Statement of Estimated Regulatory Costs for

The Southern Water Use Caution Area II Rule-making

Prepared by Hazen and Sawyer

For the Southwest Florida Water Management District

Final
March 14, 2006

40520-004C003.CDR

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March 14, 2006

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Statement of Estimated Regulatory Costs
(SERC) for the SWUCA II Rulemaking

Dear Mr. Yingling:

We are pleased to submit copies of the *Statement of Estimated Regulatory Costs for the SWUCA II Rulemaking.* As required by Section 120.541, Florida Statutes (2005), "A statement of estimated regulatory costs shall include:

(a) A good faith estimate of the number of individuals and entities likely to be required to comply with the rule, together with a general description of the types of individuals likely to be affected by the rule.

(b) A good faith estimate of the cost to the agency, and to any other state and local government entities, of implementing and enforcing the proposed rule, and any anticipated effect on state or local revenues.

(c) A good faith estimate of the transactional costs likely to be incurred by individuals and entities, including local government entities, required to comply with the requirements of the rule. As used in this paragraph, "transactional costs" are direct costs that are readily ascertainable based upon standard business practices, and include filing fees, the cost of obtaining a license, the cost of equipment required to be installed or used or procedures required to be employed in complying with the rule, additional operating costs incurred, and the cost of monitoring and reporting.

(d) An analysis of the impact on small businesses as defined by s. 288.703, and an analysis of the impact on small counties and small cities as defined by s. 120.52.

(e) Any additional information that the agency determines may be useful.

This SERC addresses these legal requirements using the best available information. We thank you for preparing Chapter 4.2, "Cost to the District" which is included in this report.

Very truly yours,

HAZEN AND SAWYER, P.C.

Grace M. Johns, Ph.D.
Senior Associate and Economist
Project Manager

Enclosure
c: File No. 40520-004

O:40520-004 L001

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Executive Summary

1.0 Introduction

The District has proposed rules to implement the Recovery Strategy for the Southern Water Use Caution Area (SWUCA). This strategy includes the establishment of minimum flows and levels (MFLs) for the following water resources.

- Upper Peace River
- Floridan Aquifer in the Most Impacted Area (MIA) of the SWUCA
- Eight lakes in the SWUCA called Lake Clinch; Lake Eagle; Lake McLeod; Lake Wales; Lake Jackson; Lake Little Jackson; Lake Letta and Lake Lotela in Polk and Highlands counties.

These resources are located in the SWUCA which includes all or a portion of Polk, Hillsborough, Manatee, Sarasota, Hardee, Highlands, DeSoto and Charlotte counties in Florida.

To this end, the District prepared proposed revisions, dated October 3rd, 2005, to the following chapters of Florida Administrative Code:

- Chapter 40D-2, Consumptive Use of Water;
- Chapter 40D-8, Water Levels and Rates of Flow;
- Chapter 40D-80, Recovery And Prevention Strategies For Minimum Flows And Levels; and,
- Basis of Review for Water Use Permit Applications

These proposed rule revisions address saltwater intrusion, protect lake levels, and provide minimum flows for the Upper Peace River as required by Florida Statutes. In addition, rule changes are proposed to improve consistency in reporting public supply service area population and per capita water use. This Statement of Estimated Regulatory Costs (SERC) addresses these proposed rule revisions.

2.0 Summary of Proposed Rule Revisions

Water use permittees and applicants for a Water Use Permit in the SWUCA will need to comply with the proposed rule revisions. The proposed rule revisions do not address individuals and entities located outside of the SWUCA unless they request new permitted water quantities within the SWUCA.

The following list briefly summarizes the proposed rule revisions that may impact water use permittees and applicants in the SWUCA.

1. Existing permittees who do not change the use type, who do not need additional water supplies, who apply to renew their permits on time, and who continue to put all of their permitted water quantities to reasonable beneficial uses will be least affected by the proposed rule revisions. The following proposed rule revisions may apply to these permittees.

a) Consideration of the use of alternative water supplies upon permit renewal or modification.

b) If standby water quantities need to be used because the alternative source fails to provide water, the permittee shall notifiy the District in writing each month for up to one year.

c) Permittees with non-alternative and alternative water supplies shall use alternative supplies to replace non-alternative supplies to the greatest extent practical, based on economic, environmental and technical feasibility.

d) For agricultural irrigation permittees growing crops, the water use efficiency used to calculate permitted water quantities beginning in 2004 and credits beginning in 2005 would be reduced from 80% to 75%. According to the District, none of the existing agricultural water use permits reflect the 80% water use efficiency so no impacts to permittees from this proposed rule revision are expected. The future impact of this rule change is that permittees will not see a reduction in permitted quantities as is required under existing rule.

e) Permittees may move their permitted water quantities to other areas as long as there are no increased negative impacts to MFL water bodies at the new location above that which existed prior to the move and all other applicable permitting criteria are met. Under current rule, only permittees in the SWUCA MIA may relocate their permitted water quantities.

