



Raising the Bar: Irrigation by Design



LANDSCAPE IRRIGATION STANDARDS

HOW MUNICIPALITIES CAN HELP CUSTOMERS AND INCREASE CONSERVATION

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WHEN PLANNING FOR LONG-TERM WATER AVAILABILITY, HOW BIG OF AN ISSUE IS OUTDOOR IRRIGATION?

- WE HAVE ALL HEARD THE STATISTIC THAT IN A TYPICAL CENTRAL TEXAS SUMMER ANYWHERE BETWEEN 50-70% OF A MUNICIPAL WATER SYSTEM'S USAGE IS PURELY DUE TO OUTDOOR IRRIGATION.
- WITH SUMMER IN CENTRAL TEXAS LASTING FROM APRIL THROUGH NOVEMBER, THIS IS A SIGNIFICANT PERCENTAGE OF A WATER SYSTEMS TOTAL ANNUAL PRODUCTION.

SO IF WE WANT TO INCREASE CONSERVATION, WHY NOT JUST ELIMINATE OUTDOOR IRRIGATION?

- NEITHER CUSTOMERS, NOR UTILITIES ARE READY FOR THIS YET
- ROAD BLOCKS:
 - CUSTOMERS –
 - EDUCATION AND AWARENESS OF NEED FOR CONSERVATION
 - ACCEPTANCE OF THE ENVIRONMENT AND LIMITED NATURE OF THIS RESOURCE, ESPECIALLY IN TIMES OF DROUGHT.
 - UTILITIES –
 - PLANNING FOR A 20-30% REDUCTION IN REVENUE.
 - NEED TO MOVE TOWARDS OPTIMIZING YEAR ROUND OPERATIONS FOR DROUGHT CONDITIONS AND CEASE VARIABLE OPERATIONS BASED ON WATER AVAILABILITY

THE BEST CONSERVATION POLICIES SHOULD BE A COMPROMISE

- THE MOST SUCCESSFUL COMPROMISES USUALLY LEAVE EVERYONE AT THE TABLE SOMEWHAT UPSET.
 - THIS IS BECAUSE ALL PARTIES HAD TO SACRIFICE SOMETHING
- WCID NO. 17 KEPT THIS IN MIND WHILE EVALUATING WHAT REQUIREMENTS TO INCLUDE IN OUR UPDATED IRRIGATION RULES.

WHERE DID WE START?

- WE REACHED OUT TO, AND RECEIVED INPUT FROM LOCAL IRRIGATORS/CONTRACTORS.
- WE RECEIVED INPUT FROM THE LCRA. THEY PROVIDED THEIR WATER CONSERVATION PLAN REQUIREMENTS WHICH WE EVALUATED AND IMPLEMENTED MUCH OF.
- WE USED THE TEXAS WATER DEVELOPMENT BEST MANAGEMENT PRACTICES FOR WATER CONSERVATION:
 - SPECIFICALLY,
 - SECTION 5.5 – RESIDENTIAL LANDSCAPE IRRIGATION EVALUATIONS
 - SECTION 7.5 – WATER WISE LANDSCAPE DESIGN AND CONVERSION PROGRAMS
 - SECTION 9.3 – ENFORCEMENT OF TEXAS IRRIGATION STANDARDS

WHAT SIGNIFICANT CHANGES DID WE MAKE TO OUR REQUIREMENTS

- WE LIMITED THE IRRIGABLE AREA TO 2.5 TIMES THE FOUNDATION FOOT PRINT OR 12,000 SQUARE FEET (WHICHEVER IS GREATER).
 - LIMITED TOTAL AREA THAT CAN BE TURF TO A MAXIMUM OF 7,000 SQUARE FEET.
- WE REQUIRE THAT NATIVE GRASSES BE USED – NO ST. AUGUSTINE GRASS ALLOWED.
- WE REQUIRE THAT TURF IRRIGATION ZONES BE COMPLETELY SEPARATED FROM OTHER ZONES.

WHAT SIGNIFICANT CHANGES DID WE MAKE TO OUR REQUIREMENTS

- WE REQUIRE 6" OF TOP SOIL.
 - NO SANDY LOAM, NO CALICHE AND MUST BE A MINIMUM OF 20% COMPOST AND LESS THAN 20% CLAY.
- WE REQUIRE A LICENSED IRRIGATOR TO BE ONSITE THROUGHOUT ALL CONSTRUCTION, INSTALLATION ACTIVITIES.

