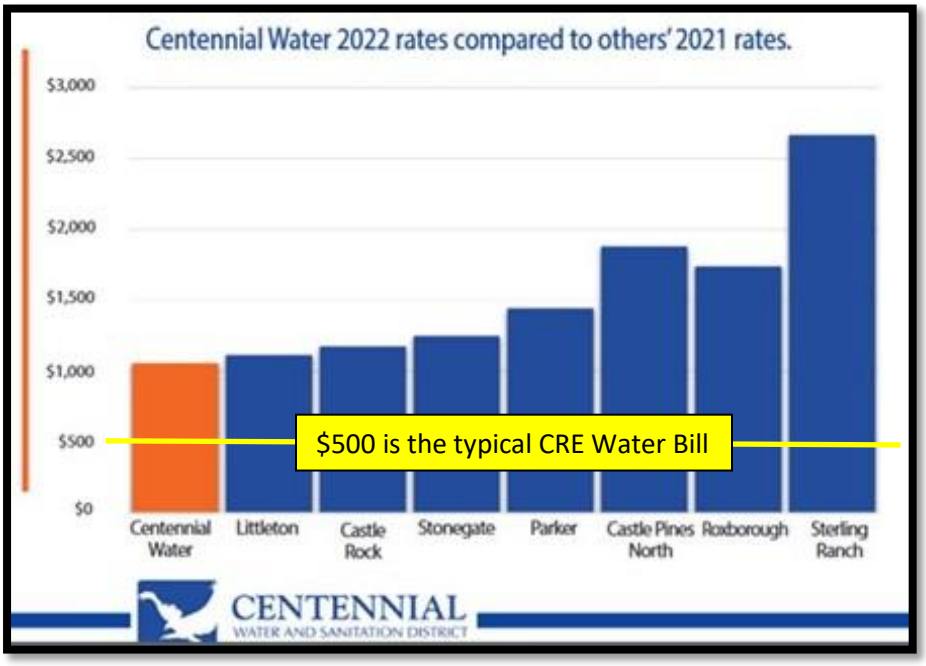
Water Bills, EOW, Leaks & Irrigation

This is a simplified synopsis from guidance in the CRE regulatory documents, which are the governing resources. Outdoor irrigation requirements and leak assessments were sourced from the Centennial Water District.

Cherokee Ridge Estates (CRE) Water Billing Facts & Figures:

- $500 is the annual water bill for 21 of 36 homeowners
- $1,100 and less is typical for lots with larger irrigated areas
- $3,000 to $5,000 bills are routine for CRE residents ***not monitoring their water usage***
- $14,000 is the record CRE water billing caused by an undetected irrigation leak
- *$150,000+ is possible based on the unchecked pumping capability of our wells*

CRE homeowner water bills are competitive with nearby communities:



What is your annual water usage budget?

The Cherokee Ridge Estates Metropolitan District (the "District") is authorized to use a maximum of approximately 46-acre feet of Denver Aquifer water per year, which equates to a water budget of ***326,000 gallons*** (1 Acre-Foot) for each lot *(the water fee tier 2 limit)*[1]. Managed properly, this is enough water for a household of 6 persons to irrigate 12,000 square feet *(the limit per our convenances),* or a household of 12 to irrigate 6,000 square feet. Usage of more than this water budget is penalized at higher tier 3 & 4 billing rates and may also trigger a letter from the District asking the homeowner for a written plan of action to resolve their water usage issues. Chronic annual offenders of the water budget expose the District to violation of its water rights decrees, which may cause the District to be fined and ultimately could cause the District to *"receive an order to curtail or eliminate pumping from the aquifer".*

[1] Approximately 2 Acre-Free of water is reserved for common area irrigation.

Why does the District bill you for water from *'your'* well?
The District owns all the water rights within our community, and water use is governed by its Water Court decrees. These include an annual maximum water budget, usage reporting and conservation provisions. Once a homeowner has drilled their well and installed their water meter, they must transfer ownership of both to the District because ***the District owns the water rights***. The District then oversees water usage and becomes responsible for maintaining the water meter and the components inside the well's casing. The water fees fund these operations, the District's aquifer depth monitoring program and are necessary to support the District's water conservation program. *(The aquifer's water level indicates little change over the last 20 years.)*

See the CRE Metro District Rules and Regulations for the following issues:

- Section 3: water usage billing, conservation, water allocation upon home sale
- Section 4: water meter policies and responsibilities
- Section 5: wells, District vs. homeowner responsibilities

What typically causes excessive water use?
Poorly managed outdoor irrigation and leaks that go unnoticed and fail to be repaired in a timely manner. Therefore, homeowners are highly encouraged to make use of the Eye On Water App and it's leak detection and notifications.

Eye On Water Application and Web Portal:

The Eye On Water (EOW) smart phone and web application allows you to monitor and manage your water usage by providing helpful information:

- Hourly, daily, monthly, and yearly data and charts
- Temperature and precipitation overlays
- Week-over-week consumption comparisons
- Configurable leak alerts by email or SMS text

To sign-up you will need your water billing account number *(available on your water bill, or from the community manager),* The same user ID and password you create works for both the App and Web-Based portal.

