Florida Water Star^{SM} – A Water Efficiency Certification Program

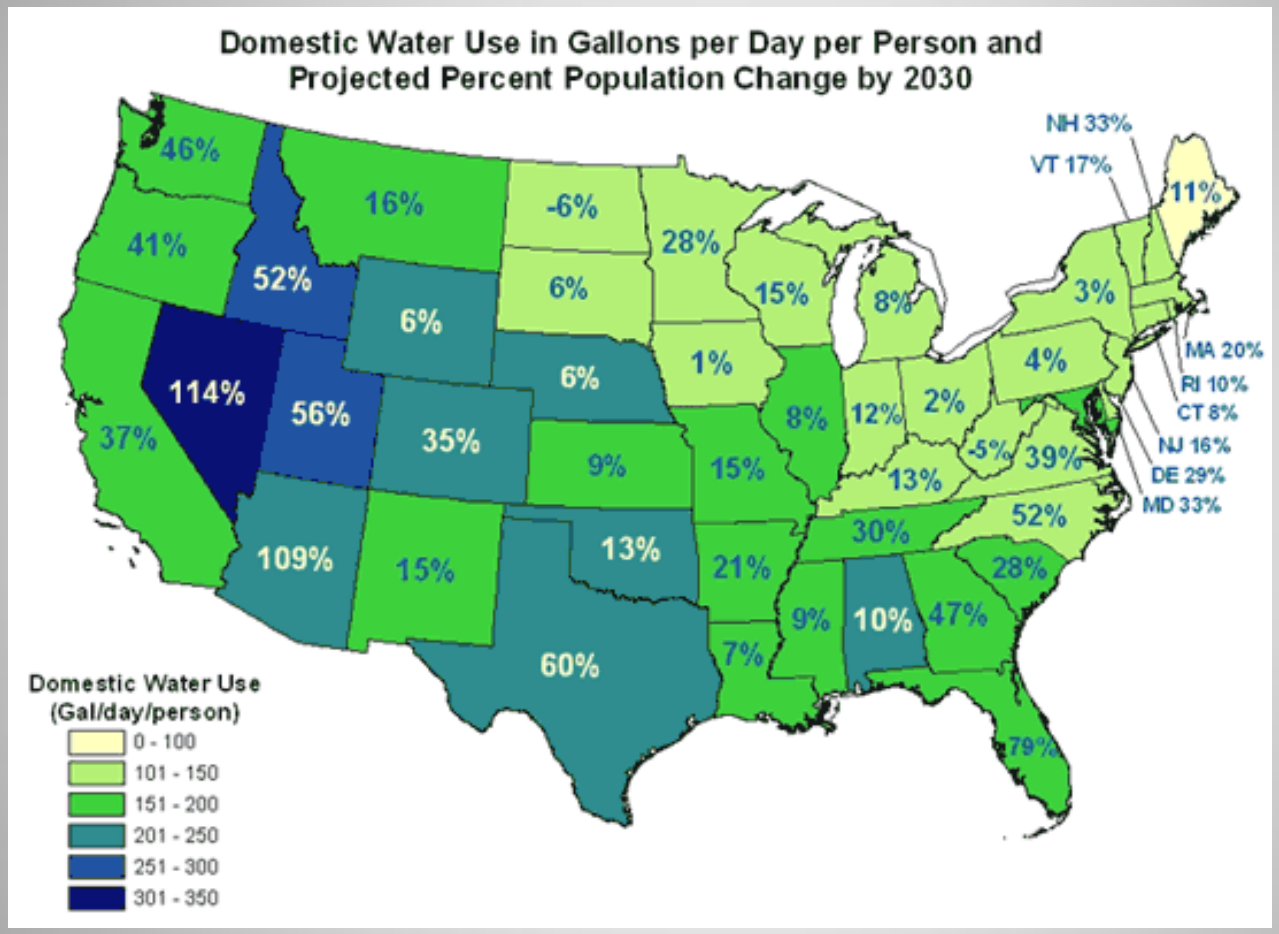
Presented by Deirdre Irwin and Brent Philpot

Florida's water resources

- About 54 inches of rain annually
- 7,700 lakes

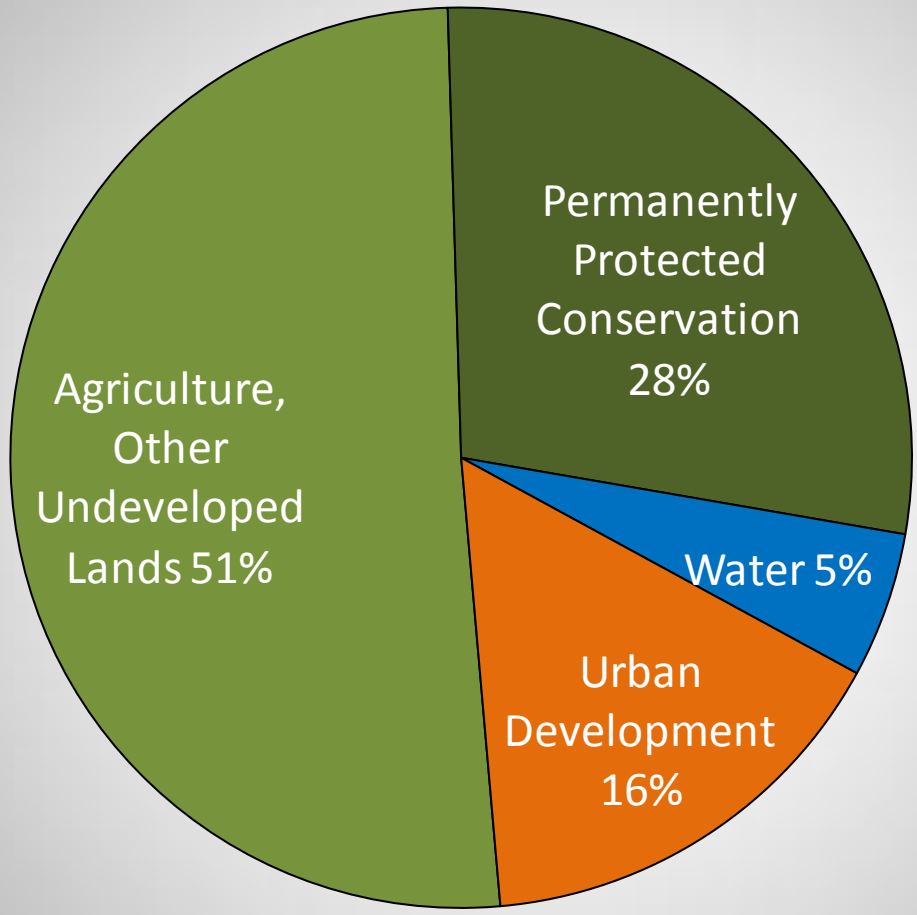
- 50,000 miles of rivers and streams
- 700 springs (largest concentration in the world)

