



Water Conservation in Plymouth

August 22nd, 2024



Abbie Browen, PE - Public Works Operations Manager - City of Plymouth

MAIN TOPICS COVERED TODAY

- **WATER CONSERVATION – MACRO SCALE**

- Water Production
- Water Distribution System
- Water Consumption
- Water Conservation

- **WATER CONSERVATION – MICRO SCALE**

- Residential Water Consumption
- Residential Water Conservation

- **WASTEWATER COLLECTION**



WATER PRODUCTION

Overview

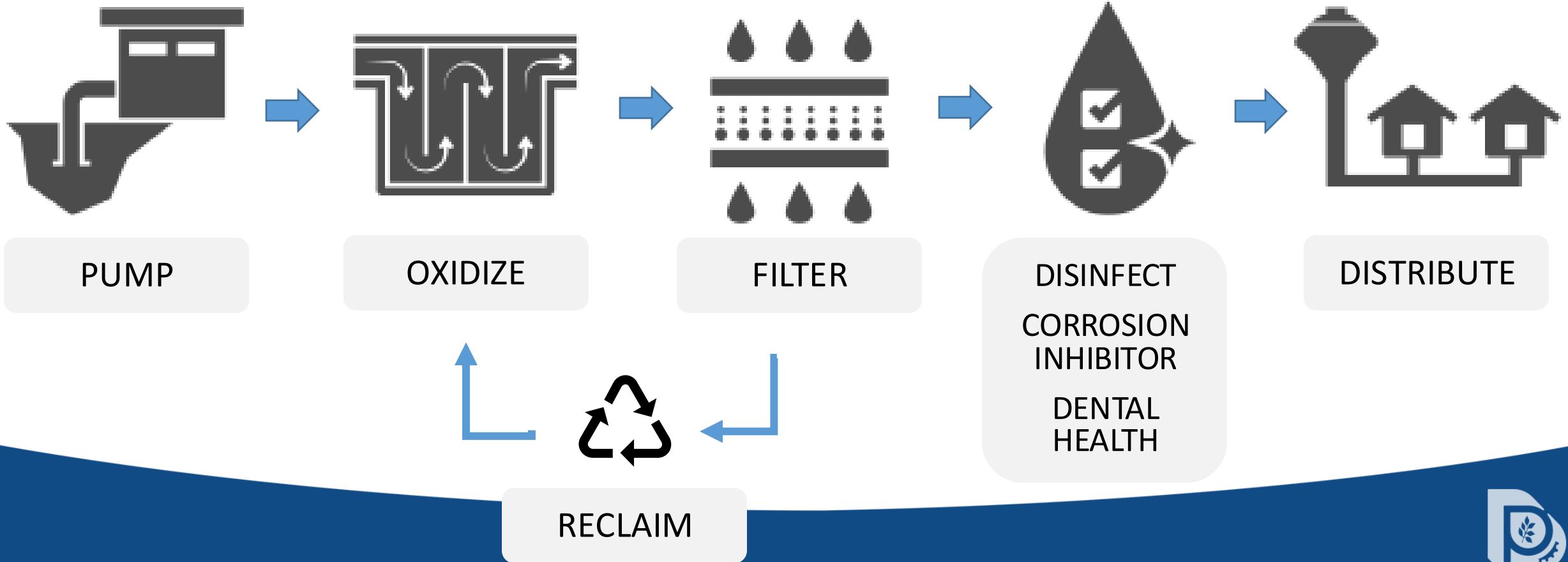
Asset Count:

- 18 Groundwater Wells
- 2 Treatment Plants
 - Central WTP – 13 MGD
 - Zachary WTP – 17 MGD
- 5 Water Towers + 1 Reservoir
- 5 miles of raw water pipe



WATER PRODUCTION

Plymouth's Treatment Process





WATER DISTRIBUTION SYSTEM Overview

Asset Count:

- 411 miles of pipe, ranging 6" to 36" diameter
- 13,164 system valves
- 25,317 services – each with curb stop and meter (sometimes multiple)
- 4540 public hydrants