WHAT PUSH BACK DID WE RECEIVE?

- WE LIMITED THE IRRIGABLE AREA TO 2.5 TIMES THE FOUNDATION FOOT PRINT OR 12,000 SQUARE FEET (WHICHEVER IS GREATER).
 - TURF AREA CAN NOT EXCEED 7,000 SQUARE FEET.
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OUR PROCESS

- APPLICATION:
 - PLANS
 - ANNUAL WATER BUDGET
 - SUBMITTED BY A LICENSED IRRIGATOR

- PLAN REVIEW:
 - SQUARE FOOTAGE EXCEEDED ALMOST 100% OF THE TIME
 - TURF/SOIL REQUIREMENTS NOT CALLED OUT ON PLAN SET
 - FOR COMMERCIAL APPLICATIONS OFTEN CALLS FOR DOUBLE CHECK VALVE VS. RPZ

OUR PROCESS

- **PRECONSTRUCTION MEETING:**
 - REVIEW ALL WCID REQUIREMENTS WITH CONTRACTOR AND INSTALLING LICENSED IRRIGATOR. BOTH MUST BE PRESENT AT PRECONSTRUCTION MEETING.
 - MUST LAY OUT CLEARLY THE REPERCUSSIONS FOR NOT FOLLOWING REQUIREMENTS.
- **SITE INSPECTIONS:**
 - THE MOST VITAL PART OF THE PROCESS.
 - WE PERFORM TWO REQUIRED INSPECTIONS AND A MINIMUM OF TWO QUALITY CONTROL INSPECTIONS.
 - OFTEN LICENSED IRRIGATOR IS NOT ONSITE.
 - SOIL TYPE, TURF TYPE, AND IRRIGATION AREA ARE OUR MOST COMMON ISSUES FOUND DURING INSPECTIONS.

 WCID No. 17

Travis County



OTHER RELATED IDEAS TO IMPROVE CONSERVATION WITHOUT DISADVANTAGING THE CUSTOMER

- CONSIDER INTRODUCING OR EXPANDING YOUR EFFLUENT REUSE PROGRAM.
 - THIS ALLOWS THE COMMUNITY TO ENJOY GREEN SPACES WITHOUT THE CONCERNS OF WASTING POTABLE WATER FOR AESTHETIC REASONS.
 - PROVIDES A REPLACEMENT SOURCE OF REVENUE FOR THE UTILITY VS JUST ELIMINATING POTABLE WATER IRRIGATION FOR COMMERCIAL/RETAIL PROJECTS
- CONSIDER ELIMINATING POTABLE WATER IRRIGATION METERS FOR COMMERCIAL/RETAIL DEVELOPMENT.
- ALLOW COMMERCIAL/RETAIL DEVELOPMENT THAT COMMITS TO 100% XERISCAPE PRACTICES TO RECEIVE A POTABLE WATER IRRIGATION METER PROVIDED THEY SIGN A SERVICE AGREEMENT OUTLINING THAT THEY WILL BE SHUTOFF IN STAGE 4 CONDITIONS.

TAKEAWAYS

- REVIEW YOUR CURRENT REQUIREMENTS AND PROCEDURES FOR COMPLIANCE WITH TAC RULES AS WELL AS TWDB RECOMMENDATIONS.
- INVOLVE AREA IRRIGATORS/PUBLIC AS MUCH AS YOU REASONABLY CAN.
- ENFORCE YOUR NEW STANDARDS CONSISTENTLY.
 - FOR BEST RESULTS WE HIGHLY RECOMMEND THAT YOU CONDUCT QUALITY CONTROL INSPECTIONS ON TOP OF YOUR REQUIRED INSPECTIONS
- IRRIGATION RULES AND REQUIREMENTS ARE JUST ONE TOOL IN YOUR CONSERVATION TOOL CHEST, CONSIDER WHAT ELSE YOU CAN LAYER WITH UPDATED REQUIREMENTS TO ACHIEVE THE CONSERVATION SAVINGS YOU ARE AIMING FOR.

QUESTIONS?

