

# City of Fairfax Water Department

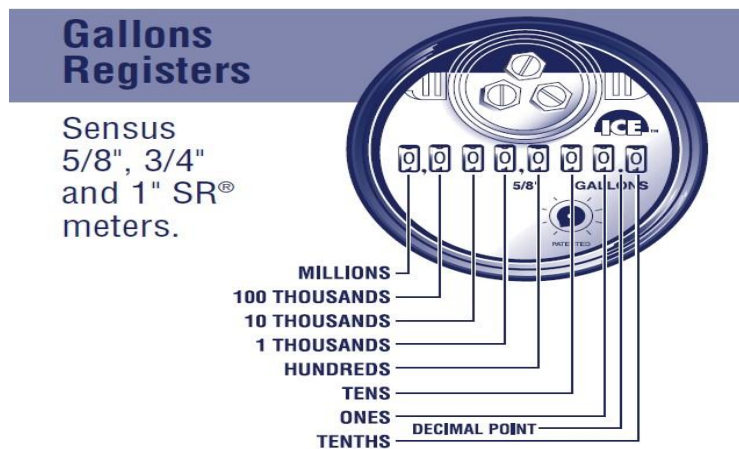
## Facts about your Water Meter

### General Information

Your water meter is owned and maintained by The City of Fairfax Water Department. Each standard residential meter includes a register with a straight-reading (left to right), odometer type totalization display in gallons, a low flow (leak) detector, and it may have a 360° test circle with center sweep hand. Gears are self-lubricating, molded plastic for long life and minimum friction. All of our meters have electronic reading devices that allow the meter reader to drive or walk past your home and pick up the meter reading remotely.

### How do Water Meters Work?

Water flows through the meter's strainer and into the measuring chamber where it drives the piston. The hydro-dynamically balanced piston oscillates around a central hub, guided by the division plate. A drive magnet transmits the motion of the piston to a driven magnet located within the hermetically sealed register. The driven magnet is connected to the register gear train. It reduces the piston oscillations into volume totalization units displayed on the register dial face. The register dial face has 8 odometer wheels for totalizing flow. See reference diagram below.



*Left is a picture of a standard residential mechanical water meter located inside the house, on the right is an ERT (Encoder Receiver Transmitter) which will be mounted on or near the meter. Wires are used to connect the meter to the ERT which allows us to read the meter without entering your home.*

## Meter Accuracy

The mechanical design of water meters does not allow for adjustments of the dials or accuracy calibration of the meter. Similar to automobiles, odometers, or other mechanical devices, the meter slows down with age and eventually stops registering completely. The Water Department has the ability to send in the meter to an outside vendor to test for meter accuracy and a meter will be used until the accuracy is less than 97% accurate. The meter will not arbitrarily run faster than it was designed to run or run backwards. The mechanical parts are not capable of “speeding up” or registering a significantly higher reading than actual usage. Having a meter register 20,000 gallons of consumption when the usage was actually 4,000 gallons would be like a vehicle with a maximum speed of 100 mph suddenly being able to intermittently run at speeds of 500 mph, it isn’t mechanically possible.

## Is it possible for a meter to be read incorrectly?

The Water Department utilizes a monthly report through the billing system that creates a report showing suspected high or low consumption numbers. This report is reviewed and we try to contact each address which seems to have an extremely high usage. The radio transmitter records each gallon of usage based on an electrical impulse from the meter, but if the wiring is broken or the battery is dead the City will not be able to obtain an electronic reading. A manual read will need to be taken from the dials and the City will need to determine why we were not able to obtain an electronic reading.

## How to Detect a Leak

If you feel your water consumption is higher than it should be, you should check for leaks. Leaking water produces a high water bill. Some leaks are sporadic and require some detective work. Other leaks are very obvious. One of the first things you should do is read your meter each day for a week. If you call city hall with the readings, we can do the calculations and let you know how many gallons you are currently using each day. It doesn't matter what type of leak you have, there is a solution. **High usage is never related to a mechanical meter running fast!** The most common cause of high water usage and leaks in the home are a toilet or water softener!

