Finding and Fixing Leaks – Commercial Checklist

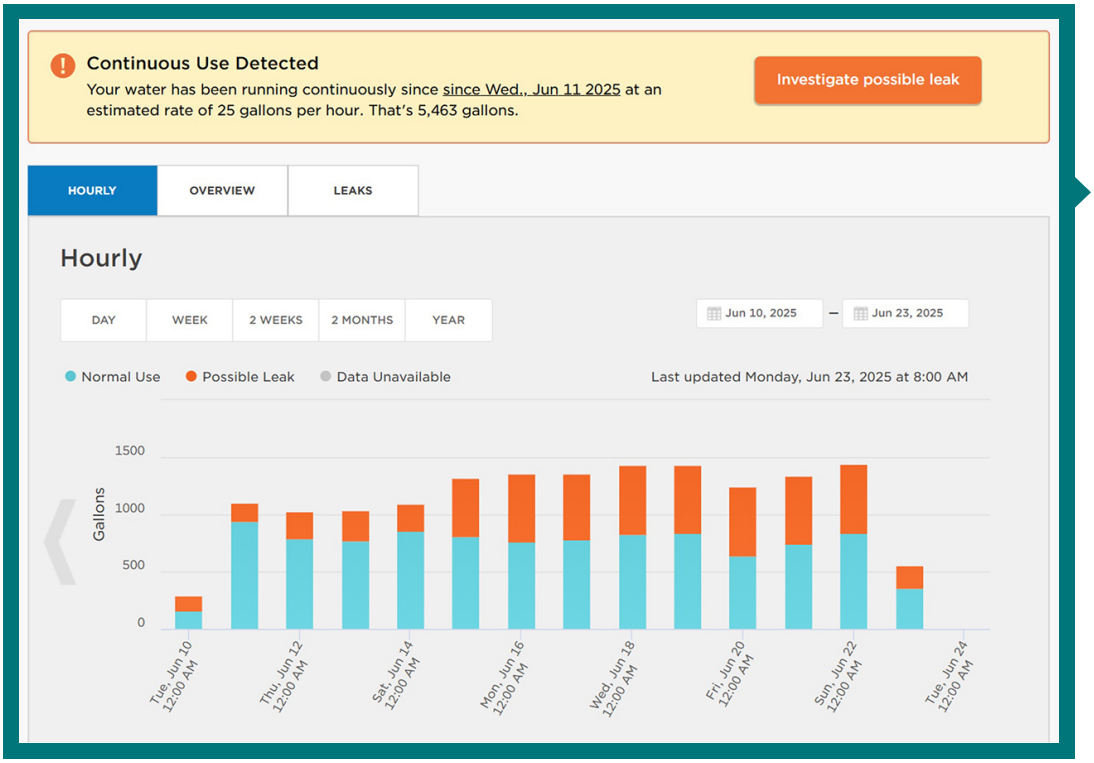
Leaks and inefficient water use can waste thousands of gallons and increase costs—often without being obvious. Use this checklist regularly to identify, fix, and prevent water waste at your facility.

