

**RICHARD T. BISSEN, JR.**  
Mayor



**JOHN STUFFLEBEAN, P.E.**  
Director

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Deputy Director

## **DEPARTMENT OF WATER SUPPLY**

COUNTY OF MAUI  
200 SOUTH HIGH STREET  
WAILUKU, MAUI, HAWAII 96793  
<http://www.mauicounty.gov/water>

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April 25, 2024

Honorable Richard T. Bissen, Jr.  
Mayor, County of Maui  
200 South High Street  
Wailuku, Hawaii 96793

**APPROVED FOR TRANSMITTAL**

Bernard Bumf 4-25-24  
Mayor Date

**For Transmittal to:**

Honorable Alice L. Lee  
Council Chair  
Maui County Council  
200 South High Street  
Wailuku, Hawaii 96793

Dear Chair Lee:

**SUBJECT: MUNICIPAL WATER USE AND DEMAND IN WEST MAUI**

In response to your letter dated April 19, 2024, below please find Department of Water's response:

1. Please provide the total amount of existing municipal water in all systems in West Maui after the wildfire, as well as all additional water coming online from new sources anticipated in the next five years and delineate how the water is currently used and the projected allocation of all remaining water currently unused or undeveloped.

Response:

The current reliable capacity of the County system in West Maui is 4.12 mgd (million gallons per day.) This includes well water from the County wells and surface water from streams treated at the two County water treatment plants. This is less than in the past due to the new requirements from the State of Hawaii CWRM (Commission on Water Resources Management) to meet the IIFS (Interim Instream Flow Standards), i.e. leave water in the streams, which have reduced the water available to the treatment plants.

## *"By Water All Things Find Life"*

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The demand in the County systems prior to the August fire was 5.6 mgd. The County was meeting this demand by pumping the wells in excess of their reliable capacity and by using stream flows that will ultimately need to be reduced to leave water in the streams.

There is no unused water in the County system in West Maui. In fact, the Department of Water Supply was preparing to declare a meter moratorium prior to the fire, but since the post-fire demand has been temporarily reduced, this is not necessary at this time.

The County is moving ahead with plans for an additional 3.4 mgd of water source from new wells in West Maui. These sources will need permit approval from CWRM. (See below.) The first sources to be developed will be used to fill the gap between current reliable supply and demand with the assumption that demand will ultimately return to pre-fire levels. Once the reliable supply exceeds demand, additional water uses can be served.

By designating all of West Maui as a surface water and groundwater management area, control of all water use and source development has been legally assumed by the CWRM. To be very clear, the CWRM has taken complete legal control of the water sources in West Maui. All new sources are subject to water use permit allocations and constrained by adopted Interim Instream Flow Standards (IIFS) which require water to be left in streams. Therefore, the County will need approval of any permits for any new sources of water. Currently, CWRM is only processing permits for existing uses, not new uses. It is unknown when and even if permits for new sources will be considered and potentially approved. The additional new wells are being planned in areas where the County believed permit approval is most likely.

Here are additional details.

There are two Department of Water Supply (DWS) subsystems in West Maui: the Lahaina subsystem and the Napili subsystem. These two systems are interconnected but back-up capability is constrained. Privately owned water systems that serve municipal needs in West Maui include the Hawaii Water Service Company operating in Kapalua and Kaanapali, the Launiupoko Water Company operating south of Lahaina and Olowalu Water Company serving Olowalu. The DWS has no oversight of the private water systems' supply and use but we are developing future interconnections.

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The current "post-fire" usage is, as of March 2024, 3.59 mgd. However, the DWS is ultimately responsible for providing water to the "pre-fire" demand of 5.6 mgd.

The construction of the Kahana well was awarded in December 2022, and is currently under construction in Honolua aquifer with 0.95 mgd capacity and projected to be on line in fiscal year 2025. This source will serve to improve reliable capacity and to offset potential reductions at the Mahinahina Water Treatment Plant due to IIFS requirements.

The likely next new well to be developed in Launiupoko aquifer will not provide new source for housing but only serve to offset Kanaha stream water withdrawals and use at the Lahaina Water Treatment Plant in order to comply with the IIFS.

The available water currently unused (maximum reliable capacity 4.12 mgd minus current water use 3.59 mgd = 0.53 mgd) is projected to be allocated and needed for temporary housing and the reconstruction of Lahaina Town.

2. Please provide the average daily available (unused) potable water from August 7, 2022, to August 7, 2023 at all treatment facilities in West Maui, and by comparison the average daily available (unused) potable water for the last 7 days at each of the same treatment facilities. Please provide the same data set for actual usage at each of the facilities in West Maui both prior and post fire.

Response:

As noted above, there was no available potable water in the County system before the fire.

