapu Fire Station is estimated at 20,000

sf. At this time, details on staffing, truck quantities, or other specifics are unavailable to further verify square footages.

#### 8. Fuel Pump

The 2040 projected Fuel Pump area is 2132 sf. This area will have to be examined in greater detail at the site planning level to account for proper vehicle circulation.

#### 9. Gym

The 2040 projected Gym area is estimated at 780 sf. Because the gym area is of exclusive use by an unknown quantity of Fire Department personnel, further evaluation of its adequacy is not possible.

#### 10. Horticulture

The 2040 projected Horticulture area is 32,500. This is the estimated area needed to take care of the new, adjacent 209 acre park, based off the area required for care-taking of other major County parks. Existing nursery operations at other locations may be consolidated to this site. This will create a centralized nursery to serve all county parks and facilities across the island

#### 11. IT Room

The 2040 projected IT room area is 350 sf. We presume this area is low, as only DWS has documented IT spaces when in reality any department with a server should have one. The planning team assumes that each major office area would have a

2040 Parking Area Verification						
	Type	Number of Vehicles	Dimension <sup>1</sup>	SF each <sup>2</sup>	Total SF	Total SF w/ Drive Aisles (x1.6)
Covered	Standard	33	9'-0" x 18'-0"	162	5346	No interior drive
	Large	13	12'-0" x 30'-0"	360	4680	No interior drive
	X-Large	0	20'-0" x 55'-0"	1100	0	No interior drive
Uncovered	Employee	294	9'-0" x 18'-0"	162	47628	76,205
	Standard	152	9'-0" x 18'-0"	162	24624	39,398
	Large	86	12'-0" x 30'-0"	360	30960	49,536
	X-Large	0	20'-0" x 55'-0"	1100	0	0
	Total	578				

Notes:

1 Standard stall dimensions are taken from the Maui County, Hawaii, Code of Ordinances (Chapter 19). Large stall dimensions are not present in the aforementioned document and are based instead off the largest loading stall from The Revised Ordinances of Honolulu (Chapter 21 Land Use Ordinance). 2 Circulation is not provided for parking areas as it is assumed circulation area will fall under general site circulation and will be determined by a grossing factor subsequently.

battery backup room, and server room. Additionally, it anticipates some space will be needed for security and CCTV equipment. Given the consolidated office area and separate MFD offices, we assume two and a half times the IT space will be required, or 875 sf total.

## **12. Kitchen / Break Room**

The 2040 projected Kitchen / Break Room square footage is 3,944 sf. The new facility will provide a shared Kitchen / Break Room for all departments in the central office facility with satellite break rooms where appropriate. Cafeteria style amenities will be possible at the central break room, as well as doubling as training and conferencing space. The anticipated 2040 employee count is 312 employees. Given a standard of 12.53 square feet per occupant, a total of 3,909 sf would be required. Therefore the 2040 projected square footage need of 3,944 is adequate and appropriate.

## **13. Laboratory**

The 2040 projected Laboratory square footage for the Waikapu Base Yard is 2,020 sf. The new facility will provide Laboratory space for the Department of Water Supply only. Using the projected employee count for users who may be sharing that space type of 12 employees, we find that each employee would have 168 sf of work area. The space standard referenced indicates an average work area of 396 sf per occupant for a total of 4,752 sf. However, the 2040 projected needs estimate came directly from DWS and represents a reduction in overall space. We anticipate the 2040 projection is adequate and appropriate.

## **14. Locker**

The 2040 projected Locker square footage is 1,476 sf. The new facility will provide a Locker Room for all department yards. The anticipated 2040 employee count is 312 employees. Assuming each employee receives a 12" wide, full height locker, we anticipate a need of 5 sf per employee. Therefore, a total of 1,560 sf of Lockers would be required.

## **15. Mechanical / Electrical Room**

The 2040 projected Mechanical / Electrical Room square footage is 737 sf. Using a factor of 5 sf Mechanical Room per 100 SF of air conditioned building, the 36,179 sf of conditioned facility (sum of

all 2040 projected areas anticipated to be conditioned including conference rooms, offices, break rooms, etc). would require 1,808 sf of Mechanical Room. Additionally, using a factor of 2 sf of Electrical Room per 100 sf of building, we anticipate the approximately 164,112 sf of building would require 3,282 sf of Electrical Room. Therefore, the total Mechanical / Electrical Room requirements for the facility should be approximately 5,090 sf.

## **16. Office**

The 2040 projected Office square footage for the Waikapu Base Yard is 17,585 sf. Using the space standard of 121 sf per occupant and projected employee count for office space of 92 employees, we anticipate a need of 11,132 sf of Office space. We anticipate the 2040 projection is high, as it does not account for the efficiencies that can be realized through shared support areas such as copy/print areas and storage, open floor plans and more judicious allocation of private offices. However, to remain conservative in our approach to the project we will stay with the 17,585 sf.

## **17. Restroom**

The 2040 projected Restroom square footage is 3,293 sf. Using an interpretation of the International Plumbing Code, one can determine the required fixture count for the total square footage of building. The new business occupancy, 33,041 sf central office facility will require one fixture at approximately 64 sf each for every 2,500 sf, or 846 sf total. The remaining built area of 167,250 would be calculated at the industrial occupancy rate of one fixture for every 10,000 sf or 1,070 sf total. The total calculated area for business and industrial occupancies equals 1,916 sf. Since many of the bathrooms will be distributed throughout the buildings, the fixture count requirements could be somewhat higher than noted here. Therefore the 2040 projected Restroom area of 3,293 sf is conservative and appropriate.

## **18. Shower**

The 2040 projected Shower square footage is 414 sf. DEM, DPW, and MFD will have showers. Since the utilization of the showers is unknown, it is difficult to further assess the adequacy of the data. For the purpose of the report we will assume the data is adequate and will be further examined during detailed design.



Vehicle Maintenance Bay Verification					
Type	2014 #	2040 Projected #	Dimension <sup>1</sup>	SF each	Total SF
Standard Bay	2	2	20'-0" x 30'-0"	600	1,200
Large Bay	22	17	20'-0" x 40'-0"	800	13,600
X-Large Bay	0	5	30'-0" x 60'-0"	1,800	9,000
<b>Total</b>	<b>24</b>	<b>24</b>			<b>23,800</b>

Notes:

<sup>1</sup> Dimensions for X-Large Vehicle Maintenance Bay are at the request of the Maui Fire Department

## 19. Stockpile

The 2040 projected Stockpile square footage is 11,256 sf. While some efficiencies may be realized through a consolidated approach, there are no guidelines in place for such an evaluation without more detailed access to required quantities stored. For the time being we will assume that 11,256 sf is adequate.

## 20. Uncovered Parking - Employee

The 2040 projected Uncovered Parking - Employee square footage for the Waikapu Base Yard is 79,679 sf. Given a total of 294 employee vehicles we would expect to see a total of 76,205 sf assigned to this category. Although the employee count will remain unchanged and hours of use are primarily overlapping, co-located employee parking could provide significant efficiencies due to a reduction in inefficient circulation and parking layouts. For the purpose of the report we remain conservative and assume an area of 79,679 sf.

## 21. Uncovered Parking - Heavy Vehicles

The 2040 projected Uncovered Parking - Heavy Vehicles square footage for the Waikapu Base Yard is 50,189 sf. Given a total of 86 large vehicles we would expect to see a total of 49,536 sf assigned to this category. Although the heavy vehicle count will remain unchanged and hours of use are primarily overlapping, co-located heavy vehicle parking could provide significant efficiencies due to a reduction in inefficient circulation and parking layouts. For the purpose of the report we remain conservative and assume an area of 50,189 sf.

## 22. Uncovered Parking - Light Vehicles

The 2040 projected Uncovered Parking - Light Vehicles square footage for the Waikapu Base Yard is 44,195 sf. Given a total of 152 standard vehicles we would expect to see a total of 39,398 sf assigned to this category. Although the light vehicle count will remain unchanged and hours of use are primarily overlapping, co-located heavy vehicle parking could provide significant efficiencies due to a reduction in inefficient circulation and parking layouts. For the purpose of the report we remain conservative and assume an area of 44,195 sf.

## 23. Uncovered Parking - Machinery

The 2040 projected Uncovered Parking - Machinery square footage for the Waikapu Base Yard is 28,350 sf. Accurate quantities and dimensions of machinery are not available for the purpose of backchecking parking area. For the purpose of this report we will assume 28,350 sf is adequate.

## 24. Uncovered Storage

The 2040 projected Uncovered Storage square footage is 22,607 sf. Due to the varying nature of storage requirements throughout the existing departments, there is not a square footage standard that will provide an appropriate back-check of the previous chapter's projected space needs.

## 25. Vehicle Maintenance Bay

The 2040 projected Vehicle Maintenance Bay square footage for the Waikapu Base Yard is 23,050 sf. The new facility will provide consolidated Vehicle Maintenance Bays for common tasks such

as oil changes, tire changes, body work, general mechanics, etc. It will mean more “in-house” service availability to smaller departments and reduce the current practice of outsourcing work such as mechanical repairs and body work. A comparison of the existing and projected Vehicle Maintenance Bays are listed in the Vehicle Maintenance Bay Verification table which anticipates a projected need of 23,800 sf. For the purpose of the report we will remain conservative and plan for 23,800 sf of Vehicle Maintenance Bays.

## **26. Vehicle Paint Shop**

The 2040 projected Vehicle Paint Shop square footage is for the Waikapu Base Yard is 1,600 sf. The Vehicle Paint Shop is anticipated to consist of 1 large vehicle bay (20'-0"x40'-0"), storage, and small office area with specialty mechanical equipment. We anticipate further refinement of this area will take place during detailed programmatic and design development.

## **27. Vehicle Wash**

The 2040 projected Vehicle Wash square footage is 600 sf. For planning purposes we will include a Car Wash area complete with 1 automatic car wash for standard size vehicles and 2 manual wash bays that will accommodate large and extra large vehicles and equipment. We anticipate further refinement of this area will take place during detailed programmatic and design development.

## **28. Warehouse**

The 2040 projected Warehouse square footage is 34,242 sf. Due to the varying nature of Warehousing requirements throughout the existing departments, there is not a square footage standard that will provide an appropriate back-check of the previous chapter's projected space needs. We can assume that through modernized storage solutions such as high density racks the new facility will achieve a higher efficiency use of space. However, existing shortfalls in space availability may counteract the efficiencies and not necessarily result in reduced square footages. Additionally, since the Warehouse will be a new function for many departments that do not have designated Warehouse keepers, the referenced standard which back checks square footage by occupants is not possible.

## **29. Workshop**

The 2040 projected Workshop square footage is 27,924 sf. Due to the varying nature of workshop requirements throughout the existing departments, there is not a square footage standard that will provide an appropriate back-check of the previous chapter's projected space needs.

Summary of Square Footage by Function							
b/e <sup>1</sup>	#	Function	A. 2014 Area	B. 2040 Projected (Chapter 3)	C. 2040 Backcheck (Chapter 5)	D. 2040 Reconciled	% Change A. to D.
b	1	Conference Room	3,499	4,446	8,408	8,408	240.3%
b	2	Covered Parking - Heavy Vehicles	5,971	13,882	4,680	13,882	232.5%
b	3	Covered Parking - Light Vehicles	5,696	7,977	5,346	7,977	140.0%
b	4	Covered Storage	29,713	39,262	-	39,262	132.1%
b	5	Document Storage	750	975	-	975	130.0%
b	6	Emergency Management Center (EMC)	4,638	39,411	-	39,411	849.7%
b	7	Fire Station	-	20,000	-	20,000	-
b	8	Fuel Pump	1,640	2,132	-	2,132	130.0%
b	9	Gym	600	780	-	780	130.0%
e	10	Horticulture	25,000	32,500	-	32,500	130.0%
b	11	IT Room	288	350	875	875	303.8%
b	12	Kitchen / Break Room	2,876	3,944	3,909	3,944	137.1%
b	13	Laboratory	3,150	2,020	4,752	2,020	64.1%
b	14	Locker	1,028	1,476	1,560	1,560	151.8%
b	15	Mechanical / Electrical Room	567	737	5,090	5,090	897.7%
b	16	Office	14,497	17,585	11,132	17,585	121.3%
b	17	Restroom	2,201	3,293	1,916	3,293	149.6%
b	18	Shower	272	414	-	414	152.2%
e	19	Stockpile	9,812	11,256	-	11,256	114.7%
e	20	Uncovered Parking - Employee	59,765	79,679	76,209	79,679	133.3%
e	21	Uncovered Parking - Heavy Vehicles	34,099	50,189	49,536	50,189	147.2%
e	22	Uncovered Parking - Light Vehicles	32,545	44,195	39,398	44,195	135.8%
e	23	Uncovered Parking - Machinery	18,900	28,350	-	28,350	150.0%
e	24	Uncovered Storage	17,310	22,608	-	22,608	130.6%
b	25	Vehicle Maintenance Bay	16,500	23,050	23,800	23,800	144.2%
b	26	Vehicle Paint Shop	-	1,600	-	1,600	-
b	27	Vehicle Wash	-	600	-	600	-
b	28	Warehouse	20,586	34,242	-	34,242	166.3%
b	29	Workshop	17,926	27,924	-	27,924	155.8%
b	<b>Total Built (b) SF</b>		<b>132,398</b>	<b>246,100</b>	<b>71,468</b>	<b>255,774</b>	<b>193.2%</b>
e	<b>Total Exterior (e) SF</b>		<b>197,431</b>	<b>268,777</b>	<b>165,143</b>	<b>268,777</b>	<b>136.1%</b>
	<b>Grand Total SF</b>		<b>329,829</b>	<b>514,877</b>	<b>236,611</b>	<b>524,551</b>	<b>157.1%</b>

Notes:

1 "b" stands for Built Structure. "e" stands for Exterior Non-Structure

# CONSOLIDATION STRATEGIES

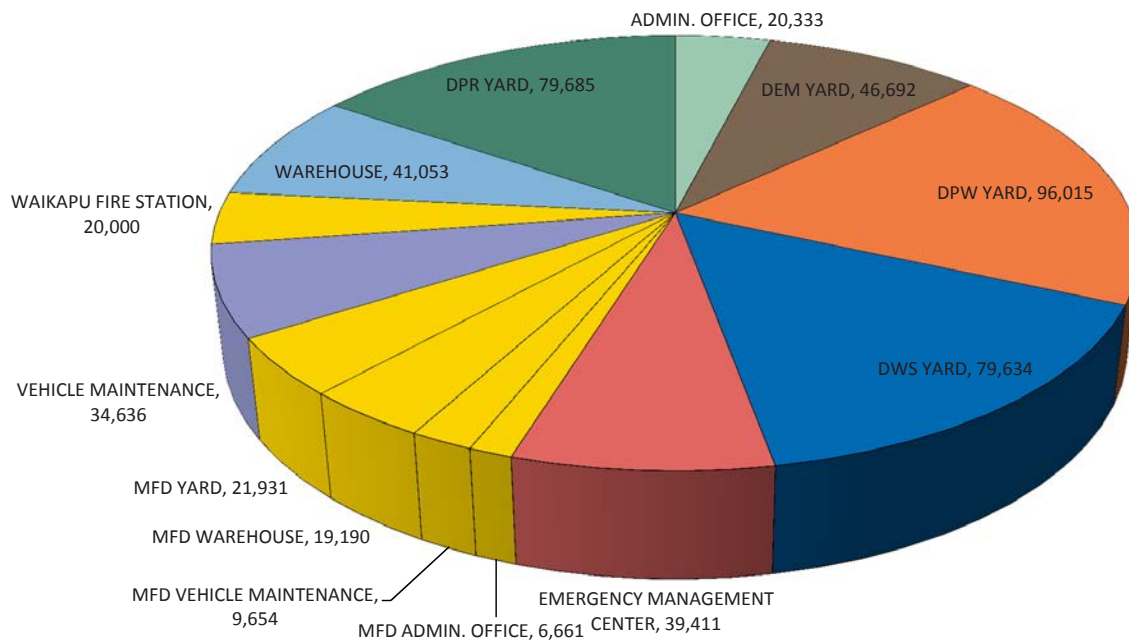
## RECONCILED CONSOLIDATION BREAKDOWN

Consolidation Summary	B. 2040 Projected (sf)	D. 2040 Reconciled (sf)	% Change B. to D.	% of Total
ADMIN. OFFICE	20333	24820	122%	5%
EMERGENCY MANAGEMENT CENTER	39411	39411	100%	8%
VEHICLE MAINTENANCE	34636	35870	104%	7%
WAIKAPU FIRE STATION	20000	20000	100%	4%
WAREHOUSE	41053	41537	101%	8%
DWS YARD	79634	80202	101%	15%
DPW YARD	96015	96499	101%	18%
DEM YARD	46692	47176	101%	9%
MFD VEHICLE MAINTENANCE	9654	10138	105%	2%
MFD WAREHOUSE	19190	19673	103%	4%
MFD YARD	21931	22414	102%	4%
MFD ADMIN. OFFICE	6661	6661	100%	1%
DPR YARD	79685	80168	101%	15%
<b>Grand Total</b>	<b>514895</b>	<b>524569</b>	<b>102%</b>	<b>100%</b>

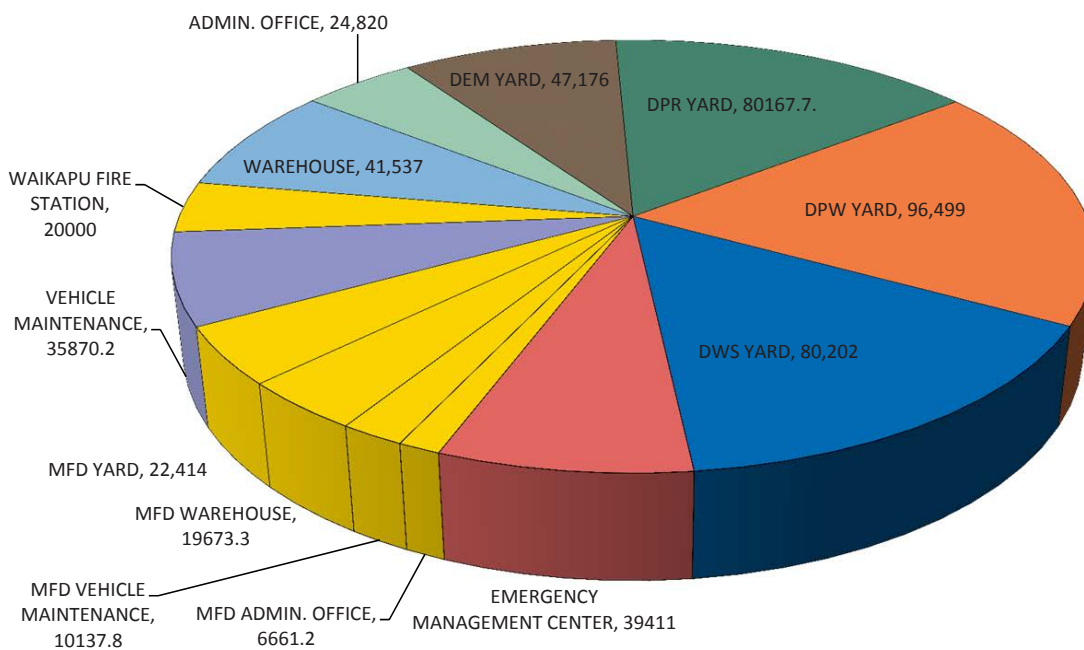


# CONSOLIDATION STRATEGIES

## 2040 PROJECTED CONSOLIDATION



## 2040 RECONCILED CONSOLIDATION



# CONSOLIDATION STRATEGIES

## RECONCILED CONSOLIDATION BREAKDOWN

Consolidation Summary	B. 2040 Projected (sf)	D. 2040 Reconciled (sf)	% Change B. to D.
<b>ADMIN. OFFICE</b>	<b>20333</b>	<b>24820</b>	<b>122%</b>
CONFERENCE ROOM	2620	6582	251%
COVERED STORAGE	1102	1102	100%
DOCUMENT STORAGE	975	975	100%
IT ROOM	350	875	250%
KITCHEN/BREAK ROOM	908	908	100%
LABORATORY	2020	2020	100%
MECH / ELEC RM	650	650	100%
OFFICE	4521	4521	100%
RESTROOM	817	817	100%
UNCOVERED PARKING - EMPLOYEE	6370	6370	100%
<b>EMERGENCY MANAGEMENT CENTER</b>	<b>39411</b>	<b>39411</b>	<b>100%</b>
EMERGENCY MANAGEMENT CENTER	39411	39411	100%
<b>VEHICLE MAINTENANCE</b>	<b>34636</b>	<b>35870</b>	<b>104%</b>
CONFERENCE ROOM	500	500	100%
COVERED STORAGE	4061	4061	100%
FUEL PUMP	2132	2132	100%
MECH / ELEC RM	0	484	
OFFICE	630	630	100%
RESTROOM	330	330	100%
SHOWER	39	39	100%
UNCOVERED STORAGE	4300	4300	100%
VEHICLE MAINTENANCE BAY	16550	17300	105%
VEHICLE PAINT SHOP	1600	1600	100%
VEHICLE WASH	600	600	100%
WORKSHOP	2620	2620	100%
UNCOVERED PARKING - EMPLOYEE	1274	1274	100%
<b>WAIKAPU FIRE STATION</b>	<b>20000</b>	<b>20000</b>	<b>100%</b>
FIRE STATION	20000	20000	100%
<b>WAREHOUSE</b>	<b>41053</b>	<b>41537</b>	<b>101%</b>
MECH / ELEC RM	0	484	
OFFICE	360	360	100%

# CONSOLIDATION STRATEGIES

## RECONCILED CONSOLIDATION BREAKDOWN

Consolidation Summary	B. 2040 Projected (sf)	D. 2040 Reconciled (sf)	% Change B. to D.
STOCKPILE	11256	11256	100%
UNCOVERED STORAGE	13000	13000	100%
WAREHOUSE	15800	15800	100%
UNCOVERED PARKING - EMPLOYEE	637	637	100%
<b>DWS YARD</b>	<b>79634</b>	<b>80202</b>	<b>101%</b>
CONFERENCE ROOM	800	800	100%
COVERED PARKING - HEAVY V	2520	2520	100%
COVERED STORAGE	5570	5570	100%
KITCHEN/BREAK ROOM	250	250	100%
LOCKER	0	84	
MECH / ELEC RM	0	484	
OFFICE	2080	2080	100%
RESTROOM	503	503	100%
UNCOVERED PARKING - HEAVY V	12096	12096	100%
UNCOVERED PARKING - LIGHT V	20090	20090	100%
WORKSHOP	5100	5100	100%
UNCOVERED PARKING - EMPLOYEE	30625	30625	100%
<b>DPW YARD</b>	<b>96015</b>	<b>96499</b>	<b>101%</b>
COVERED PARKING - HEAVY V	2880	2880	100%
COVERED PARKING - LIGHT V	2190	2190	100%
COVERED STORAGE	5682	5682	100%
KITCHEN/BREAK ROOM	690	690	100%
LOCKER	717	717	100%
MECH / ELEC RM	0	484	
OFFICE	1259	1259	100%
RESTROOM	300	300	100%
SHOWER	60	60	100%
UNCOVERED PARKING - HEAVY V	17472	17472	100%
UNCOVERED PARKING - LIGHT V	13965	13965	100%
UNCOVERED PARKING - MACHINERY	28350	28350	100%
UNCOVERED STORAGE	1200	1200	100%
WORKSHOP	6550	6550	100%
UNCOVERED PARKING - EMPLOYEE	14700	14700	100%

# CONSOLIDATION STRATEGIES

## RECONCILED CONSOLIDATION BREAKDOWN

Consolidation Summary	B. 2040 Projected (sf)	D. 2040 Reconciled (sf)	% Change B. to D.
<b>DEM YARD</b>	<b>46692</b>	<b>47176</b>	<b>101%</b>
CONFERENCE ROOM	546	546	100%
COVERED PARKING - HEAVY V	5400	5400	100%
COVERED PARKING - LIGHT V	3400	3400	100%
COVERED STORAGE	2671	2671	100%
KITCHEN/BREAK ROOM	978	978	100%
LOCKER	473	473	100%
MECH / ELEC RM	0	484	
OFFICE	684	684	100%
RESTROOM	299	299	100%
SHOWER	55	55	100%
UNCOVERED PARKING - HEAVY V	9000	9000	100%
UNCOVERED PARKING - LIGHT V	10140	10140	100%
UNCOVERED STORAGE	1508	1508	100%
WORKSHOP	1274	1274	100%
UNCOVERED PARKING - EMPLOYEE	10265	10265	100%
<b>MFD VEHICLE MAINTENANCE</b>	<b>9654</b>	<b>10138</b>	<b>105%</b>
COVERED STORAGE	1326	1326	100%
MECH / ELEC RM	0	484	
OFFICE	736	736	100%
RESTROOM	78	78	100%
VEHICLE MAINTENANCE BAY	6500	6500	100%
WAREHOUSE	1014	1014	100%
UNCOVERED PARKING - EMPLOYEE		0	
<b>MFD WAREHOUSE</b>	<b>19190</b>	<b>19673</b>	<b>103%</b>
MECH / ELEC RM	0	483	
OFFICE	300	300	100%
WAREHOUSE	3082	3082	100%
UNCOVERED PARKING - EMPLOYEE	15808	15808	100%
<b>MFD YARD</b>	<b>21931</b>	<b>22414</b>	<b>102%</b>
COVERED PARKING - HEAVY V	3082	3082	100%
GYM	780	780	100%
LOCKER	260	260	100%



# CONSOLIDATION STRATEGIES

## RECONCILED CONSOLIDATION BREAKDOWN

Consolidation Summary	B. 2040 Projected (sf)	D. 2040 Reconciled (sf)	% Change B. to D.
MECH / ELEC RM	0	483	
RESTROOM	603	603	100%
SHOWER	260	260	100%
UNCOVERED STORAGE	2600	2600	100%
WAREHOUSE	14346	14346	100%
<b>MFD ADMIN. OFFICE</b>	<b>6661</b>	<b>6661</b>	<b>100%</b>
MECH / ELEC RM	87	87	100%
OFFICE	6438	6438	100%
RESTROOM	137	137	100%
UNCOVERED PARKING - EMPLOYEE			
<b>DPR YARD</b>	<b>79685</b>	<b>80168</b>	<b>101%</b>
COVERED PARKING - LIGHT V	2387	2387	100%
COVERED STORAGE	18850	18850	100%
HORTICULTURE	32500	32500	100%
KITCHEN/BREAK ROOM	1118	1118	100%
LOCKER	26	26	100%
MECH / ELEC RM	0	483	
OFFICE	577	577	100%
RESTROOM	226	226	100%
UNCOVERED PARKING - HEAVY V	11621	11621	100%
WORKSHOP	12380	12380	100%
<b>Grand Total</b>	<b>514877</b>	<b>524569</b>	<b>102%</b>

## Summary of Acreage by Functional Area

Where multiple departments share one location or only a portion of a department site functions are relocated, the acreage recorded represents the approximate acreage used by each department and/or relocated to the Waikapu facility, and not the total site area.

Dept/ Site	Existing Location	2014 Site Approx. Acreage	2040 Reconciled Acreage**	2040 Proposed Acreage	Beyond 2040 Acreage	Waikapu Total
CDA	Kalana O Maui Building (3.33)	0.50	-	-	-	-
	CDA Total	0.50	0.90	6.00	0.00	6.00
DEM	Collection Station (0.59)	0.50	-	-	-	-
	Kaohu Base Yard (3.78)	0.78	-	-	-	-
	Leased Site (9.99)	0.25	-	-	-	-
	W-K WWRF (18.76)	0.75	-	-	-	-
	DEM Total	2.28	1.10	3.00	3.00	6.00
DPR	Kaohu Base Yard (3.78)	0*	-	-	-	-
	War Memorial Civic Complex (51.11)	1.50	-	-	-	-
	DPR Total	1.50	1.80	3.00	3.00	6.00
DPW	Kaohu Base Yard (3.78)	2.50	-	-	-	-
	DPW Total	2.50	2.20	4.00	4.00	8.00
DWS	Naska Base Yard (4.50)	4.50	-	-	-	-
	DWS Total	4.50	1.80	4.00	4.00	8.00
MFD	Kahului Station (2.00)	0.75	-	-	-	-
	Warehouse (0.92)	0.92	--	-	-	-
	War Memorial Civic Complex (51.11)	0.25	-	-	-	-
	Waikapu Fire Station	0	-	-	-	-
	MFD Total	1.92	1.80	3.00	0.00	3.00
CONSOL- IDATED	Warehouse	-	0.90	2.00	2.00	4.00
	Vehicle Maintenance	-	0.80	3.00	3.00	6.00
	Central Office and Support Facility	-	0.60	2.00	1.00	3.00
	CONSOLIDATED TOTAL	0	2.30	7.00	6.00	13.00
<b>Total Site Acreage</b>		13.2	12.00	30.00	20.00	50.00***

\*Although Kaohu Base Yard currently has DPR spaces on it, the new facility under construction at War Memorial Civic Complex will replace it in whole. To avoid double counting of the spaces, the DPR Kaohu acreage (approximately 0.50 ac) is omitted.

\*\*Unprogrammed areas at existing sites such as vehicular and pedestrian circulation, interior hallways, and miscellaneous site infrastructure such as not accounted for in the data collection., thus the "2040 Reconciled Acreage" is smaller than the "2040 Proposed Acreage".

\*\*\*The total acreage does not add up to 100 acres because retention ponds, roads, setbacks, and other open space areas are not included in the acreage tabulation.

## 6. SITE PLANNING

### Overview

Conceptual site planning is important to the development of large plots of land with diverse uses such as the Waikapu Base Yard. This chapter will focus on identifying site specific organization strategies as influenced by surrounding developments, availability of infrastructure, topography and other site characteristics. The organization strategies were melded with the functional relationships of the various Departments and space types from Chapter 4 to form a conceptual site plan.

#### Site Analysis

The 309 acre Waikapu site is bounded by Waikapu Stream and agricultural lands to the north, agricultural lands to the south and west, and Kuihelani Highway to the east. Planned mixed use developments will border the North and West ends of the site in the future. The prevailing winds are from the north. The site has good access to sunlight but becomes shady early in the afternoon due to the adjacent mountain's shadow.

Primary access to the site will be by motor vehicle. Kuihelani Highway located adjacent to the site has the largest vehicle capacity. Bus service is available to the Waikapu area by two bus stops located along Honoapiilani Highway north of the Maui Tropical Plantation. These stops are a walking distance of approximately 1.8 miles from the planned facility, limiting the practicality of this access option until additional routes are added to service the projected growth of the Waikapu area. Bicycling will be a third option as the Hawaii Department of Transportation has master planned a bike path along Kuihelani Highway. Please see Appendix B for more information.

#### Zoning and Land Classification

The 309 acre site is currently zoned as agricultural by the County of Maui and State Land Use Commission. The 100 acre site for the base yard facility within the 309 acres should be rezoned by the County of Maui to M-1 Light Industrial and reclassified by the State

Land Use Commission to Urban District.

#### Location of 100 Acres Within 309 Acres

The town of Waikapu and the two master planned communities to the North and West of the site suggest the base yard should be located to the Southeast corner of the site. This maximizes community access to the planned 209 acre regional park and minimizes potential disruptions from the light industrial base yard facility.

The prevailing winds out of the north point to a southerly location on the site for the 100 acres to limit dust, odors, and vehicle fumes blowing across the site. This strategy works in synergy with co-locating the facility to the Southeast so that it can maximize access to Kuihelani Highway. A southeasterly location also reduces the concern of dust and noise as adjacent land is currently used for agriculture and presumed to remain that way for the foreseeable future. A 100 foot setback from the property line was programmed so that trees, berms, fences, and trails can be used as a buffer between the County property and its surroundings to ensure the base yard facility is a "good neighbor" and used in the best interest of the community. The 100 foot setback will also act as a fire separation from controlled agricultural burns.

#### Existing Conditions and Topography

The 100 acre site is undeveloped. Prior to the acquisition of the property, the west end of the 100 acre site was utilized by Hawaii Cane & Sugar for sugar cane production. DPW is currently utilizing the southeast corner of the site to stock pile gravel, soil, and cold planed asphalt concrete pavement. These stockpiles will need to be relocated before construction of the base yard facilities can begin.

The project site is generally flat along the eastern boundary adjacent to Kuihelani Highway. The elevation of the project site on the eastern boundary is approximately 195 feet above mean sea level (MSL)

*Continued on page 127*

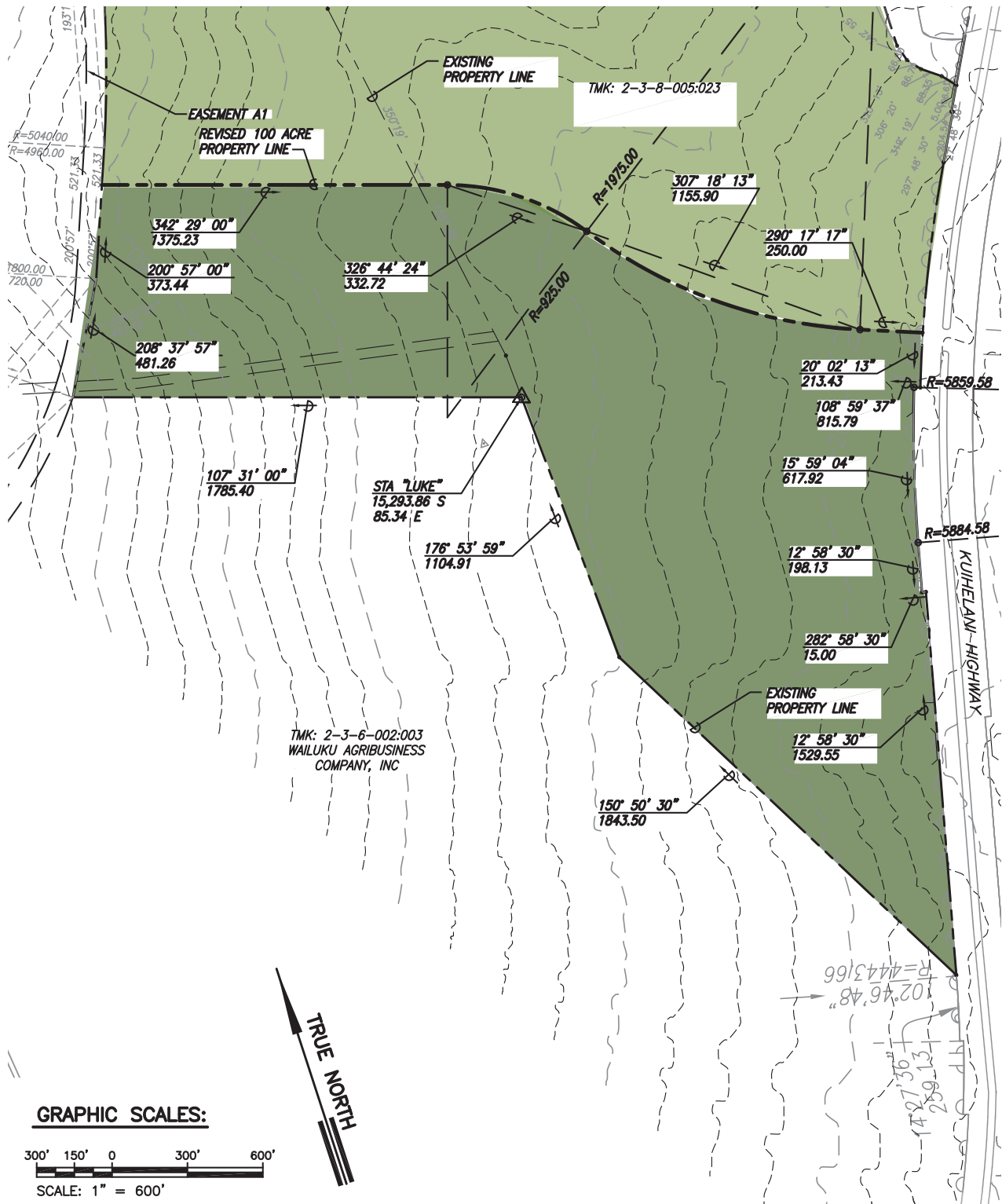
# 309 ACRE PARCEL PLAN





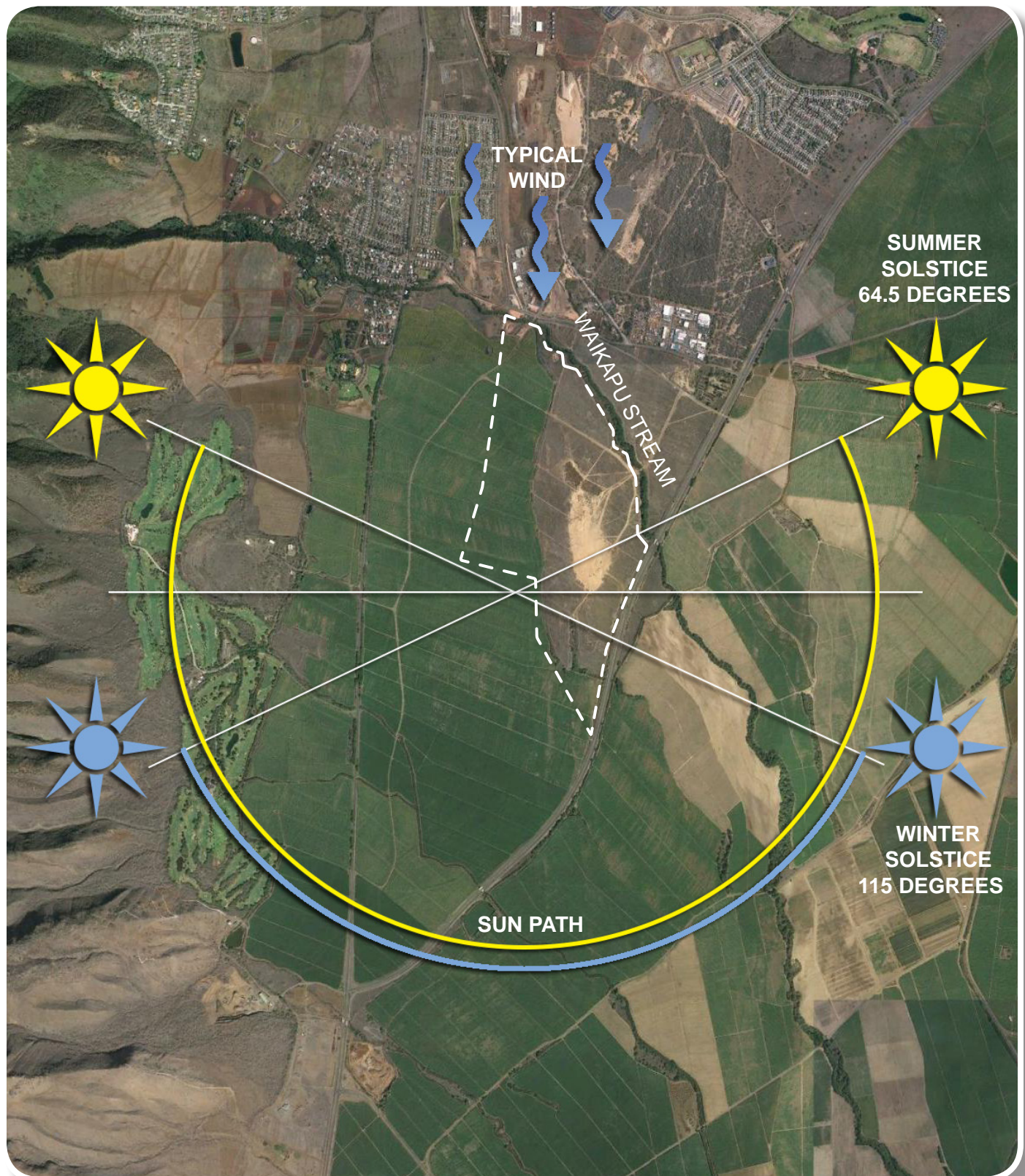
# SITE ANALYSIS

## 100 ACRE PROPOSED PROPERTY LINE



# SITE ANALYSIS

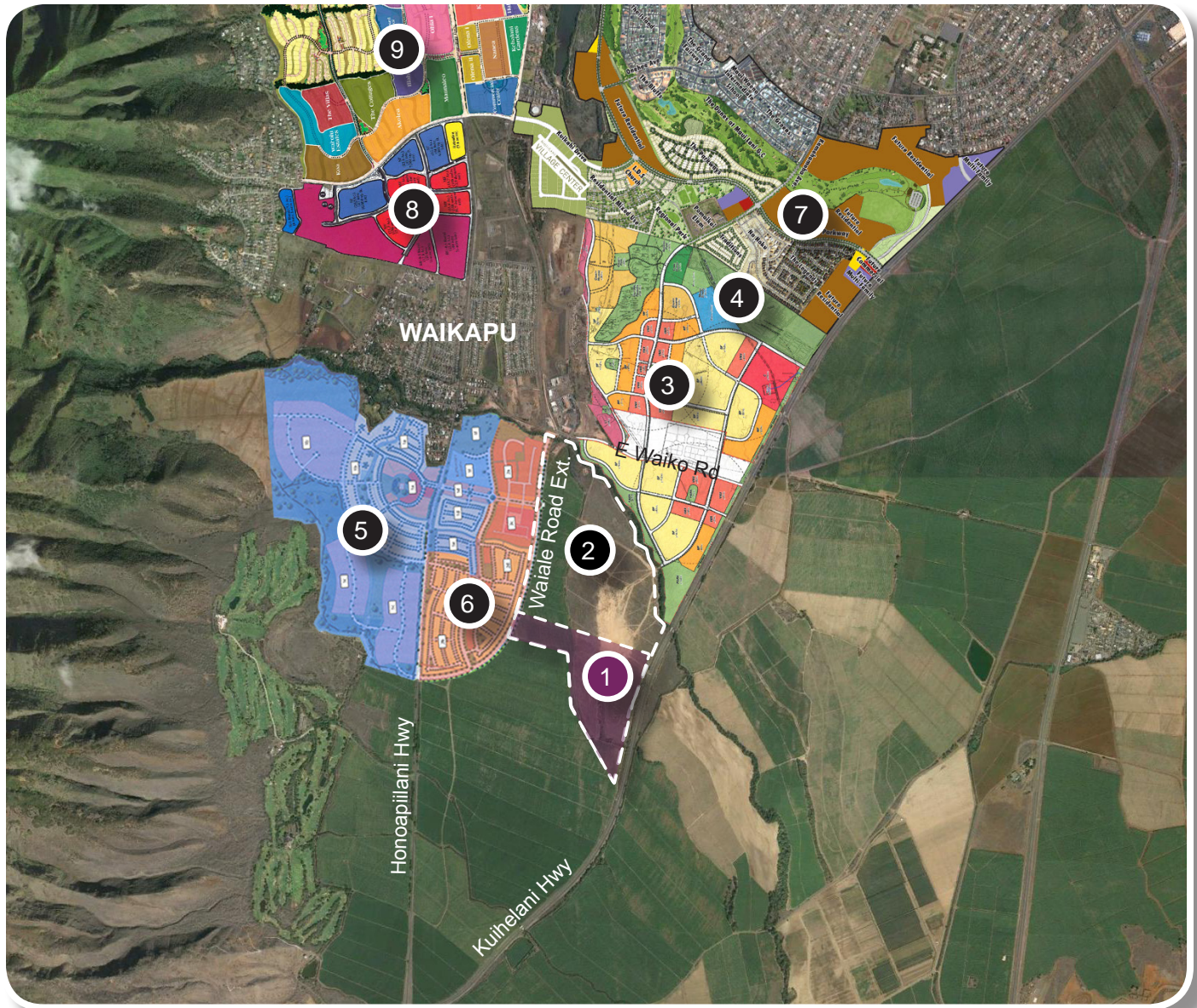
## CLIMATE CHARACTERISTICS





# SITE ANALYSIS

## PLANNED SURROUNDING DEVELOPMENTS

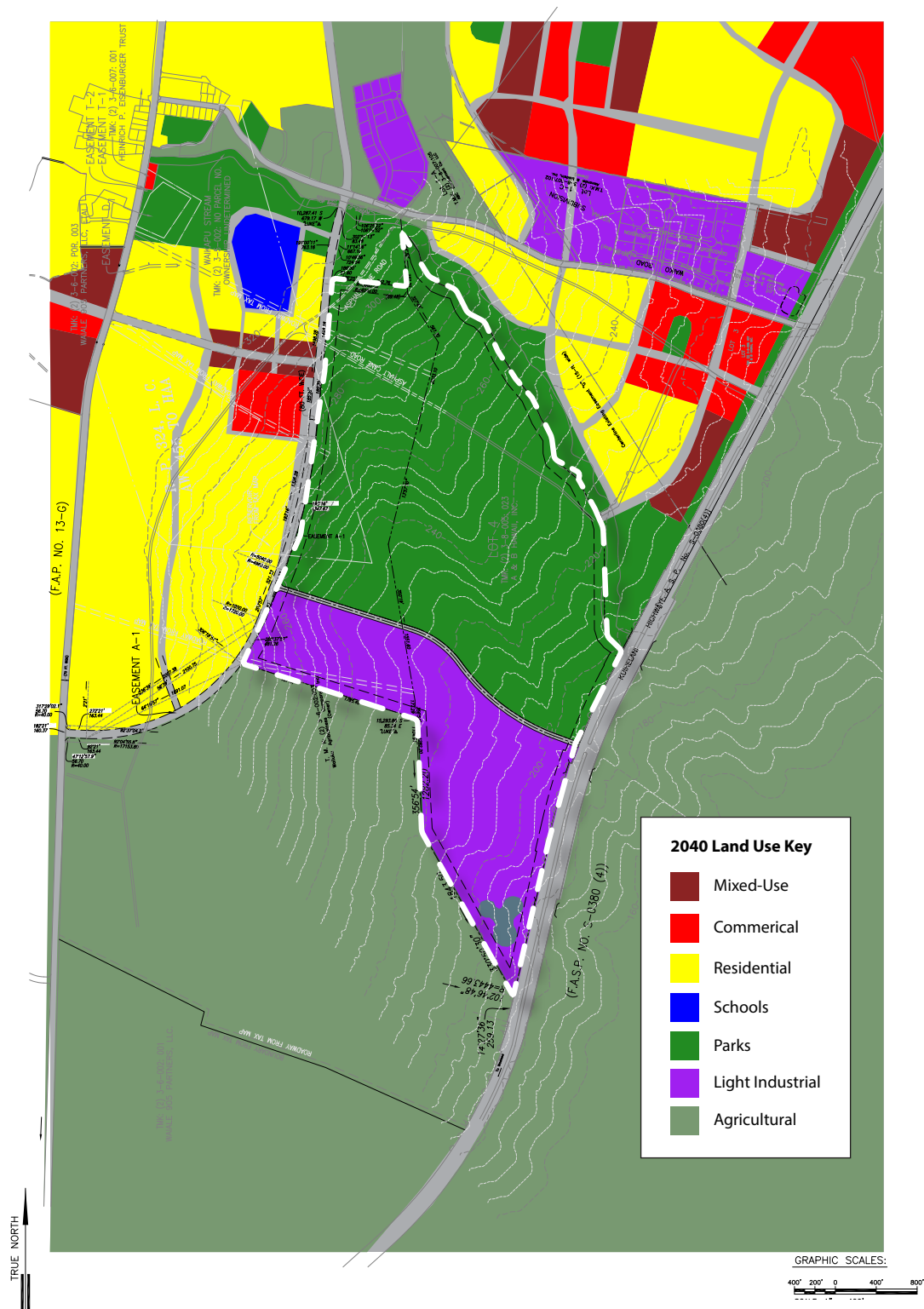


### Planned Developments Legend

- |   |  |   |  |
|---|--|---|--|
| 1 | 100 acres recommended for Base Yard        | 6 | Waikapu Country Town Master Plan 2026-2036 |
| 2 | 209 acres for Parks and Recreation         | 7 | Maui Lani                                  |
| 3 | Wai'ale Mixed Use Community Master Plan    | 8 | Pu'unani                                   |
| 4 | Planned Central Maui Sports Complex        | 9 | Kehalani                                   |
| 5 | Waikapu Country Town Master Plan 2016-2026 |   |  |

# SITE ANALYSIS

## PROJECTED LAND USE FOR SITE & SURROUNDINGS





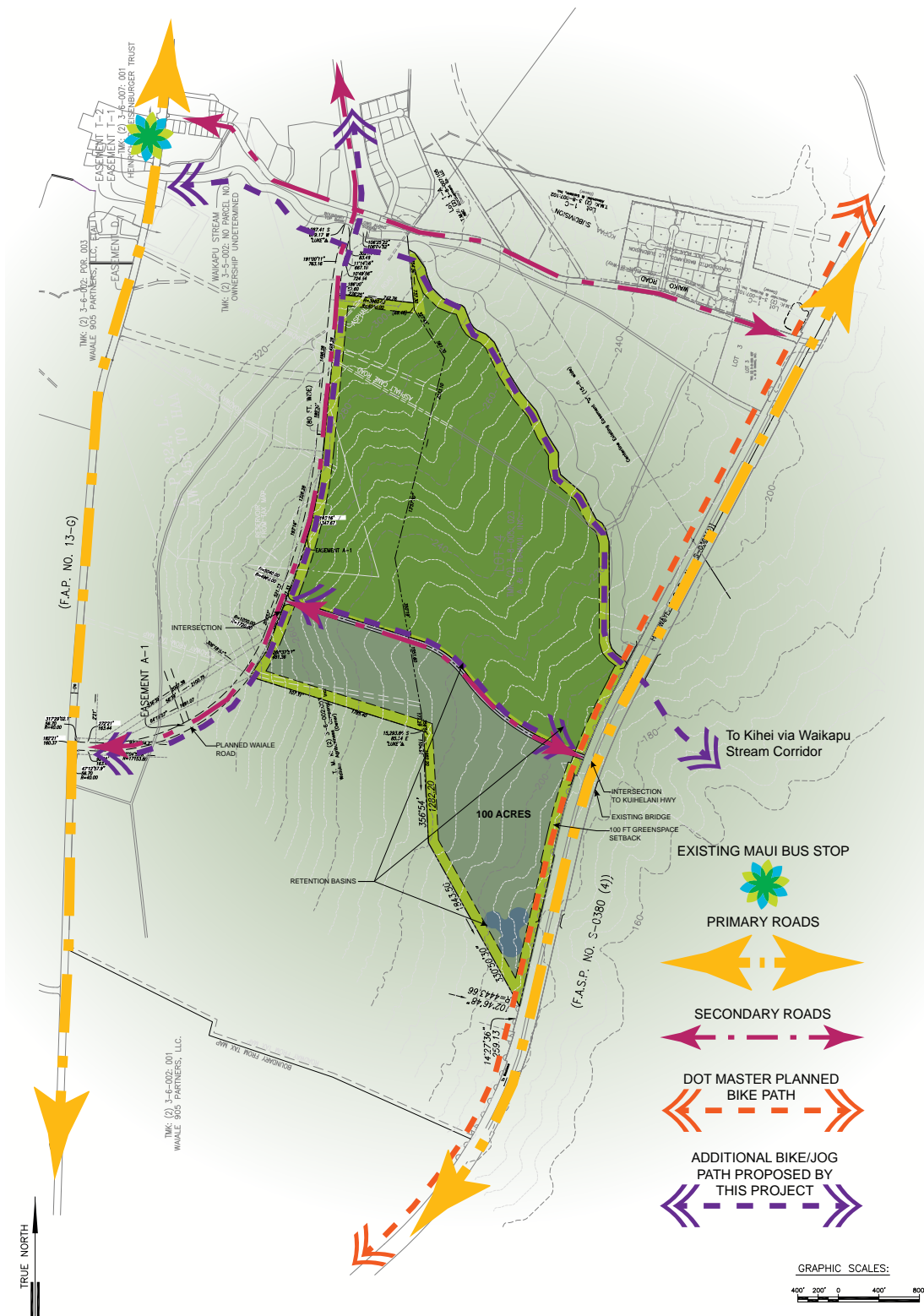
# 309 ACRE MASTER PLAN

## SITE PLAN



# 309 ACRE MASTER PLAN

## SITE CIRCULATION



and gently rises to an elevation of approximately 230 feet MSL along the western boundary. The average slope of the terrain is approximately 2.6 percent.

## Soils

The National Resource Conservation Service (NRCS) Web Soil Survey, dated December 7, 2013, classifies the soils at the project site as Jaucas Sand, 0 to 15 percent slopes, and Puuone Sand, 7 to 30 percent slopes.

Jaucas Sand, 0 to 15 percent slopes (JaC) is an excessively drained soil with high to very high permeability. It is classified in Hydrologic Soil Group A. Puuone Sand, 0 to 30 Percent (PZUE) is a somewhat excessively drained soil with moderate to high permeability. It is classified in Hydrologic Soil Group B.

Subsurface geotechnical investigations were not performed for the master plan report.

## Flood Hazard

The Federal Emergency Management Agency (FEMA), National Flood Insurance Program's (NFIP), Flood Insurance Rate Map (FIRM), dated September 25, 2009, designates the project site as Flood Zone X. Flood Zone X comprises of areas determined to be outside of the 500-year floodplain.

The project site is located outside of the state's tsunami inundation zone.

## Site Access and Roadways

A diagram of the 100 Acre Facility Plan can be found on page 149. Road "A" will provide a thoroughfare from the DOT designated access point on Kuihelani Highway to Waiale Road Extension. Road "B" will be an internal roadway to provide access to the DWS, DPW, DEM, Consolidated Support Services Office, Consolidated Vehicle Maintenance, and Consolidated Warehouse. Land for future internal roadways will be reserved within the 100 acre site to account for the possibility of increase traffic demands at the full build out of the site. It is recommended that a minimum 80-ft wide right-of-way be provided for Road "A" to account for future expansion of the roadway if required and possible subdivision from the 100 acre site.

The existing designated access point for Road "A" on Kuihelani Highway will provide the base yard facility with a northbound route to Kahului and a southbound route to Honoapiilani Highway. The existing intersection is not signalized. In its current state, northbound traffic leaving the base yard facility will need to cross a drainage swale in the median of Kuihelani Highway. The drainage swale causes drivers turning northbound to slow down as they cross the swale. This results in a possible safety hazard due to the high speed limit of Kuihelani Highway.

A traffic analysis was not performed as part of this project. However, it is recommended that offsite improvements to the intersection of Kuihelani Highway and Road "A" be provided. These improvements should include revising the existing grade of the intersection to eliminate the drainage swale in Kuihelani Highway, construction of a left turn pocket for northbound traffic turning into Road "A", construction of a right turn lane for southbound traffic into Road "A", and the construction of a traffic signal at the intersection. It is recommended that the design engineer to meet with the DOT to determine the scope of intersection improvements that will be required.

An additional future roadway connection through the Central Maui Regional Park to the proposed Waiale Development by Alexander & Baldwin (A&B) should be considered. This roadway connection would provide the base yard facility with an additional route to Kahului. However, an additional bridge crossing for Waikapu stream would be required. This roadway connection to the Waiale Development should be discussed further with A&B during the master planning of the Central Maui Regional Park.

The site planning process evaluated the use of existing HC&S cane haul roads to provide access to the base yard facility. Approval from HC&S would be required to use the existing cane haul roads as there are still active cane fields adjacent to the 100 acre site. Existing cane haul roads were observed to be in poor condition. Use of the cane haul roads may result in additional vehicle wear if the roads are not improved. The shared use of the cane haul roads may introduce the liability of vehicle collisions between County of Maui and HC&S vehicles.



## UTILITIES





## Water System

Water Service to the project site will be provided through the County of Maui, Department of Water Supply (DWS). Domestic water and fire flow service for the Waikapu area is provided by the 300,000-gallon Waikapu Tank located at the west end of Waiko Road. DWS recommends that the water system for the base yard connect to the existing 12-inch line along Waiko Road near the intersection of Waiko Road and Waiale Road.

It is recommended that the offsite water line for the base yard facilities be constructed as part of the Waiale Road Extension. This ensures that the water line design will be coordinated with the other utilities to be constructed as part of the Waiale Road Extension. It is estimated that the north end of the Waiale Road Extension will not begin construction until FY2020 due to the availability of federal funding. The following options were considered for the water line crossing of Waikapu Stream.

- Option 1 involves the construction of a temporary water line that will be mounted to the temporary Acrow Bridge crossing Waikapu Stream. A permanent water line crossing would be provided with the future Waiale Road Extension Bridge.
- Option 2 involves constructing a separate permanent crossing structure for the water line. While this option provides a permanent solution at the start of the project, additional permit documents for the structure may be required for the crossing that are separate from the future Waiale Road Extension Bridge permit documents. If USACE permit approval is required, the construction of the crossing structure may be delayed until permits are obtained.
- Option 3 considered directional drilling a water line under Waikapu Stream. However, to evaluate this option further, a scour analysis of Waikapu Stream would need to be performed to determine the scour depth of the stream. An analysis to determine the scour depth of Waikapu Stream is not included as part of this project.

It is recommended that Option 1 be executed to provide water service to the 100 acre site due to the limitation of unknown variables including permit requirements and scour depth of Waikapu Stream. Option 2 may become feasible if the concerns

regarding the possible permit requirements can be resolved.

A single DWS water meter will service the entire 100 acre site. It is recommended that each facility within the 100 acre have a submeter. The benefits of submetering include leak detection, identification of high water users, promotion of water conservation, and accurate record keeping and billing for the water use of each facility.

According to the guidelines from the Department of Water Supply Water System Standards, dated 2002 the preliminary water demands for the full build-out of the project site are listed below.

DWS Preliminary Water Demands		
Flow	GPD	MGD
Average Daily Flow	600,000	0.600
Maximum Flow	900,000	0.900
Peak Hour Flow	1,800,000	1.800

These demands were calculated based on a consumption guideline of 6,000 gallons per acre for a light industrial development. It is important to note that the consumption guidelines provided in the Water System Standards are conservative and are meant to be used for planning purposes. Actual water demand at the site may vary based on the facilities constructed.

The Department of Defense United Facilities Criteria (UFC) 3-230-03 Water Treatment provides another method for calculating water demand for the base yard facility. UFC 3-230-03 provides a consumption guideline for nonresident personnel and employees of 30 gallons per day. The projected water demand for the full build-out of the facility based on the personnel numbers provided by the County of Maui are listed below.

UFC Preliminary Water Demands		
Flow	GPD	MGD
Average Daily Demand	10,764	0.011
Maximum Daily Demand	24,219	0.024

These demand values do not include the water demand for the vehicle wash facility or irrigation. The vehicle wash facility will consist of 1 automatic

wash bay and 2 manual wash bays. The estimated water demand per vehicle for each wash bay type is 100 gallons and 300 gallons, respectively. No data regarding the frequency of vehicle washing was available at the time of this study. For planning purposes, it is assumed that 10 standard size vehicles will utilize the automatic vehicle wash bay and a total of 10 large vehicles will utilize the manual wash bays per day. This results in an estimated water demand of 4,000 gallons per day for the vehicle wash facility.

