

Efficient Irrigation Techniques

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Efficient Irrigation

- Why do we irrigate?
- When do we irrigate? How often? M.A.D.
- What do we irrigate?
- How do we irrigate now?
- How can we irrigate more efficiently?
- What type of water should we be using?
- What type of landscape should we install?

The “Aesthetic” Value of Landscaping

- Increased real estate market value
- Beauty and relaxation for family, employees and visitors
- Safe, high-quality play and exercise areas



The “Functional” Value of Landscaping

- Soil erosion control
- Rainwater entrapment and ground water recharge
- Provides shelter for wildlife
- Solar heat dissipation
- Reduces air and noise pollution
- CO₂ entrapment



The World's Water Crisis

Chart 1A – The World's Water

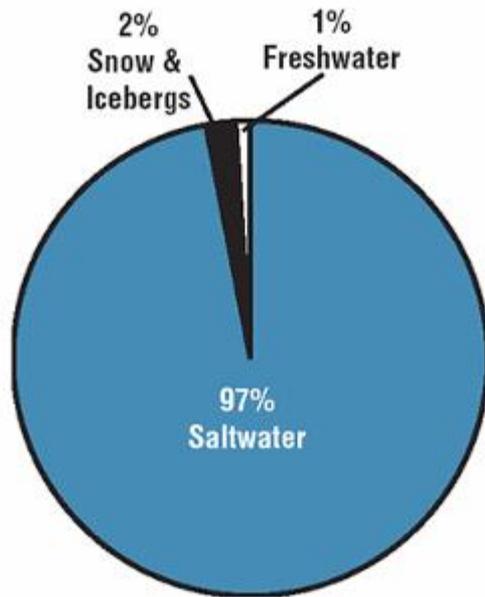
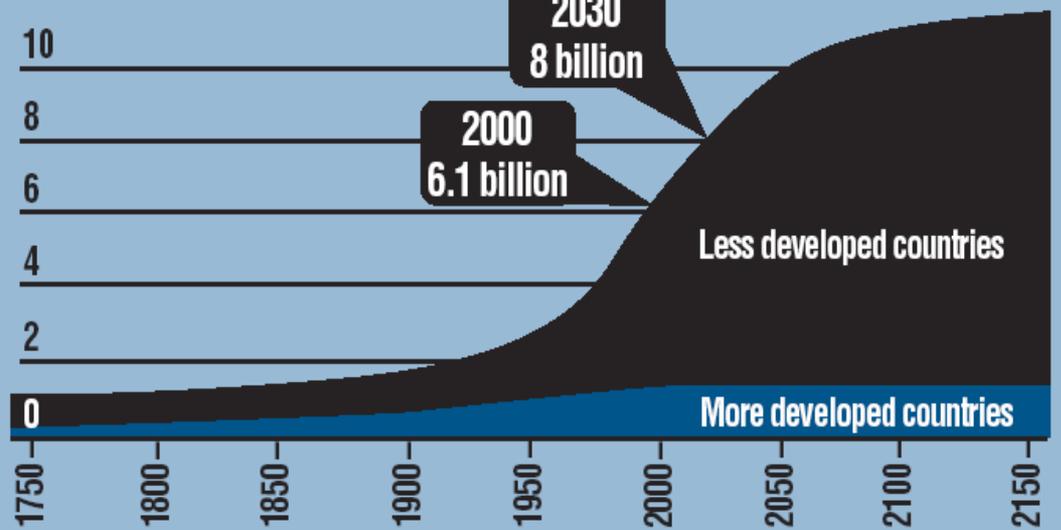


