

This presentation premiered at WaterSmart Innovations

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COMMERCIAL SUCCESS!

Irrigation Inspection Program
Produces 19% Water Reduction

Gail Donaldson
Water Conservation Manager



ALLEN, TEXAS

Population: 87,157

Median Age: 33.5

Avg. Household income: \$106,563

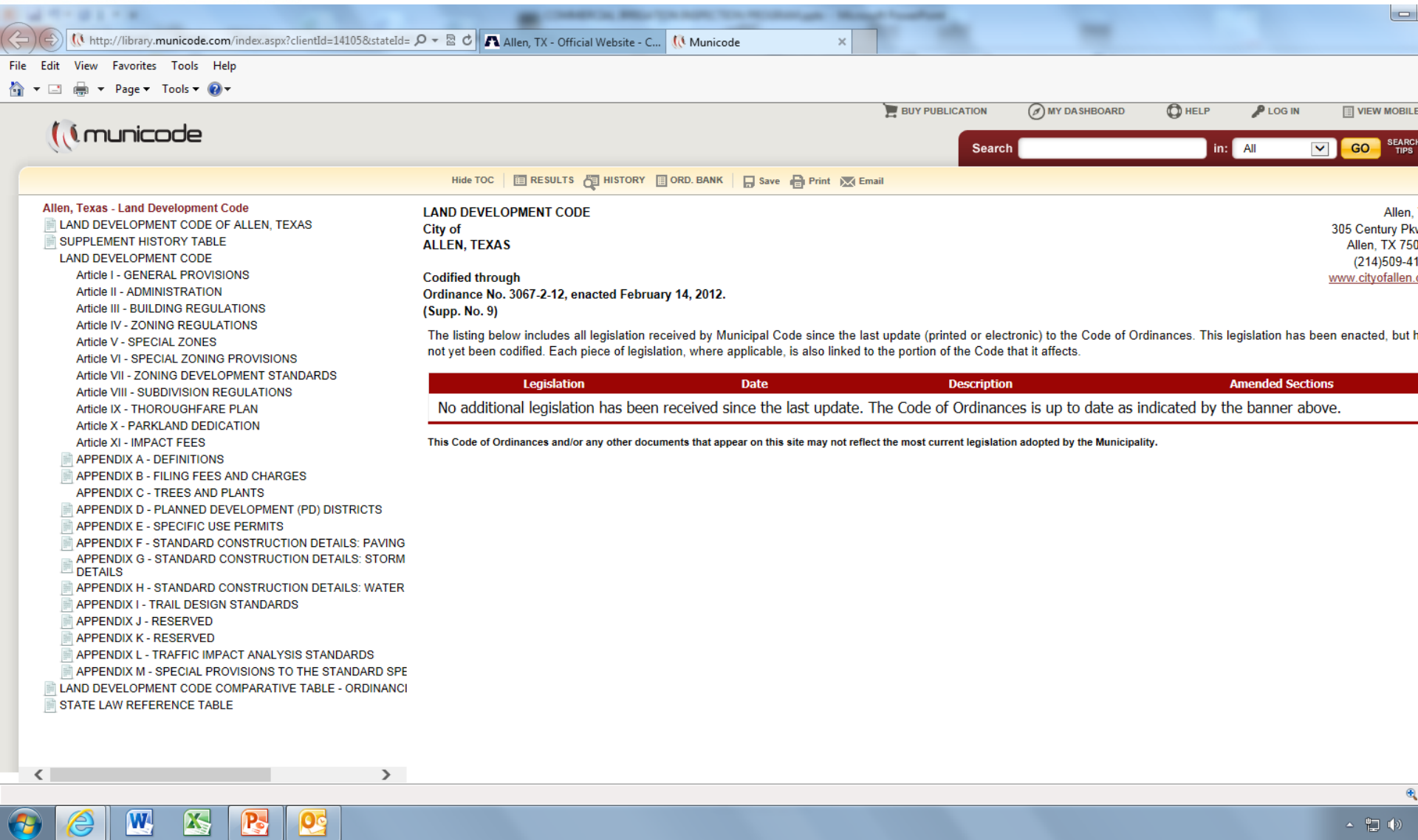
27.11 Square Miles Average Rainfall: 34.8 inches





STRATEGIC PLANNING

- In drought of 2005-2006, the City implemented water conservation priorities in the City Strategic Planning Process. Several initiatives were started for reducing overall gpcd. One was to include a mandatory commercial irrigation inspection program through ordinance which was passed in 2008.



