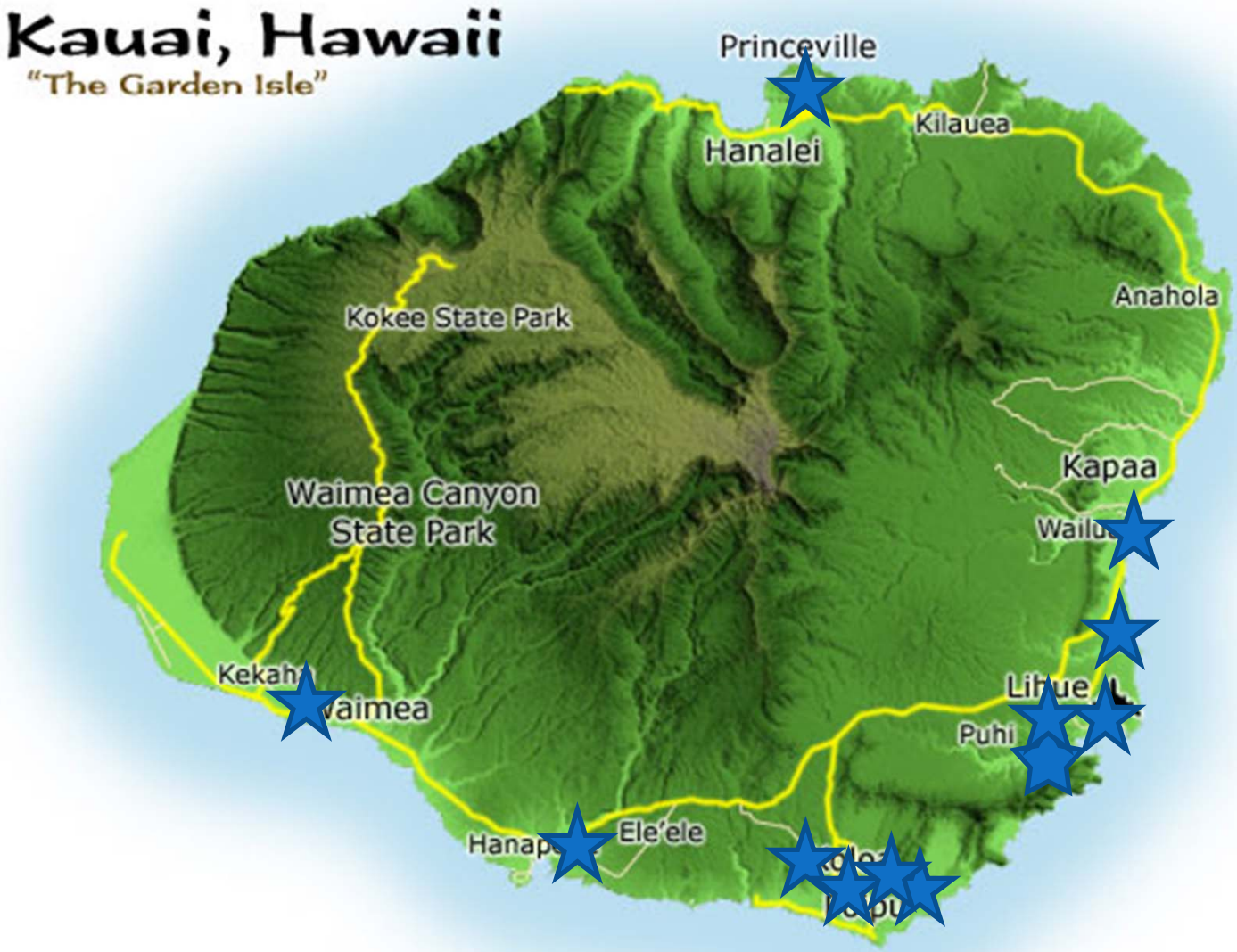
RECLAIMED WASTEWATER USE IN KAUA‘I COUNTY

SECOND ANNUAL JOINT GOVERNMENT
WATER CONFERENCE

AUGUST 5, 2014

OVERVIEW – WASTEWATER TREATMENT PLANTS ON KAUA‘I

THERE ARE 12 WWTP’S ON KAUA‘I WITH A DESIGN CAPACITY OF MORE THAN 100,000 GPD – 8 OF THOSE ARE CLASSIFIED AS REUSE FACILITIES


Kauai, Hawaii
"The Garden Isle"
Princeville
Hanalei
Kilauea
Anahola
Kokee State Park
Kapaa
Waimea Canyon
State Park
Kekah
Puhi
Ele'ele

