Regional Irrigation System Evaluation Program Phase II Final Report 2013 - 2015

A Cooperative Funding Initiative (N491)

November 18, 2015

Prepared by
Withlacoochee Regional Water Supply Authority

WITHLACOOCHEE REGIONAL WATER SUPPLY AUTHORITY

Southwest Florida Water Management District

Acknowledgements Page

Cooperative Funding Initiative N278
Between the
Southwest Florida Water Management District and the
Withlacoochee Regional Water Supply Authority

With funding by the

Coastal Rivers Basin and Withlacoochee River Basin Boards

and

Citrus County Water Resources

Hernando County Utilities

Marion County Board of County Commissioners

North Sumter County Utility Dependent District

Villages Community Center Development District

Withlacoochee Regional Water Supply Authority

Irrigation Audit and Education Phase II Project (N-491)

TABLE OF CONTENTS

Withlacoochee Regional Water Supply Authority

Irrigation Evaluation and Education Program Phase II (N491)
A Cooperative Funding Initiative

1. Introduction

The Withlacoochee Regional Water Supply Authority (Authority) and a number of local water utilities partnered with the Southwest Florida Water Management District (District) to provide a water conservation program for single-family residential customers of the water utilities. Under the District's Cooperative Funding Initiative (Initiative), the Authority applied for matching funds to conduct the water conservation program. Single-family residential customers of the water utilities were eligible to apply for and receive a free irrigation system evaluation. Citrus, Hernando, and Marion county utilities and two Community Development Districts within The Villages, The Village Center Community Development District and the North Sumter County Utility Dependent District, participated in the program. The evaluations were designed to assess residential irrigation systems and to provide recommendations for conserving water. Recommendations included the use of Florida-friendly™ landscaping techniques, appropriate rainy season or dry season scheduling, efficient irrigation application systems, and improvements to the irrigation system. A professionally certified irrigation contractor developed these recommendations.

2. Program Description

This project targeted existing inefficient, fully operational single-family residential irrigation systems. Participation in this program was anticipated to result in increased water savings and water quality protection. The Initiative included an in-depth inspection of each participant's irrigation system, by zone, followed by a written report to the resident that included efficiency measures per zone. The timing and run cycles for each zone were analyzed and changes recommended. A new rain sensor was installed or the existing one repaired if the existing sensor was non-functional. Each participant also received information and brochures on measures to conserve outdoor water use as part of the educational component designed to maintain the water savings over time (see Appendix C). Approximately one year after the initial evaluation, a sample of participants were offered a follow-up evaluation to determine how many changes were made; the evaluator provided an estimate of changes made based on the original recommendations. Each residential account was tracked by the utility to show the actual amount of water used one year prior to the evaluation and for one year following the evaluation. The utility water use data is the primary method used to measure the water savings. While the program was designed to measure water use for one year before and after the evaluation, the utilities have the ability to further track the water use over time. The Authority coordinated the program and prepared this report.

2.1 Objectives

The District's *Regional Water Supply Plan* identifies lawn and landscape irrigation as comprising between 35 to 60 percent of the residential water used in the Public Supply sector. This component of the public supply demand represents a significant opportunity for water savings. The regional irrigation evaluation program was initiated to assist the participating utilities to reach, maintain and surpass the District's maximum compliance water use rate of 150 gallons of water per capita per day (gpcd), to allow existing sources of water to meet the needs of a larger customer base, and to reduce current and future water demands.

The project objectives to reduce outdoor water use are identified in the Agreement between the District and the Authority as:

a. Evaluate single-family residential irrigation systems for efficiency improvements;
b. Install rain sensors where an operable sensor is not present; and
c. Provide water conservation information to encourage other conservation practices.[1]

2.2 Methodology

The Phase II program consisted of four major components:

a. Irrigation evaluations conducted on-site;
b. Follow-up evaluations for up to 25 percent of the original participants;
c. Recommendations and educational materials provided to each participant to achieve more efficient irrigation; and
d. Analysis of water use from the utilities' data for each participant for one year prior to the on-site evaluation and one year after the evaluation.

The program Agreement was signed on March 4, 2013. The Authority and the cooperating utilities then implemented Phase II of the regional irrigation system evaluation program as described in the following paragraphs.

Initiation. The Authority's Board selected Eco Land Design, Jack Overdorff, as the irrigation system contractor in April 2013 to conduct the evaluations, prepare recommendations for homeowners and provide follow-up inspections. Phase II evaluations were underway by April 26, 2013 with the first on-site evaluation.

Process. The local coordinators are the water resource coordinators or water conservation managers for each utility. The local coordinators directed their efforts toward the highest water users in each utility, or those customers using approximately 30,000 gallons or more of water each month. Directing the program toward the highest users was determined to be the most

[1] Cooperative Funding Agreement between the Southwest Florida Water Management District and Withlacoochee Regional Water Supply Authority Regional Irrigation Evaluation Program Phase 2 (N491). Agreement No. 13C00000031. March 4, 2013, Exhibit A.

effective way to reduce overall water use and to achieve the highest return for the money spent. Each coordinator provided the Authority with a list of names and addresses for direct contact. A brochure, prepared by the District, was mailed to each prospective customer along with an application and a self-addressed stamped envelope (see Appendix A for sample materials).

Based on the previous Pilot Irrigation Audit Program, the process for Phase II was refined for each utility. Applications were sent to high water use customers in both Citrus and Hernando counties, including a self-addressed and stamped return envelope. Citrus and Marion counties used a variety of methods to contact customers including post cards, phone calls, and a local property owners' association. After making an attempt to reach customers by telephone, The Villages relied on mail-outs to reach customers desiring to participate. As the program progressed, some account holders requested evaluations based on word of mouth from neighbors who had participated in the program and were satisfied with the results and from the signs used by the contractor. The District provided the Authority with signs to be used by the irrigation contractor. These signs were placed in the yard for the duration of the on-site evaluation and were useful in generating additional visibility and interest in the program.

Because of the decision to focus on the highest water users, the Phase II project was not generally advertised and no press releases were issued. A portion of the District's funding was provided through the Withlacoochee River Basin. Funds from the Withlacoochee River Basin were expended for customers from Marion County within the District boundaries, and within The Villages of Sumter County as well as appropriate portions of Citrus and Hernando counties.

3. Program Summary

3.1 Overall Summary of Irrigation System Evaluations

The first on-site evaluation was conducted on April 26, 2013. The on-site portion of the program was extended through September 30, 2014, lasting a total of 17 months. A total of 162 irrigation system evaluations were completed within the four-county region out of a program goal of 384, or 42 percent of the goal. Table 3.1 summarizes the irrigation system evaluations completed.

The program reached less than 100 percent of its target due to a number of constraints on the program. The decision to target the highest water users within the utilities, while intended to provide the most beneficial results, prevented widespread public advertising and thereby limited potential applicants. To limit the targeted participants to the highest water users was a reasonable decision at the design stage of the project, intended to achieve the most water savings. The program was limited to individual contacts with customers to obtain participation. Some customers choose not to follow through, some could not be reached by numerous telephone or email contacts, and one account was closed shortly after submitting an application.

Some of the lessons learned during the program include:

- Because a number of homes in the region are second homes or seasonal residences, many residents are available only during the months of November through April. This is the best time of year to contact customers and solicit participation;
- Either telephone calls or letters from the utility helped to introduce the program. The utility offices provided invaluable service in reaching customers;
- Having a knowledgeable irrigation audit contractor who is able to effectively communicate with homeowners is essential to the program success.

Table 3.1 Irrigation System Evaluation Summary

UTILITY	TARGET NUMBER OF EVALUATIONS	COMPLETED EVALUATIONS	PERCENTAGE OF TARGET
Citrus	96	54	56.3
Hernando	96	24	25.0
Marion	96	41	42.7
Villages - VCCDD	32	25	78.1
Villages - NSCUDD	64	18	28.1
TOTAL	**384**	**162**	**42.2**

As shown in Table 3.1, there were 54 evaluations completed in the Citrus County Utilities service areas, or 56 percent of its target. Twenty-four evaluations were completed in the Hernando County Utilities service areas, or 25 percent of its target. There were 41 evaluations completed in the Marion County Utilities service areas, or 42 percent of its target. In The Villages service areas there were a combined 43 evaluations completed, or 45 percent of its target. The program as a whole completed 162 evaluations or 42 percent of the regional target.

3.2 Rain Sensors Installed

Rain sensors were installed or replaced at 144 residences, or 89 percent of all on-site evaluations. Table 3.2 shows the breakout of rain sensor installation by utility. Installation of a new rain sensor was counted if the sensor had to be replaced entirely or in part. If the sensor was re-set or moved to a new location, it was counted as an operational sensor.

Table 3.2 shows the number of rain sensors installed per utility and the percentage of rain sensors installed based on the total evaluations performed. As can be seen, a clear majority of participants had to have a new rain sensor installed. The utility with the highest percentage of

functioning rain sensors was The Villages, at 27.9 percent. At the other end of the spectrum, all participants in Hernando County required new rain sensors.

Table 3.2 Rain Sensor Installation per Utility

Utility	Total Evaluations	Installed or Repaired		Functional Sensors	
		NUMBER	PERCENT	NUMBER	PERCENT
Citrus	54	53	96.3	1	3.7
Hernando	24	24	100.0	0	0.0
Marion	41	36	87.8	5	12.2
Villages	43	31	72.1	12	27.9
Totals	**162**	**144**	**88.8**	**18**	**11.2**

3.3 Follow-up Evaluations

The Initiative Agreement between the Authority and the District, as amended, stated that follow-up evaluations be conducted on approximately 25 percent of the irrigation evaluation sites. Based upon the 162 completed evaluations, the target number of follow-up evaluations was 41. The Authority was able to achieve a 27 percent follow-up evaluation rate, or 44 re-inspections. The follow-up inspections were designed to occur approximately 12 months following the initial evaluation. Over the course of a year, customers had the opportunity to implement some or all of the recommendations provided to them and to establish more efficient irrigation practices. During the follow-up inspection, the contractor reviewed each of the sites based on the initial evaluation. He determined how many changes were actually made and provided a percentage of recommendations followed. These items were noted on the original inspection form and provided to the homeowner, to the Authority, and to each utility. The follow-up evaluations ended in September 2015.

