WAI-37

Clare testimony for WAI-137 WATER USE AND DEVELOPMENT PLAN

1) Potable Iao aquifer water is being wasted by resorts in South Maui and the draft WUDP doesn't seem to have any goals to reduce this waste or reduce the use of Iao aquifer water to irrigate resort landscapes.

2) The main solution the WUDP seems to have for all

the water South Maui needs for the future is to go to Haiku and drill wells there, even though all the Haiku streams are already diverted by EMI /Mahi Pono and will be used in Central Maui. Water ratepayers like me will need to foot the $50 million cost

3) why doesn't the WUDP speak about South Maui needing to have a water budget to reduce the need to

export lao aquifer water and Haiku aquifer water?

4)The County Water Department wrote comments last year on just one resort in South Maui, the Grand Wailea, that uses over 700,000 gpd of lao well water and wants to add more rooms increasing lao water use by over 200,000 gal per day. The same letter says the County's

calculations show that around 149,000 gallons of lao ground water is lost to leaky pipes at the Grand Wailea everyday.

5)What vision does the WUDP have for our future that follows the law and makes sure we are managing public trust resources like lao well water responsibly?

6)Going to Haiku to drill expensive wells to send water to resorts and turn deserts into rainforests , while people in Wailuku have brown laws is not good management.

MICHAEL P. VICTORINO
Mayor

JEFFREY T. PEARSON, P.E.
Director

HELENE KAU
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

January 10, 2019

Ann Cua, Planning Supervisor
Department of Planning
2200 Main Street, Suite 315
Wailuku, Hawaii 96793

RE: Grand Wailea Resort Enhancement Improvements
Special Management Area (SM1) 2018/0011, Planned Development (PD2) 2018/0003, and
Shoreline Setback Assessment (SSA) 2018/0046 Permit Applications
TMK: (2) 2-1-008:109

Dear Ms. Cua:

The Department of Water Supply (DWS) thanks you for the opportunity to offer the following comments on the proposed Grand Wailea Resort Enhancement Improvements Project. The DWS recommends conservation and source protection conditions in the following based on the Maui County Code of Ordinances, Chapter 19.32 - Planned Development.

Infrastructure & Consumption
The property overlies the Kamaole aquifer with a sustainable yield of 11 million gallons per day (gpd) according to the Commission on Water Resource Management. There are 16-inch and 30-inch waterlines adjacent to the property on Wailea Alanui Drive. An 8-inch line runs down Wailea Ike Drive.
The document states current demand at the resort is 766,217 gpd and the projected demand with the additional units and improvements would be 858,393 gpd. Based on an empirical use of 963 gpd, derived from the number of units and current demand as stated (766,217 gpd divided by 796 existing rooms equals about 963 gpd per room), projected demand for additional units and improvements would be approximately 982,260 gpd. Projected water savings based upon mitigating massive underground piping leaks would indicate water use potentially higher should leaks continue to be disregarded. Leadership in Energy and Environmental Design (LEED) 2018 certification for water efficiency should be a specific project condition.

The project could be subject to the limitations set forth in Title 16, Chapter 201, of the County Administrative Rules, Rules Relating to Water Service and Large Quantities of Water. Water meter

adequacy will be determined by DWS Engineering Division in the building permit process. Approved backflow preventers will be required if not already installed on site. Please contact DWS Engineering for further information at (808) 270-7835, Tammy Yeh.

The following table includes consumption data (rounded) and other data for the purposes of discussion.

Grand Wailea Water Use (Gallons Per Day)

	Ave GPD Consumed (Per DWS)	Ave GPD Consumed (Per Applicant)	Per Unit Empirical Use*	Projected Additional GPD Use **	Total Projected Use ***
Historic Use 2008	623,358	642,460	807		
Historic Use 2015	895,572		1,125	252,000	1,147,572
Historic Use 2017	793,988		997	223,434	1,017,422
Current Use 2018	712,963	766,217	963	215,712	981,929
% increase 2008 and 2015	44%				
% increase 2008 and 2017	27%				
% increase 2008 and 2018		19%			

*Based on 796 existing units and largest empirical GPD.

**Based on empirical per unit GPD multiplied by the proposed additional 224 units.

***based on empirical GPD Plus Projected Additional GPD.

Overall consumption from 2008 through 2018 would suggest an increasing use trend with 44% increase in 2015, 27% increase from 2008 to 2017, and 19% increase from 2008 to 2018 (per the applicant). Varying degrees of use would be influenced by years of drought versus years of abundant rainfall and years of full occupancy versus years of lower occupancy. This increasing trend is significant and would indicate water conservation measures have not been as effective as the applicant had anticipated in its previous submission in 2009. Irrigation and underground leaks are of particular concern which would indicate escalating use trends. The applicant states that conservation is based on leak repairs. However, since leaking water features are unlikely to be repaired immediately because visitors expect the facilities to be available (per the document), additional use could be anticipated over time due to delayed repair of future leaks.

Proposed Conservation Measures

The applicant has proposed water saving measures which include irrigation reductions (reduced landscaped area, other irrigation reductions, and reuse cooling tower blowdown irrigation), Defender Filtration System installation, low flow shower head installations, reuse cooling tower blowdown for water feature, and leak repairs. One area where the applicant has been successful in water use reduction has been the daily laundry consumption. This success demonstrates a significant savings in

water use. Other water saving measures have had less historical success. (See the attached table titled GWR Water Usage Requirements GPD.) Irrigation has increased as much as 64% (275,744 gpd in 2017 DWS data) since 2008. DWS irrigation use data has consistently been higher than the 2018 figure of 149,824 gpd stated by the applicant. (DWS irrigation data for 2018 was about 192,964 gpd.) Landscaping should be LEED creditable. Native and low water using plants should be included in landscaping design. Irrigation should be designed to accommodate proper watering for plantings requiring less water. Proposed water savings for irrigation, cooling tower reuse water, efficient shower heads, and the Defender Filtration System totals 58,002 gpd (See Table 2: Water Savings Summary from the application Grand Wailea, A Review of Conservation Initiatives), an amount that would not be sufficient to cover the proposed total property demand of 981,929 gpd or 215,712 gpd of additional use based on empirical use (See the Grand Wailea Water Use table on page 2 of this letter), particularly if the savings projected are overly optimistic. DWS did not include leak repairs savings of 148,824 gpd in the savings totals referenced on Table 2 since this savings could be temporary if additional leaks develop and repair is delayed.

