

Conservation			Source/Calculations	Potential Quantity MGD	Capital Cost (\$mil)	Unit Costs (\$/Kgal)	Yield (MGD)		Permittability		Additional Benefit		Cost Index (\$)		Implementation Time		Total Score
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							Grade	Score	Grade	Score	Grade	Score	Grade	Score			
1	C-11	Inclining Block Rate Structure - This project would consist of the region putting forth an aggressive effort to regionally adopted tier rate structure(s) for all utilities. A tier rate structure is a billing structure where the unit price of water changes with each of several preset consumption blocks for each billing period. Most utilities may already have a tier rate structure, but it is imparitive that the rate structure continually be more and more aggressive to keep revenue stable as water use lowers. For instance, the price in the fist block for water use should always remain relatively the same. The other tiers should gradually become more and more expensive as water use drops due to conservation and reuse. Educating residents on how to read their bill or a more user friendly bill is proposed, because just setting a rate structure is not enough. It will be suggested to municipalities that they use the district rate model.	PCSWSP Opinionable capital costs only for developing tier rate structure. Savings estimated based on similar types of project from the SWFWMD and Basin Boards	9.84	\$0.10	\$0.00	3.9	118	10	250	10	100	10	250	9	90	808
2	C-20	Rain Sensor Shut-off Device Rebates - A rain shutoff device is designed to halt irrigation in response to rainfall. Florida Statutes 373.62 requires that all new automatic irrigation systems installed after May 1, 1992 have a rain sensor shut off device installed. This rebate program would target the homes that were built prior to 1990 and achieve strict enforcement of the Florida Statutes. There are approximately 125,000 homes built prior to 1990, in which an estimated 30% will participate. With an average savings of 100 gpd per device, for a 10 year term and a cost of about \$65 per rain sensor, a significant reduction of irrigation could be achieved.	SWFWMD Costs and quantity based on SWFWMD - Regional Water Supply Plan & PCSWSP.	3.8	\$2.44	\$0.24	1.5	46	10	250	10	100	10	240	5	50	686
3	C-19	Industrial/Commercial and Institutional (ICI) Spray Valve Replacement - This project would consist of implementing a spray valve retrofit program which will provide ICI users with a method which could substantially reduce their water usage. Spray valves are typically used in commercial kitchens to clean leftover food and grease off dinnerware before washing them in the dishwasher. They have a short lifespan but, do not get serviced as often as necessary. Quantity and costs are based on 90 accounts per year for a 10 yr term and providing the facility with the \$50 spray valve. Accounts targeted includes the following; Assisted Living, Bars and Lounges, Bowling Alleys, Skating Rinks & Pool Halls, Citrus Canning/Processing, Citrus Packing Plants, Entert Facil. (Golf, Go Carts, Etc), Fast Foods & Drive-Ins, Hospitals, Hotels & Motels, Nursing Homes, Restaurants & Cafeterias, Schools, Public-County, Tourist Attractions.	SWFWMD Cost estimated based on rebate/purchase amount of \$50, 90 accounts per year at a 75% participation rate; 10 year term, and 90,000 gallons per yr per account water savings.	0.22	\$0.05	\$0.13	0.1	3	10	250	10	100	10	245	5	50	647
4	C-27	Soil Moisture Sensor Shut-off Device Rebates - A soil moisture sensor is buried in-ground with a small controller box mounted near the irrigation system controller. This sensor can shut-off the irrigation system based on soil moisture content. Florida Statutes 373.62 requires that all new automatic irrigation systems installed after May 1, 1992 have a shut off device installed. This rebate program would target the homes that were built prior to 1990 and achieve strict enforcement of the Florida Statutes. There are approximately 125,000 homes built prior to 1990, in which an estimated 30% will participate. Since little is known about the savings potential of soil moisture sensors an estimated savings of 103 gpcd will be estimated, for a 10 year term and a cost of about \$100 soil moisture sensor, a significant reduction of irrigation could be achieved.. The water savings from this program should not be counted if the savings is already being counted for rain sensor shut-off devices.	SWFWMD Costs and quantity based on SWFWMD - Regional Water Supply Plan & PCSWSP.	4.42	\$5.01	\$0.31	1.8	53	8	200	10	100	9	237	5	50	640