f) Public supply permittees must comply with the following additions to the current rule:

    i. Provide updated service area maps at the time of permit application, modification and renewal and every five years for permits with durations longer than six years. Metadata must be provided with all electronic service area map submissions.

    ii. Provide the District permit numbers and the FDEP Public Water Supply Identifier numbers and area designation names for each service area when submitting updated service area maps.

    iii. Use the "Requirements for the Estimation of Permanent and Temporal Service Area Populations," as set forth in Part D of the Basis of Review.

    iv. Permittees in the SWUCA who are not in the Eastern Tampa Bay Water Use Caution Area (ETB-WUCA) or the Highlands Ridge Water Use Caution Area (HR-WUCA) must achieve and maintain an adjusted gross per capita water use less than or equal to 150 gallons per person per day. Permittees in these WUCAs are required to comply with this water use standard under existing rule.

g) A public supply utility may propose a Goal Based Water Conservation Plan in lieu of District water conservation requirements.

2. For existing permittees who change their use type, the application will be treated as an application for new quantities. The Use Types are Public Supply; Commercial/ Industrial; Agricultural; Mining/ Dewatering; and Recreation/ Aesthetic. Withdrawal of these new quantities can be permitted only if they comply with the proposed MFLs with or without a Net Benefit, as appropriate and meet all other applicable rule criteria.

3. For renewing permittees who did not use all of their permitted quantities, the current best available information will be needed from the permittee to justify the non-use and whether and how the unused quantities will be used in the future.

4. Existing permittees requesting increased permitted quantities and new water use permit applicants will be most impacted by the proposed rule revisions. If the requested new water withdrawal impacts an MFL water body, then these permittees and applicants will need to use alternative water supplies in lieu of the non-alternative supplies or provide a Net Benefit to the affected surface or ground water resource. Requested new withdrawals that cause a water body's flow or level to fall below the MFL or where the withdrawal reduces the flow or level in water bodies already below the MFL will not be permitted unless a Net Benefit is provided. To provide a Net Benefit, the measures proposed by the applicant must offset the predicted impact of the proposed withdrawal and also provide an additional positive effect on the water body equal to or exceeding 10 percent of the predicted impact.

   The proposed salt water intrusion minimum aquifer level in the MIA (SWIMAL) will generally have the same effect as the current MIA constraints as described in the current Basis of Review. The difference is that withdrawals can be permitted under the proposed rule if a Net Benefit is provided.

5. The Southwest Florida Water Management District will incur costs associated with implementing the proposed rule revisions.

3.0 Estimate of the Number and Types of Persons and Entities Likely Required to Comply

The current number of water use permits in the SWUCA by Use Type is provided in Table ES-1. As of November 2005, there were 5,959 water use permits with permitted water quantities from ground and surface water sources totaling 1.228 billion gallons per day. For the purposes of this SERC, a permit corresponds to a permittee. The average permitted quantity per permittee was 206,000 gallons per day.

Table ES-1
Summary of Water Use Permittees in the SWUCA by Permittee Type, Number of Permits, and Average Daily Permitted Quantities in Gallons per Day (gpd), 2005

Use Type (Primary Water Use)	No. of Permits	Permitted Quantity (gpd)	Permitted Quantity per Permittee	% of Total Permitted Quantity
Agriculture - Irrigation	4,887	657,555,605	134,552	53.55%
Agriculture - Livestock	165	10,544,400	63,905	0.86%
Industrial / Commercial	140	104,744,900	748,178	8.53%
Mining / Dewatering	61	111,256,750	1,823,881	9.06%
Recreation / Aesthetic	522	54,502,917	104,412	4.44%
Public Supply	184	289,255,656	1,572,042	23.56%
All Use Types	**5,959**	**1,227,860,228**	**206,051**	**100.00%**

Source: Southwest Florida Water Management District, "Regulatory Database" as of November 2005.

For each county in the SWUCA, forecasts of water demand growth by Use Type through 2025 were compared to the estimated additional water from alternative and traditional sources that could be developed to supply this demand increase. A summary of this comparison is provided in Table ES-2. Water demands by most Use Types are expected to grow over the next 20 years. The exception is agricultural irrigation water demand which is expected to fall over time in all counties except Hardee, Hillsborough and Sarasota.

All counties, except for Hardee County, have sufficient new water quantities that could be developed to meet additional demands through 2025. Most of the projected water demand increase in Hardee County is for agricultural irrigation. The District anticipates that some of this increase can be met by new ground water withdrawals that are not constrained by the proposed MFLs and meet the other, applicable permitting criteria. Also, self-relocation of permitted quantities from other counties may occur. For ground water withdrawals that cannot be permitted due to MFL constraints, a Net Benefit would need to be provided in order to access the ground water source. The District anticipates that the Net Benefit could come from reductions in ground water withdrawals in Hardee County, or, more likely, in Manatee, Polk and DeSoto counties where water demand for agricultural production is expected to decrease through 2025.

