

Water Quality Testing



History

- Prior to 2010 water quality was not a big issue for the City of Plano
- Prior to 2010/2011 we performed over 2,700 tests per year.
- In June 2010 and April 2011, the City of Plano violated the Total Coliform Rule (>5% of samples tested positive)
- We hired Malcolm Pirnie (Arcadis) to help us address water quality issues
- Testing was increased to over 19,000 tests per year
- Water Quality Technician added in FY 2011-12
- In the summer of 2014, we had problems maintaining water quality due to the water restrictions. By the time we found the problem, it was difficult to fix.



What do we Test for?

- Coliform*
- Disinfectant Level*
- Trihalomethanes, Haloacetic Acids*
- Lead/Copper (Every 3 years) *
- **Water Quality Parameters***
- **Pump Stations (1)**
- **Elevated Water Tanks (1)**
- **Distribution System Testing (1)**

* Required by TCEQ

(1) Test for Total Chlorine, Free Chlorine, Monochloramine, Free Ammonia, Temperature, ph, Nitrate, Nitrite, Alkalinity



Water Quality Indicators

- Positive Coliform Results
- Decreased/low chloramine residual
- High/Low free ammonia concentration
- High nitrite concentration
- Increased nitrate concentration
- High HPC counts
- Decreased pH
- Decreased alkalinity



Water Quality Control Strategies

- Periodic free chlorine burns
- Install storage tank mixers
- Maintain lower ground storage tank levels
- Cycle elevated tanks
- Distribution system flushing
- Boosting disinfectant
- Develop trigger levels and predefined actions



Goals

- Maintain best water quality possible
- Maintain chloramine residual
- Identify problems as soon as possible
- Reduce flushing



Costs 2014

- Cost of water flushed - ~\$150,000
- Public Works overtime - ~\$141,000
- Dechlorination tablets - ~\$ 88,000