Table 3.3 summarizes the total number of completed follow-up evaluations. Table 3.4 provides further information by utility.

Table 3.3 Total Follow-up Evaluations

Evaluations	Number	Percentage
Target Evaluations	41	25.0%
Completed	44	27.2%

The breakdown of re-inspections by utility is provided in Table 3.4 below. Citrus County had the largest number of follow-up inspections with 16, followed by The Villages with a total of 15. The distribution of follow-up evaluations among utilities is influenced by the ability of the contractor to have homeowners agree to the follow-up. Some participants scheduled follow-up appointments, but cancelled prior to the actual visit. In order to close out the project in a timely manner, the follow-up evaluations were completed by the end of September 2015.

Table 3.4 Follow-up Evaluations by Utility

UTILITY	NUMBER OF PLANNED EVALUATIONS	ACTUAL EVALUATIONS	TARGET NUMBER OF FOLLOW-UPS BASED ON PLANNED EVALUATIONS	TARGET NUMBER OF FOLLOW-UPS BASED ON ACTUAL EVALUATIONS	ACTUAL FOLLOW-UPS
Citrus	96	54	24	14	16
Hernando	96	24	24	6	5
Marion	96	41	24	10	8
Villages VCCDD	32	25	8	6	8
Villages NSCUDD	64	18	16	5	7
Villages Combined	96	43	24	11	15
TOTALS	384	162	96	41	44

3.4. Total Water Savings

For this Phase II program, 162 single-family residential irrigation systems were evaluated. A number of these participants were excluded from the pre-evaluation and post-evaluation water use analysis due primarily to not having reliable monthly water use for a full year prior to and after the irrigation audit. Twenty-one accounts were excluded, leaving a total of 141 accounts included. Pre- and post-water use data by participant is provided in Appendix E. Total annual water savings for these 141 accounts were 12.384 million gallons, or 33,930 gallons of water per day. This represents a 28 percent reduction. The total amount of water used in the pre-evaluation and post-evaluation period by these accounts is shown in the Table 3.5, broken out by utility.

Water Use Variables. The total amount of water used for irrigation will vary over time for a variety of reasons. While this program did not attempt to control for changes in pre- and post-water use caused by factors other than implementation of the audit recommendations, it is important to recognize some of the other possible causal factors. Other factors include when homeowners make seasonal time adjustments or periodically turn the irrigation system off. Actual rainfall amounts varying over time and place is also a significant factor influencing water use. Other variables in the amount of water used may include changes in account status per residence, filling swimming pools, or establishing new lawns. In addition, changes in watering restrictions within the local government may affect the amount and frequency of lawn irrigation.

The most water in total gallons saved was in Citrus County, with a total of 4.479 million gallons over the course of a year, for a 25 percent reduction in water use. Hernando County participants experienced the greatest total percent reduction in water use at 41 percent. Using

gallons per account per day (gpad), it is possible to compare the water savings per utility. For instance, Hernando County accounts saved an average of 398 gpad, Citrus County saved 241 gpad, The Villages combined saved 200 gpad, and Marion County saved 176 gpad.

The North Sumter County Utility Dependent District provided water use data for irrigation water use only. All other utilities measured total household water used for both pre- and post-evaluation data.

Table 3.5 Annual Water Savings by Utility

HOUSEHOLDS		**ANNUAL WATER USE** (Million Gallons)			**DAILY SAVINGS**
Utility	***Evaluations with Pre/Post Use***	***One-Year Pre-Evaluation Use***	***One-Year Post-Evaluation Use***	***Water Saved***	***Gallons Per Day***
Citrus	51	18.126	13.647	4.479	12,271
Hernando	22	7.793	4.600	3.193	8,749
Marion	29	7.189	5.330	1.859	5,093
Villages	39	10.841	7.988	2.853	7,817
TOTALS	**141**	**43.949**	**31.565**	**12.384**	**33,930**

Values may not add to totals due to rounding.

3.5 Water Saved Per Capita

This water conservation program was initiated between the District and the Authority to assist utilities to meet, maintain, or surpass the District's maximum compliance per capita rate of 150 gpcd required by the District. As shown in Table 3.6, the amount saved on a per capita basis ranged from a low of 75 gpcd to a high of 167 gpcd.

Table 3.6 Water Saved Per Capita

Utilities	***Persons Per Household*** [1]	***Pre-Evaluation Per Capita Use***	***Post-Evaluation Per Capita Use***	***Water Saved Per Capita Per Day***
Citrus County	2.20	443	333	110
Hernando County	2.38	408	241	167
Marion County	2.35	289	214	75
Villages – NSCUDD [2]	1.81	403	297	106
Villages - VCCDD	1.81	450	332	118

[1] 2010 Census. American Fact Finder, "Community Facts." *Table DP-1. Profile of General Population and Housing Characteristics: 2010: Average household size*. Retrieved from www.factfinder2.census/gov on 1/22/2014. The average household size for Hernando and Marion counties is calculated for the entire county. The average household size for Citrus County and for the Villages VCCDD is for the zip code area, retrieved from the zip code tabulation provided by the US Census Bureau. All of the evaluations in the Villages were completed in the zip code 32162.

[2] Water use data in the NSCUDD utility is irrigation only. It does not include indoor household water use.

3.5 Program Costs

The total program costs were budgeted for $192,200 pursuant to the Agreement. Total program expenditures were $71,842.77 or 37 percent of the original budget. The on-site evaluation expense, which included repair or replacement of the rain sensor, was approximately $407 per evaluation, or $65,880 for 162 evaluations. Marketing and outreach costs were $781.39. Per District calculations, the overall cost-benefit ratio is $1.41 per 1,000 gallons of water saved. Because the program was targeted to high water users and further limited geographically within each county, the program was not broadly advertised to all single-family utility accounts.

Pursuant to the Initiative Agreement, the District provided 50 percent of the total funding, not to exceed $96,100. The Authority and the participating utilities shared the other half. The Authority was responsible for 25 percent with each utility contributing 25 percent of the total cost for their respective portion of the program, in addition to completing other activities to research high water users, contact customers, coordinate with the Authority, and provide water use data for participating customers.

Table 3.7 shows the cost of the program among the various funding entities for each major component of the program. Costs are shown for the District, the total amount for each utility (Authority and utility combined), and the total cost per component. The actual direct cost to each utility is shown on the last line of the table. This is the program cost to each utility after subtracting the funds provided by the Authority. The Authority's total final cost is $17,960.70.

Table 3.7 Expenditures Per Utility

IRRIGATION EVALUATION PROGRAM COSTS						
ITEM	**SWFWMD**	**WRWSA**				**TOTAL**
		Citrus	***Hernando***	***Marion***	***The Villages***	
Irrigation Evaluations	$27,540.00	$9,180.00	$4,080.00	$6,970.00	$7,310.00	$55,080.00
Rain Sensors	$5,400.00	$1,987.50	$900.00	$1,350.00	$1,162.50	$10,800.00
Marketing	$781.39	$80.66	$80.60	$87.53	$532.61	$1,562.77
Follow-up Inspections	$2,200	$800.00	$250.00	$400.00	$750.00	$4,400.00
Total Program Costs	**$35,921.39**	**$12,048.16**	**$5,310.60**	**$8,807.53**	**$9,755.11**	**$71,842.77**
Final Utility Cost		**$6,024.08**	**$2,655.30**	**$4,403.76**	**$4,877.56**	**$17,960.70**

4. Customer Implementation

Each follow-up evaluation included an estimate of the changes made by the customer based on the original evaluation and recommendations provided. A sample of a complete evaluation is contained in Appendix B. The evaluation form was used to provide a written set of recommendations to each customer. On the follow-up inspection, the contractor used the last column of the form to note whether changes were implemented. The results of the follow-up inspections are included in this section.

4.1 Implementation Rates for Efficiency Recommendations

About a year after the first on-site evaluation, the irrigation contractor began scheduling follow-up appointments with customers. He reviewed the irrigation system on each site using the original written evaluation. Based on the changes made to the system relative to the written evaluation, an implementation rate was determined for installation of water conservation measures. (Section 3.3 covers the number of follow-up evaluations.) The implementation rate is not necessarily indicative of the potential or actual water savings. Some changes to system components may have a greater impact on one system than another depending on the severity of the particular issue and the corresponding changes to the systems. Table 4.1 summarizes the number of follow-up evaluations conducted for participants within each utility as well as the average percentage of recommended changes that were actually implemented by those participants.

Table 4.1 Implementation Rates for Efficiency Recommendations

UTILITIES	FOLLOW-UP EVALUATIONS	PERCENT OF CHANGES IMPLEMENTED
Citrus	16	46%
Hernando	5	50%
Marion	8	46%
The Villages	15	67%
TOTAL	**44**	**53%**

Potential changes included relocation of heads, changes in types of heads, eliminating or removing items that block the spray pattern or coverage, repairing or replacing leaking or broken heads, reducing turf areas, reducing areas of overspray, and capping heads in areas where irrigation is not needed. All of the customers who participated in the follow-up evaluations made some changes to their irrigation systems, ranging from 10 to 90 percent, for an overall implementation rate of 53 percent. The 44 customers that participated in the follow-up evaluations represent 27 percent of the 162 total evaluations.