Entire code found on website:
www.cityofallen.org

Allen, TX - Official Website - C... Municode

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Allen, Texas - Land Development Code

- LAND DEVELOPMENT CODE OF ALLEN, TEXAS
- SUPPLEMENT HISTORY TABLE
- LAND DEVELOPMENT CODE
 - Article I - GENERAL PROVISIONS
 - Article II - ADMINISTRATION
 - Article III - BUILDING REGULATIONS
 - Article IV - ZONING REGULATIONS
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- APPENDIX A - DEFINITIONS
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- APPENDIX E - SPECIFIC USE PERMITS
- APPENDIX F - STANDARD CONSTRUCTION DETAILS: PAVING
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- APPENDIX H - STANDARD CONSTRUCTION DETAILS: WATER
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- APPENDIX J - RESERVED
- APPENDIX K - RESERVED
- APPENDIX L - TRAFFIC IMPACT ANALYSIS STANDARDS
- APPENDIX M - SPECIAL PROVISIONS TO THE STANDARD SPE
- LAND DEVELOPMENT CODE COMPARATIVE TABLE - ORDINANCE
- STATE LAW REFERENCE TABLE

Sec. 7.05.6. Irrigation plan requirements.

- No person shall install an irrigation system in the city without first having obtained a permit authorizing such installation from the office of the city's department of building and code compliance. In addition to the permit fee established by the city and such other information as may be required by the chief building official, an application installation of an irrigation system must be accompanied by a full set of plans setting forth the design and operation parameters of the irrigation system to be installed, which plans must comply with this [section 7.05.6](#).
- The city shall provide the applicant with an irrigation system plan review checklist, shall evaluate the appropriateness of the irrigation system plan, and shall approve the plans or approve the plans subject to stipulations. Irrigation plans must comply with all State of Texas design and installation requirements including, but not limited to, applicable provisions of V.T.C.A., Administrative Code tit. 30, ch. 344. In addition, the installation and operation of all irrigation systems must comply with the requirements of the city's water conservation ordinance, as amended, as described in the Code of Ordinances section 14-14.1.
- In addition to the provisions of V.T.C.A., Administrative Code tit. 30, ch. 344, as amended, all new irrigation systems shall meet the following requirements:
 - The irrigation plan shall be sealed by a licensed irrigator or Texas registered landscape architect.
 - The system must include an automatic controller and sensors that prevent the operation of irrigation during rainfall or in freezing weather.
 - All non-turf landscape areas shall be designed with drip irrigation and/or pressure compensating tubing (no above-ground spray).
 - All landscaped areas (including areas of turf-grass), regardless of size, located between the sidewalk and curb/pavement edge for any development shall be designed with drip irrigation and/or pressure compensating tubing (no above-ground spray).
 - All drip irrigation and/or pressure compensating tubing shall be designed and installed according to manufacturer's specifications. For subsurface installation, application rate shall not exceed .21 inches per hour.
 - Turfgrass areas utilizing irrigation rotors are to be designed and installed using low-angle nozzles.
 - Irrigation heads shall be installed to provide maximum distribution uniformity. The system shall be designed and installed to provide a distribution uniformity of 63 percent DU_{1/4} or better.
 - The irrigation design shall prevent overspray on impervious surfaces and excessive runoff.
 - Irrigation systems that vary from the standards of this Code and are designed to minimize water usage may be reviewed and approved by the city, provided, however, the design and installation requirements must at all times comply with V.T.C.A., Administrative Code tit. 30, ch. 344, as amended.
- New irrigation systems for non-single family developments installed in landscaped areas (including turfgrass) that are less than ten feet in width and adjacent to impervious surfaces, or installed in landscape islands with an area of 200 square feet or less shall be designed with drip irrigation and/or pressure compensating tubing (no above-ground spray).
- All new irrigation systems for single-family homes shall have separate zones for a drip system (drip irrigation and/or pressure compensating tubing) around the foundation.
- A certified landscape irrigation auditor shall conduct the following required irrigation audits and inspections:
 - Installation audit and inspection: Immediately following installation, an irrigation system audit and inspection shall be required for all new irrigation systems. For new developments, documentation of the audit and inspection shall be submitted to the city prior to issuing a certificate of occupancy. The audit and inspection must include an evaluation of the system distribution uniformity and actual zone precipitation rate. The audit shall be performed according to the

