

LANDSCAPE WATER BUDGETING: WEEKLY METER READS & REAL TIME ET DATA

Irvine Ranch Water District (IRWD) provides a water allocation (budget) for Mixed use & dedicated landscape accounts. The Landscape irrigation water budget is calculated based on the size of the irrigated area and real-time localized weather data. Since the water budget changes daily, the most effective way for customers to avoid overuse charges, and stay within their monthly budget, is to monitor each site's usage on a weekly basis. IRWD provides customers with daily and weekly water budget information for use with on-site meter read tracking sheets. This program empowers customers to monitor and control their water use. Early detection of excessive use helps customers take immediate action to reduce water use.

Weather Center - ET: Coastal, Central and Foothill weather station data is electronically transmitted daily to IRWD where it is used in a formula to calculate evapo-transpiration, also known as ET, which is the amount of water needed by turfgrass to remain healthy in each specific climate zone. Outdoor watering accounts for 40 to 70 percent of water used in Orange County. With thousands of acres of valuable community parks, gardens and greenbelts within its boundaries, IRWD's billing system relies on accurate weather station data to provide landscape and commercial customers like you with site-specific budgets to ensure that your landscaping receives sufficient water.



Weather Determines Your Water Budget



How Weather Affects your Water Budget: When the weather is hot or windy, your budget goes up automatically. When it's cool or rainy, your budget decreases.

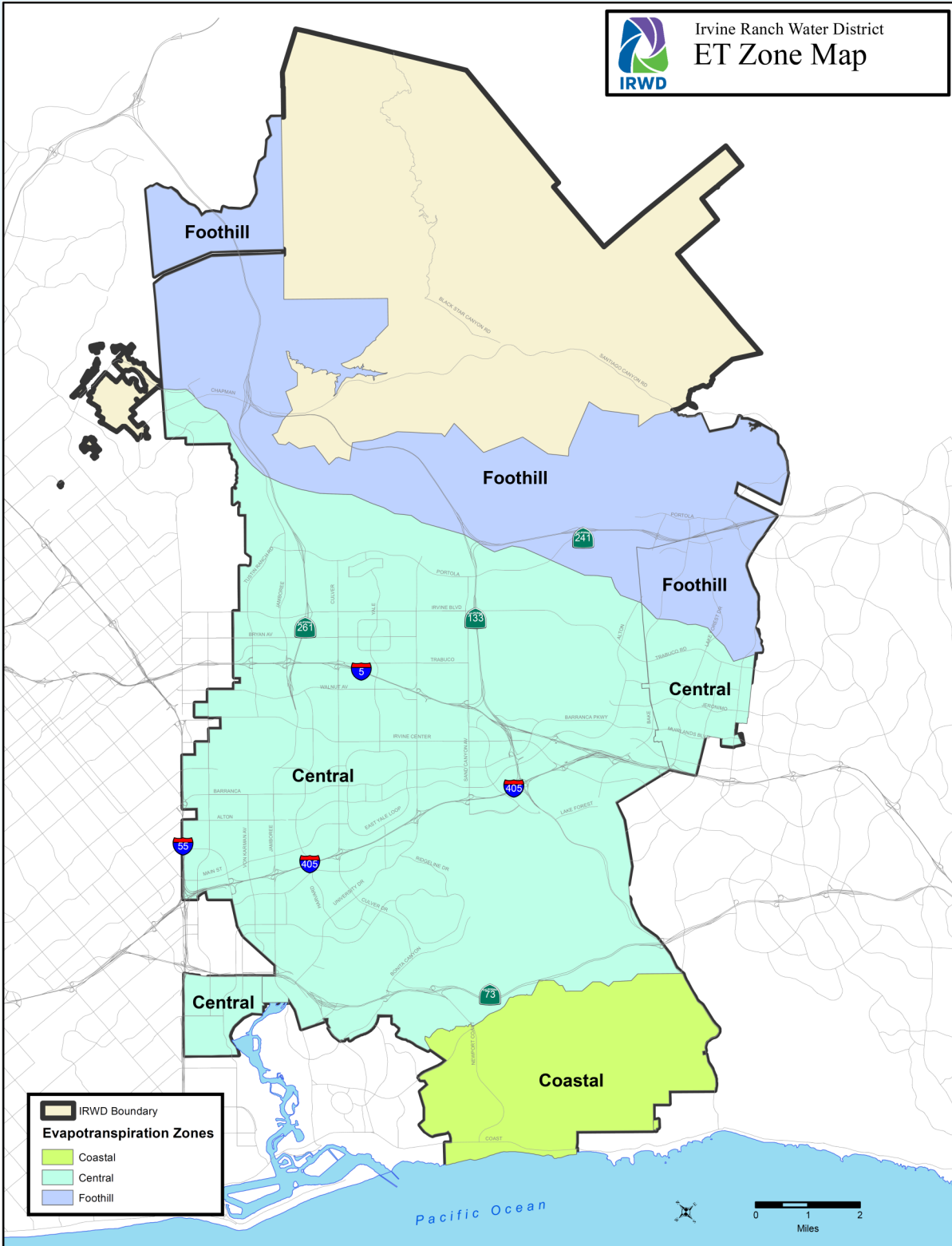
Staying within Budget Makes Sense: The goal is to allow you the correct water budget you need for your landscape to stay healthy and attractive. Using more water than plants need is a waste of water, a waste of your money, leads to unhealthy plants, and can contribute to pollution-causing urban runoff.