Check the WaterSmart Portal

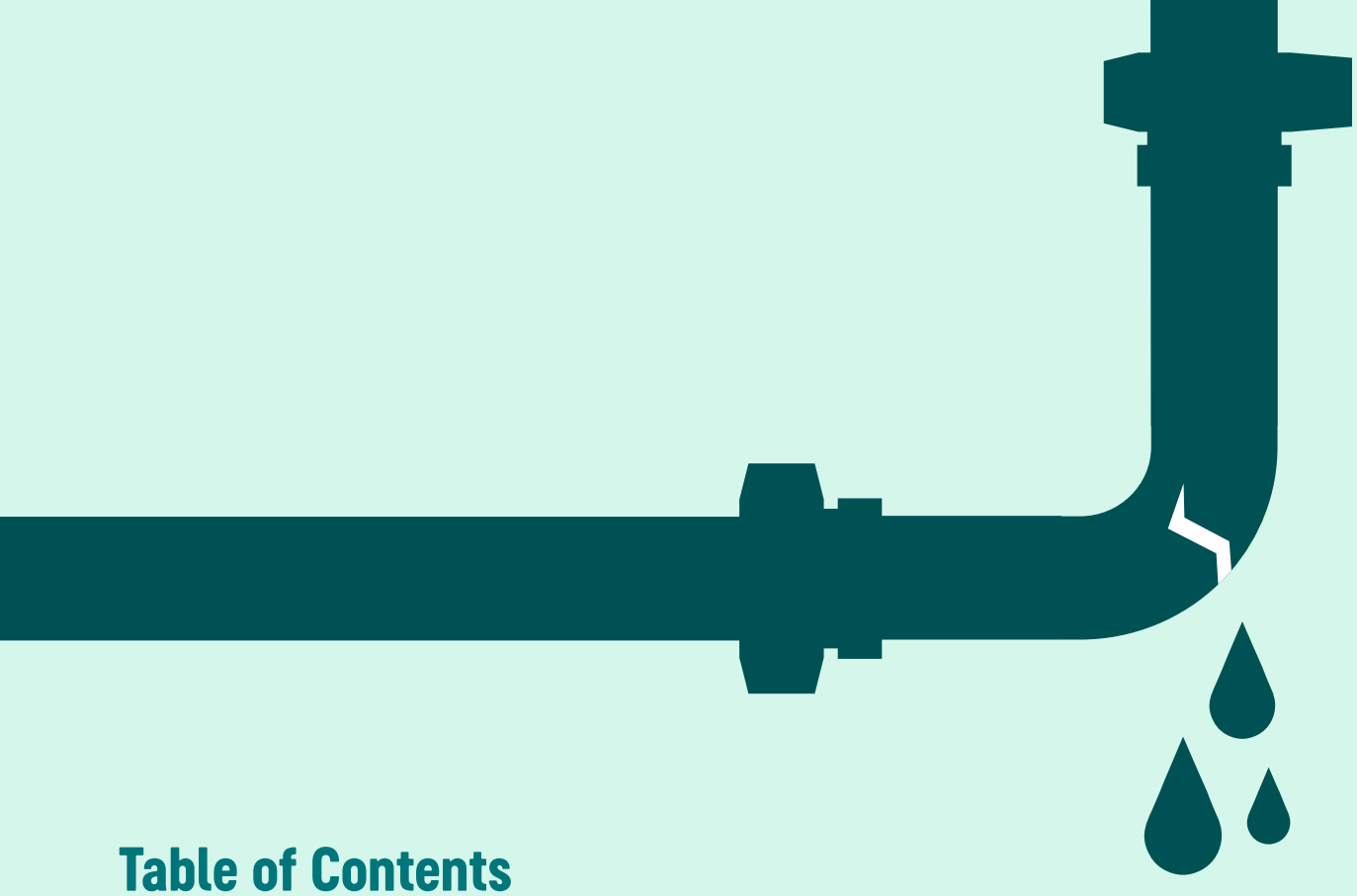
Thornton Water customers can use the WaterSmart portal to track water use over time. Through this online portal, you can monitor your water use data and patterns, set leak alerts, get help checking for leaks, and learn about water efficiency rebates and services.

Advanced Metering Infrastructure (AMI) technology allows customers to access daily water use data in the WaterSmart portal, making it easier to monitor water levels and quickly catch and repair leaks.

In the "Settings" tab, you can customize alerts from WaterSmart. These alerts will notify you of high usage above your average. You can also sign up to get a quarterly water report and notices from the city of Thornton. We recommend frequently visiting WaterSmart to learn more about your water use. Alerts are a great way to stay updated on sudden or unusual changes in your water use.



If you notice abnormal or constant water use in your portal, follow the steps below to quickly identify and manage your leak.



