

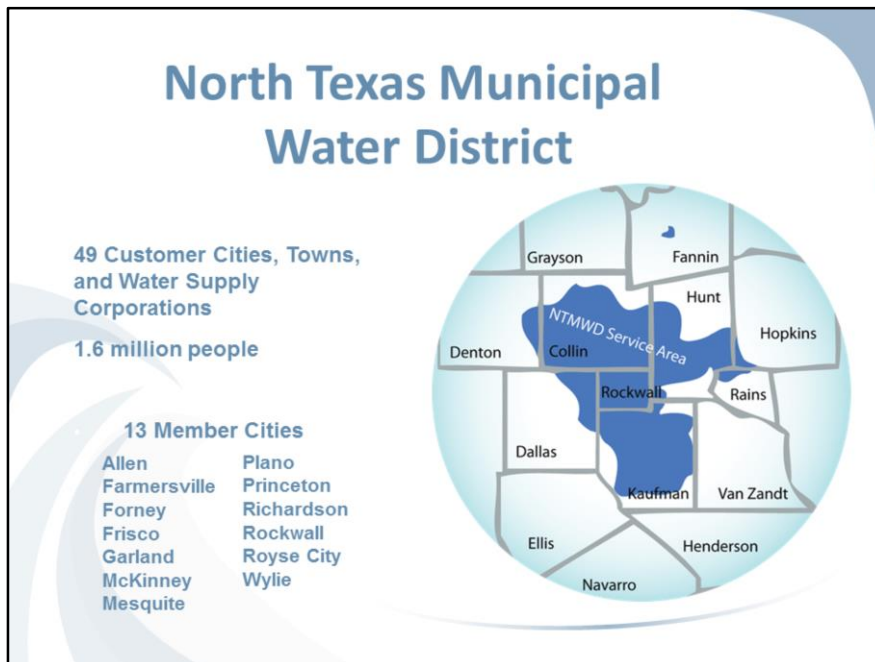


Frisco Texas:

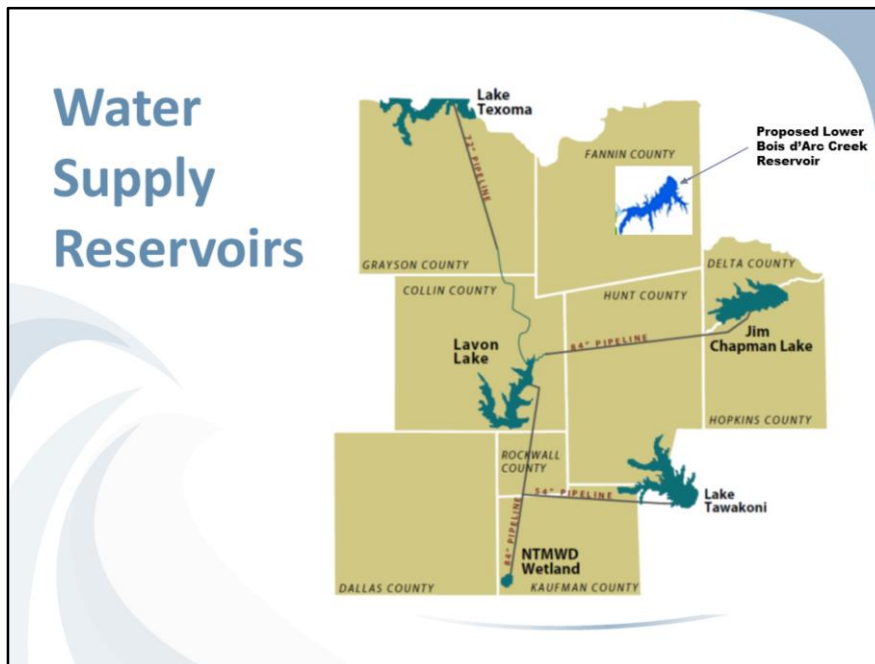
A Conversation about Conservation

Joyce Warren
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City of Frisco, Texas





The City of Frisco is a member City of the North Texas Municipal Water District. The District is comprised of member cities, customer cities, towns and water supply corporations. It services approximately 1.6 million people.