Table ES-2
Water Demand Forecasts in the SWUCA by County Compared to Additional Water Available

County and Water Use Category	Water Demand, mgd 2000	2005	2025	Additional, 2000 to 2025	Additional, 2005 to 2025	Additional Supply Available, mgd
Charlotte	42.2	42.4	48.8	6.6	6.4	39.6
DeSoto	82.9	59.6	48.2	-34.7	-11.4	63.4
Hardee	62.9	67.1	99.1	36.2	32.1	15.1
Highlands	56.6	60.3	53.2	-3.5	-7.1	15.9
Hillsborough (a)	77.4	81.5	108.4	31.0	26.9	35.2
Manatee	123.1	124.1	127.4	4.2	3.2	64.2
Polk	277.1	264.6	268.3	-8.8	3.7	50.7
Sarasota	57.3	67.0	86.0	28.7	19.0	91.0
Restoration	0.0	0.0	50.0	50.0	50.0	
TOTAL	**779.5**	**766.6**	**889.4**	**109.9**	**122.7**	**375.1**

Source: Taken from information in the District's draft Regional Water Supply Plan Update, November 2005, Section 4 and information provided by District staff.

(a) The portions of Hillsborough County and Polk County that are in the SWUCA.

The estimated potential number of applicants for new water withdrawals from the SWUCA from 2005 to 2025 by Use Type is provided in Table ES-3. An estimated 525 persons will request new quantities of water in the SWUCA between 2005 and 2025. This represents nine percent of the current number of water use permittees in the SWUCA.

Table ES-3
Estimated Potential Number of Additional Applicants for New Water Withdrawals in the SWUCA, 2005 to 2025, by Use Type (Applicants may be Existing Permittees or New Applicants) (a)

Use Type	Water Projected to be Requested, 2005 to 2025, mgd (b)	Avg. Permitted Quantity/ Permittee, mgd	No. of Applicants for New Quantities Between 2005 and 2025	Number of Permittees in 2005	No. of Applicants as a % of Current Permittees
(1)	(2)	(3)	(4) = (2) / (3)	(5)	(6) = (4) / (5)
Public Supply	80.97	1.60	51	184	28%
Agriculture–Irrigation	42.33	0.13	315	4887	6%
Agriculture-Livestock	0.00	0.06	0	165	0%
Industrial/Commercial /Mining/Dewatering	7.10	1.07	7	201	3%
Recreation/Aesthetic	15.26	0.10	152	522	29%
Total			**525**	**5,959**	**9%**

(a) For each Use Type, based on the increased demand from 2005 to 2025 divided by average permitted water quantity per permittee.

(b) Increased demand represents only those Use Types and counties for which an increase in demand is projected. It does not include the decreases in demand projected for other use types and counties.

4.0 Cost to the District and Any Other State and Local Government Entity

Of the government entities in Florida, only the Southwest Florida Water Management District is expected to incur costs associated with the proposed rule revision. This cost is estimated to be $112,000 per year and includes one new position – a professional engineer/geologist. The District will also incur costs every five years to evaluate progress in recovery of the Floridan aquifer. These incremental costs (over what would be conducted under existing rule) are estimated to be approximately $19,000 every 5 years. As a result of the proposed rules, the District will also bear the costs of creating reservations from use by rule to protect quantities needed for recovery. The District costs to create reservations are unknown at this time.

The other government entities would only incur costs if they are an existing water use permittee or a new applicant. In this case they are treated as a permittee or an applicant for the purposes of this SERC and their costs are described and estimated in Chapter 5.0 of this report and section 5.0 of this Executive Summary.

5.0 Transactional Costs

According to the requirements for preparation of a SERC as found in Section 120.541, Florida Statutes, the SERC must include "A good faith estimate of the transactional costs likely to be incurred by individuals and entities, including local government entities, required to comply with the requirements of the rule. As used in this paragraph, "transactional costs" are direct costs that are readily ascertainable based upon standard business practices, and include filing fees, the cost of obtaining a license, the cost of equipment required to be installed or used or procedures required to be employed in complying with the rule, additional operating costs incurred, and the cost of monitoring and reporting."

Summaries of the transactional costs associated with the proposed rule revisions are provided in Table ES-4. This table lists the estimated costs associated with each proposed rule revision. It summarizes the conditions under which an existing permittee or new applicant will need to comply with each proposed revision and an estimate of the potential costs per water use permittee or applicant.

Under the proposed rule revisions, water use permit applicants, including permittees requesting new water withdrawals, might not be able to obtain new permitted water quantities from the Floridan aquifer, the Peace River, the eight lakes in Polk and Highlands counties. Once minimum flows and levels are established, requests for new quantities in the SWUCA will be issued only where: (1) it is demonstrated that there will be no increased impacts to the Floridan aquifer Saltwater Intrusion Minimum Aquifer Level (SWIMAL); (2) that ground water resources in proximity to other MFL water bodies are stable or improving, and (3) the application meets all other applicable rule criteria. Existing saltwater intrusion, lake level, and stream flow criteria, including MFLs, may be equally or more limiting.