WATER DISTRIBUTION SYSTEM

Annual Water System Repairs

PIPE BREAKS

- 40 PER YEAR
- 77% REPAIRED IN-HOUSE

VALVE REPAIRS

- 60 PER YEAR
- 80% REPAIRED IN-HOUSE

WATER SERVICE REPAIRS

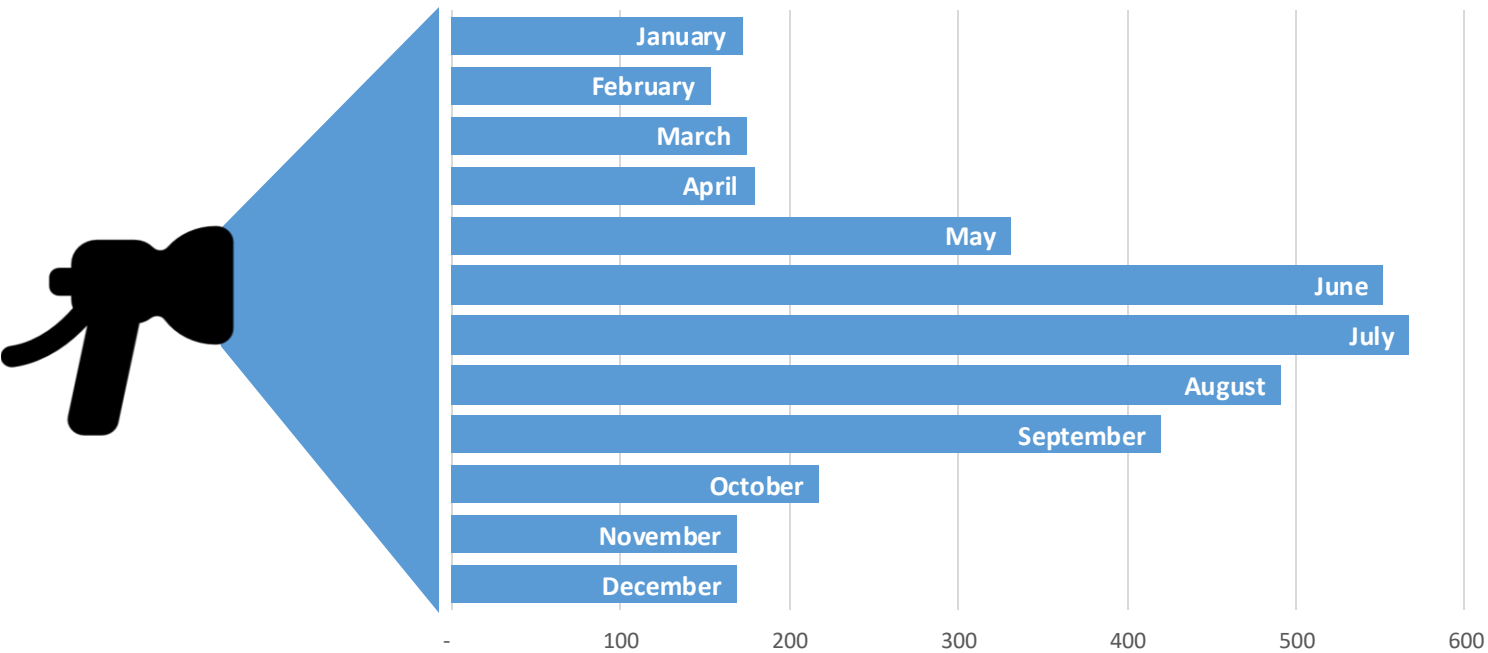
- 60 PER YEAR
- CONTRACTED



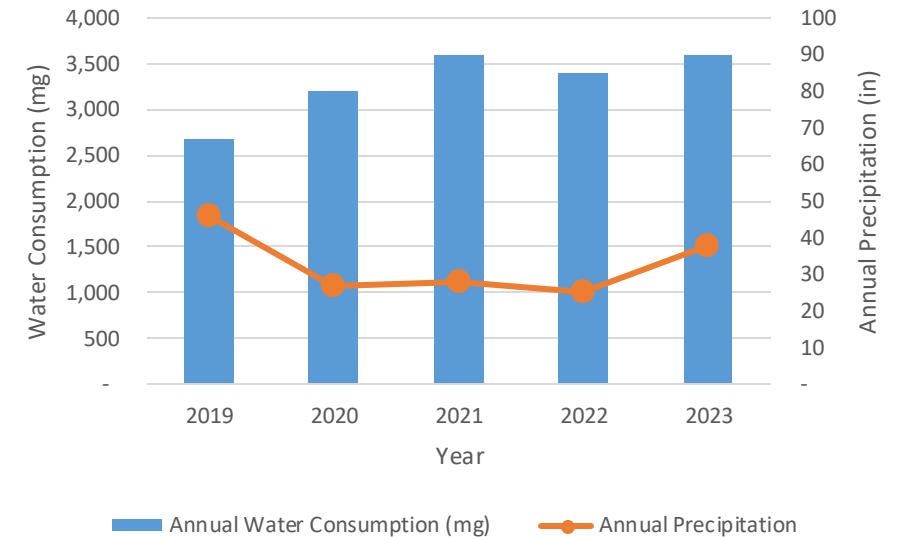
WATER CONSUMPTION

2023 Annual Total

2023 Water Consumption

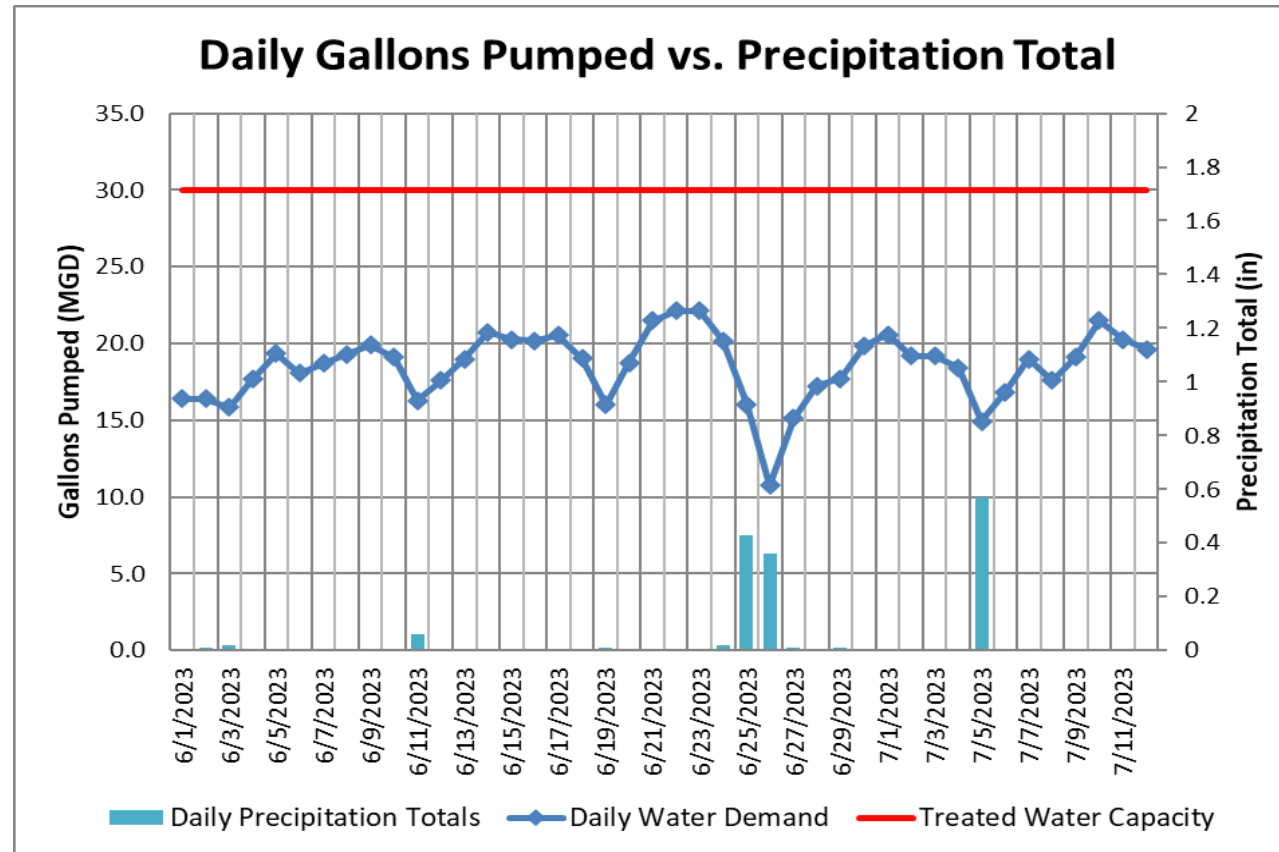


Plymouth 5-Year Water Consumption (mg)