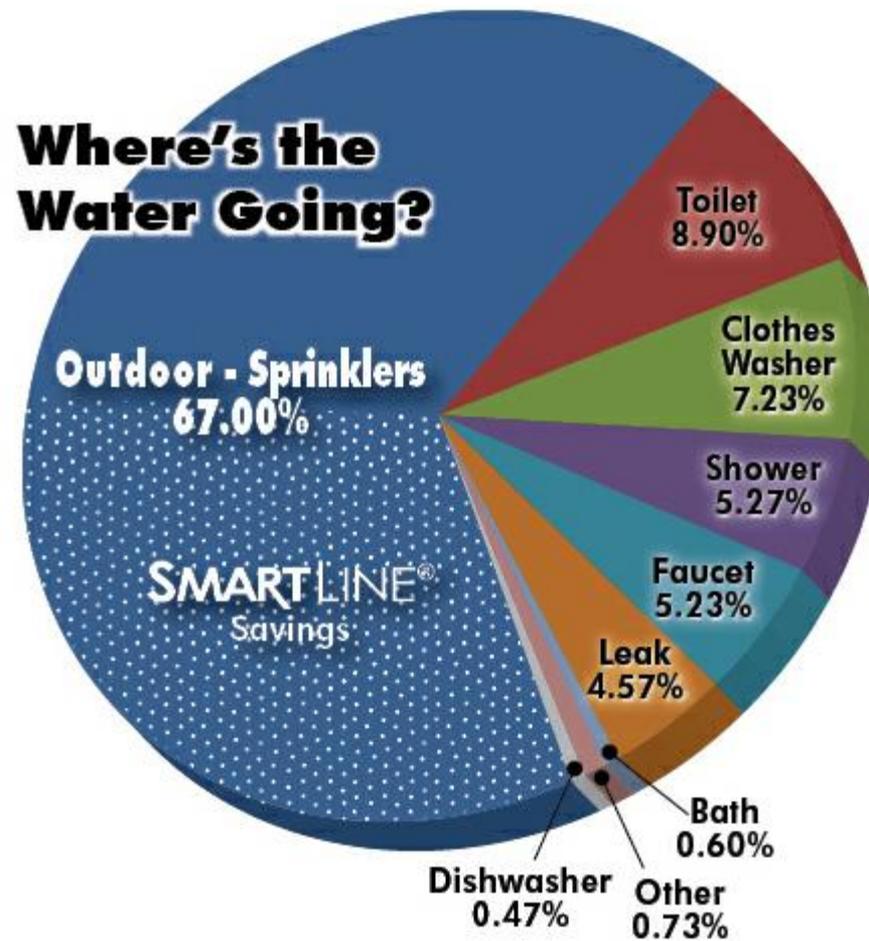
Chart 1B – The World's Population ⁶

Population Growth (in billions)



There is no new water.

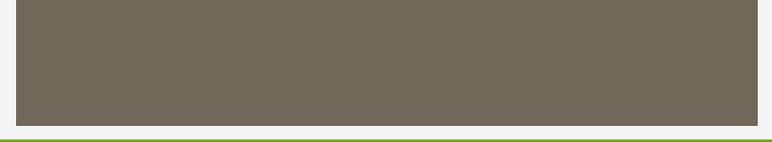
Household water usage (Summer)



Residential Water Saving Upgrades

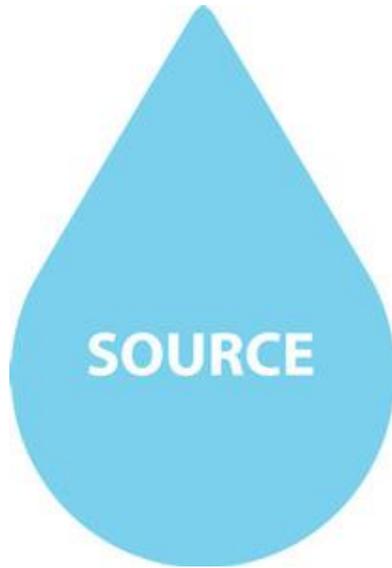
Popular Water Savings Upgrades	Cost of Product*	Annual Gallon Savings	Annual Cost Savings	Return on Investment (ROI)
SMARTLINE®	\$400	80,000	\$400	1 year
Rain-Off Sensor	\$120	24,000	\$120	1 year
Ultra-Low Flow Toilet	\$350	14,162	\$70	5 years
High-Efficiency Clothes Washer	\$1,500	8,176	\$40	37 years
High-Efficiency Showerhead & Faucet Aerator	\$50	2,993	\$15	3 years
Faucet Aerators	\$9	1,752	\$9	1 year
High-Efficiency Dishwasher	\$500	1,250	\$6	80 years

*Cost is for residential application and does not include installation cost.



How to Approach Efficient Irrigation

Sources of water



Tap into underutilized supplies such as underground well water, gray water, condensate and rainwater.