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O-Other Alternative Supply, G-Ground Water
Highlighted Projects = Categories



Polk County Comprehensive Water Supply Plan

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5	C	Conservation- The concept of this category would be to implement conservation programs to supplement water supply for Polk County and municipalities by reducing the demands. This overall project consists of each municipality implementing one or more a series of selected Conservation programs which will reduce the overall demand on the potable water system. Individual projects will address reducing either or both indoor and outdoor water usage, as well as address conservation efforts for industrial and commercial users for each individual municipality.	PCSWSP Costs and quantities based on sum of individual conservation projects.	10.00	\$30.0	\$0.82	4.0	120	8	200	5	50	9	216	5	50	636
6	C-14	Industrial, Commercial and Institutional (ICI) Water Use Reduction Program - The program would provide an initial estimate on potable and reuse water savings and current potable water use. The program would target inefficient ICI water users, identifying potential savings outdoors and indoors. The program would consist of identifying and recommending innovative ways a facility can reduce water use. It is estimated there will be 1500 surveys over a 20 yr term at a cost of \$4,000 each, and a savings of 2,200 gpd per account.	SWFWMD Costs and quantity based on SWFWMD - Regional Water Supply Plan & PCSWSP.	3.3	\$11.00	\$0.46	1.3	40	8	200	10	100	9	231	5	50	620
7	C-05	Polk County and Municipalities Regional Retrofit Program - This program would consist of regionally provided additional funding to retrofit programs as well as new programs that have not been implemented in municipalities. Cost benefit estimation is based on the number of homes built prior to the effective Energy Policy Act date of January 1, 1994. Preliminary estimations intend to reach 121,000 residents with an aggressive participation rate of 50% and a \$46 retrofit that includes low flow showerheads, kitchen swivel aerators, bathroom aerators, flow meter bags, leak detection tablets and tips, and Teflon tape. Water savings and cost for each municipality and its service areas will be done later in the project or on a participation basis.	PCSWSP Costs based on SWFWMD - Regional Water Supply Plan cost estimates as well as a rudimentary estimate done by PCSWSP. 5 yr term; 4380 gallons per account per year water savings; 121000 accounts; initial capital costs of \$55 K; \$46 retrofit kit.	1.01	\$3.20	\$1.63	0.4	12	10	250	10	100	7	182	5	50	594
8	C-06	Polk County & Municipalities Dual-Flush Toilet Rebate Program - This program would consist of replacing high flow conventional toilets with dual flush toilets. Dual Flush toilets are toilets with 2 options of water use for flushing, one for liquids (0.8gpf) and a higher flow for solids (1.6gpf). It is anticipated through aggressive advertisements and education, Polk County will rebate 150 dual flush toilets per year. Rebates will be \$150 for dual flush toilets. The potential savings was based on the entire Polk County region. Costs analysis for each municipality will be done in future phases of the project.	PCSWSP Costs based on SWFWMD - Regional Water Supply Plan cost estimates as well as a rudimentary estimate done by PCSWSP. 10 yr term	0.06	\$0.39	\$1.75	0.0	1	10	250	10	100	7	177	5	50	578
9	C-18	Residential Irrigation & Landscape Water Reduction Program - This program would provide recommendations to residents on ways to save potable and reuse water by modifying the operating conditions of their irrigation systems. Recommendations include; reduction of run-times, zone modification, and installation of rain sensors. An estimation of achievable potable waters savings will also be made to residents. High water use turfs can be offered to be removed for free in residential and commercial locations.	PCSWSP Cost estimated based on rebate/purchase amount of \$250, 450 accounts per year for a 20 year term, and 15,000 gallons per yr per account water savings. \$58 K start up fee was established for initial capital costs.	0.37	\$4.30	\$1.59	0.1	4	10	250	10	100	7	184	0	0	538

