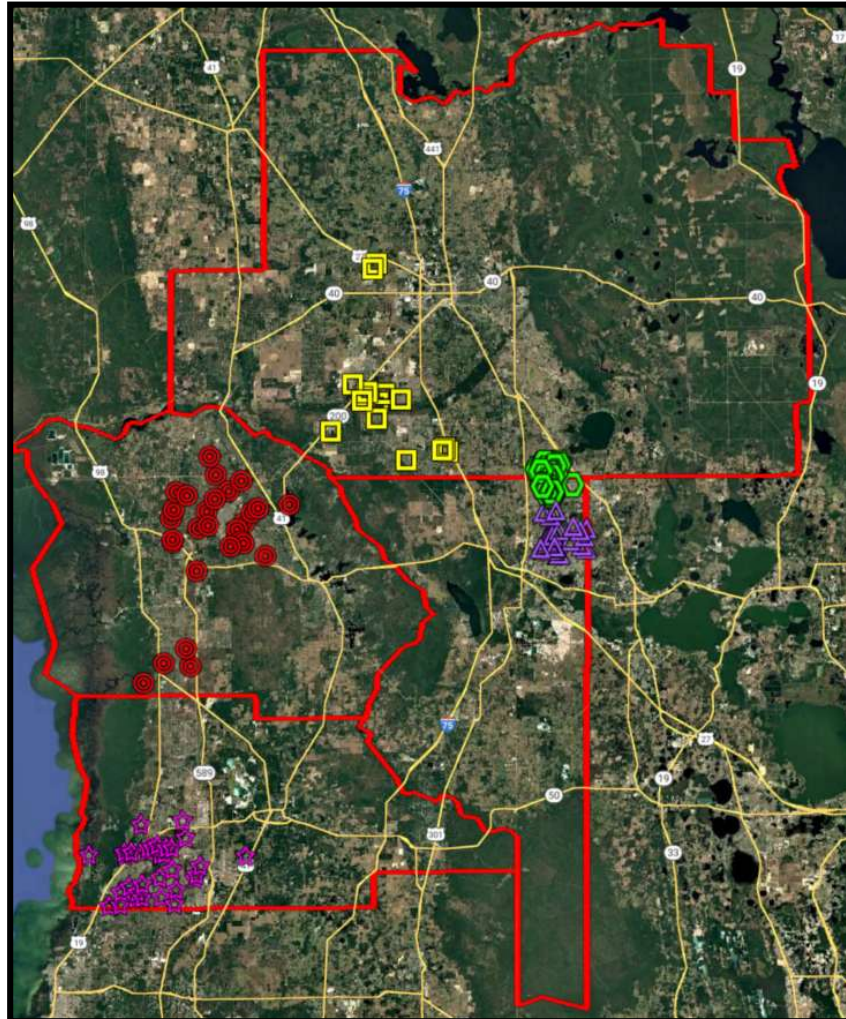


PHASE 7
IRRIGATION SYSTEM AUDIT PROGRAM (Q306)



Cooperative Funding Initiative Q306
between the
Southwest Florida Water Management District
and the
Withlacochee Regional Water Supply Authority

Acknowledgements Page

**Cooperative Funding Initiative Q306
between the**

**Southwest Florida Water Management District
and the**

Withlacoochee Regional Water Supply Authority

With funding by:



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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 System Audit and Education Phase 7 Project (Q306)

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Withlacoochee Regional Water Supply Authority
Irrigation System Evaluation and Education Program Phase 7 (Q306)
A Cooperative Funding Initiative

1. Introduction

The Withlacoochee Regional Water Supply Authority (Authority) and several local water utilities partnered with the Southwest Florida Water Management District (District or SWFWMD) 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, as well as the North Sumter County Utility Dependent District (NSCUDD) and the Villages Community Center Development District (VCCDD) participated in the program. The utilities identified those single-family residential customers with the highest water use for potential participation. 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. In numerous cases the Authority's contractor, at the direction of the participating local utility, completed "Enhanced" evaluations.

2. Program Description

This project targeted existing high usage, fully operational single-family residential irrigation systems to increase water savings and water quality protection.

Participating utilities had the option of having “Core” or “Enhanced” evaluations performed. Core evaluations 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, recommendations for optimizing the use of water outdoors through Florida-Friendly Landscaping™ practices, and other efficient irrigation best management practices. The timing and run cycles for each zone were analyzed and changes either recommended or made with the homeowners’ permission. 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).

Enhanced evaluations involved not only the core services described above, but also in some cases installation of an advanced Water Sense labeled evapotranspiration (ET) controller. In Citrus County the enhanced improvements were limited to just additional ET controllers, per Citrus County staff reference; however, in Hernando and Marion County enhanced evaluations also included performing additional irrigation system modifications such as installing an ET sensor device (instead of a standard rain sensor) to make it a Water Sense labeled, replacing broken or mixed sprinkler heads, capping unnecessary heads, raising low irrigation heads, and straightening crooked irrigation lines.

Approximately one year after the initial evaluation, the Core evaluation participants were targeted for follow-up inspections to determine how many changes were made by the homeowner. The contractor provided an estimate of changes made based on the original recommendations. For enhanced evaluations, the reinspection evaluated subsequent changes by the homeowner and recommendations not implemented by the contractor during the original evaluation. 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 administered the program and prepared this report.

Since the inception of this program in 2011, more than 1450 audits have been conducted as part of Phases 1 through 7. An average reduction in total water use of 26% has been achieved for the irrigation evaluations that have been audited. Phase 8 has been approved and is in progress; however, it will continue under the SWFWMD WISE funding program. This Phase 7 was co-funded by the SWFWMD Cooperative Funding Initiative (CFI) program. Participating utilities incur only 25% of their respective portion of the project, leveraging local dollars with regional funds from WRWSA and SWFWMD.

2.1 Objectives

Lawn and landscape irrigation can comprise a significant percentage (up 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 water conservation specialists at each of the participating utilities also identify residential outdoor water use as an area with the greatest opportunity for water savings. The regional irrigation evaluation program was initiated to assist 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 growing customer base, and to reduce current and future water demands.

The Phase 7 Project Plan was based on targets of 132 core and 60 enhanced evaluations to be conducted, for a total of 192, with approximately 25% or 33 receiving a follow-up inspection. The actual results were 95 core evaluations, 53 enhanced evaluations, for a total of 148, with 22 follow-ups. These results are further explained below.

2.2 Methodology

The Phase 7 program consisted of four major components:

- a. Onsite investigations: 95 core irrigation evaluations and 53 enhanced evaluations.
- b. Follow-up evaluations for up to 25 percent of the core evaluation participants: 22 follow-ups were completed for core evaluation sites.
- c. Recommendations and educational materials provided to each participant to achieve more efficient irrigation.
- 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 February 21, 2023. The following paragraphs describe the implementation of the Phase 7 Program.

Initiation. The Authority's Board selected Eco Land Design, Jack Overdorff, as the irrigation system contractor and entered into a contract with Eco Land Design in September 2022, in anticipation of entering into the Cooperative Funding Agreement with the District. The contractor was responsible for conducting the onsite evaluations, preparing a written report for each homeowner that contained a summary of the evaluation, recommendations for improving irrigation efficiency and providing follow-up inspections to approximately 25 percent of the core evaluation participants. Phase 7 evaluations began in January 2023.

Process. Each participating utility, including Citrus, Hernando and Marion County utilities, the VCCDD and NSCUDD assigned a staff person to manage their participation in the project and coordinate with the Authority's staff. The local utility personnel directed their efforts to target the water users in each utility, typically by targeting users that had greater than 20,000 gallons

per month of average water usage per residential account. In Marion County, only single-family residential customers located in the SWFWMD, or west of Interstate 75, were eligible to participate since the District was co-funding the program and required participants to be located within the District's boundaries. Directing the program toward the highest users was determined to be the most effective way to reduce overall water use and to achieve the highest return for the money spent. The local utility staff provided the Authority with a list of names and addresses for direct contact, as well as their average monthly water use and the water rates for that utility. The Authority created mail merge files specific to each utility, including potential savings in dollars per month for each customer by participation in the program. Invitation letters, application forms, a program description, and a return envelope were mailed by the Authority with assistance from SWFWMD (see Appendix A for sample materials). Table 2.1 summarizes the response rate for each utility:

Table 2.1 Response Rates by Utility

Utility	Letters Mailed	Responses	Response Rate
Citrus	N/A*	N/A*	N/A*
Hernando	500	33	7%
Marion	151	19	13%
VCCDD (LSSA)	177	36	20%
NSCUDD (VWCA)	221	30	14%

*Citrus County staff handled the outreach for the participants

Response rates to these mailings ranged from a low of 7% in Hernando County to a high of 20% in the VCCDD. Citrus County elected to use their own staff to complete all of the outreach to engage participants.

Because of the decision to focus on the highest water users, the Phase 7 project was not generally advertised, and no press releases were issued.

3. Program Summary

3.1 Overall Summary of Irrigation System Evaluations

The first on-site evaluation was conducted on January 13, 2023. The on-site portion of the program extended through July 2024, lasting a total of 19 months. A total of 148 irrigation system evaluations were completed within the five utilities out of a program goal of 192, or 77%. Table 3.1 summarizes the irrigation system evaluations completed by participating utility. Citrus, Hernando, and Marion County utilities chose to have both core and enhanced audits conducted. In the VCCDD and NSCUDD only core audits were budgeted.

Table 3.1 Irrigation System Evaluation Summary

Participating Utility	Core Audits		Enhanced Audits		Total Audits	
	Target Number of Evaluations	Completed Evaluations	Target Number of Evaluations	Completed Evaluations	Target Number of Evaluations	Completed Evaluations
Citrus	24	26	5	4	29	30
Hernando	24	2	20	31	44	33
Marion	36	1	35	18	71	19
VCCDD (LSSA)	16	36	0	0	16	36
NSCUDD (VWCA)	32	30	0	0	32	30
Total	132	95	60	53	192	148

3.2 Rain Sensors Installed

A total of 123 rain sensors were installed, repaired, or replaced. 83% of all on-site evaluations needed to have the rain sensor installed, repaired, or replaced. Table 3.2 shows the breakout of rain sensor installation by utility. Only 15% of the irrigation evaluation locations had existing functional rain sensors. 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 Rain Sensor Installation per Utility

Utility	Total Evaluations	Sensors Installed or Repaired/Replaced		Functional Sensors	
		Number	Percent	Number	Percent
Citrus	30	20	67%	8	27%
Hernando	33	30	91%	3	9%
Marion	19	14	74%	4	21%
VCCDD (LSSA)	36	35	97%	5	14%
NSCUDD (VWCA)	30	24	80%	2	7%
TOTALS	148	123	83%	22	15%

3.3 Follow-up Evaluations

Since the core evaluations only provided recommendations for improvements, follow-up evaluations were conducted to determine how many repairs were actually implemented. The SWFWMD CFI agreement required a minimum of 10% follow-up evaluations, and the WRWSA goal was to complete 25% follow-up evaluations. This 25% target was applied at the utility level, and achieved for all utilities except Citrus County, where all 26 core evaluation recipients were contacted, however only 4 responded rather than the 6 targeted. This resulted in a total of 22 follow-up evaluations at core evaluation sites, as shown in Table 3.3.