If the question is inquiring about the treatment capacity at the County water treatment plants, then there is indeed treatment capacity that is available. However, to utilize this additional treatment capacity, there would need to be additional water source, which there is not.

Here are the details.

The two treatment facilities in West Maui – Mahinahina Water Treatment Plant (WTP) and the Lahaina WTP – generally use any available stream and ditch flow, which varies daily. The Lahaina WTP capacity is in excess of available surface water from Kanaha Stream. Prior to the Lahaina fire, all available stream flow was diverted to meet potable water demand. From August 2022 to August 2023, the average daily production at the Lahaina WTP was 1.6 mgd. Currently about 0.91 mgd is treated at the

Lahaina WTP. Therefore, about 0.69 mgd is the treatment capacity available at this facility. Over the last 7 days only, 0.85 mgd of potable water was produced on average at the Lahaina WTP. Once DWS develops a well in Launiupoko aquifer, subject to CWRM water use permit allocation, the DWS must return 1.55 mgd to Kanaha stream at all times in compliance with the IIFS, leaving no additional water for the Lahaina WTP.

The amount of water in the ditch serving the Mahinahina WTP is subject to available stream flow, which varies daily, Honokohau Stream IIFS and diversions by other purveyors at locations prior to the WTP. There are times when the ditch water has too high turbidity preventing Maui DWS to treat the water at the Mahinahina WTP. This WTP also has larger capacity than the amount of surface water available to treat. From August 2022 to August 2023, the average daily production at the Mahinahina WTP was 1.14 mgd. Currently about 0.61 mgd is treated at the facility. There is therefore potentially 0.53 mgd of treatment capacity at this point in time. Over the last 7 days only, 0.56 mgd of potable water was produced on average at the Mahinahina WTP.

3. How much treated potable water was being used by Lahaina town before the fires and is now not being used? What is DWS's latest potable water allocation plan for treated potable water from all available water sources in West Maui for balance of 2024, years 2025, 2026, 2027, 2028 etc.

Response:

The total amount of potable water used from the Maui DWS water system in West Maui before the fire was 5.6 mgd. The current use is 3.59 mgd. The amount used only for the Lahaina Town subsystem before the fire was about 2.42 mgd. The current use for Lahaina Town subsystem is about 1.33 mgd.

The allocation plan for available water source (4.12 mgd maximum reliable capacity minus current use) in 2024 is prioritizing reconstruction of burnt structures in Lahaina Town as well as temporary housing on the Maui DWS West Maui water system. It is unknown how many years reconstruction will take but it can be assumed that all existing source will be allocated for these two purposes through year 2027.

Prior to the fire, there were an additional 2,173 single family units and 2,803 multi-family units planned for West Maui. The timing for construction and the water purveyor to service these developments are not determined. However, at least 1.41 mgd of water demand associated with these housing developments is anticipated to be served by the Maui DWS West Maui system. Additional water is needed for infill

development, Accessory Dwelling Units, and population growth on the DWS system which are not associated with specific large housing developments. At the time of CWRM designation, Maui DWS had no additional system capacity to serve new development and any use from existing and new sources is subject to water use permit allocations by the CWRM. No permits for existing sources have been allocated to date and it is unknown when and if permits for new sources may be allocated.

In their designation decision, CWRM concluded that all aquifers and streams in West Maui were threatened by either current withdrawals, potential future withdrawals, saltwater intrusion, water use conflicts and climate uncertainty. Nevertheless, the DWS is proceeding with needed source development to meet demand for future housing development under the assumption that permits for the public water system will ultimately be approved. Permits have not been approved by CWRM for any of the wells hereafter described.

Construction of the Kahana well in Honolua aquifer with 0.95 mgd capacity was approved in December 2022 and is projected to be on line in fiscal year 2025. This source will serve to improve reliable capacity and to offset potential reductions at the Mahinahina Water Treatment Plant due to IIFS requirements.

The L-1 well in Launiupoko aquifer with 0.77 mgd capacity is projected to be online in fiscal year 2027 to offset the same amount from Lahaina Water Treatment Plant to comply with Kanaha Stream IIFS.

The L-3 well in Launiupoko aquifer with 0.43 mgd capacity and Honokowai Tunnel in Honokowai aquifer with a projected capacity of 0.5 mgd are projected to be online in fiscal year 2028 and could potentially serve planned housing development.

Two additional wells in Honolua aquifer with 0.77 mgd capacity each are projected to be online in fiscal year 2029.

DWS is also exploring all other water sources, including private water system source contingency and acquisition options, maximizing the use of available reclaimed water, and the feasibility and cost of seawater desalination for West Maui.

4. How much daily average potable water is reserved for the new temporary school at Pulelehua, and what is the actual use each day?