Weather Station Technology Helps You Save Water



Advanced Weather Station Technology: IRWD uses the most advanced weather station technology, consisting of Campbell Scientific CR-10X Data Logger equipment, the same used by the California Department of Water Resources for the 100 California Irrigation Management Information System stations around the state.

IRWD has 3 Microclimates: Within our service area, there are three distinct microclimates, known as the Coastal, Central and Foothill zones. IRWD maintains a separate weather station in each climate zone to monitor exact wind and weather conditions, including air temperatures, relative humidity, precipitation, solar radiation, and wind direction and speed.



Weekly Allocation Data and Meter Reads Report

Evapotranspiration Information for Recycled Water									
ET Allocations for Current Year									
Dates	Coastal Zone			Central Zone			Foothill Zone		
	ET in Inches	CCF /acre	%Chg*	ET in Inches	CCF /acre	%Chg*	ET in Inches	CCF /acre	%Chg*
9/11/2017-9/17/2017	.88	27.78	-15%	.98	30.94	-21%	.88	27.78	-33%
9/4/2017-9/10/2017	1.04	32.83	-15%	1.24	39.15	-13%	1.31	41.35	-14%
8/28/2017-9/3/2017	1.23	38.83	+35%	1.42	44.83	+13%	1.52	47.98	+7%
8/21/2017-8/27/2017	.91	28.72	-11%	1.26	39.78	-5%	1.42	44.83	+6%
8/14/2017-8/20/2017	1.02	32.20	-15%	1.32	41.67	-10%	1.34	42.30	-17%
8/7/2017-8/13/2017	1.20	37.88	-3%	1.47	46.41	+2%	1.61	50.83	+12%
7/31/2017-8/6/2017	1.24	39.14	+10%	1.44	45.46	+3%	1.44	45.46	+1%
7/24/2017-7/30/2017	1.13	35.67	-14%	1.40	44.20	-10%	1.43	45.14	-10%

Landscape Water Budget Formula

ET x Kc x 1.25 x LA = landscape potable water budget in acre-inches.

ET x Kc x 1.33 x LA = landscape recycled water budget in acre-inches.