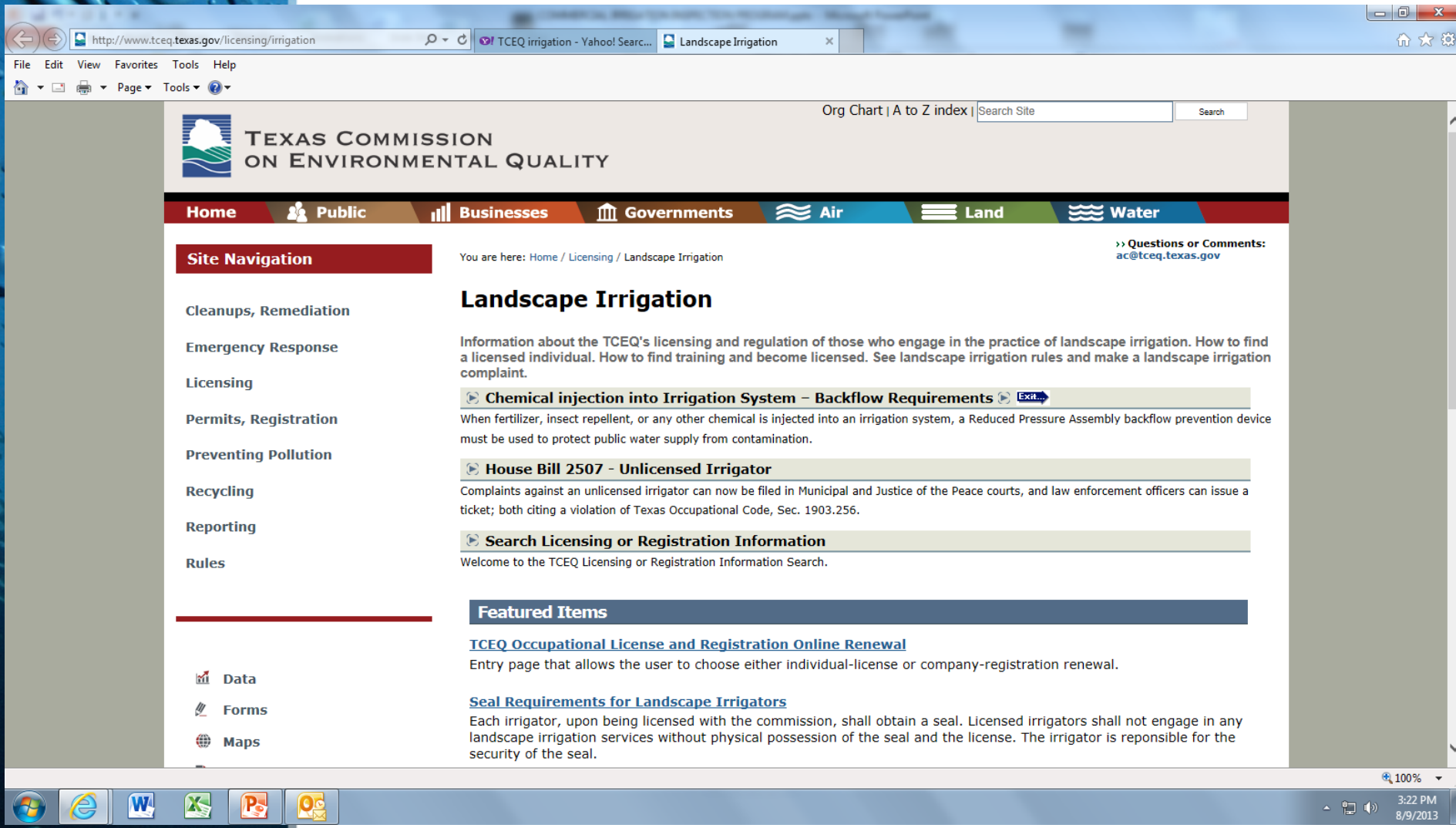
Irrigation requirements in section VII includes plan requirements and inspection requirements. Bullet 6 of 7.05.06 states:



LAND DEVELOPMENT CODE

- **A certified landscape irrigation auditor shall conduct the following required irrigation audits and inspections:**
- **a.** Installation audit and inspection: Immediately following installation, an irrigation system audit and inspection shall be required for all new irrigation systems. For new developments, documentation of the audit and inspection shall be submitted to the city prior to issuing a certificate of occupancy. The audit and inspection must include an evaluation of the system distribution uniformity and actual zone precipitation rate. The audit shall be performed according to the latest edition of the Recommended Audit Guidelines, published by the Irrigation Association, 6540 Arlington Boulevard, Falls Church, Virginia 22042-6638. Distribution uniformity shall be measured on the largest turfgrass area zone of the irrigation system. Forms for submission and documentation of audit and inspection information shall be made available by the city.
- **b.** Recurring inspections: An irrigation system audit and inspection shall be required for all irrigation systems, new and existing, in non-single-family developments and shall be submitted to the city once every three years and shall be conducted in the same manner as set forth in subparagraph a., above, regarding the installation audit and inspection. The city shall establish a timeline and procedures for all developments to submit irrigation system audit and inspection documentation to the city for review. Forms for submission and documentation of inspection information shall be made available by the city.

Texas requires license for irrigators, regulated by Texas Commission on Environmental Quality



The screenshot shows a web browser window displaying the TCEQ website. The address bar shows the URL <http://www.tceq.texas.gov/licensing/irrigation>. The browser's menu bar includes File, Edit, View, Favorites, Tools, and Help. The website header features the TCEQ logo and the text "TEXAS COMMISSION ON ENVIRONMENTAL QUALITY". A navigation bar below the header includes links for Home, Public, Businesses, Governments, Air, Land, and Water. The main content area is titled "Landscape Irrigation" and provides information about TCEQ's licensing and regulation of landscape irrigation. It includes sections for "Chemical injection into Irrigation System - Backflow Requirements", "House Bill 2507 - Unlicensed Irrigator", and "Search Licensing or Registration Information". A "Featured Items" section at the bottom highlights "TCEQ Occupational License and Registration Online Renewal" and "Seal Requirements for Landscape Irrigators". A sidebar on the left contains "Site Navigation" links for Cleanups, Remediation, Emergency Response, Licensing, Permits, Registration, Preventing Pollution, Recycling, Reporting, and Rules, as well as "Data", "Forms", and "Maps".

http://www.tceq.texas.gov/licensing/irrigation

TCEQ irrigation - Yahoo! Search... Landscape Irrigation

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Org Chart | A to Z index | Search Site

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Home Public Businesses Governments Air Land Water

Site Navigation

- Cleanups, Remediation
- Emergency Response
- Licensing
- Permits, Registration
- Preventing Pollution
- Recycling
- Reporting
- Rules

You are here: [Home](#) / [Licensing](#) / [Landscape Irrigation](#)

Landscape Irrigation

Information about the TCEQ's licensing and regulation of those who engage in the practice of landscape irrigation. How to find a licensed individual. How to find training and become licensed. See landscape irrigation rules and make a landscape irrigation complaint.