Table 3.3 Follow-up Evaluations by Utility

Utility	Number of Core Evaluations Completed	Target Number of Follow-Ups Based on Core Evaluations Completed	Actual Follow-Ups
Citrus	26	6	4
Hernando	2	1	1
Marion	1	1	1
VCCDD	36	9	9
NSCUDD	30	7	7
Totals	95	24	22

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 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 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 2025. The results are reviewed in Section 4 of this report.

3.4. Total Water Savings

For this Phase 7 program, 148 single-family residential irrigation systems were evaluated. For each of these participants, monthly water use data was collected by the utility for one year prior to the month in which the evaluation was performed and one year after the evaluation. This data is shown in Appendix E. These data show a number of participants had zero or near zero values for one or more months. These zero or near zero values were sometimes associated with a customer moving or having their water turned off while away.

Since the purpose of the pre- and post-audit water use analysis is to evaluate the impact the audit and associated educational program have had on the customer's water use, the monthly water use of some customers was adjusted to reflect these other factors that would otherwise distort the analysis. Nine accounts with 6 months or more of zero or near zero monthly water use values in either the pre- or post-evaluation period were excluded from the analysis. For those accounts

with five months or less of missing, zero or near zero monthly values in either the pre- or post-evaluation period, the missing or low monthly values were adjusted. These data were adjusted by calculating the average of the remaining monthly values within the pre- or post-evaluation period and applying that average to the missing, zero or near zero monthly values. The adjusted data is shown in Appendix E.

Table 3.4 shows total amount of water used in the pre-evaluation and post-evaluation periods by these accounts and the water saved. The data is shown first for core audits and then enhanced audits, and finally for the total program.

The types of evaluations completed varied throughout the WRWSA service area based on the preferences of the participating utilities. Enhanced evaluations in Hernando County and Marion County included replacing broken or mixed sprinkler heads, capping unnecessary heads, raising low irrigation heads, and straightening crooked irrigation heads where appropriate. In Citrus County the Enhanced evaluation only included the core audit components plus a Water Sense Controller and did not include additional repairs and adjustments to the irrigation system. In the VCCDD LSSA and NSCUDD VWCA only core evaluations were planned.

Water savings for the 87 core evaluations was approximately 6.818 million gallons for the year, or 25%. This represents 18,679 gallons per day and 215 gallons per account per day. Water savings for the 4 enhanced evaluations in Citrus County was approximately 0.875 million gallons for the year, or 59%. This represents 2,397 gallons per day and 599 gallons per account per day. Water savings for the 48 enhanced evaluations in Marion and Hernando Counties was approximately 5.097 million gallons for the year, or 30%. This represents 13,964 gallons per day and 291 gallons per account per day. Total annual water savings for all 139 accounts was approximately 12.790 million gallons, or 35,041 gallons of water per day and 252 gallons per account per day, representing a 28% reduction in water use.

Table 3.4 Water Savings by Utility

Utility	Evaluations with Pre/Post Use Data	One Year Pre-Evaluation Water Use (in millions of gallons)	One Year Post-Evaluation Water Use (in millions of gallons)	One Year Water Saved (in millions of gallons)	Percent Water Saved	Gallons Per Day Saved	Gallons Per Account Per Day Saved
Core Evaluations:							
Citrus	26	9.318	7.399	1.919	21%	5,258	202
Hernando ¹	1	0.271	0.060	0.211	78%	578	578
Marion ¹	1	0.324	0.204	0.120	37%	329	329
VCCDD	29	9.206	6.604	2.602	28%	7,129	246
NSCUDD	30	8.560	6.594	1.966	23%	5,385	180
Subtotal	87	27.678	20.861	6.818	25%	18,679	215
Enhanced Evaluations with Water Sense Controller only (Citrus County) Subtotal:							
Citrus	4	1.490	0.615	0.875	59%	2,397	599
Subtotal	4	1.490	0.615	0.875	59%	2,237	599
Enhanced Evaluations with additional enhancements (Marion and Hernando County) Subtotal:							
Hernando	31	11.388	8.103	3.285	29%	9,000	290
Marion	17	5.844	4.032	1.812	31%	4,964	292
Subtotal	48	17.232	12.135	5.097	30%	13,964	291
Core and Enhanced Evaluations Total:							
Citrus	30	10.808	8.014	2.794	26%	7,655	255
Hernando	32	11.659	8.163	3.496	30%	9,578	299
Marion	18	6.168	4.236	1.932	31%	5,293	294
VCCDD	29	9.206	6.604	2.602	28%	7,129	246
NSCUDD	30	8.56	6.594	1.966	23%	5,386	180
Total	139	46.401	33.611	12.790	28%	35,041	252

¹ The data for 7 core evaluations in VCCDD and 1 core evaluation in Hernando County, and 1 enhanced evaluation in Marion County were not able to be used as they had missing billing data.

3.5 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. Rainfall amounts were examined for the pre and post periods for the four-county region (Marion County only within the SWFWMD) and are summarized in Table 3.5.

As can be seen, there is less rainfall in the post-audit period when compared to the pre-audit period. This would tend to cause outdoor water use to increase slightly for the post evaluation period.

Table 3.5 Pre and Post Period Rainfall

Time Periods	Cumulative Rainfall (in)
Pre: January 2022 – July 2024	126.88
Post: January 2023 – July 2025	114.36
Difference	12.52

Data obtained from the SWFWMD Inverness Pool Station

3.6 Per Capita Water Savings

This water conservation program was initiated between the District and the Authority to assist utilities to meet, maintain, or surpass the SWFWMD's maximum compliance per capita rate of 150 gpcd required by the District. As shown in Table 3.6, the program resulted in a savings range of 92 to 271 gallons per capita per day, and a range of 21% to 58% reduction in per capita water use.

Table 3.6 Water Saved Per Capita

Utilities	Number of Accounts	Persons Per Household ¹	Pre-Evaluation Per Capita Use	Post-Evaluation Per Capita Use	Water Saved Per Capita Per Day	Per Capita % Reduction
Core Evaluations						
Citrus County	26	2.2	446	354	92	21%
Hernando County ²	1	2.41	308	68	240	78%
Marion County ²	1	2.33	381	240	141	37%
VCCDD	29	1.7	512	367	145	28%
NSCUDD	30	1.7	460	354	106	23%
Total	87	1.86	470	354	116	25%
Enhanced Evaluations – Citrus County						
Citrus County	4	2.2	464	191	272	59%
Total	4	2.2	464	191	272	59%
Enhanced Evaluations – Marion and Hernando Counties						
Hernando County	31	2.41	418	297	120	29%
Marion County	17	2.33	404	279	125	31%
Total	48	2.38	413	291	122	30%

¹ 2020 Census data for persons per household.

² The data for 7 core evaluations in VCCDD and 1 core evaluation in Hernando County, and 1 enhanced evaluation in Marion County were not able to be used as they had missing billing data.

3.7 Program Costs

The total program costs were budgeted for \$102,000 pursuant to the Agreement. Total program expenditures were \$72,175.05 or 71% of the original budget. The on-site evaluation expenses averaged \$348 per core evaluation with a total cost of \$33,015.00, and \$547 per enhanced evaluation with a total cost of \$29,010.05. The project included an administrative fee of \$50 per evaluation, for a total cost of \$7,400. Marketing and outreach costs were \$0 because SWFWMD performed the mailings. The cost for the 22 follow-up inspections was \$2,750.

Pursuant to the Agreement, the District provided 50 percent of the total funding, not to exceed \$51,000. The Authority and the participating utilities shared the other half. The Authority was responsible for at least 25 percent of the cost with each utility contributing up to 25 percent of the total cost for their respective portion of the program. In addition, the participating utilities provided critical support by identifying high water users as potential participants, contacting customers, and assisting with analyzing the data.

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 row of the table. This is the program cost to each utility after subtracting the funds provided by the Authority. The SWFWMD share was \$36,087.52, the Utilities contributed \$16,863.13, and Authority's cost was \$19,224.40.

Table 3.7 Expenditures Per Utility

Irrigation Evaluation Program Costs								
Item	SWFWMD Cost	WRWSA Cost					Subtotal	Total
		Citrus	Hernando	Marion	VCCDD	NSCUDD		
Irrigation Evaluations	\$31,012.52	\$6,365.50	\$8,392.25	\$5,024.78	\$5,988.75	\$5,241.25	\$31,012.53	\$62,025.05
Administration	\$3,700.00	\$750.00	\$825.00	\$475.00	\$900.00	\$750.00	\$3,700.00	\$7,400.00
Marketing	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Follow-up Inspections	\$1,375.00	\$250.00	\$62.50	\$62.50	\$562.50	\$437.50	\$1,375.00	\$2,750.00
Total	\$36,087.52	\$7,365.50	\$9,279.75	\$5,562.28	\$7,451.25	\$6,428.75	\$36,087.53	\$72,175.05
Final Utility Share of the WRWSA Cost		\$3,682.75	\$4,639.87	\$2,781.14	\$2,545.00 **	\$3,214.37	\$16,863.13	
WRWSA Share of the WRWSA Cost		\$3,682.75	\$4,639.88	\$2,781.14	\$4,906.25 **	\$3,214.38	\$19,224.40	

* Mailings completed by SWFWMD

** Some evaluations were completed in VCCDD, which were paid 50% SWFWMD and 50% WRWSA 0% VCCDD. VCCDD reimbursements limited by a separate agreement.

3.8 Costs for Enhanced and Core Audits

Table 3.8 shows the total cost by utility summarized for enhanced and core audits. The average cost for a core audit (including the \$50 admin cost and follow-ups) was \$426, while the average cost for an enhanced audit (Citrus County) was \$818, and the average cost of an enhanced audit (Hernando and Marion County) was \$579. The average cost for all evaluations in the Phase 7 program was \$488. This includes administration and the core evaluation follow-ups.