Response:

Based on the developer's estimated student and staff count, the average potable water demand for the school is calculated at 0.0564 mgd. The actual use is currently unknown. The department is in the process of creating an account for the property's water meter usage.

5. What is the maximum daily capacity of the 12" water main on Akahele St that was newly constructed to serve the temporary school?

Response:

The estimated flow in the new 12" water main is 2,000 gallons per minute for domestic and fire protection usage. The daily capacity of a 12 inch line is about 2.88 mgd, assuming there is water source available.

6. How much water is being reserved for the future allocation of water for temporary housing for displaced residents in West Maui?

Response:

Almost 350,000 gallons per day is projected for the temporary housing projects.

7. Please list all temporary projects, the location, the projected demand and the length of use that the county anticipates for allocated or reserved municipal potable water for each temporary project.

Response:

The recently discussed temporary housing projects are as follows:

- A. Kala'iola (HHFDC)  
TMK: (2) 4-5-021:021, (450 units) 90,000 gallons per day, 5 years
- B. Kaanapali 2020 (FEMA)  
TMK: (2) 4-4-002:039, (213 units) 42,600 gallons per day, 5 years
- C. Leali'i (USACE)  
TMK: (2) 4-5-021:021, (130 units) 26,000 gallons per day, 5 years
- D. Wainee  
TMK: (2) 4-6-015:001, (257 units) 51,400 gallons per day, 5 years
- E. Holomua and ML&P (Lieutenant Governor)  
TMK: (2) 4-3-001:001, (277 units) 55,400 gallons per day, 5 years
- F. Fairways at Maui Lani (CNHA)  
TMK: (2) 3-8-096:034 to 050, (34 units) 10,200 gallons per day, 5 years

G. Kilohana (USACE)

TMK: (2) 4-5-021:021, (169 Units) 33,800 gallons per day, 5 years

8. Is the county anticipating providing all water for every temporary housing unit to be located in West Maui?

Response:

Every temporary housing project will be examined on a case-by-case basis in relation to expected infrastructure improvements, source availability, and system reliability. Water is a finite resource, and the ability, or non-ability, to reliably provide this water source may not allow for all proposed projects to be approved for County water.

9. With 87% of displaced residents being renters, and with many having left the island, or are now deceased, or have moved outside of West Maui, how have water use projections been adjusted to accurately assess current need?

Response:

Water use projections are based on growth rates determined by the Department of Planning. The Department of Planning updates the socio-economic forecast in accordance with Maui County Code 2.80B.030H.1, which shall consider housing demand, migration and job growth, among other factors. We understand adjusted growth rates may be proposed next month. Once updated projections are available, including projections regarding displaced residents returning to West Maui, water demand forecasts can be updated. Meanwhile, the published growth rates and planned development projects guide water use projections.

10. What government agency, branch, division or individual decides what the priority is for housing displaced residents (temporary vs permanent housing) and corresponding water reservations?

Response:

The department has been, and currently is in, discussions with various governmental agencies in regards to potential multi-unit temporary housing projects in the West and Central areas of Maui. The Federal Emergency Management Agency (FEMA), the U.S. Army Corps of Engineers (USACE), the Hawaii Housing Finance and Development Corporation (HHFDC), the Council for Native Hawaiian Advancement (CNHA), and the Lieutenant Governor's office all have projects in various stages of development. As stated above, the department examines all on a case-by-case basis, with infrastructure and source availability being primary considerations as to which projects move forward first if County

water is requested. The department, along with other County agencies, have also been in discussions with the County's Development Services Administration (DSA) division and the Planning Department regarding the expedited permitting process for new structures within the fire-affected areas. These permits will take precedence in regards to approvals, and County water will be available as these properties were already customers prior to the fire event.

11. What formula does the County use to estimate water usage within the West Maui district? Per person, per family, per school, per government building, per commercial building, per hotel/condo, fire protection, per park, per agricultural use, etc.? How is the formula adjusted to address seasonal usage?

Response:

To estimate water demand for an individual new project, the Maui DWS Water System Standards apply. The system standards provide unit rates for residential projects, square footage and acreage rates for commercial, government building, park, resort and agricultural uses. The system standards formulas account for seasonal use. To estimate long range water demand system wide, population growth rates are applied to actual water production. Fire flow demands and requirements are determined by the Maui DWS Water System Standards, and by the Maui County Code. Different zonings such as residential, agricultural, rural, etc. require different amounts of fire flow protection, and thereby different kinds of fire protection requirements. The Department of Fire & Public Safety also has the jurisdiction in certain situations for fire flow requirements.

12. What has been the actual use of potable water within the Lahaina service area used per person, per year for the years 2018 - 2022?