Chemical injection into Irrigation System - Backflow Requirements [Exit](#)

When fertilizer, insect repellent, or any other chemical is injected into an irrigation system, a Reduced Pressure Assembly backflow prevention device must be used to protect public water supply from contamination.

House Bill 2507 - Unlicensed Irrigator

Complaints against an unlicensed irrigator can now be filed in Municipal and Justice of the Peace courts, and law enforcement officers can issue a ticket; both citing a violation of Texas Occupational Code, Sec. 1903.256.

Search Licensing or Registration Information

Welcome to the TCEQ Licensing or Registration Information Search.

Featured Items

[TCEQ Occupational License and Registration Online Renewal](#)

Entry page that allows the user to choose either individual-license or company-registration renewal.

[Seal Requirements for Landscape Irrigators](#)

Each irrigator, upon being licensed with the commission, shall obtain a seal. Licensed irrigators shall not engage in any landscape irrigation services without physical possession of the seal and the license. The irrigator is responsible for the security of the seal.

Data

Forms


Maps


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Licensed Irrigators who are also Certified Landscape Irrigation Auditors are only ones allowed to perform inspections.



Allen does not have ability for web based reporting. Certified auditors must submit paper reports on the irrigation inspections, which are then manually entered into a Tokay Software database that was modified for the program.




CITY OF ALLEN

Irrigation Inspection Form

Please return completed form to address listed on the bottom of page.

Property Information:

Name of Property: _____

Address of Property: _____

Allen, Texas Zip: _____

Water utility account number: _____

Responsible Party (Person with decision making authority regarding property)

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone number: _____

Email: _____

Information of person conducting irrigation system inspection:

Name: _____

Address: _____

City: _____ State: _____ Zip: _____


Phone number: _____ TX LI # _____

Email: _____

*Certified Irrigation auditor with: _____ Texas A&M _____ Irrigation Association

* A copy of certification document from either Texas A&M or the Irrigation Association must be on file. If this is your first time to perform an audit, enclose one copy with this form.
If licensed irrigator is found to be falsifying information, a report will be made to TCEQ.

Community Services: 305 Century Parkway Allen, Texas 75013 214-509-4500


CITY OF ALLEN

Irrigation Inspection Form Page 2

Meter Size: _____ Meter Number: _____ Irrigation only? YES NO

Controller Information* (Brand, model): _____

Cross Connection Control device (Brand, type, size): _____

Rain/ Freeze Sensor Brand: _____ Working? YES NO

TOTAL Number of zones: _____ Irrigation day program (circle all days) M T W Th F S Su

Type of irrigation on controller (all that apply): Spray Rotor Bubbler Drip

System Analysis: All sunken, clogged, misaligned, broken, blocked, or otherwise problem heads have been corrected to maximize efficiency before this system analysis was performed. All zones are in most efficient working order and a zone was chosen that most represents the irrigation coverage of 60% of the property turfgrass area. Pressure reading was performed on at least one irrigation head in the zone. An IA method catch-can test was performed to determine PR and DU and results are recorded below. (Do not audit drip zones)

Representative Zone information:

Soil Type: _____ Plant Type(s): _____

Zone # _____ Type of irrigation heads (circle one): Spray Rotor Number of heads: _____

Nozzle type (specialty nozzle?): _____

Number of start times for zone: _____ Minutes programmed _____

Actual Pressure reading (on irrigation head) _____ psi

Precipitation Rate (PR): _____ Inches per Hour


Distribution Uniformity (DU_{0.5}): _____

Signature of Certified Irrigation Auditor: _____ (include copy of certificate from either Texas A&M or Irrigation Association if not on file)

Date: _____

*If property has more than one controller, use additional form for each controller. A minimum of one zone per controller must be audited.

Community Services: 305 Century Parkway Allen, Texas 75013 214-509-4500



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If licensed irrigator is found to be falsifying information, a report will be made to Texas Commission on Environmental Quality (TCEQ).