Table 3.8 Costs for Enhanced and Core Audits

	Number of Audits	Total Cost	Audit Cost Only / Audit	Total Cost / Audit
Costs for Core Evaluations				
Citrus	26	\$11,460.00	\$372	\$441
Hernando	2	\$840.00	\$308	\$420
Marion	1	\$455.00	\$280	\$455
VCCDD (LSSA)	36	\$14,902.50	\$333	\$414
NSCUDD (VWCA)	30	\$12,857.50	\$349	\$429
Total	95	\$40,515.00	\$348	\$426
Costs for Enhanced Evaluations with Water Sense Controllers Only (Citrus County)				
Citrus	4	\$3,271.00	\$768	\$818
Total	4	\$3,271.00	\$768	\$818
Costs for Enhanced Evaluations with Additional improvements (Hernando and Marion County)				
Hernando	31	\$18,559.50	\$522	\$572
Marion	18	\$11,124.50	\$543	\$593
Total	49	\$29,683.00	\$529	\$579
Combined Evaluation Costs				
Citrus	30	\$14,731.00	\$424	\$491
Hernando	33	\$18,559.50	\$509	\$562
Marion	19	\$11,124.55	\$529	\$586
VCCDD (LSSA)	36	\$14,902.50	\$333	\$414
NSCUDD (VWCA)	30	\$12,857.50	\$349	\$429
Total	148	\$72,175.05	\$419	\$488

3.9 Cost Effectiveness

The cost effectiveness can be calculated using the SWFWMD method of benefit/cost analysis. The benefit/cost calculations are summarized below, with additional calculation detail in Appendix G.

Table 3.9: Cost Effectiveness Calculation Summary

Evaluation Type	Cost/Benefit Calculation (\$/Kgal)
Core Evaluations	\$1.37
Enhanced Evaluation (Citrus County)	\$0.94
Enhanced Evaluation (Hernando and Marion Counties)	\$1.36
All Enhanced Evaluations	\$1.30
All Core and Enhanced Evaluations	\$1.33

The enhanced audits with the additional Water Sense Irrigation Controllers appear to be more cost effective than the core audits, while the enhanced audits with the additional irrigation system adjustments and improvements included appear to provide slightly more impact than core audits for each dollar spent. Overall, the enhanced evaluations were slightly more cost effective than the core evaluations.

4. Customer Implementation

The program included the Authority’s contractor revisiting approximately 23 percent of each utility’s participating core evaluation customers to inspect how recommendations have been implemented and other changes the homeowners may have made to their irrigation systems since the evaluation was performed. 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 and its recommendations, an implementation rate was determined for completion 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 follow-up evaluations conducted for participants within each utility as well as the average for enhanced, core and all follow-ups. Appendix F summarizes the follow-up inspections.

Table 4.1 Summary of Follow-up Findings

Utility	Number of Follow-Up Inspections	Percent of Changes Implemented
Citrus	4	68%
Hernando	1	90%
Marion	1	70%
VCCDD (LSSA)	9	68%
NSCUDD (VWCA)	7	74%
Total	22	71%

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 customers who participated in the follow-up evaluations made some changes to their irrigation systems, ranging from 31 to 100 percent. The overall program implementation rate was 71%.

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 Customer Satisfaction Surveys

A customer satisfaction survey was prepared using Momentive (previously Survey Monkey). The complete survey and results are included in Appendix D. A total of 23 responses were received. Respondents to the survey included customers who received either a core or enhanced irrigation system evaluation.

65% of respondents reported making at least some changes to their irrigation systems. 47% adjusting, repairing or replacing irrigation heads, followed by 42% reported making adjustments to irrigation system run times. 45% 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, 90% selected "Pleased" or "Very Pleased" with the irrigation system evaluation.

4.3 Summary of Results for Phases 1-7

This report finalized the efforts for Phase 7 of the Irrigation Evaluation Program. Table 4.2 below summarizes the results for Phase 1 through 7.

Table 4.2 Summary Phase 1-7 Results

Phase	Total Evaluations	First Year Water Saved (million gallons)	Percent Water Saved
Pilot	230	29.0	36%
Phase 2	141	12.4	28%
Phase 3	135	7.4	17%
Phase 4	313	26.0	27%
Phase 5	279	19.4	22%
Phase 6	211	13.9	22%
Phase 7	148	12.8	28%
Total	1457	120.9	26%

5. Recommendations

It is recommended that this Irrigation System Audit program be continued for additional phases. The Phase 7 results show a positive outcome for both core and enhanced audits. This was the third time enhanced audits have been offered in the program and the results were positive each time. Core audits saved on average 117 gallons per person per day, a 25% reduction. Enhanced audits with the water sense irrigation controller improvements saved on average 271 gallons per person per day, a 58% reduction, and the enhanced evaluations with other repairs/adjustments to the irrigation systems saved on average 123 gallons per capita per day, a 30% reduction.

The calculated cost effectiveness of the core audits is \$1.37 \$/Kgal, while enhanced audits in Marion and Hernando Counties come in at \$1.36, and evaluations with irrigation controller upgrades in Citrus County have calculated cost effectiveness of \$0.94 \$/Kgal. Therefore, for Phase 7, the enhanced audits with the irrigation controller upgrades were more cost effective, while the core and enhanced evaluations with the other repairs and adjustment in the irrigation system appear to provide a similar impact for each dollar spent.

It appears for the 4 enhanced evaluations in Citrus County that included only the additional water sense irrigation controller improvements that this modification can be very cost effective. These customers were selected to receive the enhanced evaluation because they had very high water use. While the cost per evaluation is higher, the water saved was also greater.

It also appears that having the irrigation contractor complete additional repairs in the irrigation system does save more water than leaving the repairs up to the customer, and it is slightly more cost effective to the utilities within this program; noting also that, the cost effectiveness calculation includes the cost of the follow-ups and does not include the component of the cost that is then shifted to the customer.

It is recommended for future phases to maintain the variety of core and enhanced evaluations and to incorporate the water sense controllers where appropriate based on very high water users. This would allow for continued attractiveness of the program to residents and utilities based on their comfort level of commitment.

For future Phases, the funding request will be moved to the SWFWMD WISE funding program, which provides funding specifically aimed at water conservation. This funding program has a shorter duration and lower upper limit funding threshold, but a simpler more streamlined application and reimbursement procedures.

Appendix A

Marketing Materials



UTILITIES DEPARTMENT

WATER ♦ WASTEWATER ♦ RECLAIMED WATER ♦ ENGINEERING ♦ CUSTOMER SERVICE

15365 CORTEZ BOULEVARD ♦ BROOKSVILLE, FLORIDA 34613
P 352.754.4037 ♦ F 352.754.4485 ♦ W www.HernandoCounty.us

March 1, 2023

Resident
Street Address
Spring Hill, Florida 34607

Subject: Potential Water Bill Savings for Account BP00154-0

Dear *Resident*:

We noticed your water usage has averaged about **33,000 gallons per month** at your home located at 8388 Driftwood Dr in Hernando County, Florida. This usage is higher than the average user. The average residential customer of the Hernando County Utilities Department is between 8,000-10,000 gallons per month, which includes both indoor and outdoor water consumption. So, we are trying to find ways to help you reduce your water use.

Based on past performance, I believe our Irrigation Evaluation program could reduce your water use by 20% or more. Using Hernando County Utilities most recent water rates, I estimate participation in this program could save you an average of **\$27** a month! There are other things Hernando County does to help customers save water, but I think the Irrigation Evaluation program will offer the greatest savings – and, it's **FREE** to you. See the enclosed brochure which further describes our program.

If you choose to participate, our contractor will run each of your irrigation system zones to identify ways to improve water efficiency, create a map of the irrigation system for you to keep, and provide written recommendations of improvements. With your permission, he can even do some minor fixes and adjustments at no cost to you. All you must do is complete the enclosed application and return it in the self-addressed postage paid envelope provided.

The contractor will contact you to schedule a convenient time to visit your home. This is a by 'invitation only' offer available on a first-come, first-served basis. Space is limited. I hope you will consider participating. If you have any questions, please give me a call. I look forward to working with you.

Sincerely,

Alys Brockway
Water Resource Manager
Hernando County Utilities Department

Enclosures

Irrigation Evaluation Program (Q306) Application Form

Residential Water Customer Information:

Printed Name:	Water Account Number:	Phone Number(s):
Street Address with Zip Code:		Email Address:
If the irrigation system is not functioning, it must be repaired before an evaluation can be scheduled. Is your irrigation system operational and without any major breaks or leaks? <input type="checkbox"/> Yes <input type="checkbox"/> No		
The Irrigation System water must be <u>purchased from Citrus County Utilities</u> to participate in this program. Those connected to a <u>private well</u> are NOT eligible .		
Do you have a rain sensor installed on your automatic in-ground sprinkler system? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't Know	How many zones does your sprinkler system contain? <input type="checkbox"/> 1-4 zones <input type="checkbox"/> 5-8 zones <input type="checkbox"/> If more than 8, indicate how many.	
How old is your controller? <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> 11-15 years <input type="checkbox"/> 16+ years <input type="checkbox"/> Don't Know	Does the controller have pins that are pushed or pulled to schedule the system? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Irrigation Controller: Brand: _____ Model: _____		
On a scale of 1-10, 10 being the most knowledgeable, how would you rate your understanding of your irrigation controller? _____		
On a scale of 1-10, 10 being the most capable, how would you rate your ability to modify the irrigation schedule (day of week, time of day) using the controller? _____		
Does a hired professional adjust your controller for you? <input type="checkbox"/> Yes <input type="checkbox"/> No	If you could upgrade your existing controller, which feature would you find most desirable? <input type="checkbox"/> Irrigation schedule able to be modified from anywhere in the world via Smart Phone <input type="checkbox"/> Irrigation schedule modified on the irrigation control panel <input type="checkbox"/> Both of the above are desired <input type="checkbox"/> I'm not interested in an updated controller	
Wireless internet connection (WiFi) is used for some smart controllers. Do you have WiFi at your home? <input type="checkbox"/> Yes <input type="checkbox"/> No		
On average, how many gallons of water do you think your household uses a day (while bathing/showering, cooking, washing clothes, watering the lawn, etc.)? <input type="checkbox"/> 0-50 gallons <input type="checkbox"/> 50-100 gallons <input type="checkbox"/> 100-150 gallons <input type="checkbox"/> 150-200 gallons <input type="checkbox"/> 200+ gallons		

(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.

Name (Please Print)

Signature

Date



This program is cooperatively funded by the Withlacoochee Regional Water Supply Authority, Citrus County Utilities, and the Southwest Florida Water Management District.

FREE

IRRIGATION SYSTEM EVALUATION

This program is for Citrus County Utilities single-family residential customers that have an in-ground irrigation / sprinkler system connected to the utility's water supply.

How to Participate:

1. Complete and sign the application on the back of this page.
2. Return the application via mail, email, fax or hand deliver. We have provided a self-addressed, stamped envelope for your convenience. Other delivery options below:
 - Email to: lstout@wrwsa.org
 - Fax: 352-527-5797
 - Deliver to: WRWSA, 3600 W. Sovereign Path, Ste 228, Lecanto FL 34461
3. The Program's contractor, Jack Overdorff, will contact you to arrange an appointment to perform an evaluation of your irrigation system. You must be present at the time of the evaluation and will need to provide access to your property and 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. Likely, 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.
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. The evaluator is **only** authorized to make minor modifications or repairs necessary to improve system efficiency. The evaluator may also replace the irrigation controller under special circumstances.
5. Recommended modifications not carried out by the evaluator can be done by any licensed irrigation professional, should the participant choose to hire someone.
6. The irrigation system must be connected to Citrus County Utilities water supply. Systems connected to a private well do not qualify for this program.
7. Any costs incurred by hiring a licensed professional to make modifications are the participant's responsibility.
8. 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.
9. Participant agrees to complete and return a customer satisfaction survey at the end of the program.