WCID[★] No. 17

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March 4, 2026

Working with Stakeholders to Build New Programs- Irrigation Plan Review and Operational Irrigation Inspections

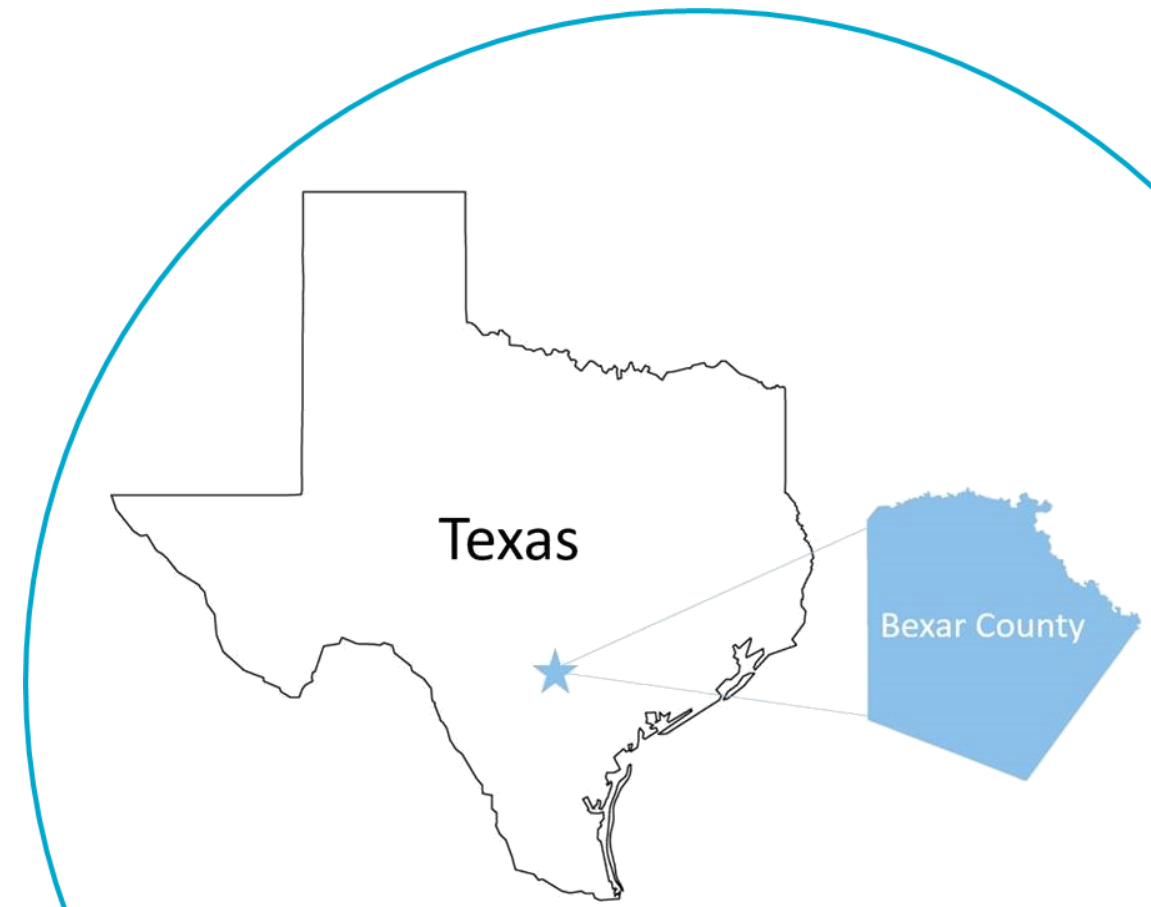
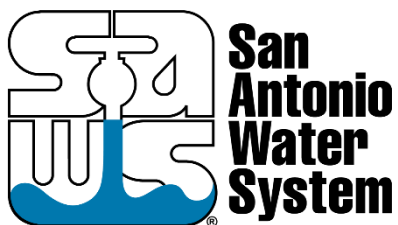
Nathan Riggs