PROGRAM STATISTICS

- 2009= 609 Commercial Irrigation accounts. (2013= 939 accounts)
- Notice sent January 2009 to all concerning change to the ALDC and requirements.
- Divided accounts by 3 with oldest installations inspected first year-2009.
- By September of 2011, all but 52 accounts complied to performing inspections.



PROGRAM REQUIREMENTS

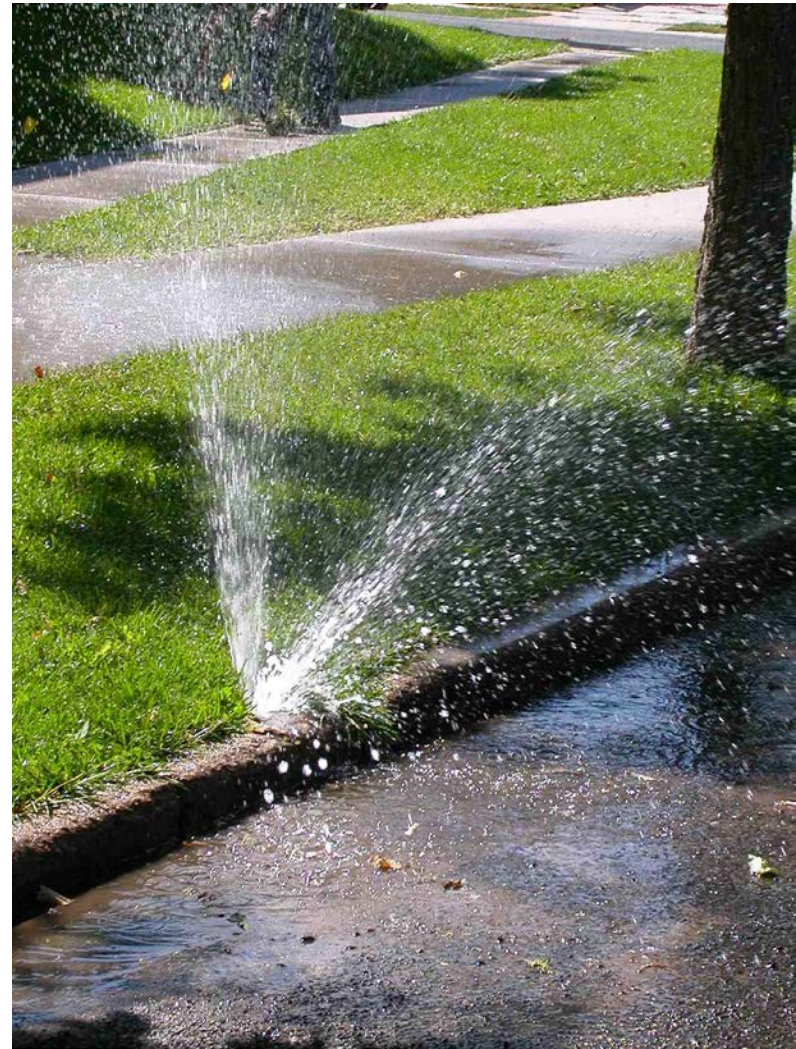
- Commercial account holder responsible for hiring certified auditor and submitting required forms-one time every 3 years.
- Failing to comply with ALDC:

Any person, firm or corporation who violates any provision of this Code shall be guilty of a misdemeanor and upon conviction shall be subject to a fine not to exceed \$2,000.00 and each day or portion of a day a violation exists or continues shall constitute a separate and distinct offense.