Frisco's primary water source is Lavon Lake. A portion of our water is also supplied by Lake Texoma, Jim Chapman Lake, Lake Tawakoni, and the John Bunker Sands Wetland, which filters millions of gallons of water back into Lavon Lake. The reservoir shown in Fannin County is a rendering of a new water supply source, the Lower Bois d'Arc Creek Reservoir. Construction is estimated for completion by 2020.

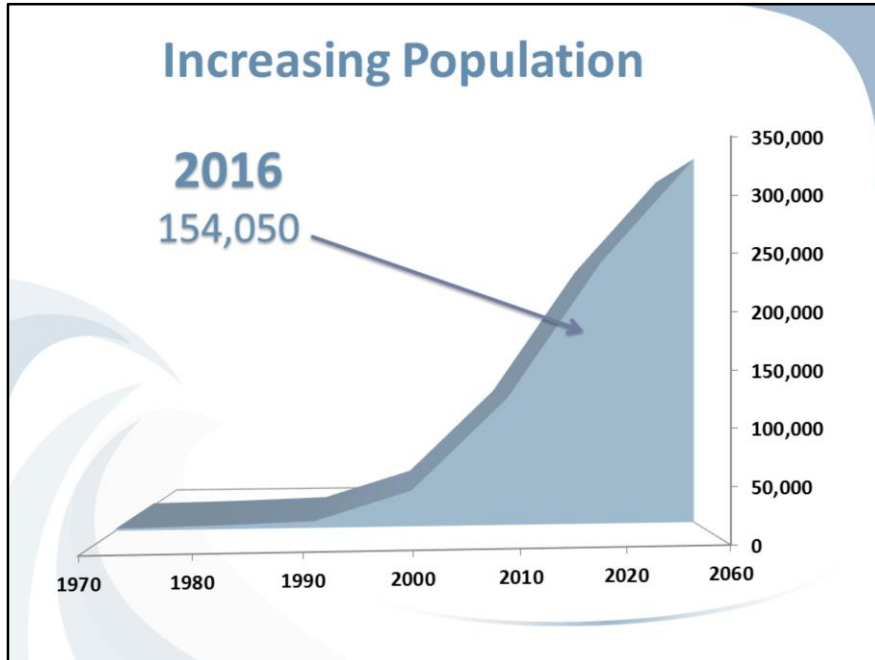
Location

- **Frisco, Texas**

- Denton and Collin County
- 70 square miles
- Bordered by McKinney, Plano, Allen, Little Elm, The Colony, and Prosper
- About 50% Developed



Frisco is one of nation's top five fastest growing cities, based on data from the Census Bureau.



Frisco has grown from 33,714 residents in the year 2000 to 154,050 as of March 2016. Build out is projected at 350,000 in 2060.