Ongoing leak repairs could account for future loss prevention or could account for additional use depending on the timely responsiveness to leaks. Future continued leak repair would require an ongoing program of leak detection and a repair schedule limiting the amount of time for each leak detected. Completion of all leak repairs cited by the applicant prior to project approval should be a project condition. Significant savings from leak repairs on underground pipes remain unsubstantiated until repair and maintenance logs can be investigated to support that 148,700 gallons per day (indicated in Table 1 in 1.0, Overview) has actually been recouped.

Cooling/HVAC systems should be constructed, commissioned and operated in a manner that conserves water as well as energy. Single pass cooling should not be permitted. Cooling systems should be specified to qualify for LEED certification for energy efficiency and controllability, as well as water conservation.

All savings initiatives cited by the applicant should be required as a condition of approval. A detailed performance report on both new installation and retrofits associated with the scope of work should be provided. Annual reports should be required from the time of approval of the permit to a period not less than 5 years after completion and occupancy of the expansion and renovation. The report should provide a status of the renovation program and identify water saving improvements carried out during the reporting period and compare annual water use for landscaping, water features, and general resort uses for the reporting period, after renovation, and with the Grand Wailea 2018 baseline (before renovation) water use.

Construction BMPs for Pollution Prevention

In order to protect ground water resources as well as our coastal areas, we suggest that, in addition to any required Best Management Practices (BMPs), the following pollution prevention measures designed to minimize infiltration and runoff be implemented during construction:

- Remove all construction debris and toxic substances daily.
- Maintain vehicles and equipment to prevent oil or other fluids from leaking. Concrete trucks and tools used for construction should be rinsed off-site.

- Properly install and maintain erosion control barriers such as silt fencing or straw bales.
- Disturb the smallest area possible.

Conservation BMPs

The following BMPs are included in order to conserve potable water:

Indoor

DWS suggests the following indoor conservation measures be implemented:

- Use EPA WaterSense labeled plumbing fixtures.
- Install flow reducers and faucet aerators in all plumbing fixtures wherever possible.
- Install dual flush, auto flushing, high-efficiency (HETs) or ultra-high efficiency toilets (UHETs) that only use 1.28 gallons per flush or less.
- Install showerheads with a flow rate of 1.5 gallons per minute (gpm) at 60 pounds per square inch (psi).
- Install bathroom sink faucets with fixtures that do not exceed 1 gpm at 60 psi.
- Laundry facilities and/or individual unit machines should use Energy Star labeled washers.

Outdoor

DWS suggests the following outdoor conservation measures be implemented:

- Use Smart Approved WaterMark irrigation products. Examples include evapotranspiration irrigation controllers, drip irrigation, and water saving spray heads.
- After plants are established, avoid fertilizing and pruning to stimulate excessive growth. Time watering to occur in the early morning or evening to limit evaporation. Limit turf to as small an area as possible.
- Apply a xeriscape landscaping design with native, climate-adapted plants for landscaping. Native plants adapted to the area conserve water.
- Install or expand improvements for greywater reuse from laundry facilities for irrigation purposes with a subterranean drip irrigation application as per DOH guidelines.
- Survey current and future water pumping circulation and efficiency.

Recommended Requirements

In summary the DWS recommends requiring the following:

1. LEED certification for water efficiency should be a specific project condition.
2. Testing for water leaks and verification of repairs support reporting data prior to granting permits.
3. All irrigated areas should be equipped with smart controllers and rain gauges with drip irrigation when possible.
4. Native and low water using plants should be included in landscaping design.
5. All data regarding water consumption and savings through conservation initiatives cited by the applicant should be documented and available for analysis if requested.
6. Performance reports on both new installation and retrofits should be supplied annually based

on parameters in this document.

7. Install automatic indoor and outdoor fixtures with proximity sensors or timed activation to reduce unnecessary water consumption.

Should you have any questions, please contact staff planner Audrey Dack at (808) 463-3109 or audrey.dack@co.maui.hi.us.

Sincerely,

Jeffrey T. Pearson, P.E.
Acting Director of Water Supply
apd
cc: DWS engineering division
attachment

GWR Water Usage Requirements GPD

	Irrigation Daily Per DWS	Irrigation Daily Per Applicant	Combined Water Features Per Applicant	Combined Cooling Towers Per Applicant	Underground Piping Leaks Per Applicant*
Historic Use 2008	167,841	115,494	49,029	50,351	
Historic Use 2015	255,367				
Historic Use 2017	275,744				
Current Use 2018	192,964	149,824	80,654	64,368	148,700
% increase 2008 and 2015 Use	52%				
% increase 2008 and 2017 Use	64%				
% Increase 2008 and 2018 Use	15%	30%	65%	28%	100%

Irrigation Data Discrepancies*

2008 Irrigation Difference (DWS/Applicant)	52,347
2018 Irrigation Difference (DWS/Applicant)	43,140

*We could find no explanation for the discrepancy between the applicant's irrigation estimates and DWS's.