Irrigation demand will vary depending on the landscaping strategy utilized for the facility. It is recommended that drought tolerant plants and xeriscaping be used for landscaping to reduce the water demand for irrigation. Rain sensors should be incorporated into the irrigation system to ensure that over watering does not occur if adequate rain fall is received.

The fire flow demand for the base yard site is 2,000 gallons per minute for a 2 hour duration with a 20 pounds per square inch residual pressure according to the Department of Water Supply Water System Standards, dated 2002. No fire hydrant pressure testing was performed near the water system connection point on Waiko Road for this project.

DWS indicated that the existing water system may not have adequate water capacity to accommodate the full build out of the base yard facilities as the system was sized to only handle portions of the Kehalani Development and Waikapu Gardens Subdivision. Upgrades may need to be made to the DWS water system to accommodate future water demands.

The proposed Waikapu Country Town Development located west of the project site will develop new potable water well sources in the Waikapu Aquifer to supply the development. The proposed potable wells and water system will be managed by the developer. There may be an opportunity for the County to purchase water from the developer if DWS does not make improvements to the existing water system.

The proposed Waiale Community Development north of the project site is pursuing two alternatives to meet the water demand for the development. The first is the development of a new Waiale Water Treatment Facility in conjunction with DWS to meet the future water demands for the developer and the County. The second alternative is to develop new potable water well sources. There may be an option to connect the water system for the base yard facilities to the Waiale

## Community Development Water System.

### Wastewater System

The projected wastewater flow rates for the full build out of the 100 acre site are as follows:

Projected Full Build Out Flow Rates		
Flow	GPD	MGD
Average Daily Flow	6,900	0.007
Maximum Flow	44,850	0.045
Average Dry Weather Flow	57,408	0.057
Peak Wet Weather Flow	332,408	0.332

There are no existing wastewater facilities at the project site. The closest gravity sewer line is located adjacent to the Waikapu Gardens Subdivision, approximately 1.5 miles away from the project. The County of Maui, Department of Environmental Management, Wastewater Reclamation Division is conducting a study proposing a new wastewater treatment plant (WWTP) in the Waikapu area to accommodate future growth in the Waikapu area. Until the construction of the Waikapu WWTP is complete, wastewater generated at the project site will need to be disposed of through other means. The following wastewater treatment and disposal options were evaluated for the 100 acre site:

1. Package Wastewater Treatment Plant
2. Living Machine
3. On-site Septic System
4. Wastewater Pump Station

A package wastewater treatment plant is a pre-engineered and pre-fabricated system used to treat wastewater. Treated effluent can be used for irrigation on the 100 acre site. The package treatment plant can be sized to meet the projected wastewater flow for each phase. The treatment plant will need to be monitored to ensure uninterrupted service of the plant. Maintenance of the treatment plant will need to be performed by the County of Maui, Wastewater Reclamation or a third party contractor.

Option 2 is a living machine. A living machine is an on-site wastewater treatment system that utilizes the principles of wetland ecology to treat and reuse wastewater. The system can be used on a site-wide, facility, or building-level basis. The living machine promotes water conservation by allowing the treated wastewater effluent to be used for toilet flushing or irrigation. The living machine is a lower maintenance

system than a package wastewater treatment plant. If the living machine is utilized on a facility or building level basis, new individual systems can be constructed with each phase of the project. The living machine could also be utilized as an educational tool for the community.

The third option evaluated was an on-site septic system. Hawaii Revised Statutes 11-62 limits the design flow rate for each septic system to 1,000 gallons per day. Multiple septic systems will be required to treat the projected flow rate for the 100 acre site. The benefits of using a septic system include low maintenance and the independent nature of the system. New septic systems can be constructed to meet the projected wastewater flow for each phase of the project.

A wastewater pump station was the fourth option evaluated. If a wastewater pump station is utilized, a gravity sewer system will need to be constructed to convey wastewater to the pump station. The projected wastewater flow rate for the full build out of the site is considered low. Based on the projected flow rate and the length of force main required, a pump station should not be considered until the final phases of the project. Constructing a wastewater pump station in the early phases of the project would result in long time-frames between pumping cycles due to the low flow generated by the facility. This would cause the wastewater to become septic and generate odors at the site.

In addition, constructing the wastewater pump in the final phases of the project may coincide with the construction of the Waikapu WWTP. The location sited for the WWTP may result in a shorter force main run for the pump station.

The results of the initial evaluation appear that Option 2 or Option 3 may be best suited for the 100 acre site. The wastewater treatment system selected for the 100 acre site should be coordinated with the wastewater treatment system for the 209 acre regional park. The inclusion of the projected flow rates from the 209 acre regional park may change the wastewater treatment system utilized at the 100 acre site.

### **Storm Drainage System**

Existing on-site runoff appears to flow from west to east and crosses Kuihelani Highway south of the existing T-intersection for the property's designated access point. Existing storm water runoff appears to

cross under Kuihelani Highway near the southeastern corner of the project site.

In 2013, the County of Maui was provided with a notification for Municipal Separate Storm Sewer System (MS4) Permit. It is anticipated that stormwater regulations will be revised prior to the construction of the base yard facilities placing restrictions on stormwater quality and discharge for the project site.

To meet the requirements of future regulations, on-site retention basins will be utilized to capture and treat stormwater runoff from the project site. In addition to onsite retention, the storm water may also be captured and reused for irrigation.

### **Electrical and Communication Systems**

Electrical power, telephone, and CATV service are provided to the island by Maui Electric Company (MECO), Hawaiian Telcom, and Oceanic Time Warner Cable, respectively. Connection to MECO's power system is available at either Honoapiilani Highway or Waiko Road. Underground electrical conduits will be provided from the MECO connection point through the Waiale Road Extension to the 100 acre site.

*Continued on page 131*

## Planning the 100 Acre Waikapu Facility

The 2040 Site Organization Diagram from the previous chapter informs the necessary relationships between departments and consolidated areas in the Waikapu Facility. Although only one plan accommodating those relationships is presented in the body of this report, many potential solutions were examined during the planning process. For more information on alternative solutions considered, please see Appendix F.

A number of factors affect the layout of the different departments and functions on the site that were not apparent in the functional adjacency diagrams. These are explored on a case by case basis below:

### Administration (Admin) Offices (Consolidated)

The Administration Offices should have a central location on the site. All departments have similar administration functions which makes consolidation more practical and efficient. Additionally, the Admin. Office would ideally be located adjacent to other consolidated functions as it will house the majority of conference/training areas for use by all departments and working groups. A location adjacent to the Vehicle Maintenance group would be particularly advantageous if a County motor pool program is introduced in the future.

### Emergency Management Center (CDA)

The Emergency Management Center has a variety of site selection criteria listed in its feasibility report.<sup>1</sup> The primary criteria are:

1. Minimum of 2 routes to the site
2. 20 minutes to site from employees of Emergency Operations Center's residences, primary County of Maui Management Information Systems and Civil Defense offices
3. Less than 1 hour to the Airport
4. Location away from areas of dense population, out of flight paths, and areas subject to natural or man made disasters.

### 5. Location away from floodways or areas

<sup>1</sup> County of Maui Data Center Report. April 2007 by EYP MCF, PBR Hawaii and CJS Group Architects. Page 4-2, 4-7

determined to be subject to 100-year storm events or tsunami inundation areas.

6. Proximity to a grass field such as park or golf course for use as "base camp" for emergency relief efforts.
7. Kahului Airport could be rendered inoperable during a natural disaster such as a hurricane or tsunami. Therefore there is a preference for sites located close to 2 mile straight stretches of highway to be used as potential landing strips for large transport planes, although this is not a strict requirement.

The location of the Emergency Management Center on the Waikapu Facility site best fits all the goals listed above. As an added benefit, the technological requirements of the building will require it to have a higher cost per square foot than many other areas in the Waikapu Facility, and hopefully a high quality and aesthetic.

### Vehicle Maintenance (Consolidated)

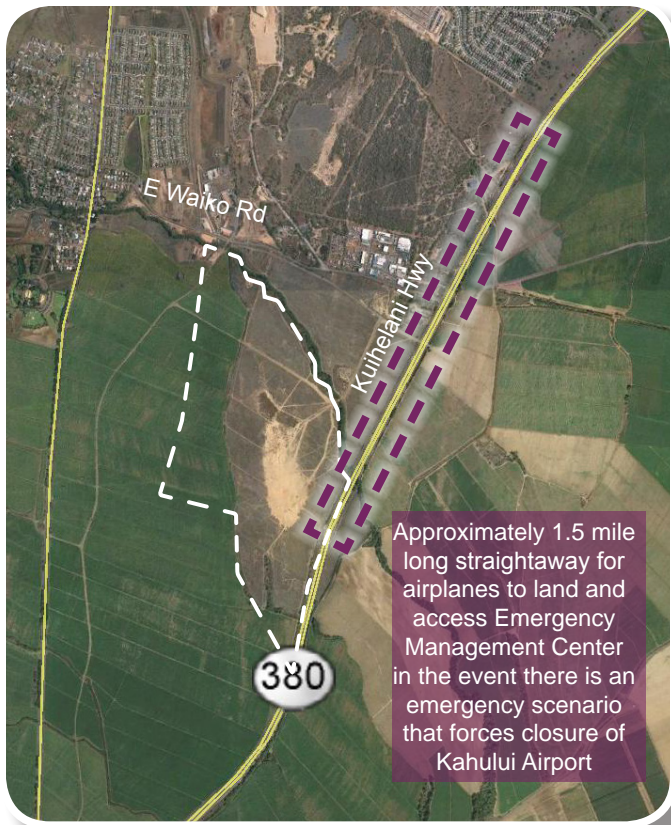
The Vehicle Maintenance group should be located near the entrance of the base yard site. The Vehicle Maintenance group will be servicing vehicles with origins from both inside and outside the base yard, including routine mid-day fueling as necessary. A location near the base yard entrance will limit traffic congestion on the property and allow convenient fueling at either the beginning or end of the work day upon entering and exiting the site. As previously noted, a location adjacent to the Admin. Office would be advantageous in the event a County motor pool program is introduced.

### Waikapu Fire Station

The Waikapu Fire Station has a number of important siting criteria which point to only one location within the 100 acre site, the northwest corner of the 100 acre site. The most important criteria in siting a fire station is response time. Thoughts about response time vary depending upon the authority queried. According to the U.S. Fire Administration/National Fire Data Center, "response time components include ignition, combustion, discovery, 911 activation, call processing and dispatch, turnout time, drive time, setup time, "vertical response", combat, and extinguishment."<sup>2</sup> It goes on to note that in 2001 and 2002, 61% of all

<sup>2</sup> U.S. Fire Administration/National Fire Data Center. "Structure Fire Response Times". Topical Fire Research Series, Volume 5 - Issue 7. Revised August 2006. Accessed September 11, 2014. <http://www.usfa.fema.gov/downloads/pdf/tfrs/v5i7.pdf>





fires had a response time of less than 6 minutes.

In addition to responding to fires, the Waikapu Fire Station will likely also respond to medical emergencies, or serve as a hub for ambulances and Medic Units responding to such calls. These first responders will likely be equipped with Automatic External Defibrillator or AED's. According to the Omaha Fire Department, "the chance of survival decreases dramatically the longer it takes to get the AED to the patients' side. A patient's chance of survival is dramatically reduced if the response time is delayed from 5 minutes to 10 minutes."<sup>3</sup>

The National Fire Protection Agency (NFPA) has developed the following response standards<sup>4</sup>:

- 80 seconds for turnout time for fire and special operations response and 60 seconds turnout time for EMS response
- 240 seconds or less travel time for the arrival of the first arriving engine company at a fire suppression incident and 480 seconds or less travel time for the deployment of an initial

<sup>3</sup> Omaha Fire Department. "Why do Fire Trucks Respond to Medical Emergencies?" Webpage. Accessed September 11, 2014. <http://omaha-fire.org/why-do-fire-trucks-respond-to-medical-emergencies>

<sup>4</sup> NFPA 1710: Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments. Section 4.1.2.1

full alarm assignment at a fire suppression incident

- 240 seconds or less travel time for the arrival of a unit with first responder with automatic external defibrillator (AED) or higher level capability at an emergency medical incident
- 480 seconds or less travel time for the arrival of an advanced life support (ALS) unit at an emergency medical incident, where this service is provided by the fire department provided a first responder with AED or basic life support (BLS) unit arrived in 240 seconds or less travel time

Most of the factors affecting response time are outside of the realm of facility design. However, drive time is heavily influenced by site selection. This includes physical distance to the emergency, congestion and intersections in path, and alternative route availability. We have placed the Fire Station at the location on site which most limits the response time to population centers. Ideally, a fire station would not be placed immediately adjacent to a residential area to reduce disruption from sirens and vehicle noise which could take place at any time of the day and overnight. However, in this case, the benefits to community welfare outweigh the costs to an unbuilt development.

While the location of the Waikapu Fire Station was sited within the 100 acre site, no additional facility planning was done for this building.

### Warehouse (Consolidated)

The Warehouse should be located in the same central zone as the Admin. Office and Vehicle Maintenance group. The Warehouse will have the strongest relationship to DWS as they currently have the most efficient Warehouse operation and the County has expressed a desire for them to set the standard for the new Warehouse facility. It also needs to have easy access to the road for delivery trucks and generous maneuvering areas for equipment. It is possible to build additional warehouse type buildings for other county-wide needs such as a warehouse for used furniture and equipment waiting re-purpose, auction, or disposal.

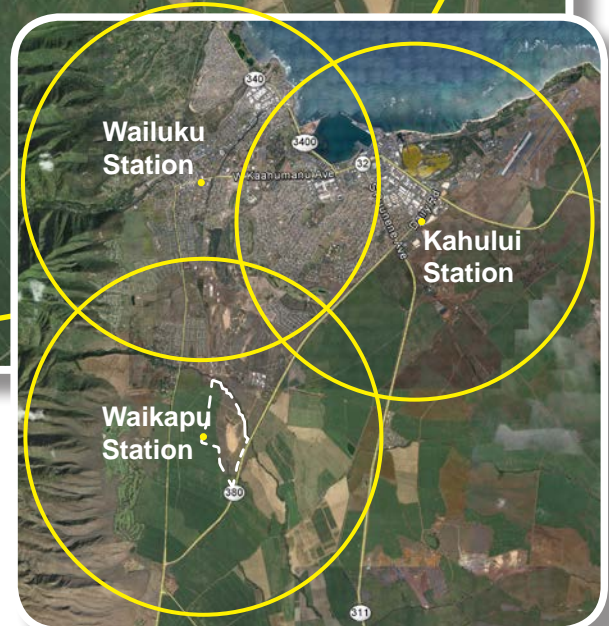
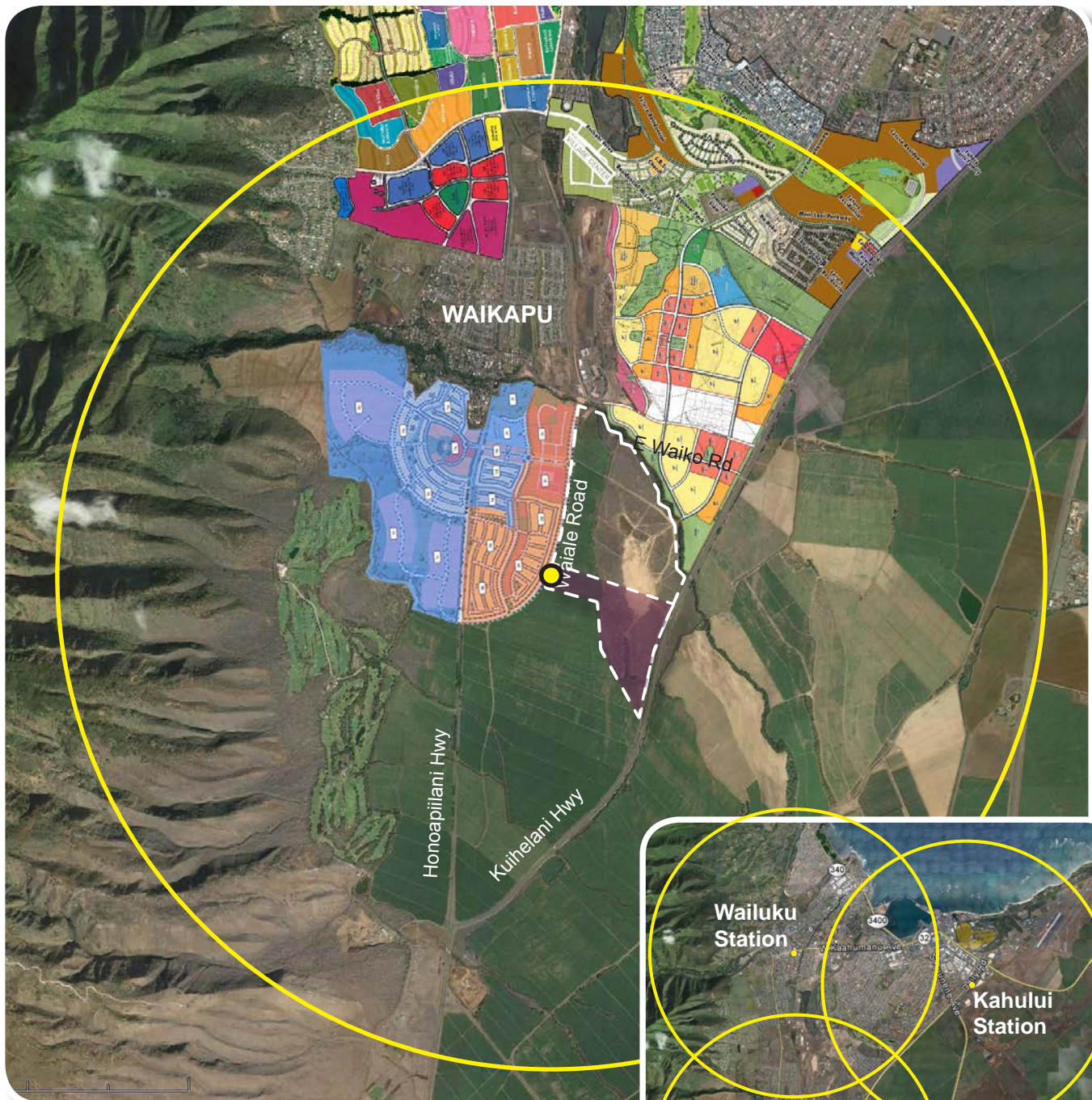
### DWS Yard

The DWS Yard should be located adjacent to the Warehouse and Admin. Office. It requires access for



# SITE ANALYSIS

## FOUR MINUTE FIRE DEPARTMENT DRIVE TIME



The yellow circle on the image above indicates the approximate area of 2.33 miles which roughly correlates to a 4 minute drive time for fire personnel assuming travel at 35 miles per hour. The Wailuku Fire Station is proposed near an intersection on the new Waiale Road across from planned residential development. This location allows quick and convenient access to existing Waikapu and the new master planned developments surrounding it, as well as access to the hard to reach Maalaea area.

large vehicles and therefore would logically share a route with DPW and DEM because of the industrial nature of the groups.

#### **DPW Yard**

The DPW Yard will need easy access in and out of the site for large vehicles on a 24-hour a day basis. Proximity to the consolidated working groups is preferred.

#### **DEM Yard**

The DEM Yard will need easy access in and out of the site for large vehicles. Proximity to the consolidated working groups is preferred. Additionally, DEM should be located downwind to limit odors blowing across the site from refuse trucks and containers.

#### **MFD Suite (Vehicle Maintenance, Warehouse, Yard, Admin. Office)**

The MFD Suite should be located at the northwest corner of the site adjacent to the Waikapu Fire Station to keep with the department's internal culture of community and open communication.

#### **DPR Yard**

The DPR Yard should be located adjacent to the 209 acre Regional Park and the consolidated support service. DPR will benefit by subscribing to inventory services provided by a consolidated warehouse. DPR does not have a relationship to the infrastructure group of DWS, DPW, and DEM. Of the departments and consolidated group areas, DPR is the most adaptable to an irregular site because of the flexibility of its horticulture functions.



# 100 ACRE FACILITY PLAN

## SITE PLAN





## 7. PHASING

A key component to the build out of the Waikapu facilities will be phasing of the infrastructure and buildings. Considerations for phasing will include operational necessities for relocating departments and the relative priority of relocation for each existing site. The County budget will also factor into the relocation and help determine the phasing and relocation schedule. The phasing plan included in this chapter assumes a “fast track” time line for the construction of the base yard facilities. Phases 1 - 3 were divided into sub-phases that will provide the County with flexibility in the construction schedule and budgeting of the project. Future reorganization of the individual departments may also affect the phasing schedule of the base yard facility. As the planning for department reorganization has not started, reorganization was not a major factor in the development of the phasing schedule.

### **Project Funding Availability**

The County of Maui Six Year Capital Program for fiscal year 2016 includes numerous line item projects directly and indirectly related to the Waikapu Facility. Infrastructure improvements such as the Waiale Road Extension and Waiko Road Improvement will help provide safe, reliable means of site access. The Central Maui Regional Park and Waiale Road Extension are possible “partner projects” to share initial offsite infrastructure costs with items such as a non-potable irrigation well, water line, storm sewer, etc. Direct sources of funding are line items for the Waikapu Base Yard, Waikapu Fire Station, and Waikapu Fire Mechanic Shop and Admin Building.

### **Infrastructure Phasing Opportunities**

The 100 acre site is located in an undeveloped area previously utilized for sugar cane production. There is no existing infrastructure in the immediate vicinity of the project site. Development of the site will involve the construction of new infrastructure including roadways, water, sewer, storm drainage, electrical power, and telecommunications. Phasing of the infrastructure for offsite improvements should

be coordinated with the Waiale Road Extension and Central Maui Regional Park Project. An overall utilities map of the project site and offsite utilities is included on page 150.

A phasing and build-out schedule for the construction of the base yard facility is included on page 140. The phasing and build-out schedule is “fast tracked” for a completion time of seven years for the entire facility. Early start and longer construction schedules have also been incorporated into the phasing plan.

Phase 1 of the project will include both onsite and offsite improvements. Phase 1 is further divided into seven sub-phases, “A” to “G”. Phase 1A includes preliminary site work including grading, gravel pavement and fencing. This phase will provide a secured area on the site to allow each department to store containers or equipment that is not essential for daily operation. This will free space in the space in their existing base yards and begin active use of the 100 acre site.

Phase 1B consists of improvements to the intersection of Kuihelani Highway and Road “A”. Improvements to the intersection will include the construction of traffic signals, turning lanes, and drainage improvements to facilitate easier access into and out of Road “A”. It is recommended that Phase 1B be performed in conjunction with Phase 1C. Phase 1B may be delayed to the end of Phase 1. However, it is recommended that the intersection of Road “A” and Kuihelani Highway be limited to right-in and right-out vehicle movements to eliminate the need to cross the drainage swale in the Kuihelani Highway median.

Phase 1C includes the construction site work including the construction of the eastern segment of Road “A”, Road “B”, and associated utility lines located within these roadways including water, storm drainage, electrical power, and telecommunications. Utility stub outs will be provided to each department base yard site. The stormwater retention basin located in the southeast corner of the 100 site will be constructed during this phase.

*Continued on page 138*

The Waiale Road Extension construction money is proposed for FY 2017, the same year as the base yard. To reduce the need for offsite improvements costs to be borne by the budget for the base yard facilities, it is recommended that the base yard connect to the utility systems constructed as part of the Waiale Road Extension. If the construction of Waiale Road Extension is delayed, the base yard project will need to construct the required offsite improvements to operate the base yard facility. The ROM cost estimate to construct these facilities is discussed further in Chapter 8.

Phase 1D DWS Base Yard, 1E Consolidated Warehouse, 1F Consolidated Support Services Admin Office, and 1G Consolidated Vehicle Maintenance Facility includes the construction of the buildings, structures, and site work for each facility. If full funding of the individual base yards facilities is not received, each site may be divided into individual projects to accommodate available funds. In addition, as the full benefits of Phase 1F Consolidated Support Services Admin Office may not be realized until additional departments relocate to the base yard facility, Phase 1F may be constructed as a part of Phase 2.

Phase 2 is divided into two sub-phases, 2A DPW Base Yard and DEM Base Yard and includes the construction of the buildings, structures, and site work for each facility.

Phase 3 is divided into four sub-phases including 3A Site Work for Road "A" Extension, 3B MFD Base Yard Facility, 3C Waikapu Fire Station, and 3D Emergency Management Center CDA. Phase 1 includes the extension of Road "A" from the intersection of Road "A" and Road "B" to the Waiale Road Extension. Improvements will include grading, paving, and installation of storm drainage lines. Phase 3B includes the construction of buildings, structures, and site work for the MFD Facility with the exception of the Waikapu Fire Station. Phase 3C and 3D are not included as part of this project.

Phase 4 of the project will include the construction of buildings, structures and site work for the DPR facility.

## Prioritizing the 100 Acre Waikapu Facility

Relocation and new construction priorities are based on a number of factors. Ultimately, the operation of facilities critical to the health, safety, and welfare of Maui County communities are the highest priority. Facilities meeting this criteria that are in vulnerable locations or operating conditions receive the greatest priority points for relocation. As a result, DWS ranks highest in the Relocation/New Construction Priority Matrix (see next page). DWS houses critical infrastructure vital to the welfare of the entire island. Its current facility at Naska Base Yard exists in an area vulnerable to tsunamis and other natural disasters.

The secondary priorities for relocation are Kaohu Base Yard (DPW & DEM), Kahului Station (MFD Mechanics), and the Leased Site (DEM). All of these locations exist in either a flood zone, tsunami evacuation zone, or both. Other factors contributing to the relocation of these groups are operational inefficiencies, aging facilities, and other hazards such as an incoming roadway adjacent to the MFD Kahului Station Mechanic's Shop.

The Waikapu Fire Station is the next highest priority. Listed on the county budget to be designed and constructed by 2020, the Waikapu Fire Station will serve existing Waikapu and many of the newly planned surrounding areas including Waiale and Waikapu County Town. The decision to prioritize the Waikapu Fire Station is not as clear since it is not an existing function being physically relocated, however it will provide services to protect the life and property to the rapidly growing Waikapu community.

The Emergency Management Center of the CDA is another facility geared toward the health, safety and welfare of the Maui County community. However, the new facility will be a replacement for the still functional facility at the Kalana O' Maui Building. The design and construction cost of the new facility is anticipated to be in excess of 44 million dollars.<sup>1</sup> Therefore the decision to construct the facility must be weighed carefully against the less costly needs of other departments. This analysis takes the approach of targeting goals that are achievable by constructing buildings rather than building less costly facilities first.

The lowest priority item listed is the DPR complex. Some phasing may be possible for this group to accommodate the needs of the Beautification Division's work in the new adjacent 209 acre regional

<sup>1</sup> County of Maui Data Center Report. April 2007 by EYP MCF, PBR Hawaii and CJS Group Architects. Page 1-2

Relocation/New Construction Priority Decision Matrix											
Points Possible*	Priority Considerations	Kaohu Base Yard (DPW, DEM)	Collection Station (DEM)	Naska Base Yard (DWS)	Kahului Station (MFD)	Warehouse (MFD, MPD)	War Memorial Complex (DPR)	Leased Site (DEM)	W-K WWRF (DEM)	Kalana O Maui Building (CDA)	Waikapu Fire Station
5	Existing location in a flood zone.	5	0	1	0	0	0	5	5	0	0
5	Existing location is in tsunami evacuation zone	0	5	5	5	0	0	5	5	0	0
10	Operational priority in disaster	7	5	10	6	3	1	1	2	10	10
3	Existing location is not rent free.	0	0	0	0	0	0	3	0	0	0
3	Existing location is undersized.	3	0	0	3	0	0	0	0	3	3
3	Existing location is in disrepair.	2	1	1	0	0	1	0	0	3	0
3	Dispersion of existing locations is causing operational inefficiencies.	2	2	0	0	3	1	2	2	0	0
3	Department is self-funded and can relocate with fewer approval challenges.**	0	3	3	0	0	0	3	3	0	0
5	Department has dedicated line-item funding in six-year plan for solo relocation.	0	0	0	5	0	0	0	0	0	5
<b>Total</b>		19	16	20	19	6	3	19	17	16	18
<b>Ranking</b>		2-4	7-8	1	2-4	9	10	2-4	6	7-8	5

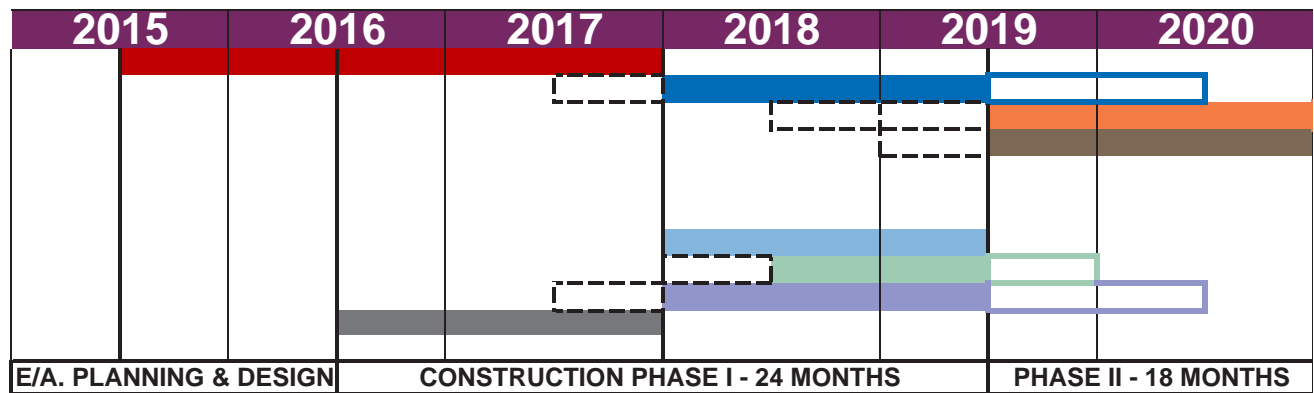
\* Indicating the possible highest priority points in the considerations catogorires. Lowest possible point is 0 in all catogories.

\*\*DEM and DWS are funded through customer fees, not taxes. Their ability to relocate will also be based on the department's financial ability to pay for construction.

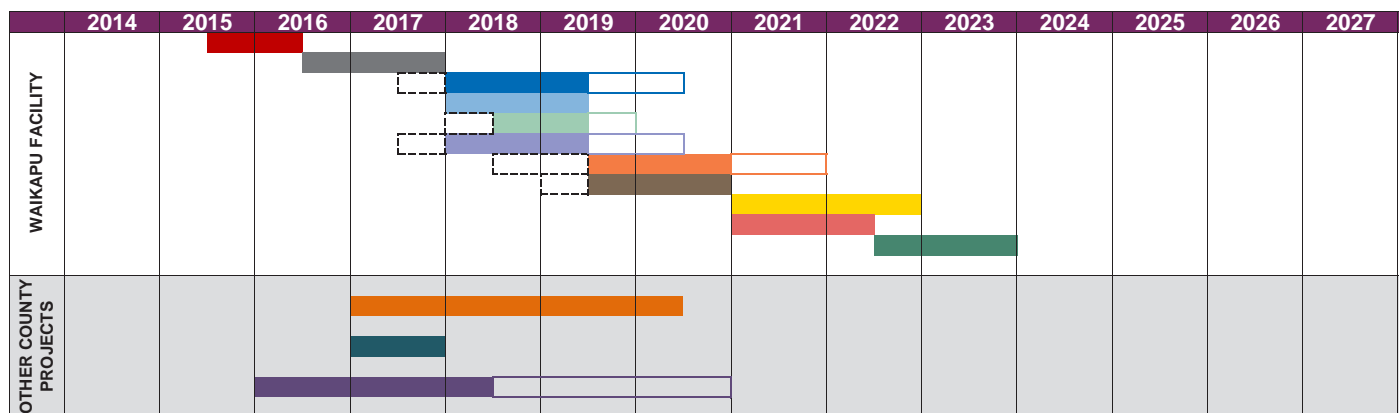
park. However, the Building Maintenance and Repair Division of DPR has a new facility under construction at the time of this report. It is not anticipated there will be urgent need to relocate to the Waikapu Facility, although if another County function can be substituted at the new facility a more expeditious relocation could be rationalized.

# PROPOSED PHASING

## WAIKAPU FACILITY BUILD-OUT



## WAIKAPU FACILITY BUILD-OUT AND SURROUNDING DEVELOPMENTS TO 2040



### WAIKAPU FACILITY LEGEND

- E/A, PLANNING & DESIGN
- PHASE 1A ~1C - INFRASTRUCTURE
- PHASE 1D - DWS YARD
- PHASE 1E - CONSOLIDATED WAREHOUSE
- PHASE 1F - CONSOLIDATED SUPPORT SERVICE OFFICE
- PHASE 1G - CONSOLIDATED VEHICLE MAINTENANCE
- PHASE 2A - DPW YARD
- PHASE 2B - DEM YARD
- PHASE 3C - MFD SUITE
- PHASE 3D - EMERGENCY MANAGEMENT CENTER (CDA)
- PHASE 4 - DPR YARD

### OTHER COUNTY PROJECTS LEGEND

- WAIKALE ROAD EXTENSION CONSTRUCTION
- WAIKO ROAD IMPROVEMENTS CONSTRUCTION
- CENTRAL MAUI REGIONAL PARK CONSTRUCTION
- POSSIBLE LONGER BUILDOUT
- FAST TRACK
- POSSIBLE EARLY START / TEMPORARY INFRASTRUCTURE





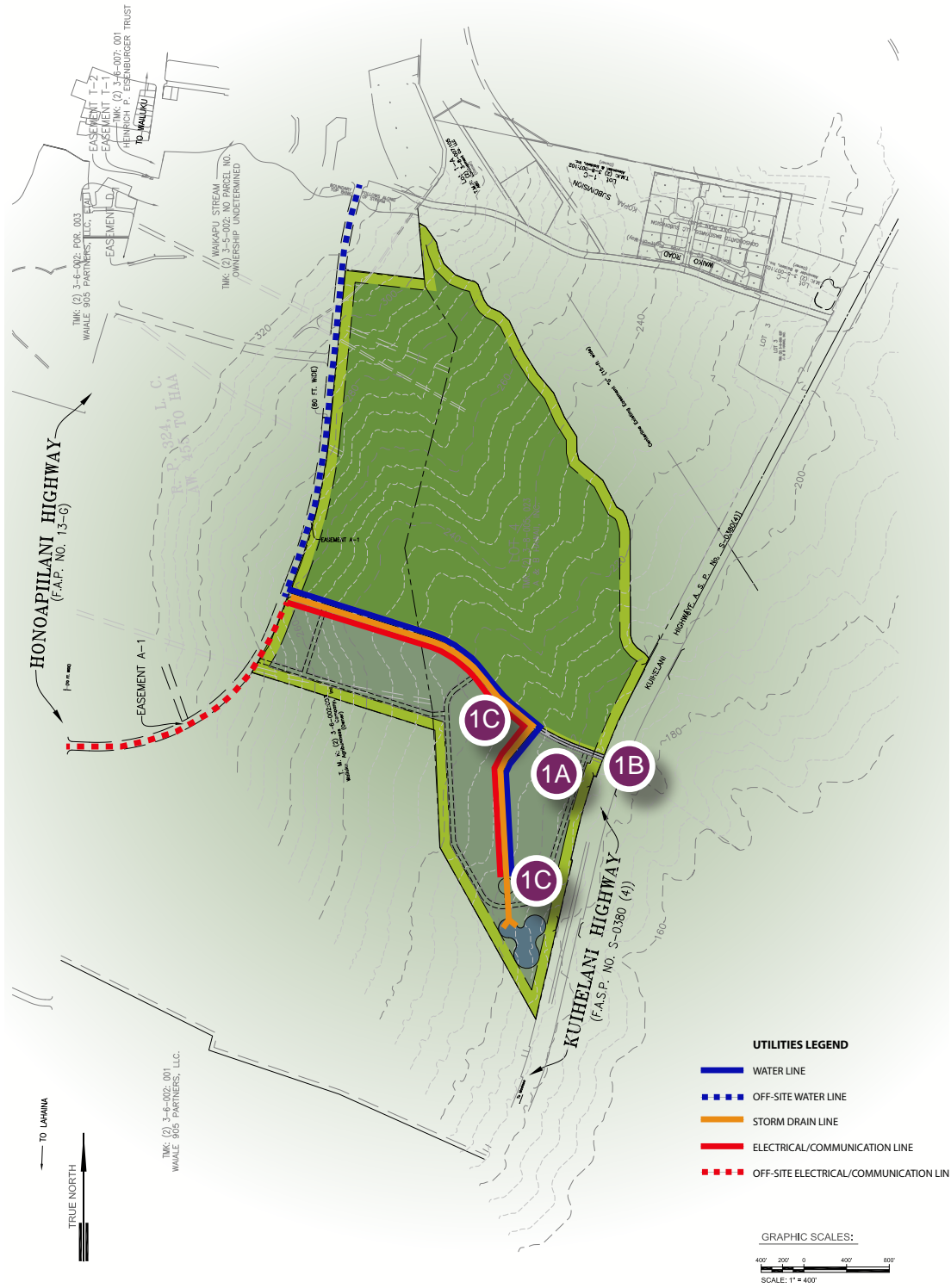
# PROPOSED PHASING

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Phase 1: Infrastructure and Base Yard Phasing Summary	
Key	Description
1A	Preliminary Site Work <ul style="list-style-type: none"><li>• Mobilization</li><li>• Field Office</li><li>• Basic grading and fencing</li></ul>
1B	Offsite Improvements - Kuihelani Highway Intersection improvements
1C	Site Work <ul style="list-style-type: none"><li>• Road A - Kuihelani Highway to Road B intersection</li><li>• Road A extention to Waiale Corridor is excluded.</li><li>• Road B</li><li>• Water Line from Waiale Corridor</li><li>• Electrical/Communciation Lines from Waiale Corridor</li><li>• Storm Drainage along Road B</li><li>• Retention Basin</li></ul>

# PROPOSED PHASING

## PHASE 1A through C - 100 ACRE UTILITIES



# PROPOSED PHASING

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Phase 1: Infrastructure and Base Yard Phasing Summary	
Key	Description
1D	Department of Water Supply Base Yard
1E	Consolidated Warehouse Facility Base Yard
1F	Consolidated Support Services Admin Office Facility
1G	Consolidated Vehicle Maintenance Facility Base Yard



# PROPOSED PHASING

## PHASE 1D through G - DWS, WAREHOUSE, SUPPORT SERVICE ADMIN OFFICE, VEHICLE MAINTENANCE



# PROPOSED PHASING

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Phase 2: Infrastructure and Base Yard Phasing Summary	
Key	Description
2A	Department of Public Works Base Yard
2B	Department of Environmental Management Base Yard

# PROPOSED PHASING

## PHASE 2 - DPW, DEM



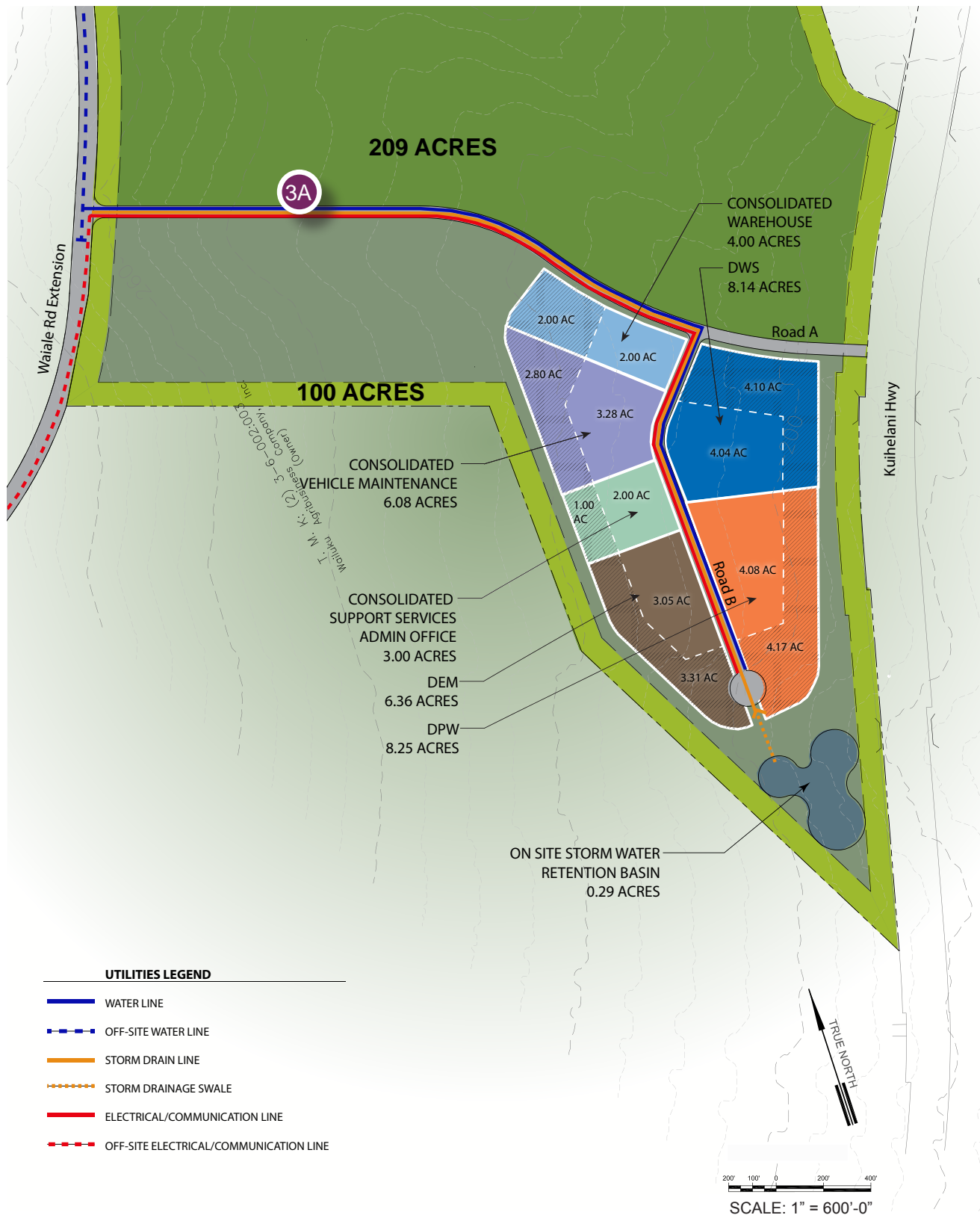
# PROPOSED PHASING

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Phase 3: Infrastructure and Base Yard Phasing Summary	
Key	Description
3A	Site Work - Road A Extension from Road B intersection to Waiale Corridor Extension



## PHASE 3A - 100 ACRE UTILITIES



# PROPOSED PHASING

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Phase 3: Infrastructure and Base Yard Phasing Summary	
Key	Description
3B	Maui Fire Department Base Yard
3C	Waikapu Fire Station (Excluded)
3D	Civil Defence Agency Facility (Excluded)

# PROPOSED PHASING

## PHASE 3B & D - MFD, CDA



# PROPOSED PHASING

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Phase 4: Infrastructure and Base Yard Phasing Summary	
Key	Description
4	Department of Parks and Recreation Base Yard



## PHASE 4 - DPR





## 8. COST ESTIMATE

Cost will be a primary factor in the development of the base yard. A ROM cost estimate has been prepared for each phase and is included on the following page. It is important to note that this is a high level construction cost estimate for planning purposes only. Design costs for the base yard facilities are not included in the ROM cost estimate. A probable construction cost estimate should be prepared at the concept design level of the base yard facility as specific design details are not developed in the master planning page.

As indicated in Chapter 7, the base yard facility has a construction schedule of seven years from 2017 to 2023. The ROM cost for the full build out of the site is approximately \$108,681,000 based on 2017 dollars. Design drawings were not created in the master planning phase. Therefore assumptions were made to develop costs for each base yard site. A copy of the ROM cost estimate is included in Appendix G. A 20% design contingency was included in the estimate to account for design details that cannot be specified at the master planning stage.

The phasing plan included in Chapter 7 assumed that the offsite improvements for water, electrical, and telecommunications service to the base yard facility would be provided from Waiale Road Extension. This would result in a cost savings of approximately \$11.5 million to the base yard project. A breakdown of the ROM cost estimate for offsite improvements required by the base yard facility if the Waiale Road Extension project were delayed is included in Appendix G. If Waiale Road Extension is delayed it is recommended that offsite infrastructure costs be shared with the Central Maui Regional Park.

Based on the “fast track” phasing and build-out schedule in Chapter 7, Phase 1 construction will be completed within 3 years. This results in an average ROM construction cost of \$19.1 million per year. Phase 2 is scheduled to be completed in 1.5 years with an average construction cost of \$12.0 million per year. Phase 3 is scheduled to be complete in 2 years with an average construction cost of \$10.4 million per year. Phase 4 is schedule to be completed in 1.5 years with an average construction cost of \$8.4 million per year.

The average Council Approved Capital Improvement Program (CIP) Budget from fiscal year 2013 to 2015 was \$123.0 million. Assuming that the average CIP budget will be maintained and will be escalating to 2017 dollars, the average CIP budget in 2017 dollars is \$127.5 million. It is estimated that annual budget for the base yard facilities will account for approximately 4 - 15 % of the annual CIP budget per year.

Project Cost Summary by Phase and Department		
Phase	Description	Cost
1A	Preliminary Site Work	1,104,000
1B	Offsite Improvements - Kuihelani Highway Intersection Improvements	2,312,000
1C	Site Work	13,932,000
1D	Department of Water Supply (DWS)	9,257,000
1E	Consolidated Warehouse	7,650,000
1F	Consolidated Support Services Admin Office	12,080,000
1G	Consolidated Vehicle Maintenance	10,955,000
<b>1</b>	<b>PHASE 1 TOTAL</b>	<b>57,290,000</b>
2A	Department of Public Works (DPW) Yard	10,805,000
2B	Department of Environmental Management (DEM) Yard	7,250,000
<b>2</b>	<b>PHASE 2 TOTAL</b>	<b>18,055,000</b>
3A	Site Work -Road A (Road B to Waiale Corridor Extension)	4,522,000
3B	Maui Fire Department (MFD)	16,196,000
3C	Waikapu Fire Station (Excluded)	-
3D	Emergency Management Center (CDA - Excluded)	-
<b>3</b>	<b>PHASE 3 TOTAL</b>	<b>20,718,000</b>
4	Department of Parks and Recreation (DPR)	12,618,000
<b>4</b>	<b>PHASE 4 TOTAL</b>	<b>12,618,000</b>
<b>ALL</b>	<b>PROJECT TOTAL</b>	<b>\$108,681,000</b>

Per Rough Order of Magnitude Cost Estimate performed by J. Uno and Associates. Refer to Appendix G for more details.



## 9. NEXT STEPS

It is recommended that the following steps be taken to progress the build-out of the Waikapu base yard facilities:

- Finalize parcel boundaries / extents within the 309 acres and submit subdivision application for processing.
- Retain a consultant to perform an Environmental Assessment and determine if an Environmental Impact Statement will be required.
- Complete Change in Zoning Application Packet and submit to Department of Planning for processing.
- Initiate request to the State Land Use Commission for reclassification of the parcel from Agricultural to Urban or apply for a Special Use Permit.
- Develop contracting approach for the design and construction of the base yard facilities.
- Modify the COM 6 year funding plan to implement full build-out of the site.
- Retain a consultant to perform the design of infrastructure required in Phase 1.
- Retain a consultant(s) to perform the design of the individual base yard facilities in Phase 1.
- Meet with the individual department leadership and key staff for each base yard facility to obtain acceptance for the relocation of the base yard facilities to Waikapu. Evaluate individual department structure and COM long-term operation goals and vision, to determine if the reorganization of staff will improve the operational efficiency of the COM.
- Each department should develop a relocation strategy to move from their existing facilities to Waikapu. This relocation strategy will be critical for DEM and DWS as they are core services for the County. In addition, it is anticipated that these departments will be required to fund their relocation internally through fees collected. Proper financial planning will be important for the successful relocation of these departments.

Tasks	2015	2016	2017
Submit subdivision application			
Perform Environmental Assessment (EA)			
Perform Environmental Impact Statement (EIS)			
Submit Change in Zoning Application			
Initiate request for Land Use reclassification			
Develop strategy and planning for relocation - each department			
Planning to contract A/E for design and construction			
Retain contractor to finalize design of infrastructure in Phase 1			
Retain contractor to design base yard facilities in Phase 1			



# ***APPENDIX A: EXISTING SPACE INVENTORY***

The following pages provide a table with a detailed explanation of the 238 existing spaces evaluated to generate the 275,000 plus square feet of data for this report. The table also indicates the function that was assigned to each space for the purpose of generating the consolidated totals. Square footages and room names were typically provided by the County of Maui.

DEPARTMENT	DIVISION	LOCATION	BUILDING NAME	CONSOLIDATION	FUNCTION
DWS	LAB	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	LABORATORY
DWS	LAB	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	LABORATORY
DWS	LAB	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	LABORATORY
DWS	LAB	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	KITCHEN/BREAK ROOM
DWS	LAB	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	RESTROOM
DWS	LAB	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	LABORATORY
DWS	LAB	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	LABORATORY
DWS	LAB	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	LABORATORY
DWS	LAB	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	LABORATORY
DWS	LAB	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	MECH / ELEC RM
DWS	ADMINISTRATION	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	OFFICE
DWS	ADMINISTRATION	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	OFFICE
DWS	ADMINISTRATION	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	OFFICE
DWS	ADMINISTRATION	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	OFFICE
DWS	ADMINISTRATION	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	OFFICE
DWS	ADMINISTRATION	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	IT ROOM
DWS	ADMINISTRATION	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	IT ROOM
DWS	ADMINISTRATION	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	CONFERENCE ROOM
DWS	ADMINISTRATION	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	RESTROOM
DWS	ADMINISTRATION	NASKA BASE YARD	ADMIN & LAB BUILDING	ADMIN. OFFICE	COVERED STORAGE
DWS	FIELD OPS	NASKA BASE YARD	FIELD OPERATIONS	DWS YARD	OFFICE
DWS	FIELD OPS	NASKA BASE YARD	FIELD OPERATIONS	DWS YARD	CONFERENCE ROOM
DWS	FIELD OPS	NASKA BASE YARD	FIELD OPERATIONS	DWS YARD	KITCHEN/BREAK ROOM
DWS	FIELD OPS	NASKA BASE YARD	FIELD OPERATIONS	DWS YARD	OFFICE
DWS	ADMINISTRATION	NASKA BASE YARD	FIELD OPERATIONS	DWS YARD	OFFICE
DWS	FIELD OPS	NASKA BASE YARD	FIELD OPERATIONS	DWS YARD	RESTROOM
DWS	FIELD OPS	NASKA BASE YARD	FIELD OPERATIONS	DWS YARD	RESTROOM
DWS	FIELD OPS	NASKA BASE YARD	FIELD OPERATIONS	DWS YARD	COVERED STORAGE
DWS	PLANT OPS	NASKA BASE YARD	PLANT OPERATIONS	DWS YARD	OFFICE
DWS	PLANT OPS	NASKA BASE YARD	PLANT OPERATIONS	DWS YARD	OFFICE
DWS	PLANT OPS	NASKA BASE YARD	PLANT OPERATIONS	DWS YARD	OFFICE
DWS	PLANT OPS	NASKA BASE YARD	PLANT OPERATIONS	DWS YARD	WORKSHOP



ROOM NAME	2014 EMPLOYEE COUNT	2040 EMPLOYEE COUNT	2014 AREA (sf)	2040 PROJECTION (sf)	% CHANGE	2014 EMPLOYEE VEHICLE COUNT	2014 STANDARD VEHICLE COUNT	2014 LARGE VEHICLE COUNT	2014 X-LARGE VEHICLE COUNT	2040 EMPLOYEE VEHICLE COUNT	2040 STANDARD VEHICLE COUNT	2040 LARGE VEHICLE COUNT	2040 X-LARGE VEHICLE COUNT	COMMENTS
Lab	4	5	650	845	130%									
Micro Lab Room			500	650	130%									
Office	1	2	500	100	20%									
Kitchen/Break Room			150	150	100%									
Restroom			84	105	125%									35 sf x 3
Storage			500	400	80%									
Emergency shower/eyewash			500	25	5%									
Trailer Storage			500	-	0%									
Ice machine, lockers, mud Rm			-	-										160 sf requested
Mechanical Rm			500	650	130%									
Field Ops Chief Office	1	1	120	120	100%									
Plant Ops Chief Office	1	1	120	120	100%									
Treatment Plant Chief Office	1	1	108	120	111%									
Dispatch (1)	1	1	120	100	83%									
Reception/Clerk/Dispatch (2)	2	3	300	300	100%									
SCADA control Room	1	2	168	200	119%									
IT Server Room			120	150	125%									NEED REDUNDANCY (PER MTGS MIN)
Conference Room			440	600	136%									
Restroom			30	140	467%									35 sf x 4
Storage - office supplies			90	120	133%									
Construction/Maintenance Office	2	3	200	300	150%									
Briefing, locker room	23	30	550	800	145%									
Kitchen/Break Room			230	250	109%									Shared with Plant Ops
Engineer Div. Inspector Office	4	5	180	260	144%									relocate?
Safety Officer	1	1	30	60	200%									relocate?
Restroom			60	105	175%									35sf x 3
Restroom ADA			76	99	130%									
Storage - tools, equipment			1,000	1,600	160%									assumed 20 x 50
Pumps, Electrician Supervisor (3)	1	1	200	300	150%									
Electronic Tech, Backflow Office	2	3	420	600	143%									
Electricians, pump mech room			260	360	138%									
Plant Ops workshop bay/pump mechanic			1,000	1,600	160%									assumed 20 x 50

DEPARTMENT	DIVISION	LOCATION	BUILDING NAME	CONSOLIDATION	FUNCTION
DWS	WAREHOUSE	NASKA BASE YARD	PARTS WAREHOUSE	WAREHOUSE	OFFICE
DWS	WAREHOUSE	NASKA BASE YARD	PARTS WAREHOUSE	WAREHOUSE	OFFICE
DWS	WAREHOUSE	NASKA BASE YARD	PARTS WAREHOUSE	WAREHOUSE	WAREHOUSE
DWS	WAREHOUSE	NASKA BASE YARD	PARTS WAREHOUSE	WAREHOUSE	WAREHOUSE
DWS	MECHANICS	NASKA BASE YARD	METAL/VEHICLE MAINTENANCE SHOP	VEHICLE MAINTENANCE	VEHICLE MAINTENANCE BAY
DWS	MECHANICS	NASKA BASE YARD	METAL/VEHICLE MAINTENANCE SHOP	VEHICLE MAINTENANCE	OFFICE
DWS	SUPPORT SERVICES	NASKA BASE YARD	METAL/VEHICLE MAINTENANCE SHOP	DWS YARD	WORKSHOP
DWS	SUPPORT SERVICES	NASKA BASE YARD	METAL/VEHICLE MAINTENANCE SHOP	DWS YARD	OFFICE
DWS	SUPPORT SERVICES	NASKA BASE YARD	METAL/VEHICLE MAINTENANCE SHOP	DWS YARD	WORKSHOP
DWS	SUPPORT SERVICES	NASKA BASE YARD	METAL/VEHICLE MAINTENANCE SHOP	DWS YARD	COVERED STORAGE
DWS	SUPPORT SERVICES	NASKA BASE YARD	METAL/VEHICLE MAINTENANCE SHOP	DWS YARD	WORKSHOP
DWS	MECHANICS	NASKA BASE YARD	METAL/VEHICLE MAINTENANCE SHOP	DWS YARD	RESTROOM
DWS	WAREHOUSE	NASKA BASE YARD	OUTDOOR SPACE	WAREHOUSE	UNCOVERED STORAGE
DWS	FIELD OPS	NASKA BASE YARD	OUTDOOR SPACE	WAREHOUSE	STOCKPILE
DWS	SUPPORT SERVICES	NASKA BASE YARD	OUTDOOR SPACE	VEHICLE MAINTENANCE	FUEL PUMP
DWS	SUPPORT SERVICES	NASKA BASE YARD	OUTDOOR SPACE	DWS YARD	UNCOVERED PARKING - EMPLOYEE
DWS	SUPPORT SERVICES	NASKA BASE YARD	OUTDOOR SPACE	DWS YARD	UNCOVERED PARKING - LIGHT V
DWS	SUPPORT SERVICES	NASKA BASE YARD	OUTDOOR SPACE	DWS YARD	UNCOVERED PARKING - HEAVY V
DWS	SUPPORT SERVICES	NASKA BASE YARD	OUTDOOR SPACE	DWS YARD	UNCOVERED PARKING - HEAVY V
DWS	SUPPORT SERVICES	NASKA BASE YARD	OUTDOOR SPACE	DWS YARD	UNCOVERED PARKING - HEAVY V
DWS	SUPPORT SERVICES	NASKA BASE YARD	OUTDOOR SPACE	DWS YARD	COVERED STORAGE
DWS	SUPPORT SERVICES	NASKA BASE YARD	OUTDOOR SPACE	ADMIN. OFFICE	DOCUMENT STORAGE
DWS	SUPPORT SERVICES	NASKA BASE YARD	OUTDOOR SPACE	ADMIN. OFFICE	UNCOVERED PARKING - EMPLOYEE
DWS	SUPPORT SERVICES	NASKA BASE YARD	OUTDOOR SPACE	VEHICLE MAINTENANCE	UNCOVERED PARKING - EMPLOYEE
DWS	SUPPORT SERVICES	NASKA BASE YARD	OUTDOOR SPACE	WAREHOUSE	UNCOVERED PARKING - EMPLOYEE
DWS	SUPPORT SERVICES	FUTURE SITE	GARAGE	DWS YARD	COVERED PARKING - HEAVY V
DPW	HIGHWAYS ADMIN	KAOHU BASE YARD	HIGHWAY ADMIN. OFFICE	ADMIN. OFFICE	OFFICE
DPW	HIGHWAYS ADMIN	KAOHU BASE YARD	HIGHWAY ADMIN. OFFICE	ADMIN. OFFICE	OFFICE
DPW	HIGHWAYS ADMIN	KAOHU BASE YARD	HIGHWAY ADMIN. OFFICE	ADMIN. OFFICE	OFFICE