Frisco: Growth Characteristics

Rapid Growth

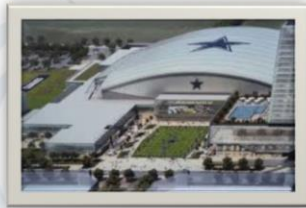
Water Usage

Water System Expansions

Irrigation Systems



Dr. Pepper Ballpark

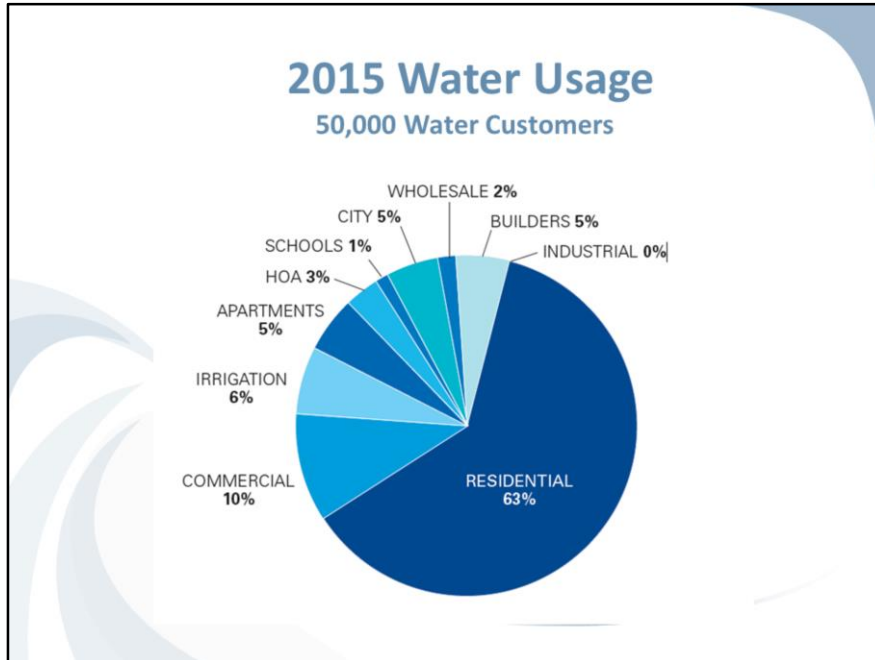


Dallas Cowboys Headquarters



Toyota Soccer Center

What makes Frisco unique? As one of the fastest growing cities, Frisco has needed to balance a population influx in a water taxed region. With a population growth of 247% from 2000 – 2009, the City of Frisco has needed to focus on water conservation efforts.



So, where does Frisco's water go? As you can see from the chart, 63% of the water consumption is residential – mainly for outdoor irrigation purposes. At one time, sprinkler systems were a luxury – now they are the norm.

Water Resources Team

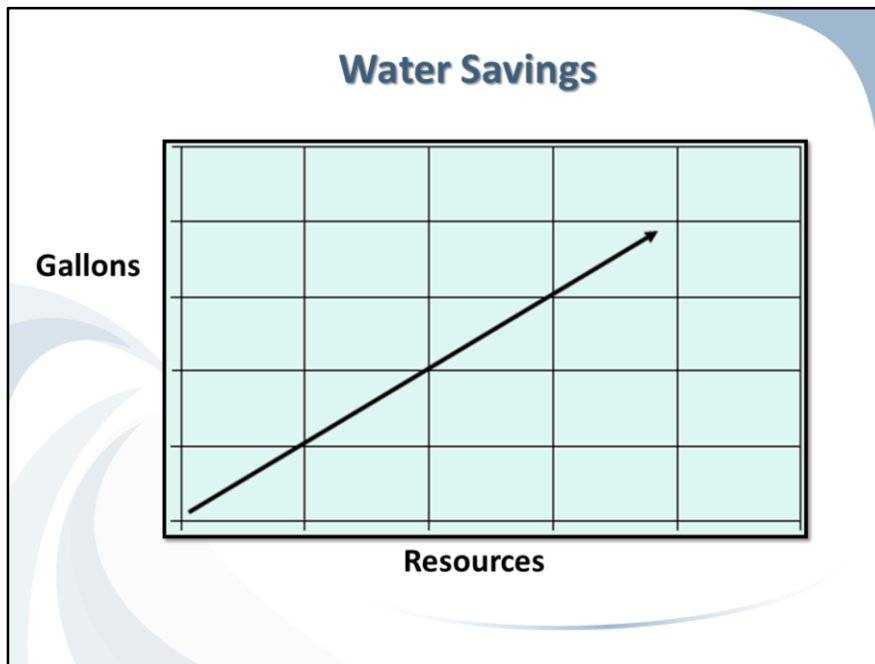


“All Things Water”

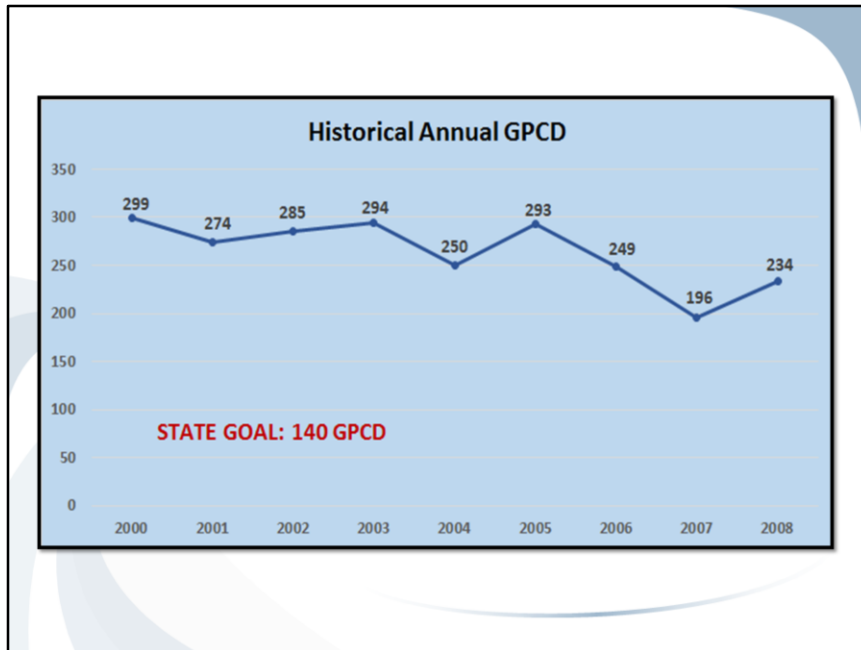
- Potable Water
- Stormwater
- Reclaimed Water
- Wastewater



