

| <u>Meter<br/>Size</u> | <u>Included</u> | <u>Additional<br/>unit cost</u> | <u>Maximum<br/>additional<br/>units</u> |
|-----------------------|-----------------|---------------------------------|-----------------------------------------|
| 5/8 inch              | 31              | \$389                           | 8                                       |
| 3/4 inch              | 53              | \$356                           | 14                                      |
| 1 inch                | 128             | \$261                           | 32                                      |

# Department of Water Supply

## WATER METER SIZING WORKSHEET - RESIDENTIAL

Project Name: \_\_\_\_\_ Building Permit No.(if applicable): \_\_\_\_\_  
 Contact Name: \_\_\_\_\_ Phone No.: \_\_\_\_\_ Email Address: \_\_\_\_\_  
 Property Address: \_\_\_\_\_ TMK: \_\_\_\_\_  
 Account Number: \_\_\_\_\_ Meter Number: \_\_\_\_\_ Existing Meter Size: \_\_\_\_\_

**INSTRUCTIONS:** This application must be signed by the property owner or authorized representative. Please complete the items below and submit one Water Meter Sizing Worksheet for each water meter on the property as applicable. Refer to page 2 for additional information and requirements. Should you have any questions, please contact the DWS Engineering Division at 808-270-7835.

**1 ZERO WATER USE SCENARIO?** YES  NO

By selecting "YES", the applicant signing this worksheet certifies that no additional water demand is being added, removed or replaced with this application. If you propose zero water use you do not need to complete below items 2, 3, 4 and 5.

**2 DOMESTIC WATER DEMAND?** YES  NO

| Type of Fixture           | Fixtures Added LF | Fixtures in Existing Structure |     | Fixtures Removed If Applicable |     | Total Fixtures |     | Fixture Unit Multiplier |     | Fixture Unit Value Subtotals |     |     | Total Fixture Unit Value |
|---------------------------|-------------------|--------------------------------|-----|--------------------------------|-----|----------------|-----|-------------------------|-----|------------------------------|-----|-----|--------------------------|
|                           |                   | LF                             | NLF | LF                             | NLF | LF             | NLF | LF                      | NLF | LF                           | NLF | NLF |                          |
| Bathtub/Shower COMBO      |                   |                                |     |                                |     |                |     | x                       | 1.6 | 2.0                          |     |     |                          |
| Showerheads in stall only |                   |                                |     |                                |     |                |     | x                       | 1.6 | 2.0                          |     |     |                          |
| Bathtub ONLY              |                   |                                |     |                                |     |                |     | x                       | 1.6 | 2.0                          |     |     |                          |
| Kitchen Sink              |                   |                                |     |                                |     |                |     | x                       | 1.6 | 2.0                          |     |     |                          |
| Sink, small (bar/hand)    |                   |                                |     |                                |     |                |     | x                       | 0.6 | 1.0                          |     |     |                          |
| Lavatory Sink             |                   |                                |     |                                |     |                |     | x                       | 0.6 | 1.0                          |     |     |                          |
| Urinal                    |                   |                                |     |                                |     |                |     | x                       | 1.7 | 3.0                          |     |     |                          |
| Water Closet (Toilet)     |                   |                                |     |                                |     |                |     | x                       | 1.7 | 3.0                          |     |     |                          |
| Bidet                     |                   |                                |     |                                |     |                |     | x                       | 2.0 | 2.0                          |     |     |                          |
| Laundry Tray/Tub          |                   |                                |     |                                |     |                |     | x                       | 1.6 | 2.0                          |     |     |                          |
| Washing Machine           |                   |                                |     |                                |     |                |     | x                       | 2.0 | 2.0                          |     |     |                          |
| Dishwasher                |                   |                                |     |                                |     |                |     | x                       | 2.0 | 2.0                          |     |     |                          |
| Hose Bib*                 |                   |                                |     |                                |     | 2              |     | x                       | 3.0 | 3.0                          | 6   | N/A | 6.0                      |
| Other:                    |                   |                                |     |                                |     |                |     | x                       |     |                              |     |     |                          |

\* For residential applications, 2 hose bibs shall always be counted.

**DOMESTIC WATER DEMAND FIXTURE UNIT TOTAL:** \_\_\_\_\_

**DOMESTIC WATER DEMAND FIXTURE UNIT TOTAL CONVERTED TO GPM\*\*:** \_\_\_\_\_

\*\*Refer to Table 2 on Page 2 for Flow to Fixture Unit Conversions.