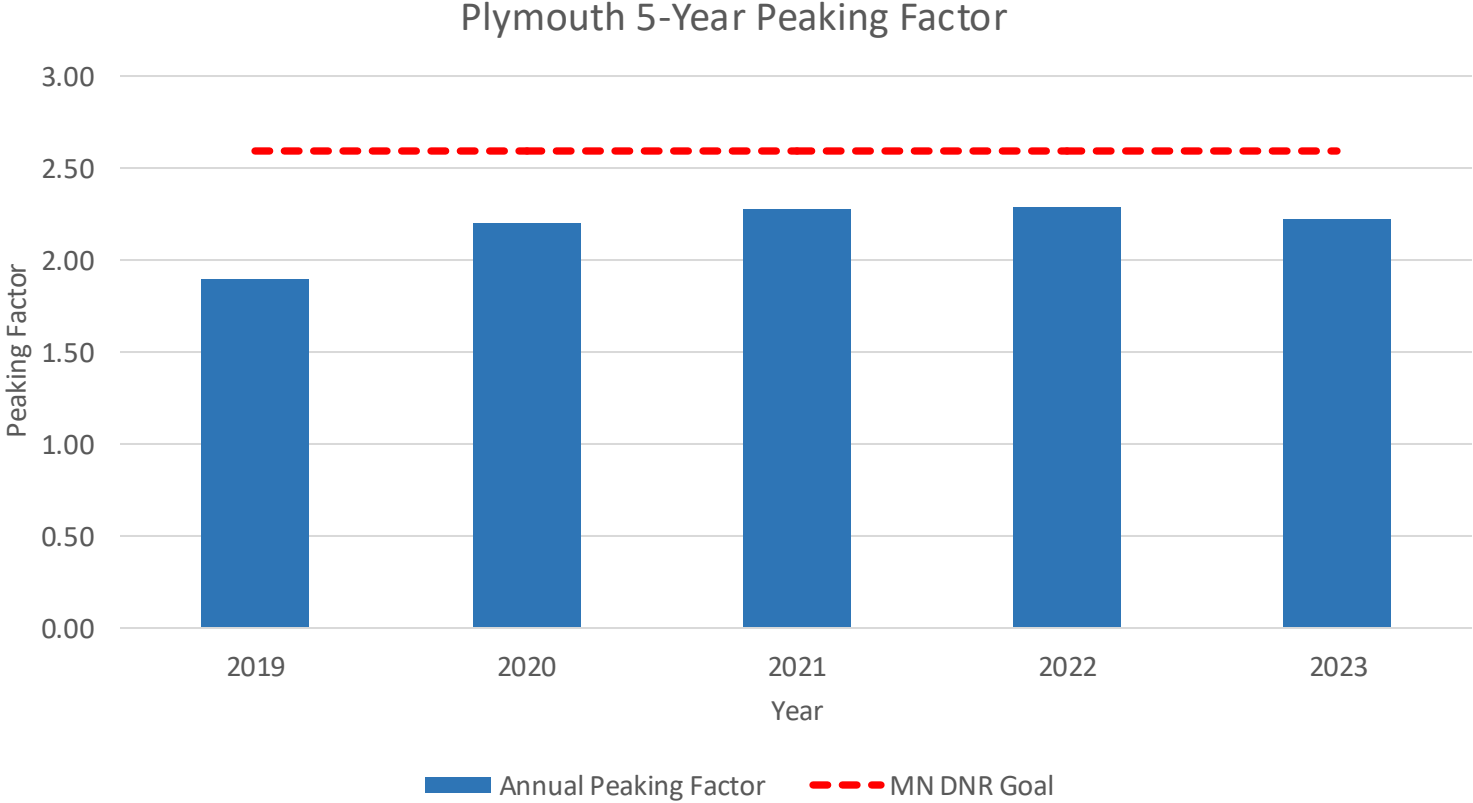
WATER CONSUMPTION

Precipitation Impacts on Water Demand



WATER CONSUMPTION

Annual Peaking Factor



WATER CONSERVATION

Irrigation Restrictions

Watering restrictions in effect May 1st through September 30th

- Odd-Even Schedule
- No watering Noon to 5 PM

Emphasizing resident education



Water Sprinkling Restrictions Reminder

Plymouth has restrictions on outdoor water use from May through September. Irrigation systems must be adjusted accordingly.

- **Lawn sprinkling is prohibited from noon to 5 p.m.** on all days.
- **Odd-even schedule is in effect** – addresses ending in odd numbers may water on odd-numbered calendar days (and vice versa).

Exceptions: Hand-held watering, private wells, recreation, etc.
Info: plymouthmn.gov/watering



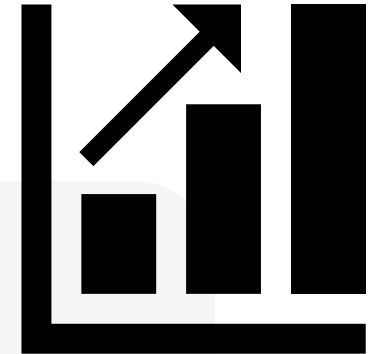
Notice of Violation

A violation of the restrictions at this property was observed. Subsequent offenses will incur fines (\$100 per violation).