The installation or repair of the rain sensor by the irrigation contractor and alterations to system run times were not included in the percent of changes implemented.

4.2 Customers Satisfaction Surveys

A customer satisfaction survey was prepared using Survey Monkey, an online questionnaire and survey resource (www.surveymonkey.com). The complete survey and results are included in Appendix D. The survey was sent from Survey Monkey to those customers providing an email address. Other customers received a paper copy of the survey by regular mail. These surveys were provided to customers approximately 9 – 12 months following the on-site evaluation. The results of all surveys received by mail were entered into the online survey database for a composite accounting of the results. A total of 49 responses were received, for a response rate was 30 percent.

Ninety percent of respondents reported making at least some changes to their irrigation systems. Eighty-three percent reported making adjustments, repairing or replacing irrigation heads, followed closely by adjustments to irrigation system run times (74%). Seventy-seven percent reported using less water after implementing the recommendations. Respondents were asked to rate the overall evaluation process by selecting “Pleased,” “Very Pleased,” “Dissatisfied,” or no response. Of the respondents, 96 percent selected “Pleased” or “Very Pleased” with the irrigation system evaluation.

Appendix A. Marketing Materials


FREE Irrigation System Checkup In Progress
To participate, please call
(352) 527-5795
WITHLACOOCHEE REGIONAL WATER SUPPLY AUTHORITY
Southwest Florida Water Management District
WATERMATTERS.ORG • 1-800-423-1476
11/09/2015

Would you like a **FREE** irrigation system evaluation? Want to **lower your water bill** by optimizing your outdoor water use? Water-efficient landscaping equipment and practices can reduce water bills and help protect Florida's precious water resources.

Some irrigation systems have damaged sprinkler heads, heads that are incorrectly angled and sized for the area, or heads programmed to overwater zones. You may not even know if a problem exists, but participating in this evaluation is a good way to find out.

Evaluations:
The Withlacoochee Regional Water Supply Authority and the Southwest Florida Water Management District are offering a limited number of free evaluations to qualified residents. Eco-Land Design, a certified irrigation auditor, will visit your home to:

- Perform an irrigation system evaluation
- Install a free rain sensor if you do not have an operable sensor
- Evaluate your time clock and sprinkler zones for water efficiency
- Provide a detailed report with suggestions that could improve the operation and effectiveness of your irrigation system
- Supply information on Florida-Friendly Landscaping™ principles and other landscape-related information

Qualifications:
You must be a single-family residence using 30,000 gallons of water or more per month; have a fully functional irrigation system with no leaks, breaks or repair needs; and you must be a customer of one of the following utilities:

- Citrus County Utilities
- Hernando County Utilities
- Marion County Utilities
- Village Center Community Development District
- North Sumter County Utility Dependent District

To participate, complete and return the attached application by

_____

The number of free evaluations is limited.

For further information, call the program administrator at **(352) 527-5795**.

This irrigation system evaluation pilot program is funded by

Marion County FLORIDA

North Sumter County UTILITY Dependent District

UTILITIES

Withlacoochee Regional Water Supply Authority

Sponsored by a grant from the Coastal Rivers and Withlacoochee River basin boards of the Southwest Florida Water Management District

WATERMATTERS.ORG · 1-800-423-1476

June 20, 2014

ADDRESS

Dear :

The enclosed application is for a free evaluation of your irrigation system. This free evaluation is part of a water conservation program conducted by Hernando County Utilities in coordination with the Southwest Florida Water Management District and the Withlacoochee Regional Water Supply Authority.

Please fill out the application and return in the enclosed stamped, self-addressed envelope. If you are not in Florida at the present time, but will be returning prior to the end of September, please note a return date on the application. Jack Overdorff, the contractor who performs the evaluations, will contact you near that time to schedule an appointment.

We look forward to hearing from you. If you have questions, please call me at 352-527-5795.

Sincerely,

Nancy H. Smith
Administrative Assistant

Enc.

Irrigation Evaluation Program (N491) Application Form

Residential Water Customer Information:

Complete Name:	Account Number:	Day-Time Telephone Number: Best Time to Call:
Street Address with Zip Code:	Email Address:	
Does your water account serve more than one home? _____No _____Yes If Yes, how many?_____		
Is your irrigation system operational and without any known or major breaks, leaks or other damage? _____Yes _____No **If the system is not functioning, the irrigation system must be repaired before an evaluation can be scheduled.**	Do you have a rain sensor installed on your automatic in-ground sprinkler system? _____Yes _____No _____Don't Know	
Please indicate the number of zones your sprinkler system contains: 1 - 4 zones _____ 5 - 8 zones _____ More than 8 zones _____ Don't know_____		

(Please Turn Page Over for Program Guidelines)

By signing below, I certify that I have read and will abide by the program guidelines as outlined. IN ADDITION, I certify that my entire irrigation system is in good operating condition. In the event my irrigation system or major parts of my irrigation system are inoperable when the System Evaluator arrives to conduct the irrigation system evaluation, I understand that I will be ineligible to receive the requested evaluation.

_____ _____

Signature Name (Please Print)

_____

Date

This program is cooperatively funded by the Withlacoochee Regional Water Supply Authority, participating local governments, and the Southwest Florida Water Management District.

- **This program applies only to single-family residential users using public-supply, metered water for their operable in-ground irrigation or sprinkler system.**

How to Participate:

1. Complete and sign this application form.

2. Return the application in the stamped, self-addressed envelope that is included with this application; OR, if filling out the online form, return to: nsmith@wrwsa.org

3. The Program's contractor will contact you to arrange an appointment to perform an evaluation of your irrigation system. You will need to provide access to your property and your sprinkler system's time clock.

What to Expect from the Irrigation Evaluation Program:

1. ***At no cost to you***, an irrigation system evaluation, including suggested changes to improve the operation and efficiency of your irrigation system**.**
2. Installation of a rain sensor where a rain sensor is not present or is inoperable. Acceptance of a functioning rain sensor is a requirement to participate in this program. ***There is no cost to you.***
3. Educational materials on water conservation, ***at no cost to you*****.**
4. Reduction in water use and lower water bills.
5. Possible improvement in the health and appearance of your lawn and landscape over time.

Program Terms and Conditions – What is expected of Participants:

1. The irrigation system must be fully functional without any major breaks, leaks or other damage, as far as you know.
2. The application form must be completed and signed.
3. The Irrigation System Evaluator will need access to the property, including the area where the time clock is installed. The participant or an adult representative will need to be available.
4. The Irrigation System Evaluator is on-site to evaluate the system and to recommend modifications. They are **not** authorized to make recommended modifications or repairs.
5. Any licensed irrigation professional can make the recommended modifications, if the participant chooses to hire someone.
6. Any costs incurred in making recommended modifications will be at the participant's expense.
7. The participant or adult representative agrees to participate in a follow-up evaluation regarding the suggested sprinkler system modifications. If the participant is chosen to participate in a Follow-up Evaluation, this visit will be scheduled approximately 10 to 12 months after the initial visit.
8. A customer satisfaction survey will be completed and returned at the end of the program.

If you have further questions related to this program, please call

Nancy Smith at 352-527-5795 or email nsmith@wrwsa.org

Appendix B. Sample Evaluation Report

Eco Land Design
landscape architecture studio

7615 Terrace River Drive
Tampa, FL 33637
Ph: (813) 466-8705
E-Mail: ecolandfl@gmail.com

Residential Landscape/Irrigation Evaluation Report

Evaluator: Jack Overdorff, RLA

Date:

Resident Name:

Address:

E-mail:

Report Overview:

On Monday, July 22nd, 2013, a site inspection was conducted for the irrigation system at the above referenced residence. The irrigation system is connected to the potable (drinking) water supply.

A visual inspection as well as a more in-depth review of the irrigation system was conducted. The findings are outlined below as well as recommendation for addressing the system issues and setting of watering durations.

Turf Area

Checklist:

Item	Location	Functioning?
Time clock	Garage wall of the residence	Program A, Zones 1-8 Program Running Days:, Tuesday, Thursday & Saturday @ 1am Zones #1 thru #3, #7 & #8 running 40 minutes Zones #2 & #3 running 40 minutes Zone #4 running 30 minutes Zone #5 running 20 minutes Zone #6 running 55 minutes Program B, Zone 2 Program Running Days:, Mon., Wed., Fri. & Sat. @ 5:15am Zone #2 running 35 minutes Low Volume Zone (Hose bib battery valve) Program Running Days: Every 3 days #9 running 45 minutes
Rain sensor	East Side	No, new wired sensor installed and functioning correctly
Backflow Preventer	Side yard	Yes

Evaluation:

Area	Observation	Action	Addressed by Homeowner
General	Spray Heads & Rotor Heads have irregular head spacing	Recommend moving heads and adding heads as noted below to achieve head to head coverage and improve the spray pattern coverage	

	The overall turf maintenance can be reduced as large turf areas are difficult to maintain	Recommend reducing the turf areas by installing Florida Friendly Landscape materials that are suited for the site conditions.	
	Zones are irrigating turf and landscape beds within the same zone	It is not recommended to irrigate turf and landscape beds within the same zone as each have different water requirements. Recommend separating the landscape beds and turf/lawn areas into separate zones	
	Spray Heads in the landscape beds are being blocked by plant material	Recommend making adjustments as noted below to improve the irrigation coverage	
	Several heads are of a different manufacture than other heads on the zones	It is not recommended to use different manufacturer's equipment within a zone as the spray nozzle precipitation rates vary between the different manufactures and can create uneven coverage. Recommend installing all of the same equipment fitted with matched precipitation rate nozzles on each zone.	