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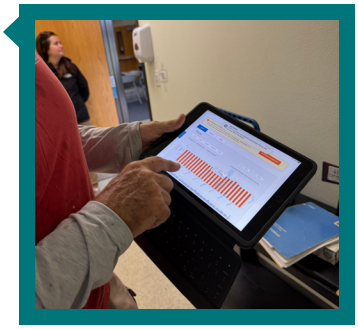
Step 1: Prepare

Set up your water efficiency program

- ☐ **Assign a Water Champion or Facility Maintenance staff member to coordinate inspections, fixes and reporting.**
- ☐ **Map all water meters and submeters** (domestic, irrigation, cooling tower, kitchen).
- ☐ **Compile and review 12–24 months of water and energy bills for tracking.** Use WaterSmart to access your historical water use data. If you need assistance, contact Thornton Water at water@thorntonwater.com.
- ☐ **Post signage in restrooms and kitchens:** "Report leaks to ___".
- ☐ **Train staff to report leaks and unusual water flow.**
- ☐ **Identify all water-using equipment** (restrooms, kitchens, mechanical rooms, irrigation).
- ☐ **To request a commercial conservation kit** (which contains toilet dye tabs, a leak and flow gauge, and high-efficiency pre-rinse Spray Valves (PRSVs), if applicable), email Thornton Water at water@thorntonwater.com.
- ☐ **Email Water@ThorntonWater.com for additional materials and checklists that apply to your industry/site.**



Step 2: Inspect

Inspect all water-using fixtures and investigate any constant or unusual water flow

- ☐ **Start with the facility meter vault.** Is your meter registering continuous usage? Continuous or abnormal meter readings can indicate leaks, which may be constant or intermittent, such as with toilets or urinals.
- ☐ **If usage is continuous, check manual shutoff valves.** Close the main internal shut-off valve and see if the meter continues to register water usage; if so, a service line leak is likely.
- ☐ **Inspect indoor areas:** restrooms, kitchens, utility rooms, drinking fountains, heating and cooling equipment, and mechanical spaces.
- ☐ **Inspect exterior areas:** irrigation zones, loading docks, hose bibs.
- ☐ **Verify water valves are working properly.**
- ☐ **Read main meter and submeters, and perform off-hour leak tests.**
- ☐ **Inspect cooling towers, boilers, and single-pass cooling equipment.**
  - ☐ Check submeters regularly to catch high use quickly.
  - ☐ Equipment with single-pass cooling: Check system specifications to use the minimum water flow rate required for cooling. Regularly check solenoid valves to ensure water flows only when needed.
  - ☐ Boiler and steam systems: Regularly check steam traps and steam and hot water lines for leaks.
  - ☐ Cooling towers: Take regular readings of the make-up and blowdown water and log them. Check the make-up and blowdown valves to ensure they cut off water flow cleanly. Calculate cycles of concentration and find more information here.
- ☐ **Note water running sounds, damp spots, humidity, or unusual warmth.**

Restrooms (Public and Employee)

Tip: Walk restrooms early in the morning or during off-hours when water use should be minimal.

Look for:

- ☐ **Automatic sensors:** Regularly check and adjust sensors to avoid double flushing or continuously running water.
- ☐ **Toilets or urinals that take longer than normal to stop flushing.**
- ☐ **Dripping faucets, showerheads.**
- ☐ **Water flowing into floor drains.**
- ☐ **Pooling water or persistent wet spots.**
- ☐ **Rust, corrosion, or scale buildup around pipes and valves.**

Listen for:

- ☐ **Running toilets or hissing sounds in restrooms.**
- ☐ **Water movement near floor drains.**
- ☐ **Equipment operating when it should be off.**

Flush volume flow rate calculator

Fixture	Number of seconds in flush cycle	Flow rate gallons per minute	Gallons per flush (gpf)
Toilet	1-3	25	1.25
Toilet	2-4	25	1.6
Toilet*	6-8	25	3.5
Toilet*	Over 8	25	4.5 +
Urinal	3	15	0.75
Urinal	4	15	1.0
Urinal*	6	15	1.5
Urinal*	10	15	2.5

*Toilet or urinal requires repair or replacement.

How to Check Commercial Flushometer Toilets and Urinals for Leaks

- ☐ **Locate the water supply:** Ensure the angle stop is open and the water supply is not blocked.
- ☐ **Inspect the flushometer:** Check for signs of wear, tears, or mineral accumulation on the diaphragm or piston.
- ☐ **Clean the bypass hole:** Use a thin wire or needle to gently clear any obstructions.
- ☐ **Replace parts if necessary:** If the diaphragm assembly is compromised, replace it with a new one.
- ☐ **Check for leaks:** Inspect the flushometer handle assembly for leaks and replace it if needed.
- ☐ **Toilets or urinals running after flushing**
  - ☐ **Check flush volume:** flush toilet and time the number of seconds in the flush cycle. Note: Look for gallons per flush stamp on porcelain.
  - ☐ You can receive a $150 rebate for replacing old flushometer toilets and urinals with WaterSense-certified models. Visit ThorntonWater.com/Commercial for more information.