If the requested new quantity cannot be permitted, the applicant would need to provide a Net Benefit or obtain water from alternative sources. In either case, it is possible that alternative water sources would need to be developed to obtain additional water quantities. Estimated transactional costs address those instances where the applicant may have to investigate and/or

implement alternative water sources that may or may not have to be investigated and/or implemented under current rule. Thus, the transactional costs associated with alternative water sources provided in this document address existing rule and the proposed rule.

The average incremental annualized capital and O&M costs per 1,000 gallons of water supplied or saved, as in the case of conservation, for selected water supply projects and water conservation activities are provided in Table ES-5. The water supply projects and conservation activities were chosen from those presented in the District's draft Regional Water Supply Plan Update of November 2005. The projects included in this SERC are meant to represent the variety of projects and activities that are available in the SWUCA within each county. The costs of these projects and activities were taken from this document.

The costs of a traditional water source that would be developed if protection of water resources was not a concern was deducted from these costs to obtain an incremental cost change associated with the use of alternative water sources in lieu of traditional sources. While the available traditional water source would vary by permittee, the Floridan aquifer was used as the traditional source in this SERC. The estimated cost of this source is $0.22 per 1,000 gallons ($0.22 per kgal).

Table ES-4
Summary of Transactional Costs Associated with Proposed SWUCA II Rules to Water Use Permittees and Applicants in the SWUCA

Description of Proposed Rule Change	Description of Cost	Estimated Cost Per Permittee or Applicant
1. Additional supplemental form to fill out. Called, "Application for New Quantities within the SWUCA WUP."	In addition to filling out a regular "Water Use Permit Application", the applicant will need to fill out a new supplemental form that addresses items in the proposed BOR 4.3.B regarding withdrawals in the SWUCA that affect MFLs water bodies.	$400
2. WUP applicants and renewal permittees must consider the use of alternative sources in addition to those required by current rule and use them if feasible. Currently, evaluation of water reuse, conservation and seawater desalination is required.	Applicants and permittees would need to identify potential alternative sources and assess whether they are economically, technically and environmentally feasible.	$3,600 to $240,000
3. Public supply permittees must provide: (1) updates of the utility's service area map at permit renewal and every five years (for permits with durations > 6 years), (2) the metadata for the service area map if an electronic map is provided & (3) District permit numbers and the FDEP Public Water Supply Identifier numbers and area designation names for each service area.	The effort involves providing an updated map to the District and saving the metadata on CD and giving it to the District. The public supply applicant would need to know the District and FDEP numbers to comply with current rules so the only effort is to provide them to the District during WUP application.	$100 at permit renewal and every five years

Table ES-4
Summary of Transactional Costs Associated with Proposed SWUCA II Rules to Water Use Permittees and Applicants in the SWUCA

Description of Proposed Rule Change	Description of Cost	Estimated Cost Per Permittee or Applicant
4. If a renewing permittee did not use all of his/her permitted quantities, the permittee will need to submit the current, best available information to justify the non-use and whether/how the unused quantities will be used in the future.	The permittee may need to obtain and provide available documentation to the District such as materials orders or construction plans.	$150 to $800
5. If standby quantities need to be used, the permittee shall notifiy the District in writing each month for each subsequent 30 days that the standby source was used for up to one year.	The permittee would need to write and mail a letter to the District each month for up to one year while the Alternative Source is not in use.	$25 to $305
6. Permittees with non-alternative and alternative supply shall use alternative supplies to replace non-alternative supplies to the greatest extent practical, based on economic, environmental and technical feasibility.	The cost to use the alternative supplies less the cost to use non-alternative supplies.	See Table ES-5 and Chapter 5 for cost estimates
7. Public supply permittees must use the "Requirements for the Estimation of Permanent and Temporal Service Area Populations," as set forth in Part D of the BOR.	Each year, public supply permittees would need to use certain data sources and mathematical formulas to calculate functional population.	Year 1 - $2,000 to $4,000; Years 2 and beyond - $1,000 to $2,000 per year.
8. Public supply permittees in the non-WUCA SWUCA must maintain the adjusted gross per capita water use at or below 150 gpcd.	If the utility's adjusted gross per capita water use is greater than 150 gpcd, then the cost to the utility is the cost of additional water conservation programs or an approved goal-based water conservation plan.	See Table ES-5 and Chapter 5 for cost estimates
9. A public supply utility may propose a Goal Based Water Conservation Plan in lieu of District water conservation requirements.	A utility will elect to participate in this opportunity if the cost-effectiveness to the utility is greater than current rule.	Benefit to Water Utility
10. Applicants requesting new withdrawals from stressed lakes may get a permit if the withdrawals are restricted to times when the lake is at or above the High Minimum Level or the High Guidance Level provided all other conditions for permit issuance are met.	Under current rule, new withdrawals from stressed lakes within the SWUCA shall not be permitted.	Benefit to Applicants for new permitted quantities from stressed lakes.