Zone #1 **Rotor Zone** **Side Yard Turf Area** **(See attached site plan)**	Water can be conserved as Rotor Head R1 is leaking	Recommend replacing the head with a similar large turf Rotor Head similar to other heads on the zone fitted with a matched precipitation rate spray nozzle	
	Water can be conserved as Rotor Head R4 is overspraying onto the street	Recommend adjusting the spray pattern to reduce overspray and to conserve water	
	Zone is operating at approximately 9 Gallons Per Minute (GPM)	No action	
Zone #2 **Rotor Zone** **Side Yard Turf Area** **(See attached site plan)**	Water can be conserved as Rotor Heads R5 thru R7 are irrigating a narrow turf area and overspraying mature plantings	Recommend replacing the heads with fixed Spray Heads fitted with strip spray nozzles to reduce overspray and to conserve water	
	Spray pattern coverage for the turf areas can be improved as Rotor Head R6 is set too low and blocked by the surrounding turf areas	Recommend raising the head and also recommend trimming the turf around the head to conserve water	

	Zone is operating at 10 Gallons Per Minute (GPM)	No Action	
Zone #3 **Rotor Zone** **Front Yard Turf Area & Landscape Beds** **(See attached site plan)**	Spray pattern coverage can be improved as rotating Spray Head #1 is located in a planting bed	Recommend moving the head to the turf area for better coverage	
	Water can be conserved as Rotor Head R8 is overspraying onto the street	Recommend adjusting the spray pattern to reduce overspray and to conserve water	
	Zone is operating at approximately 11 Gallons Per Minute (GPM)	No action	
Zone #4 **Spray Zone** **Side Yard Turf Area** **(See attached site plan)**	Spray pattern coverage can be improved as Spray Head #2 does not have head to head spray pattern coverage for the turf areas	Recommend adding a similar fixed Spray Head at the street fitted with a matched precipitation rate spray nozzle to improve the spray pattern coverage for the turf areas	
	Water can be conserved as Spray Head #8 is overspraying onto the air conditioning unit	Recommend adjusting the spray pattern to reduce overspray, conserve water and prevent water damage to the air conditioning unit	

	Water can be conserved as Spray Head #9 is overspraying onto the residence	Recommend adjusting the spray pattern to reduce overspray, conserve water and prevent water damage to the residence	
	Spray pattern coverage can be improved as Spray Head #10 is set too low and blocked by the surrounding turf	Recommend raising the head or replacing the 4" tall Spray Head with a 6" tall Spray Head to improve the spray pattern coverage for the turf area	
	Zone is operating at 6 Gallons Per Minute (GPM)	No action	
Zone #5 **Spray Zone** **Front/Side Yard Planting Beds & Turf Areas** **(See attached site plan)**	Spray pattern coverage can be improved for the turf areas as Spray Heads #17, #18 & #19 are blocked by the plantings	Recommend moving the heads to the turf area to improve the spray pattern coverage for the turf	
	Water can be conserved as Spray Heads #11 thru #15 are irrigating mature plantings	Recommend replacing the heads with low volume dripline or micro-irrigation on a separate low volume zone to conserve water	
	Water can be conserved as Spray Head #16 is irrigating an area covered by low volume dripline	Recommend capping the head to conserve water	
	Zone is operating at 12 Gallons Per Minute (GPM)	No action	

Zone #6 **Spray Zone** **Side/Rear Yard Turf Area & Landscape Beds** **(See attached site plan)**	The zone efficiency can be improved as Spray Heads #21 thru #25 are irrigating mature plantings on a turf zone	Recommend replacing the heads with low volume dripline or micro-irrigation on a separate zone to improve the zone efficiency and to conserve water	
	Water can be conserved as Spray Head #28 is overspraying onto the residence	Recommend adjusting the spray pattern to reduce overspray, conserve water and prevent water damage to the residence	
	Spray pattern coverage can be improved as Spray Heads #30 thru #32 have low pressure	Recommend capping heads irrigating mature plantings and/or moving heads to zone 2. Also, recommend further investigating the issue to determine the appropriate solution	
	Spray pattern coverage can be improved as Spray Head #32 is set too low and blocked by the surrounding turf	Recommend raising the head or replacing the 4" tall Spray Head with a 6" tall Spray Head to improve the spray pattern coverage for the turf area	
	Zone is operating at 13 Gallons Per Minute (GPM)	No action	

Zone #7 **Rotor Zone** **Side Yard Turf Area** **(See attached site plan)**	Water can be conserved and the spray pattern coverage improved as Rotor Head R13 is leaking and blocked by plantings	Recommend replacing the head with a similar large turf Rotor Head similar to other heads on the zone fitted with a matched precipitation rate spray nozzle. Also, recommend trimming plantings to improve the spray pattern coverage	
	Spray pattern coverage can be improved as Rotor Head R14 is leaning	Recommend straightening the head to improve the spray pattern coverage for the turf areas	
	Zone is operating at 8 Gallons Per Minute (GPM)	No action	
Zone #8 **Rotor Zone** **Side Yard Turf Area** **(See attached site plan)**	Water can be conserved as Rotor Head R15 is overspraying onto the street	Recommend adjusting the spray pattern to reduce overspray and to conserve water	
	Water can be conserved as Rotor Head R17 is located in a planting bed	Recommend capping the head and irrigating plantings with only dripline or micro-irrigation	
	Zone is operating at 10 Gallons Per Minute (GPM)	No action	
Zone #9 **Low Volume Zone** **(See attached site plan)**	Zone is operating at 4 Gallons Per Minute (GPM)	No action	

A catch can test was performed on Zones #4 & #7 to determine the system spray uniformity and also determine appropriate run times for the scheduled waterings in order to achieve a 1/2" to 3/4" application rate. .

Zone #4 is running at 6 gallons per minute and according to the catch can test, is operating at 45% spray uniformity for the Zone (above 70% is considered to be good). This zone is applying 1.38" of water per hour. The lawn has areas of distress. If the recommendations above are made to the system with the application rate increased to 1.40" per hour and the spray uniformity improved to 70%, it is recommended that the zone runtime be set at 30 minutes once per week to achieve a 1/2" application rate. Also, based on the existing soil profile (sandy clay) and root depth it is recommended that the runtime be completed in one application.

Zone #7 is running at 8 gallons per minute and according to the catch can test, is operating at 52% spray uniformity for the Zone (above 70% is considered to be good). This zone is applying .68" of water per hour. The lawn has areas of distress. If the recommendations above are made to the system with the application rate increased to .70" per hour and the spray uniformity improved to 70%, it is recommended that the zone runtime be set at 60 minutes once per week to achieve a 1/2" application rate. Also, based on the existing soil profile (sandy clay) and root depth it is recommended that the runtime be completed in one application.

Irrigation Schedules:

The Watering schedule below (Left Side) reflects the information recorded from the irrigation controller at the time of the inspection by the irrigation evaluator called (Pre-inspection zone runtimes and water usage). The water schedule below (Right Side) reflects recommended changes to the watering times and frequency based on the evaluation inspection called (Post-inspection zone runtimes and water usage). These modifications can create significant water savings in many cases.

The suggested runtimes reflect the fact that Spray Heads deliver more water than rotor sprinklers during a given time period and that turf grasses typically require more frequent irrigation than most plants and shrubs. Following the Post Inspection suggested runtimes will allow for deeper development of turf grass roots, greater soil moisture retention and help promote a more drought resistant turf. Over-watering allows water to travel beyond the root zone, while under-watering may cause shallow roots that will dry out quickly

Plant type	Pre-inspection zone runtimes And water usage	Plant type	Post-inspection suggested runtimes And water usage
	Program A (3 application times per week)		Program A (1 application time per week)
Turf	Zone 1 (Rotor) - 40 mins = 360 Gal	Turf	Zone 1 (Rotor) - 60 mins = 540 Gal
Turf	Zone 2 (Rotor) - 40 mins =400 Gal	Turf	Zone 2 (Rotor) - 60 mins =600 Gal
Mixed	Zone 3 (Rotor) - 40 mins = 440 Gal	Turf	Zone 3 (Rotor) - 60 mins = 660 Gal
Turf	Zone 4 (Spray) - 30 mins = 180 Gal	Turf	Zone 4 (Spray) - 30 mins = 180 Gal
Mixed	Zone 5 (Spray) -20 mins = 240 Gal	Turf	Zone 5 (Spray) -30 mins = 360 Gal
Mixed	Zone 6 (Spray) - 55 mins = 715 Gal	Turf	Zone 6 (Spray) - 30 mins = 390 Gal
Turf	Zone 7 (Rotor) - 40 mins = 320 Gal	Turf	Zone 7 (Rotor) - 60 mins = 480 Gal
Turf	Zone 8 (Rotor) - 40 mins = 400 Gal	Turf	Zone 8 (Rotor) – 60 mins = 600 Gal
	Program A - Current Total Water Usage (per application) = 3,055 Gallons per application x 3 applications per week =9,165 Gallons per week		Program A - Total Water Usage (per application) after run time modifications = 3,810 Gallons per week
	Program C (4 application times per week)		Program C (0 application time per week)
Turf	Zone 2 (Rotor) - 35 mins =350 Gal	Turf	Zone 2 (Rotor) - 0 mins =0 Gal
	Program C - Current Total Water Usage (per application) = 350 Gallons per application x 4 applications per week = 1,400 Gallons per week		Program C- Total Water Usage (per application) after run time modifications = 0 Gallons per week

	Hose Bib Battery Valve (2.5 application times per week)		Hose Bib Battery Valve (2.5 application times per week)
Plants	Zone 9 (Low Vol.) - 45 mins = 180 Gal	Plants	Zone 9 (Low Vol.) - 45 mins = 180 Gal
	Hose Bib Valve -Current Total Water Usage (per application) = 180 Gallons per application x 2.5 applications per week = 450 Gallons per week		Hose Bib Valve -Current Total Water Usage (per application) = 180 Gallons per application x 2.5 applications per week = 450 Gallons per week
	Current Total Water Usage (per application) = 11,015 Gallons per week		Total Water Usage (per application) after run time modifications = 4,260 Gallons per week

*Plant type has three terms: Turf Only, Plants/Shrubs only and Mixed (combination of Both)

a. Consider placing these charts next to your controller.
b. Consider skipping your watering day when there is significant rainfall 1/2 half inch or more).