Manager-Conservation Enforcement Programs



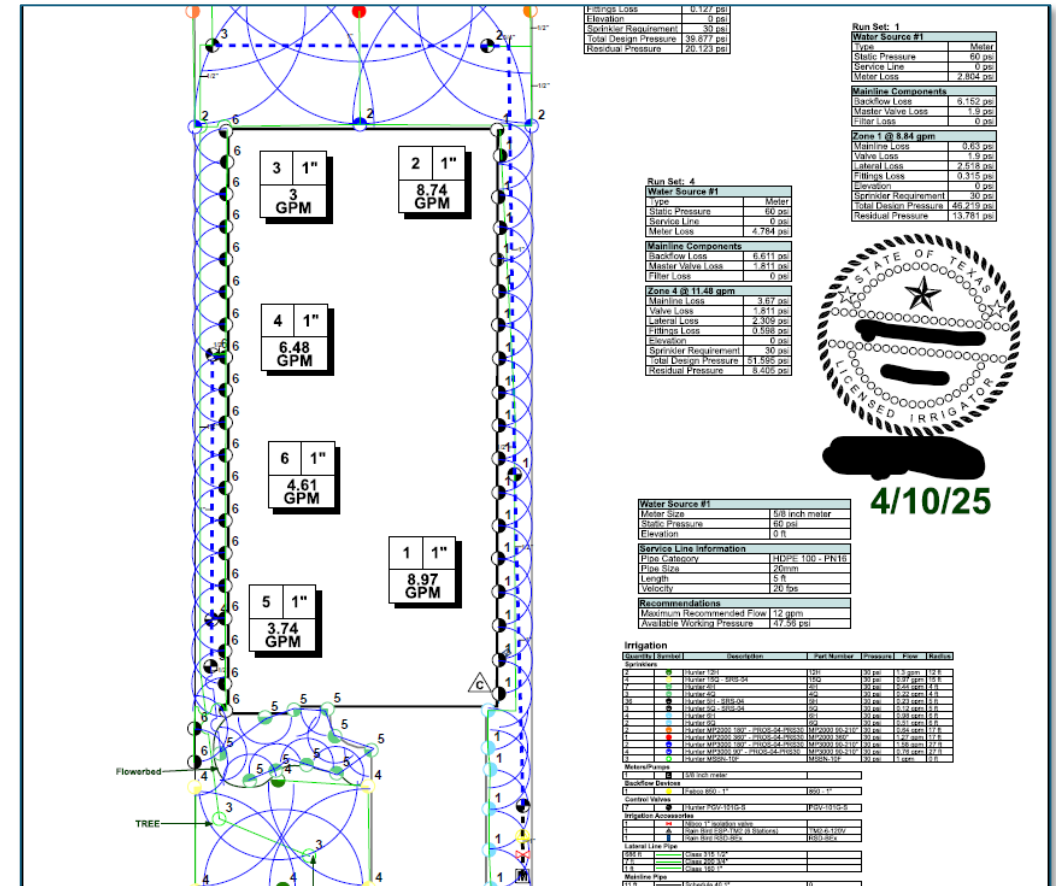
San Antonio Water System

- Over 2 million served water & wastewater
- Produce and deliver water
- Over 600,000 accounts (99+% AMI meters)
- Diverse Customer Base
 - 72% volume residential (indoor & outdoor)
 - 22% volume commercial/industrial
 - 6% volume commercial landscape irrigation
- Conservation Drivers
 - Fast growing region
 - Drought prone with strict aquifer regulations
 - Part of San Antonio culture



Start with a need...

- Irrigation system plans not being reviewed or inspected in San Antonio for single family residential sites.
- Soil requirement under new sod not enforced by city since adopted in 2006.



SAWS Plan Review Program

Where are we?

- SAWS approval required for all irrigation plans designed and installed after 1/1/25.
- SAWS adds six field investigators for plan review and inspections. Four staff earn Irrigation Inspector licenses.
- Six existing field investigators trained for plan review and inspections.
- Operational inspection plus soil evaluation required for all systems installed after 1/1/26.

It takes a village...a lot of conversations and practice!