If you have further questions related to this program, please call LuAnne Stout
352-527-5795 or lstout@wrwsa.org



Appendix B

Sample Evaluation Report



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, _____ 20__, 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	<p>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</p> <p>Low Volume Zone (Hose bib battery valve) Program Running Days: Every 3 days #9 running 45 minutes</p>
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.	

<p>Zone #1 Rotor Zone Side Yard Turf Area (See attached site plan)</p>	<p>Water can be conserved as Rotor Head R1 is leaking</p>	<p>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</p>	
	<p>Water can be conserved as Rotor Head R4 is overspraying onto the street</p>	<p>Recommend adjusting the spray pattern to reduce overspray and to conserve water</p>	
	<p>Zone is operating at approximately 9 Gallons Per Minute (GPM)</p>	<p>No action</p>	
<p>Zone #2 Rotor Zone Side Yard Turf Area (See attached site plan)</p>	<p>Water can be conserved as Rotor Heads R5 thru R7 are irrigating a narrow turf area and overspraying mature plantings</p>	<p>Recommend replacing the heads with fixed Spray Heads fitted with strip spray nozzles to reduce overspray and to conserve water</p>	
	<p>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</p>	<p>Recommend raising the head and also recommend trimming the turf around the head to conserve water</p>	

	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	

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

<p>Zone #7 Rotor Zone Side Yard Turf Area (See attached site plan)</p>	<p>Water can be conserved and the spray pattern coverage improved as Rotor Head R13 is leaking and blocked by plantings</p>	<p>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</p>	
	<p>Spray pattern coverage can be improved as Rotor Head R14 is leaning</p>	<p>Recommend straightening the head to improve the spray pattern coverage for the turf areas</p>	
	<p>Zone is operating at 8 Gallons Per Minute (GPM)</p>	<p>No action</p>	
<p>Zone #8 Rotor Zone Side Yard Turf Area (See attached site plan)</p>	<p>Water can be conserved as Rotor Head R15 is overspraying onto the street</p>	<p>Recommend adjusting the spray pattern to reduce overspray and to conserve water</p>	
	<p>Water can be conserved as Rotor Head R17 is located in a planting bed</p>	<p>Recommend capping the head and irrigating plantings with only dripline or micro-irrigation</p>	
	<p>Zone is operating at 10 Gallons Per Minute (GPM)</p>	<p>No action</p>	
<p>Zone #9 Low Volume Zone (See attached site plan)</p>	<p>Zone is operating at 4 Gallons Per Minute (GPM)</p>	<p>No action</p>	

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

Residential Irrigation Evaluation Report

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.

Residential Irrigation Evaluation Report

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	<i>221,520 GAL/YEAR</i>	<i>351,260 GAL/YEAR</i>	376,820 GAL/YEAR (66% Annual Savings)

¹Based on watering days and applications as noted above

²Based 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.

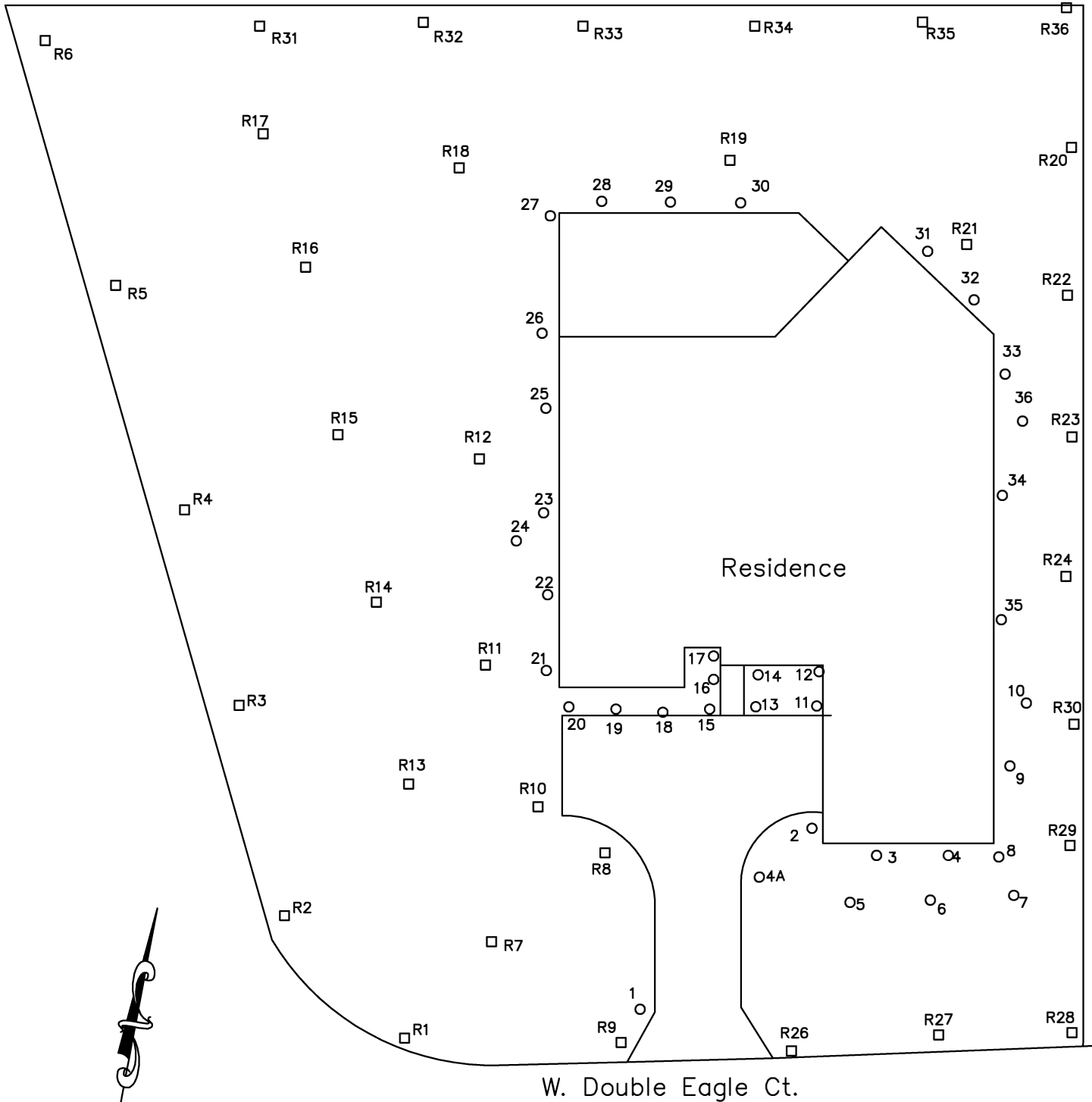
Thanks again for participating in the Withlacoochee Regional Water Supply Authority's Irrigation Evaluation program. We hope this information will benefit you. There are various recommendations and suggested changes made in this report.

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

W. Double Eagle Ct.

Residence

LEGEND

- Location of Spray Heads
- Location of Rotor Head

Plan provided courtesy of the SWFWMD, Withlacoochee Regional Water Supply Authority & Citrus County

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

**IRRIGATION
 LAYOUT PLAN**

DATE: **January 2023**

APPLICANT:

Appendix C

List of Educational Material

List of Educational Materials

- (1) A Guide to the Basics of Micro-Irrigation
- (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) Saving Water Indoors

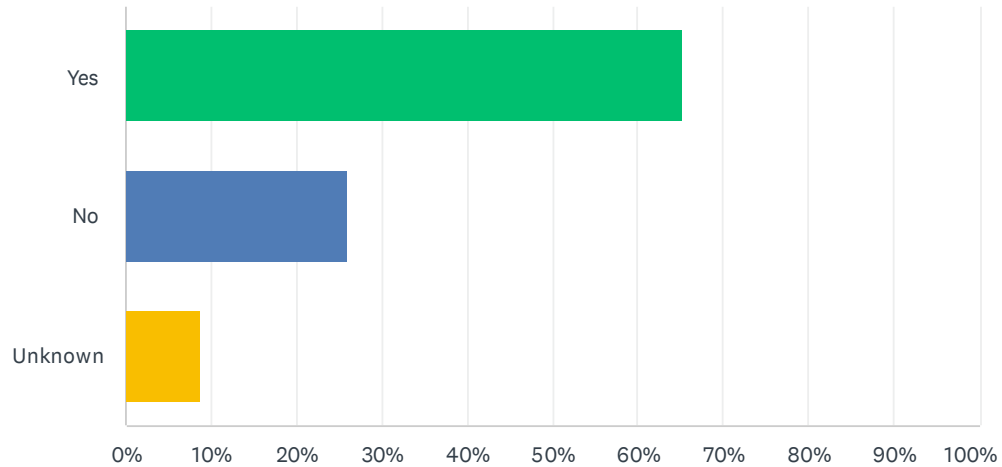
The educational materials were ordered by Jack Overdorff, the irrigation evaluation contractor, and distributed during the onsite irrigation system evaluation.

Appendix D

Customer Satisfaction Survey

Q1 Did the irrigation evaluation contractor make any changes to your system?

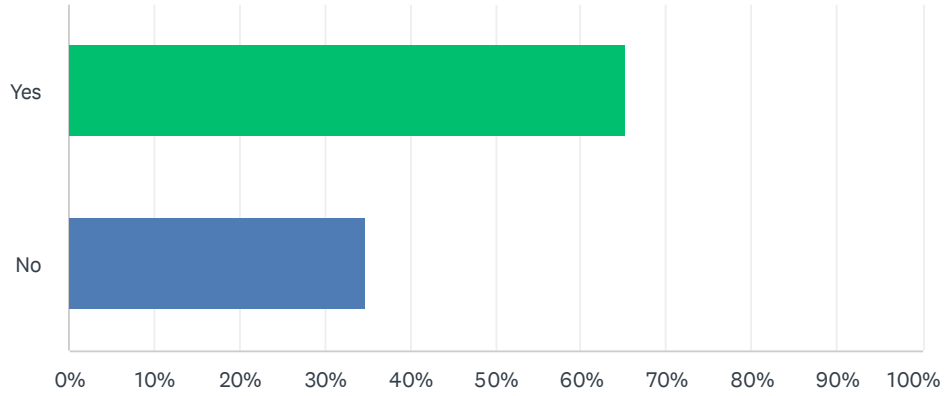
Answered: 23 Skipped: 0



ANSWER CHOICES		RESPONSES	
Yes		65.22%	15
No		26.09%	6
Unknown		8.70%	2
TOTAL			23

Q2 Did you make any changes to your irrigation system as a result of the system evaluation?