ROOM NAME	2014 EMPLOYEE COUNT	2040 EMPLOYEE COUNT	2014 AREA (sf)	2040 PROJECTION (sf)	% CHANGE	2014 EMPLOYEE VEHICLE COUNT	2014 STANDARD VEHICLE COUNT	2014 LARGE VEHICLE COUNT	2014 X-LARGE VEHICLE COUNT	2040 EMPLOYEE VEHICLE COUNT	2040 STANDARD VEHICLE COUNT	2040 LARGE VEHICLE COUNT	2040 X-LARGE VEHICLE COUNT	COMMENTS
Service Counter	1	2	150	150	100%									2'x 15'
Office	1	1	210	210	100%									
Ground floor warehouse			5,300	8,000	151%									loading dock,? Expansion other dept.,consolidate?
Mezzanine warehouse			1,100	1,500	136%									misc storage- consolidate?
Vehicle Maint. Shop 3 bays	4	5	3,200	4,000	125%									2014 area but not bay size not provided. Assumed future 20 x 40 bays
Office- Mechanics	1	1	210	250	119%									consolidate?
Meter Shop /welding	4	5	1,400	1,400	100%									
Office- Meter Shop	1	1	140	200	143%									
Workshop (outside of warehouse)			1,000	1,300	130%									OPEN
Storage			160	200	125%									
Carpenter Shop/storage	2	3	630	800	127%									
Restroom			230	299	130%									
Boneyard (pipes, tanks, fittings)			10,000	13,000	130%									
Material Stockpile (sand, gravel base, coldmix, backfill)			5,000	5,000	100%									consolidate?
Fuel tank station 3K gas, 1K diesel, not include containment			1,000	1,300	130%									diesel tank to double
Employee parking			23,520	30,625	130%	96				125				96 existing OL, 125 OL x 245sf
Dept Vehicles - 63 SUV/Lt Trucks			15,435	20,090	130%		63				82			63 truck/SUV x 245 sf
Dept Vehicles -9 dump truck			6,048	8,064	133%			9				12		9 x 672 sf
Dept Vehicles - 2 Truck Tractor 65 ft			1,344	2,016	150%			2				3		2 x 672 sf
Dept Vehicles - 2 boom truck			1,344	2,016	150%			2				3		2 x 672 sf
Quonset Hut Equip Storage			2,900	3,770	130%									
24 x 8 Containers (4) general storage			750	975	130%									
Employee parking			4,165	5,390		17				22				
Employee parking			980	1,274		4								
Employee parking			490	637		2								
Future Covered Parking - 7 trucks			-	2520										
Reception	1	1	-	200										
Open Office/Sec II	1	5	154	80	52%									
Office -Admin ass't	1	1	110	60	55%									

DEPARTMENT	DIVISION	LOCATION	BUILDING NAME	CONSOLIDATION	FUNCTION
DPW	HIGHWAYS ADMIN	KAOHU BASE YARD	HIGHWAY ADMIN. OFFICE	ADMIN. OFFICE	OFFICE
DPW	HIGHWAYS ADMIN	KAOHU BASE YARD	HIGHWAY ADMIN. OFFICE	ADMIN. OFFICE	OFFICE
DPW	HIGHWAYS ADMIN	KAOHU BASE YARD	HIGHWAY ADMIN. OFFICE	ADMIN. OFFICE	OFFICE
DPW	HIGHWAYS ADMIN	KAOHU BASE YARD	HIGHWAY ADMIN. OFFICE	ADMIN. OFFICE	KITCHEN/BREAK ROOM
DPW	HIGHWAYS ADMIN	KAOHU BASE YARD	HIGHWAY ADMIN. OFFICE	ADMIN. OFFICE	RESTROOM
DPW	HIGHWAYS ADMIN	KAOHU BASE YARD	HIGHWAY ADMIN. OFFICE	ADMIN. OFFICE	COVERED STORAGE
DPW	HIGHWAYS ADMIN	KAOHU BASE YARD	HIGHWAY ADMIN. OFFICE	ADMIN. OFFICE	CONFERENCE ROOM
DPW	HIGHWAYS ADMIN	KAOHU BASE YARD	HIGHWAY ADMIN. OFFICE	ADMIN. OFFICE	OFFICE
DPW	HIGHWAYS MAINT.	KAOHU BASE YARD	HIGHWAY TRAINING ROOM & GARAGE	DPW YARD	COVERED PARKING - LIGHT V
DPW	HIGHWAYS MAINT.	KAOHU BASE YARD	HIGHWAY TRAINING ROOM & GARAGE	DPW YARD	WORKSHOP
DPW	HIGHWAYS MAINT.	KAOHU BASE YARD	HIGHWAY TRAINING ROOM & GARAGE	DPW YARD	COVERED PARKING - LIGHT V
DPW	HIGHWAYS MAINT.	KAOHU BASE YARD	HIGHWAY TRAINING ROOM & GARAGE	DPW YARD	LOCKER
DPW	HIGHWAYS MAINT.	KAOHU BASE YARD	HIGHWAY TRAINING ROOM & GARAGE	ADMIN. OFFICE	KITCHEN/BREAK ROOM
DPW	HIGHWAYS MAINT.	KAOHU BASE YARD	HIGHWAY TRAINING ROOM & GARAGE	ADMIN. OFFICE	CONFERENCE ROOM
DPW	HIGHWAYS MAINT.	KAOHU BASE YARD	HIGHWAY TRAINING ROOM & GARAGE	ADMIN. OFFICE	KITCHEN/BREAK ROOM
DPW	HIGHWAYS MAINT.	KAOHU BASE YARD	HIGHWAY TRAINING ROOM & GARAGE	ADMIN. OFFICE	RESTROOM
DPW	HIGHWAYS MAINT.	KAOHU BASE YARD	HIGHWAY TRAINING ROOM & GARAGE	ADMIN. OFFICE	RESTROOM
DPW	HIGHWAYS MAINT.	KAOHU BASE YARD	HIGHWAY TRAINING ROOM & GARAGE	ADMIN. OFFICE	COVERED STORAGE
DPW	HIGHWAYS MAINT.	KAOHU BASE YARD	HIGHWAY TRAINING ROOM & GARAGE	ADMIN. OFFICE	KITCHEN/BREAK ROOM
DPW	HIGHWAYS MAINT.	KAOHU BASE YARD	HIGHWAY TRAINING ROOM & GARAGE	ADMIN. OFFICE	OFFICE
DPW	HIGHWAYS MAINT.	KAOHU BASE YARD	HIGHWAY TRAINING ROOM & GARAGE	ADMIN. OFFICE	OFFICE
DPW	HIGHWAYS MAINT.	KAOHU BASE YARD	HIGHWAY TRAINING ROOM & GARAGE	ADMIN. OFFICE	OFFICE
DPW	MECHANICS	KAOHU BASE YARD	MECHANIC SHOP & OFFICE	DPW YARD	WORKSHOP
DPW	MECHANICS	KAOHU BASE YARD	MECHANIC SHOP & OFFICE	ADMIN. OFFICE	OFFICE
DPW	MECHANICS	KAOHU BASE YARD	MECHANIC SHOP & OFFICE	VEHICLE MAINTENANCE	VEHICLE MAINTENANCE BAY
DPW	MECHANICS	KAOHU BASE YARD	MECHANIC SHOP & OFFICE	VEHICLE MAINTENANCE	WORKSHOP
DPW	MECHANICS	KAOHU BASE YARD	MECHANIC SHOP & OFFICE	VEHICLE MAINTENANCE	WORKSHOP
DPW	MECHANICS	KAOHU BASE YARD	MECHANIC SHOP & OFFICE	VEHICLE MAINTENANCE	OFFICE
DPW	MECHANICS	KAOHU BASE YARD	MECHANIC SHOP & OFFICE	VEHICLE MAINTENANCE	CONFERENCE ROOM



ROOM NAME	2014 EMPLOYEE COUNT	2040 EMPLOYEE COUNT	2014 AREA (sf)	2040 PROJECTION (sf)	% CHANGE	2014 EMPLOYEE VEHICLE COUNT	2014 STANDARD VEHICLE COUNT	2014 LARGE VEHICLE COUNT	2014 X-LARGE VEHICLE COUNT	2040 EMPLOYEE VEHICLE COUNT	2040 STANDARD VEHICLE COUNT	2040 LARGE VEHICLE COUNT	2040 X-LARGE VEHICLE COUNT	COMMENTS
Office -Superintendent	1	3	120	120	100%									
Office- Auto Serv Coord	1	3	132	100	76%									
Office - Chief	1	1	190	150	79%									
Kitchen/Break Room			72	100	139%									
Restrooms (2)			45	59	130%									each; single user
Storage			82	100	122%									
Conference Room			225	300	133%									12-15 people
Open Office- Code Enforc + EO Instructor	1	2	318	200	63%									
Garage - 6 stalls			1,100	1,650	150%		6				9			covered 58x19
Shop/Storage			580	1,740	300%									58x10
Garage 2 - 2 stalls			360	540	150%		2				3			covered 19x19
Locker/Storage	23		114	148	130%									
Ice Machine Rm			30	39	130%									
Training Room			1,044	1,200	115%									
Kitchen			230	299	130%									Commercial grade
Restroom			30	39	130%									
Restroom ADA			40	52	130%									
Storage			30	50	167%									
Kitchen Storage			52	60	115%									
Office- Superv + Admin asst	2	2	209	200	96%									
Office -personnel	1	1	152	160	105%									
Office-Constr Superv II & I	2	1	171	200	117%									
Shop/welding 30x34	1	1	1,020	1,530	150%									
Office -Superv	1	1	144	120	83%									
Mechanics work area	7	10	6,000	7,800	130%									10 bays (2 used for storage) Need roll-up doors 14'wdx15'hi Need Crane- 17' clr to bottom rail
Shop/personal tool storage			1,020	1,020	100%									locked; indiv lockers
Storage- mezzanine			550	600	109%									
Office- Working Foreman	1	1	77	60	78%									
Mtg/Training/Breakrm			420	500	119%									

DEPARTMENT	DIVISION	LOCATION	BUILDING NAME	CONSOLIDATION	FUNCTION
DPW	MECHANICS	KAOHU BASE YARD	MECHANIC SHOP & OFFICE	VEHICLE MAINTENANCE	OFFICE
DPW	MECHANICS	KAOHU BASE YARD	MECHANIC SHOP & OFFICE	VEHICLE MAINTENANCE	RESTROOM
DPW	MECHANICS	KAOHU BASE YARD	MECHANIC SHOP & OFFICE	VEHICLE MAINTENANCE	RESTROOM
DPW	MECHANICS	KAOHU BASE YARD	MECHANIC SHOP & OFFICE	VEHICLE MAINTENANCE	SHOWER
DPW	MECHANICS	KAOHU BASE YARD	MECHANIC SHOP & OFFICE	VEHICLE MAINTENANCE	VEHICLE MAINTENANCE BAY
DPW	MECHANICS	KAOHU BASE YARD	MECHANIC SHOP & OFFICE	VEHICLE MAINTENANCE	OFFICE
DPW	HIGHWAYS	KAOHU BASE YARD	SIGN SHOP	DPW YARD	OFFICE
DPW	HIGHWAYS	KAOHU BASE YARD	SIGN SHOP	DPW YARD	KITCHEN/BREAK ROOM
DPW	HIGHWAYS	KAOHU BASE YARD	SIGN SHOP	DPW YARD	COVERED STORAGE
DPW	HIGHWAYS	KAOHU BASE YARD	SIGN SHOP	DPW YARD	WORKSHOP
DPW	HIGHWAYS	KAOHU BASE YARD	SIGN SHOP	DPW YARD	LOCKER
DPW	HIGHWAYS	KAOHU BASE YARD	SIGN SHOP	DPW YARD	COVERED STORAGE
DPW	HIGHWAYS	KAOHU BASE YARD	SIGN SHOP	DPW YARD	COVERED STORAGE
DPW	HIGHWAYS	KAOHU BASE YARD	SIGN SHOP	DPW YARD	COVERED STORAGE
DPW	HIGHWAYS	KAOHU BASE YARD	SIGN SHOP	DPW YARD	RESTROOM
DPW	HIGHWAYS	KAOHU BASE YARD	TRAFFIC SIGNAL SHOP	DPW YARD	OFFICE
DPW	HIGHWAYS	KAOHU BASE YARD	TRAFFIC SIGNAL SHOP	DPW YARD	OFFICE
DPW	HIGHWAYS	KAOHU BASE YARD	TRAFFIC SIGNAL SHOP	DPW YARD	COVERED STORAGE
DPW	HIGHWAYS	KAOHU BASE YARD	TRAFFIC SIGNAL SHOP	DPW YARD	COVERED STORAGE
DPW	HIGHWAYS	KAOHU BASE YARD	TRAFFIC SIGNAL SHOP	DPW YARD	WORKSHOP
DPW	BODY & FENDER	KAOHU BASE YARD	VEHICLE BODY SHOP	DPW YARD	WORKSHOP
DPW	BODY & FENDER	KAOHU BASE YARD	VEHICLE BODY SHOP	DPW YARD	OFFICE
DPW	BODY & FENDER	KAOHU BASE YARD	VEHICLE BODY SHOP	DPW YARD	COVERED STORAGE
DPW	BODY & FENDER	KAOHU BASE YARD	VEHICLE BODY SHOP	VEHICLE MAINTENANCE	RESTROOM
DPW	BODY & FENDER	KAOHU BASE YARD	VEHICLE BODY SHOP	DPW YARD	COVERED STORAGE
DPW	BODY & FENDER	KAOHU BASE YARD	VEHICLE BODY SHOP	DPW YARD	UNCOVERED STORAGE
DPW	BODY & FENDER	FUTURE SITE	VEHICLE PAINT SHOP	VEHICLE MAINTENANCE	VEHICLE PAINT SHOP
DPW	TIRE	KAOHU BASE YARD	TIRE SHOP	VEHICLE MAINTENANCE	WORKSHOP
DPW	TIRE	KAOHU BASE YARD	TIRE SHOP	VEHICLE MAINTENANCE	VEHICLE MAINTENANCE BAY
DPW	TIRE	KAOHU BASE YARD	TIRE SHOP	VEHICLE MAINTENANCE	OFFICE
DPW	TIRE	KAOHU BASE YARD	TIRE SHOP	VEHICLE MAINTENANCE	RESTROOM
DPW	TIRE	KAOHU BASE YARD	TIRE SHOP	VEHICLE MAINTENANCE	COVERED STORAGE
DPW	TIRE	KAOHU BASE YARD	TIRE SHOP	VEHICLE MAINTENANCE	COVERED STORAGE
DPW	TIRE	KAOHU BASE YARD	TIRE SHOP	VEHICLE MAINTENANCE	UNCOVERED STORAGE
DPW	MECHANICS	KAOHU BASE YARD	OUTDOOR SPACE	VEHICLE MAINTENANCE	FUEL PUMP
DPW	HIGHWAYS	KAOHU BASE YARD	OUTDOOR SPACE	DPW YARD	COVERED STORAGE

ROOM NAME	2014 EMPLOYEE COUNT	2040 EMPLOYEE COUNT	2014 AREA (sf)	2040 PROJECTION (sf)	% CHANGE	2014 EMPLOYEE VEHICLE COUNT	2014 STANDARD VEHICLE COUNT	2014 LARGE VEHICLE COUNT	2014 X-LARGE VEHICLE COUNT	2040 EMPLOYEE VEHICLE COUNT	2040 STANDARD VEHICLE COUNT	2040 LARGE VEHICLE COUNT	2040 X-LARGE VEHICLE COUNT	COMMENTS
Clerk	1	1	210	100	48%									need to locate adj to superv
Clerk restrm			63	100	159%									add 35 sf for ADA
Restrm - 3 user, non ADA			125	160	128%									add 35 sf for ADA
Shower - single			30	39	130%									
Servicing Bay 20x60			1,200	1,200	100%									
Office-Serv attendant	1	1	96	100	104%									
Office - Superv + clerk	2	2	144	187	130%									
Kitchen/Break Room/storage			300	390	130%									need to separate functions
Storage			1,230	1,845	150%									
Shop	10	2	350	1,050	300%									Very short of space
lockers/storage			330	429	130%									locked tools and equip
Covered ground storage			500	750	150%									outdoors- should be inside
Storage containers -2			320	480	150%									8x20 containers
Haz material storage			128	192	150%									2-8x8 locked containers
restrooms-(2)			60	100	167%									add 35 sf for ADA
Office (2 person)	2	2	300	390	130%									with some storage
Office -supervisor	1	1	240	312	130%									with some storage
Storage			290	435	150%									
Storage			320	480	150%									
Wkshp/storage			920	1,380	150%									
Shop	0	2	630	850	135%									added space for port. Lift
Office	1	2	110	120	109%									
Tool Room -locked			110	100	91%									
Restroom			-	35										
Storage			45	200	444%									
outdoor grnd storage			800	1,200	150%									covered outdoor racks?
vehicle paint shop			-	1,600										
Shop/interior storage	2	3	1,400	1,000	71%									
Tire Shop Vehicle Bay			1,400	1,600	114%									Need 2 bays, Assumed 20 x 30
Office			64	120	188%									
Restroom			-	35										
Outside Tire Storage			500	650	130%									covered outdoor racks
Covered outdoor Storage			384	499	130%									
Used tire holding area			350	400	114%									racks?
Fuel tank stations			640	832	130%									fuel tank area only
Container - Storage, Hwys			320	480	150%									2-8x20

DEPARTMENT	DIVISION	LOCATION	BUILDING NAME	CONSOLIDATION	FUNCTION
DPW	HIGHWAYS	KAOHU BASE YARD	OUTDOOR SPACE	DPW YARD	COVERED STORAGE
DPW	MECHANICS	KAOHU BASE YARD	OUTDOOR SPACE	VEHICLE MAINTENANCE	COVERED STORAGE
DPW	HIGHWAYS	KAOHU BASE YARD	OUTDOOR SPACE	DPW YARD	COVERED STORAGE
DPW	HIGHWAYS	KAOHU BASE YARD	OUTDOOR SPACE	WAREHOUSE	STOCKPILE
DPW	MECHANICS	KAOHU BASE YARD	OUTDOOR SPACE	VEHICLE MAINTENANCE	UNCOVERED STORAGE
DPW	SUPPORT SERVICES	KAOHU BASE YARD	OUTDOOR SPACE	VEHICLE MAINTENANCE	UNCOVERED PARKING - EMPLOYEE
DPW	SUPPORT SERVICES	KAOHU BASE YARD	OUTDOOR SPACE	WAREHOUSE	UNCOVERED PARKING - EMPLOYEE
DPW	SUPPORT SERVICES	KAOHU BASE YARD	OUTDOOR SPACE	ADMIN. OFFICE	UNCOVERED PARKING - EMPLOYEE
DPW	SUPPORT SERVICES	KAOHU BASE YARD	OUTDOOR SPACE	DPW YARD	UNCOVERED PARKING - EMPLOYEE
DPW	SUPPORT SERVICES	KAOHU BASE YARD	OUTDOOR SPACE	DPW YARD	UNCOVERED PARKING - LIGHT V
DPW	HIGHWAYS	KAOHU BASE YARD	OUTDOOR SPACE	DPW YARD	UNCOVERED PARKING - HEAVY V
DPW	HIGHWAYS	KAOHU BASE YARD	OUTDOOR SPACE	DPW YARD	UNCOVERED PARKING - MACHINERY
DPW	HIGHWAYS	FUTURE SITE	WAREHOUSE	WAREHOUSE	WAREHOUSE
DPW	PAVEMENT PRESERVATION	FUTURE SITE	PAVEMENT PRESERVATION OFFICE	DPW YARD	OFFICE
DPW	PAVEMENT PRESERVATION	FUTURE SITE	PAVEMENT PRESERVATION OFFICE	DPW YARD	OFFICE
DPW	PAVEMENT PRESERVATION	FUTURE SITE	PAVEMENT PRESERVATION OFFICE	DPW YARD	RESTROOM
DPW	PAVEMENT PRESERVATION	FUTURE SITE	PAVEMENT PRESERVATION OFFICE	DPW YARD	LOCKER
DPW	PAVEMENT PRESERVATION	FUTURE SITE	PAVEMENT PRESERVATION OFFICE	DPW YARD	SHOWER
DPW	PAVEMENT PRESERVATION	FUTURE SITE	PAVEMENT PRESERVATION OFFICE	DPW YARD	KITCHEN/BREAK ROOM
DPW	SUPPORT SERVICES	FUTURE SITE	GARAGE	DPW YARD	COVERED PARKING - HEAVY V
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	DEM YARD	OFFICE
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	DEM YARD	OFFICE
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	DEM YARD	OFFICE
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	DEM YARD	KITCHEN/BREAK ROOM
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	DEM YARD	RESTROOM
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	DEM YARD	RESTROOM
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	DEM YARD	SHOWER
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	DEM YARD	LOCKER
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	DEM YARD	CONFERENCE ROOM
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	DEM YARD	WORKSHOP
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	DEM YARD	UNCOVERED STORAGE



ROOM NAME	2014 EMPLOYEE COUNT	2040 EMPLOYEE COUNT	2014 AREA (sf)	2040 PROJECTION (sf)	% CHANGE	2014 EMPLOYEE VEHICLE COUNT	2014 STANDARD VEHICLE COUNT	2014 LARGE VEHICLE COUNT	2014 X-LARGE VEHICLE COUNT	2040 EMPLOYEE VEHICLE COUNT	2040 STANDARD VEHICLE COUNT	2040 LARGE VEHICLE COUNT	2040 X-LARGE VEHICLE COUNT	COMMENTS
Container - Storage, Hwys			320	480	150%									2-8x20 Mech vented
Container - Storage, Mechanics?			640	832	130%									2-8x40
Container - Storage, Hwys			160	240	150%									1-8x20
Material Stockpile (sand, gravel base, coldmix, backfill)			1,512	1,966	130%									6-14 x 18 bins
Boneyard			3,000	3,900	130%									
Employee parking						12								
Employee parking														
Employee parking						13				17				
Employee parking			9,800	14,700	150%	40				60				89 X 245 SF number of employees is assumption from work chart
Dept Vehicles - 38 SUV/LT Truck			9,310	13,965	150%		38				57			
Dept Vehicles - 17 CDL			11,424	17,472	153%			17				26		
Equipment			18,900	28,350	150%									
Future Warehouse - 1 bay			-	1,800										
Office - Supervisor II		1	-	150										
Office - Clerk III		1	-	100										
Restroom			-	200										
Locker			-	140										
Shower			-	60										
Break room / locker /restroom for Crew	17	13	-	300										
Future covered parking - 8 trucks			-	2,880										
Open Office-Chief/Conf Rm.	1	1	250	325	130%									
Office -Clerk	1	1	150	195	130%									
Office -supervisor	1	1	126	164	130%									
Kitchen/Break Room			170	221	130%									
Restroom - ADA (women)			66	86	130%									
Locker Room w/ shower/restrm			64	83	130%									
Locker Room w/ shower/restrm			42	55	130%									
Locker Room w/ shower/restrm			64	83	130%									
Storage/ mtg+break rm			420	546	130%									
Storage/wkshp	18	23	180	234	130%									
Refuse Cart Repo, temp storage			560	728	130%									

DEPARTMENT	DIVISION	LOCATION	BUILDING NAME	CONSOLIDATION	FUNCTION
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	DEM YARD	UNCOVERED STORAGE
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	DEM YARD	UNCOVERED PARKING - HEAVY V
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	DEM YARD	UNCOVERED PARKING - EMPLOYEE
DEM	SOLID WASTE	KAOHU BASE YARD	SOLID WASTE OFFICE	WAREHOUSE	STOCKPILE
DEM	SOLID WASTE	LEASED SITE	LEASED WAREHOUSE	DEM YARD	COVERED STORAGE
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	OUTDOOR SPACE	DEM YARD	UNCOVERED PARKING - LIGHT V
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	OUTDOOR SPACE	ADMIN. OFFICE	UNCOVERED PARKING - EMPLOYEE
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	OUTDOOR SPACE	DEM YARD	UNCOVERED PARKING - EMPLOYEE
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	OUTDOOR SPACE	DEM YARD	KITCHEN/BREAK ROOM
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	OUTDOOR SPACE	DEM YARD	KITCHEN/BREAK ROOM
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	HAZMAT STORAGE SHED	DEM YARD	COVERED STORAGE
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	OUTDOOR SPACE	DEM YARD	COVERED STORAGE
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	MISC. EQUIPMENT AND STORAGE	DEM YARD	COVERED PARKING - LIGHT V
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	OUTDOOR SPACE	DEM YARD	COVERED STORAGE
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	STAFF OFFICES AND LOCKER ROOMS	ADMIN. OFFICE	OFFICE
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	STAFF OFFICES AND LOCKER ROOMS	ADMIN. OFFICE	OFFICE
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	STAFF OFFICES AND LOCKER ROOMS	ADMIN. OFFICE	OFFICE
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	STAFF OFFICES AND LOCKER ROOMS	ADMIN. OFFICE	CONFERENCE ROOM
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	STAFF OFFICES AND LOCKER ROOMS	ADMIN. OFFICE	KITCHEN/BREAK ROOM
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	STAFF OFFICES AND LOCKER ROOMS	ADMIN. OFFICE	RESTROOM
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	VEHICLE PARKING AND EQUIPMENT STORAGE	DEM YARD	LOCKER
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	VEHICLE PARKING AND EQUIPMENT STORAGE	DEM YARD	COVERED PARKING - LIGHT V
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	VEHICLE PARKING AND EQUIPMENT STORAGE	DEM YARD	WORKSHOP
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	VEHICLE PARKING AND EQUIPMENT STORAGE	DEM YARD	RESTROOM
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	VEHICLE PARKING AND EQUIPMENT STORAGE	DEM YARD	KITCHEN/BREAK ROOM
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	VEHICLE PARKING AND EQUIPMENT STORAGE	ADMIN. OFFICE	COVERED STORAGE
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	VEHICLE PARKING AND EQUIPMENT STORAGE	ADMIN. OFFICE	OFFICE

ROOM NAME	2014 EMPLOYEE COUNT	2040 EMPLOYEE COUNT	2014 AREA (sf)	2040 PROJECTION (sf)	% CHANGE	2014 EMPLOYEE VEHICLE COUNT	2014 STANDARD VEHICLE COUNT	2014 LARGE VEHICLE COUNT	2014 X-LARGE VEHICLE COUNT	2040 EMPLOYEE VEHICLE COUNT	2040 STANDARD VEHICLE COUNT	2040 LARGE VEHICLE COUNT	2040 X-LARGE VEHICLE COUNT	COMMENTS
Refuse Cart Rehab storage			600	780	130%									
Refuse Truck Parking			5,000	9,000	180%			23						
Employee parking			3,750	4,875	130%	21				27				25 x 150
Aggregate Storage - Emergency			1,200	1,560	130%									(5) 12 X 20 FROM PHOTOS,
Offsite leased storage for new carts			1,600	1,600	100%									no growth per 30% review comment: can be kept at 1600. Instead of more space, same inventory will be kept but turn around time will be less.
Dept Vehicles - 10 SUV/Lt Trucks			2,800	3,640	130%		10				13			
Employee parking			735	980		3				4				
Employee parking			4,165	5,390		17				22				(20) stalls x 245 SF
Ice machine room			60	78										
Covered seating and tables			322	419										
Storage / Locked shed			144	187										
Storage trailer			360	468										
Covered Parking for 4 PU trucks			800	1,000			4				5			
Containers -8' x 40'			320	416										
Open Office - Superintendent	1	1	120	156										
Open Office - others	1	1	105	137										
Open Office - others	1	1	105	137										
Meeting Room / Briefing room			400	520										
Kitchen / Break room			200	260										
Rest room			325	423										
Locker room	17	22	300	390										
Garage			1,600	2,400				4				6		20 x 40 (2 bays)
Storage / Workshop			800	1,040										3rd bay
ADA restroom ( M + W )			100	130										
Lunch Room			200	260										
Plans/ Record Storage			240	312										
Office			150	195										

DEPARTMENT	DIVISION	LOCATION	BUILDING NAME	CONSOLIDATION	FUNCTION
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	VEHICLE PARKING AND EQUIPMENT STORAGE	ADMIN. OFFICE	OFFICE
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	VEHICLE PARKING AND EQUIPMENT STORAGE	ADMIN. OFFICE	OFFICE
DEM	WASTEWATER RECLAMATION	HANA HWY COLLECTION STATION	VEHICLE PARKING AND EQUIPMENT STORAGE	ADMIN. OFFICE	COVERED STORAGE
DEM	WASTEWATER RECLAMATION	W-K-WWRF	SPECIALTY TRUCK GARAGE	DEM YARD	COVERED PARKING - HEAVY V
DEM	WASTEWATER RECLAMATION	W-K-WWRF	OUTDOOR SPACE	DEM YARD	UNCOVERED PARKING - LIGHT V
DEM	WASTEWATER RECLAMATION	W-K-WWRF	OUTDOOR SPACE	WAREHOUSE	STOCKPILE
DEM	WASTEWATER RECLAMATION	FUTURE SITE	WAREHOUSE	WAREHOUSE	WAREHOUSE
DEM	SOLID WASTE	FUTURE SITE	GARAGE	DEM YARD	COVERED PARKING - HEAVY V
DEM	SOLID WASTE	FUTURE SITE	REFUSE TRUCK WASH	VEHICLE MAINTENANCE	VEHICLE WASH
MFD	MAINTENANCE	KAHULUI STATION	MECHANIC SHOP	MFD VEHICLE MAINTENANCE	VEHICLE MAINTENANCE BAY
MFD	MAINTENANCE	KAHULUI STATION	MECHANIC SHOP	MFD VEHICLE MAINTENANCE	WAREHOUSE
MFD	MAINTENANCE	KAHULUI STATION	MECHANIC SHOP	MFD VEHICLE MAINTENANCE	WAREHOUSE
MFD	MAINTENANCE	KAHULUI STATION	MECHANIC SHOP	MFD VEHICLE MAINTENANCE	OFFICE
MFD	MAINTENANCE	KAHULUI STATION	MECHANIC SHOP	MFD VEHICLE MAINTENANCE	OFFICE
MFD	MAINTENANCE	KAHULUI STATION	MECHANIC SHOP	MFD VEHICLE MAINTENANCE	RESTROOM
MFD	MAINTENANCE	KAHULUI STATION	MECHANIC SHOP	MFD VEHICLE MAINTENANCE	OFFICE
MFD	MAINTENANCE	KAHULUI STATION	MECHANIC SHOP	MFD VEHICLE MAINTENANCE	COVERED STORAGE
MFD	MAINTENANCE	KAHULUI STATION	MECHANIC SHOP	MFD VEHICLE MAINTENANCE	COVERED STORAGE
MFD	MAINTENANCE	KAHULUI STATION	MECHANIC SHOP	MFD VEHICLE MAINTENANCE	COVERED STORAGE
MFD	MAINTENANCE	KAHULUI STATION	MECHANIC SHOP	MFD VEHICLE MAINTENANCE	COVERED STORAGE
MFD	MAINTENANCE	KAHULUI STATION	MECHANIC SHOP	MFD VEHICLE MAINTENANCE	COVERED STORAGE
MFD	MAINTENANCE	KAHULUI STATION	MECHANIC SHOP	MFD VEHICLE MAINTENANCE	COVERED STORAGE
MFD	WAREHOUSE	WAREHOUSE	WAREHOUSE	MFD WAREHOUSE	WAREHOUSE
MFD	WAREHOUSE	WAREHOUSE	WAREHOUSE	MFD YARD	WAREHOUSE
MFD	WAREHOUSE	WAREHOUSE	WAREHOUSE	MFD YARD	RESTROOM
MFD	ADMINISTRATION	WAREHOUSE	WAREHOUSE	MFD YARD	GYM
MFD	ADMINISTRATION	WAREHOUSE	WAREHOUSE	MFD YARD	RESTROOM
MFD	ADMINISTRATION	WAREHOUSE	WAREHOUSE	MFD YARD	LOCKER



ROOM NAME	2014 EMPLOYEE COUNT	2040 EMPLOYEE COUNT	2014 AREA (sf)	2040 PROJECTION (sf)	% CHANGE	2014 EMPLOYEE VEHICLE COUNT	2014 STANDARD VEHICLE COUNT	2014 LARGE VEHICLE COUNT	2014 X-LARGE VEHICLE COUNT	2040 EMPLOYEE VEHICLE COUNT	2040 STANDARD VEHICLE COUNT	2040 LARGE VEHICLE COUNT	2040 X-LARGE VEHICLE COUNT	COMMENTS
Office			150	195										
Clerk/Copier			240	312										
Attic Storage			400	520										
5 bays @ 20' x 36'			3,600	3,600				5				7		
Paved area parking for maneuvering			5,000	6,500										Inadequate paved area for maneuvering
Material Stockpile (sand, gravel base, cold mix, backfill)			500	650										Approx. area from photo
Future Warehouse Space 1.5 bays			-	2,700										
Future covered parking - 5 trucks			-	1,800										
Refuse truck wash down area			-	600										located somewhere else
Vehicle Maintenance Shop	3	4	3,200	6,500	203%				4				4	existing : 4 bays, 20' wide x 40' deep, 3 work stations new: 4 bays 27'wide x 60' deep, 7' wide betw bays for tools
Parts Storage			300	390	130%									
Tool Storage			480	624	130%									secured, includes "clean" rm
MechOffice (2 person)	1	1	336	437	130%									
Office #2	1	1	190	247	130%									ADA, plus shower
Restroom			60	78	130%									
Storage- books			40	52	130%									
Oil storage			100	130	130%									
Storage- motor oil, etc.			120	156	130%									
Storage- tires			120	156	130%									
compressor Rm			120	156	130%									
Containers -2 ea 8x20			320	416	130%									tires, parts
Metal sheds 2ea			240	312	130%									misc parts
General Warehouse			2,371	3,082	130%									
Fire Prevention Warehouse			5,380	6,994	130%									
Restroom at corner			64	83	130%									
Gym			600	780	130%									
Restroom (M & F)			400	520	130%									
Locker Room/Shower (M & F)			200	260	130%									

DEPARTMENT	DIVISION	LOCATION	BUILDING NAME	CONSOLIDATION	FUNCTION
MFD	ADMINISTRATION	WAREHOUSE	WAREHOUSE	MFD YARD	SHOWER
MFD	WAREHOUSE	WAREHOUSE	WAREHOUSE	MFD YARD	WAREHOUSE
MFD	WAREHOUSE	WAREHOUSE	WAREHOUSE	MFD WAREHOUSE	OFFICE
MFD	ADMINISTRATION	WAREHOUSE	WAREHOUSE	MFD ADMIN. OFFICE	OFFICE
MFD	ADMINISTRATION	WAREHOUSE	WAREHOUSE	MFD ADMIN. OFFICE	MECH / ELEC RM
MFD	ADMINISTRATION	WAREHOUSE	WAREHOUSE	MFD ADMIN. OFFICE	RESTROOM
MFD	ADMINISTRATION	WAREHOUSE	WAREHOUSE	MFD ADMIN. OFFICE	OFFICE
MFD	MAINTENANCE	KAHULUI STATION	MECHANIC SHOP	MFD VEHICLE MAINTENANCE	UNCOVERED PARKING - EMPLOYEE
MFD	SUPPORT SERVICES	WAREHOUSE	WAREHOUSE	MFD ADMIN. OFFICE	UNCOVERED PARKING - EMPLOYEE
MFD	SUPPORT SERVICES	WAREHOUSE	WAREHOUSE	MFD WAREHOUSE	UNCOVERED PARKING - EMPLOYEE
MFD	OCEAN SAFETY	STADIUM AND WAR MEMORIAL	OUTDOOR SPACE	MFD YARD	UNCOVERED STORAGE
MFD	OCEAN SAFETY	STADIUM AND WAR MEMORIAL	OCEAN SAFETY	MFD ADMIN. OFFICE	OFFICE
MFD	WAREHOUSE	WAREHOUSE	WAREHOUSE	MFD YARD	COVERED PARKING - HEAVY V
MFD	FIRE AND RESCUE OPERATIONS	FUTURE SITE	WAIKAPU FIRE STATION	WAIKAPU FIRE STATION	FIRE STATION
DPR	MAINTENANCE	STADIUM AND WAR MEMORIAL	MECHANIC SHOP	VEHICLE MAINTENANCE	VEHICLE MAINTENANCE BAY
DPR	MAINTENANCE	STADIUM AND WAR MEMORIAL	MECHANIC SHOP	VEHICLE MAINTENANCE	COVERED STORAGE
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	OFFICE
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	OFFICE
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	OFFICE
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	RESTROOM
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	RESTROOM
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	RESTROOM
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	KITCHEN/BREAK ROOM
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	KITCHEN/BREAK ROOM
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	WORKSHOP
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	WORKSHOP
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	WORKSHOP
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	WORKSHOP
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	WORKSHOP
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	WORKSHOP
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	WORKSHOP
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	RESTROOM
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	WORKSHOP

ROOM NAME	2014 EMPLOYEE COUNT	2040 EMPLOYEE COUNT	2014 AREA (sf)	2040 PROJECTION (sf)	% CHANGE	2014 EMPLOYEE VEHICLE COUNT	2014 STANDARD VEHICLE COUNT	2014 LARGE VEHICLE COUNT	2014 X-LARGE VEHICLE COUNT	2040 EMPLOYEE VEHICLE COUNT	2040 STANDARD VEHICLE COUNT	2040 LARGE VEHICLE COUNT	2040 X-LARGE VEHICLE COUNT	COMMENTS
Locker Room/Shower (M & F)			200	260	130%									
Public Education Warehouse			5,655	7,352	130%									
Warehouse Store keeper office	1	1	630	300	48%									
Fire Prevention Plan Review Office	3	4	2,488	3,234	130%									
Mechanical room			67	87	130%									
Restrooms (2)			105	137	130%									
Upstairs office space	7	8	2,164	2,813	130%									
Employee parking						5								
Employee parking						12				16				
Employee parking			12,160	15,808	130%	1				1				
Ocean Safety Storage Corral	0	0	2,000	2,600	130%									
Ocean Safety Main Office	2		300	390	130%									
Police Command Vehicle Cage			2,371	3,082	130%									
Waikapu Fire Station			-	20,000										
Shop	2	2	1,500	1,950	130%									existing (2) lifts, assume 20 x 30
Storage			1,600	2,080	130%									
Office 1 - SUPER	1	1	144	187	130%									
Office 2		2	100	130	130%									
Office 3		2	200	260	130%									
Restrm 1			30	39	130%									
Restrm 2			40	52	130%									
Restrm 3			40	52	130%									
Storage			80	104	130%									
Break room	2		580	754	130%									
Carpenter/Cabinet	2	3	1,040	1,352	130%									
BMR	4		1,040	1,352	130%									
Plumber	2	3	1,040	1,352	130%									
Irrigation	4	5	520	676	130%									
Painter	2	3	520	676	130%									
Electrician	2	3	830	1,079	130%									
Storage			468	608	130%									
Generator/Compressor			208	270	130%									
Restrm 4			64	83	130%									
Enclosed Garage			780	1,014	130%									

DEPARTMENT	DIVISION	LOCATION	BUILDING NAME	CONSOLIDATION	FUNCTION
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	COVERED PARKING - LIGHT V
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	COVERED STORAGE
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	COVERED STORAGE
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	UNCOVERED PARKING - HEAVY V
DPR	BMR	STADIUM AND WAR MEMORIAL	BMR	DPR YARD	UNCOVERED PARKING - HEAVY V
DPR	BEAUTIFICATION	STADIUM AND WAR MEMORIAL	BEAUTIFICATION	DPR YARD	KITCHEN/BREAK ROOM
DPR	BEAUTIFICATION	STADIUM AND WAR MEMORIAL	BEAUTIFICATION	DPR YARD	LOCKER
DPR	BEAUTIFICATION	STADIUM AND WAR MEMORIAL	BEAUTIFICATION	ADMIN. OFFICE	OFFICE
DPR	BEAUTIFICATION	STADIUM AND WAR MEMORIAL	BEAUTIFICATION	DPR YARD	HORTICULTURE
DPR	BEAUTIFICATION	STADIUM AND WAR MEMORIAL	BEAUTIFICATION	DPR YARD	HORTICULTURE
DPR	BEAUTIFICATION	STADIUM AND WAR MEMORIAL	BEAUTIFICATION	WAREHOUSE	STOCKPILE
DPR	BEAUTIFICATION	FUTURE SITE	BEAUTIFICATION	DPR YARD	WORKSHOP
DPR	BMR	FUTURE SITE	WAREHOUSE	WAREHOUSE	WAREHOUSE
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER



ROOM NAME	2014 EMPLOYEE COUNT	2040 EMPLOYEE COUNT	2014 AREA (sf)	2040 PROJECTION (sf)	% CHANGE	2014 EMPLOYEE VEHICLE COUNT	2014 STANDARD VEHICLE COUNT	2014 LARGE VEHICLE COUNT	2014 X-LARGE VEHICLE COUNT	2040 EMPLOYEE VEHICLE COUNT	2040 STANDARD VEHICLE COUNT	2040 LARGE VEHICLE COUNT	2040 X-LARGE VEHICLE COUNT	COMMENTS
Covered garage			1,836	2,387	130%		12				16			12 x 153 sf
Storage			12,000	15,600	130%									includes 5-40' containers
Storage			2,500	3,250	130%									and 3- 20' containers
Truck Parking			7,595	9,874	130%			31				40		31 x 245 sf
Dump truck/flat bed			1,344	1,747	130%			2				3		2 x 672 sf
Covered Picnic Tables			200	260	130%									
6 lockers	5		20	26	130%									
Offices	2	7	800	1,040	0%									
Sod Farm			15,000	19,500	0%									
Plant Nursery			10,000	13,000	0%									
Sand/Gravel/Soil/Compost			1,600	2,080	0%									
209 Acre Park Maintenance			-	4,000										
Future Warehouse Space 1 bay (30x60)			-	1,800										
EOC		70	810	9,830	12									accommodate 200 people during emergency event. Includes ITS, MCDA, MPD dispatch and Radio Shop Existing EOC 30'x27', Report indicated 20,000 sf
Conference Room			286											existing 22'x 13'
Executive Office			168											
Open Office			448	7,609										
Office			100											
Open Office			396											
Backup 911			288	8,418										
Women's Bunking			208	3,140										
Women's Restroom / Shower			144											
Men's Bunking			208											
Men's Restroom / Shower			144											
Kitchen			224											
Food Storage			84											
Water Storage Tank Room			191											
EBS			65											

DEPARTMENT	DIVISION	LOCATION	BUILDING NAME	CONSOLIDATION	FUNCTION
CDA	EOC	KALANA O MAUI BUILDING	BASEMENT	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
CDA	DATA CENTER	KALANA O MAUI BUILDING	SECOND FLOOR	EMERGENCY MANAGEMENT CENTER	EMERGENCY MANAGEMENT CENTER
TOTAL					

ROOM NAME	2014 EMPLOYEE COUNT	2040 EMPLOYEE COUNT	2014 AREA (sf)	2040 PROJECTION (sf)	% CHANGE	2014 EMPLOYEE VEHICLE COUNT	2014 STANDARD VEHICLE COUNT	2014 LARGE VEHICLE COUNT	2014 X-LARGE VEHICLE COUNT	2040 EMPLOYEE VEHICLE COUNT	2040 STANDARD VEHICLE COUNT	2040 LARGE VEHICLE COUNT	2040 X-LARGE VEHICLE COUNT	COMMENTS
Mechanical Room			484	4,636										
MIS data center			390	5,778										
	228	312	326,287	485,314		243	135	95	4	294	185	98	4	

NOTE:  CURRENT AND FUTURE NEEDS AREA WERE NOT PROVIDED.

2040 Vehicle Maintenance Bay Sizes

Standard	Large	X-Large
20x30	20x40	30'x60'

2040 Vehicle/Equipment Stall Sizes

Employee	Standard	Large	X-Large
9x18	9x18	12x30	20'x55'





# ***Appendix B: Departmental Surveys***

Surveys:

**Department of Environmental Management (DEM)**

Solid Waste Collection Division

Wastewater Division

**Department of Public Works (DPW)**

Highways Division

**Department of Water Supply (DWS)**

**Maui Fire Department (MFD)**

**Maui Police Department (MPD)**

# DEM - SOLID WASTE COLLECTION DIVISION - 1/3

## CONSOLIDATED BASEYARD PROJECT

Department : <i>Solid Waste - Collections</i> Facility : <i>Kaohu St. Refuse</i> Location : Contact : <i>George Correa / Mike Kehana</i>		
What divisions operate out of this location ? (List) <i>25K accounts</i> <i>trucks refuse collections, appliance pick ups</i> <i>cart distribution/repair/repo</i>		
Description of facility for each of the activities identified above. <i>Washline only</i> Activity 1: Office/Admin <i>2 sup / 1 clerk</i> # staff : Interior SF : Exterior covered SF : Exterior open SF : Description : <i>Lahana - 1 sup</i> <i>Makana - 1 sup - 1 clerk</i>		
Activity 2: <i>Carts</i> # staff : Interior SF : Exterior covered SF : Exterior open SF : Description : <i>15K for rent for KTS storage</i> <i>2 containers on Wm landfill that had to be relocated</i>		
Activity 3: <i>Replacement</i> # staff : Interior SF : Exterior covered SF : Exterior open SF : Description : <i>Broken Carts - need to keep for warranty.</i> <i>Cleaning carts - need space to wash/repair</i>		
Activity 4: <i>Recycling pickups</i> # staff : Interior SF : Exterior covered SF : Exterior open SF : Description : <i>green &amp; blue carts - pilot project in Kihui</i> <i>need to see if program will expand - maybe all waste</i> <i>will be sent to waste to energy plant</i>		
Activity 5: <i>Washing facility for trucks</i> # staff : Interior SF : Exterior covered SF : Exterior open SF : Description : <i>Steam cleaners, pressure washers</i> <i>- wash water needs oil separator before going to sewer.</i>		

## DEM - SOLID WASTE COLLECTION DIVISION - 2/3

Other spatial needs including common areas:
Vehicular parking :
Trucks/heavy equipment parking :
Materials storage:
Tools/small equipment storage :
Restrooms :
Other areas :
Security system :
Exterior Lighting existing : <i>yes - start 5am - report 4am</i>
Fencing :
<p>Sketch Org Chart :</p> <div style="text-align: center;"> <p>10 drivers <del>1st</del> central      <math>\left( \begin{array}{cc} 5 \text{ upc} &amp; 2 \text{ liaison} \\ 6 &amp; 3 \end{array} \right)</math></p> <p>3 <del>1st</del> manual</p> <p><u>46</u> total - 3 districts      2 vacant</p> <p>Unassigned collectors - 6 ea. - appliance pick</p> <p>Problems: space — trucks &amp; cart inventory showers</p> <p>compliance issues - wash down water</p> </div>

Work Flow Charts (if applicable):

Activity:

*cleaning/ odors - need to be downwind*

Activity:

Activity:

Activity:



# DEM - WASTEWATER DIVISION - 1/3

## CONSOLIDATED BASEYARD PROJECT

Department : <i>Wastewater - Mike Miyamoto Deputy</i> Facility : <i>8 Bays located @ treatment plants. Kihai is the main hub.</i> Location : <i>Hana Hwy is the collections bayd on pny station site.</i> Contact :		
What divisions operate out of this location ? (List) <i>Treatment Plants / collections / maintenance</i> <i>↳ most activities located @ treatment plant site</i> <i>- Kahului plant is in flood/tsunami zone so → support activities should be relocated.</i>		
Description of facility for each of the activities identified above.		
Activity 1: Office/Admin Interior SF : Description :	Exterior covered SF : Exterior open SF :	# staff :
Activity 2: <i>Collections / Central Maintenance</i> Interior SF : Description : <i>(flood zone)</i>	Exterior covered SF : Exterior open SF :	# staff :
Activity 3: Interior SF : Description :	Exterior covered SF : Exterior open SF :	# staff :
Activity 4: Interior SF : Description :	Exterior covered SF : Exterior open SF :	# staff :
Activity 5: Interior SF : Description :	Exterior covered SF : Exterior open SF :	# staff :

## DEM - WASTEWATER DIVISION - 2/3

Other spatial needs including common areas:

Vehicular parking :

Trucks/heavy equipment parking :

Materials storage:

Tools/small equipment storage :

Restrooms :

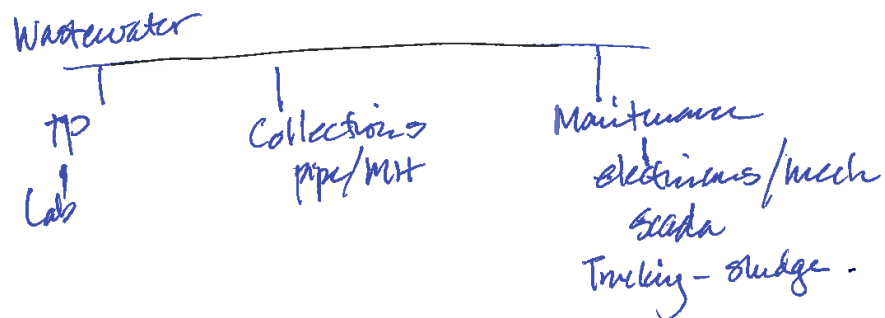
Other areas :

Security system :

Exterior Lighting existing :

Fencing :

Sketch Org Chart :



Treatment plants are self sufficient  
Operations hub is at Kihui TP

Priority : Storage  
Collections - central maintenance

## DEM - WASTEWATER DIVISION - 3/3

---

Work Flow Charts (if applicable):

Activity:

Dept is trending towards private packaged plants. No additional capacities ~~are~~ will be undertaken. As such, future growth for all divisions may be minimal or geared more for upgrades & repairs vs. new growth.

Activity:

Activity:

Activity:

# DPW - HIGHWAYS DIVISION - 1/3

## CONSOLIDATED BASEYARD PROJECT

Department : <u>DPW</u> Facility : <u>Baseyard - HIGHWAYS</u> Location : <u>Kaohu St.</u> Contact :		
What divisions operate out of this location ? (List)		
Description of facility for each of the activities identified above.		
Activity 1: <u>Office/Admin Highway -</u> Interior SF : Description :	Exterior covered SF : Exterior open SF :	# staff : <u>7 + 2 examples</u> <u>1 + 1 dist sec.</u>
Activity 2: <u>Mechanics - no roof</u> Interior SF : Description : <u>Constr Equip</u> <u>Auto Equip.</u>	Exterior covered SF : Exterior open SF :	# staff :
Activity 3: <u>Traffic signals</u> Interior SF : Description : <u>electronic tubes/electronics</u>	Exterior covered SF : Exterior open SF :	# staff :
Activity 4: <u>Signage</u> Interior SF : Description :	Exterior covered SF : Exterior open SF :	# staff :
Activity 5: <u>Roads bridge &amp; maintenance</u> Interior SF : Description :	Exterior covered SF : Exterior open SF :	# staff :

## DPW - HIGHWAYS DIVISION - 2/3

Other spatial needs including common areas:
Vehicular parking : <i>on-site parking</i>
Trucks/heavy equipment parking : <i>Covered for winter</i>
Materials storage: <i>yes.</i>
Tools/small equipment storage : <i>yes</i>
Restrooms :
Other areas : <i>showers - for mechanics lunch room / kitchen facility.</i>
Security system :
Exterior Lighting existing : <i>yes</i>
Fencing :
Sketch Org Chart :
<i>No dispatches needed</i>
<i>Priority needs: Signals, Signage, body shop. - exist'g spaces not functional Parking Mechanics - large truck repairs.</i>



Work Flow Charts (if applicable):

Activity:

Storage - old & new equip

Activity:

Flooding is a problem.

Activity:

Training -

Activity:

Testing lab - material testing lab.

## CONSOLIDATED BASEYARD PROJECT-INFORMATION SHEET

Department : <u>DWS</u>			<u>Jon Vares / Leon Burgos / Ken Bissan</u>		
Facility : <u>NASKA BAYD</u>					
Location :					
Contact :					
Lease or Own: Own <input type="checkbox"/> If lease \$ <input type="text"/>					
Other Fees: For what? <input type="text"/> \$ <input type="text"/>					
What divisions operate out of this location ? (List) <u>WTP manager</u> <u>safety officer</u>					
<u>Field Ops - 80%</u>					
<u>Plant Ops 20% - Pump Sect</u> <u>Scada Backflow</u> <u>Lab</u>					
<u>Electrical/Electronics/Mech.</u>					
Description of facility for each of the activities identified above.					
Activity 1: <u>Office/Admin</u>			# staff :		
Interior SF :		Exterior covered SF :	Exterior open SF :		
Description : <u>Dispatch &amp; Plant ops Scada need to be adjacent</u>			<u>Tony, Joe, &amp; Char, Braden</u>		
<u>Servers -</u>			<u>Training Rm vs Conference Rm.</u>		
Activity 2: <u>Warehouse</u>			# staff :		
Interior SF :		Exterior covered SF :	Exterior open SF :		
Description : <u>2 men</u>					
Activity 3: <u>Plant Ops Warehouse</u>			# staff :		
Interior SF :		Exterior covered SF :	Exterior open SF :		
Description : <u>large equipment / separate for small equipment</u>					
<u>Workshop -</u>					
Activity 4: <u>Garage - covered</u>			# staff :		
Interior SF :		Exterior covered SF :	Exterior open SF :		
Description : <u>2 boom trucks</u> <u>compressors / traffic lights</u>					
<u>2 bucket trucks</u>					
<u>3 trailer generators</u>					
Activity 5:			# staff :		
Interior SF :		Exterior covered SF :	Exterior open SF :		
Description : <u>Sand/Gravel/cold mix / crushed waste / Backfill</u>					

Description of facility for each of the activities identified above.		
Activity : <i>Meter shop</i>	# staff : <i>3 + 2 carpenter + 4 helpers</i>	
Interior SF :	Exterior covered SF :	Exterior open SF :
Description : <i>keep separate include make up testing</i>		<i>1 welder <del>electrician</del> Valve crew - 3</i>
Activity : <i>Mechanics</i>	# staff : <i>4 + Warden</i>	
Interior SF :	Exterior covered SF :	Exterior open SF :
Description : <i>3 repair bays</i>		<i>all heavy equip. safety check - sat out</i>
Activity : <i>Meeting space / lunch room</i>	# staff :	
Interior SF :	Exterior covered SF :	Exterior open SF :
Description : <i>Inspector room / safety officer</i>		
Activity : <i>Pump mechanics</i>	# staff :	
Interior SF :	Exterior covered SF :	Exterior open SF :
Description :		
Activity :	# staff :	
Interior SF :	Exterior covered SF :	Exterior open SF :
Description :		
Activity :	# staff :	
Interior SF :	Exterior covered SF :	Exterior open SF :
Description :		

*Priority Needs*

Other spatial needs including common areas: <i>Proxeyd, Killing station.</i>
Vehicular parking: <i>dept vehicles, out of service vehicles</i>
Trucks/heavy equipment parking: <i>yes - backhoes, trailers, tankers, generators, water buff.</i>
Fuel Storage: <i>Gas bog - 3 pumps</i>
Materials storage: <i>yes - gravel, base, coldmix, backfill - Pipes, tanks, fittings, etc.</i>
Waste Disposal, Recycling: <i>?</i>
Tools/small equipment storage: <i>yes - @ section offices</i>
Training Facility: <i>- need to have one</i>
Restrooms: <i>yes - per bldg.</i>
Other areas: <i>Kitchen facility. Basic kitchen facility provided @ each bldg.</i>
Security system: <i>Internal for facilities. City (OS) for baseyd facility</i>
Exterior Lighting existing: <i>some</i>
Fencing: <i>6' chain around perimeter w/ barbed wire</i>
Sketch Org Chart:

```

graph TD
    PO[Plant Ops] --- Lab[Lab]
    PO --- Pump[Pumps]
    PO --- Sinda[Sinda]
    PO --- Elect[Elect.]
    PO --- Prodflow[Prodflow]
    
    FO[Field Ops] --- Dispatch[Dispatch]
    FO --- Support[Support Services]
    FO --- Maint[Maintenance (Central)]
    FO --- Construction[Construction]
    
    Support --- Fiscal[Fiscal]
    Support --- Warehouse[Warehouse]
    Support --- Carp[Carpenters/Mason]
    Support --- Mech[Mechanics]
    Support --- Ops[Operators]
    Support --- Valve[Valve Section]
    Support --- Motor[Motor Shop]
  
```

The organizational chart is divided into two main sections: Plant Ops and Field Ops. Plant Ops includes Lab, Pumps, Sinda, Elect., and Prodflow. Field Ops includes Dispatch, Support Services, Maintenance (Central), and Construction. Support Services is further detailed with Fiscal, Warehouse, Carpenters/Mason, Mechanics, Operators, Valve Section, and Motor Shop.