Water Use and Growth



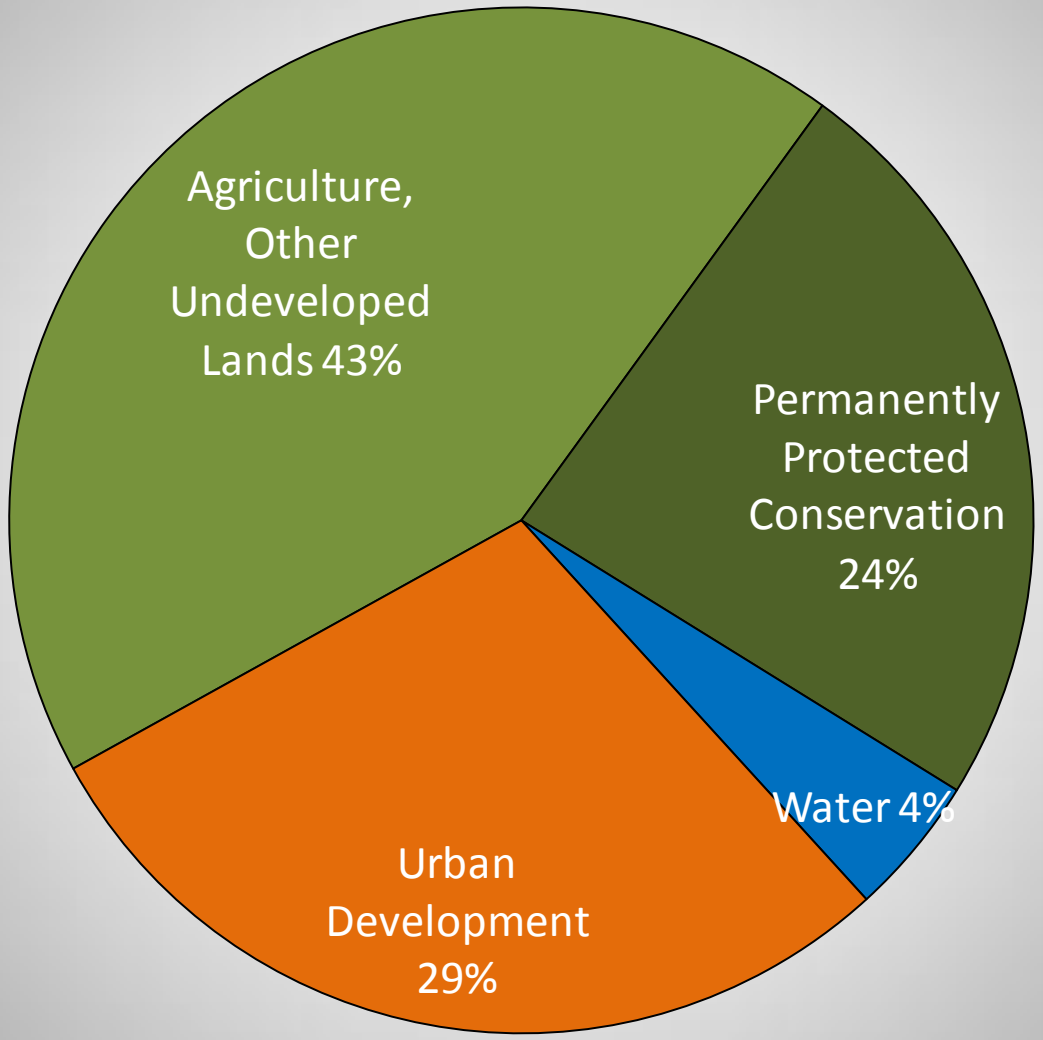
Water data from USGS, Estimated Use of Water in the United States in 2000, County-level data for 2000; population data from U.S. Census Bureau, State Interim Population Projections by Age and Sex: 2004–2030