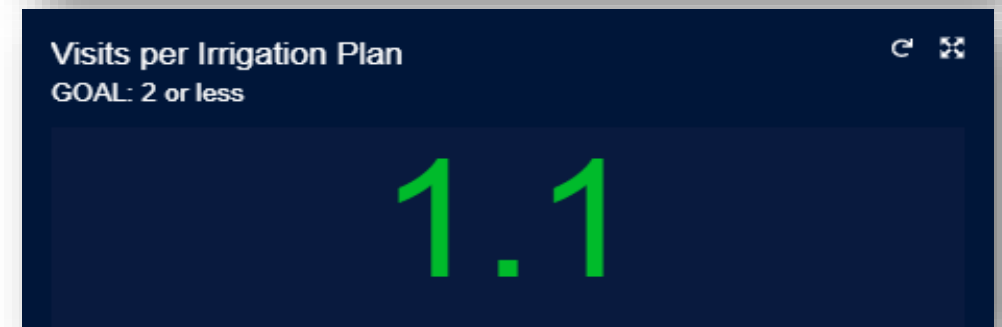
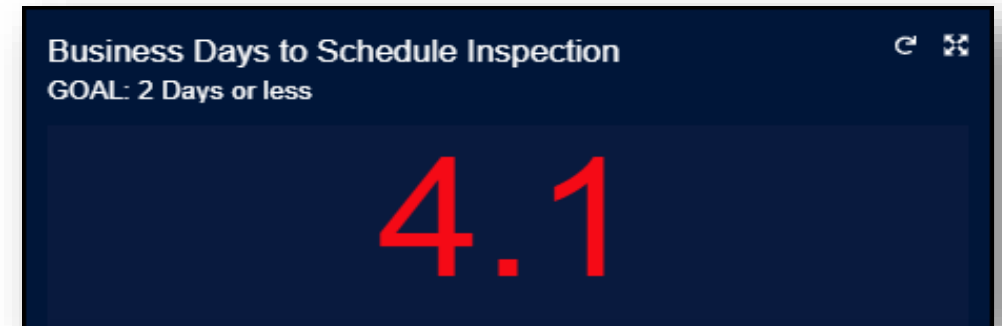
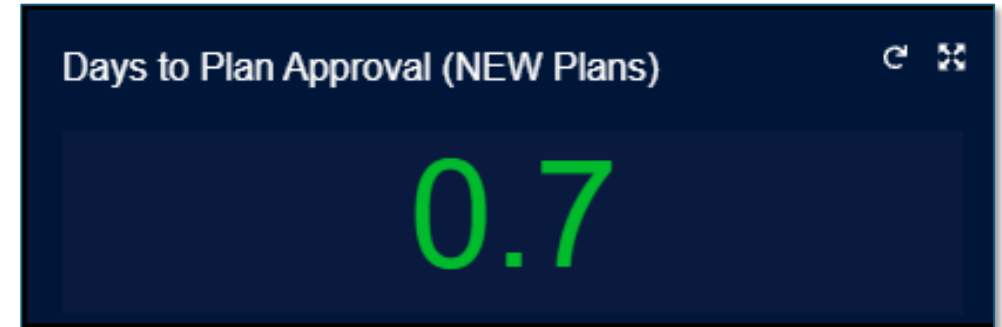
- Who are the stakeholders?
 - Irrigators
 - Landscapers
 - Contractors
 - BUILDERS
 - Homeowners
 - SAWS Staff