RESULTS OF INSPECTIONS

- Less than 1% of the irrigation systems reported distribution uniformity above 50%.
- 92% of reports from certified auditors claim that numerous repairs had to be performed before they could complete the inspection-ranged from broken heads to mainline breaks. *Not one single report contained a system without needed repairs.*

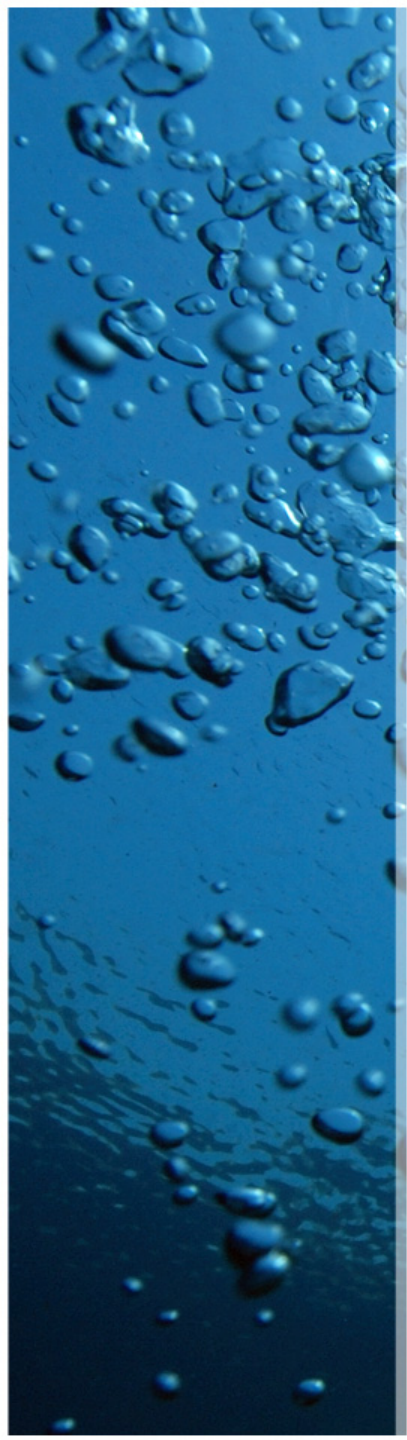




RESULTS OF INSPECTIONS

- OVERALL AVERAGE CONSUMPTION DROPPED 19% POST AUDIT. (average-total consumption 2008 VS 2010)
- Some accounts reduction has been more than 60% savings, due to what was found by the irrigation inspection.