Florida Land Use 2005



www.1000friendsofflorida.org/planning/2060.asp

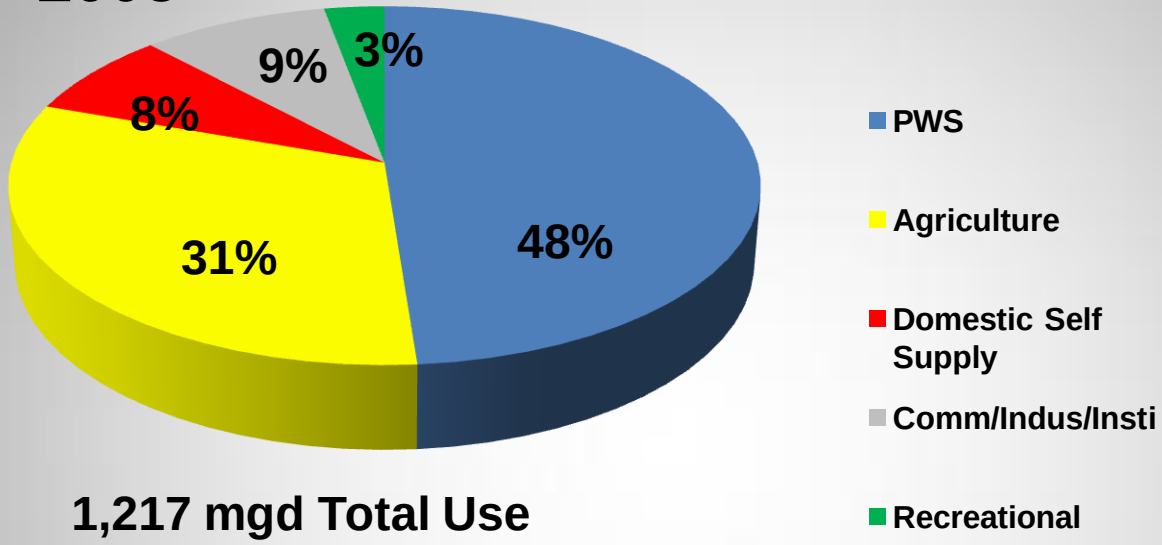
Florida Land Use 2060



www.1000friendsofflorida.org/planning/2060.asp

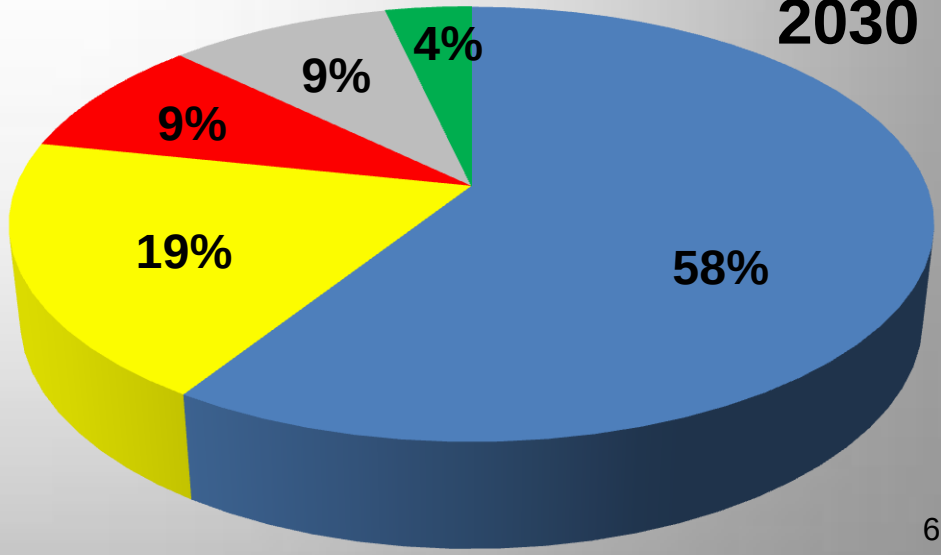
Current and Projected Water Use

2005



1,217 mgd Total Use

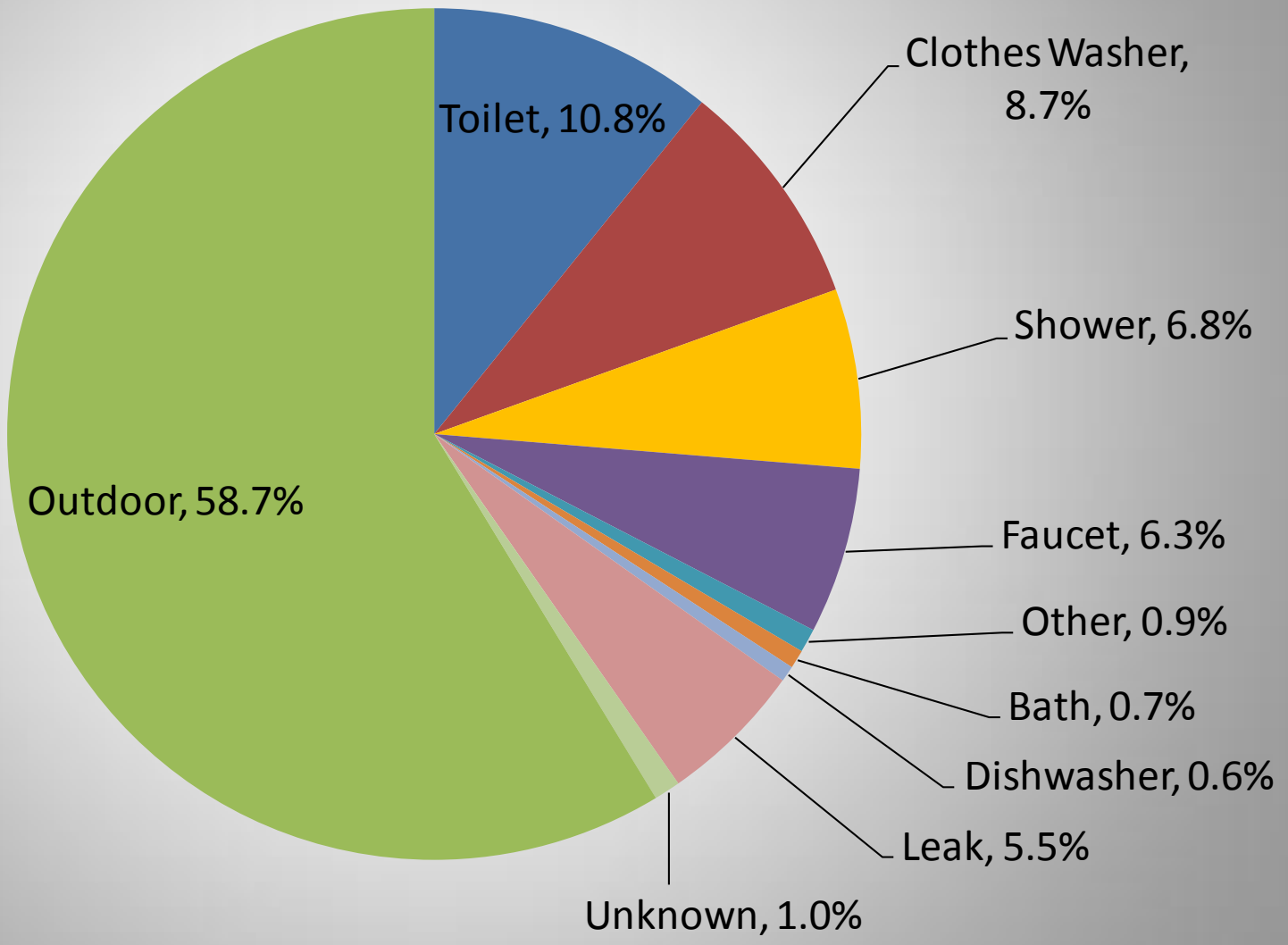
2030



1,742 mgd Total Use

Note: power production not shown in this figure – net consumptive use is 1% or less of total SJRWMD water use

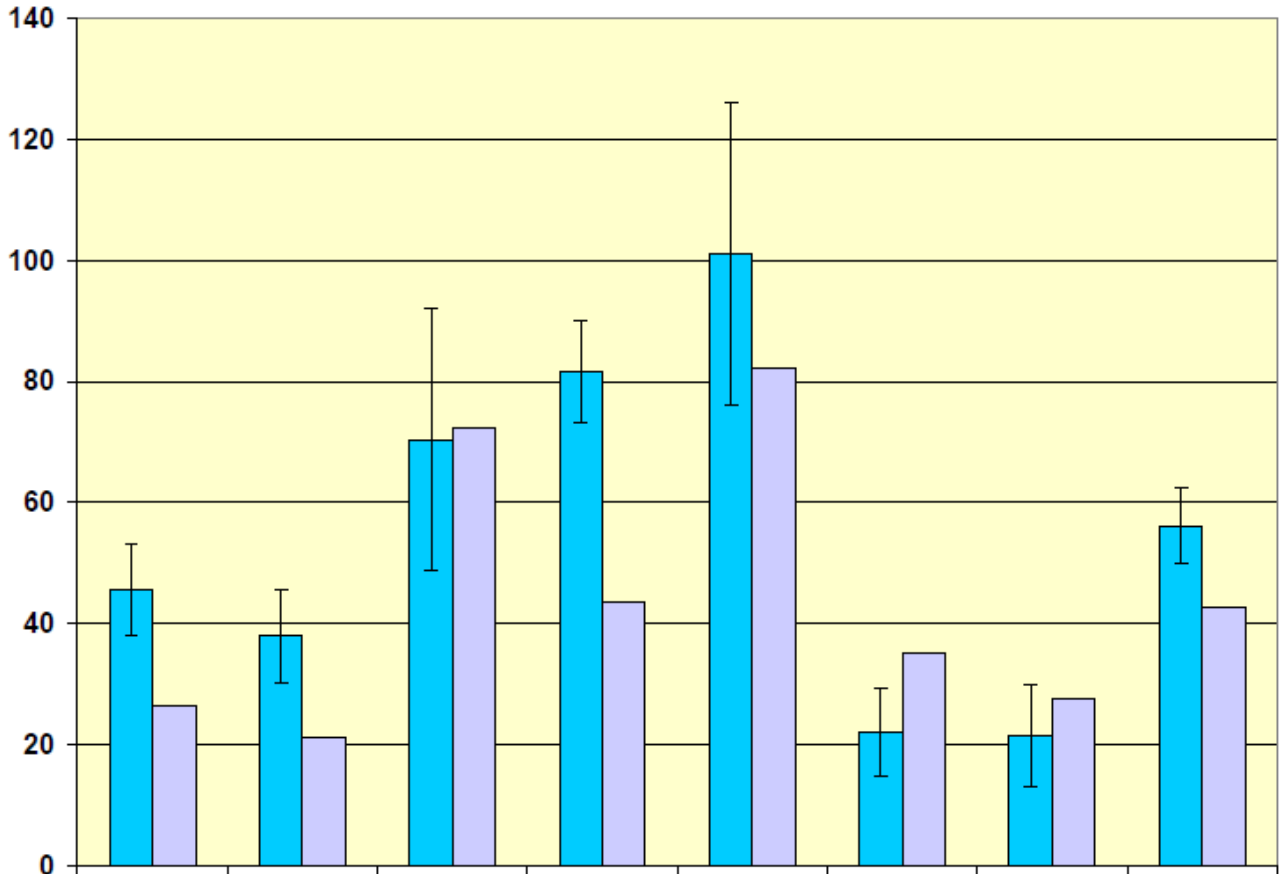
Residential End Uses of Water



EPA Residential Water Use Study 2011 General Outdoor Conclusions

This study looked at 235 residences in seven US cities, built since 2000 and focused on the amount of water used compared with theoretical irrigation requirement.

- Average water use was 90.3 kgal per year
- Lot size varied
- Florida homes irrigated less than required between 21 and 22 inches annually.



	Aur	Eug	Phoen	Rose	Vegas	Tamp	St John	All
Average Application (in)	45	38	70	82	101	22	21	56
Average of Net ET	26	21	72	44	82	35	28	43

Figure 4-39: Irrigation applications (inches) versus net ET_o [62]

Comparison of average gallons per household per day

Water Efficiency Benchmarks
for New Single-Family Homes

Fi

End Use	**REUWS (Homes built before 1995) (gphd)**	**Standard New Homes (Homes built after 2001) (gphd)**	High Efficiency New Homes (gphd)
Toilet	45.2	27.52	**16.2**
Clothes washer	39.2	28.91	**11.9**
Shower	30.8	29.88	**34.3**
Faucet	26.7	25.23	**18.1**
Leak	21.9	19.66	**19.2**
Other	7.4	3.02	**0.9**
Bathtub	3.2	3.45	**7.1**
Dishwasher	2.5	1.94	**1.9**
Total Daily Indoor Use	177	140	110

Frequency of Residential Irrigation Problems (Thomas R. Olmstead and Michael D. Dukes)

This recent study looked at 3,416 residential systems using the UMIL methodology to classify problems and found:

- No homes did not have at least one problem.
- Five problems represented half of all problems.
- 70% of systems irrigated turf and non-turf in the same zone.
- Mixed emitter types next most common problem.
- Operating time to frequent and/or too long.

Florida Water Star[SM] is a voluntary certification program for new and existing residential and commercial developments that encourages water efficiency in household appliances, plumbing fixtures, irrigation systems and landscapes.