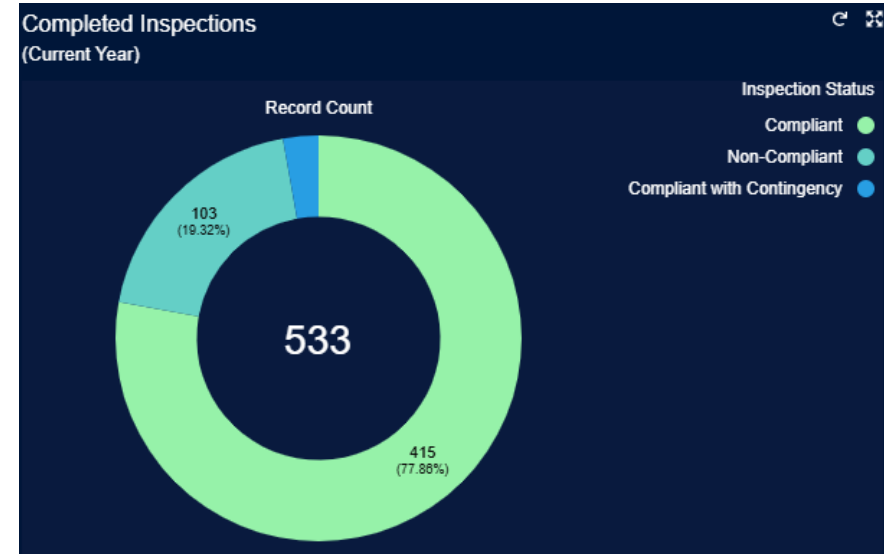
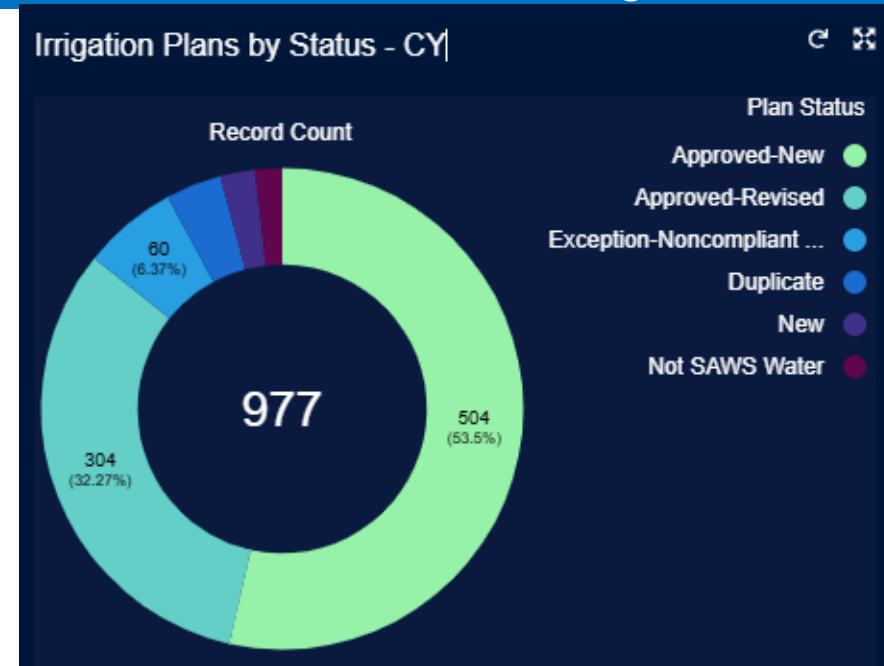
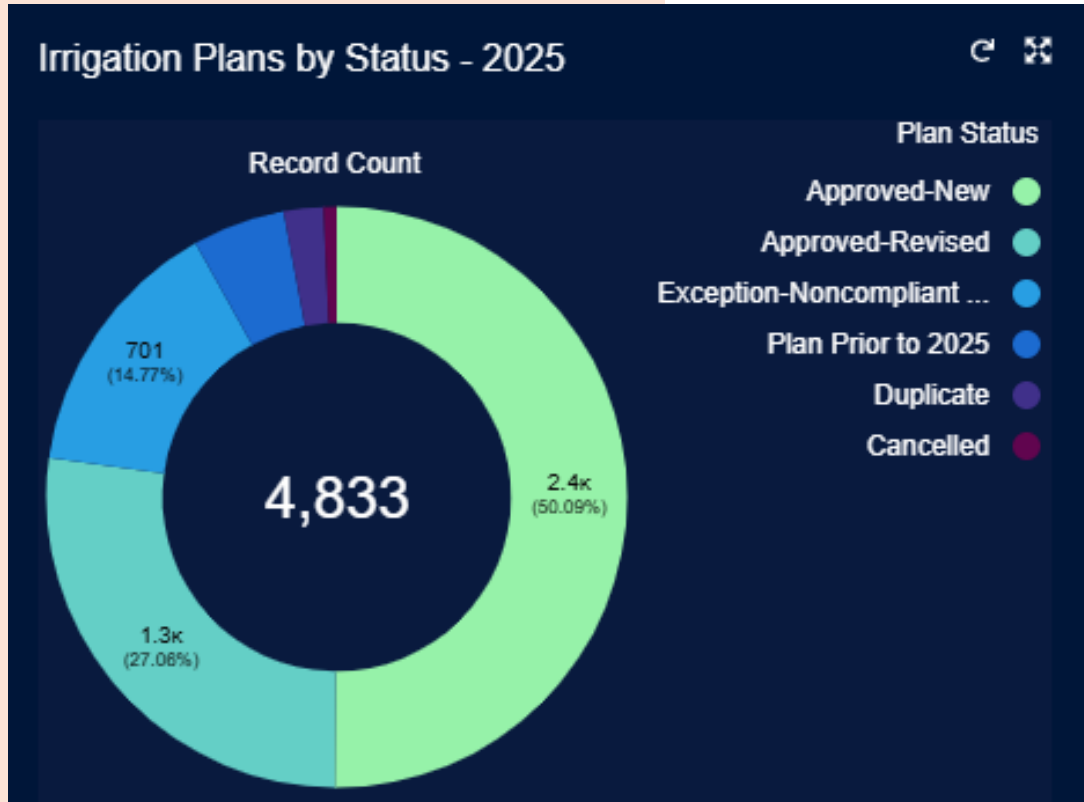
Two-way discussions are essential...listen to concerns