Work Flow Charts (if applicable):

Activity:

Activity:

Activity:

Activity: Priority Issues: Space - vehicular parking, work + employee  
Warehouse space - indoor & outdoor  
Mechanic shop - more space  
Document storage - 3 or 4 existing containers on site



# CONSOLIDATED BASEYARD PROJECT

Department : <i>FIRE - Rotor Machine King + Fire Chief</i> Facility : <i>Kaluluhi</i> Location : Contact : <i>Lee Mainaga - Capt.</i>		
What divisions operate out of this location ? (List) <i>Chief's office &amp; Admin support</i>		
Description of facility for each of the activities identified above.		
Activity 1: Office/Admin Interior SF : Description :	Exterior covered SF : 	# staff : Exterior open SF :
Activity 2: <i>Ocean Safety</i> Interior SF : Description : <i>need to integrate into operations</i> <i>Needs undetermined yet. Possibly Chief/clerk + lifeguards.</i>	Exterior covered SF : 	# staff : Exterior open SF :
Activity 3: <i>Warehouse @ Waikiki stand w/ Police</i> Interior SF : Description : <i>Fire prevention bureau office is here</i> <i>painting/inspections</i>	Exterior covered SF : 	# staff : Exterior open SF :
Activity 4: <i>Mechanics</i> Interior SF : <i>4 bays</i> Description : <i>Aerial testing - ladder trucks</i> <i>more parking</i>	Exterior covered SF : 	# staff : <i>3?</i> Exterior open SF : <i>Parts storage / Clean workshop for pumps.</i> <i>Tools storage - small tools and personal.</i>
Activity 5: <i>Training Facility / classrooms</i> Interior SF : Description :	Exterior covered SF : 	# staff : Exterior open SF :

Other spatial needs including common areas:
Vehicular parking : <i>yes</i>
Trucks/heavy equipment parking : <i>yes</i>
Materials storage: <i>yes</i>
Tools/small equipment storage : <i>yes - small tools personal</i>
Restrooms : <i>yes</i>
Other areas : <i>:</i>
Security system :
Exterior Lighting existing :
Fencing :
<p>Sketch Org Chart :</p> <p><i>Victor Fontanilla - mech. supervisor - reports to Shimada</i></p> <p><i>Priority needs : larger <del>new</del> bays in mechaniz shop -</i>  <i>Existy facility cannot secure ladder trucks)</i>  <i>employee parking</i>  <i>clean safety - unknown needs.</i>  <i>EVOC facility/training</i></p>

Work Flow Charts (if applicable):

Activity:

Activity:

Activity:

Activity:

# CONSOLIDATED BASEYARD PROJECT

Department : <i>Police</i> <i>Jon Kaupahole / Leighton</i> Facility : Location : <i>Wailuku Station</i> Contact :		
What divisions operate out of this location ? (List)		
Description of facility for each of the activities identified above.		
Activity 1: Office/Admin <i>Dispatch</i> Interior SF : Description :	Exterior covered SF : 	# staff : Exterior open SF :
Activity 2: <i>Criminal Investigation</i> Interior SF : Description :	Exterior covered SF : 	# staff : Exterior open SF :
Activity 3: <i>Patrol</i> Interior SF : Description :	Exterior covered SF : 	# staff : Exterior open SF :
Activity 4: <i>Support Services</i> Interior SF : Description :	Exterior covered SF : 	# staff : Exterior open SF :
Activity 5: <i>Jail</i> Interior SF : Description :	Exterior covered SF : 	# staff : Exterior open SF :
<i>Mechanics shop - 3 extra wide bays</i>		

Other spatial needs including common areas: <i>using overflow lot (Cammer Ctr.) for employee parking</i>
Vehicular parking : <i>- evidence parking @ capacity</i>
Trucks/heavy equipment parking :
Materials storage:
Tools/small equipment storage :
Restrooms :
Other areas : <i>EVOE - vehicle training 900x600 - 3-4 lanes EVOE track</i>
Security system :
Exterior Lighting existing :
Fencing :
<p>Sketch Org Chart :</p> <p><i>Long range plan is to have new station moved out towards Waikanae. New headquarters/EVOE training</i></p> <p><i>Possible shorter term improvements</i></p> <ul style="list-style-type: none"> <li><i>- move vehicle storage &amp; dead evidence storage to Cons. Bldg. to free up more space @ facility.</i></li> <li><i>- currently renting storage for specialized vehicles use - construct new storage facility for vehicle storage.</i></li> <li><i>- Interior spatial needs will see improvement due to migration of district personnel to new Kichei Station.</i></li> </ul> <p><i>Priority issues : Vehicle storage (evidence) Evidence storage EVOE training facility.</i></p>



Work Flow Charts (if applicable):

Activity:

Activity:

Activity:

Activity:

# Appendix C: Site Data

Figures:

## Existing Subdivision Maps

100 Acres

209 Acres

## Atmospheric and Climatic

Effective Wind Speed

Mean Annual Rainfall

Solar Radiation

Wind Energy Resource

## Biologic and Ecologic

Critical Habitat for Endangered or Threatened Species

Threatened and Endangered Plants

Wetlands

## Cultural and Demographic

Ahupua'a Boundaries

Historic Sites

Population Density

## Geologic and Geophysical

Land Study Bureau Classification (LSB)

Soils

Agricultural Lands of Importance to the State of Hawaii

## Human Health and Safety

Fire Response Zones

Fire Risk Rating

FIRM Flood Zones - Northern Maui

FIRM Flood Zones - 309 Acres

Tsunami Evacuation Zone

## Inland Water Resources

Aquifers (DLNR)

Aquifers (DOH)

## Transportation

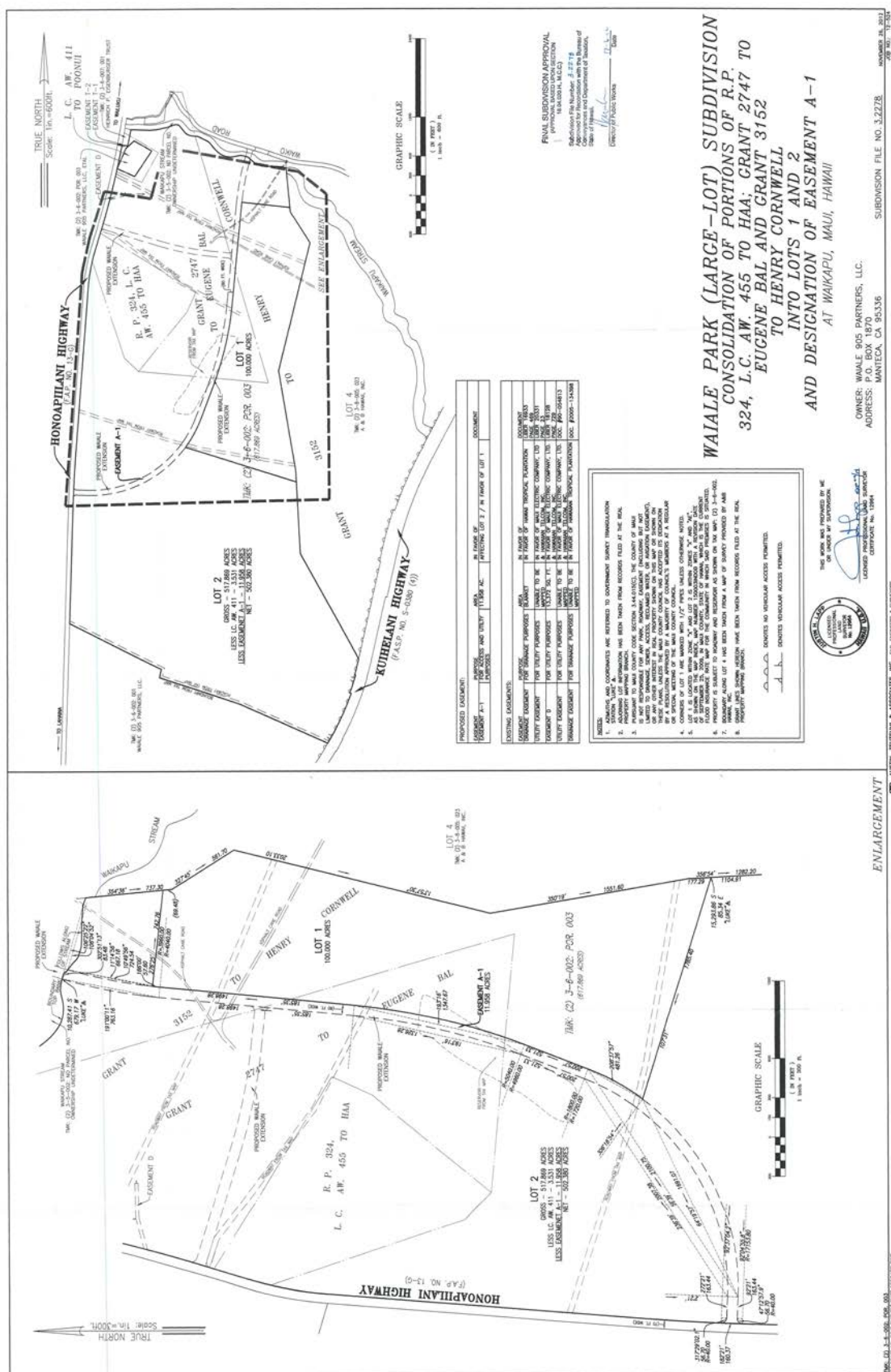
Bus Maps

Bike Routes

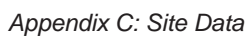
Pedestrian Sidewalk Availability

Regional Transportation Network

100 ACRES

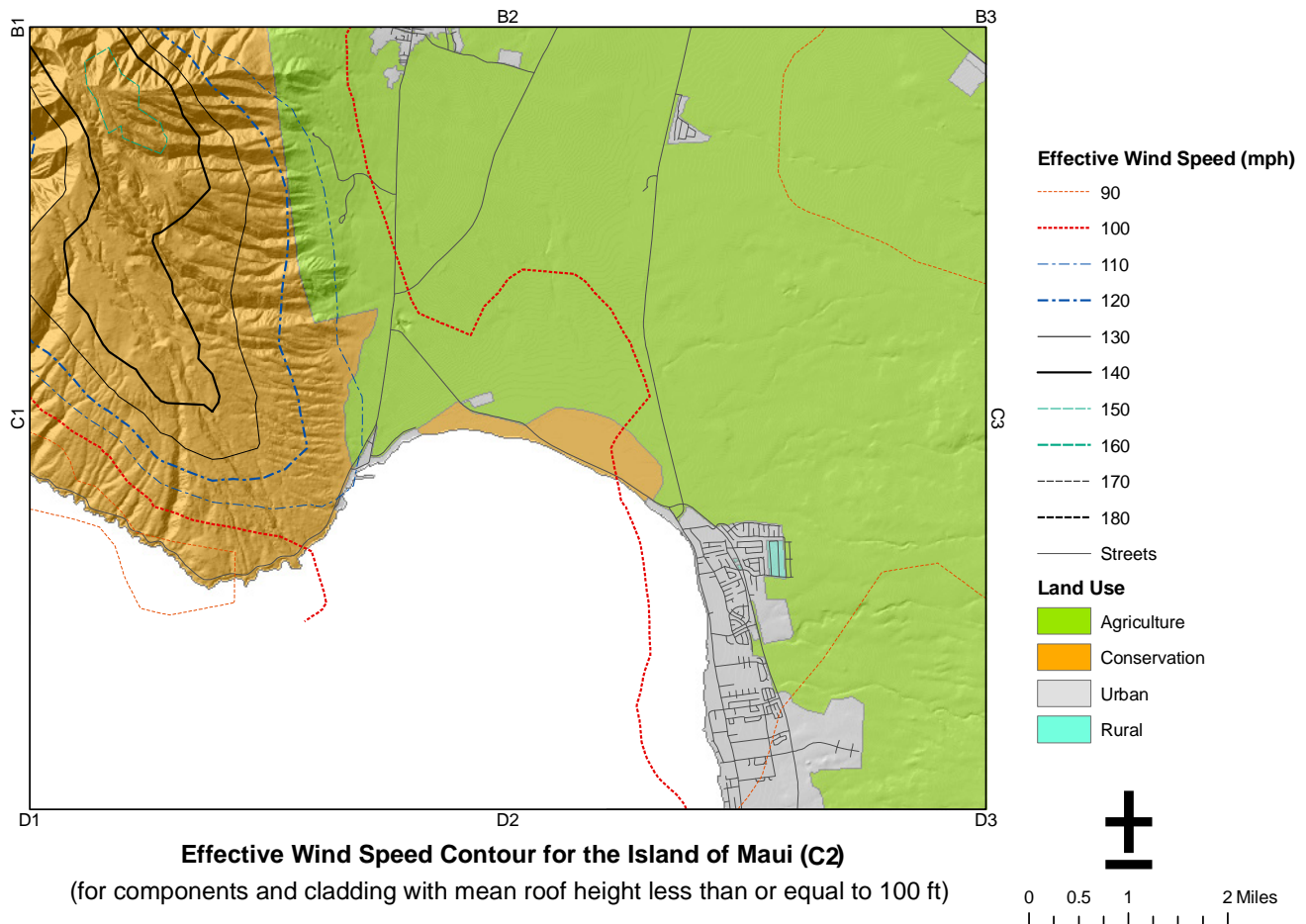


209 ACRES



# ATMOSPHERIC AND CLIMATIC

## EFFECTIVE WIND SPEED

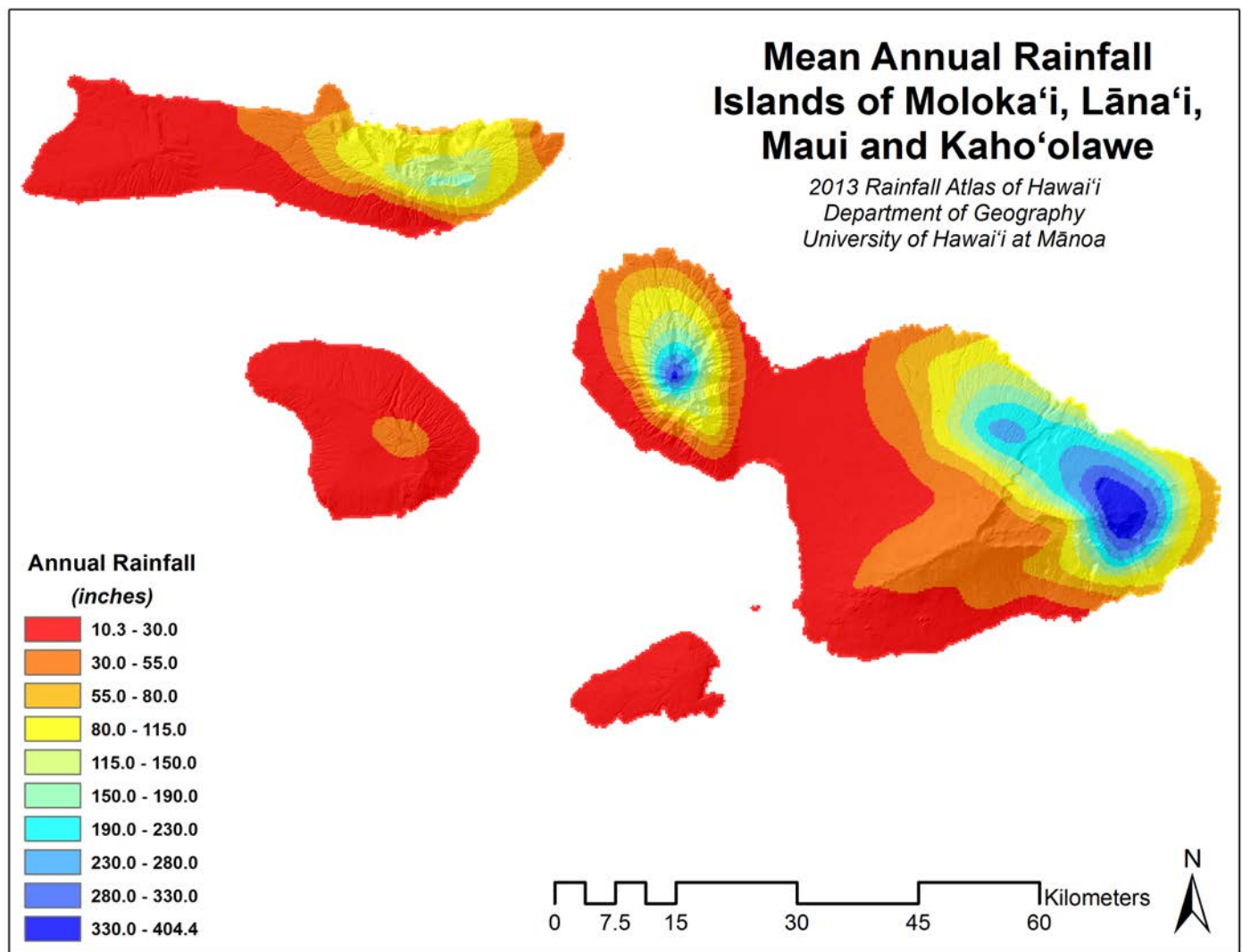


Source: State of Hawaii Department of Accounting and General Services. Maui County Wind Maps. Accessed June 24, 2014.  
<http://media3.hawaii.gov/media/dags/web/windmaps/maui-county-wind-maps.pdf>



# ATMOSPHERIC AND CLIMATIC

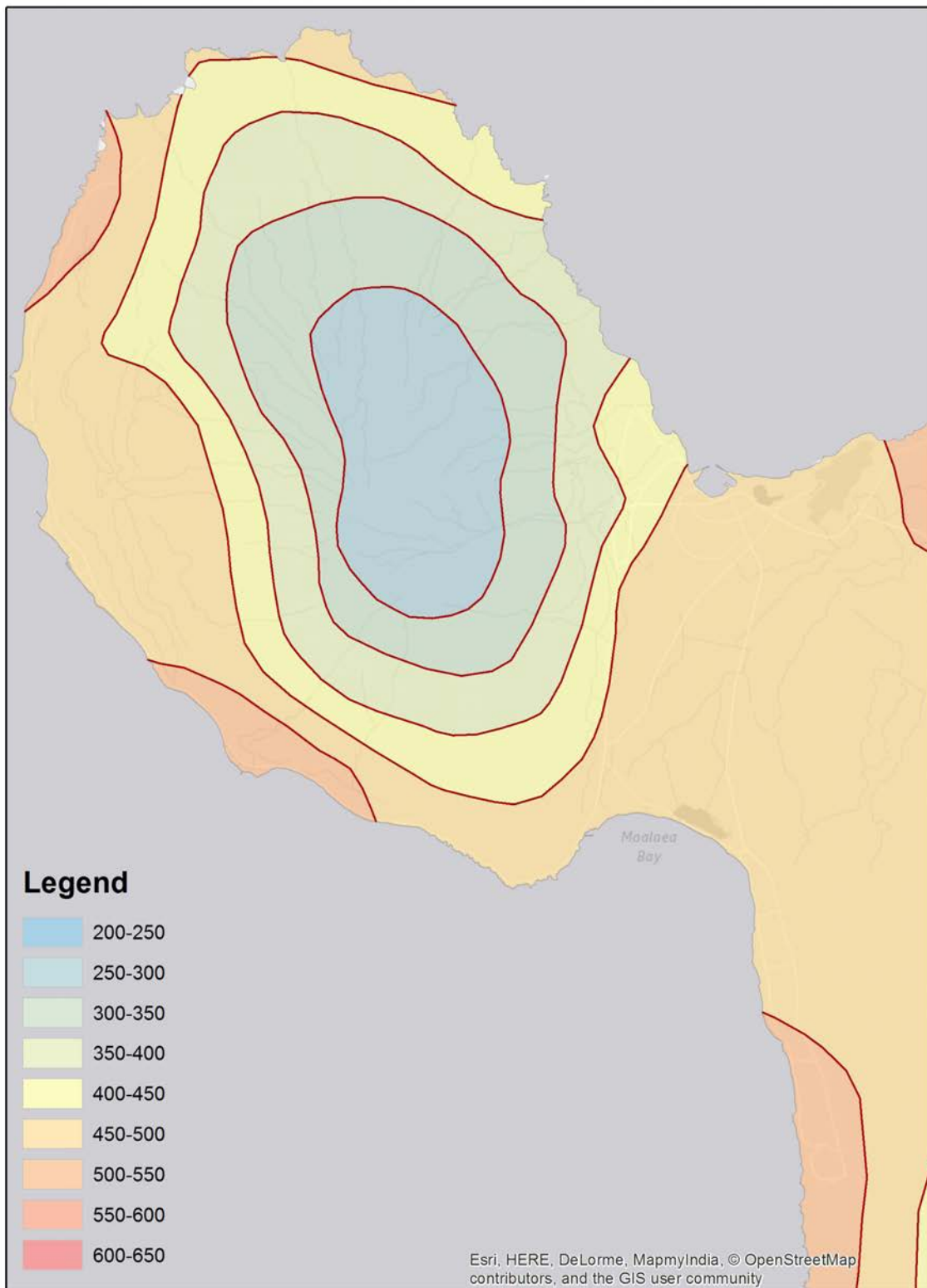
## MEAN ANNUAL RAINFALL



Source: Giambelluca, T.W., Q. Chen, A.G. Frazier, J.P. Price, Y.-L. Chen, P.-S. Chu, J.K. Eischeid, and D.M. Delparte, 2013: Online Rainfall Atlas of Hawai'i. *Bull. Amer. Meteor. Soc.* 94, 313-316, doi: 10.1175/BAMS-D-11-00228.1.

# ATMOSPHERIC AND CLIMATIC

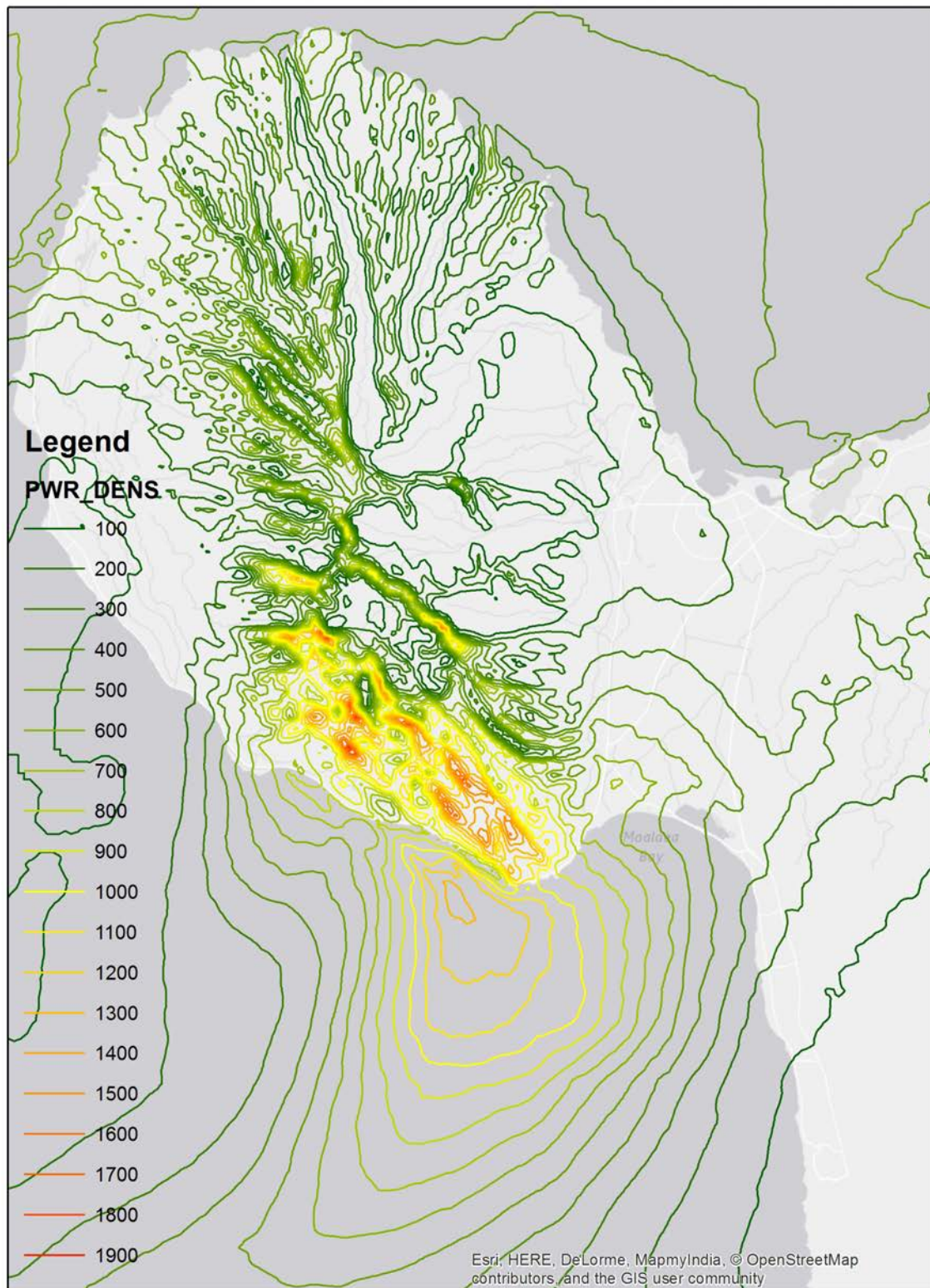
## SOLAR RADIATION



Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program

# ATMOSPHERIC AND CLIMATIC

## WIND POWER DENSITY

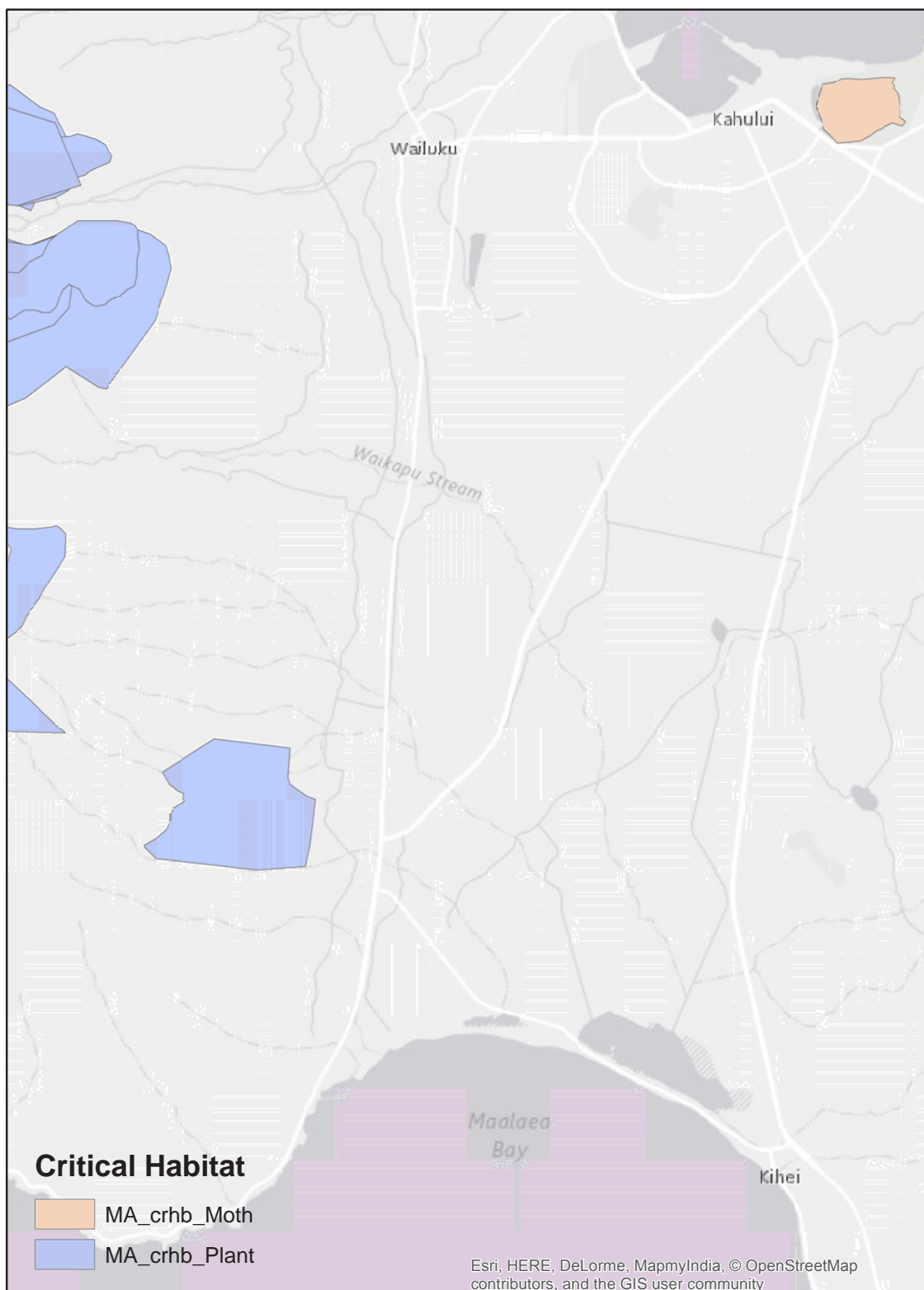


Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program



# BIOLOGIC AND ECOLOGIC

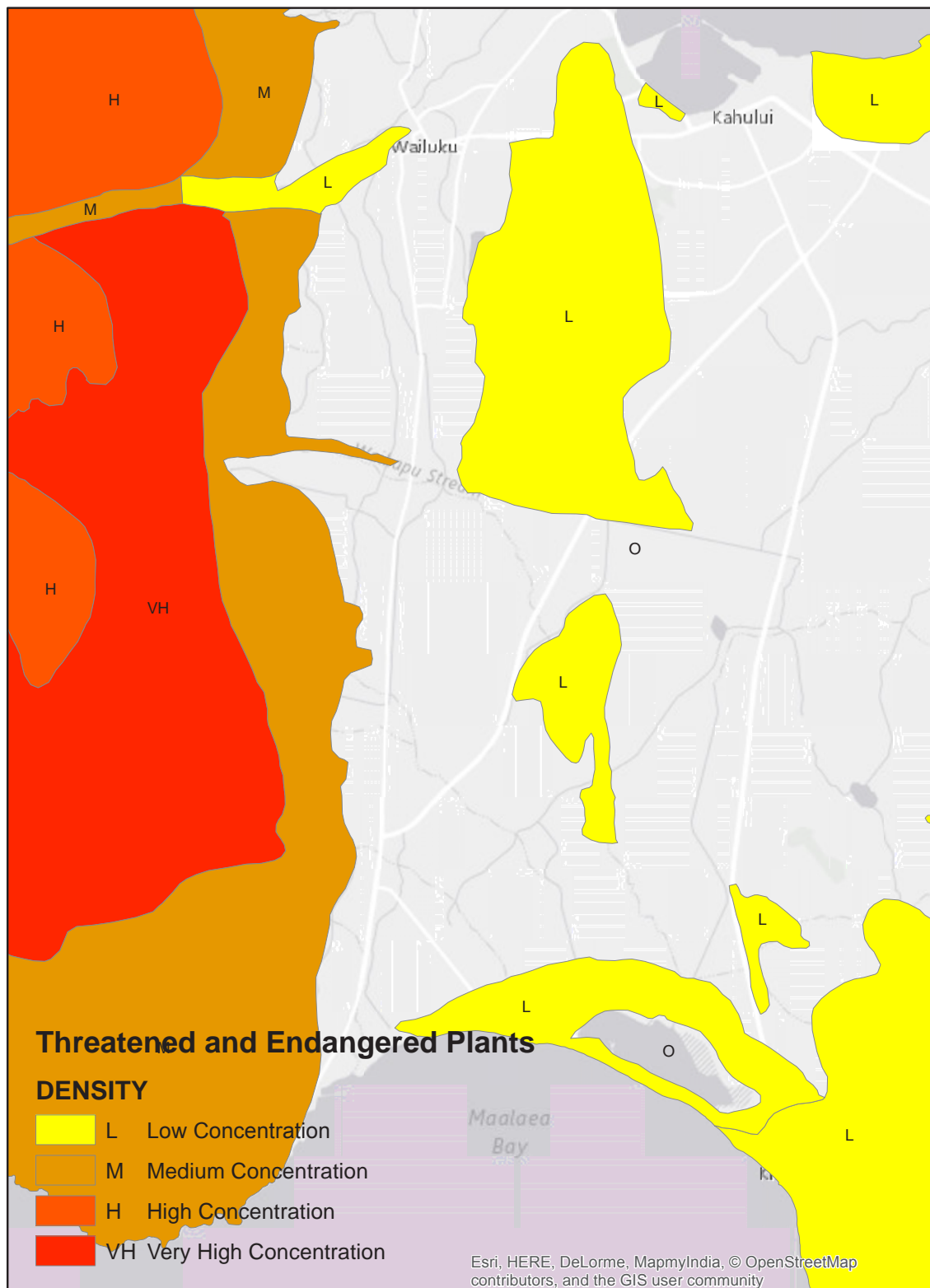
## CRITICAL HABITAT FOR ENDANGERED OR THREATENED SPECIES



Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program

# BIOLOGIC AND ECOLOGIC

## THREATENED AND ENDANGERED PLANTS

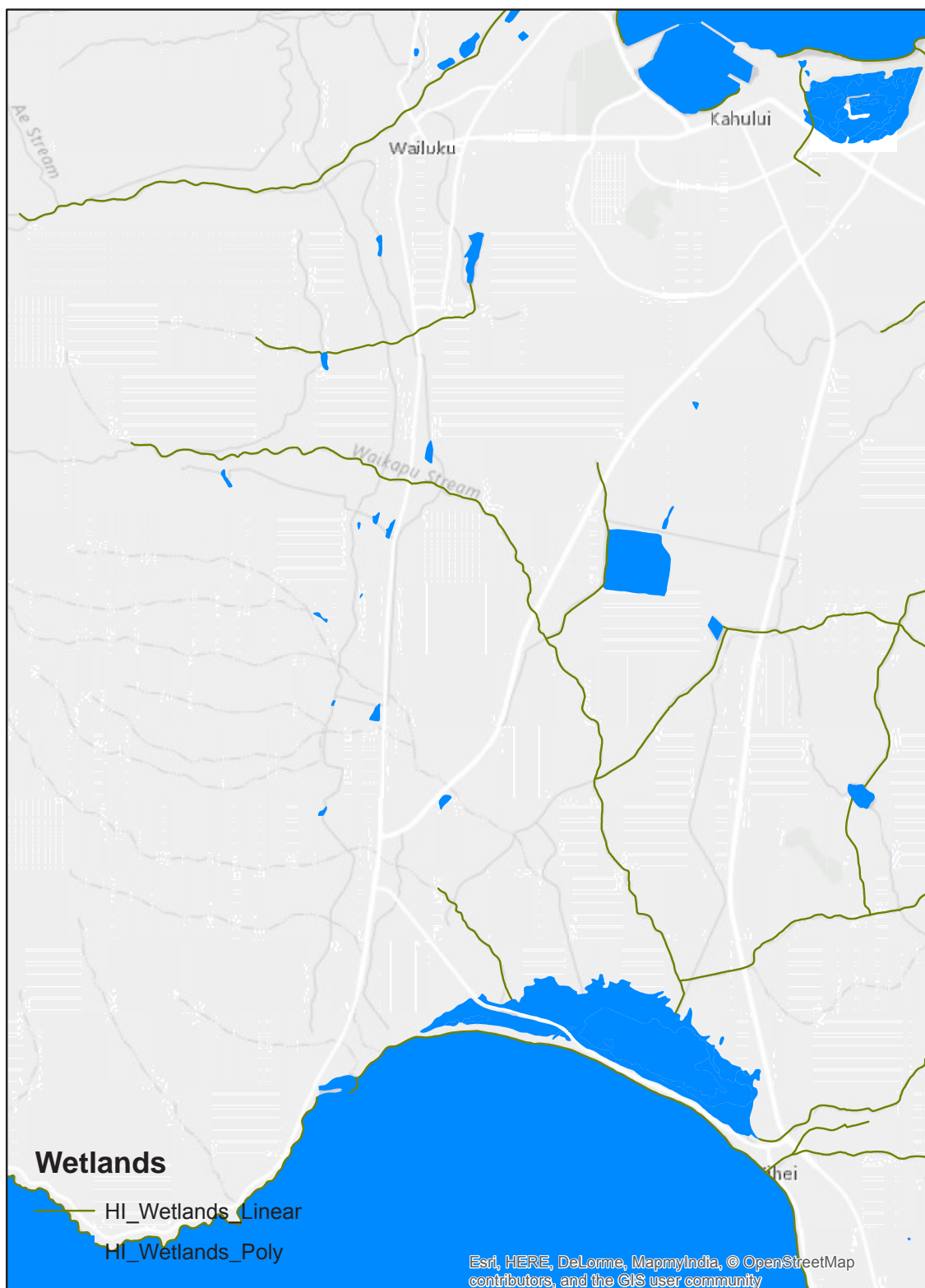


Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program



# BIOLOGIC AND ECOLOGIC

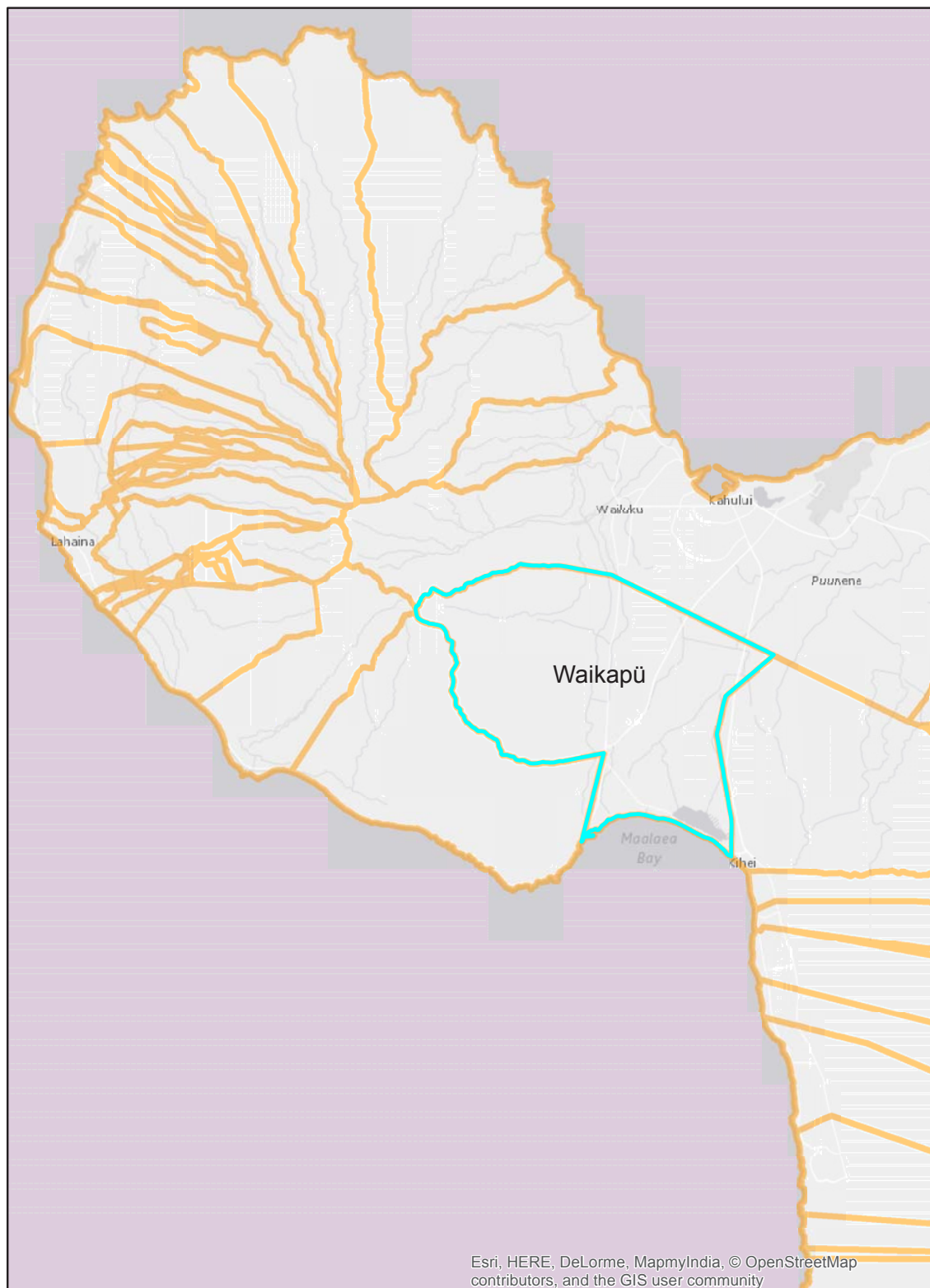
## WETLANDS



Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program

# CULTURAL AND DEMOGRAPHIC

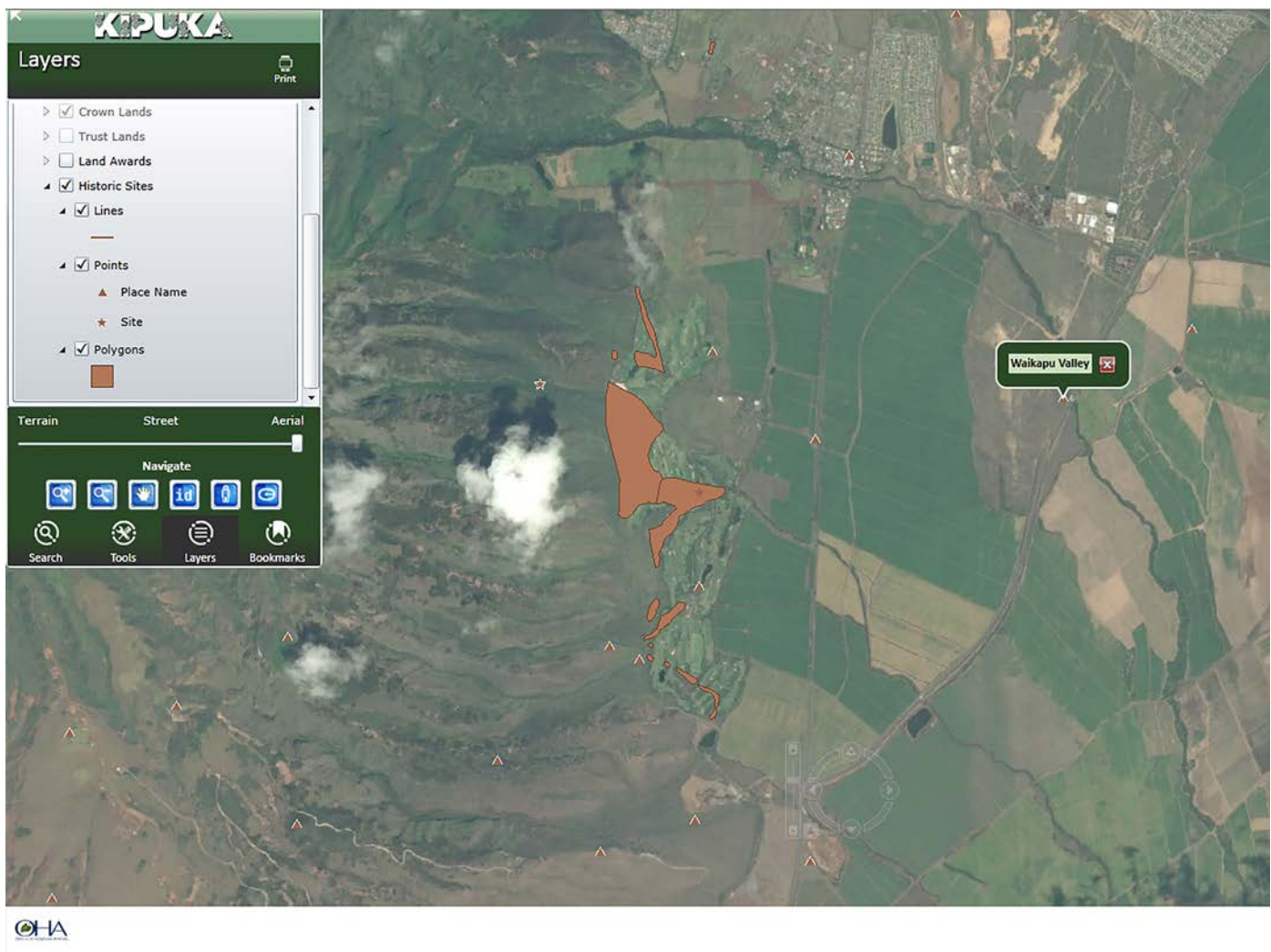
## AHUPUA'A BOUNDARIES



Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program

# CULTURAL AND DEMOGRAPHIC

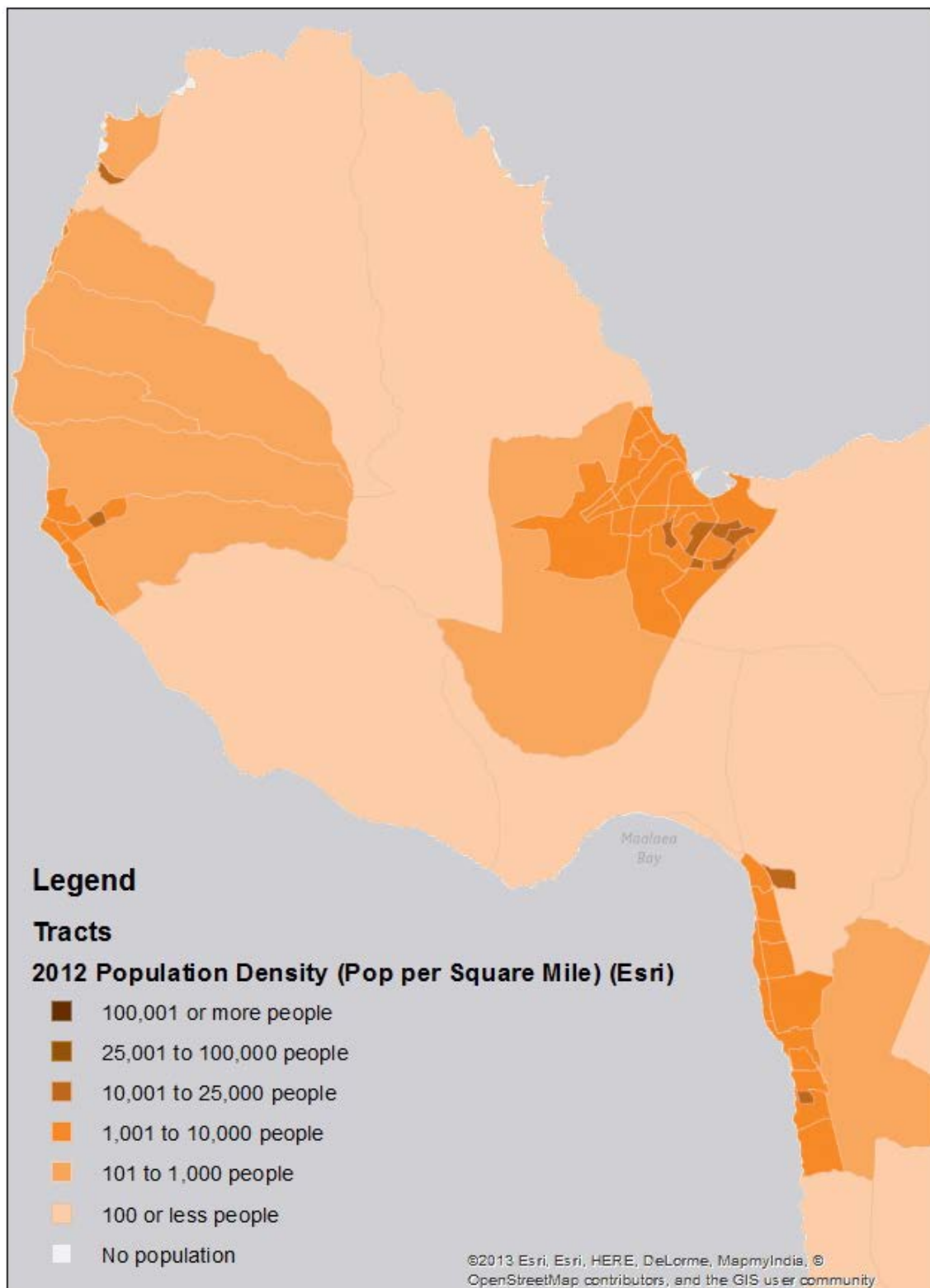
## HISTORIC SITES



Source: Office of Hawaiian Affairs (OHA). Kipuka Database. Accessed July 11, 2014. <http://kipukadatabase.com/kipuka/>

# CULTURAL AND DEMOGRAPHIC

## POPULATION DENSITY

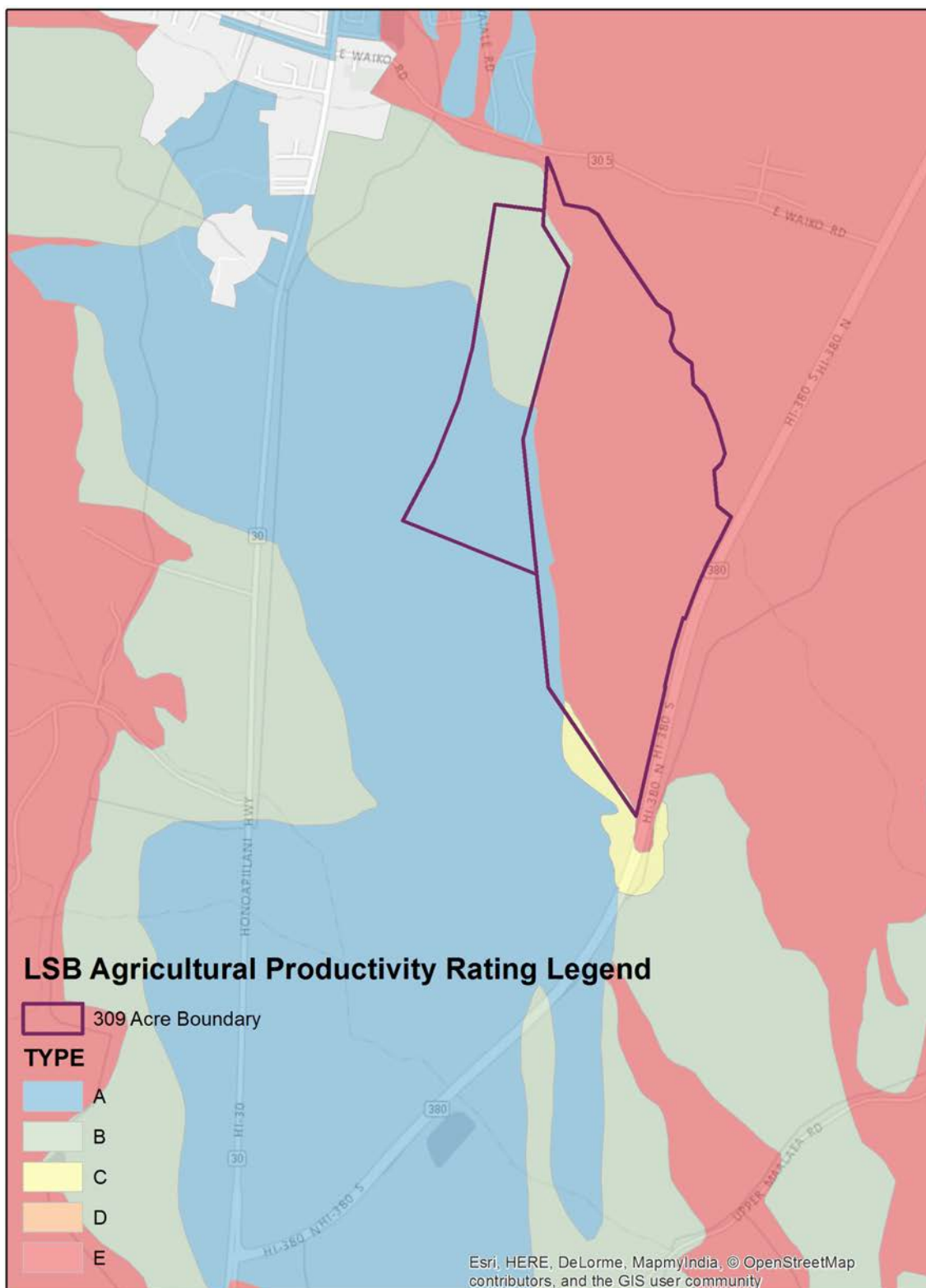


Source: ESRI USA Population Density (Mature Support). [http://server.arcgisonline.com/arcgis/services/Demographics/USA\\_Population\\_Density/MapServer](http://server.arcgisonline.com/arcgis/services/Demographics/USA_Population_Density/MapServer)



# GEOLOGIC AND GEOPHYSICAL

## LAND STUDY BUREAU CLASSIFICATION (LSB)

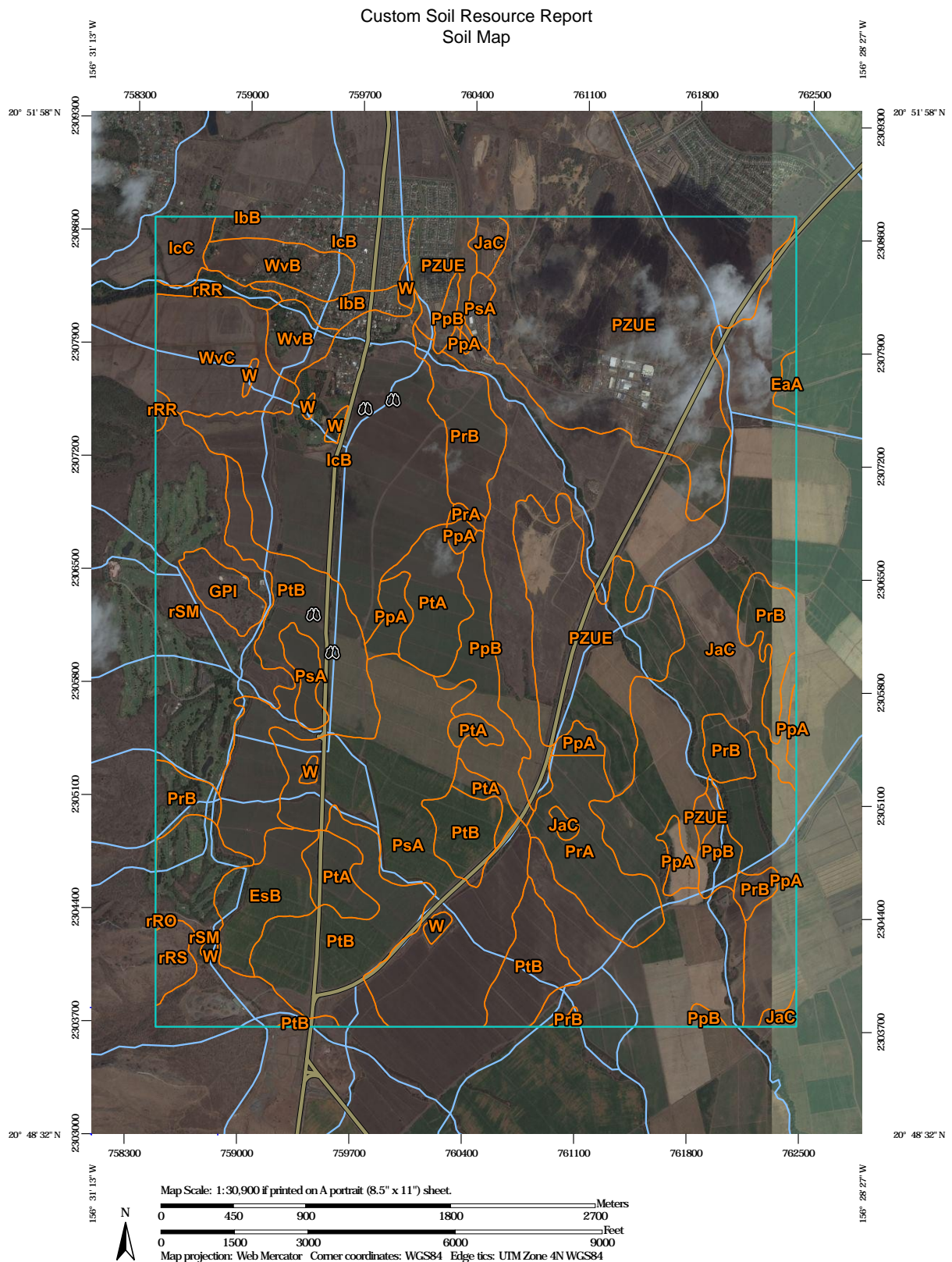


Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program



# GEOLOGIC AND GEOPHYSICAL

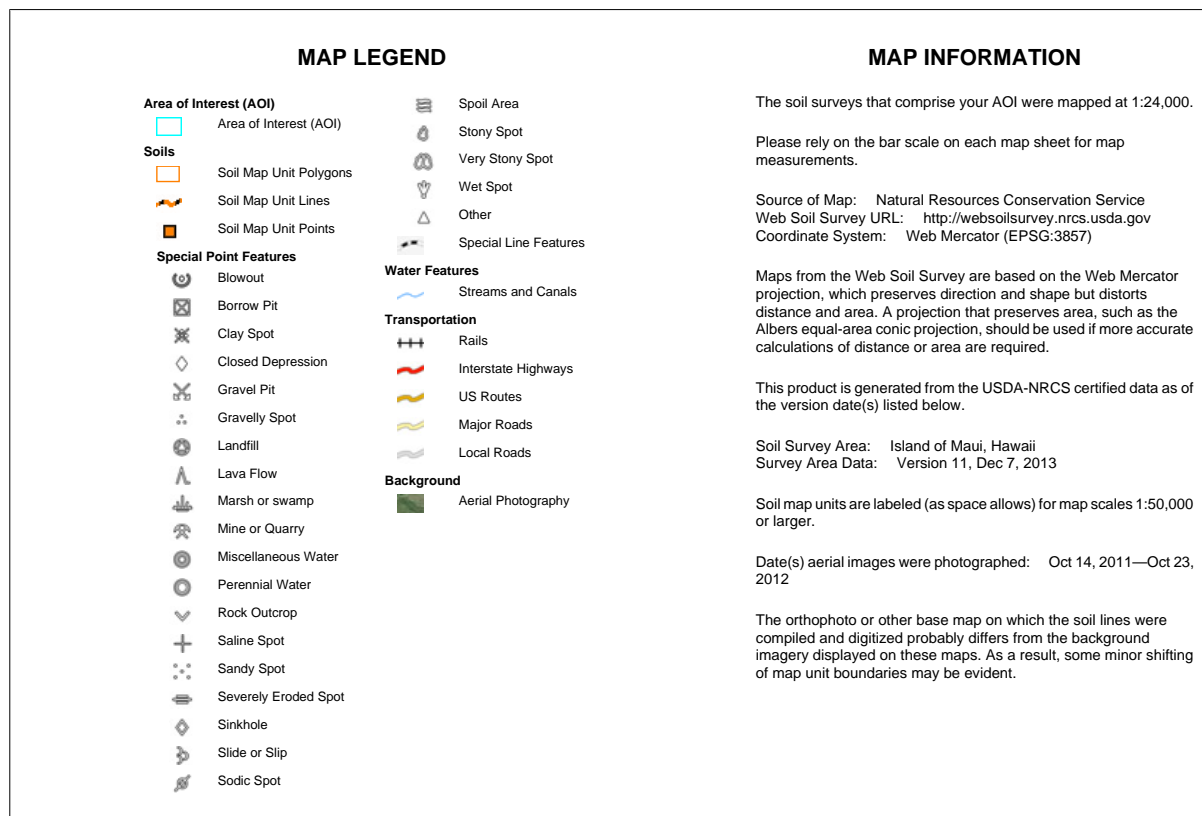
## SOILS



Source: United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Custom Soil Resource Report for Island of Maui, Hawaii. July 11, 2014.