U.S. GREEN BUILDING COUNCIL
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Florida
Green Building
Coalition, Inc.
MEMBER


CERTIFIED
GREEN
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energy
ENERGY STAR

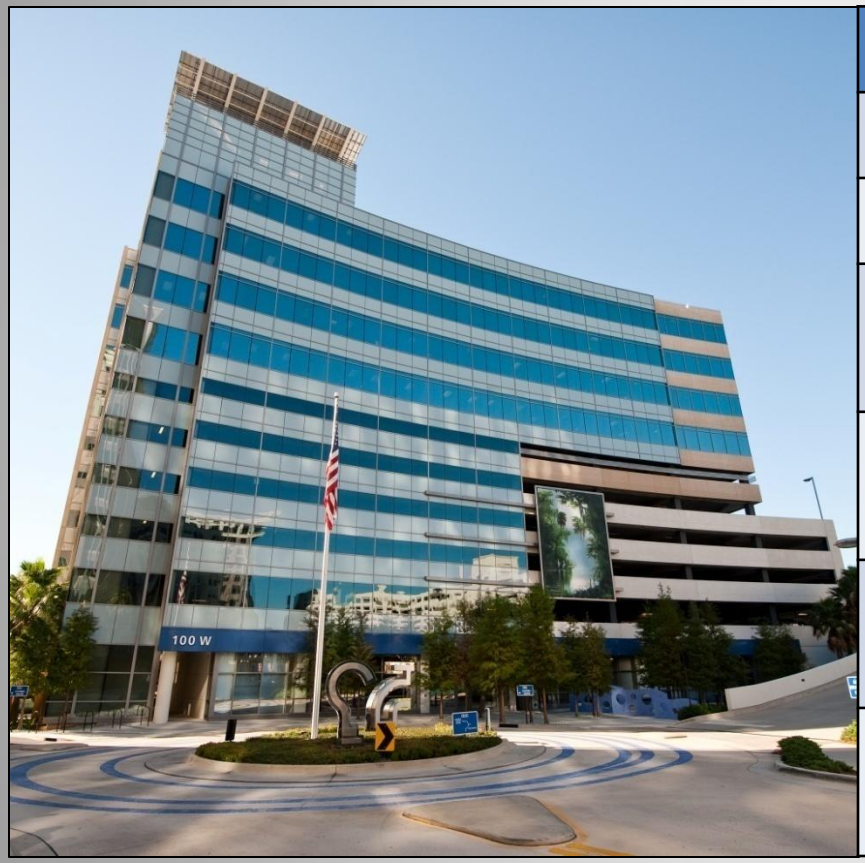

SM
EPA
WaterSense


Florida
Water
SM

Florida Water Star^{SM} Versions

Version	Status	Projects to Date
Residential	Launched in 2006	225
Commercial and Institutional (CI)	Will launch in 2011	6
Community	Pilot testing	5

Commercial and Institutional (CI)



CI Requirements
WaterSense-labeled fixtures
ENERGY STAR-labeled appliances
Extensive irrigation design requirements, similar to Residential
20-inch (12.5 gallon) annual irrigation water budget
Landscape design review to ensure correct site and grouping compatibility
Maintenance requirement and commitment.

FWS CI Water Budget

Operation and Scheduling		
IR RQ 13	A device with rain shut-off capabilities is installed in an operable location and is functioning.	
IR RQ 14	The irrigation schedule for maintenance does not exceed 20 inches (12.5 gallons) per square foot annually, and the controller is set in compliance with water management district (WMD) watering restrictions.	

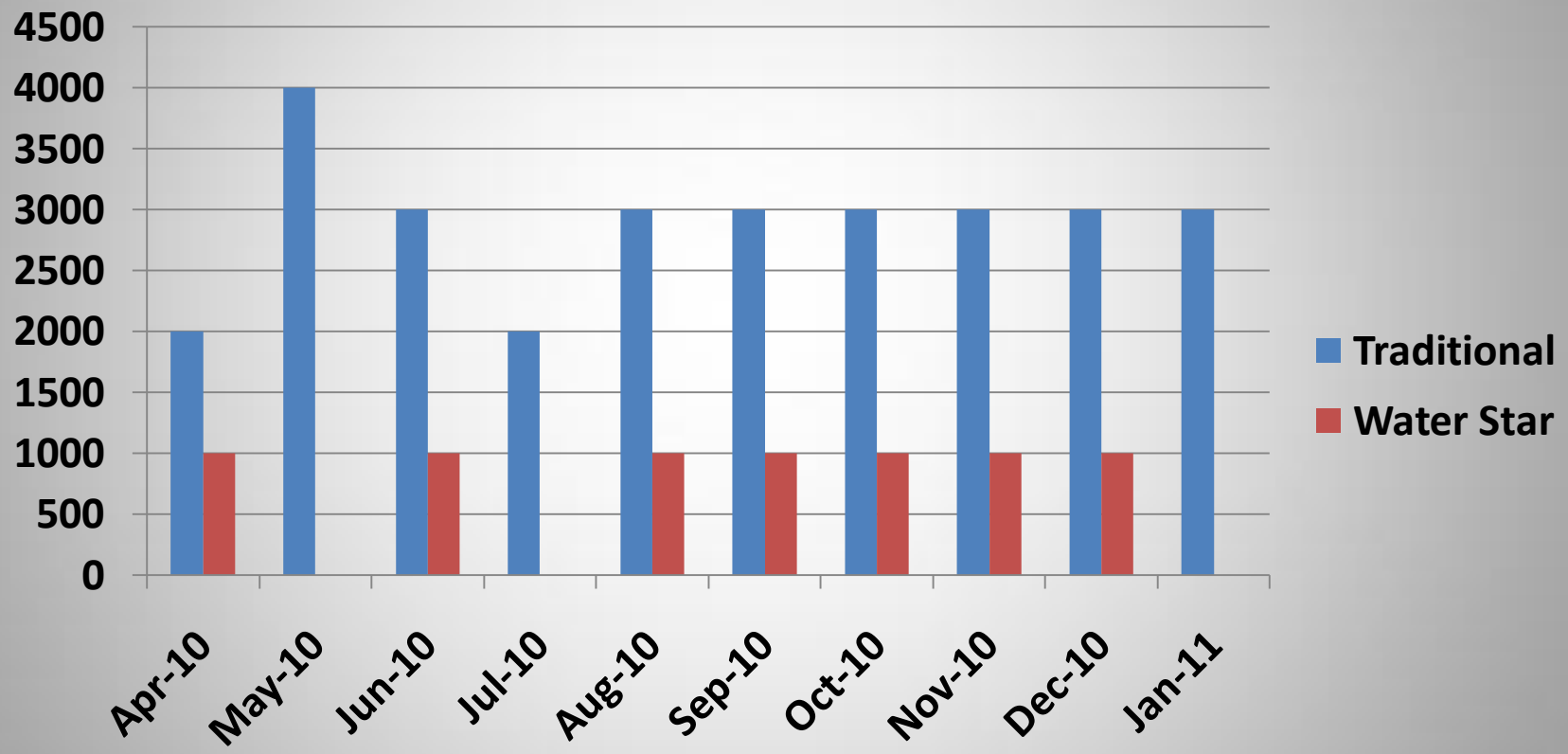
Water Budget Compliance
Applicants must attach a water budget compliance report generated by the FWS Water Budget Calculator.

Summary Information	
Number of zones	
Annual application per ft^2	

Kyro Infotec, Lakeland

High-efficiency indoor fixtures
Treated black water used for irrigation
Site-appropriate drought-tolerant landscaping
80% less water used