When watering your lawn and landscape **please observe the local water use restrictions**.

Please check for any changes to the current watering restrictions at: http://swfwmd.state.fl.us/conservation/restrictions/swfwmd.php

Additionally, seasonal adjustments may also be used to further reduce water use during the winter months (December, January and February) when root growth is minimal thus requiring much less water. By watering every other week during the winter months an additional 25,560 gallons could be saved. The controller also has a seasonal adjustment capability that can also be used to adjust runtimes of all zones by increasing or reducing the percentage of application time; during the rainy season or in winter months when plant materials are not in a growth cycle, the controller's seasonal adjustment can be set at 60% to 80% of the current application rate to conserve water.

Also note: additional water savings can occur by repairing leaks, removing heads, capping heads and changing nozzles on heads as noted above.

The chart below reflects how much water is currently used compared to the Post-evaluation water use with adhering to the recommendations noted above.

Estimate of existing water usage[1]	Post-evaluation water use [2]	Projected annual gallons saved[2]	Projected Annual Gallons Saved w/ Skip a Week[2]
11,015 GAL/CYCLE/WEEK	4,260 GAL/CYCLE	6,755 GAL/CYCLE	**4,260 GAL/CYCLE**
572,780 GAL/YEAR	*221,520 GAL/YEAR*	*351,260 GAL/YEAR*	**376,820 GAL/YEAR (66% Annual Savings)**

[1] Based on watering days and applications as noted above
[2] Based on 1 day a week watering with 1 application per day

Not only is it important to follow these recommendations because it will help conserve the water supply in the Coastal Rivers and Withlacoochee river Basins, it may also help to lower your current utility bill.

For system repairs: Contact a licensed irrigation contractor for a professional installation, particularly if the system involved additional equipment or major modifications. For a listing of qualified contractors in your area, call the Florida Irrigation Society at 1-800-441-5341 or visit their website: http://www.fisstate.org/. or refer to the yellow pages of the phone directory. For do-it-yourselfers, irrigation supplies can be obtained from home improvement centers or irrigation supply facilities.

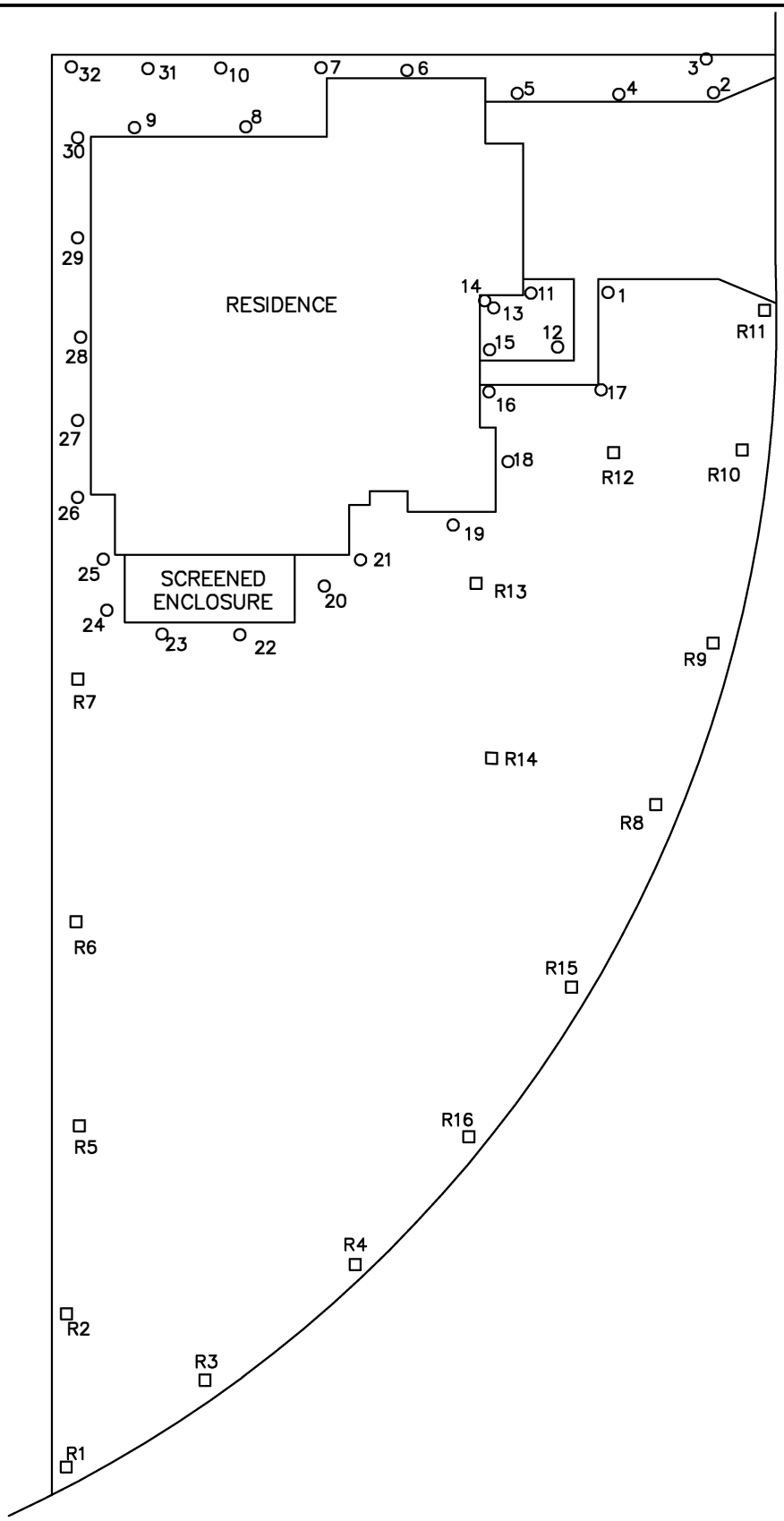
Approximately once per month inspect the irrigation system. Turn on each irrigation zone and visually examine all sprinkler heads. (Are they broken, spraying in the wrong direction or not rotating?) Take notes for later reference. Ten minutes of operation time is allowed for this inspection.

Thanks again for participating in the Withlacoochee Regional Water Supply Authority's Irrigation Evaluation program. We hope this information will benefit you. There are various recommendations and suggested changes made in this report.

Please contact WRWSA Contracted Administrator at 352-527-5795 if you have any questions or comments.

Urban runoff has been identified as the primary source of pollutant loading to surface waters in Florida and is regulated by local, state and federal regulations. Runoff in residential areas is contaminated with fertilizers, bacteria from pet waste, sediment, as well as oil and other automotive fluids from vehicles in driveways and streets. Your efforts in eliminating runoff from excessive irrigation helps reduce the amount of these pollutants which will be transported to local waters. By following the recommendations in this audit report not only will you be conserving water by irrigating more efficiently you will also be reducing your impact on the environment!

See attached Irrigation Layout Plan for irrigation equipment locations on the property.



NTS

Plan provided courtesy of the
SWFWMD, Withlacoochee Regional Water Supply Authority, North Sumter County Utility Dependent District & VCDD Utilities

LEGEND

- ○ Location of Spray Heads
- □ Location of Rotor Head

ECO-Land Design
7615 Terrace River Drive
Tampa, FL 33637
Ph: (813) 466-8705
eco-landdesign.com

IRRIGATION LAYOUT PLAN

DATE: JULY 2013

APPLICANT:

Appendix C. Educational Materials

List of Educational Materials

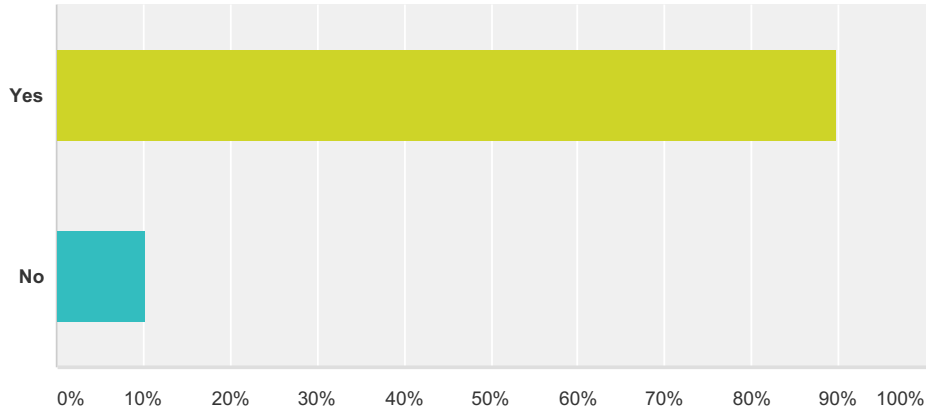
1. A Guide to the Basics of Micro-Irrigation (SWFWMD)
2. Rain Barrels: A Homeowner's Guide
3. Watch the Weather, Wait to Water!
4. A Do-It-Yourself Guide to Florida Friendly Fertilizing
5. Saving Water Outdoors
6. The Florida-Friendly Landscaping Guide to Plant Selection & Landscape Design
7. Saving Water Indoors
8. Florida Yards & Neighborhoods Landscape Water Conservation Calendar (SWFWMD, Hernando County Utilities & FY&N)
9. Water Wisdom Magnet (The Villages Utilities)
10. Water Wisdom Home Closing Booklet (The Villages Utilities)

The educational materials were ordered by Jack Overdorff, the irrigation evaluation contractor, and distributed during the onsite irrigation system evaluation.