! Any toilets or urinals that do not meet the National Standard below should be evaluated for repair or replacement.

Fixture Type	National Standard	EPA WaterSense Standard
Toilets	≤1.6 gpf	≤1.28 gpf
Urinals	1.0 gpf	≤0.5 gpf

How to Check Commercial Tank-Type Toilets for Leaks

Toilets are a common source of high water use. They can waste thousands of gallons per month. Sometimes, you can hear a toilet leaking; at other times, it can be silent and difficult to detect. Here are some easy ways to test for toilet leaks.

☐ **Is Your Toilet Running? –** Do you ever have to jiggle the toilet handle to stop the toilet from running? If a toilet flapper does not seal consistently **every time** the toilet is flushed, replace or repair the flapper to prevent it from sticking open. A stuck open flapper can use 100,000 gallons in just a month!

☐ **Food Coloring Test –** Test toilets by placing five to ten drops of food coloring in each toilet tank. Wait 15-20 minutes, and if the color seeps into the bowl, there is a leak (most likely from a worn flapper). If the color does not seep into the bowl, then the toilet is not leaking during the test.

☐ **Another Test for Toilet Flappers –** The flapper valve is the rubber stopper at the bottom of the toilet tank. Flappers can become warped over time, preventing a watertight seal. To replace your toilet flapper, make sure the new one fits and seals properly, as they are not all one universal size. To check the flapper's condition:

- □ Turn off the toilet's water supply (usually it is near the wall at the base of the toilet).
- □ Mark the water level inside the tank.
- □ Wait 15 minutes.
- □ If the water level has dropped below your mark, replace the flapper. If the water level has remained the same, then the problem may be an overflow near the top of the tank involving the float ball or the fill valve. Access online resources for simple DIY repairs, or contact your local handy person or plumber for professional advice.

☐ **Check the Tank Water Level –** When the tank is full, ensure the water level stops about one inch below the top of the overflow tube. If the water level is too high, repair or replace the float valve or adjust the water level screw.

☐ **Toilet Rebate –** If you are replacing a tank-type toilet, Thornton offers a $75 rebate for upgrading an older toilet to a new WaterSense-certified toilet. Dual flush toilets do not qualify. Check ThorntonWater.com/Rebates for details.

Visible color seeping into the bowl (pictured here) would indicate a leaky toilet.

Water level should be about an inch below the top of the overflow tube.

Irrigation System

☐ **Check irrigation components** (sprinkler heads, sprinkler valves, backflow device, etc) for misalignment, overspray, leaks, or breaks.

☐ **Look for ways to increase efficiency:** take advantage of available rebates by installing a WIFI-enabled smart controller, rain/wind sensors, soil moisture sensors, or master sprinkler valve.

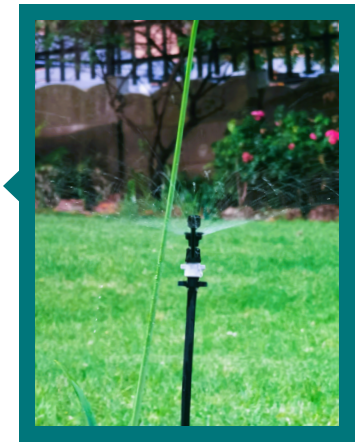
☐ **Ask your landscape contractor for zone mapping,** and sign up for an irrigation audit to get catch-can tests for distribution uniformity, custom watering schedule, and efficiency report.