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10	C-26	Polk County & Municipalities Ultra Low Volume (ULV) Toilet Rebates - Replacement of high flow conventional toilets with low flow toilets which use approximately 1.6 gpf or lower. This would be a regional effort to give residents the opportunity to replace their conventional toilets with new ultra low volume toilets. It is anticipated through aggressive advertisements and education, Polk County will rebate 3,480 ultra low volume toilets per year. Rebates will be \$125 for ultra low volume toilets. The potential savings was based on the entire Polk County region. Costs analysis for each municipality will be done in future phases of the project.	PCSWSP Costs based on 10 yr term, average of unit costs, total capital costs and total potential quantity for multi-family, single family and non residential.	0.91	\$5.80	\$1.85	0.4	11	8	200	10	100	7	173	5	50	534			
11	C-23	Sod and Plant Replacement Program - The program would assist residents by providing some of the costs for the replacement of high water using vegetation with low water using vegetation. The replacement program can provide Polk County residents with information on Florida friendly landscapes. This provides a way for residents to better understand the effectiveness of the program. Project assumes a savings of 5,000 gallons per residence per month and a participation rate of 150 residents.	PCSWSP Estimates from Lakeland Water Utilities - Memorandum and PCSWSP	0.025	\$0.50	\$3.00	0.0	0	10	250	10	100	5	125	2	20	495			
12	C-07	Polk County & Municipalities Ultra Low Volume Urinal Rebate Program - The project would consist of rebates that would aid in funding replacement of high flow conventional urinals or urinal flush valves with low flow urinals or valves which use approximately 1.0 gpf. The rebate will be offered to those who provide proof of installation of a low volume urinal or replacement of a high volume flush valve with a low volume valve. It would provide a regional effort to give commercial owners the opportunity to replace their conventional urinals with new ultra low volume urinals. Assumptions include a rebate of \$150, savings of approximately 70 gallons per account per day 3000 urinals rebated over a 20 year period.	PCSWSP Cost estimated based on rebate amount, # of accounts, savings per year, and # of years implemented. PCSWSP	0.20	\$0.50	\$1.25	0.1	2	9	225	6	60	8	198	0	0	485			
13	C-10	Clothes Washer Rebate Program - This project consists of the replacement of conventional clothes washers with new water-efficient clothes washers. The concept is expected to save 5 gallons per capita day. The total accounts estimated was based on the total number of households within Polk County, multiplied by the percentage of Americans that own washing machines (84% SF, 90%MF,). This number is then multiplied by a participation rate(20%, SF&MF, 50%Non-Res). Rebates for certain appliances may also be available for energy conservation. Preliminary estimations of a single family \$100 rebate and 1120 accounts per year for 10 years conclude a large water savings of 0.184 mgd. Multi-family \$100 rebate, 2840 accounts per year for 10 years yield 0.311 and Non-residential \$200 rebate, 15 accounts per year for 10 years yields 0.230 mgd. The total capital and quantity was summed and used to determine the unit costs.	PCSWSP Cost estimated based on rebate amount, # of accounts, savings per year, and # of years implemented. PCSWSP	0.70	\$5.40	\$2.10	0.3	8	10	250	6	60	7	163	0	0	481			
14	C-16	Residential Development Project /Best Management Practices in Water Conservation - This project involves implementing a variety of conservation measures in 200-300 homes within the Polk County region to study their effectiveness . The implementation can have regional effects on demonstrating the water savings within the Polk County region. Assumptions were based on 300 homes with a savings of 100 gpd per home will yield a savings of about 11 mg/yr at a cost of \$3.65 per home.	PCSWSP Estimates from Lakeland Water Utilities - Memorandum	0.03	\$0.80	\$3.67	0.0	0	10	250	8	80	4	97	5	50	477			