Appendix D. Customer Satisfaction Survey

Q1 Did you make any changes to your irrigation system as a result of the system evaluation?

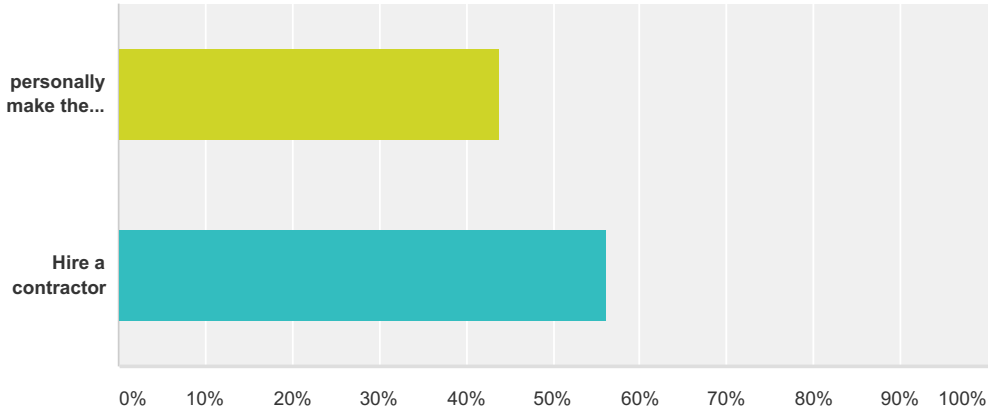
Answered: 49 Skipped: 0



Answer Choices	Responses	
Yes	**89.80%**	44
No	**10.20%**	5
Total		**49**

Q2 If you made changes to your system, did you

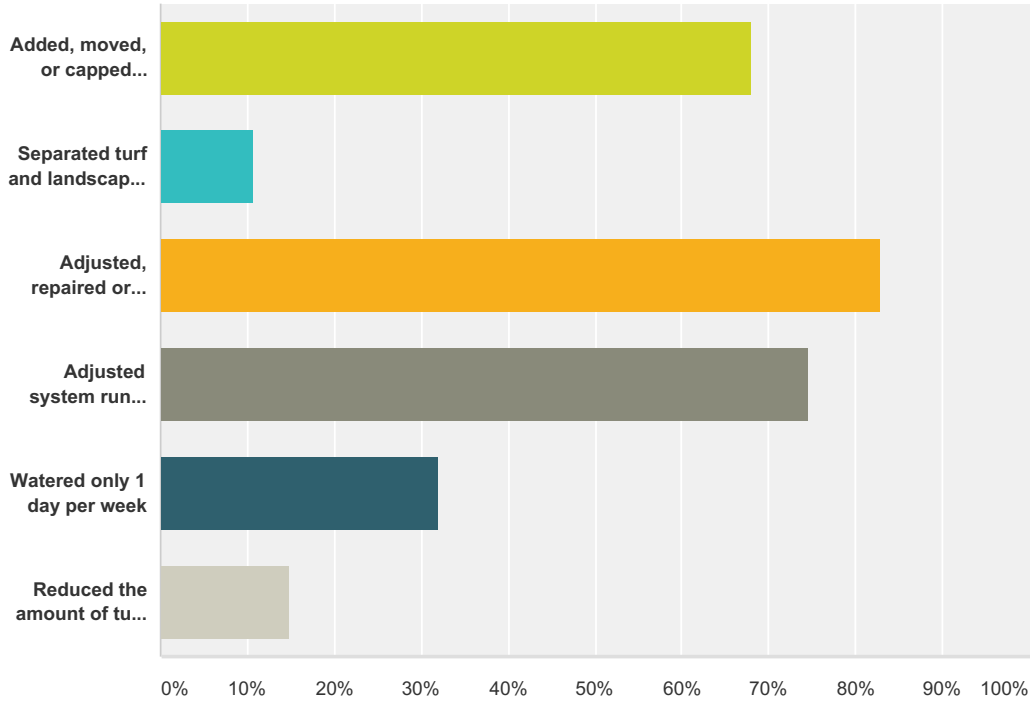
Answered: 41 Skipped: 8



Answer Choices	Responses	
personally make the changes	**43.90%**	18
Hire a contractor	**56.10%**	23
Total		**41**

Q3 What changes did you make to your irrigation system?

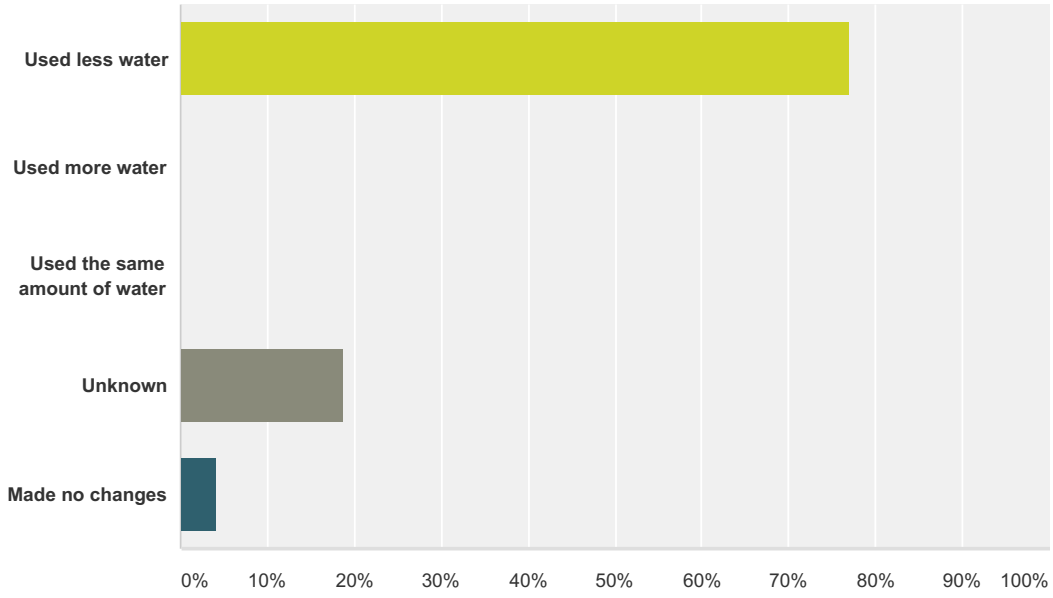
Answered: 47 Skipped: 2



Answer Choices	Responses	
Added, moved, or capped sprinkler heads	**68.09%**	32
Separated turf and landscape zones	**10.64%**	5
Adjusted, repaired or replaced sprinkler heads	**82.98%**	39
Adjusted system run times	**74.47%**	35
Watered only 1 day per week	**31.91%**	15
Reduced the amount of turf grass	**14.89%**	7
Total Respondents: 47		

Q4 Did you notice a change in your irrigation system performance as a result of any changes made?

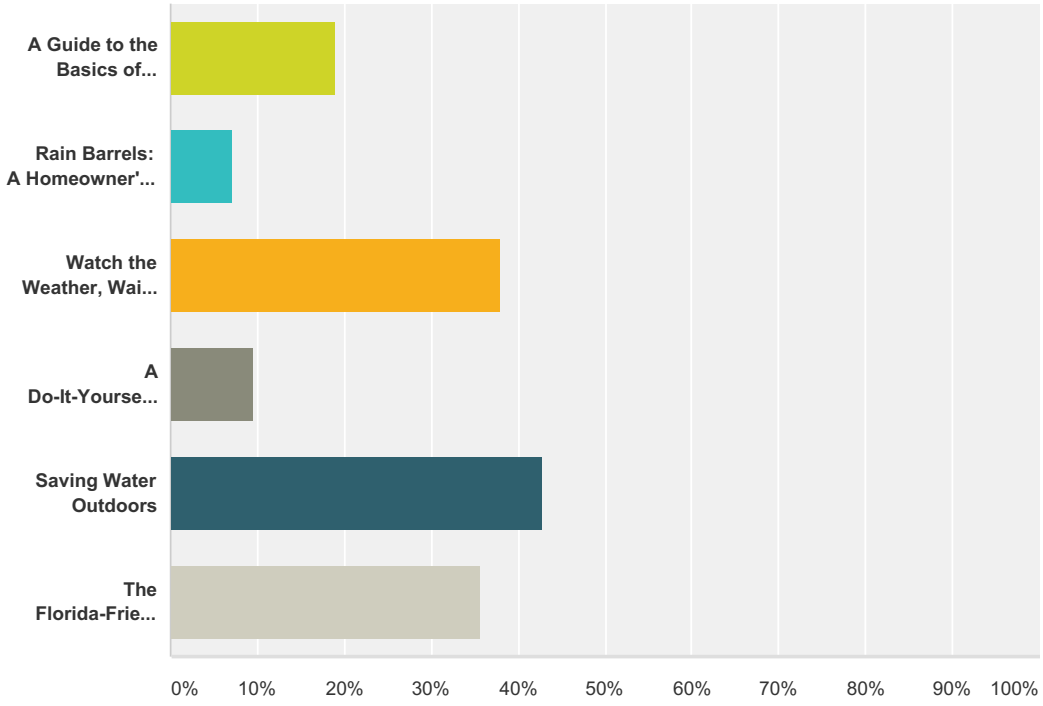
Answered: 48 Skipped: 1



Answer Choices	Responses	
Used less water	**77.08%**	37
Used more water	**0.00%**	0
Used the same amount of water	**0.00%**	0
Unknown	**18.75%**	9
Made no changes	**4.17%**	2
Total		**48**

Q5 Which educational information provided was most helpful?