Table ES-4
Summary of Transactional Costs Associated with Proposed SWUCA II Rules to Water Use Permittees and Applicants in the SWUCA

Description of Proposed Rule Change	Description of Cost	Estimated Cost Per Permittee or Applicant
11. Requested new withdrawals that cause a water body's flow or level to fall below the MFL or where the withdrawal reduces the flow or level in water bodies already below the MFL will not be permitted unless a Net Benefit is provided.	Under current rule, no Minimum Flows are established for the Peace River or the 8 lakes. The proposed rule establishes Minimum Flows and Levels for the upper Peace River and the 8 lakes. The proposed MFL for the Floridan Aquifer will generally have the same effect as the current MIA constraints as described in the current BOR, page B7.2-5. The difference is that withdrawals can be permitted under the proposed rule if a Net Benefit is provided.	See Table ES-5 and Chapter 5 for cost estimates
12. If a requested new withdrawal cannot be permitted because of its effect on MFL water bodies, then if the applicant can provide a Net Benefit, then the new withdrawal can be permitted provided that all other rule requirements are satisifed.	This option is voluntary on the part of the applicant. The applicant may provide a Net Benefit through Mitigation Plus Recovery, Use of Quantities Created by District Water Resource Development Projects or by obtaining Ground-Water Replacement Credits.	Benefit to applicants
13. Permittees may move their permitted quantities to other areas as long as there are no increased impacts to MFL water bodies at the new location and all other rule criteria are met. Called Self-Relocation.	This proposed rule change provides flexibility to a permittee who will be able to move permitted quantities to other areas and would be allowed to have the same and not greater impacts to the resource at the new location as at the old location.	Benefit to permittees
14. In the SWUCA, any application for a change in Use Type shall be treated as a new application.	Under current rule, a Formal Modification would be required before or at renewal. The same "Water Use Permit Application" would be filled out regardless of whether it is a new application, a formal modification or a renewal. The difference is that a new application would be treated as a request for new withdrawals and would need to comply with the SWUCA requirements for new withdrawals. This means that if the withdrawals affect MFL water bodies then a Net Benefit would have to be provided in order to obtain the change in Use Type. Also, the fee for a new application is higher than the fee for a Formal Modification or a renewal.	See Table ES-5 and Chapter 5. If the request changes from a Formal Mod. to a new application, the fee increase is $700 for Individual permits, $174 for Large General permits: and $35 for Small General Permits.

6.0 Impact on Small Businesses, Small Cities and Small Counties

A small business is defined in Section 288.703, Florida Statutes as "an independently owned and operated business concern that employs 200 or fewer permanent full-time employees and that, together with its affiliates, has a net worth of not more than $5 million or any firm based in this state which has a Small Business Administration 8(a) certification. As applicable to sole proprietorships, the $5 million net worth requirement shall include both personal and business investments."

A small city is defined in s. 120.52 as "any municipality that has an unincarcerated population of 10,000 or less according to the most recent decennial census." A small county is defined in s. 120.52 as "any county that has an unincarcerated population of 75,000 or less according to the most recent decennial census.

About 98 to 99 percent of all non-agricultural businesses in the SWUCA counties are "small" businesses. While farm size data by employment size class is not available, it is likely that most farms in the SWUCA are "small businesses". Small businesses in the SWUCA may be affected by the proposed rule revisions. The potential impacts of the proposed rule revisions to these small businesses are presented in the previous sub-sections of this Executive Summary.

There are 23 "small" cities in the SWUCA. There are 2 "small" counties in the SWUCA, Hardee and DeSoto. Only those cities and counties that have a water use permit or that would need to request new water quantities in the future will be affected by the proposed rule revisions. The potential impacts are presented in the previous sub-sections of this Executive Summary.

Table ES-5
Incremental Annualized Capital and O&M Costs per 1,000 Gallons of Water Supplied and Conserved Over and Above the Estimated Cost of Non-Alternative Water Supplies, All Water Users, 2005 Dollars (a)

Type of Water Supply	PR/MRWSA - Manatee, DeSoto, Sarasota, Charlotte			HWA - Polk, Higlands, Hardee			Hillsborough County in SWUCA		
	Capital	O&M	Total	Capital	O&M	Total	Capital	O&M	Total
Conservation (b)									
Agriculture	$0.00	$0.23	$0.23	$0.00	$0.23	$0.23	$0.00	$0.23	$0.23
Public Supply	$0.00	$0.45	$0.45	$0.00	$0.45	$0.45	$0.00	$0.45	$0.45
Domestic Self-Supply	$0.00	$0.06	$0.06	$0.00	$0.06	$0.06	$0.00	$0.06	$0.06
Non-Public and Non-Domestic Supply	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Desalination									
Seawater	$1.74	$2.59	$4.33	Not available in area			$0.94	$1.40	$2.34
Brackish Water	$1.38	$0.95	$2.33	Not available in area			Not available in area		
Reclaimed Water	$0.79	$0.25	$1.04	$1.10	$0.21	$1.31	$0.98	$0.15	$1.13
Surface Water – Permitted / Unused	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Surface Water – Unpermitted									
Potable	$1.65	$0.84	$2.49	$1.77	$0.73	$2.50	$1.22	$0.23	$1.45
Urban Irrigation (includes Rec/Aes)	$1.46	$0.40	$1.86	$1.77	$0.73	$2.50	--	--	--
All Other Water Use Permittees	$2.55	$1.15	$3.69	$1.77	$0.73	$2.50	--	--	--
Fresh Ground water									
Intermediate and Surficial Aquifer Systems	$0.48	$0.00	$0.48	$0.48	$0.00	$0.48	$0.48	$0.00	$0.48
Upper Floridan Aquifer, unused permitted	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Rainwater Harvesting - Agriculture	$1.14	$0.80	$1.94	$1.14	$0.80	$1.94	$1.14	$0.80	$1.94