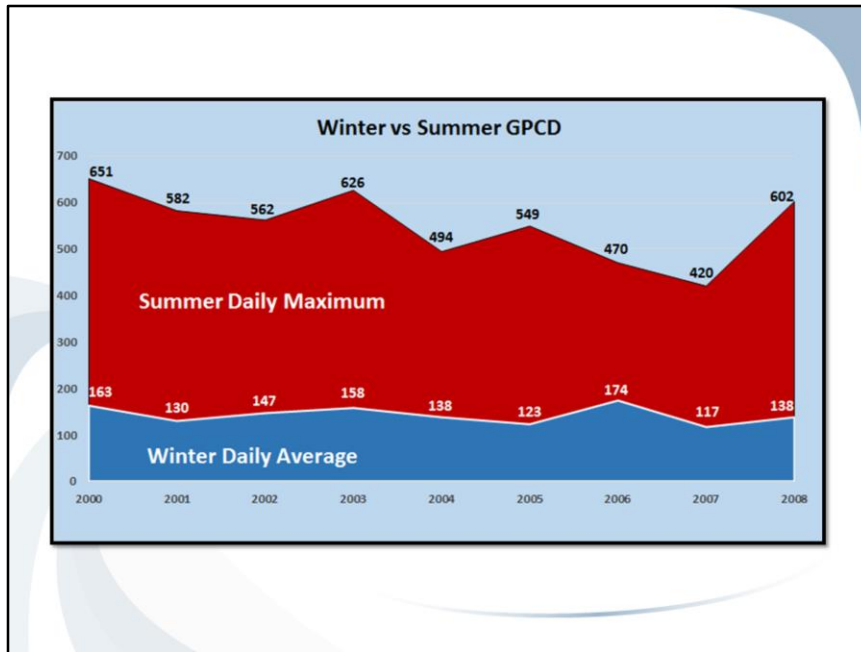
The Water Resources team is comprised of Water Education Coordinators and Licensed Irrigators. The team focuses on All Things Water...from water conservation to the preservation of our watershed, including reclaimed and wastewater education.



This slide demonstrates $\text{Resources} = \text{Gallons saved}$. All conservation programs can be effective in creating a shift in thinking about our water use for a more sustainable consumption over the long-term. The greater the resources, however, the greater the impact for water savings.



Frisco is comprised primarily of a demographic with a historically high outdoor use of water. The GPCD spiked in 2000, with a population of approximately 33,000 residents.



Water usage in the Summer is considerably higher than Winter usage, primarily due to the outdoor sprinkler systems.

Water Management Plan

Water Conservation – Frisco Based

Water Efficiency Plan (Year Round) – Daylight Saving Time
Emergency Service Levels I and II

Drought Contingency – NTMWD Based

Stage 1 : Mandatory – 5% Reduction (up to two days/week watering)
Stage 2 : Mandatory – 10% Reduction (one day/week watering)
Stage 3 : Mandatory – 10%+ Reduction (no outdoor watering)

Frisco's Water Management Plan is comprised of a Conservation plan and a Drought Contingency plan, as defined by the North Texas Municipal Water District. Frisco moved into the Water Conservation plan in May of 2015. During years of drought, the Water Resources team communicated watering restrictions and drought restrictions to our residents. In an effort to take a "positive" approach to water conservation, Frisco's City Council unanimously approved Best Management Practices for the long-term protection of our water supply.