## SOILS

## Custom Soil Resource Report



# GEOLOGIC AND GEOPHYSICAL

## SOILS

### Custom Soil Resource Report

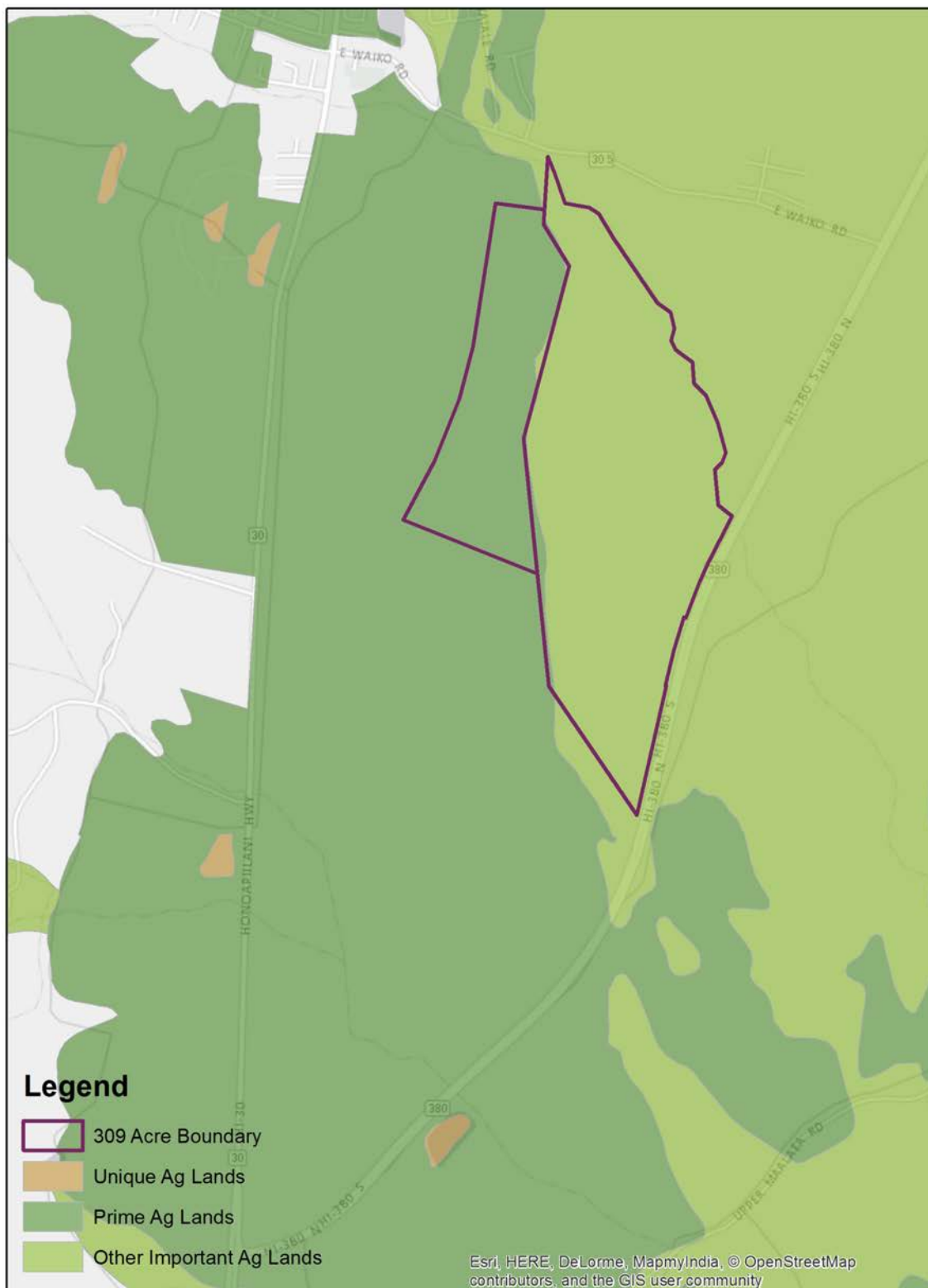
## Map Unit Legend

Island of Maui, Hawaii (HI980)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
EaA	Ewa silty clay loam, 0 to 3 percent slopes	9.2	0.2%
EsB	Ewa silty clay, 3 to 7 percent slopes	79.8	1.6%
GPI	Gravel pit	35.9	0.7%
lbB	lao cobbly silty clay, 3 to 7 percent slopes	29.2	0.6%
lcB	lao clay, 3 to 7 percent slopes	487.3	9.8%
lcC	lao clay, 7 to 15 percent slopes	32.9	0.7%
JaC	Jaucas sand, 0 to 15 percent slopes	1,054.0	21.3%
PpA	Pulehu silt loam, 0 to 3 percent slopes	190.5	3.8%
PpB	Pulehu silt loam, 3 to 7 percent slopes	131.5	2.7%
PrA	Pulehu cobbly silt loam, 0 to 3 percent slopes	120.0	2.4%
PrB	Pulehu cobbly silt loam, 3 to 7 percent slopes	198.5	4.0%
PsA	Pulehu clay loam, 0 to 3 percent slopes	428.4	8.6%
PtA	Pulehu cobbly clay loam, 0 to 3 percent slopes	138.7	2.8%
PtB	Pulehu cobbly clay loam, 3 to 7 percent slopes	493.4	10.0%
PZUE	Puuone sand, 7 to 30 percent slopes	833.5	16.8%
rRO	Rock outcrop	1.3	0.0%
rRR	Rough broken land	24.3	0.5%
rRS	Rough broken and stony land	23.7	0.5%
rSM	Stony alluvial land	397.9	8.0%
W	Water > 40 acres	24.1	0.5%
WvB	Wailuku silty clay, 3 to 7 percent slopes	96.2	1.9%
WvC	Wailuku silty clay, 7 to 15 percent slopes	127.3	2.6%
<b>Totals for Area of Interest</b>		<b>4,957.8</b>	<b>100.0%</b>

Source: United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Custom Soil Resource Report for Island of Maui, Hawaii. July 11, 2014.

# GEOLOGIC AND GEOPHYSICAL

## AGRICULTURAL LANDS OF IMPORTANCE TO THE STATE OF HAWAII



Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program

# HUMAN HEALTH AND SAFETY

## *FIRE RESPONSE ZONES*

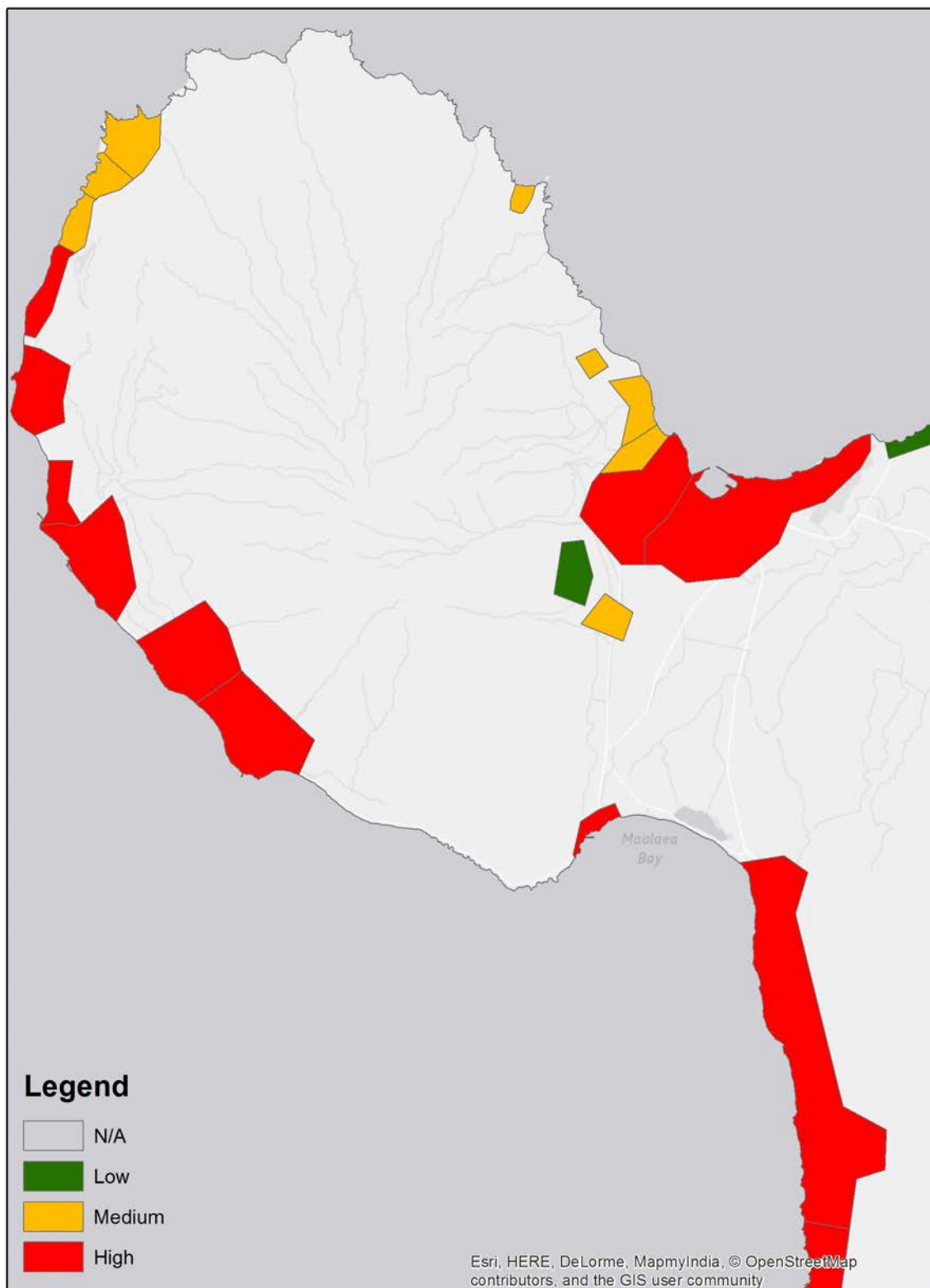


Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program



# HUMAN HEALTH AND SAFETY

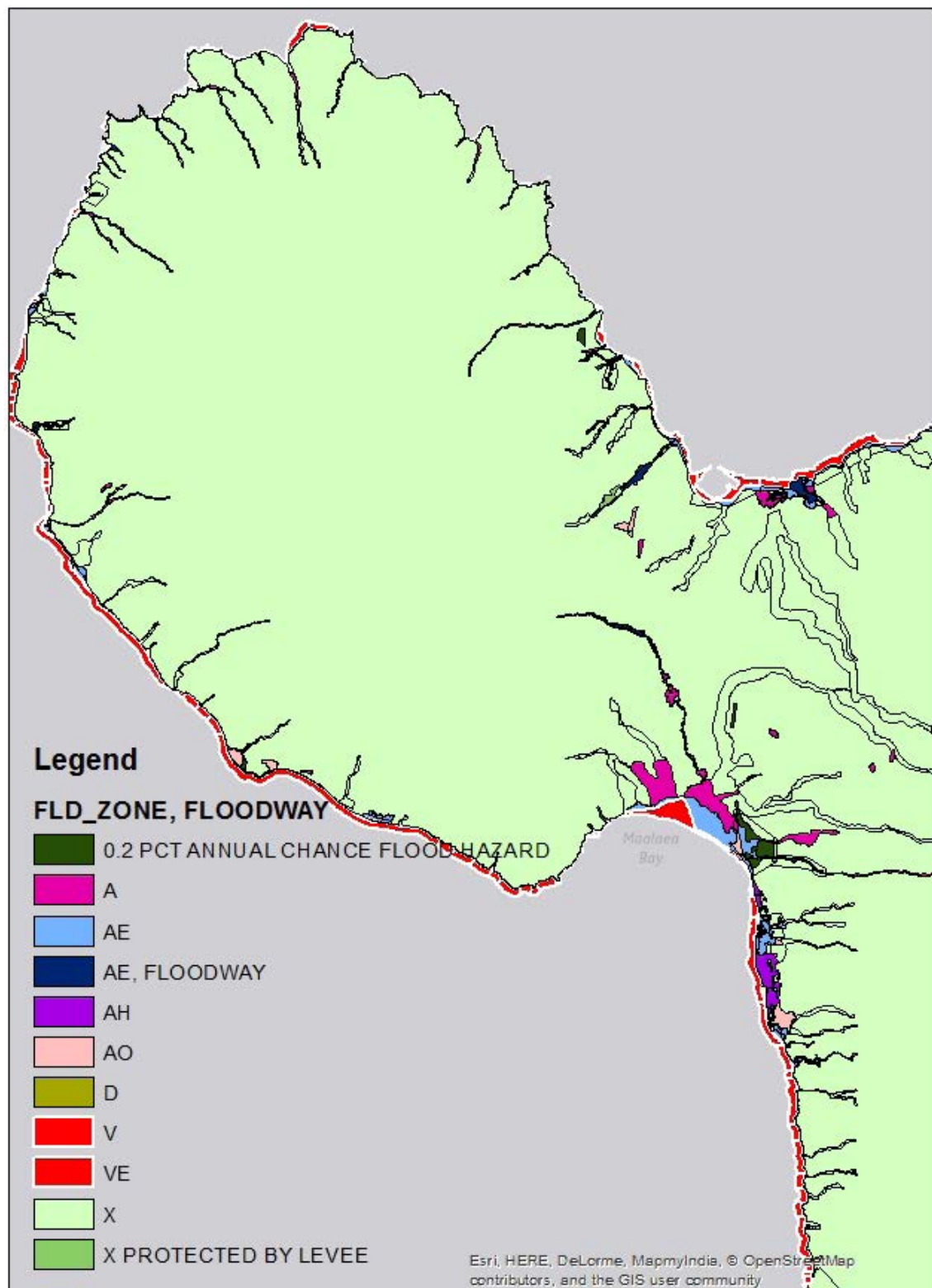
## FIRE RISK RATING



Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program

# HUMAN HEALTH AND SAFETY

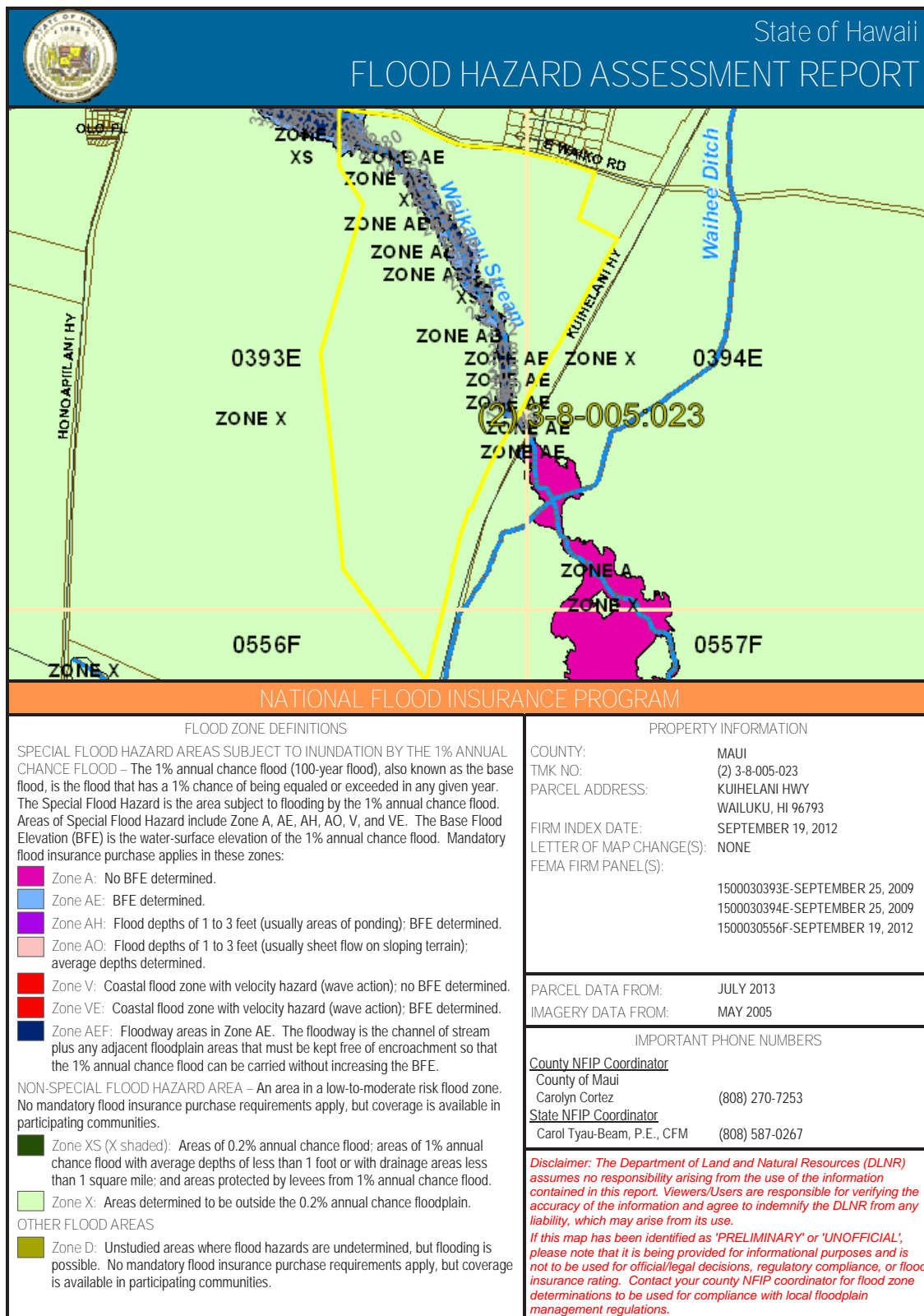
## FIRM FLOOD ZONES - NORTHERN MAUI



Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program

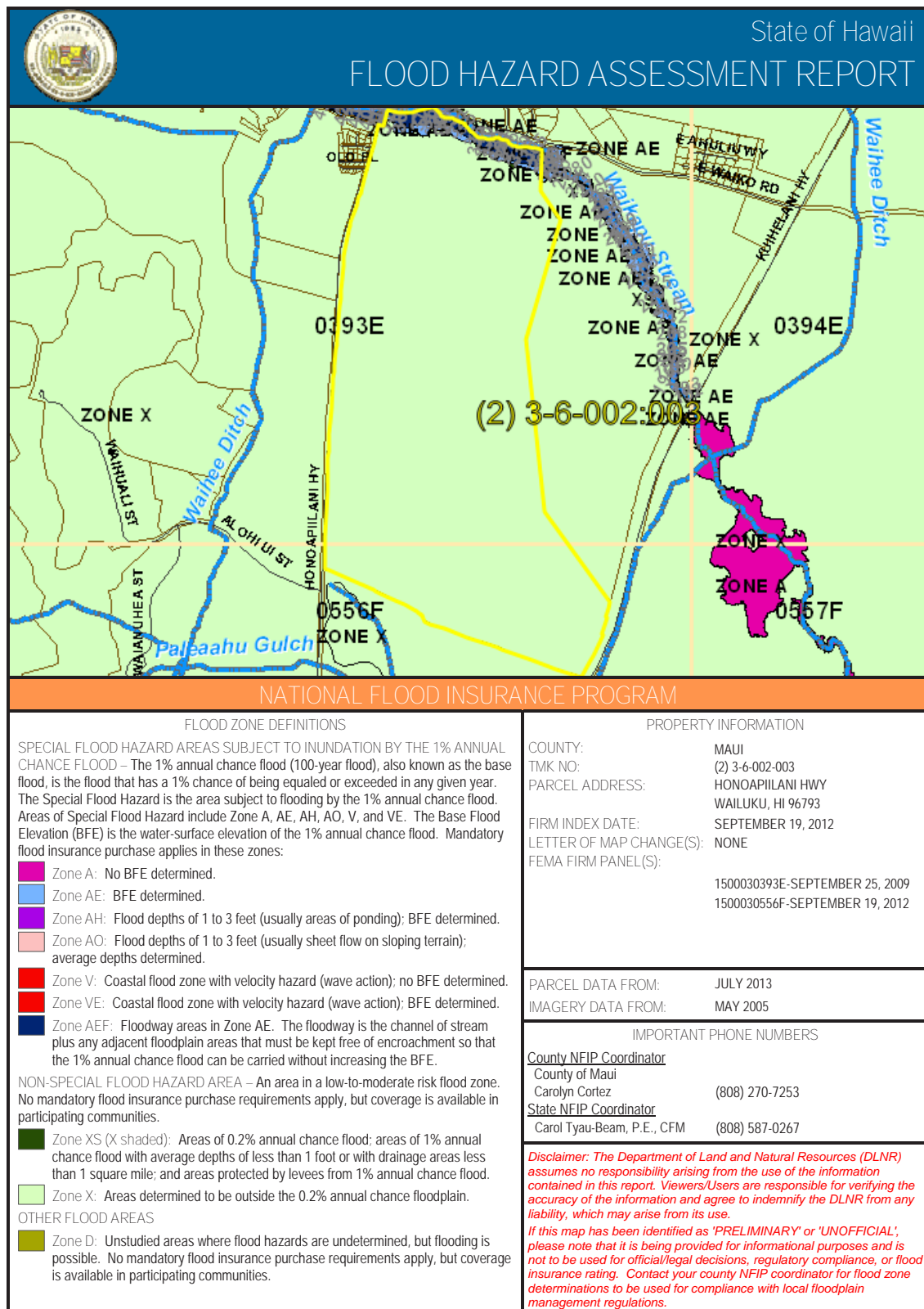
# HUMAN HEALTH AND SAFETY

## FIRM FLOOD ZONES - 309 ACRES



Source: Hawaii - National Flood Insurance Program Flood Hazard Assessment Tool. Date accessed: June 25, 2014.  
<http://gis.hawaiiinfip.org/FHAT/>

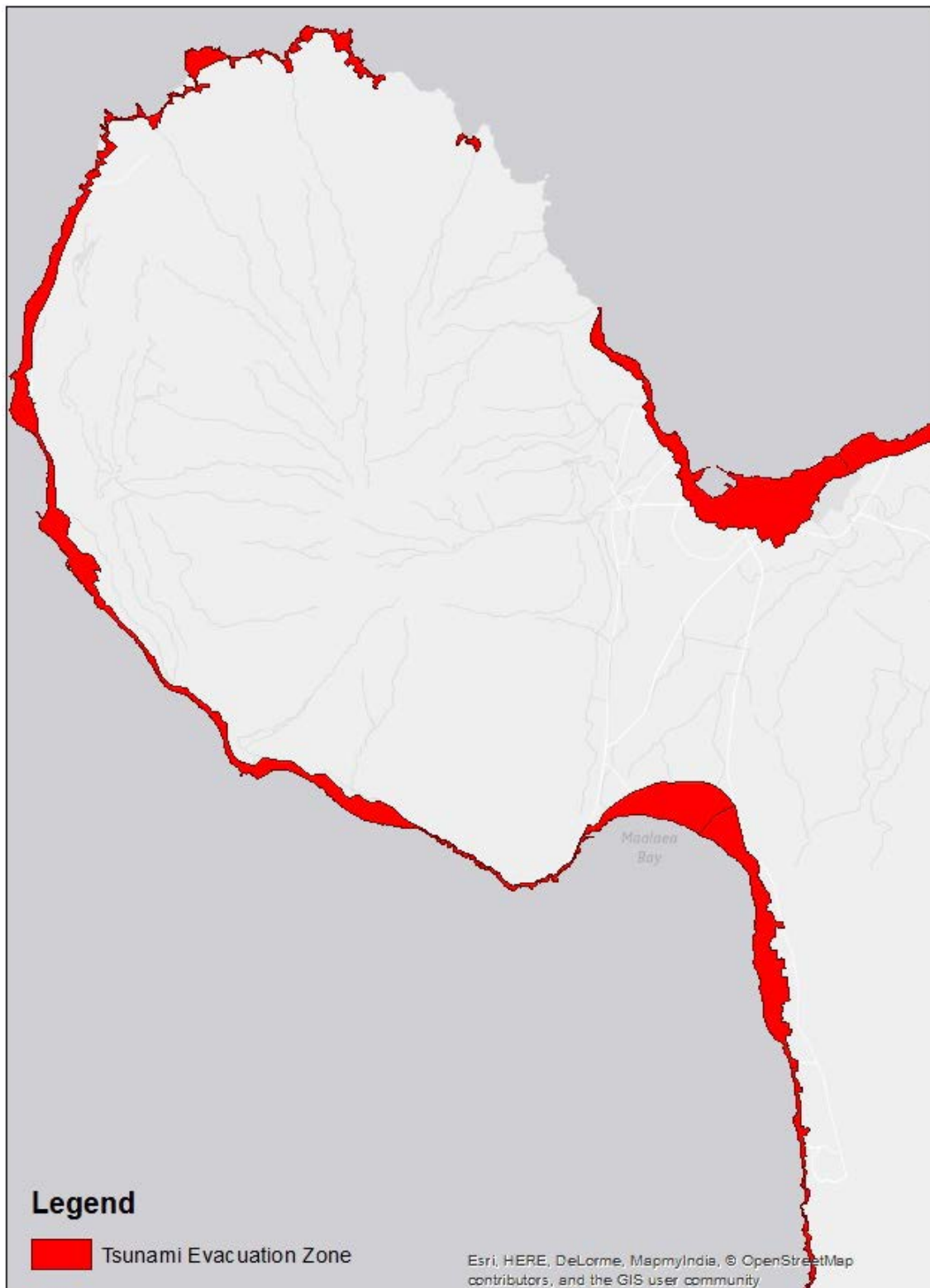
**FIRM FLOOD ZONES - 309 ACRES**



Source: Hawaii - National Flood Insurance Program Flood Hazard Assessment Tool. Date accessed: June 25, 2014.  
<http://qis.hawaiiinfip.org/FHAT/>

# HUMAN HEALTH AND SAFETY

## TSUNAMI EVACUATION ZONE



Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program



# INLAND WATER RESOURCES

## AQUIFERS & SUSTAINABLE YIELDS (SY) DLNR/DOWALD VERSION



Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program

# INLAND WATER RESOURCES

## AQUIFER TYPE (AT) AND STATUS (AS) CODES - DOH VERSION



Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program

# INLAND WATER RESOURCES

## AQUIFER TYPE (AT) AND STATUS (AS) CODES - DOH VERSION

### TYPE CODE - 3 digit/character code describing aquifer hydrology and geology:

1st Digit:	Hydrology		
	Value	Definition	Description
	1	Basal	Fresh water in contact with seawater
	2	High Level	Fresh water not in contact with sea water
2nd Digit:	Hydrology		
	Value	Definition	Description
	1	Unconfined	Where water table is upper surface of saturated aquifer
	2	Confined	Aquifer bounded by impermeable or poorly permeable formations, and top of saturated aquifer is below groundwater surface
	3	Confined or Unconfined	Where actual condition is uncertain
3rd Digit:	Geology		
	Value	Definition	Description
	1	Flank	Horizontally extensive lavas
	2	Dike	Aquifers in dike compartments
	3	Flank/Dike	Indistinguishable
	4	Perched	Aquifer on impermeable layer
	5	Dike/Perched	Indistinguishable
	6	Sedimentary	Nonvolcanic lithology

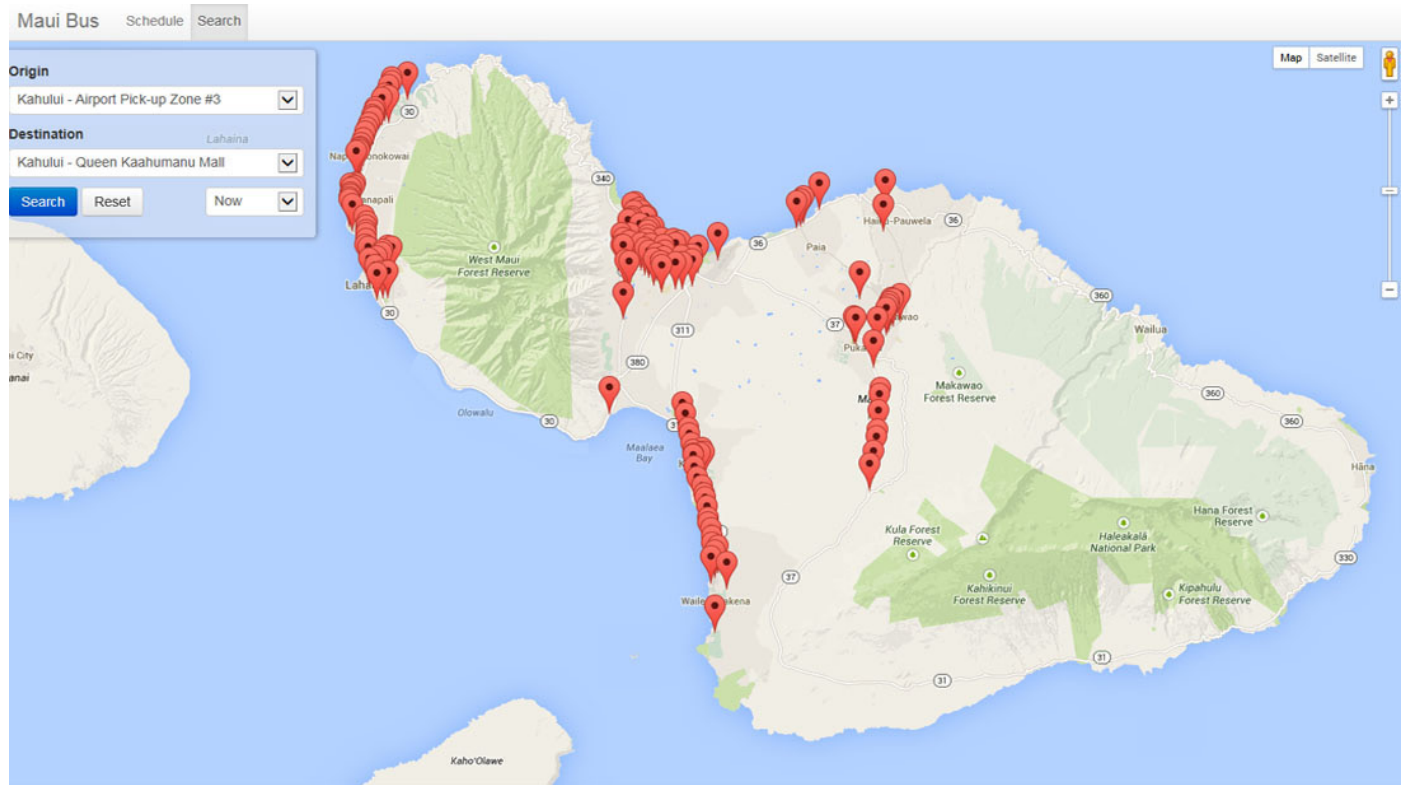
### Status Code (Groundwater) - 5 digit/character code describing aquifer status:

1st Digit:	Developmental Stage	4th Digit:	Uniqueness
	Value		Value
	1		1
	2		2
	3		
2nd Digit:	Utility	5th Digit:	Vulnerability to Contamination
	Value		Value
	1		1
	2		2
	3		3
			4
3rd Digit:	Salinity (mg/l Cl-)		
	Value		
	1		
	2		
	3		
	4		
	5		

Source: State of Hawaii Office of Planning Hawaii Statewide GIS Program

# TRANSPORTATION

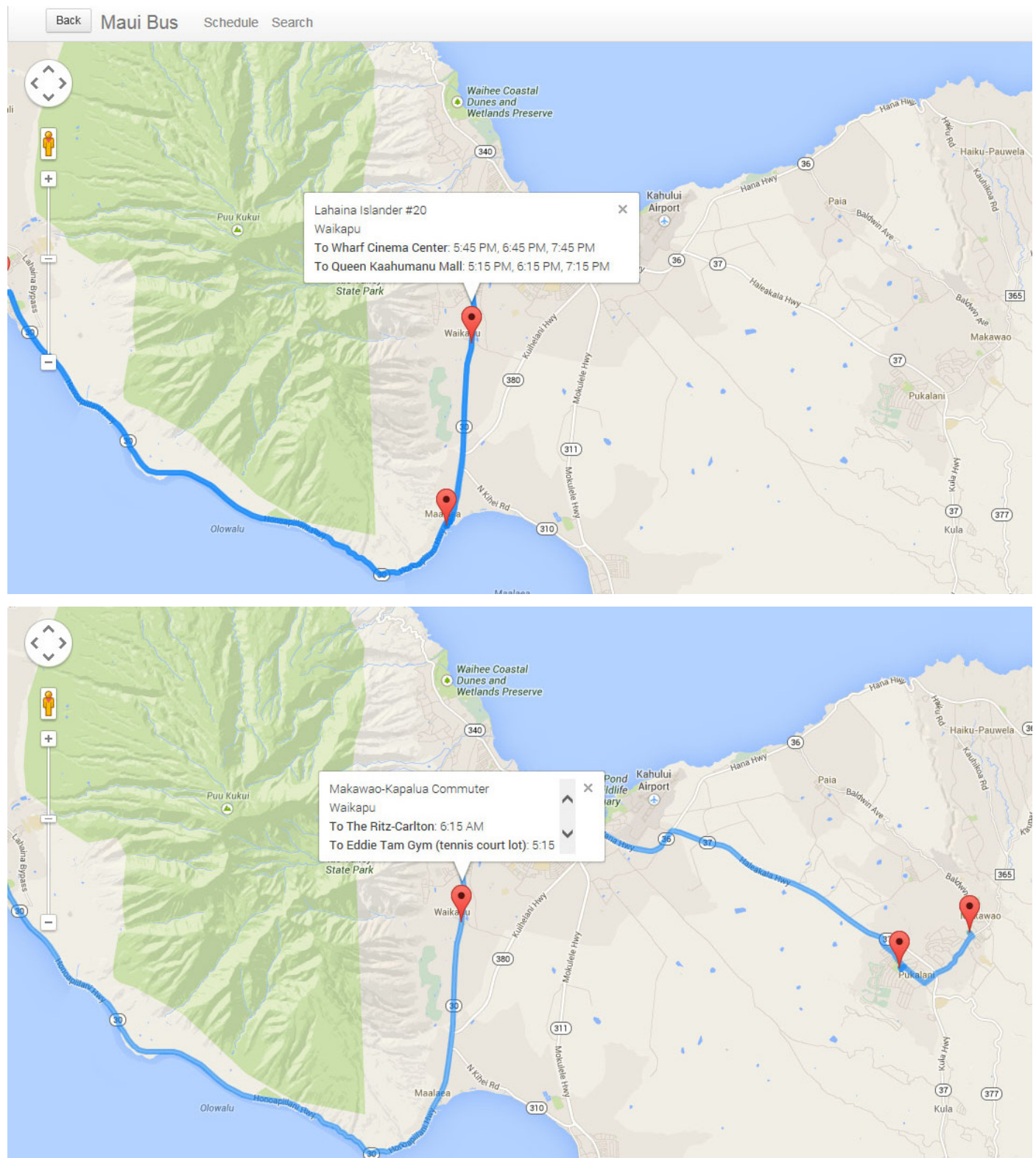
## BUS MAPS - ALL EXISTING MAUI BUS STOPS



Source: Maui Bus. Date accessed: June 24, 2014. <http://mauibus.net/search>

# TRANSPORTATION

## BUS MAPS - ROUTES ADJACENT TO WAIKAPU SITE

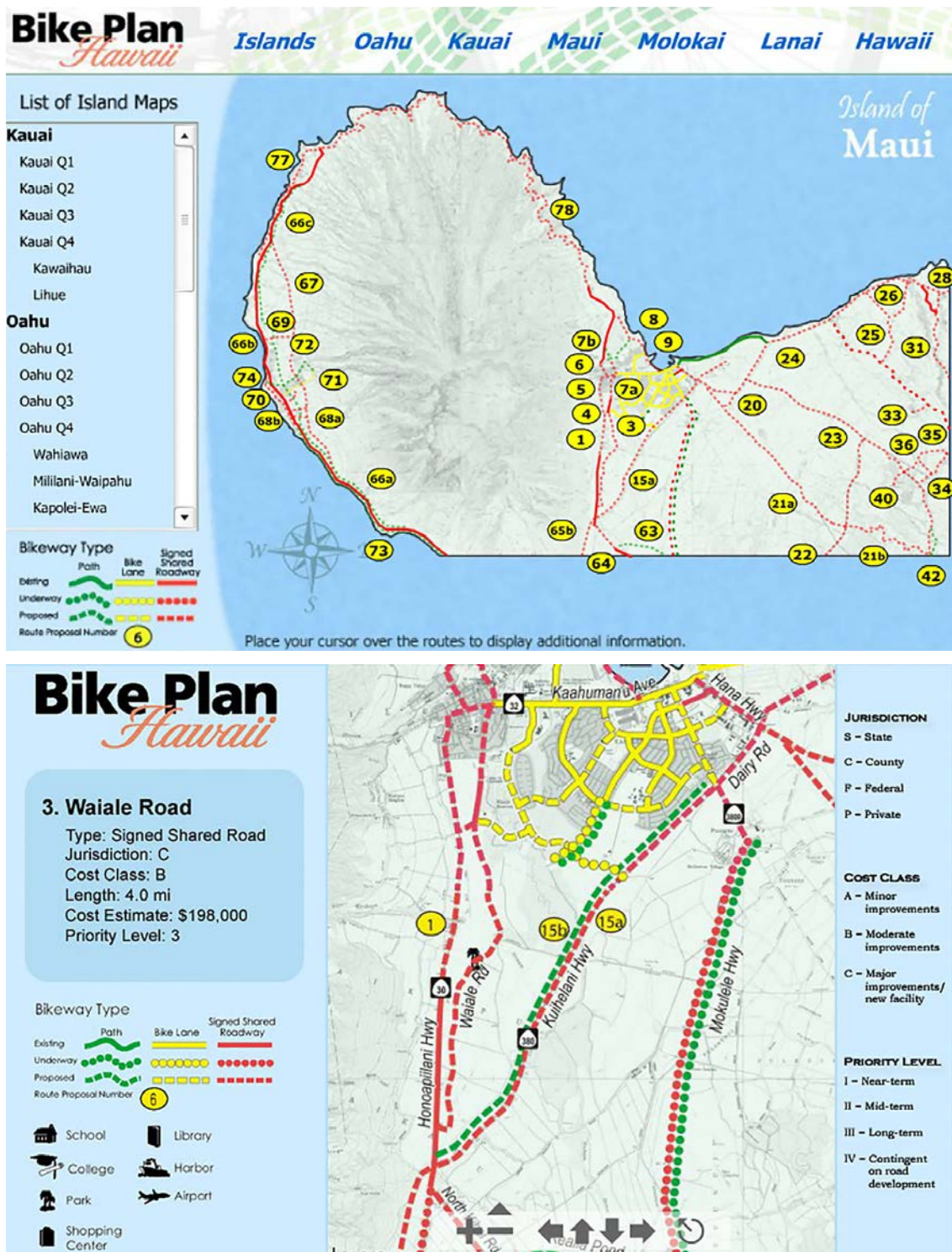


Source: Maui Bus. Date accessed: June 24, 2014. <http://mauibus.net/search>



# TRANSPORTATION

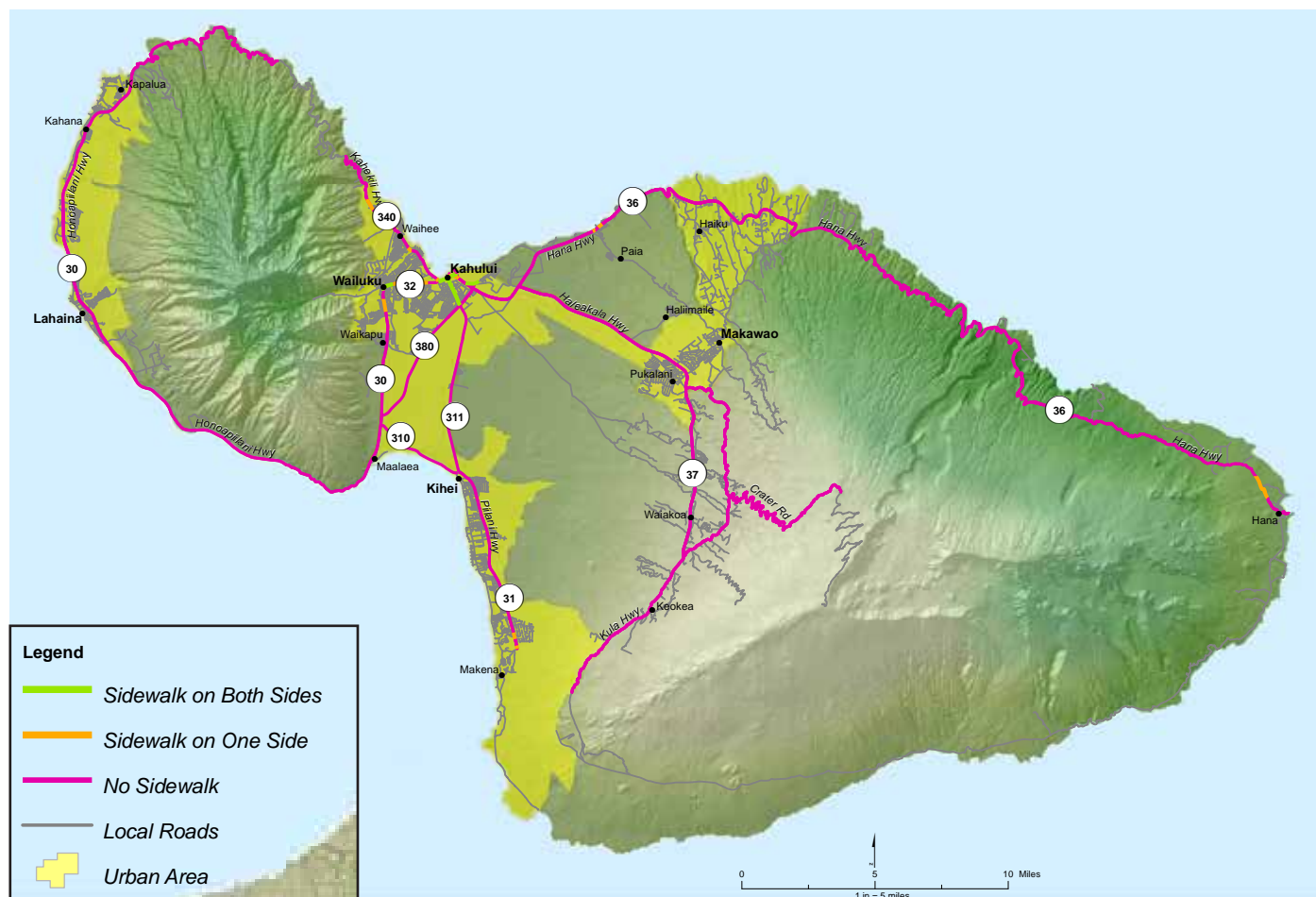
## BIKE ROUTES - EXISTING AND PLANNED



Source: Hawaii Department of Transportation. Date accessed: June 24, 2014. [http://hawaii.gov/vid\\_temp/dot/bike/bikeplan/maps/mauiQ1.html](http://hawaii.gov/vid_temp/dot/bike/bikeplan/maps/mauiQ1.html)

# TRANSPORTATION

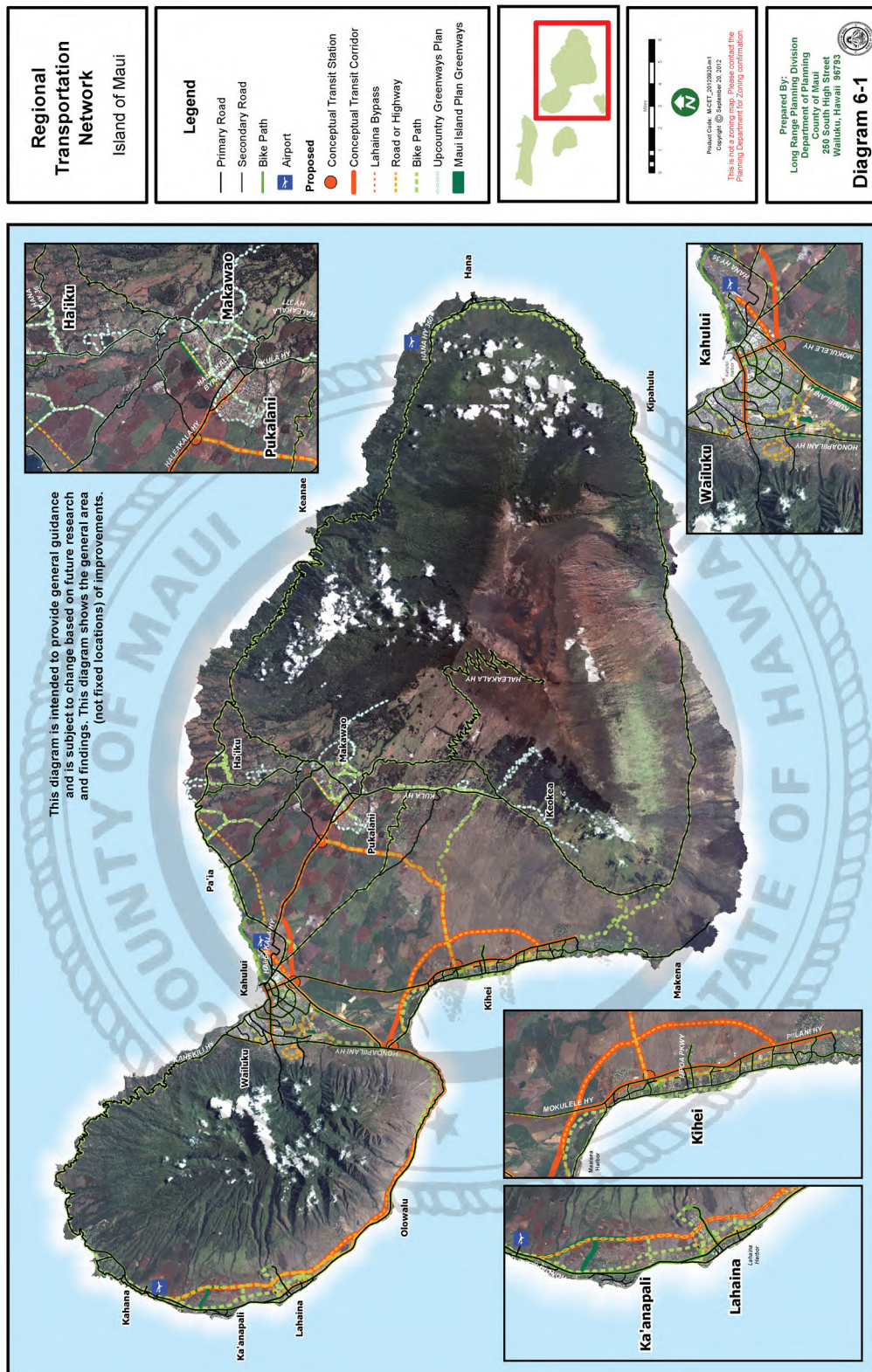
## PEDESTRIAN SIDEWALK AVAILABILITY





# TRANSPORTATION

## REGIONAL TRANSPORTATION NETWORK



Source: County of Maui. Maui Island Plan. Pg 6-76. Date accessed: June 24, 2014.  
[http://www.co.maui.hi.us/documents/17/69/71/3828/Chapter%206\\_201304191331179231.pdf](http://www.co.maui.hi.us/documents/17/69/71/3828/Chapter%206_201304191331179231.pdf)

## ***Appendix D: County of Maui Budget***

The County of Maui develops a budget each fiscal year (FY) to administer funding for the year and propose funding initiatives for the following five years. The FY2016 budget is proposed by the Mayor and currently in review session by the council .

The following pages include the six year Capital Program summary pages from the FY 16 Budget proposed by the Mayor with projects relevant to the Waikapu facility highlighted. The pages help to inform understanding about when funding may become available when examining the phasing of upcoming projects. Where available, we have also included the Department Capital Project Sheets from the Mayor's Budget Proposal for a deeper understanding of proposed projects.

SIX-YEAR CAPITAL PROGRAM

Wailuku-Kahului

				\$ in 1000's		
				Fiscal Year		
Project Type	CBS No	Project Name	Fund	2016	2017-2021	6-Yr Total
Drainage	CBS-1070	Iao Stream Drainage	FD	0	29,000	29,000
			GB	0	10,500	10,500
Government Facilities	CBS-1950	Kahekili Highway Culvert at Kamaile Street	GB	100	0	100
	CBS-2735	Kahului Fire Station Apparatus Shelter	GF	40	400	440
	CBS-1966	Kahului Fire Station Office Renovations	GF	0	115	115
	CBS-1925	Kalana O Maui Campus Electrical Upgrades	GB	1,500	0	1,500
	CBS-1980	Kalana O Maui Campus Expansion	GB	29,840	0	29,840
			GF	0	3,172	3,172
			LBF	1,000	0	1,000
	CBS-2324	New County Service Center	GB	0	21,424	21,424
	CBS-2303	Waikapu Baseyard Improvements	GF	0	13,000	13,000
	CBS-1213	Waikapu Baseyards	GB	2,875	42,830	45,705
	CBS-1007	Waikapu Fire Mechanic Shop / Administration Building	GB	0	10,000	10,000
			GF	0	1,400	1,400
	CBS-2297	Wailuku Baseyard Emergency Generator Replacement	GF	0	425	425
	CBS-1055	Wailuku Baseyard Improvements	GF	0	5,350	5,350
	CBS-2789	Wailuku Redevelopment Parking Expansion	GF	10	0	10
Parks and Recreation	CBS-1111	Central Maui Aquatics Complex	GB	0	33,450	33,450
	CBS-2351	Central Maui Parks System	GF	800	5,925	6,725
	CBS-1214	Central Maui Regional Park	GF	0	22,000	22,000
	CBS-1143	Kepaniwai Heritage Gardens Improvements	GF	100	500	600
	CBS-1122	War Memorial Civic Complex	GB	2,000	20,500	22,500
	CBS-1209	War Memorial Complex Paving Improvements	GF	0	2,700	2,700
Road Improvements	CBS-2782	Central Maui Bike and Pedestrian Study	GF	150	0	150
	CBS-1945	Central Maui Signal Upgrades	FD	0	1,040	1,040
			HF	270	260	530
	CBS-2296	Iao Stream Bridge Repairs	FD	0	1,200	1,200
			GB	0	300	300
	CBS-1060	Kahakuloa Stream Bridge	FD	0	3,000	3,000
			GB	0	1,350	1,350
	CBS-1053	Kahekili Highway Improvements	GB	3,800	0	3,800
	CBS-2787	Kamehameha Avenue at Maui Lani Parkway Intersection Improvements	HF	1,400	0	1,400
			OG	1,000	0	1,000
	CBS-2784	Kanaloa Avenue and Mahalani Street Resurfacing	FD	0	5,384	5,384
			GB	0	1,646	1,646
	CBS-2785	Kuikahi Drive Pavement Rehabilitation	FD	1,760	0	1,760
			GB	440	0	440
	CBS-2767	Lower Main Street Resurfacing	FD	0	2,800	2,800
			GB	300	700	1,000
	CBS-1068	Mill Street Improvements at Imi Kala Street	FD	0	584	584
			GB	0	471	471
	CBS-2768	Onehee Avenue and Kea Street Pavement Rehabilitation	FD	0	1,760	1,760
			GB	0	640	640
	CBS-1062	Papa Avenue Improvements at Hina Avenue	FD	0	688	688
			GB	0	172	172
	CBS-1069	Waiale Road Extension	FD	0	9,600	9,600
			GB	1,100	8,400	9,500



SIX-YEAR CAPITAL PROGRAM

Wailuku-Kahului (Continued)

				\$ in 1000's		
				Fiscal Year		
Project Type	CBS No	Project Name	Fund	2016	2017-2021	6-Yr Total
Road Improvements	CBS-1018	Waiale Road Improvements at Waiinu Road	FD	0	648	648
			HF	0	162	162
	CBS-1063	Waiko Road Improvements	FD	0	2,600	2,600
			HF	0	1,150	1,150
	CBS-1916	Wakea Avenue and Kamehameha Avenue Traffic Signal Upgrade	FD	0	960	960
			HF	0	240	240
	CBS-1050	Wakea Avenue Improvements at Hina Avenue	OG	25	0	25
Sanitation	CBS-1109	Central Maui Landfill (CML) Phase V Gas Collection System Expansion	SW	0	2,500	2,500
	CBS-1099	Central Maui Landfill Phase IV Final Closure	SW	0	2,000	2,000
	CBS-1095	Central Maui Landfill Phase VI-A	GB	0	3,000	3,000
	CBS-1901	Central Maui Landfill Phases VI-B and VI-C Land Acquisition/Subdivision	SW	0	1,000	1,000
	CBS-2721	CML Operations Facilities	SW	0	2,850	2,850
Sewer	CBS-2724	Waikapu Closed Landfill Remediation	SW	350	0	350
	CBS-1131	Environmental Protection Agency (EPA) Consent Decree Sewer Rehabilitation	SRF	0	2,000	2,000
			WF	750	4,000	4,750
	CBS-1151	Hawaiian Homes Force Main Replacement	SRF	2,800	0	2,800
	CBS-1158	Waiko Road Subdivision Sewer System	GB	0	2,000	2,000
			WF	0	150	150
	CBS-2323	Wailuku Wastewater Pump Station Modifications	WF	0	600	600
	CBS-1171	Wailuku-Kahului Recycled Water Force Main	WF	0	6,700	6,700
	CBS-1169	Wailuku-Kahului Wastewater Reclamation Facility (WWRF) Upgrade to R-1	WF	0	6,000	6,000
	CBS-2734	Wailuku-Kahului WWRF Chlorination System Upgrade	WF	0	2,000	2,000
Water Supply	CBS-1077	Central Maui Fire Protection	SRF	0	4,000	4,000
			WU	200	1,700	1,900
	CBS-1102	Central Maui Reliable Capacity	WR	0	2,100	2,100
			WU	0	2,000	2,000
Total Wailuku-Kahului				52,610	313,046	365,656

## Capital Improvement Program

CBS No: CBS-1213

Project Name: **Waikapu Baseyards**

Department: Department of Management

District: Wailuku-Kahului

Project Type: Government Facilities

Anticipated Life: 50 Years



Prior Years	Appr	Ensuing	Subsequent Years					Total
Expend/Encl	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	6-Year
2,705,702	0	2,875,000	24,523,200	4,789,242	4,406,000	4,120,000	4,992,000	45,705,442

## PROJECT DESCRIPTION

Develop the 100-acre property recently acquired by the County for baseyard operations, other appropriate County facilities.

## PROJECT JUSTIFICATION

Improve operational effectiveness for each department and between departments with similar functions.

## STRATEGIC PLAN ALIGNMENT

Department's Strategic Plan	Countywide Priority Results
Goal #2: Provide strategic management and improve operational effectiveness for each department, agency, boards and commissions as assigned by the Mayor.	A Suitable Public Infrastructure An Efficient, Effective, and Responsive Government A Prepared, Safe, and Livable County

## OPERATING IMPACT NARRATIVE

No operations impact. The development of each department facility will be treated as separate CIP projects.

## FUNDING DETAILS

Phase Description	Fund Code	Appr FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Design	GB	0	2,875,000	0	390,000	350,000	480,000	0
New Construction	GB	0	0	23,580,000	4,230,040	3,900,000	3,500,000	4,800,000
Other/Construction Management	GB	0	0	943,200	169,202	156,000	140,000	192,000

## Schedule of Activities

Activity	Start	End	Amount
Design	07/01/2014	12/31/2021	4,095,000
New Construction	07/01/2016	12/31/2021	40,010,040
Other/Construction Management	07/01/2016	12/31/2021	1,600,402
<b>Total Capital Project Costs</b>			<b>45,705,442</b>

Total O&M Costs 0

**Total Capital & Operating Costs 45,705,442**

## Methods of Financing (Ensuing + 5 Years)

Funding Source	Amount
General Obligation Fund	45,705,442
<b>Total Funding Requirements</b>	<b>45,705,442</b>

FISCAL YEAR 2016

MAYOR'S PROPOSED BUDGET

743

Source: County of Maui, Mayor Alan M. Arakawa. County of Maui Fiscal Year 2016 Operating and Capital Budget Mayor's Budget Proposal.

## Capital Improvement Program

CBS No: CBS-1069

Project Name: **Waiale Road Extension**

Department: Department of Public Works

District: Wailuku-Kahului

Project Type: Road Improvements

Anticipated Life: 30 years

Prior Years	Appr	Ensuing	Subsequent Years					Total
Expend/Encb	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	6-Year
0	400,000	1,100,000	5,000,000	0	0	13,000,000	0	19,100,000

## PROJECT DESCRIPTION

Construct two lane roadway extension of Waiale Road from Waiko Road to Honoapiilani Highway. Improvements to include construction of bridge spanning Waikapu Stream and two lane pavement structure with shoulders and safety improvements.

## PROJECT JUSTIFICATION

Waiale Road extension necessary to alleviate traffic congestion through Waikapu Town. This project provides needed traffic flow within and around the town while providing an alternate route between Kahului and Wailuku. It also fulfills the long-term traffic management strategy as identified in Maui Long Range Land Transportation Plan.

## STRATEGIC PLAN ALIGNMENT

Department's Strategic Plan	Countywide Priority Results
Goal #3: Identify and resolve traffic congestion, circulation and safety issues. Objective 3.1: Address capacity and circulation issues by installing additional lanes, acceleration/deceleration lanes, install traffic control devices at major intersections and creation of new roadway systems.	A Suitable Public Infrastructure A Prepared, Safe, and Livable County

## OPERATING IMPACT NARRATIVE

No impact on staffing or operating budget anticipated.