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15	C-08	Polk County & Municipalities Waterless Urinal Rebates Program - This program involves the replacement of high flow conventional urinals with waterless urinals which use approximately zero or very low water per flush. It would provide a regional effort to give commercial owners the opportunity to replace their conventional urinals with innovative waterless urinals. Assumptions include a rebate of \$200, savings of approximately 117 gallons per day, 2100 urinals rebated over a 20 year period. \$90 K capital costs are associated with a one year pilot study in a suitable commercial location.	PCSWSP Cost estimated based on rebate amount, # of accounts, savings per year, and # of years implemented.	0.25	\$1.00	\$0.62	0.1	3	6	150	10	100	9	224	0	0	477			
16	C-09	Dishwasher Rebates - This project would consist of providing rebates that would aid in funding replacement of typical dishwashers with energy star appliances. Dishwashers that save water may double as energy star appliances, which may also be eligible for energy conserving rebates. Preliminary estimations of a \$25 rebate per machine and 1302 accounts per year for 20 years conclude water savings of approximately 0.1 mgd.	PCSWSP Cost estimated based on rebate amount, # of accounts, savings per year, and # of years implemented. PCSWSP	0.10	\$1.30	\$2.10	0.0	1	10	250	6	60	7	163	0	0	474			
17	C-02	Natural Resource Center Education Program - This project would consist of placing education centers throughout Polk County that would provide a regional effort toward water conservation. These centers may be used for distribution of retrofits and rebates or provide information on where residents can buy water efficient products. Similar projects which provide centers for education have been estimated to affect 33,000 residents per year indirectly and about 11,000 residents per year directly, with a cost of \$5.42 per person per year.	PCSWSP Cost estimation based on SWFWMD - Information and Budget Notebook projects.	-	\$1.20	\$5.42	0.0	0	10	250	10	100	1	24	5	50	424			
18	C-21	Rain Barrels Rebates - This project consists of utilizing rainwater collection systems to offset irrigation demands during the dry season. The rain barrel system combined with a water budget could assist in meeting irrigation demands, but may not be able to meet the entire demands. Typical rebates will be \$20, for a 5 year term.	PCSWSP Cost estimated based on rebate/purchase amount of \$20, 150 accounts per year, participation rate; 5 year term, and 1,000 gallons per yr per account water savings.	0.01	\$0.14	\$2.34	0.0	0	8	200	5	50	6	153	0	0	403			
19	C-15	On-Demand Hot Water Systems - This project would consist of providing rebates that would aid in funding replacement of conventional hot water heaters with on-demand hot water systems. The potential savings can be calculated using the time it takes for a shower/faucet to receive warm water, the given flow rate of the showerhead or faucet, the number of showers taken per person and the population in Polk County. Assumptions for these calculations include 10,000 residents at a 1% participation rate (10 accounts per year) in the first 5 years and a 3% participation rate (30 accounts per year) in the second set of 5 years. The estimated rebate is \$50 per account. Initial start-up and research and development costs will be \$107,000.	PCSWSP Cost estimated based on rebate amount, # of accounts, savings per year, and # of years implemented. PCSWSP. Savings per year from various manufacturer information.	0.002	\$0.19	\$7.59	0.0	0	10	250	10	100	0	0	5	50	400			
20	C-01	Florida Schools Education Initiative - This project would consist of an education initiative to reach students and teachers. Education in school systems is key to reaching future generations about the importance of water conservation. The program is anticipated to reach approximately 16,000 Polk County Residents (directly and indirectly), which provides a cost ratio of \$3.13 per person. Other advertising and media messaging may be implemented to reach a wider base of people other than through schools.	SWFWMD Cost estimation based on similar education projects from the SWFWMD - Information and Budget Notebook 20 yr term	-	\$0.05	-	0.0	0	10	250	10	100	0	0	5	50	400			