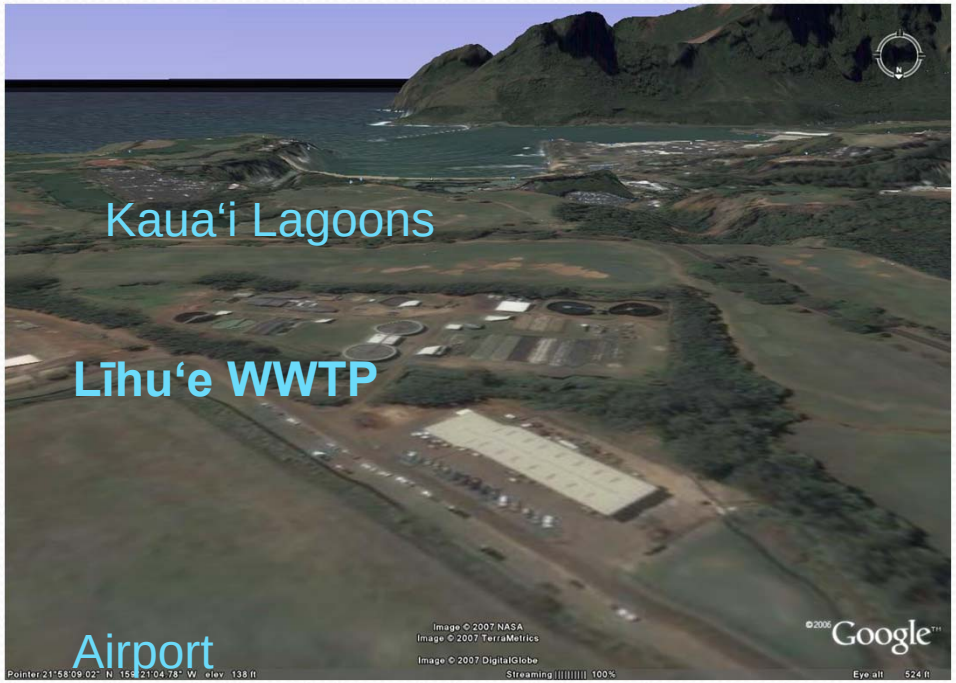
KAUAʻI WWTPʼS W/ CAPACITY >0.1 MGD

FACILITY	ADF (MGD)	REUSE?
LĪHUʻE WWTP	1.10	R-1
PRINCEVILLE RESORT WWTP	0.74	R-2
WAILUA WWTP	0.60	R-2
ELEELE WWTP	0.40	
LĪHUʻE -PUHI WRF	0.34	R-1
POĪʻPŪ BAY WRF	0.30	R-1
WAIMEA WWTP	0.25	R-1
HYATT REGENCY KAUAʻI	0.18	R-2
KAUAʻI BEACH RESORT	0.14	
POĪʻPŪ KAI RESORT – PHASE 2	0.10	
KUKUI GROVE SHOPPING CENTER	0.08	
SOUTH SHORE COMMUNITY (KUKUIʻULA)	0.04	R-2 (INACTIVE)

REUSE PLANT INFORMATION

LĪHU‘E WWTP

- COUNTY OF KAUA‘I
- 2.5 MGD DESIGN
- CURRENT ADF 1.10 MGD
- BIOTOWER W/ SOLIDS CONTACT, CLARIFIERS
- R-1 UPGRADES: FILTERS & UV DISINFECTION (2010)
- GOLF COURSE (KAUA‘I LAGOONS RESORT)



LĪHU‘E WWTP

PRINCEVILLE WWTP

- PRINCEVILLE UTILITES CO. (PUC REGULATED)
- 1.0 MGD DESIGN
- CURRENT ADF 0.74 MGD
- EXTENDED AERATION
- GOLF COURSE (PRINCEVILLE RESORT)

WAILUA WWTP

- COUNTY OF KAUA‘I
- 1.5 MGD DESIGN
- CURRENT ADF 0.6 MGD
- ACTIVATED SLUDGE, AERATION, CLARIFIERS & AQUADISK FILTER
- WAILUA GOLF COURSE & SOCCER FIELD, OCEAN OUTFALL

LĪHU‘E – PUHI WRF

- PUHI SEWER & WATER COMPANY (PUC REGULATED)
- 1.0 MGD DESIGN (PH. 1)
- CURRENT ADF 0.34 MGD
- EXTENDED AERATION
- R-1 UP-FLOW SAND FILTERS & CHLORINATION
- GOLF COURSE (PUAKEA)