Best Management Practices For Being Water Wise

Frisco's Best Management Practices allow for flexibility in watering lawns and landscapes. Our water customers are joining the effort to use water more efficiently and watering only when necessary, based on the City of Frisco's own weather station data.



Current Watering Schedule

Keep your sprinkler system turned OFF and check our website for watering recommendations based on Frisco's weather station data.

If watering is necessary, watering schedules are based on the regularly scheduled residential trash collection day.

No outdoor watering from 10 am to 6 pm during Daylight Saving Time.

Water using a hand-held hose, soaker hose, and drip/bubbler system up to two hours daily.



Free Sprinkler System Check-Up

Need help setting your sprinkler system controller? Contact us to schedule a free sprinkler system evaluation.



Weekly Lawn Watering Advice

Not sure how much to water your lawn?

Sign up for Frisco's weekly newsletters with lawn watering advice based on data from the City's weather station.



Plant Native and Adaptive Landscapes

Native and adaptive plants conserve water, beautify your landscape, attract butterflies, and are Texas tough for hot, dry summers.



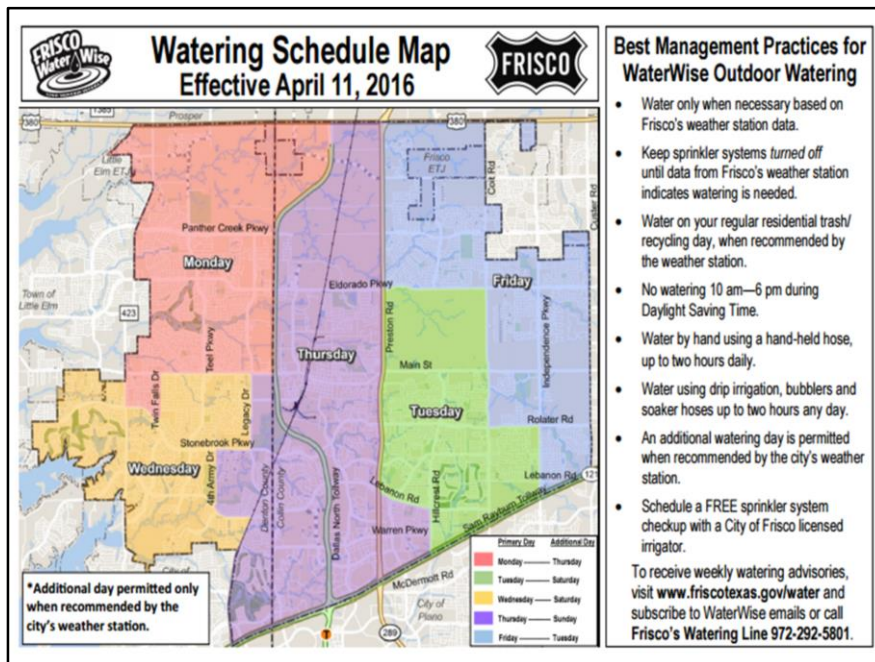
www.friscotexas.gov/water

waterwise@friscotexas.gov

972-292-5801 Frisco Watering Line

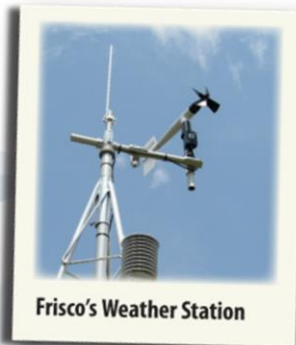


BMPs focus on the City of Frisco's own weather station data to determine whether watering is needed. The goal is to create programs to encourage residents to make responsible choices about their water use habits voluntarily, rather than through mandatory restrictions.

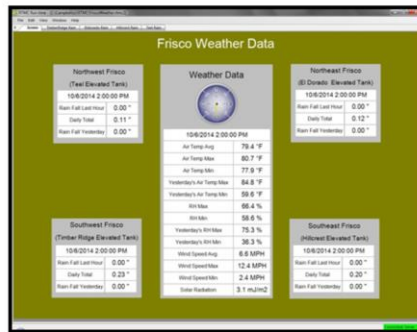


In Frisco water customers may water, using a sprinkler system, once-per-week on their residential trash/recycling day. An additional day is permitted only when recommended by the City's weather station.