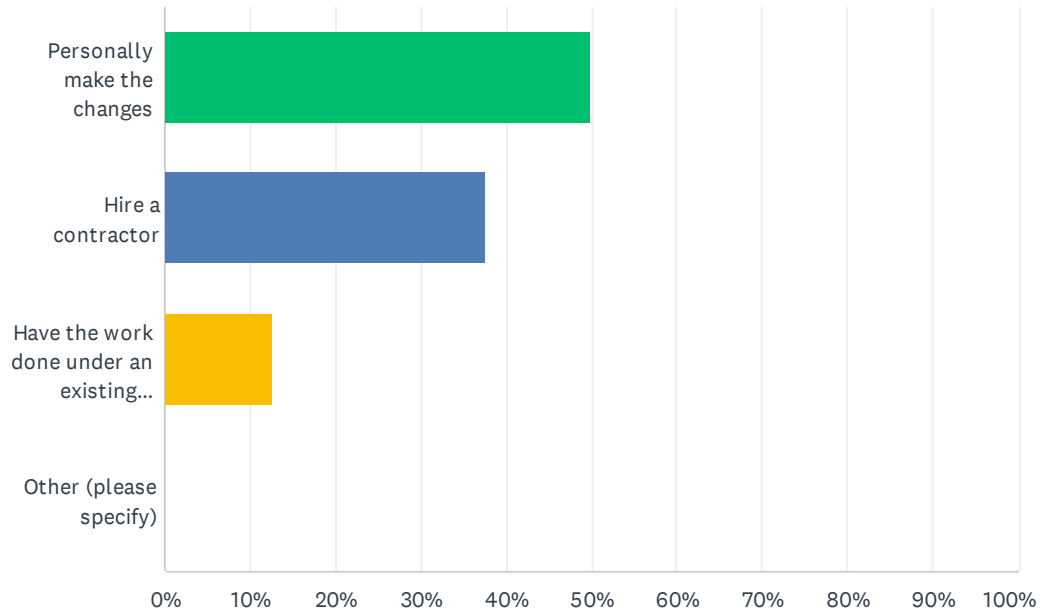
Answered: 23 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	65.22%	15
No	34.78%	8
TOTAL		23

Q3 If you made changes to your system, did you ...

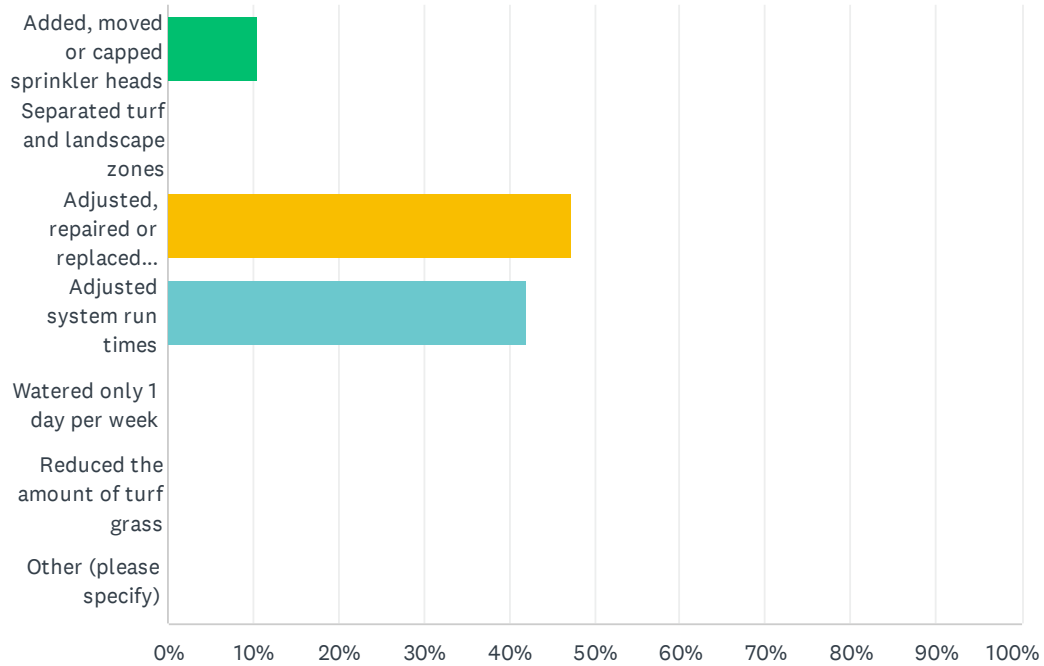
Answered: 16 Skipped: 7



ANSWER CHOICES	RESPONSES	
Personally make the changes	50.00%	8
Hire a contractor	37.50%	6
Have the work done under an existing maintenance contract	12.50%	2
Other (please specify)	0.00%	0
TOTAL		16

Q4 What changes did you make to your irrigation system? (Choose all that apply)

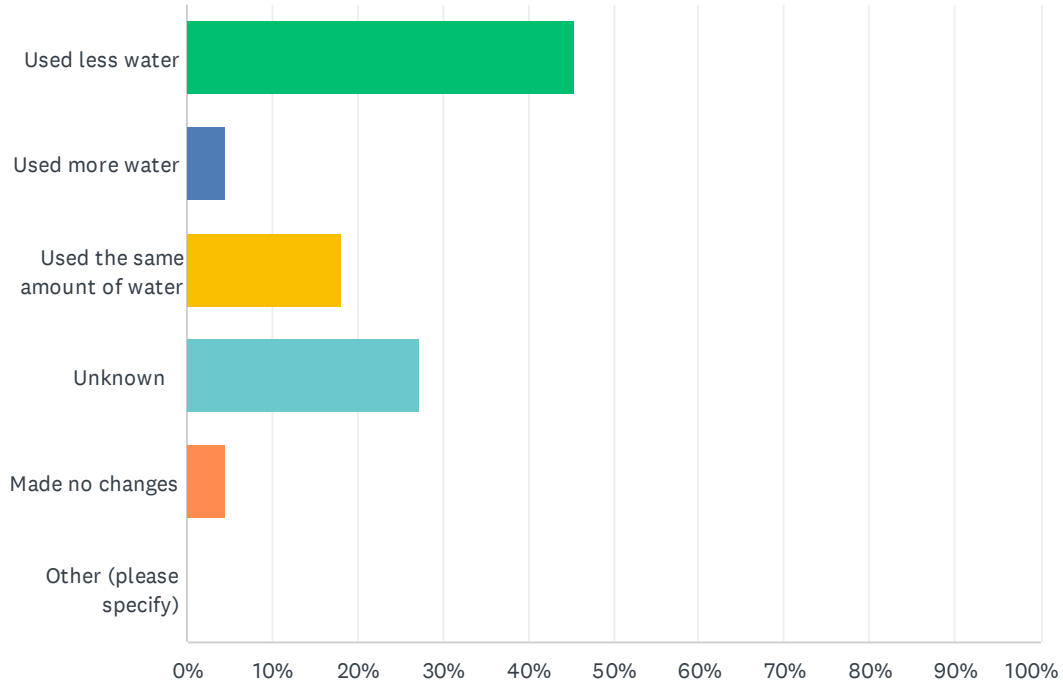
Answered: 19 Skipped: 4



ANSWER CHOICES	RESPONSES	
Added, moved or capped sprinkler heads	10.53%	2
Separated turf and landscape zones	0.00%	0
Adjusted, repaired or replaced sprinkler heads	47.37%	9
Adjusted system run times	42.11%	8
Watered only 1 day per week	0.00%	0
Reduced the amount of turf grass	0.00%	0
Other (please specify)	0.00%	0
TOTAL		19

Q5 Did you notice a change in your water usage as a result of any changes made?

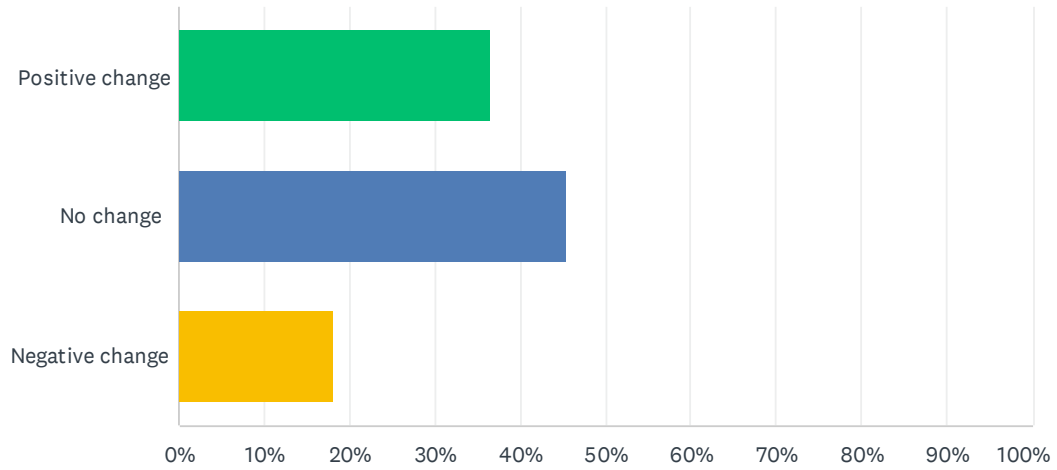
Answered: 22 Skipped: 1



ANSWER CHOICES	RESPONSES	
Used less water	45.45%	10
Used more water	4.55%	1
Used the same amount of water	18.18%	4
Unknown	27.27%	6
Made no changes	4.55%	1
Other (please specify)	0.00%	0
TOTAL		22

Q6 Did you notice any changes in your lawn/landscaping?