Response:

Water use per person for the Maui DWS water system in West Maui based on water production, census data and estimated population where census data is not available is calculated in gallons per day (gpd) as follows:

2018: 234 gpd/person  
2019: 243 gpd/person  
2020\* 216 gpd/person  
2021: 229 gpd/person  
2022: 218 gpd/person

The actual billed water consumption per person is lower than water production, which includes water losses in the system. Billed water consumption per person is calculated as follows:

2018: 215 gpd/person  
2019: 230 gpd/person  
2020" 203 gpd/person  
2021: 213 gpd/person  
2022: 206 gpd/person

13. We understand that CWRM and DWS have been in discussions regarding additional source development. Will DWS please share all of the proposed solutions, estimated costs for implementation, what is being pursued and what the timelines are for completion?

Response:

In September 2023, CWRM offered DWS a potential water source known as the Honokowai Tunnel within the Honokowai valley (on State lands), which is considered as not under the influence of surface water. The water source yield has been estimated between 0.50 to 0.80 MGD. The estimated costs to development and tie into the Public Water System (PWS) is approximately \$4.4 million.

DWS has included this source development project in the FY2025 budget for Planning (Permits, DEA & EA) and design (\$400,000) with construction funding in the FY 2027 budget (\$4.0 M).

14. Please justify with data the plan to reserve all water from the new Kahana well, projected for completion early 2025, solely as reserve capacity. Please indicate all data used and formulas applied.

Response:

The sustainable yield capacity for the Kahana Well has been determined as 1,000 GPM (1.44 MGD per 24-hr run time). The operational capacity has been determined as 0.960 MGD (based on DWS typical 16-hr run time – 2/3 daily run time).

The Kahana well development was contracted in December 2022 but its use is contingent on the CWRM permit allocation. The well will improve the reliability capacity of the system rather than providing new source for housing development. Reliability allows for unplanned interruptions and maintenance of the existing sources.

15. What portion of municipal source development costs can/will FEMA or other federal funding contribute to expedited permitting, design and construction? Does municipal source development meet the criteria for expedited completion in collaboration with the State via emergency proclamation?

Response:

Typically, in a non-emergency or disaster recovery situation, federal funding can cause minor (1-2 month) to major (12-36+ month) delays in the project development process, as time is required for agency reviews of grant application development, grant application review and selection, award negotiation, design plan approvals, environmental determinations, and complying with procurement and other compliance requirements. Specifically, for the Upcountry and Lahaina wildfire events, multiple federal funding opportunities are being investigated that could enable projects to be designed and constructed more quickly than if the projects were internally funded through DWS capital improvement budget. Waivers of specific processes to expedite the funding process have been requested, but not yet approved, by multiple federal agencies including the EPA and USDA.

Regarding the State's Emergency Proclamation, it is DWS understanding that the emergency proclamation applies to immediate disaster response including replacing damaged infrastructure. While the damage assessment is still underway, to date, no DWS water supply sources (surface water sources, water treatment facilities, and groundwater wells) have been assessed as damaged and thus source development projects would not fall under the emergency proclamation.

16. When will the connection to enable potable water exchange between Lahaina and Mahinahina treatment facilities be complete? Has the contractor been selected and what percentage of the project has been completed as of March 2024.

Response:

There is no direct connection between the plants. The water distribution systems served by the plants are connected and water can currently be transmitted from the Napili system to the Lahaina system. Plans are being developed to allow flow from the Lahaina system to the Napili system.

17. Same questions for the completion status of the new Kahana well construction project?

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Response:

The original completion date for this well development phase was January 2025. However, typical construction delays have occurred due to recent winter rainstorms and lead times for electrical equipment that make up the well's motor control center (MCC). These delays may add an additional six months or more.

18. Does the County of Maui have 75K gpd of water not being used currently, that could be provided temporarily to the Pulelehua project if the county desired?

Response:

As noted above, the County does not have any available capacity. The Pulelehua permanent housing project is also subject to the zoning condition in Ordinance No. 3889 providing for water source to be developed by Maui Land & Pineapple Company (subsequently by the project developer).

19. On April 17, 2024 the Office of Recovery informed Councilmembers that it was communicated in a meeting between the Administration and CWRM staff that if the County provided temporary water to Pulelehua that would require a new use permit. Please provide the date of this meeting and name of the County of Maui employee(s) and CWRM staff member(s) that were present at the meeting and which CWRM staff member shared this opinion.

Response:

DWS staff meet with CWRM staff on a regular basis. It is not known by DWS to what specific meeting this is referring. It is the understanding by DWS that the County has the ability to serve customers in its service area at its discretion. Meeting the needs of existing customers, by developing reliable capacity that meets current needs, certainly takes priority over new uses.

In advance, thank you for your attention to this matter. If you have any further questions, please contact me.

Sincerely,



JOHN STUFFLEBEAN, P.E.  
Director

JS:lk