ET Weather Station



- Installed in 2009
- Four Automatic Rain Gauges
- Texas A&M Methodology



Weather Computer Screen

In 2009, the City of Frisco installed a Campbell Scientific weather station with four automatic rain gauges, one located in each quadrant of the city. Weather station data takes the guesswork out of whether residents need to apply water to their lawns and landscapes. In addition to daily temperature, precipitation, and wind speed, it collects evapotranspiration (ET) data, which determines how much water is lost from landscapes on a daily basis.

Lawn Watering Advice

YEAR	NO WATERING	ONCE A WEEK	TWICE A WEEK	# WEEKS
2015	34	15	3	52
2014	40	12	0	52
2013	35	17	0	52
2012	31	20	1	52
2011	33	8	11	52
2010	25	24	3	52
	198	96	18	312
	63%	31%	6%	100%

Using Texas A&M methodology, city staff calculates the weekly watering recommendations on Monday mornings, based on data collected from the previous week.

Case Study - Residential Landscape



This home in Frisco has been involved in a case study since 2010. It has followed the watering recommendations based on Frisco's weather station data. The lawn and landscape is healthy and has matured nicely, even after years of drought.



WaterWise Newsletter for Monday, September 21, 2015

Weekly Lawn Watering Advice



One day of watering is needed for the week of Monday (9/21) - Sunday (9/27). Please apply up to 0.25 Inches of water using the **Cycle and Soak method** to your lawn on your regular trash collection day. Learn to apply the correct amount of water at friscotexas.gov/wateringwisely.

Residents may hand-water using a hand-held hose with an automatic irrigation, or bubbler system up to two hours daily. Watering is from 6 am - 6 pm.

- Frisco Website
- Watering Line
- Newsletter

YEAR	SUBSCRIBERS
2010	412
2011	865
2012	1,215
2013	4,485
2014	10,572
2015	14,894
2016	15,628

Weekly watering recommendations are delivered to your inbox every Monday morning, and include watering advice, tips on how to apply water efficiently, as well as updates on upcoming events and programs in Frisco. The weekly watering recommendations are also posted on our website (www.friscotexas.gov/water) and recorded on the 24/7 informational watering line (972-292-5801).

Free Sprinkler System Check-Ups

Year	Annual Checkups
2006	660
2007	515
2008	933
2009	1,260
2010	1,193
2011	1,592
2012	2,673
2013	2,599
2014	3,653
2015	3,496



The City of Frisco offers FREE sprinkler system checkups annually to residents. A licensed irrigator with the City can guide you through your sprinkler system operation and evaluate its water use efficiency. You will learn how to find and repair minor broken or misaligned sprinkler heads, make scheduling adjustments to your controller, and increase your water-use efficiency outdoors.

Violation Fees

- 1st Violation - **\$50**
- 2nd Violation - **\$100**
- 3rd Violation - **\$200**
- 4th Violation - Citation
- Fee added to Frisco Utility Bill
- 1st violation fee can be waived



Another means of preserving our water supply is through enforcement. As part of the Water Management Plan, the fees are assessed onto the utility bill. Because education is key, a first watering violation can be waived with a free sprinkler system checkup.

Beware of the Red Sign during drought restrictions



The red violation sign became well known in Frisco during the drought. When water waste was identified, a meters division employee would turn off the irrigation system at curb and stake a red sign near the irrigation meter. This method was developed to immediately stop the water waste from happening.

Water Waste in Frisco

Watering Violations



Watering hard surfaces
ex: streets, sidewalks



Watering flowing away
from property



System in need of repair



Watering during rain
or below 40 degrees

These are some common types of water waste.



The City of Frisco WaterWise Program hosts a variety of workshops and events for Frisco residents. These events cover water-saving techniques and conservation principles to help preserve and protect our most valuable resource. Some examples include a Rainwater Harvesting workshop, which is coupled with an annual Rain Barrel Sale. More than 1200 rain barrels are being used in Frisco because of the rain barrel sale partnership. Other workshops include Healthy Lawns, Irrigation Quick Fixes, Drip Irrigation, and Fix A Leak workshops, to name a few.