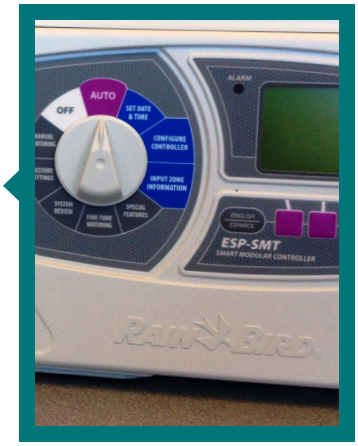
☐ **Check Water Days or Watering Frequency –** Determine how many days your sprinklers are programmed to run. Daily watering is not beneficial for your lawn's roots or your bank account, and Thornton's Water Use Rules limit lawn watering to no more than two days per week.

☐ **Check Zone Run Times –** Are the sprinkler zone times what they should be? Download Thornton's Water Use Rules.

☐ **Check Seasonal Adjust –** To water exactly what is programmed, the seasonal adjust should be set at 100%. If it is set higher or lower, the controller will automatically increase or decrease your run times. To avoid confusion, we recommend keeping the seasonal adjustment at 100.

☐ **Manually Run Sprinklers –** After reviewing all the programming, run the sprinklers manually to visually inspect for any issues. Refer to the instruction manual or YouTube for guidance on turning sprinkler zones on manually. Turn on each zone and visually check the water pressure. Look and listen for any excessive water flowing from sprinkler heads, drip emitters, or other areas of concern.





Not all leaks are apparent. Irrigation leaks can be at the sprinkler head, in the non-mainline piping (lateral pipe), or at the valves. Wet patches on your property, driveway, sidewalk, or greener spots than the rest of the landscape, may indicate a leak.

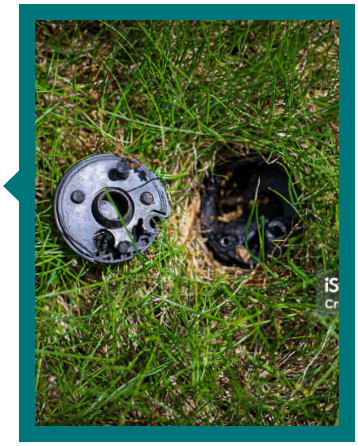
Irrigation System (continued)

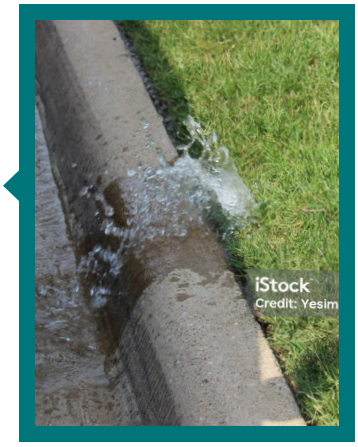
☐ **Clean, repair, or replace any:**

- □ Broken or clogged spray heads.
- □ Missing spray heads.
- □ Stuck valves caused by debris or dirt buildup, or a worn diaphragm.
- □ Missing or clogged drip emitters.
- □ Disconnected or torn drip tubing.

☐ **Run one station at a time, checking for the following:**

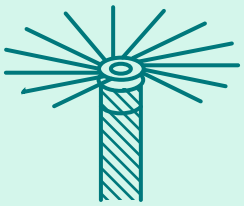
- □ Uneven pressure, which could indicate a leak in an underground pipe or sprinkler heads. Contact an irrigation professional for assistance.
- □ Sprinkler heads that seep water after an irrigation cycle ends. Replace these with heads equipped with "check valves" to stop the water from leaking out. Often referred to as "low head drainage," sprinkler heads at the lowest elevation may may drain the water from the pipe.
- □ Misting or fogging (very fine water droplets in the air) indicates too much pressure. If all zones are misting, you may need an irrigation professional to install a pressure-regulating valve to adjust the water pressure. If only a particular zone is misting, you may be able to adjust the flow control at the valve(s) to reduce the pressure.
- □ Spray hitting a sidewalk or driveway instead of plants. Adjust the direction.





Check Landscape Sprinkler System Components

Regular maintenance of your sprinkler system is crucial. Go through each component of your system step by step. Below is some general information about sprinkler system components and common water problems that can occur with them.



☐ **Sprinkler Main Shut-off Valve –** Typically located near the main facility shut-off valve in a utility room. In the photo, the main building shut-off valve is located at the bottom, and the sprinkler line branches off to the higher valve to the left. In some systems, such as dedicated irrigation lines, the main shut-off valve could be underground at the stop in waste, the curb stop, or in the meter pit.