## FUNDING DETAILS

Phase Description	Fund Code	Appr FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Acquisition	GB	0	100,000	0	0	0	0	0
Design	GB	400,000	1,000,000	0	0	0	0	0
New Construction	FD	0	0	0	0	0	9,600,000	0
New Construction	GB	0	0	5,000,000	0	0	2,400,000	0
Other/Construction Management	GB	0	0	0	0	0	1,000,000	0

## Schedule of Activities

Activity	Start	End	Amount
Acquisition	07/01/2014	08/01/2016	100,000
Design	07/01/2014	08/01/2016	1,000,000
New Construction	07/01/2016	03/31/2021	17,000,000
Other/Construction Management	07/01/2016	03/31/2021	1,000,000
<b>Total Capital Project Costs</b>			<b>19,100,000</b>

Total O&M Costs 0

**Total Capital & Operating Costs 19,100,000**

## Methods of Financing (Ensuing + 5 Years)

Funding Source	Amount
Federal Fund	9,600,000
General Obligation Fund	9,500,000
<b>Total Funding Requirements</b>	<b>19,100,000</b>



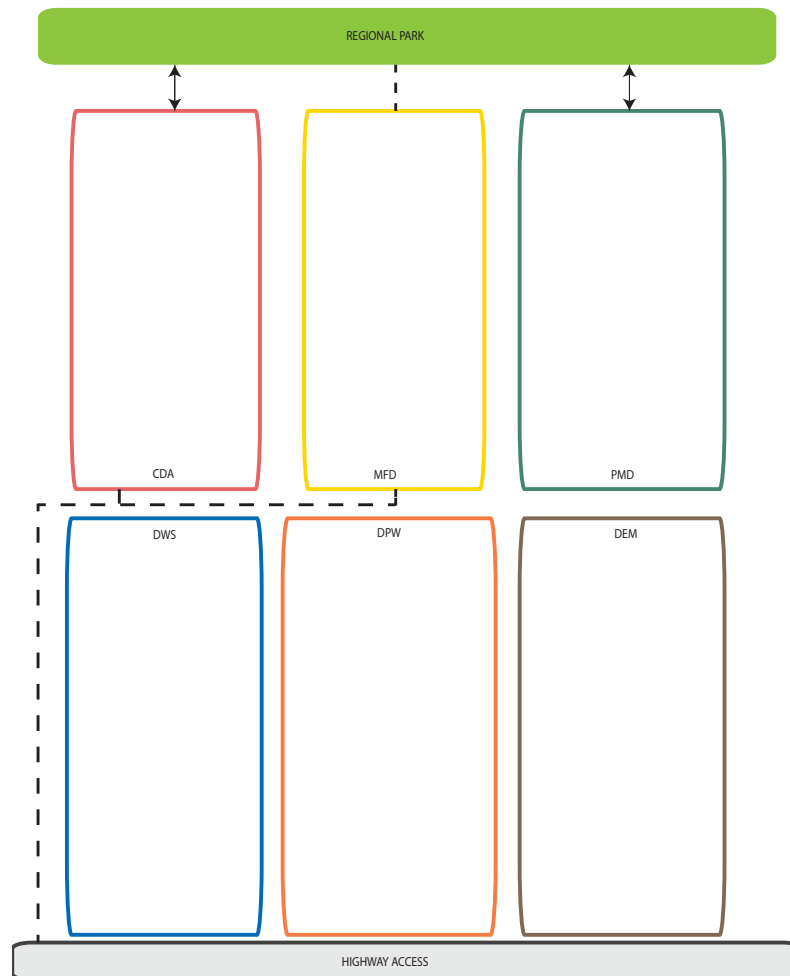
## Appendix E: Alternative Consolidation Strategies

Consolidation Strategies Analysis							
#	Project Goals (3 is best, 1 is worst)	Option A:	Option B:	Option C:	Option D:	Option E:	Option F:
3	Allows for phasing.	3	1	2	2	2	2
3	Allows for future building expansion.	3	1	3	3	3	3
3	Allows for security perimeters where required.	3	1	3	2	2	2
3	Limits site development.	1	3	2	2	2	3
3	Accommodates desired adjacencies.	2	1	3	3	3	3
3	Achieves maximum consolidation from a facilities perspective.	1	3	2	1	2	3
3	Achieves optimal consolidation from a functionality perspective.	1	2	3	2	3	2
6	Accommodates long-term County organizational structure goals.	1	2	3	4	6	5
<b>Total</b>		<b>15</b>	<b>14</b>	<b>21</b>	<b>19</b>	<b>23</b>	<b>23</b>
<b>Ranking</b>		5	6	3	4	1	2



# CONSOLIDATION STRATEGIES

## OPTION A: NO CONSOLIDATION



**TOTAL POINTS: 15/27**

**RANKING: 5/6**

### PROS:

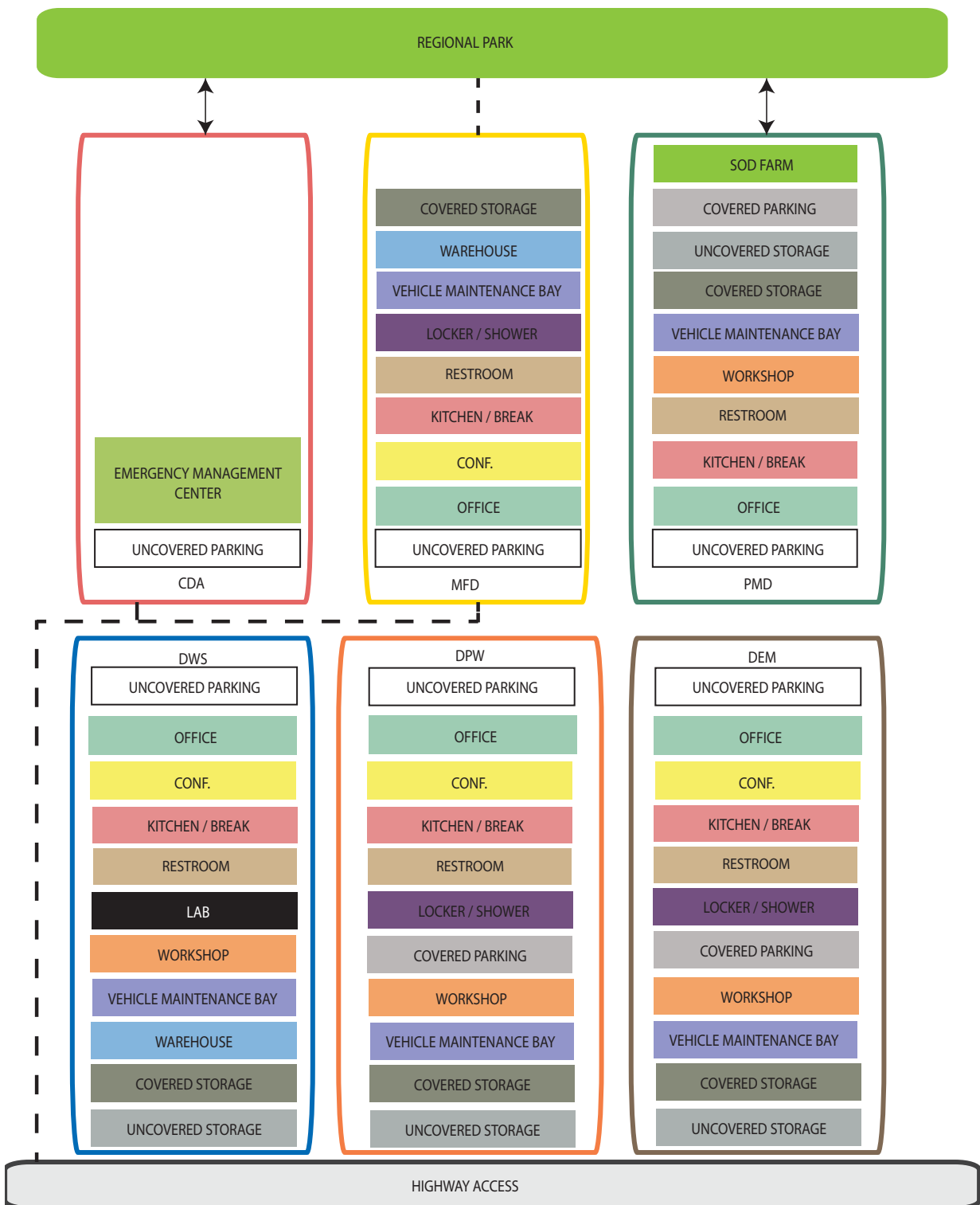
- Individual sites allow for maximum phasing flexibility
- Individual sites allow for easy expansion
- Individual sites allow for varying levels of security
- Somewhat accommodates desired adjacencies

### CONS:

- Does not limit site development
- Does not achieve maximum consolidation from a facilities perspective
- Does not achieve optimal consolidation from an functionality perspective
- Does not accommodate long-term County organizational structure goals

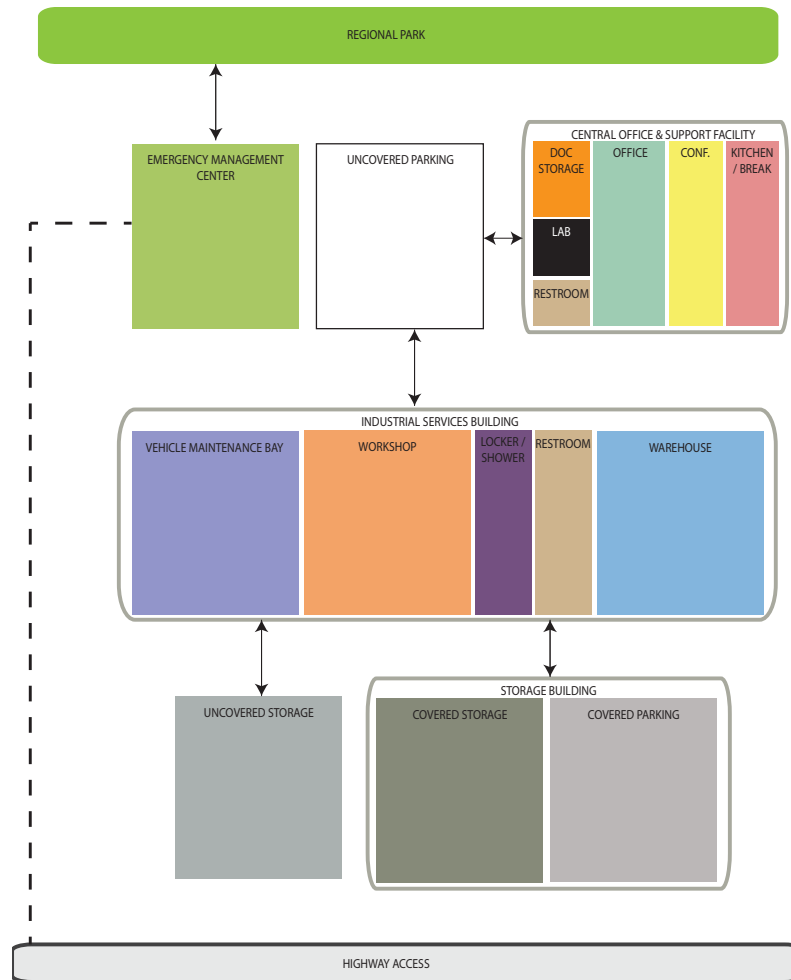
# CONSOLIDATION STRATEGIES

## OPTION A: NO CONSOLIDATION



# CONSOLIDATION STRATEGIES

## OPTION B: OVERALL GROUPING CONSOLIDATION BY FUNCTION



**TOTAL POINTS: 14/27**

**RANKING: 6/6**

### PROS:

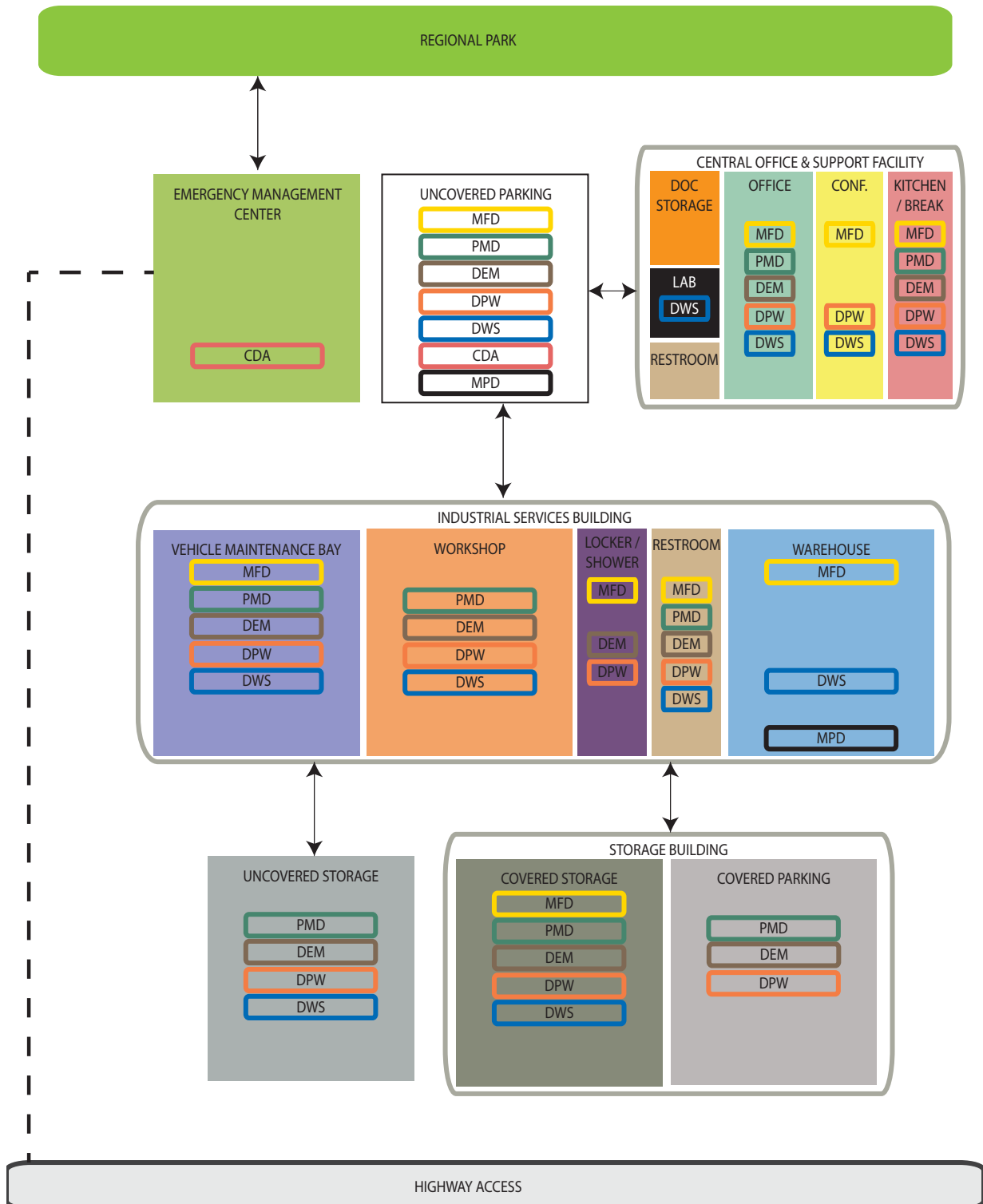
- Limits site development
- Achieves maximum consolidation from a facilities perspective
- Somewhat accommodates consolidation from a functionality perspective

### CONS:

- Does not allow for phasing
- Does not allow for expansion
- Does not allow for varying security levels
- Does not accommodate desired adjacencies
- Does not accommodate long-term County organizational structure goals

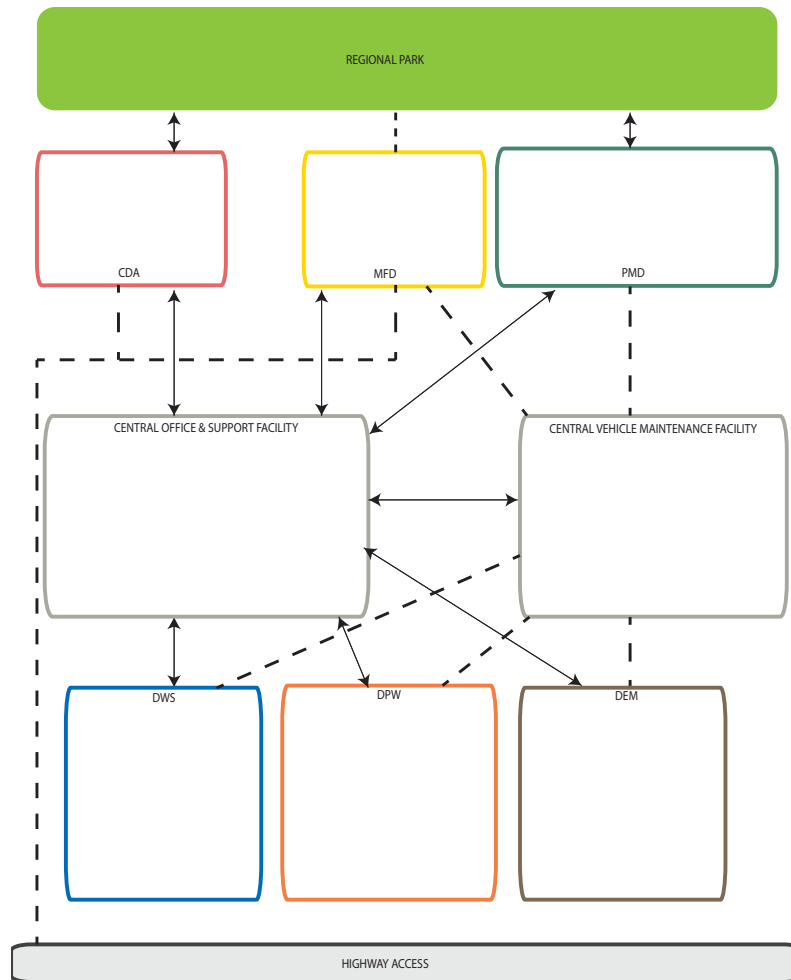
# CONSOLIDATION STRATEGIES

## OPTION B: DETAILED GROUPING CONSOLIDATION BY FUNCTION



# CONSOLIDATION STRATEGIES

## OPTION C: OVERALL GROUPING BY DEPARTMENT AND WITH CONSOLIDATED OFFICE AND VEHICLE MAINTENANCE



**TOTAL POINTS: 21/27**

**RANKING: 3/6**

### PROS:

- Somewhat allows for phasing
- Allows for future expansion
- Allows for varying levels of security
- Somewhat limits site development
- Accommodates desired adjacencies.
- Somewhat achieves maximum consolidation from a facilities perspective
- Accommodates consolidation from a functionality perspective

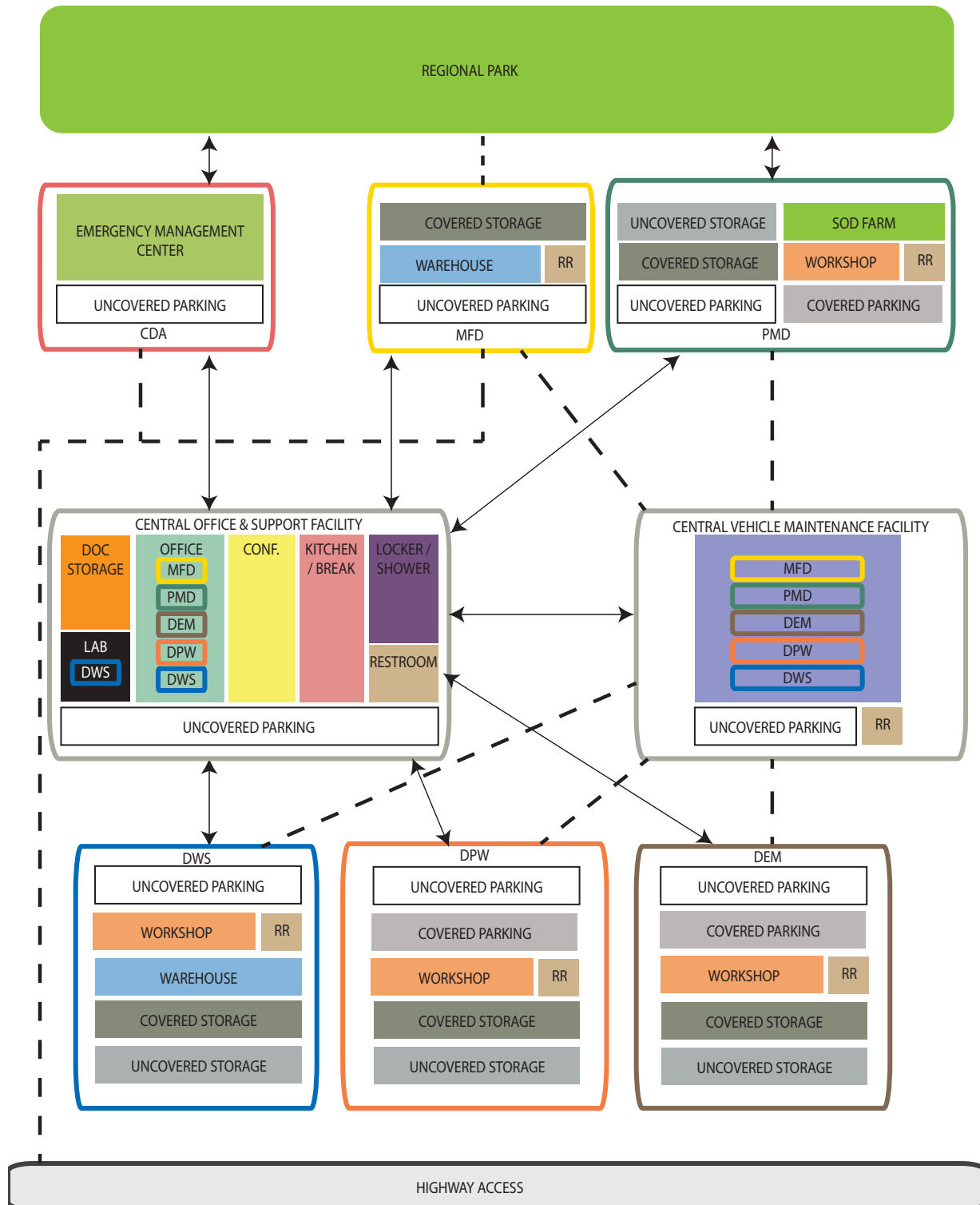
### CONS:

- No consolidated Warehouse does not meet long-term county goals.



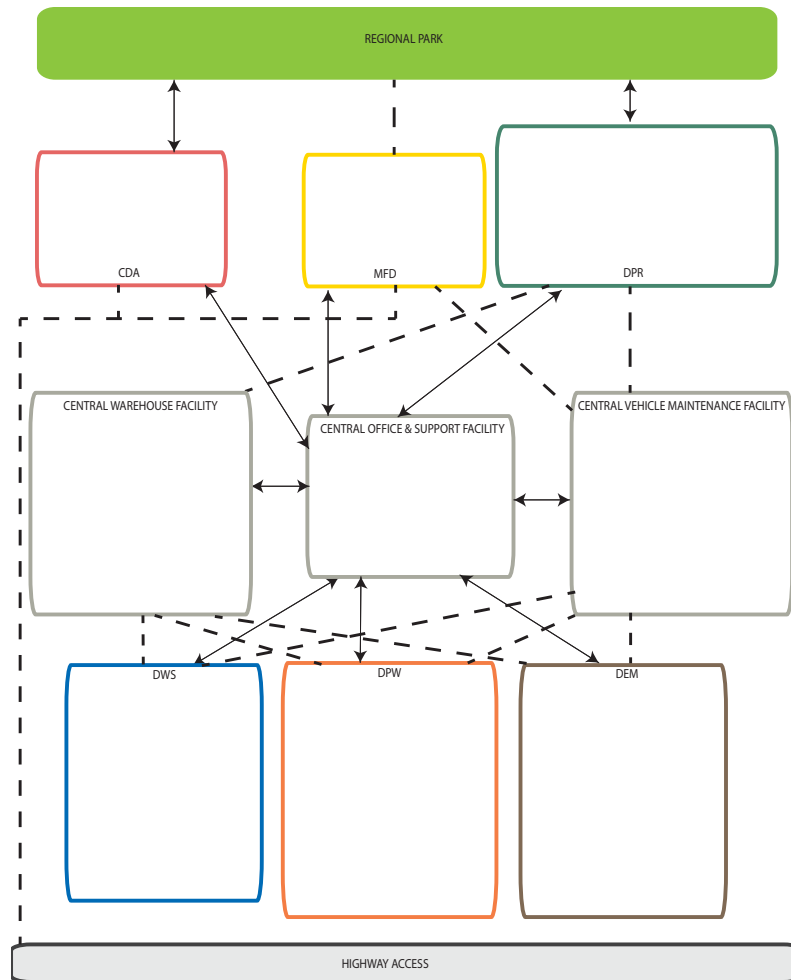
# CONSOLIDATION STRATEGIES

## OPTION C: OVERALL GROUPING BY DEPARTMENT AND WITH CONSOLIDATED OFFICE AND VEHICLE MAINTENANCE



# CONSOLIDATION STRATEGIES

## OPTION D: OVERALL GROUPING BY DEPARTMENT AND WITH CONSOLIDATED WAREHOUSE AND VEHICLE MAINTENANCE



**TOTAL POINTS: 19/27**

**RANKING: 4/6**

### PROS:

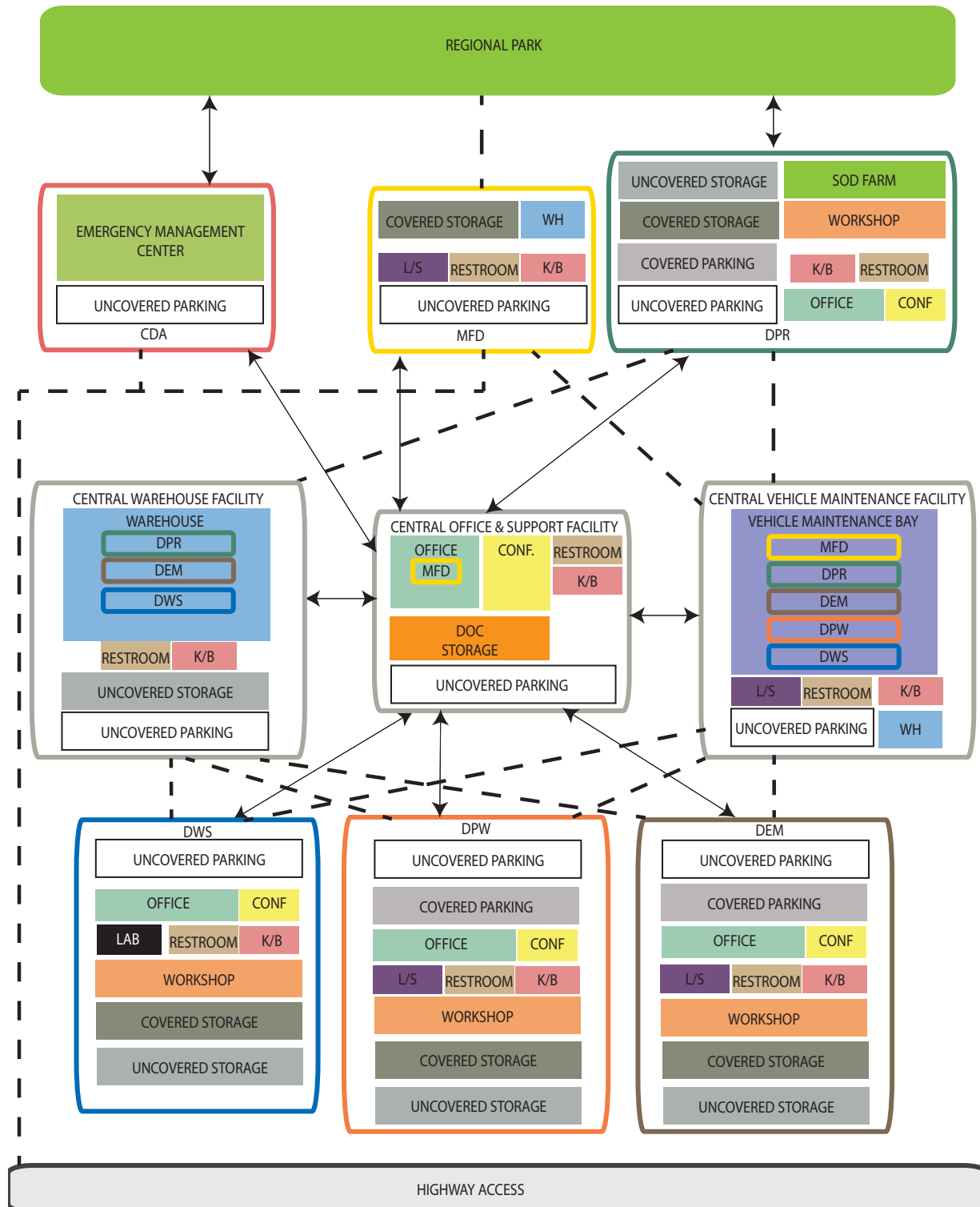
- Somewhat allows for phasing
- Allows for future expansion
- Somewhat allows for varying levels of security
- Somewhat limits site development
- Accommodates desired adjacencies.
- Somewhat accommodates consolidation from a functionality perspective

### CONS:

- Does not achieve maximum consolidation from a facilities perspective because the administrative offices are not consolidated.
- No consolidated administrative office does not meet long-term county goals.

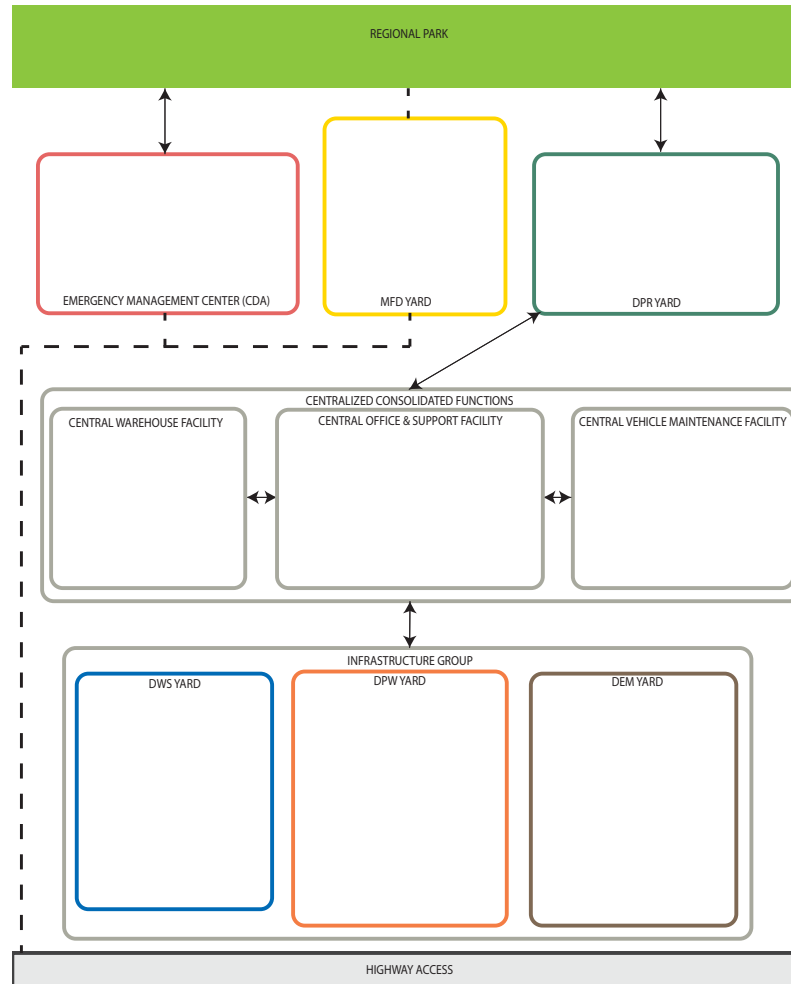
# CONSOLIDATION STRATEGIES

## OPTION D: OVERALL GROUPING BY DEPARTMENT AND WITH CONSOLIDATED WAREHOUSE AND VEHICLE MAINTENANCE



# CONSOLIDATION STRATEGIES

## OPTION E: OVERALL GROUPING BY DEPARTMENT AND WITH CONSOLIDATED WAREHOUSE AND VEHICLE MAINTENANCE, AND FUTURE CONSOLIDATED OFFICE



**TOTAL POINTS: 23/27**

**RANKING: 1/6**

### PROS:

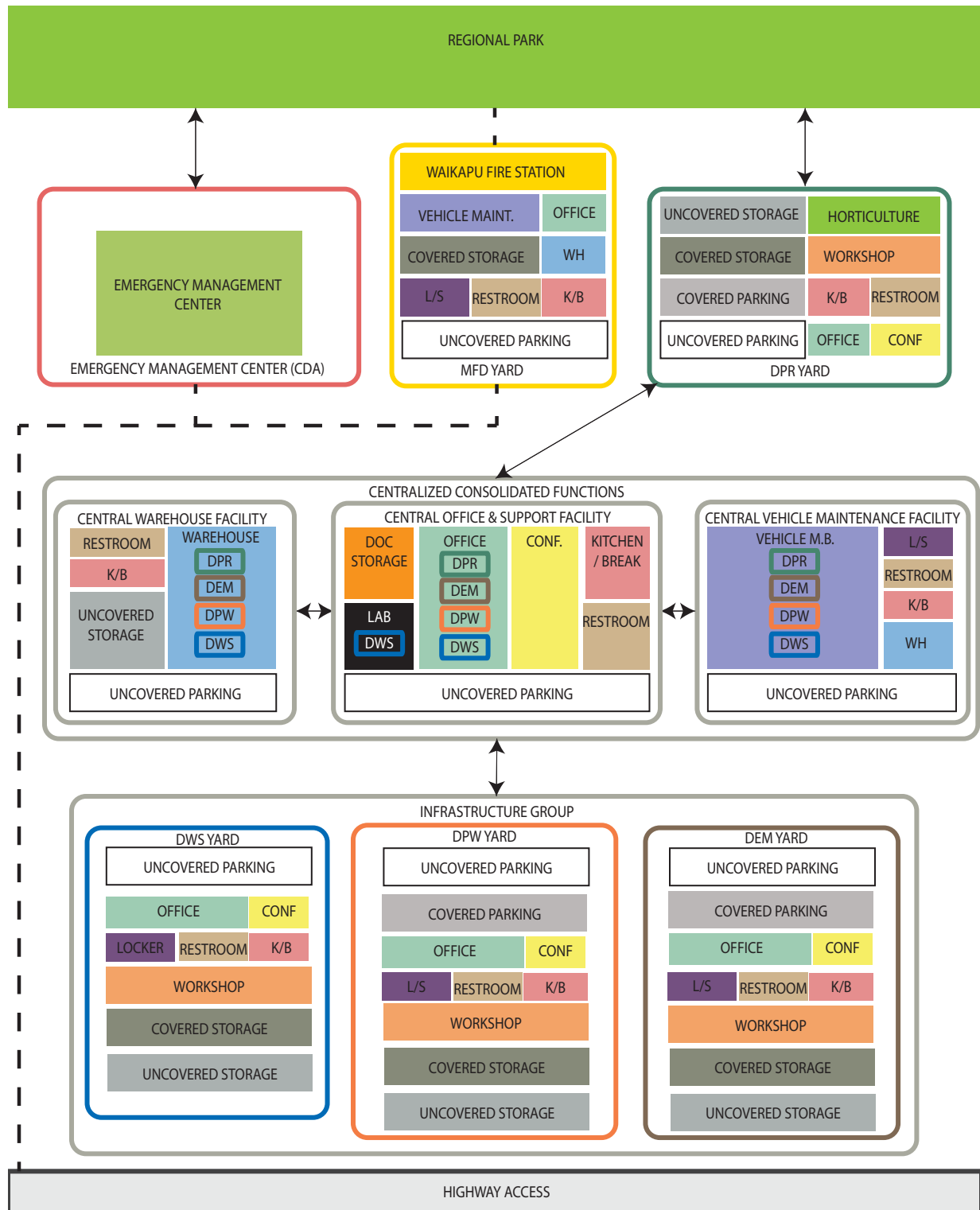
- Somewhat allows for phasing
- Allows for future expansion
- Somewhat allows for varying levels of security
- Somewhat limits site development
- Accommodates desired adjacencies.
- Accommodates optimal consolidation from a functionality perspective
- Accommodates long-term County organizational goals.

### CONS:

- MFD Administrative Offices and Vehicle Maintenance are not consolidated which creates an inefficiency from a facilities perspective.

# CONSOLIDATION STRATEGIES

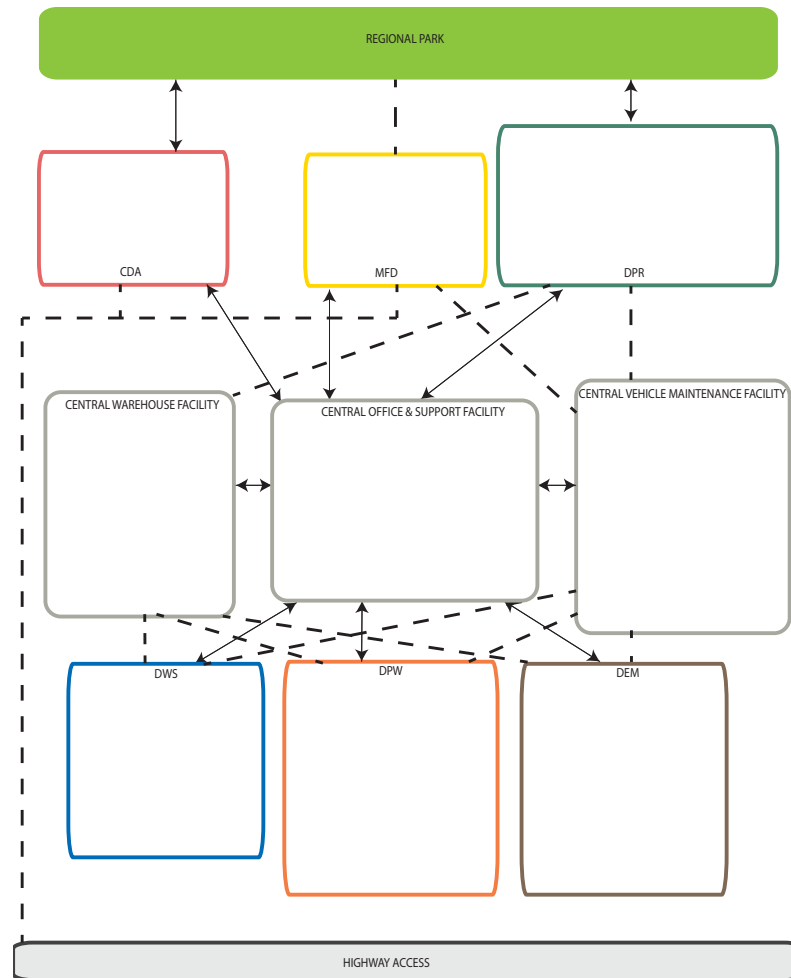
## OPTION E: OVERALL GROUPING BY DEPARTMENT AND WITH CONSOLIDATED WAREHOUSE AND VEHICLE MAINTENANCE, AND FUTURE CONSOLIDATED OFFICE





# CONSOLIDATION STRATEGIES

**OPTION F: OVERALL GROUPING BY DEPARTMENT AND WITH CONSOLIDATED WAREHOUSE, VEHICLE MAINTENANCE AND ADMINISTRATIVE OFFICES. FIELD OFFICES REMAIN WITH DEPT.**



**TOTAL POINTS: 23/27**

**RANKING: 2/6**

## PROS:

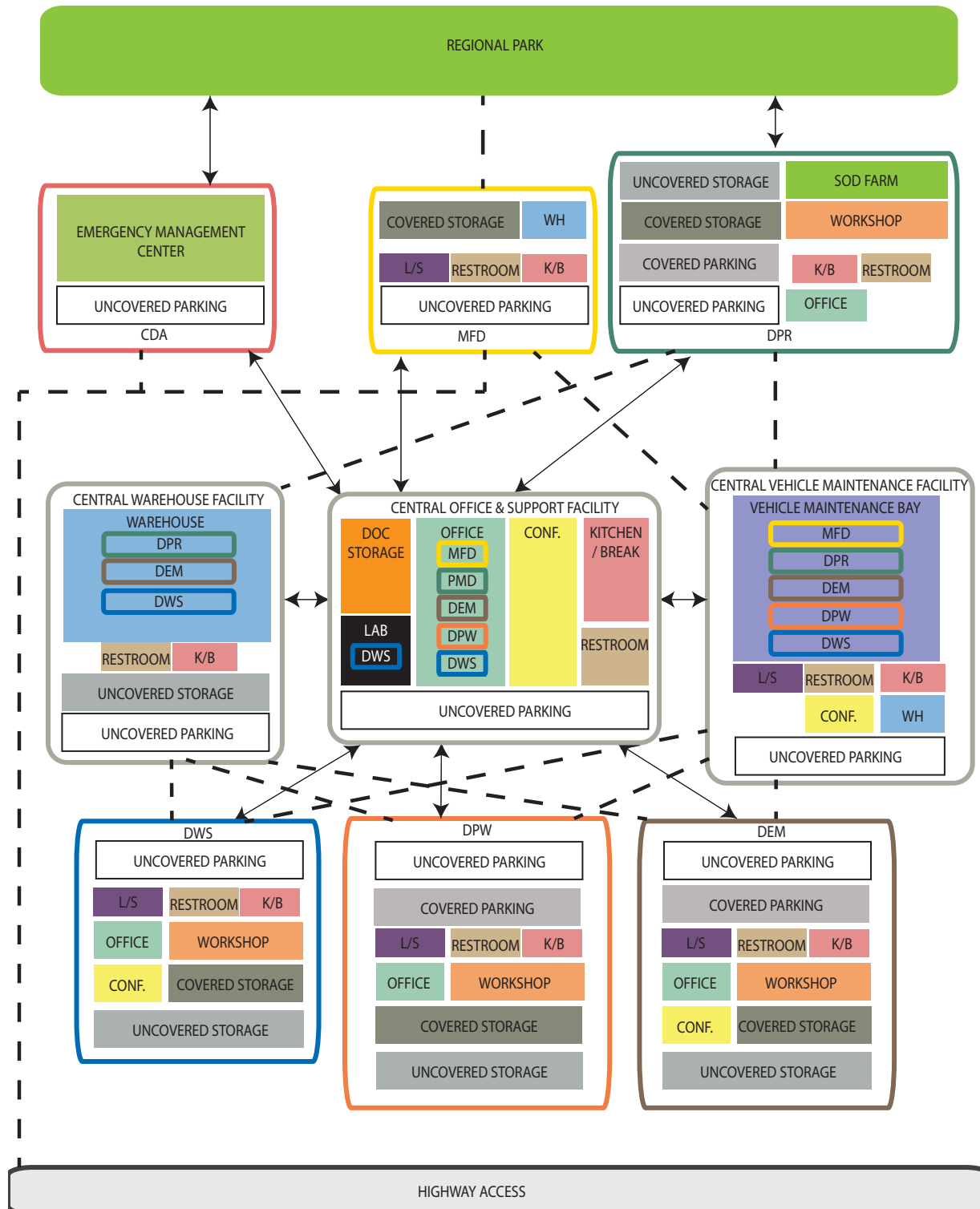
- Somewhat allows for phasing
- Allows for future expansion
- Somewhat allows for varying levels of security
- Somewhat limits site development
- Accommodates desired adjacencies.
- Achieves maximum consolidation from a facilities perspective.
- Somewhat accommodates optimal consolidation from a functionality perspective (with the exception of MFD).

## CONS:

- Does not accommodate long-term County organizational goes because MFD Administrative Offices and Vehicle Maintenance are consolidated.

# CONSOLIDATION STRATEGIES

**OPTION F: OVERALL GROUPING BY DEPARTMENT AND WITH CONSOLIDATED WAREHOUSE, VEHICLE MAINTENANCE AND ADMINISTRATIVE OFFICES. FIELD OFFICES REMAIN WITH DEPT.**





## ***Appendix F: Site Plan Studies***

Included in this appendix are site studies performed prior to the finalization of input data and 2040 design areas. Acreages allotted to each department are not equivalent to the final program. As you can see from the variance of the areas throughout the studies, there was a steady increase in the area allotted for each department over the life of the project. The studies are significant for their assessment of different strategies of laying out the Waikapu facility, planning for future growth and maximizing effective use of the site.

The studies included are as follows:

- 100 Acres - Road Access
- 100 Acres - Transportation Access
- 100 Acres - Setbacks
- 100 Acres - Topography and Stormwater Retention
- Option 1 - Consolidate into Pan-handle
- Option 2.1 - Consolidate into Spine
- Option 2.2 - Consolidate into Spine
- Option 2.3 - Consolidate into Spine
- Option 2.4 - Consolidate into Spine
- Option 3.1 - Consolidate into Bottom Corner
- Option 3.2 - Consolidate into Bottom Corner
- Option 4 - Consolidate Along Road A - Infrastructure Value Engineered
- Option 5 - Consolidate Along Road B - Infrastructure Value Engineered

# 100 ACRES - ROAD ACCESS

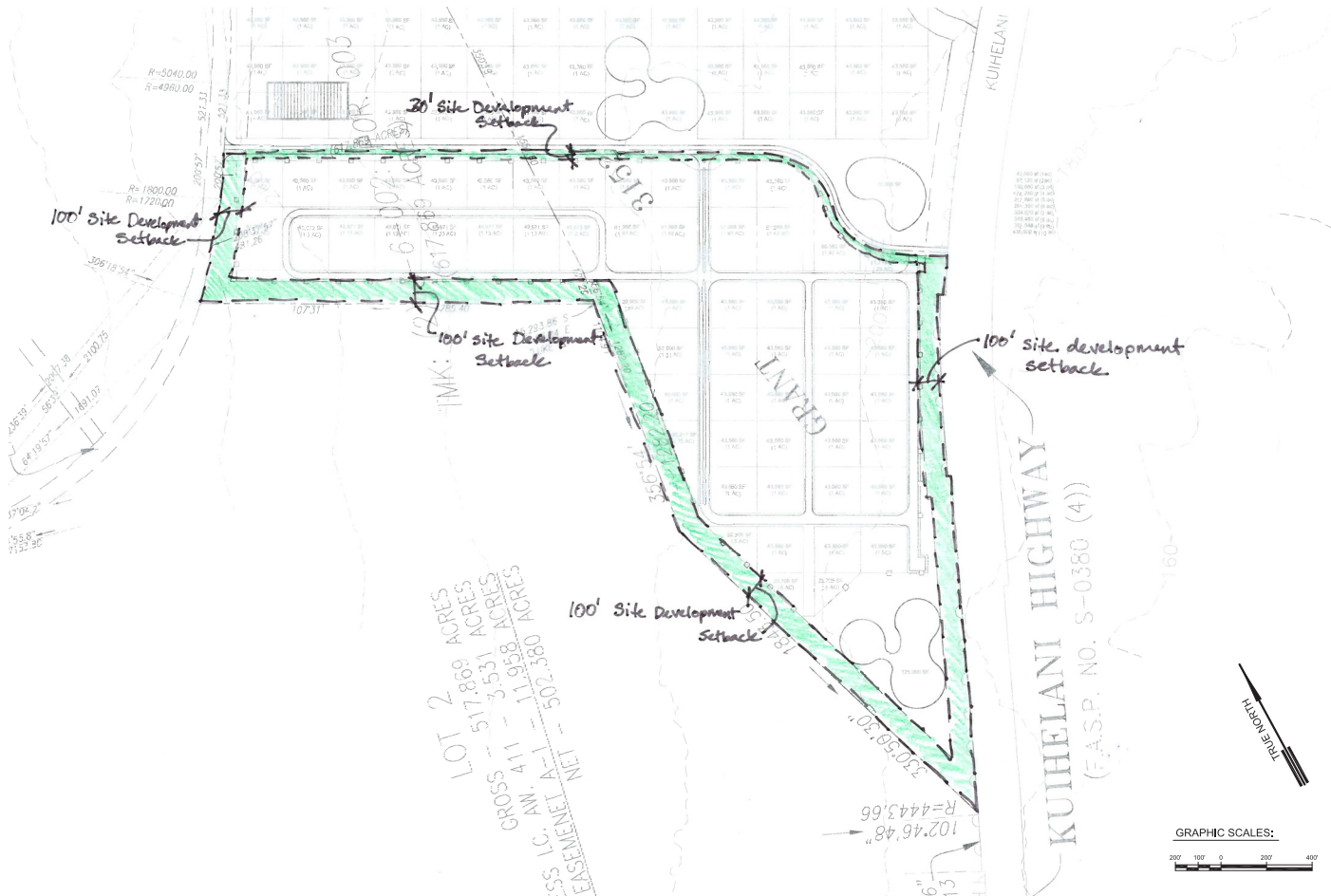




# 100 ACRES - TRANSPORTATION ACCESS



# 100 ACRES - SETBACKS



## ASSUMPTIONS:

FUTURE DEVELOPMENT TO THE SOUTH COULD BE OF ANY USE TYPE. A 100 FOOT SITE SETBACK WILL BUFFER NEW DEVELOPMENTS FROM NOISE AND DUST IMPACTS FROM BASE YARDS. IT WILL FURTHERMORE PROVIDE PROTECTION FROM THE PERIODIC BURNING OF THE EXISTING CANE FIELDS.

SUCH A BUFFER IS IN KEEPING WITH THE DESIRED "COUNTY" FEEL FOR CENTRAL MAUI. I WILL PROVIDE NATURAL SPACES FOR NATIVE SPECIES TO GROW AND ANIMALS TO MIGRATE THROUGH.

THE REDUCED 30 FOOT SITE SETBACK TO THE NORTH WILL BE ADEQUATE BECAUSE OF THE NEIGHBORING OPEN SPACE IN THE PARK.

# 100 ACRES - TOPOGRAPHY & STORMWATER RETENTION



# OPTION 1 - CONSOLIDATE INTO PAN-HANDLE



## PROS:

- REDUCED INITIAL INFRASTRUCTURE COST
- LIMITED SITE AREA DEVELOPED
- LEFT-OVER SPACE IS CONTIGUOUS AND FLEXIBLE IN TERMS OF USE

## CONS:

- LIGHT INDUSTRIAL USES PROGRAMMED NEXT TO RESIDENTIAL AREA (TO THE WEST)
- REDUCED GROWTH POTENTIAL DUE TO SITE CONSTRAINTS

## OPTION 2.1 - CONSOLIDATE INTO SPINE



### PROS:

- LIMITED SITE AREA DEVELOPED
- GOOD SITE EFFICIENCIES FOR FUEL AND DELIVERIES
- DEM LOCATED IN SOUTHERNMOST SITE SO POTENTIAL ODORS ARE NOT BLOWING ACROSS SITE
- CDA LOCATED IN FRONT OF SITE, GIVING AN ATTRACTIVE FRONTAGE TO THE BASE YARD AREA AND IDEALIZING ITS ADJACENCY TO THE PARK.
- GOOD EXPANSION POTENTIAL FOR EACH DEPARTMENT
- WAREHOUSE STOCKPILES CAN BE LOCATED TO SOUTH SO DUST ISN'T BLOWING ACROSS SITE.

### CONS:

- LEFT-OVER SPACE IS NOT CONTIGUOUS
- FUTURE/ADDITIONAL FUNCTIONS TO THE EAST WILL HAVE TO SHARE CIRCULATION AND SECURITY POINTS WITH BASE YARD.



[illegible]

**CONS:**

## OPTION 2.3 - CONSOLIDATE INTO SPINE



### PROS:

- LIMITED SITE AREA DEVELOPED
- GOOD SITE EFFICIENCIES FOR FUEL AND DELIVERIES
- CDA LOCATED IN FRONT OF SITE, GIVING AN ATTRACTIVE FRONTAGE TO THE BASE YARD AREA AND IDEALIZING ITS ADJACENCY TO THE PARK.
- GOOD EXPANSION POTENTIAL FOR EACH DEPARTMENT

### CONS:

- LEFT-OVER SPACE IS NOT CONTIGUOUS
- FUTURE/ADDITIONAL FUNCTIONS TO THE EAST WILL HAVE TO SHARE CIRCULATION AND SECURITY POINTS WITH BASE YARD.
- WAREHOUSE STOCKPILES COULD CAUSE DUST TO BLOW ACROSS SITE.

# OPTION 3.1 - CONSOLIDATE INTO BOTTOM CORNER



## PROS:

- CDA LOCATED IN FRONT OF SITE, GIVING AN ATTRACTIVE FRONTAGE TO THE BASE YARD AREA AND IDEALIZING ITS ADJACENCY TO THE PARK.
- LEFT-OVER SPACE IS CONTIGUOUS
- DEM LOCATED IN SOUTHERNMOST SITE SO POTENTIAL ODORS ARE NOT BLOWING ACROSS SITE
- CENTRALIZED VEHICLES REDUCES DROP OFF WALK TIME

## CONS:

- FUTURE/ADDITIONAL FUNCTIONS TO THE NORTH WILL HAVE TO SHARE CIRCULATION AND SECURITY POINTS WITH BASE YARD.
- WAREHOUSE STOCKPILES COULD CAUSE DUST TO BLOW ACROSS SITE.
- GROWTH SOMEWHAT LIMITED

## OPTION 3.2 - CONSOLIDATE INTO BOTTOM CORNER



### PROS:

- CDA LOCATED IN FRONT OF SITE, GIVING AN ATTRACTIVE FRONTAGE TO THE BASE YARD AREA AND IDEALIZING ITS ADJACENCY TO THE PARK.
- LEFT-OVER SPACE IS CONTIGUOUS
- DEM LOCATED IN SOUTHERNMOST SITE SO POTENTIAL ODORS ARE NOT BLOWING ACROSS SITE
- WAREHOUSE STOCKPILES LOCATED IN SOUTHERNMOST SITE SO DUST WILL NOT BLOW ACROSS SITE.
- CENTRALIZED VEHICLES REDUCES DROP OFF WALK TIME

### CONS:

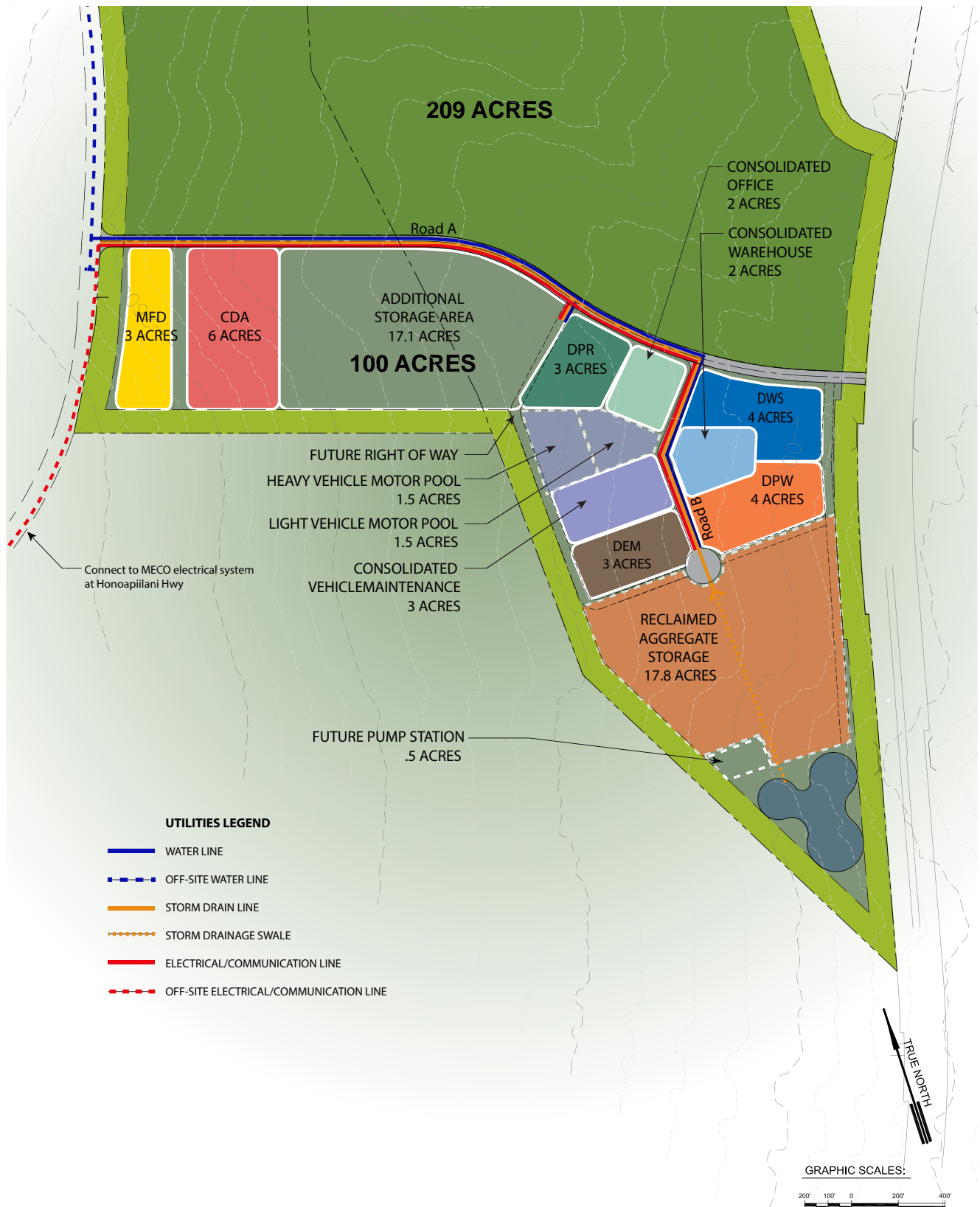
- FUTURE/ADDITIONAL FUNCTIONS TO THE NORTH WILL HAVE TO SHARE CIRCULATION AND SECURITY POINTS WITH BASE YARD.
- GROWTH SOMEWHAT LIMITED

# OPTION 4 - CONSOLIDATE ALONG ROAD A - INFRASTRUCTURE VALUE ENGINEERED





# OPTION 5 - CONSOLIDATE ALONG ROAD B - INFRASTRUCTURE VALUE ENGINEERED





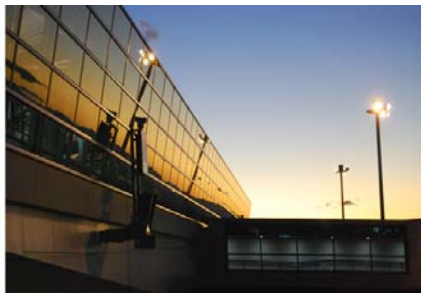
## ***Appendix G: Detailed Cost Estimate***

J. Uno and Associates completed a detailed cost estimate on behalf of HDR for the build-out of the Waikapu Facilities.





#### ■ CONSTRUCTION COST CONSULTANTS



<b>PROJECT NAME:</b>	<b>WAIKAPU FACILITIES MASTER PLAN</b>
<b>LOCATION:</b>	<b>WAIKAPU, MAUI, HAWAII</b>
<b>DATE:</b>	<b>4/2/2015</b>
<b>PROJECT NO.:</b>	<b>14-327</b>
<b>PREPARED FOR:</b>	<b>HDR, INC.</b>
<b>SUBMITTAL:</b>	<b>MASTER PLAN</b>

Note:



# C O S T   A N A L Y S I S



PROJECT:	<b>WAIKAPU FACILITIES MASTER PLAN</b>	ESTIMATE NO.:	
LOCATION:	WAIKAPU, MAUI, HAWAII	PROJECT NO.:	14-327      DATE: 4/2/2015
ARCHITECT:	HDR, INC.	SUBMITTAL:	MASTER PLAN      CHECKED BY:
QUANTITIES BY:		PRICES BY:	J. UNO      DATE CHECKED:

DESCRIPTION	PAGE		
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## Introduction

In 2013, the County of Maui purchased a total of 309 acres of undeveloped land in Waikapu located in Central Maui. The County plans to develop 100 acres of base yard facilities within the 309 acre parcel.

The County's existing base yard facilities in Central Maui are separated by both department and location. The County's goal for the 100 acres is to provide a co-located base yard facility that will improve operational efficiency for each department and accommodate stronger ties between departments with similar functions. The Waikapu Facilities Master Plan provides a frame work for the development of 100 acres of base yard facilities.