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20	C-04	Polk IS Florida Friendly - This project would involve a cooperative/regional funding effort to promote Florida friendly landscaping in Polk County and its municipalities. Some of the groups involved could include Polk County Natural Resources, the City of Lakeland, the City of Winter Haven, the City of Haines City, Polk County Builders Association, Polk County Florida Yards & Neighborhoods program and the Friends of the Parks as well as others. This education effort combined with a separate rebate program(s) for landscapes can initiate a significant amount of water savings for Polk County and its municipalities. The program anticipates reaching 100,000 residents of Polk County through media and advertisements. The cost/benefit ratio is \$0.3 per person.	PCSWSP Cost estimation based on SWFWMD - Information and Budget Notebook projects. 20 yr term	-	\$0.60	-	0.0	0	10	250	10	100	0	0	5	50	400
20	C-12	Elimination of Unaccounted for Water (UAW)-Installation of AMR Meters - This project would consist of installing automatic meter reading devices that could reduce unaccounted for water and increase the efficiency of meter reading and the utilities revenue. AMR meter replacement along with a strong leak detection program will provide a significant savings in unaccounted water. Difficult meters to read, such as meters in crypts or below ground boxes, will be the first to be replaced followed by other meters. Cost per meter with installation is approximately \$30. It is anticipated that Polk County or its municipalities will install 10,000 new meters in 10 years.	PCSWSP Unaccounted for water from each municipality will need to be calculated. Costs are only capital for installation and equipment.	-	\$0.30	-	0.0	0	10	250	10	100	0	0	5	50	400
20	C-13	Plumbing/Irrigation Ordinances and Codes - This project would consist of developing plumbing, irrigation or other conservation ordinances and codes. Example (1), All buildings, prior to a change in property ownership, be certified as having water-conserving plumbing fixtures in place. All residential, commercial and industrial water customers who receive water service from municipalities or the county are affected by this code. Codes such as this one would give Polk County and its municipalities the aggressive edge on conservation. Example (2) - All new residential neighborhoods will provide irrigation to the common areas and green spaces with stormwater capture ponds.	PCSWSP Costs are capital for development of ordinances and codes.	-	\$0.05	-	0.0	0	10	250	10	100	0	0	5	50	400
20	C-17	High Utilization Fixture Replacements in Public, Commercial, Industrial and Institutional Facilities - This project would consist of providing a rebate that would aid in the replacement of fixtures and valves would include installation help for retro-fitting existing fixtures with infrared faucets and dual-flow flush valve toilets. Participants will be selected based on highest conservation return, the participants will also pay 25% of the costs of the fixtures and the city and other parties will pay the remaining 75%. This project would regionally demonstrate the effectiveness of a plumbing retrofit program.	PCSWSP Estimates from Lakeland Water Utilities - Memorandum	-	\$0.33	-	0.0	0	10	250	10	100	0	0	5	50	400
25	C-28	Cisterns Rebates - The use of rainwater collection systems to offset irrigation demands during the dry season. The cistern system combined with a water budget could potentially supply irrigation demands. This project would consist of providing rebates to aid in purchasing large rainwater harvesting systems. Assuming a 500 gallon cistern there is more water savings potential because there is extra capacity for storage. Water savings largely relates to the total amount of rainfall that has occurred as well as the extra capacity will allow the owner to go longer periods of time without the cistern needing to refill, in-turn saving more water. Cisterns may need to be evaluated on a more project to project basis, because of different sizing and water saving opportunities.	PCSWSP Cost estimated based on rebate/purchase amount of \$200, 50 accounts per year; 20 year term, and 30,000 gallons per yr per account water savings.	0.08	\$0.40	\$0.66	0.0	1	5	125	5	50	9	222	0	0	398

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26	C-24	Common-Areas Irrigation System Retrofit Program - The program will provide retrofits for existing residential neighborhoods in order to modify their stormwater collection ponds to capture stormwater for use to offset potable irrigation supply.	PCSWSP Estimates will be provided in the future.	-	-	-	0.0	0	8	200	10	100	0	0	5	50	350
26	C-25	Common-Areas Irrigation System Maintenance Program - The program will provide knowledge to residential common area owners about conservation and the need for maintenance on these irrigation systems. This program will provide a regional benefit to those interested in running common area micro-irrigation systems. The benefits of regular inspection and maintenance on irrigation systems will be demonstrated over a period of one year.	PCSWSP Estimates from Lakeland Water Utilities - Memorandum	-	\$0.08	-	0.0	0	8	200	10	100	0	0	5	50	350
28	C-22	Grey Water System Rebates - This project would consist of providing rebates to aid in the cost of developing grey water systems to residents. Using grey water for an irrigation system instead of potable water is an excellent way to save water; a carefully designed grey water system can save approximately 35 gallons per capita per day. The estimated \$300 rebate would be available after an inspection of the resident's system. A grey water system would be costly for a resident to install, but would be made more affordable with a rebate. Initial start-up costs of \$300 will include testing and other research and developments programs.	PCSWSP Cost estimated based on rebate amount, # of accounts, savings per year, and # of years implemented. PCSWSP	0.012	\$0.23	\$5.07	0.0	0	6	150	10	100	2	39	5	50	339
29	C-03	EPA Water Sense Partnership - This project would consist of a process in which Polk County would inherit the EPA Water Sense label and partner with the EPA to allow residents to recognize that Polk County is an environmental steward. The partnership would reduce Polk County's marketing costs for conservation and give residents yet another resource to go to for conservation education.	PCSWSP A Water Sense partnership has capital costs for implementation and advertising conservation practices.	-	\$0.05	-	0.0	0	5	125	10	100	0	0	5	50	275

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