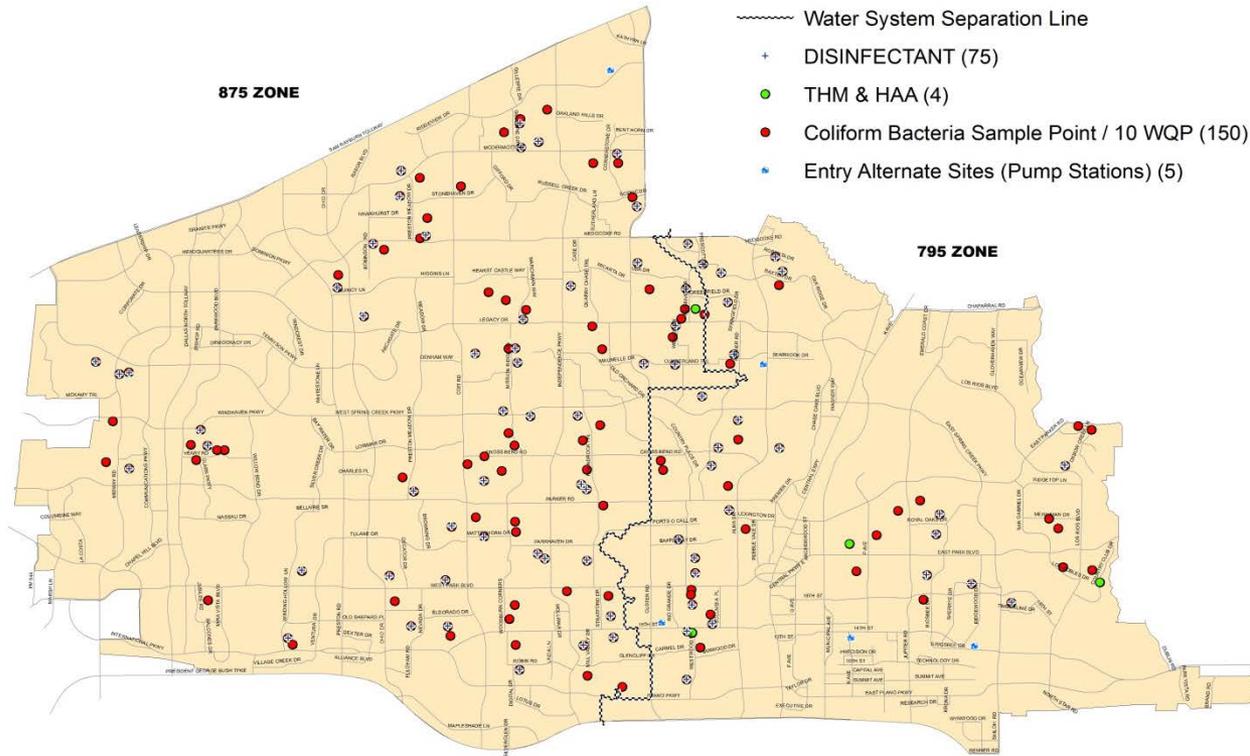
Tests

	<u>2010</u>	<u>2014</u>	<u>Future</u>
Coliform	1,800	1,800	1,800
Disinfectant	900	900	900
THM, HAA	64	96	96
Water Quality Parameter		100	100
Lead, Copper			
Pump Station		14,040	23,400
Elevated Water Tanks		2,376	10,296
Distribution		9,000	24,012
Total	2,764	19,312	60,604



Tests

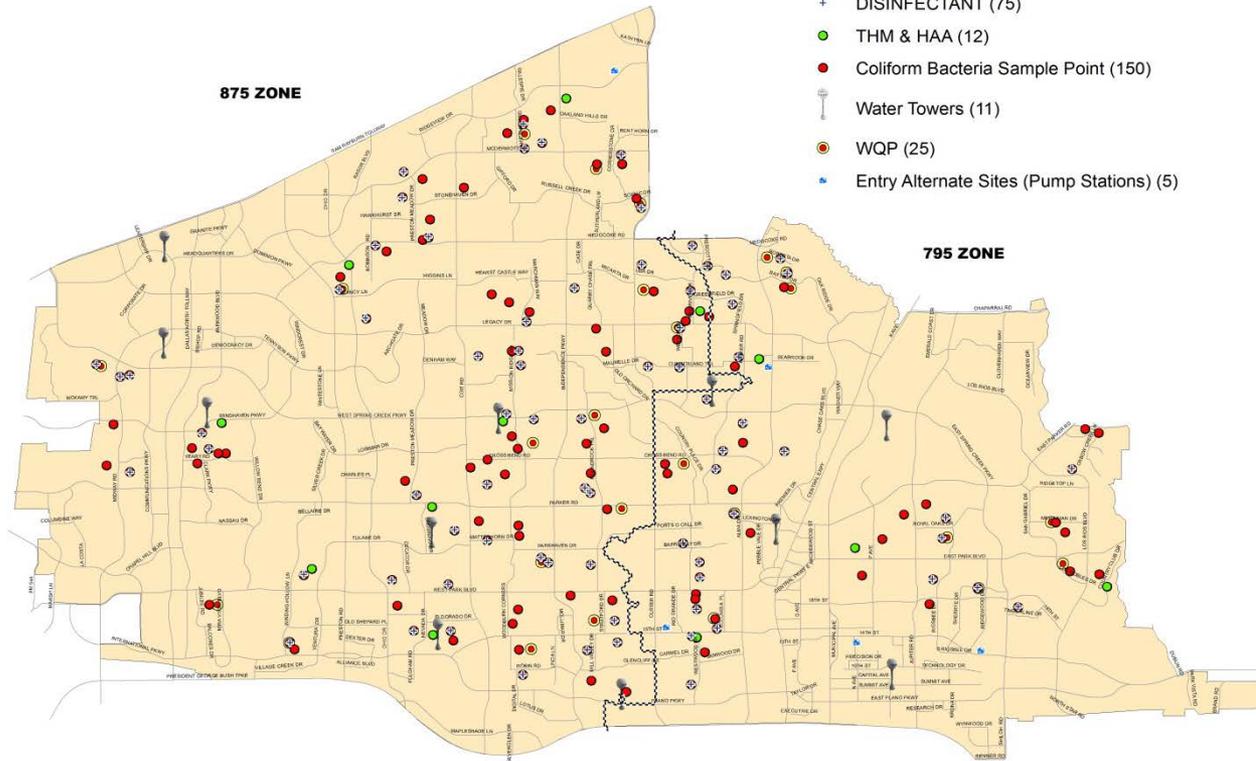
CITY OF PLANO WATER SAMPLE LOCATIONS Prior to July 2010