☐ **Backflow Device –** Locate your backflow device. These are typically above-ground, copper devices located on the side of your facility. Is water flowing through the backflow device when the sprinklers are not in use? Put your ear right up to it. Can you hear water flowing? Does the backflow device feel cold, like water is running through it? If so, you may have a constant leak in the sprinkler main, a leak in a sprinkler valve, or a stuck-on valve or zone.

☐ **Sprinkler System Main Line –** The main sprinkler line is pressurized with water 24/7 when the backflow device valves are open. The main line runs underground from your backflow preventer to the valves in your valve boxes and can develop a constant leak over time.

☐ **Valves –** Find your sprinkler zone valve boxes and open them to look for leaks, standing water, or wet soil. Each sprinkler zone has a valve, typically located in an underground box with a green plastic lid, usually near the backflow preventer. You might need a screwdriver to open the lid. The valves and pipes in the valve box can develop cracks and leak. Valves can stop working, malfunction, or get stuck open. When a valve is stuck open, it will run sprinklers or constantly weep water. Drip zones can also get stuck open and remain unnoticed for long periods.

☐ **Lateral Sprinkler Lines –** Lateral lines are the pipes that extend from the valve and send water to the individual zone sprinkler heads. Lateral lines only fill with water when the controller sends a signal to open the valve and activate that zone. A leak in a lateral line will not run 24/7 unless the valve is stuck open. If the valve is working correctly, a lateral line leak will only occur when that zone is on and running.

☐ **Sprinkler Heads or Drip Zones –** If you have a broken sprinkler head or a leak in a drip zone, it will only leak when the zone is on. Continuing to run a watering program with one broken head can waste up to 11,520 gallons of water per month.

☐ **Check Drain Caps -** If your sprinkler system has a drain to winterize the lines, make sure drains are capped when you turn on your sprinklers in the spring.

Sprinkler Controller Programming and Visual Sprinkler Check

Have you recently updated your sprinkler controller program? Is it hotter than usual? Did you add watering times or days? Has a power outage reset your controller back to a default program? Do the sprinklers come on when you are not expecting them to?

☐ **Check your sprinkler program thoroughly.** Go through each option on the controller dial and each program (Program A, B, C, etc.). If you are not familiar with your irrigation controller, refer to the controller's manual for guidance, or search YouTube for videos on how to program your specific controller.

An irrigation schedule with excess cycles can waste thousands of gallons of water. Program your controller to maximize efficiency and replace the battery if it resets after a power outage.

There are many different brands and models of sprinkler controllers, but they all have the same basic options:

- **Start Times**
- **Run Times**
- **Watering Days/ Frequency**

Weather-based irrigation controllers can help reduce water waste while keeping landscapes healthy. If you are looking to upgrade, visit the Commercial Rebates page (ThorntonWater.com/commercial-rebates-and-free-services/) for information about rebates.

Learn more about water-wise irrigation by visiting ThorntonWater.com/H2Overhaul/water-wise-irrigation.

☐ **Check Start Times –** How many start times do you have programmed? Most sprinkler controllers require only one starting time to run through the entire program (all the zones). If you are cycle and soak watering, you may have two or three start times. Remember to reduce the zone run times if you are running multiple cycles per watering day. Thornton's Water Use Rules limit lawn watering times to between 6 p.m. and 10 a.m.

Commercial Kitchen

☐ **Inspect pre-rinse valves (≤1.28 gpm), dishwashers, ice machines (air-cooled are most efficient for water use).**

- ☐ **All equipment:** Shut down or use standby mode for all continuous flow equipment between uses. Inspect shutoff valves to ensure they are working properly.
- ☐ **Pre-rinse spray valves:** Clean openings as needed for smooth spray. Train employees to use always-on clamps only when necessary.
- ☐ **Dishwashers:** Manual fill valves should close completely after the wash tank is full. Inspect and repair valves and rinse nozzles.
- ☐ **Steam equipment:** Inspect and replace gaskets and tighten hinges on doors to retain heat or steam.
- ☐ **Food disposal systems:** Turn off water to disposals during idle periods. Train users to manually scrape as much food waste as possible first.