**3 SWIMMING POOL/SPA/TANK & OTHER MISCELLANEOUS WATER DEMAND?** YES  NO

**Swimming Pool/Spa/Tank:** Please indicate how your swimming pool/spa/tank is to be filled:  Hose Bib or  Dedicated Line. If filled by hose bib, no additional water demand is assessed. If filled by dedicated water line, please provide the required flow rate in GPM: \_\_\_\_\_

**Other Miscellaneous Water Demand:** Attach detailed justification information sufficient to describe the water demand. Total proposed GPM: \_\_\_\_\_

**SWIMMING POOL/SPA/TANK & OTHER MISCELLANEOUS WATER DEMAND TOTAL IN GPM:** \_\_\_\_\_

**4 IRRIGATION WATER DEMAND?** YES  NO

**Option A:** State the measured flow rate for the largest separate circuit of your irrigation system in GPM: \_\_\_\_\_

**Option B:** Describe the largest separate circuit. Provide the number of sprinkler heads \_\_\_\_\_ and rated flow in GPM per head \_\_\_\_\_

to obtain a total flow rate in GPM: \_\_\_\_\_

**IRRIGATION WATER DEMAND TOTAL IN GPM:** \_\_\_\_\_

**5 TOTAL WATER DEMAND in GPM** (the sum of total GPM from above items 2, 3 and 4): \_\_\_\_\_

Verify the total water demand is within your existing meter's capacity, otherwise a meter upgrade may be required.

**6 CERTIFICATION:** I certify that the above water demand is the TOTAL AMOUNT OF WATER DEMAND ON THE METER. If I intend to create additional water demand on the property, I will inform the Department of Water Supply prior to creating any additional water demand.

Applicant's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Print Name: \_\_\_\_\_

If this form is to be signed by an authorized representative, written evidence of authority to represent the applicant shall be provided.

# WATER METER SIZING WORKSHEET ADDITIONAL INFORMATION - RESIDENTIAL

**NOTES:**

- ② A. **Domestic Water Demand Calculation:** Complete the columns of the chart by supplying the quantity and type of fixtures being added, remaining, and/or removed. Accuracy of the fixture count is necessary to determine the appropriate meter size and GPM. Refer to Table 1 below for details on Meter Sizing.
- ② B. **Low Flow ("LF") vs. Non-low Flow ("NLF"):** All water fixtures manufactured after 1992 are low flow fixtures. For applications that propose to receive fixture unit credits for changing non-low flow fixtures to low-flow fixtures, photographs of certain fixtures may be required by DWS to obtain the appropriate fixture unit credits.
- ② C. **Fixtures Added:** In this column, list the number of new fixtures or the number of fixtures being added to an existing project under the appropriate fixture type.
- ② D. **Fixtures in Existing Structure:** In this column, list the number of fixtures that will remain and/or that will be relocated during and preceding the construction phase of the project.
- ② E. **Fixtures Removed If Applicable:** In this column, list the number of fixtures that are actually being removed which will create a reduction in the water demand. If water fixtures are being demolished, photographs of the water fixtures may be required by DWS to obtain the appropriate fixture unit credits.
- ② F. **Fixture Unit Multiplier:** Each plumbing fixture is given a fixture unit value. Fixture units are used for water meter sizing purposes. The unit count for each fixture is determined by multiplying the number of each fixture type by the appropriate number in the multiplier column.

| Meter Size | Maximum Capacity (GPM) | Fixture Units |
|------------|------------------------|---------------|
| 5/8"       | 20                     | 31            |
| 3/4"       | 30                     | 53            |
| 1"         | 50                     | 128           |
| 1-1/2"     | 100                    | 380           |
| 2"         | 160                    | 692           |

| Flow GPM | Fixture Units | Flow GPM | Fixture Units | Flow GPM | Fixture Units | Flow GPM | Fixture Units |
|----------|---------------|----------|---------------|----------|---------------|----------|---------------|
| 1        | 0             | 15       | 21            | 29       | 51            | 43       | 99            |
| 2        | 1             | 16       | 23            | 30       | 53            | 44       | 103           |
| 3        | 3             | 17       | 24            | 31       | 56            | 45       | 107           |
| 4        | 4             | 18       | 26            | 32       | 58            | 46       | 111           |
| 5        | 6             | 19       | 28            | 33       | 60            | 47       | 115           |
| 6        | 7             | 20       | 31            | 34       | 63            | 48       | 119           |
| 7        | 8             | 21       | 32            | 35       | 66            | 49       | 123           |
| 8        | 10            | 22       | 34            | 36       | 69            | 50       | 128           |
| 9        | 12            | 23       | 36            | 37       | 74            | 51       | 130           |
| 10       | 13            | 24       | 39            | 38       | 78            | 52       | 135           |
| 11       | 15            | 25       | 42            | 39       | 83            | 53       | 141           |
| 12       | 16            | 26       | 44            | 40       | 86            | 54       | 146           |
| 13       | 18            | 27       | 46            | 41       | 90            | 55       | 151           |
| 14       | 20            | 28       | 49            | 42       | 95            | 56       | 155           |