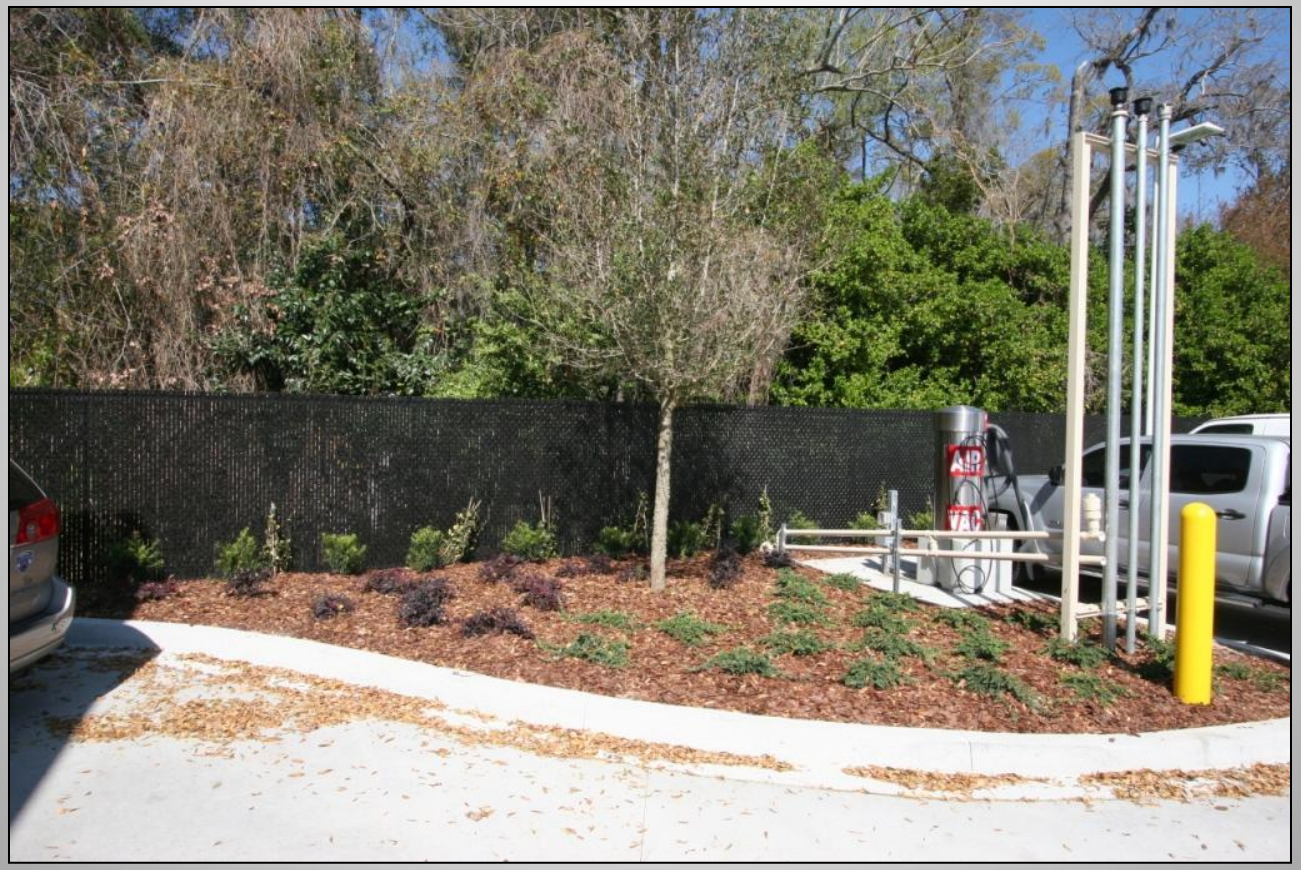
Kyro Infotec - Monthly Water Use



Hendricks Avenue Gate Station

Gate Station Performance

Compared with similar Gate station this station used 61% less water over 1 year



Community

Community Requirements
All houses must be certified Florida Water Star[SM] (FWS) Residential Silver
All amenity buildings must meet FWS CI requirements
Shared landscape and irrigation system must meet FWS CI requirements
Extensive operations and maintenance requirements

Community Pilot Projects

Bella Lago – Retrofit apartment complex, Orlando
Staghorn Villas – Habitat Subdivision, Orlando
Senior low-income community, Palatka
Colonial Grand Apartments, Lake Mary
Paradise Key, Jacksonville Beach

Residential Tiers

Tier	District	Status
Gold	South Florida Water Management District Southwest Florida Water Management District St Johns River Water Management District	Established
Silver	South Florida Water Management District Southwest Florida Water Management District St Johns River Water Management District	Established
Bronze	Existing homes in: South Florida Water Management District Southwest Florida Water Management District St Johns River Water Management District	Pilot testing

Landscape Goals

Site-appropriate plants
Reduced irrigated turf grass
Existing vegetation preservation
Increased shade areas

Right Plant, Right Place

Water and fertilizer requirements
Soil compatibility
Plant grouping
Sun and shade

http://floridaswater.com/waterwiselandscapes/index.html

Water conservation

Waterwise landscaping helps save water resources

Florida is known as a lush, green state surrounded by water on three sides, and for the many lakes, rivers and streams that dot the peninsula's interior.

When Spanish explorer Juan Ponce de Leon first sailed along Florida's east coast in 1513, he named this area of the New World for its abundance of flowers and greenery, calling the area La Florida in honor of Pascua Florida (the feast of the flowers).

Waterwise plant list

Visit our updated and expanded **searchable plant database** to find the right plants for your landscape. The database features more than 800 plant species and provides information on growing conditions, such as sunlight and moisture needs.

Centuries later, Florida still attracts new residents and visitors — at least in part — because of its floral beauty. Florida's weather also attracts many, but the natural cycle of weather that brings rain to replenish our water sources is constantly changing. The long periods of wet weather followed by long periods of dry weather means that the water to sustain the state's plants and animals —

In this section

Waterwise landscaping home

Planting for efficient water use

Learn about plant groupings.

A landscape example

See waterwise landscaping in action.

Search for plants and photos

Find the right plants for your landscape.

Frequently asked questions

View commonly asked questions and answers on use of the plant database.

Glossary

View of list of landscaping terms.

Florida Water Star℠ landscaping resources

See the list of resources associated with this conservation program.

Florida-Friendly Landscaping™

Visit the official Florida Yards and Neighborhoods'



This searchable plant database is designed to help you to determine which plants are most appropriate for your landscape given the natural growing conditions found in your yard. The plant details will help you select the optimal location for the plant where it would need minimal irrigation to thrive. In the box below, choose the options that suit your needs and a list will be provided with plants that meet your criteria. Refer to frequently asked questions if you need help using the tool.

Common name:		Sounds like
Scientific name:		Sounds like
Plant type:	Flowers	
Hardiness zone (e.g 7a, 9b etc.):	9a	
Mature height in feet:	Less than / equal to	
Flower color:	Purple	
Soil moisture:	Moist	
pH:	All	
Light range:	Partial sun	
Salt tolerance:	All	
Growth rate:	Moderate	
Native:	Yes	
No. of results per page:	15	

Waterwise landscaping home

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Learn about plant groupings.

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Removable search terms:

Hardiness zone: 9a

Removable search filters:

Type: Flowers Color: Purple Moisture: Moist Light: Partial sun Growth: Moderate Native: Yes

SEARCH RESULTS

Page: 1 of 1 **Rows: 1 to 5 of 5**

Common name	Scientific name	Plant category	Hardiness range	Soil moisture range	Light range	Growth rate	Picture
Blazing star, spike gayfeather	*Liatris spicata*	Flowers	3 – 9b	Dry – moist	Full sun – partial sun	Moderate	
Louisiana iris, blue flag iris	*Iris hexagona*	Flowers	5 – 10b	Moist – wet	Full sun – partial sun	Moderate	
Phlox	*Phlox drummondii*	Flowers	3 – 10b	Dry – moist	Full sun – partial sun	Moderate	
Purple coneflower	*Echinacea purpurea*	Flowers	4 – 10b	Moist – wet	Full sun – partial sun	Moderate	
Virginia iris, blue flag iris	*Iris virginica*	Flowers	8b – 11	Moist – wet	Full sun – partial sun	Moderate	

Page: 1 of 1 **Rows: 1 to 5 of 5**

Export




<<< Back to search results

DETAILS

Common name :	Purple coneflower
Scientific name:	*Echinacea purpurea*
Plant category:	Flowers
Hardiness range:	4 – 10b
Mature height (ft.):	1 – 3
Mature width (ft.):	2 – 3
Flower color:	Purple
Soil moisture range:	Moist – wet
pH:	Any
Light range:	Full sun – partial sun
Salt tolerance:	Low
Growth rate:	Moderate
Native:	Yes
Comments:	Perennial. Warm season flowers. Purple, pink, or lavender flowers. Attracts butterflies and hummingbirds.