Date of violation: _____



WATER CONSERVATION Tiered Rate Structure



Residential Tiered Rate Structure:

1. \$1.93 per 1,000 gallons up to 12,500 gallons
2. \$2.43 per 1,000 gallons from 12,501 to 35,000 gallons
3. \$4.18 per 1,000 gallons for all usage greater than 35,000 gallons

WATER CONSERVATION Annual Maintenance Programs

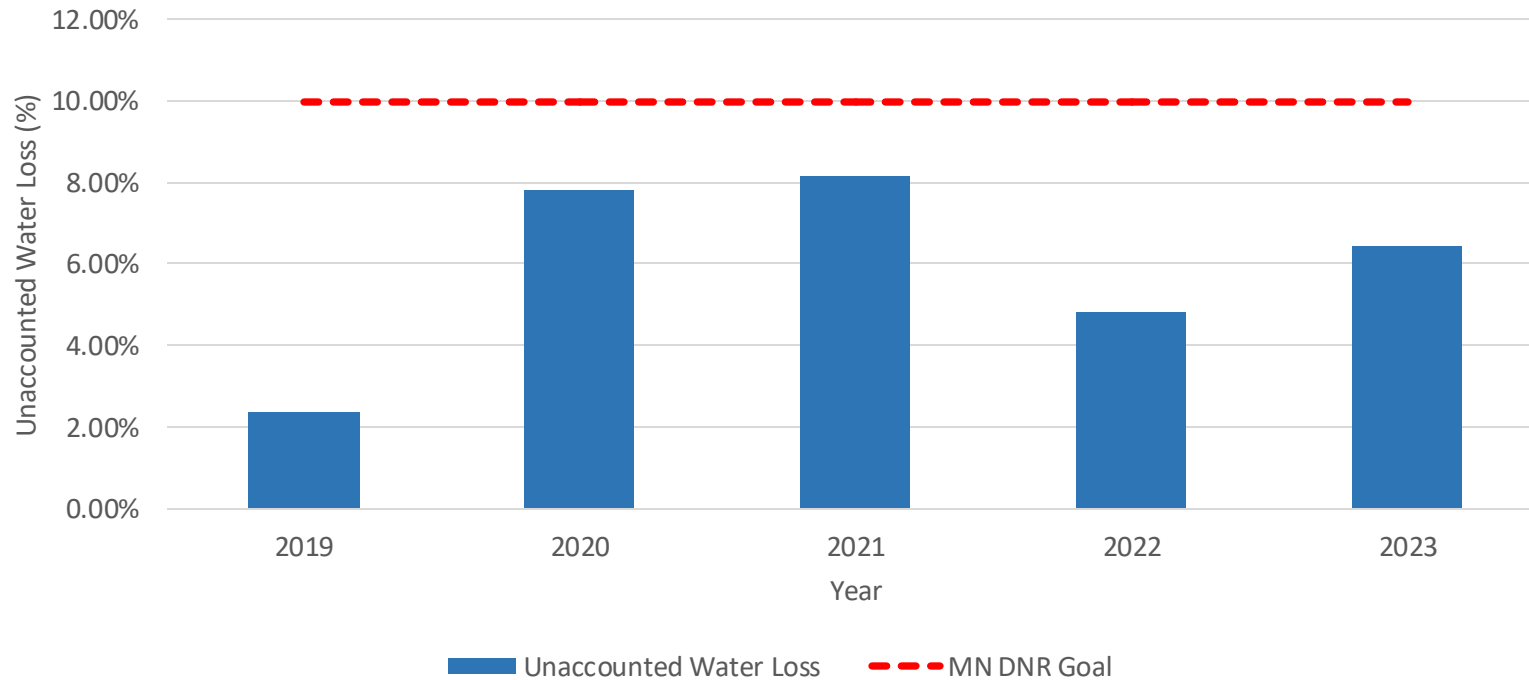
- Annual Leak Detection Study
- Valve Exercising Program
- In-House Valve Replacement



WATER CONSERVATION

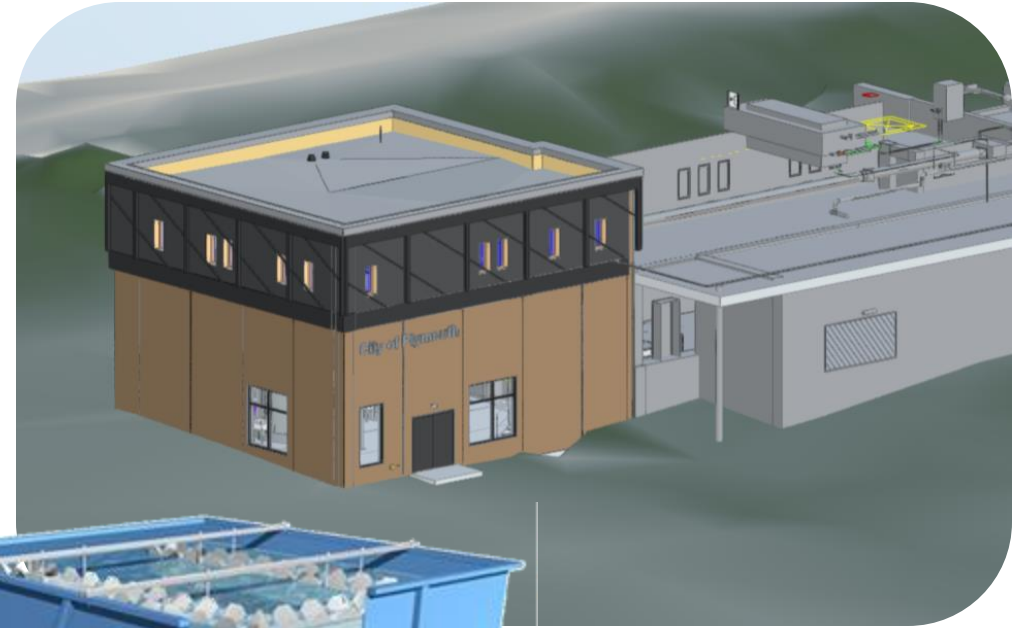
Unaccounted Water Loss

Plymouth 5-Year Unaccounted Water Loss (%)