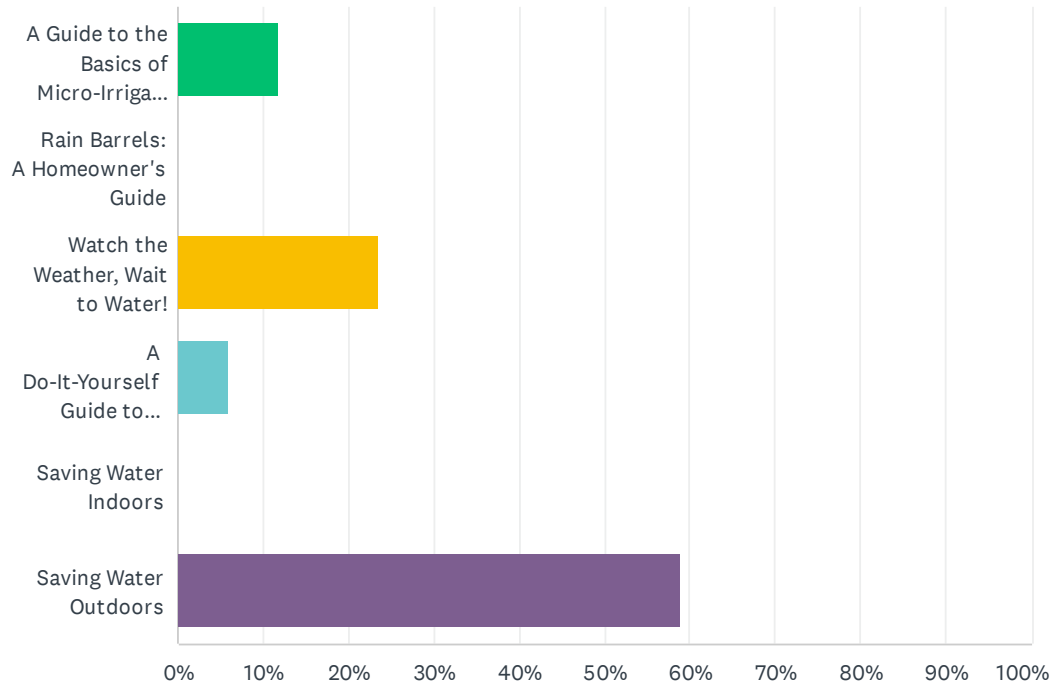
Answered: 22 Skipped: 1



ANSWER CHOICES	RESPONSES
Positive change	36.36% 8
No change	45.45% 10
Negative change	18.18% 4
TOTAL	22

Q7 Which education information provided was most helpful?

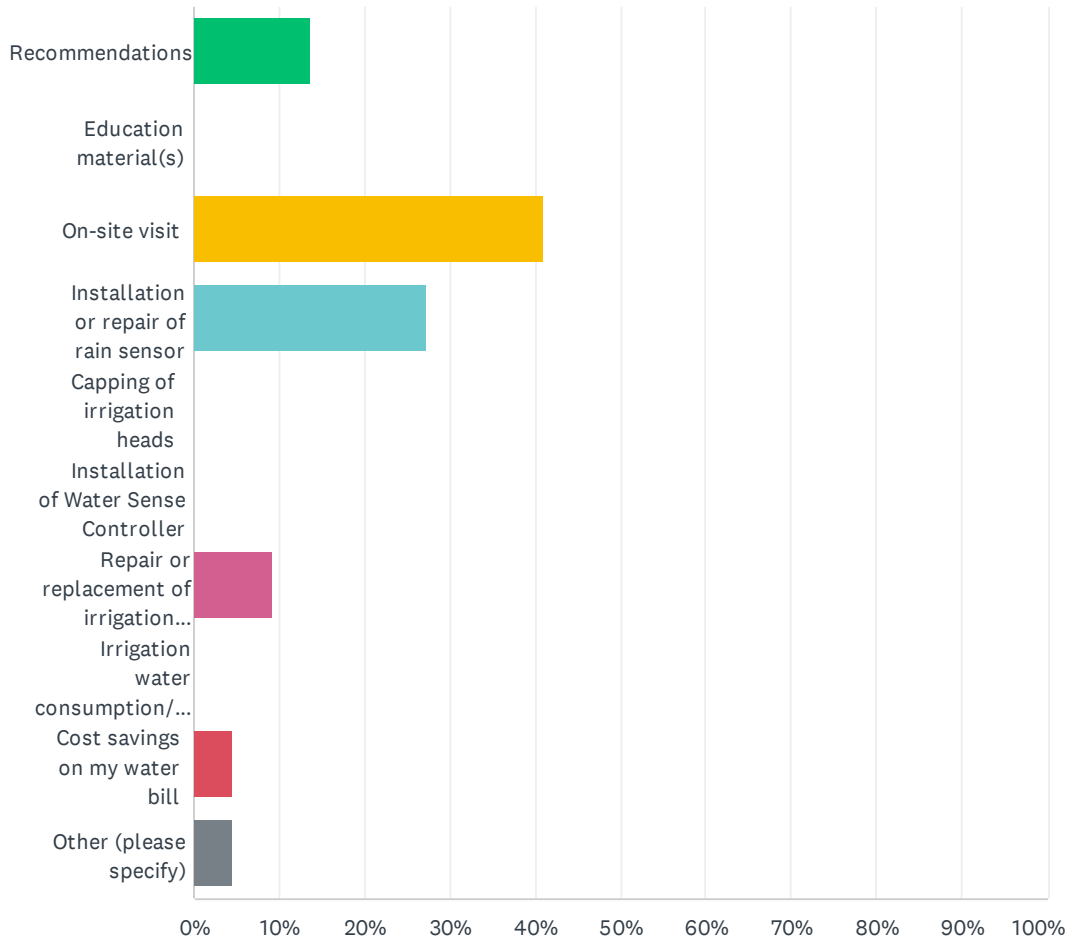
Answered: 17 Skipped: 6



ANSWER CHOICES	RESPONSES	
A Guide to the Basics of Micro-Irrigation	11.76%	2
Rain Barrels: A Homeowner's Guide	0.00%	0
Watch the Weather, Wait to Water!	23.53%	4
A Do-It-Yourself Guide to Florida Friendly Fertilizing	5.88%	1
Saving Water Indoors	0.00%	0
Saving Water Outdoors	58.82%	10
TOTAL		17

Q8 What was the most helpful part of the evaluation?

Answered: 22 Skipped: 1

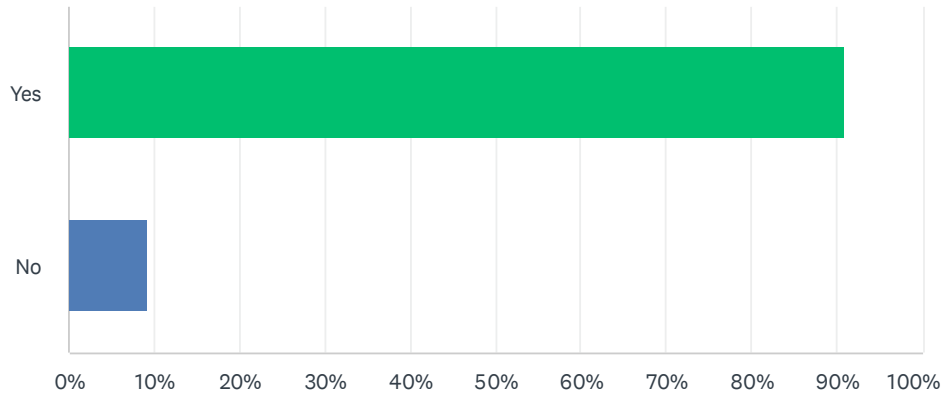


WRWSA Regional Irrigation Audit Program (Q306)

ANSWER CHOICES	RESPONSES	
Recommendations	13.64%	3
Education material(s)	0.00%	0
On-site visit	40.91%	9
Installation or repair of rain sensor	27.27%	6
Capping of irrigation heads	0.00%	0
Installation of Water Sense Controller	0.00%	0
Repair or replacement of irrigation heads	9.09%	2
Irrigation water consumption/application calculations	0.00%	0
Cost savings on my water bill	4.55%	1
Other (please specify)	4.55%	1
TOTAL		22

Q9 Would you recommend this program to a neighbor?

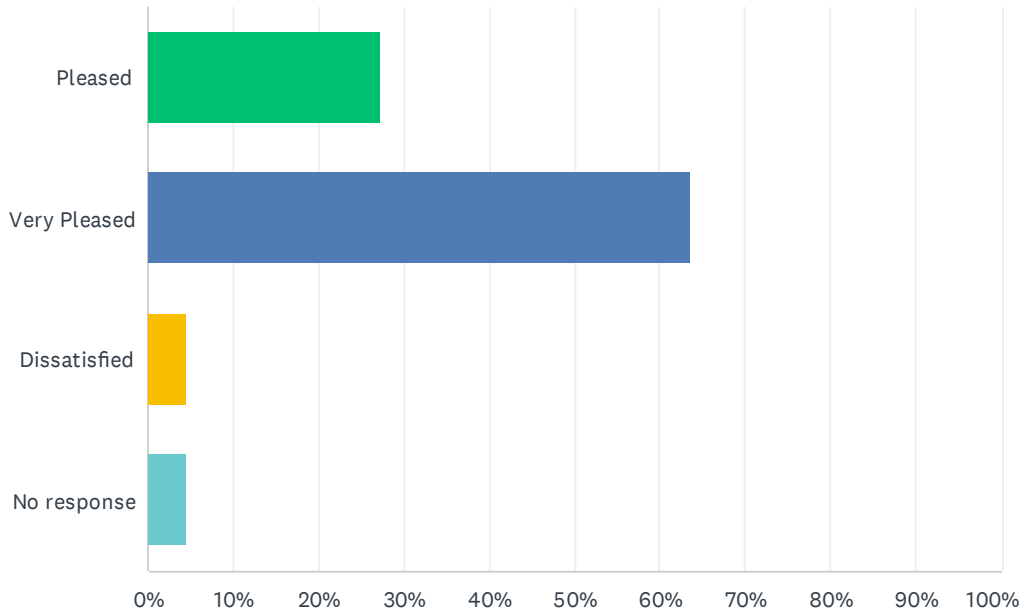
Answered: 22 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	90.91%	20
No	9.09%	2
TOTAL		22

Q10 Overall, how would you rate the irrigation system evaluation:

Answered: 22 Skipped: 1



ANSWER CHOICES	RESPONSES	
Pleased	27.27%	6
Very Pleased	63.64%	14
Dissatisfied	4.55%	1
No response	4.55%	1
TOTAL		22

Q11 Other comments:

Answered: 11 Skipped: 12

#	RESPONSES	DATE
1	I was very happy that your dept. reached out and helped me. Made me feel good about living in Hernando cty. Thank you!	7/28/2025 6:38 AM
2	I have just put in a new lawn for the second time in two years and it takes a lot of water to start a new lawn. I came from California and there the water became so expensive that I took out my Lawn. Hope I don't have to do that here as soon of my neig	7/26/2025 10:56 PM
3	very knowledgeable review=thanks	7/26/2025 1:08 PM
4	I called because my water bill has gone up \$100, then the next month my water bill went up \$200. I have done nothing different for the last 3 months! I need someone to check my water meter!!!	7/24/2025 10:27 PM
5	I assume this survey is for last year, you are welcome to com again this year 2025.	7/24/2025 9:31 PM
6	I was at first hesitant to participate in this program but glad that I did. I gained a better understanding of my overall system and am using the recommendations to fine tune my system. I have already recommended this program to friends.	7/24/2025 10:57 AM
7	I never got the report I was supposed to recieve. Hence, no changes.	7/23/2025 9:36 PM
8	He was super friendly and very knowledgeable	7/23/2025 9:18 PM
9	Wish he could come again	7/23/2025 9:12 PM
10	The gentleman who evaluated by system was very thorough and made several adjustments and repairs. He gave me a detailed explanation of things that could and should be corrected. I was impressed. I found the survey very informative.	7/23/2025 5:29 PM
11	I don't recall anyone coming to my home and evaluating my system	7/23/2025 5:13 PM