Tests

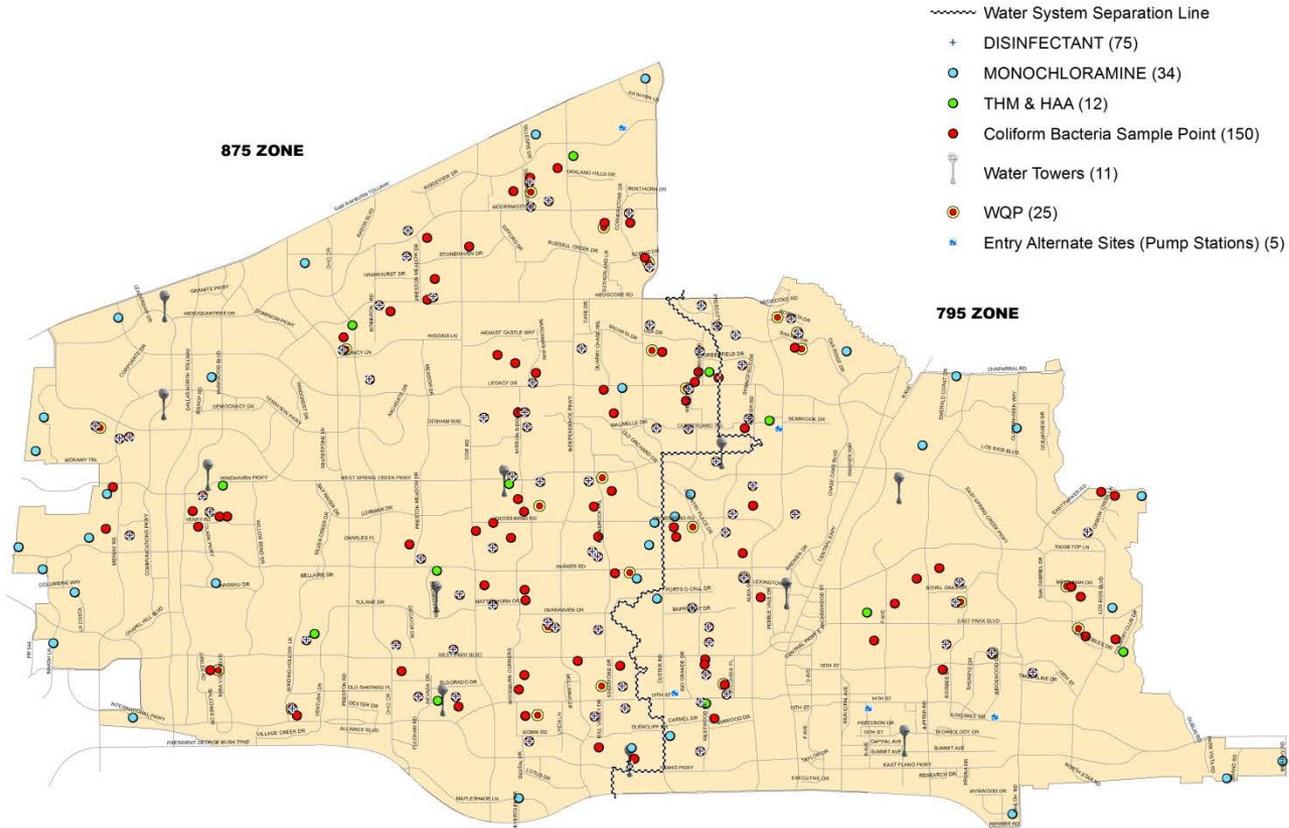
CITY OF PLANO WATER SAMPLE LOCATIONS July 2010 to Present

- Water System Separation Line
- + DISINFECTANT (75)
- THM & HAA (12)
- Coliform Bacteria Sample Point (150)
- Water Towers (11)
- WQP (25)
- ★ Entry Alternate Sites (Pump Stations) (5)



Tests

CITY OF PLANO WATER SAMPLE LOCATIONS PROPOSED



Proposal

New Personnel

WQ Supervisor, 2 Water Quality Tech

Annual \$ 223,860

On-going annual O&M:

Vehicle Depreciation-ERF	\$5,300	3	\$ 15,900
Garage Charges	\$2,500	3	\$ 7,500
PC Replacement	\$250	3	\$ 750
Clothing & Boots	\$500	3	\$ 1,500
Air cards + cell phone usage	\$960	3	\$ 2,880
Chemicals for testing samples	\$23,625	1	<u>\$ 23,625</u>

Total Annual O&M Expenses

Annual \$ 52,155

One time expense:

Vehicle (Ford Escape)	\$26,500	3	\$ 79,500
Tools	\$2,000	3	\$ 6,000
Laptop	\$1,000	3	<u>\$ 3,000</u>

Total One Time Expenses

One-time \$ 88,500

Total Annual Expenses \$ 276,015

Total One-time Expenses \$ 88,500

Grand Total \$ 364,515



Questions