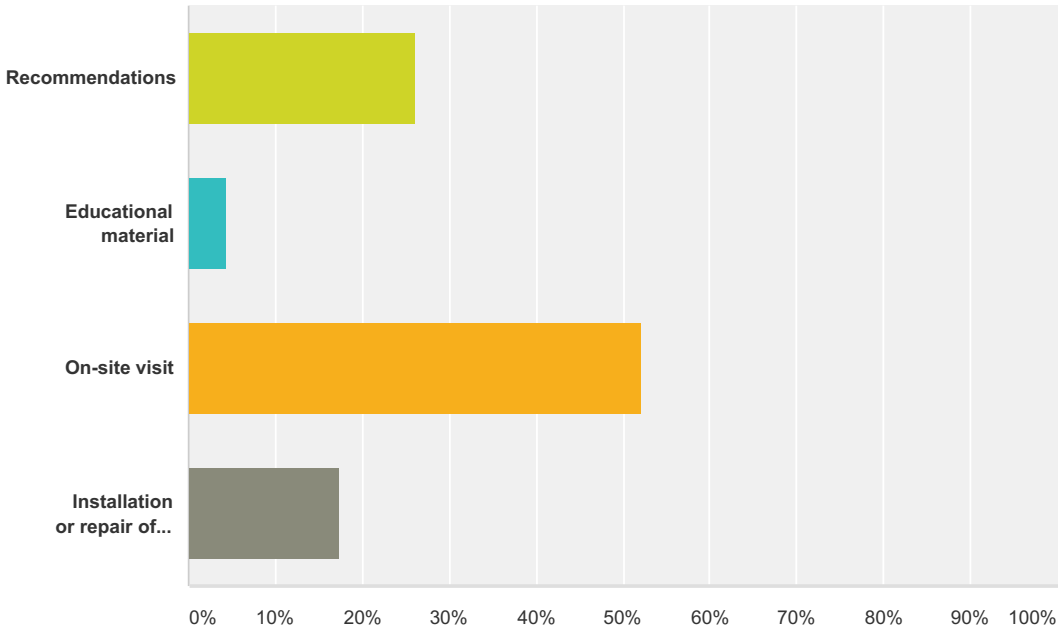
Answered: 42 Skipped: 7



Answer Choices	Responses	
A Guide to the Basics of Micro-Irrigation	**19.05%**	8
Rain Barrels: A Homeowner's Guide	**7.14%**	3
Watch the Weather, Wait to Water!	**38.10%**	16
A Do-It-Yourself Guide to Florida Friendly Fertilizing	**9.52%**	4
Saving Water Outdoors	**42.86%**	18
The Florida-Friendly Landscaping Guide to Plant Selection & Landscape Design	**35.71%**	15
Total Respondents: 42		

Q6 What was the most helpful part of the evaluation?

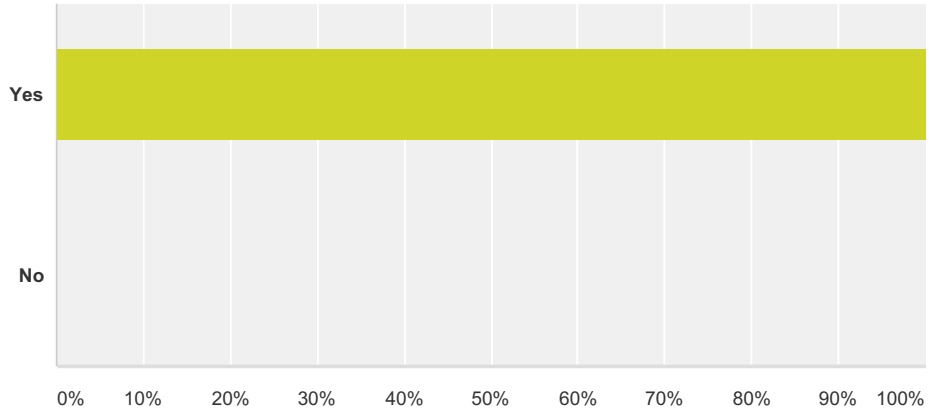
Answered: 46 Skipped: 3



Answer Choices	Responses	
Recommendations	**26.09%**	12
Educational material	**4.35%**	2
On-site visit	**52.17%**	24
Installation or repair of rain sensor	**17.39%**	8
Total		**46**

Q7 Would you recommend this program to a neighbor?

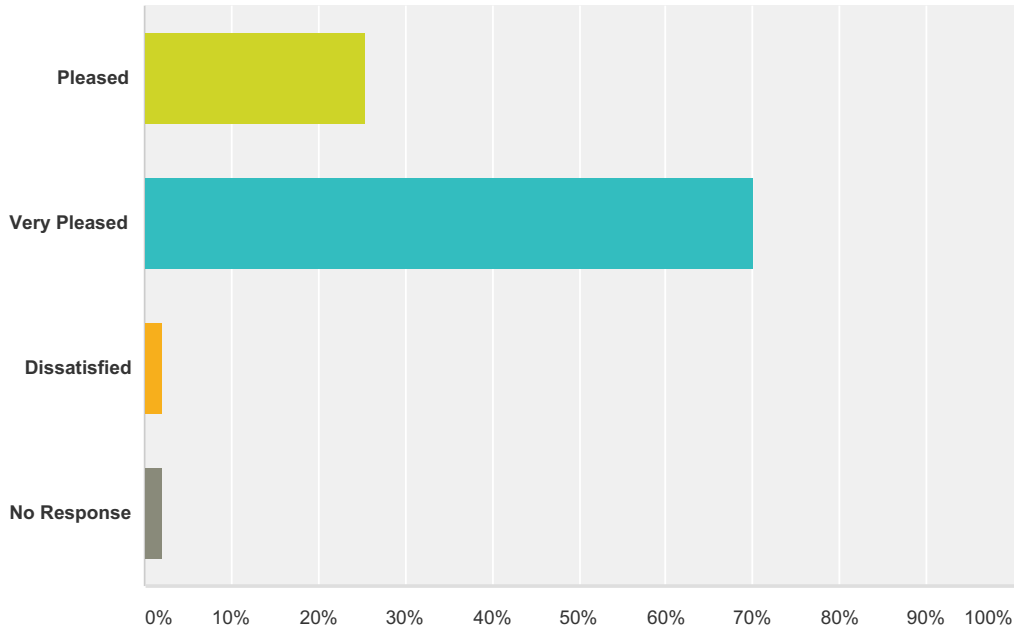
Answered: 48 Skipped: 1



Answer Choices	Responses	
Yes	**100.00%**	48
No	**0.00%**	0
Total		**48**

Q8 Overall, how would you rate the irrigation system evaluation?

Answered: 47 Skipped: 2



Answer Choices	Responses	
Pleased	**25.53%**	12
Very Pleased	**70.21%**	33
Dissatisfied	**2.13%**	1
No Response	**2.13%**	1
Total		**47**

Q9 Other Comments

Answered: 22 Skipped: 27

Appendix E. Water Use Data by Utility

N491 Phase II Irrigation Audit Pre and Post Water Use

#	CITY	ACCOUNT#	DATE EVALUATION COMPLETED AND DELIVERED	12-Month Pre Audit Usage (1,000)	12-Month Post Audit Usage (1,000)	Year One Gallons Saved (1,000)	Year One % of Change
Citrus County Participants							
1	Homosassa	1589065323	5/27/2013	484	344	140	29%
2	Homosassa	1589621612	5/25/2013	519	347	172	33%
3	Homosassa	158945416	7/11/2013	299	322	-23	-8%
4	Homosassa	1589274032	8/30/2013	223	246	-23	-10%
5	Homosassa	1589943024	8/30/2013	637	355	282	44%
6	Homosassa	1589352234	9/26/2013	644	582	62	10%
7	Homosassa	1589662012	10/16/2013	548	323	225	41%
8	Homosassa	1589965811	10/22/2013	427	375	52	12%
9	Homosassa	1589004512	11/2/2013	124	101	23	19%
10	Homosassa	1589152030	11/13/2013	609	343	266	44%
11	Homosassa	1589164019	11/16/2013	562	383	179	32%
12	Homosassa	1589066420	11/16/2013	161	166	-5	-3%
13	Homosassa	1589232816	11/18/2013	477	298	179	38%
14	Homosassa	1589045317	11/21/2013	585	302	283	48%
15	Homosassa	1589261211	11/25/2013	173	140	33	19%
16	Homosassa	1589292414	11/30/2013	404	150	254	63%
17	Homosassa	1589239621	12/10/2013	177	236	-59	-33%
18	Homosassa	1589081411	12/10/2013	513	468	45	9%
19	Homosassa	1589944113	12/11/2013	455	425	30	7%
20	Homosassa	1589024312	12/11/2013	231	272	-41	-18%
21	Homosassa	1589939311	1/22/2014	226	177	49	22%
22	Hernando	1806702815	2/4/2014	163	168	-5	-3%
23	Homosassa	1589386828	2/10/2014	278	105	173	62%
24	Hernando	1806471403	2/18/2014	299	284	15	5%
25	Inverness	1805053400	2/21/2014	284	189	95	33%
26	Homosassa	1589539616	2/21/2014	559	246	313	56%
27	Homosassa	1589800018	3/2/2014	536	304	232	43%
28	Pine Ridge	1502667718	3/3/2014	145	65	80	55%
29	Beverly Hills	1502615311	3/3/2014	200	132	68	34%
30	Homosassa	1589962123	3/4/2014	447	254	193	43%
31	Inverness	1805474119	3/7/2014	251	218	33	13%
32	Lecanto	1802428209	3/25/2014	273	213	60	22%
33	Floral City	1593175134	3/25/2014	250	98	152	61%
34	Homosassa	1589889441	3/25/2014	235	156	79	34%
35	Homosassa	1589957818	4/11/2014	347	251	96	28%
36	Homosassa	1589289436	4/14/2014	174	107	67	39%
37	Homosassa	1589043015	4/14/2014	229	165	64	28%
38	Homosassa	1589186418	4/24/2014	615	513	102	17%
39	Inverness	1805185517	4/30/2014	250	211	39	16%
40	Homosassa	1589961018	5/6/2014	285	259	26	9%
41	Homosassa	1589514213	5/6/2014	343	101	242	71%
42	Lecanto	1802388601	5/12/2014	287	186	101	35%
43	Inverness	1805624408	5/12/2014	497	521	-24	-5%
44	Lecanto	1804437109	5/15/2014	566	361	205	36%
45	Hernando	1806466601	5/15/2014	254	211	43	17%
46	Lecanto	1804167565	5/30/2014	156	83	73	47%