WaterWise Education *Using Water Wisely*

Sprinkler System Checkups

WaterWise Workshops

Weekly E-Newsletter

Block Captain Program

HOA Partnerships

Smart Controller Rebates

New Home Irrigation Checkups

Conserve Track Software

Rain Barrel Sale

Texas SmartScape Plant Sales

Commercial Irrigation Checks

Weather Station Pledge

Take a glance at the programs available in Frisco to educate residents to reduce water usage.

SPRINKLER INSPECTIONS (HB 1656)



Month	Irrigation Inspections	Irrigation Permits Processed
July	274	218
August	249	152
September	314	165
October	203	193
November	220	169
December	267	160
January	228	193
February	319	231
March	257	186
TOTAL	2331	1667



With Texas House Bill 1656, the inspection of newly installed irrigation systems was moved to Water Resources in July 2015. HB 1656 requires new systems to be inspected by a Licensed Irrigation Inspector, rather than a Licensed Plumber.

AMR to AMI Reading



Meter Testing



Other areas to improve efficiency include the installation of AMI meter reading, and a dedicated meters team to test meters for accuracy as part of our leak detection program.

Water Wells



Warren Park

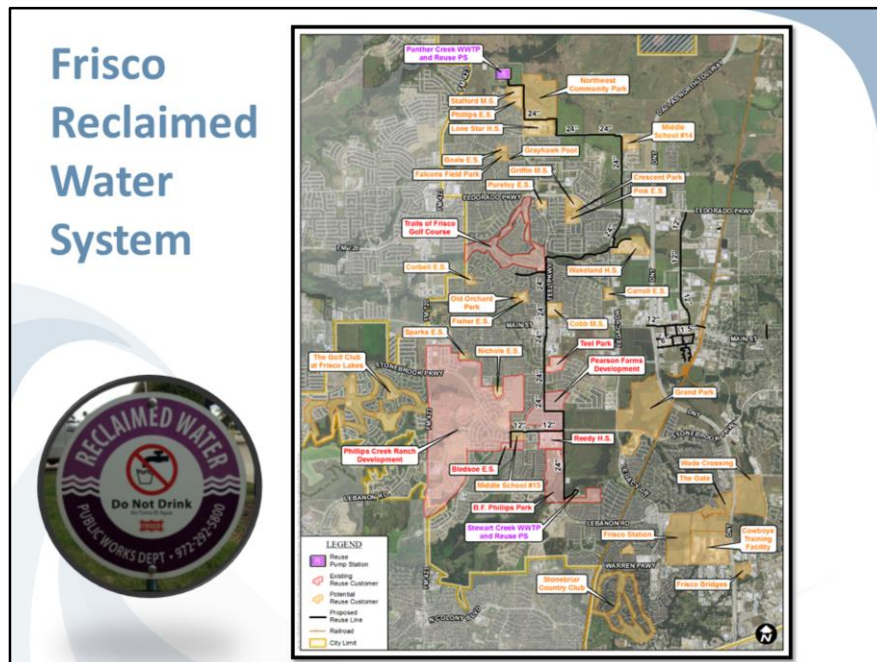


Bacchus Park



Frisco Commons

Three parks have been converted to well water in an effort to reduce usage on the potable water system, with an estimated savings of 315 million gallons per year.



In 2008, the City of Frisco secured a Type I reclaimed water permit from the TCEQ for the reclaimed water system, otherwise known as the "Purple Pipe" program. The locations have been strategically selected to offset high irrigation demands.

Reclaimed Pump Stations



Stewart Creek



Panther Creek



Based on the current wastewater treatment plant capacities, Frisco's "purple pipe" program saves approximately 5.5 billion gallons of water per year.

Reclaimed Water Customers



The Trails Golf Course



Pearson Farms Common Areas



B.F. Phillips Park



Stewart Creek
Greenbelt

In addition, parks, golf courses, and HOA common areas are irrigated with reclaimed water.

FISD Partners with Frisco



Bledsoe Elementary



Reedy High School



Pearson Middle School



The City has partnered with the Frisco Independent School District. Schools built in close proximity to the reclaimed water line can tap into the system.