Set Goals, Even If They Are Unknown...at first

- 5-Day Turnaround to Approve Plans
- 2-Day Turnaround to Schedule Inspection once requested
- Less than 2 Inspection Visits per Approved Plan



How Are We Doing So Far?



Soil Evaluation

- As of 1/1/2006, turfgrass must have at least 4" of soil support in new construction. (SA Ordinance, 2006)
- Soil is the gas tank for the grass...holding water between irrigation/rain events.
- Evaluation Steps
 - Check for soil depth
 - Check quality of soil to hold water. (ribbon test if needed)
 - Check for % of non-soil (rocks, gravel, trash, etc). Should be no more than 10%.
 - At least ¼" (6%) of organic material. Color test/sod thickness evaluation.



Hold Up! Account transfers and variances

Plan and Inspection Requirement is in SAWS USRs

- Accounts where a deficient plan is submitted are placed into a hold (Alert 112).
 - Hold prevents account transfer until an approved irrigation plan is on file.
- Variance requests on accounts without a plan placed on hold and the Alert 112 added.



March 4, 2026

Working with Stakeholders to Build New Programs- Irrigation Plan Review and Operational Irrigation Inspections

Nathan Riggs

Manager-Conservation Enforcement Programs





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Lessons Learned

Implementing Frisco's Irrigation Inspection Program

30 Texas Administrative Code § 344.24(c):



Municipalities with a population of 20,000 or more must *have a landscape-irrigation program* that is at least as stringent as the state's rules.



As part of that program, the city must verify that:

The person who **designs and installs** the irrigation system holds a **valid irrigator license**;

A **permit** is obtained *before* installation; and

An **inspector checks** that **the design and installation meet the state and local requirements**.