To convert to CCF, multiply by 36.3

The four factors used to determine a budget for a particular landscape area:

- ET (evapotranspiration)** - IRWD weather stations; coastal, central or foothill zones.
- Kc (crop coefficient)** - A crop co-efficient of 0.6 for drought tolerant landscapes is applied for potable irrigation, and a crop-coefficient averaging 0.65 for warm-season turf if applied to recycled water irrigation.
- 1.25 or 1.33 irrigation system efficiency** - extra water to make up for inefficiencies in the irrigation system. An irrigation efficiency of 80% is applied to potable water and 75% to recycled water. In the formula this is calculated as $= 1/0.80 = 1.25$ applied to potable customers and $1/0.75 = 1.33$ applied to recycled water.
- LA = landscape acreage**

Using the Meter and Allocation Log

Reading the Meter

Meters measure water used in Cubic Feet (CF) but allocations are based on Hundred Cubic Feet (CCF). To use IRWD's Meter and Allocation Log, you need to read only the CCFs, which are the black on white numbers on the odometer portion of the dial. In this example, the meter shows 536695 CCFs. You need only record the 5366 CCFs. However, for smaller sites (less than 1/4 acre) you may also want to read the first white on black number as a decimal.

Scheduling

Changes in scheduling will need to be done frequently during certain periods of the year, particularly fall and spring. In September, October and November, the rate of plants' Evapotranspiration (ET) typically drops steadily as days get shorter and the energy reaching the earth from the sun is less intense.

Conversely, ET increases by approximately 40 percent in April, but gradually less rapidly during May, June and July. IRWD recommends taking extra care to adequately irrigate during the spring and early summer to ensure that plants develop healthy root structures in this growing season.

Calculating ET

ET changes almost every day because the ET rate is calculated from weather data collected at three weather stations measuring these climate zones: Coastal (covering Newport Coast and Santa Ana Heights), Central (covering the City of Irvine, UCI, Tustin Ranch, and Lake Forest, except Foothill Ranch), and Foothill (covering Perola Hills and Foothill Ranch).

Each weather station monitors solar radiation, air temperature, wind speed, humidity, and other Evapotranspiration factors, 24 hours per day, seven days per week. As every site is assigned to one of these weather stations, the allocation for each site will increase and decrease in response to all weather factors in its specific climate zone. If you're not sure which climate zone your site is located in, please call IRWD at (949) 453-5300.

How to Use the Log Sheet


- Always read the meter on the same day of the week, from week to week.
- Read the white numbers on the meter, which are in CCFs (hundred cubic feet). Note the date in the "Today's Date" column and the meter reading in the "Today's Meter Reading" column. Subtract to calculate the "Water Usage" and record the difference in the "Water Usage" column.
- Wait a week and read the meter again. As before, note today's date and the meter read in the same columns. Write down the previous meter reading in the "Previous Meter Reading" column. Subtract to calculate the "Water Usage" and record the difference in the "Water Usage" column.
- Call the ET Hotline* at 949-453-5451 to get the allocation per acre for your climate zone. If you are not certain which climate zone this meter is in, call IRWD customer service at 949-453-5300.
- Write in the acreage for this meter in the "Site Acreage" column. This number is on the water bill.
- Multiply the "Allos. Per Acre" number by your "Site Acreage" to calculate the allocation for this meter for last week. Write this number in the "Site Allos." column.
- From "Water Usage," subtract "Site Allos." Write this number in the "Over/Under" column. If the number is positive, you are over allocation and should make adjustments to the irrigation schedule.

*Note: Irvine Ranch Water District (IRWD) updates the ET Hotline each Monday. Weekly ET updates are also posted on IRWD's website, www.irwd.com. If you have any questions or concerns regarding meter usage on your site, please call IRWD at 949-453-5451.

How Allocations Work

Landscape water-use allocations are determined by the square footage of irrigated landscape and the ET for exactly those days that occurred during the billing cycle. Because ET changes daily, the allocation will change with every bill.