Other Things To Check

Make these checks part of your routine preventative maintenance program

☐ **Pools and Spas:** Check water levels. A loss of more than 2" per week in the water level may mean a leak.

☐ **Laundry Facilities**

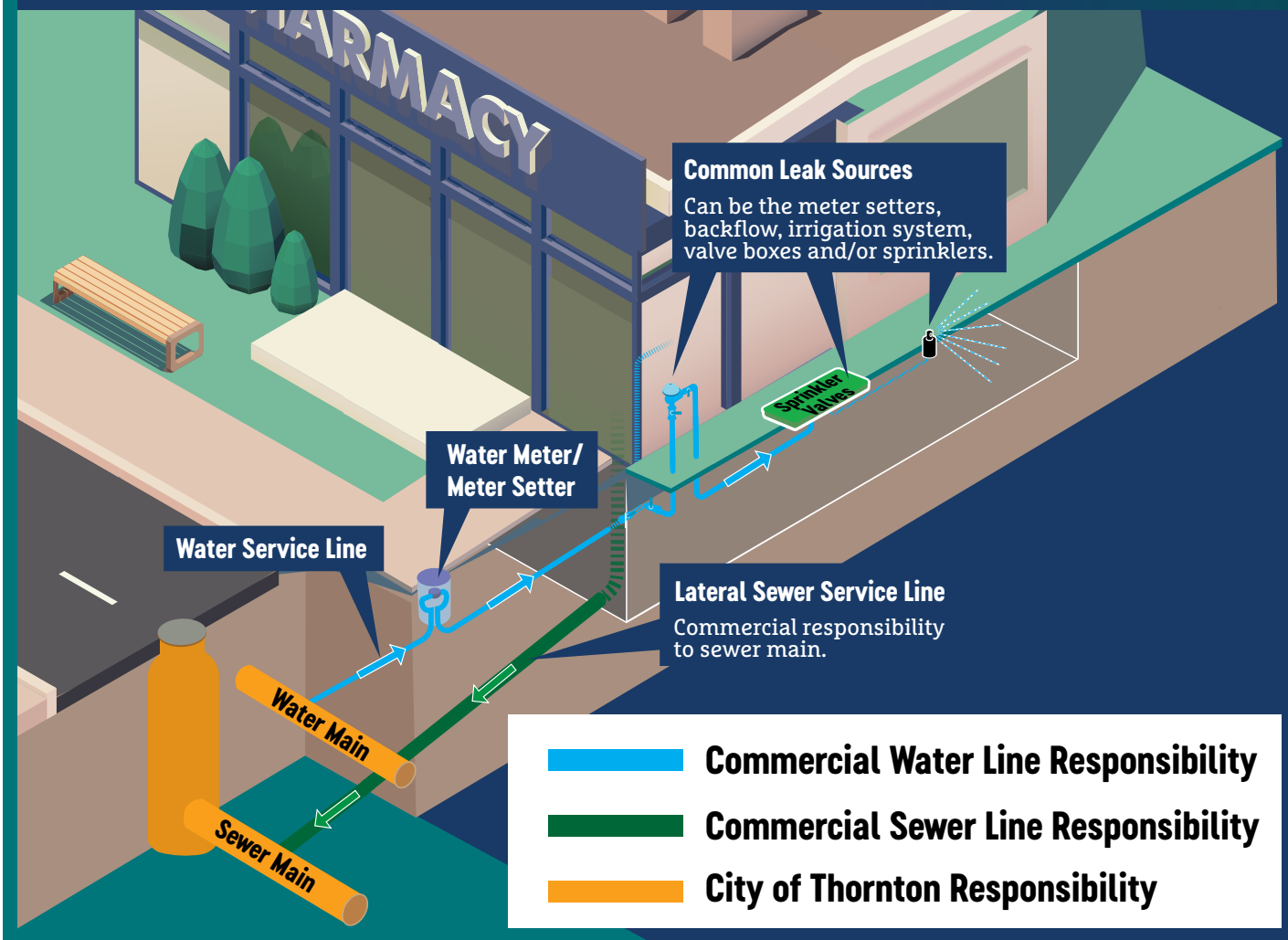
☐ **Water Softeners**

Email water@thorntonwater.com for additional materials and checklists that apply to your industry/site.