What This Means in Real Life

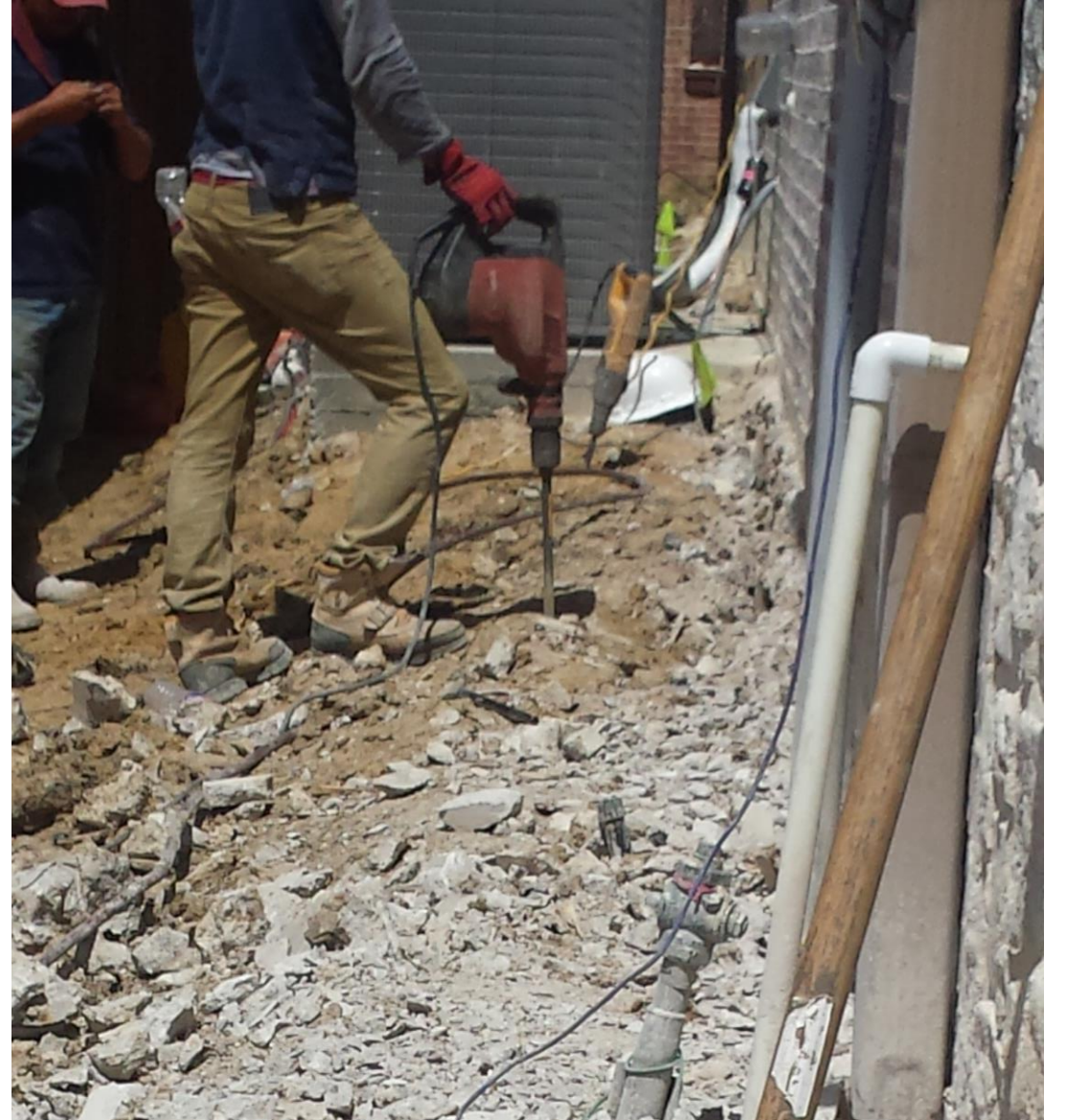
- **Cities *must* have a system in place that includes:**
 - Permits before installation
 - Licensed irrigators doing the work
 - A verification/inspection step showing compliance with the program rules
- **But:**
 - The rule doesn't **literally** state that *every single new system* has to have a **physical site inspection** by a municipal inspector.
 - It says the city must **verify** compliance with the rules — which often *is* done through inspections, but some cities may accept **plan reviews, documentation, contractor certifications, or other administrative checks** as part of that verification.

Frisco's Timeline

- 2016 – Took over irrigation inspections from Development Services where plumbing inspectors were responsible for new systems. We had one licensed irrigation inspector for all new systems. Orders were, “**Don’t fall behind**”. We **completed 3255 inspections**
- 2017 – Made changes to Frisco’s irrigation ordinance. Began Irrigation and Landscape Professionals Breakfast. We **completed 2877 inspections**
- 2018 – Grew to 4 licensed irrigation inspectors. Took over all replacement back flow inspections while **completing 2978 inspections**
- 2019 – 5 licensed inspectors **2862 inspections**
- 2020 – Began doing rough inspections as well as irrigation backflow replacement inspections **3203 inspections**

Prior to 2016 – Plumbing Inspectors















Changes to the ordinance

Remove requirement for ET (Smart Controllers) – replace with programmable controller capable of providing multiple programs with at least 3 start times per program and capable of limiting irrigation frequency to once every 7 days.

Prior to this change Frisco required a smart controller had to be installed on every new irrigation system.

Pressure regulation

All residential and non-residential systems require pressure regulation. Residential may use an inline pressure regulator just after the backflow device and all non-residential jobs must use pressure regulated heads

Average pressure in Frisco is 75 to 80 psi with some areas exceeding 100 psi

Location of devices

Backflow devices must be within 3' of the water meter with the master valve within 12" of the backflow device

Enforcement reasons and ease to locate in case of leak

Inspection List

All sod and landscape must be installed

Pressure regulator with low flow of 0.5 gpm and at least 18 gpm

Controller must have name, address, license number, and phone number of irrigator

Must have accurate zone chart

Head to head coverage on all spray and rotor zones

Micro climate extends from brick to brick on side yards

No heads from side yards allowed in front or back yards

Areas wider than 8' must have same heads and nozzles spraying back

Rain and freeze sensor must be in full sun and above all overhangs

Must have 12" below bottom of double check and fill material

Annual Contractor's Meeting

“Conservation through
cooperation”









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