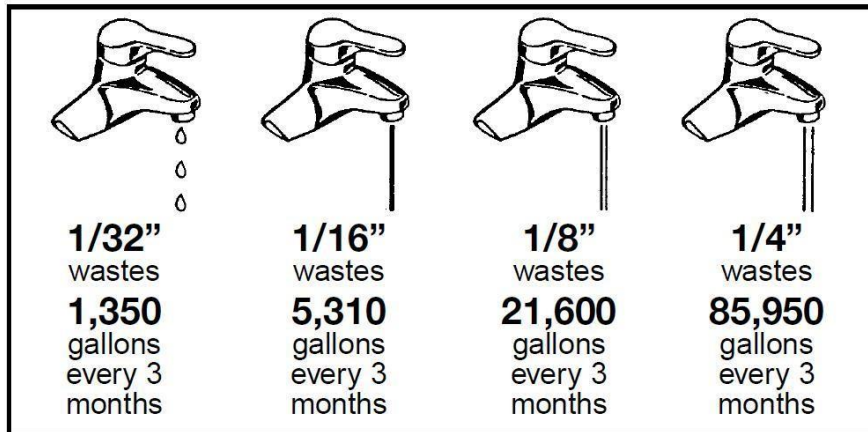
First make sure all water using fixtures in your home are not in use. Check to see if the flow indicator on the face of the meter is moving. If it is moving, you either have a leak or something in your home is using water. Go find it. Places to look are toilets (flappers get old and wear out) faucets, hot water heaters, water softeners, etc.



Toilet leaks often occur without audible or visual evidence. When a toilet does not shut off after flushing the water usage can be heard and seen. Leaking toilets can waste 200 gallons or more of water per day and if undetected it could lead to significantly higher usage over the course of a month. Pin-pointing a toilet leak is easy and usually inexpensive. Follow these procedures to locate a toilet leak:

- Wait 5-10 minutes after the last flush.
- Remove tank cover. Is the water level in the tank too high and spilling into the overflow tube? If it is you have a leak.
- While you have the tank cover off, put food coloring in the toilet tank. Wait at least 30 minutes. If the colored water appears in the bowl, you have a leak.

Note below how many gallons even a very small leak can use during a 3-month period:



## Service Line Leaks

Many leaks occur underground and, because of gravity and saturation of the ground can leak tens of thousands of gallons per month without visible evidence. Water leaks can develop in the home's water service line. **These leaks are before the meter and do not register in your usage or on your water bill.** The Water Department maintains the main line and service line in the right of way up to the "curb box" or shut off in the yard. Property owners are responsible from the curb box to the home. Although such leaks can be difficult to detect, there are some telltale signs which may indicate that you have a leak in your service line. You should be continuously observant for:

- Wet spots in your yard between the curb box and your house.
- The sound of running water or a hissing sound coming from your main shut off valve when water is not being used in your home.
- Water leaking into your basement or crawl space near the location of your water service line.
- A noticeable loss in water pressure or flow throughout your home.

If you have any questions about your utility department and our services please contact City Hall at 319-846-2204.



# Indoor Water Use in the United States

**A**mericans use large quantities of water inside their homes. A family of four can use 400 gallons of water every day, and, on average, approximately 70 percent of that water is used indoors.

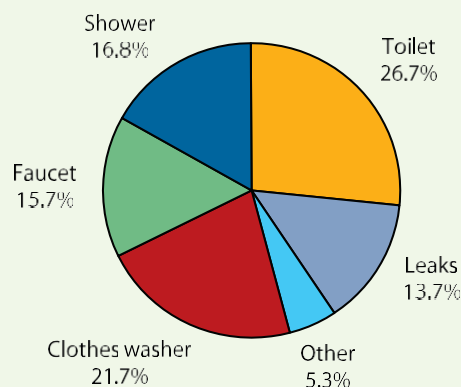
The bathroom is the largest consumer of indoor water. The toilet alone can use 27 percent of household water. Almost every activity or daily routine that happens in the home bathroom uses a large quantity of water. For example:

- Older toilets use between 3.5 and 7 gallons of water per flush. However, WaterSense® labeled toilets use at least 60 percent less water.
- A leaky toilet can waste about 200 gallons of water every day.
- A bathroom faucet generally runs at 2 gallons of water per minute. By turning off the tap while brushing your teeth or shaving, a person can save more than 200 gallons of water per month.

Outside the bathroom, there are many opportunities to save water. Here are some common water-efficiency measures, along with a few solutions to those problems you may not have known existed:

- High-efficiency washing machines can conserve large amounts of water. Traditional models can use 50 gallons or more of water per load, but newer, energy- and water-conserving models (front-loading or top-loading, non-agitator ones) use less than 27 gallons per load.

## How Much Water Do We Use?



Source: American Water Works Association Research Foundation, "Residential End Uses of Water," 1999

- Washing the dishes with an open tap can use up to 20 gallons of water, but filling the sink or a bowl and closing the tap saves 10 of those gallons.
- Keeping a pitcher of water in the refrigerator saves time and water instead of running the tap until it gets cold.
- Not rinsing dishes prior to loading the dishwasher could save up to 10 gallons per load.

WaterSense, a partnership program sponsored by the U.S. Environmental Protection Agency, seeks to help families and businesses realize that they can reduce water use by doing just a few simple things, such as upgrading to higher quality, more efficient products. For more information, visit <[www.epa.gov/watersense](http://www.epa.gov/watersense)>.