From SWFWMD, draft 2005 Regional Water Supply Plan Update, November 2005, Chapter 7 - Water Supply Development Component, supplemented with information from District staff in early December 2005 and Floridan aquifer cost information from the District.
Notes: "Not available in area" Means that seawater or brackish water desalination is not available in these counties. "--" means that it is anticipated that the use of this water source in this area to supply additional water demands will be insignificant.
(a) The incremental cost of the alternative source is the cost of the alternative source as presented in this SERC minus the estimated cost to pump water from the Floridan aquifer of $0.22 per kgal total cost ($0.02 per kgal capital cost and $0.20 per kgal O&M cost). The costs of unused permitted quantities from surface water sources were set to zero because they would be the likely source of most new water supplies if protection of water resources was not a concern.
(b) Conservation costs were not broken out by capital and O&M in the draft Regional Water Supply Plan Update. Thus, all costs were entered as O&M costs even though the actual costs are a combination of each.

1.0 Introduction

Section 373.042, Florida Statutes, *Minimum Flows and Levels*, requires the Southwest Florida Water Management District (District) to establish minimum flows or levels for ground and surface water sources. The Section states, "(1) Within each section, or the water management district as a whole, the department or the governing board shall establish the following:

(a) Minimum flow for all surface watercourses in the area. The minimum flow for a given watercourse shall be the limit at which further withdrawals would be significantly harmful to the water resources or ecology of the area.

(b) Minimum water level. The minimum water level shall be the level of groundwater in an aquifer and the level of surface water at which further withdrawals would be significantly harmful to the water resources of the area.

The minimum flow and minimum water level shall be calculated by the department and the governing board using the best information available."

The District has proposed the establishment of minimum flows and levels (MFLs) for the following water resources.

- Upper Peace River
- Floridan Aquifer in the Southern Water Use Caution Area (SWUCA)
- Eight lakes in the SWUCA called Lake Clinch; Lake Eagle; Lake McLeod; Lake Wales; Lake Jackson; Lake Little Jackson; Lake Letta and Lake Lotela.

These resources are located in the SWUCA which is depicted in Figure 1-1. It includes all or a portion of Polk, Hillsborough, Manatee, Sarasota, Hardee, Highlands, DeSoto and Charlotte counties in Florida.

In addition, consistent with section 373.0421, Florida Statutes, the District has developed a Recovery Strategy because the District has determined that the existing flow rates and water levels of some of these water resources are below the MFLs established for them.

To this end, the District prepared proposed revisions, dated October 3rd, 2005, to the following chapters of Florida Administrative Code:

- Chapter 40D-2, Consumptive Use of Water;
- Chapter 40D-8, Water Levels and Rates of Flow;
- Chapter 40D-80, Recovery And Prevention Strategies For Minimum Flows And Levels; and,
- Basis of Review for Water Use Permit Applications