<<< Back to search results

Turf Grass

Residential - less than 60% of total landscape if irrigated (Silver)

Drought-tolerant turf grass (Bahia)

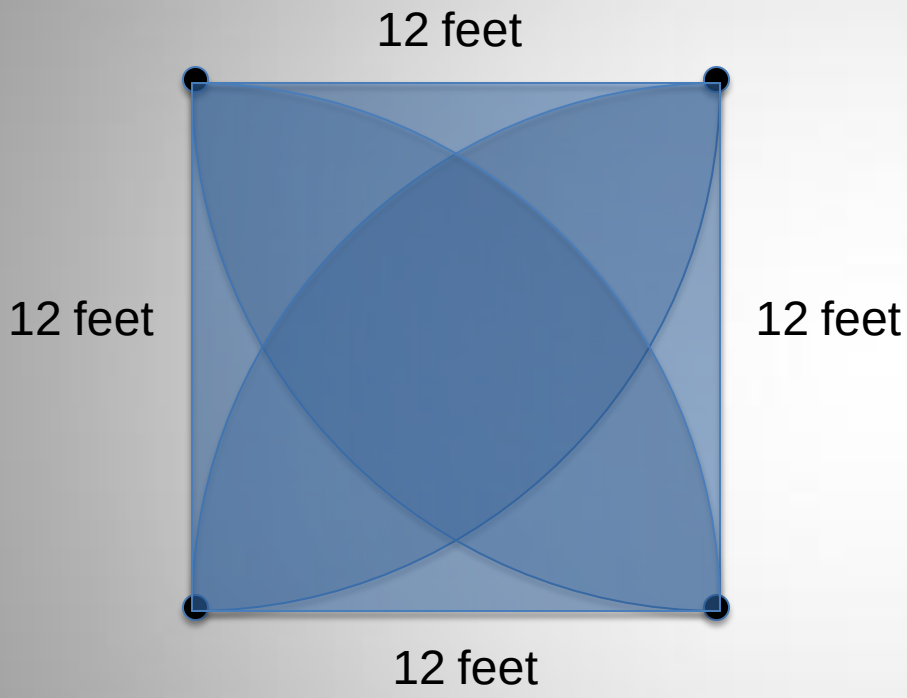
Irrigation Goals

Design – follow industry BMPs
Installation – design drawings and inspection
Scheduling – appropriate run times based on application rate and hydrozone characteristics