- **Mobile device App**: download the "**EyeOnWater**" app from the App Store or Google Play.
  - ***App tutorial:*** *https://helpeyeonwater.com/2018/05/23/using-the-eyeonwater-app/*
- **Web-based portal** visit: **https://eyeonwater.com/signup**
  - Web-based portal access is required to setup of Text or Email leak notifications:
    - *Leak Alert Tutorial: https://helpeyeonwater.com/setting-leak-alerts/*
  - ***Web browser tutorial:*** *https://helpeyeonwater.com/2018/05/23/using-eyeonwater/*

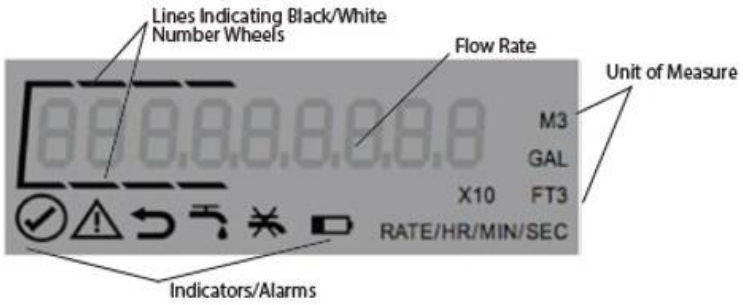
Notes:

- *Water usage data is not streamed to your account in real-time, rather it is uplinkeded by a cellular antenna connected to the meter four times each weekday and twice over weekends.*
- *Do not tamper with or attempt to move the cellular antenna.*
- *Given the notifications and water usage visibility provided by this new technology, don't expect the District to "forgive" high water usage caused by leaks or over irrigating.*

Water Meter LCD Display - Flow Rates and Leak Alerts

Meter Display

The Badger Meter E-Series Ultrasonic meters use a nine-digit Liquid Crystal Display (LCD) to show consumption, flow rate and alarm information. See the Status Indicators chart on *page 10* for detailed descriptions.



Activating the Display

The Ultrasonic meter's display illuminates when the register cover is opened. After a period of time, the display will revert to sleep mode. You can alternate the display between total flow and rate of flow mode by touching the optical display switch or by closing and opening the meter's lid. The optical switch is located just below the LCD on the left side of the register's face.

Reading the LCD Display:

- Opening the display door will wake it from sleep mode.
- It alternates between total consumption and flow rate. Touching the optical sensor switch *(the small round black circle below the LCD window)* will also alternate the display.
- **Alert Icons:**

 **Meter Operating Correctly.**

 **Alert:** empty pipe or a sensor error – monitored by the District.

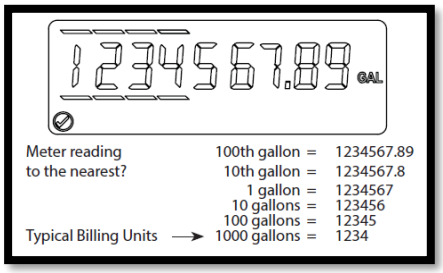
 **Reverse Flow detected**, clears after 60 days with no recurrence.

 **Leak Alert:** See detailed information below.

 **No Flow** in past 30 days.

 **Battery end of life** indicator *(20-year battery).*

- **Totalizer Consumption Reading**:
  - All 9 digits are illuminated to include leading zeros
  - Maximum reading is 10 million gallons
  - Resolution is to 1/100 of a gallon (0.01)
  - E.g., 1,234,567.89 (the last 3 digits are *7.89* gallons)



- **Flow Rate:**
  - Only the last 3 LCD digits illuminated (no leading zeros).
  - Flow rate is gallons per minute
  - Resolution is to 1/100 of a gallon (0.01), *(e.g., **0.15 =** 15/100 gallons per minute flow.)*
  - Flow rate is updated every 2 seconds.

Leak Detection Alarm Trigger and Clearing:

- **Triger:** meter detects ***24 hours without one 15-minute*** interval of no flow. *A small continuous water drip will trigger this alert.*
- **Clears:** The alarm clears when a ***15-minute*** no-flow interval occurs.