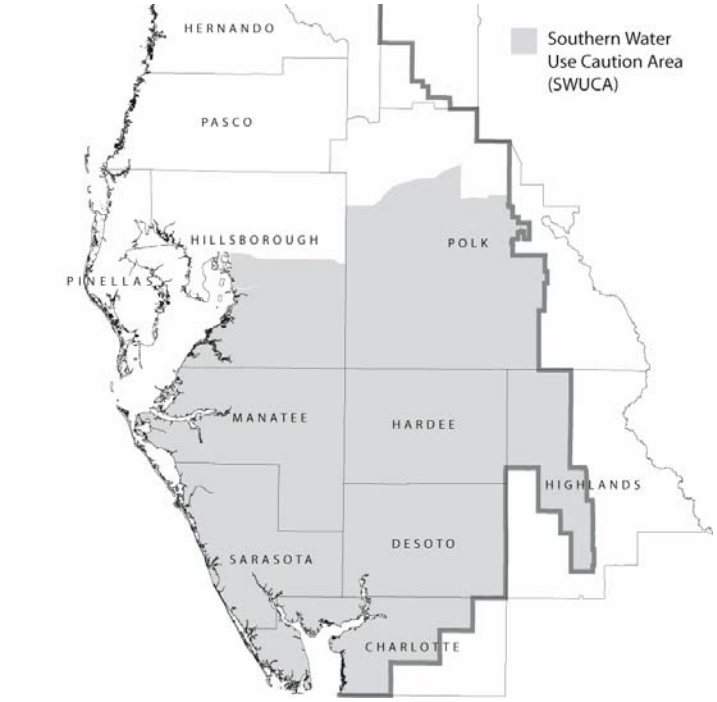

Figure 1-1
Southern Water Use Caution Area in Florida

These proposed rule revisions address saltwater intrusion, protect lake levels, and provide minimum flows for the Upper Peace River as required by Florida Statutes. In addition, rule changes are proposed to improve consistency in reporting public supply service area population and per capita water use.

This Statement of Estimated Regulatory Costs addresses these proposed rule revisions. As required by Section 120.541, Florida Statutes (2005), "A statement of estimated regulatory costs shall include:

(a) A good faith estimate of the number of individuals and entities likely to be required to comply with the rule, together with a general description of the types of individuals likely to be affected by the rule.

(b) A good faith estimate of the cost to the agency, and to any other state and local government entities, of implementing and enforcing the proposed rule, and any anticipated effect on state or local revenues.

(c) A good faith estimate of the transactional costs likely to be incurred by individuals and entities, including local government entities, required to comply with the requirements of the rule. As used in this paragraph, "transactional costs" are direct costs that are readily ascertainable based upon standard business practices, and include filing fees, the cost of obtaining a license, the cost of equipment required to be installed or used or procedures

required to be employed in complying with the rule, additional operating costs incurred, and the cost of monitoring and reporting.

(d) An analysis of the impact on small businesses as defined by s. 288.703, and an analysis of the impact on small counties and small cities as defined by s. 120.52.

(e) Any additional information that the agency determines may be useful.

This Statement of Estimated Regulatory Costs begins with an Executive Summary. Chapter 1.0 is this introduction. Chapter 2.0 provides a summary of the proposed rule revisions. Chapter 3.0 presents estimates of the number of individuals and entities likely to be required to comply with the proposed rule revisions. Chapter 4.0 presents the estimated costs to the District and other government agencies. Chapter 5.0 presents descriptions and estimates of the potential transactions costs that may be incurred by the individual and entities identified in Chapter 3.0. Chapter 6.0 presents the potential impact to small businesses, small cities and small counties.

2.0 Summary of Proposed Rule Revisions

2.1 General

This section summarizes the proposed changes to the following rules regarding the Southern Water Use Caution Area (SWUCA) that might result in transactional costs to individuals and entities likely to be required to comply with these rules.

- Chapter 40D-2, F.A.C., "Consumptive Use Permitting";
- Portions of Part B of the Basis of Review for Water Use Permit Applications;
- Part D, Water Use Permitting Manual, Requirements for the Estimation of Permanent and Temporal Service Area Populations in the Southern Water Use Caution Area of the Basis of Review for Water Use Permit Applications;
- Chapter 40D-8, F.A.C., "Water Levels and Rates of Flow"; and,
- Chapter 40D-80.074, F.A.C, "Regulatory Portion of Recovery Strategy for the Southern Water Use Caution Area".

These proposed changes are based on the draft proposed rule revisions dated October 3, 2005. These changes are referred to in this document as the proposed revisions.

All costs to individuals and entities associated with the proposed rule revisions were measured relative to a baseline or "no action" condition. The baseline condition is the existing rule as of January 3rd, 2006. Those proposed rule revisions that might affect the transactional costs to individuals and entities are summarized below. The page numbers indicated for each proposed rule change are those associated with the draft document dated October 3rd, 2005. In most cases the proposed rule change is taken verbatim from this document. Editorial notes by the SERC project team are provided after the heading that begins with the word **"Note"**. An editorial note is only one paragraph and ends when the paragraph ends.

40D-2.021 Definitions

(1) "Alternative Water Supplies" and "Alternative Water Sources" means saltwater; brackish surface water and brackish ground water; surface water captured predominately during wet weather flows; sources made available through the addition of new storage capacity for surface or ground water; water that has been reclaimed after one or more public supply, municipal, industrial, commercial or agricultural uses; the downstream augmentation of water bodies with reclaimed water; stormwater; and any other water supply source that is designated as non-traditional for a water supply planning region in the applicable regional water supply plan. Use of alternative water supplies is not intended to impact recovery of a water body below its established minimum flow or level. (page 2 of 69).

(5) "Net Benefit" means activities or measures that will result in an improvement to a Minimum Flow or Level water body that more than offsets the impact of a proposed withdrawal. (page 2 of 69).

(8) "Ridge Lakes" - means those lakes located within the area formerly known as the Highlands Ridge Water Use Caution Area as described in Rule 40D-2.801(3)(b)3. (page 3 of 69)

(9) "Self-Relocation" – means a permit modification that authorizes a permittee to move all or a portion of its operation to a new location or locations owned or controlled by the permittee, with no change in ownership or Use Type and no increase in quantities. (page 3 of 69).