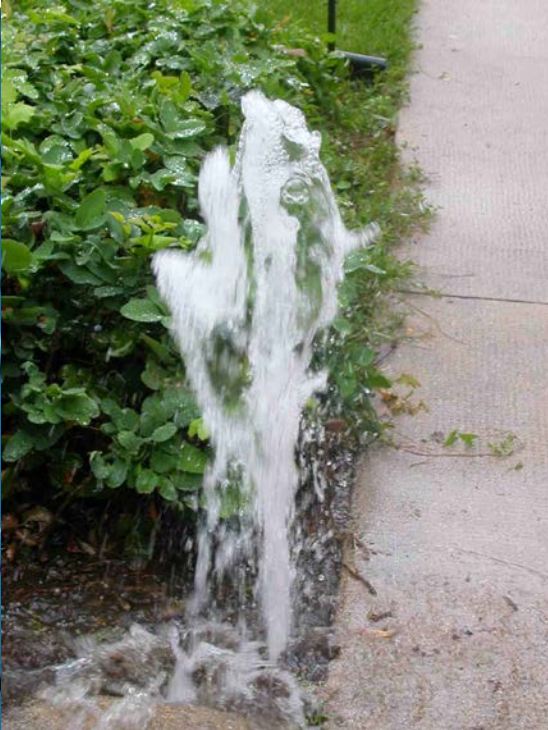




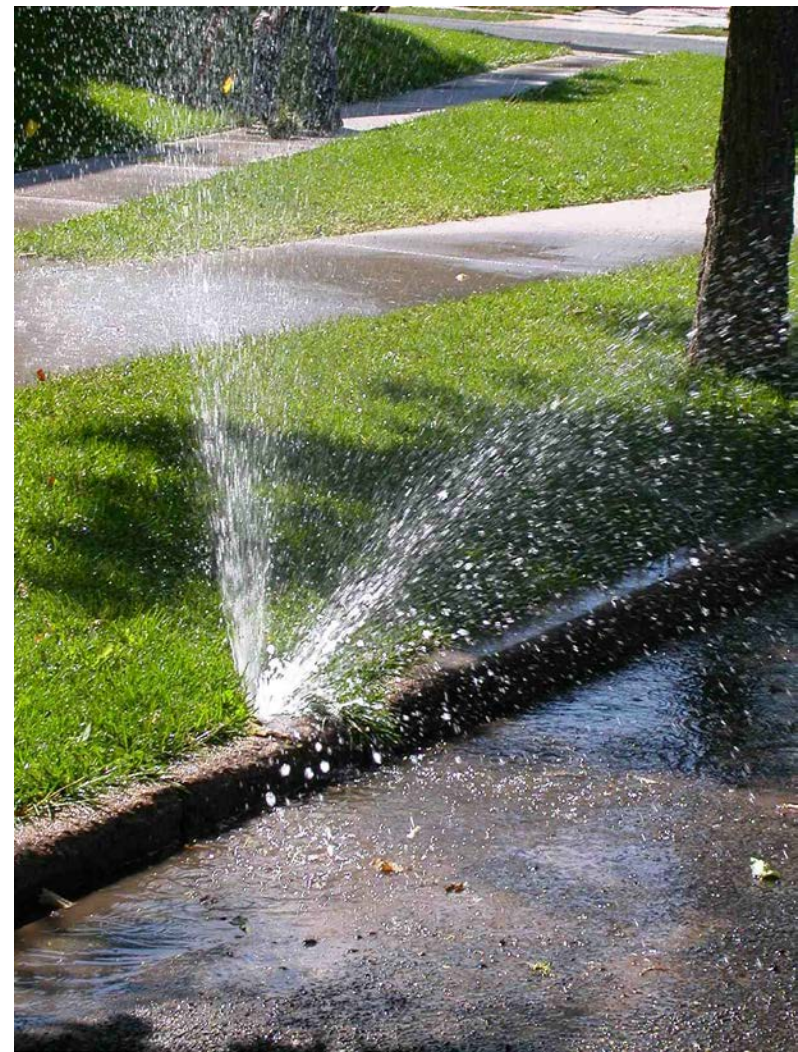
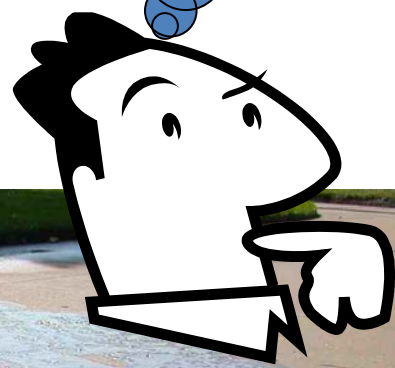


RESULTS OF INSPECTIONS

- 85% of accounts dropped total annual consumption.
- 5% of accounts increased total annual consumption.
- 10% of accounts remained close to the same annual consumption.



Repair =
Water
Reduction=
Save \$\$\$\$





MORE RESULTS

- 19% or more consumption drop of potable water use on commercial landscapes.
- 92% compliance rate without using penalties.
- Favorable response by certified auditors/irrigators.
- Change of behavior landscape contractors.
- Some accounts made up cost of audit by reduction of water costs in one month.
- Small accounts using less than 20,000 gallons per year are now exempt from program.



UPDATE TO RESULTS

- 2010-Through August 19 2011- no mandatory restrictions, severe drought-still maintained a 10% reduction from the 2008 figures.
- August 2011-July 2012-mandatory restrictions in place, normal rainfall in late spring there was a 26% reduction in consumption from the 2008 figures.
- As of the July 2013 we remain in water restrictions, we are still in drought, and our overall consumption is down over 26%.

For More Information

- Gail Donaldson, City of Allen, 305 Century Parkway, Allen, TX 75013
- gdonaldson@cityofallen.org
- 214-509-4559





Sprinkler Smarts

- <http://www.youtube.com/watch?v=FuevSk8aryE>