This report provides a rough order of magnitude (ROM) construction cost estimates for the development of the base yard facilities to the 2040 projections indicated in Section 5 of the Waikapu Facilities Master Plan. The cost estimate is divided into four phases based on the recommendations of the Waikapu Facilities Master Plan. Phases 1 to 3 are further divided into sub-phases to allow for flexibility in scheduling of the development of the 100 acre site.

A list of notes regarding the preparation of the ROM construction cost estimate is included in Appendix A. Appendix B includes a detailed estimate of the civil site work required for the development of the site by sub-phase. Appendix C contains the facility descriptions and square footages that were used to generate quantities and cost per square foot construction costs for the buildings and structures used in the estimate.

The base yard site is currently undeveloped. Offsite improvements will be required to bring infrastructure to the project site. According to the Mayor's Proposal Budget for Fiscal Year 2016, construction money for the Waiale Road Extension is scheduled for the same year as the first phase of the base yard construction. It is recommended that offsite infrastructure improvements within the Waiale Road Extension corridor be constructed as part of the Waiale Road Extension project. If construction of Waiale Road Extension were delayed, Appendix D includes ROM cost estimates for the offsite improvements needed to provide utility service to the base yard site.

C O S T A N A L Y S I S



PROJECT:	<b>WAIKAPU FACILITIES MASTER PLAN</b>	ESTIMATE NO.:	
LOCATION:	WAIKAPU, MAUI, HAWAII	PROJECT NO.:	14-327
ARCHITECT:	HDR, INC.	DATE:	4/2/2015
QUANTITIES BY:		SUBMITTAL:	MASTER PLAN
		CHECKED BY:	
		PRICES BY:	J. UNO
		DATE CHECKED:	

DESCRIPTION	QTY	UNIT	T O T A L	
			UNIT COST	TOTAL

**PROJECT SUMMARY**

**PHASE 1** **\$57,290,000**

Phase 1A: Preliminary Site Work	\$1,104,000
Phase 1B: Offsite Improvements - Kuihelani Highway Intersection Improvements	\$2,312,000
Phase 1C: Site Work	\$13,932,000
Phase 1D: Department of Water Supply Base Yard	\$9,257,000
Phase 1E: Consolidated Warehouse Facility Base Yard	\$7,650,000
Phase 1F: Consolidated Support Services Office Facility	\$12,080,000
Phase 1G: Consolidated Vehicle Maintenance Facility Base Yard Summary	\$10,955,000

**PHASE 2** **\$18,055,000**

Phase 2A: Department of Public Works Base Yard	\$10,805,000
Phase 2B: Department of Environmental Management Base Yard	\$7,250,000

**PHASE 3** **\$20,718,000**

Phase 3A: Site Work - Road A (Road B to Waiale Corridor Extension)	\$4,522,000
Phase 3B: Maui Fire Department Facility	\$16,196,000
Phase 3C: Waikapu Fire Station (Excluded from this project)	
Phase 3D: Civil Defense Agency (Excluded from this project)	

**PHASE 4** **\$12,618,000**

DPR	\$12,618,000
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<b>PROJECT TOTAL,</b>	<b>\$108,681,000</b>
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# C O S T A N A L Y S I S



PROJECT:	<b>WAIKAPU FACILITIES MASTER PLAN</b>		ESTIMATE NO.:	
LOCATION:	WAIKAPU, MAUI, HAWAII	PROJECT NO.:	14-327	DATE: 4/2/2015
ARCHITECT:	HDR, INC.	SUBMITTAL:	MASTER PLAN	CHECKED BY:
QUANTITIES BY:		PRICES BY:	J. UNO	DATE CHECKED:

DESCRIPTION	QTY	UNIT	T O T A L	
			UNIT COST	TOTAL

## PHASE 1

### PHASE 1A: PRELIMINARY SITEWORK

SITE WORK	1	LS		\$712,670
SUBTOTAL, DIRECT COST				\$712,670
ESCALATION, NOT INCLUDED				
DESIGN CONTINGENCY,	20%			\$142,534
GENERAL CONDITIONS,	12%			\$102,624
PRIME CONTRACTORS MARK UP,	8%			\$76,626
BONDS & INSURANCE,	2.5%			\$25,861
G.E. TAX,	4.167%			\$44,183
<b>TOTAL ESTIMATED COST,</b>				<b>\$1,104,499</b>
<b>ROUNDED,</b>				<b>\$1,104,000</b>

C O S T A N A L Y S I S



PROJECT:	<b>WAIKAPU FACILITIES MASTER PLAN</b>	ESTIMATE NO.:	
LOCATION:	WAIKAPU, MAUI, HAWAII	PROJECT NO.:	14-327
ARCHITECT:	HDR, INC.	DATE:	4/2/2015
QUANTITIES BY:		SUBMITTAL:	MASTER PLAN
		CHECKED BY:	
		PRICES BY:	J. UNO
		DATE CHECKED:	

DESCRIPTION	QTY	UNIT	T O T A L	
			UNIT COST	TOTAL

**PHASE 1B: OFFSITE IMPROVEMENTS - KUIHELANI HIGHWAY INTERSECTION IMPROVEMENTS**

SITE WORK	1	LS		\$1,491,511
SUBTOTAL, DIRECT COST				\$1,491,511
ESCALATION, NOT INCLUDED				
DESIGN CONTINGENCY,	20%			\$298,302
GENERAL CONDITIONS,	12%			\$214,778
PRIME CONTRACTORS MARK UP,	8%			\$160,367
BONDS & INSURANCE,	2.5%			\$54,124
G.E. TAX,	4.167%			\$92,469
<b>TOTAL ESTIMATED COST,</b>				<b>\$2,311,551</b>
<b>ROUNDED,</b>				<b>\$2,312,000</b>

**PHASE 1C: SITE WORK**

SITE WORK	1	LS		\$5,169,138
ONSITE ELECTRICAL/COMMUNICATION	1	LS		\$3,600,000
SUBTOTAL, DIRECT COST				\$8,769,138
ESCALATION, NOT INCLUDED				
DESIGN CONTINGENCY,	20%			\$1,753,828
GENERAL CONDITIONS,	12%			\$1,262,756
PRIME CONTRACTORS MARK UP,	8%			\$942,858
BONDS & INSURANCE,	2.5%			\$318,214
G.E. TAX,	4.167%			\$543,660
<b>TOTAL ESTIMATED COST,</b>				<b>\$13,590,454</b>
<b>ROUNDED,</b>				<b>\$13,590,000</b>



C O S T A N A L Y S I S



PROJECT:	<b>WAIKAPU FACILITIES MASTER PLAN</b>	ESTIMATE NO.:	
LOCATION:	WAIKAPU, MAUI, HAWAII	PROJECT NO.:	14-327
ARCHITECT:	HDR, INC.	DATE:	4/2/2015
QUANTITIES BY:		SUBMITTAL:	MASTER PLAN
		CHECKED BY:	
		PRICES BY:	J. UNO
		DATE CHECKED:	

DESCRIPTION	QTY	UNIT	T O T A L	
			UNIT COST	TOTAL
PHASE 1D: DEPARTMENT OF WATER SUPPLY BASE YARD				
SITE WORK	1	LS		\$2,506,396
OFFICE BUILDING				
STRUCTURAL	9410	SF	\$110.00	\$1,035,100
ARCHITECTURAL	9410	SF	\$105.00	\$988,050
ELECTRICAL	9410	SF	\$36.00	\$338,760
PLUMBING	9410	SF	\$8.00	\$75,280
HVAC	1700	SF	\$32.00	\$54,400
COVERED PARKING				
STRUCTURAL	2520	SF	\$82.50	\$207,900
ARCHITECTURAL	2520	SF	\$22.00	\$55,440
ELECTRICAL	2520	SF	\$16.00	\$40,320
COVERED STORAGE				
STRUCTURAL	5570	SF	\$82.50	\$459,525
ARCHITECTURAL	5570	SF	\$22.00	\$122,540
ELECTRICAL	5570	SF	\$16.00	\$89,120
SUBTOTAL, DIRECT COST	17500	SF	\$528.97	\$5,972,831
ESCALATION, NOT INCLUDED				
DESIGN CONTINGENCY,	20%			\$1,194,566
GENERAL CONDITIONS,	12%			\$860,088
PRIME CONTRACTORS MARK UP,	8%			\$642,199
BONDS & INSURANCE,	2.5%			\$216,742
G.E. TAX,	4.167%			\$370,297
TOTAL ESTIMATED COST,				\$9,256,723
ROUNDED,				\$9,257,000

C O S T   A N A L Y S I S



PROJECT:	WAIKAPU FACILITIES MASTER PLAN	ESTIMATE NO.:	
LOCATION:	WAIKAPU, MAUI, HAWAII	PROJECT NO.:	14-327
ARCHITECT:	HDR, INC.	DATE:	4/2/2015
QUANTITIES BY:		SUBMITTAL:	MASTER PLAN
		CHECKED BY:	
		PRICES BY:	J. UNO
		DATE CHECKED:	

DESCRIPTION	QTY	UNIT	T O T A L	
			UNIT COST	TOTAL
<b><u>PHASE 1E: CONSOLIDATED WAREHOUSE FACILITY BASE YARD</u></b>				
SITE WORK	1	LS		\$1,513,484
STRUCTURAL	21000	SF	\$95.00	\$1,995,000
ARCHITECTURAL	21000	SF	\$45.00	\$945,000
ELECTRICAL	21000	SF	\$22.50	\$472,500
HVAC	470	SF	\$22.00	\$10,340
SUBTOTAL, DIRECT COST	21000	SF	\$364.29	\$4,936,324
ESCALATION, NOT INCLUDED				
DESIGN CONTINGENCY,	20%			\$987,265
GENERAL CONDITIONS,	12%			\$710,831
PRIME CONTRACTORS MARK UP,	8%			\$530,754
BONDS & INSURANCE,	2.5%			\$179,129
G.E. TAX,	4.167%			\$306,037
<b>TOTAL ESTIMATED COST,</b>				<b>\$7,650,339</b>
<b>ROUNDED,</b>				<b>\$7,650,000</b>

C O S T A N A L Y S I S



PROJECT:	<b>WAIKAPU FACILITIES MASTER PLAN</b>	ESTIMATE NO.:	
LOCATION:	WAIKAPU, MAUI, HAWAII	PROJECT NO.:	14-327
ARCHITECT:	HDR, INC.	DATE:	4/2/2015
QUANTITIES BY:		SUBMITTAL:	MASTER PLAN
		CHECKED BY:	
		PRICES BY:	J. UNO
		DATE CHECKED:	

DESCRIPTION	QTY	UNIT	T O T A L	
			UNIT COST	TOTAL
PHASE 1F: CONSOLIDATED SUPPORT SERVICES OFFICE FACILITY				
SITE WORK	1	LS		\$1,479,670
STRUCTURAL	21700	SF	\$110.00	\$2,387,000
ARCHITECTURAL	21700	SF	\$105.00	\$2,278,500
ELECTRICAL	21700	SF	\$36.00	\$781,200
PLUMBING	21700	SF	\$8.00	\$173,600
HVAC	21700	SF	\$32.00	\$694,400
SUBTOTAL, DIRECT COST	21700	SF	\$556.68	\$7,794,370
ESCALATION, NOT INCLUDED				
DESIGN CONTINGENCY,	20%			\$1,558,874
GENERAL CONDITIONS,	12%			\$1,122,389
PRIME CONTRACTORS MARK UP,	8%			\$838,051
BONDS & INSURANCE,	2.5%			\$282,842
G.E. TAX,	4.167%			\$483,227
TOTAL ESTIMATED COST,				\$12,079,753
ROUNDED,				\$12,080,000

C O S T   A N A L Y S I S



PROJECT:	<b>WAIKAPU FACILITIES MASTER PLAN</b>	ESTIMATE NO.:	
LOCATION:	WAIKAPU, MAUI, HAWAII	PROJECT NO.:	14-327
ARCHITECT:	HDR, INC.	DATE:	4/2/2015
QUANTITIES BY:		SUBMITTAL:	MASTER PLAN
		CHECKED BY:	
		PRICES BY:	J. UNO
		DATE CHECKED:	

DESCRIPTION	QTY	UNIT	T O T A L	
			UNIT COST	TOTAL

**PHASE 1G: CONSOLIDATED VEHICLE MAINTENANCE FACILITY BASE YARD SUMMARY**

SITE WORK	1	LS		\$1,959,891
VEHICLE MAINTENANCE BUILDING				
STRUCTURAL	23020	SF	\$95.00	\$2,186,900
ARCHITECTURAL	23020	SF	\$75.00	\$1,726,500
ELECTRICAL	23020	SF	\$30.00	\$690,600
PLUMBING	23020	SF	\$16.00	\$368,320
HVAC	1500	SF	\$22.00	\$33,000
VEHICLE WASH BUILDING				
STRUCTURAL	600	SF	\$95.00	\$57,000
ARCHITECTURAL	600	SF	\$25.00	\$15,000
ELECTRICAL	600	SF	\$22.00	\$13,200
PLUMBING	600	SF	\$30.00	\$18,000
 SUBTOTAL, DIRECT COST	 23620	 SF	 \$463.80	 \$7,068,411
ESCALATION, NOT INCLUDED				
DESIGN CONTINGENCY,	20%			\$1,413,682
GENERAL CONDITIONS,	12%			\$1,017,851
PRIME CONTRACTORS MARK UP,	8%			\$759,996
BONDS & INSURANCE,	2.5%			\$256,498
G.E. TAX,	4.167%			\$438,220
<b>TOTAL ESTIMATED COST,</b>				<b>\$10,954,658</b>
<b>ROUNDED,</b>				<b>\$10,955,000</b>

C O S T A N A L Y S I S



PROJECT: **WAIKAPU FACILITIES MASTER PLAN**

ESTIMATE NO.:

LOCATION: WAIKAPU, MAUI, HAWAII

PROJECT NO.: 14-327

DATE: 4/2/2015

ARCHITECT: HDR, INC.

SUBMITTAL: MASTER PLAN

CHECKED BY:

QUANTITIES BY:

PRICES BY: J. UNO

DATE CHECKED:

DESCRIPTION	QTY	UNIT	T O T A L	
			UNIT COST	TOTAL

**PHASE 2**

**PHASE 2A: DEPARTMENT OF PUBLIC WORKS BASE YARD**

SITE WORK	1	LS		\$2,861,499
OFFICE BUILDING				
STRUCTURAL	12450	SF	\$95.00	\$1,182,750
ARCHITECTURAL	12450	SF	\$75.00	\$933,750
ELECTRICAL	12450	SF	\$30.00	\$373,500
PLUMBING	12450	SF	\$16.00	\$199,200
HVAC	3935	SF	\$32.00	\$125,920
COVERED PARKING				
STRUCTURAL	5070	SF	\$82.50	\$418,275
ARCHITECTURAL	5070	SF	\$22.00	\$111,540
ELECTRICAL	5070	SF	\$16.00	\$81,120
COVERED STORAGE				
STRUCTURAL	5680	SF	\$82.50	\$468,600
ARCHITECTURAL	5680	SF	\$22.00	\$124,960
ELECTRICAL	5680	SF	\$16.00	\$90,880
<b>SUBTOTAL, DPW YARD</b>	23200	SF	\$300.52	\$6,971,994
ESCALATION, NOT INCLUDED				
DESIGN CONTINGENCY,	20%			\$1,394,399
GENERAL CONDITIONS,	12%			\$1,003,967
PRIME CONTRACTORS MARK UP,	8%			\$749,629
BONDS & INSURANCE,	2.5%			\$253,000
G.E. TAX,	4.167%			\$432,242
<b>TOTAL ESTIMATED COST,</b>				<b>\$10,805,231</b>
<b>ROUNDED,</b>				<b>\$10,805,000</b>



C O S T   A N A L Y S I S



PROJECT:	<b>WAIKAPU FACILITIES MASTER PLAN</b>	ESTIMATE NO.:	
LOCATION:	WAIKAPU, MAUI, HAWAII	PROJECT NO.:	14-327
ARCHITECT:	HDR, INC.	SUBMITTAL:	MASTER PLAN
QUANTITIES BY:		PRICES BY:	J. UNO
		DATE:	4/2/2015
		CHECKED BY:	
		DATE CHECKED:	

DESCRIPTION	QTY	UNIT	T O T A L	
			UNIT COST	TOTAL

**PHASE 2B: DEPARTMENT OF ENVIRONMENTAL MANAGEMENT BASE YARD**

SITE WORK	1	LS		\$1,959,826
OFFICE BUILDING				
STRUCTURAL	5600	SF	\$95.00	\$532,000
ARCHITECTURAL	5600	SF	\$75.00	\$420,000
ELECTRICAL	5600	SF	\$30.00	\$168,000
PLUMBING	5600	SF	\$16.00	\$89,600
HVAC	3945	SF	\$32.00	\$126,240
COVERED PARKING				
STRUCTURAL	8800	SF	\$82.50	\$726,000
ARCHITECTURAL	8800	SF	\$22.00	\$193,600
ELECTRICAL	8800	SF	\$16.00	\$140,800
COVERED STORAGE				
STRUCTURAL	2670	SF	\$82.50	\$220,275
ARCHITECTURAL	2670	SF	\$22.00	\$58,740
ELECTRICAL	2670	SF	\$16.00	\$42,720
<b>SUBTOTAL, DEM YARD</b>	17070	SF	\$274.04	\$4,677,801
				<hr/>
SUBTOTAL, DIRECT COST				\$4,677,801
ESCALATION, NOT INCLUDED				
DESIGN CONTINGENCY,	20%			\$935,560
GENERAL CONDITIONS,	12%			\$673,603
PRIME CONTRACTORS MARK UP,	8%			\$502,957
BONDS & INSURANCE,	2.5%			\$169,748
G.E. TAX,	4.167%			\$290,009
<b>TOTAL ESTIMATED COST,</b>				<hr/> <b>\$7,249,679</b>
<b>ROUNDED,</b>				<b>\$7,250,000</b>

# C O S T A N A L Y S I S



PROJECT: **WAIKAPU FACILITIES MASTER PLAN**

ESTIMATE NO.:

LOCATION: WAIKAPU, MAUI, HAWAII

PROJECT NO.: 14-327

DATE: 4/2/2015

ARCHITECT: HDR, INC.

SUBMITTAL: MASTER PLAN

CHECKED BY:

QUANTITIES BY:

PRICES BY: J. UNO

DATE CHECKED:

DESCRIPTION	QTY	UNIT	T O T A L	
			UNIT COST	TOTAL

## PHASE 3

### PHASE 3A: SITE WORK - ROAD A (ROAD B TO WAIKALE CORRIDOR EXTENSION)

SITEWORK				\$2,917,631
SUBTOTAL, DIRECT COST				\$2,917,631
ESCALATION, NOT INCLUDED				
DESIGN CONTINGENCY,	20%			\$583,526
GENERAL CONDITIONS,	12%			\$420,139
PRIME CONTRACTORS MARK UP,	8%			\$313,704
BONDS & INSURANCE,	2.5%			\$105,875
G.E. TAX,	4.167%			\$180,884
<b>TOTAL ESTIMATED COST,</b>				<b>\$4,521,759</b>
<b>ROUNDED,</b>				<b>\$4,522,000</b>

# C O S T A N A L Y S I S



PROJECT: **WAIKAPU FACILITIES MASTER PLAN**

ESTIMATE NO.:

LOCATION: WAIKAPU, MAUI, HAWAII

PROJECT NO.: 14-327

DATE: 4/2/2015

ARCHITECT: HDR, INC.

SUBMITTAL: MASTER PLAN

CHECKED BY:

QUANTITIES BY:

PRICES BY: J. UNO

DATE CHECKED:

DESCRIPTION	QTY	UNIT	T O T A L	
			UNIT COST	TOTAL

## **PHASE 3B: MAUI FIRE DEPARTMENT FACILITY**

SITework \$1,554,598

### **MFD VEHICLE MAINTENANCE BUILDING**

STRUCTURAL	10140	SF	\$95.00	\$963,300
ARCHITECTURAL	10140	SF	\$75.00	\$760,500
ELECTRICAL	10140	SF	\$30.00	\$304,200
PLUMBING	10140	SF	\$16.00	\$162,240
HVAC	815	SF	\$22.00	\$17,930

### **MFD WAREHOUSE**

STRUCTURAL	3865	SF	\$95.00	\$367,175
ARCHITECTURAL	3865	SF	\$45.00	\$173,925
ELECTRICAL	3865	SF	\$22.50	\$86,963
PLUMBING	3865	SF	\$16.00	\$61,840
HVAC	300	SF	\$22.00	\$6,600

### **MFD FIELD OPERATIONS BUILDING**

STRUCTURAL	19815	SF	\$95.00	\$1,882,425
ARCHITECTURAL	19815	SF	\$75.00	\$1,486,125
ELECTRICAL	19815	SF	\$30.00	\$594,450
PLUMBING	19815	SF	\$16.00	\$317,040
HVAC	1900	SF	\$32.00	\$60,800

### **MFD ADMIN OFFICE**

STRUCTURAL	6665	SF	\$95.00	\$633,175
ARCHITECTURAL	6665	SF	\$75.00	\$499,875
ELECTRICAL	6665	SF	\$30.00	\$199,950
PLUMBING	6665	SF	\$16.00	\$106,640
HVAC	6575	SF	\$32.00	\$210,400

**MFD, SUBTOTAL** \$10,450,151

**WAIKAPU FIRE STATION** SUBJECT TO SEPARATE PROJECT AND BUDGET

**EMERGENCY MANAGEMENT CENTER** SUBJECT TO SEPARATE PROJECT AND BUDGET

SUBTOTAL, DIRECT COST \$10,450,151

ESCALATION, NOT INCLUDED

DESIGN CONTINGENCY, 20% \$2,090,030

GENERAL CONDITIONS, 12% \$1,504,822

PRIME CONTRACTORS MARK UP, 8% \$1,123,600

BONDS & INSURANCE, 2.5% \$379,215

G.E. TAX, 4.167% \$647,878

**TOTAL ESTIMATED COST,** **\$16,195,696**

**ROUNDED,** **\$16,196,000**

# C O S T A N A L Y S I S



PROJECT: **WAIKAPU FACILITIES MASTER PLAN**  
 LOCATION: WAIKAPU, MAUI, HAWAII  
 ARCHITECT: HDR, INC.  
 QUANTITIES BY:

ESTIMATE NO.:  
 PROJECT NO.: 14-327  
 SUBMITTAL: MASTER PLAN  
 PRICES BY: J. UNO  
 DATE: 4/2/2015  
 CHECKED BY:  
 DATE CHECKED:

DESCRIPTION	QTY	UNIT	T O T A L	
			UNIT COST	TOTAL

## PHASE 4

### PHASE 4: DEPARTMENT OF PARKS AND RECREATION BASE YARD

SITework	1	LS		\$1,502,492
OFFICE BUILDING				
STRUCTURAL	18630	SF	\$95.00	\$1,769,850
ARCHITECTURAL	18630	SF	\$75.00	\$1,397,250
ELECTRICAL	18630	SF	\$30.00	\$558,900
PLUMBING	18630	SF	\$16.00	\$298,080
HVAC	2535	SF	\$22.00	\$55,770
COVERED PARKING				
STRUCTURAL	2390	SF	\$82.50	\$197,175
ARCHITECTURAL	2390	SF	\$22.00	\$52,580
ELECTRICAL	2390	SF	\$16.00	\$38,240
COVERED STORAGE				
STRUCTURAL	18850	SF	\$82.50	\$1,555,125
ARCHITECTURAL	18850	SF	\$22.00	\$414,700
ELECTRICAL	18850	SF	\$16.00	\$301,600
SUBTOTAL, DIRECT COST	39870	SF	\$204.21	\$8,141,762
ESCALATION, NOT INCLUDED				
DESIGN CONTINGENCY,	20%			\$1,628,352
GENERAL CONDITIONS,	12%			\$1,172,414
PRIME CONTRACTORS MARK UP,	8%			\$875,402
BONDS & INSURANCE,	2.5%			\$295,448
G.E. TAX,	4.167%			\$504,764
<b>TOTAL ESTIMATED COST,</b>				<b>\$12,618,143</b>
<b>ROUNDED,</b>				<b>\$12,618,000</b>

## **APPENDICES**



## APPENDIX A

## NOTES REGARDING THE PREPARATION OF THIS ESTIMATE

### DRAWINGS AND DOCUMENTS

*Level of Documents:* CONCEPTUAL MASTERPLAN

*Provided By:* HDR INC.

### RATES

Pricing is based on current material, equipment and freight costs.

*Labor Rates:* Davis Bacon

### BIDDING ASSUMPTIONS

*Contract:* Design-Bid-Build by Qualified Contractors

*Bidding Situation:* Competitive bids from a minimum of 5 qualified bidders is assumed.

*Bid Date:* 2017

*Months to Complete:* 72 Months Completion

### EXCLUDED COSTS

1. A/E design fees
2. Administrative and management costs
3. Furniture, fixtures, furnishings, equipment (Except as Noted)
4. Remediation of contaminated soils or abatement of any hazardous materials (Included as Allowances)
5. Testing
6. Owner's Construction Contingency (Covers change orders from unforeseen conditions)
7. Owner's Scope Contingency (Covers change orders from owner scope changes)
8. Escalation

### GENERAL

Project includes four phases of construction that will span six years. The estimates reflect what we feel a responsible contractor could reasonably bid for the work. The estimates are based on assumed bid date of 2017 for all phases. Additional escalation for subsequent should be added by the owner. Phase 1 will include all of the infrastructure needed for all four phases. Structures will sit on concrete foundations and slab on grade. The Consolidated Admin. Office, Consolidated Warehouse, Consolidated Vehicle Maintenance, Department of Water supply Baseyard, Department of Public Works Baseyard, Department of Environmental Management Baseyard, Maui Fire Department Facility and Department of Parks and Recreation Baseyard is assumed to be Pre-Engineered Metal Building with standard finishes. Air Conditioning will be limited to office spaces.

When included in the scope of services, the opinions of probable construction costs contained herein represent J. Uno & Associates, Inc.'s experience and qualifications as a professional generally familiar with the construction industry in Hawaii and the general location of the proposed project. J. Uno & Associates, Inc. has no control over the cost of labor, materials, equipment or services provided by contractors, sub-contractors, suppliers, or their methods of determining their prices or competitive bids. Therefore, J. Uno & Associates, Inc. cannot guarantee that the actual construction costs, proposals or bids will not vary from its opinions of probable construction cost.

We received estimates for Infrastructure, Site Utilities and Civil which includes subcontractor markups. Our summary sheet added a General Contractor markup to all disciplines, which includes, Infrastructure, Site Utilities, Civil, Structural, Architectural, Electrical, Plumbing and HVAC. The Design Contingency covers the additional details, finishes and schedules that shall be added to the drawings in the future submittals.

## APPENDIX B

**Phase 1A: Preliminary Site Work**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					30,000.00	30,000
Demobilization - Maui	1	LS					15,000.00	15,000
<b>Subtotal</b>								<b>45,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	2	MO	950.00	1,900	2,300.00	4,600	3,250.00	6,500
Dust Screen	600	LF	7.00	4,200	19.00	11,400	26.00	15,600
Silt Fence	600	LF	1.00	600	2.00	1,200	3.00	1,800
Site Clearing	2	AC	0.00	0	5,450.00	10,900	5,450.00	10,900
Stabilized Construction Entrance	1	EA	5,000.00	5,000	3,000.00	3,000	8,000.00	8,000
<b>Subtotal</b>								<b>42,800</b>
<b>004 Site Work</b>								
<b>Gravel Access Road</b>								
Base Course, 6" Thick	670	SY	10.50	7,035	6.00	4,020	16.50	11,055
Compaction	115	CY	0.00	0	6.00	690	6.00	690
Grading	670	SY	0.00	0	15.00	10,050	15.00	10,050
<b>Subtotal</b>								<b>21,795</b>
<b>Storage Area</b>								
Base Course, 6" Thick	9700	SY	10.50	101,850	6.00	58,200	16.50	160,050
Chain Link Fence with Barb Wire	900	LF	56.00	50,400	30.00	27,000	86.00	77,400
Compaction	1620	CY	0.00	0	6.00	9,720	6.00	9,720
Grading	9700	SY	0.00	0	15.00	145,500	15.00	145,500
<b>Subtotal</b>								<b>392,670</b>
							<b>SUBTOTAL</b>	<b>522,265</b>
							ESCALATION	0.00% \$ -
							SUBTOTAL	\$ 522,265
							OVERHEAD & PROFIT	20.0% \$ 104,453
							SUBCONTRACTOR MARKUP	10.0% \$ 52,227
							BOND PREMIUM	1.0% \$ 5,223
							SUBTOTAL	\$ 684,167
							G.E. TAX	4.166% \$ 28,502
							<b>Total</b>	<b>\$ 712,670</b>

**Phase 1B: Offsite Improvements - Kuihelani Highway Intersection Improvements**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					50,000.00	50,000
Demobilization - Maui	1	LS					25,000.00	25,000
<b>Subtotal</b>								<b>75,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	3	MO	950.00	2,850	2,300.00	6,900	3,250.00	9,750
Remove AC pavement	1400	SY	0.00	0	19.00	26,600	19.00	26,600
Remove Concrete Pavement	75	SY	0.00	0	48.00	3,600	48.00	3,600
Sawcut AC Pavement	180	LF	1.00	180	5.00	900	6.00	1,080
Silt Fence	1000	LF	1.00	1,000	2.00	2,000	3.00	3,000
<b>Subtotal</b>								<b>44,030</b>
<b>004 Site Work</b>								
AC Pavement, Light Duty, 2" Thick	1700	SY	15.00	25,500	5.00	8,500	20.00	34,000
Base Course, 6" Thick	1700	SY	10.50	17,850	6.00	10,200	16.50	28,050
Compaction	500	CY	0.00	0	6.00	3,000	6.00	3,000
Grading	1700	SY	0.00	0	15.00	25,500	15.00	25,500
Pavement Striping	500	LF	0.50	250	0.50	250	1.00	500
Traffic Control	1	LS	0.00	0	100,000.00	100,000	100,000.00	100,000
<b>Subtotal</b>								<b>191,050</b>
<b>005 Storm Drainage</b>								
36" RCP	200	LF	110.00	22,000	180.00	36,000	290.00	58,000
Backfill, Trench	35	CY	0.00	0	33.50	1,173	33.50	1,173
Drain Inlet	2	EA	3,050.00	6,100	4,900.00	9,800	7,950.00	15,900
Drain Manhole	1	EA	2,550.00	2,550	3,300.00	3,300	5,850.00	5,850
Excavation, Trench	125	CY	0.00	0	34.00	4,250	34.00	4,250
Pipe Bedding	90	CY	60.00	5,400	38.00	3,420	98.00	8,820
<b>Subtotal</b>								<b>93,993</b>
<b>006 Electrical System</b>								
2-4" Electrical Conduit	200	LF	10.00	2,000	16.00	3,200	26.00	5,200
Electrical Handholes	5	EA	250.00	1,250	500.00	2,500	750.00	3,750
Traffic Signal	1	EA	500,000.00	500,000	160,000.00	160,000	660,000.00	660,000
<b>Subtotal</b>								<b>668,950</b>
							<b>SUBTOTAL</b>	<b>1,093,023</b>
ESCALATION							0.00%	\$ -
SUBTOTAL								\$ 1,093,023
OVERHEAD & PROFIT							20.0%	\$ 218,605
SUBCONTRACTOR MARKUP							10.0%	\$ 109,302
BOND PREMIUM							1.0%	\$ 10,930
SUBTOTAL								\$ 1,431,859
G.E. TAX							4.166%	\$ 59,651
<b>Total</b>								<b>\$ 1,491,511</b>



**Phase 1C: Site Work**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					75,000.00	75,000
Demobilization - Maui	1	LS					35,000.00	35,000
<b>Subtotal</b>								<b>110,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	12	MO	950.00	11,400	2,300.00	27,600	3,250.00	39,000
Dust Screen	3500	LF	7.00	24,500	19.00	66,500	26.00	91,000
Silt Fence	3500	LF	1.00	3,500	2.00	7,000	3.00	10,500
Site Clear and Grub	3	AC	0.00	0	14,000.00	42,000	14,000.00	42,000
Site Clearing	4	AC	0.00	0	5,450.00	21,800	5,450.00	21,800
Stabilized Construction Entrance	1	EA	5,000.00	5,000	3,000.00	3,000	8,000.00	8,000
<b>Subtotal</b>								<b>212,300</b>
<b>004 Site Work</b>								
<b>Road "A" - Kuihelani to Road "B" Intersection</b>								
AC Pavement, Light Duty, 2" Thick	3560	SY	15.00	53,400	5.00	17,800	20.00	71,200
Base Course, 6" Thick	3560	SY	10.50	37,380	6.00	21,360	16.50	58,740
Compaction	695	CY	0.00	0	6.00	4,170	6.00	4,170
Concrete Curb	1600	LF	4.00	6,400	18.50	29,600	22.50	36,000
Concrete Sidewalk	270	SY	40.00	10,800	10.00	2,700	50.00	13,500
Grading	4450	SY	0.00	0	15.00	66,750	15.00	66,750
Pavement Striping	1600	LF	0.50	800	0.50	800	1.00	1,600
Stop Sign and Post	1	EA	375.00	375	160.00	160	535.00	535
<b>Subtotal</b>								<b>252,495</b>
	f							
<b>Road "B"</b>								
AC Pavement, Light Duty, 2" Thick	9550	SY	15.00	143,250	5.00	47,750	20.00	191,000
Base Course, 6" Thick	9550	SY	10.50	100,275	6.00	57,300	16.50	157,575
Compaction	1600	CY	0.00	0	6.00	9,600	6.00	9,600
Grading	9550	SY	0.00	0	15.00	143,250	15.00	143,250
Pavement Striping	1720	LF	0.50	860	0.50	860	1.00	1,720
Stop Sign and Post	1	EA	375.00	375	160.00	160	535.00	535
<b>Subtotal</b>								<b>503,680</b>
<b>005 Landscaping</b>								
Grassing	0.3	AC	1,225.00	368	3,600.00	1,080	4,825.00	1,448
Irrigation System	1350	SY	9.00	12,150	25.00	33,750	34.00	45,900
Plants & Shurbs	250	EA	40.00	10,000	10.00	2,500	50.00	12,500
Top Soil	150	CY	10.50	1,575	5.00	750	15.50	2,325
Tree	25	EA	125.00	3,125	130.00	3,250	255.00	6,375
<b>Subtotal</b>								<b>68,548</b>

**Phase 1C: Site Work**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>006 Water System</b>								
12" Gate Valve w/ Valve Box	25	EA	3,125.00	78,125	675.00	16,875	3,800.00	95,000
12" Backflow Preventer	1	EA	21,500.00	21,500	5,500.00	5,500	27,000.00	27,000
12" Mag Meter	1	EA	9,000.00	9,000	1,000.00	1,000	10,000.00	10,000
12" Pipe Fitting	30	EA	2,400.00	72,000	940.00	28,200	3,340.00	100,200
12" PVC Pipe, C900	5000	LF	33.00	165,000	33.00	165,000	66.00	330,000
12" X 6" Reducing Tee	25	EA	2,950.00	73,750	1,425.00	35,625	4,375.00	109,375
6" Gate Valve w/ Valve Box	25	EA	1,300.00	32,500	675.00	16,875	1,975.00	49,375
6" Pipe Fitting	12	EA	710.00	8,520	485.00	5,820	1,195.00	14,340
6" PVC Pipe, C900	360	LF	10.00	3,600	19.50	7,020	29.50	10,620
Backfill, Trench	1425	CY	0.00	0	33.50	47,738	33.50	47,738
Concrete Reaction Block	150	EA	75.00	11,250	90.00	13,500	165.00	24,750
Excavation, Trench	3050	CY	0.00	0	34.00	103,700	34.00	103,700
Fire Hydrant	12	EA	3,050.00	36,600	625.00	7,500	3,675.00	44,100
Pipe Bedding	1625	CY	60.00	97,500	38.00	61,750	98.00	159,250
<b>Subtotal</b>								<b>1,125,448</b>
<b>007 Storm Drainage</b>								
24" HDPE	400	LF	13.00	5,200	35.00	14,000	48.00	19,200
36" HDPE	800	LF	30.50	24,400	24.50	19,600	55.00	44,000
60" HDPE	1725	LF	235.00	405,375	41.00	70,725	276.00	476,100
Backfill, Trench	2850	CY	0.00	0	33.50	95,475	33.50	95,475
Drain Inlet	16	EA	3,050.00	48,800	4,900.00	78,400	7,950.00	127,200
Drain Manhole	8	EA	2,550.00	20,400	3,300.00	26,400	5,850.00	46,800
Excavation, Trench	5450	CY	0.00	0	34.00	185,300	34.00	185,300
Pipe Bedding	2600	CY	60.00	156,000	38.00	98,800	98.00	254,800
Retention Basin	1	EA	0.00	0	150,000.00	150,000	150,000.00	150,000
<b>Subtotal</b>								<b>1,398,875</b>
<b>008 Electrical System</b>								
2-4" Electrical Conduit	3000	LF	10.00	30,000	16.00	48,000	26.00	78,000
Electrical Handholes	25	EA	250.00	6,250	500.00	12,500	750.00	18,750
<b>Subtotal</b>								<b>96,750</b>

**SUBTOTAL 3,788,095**

ESCALATION	0.00%	\$	-
SUBTOTAL		\$	3,788,095
OVERHEAD & PROFIT	20.0%	\$	757,619
SUBCONTRACTOR MARKUP	10.0%	\$	378,810
BOND PREMIUM	1.0%	\$	37,881
SUBTOTAL		\$	4,962,404
G.E. TAX	4.166%	\$	206,734
<b>Total</b>		<b>\$</b>	<b>5,169,138</b>

**Phase 1D: Department of Water Supply Base Yard**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					50,000.00	50,000
Demobilization - Maui	1	LS					25,000.00	25,000
<b>Subtotal</b>								<b>75,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	6	MO	950.00	5,700	2,300.00	13,800	3,250.00	19,500
Dust Screen	2000	LF	7.00	14,000	19.00	38,000	26.00	52,000
Silt Fence	2000	LF	1.00	2,000	2.00	4,000	3.00	6,000
Site Clear and Grub	2	AC	0.00	0	14,000.00	28,000	14,000.00	28,000
Site Clearing	2	AC	0.00	0	5,450.00	10,900	5,450.00	10,900
Stabilized Construction Entrance	1	EA	5,000.00	5,000	3,000.00	3,000	8,000.00	8,000
<b>Subtotal</b>								<b>124,400</b>
<b>004 Site Work</b>								
AC Pavement, Light Duty, 2" Thick	9700	SY	15.00	145,500	5.00	48,500	20.00	194,000
Base Course, 6" Thick	13450	SY	10.50	141,225	6.00	80,700	16.50	221,925
Chain Link Fence with Barb Wire	1700	LF	56.00	95,200	30.00	51,000	86.00	146,200
Compaction	2245	CY	0.00	0	6.00	13,470	6.00	13,470
Concrete Pavement	3750	SY	58.00	217,500	14.50	54,375	72.50	271,875
Grading	19600	SY	0.00	0	15.00	294,000	15.00	294,000
Pavement Striping	1500	LF	0.50	750	0.50	750	1.00	1,500
Stop Sign and Post	1	EA	375.00	375	160.00	160	535.00	535
<b>Subtotal</b>								<b>1,143,505</b>
<b>005 Water System</b>								
12" Gate Valve w/ Valve Box	1	EA	3,125.00	3,125	675.00	675	3,800.00	3,800
12" Pipe Fitting	5	EA	2,400.00	12,000	940.00	4,700	3,340.00	16,700
12" PVC Pipe, C900	500	LF	33.00	16,500	33.00	16,500	66.00	33,000
12" X 6" Reducing Tee	2	EA	2,950.00	5,900	1,425.00	2,850	4,375.00	8,750
2" Meter	1	EA	1,100.00	1,100	300.00	300	1,400.00	1,400
2" PVC, Sch 80, Fitting	10	EA	38.00	380	110.00	1,100	148.00	1,480
2" PVC, Sch 80, pipe	400	LF	12.00	4,800	20.00	8,000	32.00	12,800
6" Gate Valve w/ Valve Box	2	EA	1,300.00	2,600	675.00	1,350	1,975.00	3,950
6" Pipe Fitting	3	EA	710.00	2,130	485.00	1,455	1,195.00	3,585
6" PVC Pipe, C900	75	LF	10.00	750	19.50	1,463	29.50	2,213
Backfill, Trench	180	CY	0.00	0	33.50	6,030	33.50	6,030
Concrete Reaction Block	10	EA	75.00	750	90.00	900	165.00	1,650
Excavation, Trench	300	CY	0.00	0	34.00	10,200	34.00	10,200
Fire Hydrant	2	EA	3,050.00	6,100	625.00	1,250	3,675.00	7,350
Pipe Bedding	120	CY	60.00	7,200	38.00	4,560	98.00	11,760
<b>Subtotal</b>								<b>124,668</b>

0.20

**Phase 1D: Department of Water Supply Base Yard**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>006 Storm Drainage</b>								
24" HDPE	500	LF	13.00	6,500	35.00	17,500	48.00	24,000
Backfill, Trench	110	CY	0.00	0	33.50	3,685	33.50	3,685
Drain Inlet	5	EA	3,050.00	15,250	4,900.00	24,500	7,950.00	39,750
Drain Manhole	5	EA	2,550.00	12,750	3,300.00	16,500	5,850.00	29,250
Excavation, Trench	280	CY	0.00	0	34.00	9,520	34.00	9,520
Pipe Bedding	170	CY	60.00	10,200	38.00	6,460	98.00	16,660
<b>Subtotal</b>								<b>122,865</b>
<b>007 Sewer System</b>								
6" PVC Pipe, C900	300	LF	10.00	3,000	19.50	5,850	29.50	8,850
Backfill, Trench	85	CY	0.00	0	33.50	2,848	33.50	2,848
Excavation, Trench	115	CY	0.00	0	34.00	3,910	34.00	3,910
Oil Water Separator	1	EA	39,000.00	39,000	5,000.00	5,000	44,000.00	44,000
Pipe Bedding	30	CY	60.00	1,800	38.00	1,140	98.00	2,940
Septic System	3	EA	24,000.00	72,000	6,500.00	19,500	30,500.00	91,500
Sewer Cleanout	3	EA	1,475.00	4,425	700.00	2,100	2,175.00	6,525
Sewer Manhole w/ Frame & Cover	3	EA	3,900.00	11,700	3,500.00	10,500	7,400.00	22,200
<b>Subtotal</b>								<b>182,773</b>
<b>008 Electrical System</b>								
2-4" Electrical Conduit	300	LF	10.00	3,000	16.00	4,800	26.00	7,800
Electrical Handholes	5	EA	250.00	1,250	500.00	2,500	750.00	3,750
Light Pole with Base	20	EA	1,600.00	32,000	0.00	0	1,600.00	32,000
<b>Subtotal</b>								<b>43,550</b>

**SUBTOTAL 1,836,760**

ESCALATION	0.00%	\$	-
SUBTOTAL		\$	1,836,760
OVERHEAD & PROFIT	20.0%	\$	367,352
SUBCONTRACTOR MARKUP	10.0%	\$	183,676
BOND PREMIUM	1.0%	\$	18,368
SUBTOTAL		\$	2,406,156
G.E. TAX	4.166%	\$	100,240
<b>Total</b>		<b>\$</b>	<b>2,506,396</b>

**Phase 1E: Consolidated Warehouse Facility Base Yard**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					50,000.00	50,000
Demobilization - Maui	1	LS					25,000.00	25,000
<b>Subtotal</b>								<b>75,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	6	MO	950.00	5,700	2,300.00	13,800	3,250.00	19,500
Dust Screen	1000	LF	7.00	7,000	19.00	19,000	26.00	26,000
Silt Fence	1000	LF	1.00	1,000	2.00	2,000	3.00	3,000
Site Clear and Grub	2	AC	0.00	0	14,000.00	28,000	14,000.00	28,000
Site Clearing	2	AC	0.00	0	5,450.00	10,900	5,450.00	10,900
Stabilized Construction Entrance	1	EA	5,000.00	5,000	3,000.00	3,000	8,000.00	8,000
<b>Subtotal</b>								<b>95,400</b>
<b>004 Site Work</b>								
AC Pavement, Light Duty, 2" Thick	7300	SY	15.00	109,500	5.00	36,500	20.00	146,000
Base Course, 6" Thick	7580	SY	10.50	79,590	6.00	45,480	16.50	125,070
Chain Link Fence with Barb Wire	1270	LF	56.00	71,120	30.00	38,100	86.00	109,220
Compaction	810	CY	0.00	0	6.00	4,860	6.00	4,860
Concrete Pavement	280	SY	58.00	16,240	14.50	4,060	72.50	20,300
Grading	9700	SY	0.00	0	15.00	145,500	15.00	145,500
Pavement Striping	1000	LF	0.50	500	0.50	500	1.00	1,000
<b>Subtotal</b>								<b>551,950</b>
<b>005 Water System</b>								
12" Gate Valve w/ Valve Box	1	EA	3,125.00	3,125	675.00	675	3,800.00	3,800
12" Pipe Fitting	5	EA	2,400.00	12,000	940.00	4,700	3,340.00	16,700
12" PVC Pipe, C900	500	LF	33.00	16,500	33.00	16,500	66.00	33,000
12" X 6" Reducing Tee	2	EA	2,950.00	5,900	1,425.00	2,850	4,375.00	8,750
2" Meter	1	EA	1,100.00	1,100	300.00	300	1,400.00	1,400
2" PVC, Sch 80, Fitting	10	EA	38.00	380	110.00	1,100	148.00	1,480
2" PVC, Sch 80, pipe	200	LF	12.00	2,400	20.00	4,000	32.00	6,400
6" Gate Valve w/ Valve Box	2	EA	1,300.00	2,600	675.00	1,350	1,975.00	3,950
6" Pipe Fitting	3	EA	710.00	2,130	485.00	1,455	1,195.00	3,585
6" PVC Pipe, C900	75	LF	10.00	750	19.50	1,463	29.50	2,213
Backfill, Trench	180	CY	0.00	0	33.50	6,030	33.50	6,030
Concrete Reaction Block	10	EA	75.00	750	90.00	900	165.00	1,650
Excavation, Trench	300	CY	0.00	0	34.00	10,200	34.00	10,200
Fire Hydrant	2	EA	3,050.00	6,100	625.00	1,250	3,675.00	7,350
Pipe Bedding	120	CY	60.00	7,200	38.00	4,560	98.00	11,760
<b>Subtotal</b>								<b>118,268</b>



**Phase 1E: Consolidated Warehouse Facility Base Yard**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>006 Storm Drainage</b>							<b>0.20</b>	
24" HDPE	500	LF	13.00	6,500	35.00	17,500	48.00	24,000
Backfill, Trench	110	CY	0.00	0	33.50	3,685	33.50	3,685
Drain Inlet	5	EA	3,050.00	15,250	4,900.00	24,500	7,950.00	39,750
Drain Manhole	5	EA	2,550.00	12,750	3,300.00	16,500	5,850.00	29,250
Excavation, Trench	280	CY	0.00	0	34.00	9,520	34.00	9,520
Pipe Bedding	170	CY	60.00	10,200	38.00	6,460	98.00	16,660
<b>Subtotal</b>								<b>122,865</b>
<b>007 Sewer System</b>								
6" PVC Pipe, C900	100	LF	10.00	1,000	19.50	1,950	29.50	2,950
Backfill, Trench	25	CY	0.00	0	33.50	838	33.50	838
Excavation, Trench	40	CY	0.00	0	34.00	1,360	34.00	1,360
Oil Water Separator	1	EA	39,000.00	39,000	5,000.00	5,000	44,000.00	44,000
Pipe Bedding	15	CY	60.00	900	38.00	570	98.00	1,470
Septic System	1	EA	24,000.00	24,000	6,500.00	6,500	30,500.00	30,500
Sewer Cleanout	1	EA	1,475.00	1,475	700.00	700	2,175.00	2,175
Sewer Manhole w/ Frame & Cover	2	EA	3,900.00	7,800	3,500.00	7,000	7,400.00	14,800
<b>Subtotal</b>								<b>98,093</b>
<b>008 Electrical System</b>								
2-4" Electrical Conduit	300	LF	10.00	3,000	16.00	4,800	26.00	7,800
Electrical Handholes	5	EA	250.00	1,250	500.00	2,500	750.00	3,750
Light Pole with Base	10	EA	1,600.00	16,000	0.00	0	1,600.00	16,000
<b>Subtotal</b>								<b>27,550</b>

**SUBTOTAL 1,109,125**

ESCALATION	0.00%	\$	-
SUBTOTAL		\$	1,109,125
OVERHEAD & PROFIT	20.0%	\$	221,825
SUBCONTRACTOR MARKUP	10.0%	\$	110,913
BOND PREMIUM	1.0%	\$	11,091
SUBTOTAL		\$	1,452,954
G.E. TAX	4.166%	\$	60,530
<b>Total</b>		<b>\$</b>	<b>1,513,484</b>

**Phase 1F: Consolidated Support Services Office Facility**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					50,000.00	50,000
Demobilization - Maui	1	LS					25,000.00	25,000
<b>Subtotal</b>								<b>75,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	6	MO	950.00	5,700	2,300.00	13,800	3,250.00	19,500
Dust Screen	1000	LF	7.00	7,000	19.00	19,000	26.00	26,000
Silt Fence	1000	LF	1.00	1,000	2.00	2,000	3.00	3,000
Site Clear and Grub	2	AC	0.00	0	14,000.00	28,000	14,000.00	28,000
Site Clearing	2	AC	0.00	0	5,450.00	10,900	5,450.00	10,900
Stabilized Construction Entrance	1	EA	5,000.00	5,000	3,000.00	3,000	8,000.00	8,000
<b>Subtotal</b>								<b>95,400</b>
<b>004 Site Work</b>								
AC Pavement, Light Duty, 2" Thick	7300	SY	15.00	109,500	5.00	36,500	20.00	146,000
Base Course, 6" Thick	7300	SY	10.50	76,650	6.00	43,800	16.50	120,450
Chain Link Fence with Barb Wire	1200	LF	56.00	67,200	30.00	36,000	86.00	103,200
Compaction	1220	CY	0.00	0	6.00	7,320	6.00	7,320
Grading	9700	SY	0.00	0	15.00	145,500	15.00	145,500
Pavement Striping	1500	LF	0.50	750	0.50	750	1.00	1,500
<b>Subtotal</b>								<b>523,970</b>
<b>005 Water System</b>								
12" Gate Valve w/ Valve Box	1	EA	3,125.00	3,125	675.00	675	3,800.00	3,800
12" Pipe Fitting	5	EA	2,400.00	12,000	940.00	4,700	3,340.00	16,700
12" PVC Pipe, C900	500	LF	33.00	16,500	33.00	16,500	66.00	33,000
12" X 6" Reducing Tee	2	EA	2,950.00	5,900	1,425.00	2,850	4,375.00	8,750
2" Meter	1	EA	1,100.00	1,100	300.00	300	1,400.00	1,400
2" PVC, Sch 80, Fitting	10	EA	38.00	380	110.00	1,100	148.00	1,480
2" PVC, Sch 80, pipe	300	LF	12.00	3,600	20.00	6,000	32.00	9,600
6" Gate Valve w/ Valve Box	2	EA	1,300.00	2,600	675.00	1,350	1,975.00	3,950
6" Pipe Fitting	3	EA	710.00	2,130	485.00	1,455	1,195.00	3,585
6" PVC Pipe, C900	75	LF	10.00	750	19.50	1,463	29.50	2,213
Backfill, Trench	180	CY	0.00	0	33.50	6,030	33.50	6,030
Concrete Reaction Block	10	EA	75.00	750	90.00	900	165.00	1,650
Excavation, Trench	300	CY	0.00	0	34.00	10,200	34.00	10,200
Fire Hydrant	2	EA	3,050.00	6,100	625.00	1,250	3,675.00	7,350
Pipe Bedding	120	CY	60.00	7,200	38.00	4,560	98.00	11,760
<b>Subtotal</b>								<b>121,468</b>

**Phase 1F: Consolidated Support Services Office Facility**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>006 Storm Drainage</b>								
24" HDPE	500	LF	13.00	6,500	35.00	17,500	0.20	24,000
Backfill, Trench	110	CY	0.00	0	33.50	3,685	33.50	3,685
Drain Inlet	5	EA	3,050.00	15,250	4,900.00	24,500	7,950.00	39,750
Drain Manhole	5	EA	2,550.00	12,750	3,300.00	16,500	5,850.00	29,250
Excavation, Trench	280	CY	0.00	0	34.00	9,520	34.00	9,520
Pipe Bedding	170	CY	60.00	10,200	38.00	6,460	98.00	16,660
<b>Subtotal</b>								<b>122,865</b>
<b>007 Sewer System</b>								
6" PVC Pipe, C900	100	LF	10.00	1,000	19.50	1,950	29.50	2,950
Backfill, Trench	25	CY	0.00	0	33.50	838	33.50	838
Excavation, Trench	40	CY	0.00	0	34.00	1,360	34.00	1,360
Oil Water Separator	1	EA	39,000.00	39,000	5,000.00	5,000	44,000.00	44,000
Pipe Bedding	15	CY	60.00	900	38.00	570	98.00	1,470
Septic System	1	EA	24,000.00	24,000	6,500.00	6,500	30,500.00	30,500
Sewer Cleanout	1	EA	1,475.00	1,475	700.00	700	2,175.00	2,175
Sewer Manhole w/ Frame & Cover	2	EA	3,900.00	7,800	3,500.00	7,000	7,400.00	14,800
<b>Subtotal</b>								<b>98,093</b>
<b>008 Electrical System</b>								
2-4" Electrical Conduit	300	LF	10.00	3,000	16.00	4,800	26.00	7,800
Electrical Handholes	5	EA	250.00	1,250	500.00	2,500	750.00	3,750
Light Pole with Base	10	EA	1,600.00	16,000	0.00	0	1,600.00	16,000
<b>Subtotal</b>								<b>27,550</b>

**SUBTOTAL 1,084,345**

ESCALATION	0.00%	\$	-
SUBTOTAL		\$	1,084,345
OVERHEAD & PROFIT	20.0%	\$	216,869
SUBCONTRACTOR MARKUP	10.0%	\$	108,435
BOND PREMIUM	1.0%	\$	10,843
SUBTOTAL		\$	1,420,492
G.E. TAX	4.166%	\$	59,178
<b>Total</b>		<b>\$</b>	<b>1,479,670</b>

**Phase 1G: Consolidated Vehicle Maintenance Facility Base Yard**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					50,000.00	50,000
Demobilization - Maui	1	LS					25,000.00	25,000
<b>Subtotal</b>								<b>75,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	6	MO	950.00	5,700	2,300.00	13,800	3,250.00	19,500
Dust Screen	1500	LF	7.00	10,500	19.00	28,500	26.00	39,000
Silt Fence	1500	LF	1.00	1,500	2.00	3,000	3.00	4,500
Site Clear and Grub	2	AC	0.00	0	14,000.00	28,000	14,000.00	28,000
Site Clearing	2	AC	0.00	0	5,450.00	10,900	5,450.00	10,900
Stabilized Construction Entrance	1	EA	5,000.00	5,000	3,000.00	3,000	8,000.00	8,000
<b>Subtotal</b>								<b>109,900</b>
<b>004 Site Work</b>								
AC Pavement, Light Duty, 2" Thick	9700	SY	15.00	145,500	5.00	48,500	20.00	194,000
Base Course, 6" Thick	9700	SY	10.50	101,850	6.00	58,200	16.50	160,050
Chain Link Fence with Barb Wire	1400	LF	56.00	78,400	30.00	42,000	86.00	120,400
Compaction	1615	CY	0.00	0	6.00	9,690	6.00	9,690
Grading	15900	SY	0.00	0	15.00	238,500	15.00	238,500
Pavement Striping	2000	LF	0.50	1,000	0.50	1,000	1.00	2,000
Stop Sign and Post	1	EA	375.00	375	160.00	160	535.00	535
<b>Subtotal</b>								<b>725,175</b>
<b>005 Water System</b>								
12" Gate Valve w/ Valve Box	1	EA	3,125.00	3,125	675.00	675	3,800.00	3,800
12" Pipe Fitting	5	EA	2,400.00	12,000	940.00	4,700	3,340.00	16,700
12" PVC Pipe, C900	500	LF	33.00	16,500	33.00	16,500	66.00	33,000
12" X 6" Reducing Tee	2	EA	2,950.00	5,900	1,425.00	2,850	4,375.00	8,750
2" Meter	1	EA	1,100.00	1,100	300.00	300	1,400.00	1,400
2" PVC, Sch 80, Fitting	10	EA	38.00	380	110.00	1,100	148.00	1,480
2" PVC, Sch 80, pipe	300	LF	12.00	3,600	20.00	6,000	32.00	9,600
6" Gate Valve w/ Valve Box	2	EA	1,300.00	2,600	675.00	1,350	1,975.00	3,950
6" Pipe Fitting	3	EA	710.00	2,130	485.00	1,455	1,195.00	3,585
6" PVC Pipe, C900	75	LF	10.00	750	19.50	1,463	29.50	2,213
Backfill, Trench	180	CY	0.00	0	33.50	6,030	33.50	6,030
Concrete Reaction Block	10	EA	75.00	750	90.00	900	165.00	1,650
Excavation, Trench	300	CY	0.00	0	34.00	10,200	34.00	10,200
Fire Hydrant	2	EA	3,050.00	6,100	625.00	1,250	3,675.00	7,350
Pipe Bedding	120	CY	60.00	7,200	38.00	4,560	98.00	11,760
<b>Subtotal</b>								<b>121,468</b>