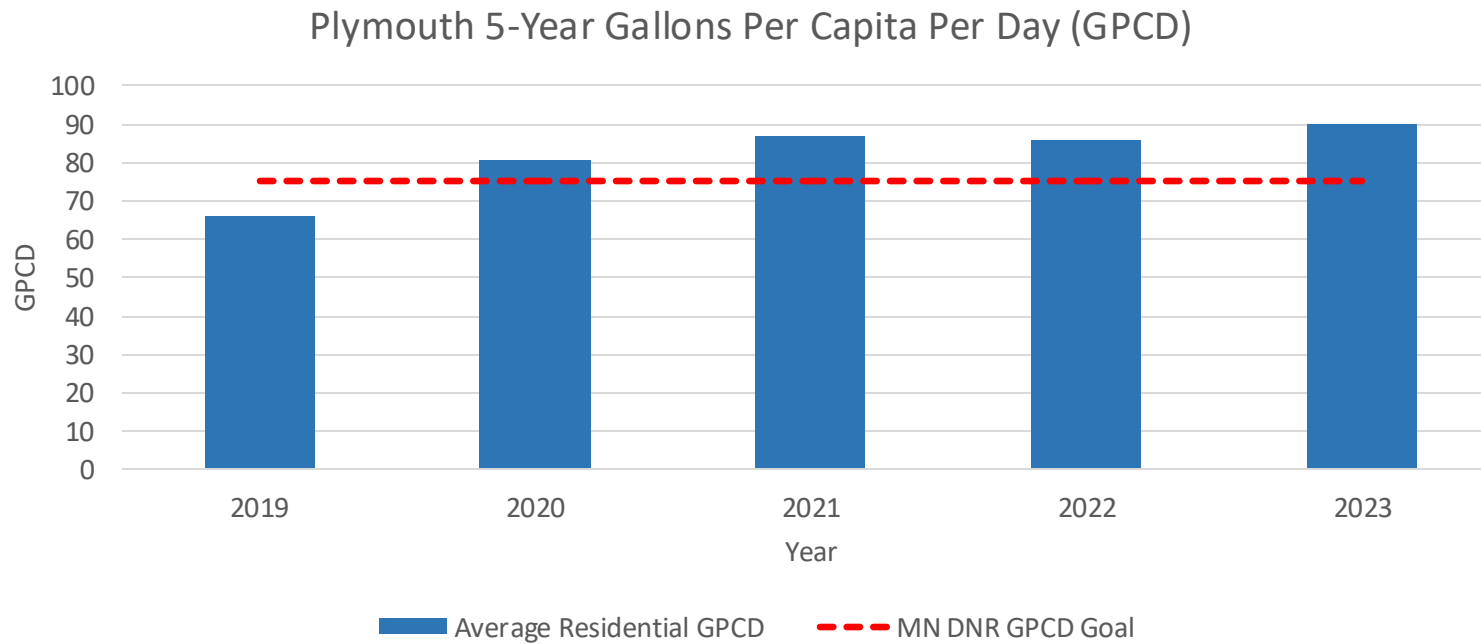
WATER CONSERVATION ZWTP Plate Settler Enhancement Project

- Increase backwash reclaim efficiency from 93% up to 98%
- HVAC/BAS Improvements

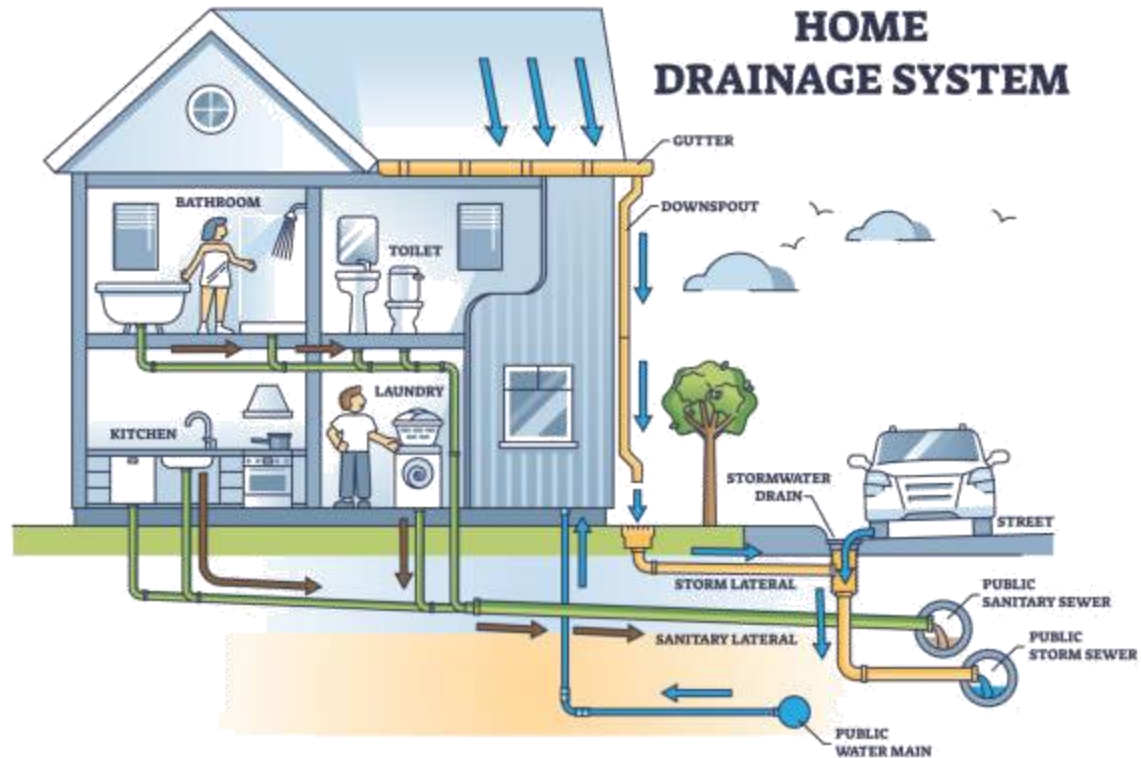


RESIDENTIAL WATER CONSUMPTION

5-Year Average GPCD



RESIDENTIAL WATER CONSUMPTION



How Much Water Do We Use?