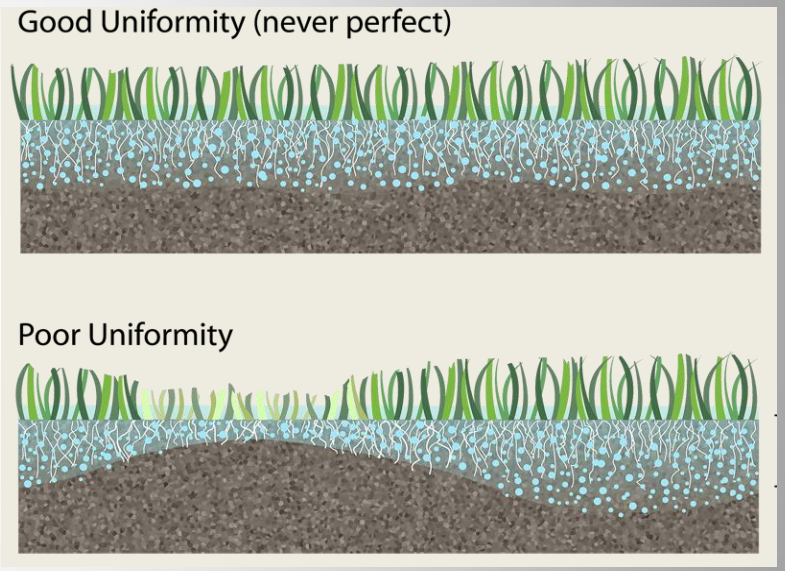
Reduced high-volume irrigation

Residential - 60% of the total landscaped area or less

Uniformity and Application Efficiency

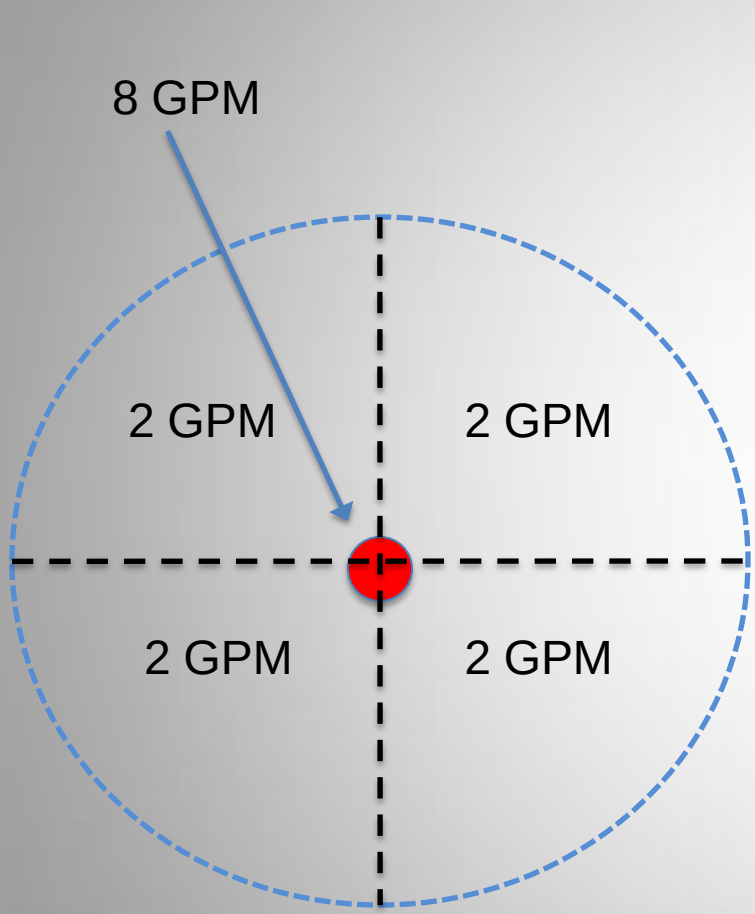


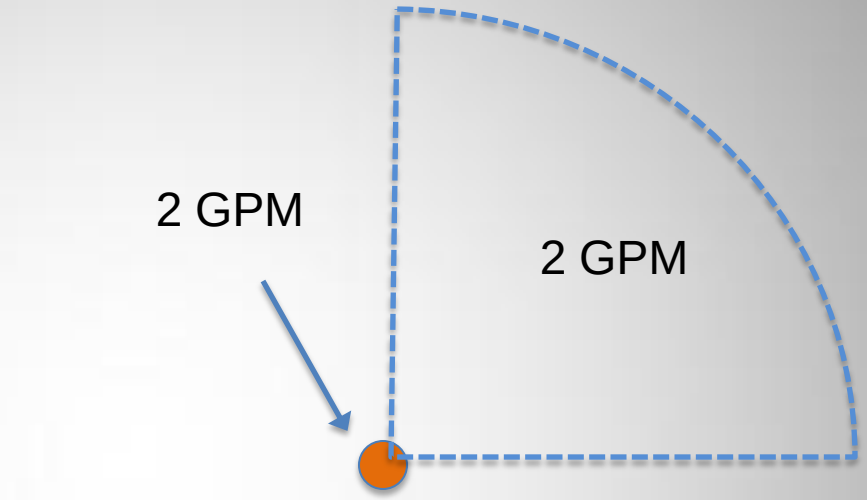
Head-to-head Spacing

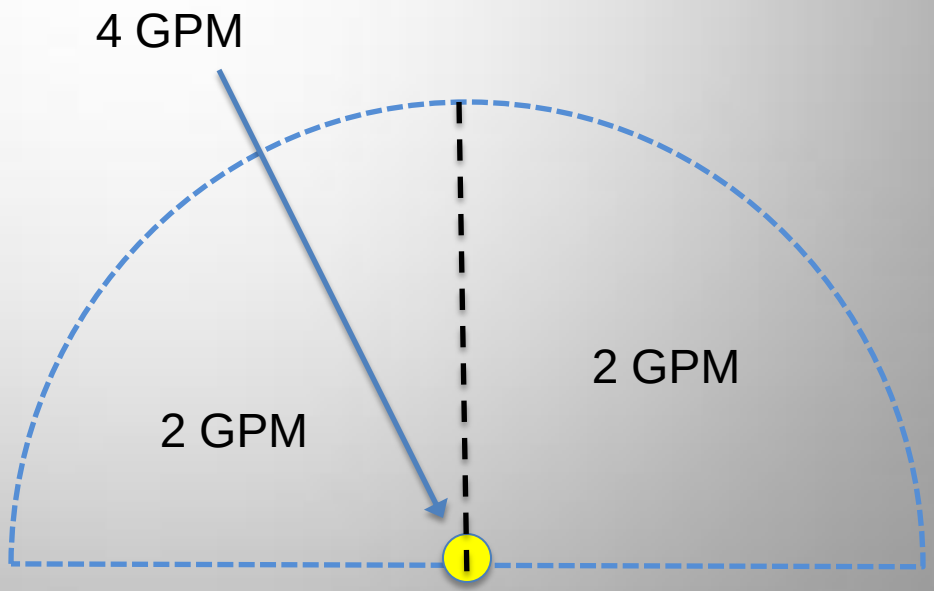


Distribution Uniformity

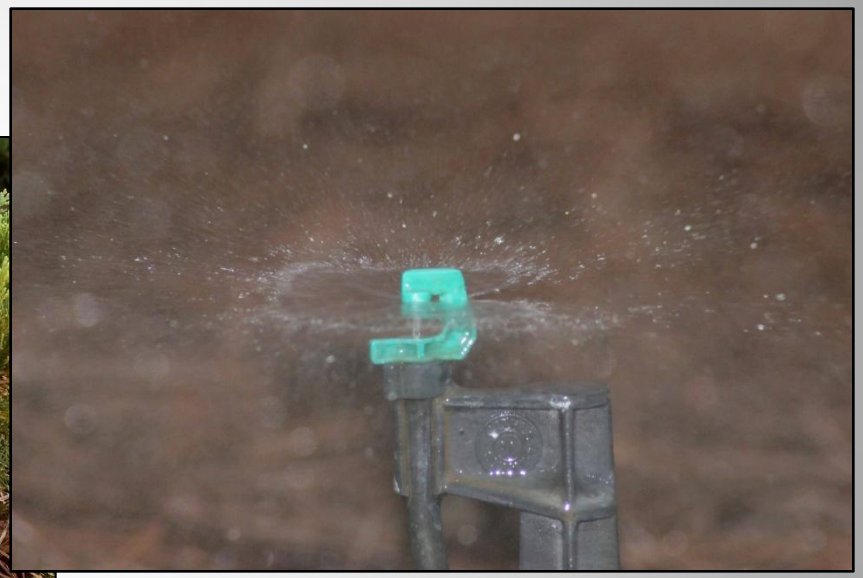
Matched Precipitation







Microirrigation in Landscape Beds



- Correctly installed, pressure regulated
- Correct run times and maintenance

Irrigation Scheduling and Operation

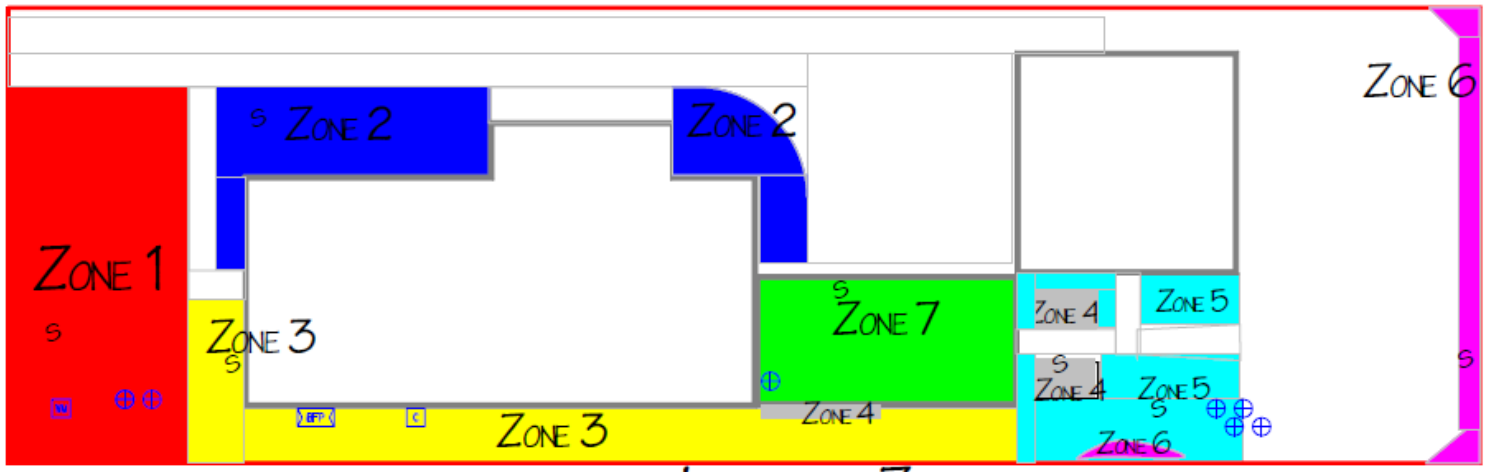
Point Items
Rain shut-off device installed and functioning
System as-built design and post-landscape-establishment schedule affixed adjacent to controller
Points for correctly installed and functioning soil moisture sensor controllers
Points for correctly installed and functioning evapotranspiration (ET) controllers

Vision House 2011
Southern Tradition Builders

Designed by Judy Benson
Certified Irrigation Designer

Installed by
Clear Water PSI
Winter Springs, FL

December 2010



Legend

- BFP — BackflowPreventer
- WM — Connection
- C — Controller
- Valve
- S — Sensor

Irrigation Zones

Zone No.	Plant Type	Irr Equip	Appl. Rate	GPM	Run time
1	Zoysia Turf	Subsurface Drip	1 iph	7.50	30 mins.
2	Assorted Plants	Standard Drip	1 iph	4.50	20 mins.
3	Perennial Peanut	Subsurface Drip	1 iph	3.15	20 mins.
4	Edibles	Bubblers/Drip	1 iph	5.5	10 mins.
5	Asiatic Jasmine	Standard Drip	1 iph	2.85	15 mins.
6	Assorted Plants	Standard Drip	1 iph	1.0	20 mins.
7	Citrus (Potted)	Micro Bubblers	2 iph	2.0	5 mins.

NOTE: Irrigation operation is to be monitored via Water Optimizer soil moisture sensor system

Indoor Goals

Reduced leaks
Efficient fixtures
Efficient appliances
Efficient hot water distribution

Faucets and Showerheads

Point Items
Single showerhead with flow rate of 2 gallons/minute or less
Points deducted for multiple showerheads in a stall
All lavatory faucets have flow rates of 1.5 gallons/minute or less
2011 WaterSense-labeled products should comply

EPA WaterSense

Toilets

Point Items
All toilets are high-efficiency, 1.28 gallons/flush, with a UNAR MaP rating above 350 grams per flush
Dual-flush toilet (maximum 1.28 gallons/flush) with a UNAR MaP rating above 350 grams per flush
WaterSense-labeled products may comply

Appliances

Appliance Requirements
Dishwasher uses less than 5.8 gallons per cycle
Clothes washer has water factor of 6 gallons or less
2011 ENERGY STAR-labeled products comply