> ***Note:***
> *The leak alert flag on the LCD meter display is **real time**. The Eye On Water (EOW) leak alert can be several hours old since it is based on if the meter's leak alert flag was tripped or cleared **when the data was uplinked to EOW** which; only occurs 4 times per day (twice on weekends).*

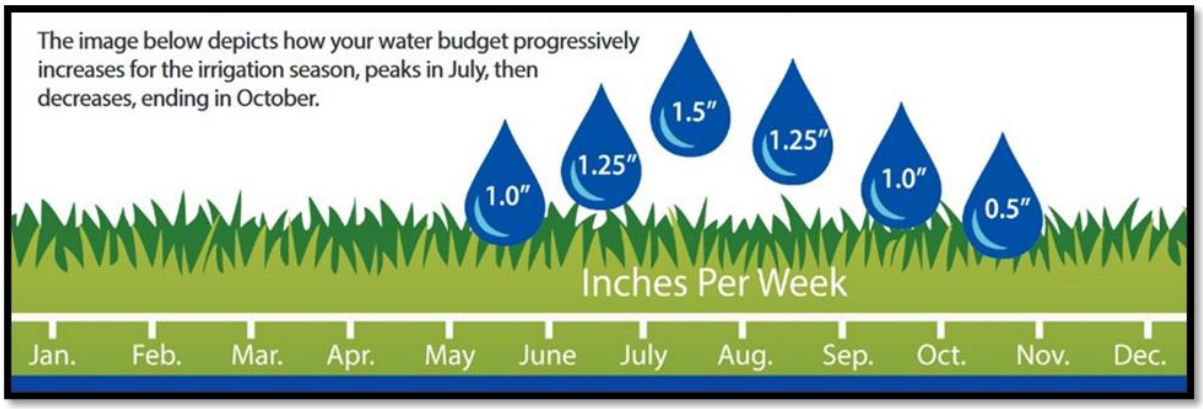
Finding A Water Leak:

Determining if a water leak is internal to the home, or from an outside irrigation leak is the recommended first step in finding the leak:

1. Make sure no water is currently running or being used inside or outside.
2. Note the meter's LCD's 3-digit flow rate *(the screen cycles between the 9-digit totalizer and 3-digit flow rate).*
3. Close the irrigation system's shutoff valve and note the LCDs 3-digit flow rate. If the flow stopped, then the leak is confirmed to be in the irrigation system. Common causes:
   a. Freeze damage to components within the sprinkler valve boxes
   b. Sprinkler valves not fully closing due to a worn-out diagram or solenoid valve
   c. Water feature supply valve not fully turned off, or leaking
4. If the leak is still present, then investigate the homes internal plumbing. Common causes:
   a. A dripping faucet. It only takes a small drip – drip leak to trigger a leak alert.
   b. Toilet leaks as most are silent. Check each toilet for leaks using food coloring in the tank, 10 drops. When you return, if there is color in the bowl, you have a leak.
   c. Hose bibs: check all your outside hose bibs/spigots for dripping.
   d. Hot water heaters can fail and leak water onto the floor, or from the pipe connected to the pressure relief valve going to a floor drain.
   e. The valves in water softeners, reverse osmosis systems and furnace humidifiers can fail and constantly drip water down the drain.

How Much Water Is Required For Irrigation?

High water use is typically caused by over irrigation during the summer months. Watering times need to be adjusted following the summer's temperature changes. ***Don't set your sprinkler system and forget it all summer.*** The easiest way to ensure properly adjusted sprinkler runtimes is to install a Wi-Fi connected Smart sprinkler controller. These controllers access current weather data and automatically adjust your sprinklers for the various conditions to include temperature, rain, soil saturation, wind, and freezing events. The table below provides the suggested monthly watering requirements for a typical front range summer season:



Irrigation recommendations from the experts:

- Water no more than ***three times per week*** *(this promotes healthy roots)*
- Water ***early in the morning*** *as winds tend to be light, with no solar evaporation*
- Avoid mid-day watering *due to evaporation and winds*
- Water ***only*** as needed in April and October
- Use the cycle and soak method, water in multiple, short cycles allowing water to soak into the soil before running off
- Remember to turn off and blow out irrigation systems in the second week of October

Front Range recommended monthly sprinkler zone runtimes, 3 times per week:

Example:

Assume it's ***May*** *and you have* ***Rotors****:*
Run for 23 minutes, 3 times per week

To Cycle & Soak the above in 2 cycles:
Run for 12 minutes, soak for 30 minutes, then run for another 12 minutes, 3 times per week

Daily water times (minutes) - three times a week.

Watering Months	Fixed spray	Rotors	HE Rotary	Manual
May	12	23	32	18
June	14	29	40	22
July	16	31	43	24
August	12	24	33	18
September	10	21	28	15
October	7	15	20	11

The following table converts these sprinkler runtime recommendations into ***monthly gallons of water used*** that should become a part of your water meter monitoring program:

Gallons of Irrigation Water Required Monthly To Provide the Recommended Coverage				
		Irrigated Square Feet		
	Inches per Week	***per 1,000 Sq Ft***	**6,000 Sq Ft**	**12,000 Sq Ft** *maximum allowed*
May	1.0	*2740*	16,440	32,880
June	1.25	*3420*	20,550	41,100
July	1.5	*4050*	24,300	48,600
August	1.25	*3420*	20,550	41,100
September	1.0	*2740*	16,440	32,880
October	0.5	*1370*	8,220	16,440
Annual Totals	***6.5 inches***	***17,740 Gallons***	***106,500 Gallons***	***213,000 Gallons***
Indoor water usage in gallons per person: Expect about 1,500 gallons per month = 18,000 gallons per year				