**Phase 1G: Consolidated Vehicle Maintenance Facility Base Yard**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>006 Storm Drainage</b>							<b>0.20</b>	
24" HDPE	1000	LF	13.00	13,000	35.00	35,000	48.00	48,000
Backfill, Trench	225	CY	0.00	0	33.50	7,538	33.50	7,538
Drain Inlet	8	EA	3,050.00	24,400	4,900.00	39,200	7,950.00	63,600
Drain Manhole	8	EA	2,550.00	20,400	3,300.00	26,400	5,850.00	46,800
Excavation, Trench	575	CY	0.00	0	34.00	19,550	34.00	19,550
Pipe Bedding	350	CY	60.00	21,000	38.00	13,300	98.00	34,300
<b>Subtotal</b>								<b>219,788</b>
<b>007 Sewer System</b>								
6" PVC Pipe, C900	200	LF	10.00	2,000	19.50	3,900	29.50	5,900
Backfill, Trench	50	CY	0.00	0	33.50	1,675	33.50	1,675
Excavation, Trench	80	CY	0.00	0	34.00	2,720	34.00	2,720
Oil Water Separator	1	EA	39,000.00	39,000	5,000.00	5,000	44,000.00	44,000
Pipe Bedding	30	CY	60.00	1,800	38.00	1,140	98.00	2,940
Septic System	2	EA	24,000.00	48,000	6,500.00	13,000	30,500.00	61,000
Sewer Cleanout	2	EA	1,475.00	2,950	700.00	1,400	2,175.00	4,350
Sewer Manhole w/ Frame & Cover	2	EA	3,900.00	7,800	3,500.00	7,000	7,400.00	14,800
<b>Subtotal</b>								<b>137,385</b>
<b>008 Electrical System</b>								
2-4" Electrical Conduit	300	LF	10.00	3,000	16.00	4,800	26.00	7,800
Electrical Handholes	5	EA	250.00	1,250	500.00	2,500	750.00	3,750
Light Pole with Base	10	EA	1,600.00	16,000	0.00	0	1,600.00	16,000
<b>Subtotal</b>								<b>27,550</b>

**SUBTOTAL 1,436,265**

ESCALATION	0.00%	\$	-
SUBTOTAL		\$	1,436,265
OVERHEAD & PROFIT	20.0%	\$	287,253
SUBCONTRACTOR MARKUP	10.0%	\$	143,627
BOND PREMIUM	1.0%	\$	14,363
SUBTOTAL		\$	1,881,507
G.E. TAX	4.166%	\$	78,384
<b>Total</b>		<b>\$</b>	<b>1,959,891</b>



**Phase 2A: Department of Public Works Base Yard**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					50,000.00	50,000
Demobilization - Maui	1	LS					25,000.00	25,000
<b>Subtotal</b>								<b>75,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	6	MO	950.00	5,700	2,300.00	13,800	3,250.00	19,500
Dust Screen	2000	LF	7.00	14,000	19.00	38,000	26.00	52,000
Silt Fence	2000	LF	1.00	2,000	2.00	4,000	3.00	6,000
Site Clear and Grub	2	AC	0.00	0	14,000.00	28,000	14,000.00	28,000
Site Clearing	2	AC	0.00	0	5,450.00	10,900	5,450.00	10,900
Stabilized Construction Entrance	1	EA	5,000.00	5,000	3,000.00	3,000	8,000.00	8,000
<b>Subtotal</b>								<b>124,400</b>
<b>004 Site Work</b>								
AC Pavement, Light Duty, 2" Thick	9700	SY	15.00	145,500	5.00	48,500	20.00	194,000
Base Course, 6" Thick	16450	SY	10.50	172,725	6.00	98,700	16.50	271,425
Chain Link Fence with Barb Wire	1700	LF	56.00	95,200	30.00	51,000	86.00	146,200
Compaction	2750	CY	0.00	0	6.00	16,500	6.00	16,500
Concrete Pavement	6750	SY	58.00	391,500	14.50	97,875	72.50	489,375
Grading	19800	SY	0.00	0	15.00	297,000	15.00	297,000
Pavement Striping	1500	LF	0.50	750	0.50	750	1.00	1,500
Stop Sign and Post	1	EA	375.00	375	160.00	160	535.00	535
<b>Subtotal</b>								<b>1,416,535</b>
<b>005 Water System</b>								
12" Gate Valve w/ Valve Box	1	EA	3,125.00	3,125	675.00	675	3,800.00	3,800
12" Pipe Fitting	5	EA	2,400.00	12,000	940.00	4,700	3,340.00	16,700
12" PVC Pipe, C900	500	LF	33.00	16,500	33.00	16,500	66.00	33,000
12" X 6" Reducing Tee	2	EA	2,950.00	5,900	1,425.00	2,850	4,375.00	8,750
2" Meter	1	EA	1,100.00	1,100	300.00	300	1,400.00	1,400
2" PVC, Sch 80, Fitting	10	EA	38.00	380	110.00	1,100	148.00	1,480
2" PVC, Sch 80, pipe	500	LF	12.00	6,000	20.00	10,000	32.00	16,000
6" Gate Valve w/ Valve Box	2	EA	1,300.00	2,600	675.00	1,350	1,975.00	3,950
6" Pipe Fitting	3	EA	710.00	2,130	485.00	1,455	1,195.00	3,585
6" PVC Pipe, C900	75	LF	10.00	750	19.50	1,463	29.50	2,213
Backfill, Trench	180	CY	0.00	0	33.50	6,030	33.50	6,030
Concrete Reaction Block	10	EA	75.00	750	90.00	900	165.00	1,650
Excavation, Trench	300	CY	0.00	0	34.00	10,200	34.00	10,200
Fire Hydrant	2	EA	3,050.00	6,100	625.00	1,250	3,675.00	7,350
Pipe Bedding	120	CY	60.00	7,200	38.00	4,560	98.00	11,760
<b>Subtotal</b>								<b>127,868</b>

0.20

**Phase 2A: Department of Public Works Base Yard**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>006 Storm Drainage</b>								
24" HDPE	500	LF	13.00	6,500	35.00	17,500	48.00	24,000
Backfill, Trench	110	CY	0.00	0	33.50	3,685	33.50	3,685
Drain Inlet	5	EA	3,050.00	15,250	4,900.00	24,500	7,950.00	39,750
Drain Manhole	5	EA	2,550.00	12,750	3,300.00	16,500	5,850.00	29,250
Excavation, Trench	280	CY	0.00	0	34.00	9,520	34.00	9,520
Pipe Bedding	170	CY	60.00	10,200	38.00	6,460	98.00	16,660
<b>Subtotal</b>								<b>122,865</b>
<b>007 Sewer System</b>								
6" PVC Pipe, C900	300	LF	10.00	3,000	19.50	5,850	29.50	8,850
Backfill, Trench	85	CY	0.00	0	33.50	2,848	33.50	2,848
Excavation, Trench	115	CY	0.00	0	34.00	3,910	34.00	3,910
Oil Water Separator	1	EA	39,000.00	39,000	5,000.00	5,000	44,000.00	44,000
Pipe Bedding	30	CY	60.00	1,800	38.00	1,140	98.00	2,940
Septic System	3	EA	24,000.00	72,000	6,500.00	19,500	30,500.00	91,500
Sewer Cleanout	3	EA	1,475.00	4,425	700.00	2,100	2,175.00	6,525
Sewer Manhole w/ Frame & Cover	3	EA	3,900.00	11,700	3,500.00	10,500	7,400.00	22,200
<b>Subtotal</b>								<b>182,773</b>
<b>008 Electrical System</b>								
2-4" Electrical Conduit	300	LF	10.00	3,000	16.00	4,800	26.00	7,800
Electrical Handholes	5	EA	250.00	1,250	500.00	2,500	750.00	3,750
Light Pole with Base	10	EA	1,600.00	16,000	0.00	0	1,600.00	16,000
<b>Subtotal</b>								<b>27,550</b>

**SUBTOTAL 2,096,990**

ESCALATION	0.00%	\$	-
SUBTOTAL		\$	2,096,990
OVERHEAD & PROFIT	20.0%	\$	419,398
SUBCONTRACTOR MARKUP	10.0%	\$	209,699
BOND PREMIUM	1.0%	\$	20,970
SUBTOTAL		\$	2,747,057
G.E. TAX	4.166%	\$	114,442
<b>Total</b>		<b>\$</b>	<b>2,861,499</b>

**Phase 2B: Department of Environmental Management Base Yard**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					50,000.00	50,000
Demobilization - Maui	1	LS					25,000.00	25,000
<b>Subtotal</b>								<b>75,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	6	MO	950.00	5,700	2,300.00	13,800	3,250.00	19,500
Dust Screen	1500	LF	7.00	10,500	19.00	28,500	26.00	39,000
Silt Fence	1500	LF	1.00	1,500	2.00	3,000	3.00	4,500
Site Clear and Grub	2	AC	0.00	0	14,000.00	28,000	14,000.00	28,000
Site Clearing	2	AC	0.00	0	5,450.00	10,900	5,450.00	10,900
Stabilized Construction Entrance	1	EA	5,000.00	5,000	3,000.00	3,000	8,000.00	8,000
<b>Subtotal</b>								<b>109,900</b>
<b>004 Site Work</b>								
AC Pavement, Light Duty, 2" Thick	7300	SY	15.00	109,500	5.00	36,500	20.00	146,000
Base Course, 6" Thick	9500	SY	10.50	99,750	6.00	57,000	16.50	156,750
Chain Link Fence with Barb Wire	1400	LF	56.00	78,400	30.00	42,000	86.00	120,400
Compaction	1590	CY	0.00	0	6.00	9,540	6.00	9,540
Concrete Pavement	2200	SY	58.00	127,600	14.50	31,900	72.50	159,500
Grading	14800	SY	0.00	0	15.00	222,000	15.00	222,000
Pavement Striping	1500	LF	0.50	750	0.50	750	1.00	1,500
Stop Sign and Post	1	EA	375.00	375	160.00	160	535.00	535
<b>Subtotal</b>								<b>816,225</b>
<b>005 Water System</b>								
12" Gate Valve w/ Valve Box	1	EA	3,125.00	3,125	675.00	675	3,800.00	3,800
12" Pipe Fitting	5	EA	2,400.00	12,000	940.00	4,700	3,340.00	16,700
12" PVC Pipe, C900	500	LF	33.00	16,500	33.00	16,500	66.00	33,000
12" X 6" Reducing Tee	2	EA	2,950.00	5,900	1,425.00	2,850	4,375.00	8,750
2" Meter	1	EA	1,100.00	1,100	300.00	300	1,400.00	1,400
2" PVC, Sch 80, Fitting	10	EA	38.00	380	110.00	1,100	148.00	1,480
2" PVC, Sch 80, pipe	300	LF	12.00	3,600	20.00	6,000	32.00	9,600
6" Gate Valve w/ Valve Box	2	EA	1,300.00	2,600	675.00	1,350	1,975.00	3,950
6" Pipe Fitting	3	EA	710.00	2,130	485.00	1,455	1,195.00	3,585
6" PVC Pipe, C900	75	LF	10.00	750	19.50	1,463	29.50	2,213
Backfill, Trench	180	CY	0.00	0	33.50	6,030	33.50	6,030
Concrete Reaction Block	10	EA	75.00	750	90.00	900	165.00	1,650
Excavation, Trench	300	CY	0.00	0	34.00	10,200	34.00	10,200
Fire Hydrant	2	EA	3,050.00	6,100	625.00	1,250	3,675.00	7,350
Pipe Bedding	120	CY	60.00	7,200	38.00	4,560	98.00	11,760
<b>Subtotal</b>								<b>121,468</b>

0.20

**Phase 2B: Department of Environmental Management Base Yard**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>006 Storm Drainage</b>								
24" HDPE	500	LF	13.00	6,500	35.00	17,500	48.00	24,000
Backfill, Trench	110	CY	0.00	0	33.50	3,685	33.50	3,685
Drain Inlet	5	EA	3,050.00	15,250	4,900.00	24,500	7,950.00	39,750
Drain Manhole	5	EA	2,550.00	12,750	3,300.00	16,500	5,850.00	29,250
Excavation, Trench	280	CY	0.00	0	34.00	9,520	34.00	9,520
Pipe Bedding	170	CY	60.00	10,200	38.00	6,460	98.00	16,660
<b>Subtotal</b>								<b>122,865</b>
<b>007 Sewer System</b>								
6" PVC Pipe, C900	200	LF	10.00	2,000	19.50	3,900	29.50	5,900
Backfill, Trench	50	CY	0.00	0	33.50	1,675	33.50	1,675
Excavation, Trench	80	CY	0.00	0	34.00	2,720	34.00	2,720
Oil Water Separator	1	EA	39,000.00	39,000	5,000.00	5,000	44,000.00	44,000
Pipe Bedding	30	CY	60.00	1,800	38.00	1,140	98.00	2,940
Septic System	2	EA	24,000.00	48,000	6,500.00	13,000	30,500.00	61,000
Sewer Cleanout	1	EA	1,475.00	1,475	700.00	700	2,175.00	2,175
Sewer Manhole w/ Frame & Cover	2	EA	3,900.00	7,800	3,500.00	7,000	7,400.00	14,800
<b>Subtotal</b>								<b>135,210</b>
<b>008 Electrical System</b>								
2-4" Electrical Conduit	300	LF	10.00	3,000	16.00	4,800	26.00	7,800
Electrical Handholes	5	EA	250.00	1,250	500.00	2,500	750.00	3,750
Light Pole with Base	15	EA	1,600.00	24,000	0.00	0	1,600.00	24,000
<b>Subtotal</b>								<b>35,550</b>

**SUBTOTAL 1,436,218**

ESCALATION	0.00%	\$	-
SUBTOTAL		\$	1,436,218
OVERHEAD & PROFIT	20.0%	\$	287,244
SUBCONTRACTOR MARKUP	10.0%	\$	143,622
BOND PREMIUM	1.0%	\$	14,362
SUBTOTAL		\$	1,881,445
G.E. TAX	4.166%	\$	78,381
<b>Total</b>		<b>\$</b>	<b>1,959,826</b>

**Phase 3A: Site Work - Road A Extension (Road B to Waiale Corridor Extension)**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					75,000.00	75,000
Demobilization - Maui	1	LS					35,000.00	35,000
<b>Subtotal</b>								<b>110,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	12	MO	950.00	11,400	2,300.00	27,600	3,250.00	39,000
Dust Screen	1500	LF	7.00	10,500	19.00	28,500	26.00	39,000
Silt Fence	1500	LF	1.00	1,500	2.00	3,000	3.00	4,500
Site Clear and Grub	3	AC	0.00	0	14,000.00	42,000	14,000.00	42,000
Site Clearing	4	AC	0.00	0	5,450.00	21,800	5,450.00	21,800
Stabilized Construction Entrance	2	EA	5,000.00	10,000	3,000.00	6,000	8,000.00	16,000
<b>Subtotal</b>								<b>162,300</b>
<b>004 Site Work</b>								
<b>Road "A" - Road "B" to Waiale Corridor Extension</b>								
AC Pavement, Light Duty, 2" Thick	11300	SY	15.00	169,500	5.00	56,500	20.00	226,000
Base Course, 6" Thick	11300	SY	10.50	118,650	6.00	67,800	16.50	186,450
Compaction	1800	CY	0.00	0	6.00	10,800	6.00	10,800
Concrete Curb	5100	LF	4.00	20,400	18.50	94,350	22.50	114,750
Concrete Sidewalk	900	SY	40.00	36,000	10.00	9,000	50.00	45,000
Grading	14150	SY	0.00	0	15.00	212,250	15.00	212,250
Pavement Striping	5100	LF	0.50	2,550	0.50	2,550	1.00	5,100
Stop Sign and Post	1	EA	375.00	375	160.00	160	535.00	535
<b>Subtotal</b>								<b>800,885</b>
<b>005 Landscaping</b>								
Grassing	1	AC	1,225.00	1,225	3,600.00	3,600	4,825.00	4,825
Irrigation System	4050	SY	9.00	36,450	25.00	101,250	34.00	137,700
Plants & Shurbs	750	EA	40.00	30,000	10.00	7,500	50.00	37,500
Top Soil	450	CY	10.50	4,725	5.00	2,250	15.50	6,975
Tree	75	EA	125.00	9,375	130.00	9,750	255.00	19,125
<b>Subtotal</b>								<b>206,125</b>
							0.20	
<b>006 Water System</b>								
6" Pipe Fitting	13	EA	710.00	9,230	485.00	6,305	1,195.00	15,535
6" PVC Pipe, C900	390	LF	10.00	3,900	19.50	7,605	29.50	11,505
Backfill, Trench	25	CY	0.00	0	33.50	838	33.50	838
Concrete Reaction Block	26	EA	75.00	1,950	90.00	2,340	165.00	4,290
Excavation, Trench	150	CY	0.00	0	34.00	5,100	34.00	5,100
Fire Hydrant	13	EA	3,050.00	39,650	625.00	8,125	3,675.00	47,775
Pipe Bedding	50	CY	60.00	3,000	38.00	1,900	98.00	4,900
<b>Subtotal</b>								<b>89,943</b>



**Phase 3A: Site Work - Road A Extension (Road B to Waiale Corridor Extension)**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>007 Storm Drainage</b>								
24" HDPE	800	LF	13.00	10,400	35.00	28,000	48.00	38,400
36" HDPE	1880	LF	30.50	57,340	24.50	46,060	55.00	103,400
Backfill, Trench	1795	CY	0.00	0	33.50	60,133	33.50	60,133
Drain Inlet	16	EA	3,050.00	48,800	4,900.00	78,400	7,950.00	127,200
Drain Manhole	8	EA	2,550.00	20,400	3,300.00	26,400	5,850.00	46,800
Excavation, Trench	3425	CY	0.00	0	34.00	116,450	34.00	116,450
Pipe Bedding	1630	CY	60.00	97,800	38.00	61,940	98.00	159,740
<b>Subtotal</b>								<b>652,123</b>
<b>008 Electrical System</b>								
2-4" Electrical Conduit	3000	LF	10.00	30,000	16.00	48,000	26.00	78,000
Electrical Handholes	25	EA	250.00	6,250	500.00	12,500	750.00	18,750
<b>Subtotal</b>								<b>96,750</b>

**SUBTOTAL 2,138,125**

ESCALATION	0.00%	\$	-
SUBTOTAL			2,138,125
OVERHEAD & PROFIT	20.0%		427,625
SUBCONTRACTOR MARKUP	10.0%		213,813
BOND PREMIUM	1.0%		21,381
SUBTOTAL			2,800,944
G.E. TAX	4.166%		116,687
<b>Total</b>		<b>\$</b>	<b>2,917,631</b>

**Phase 3B: Maui Fire Department Facility**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					50,000.00	50,000
Demobilization - Maui	1	LS					25,000.00	25,000
<b>Subtotal</b>								<b>75,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	6	MO	950.00	5,700	2,300.00	13,800	3,250.00	19,500
Dust Screen	1000	LF	7.00	7,000	19.00	19,000	26.00	26,000
Silt Fence	1000	LF	1.00	1,000	2.00	2,000	3.00	3,000
Site Clear and Grub	2	AC	0.00	0	14,000.00	28,000	14,000.00	28,000
Site Clearing	2	AC	0.00	0	5,450.00	10,900	5,450.00	10,900
Stabilized Construction Entrance	1	EA	5,000.00	5,000	3,000.00	3,000	8,000.00	8,000
<b>Subtotal</b>								<b>95,400</b>
<b>004 Site Work</b>								
AC Pavement, Light Duty, 2" Thick	7300	SY	15.00	109,500	5.00	36,500	20.00	146,000
Base Course, 6" Thick	7300	SY	10.50	76,650	6.00	43,800	16.50	120,450
Chain Link Fence with Barb Wire	1400	LF	56.00	78,400	30.00	42,000	86.00	120,400
Compaction	1215	CY	0.00	0	6.00	7,290	6.00	7,290
Grading	9700	SY	0.00	0	15.00	145,500	15.00	145,500
Pavement Striping	1500	LF	0.50	750	0.50	750	1.00	1,500
Stop Sign and Post	1	EA	375.00	375	160.00	160	535.00	535
<b>Subtotal</b>								<b>541,675</b>
<b>005 Water System</b>								
12" Gate Valve w/ Valve Box	1	EA	3,125.00	3,125	675.00	675	3,800.00	3,800
12" Pipe Fitting	5	EA	2,400.00	12,000	940.00	4,700	3,340.00	16,700
12" PVC Pipe, C900	500	LF	33.00	16,500	33.00	16,500	66.00	33,000
12" X 6" Reducing Tee	2	EA	2,950.00	5,900	1,425.00	2,850	4,375.00	8,750
2" Meter	1	EA	1,100.00	1,100	300.00	300	1,400.00	1,400
2" PVC, Sch 80, Fitting	20	EA	38.00	760	110.00	2,200	148.00	2,960
2" PVC, Sch 80, pipe	500	LF	12.00	6,000	20.00	10,000	32.00	16,000
6" Gate Valve w/ Valve Box	2	EA	1,300.00	2,600	675.00	1,350	1,975.00	3,950
6" Pipe Fitting	3	EA	710.00	2,130	485.00	1,455	1,195.00	3,585
6" PVC Pipe, C900	75	LF	10.00	750	19.50	1,463	29.50	2,213
Backfill, Trench	180	CY	0.00	0	33.50	6,030	33.50	6,030
Concrete Reaction Block	10	EA	75.00	750	90.00	900	165.00	1,650
Excavation, Trench	300	CY	0.00	0	34.00	10,200	34.00	10,200
Fire Hydrant	2	EA	3,050.00	6,100	625.00	1,250	3,675.00	7,350
Pipe Bedding	120	CY	60.00	7,200	38.00	4,560	98.00	11,760
<b>Subtotal</b>								<b>129,348</b>

**Phase 3B: Maui Fire Department Facility**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>006 Storm Drainage</b>							<b>0.20</b>	
24" HDPE	500	LF	13.00	6,500	35.00	17,500	48.00	24,000
Backfill, Trench	110	CY	0.00	0	33.50	3,685	33.50	3,685
Drain Inlet	5	EA	3,050.00	15,250	4,900.00	24,500	7,950.00	39,750
Drain Manhole	5	EA	2,550.00	12,750	3,300.00	16,500	5,850.00	29,250
Excavation, Trench	280	CY	0.00	0	34.00	9,520	34.00	9,520
Pipe Bedding	170	CY	60.00	10,200	38.00	6,460	98.00	16,660
<b>Subtotal</b>								<b>122,865</b>
<b>007 Sewer System</b>								
6" PVC Pipe, C900	100	LF	10.00	1,000	19.50	1,950	29.50	2,950
Backfill, Trench	25	CY	0.00	0	33.50	838	33.50	838
Excavation, Trench	40	CY	0.00	0	34.00	1,360	34.00	1,360
Oil Water Separator	1	EA	39,000.00	39,000	5,000.00	5,000	44,000.00	44,000
Pipe Bedding	15	CY	60.00	900	38.00	570	98.00	1,470
Septic System	1	EA	24,000.00	24,000	6,500.00	6,500	30,500.00	30,500
Sewer Cleanout	4	EA	1,475.00	5,900	700.00	2,800	2,175.00	8,700
Sewer Manhole w/ Frame & Cover	4	EA	3,900.00	15,600	3,500.00	14,000	7,400.00	29,600
<b>Subtotal</b>								<b>119,418</b>
<b>008 Electrical System</b>								
2-4" Electrical Conduit	300	LF	10.00	3,000	16.00	4,800	26.00	7,800
Electrical Handholes	5	EA	250.00	1,250	500.00	2,500	750.00	3,750
Light Pole with Base	15	EA	1,600.00	24,000	0.00	0	1,600.00	24,000
<b>Subtotal</b>								<b>35,550</b>

**SUBTOTAL 1,139,255**

ESCALATION	0.00%	\$	-
SUBTOTAL		\$	1,139,255
OVERHEAD & PROFIT	20.0%	\$	227,851
SUBCONTRACTOR MARKUP	10.0%	\$	113,926
BOND PREMIUM	1.0%	\$	11,393
SUBTOTAL		\$	1,492,424
G.E. TAX	4.166%	\$	62,174
<b>Total</b>		<b>\$</b>	<b>1,554,598</b>

**Phase 4: Dept of Parks & Recreation Base Yard**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					50,000.00	50,000
Demobilization - Maui	1	LS					25,000.00	25,000
<b>Subtotal</b>								<b>75,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	6	MO	950.00	5,700	2,300.00	13,800	3,250.00	19,500
Dust Screen	1500	LF	7.00	10,500	19.00	28,500	26.00	39,000
Silt Fence	1500	LF	1.00	1,500	2.00	3,000	3.00	4,500
Site Clear and Grub	2	AC	0.00	0	14,000.00	28,000	14,000.00	28,000
Site Clearing	2	AC	0.00	0	5,450.00	10,900	5,450.00	10,900
Stabilized Construction Entrance	1	EA	5,000.00	5,000	3,000.00	3,000	8,000.00	8,000
<b>Subtotal</b>								<b>109,900</b>
<b>004 Site Work</b>								
AC Pavement, Light Duty, 2" Thick	2000	SY	15.00	30,000	5.00	10,000	20.00	40,000
Base Course, 6" Thick	2300	SY	10.50	24,150	6.00	13,800	16.50	37,950
Chain Link Fence with Barb Wire	1400	LF	56.00	78,400	30.00	42,000	86.00	120,400
Compaction	385	CY	0.00	0	6.00	2,310	6.00	2,310
Concrete Pavement	1300	SY	58.00	75,400	14.50	18,850	72.50	94,250
Grading	14750	SY	0.00	0	15.00	221,250	15.00	221,250
Pavement Striping	1500	LF	0.50	750	0.50	750	1.00	1,500
Stop Sign and Post	1	EA	375.00	375	160.00	160	535.00	535
<b>Subtotal</b>								<b>518,195</b>
<b>005 Water System</b>								
12" Gate Valve w/ Valve Box	1	EA	3,125.00	3,125	675.00	675	3,800.00	3,800
12" Pipe Fitting	5	EA	2,400.00	12,000	940.00	4,700	3,340.00	16,700
12" PVC Pipe, C900	500	LF	33.00	16,500	33.00	16,500	66.00	33,000
12" X 6" Reducing Tee	2	EA	2,950.00	5,900	1,425.00	2,850	4,375.00	8,750
2" Meter	1	EA	1,100.00	1,100	300.00	300	1,400.00	1,400
2" PVC, Sch 80, Fitting	10	EA	38.00	380	110.00	1,100	148.00	1,480
2" PVC, Sch 80, pipe	300	LF	12.00	3,600	20.00	6,000	32.00	9,600
6" Gate Valve w/ Valve Box	2	EA	1,300.00	2,600	675.00	1,350	1,975.00	3,950
6" Pipe Fitting	3	EA	710.00	2,130	485.00	1,455	1,195.00	3,585
6" PVC Pipe, C900	75	LF	10.00	750	19.50	1,463	29.50	2,213
Backfill, Trench	180	CY	0.00	0	33.50	6,030	33.50	6,030
Concrete Reaction Block	10	EA	75.00	750	90.00	900	165.00	1,650
Excavation, Trench	300	CY	0.00	0	34.00	10,200	34.00	10,200
Fire Hydrant	2	EA	3,050.00	6,100	625.00	1,250	3,675.00	7,350
Pipe Bedding	120	CY	60.00	7,200	38.00	4,560	98.00	11,760
<b>Subtotal</b>								<b>121,468</b>

0.20

**Phase 4: Dept of Parks & Recreation Base Yard**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>006 Storm Drainage</b>								
24" HDPE	500	LF	13.00	6,500	35.00	17,500	48.00	24,000
Backfill, Trench	110	CY	0.00	0	33.50	3,685	33.50	3,685
Drain Inlet	5	EA	3,050.00	15,250	4,900.00	24,500	7,950.00	39,750
Drain Manhole	5	EA	2,550.00	12,750	3,300.00	16,500	5,850.00	29,250
Excavation, Trench	280	CY	0.00	0	34.00	9,520	34.00	9,520
Pipe Bedding	170	CY	60.00	10,200	38.00	6,460	98.00	16,660
<b>Subtotal</b>								<b>122,865</b>
<b>007 Sewer System</b>								
6" PVC Pipe, C900	100	LF	10.00	1,000	19.50	1,950	29.50	2,950
Backfill, Trench	25	CY	0.00	0	33.50	838	33.50	838
Excavation, Trench	40	CY	0.00	0	34.00	1,360	34.00	1,360
Oil Water Separator	1	EA	39,000.00	39,000	5,000.00	5,000	44,000.00	44,000
Pipe Bedding	15	CY	60.00	900	38.00	570	98.00	1,470
Septic System	1	EA	24,000.00	24,000	6,500.00	6,500	30,500.00	30,500
Sewer Cleanout	1	EA	1,475.00	1,475	700.00	700	2,175.00	2,175
Sewer Manhole w/ Frame & Cover	2	EA	3,900.00	7,800	3,500.00	7,000	7,400.00	14,800
<b>Subtotal</b>								<b>98,093</b>
<b>008 Electrical System</b>								
2-4" Electrical Conduit	300	LF	10.00	3,000	16.00	4,800	26.00	7,800
Electrical Handholes	5	EA	250.00	1,250	500.00	2,500	750.00	3,750
Light Pole with Base	15	EA	1,600.00	24,000	0.00	0	1,600.00	24,000
<b>Subtotal</b>								<b>35,550</b>

**SUBTOTAL 1,101,070**

ESCALATION	0.00%	\$	-
SUBTOTAL		\$	1,101,070
OVERHEAD & PROFIT	20.0%	\$	220,214
SUBCONTRACTOR MARKUP	10.0%	\$	110,107
BOND PREMIUM	1.0%	\$	11,011
SUBTOTAL		\$	1,442,402
G.E. TAX	4.166%	\$	60,090
<b>Total</b>		<b>\$</b>	<b>1,502,492</b>



## **APPENDIX C**

Dept Site	Bldg Type	Space	Description	Unit	Qty
PHASE 1					
Consolidated Admin. Office	Office Building - all rooms are air conditioned	Exterior	One story - 20'-0" ~ 16'-0" high Main Structure: Steel framing Exterior Wall: Storefront walls, 50% glass and 50% metal panels with insulation Roof: Metal standing seam roof on metal deck and insulation		
		Office	Floor: concrete slab on grade, raised floor with carpet Interior Wall: metal stud framing with gypsum board and paint, vinyl base Ceiling: ACT tile and recessed fluorescent light, sprinkler	SF	5877
		Conference room	Floor: concrete slab on grade, raised floor with carpet Interior Wall: 25% aluminum frame and glass wall system, 75% metal stud framing with gypsum board and paint, vinyl base Ceiling: ACT tile and recessed fluorescent light, sprinkler	SF	8557
		Kitchen/breakroom	Floor concrete slab on grade, vinyl tile Interior Wall: metal stud framing with gypsum board and paint, vinyl base Ceiling: Act tile and recessed fluorescent light, sprinkler	SF	1180
		Restroom	Floor concrete slab on grade, ceramic tile Interior Wall: Ceramic tile up to 4'-0" and metal stud framing with gypsum board and paint Ceiling: Gypsum board and recessed fluorescent light, sprinkler	SF	1062
		Laboratory	Floor concrete slab on grade, vinyl tile Interior Wall: metal stud framing with gypsum board and paint, vinyl base Ceiling: washable gypsum board ceiling and recessed fluorescent light, sprinkler Casework with sinks, separate ventilation, eye wash shower,	SF	2626
		Document storage	Floor: concrete slab, unfinished Interior Wall: metal stud framing with gypsum board and paint, Ceiling: Gypsum board and surface fluorescent light, sprinkler Air condition	SF	1268
		IT room	Separate HVAC system from the rest of building Floor: concrete slab, unfinished Interior Wall: CMU, paint Ceiling: ACTtile surface fluorescent light, sprinkler	SF	1138
	Exterior	Uncovered parking	(40) stalls, Asphalt, striping, EV charging station, landscape	SF	10192
		Entire site	Exterior lighting: at parking and access road Security: Card/Intercom access at gate entry, CCTV throughout site, Signage: building ID signage, room name	SF	10192
		Perimeter fence	10' high chainlink	LF	1180

Dept Site	Bldg Type	Space	Description	Unit	Qty
PHASE 1					
Consolidated Warehouse	Warehouse Building	Exterior	One story - 20'-0" ~ 24'-0" high Main Structure: Pre-engineered steel framing Exterior Wall: Metal girt with metal panels Roof: metal standing seam roof on metal deck		
		Office	Floor: concrete slab on grade, vinyl tile Interior Wall: metal stud framing with gypsum board, insulation and paint, vinyl base Ceiling: ACT tile, insulation, and recessed fluorescent light, sprinkler Air condition space	SF	468
		Warehouse	Floor: concrete slab, sealed Interior wall: none Ceiling : No finish, pendant fluorescent light, sprinkler Non airconditioned space	SF	20540
	Exterior	Uncovered parking	(4) Parking lot: exterior lighting, landscape	SF	1019
		Entire site	Exterior lighting: at parking and access road Security: Card/Intercom access at gate entry, CCTV throughout site, Signage: building ID signage, room name	SF	3519
		Loading area	10" thick Concrete	SF	2500
		Perimeter fence	10' high chainlink	LF	1180

Dept Site	Bldg Type	Space	Description	Unit	Qty
<b>PHASE 1</b>					
Consolidated Vehicle Maintenance	Vehicle Maintenance Building:	Exterior	One story - 20'-0" ~ 24'-0" high Main Structure: Pre-engineered steel framing Exterior Wall: Metal girt with metal panels Roof: metal standing seam roof on metal deck		
		Conference room	Floor: concrete slab on grade, vinyl tile Interior Wall: metal stud framing with gypsum board, insulation and paint, vinyl base Ceiling: ACT tile and recessed fluorescent light, sprinkler Air condition space	SF	500
		Office	Floor: concrete slab on grade, vinyl tile Interior Wall: metal stud framing with gypsum board and paint, vinyl base Ceiling: ACT tile, insulation and recessed fluorescent light, sprinkler Air condition space	SF	630
		Restroom/shower	Floor concrete slab on grade, ceramic tile Interior Wall: Ceramic tile up to 4'-0" and metal stud framing with gypsum board, insulation and paint Ceiling: Gypsum board, insulation and recessed fluorescent light, sprinkler Air condition space	SF	369
		Vehicle maintenance bay	Floor: concrete slab, epoxy paint Interior wall: none Ceiling : No finish, pendant fluorescent light, sprinkler Non airconditioned space (24) bays, lift , air compressor and overhead door at each bay	SF	17300
		Vehicle paint shop	Floor: concrete slab, epoxy paint Interior wall: CMU Ceiling : No finish, pendant fluorescent light, sprinkler Non airconditioned space paint hood exhaust	SF	1600
		Workshop	Floor: concrete slab, sealed Interior wall: CMU Ceiling : No finish, pendant fluorescent light, sprinkler Non airconditioned space, air compressor, overhead doors	SF	2620
	Vehicle wash building	Vehicle wash	(2) vehicle washes, concrete slab on grade, 20' high CMU walls, metal roof	SF	600
	Exterior	Fuel pump	(4) Fuel pumps, concrete slab on grade, metal canopy	SF	2132
		Uncovered parking	(8) stalls, Asphalt, striping, EV charging station, landscape	SF	1274
		Entire site	Exterior lighting: at parking and access road Security: Card/Intercom access at gate entry, CCTV throughout site, Signage: building ID signage, room name	SF	5590
		Perimeter fence	10' high chainlink	LF	1400

Dept Site	Bldg Type	Space	Description	Unit	Qty
<b>PHASE 1</b>					
DWS Yard	Office Building - all rooms are air conditioned except workshop	Exterior	One story - 20'-0" ~ 16'-0" high Main Structure: Pre-engineered steel framing Exterior Wall: Metal girt with metal panels and insulation Roof: metal standing seam roof on metal deck and insulation		
		Office	Floor: concrete slab on grade, vinyl tile Interior Wall: metal stud framing with gypsum board and paint, vinyl base Ceiling: ACT tile and recessed fluorescent light, sprinkler Air condition space	SF	654
		Conference room	Floor: concrete slab on grade, vinyl tile Interior Wall: metal stud framing with gypsum board and paint, vinyl base Ceiling: ACT tile and recessed fluorescent light, sprinkler Air condition space	SF	1040
		Kitchen/Breakroom	Floor concrete slab on grade, vinyl tile Interior Wall: metal stud framing with gypsum board and paint, vinyl base Ceiling: Act tile and recessed fluorescent light, sprinkler	SF	325
		Restroom	Floor concrete slab on grade, ceramic tile Interior Wall: Ceramic tile up to 4'-0" and metal stud framing with gypsum board and paint Ceiling: Gypsum board and recessed fluorescent light, sprinkler	SF	654
		Locker	Floor concrete slab on grade, vinyl tile Interior Wall: metal stud framing with gypsum board and paint, vinyl base Ceiling: Act tile and recessed fluorescent light, sprinkler	SF	109
		Workshop	Floor: concrete slab, sealed Interior wall: CMU Ceiling : No finish, pendant fluorescent light, sprinkler Non airconditioned space, air compressor, overhead doors	SF	6630
	Covered parking structure	Covered parking - Heavy Vehicle	One story - 20'-0" ~ 24'-0" high Main Structure: Pre-engineered steel framing Exterior Wall: Metal girt with metal panels on two sides, no walls on other two sides Roof: metal standing seam roof on metal deck	SF	2520
	Covered storage structure	Covered Storage	40' containers or pre-engineered framing, metal wall/roof structure on concrete slab	SF	5570
	Exterior	Uncovered parking	(190) stalls ,Asphalt, striping, EV charging station, landscape	SF	49000
			Uncovered parking - heavy vehicles, 10" concrete	SF	19354
			Uncovered parking - light vehicles, 10" concrete	SF	32144
		Entire site	Exterior lighting: at parking and access road Security: Card/Intercom access at gate entry, CCTV throughout site, Signage: building ID signage, room name	SF	100498
		Perimeter fence	10' high chainlink	LF	1700

Dept Site	Bldg Type	Space	Description	Unit	Qty
PHASE 2					
DPW Yard	Office Building - all rooms are air conditioned except workshop	Exterior	Description same as DWS yard		
		Office		SF	1637
		Kitchen/Breakroom		SF	897
		Restroom / shower		SF	468
		Locker		SF	932.1
		Workshop		SF	8515
	Covered parking structure	Covered parking - Heavy Vehicle	Description same as DWS yard	SF	2880
	Covered parking structure	Covered parking - Light Vehicle	One story - 10'-0" ~ 12'-0" high Main Structure: Pre-engineered steel framing Exterior Wall: Metal girt with metal panels on two sides, no walls on other two sides Roof: metal standing seam roof on metal deck	SF	2190
	Covered storage structure	Covered Storage	Description same as DWS yard	SF	5682
	Exterior	Uncovered parking	(90) stalls ,Asphalt, striping, EV charging station, landscape	SF	23520
			Uncovered parking - heavy vehicles, 10" concrete	SF	27955.2
			Uncovered parking - light vehicles, 10" concrete	SF	22344
			Uncovered parking - Machinery, 10" concrete	SF	45360
		Entire site	Exterior lighting: at parking and access road Security: Card/Intercom access at gate entry, CCTV throughout site, Signage: building ID signage, room name	SF	119179
		Perimeter fence	10' high chainlink	LF	1700



Dept Site	Bldg Type	Space	Description	Unit	Qty
PHASE 2					
DEM Yard	Office Building - all rooms are air conditioned except workshop	Exterior	Description same as DWS yard		
		Office		SF	889
		Conference room		SF	710
		Kitchen/Breakroom		SF	1271
		Restroom / shower		SF	460
		Locker		SF	615
		Workshop		SF	1656
	Covered parking structure	Covered parking - Heavy Vehicle	Description same as DWS yard	SF	5400
	Covered parking structure	Covered parking - Light Vehicle	Description same as DPW yard	SF	3400
	Covered storage structure	Covered Storage	Description same as DWS yard	SF	2671
	Exterior	Uncovered parking	(64) stalls ,Asphalt, striping, EV charging station, exterior lighting, landscape	SF	16424
			Uncovered parking - heavy vehicles, 10" concrete	SF	14400
			Uncovered parking - light vehicles, 10" concrete	SF	16224
		Entire site	Exterior lighting: at parking and access road Security: Card/Intercom access at gate entry, CCTV throughout site, Signage: building ID signage, room name	SF	47048
		Perimeter fence	10' high chainlink	LF	1400

Dept Site	Bldg Type	Space	Description	Unit	Qty
<b>PHASE 3</b>					
MFD Vehicle Maintenance	Vehicle Maintenance Building	Exterior	One story - 30'-0" ~ 34'-0" high Main Structure: Pre-engineered steel framing Exterior Wall: Metal girt with metal panels Roof: metal standing seam roof on metal deck		
		Covered Storage	Floor: concrete slab, sealed Interior wall: none Ceiling : No finish, pendant fluorescent light, sprinkler Non airconditioned space	SF	1326
		Mech/Elec Rm	Floor: concrete slab, sealed Interior wall: none Ceiling : No finish, pendant fluorescent light, sprinkler Non airconditioned space	SF	484
		Office	Floor: concrete slab on grade, vinyl tile Interior Wall: metal stud framing with gypsum board and paint, vinyl base Ceiling: ACT tile, insulation and recessed fluorescent light, sprinkler Air condition space	SF	736
		Restroom	Floor concrete slab on grade, ceramic tile Interior Wall: Ceramic tile up to 4'-0" and metal stud framing with gypsum board, insulation and paint Ceiling: Gypsum board, insulation and recessed fluorescent light, sprinkler Air condition space	SF	78
		Vehicle Maintenance Bay	Floor: concrete slab, epoxy paint Interior wall: none Ceiling : No finish, pendant fluorescent light, sprinkler Non airconditioned space (4) bays at 27' wide x 60' deep, 7'-0" wide space for tools between bays, extra heavy duty lift , air compressor and overhead door at each bay	SF	6500
		Warehouse	Floor: concrete slab, sealed Interior wall: none Ceiling : No finish, pendant fluorescent light, sprinkler Non airconditioned space	SF	1014
MFD Warehouse	MFD Warehouse	Exterior	One story - 20'-0" ~ 24'-0" high Main Structure: Pre-engineered steel framing Exterior Wall: Metal girt with metal panels Roof: metal standing seam roof on metal deck	SF	
		Mech/Elec Rm	Floor: concrete slab, sealed Interior wall: none Ceiling : No finish, pendant fluorescent light, sprinkler Non airconditioned space	SF	483
		Office	Floor: concrete slab on grade, vinyl tile Interior Wall: metal stud framing with gypsum board and paint, vinyl base Ceiling: ACT tile, insulation and recessed fluorescent light, sprinkler Air condition space	SF	300
		Warehouse	Floor: concrete slab, sealed Interior wall: none Ceiling : No finish, pendant fluorescent light, sprinkler Non airconditioned space	SF	3082
	Exterior	Uncovered Parking	Uncovered Parking - Employees	SF	15,808
MFD Yard	MFD Field Operations Building	Exterior	One story - 20'-0" ~ 24'-0" high Main Structure: Pre-engineered steel framing Exterior Wall: Metal girt with metal panels Roof: metal standing seam roof on metal deck		
		Covered Parking - Heavy V	One story - 20'-0" ~ 24'-0" high Main Structure: Pre-engineered steel framing Exterior Wall: Metal girt with metal panels on two sides, no walls on other two sides Roof: metal standing seam roof on metal deck	SF	3082
		Gym	Floor concrete slab on grade, vinyl tile Interior Wall: metal stud framing with gypsum board and paint, vinyl base Ceiling: Act tile and recessed fluorescent light, sprinkler	SF	780
		Locker	Floor concrete slab on grade, vinyl tile Interior Wall: metal stud framing with gypsum board and paint, vinyl base Ceiling: Act tile and recessed fluorescent light, sprinkler	SF	260
		Mech/Elec Rm	Floor: concrete slab, sealed Interior wall: none Ceiling : No finish, pendant fluorescent light, sprinkler Non airconditioned space	SF	483
		Restroom	Floor concrete slab on grade, ceramic tile Interior Wall: Ceramic tile up to 4'-0" and metal stud framing with gypsum board and paint Ceiling: Gypsum board and recessed fluorescent light, sprinkler	SF	603
		Shower	Floor concrete slab on grade, ceramic tile Interior Wall: Ceramic tile up to 7'-0" and metal stud framing with gypsum board and paint Ceiling: Gypsum board and recessed fluorescent light, sprinkler	SF	260
		Warehouse	Floor: concrete slab, sealed Interior wall: none Ceiling : No finish, pendant fluorescent light, sprinkler Non airconditioned space	SF	14346
	Exterior	Uncovered Storage	Graded Asphalt Area, Lighting, Perimeter Chainlink Fence	SF	2600

Dept Site	Bldg Type	Space	Description	Unit	Qty
<b>PHASE 3</b>					
MDF Admin. Office	MFD Office Bldg	Exterior	One story - 20'-0" ~ 16'-0" high Main Structure: Steel framing Exterior Wall: Storefront walls, 50% glass and 50% metal panels with insulation Roof: Metal standing seam roof on metal deck and insulation		
		Mech/Elec Rm	Floor: concrete slab, sealed Interior wall: none Ceiling : No finish, pendant fluorescent light, sprinkler Non airconditioned space	SF	87
		Office	Floor: concrete slab on grade, vinyl tile Interior Wall: metal stud framing with gypsum board and paint, vinyl base Ceiling: ACT tile, insulation and recessed fluorescent light, sprinkler Air condition space	SF	6438
		Restroom	Floor concrete slab on grade, ceramic tile Interior Wall: Ceramic tile up to 4'-0" and metal stud framing with gypsum board and paint Ceiling: Gypsum board and recessed fluorescent light, sprinkler	SF	137
Waikapu Fire Station	Waikapu Fire Station	No program provided	Subject to a separate project and budget. Land set aside only.	-	-
CDA	Emergency Management Center	No program provided	Subject to a separate project and budget. Land set aside only.	-	-

Dept Site	Bldg Type	Space	Description	Unit	Qty
PHASE 4					
DPR Yard	Office Building - all rooms are air conditioned except workshop	Exterior	Description same as DWS yard		
		Office		SF	750
		Kitchen/Breakroom		SF	1453
		Restroom		SF	294
		Locker		SF	39
		Workshop		SF	16094
	Covered parking structure	Covered parking - Light Vehicle	Description same as DPW yard	SF	2387
	Covered storage structure	Covered Storage	Description same as DWS yard	SF	18850
	Exterior	Uncovered parking	Uncovered parking - heavy vehicles, 10" concrete	SF	18594
		Entire site	Exterior lighting: at parking and access road Security: Card/Intercom access at gate entry, CCTV throughout site, Signage: building ID signage, room name	SF	18594
		Perimeter fence	10' high chainlink	LF	1400

## **APPENDIX D**

**Project Summary: Offsite Improvements - Waiale Corridor**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST

**Phase 1 Summary**

Offsite Improvements - Waiale Corridor Extension	6,946,235
	<b>6,946,235</b>

**Phase 2 Summary**

N/A	0
	<b>0</b>

**Phase 3 Summary**

Offsite Improvements - Waiale Road Ext & Honoapiilani Highway Intersection	4,476,245
	<b>4,476,245</b>

**Phase 4 Summary**

N/A	0
	<b>0</b>

**TOTAL \$11,422,480**  
**ROOUNDED \$11,422,000**

Note: The Offsite Improvements listed above will be required if the Waiale Road Extension project delayed until after construction of the base yard begins.



**Phase 1 Summary**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST

**Phase 1: Offsite Improvements - Waiale Corridor Extension**

Phase 1H: Offsite Improvements - Waiale Road Ext Water Line (Waiko Road to Road A)	1,286,180
Phase 1I: Offsite Improvements - Temporary Gravel Road in Waiale Corridor Ext (Waiko Road to Road A)	871,758
Phase 1J: Offsite Improvements - Offsite Electrical/Communication	2,800,000
<b>Subtotal</b>	<b>4,957,939</b>

**SUBTOTAL 4,957,939**

ESCALATION	0.00%	\$ -
SUBTOTAL		\$ 4,957,939
DESIGN CONTINGENCY	20.0%	\$ 991,588
GENERAL CONDITIONS	12.0%	\$ 594,953
PRIME CONTRACTOR, MARK UP	8.0%	\$ 396,635
BOND PREMIUM	2.5%	\$ 123,948
SUBTOTAL		\$ 6,668,428
G.E. TAX	4.166%	\$ 277,807
<b>Total</b>		<b>\$ 6,946,235</b>

**Phase 1H: Offsite Improvements - Waiale Corridor Ext Water Line (Waiko Road to Road A)**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST

**001 Mobilization**

Mobilization - Maui	1	LS					50,000.00	75,000
Demobilization - Maui	1	LS					25,000.00	50,000
<b>Subtotal</b>								<b>125,000</b>

**002 Field Office**

Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>

**003 Site Clearing & Demolition**

Dust Control/Water Truck	6	MO	950.00	5,700	2,300.00	13,800	3,250.00	19,500
Dust Screen	1000	LF	7.00	7,000	19.00	19,000	26.00	26,000
Site Clearing	4.25	AC	0.00	0	5,450.00	23,163	5,450.00	23,163
Silt Fence	4600	LF	1.00	4,600	2.00	9,200	3.00	13,800
Stabilized Construction Entrance	1	EA	5,000.00	5,000	3,000.00	3,000	8,000.00	8,000
<b>Subtotal</b>								<b>90,463</b>

**004 Water System**

12" Gate Valve w/ Valve Box	15	EA	3,125.00	46,875	675.00	10,125	3,800.00	57,000
12" Pipe Fitting	20	EA	2,400.00	48,000	940.00	18,800	3,340.00	66,800
12" PVC Pipe, C900	4600	LF	33.00	151,800	33.00	151,800	66.00	303,600
Backfill, Trench	1535	CY	0.00	0	33.50	51,423	33.50	51,423
Concrete Reaction Block	35	EA	75.00	2,625	90.00	3,150	165.00	5,775
Excavation, Trench	2560	CY	0.00	0	34.00	87,040	34.00	87,040
Pipe Bedding	1025	CY	60.00	61,500	38.00	38,950	98.00	100,450
Water Line Connection	1	EA	5,000.00	5,000	10,000.00	10,000	15,000.00	15,000
Temporary Water Line Crossing	1	EA	10,000.00	10,000	10,000.00	10,000	20,000.00	20,000
<b>Subtotal</b>								<b>707,088</b>

**SUBTOTAL 942,551**

ESCALATION	0.00%	\$	-
SUBTOTAL		\$	942,551
OVERHEAD & PROFIT	20.0%	\$	188,510
SUBCONTRACTOR MARKUP	10.0%	\$	94,255
BOND PREMIUM	1.0%	\$	9,426
SUBTOTAL		\$	1,234,741
G.E. TAX	4.166%	\$	51,439
<b>Total</b>			<b>\$ 1,286,180</b>

**Phase 11: Offsite Improvements - Temporary Gravel Road in Waiale Coordidor Ext (Waiko Road to Road A)**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					50,000.00	50,000
Demobilization - Maui	1	LS					25,000.00	25,000
<b>Subtotal</b>								<b>75,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	3	MO	950.00	2,850	2,300.00	6,900	3,250.00	9,750
Silt Fence	4500	LF	1.00	4,500	2.00	9,000	3.00	13,500
Stabilized Construction Entrance	1	EA	5,000.00	5,000	3,000.00	3,000	8,000.00	8,000
<b>Subtotal</b>								<b>31,250</b>
<b>004 Site Work</b>								
Acrow Bridge Installation	1	EA	0.00	0	50,000.00	50,000	50,000.00	50,000
Base Course, 6" Thick	13400	SY	10.50	140,700	6.00	80,400	16.50	221,100
Compaction	6750	CY	0.00	0	6.00	40,500	6.00	40,500
Grading	13400	SY	0.00	0	15.00	201,000	15.00	201,000
<b>Subtotal</b>								<b>512,600</b>
							<b>SUBTOTAL</b>	<b>638,850</b>
							ESCALATION	0.00% \$ -
							SUBTOTAL	\$ 638,850
							OVERHEAD & PROFIT	20.0% \$ 127,770
							SUBCONTRACTOR MARKUP	10.0% \$ 63,885
							BOND PREMIUM	1.0% \$ 6,389
							SUBTOTAL	\$ 836,894
							G.E. TAX	4.166% \$ 34,865
							<b>Total</b>	<b>\$ 871,758</b>

**Phase 3: Offsite Improvements Summary**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST

**Phase 3: Offsite Improvements - Waiale Road Ext & Honoapiilani Highway Intersection**

Phase 3E: Offsite Improvements - Honoapiilani Highway Intersection Improvements	1,232,945
Phase 3F: Offsite Improvements - Waiale Corridor Extension. Honoapiilani Highway to Road "A"	1,962,016
<b>Subtotal</b>	<b>3,194,961</b>

**SUBTOTAL 3,194,961**

ESCALATION	0.00%	\$	-
SUBTOTAL		\$	3,194,961
DESIGN CONTINGENCY	20.0%	\$	638,992
GENERAL CONDITIONS	12.0%	\$	383,395
PRIME CONTRACTOR, MARK UP	8.0%	\$	255,597
BOND PREMIUM	2.5%	\$	79,874
SUBTOTAL		\$	4,297,223
G.E. TAX	4.166%	\$	179,022
<b>Total</b>			<b>\$ 4,476,245</b>

**Phase 3E: Offsite Improvements - Honoapiilani Highway Intersection Improvements**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					50,000.00	50,000
Demobilization - Maui	1	LS					25,000.00	25,000
<b>Subtotal</b>								<b>75,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	3	MO	950.00	2,850	2,300.00	6,900	3,250.00	9,750
Remove AC pavement	450	SY	0.00	0	19.00	8,550	19.00	8,550
Remove Concrete Pavement	75	SY	0.00	0	48.00	3,600	48.00	3,600
Sawcut AC Pavement	100	LF	1.00	100	5.00	500	6.00	600
Silt Fence	500	LF	1.00	500	2.00	1,000	3.00	1,500
<b>Subtotal</b>								<b>24,000</b>
<b>004 Site Work</b>								
AC Pavement, Light Duty, 2" Thick	725	SY	15.00	10,875	5.00	3,625	20.00	14,500
Base Course, 6" Thick	725	SY	10.50	7,613	6.00	4,350	16.50	11,963
Compaction	500	CY	0.00	0	6.00	3,000	6.00	3,000
Grading	725	SY	0.00	0	15.00	10,875	15.00	10,875
Pavement Striping	250	LF	0.50	125	0.50	125	1.00	250
Traffic Control	1	LS	0.00	0	75,000.00	75,000	75,000.00	75,000
<b>Subtotal</b>								<b>115,588</b>
<b>006 Electrical System</b>								
2-4" Electrical Conduit	200	LF	10.00	2,000	16.00	3,200	26.00	5,200
Electrical Handholes	5	EA	250.00	1,250	500.00	2,500	750.00	3,750
Traffic Signal	1	EA	500,000.00	500,000	160,000.00	160,000	660,000.00	660,000
<b>Subtotal</b>								<b>668,950</b>

**SUBTOTAL 903,538**

ESCALATION	0.00%	\$	-
SUBTOTAL		\$	903,538
OVERHEAD & PROFIT	20.0%	\$	180,708
SUBCONTRACTOR MARKUP	10.0%	\$	90,354
BOND PREMIUM	1.0%	\$	9,035
SUBTOTAL		\$	1,183,635
G.E. TAX	4.166%	\$	49,310
<b>Total</b>		<b>\$</b>	<b>1,232,945</b>

**Phase 3F: Offsite Improvements - Waiale Corridor Extension. Honoapiilani Highway to Road "A"**

ITEMS OF WORK	QUANTITIES		MATERIAL COST		LABOR COST		TOTAL COST	
	NO OF UNITS	UNIT	UNIT COST	COST	UNIT COST	COST	UNIT COST	COST
<b>001 Mobilization</b>								
Mobilization - Maui	1	LS					50,000.00	50,000
Demobilization - Maui	1	LS					25,000.00	25,000
<b>Subtotal</b>								<b>75,000</b>
<b>002 Field Office</b>								
Field Office	1	LS					20,000.00	20,000
<b>Subtotal</b>								<b>20,000</b>
<b>003 Site Clearing &amp; Demolition</b>								
Dust Control/Water Truck	6	MO	950.00	5,700	2,300.00	13,800	3,250.00	19,500
Silt Fence	2700	LF	1.00	2,700	2.00	5,400	3.00	8,100
Site Clearing	5	AC	0.00	0	5,450.00	27,250	5,450.00	27,250
Stabilized Construction Entrance	1	EA	5,000.00	5,000	3,000.00	3,000	8,000.00	8,000
<b>Subtotal</b>								<b>62,850</b>
<b>004 Site Work</b>								
AC Pavement, Light Duty, 2" Thick	11800	SY	15.00	177,000	5.00	59,000	20.00	236,000
Base Course, 6" Thick	11800	SY	10.50	123,900	6.00	70,800	16.50	194,700
Compaction	5900	CY	0.00	0	6.00	35,400	6.00	35,400
Grading	11800	SY	0.00	0	15.00	177,000	15.00	177,000
Pavement Striping	2650	LF	0.50	1,325	0.50	1,325	1.00	2,650
<b>Subtotal</b>								<b>645,750</b>
<b>005 Water System</b>								
12" Gate Valve w/ Valve Box	5	EA	3,125.00	15,625	675.00	3,375	3,800.00	19,000
12" Pipe Fitting	20	EA	2,400.00	48,000	940.00	18,800	3,340.00	66,800
12" PVC Pipe, C900	2650	LF	33.00	87,450	33.00	87,450	66.00	174,900
12" X 6" Reducing Tee	11	EA	2,950.00	32,450	1,425.00	15,675	4,375.00	48,125
6" Gate Valve w/ Valve Box	11	EA	1,300.00	14,300	675.00	7,425	1,975.00	21,725
6" Pipe Fitting	11	EA	710.00	7,810	485.00	5,335	1,195.00	13,145
6" PVC Pipe, C900	220	LF	10.00	2,200	19.50	4,290	29.50	6,490
Backfill, Trench	985	CY	0.00	0	33.50	32,998	33.50	32,998
Concrete Reaction Block	53	EA	75.00	3,975	90.00	4,770	165.00	8,745
Excavation, Trench	1625	CY	0.00	0	34.00	55,250	34.00	55,250
Fire Hydrant	11	EA	3,050.00	33,550	625.00	6,875	3,675.00	40,425
Pipe Bedding	640	CY	60.00	38,400	38.00	24,320	98.00	62,720
<b>Subtotal</b>								<b>550,323</b>
<b>006 Electrical System</b>								
2-4" Electrical Conduit	2650	LF	10.00	26,500	16.00	42,400	26.00	68,900
Electrical Handholes	20	EA	250.00	5,000	500.00	10,000	750.00	15,000
<b>Subtotal</b>								<b>83,900</b>

**SUBTOTAL 1,437,823**

ESCALATION	0.00%	\$	-
SUBTOTAL		\$	1,437,823
OVERHEAD & PROFIT	20.0%	\$	287,565
SUBCONTRACTOR MARKUP	10.0%	\$	143,782
BOND PREMIUM	1.0%	\$	14,378
SUBTOTAL		\$	1,883,547
G.E. TAX	4.166%	\$	78,469

**Appendix G: Detailed Cost Estimate** **Total** **\$ 1,962,016<sup>27</sup>**



*Prepared for:*

*County of Maui  
Department of Management*

*By:*

*HDR Engineering, Inc*

*2015*