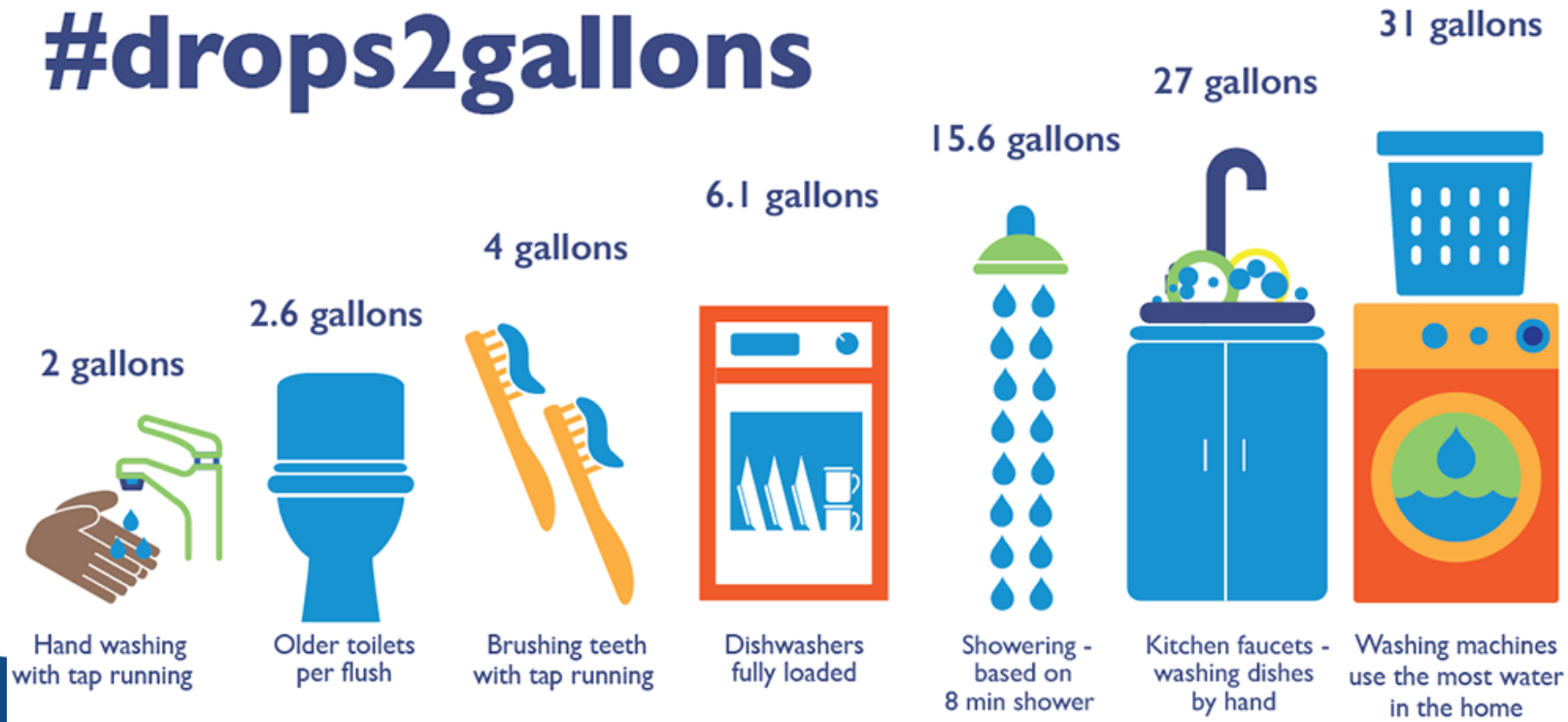


Source: Water Research Foundation, Residential End Uses of Water, Version 2. 2016



RESIDENTIAL WATER CONSUMPTION

How Much Water Do You Use? #drops2gallons



RESIDENTIAL WATER CONSERVATION

Ways to Conserve Water

WATER SAVING TIPS *at home*

1 CHECK ALL FAUCETS FOR LEAKS
Make sure that all faucets are properly shut off after use. Around 200 liters of water are wasted due to leaks.

2 AVOID USING RUNNING WATER TO THAW FROZEN FOOD
Thaw food properly by bringing it out of the refrigerator about an hour before cooking.

3 SHUT OFF THE TAP WHILE BRUSHING YOUR TEETH
Don't let water flow freely while you are brushing your teeth. Use a glass of water instead of collecting water directly from the tap.

4 USE A BASIN WHEN WASHING YOUR DISHES
Do not let water run freely while washing dishes. Use a basin of water to rinse the dishes.

5 SCHEDULE YOUR LAUNDRY DAY
Let all your dirty clothes accumulate before washing it to save on soap and water. The water used in rinsing the clothes can also be used in flushing the toilet.

6 INVEST IN WATER-EFFICIENT TOILET BOWLS
Newer models of toilet bowls offer a dual flush options: a half-flush for liquid waste, and a full-flush for solid waste.

Sources: Save Our Water, National Water Resources Board

5 WAYS to conserve WATER in the YARD

1 Use a broom, not a water hose, to clean driveways and sidewalks.

2 When your kids want to cool off, use the sprinkler where your lawn needs it most.

3 Use porous material when making walkways and patios to prevent wasteful runoff and keep water in your yard.

4 A running hose can let out up to 10 gallons of water per minute! Set your kitchen timer to remind you when to turn off the sprinklers.