Appendix E

Water Use Data by Utility

Appendix E Water Use Data By Utility

#	City	Evaluation Date	Unadjusted Data (gallons per year) Year One				Adjusted Data (gallons per year) Year One				Explanation of Adjusted Data
			12 Month Pre-Usage	12-Month Post-Usage	Gallons Saved	Year One % Saved	12 Month Pre-Usage	12-Month Post-Usage	Gallons Saved	Year One % Saved	
Citrus County											
1	Lecanto	1/13/2023	792,000	801,000	-9,000	-1%	792,000	801,000	-9,000	-1%	
2	Lecanto	1/13/2023	286,000	150,000	136,000	48%	286,000	150,000	136,000	48%	
3	Hernando	1/20/2023	329,000	204,000	125,000	38%	329,000	204,000	125,000	38%	
4	Hernando	1/20/2023	246,000	49,000	197,000	80%	246,000	49,000	197,000	80%	
5	Beverly Hills	1/24/2023	483,000	258,000	225,000	47%	483,000	258,000	225,000	47%	
6	Beverly Hills	1/24/2023	270,000	217,000	53,000	20%	270,000	217,000	53,000	20%	
7	Inverness	2/17/2023	332,000	332,000	0	0%	332,000	332,000	0	0%	
8	Lecanto	2/23/2023	287,000	59,000	228,000	79%	287,000	59,000	228,000	79%	
9	Homosassa	2/23/2023	300,000	259,000	41,000	14%	300,000	259,000	41,000	14%	
10	Citrus Springs	2/27/2023	300,000	284,000	16,000	5%	300,000	284,000	16,000	5%	
11	Beverly Hills	3/8/2023	238,000	226,000	12,000	5%	238,000	226,000	12,000	5%	
12	Hernando	4/23/2023	286,000	317,000	-31,000	-11%	286,000	317,000	-31,000	-11%	
13	Homosassa	5/3/2023	384,000	165,000	219,000	57%	384,000	165,000	219,000	57%	
14	Citrus Springs	6/20/2023	342,000	163,000	179,000	52%	342,000	163,000	179,000	52%	
15	Lecanto	8/11/2023	494,000	375,000	119,000	24%	494,000	375,000	119,000	24%	
16	Hernando	11/1/2023	401,000	309,000	92,000	23%	401,000	309,000	92,000	23%	
17	Beverly Hills	11/23/2023	366,000	370,000	-4,000	-1%	366,000	370,000	-4,000	-1%	
18	Beverly Hills	12/5/2023	257,000	236,000	21,000	8%	257,000	236,000	21,000	8%	
19	Crystal River	1/31/2024	334,000	118,000	216,000	65%	334,000	118,000	216,000	65%	
20	Hernando	2/1/2024	476,000	455,000	21,000	4%	476,000	455,000	21,000	4%	
21	Homosassa	2/1/2024	367,000	106,000	261,000	71%	367,000	106,000	261,000	71%	
22	Hernando	3/1/2024	661,000	566,000	95,000	14%	661,000	566,000	95,000	14%	
23	Hernando	4/12/2024	359,000	65,000	294,000	82%	359,000	65,000	294,000	82%	
24	Homosassa	4/24/2024	357,000	341,000	16,000	4%	357,000	341,000	16,000	4%	
25	Hernando	5/8/2024	276,000	334,000	-58,000	-21%	276,000	334,000	-58,000	-21%	
26	Hernando	5/10/2024	293,000	239,000	54,000	18%	293,000	239,000	54,000	18%	
27	Crystal River	5/24/2024	300,000	322,000	-22,000	-7%	300,000	322,000	-22,000	-7%	
28	Beverly Hills	5/24/2024	306,000	133,000	173,000	57%	306,000	133,000	173,000	57%	
29	Hernando	6/5/2024	394,000	296,000	98,000	25%	394,000	296,000	98,000	25%	
30	Beverly Hills	6/21/2024	292,000	265,000	27,000	9%	292,000	265,000	27,000	9%	
Citrus County Subtotals			10,808,000	8,014,000	2,794,000	26%	10,808,000	8,014,000	2,794,000	26%	

Hernando County										
1 Spring Hill	4/3/2023	439,300	344,000	95,300	22%	439,300	404,000	35,300	8%	Missing 3 months post data
2 Spring Hill	4/3/2023	440,100	320,200	119,900	27%	440,100	320,200	119,900	27%	
3 Spring Hill	4/6/2023	422,400	384,400	38,000	9%	422,400	384,400	38,000	9%	
4 Spring Hill	4/6/2023	251,600	136,300	115,300	46%	251,600	136,300	115,300	46%	
5 Spring Hill	4/6/2023	328,600	150,800	177,800	54%	328,600	150,800	177,800	54%	
6 Spring Hill	4/11/2023	305,000	179,800	125,200	41%	305,000	179,800	125,200	41%	
7 Brooksville	4/11/2023	278,300	197,300	81,000	29%	278,300	197,300	81,000	29%	
8 Spring Hill	4/18/2023	293,000	353,000	-60,000	-20%	293,000	353,000	-60,000	-20%	
9 Spring Hill	4/18/2023	344,000	106,500	237,500	69%	344,000	106,500	237,500	69%	
10 Spring Hill	4/18/2023	327,500	303,200	24,300	7%	327,500	303,200	24,300	7%	
11 Spring Hill	4/25/2023	271,000	59,900	211,100	78%	271,000	59,900	211,100	78%	
12 Spring Hill	4/25/2023	350,400	323,700	26,700	8%	350,400	323,700	26,700	8%	
13 Spring Hill	4/25/2023	350,300	120,200	230,100	66%	350,300	120,200	230,100	66%	
14 Hernando Bch	4/26/2023	303,400	201,700	101,700	34%	303,400	201,700	101,700	34%	
15 Spring Hill	4/26/2023	304,100	400,100	-96,000	-32%	304,100	400,100	-96,000	-32%	
16 Spring Hill	4/26/2023	287,100	179,100	108,000	38%	287,100	179,100	108,000	38%	
17 Spring Hill	5/5/2023	343,300	253,100	90,200	26%	343,300	253,100	90,200	26%	
18 Spring Hill	5/5/2023	264,900	200,200	64,700	24%	264,900	200,200	64,700	24%	
19 Spring Hill	5/5/2023									Missing 6 months pre data
20 Spring Hill	5/9/2023	234,600	268,300	-33,700	-14%	234,600	268,300	-33,700	-14%	
21 Spring Hill	5/9/2023	718,400	196,700	521,700	73%	718,400	196,700	521,700	73%	
22 Spring Hill	5/9/2023	371,000	188,500	182,500	49%	371,000	188,500	182,500	49%	
23 Spring Hill	5/23/2023	802,300	172,900	629,400	78%	802,300	172,900	629,400	78%	
24 Spring Hill	5/23/2023	701,300	707,800	-6,500	-1%	701,300	707,800	-6,500	-1%	
25 Spring Hill	6/27/2023	361,200	283,600	77,600	21%	361,200	283,600	77,600	21%	
26 Brooksville	6/27/2023	357,500	302,200	55,300	15%	357,500	302,200	55,300	15%	
27 Spring Hill	6/27/2023	319,700	295,900	23,800	7%	319,700	295,900	23,800	7%	
28 Spring Hill	6/30/2023	352,200	287,400	64,800	18%	352,200	287,400	64,800	18%	
29 Spring Hill	6/30/2023	304,300	198,200	106,100	35%	304,300	198,200	106,100	35%	
30 Spring Hill	6/30/2023	201,500	316,700	-115,200	-57%	201,500	316,700	-115,200	-57%	
31 Spring Hill	7/5/2023	287,100	179,100	108,000	38%	287,100	179,100	108,000	38%	
32 Spring Hill	7/5/2023	319,300	296,100	23,200	7%	319,300	296,100	23,200	7%	
33 Spring Hill	7/13/2023	424,400	196,000	228,400	54%	424,400	196,000	228,400	54%	
Hernando County Subtotals		11,659,100	8,102,900	3,556,200	31%	11,659,100	8,162,900	3,496,200	30%	

Marion County										
1 Ocala	8/1/2023	348,000	180,000	168,000	48%	348,000	180,000	168,000	48%	No Billing Data available
2 Ocala	9/6/2023	396,000	108,000	288,000	73%	396,000	108,000	288,000	73%	
3 Ocala	10/5/2023	336,000	240,000	96,000	29%	336,000	240,000	96,000	0%	
4 Ocala	10/13/2023	336,000	276,000	60,000	18%	336,000	276,000	60,000	18%	
5 Ocala	10/20/2023	312,000	204,000	108,000	35%	312,000	204,000	108,000	35%	
6 Ocala	10/20/2023	408,000	180,000	228,000	56%	408,000	180,000	228,000	56%	
7 Ocala	10/20/2023	564,000	276,000	288,000	51%	564,000	276,000	288,000	51%	
8 Ocala	10/24/2023	348,000	348,000	0	0%	348,000	348,000	0	0%	
9 Ocala	10/25/2023	372,000	216,000	156,000	42%	372,000	216,000	156,000	42%	
10 Ocala	11/2/2023	384,000	396,000	-12,000	-3%	384,000	396,000	-12,000	-3%	
11 Ocala	11/21/2023	384,000	360,000	24,000	6%	384,000	360,000	24,000	6%	
12 Ocala	11/21/2023	336,000	204,000	132,000	39%	336,000	204,000	132,000	39%	
13 Dunellon	12/4/2023	312,000	132,000	180,000	58%	312,000	132,000	180,000	58%	
14 Ocala	1/22/2024	348,000	264,000	84,000	24%	348,000	264,000	84,000	24%	
15 Ocala	1/29/2024	324,000	204,000	120,000	37%	324,000	204,000	120,000	37%	
16 Ocala	3/8/2024									
17 Ocala	3/27/2024	324,000	324,000	0	0%	324,000	324,000	0	0%	
18 Ocala	4/4/2002	216,000	180,000	36,000	17%	216,000	180,000	36,000	17%	
19 Ocala	7/18/2024	120,000	144,000	-24,000	-20%	120,000	144,000	-24,000	-20%	
Marion County Subtotals		6,168,000	4,236,000	1,932,000	31%	6,168,000	4,236,000	1,932,000	31%	