Allocations have several buffers built in, so your usage should always be below your allocation. For example, IRWD assumes that all recycled water landscape accounts are 100 percent warm season turf located in 100 percent sun. There is also an inefficiency factor built into the formula because you are not expected to change your controllers daily nor have a perfect irrigation system. If you believe you have more acreage than is indicated on your bill, contact Juan Garcia at 949-453-5451.



Irvine Ranch Water District
Landscape Meter Allocation Log
www.RightScapeNow.com

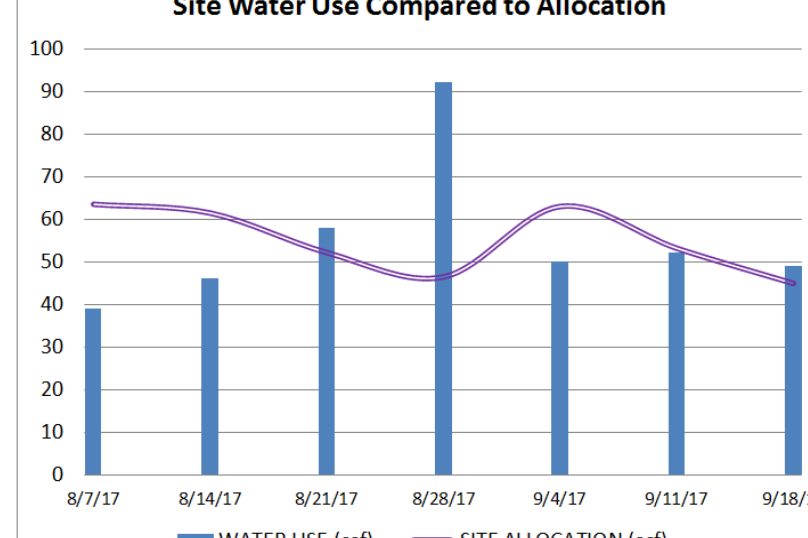
1.) Site Information

Site Owner: 10000
Site Account #: 60-00000-00-4
Site Meter #: 178895
Site Address: 1352 Site Lane
Site Acreage*: 1.62
Weather Station Zone: Coastal
Water Use Type: Recycled