- Rain, Natural
- Lake water
- Non-potable-water
 - Rain water, roof collected
 - Gray water
 - Reclaimed water
 - Retention Pond
- Potable City Water
- Well water

Efficient Landscape/ Irrigation



Create landscapes as sustainable as they are beautiful.

- SOIL – Native uncompacted , deep 6” , silty clay, not sandy.
- Plants – Native Adapted, Drought Tolerant
- Layout- Plant groupings, limited turf area. Irrigation design to match plant materials and local microclimate

Efficient Irrigation Scheduling



Optimize the timing, quantity and frequency of water applied to the landscape with leading edge water management controls.

Possible Solutions

- Smart Controller, central control and sensor-based solutions to maximize water application efficiency
- ET (Evapotranspiration) Management
- Soil Moisture-based Management
- Seasonal adjust/water budgeting
- Cycle+Soak™
- Flow monitoring, leak detection & response
- Rainfall monitoring & response

On-site Weather Station

(with Tipping bucket and Temperature sensor)



Soil Moisture Sensors



Wireless Soil Sensor



Wireless Receiver

Solar sensor- Hunter Solar Sync



Efficient Water Application



Distribute water to the landscape as efficiently as possible.

- Pressure regulation:
 - @ the head - Pressure Regulating Stem (PRS)
 - @ the valve – integrated modulating solinoid
 - @ the source – PRV (separate irrigation)
 - check valves@ the head
- Landscape Drip: Direct-to-plant-root watering devices
 - Point Drip
 - On surface integrated drip line
 - Subsurface integrated drip line
- Root Watering (trees) – bubblers or drip
- High-efficiency nozzles:
 - Rotary Multi stream Nozzles (Rainbird, Toro, Hunter MP rotator, K-rain)
 - Fixed Nozzles HE Van , Toro Precision Nozzles
 - Matched Precipitation Rate (MPR) Nozzles
 - Eliminate VANS and Mismatched Brands

Checking pressure at Head

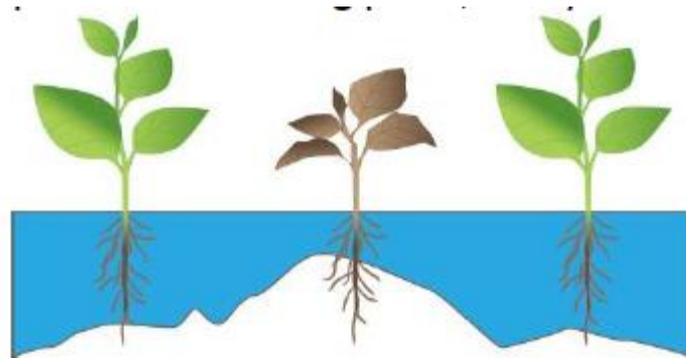


Pressure Regulation @ Head



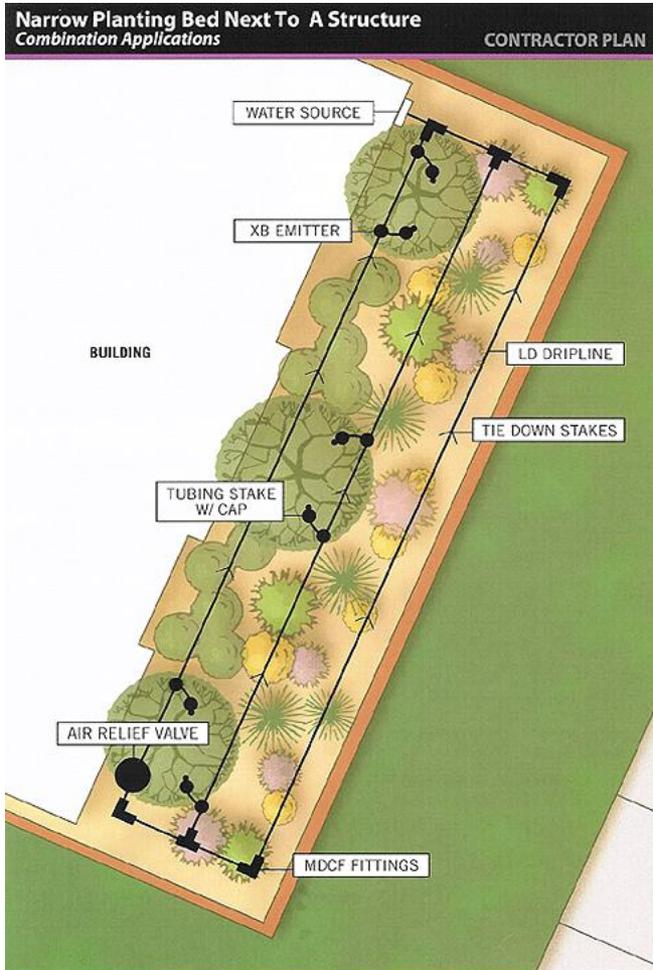
Patented pressure regulator in stem compensates for high or fluctuating water pressure to ensure maximum performance