VCCDD (LSSA)											
1	The Villages	7/14/2023	299,590	279,930	19,660	7%	299,590	279,930	19,660	7%	
2	The Villages	7/14/2023									No Billing Data available
3	The Villages	7/14/2023	291,160	224,390	66,770	23%	291,160	224,390	66,770	23%	
4	The Villages	7/14/2023									No Billing Data available
5	The Villages	7/14/2023									No Billing Data available
6	The Villages	7/18/2023	243,520	169,920	73,600	30%	243,520	169,920	73,600	30%	
7	The Villages	7/18/2023	262,790	200,360	62,430	24%	262,790	200,360	62,430	24%	
8	The Villages	7/18/2023	324,300	107,500	216,800	67%	324,300	208,500	115,800	36%	Missing 5 months post data
9	The Villages	7/20/2023	288,220	222,010	66,210	23%	288,220	222,010	66,210	23%	
10	The Villages	7/20/2023	239,980	186,657	53,323	22%	239,980	186,657	53,323	22%	
11	The Villages	7/20/2023	366,450	164,140	202,310	55%	366,450	219,140	147,310	40%	Missing 3 months post data
12	The Villages	7/20/2023	311,180	211,428	99,752	32%	311,180	247,428	63,752	20%	Missing 2 months post data
13	The Villages	7/20/2023	348,420	208,520	139,900	40%	348,420	208,520	139,900	40%	
14	The Villages	7/24/2023	338,790	136,540	202,250	60%	338,790	136,540	202,250	60%	
15	The Villages	7/24/2025	323,830	210,880	112,950	35%	323,830	210,880	112,950	35%	
16	The Villages	7/24/2023	258,580	244,050	14,530	6%	258,580	244,050	14,530	6%	
17	The Villages	7/26/2025									No Billing Data available
18	The Villages	7/26/2025									No Billing Data available
19	The Villages	7/26/2025									No Billing Data available
20	The Villages	7/26/2023	236,610	154,950	81,660	35%	316,610	154,950	161,660	51%	Missing 3 months pre data
21	The Villages	8/3/2023	495,850	390,850	105,000	21%	495,850	390,850	105,000	21%	
22	The Villages	8/3/2023	490,130	159,190	330,940	68%	490,130	159,190	330,940	68%	
23	The Villages	8/3/2023	215,560	213,820	1,740	1%	257,560	213,820	43,740	17%	Missing 2 months pre data
24	The Villages	8/3/2023	303,890	109,570	194,320	64%	303,890	109,570	194,320	64%	
25	The Villages	8/3/2023	316,680	322,540	-5,860	-2%	316,680	322,540	-5,860	-2%	
26	The Villages	8/10/2023	269,710	281,280	-11,570	-4%	269,710	281,280	-11,570	-4%	
27	The Villages	8/10/2023	391,780	303,846	87,934	22%	391,780	303,846	87,934	22%	
28	The Villages	8/10/2023	313,780	279,650	34,130	11%	313,780	279,650	34,130	11%	
29	The Villages	8/10/2023	348,610	321,950	26,660	8%	348,610	321,950	26,660	8%	
30	The Villages	9/5/2023	310,100	173,640	136,460	44%	310,100	173,640	136,460	44%	
31	The Villages	9/5/2023	206,480	103,360	103,120	50%	206,480	103,360	103,120	50%	
32	The Villages	9/5/2023	326,210	207,350	118,860	36%	326,210	207,350	118,860	36%	
33	The Villages	9/5/2025									No Billing Data available
34	The Villages	9/20/2023	248,200	265,700	-17,500	-7%	263,200	265,700	-2,500	-1%	Missing 1 month pre data
35	The Villages	10/16/2023	325,210	314,120	11,090	3%	325,210	314,120	11,090	3%	
36	The Villages	1/17/2024	373,170	198,700	174,470	47%	373,170	243,700	129,470	35%	Missing 3 months post data
VCCDD (LSSA) Subtotals			9,068,780	6,366,841	2,701,939	30%	9,205,780	6,603,841	2,601,939	28%	

NSCUDD (VWCA)											
1	The Villages	9/11/2023	201,830	168,161	33,669	17%	201,830	192,161	9,669	5%	Missing 3 months post data
2	The Villages	9/11/2023	274,970	200,550	74,420	27%	274,970	200,550	74,420	27%	
3	The Villages	9/20/2023	245,690	165,032	80,658	33%	245,690	190,032	55,658	23%	Missing 1 month post data
4	The Villages	9/20/2023	313,600	141,800	171,800	55%	313,600	141,800	171,800	55%	
5	The Villages	9/22/2023	233,890	171,240	62,650	27%	252,890	181,240	71,650	28%	Missing 1 pre & 1 post
6	The Villages	9/22/2023	270,820	240,434	30,386	11%	300,820	282,434	18,386	6%	Missing 1 pre & 2 post
7	The Villages	9/22/2023	274,860	237,540	37,320	14%	274,860	237,540	37,320	14%	
8	The Villages	9/22/2023	404,860	210,340	194,520	48%	404,860	210,340	194,520	48%	
9	The Villages	9/27/2023	330,840	378,770	-47,930	-14%	330,840	378,770	-47,930	-14%	
10	The Villages	9/27/2023	276,720	203,420	73,300	26%	276,720	203,420	73,300	26%	
11	The Villages	9/27/2023	267,910	167,210	100,700	38%	267,910	167,210	100,700	38%	
12	The Villages	9/29/2023	285,290	376,360	-91,070	-32%	285,290	376,360	-91,070	-32%	
13	The Villages	9/29/2023	281,480	184,910	96,570	34%	281,480	204,910	76,570	27%	Missing 1 month post data
14	The Villages	10/3/2023	297,700	190,970	106,730	36%	297,700	190,970	106,730	36%	
15	The Villages	10/4/2023	289,910	204,290	85,620	30%	289,910	204,290	85,620	30%	
16	The Villages	10/4/2023	332,490	296,630	35,860	11%	332,490	296,630	35,860	11%	
17	The Villages	10/4/2023	215,640	135,460	80,180	37%	215,640	135,460	80,180	37%	
18	The Villages	10/10/2023	235,640	209,830	25,810	11%	235,640	209,830	25,810	11%	
19	The Villages	10/10/2023	291,440	359,390	-67,950	-23%	291,440	359,390	-67,950	-23%	
20	The Villages	10/16/2023	300,980	223,760	77,220	26%	300,980	227,260	73,720	24%	Missing 1 month post data
21	The Villages	10/18/2023	310,760	272,120	38,640	12%	310,760	272,120	38,640	12%	
22	The Villages	10/18/2023	194,030	166,730	27,300	14%	194,030	166,730	27,300	14%	
23	The Villages	11/6/2023	190,270	131,530	58,740	31%	213,380	131,530	81,850	38%	
24	The Villages	12/20/2023	196,810	220,800	-23,990	-12%	284,810	231,800	53,010	19%	Missing 4 mo pre & 1 post
25	The Villages	12/20/2023	313,040	154,120	158,920	51%	326,310	154,120	172,190	53%	
26	The Villages	12/20/2023	446,910	103,180	343,730	77%	433,240	103,180	330,060	76%	
27	The Villages	12/20/2023	243,540	114,990	128,550	53%	265,540	122,490	143,050	54%	Missing 1 pre & 1 post
28	The Villages	3/20/2024	298,960	217,430	81,530	27%	298,960	217,430	81,530	27%	
29	The Villages	6/10/2024	269,110	180,330	88,780	33%	269,110	275,330	-6,220	-2%	
30	The Villages	7/1/2024	273,820	328,590	-54,770	-20%	287,820	328,590	-40,770	-14%	Missing 1 month pre data
NSCUDD (VWCA) Subtotals			8,363,810	6,355,917	2,007,893	24%	8,559,520	6,593,917	1,965,603	23%	
Phase 7 Totals			46,067,690	33,075,658	12,992,032	28%	46,400,400	33,610,658	12,789,742	28%	

Appendix F

Summary of Follow-ups

Appendix F. Phase 7 Q306 Follow-Up Summary

Utility / Count	Evaluation Number	Core or Enhanced	Number of Recommendations	Number of Changes Implemented	Percent of Changes Implemented
Citrus					
1	8	Core	16	10	62.50%
2	12	Core	20	19	95.00%
3	15	Core	13	4	30.77%
4	26	Core	7	6	85.71%
Subtotal			56	39	69.64%
Hernando					
1	24	Enhanced	9	8	88.89%
Subtotal			9	8	88.89%
Marion					
1	15	Core	11	7	63.64%
Subtotal			11	7	63.64%
VCCDD					
1	5	Core	13	8	61.54%
2	11	Core	12	4	33.33%
3	14	Core	12	7	58.33%
4	17	Core	14	10	71.43%
5	18	Core	10	7	70.00%
6	25	Core	8	5	62.50%
7	27	Core	10	4	40.00%
8	29	Core	15	11	73.33%
9	34	Core	11	10	90.91%
Subtotal			54	37	68.52%
NSCUDD					
1	3	Core	16	13	81.25%
2	13	Core	11	11	100.00%
3	15	Core	13	4	30.77%
4	17	Core	10	10	100.00%
5	20	Core	6	5	83.33%
6	21	Core	12	6	50.00%
7	25	Core	12	5	41.67%
Subtotal			64	41	64.06%
Program Total			194	136	70.10%
Enhanced Evaluations		1	9	8	88.89%
Core Evaluations		21	185	128	69.19%

Appendix G

SWFWMD Cost Effectiveness Calculation

Appendix G: SWFWMD Cooperative Funding Initiative Water Conservation Project Cost Effectiveness Calculator

Description: A calculation of the cost to develop the project, amortized at 8%, versus the effectiveness of the project over its anticipated life. The calculation enables all types of projects to be compared to each other, as well as other potential uses (investments) of District funds.

Instructions:

- 1) Enter component type in the "Project/components" column
- 2) Enter the amount of water conserved into the water savings column. Use the other tabs of this workbook to calculate savings.
- 3) Enter the total estimated cost of the project (see below for guidelines)
- 4) Enter the Service life for component - use the figures provided on the right-hand side of this sheet, unless better information is provided
- 5) Voila! The \$/kgal will automatically calculate
- 6) In instances when there are multiple components with varying service lives, a weighted average will need to be calculated.
- 7) Save this workbook and all calculations in your project folder for future reference

Water savings (gpd) = Amount of water conserved or made available by the total project

	Inputs
	Calculation factors (if adjusted, provide rational)
	Results

Interest rate (annual %) =

8.000%

Project / components	Water savings (gpd)	Total Estimated Cost*	Service Life	\$/kgal	% of total savings	Weighted \$/Kgal	Weighted average \$ Kgal
Core Evaluations	18,679	\$37,235	5	\$1.37	0.533076484	\$0.73	\$1.33
Enhanced Evaluaitons (Citrus County)	2,397	\$3,271	5	\$0.94	0.068407534	\$0.06	
Enhanced Evaluations (Marion and Hernando County)	13,964	\$27,653	5	\$1.36	0.398515982	\$0.54	
Total	35,040	\$68,159	5	\$ 1.33			

* **Total Estimated Cost - Include all elements that apply, such as:**

Program administration (may include consulting fees)

Devices/materials (may include advertising materials, but not including staff time or equipment purchased by the cooperator, such as printers or office space)

Data analysis (may include consultant fees, but not cooperator staff time)

Reporting (costs of report production)

Marketing/Education (all print work must be done through an outside vendor to qualify for reimbursement)