\*\*\* Additional flow to Fixture Unit Conversions for higher flows are available upon request. For values between values included in Table 2, linear interpolation should be used to determine the exact GPM. For example, the following calculation can be performed to determine the exact GPM between 15 and 16 based on 22.1 FUs for reference:  
 $GPM = 16 - (16 - 15) \times ((23 - 22.1) / (23 - 21)) = 15.6 \text{ GPM.}$

- ③ **Other Miscellaneous Water Demand:** There are some process water demands that are not listed, such as unusual water fixtures, custom equipment, etc. Each of these will be assessed on a case by case basis by DWS and assigned either a fixture unit value or demand in GPM. Refer to Table 2 above.
- ④ **Irrigation Water Demand:** The largest separate circuit of your irrigation system can not exceed half of the water meter's maximum capacity. For example, a 5/8" water meter is allowed 10 GPM maximum water demand for the largest separate circuit of a proposed irrigation system.

**OTHER NOTES:**

- G. **Water Meter and Other DWS Fee's:** The total cost of the various size water meters and other fee's are determined on a fiscal year annual basis ending June 30 and beginning on July 1 of each year. Detail of the fees are included in the County Maui Revenues - Fees, Rates, Assessments and Taxes for the current year are available on the County Maui website on the following link: <http://www.co.maui.hi.us/index.aspx?NID=216>
- H. **DWS Agreements:** Provide copies of any existing DWS related agreements that apply to your property and/or water meter(s) with your application. DWS will require an elevation agreement be in place prior to installation of water meter(s) and approval of building permits if the available water pressure is less than 40 PSI at the proposed connection point. Other DWS agreements may be required based on your application and will be determined on a case by case basis.
- I. **Water System Improvements ("WSI"):** WSI's will be required to bring the water system to current DWS Standards. DWS Standards are available for purchase by contacting the DWS Fiscal Division at 808-270-7730, extension 2.

**DEPARTMENT OF WATER SUPPLY  
COUNTY OF MAUI  
APPLICATION FOR WATER FIXTURE UNITS FOR DWELLINGS**

**APPLICANT:** \_\_\_\_\_  
*(Must be property owner)*

**PROJECT NAME:** \_\_\_\_\_

**NO. OF FIXTURE UNITS REQUESTED:** \_\_\_\_\_ **FEE AMOUNT:** \$ \_\_\_\_\_

**SD NO.:** \_\_\_\_\_ **BPA NO.:** \_\_\_\_\_ **LOT NO.:** \_\_\_\_\_

**TMK:** \_\_\_\_\_ **PREMISE NO.:** \_\_\_\_\_

**EXISTING METER ACCOUNT NO:** \_\_\_\_\_ **EXISTING METER SIZE:** \_\_\_\_\_

The Applicant hereby applies to purchase fixture units at the stated location.

**The Applicant understands and agrees that:**

1. All required water system improvements are completed, inspected and accepted.
2. All improvement warranties, easement documents and other required documents are submitted and approved.
3. Completed fixture unit worksheet has been submitted to the Department.
4. Building permit application, if required, is approved by the Department.
5. Fixture units shall be registered to the TMK parcel and are non-transferable.

**ACKNOWLEDGMENT:**

The foregoing is understood and agreed to by the Applicant.

Applicant's Signature: \_\_\_\_\_  
*(Must be property owner)*

Applicant's Name (Print): \_\_\_\_\_ Date: \_\_\_\_\_

**CONTACT PERSON INFORMATON:**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

**APPROVED:**

\_\_\_\_\_  
Director, Department of Water Supply

Date: \_\_\_\_\_

**Return this form to:**

Department of Water Supply, Engineering Division  
County of Maui  
200 South High Street, 5<sup>th</sup> Floor  
Wailuku, HI 96793-2155  
Phone: (808) 270-7835