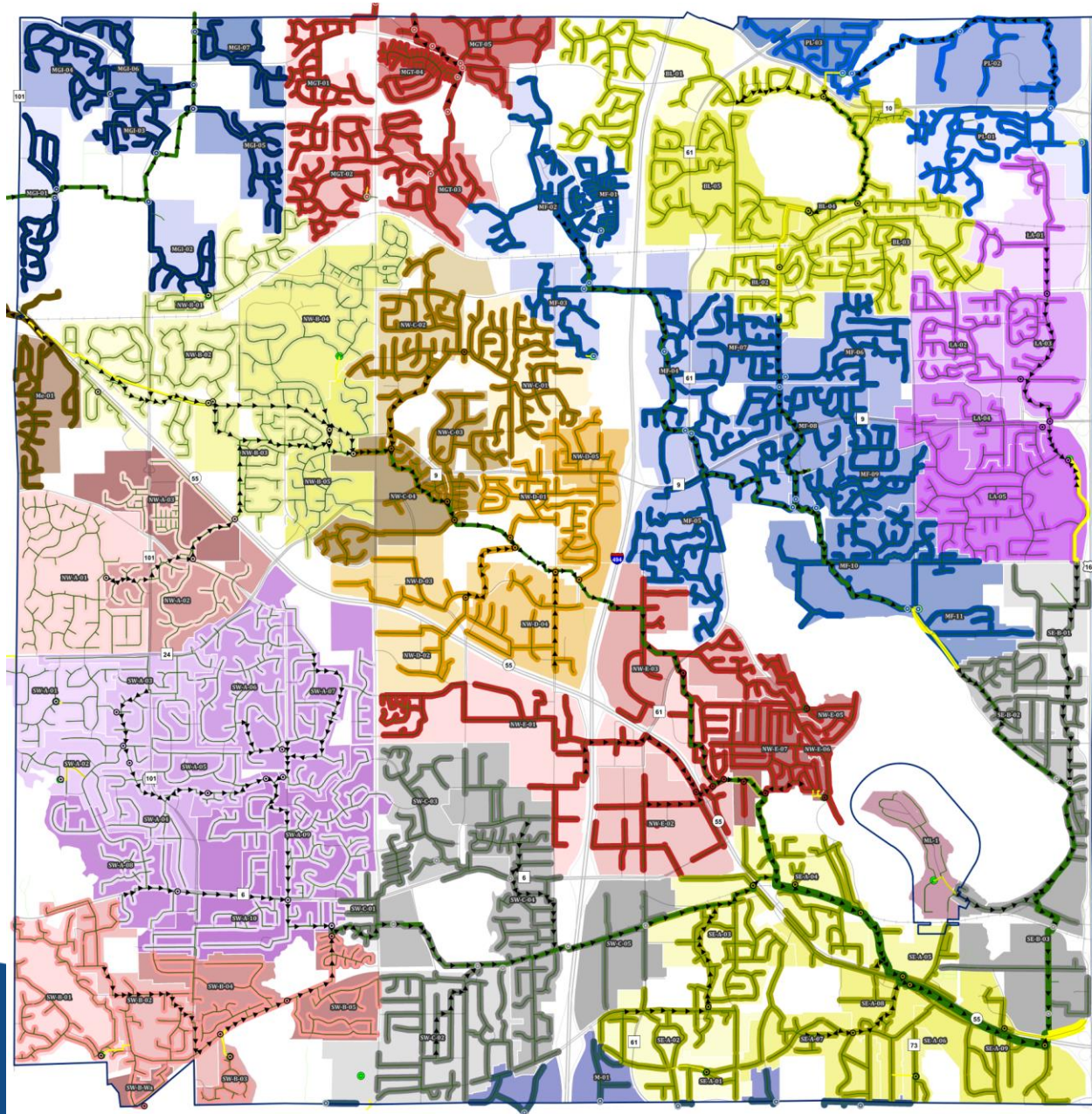
RESIDENTIAL WATER CONSERVATION Water Efficiency Rebate Program

Rebates for 75% of the cost, up to:

- \$50 for Toilets
- \$100 for Washing Machines
- \$100 for Dishwashers
- \$200 Irrigation Controllers and \$15 per Sprinkler Head up to \$500 (minimum 10 heads)
- \$125 for Soil Moisture Sensors
- \$200 for Irrigation System Audit

RECENTLY AWARDED \$43,000
FOR 2024-2026!