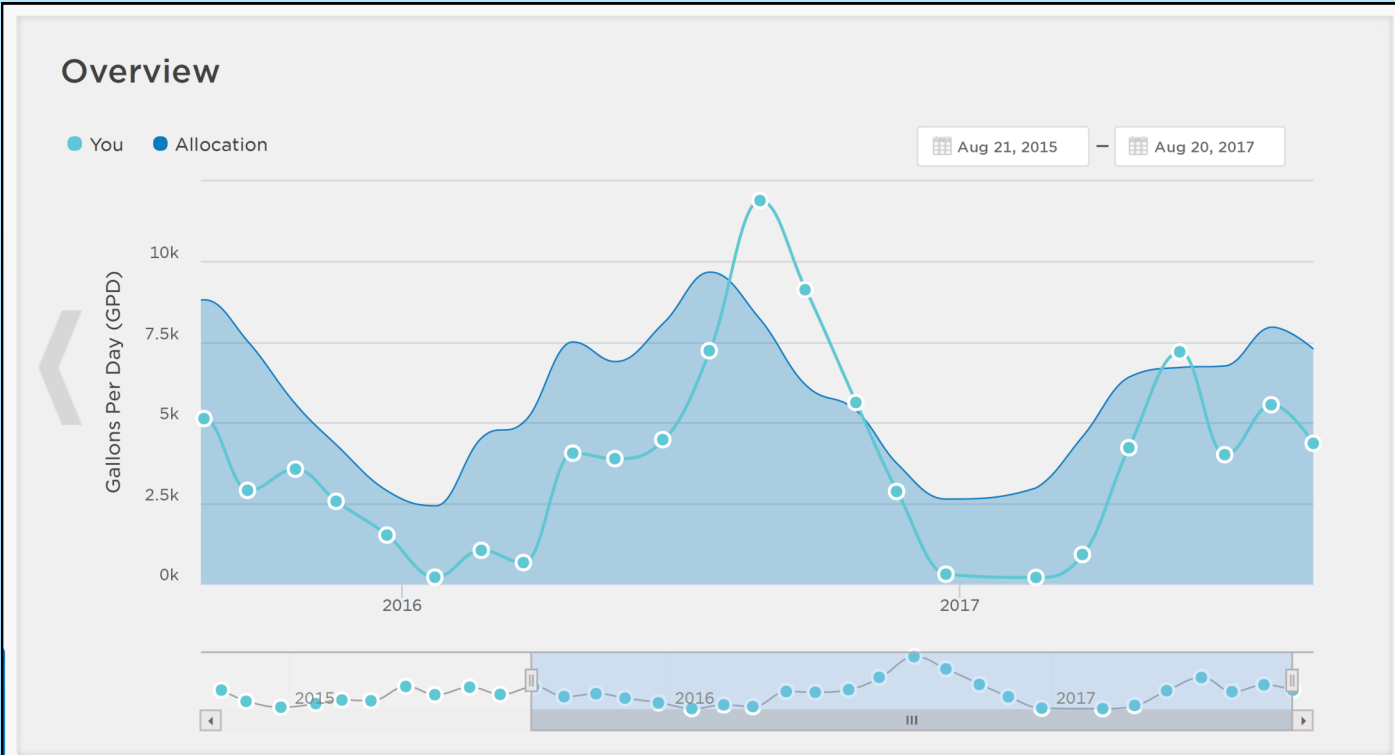
2.) Meter Reads & Weekly Allocation

DATE (mo/day/year)	WEEKLY METER READING	WEEKLY ALLOCATION PER ACRE (ccf)	WATER USE (ccf)	SITE ALLOCATION (ccf)	Under / Over Allocation (ccf)
7/31/2017	59002	30.00	30.00	63	-24
8/7/2017	59041	30.14	30	63	-15
8/14/2017	59087	30.88	46	61	6
8/21/2017	59145	32.2	58	59	6
8/28/2017	59237	28.72	92	47	45
9/4/2017	59287	38.83	50	63	-13
9/11/2017	59339	32.83	52	59	-7
9/18/2017	59388	27.78	49	45	4
			0	0	0

3.) Water Use Graph



WaterInsight Program—Free Web-Based Landscape Reports: reflects IRWD's current water rates and allocations. IRWD invites you to use this free convenient water management tool anytime to obtain information about the performance of the sites you manage.



Location	Account#	Meter Type	Meter Badge#	Last Read Date	Use Last Period (CCF)	Amount Above Allocation (CCF)	Allocation (CCF)	GPF
15 Clocktower	8.201E+09	Irrigation-only-recycled	60549576	22-Aug-17	65	0	75	1,676
23 Gables	9.695E+09	Irrigation-only-recycled	60621888	21-Aug-17	93	35	58	2,576
28 Vermillion	8.956E+09	Irrigation-only-recycled	60310546	4-Sep-17	438	254	184	9,636
30 Keystone	9.916E+09	Irrigation-only-recycled	60375519	22-Aug-17	116	0	182	3,098
31 Keystone	9.977E+09	Irrigation-only-recycled	60380204	22-Aug-17	238	3	235	6,358
32 Clocktower	1.394E+09	Irrigation-only-recycled	60683538	22-Aug-17	118	0	151	3,043
33 Constantine	3.238E+09	Irrigation-only-recycled	60683549	21-Aug-17	78	0	108	2,083
34 Lamplighter	7.038E+09	Irrigation-only-recycled	60417275	21-Aug-17	129	52	77	3,711
35 Landmark	29710000	Irrigation-only-recycled	60428972	21-Aug-17	113	0	205	3,130



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