#	CITY	ACCOUNT#	DATE EVALUATION COMPLETED AND DELIVERED	12-Month Pre Audit Usage (1,000)	12-Month Post Audit Usage (1,000)	Year One Gallons Saved (1,000)	Year One % of Change
47	Hernando	1805374517	5/21/2014	258	193	65	25%
48	Homosassa	1589253432	5/21/2014	368	329	39	11%
49	Inverness	1803342300	5/21/2014	270	194	76	28%
50	Lecanto	1804157434	5/30/2014	546	883	-337	-62%
51	Hernando	1805042114	6/6/2014	283	292	-9	-3%
CITRUS COUNTY TOTALS				18,126	13,647	4,479	25%
CITRUS COUNTY AVERAGE PER UNIT				357	267	90	25%
CITRUS COUNTY MONTHLY AVERAGE PER UNIT				29.74	22.26	7.48	25%
CITRUS COUNTY TOTAL DAILY AVERAGE				49.660	37.389	12.271	25%
CITRUS COUNTY AVERAGE PER CAPITA				0.443	0.333	0.109	25%
Hernando County Participants				Not in Thousands			
1	Weeki Wachee	TL 00294-02		313,600	242,400	71,200	23%
2	Brooksville	GL00148		259,400	162,400	97,000	37%
3	Spring Hill	TP01917-02		352,600	156,200	196,400	56%
4	Spring Hill	RR00311-04		263,600	348,000	-84,400	-32%
5	Brooksville	S101166		419,100	220,200	198,900	47%
6	Spring Hill	S6044991-01		217,900	182,300	35,600	16%
7	Spring Hill	PP00645-02		236,900	209,200	27,700	12%
8	Spring Hill	SL00039-06		448,300	187,200	261,100	58%
9	Spring Hill	S5812912-02		402,300	176,100	226,200	56%
10	Brooksville	10-GL00535		253,800	162,700	91,100	36%
11	Spring Hill	5606462-00		374,100	357,900	16,200	4%
12	Spring Hill	PE00033-05		462,700	194,900	267,800	58%
13	Weeki Wachee	GL0980-01		549,500	322,000	227,500	41%
14	Spring Hill	PP00854-00		453,900	135,200	318,700	70%
15	Spring Hill	S801285		435,400	82,400	353,000	81%
16	Spring Hill	S806276		524,300	262,600	261,700	50%
17	Spring Hill	TP00639-02		272,000	237,300	34,700	13%
18	Spring Hill	BM00782-02		311,200	110,000	201,200	65%
19	Spring Hill	TP00329-03		213,100	136,000	77,100	36%
20	Spring Hill	S803256		192,200	155,000	37,200	19%
21	Spring Hill	PP00840-01		437,500	231,700	205,800	47%
22	Spring Hill	S600363-02		400,100	328,400	71,700	18%
HERNANDO COUNTY TOTALS				7,793,500	4,600,100	3,193,400	41%
HERNANDO COUNTY AVERAGE PER UNIT				354,250	209,095	145,155	41%
HERNANDO COUNTY MONTHLY AVERAGE PER UNIT				29,521	17,425	12,096	41%
HERNANDO COUNTY TOTAL DAILY AVERAGE				21,352	12,603	8,749	41%
HERNANDO COUNTY AVERAGE PER CAPITA				408	241	167	41%
Marion County Participants							
1	Ocala			235	95	140	60%
2	Ocala			194	67	127	65%
3	Ocala	009373-01		103	101	2	2%
4	Ocala	010211-00		44	34	10	23%
5	Ocala	005922-00		396	154	242	61%
6	Ocala			332	250	82	25%
7	Ocala			334	299	35	10%
8	Ocala	012124-01		266	129	137	52%

#	CITY	ACCOUNT#	DATE EVALUATION COMPLETED AND DELIVERED	12-Month Pre Audit Usage (1,000)	12-Month Post Audit Usage (1,000)	Year One Gallons Saved (1,000)	Year One % of Change
9	Ocala	010856-01		152	87	65	43%
10	Ocala	012125-01		102	54	48	47%
11	Ocala	010855-00		191	148	43	23%
12	Ocala			232	274	-42	-18%
13	Ocala	010243-00		90	112	-22	-24%
14	Ocala	009879-00		319	189	130	41%
15	Dunnellon			323	313	10	3%
16	Ocala	031280-01		480	350	130	27%
17	Ocala	005950-02		273	163	110	40%
18	Ocala	007307-01		327	329	-2	-1%
19	Ocala	005945-00		174	265	-91	-52%
20	Ocala	007732-02		269	242	27	10%
21	Ocala	027603-05		375	426	-51	-14%
22	Ocala	022565-00		265	97	168	63%
23	Ocala			98	114	-16	-16%
24	Ocala	008830-00		380	211	169	44%
25	Ocala	010966-00		129	55	74	57%
26	Ocala	007201-00		281	260	21	7%
27	Ocala			167	108	59	35%
28	Dunnellon			194	87	107	55%
29	Ocala			464	317	147	32%
MARION COUNTY TOTALS				7,189	5,330	1,859	26%
MARION COUNTY AVERAGE PER UNIT				248	184	64	26%
MARION COUNTY MONTHLY AVERAGE PER UNIT				21	15	5	26%
MARION COUNTY TOTAL DAILY AVERAGE				19.696	14.603	5.093	26%
MARION COUNTY AVERAGE PER CAPITA				0.289	0.214	0.075	26%
The Villages NSCUDD-VWCA							
1		444-0611-00		287,110	204,110	83000	29%
2		440-2341-01		230,760	151,780	78980	34%
3		701-1511-00		590,850	287,020	303830	51%
4		30-8765-00		201,720	66,820	134900	67%
5		730-2376-00		349,430	235,610	113820	33%
6		444-0526-00		296,520	136,520	160000	54%
7		720-1756-00		392,040	283,200	108840	28%
8		740-1311-00		209,420	205,540	3880	2%
9		720-0861-00		209,560	93,960	115600	55%
10		720-0491-00		309,330	251,520	57810	19%
11		333-0926-00		271,690	266,330	5360	2%
12		510-0196-00		196,330	216,180	-19850	-10%
13		510-0231-01		118,370	108,060	10310	9%
14		333-1181-00		121,530	119,480	2050	2%
15		604-1546-00		255,740	225,260	30480	12%
16		510-0071-00		188,040	221,350	-33310	-18%
17		703-1421-00		348,540	216,850	131690	38%
18		703-2236-00		263,180	272,890	-9710	-4%
19		40-2666-01		359,230	316,700	42530	12%
20		444-0156-00		229,780	147,470	82310	36%
21		602-1171-00		193,780	97,330	96450	50%

#	CITY	ACCOUNT#	DATE EVALUATION COMPLETED AND DELIVERED	12-Month Pre Audit Usage (1,000)	12-Month Post Audit Usage (1,000)	Year One Gallons Saved (1,000)	Year One % of Change
22		720-0411-00		294,110	187,530	106580	36%
23		220-0356-02		323,620	250,610	73010	23%
24		444-0386-00		142,690	139,250	3440	2%
NSCUDD TOTALS				6,383,370	4,701,370	1,682,000	26%
NSCUDD AVERAGE PER UNIT				265,974	195,890	70,083	26%
NSCUDD MONTHLY AVERAGE PER UNIT				22,164	16,324	5,840	26%
NSCUDD TOTAL DAILY AVERAGE				17,489	12,880	4,608	26%
NSCUDD AVERAGE PER CAPITA				403	297	106	26%
The Villages VCCDD-LSAA							
1		21-4085-01		353,450	225,540	127910	36%
2		70-2915-01		280,140	167,370	112770	40%
3		21-3765-03		285,100	173,330	111770	39%
4		31-4825-02		485,300	271,500	213800	44%
5		51-0330-02		411,650	290,620	121030	29%
6		81-5360-02		426,120	391,860	34260	8%
7		81-5425-02		372,280	382,690	-10410	-3%
8		80-5130-01		298,150	248,610	49540	17%
9		21-4080-01		150,930	156,290	-5360	-4%
10		11-4066-01		314,890	229,590	85300	27%
11		70-0490-02		268,800	188,820	79980	30%
12		70-2900-01		334,000	151,520	182480	55%
13		21-1460-00		188,080	181,740	6340	3%
14		11-2501-03		148,000	113,930	34070	23%
15		11-2011-02		140,880	113,300	27580	20%
VCCDD TOTALS				4,457,770	3,286,710	1,171,060	26%
VCCDD AVERAGE PER UNIT				527,885	391,061	136,825	26%
VCCDD MONTHLY AVERAGE PER UNIT				43,990	32,588	11,402	26%
VCCDD TOTAL DAILY AVERAGE				12,213	9,005	3,208	26%
VCCDD AVERAGE PER CAPITA				450	332	118	26%