Reclaimed Water Program For Fountains



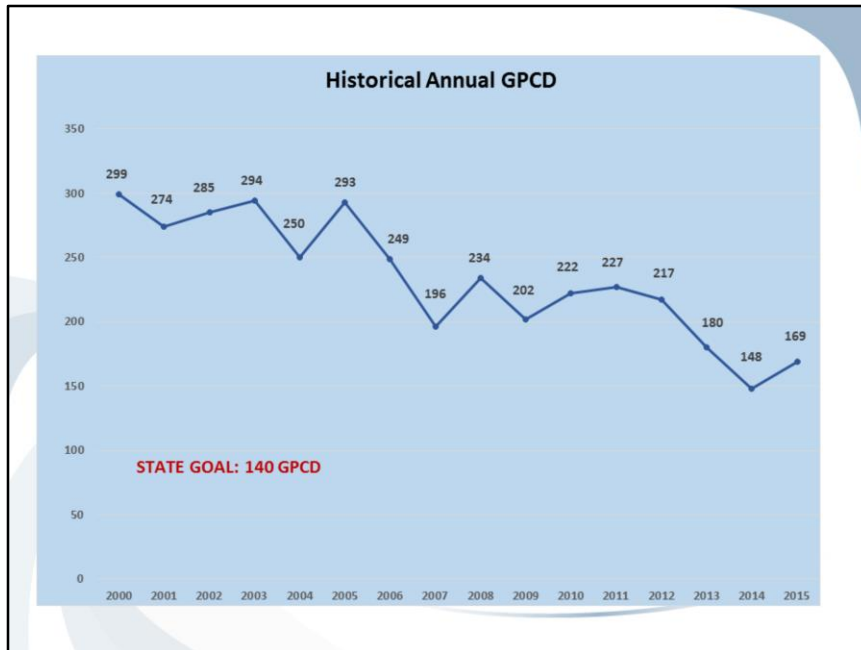
Fountains throughout the city have also been converted to participate in the reclaimed water program.

Watershed Protection

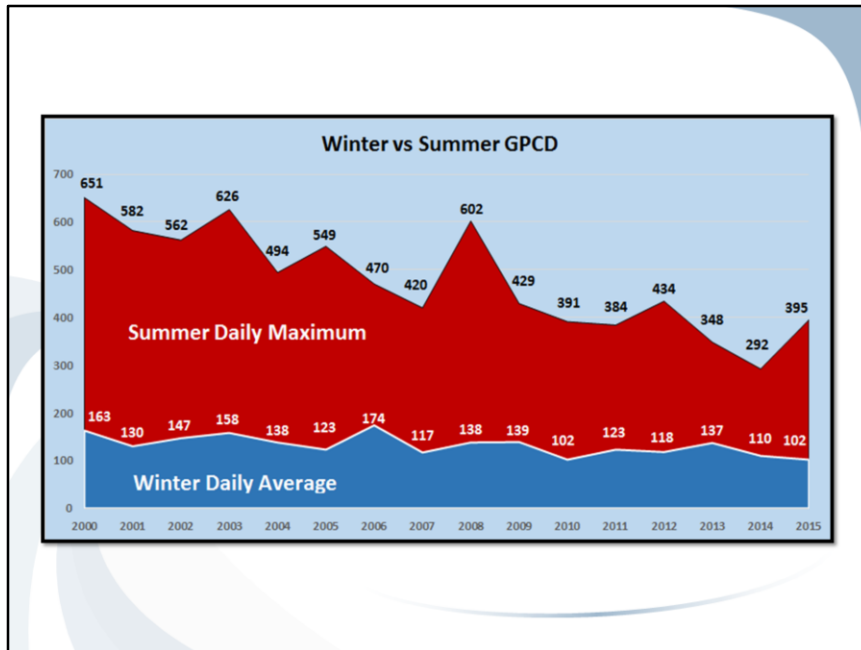
More than 5,000 storm drains marked



Frisco is committed to Watershed Protection. The Water Resources team partners with Eagle Scouts, Boy Scout Troops and Girl Scout Troops to educate and create hands-on programs for the protection of our environment.



On average the annual GPCD has continued to fall since the year 2000. The closest we have been to the state goal of 140 GPCD was in 2014, in spite of the increase in population.



Since the installation of the weather station, the summer daily maximum has consistently decreased. Our continued challenge will be to reduce water waste resulting from outdoor sprinkler systems.



We don't know exactly how water usage will be impacted – now that we have moved out of drought conditions. Therefore, it is ever more important to continue the Conversation about Conservation .