Water Heaters and Innovation

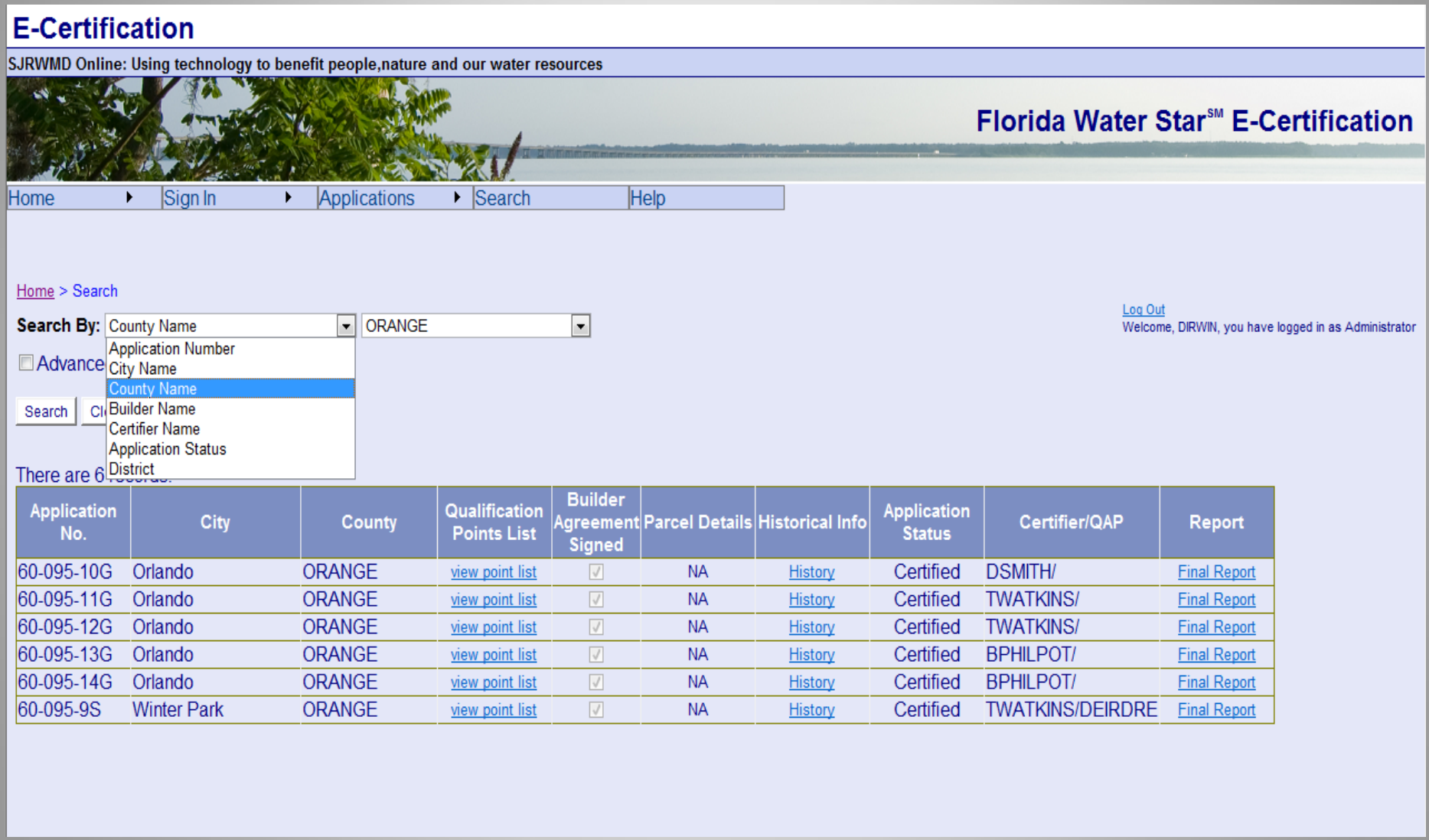
Centrally located hot water heaters or manifold plumbing

Certification Process

Certification

Administrator certifies the project via E-Certification, mails out plaque, letter and certificate.

E-Certification



Application No.	City	County	Qualification Points List	Builder Agreement Signed	Parcel Details	Historical Info	Application Status	Certifier/QAP	Report
60-095-10G	Orlando	ORANGE	view point list	☑	NA	History	Certified	DSMITH/	Final Report
60-095-11G	Orlando	ORANGE	view point list	☑	NA	History	Certified	TWATKINS/	Final Report
60-095-12G	Orlando	ORANGE	view point list	☑	NA	History	Certified	TWATKINS/	Final Report
60-095-13G	Orlando	ORANGE	view point list	☑	NA	History	Certified	BPHILPOT/	Final Report
60-095-14G	Orlando	ORANGE	view point list	☑	NA	History	Certified	BPHILPOT/	Final Report
60-095-9S	Winter Park	ORANGE	view point list	☑	NA	History	Certified	TWATKINS/DEIRDRE	Final Report

Outdoor Landscape | Outdoor Irrigation | Indoor | Summary

This application is in process with the certifier

Point Summary

Description	Possible Point Totals	Minimum Required Points	Total Points Earned
Landscape	130	35	45
Irrigation/Non-irrigation	105+	35	52
Indoors	69+	20	31
Total Overall Points	304+	90	128

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Enter your comments here

Johns River
Management District

e support floridaswater.com BLOG

Water conservation

Florida Water Star℠

Florida Water Star℠ is a voluntary certification program for new and existing residential and commercial developments that encourages water efficiency in household appliances, plumbing fixtures, irrigation systems and landscapes.

What's new?

The **Silver/Gold residential criteria** were revised in November 2010 to clarify language, increase consistency among program tiers, and to update criteria of WaterSense- and ENERGY STAR-labeled products.

In addition, points can now be awarded in the irrigation section of the points list for use of alternative water sources, including rainwater, storm water or surface water.

In this section

Florida Water Star℠ home

About the program
Read an overview about this program.

Program criteria
Read qualifications points lists to learn what is required to have a structure certified.

Events and news
See our calendar of events and read the buzz about the program.

Contacts
Know whom to contact to request certification, find a builder and our staff.

Resources
See our list of water-conserving appliances, plumbing fixtures, irrigation resources and more.

Technical Manual

Florida Water Star℠ Technical Manual

Irrigation system criteria

General design

Sprinkler clearance

Sprinkler clearance above turf.

Background

Sprinkler water application can be altered when sprinkler heads are unable to rise above the turf grass. When application is obstructed, distribution of water is increased in areas adjacent to the sprinkler head and areas further away receive less water. Sprinklers that do not clear turf grass are another cause of reduced distribution uniformity, which can significantly diminish plant vitality.

Requirements and certification

Sprinklers rise above turf grass height:

- A minimum of 6-inch pop-up sprinkler heads and 4-inch pop-up rotor heads for St. Augustine, Zoysia and Bahia grasses
- A minimum of 4-inch pop-up sprinkler heads and 4-inch pop-up rotor heads for centipede, Bermuda and seashore paspalum

Bronze	Silver IR PR 8	Gold IR PR 8	Commercial/ Institutional
NA	Required	Required	Required

Existing houses that are eligible for Florida Water Star℠ Bronze certification can have 4-inch sprinkler heads for any type of turf grass, if the sprinklers sufficiently rise

Florida Water Star℠ home

Technical manual

- Topics

Indoor requirements

Irrigation system criteria

Landscape criteria

Bronze
This program for existing single-family residences provides water-efficient options for houses and landscapes.

Silver
This program for new and existing single-family residential construction provides water-efficient options for houses and landscapes.

Gold
This program is much like the Silver tier, but the water-efficient options for houses and landscapes conserve even more water.

Commercial/ Institutional
This program applies to offices, retail and service establishments

Recent Projects

Florida Showcase Green Envirohome

- Gold Certification
- No high volume irrigation, 100% microirrigation
- Irrigation from cistern and household gray water
- Green roof
- Majority native species
- Gray water for toilet flushing and clothes washer
- 1.5 gallons per minute showers
- Central location of hot water heater
- Indoor leak detection shut off

Recent Projects

Steve Saddler and Michaela Miller

- Gold certification
- Only 50% of landscape is irrigated
- No high-volume, 100% Microirrigation
- Native species and edible garden
- Berm at waterfront to reduce runoff
- Hoot septic system and rainwater cistern for irrigation
- Manifold plumbing system

Recent Projects

Orlando Habitat – Stag Horn Villas

- Community certification – 58 townhomes
- Central irrigation control
- ET controller
- Bahia turf, minimal irrigation
- Microirrigation in beds
- Most homes meet residential Gold certification

Recent Projects – Bella Lago

- Community certification – retrofit of 156 units
- Central irrigation control for landscape beds
- Unirrigated Bahia turf, limited bed irrigation
- 20-inch water budget
- Most units meet residential Gold certification

Mandates and Incentives

- **Regional Planning Councils** – recommend homes built in Developments of Regional Impact (DRIs) be built to FWS standards.
- **City of DeLand -** $50 rebate for homes, $100 for commercial buildings. 15 percent impact fee credit for FWS-certified homes.
- **Toho Water Authority** – all homes in new subdivisions must be built to FWS standards. 20 percent rebate on the utility connection fee.
- **OUC (Orlando Utility Commission) -** $300 rebate on the utility connection fee for FWS.
- **JEA -** $100 rebate for certification.

Professional Development

SJRWMD has partnered with FNGLA to offer a FWS professional development program.

FNGLA will host irrigation and landscape exams, and offer irrigation and landscape training to prepare for exams.

FNGLA will track status of all FWS AP's and market the AP exams to their members

Thank you

Contact Deirdre Irwin at *dirwin@sjrwmd.com* or (386) 546-8437.