Distribution Uniformity – Why does it matter?



100% coverage does not mean 100% “uniform” coverage.

Drip Irrigation (Very Flexible)



Multiple Stream Rotary Nozzles

25-55 psi, 4/10th in/hr

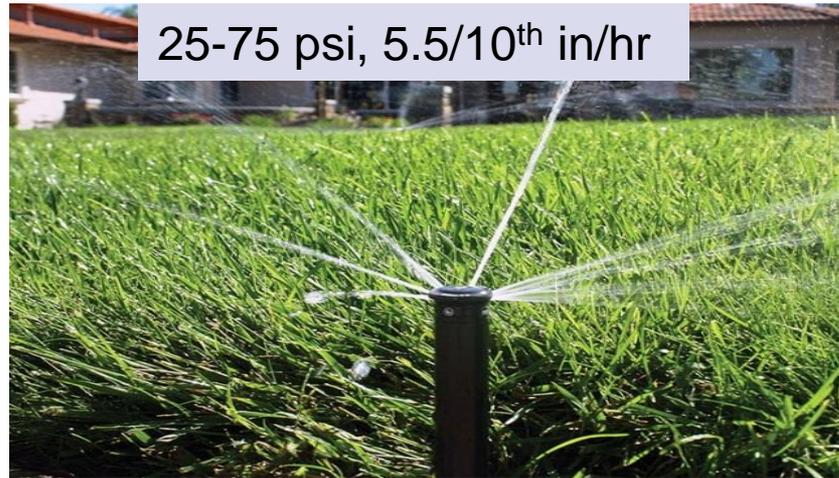


30-50 psi, 5/10th in/hr

20-55 psi, 6/10th in/hr



25-75 psi, 5.5/10th in/hr



High Efficiency Fixed Spray Nozzles



Toro Precision – high operating pressure range (20-50 psi, 1" /hr precipitation rate)



Rainbird HE-Van nozzles – matched precipitation any arc, any radius 1.5-1.7"/hr @ 30 psi

Efficient Maintenance/ Water Management



Use water efficiently and affordably for the long haul

- Annual Maintenance
- Monthly Maintenance
- Bi Weekly Testing
- Weekly Adjustment (10%)
- Upgrade as technology becomes available

Maintenance is Required



What Can You Do?

(Start the Conversation with your customers)

- Promote water-efficient products and practices with your customers
- Support innovative initiatives in your market
- Support/participate in local government programs
 - water audits, rebates/incentives, education/training
 - <https://austintexas.granicusideas.com/surveys/proposed-one-day-per-week-watering-schedule-1>



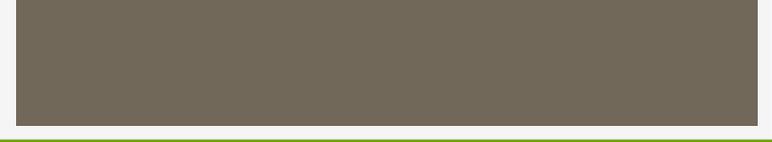
Survey: Proposed One-Day-Per-Week Watering Schedule

The City of Austin is considering moving to a one-day-per-week watering schedule as part of its conservation efforts. Austin Water is also seeking public input on other parts of the conservation code to help develop the best set of water-saving strategies. The current Water Conservation Code can be reviewed [online](#).

Please take a moment to share your input with us. Speak up, Austin!

✓ 1749 Responses ⌚ Closes 2016-01-31

[View Survey](#)



Any questions, feedback for me on content.
Email: cougar.irrigation@gmail.com

Thank You for your time, have a great day!

“Cougar Matt” Stamm