POĪ‘PŪ WRF

- HOH UTILITIES, INC. (PUC REGULATED)
- 0.5 MGD DESIGN
- CURRENT ADF 0.30 MGD
- MBBR, CLARIFIERS, AQUA DISK & UV DISINFECTION (R-1)
- GOLF COURSE (KIAHUNA)

POĪʻPŪ FILTER AND UV CHANNEL

WAIMEA WWTP

- COUNTY OF KAUA‘I
- 0.70 MGD DESIGN
- CURRENT ADF 0.25 MGD
- MBBR, DAF (CLARIFIERS), UV DISINFECTION (2013)
- KIKIAOLA LAND COMPANY REUSE SYSTEM
- COUNTY DOING PRELIM. ENGINEERING AND EA FOR R-1 DISTRIBUTION

MBBR TANK

FILTER & UV SYSTEM

HYATT REGENCY RESORT

- HYATT CORP. (PRIVATE OPERATOR)
- 0.25 MGD DESIGN
- CURRENT ADF 0.18 MGD
- STEP AERATION
- GOLF COURSE (POĪ‘PŪ BAY)

SOUTH SHORE COMMUNITY WWTP

- A & B PROPERTIES – KUKUI‘ULA RESORT
- 1.20 MGD DESIGN
- CURRENT ADF 0.04 MGD
- OXIDATION PONDS
- CLASSIFIED R-2, REUSE STATUS INACTIVE

CURRENT ISSUES AND FUTURE PROSPECTS

AGE, CONDITION AND WWTP COMPLIANCE

- MANY PLANTS WERE CONSTRUCTED IN THE 1960'S AND 1970'S, AND ARE SHOWING THEIR AGE
- ALL KAUA'I PLANTS ARE RELATIVELY SMALL (LIMITED REVENUE FROM USER FEES)
- MANY OF THE EXISTING REUSE PLANTS CONSTRUCTED PRIOR TO CURRENT REQUIREMENTS FOR BACKUP EFFLUENT DISPOSAL; SEVERAL PLANTS HAVE MADE SIGNIFICANT INVESTMENTS IN BACKUP EFFLUENT WELLS
- CAPITAL AND OPERATION COST RECOVERY FOR REUSE IMPROVEMENTS IS QUESTIONABLE

EXPANDING REUSE REQUIRES CUSTOMERS, DISTRIBUTION SYSTEMS AND R-1 UPGRADES

- REUSE CUSTOMERS AND WWTP OPERATORS: MATCH THE RESOURCE TO THE NEED IN AN ECONOMICAL FASHION.
- WHETHER OR NOT THERE ARE REUSE CUSTOMERS, WWTP MUST HAVE EFFLUENT DISPOSAL SYSTEM; R-1 UPGRADES & DISTRIBUTION ALWAYS “EXTRA”
- PARTNERSHIP WITH REUSE USERS NECESSARY TO MATCH QUALITY AND QUANTITY TO NEEDS
- GOLF COURSE RESORTS COMMONLY CAN JUSTIFY REUSE; GOVERNMENT & UTILITY OPERATORS MAY NEED EXTRA MOTIVATION (DEVELOP MARKETS, PUBLIC PURPOSES)

REUSE DISTRIBUTION SYSTEMS ARE LIMITED

- SOME NEW SUBDIVISIONS DESIGNED WITH DUAL WATER SYSTEMS, ONLY A FEW CURRENTLY IN THE GROUND
- LIHUE'S "GATEWAY" IRRIGATION SYSTEM (EARLY 2000's); WATER SOURCE: FORMER SUGAR CANE DITCH SYSTEM
- LIHUE AIRPORT NOT CONNECTED TO GATEWAY SYSTEM (POTABLE WATER), POTENTIAL FUTURE R-1 USER
- WAILUA GOLF COURSE R-2 SYSTEM EXTENDED TO NEW SOCCER FIELDS USING UNDERGROUND DRIP SYSTEM
- COUNTY CONDUCTING PRELIMINARY ENGINEERING & ENVIRONMENTAL ASSESSMENT FOR WAIMEA R-1 DISTRIBUTION SYSTEM (EPA GRANT FUNDED)

LĪHU‘E “GATEWAY” IRRIGATION SYSTEM (NON-POTABLE, NOT REUSE)

WAILUA SOCCER FIELDS (R-2 BURIED DRIP)

ONCE THIS WAS WASTE – NOW A RESOURCE