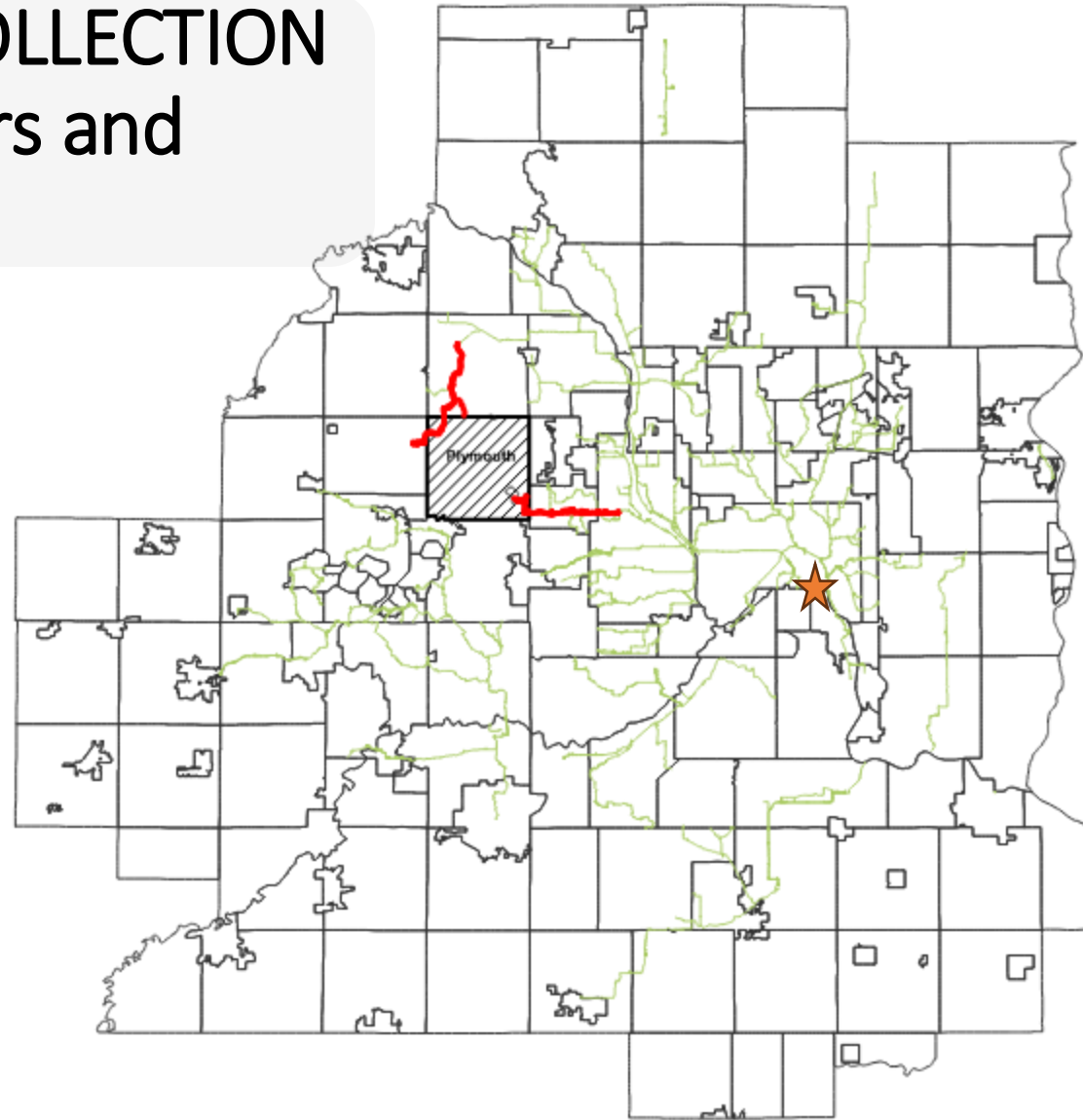


WASTEWATER COLLECTION Plymouth's System

- Asset Count:
- 9400 Manholes
 - 350 Miles of Pipe
 - 15 Lift Stations



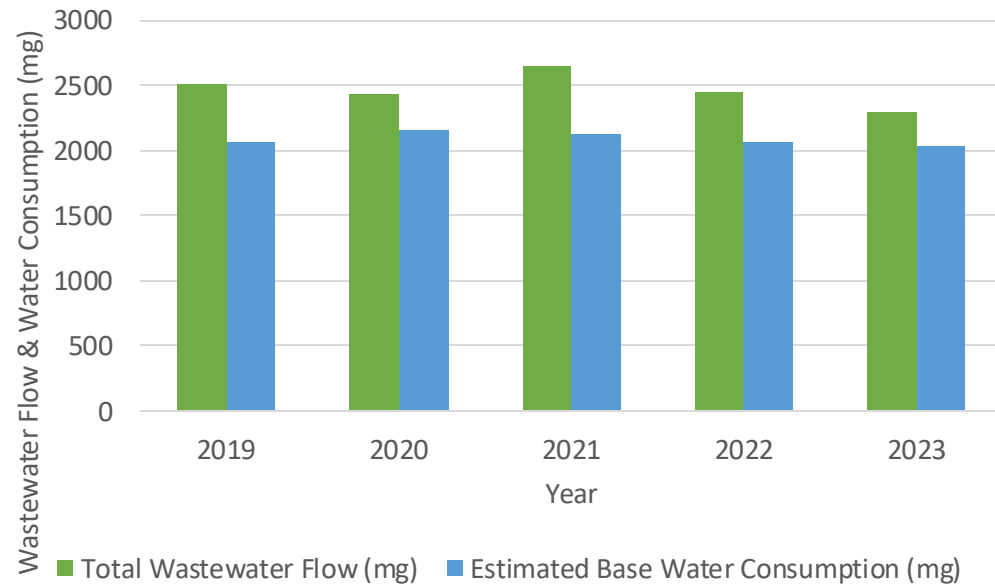
WASTEWATER COLLECTION MCES Interceptors and Treatment Plant



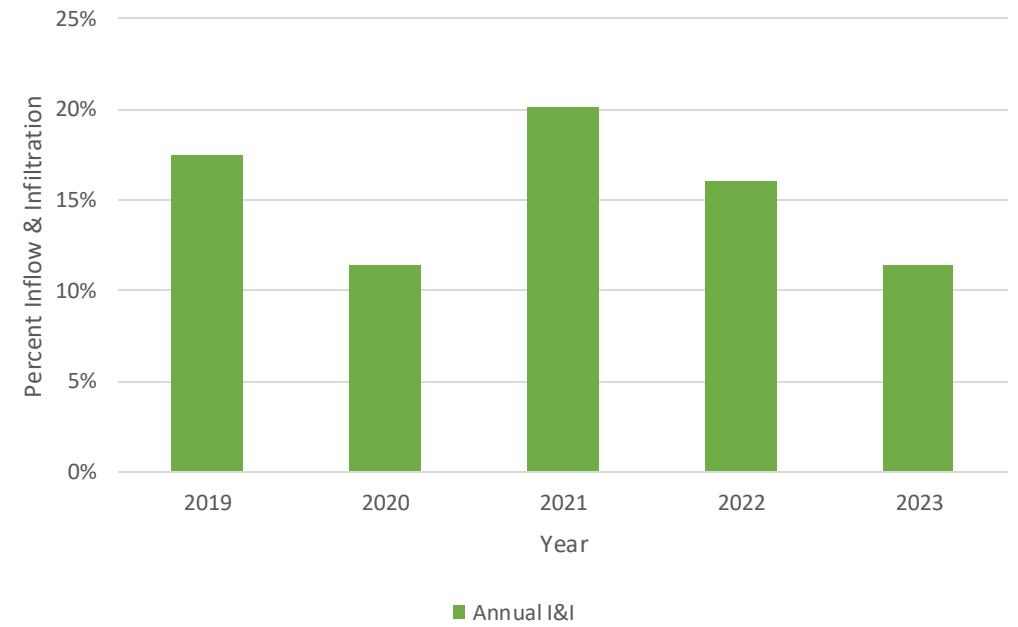
WASTEWATER COLLECTION

Wastewater Flow and I&I

Plymouth 5-Year Wastewater Flow vs. Base Water Consumption



Plymouth 5-Year Estimate I&I (%)



QUESTIONS?

**THANK YOU FOR THIS
OPPORTUNITY**