Meter and Water Line Leak Check

Common commercial leak sources include meter setters, backflow, irrigation systems, valve boxes, and sprinklers. Please note that repairs to these components and individual water service lines are the commercial customer's responsibility. If you suspect a leak, Utilities Operations can check your meter and components for leaks and verify your water registration. Request a meter check by calling Utility Billing at 303-538-7370 or emailing UtilBilling@ThorntonCO.gov.

Commercial and HOA Water Line Repair Responsibilities



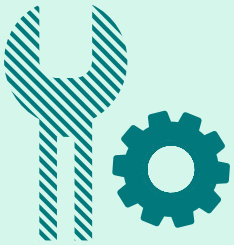
Repeat

Make leak detection part of routine operations

- ☐ Inspect for unusual water use daily or weekly.
- ☐ Watch for spikes in water bills or monitoring systems.
- ☐ Train staff and post signage to report leaks.
- ☐ Include leak detection in regular maintenance checklists.

Step 3: Repair/Upgrade

Take action quickly



- ☐ Tighten loose fittings or connections.
- ☐ Replace worn parts or plumbing fixtures (flappers, diaphragms, gaskets, valves, toilets, faucets).
- ☐ Adjust toilet or faucet sensors to prevent phantom double flushing and wasted water.
- ☐ Repair or replace broken irrigation components immediately.
- ☐ Schedule repairs with a licensed plumber or maintenance professional.

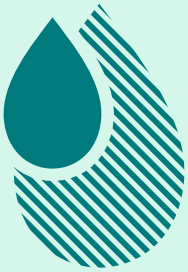
Verify

Confirm the issue is resolved

- ☐ Re-check the area after repairs.
- ☐ Ensure water stops flowing completely when equipment is off.
- ☐ Monitor meters or submeters for unusual use with WaterSmart.
- ☐ Document the repair and date completed.

Rebates and Services

Tip: Choose WaterSense® labeled plumbing products and ENERGY STAR® certified equipment for repairs and upgrades.



☐ **Irrigation Efficiency Project –** Water customers may qualify for a 50% matching rebate, up to $10,000, while funds are available. Projects can include installing weather-based controllers, rain sensors, hydrometers, master valves, or replacing outdated irrigation system parts.

☐ **Building Water Efficiency Project –** Water customers can receive a 50% matching rebate, up to $10,000, for projects such as upgrading plumbing fixtures and appliances, building a reuse system, installing water-efficient technology, or retrofitting water-intensive processes, as funding allows.

☐ **Toilet Replacement –** Rebates are available for tank-type toilets (up to $75 each) and for flushometers and urinals (up to $150 each). If you plan to replace more than 10 toilets, please contact water@thorntonwater.com first for project details and written pre-approval. All replacement toilets must be WaterSense certified. Toilets with a 1.6-gallon-per-flush rating or dual-flush toilets do not qualify.

☐ **Sprinkler Consultation –** Thornton water customers can receive a **free** sprinkler consultation and a personalized watering schedule through Resource Central.

☐ **Commercial Water-Wise Landscape Grant –** If you manage an irrigated landscape between 0.5 and 5 acres, your project may qualify for a grant covering 50% of the cost of design, renovation, and installation, up to $10,000 per acre. Funding is limited and awarded on a first-come, first-served basis.

☐ **Commercial Water Efficiency Assessment –** Schedule a **free** Commercial Water Efficiency Assessment to receive water usage data, a walk-through of your facility, a site efficiency review, and recommendations to help your business use water more efficiently and save money.

Remember:

Even small leaks add up. A single dripping faucet or running toilet can waste thousands of gallons each month. Finding and fixing leaks early protects your facility, reduces costs, and conserves water.

Have questions about finding leaks and improving water efficiency?
Call Water Resources at 720-977-6600 or email us at Water@ThorntonWater.com.

Visit ThorntonWater.com/Commercial for more information on commercial rebates and services.