40D-2.091 Publications Incorporated by Reference,
New Forms (page 5 of 69 and Basis of Review page 27 of 69):

- Application for New Quantities within the Southern Water Use Caution Area WUP
  Note: In addition to filling out a regular "Water Use Permit Application", the applicant for new quantities from ground water will need to fill out this new form that addresses items in the proposed BASIS OF REVIEW 4.3.B regarding withdrawals in the SWUCA.
- Ground Water Replacement Credit Application Form WUP

40D-2.301 Conditions for Issuance of Permits
In order to obtain a Water Use Permit, an Applicant must demonstrate that the water use is reasonable and beneficial, is in the public interest, and will not interfere with any existing legal use of water, by providing reasonable assurances, on both an individual and a cumulative basis, that the water use: ….

(d) Will not interfere with a reservation of water from use in permitting as set forth in 40D-2.302, F.A.C. (page 9 of 69)

(l) Will incorporate use of alternative water supplies to the greatest extent practicable; (page 9 of 69) Also addressed elsewhere in the proposed rule: *"Applicants will be required to evaluate the use of all potentially appropriate alternative water supplies of water for technical, economic and environmental feasibility. This evaluation must determine whether alternatives are available to offset all or part of quantities obtained from any non-alternative water supply, as well as whether an offset is only available seasonally or on a time-limited basis."* (page 38 of 69)

Alternative water supplies are also addressed in the proposed changes to the Basis of Review page 63 of 69: "Applicants shall demonstrate whether alternative water supplies are available and appropriate for use and shall incorporate use of alternative water supplies to the greatest extent practicable. It shall not be appropriate to use alternative water supplies where the use will interfere with recovery of a water body to its established minimum flow or level or it is either currently or projected to be adversely impacted. In determining whether an Applicant has demonstrated whether alternative water supplies are available and appropriate for use, the

District shall consider whether the alternative water supplies are economically, environmentally and technically feasible."

Note regarding evaluation of alternative water supplies. Current rule requires that water reuse and conservation be evaluated by new and renewal applicants and, if found to be feasible, incorporated into the water use permit request. Current rule also requires that industrial and public supply new and renewal applicants in the SWUCA requesting ground water quantities of at least 500,000 gpd, where saltwater exists, are required to investigate the feasibility of desalination and to implement desalination if feasible. Examples of additional sources that would need to be considered under the proposed rule revision include water storage, brackish water desalination or other non-traditional sources.

40D-2.302 Reservations From Use

The Governing Board anticipates reserving from use water necessary to recover to, and protect, the Minimum Flows and Levels established for the Southern Water Use Caution Area as set forth in Chapter 40D-8, F.A.C. These reservations will be adopted through future rulemaking on a case-by-case basis, as projects are developed to restore and maintain Minimum Flows and Levels. Adopted reservations will be incorporated into this rule section 40D-2.302.

Note regarding Reservations from Use. This proposed rule change is not expected to affect the transactional costs to individuals and entities, except for the District, because no reservations have been adopted. When reservations are proposed, they will be adopted through future rulemaking on a case-by-case basis.

40D-2.331 Modification of Permits

An unexpired permit may not be modified by letter, only by formal application if:
It is a request to extend a permit term or "Within the SWUCA, except to reactivate a standby permit as provided in Section 1.12 of the Basis of Review, modification by letter is not available for modifications that include a request to Self-Relocate or to increase water withdrawals that impact or are projected to impact a water body with an established minimum flow or level. (pages 11 and 12 of 69 and Basis of Review page 29 of 69)

Note regarding modification of permits. This addition changes existing rule by requiring a Formal Modification for Self-Relocation and providing exceptions for Standby Quantities. Under the current 40D-2.331, "Modifications may be requested by: (b) Letter, provided a Modification Short Form is submitted and the annual average withdrawal will not increase by more than 100,000 gpd or more than 10% of the total quantity, the use of the water will not change, the modification does not cause the total annual average quantity to equal or exceed 500,000 gpd, and the proposed changes would not cause impacts beyond those considered in the initial permit."

40D-2.501 Permit Classification

(6) Standby Alternative Source Permit is removed as a permit classification (page 16 of 69) (see pages 11 and 27 of 69 and Basis of Review pages 28, 34 and 36 deleted)

Note regarding standby permits. Permits for all standby water quantities will be provided by issuing a Water Use Permit with conditions limiting activation of the standby water quantities.

40D-2.801 Water Use Caution Areas
Highlands Ridge and Eastern Tampa Bay WUCAs are removed. (pages 18 and 19 of 69)
MIA of the SWUCA is defined (page 22 of 69) - The boundaries are the same as current rule.

3. The Ridge Lakes are those lakes located anywhere within Highlands County within the boundaries of the SWFWMD and that portion of Polk County within the following sections: … (page 23 of 69)

5. Permits with permitted withdrawals in more than one WUCA shall be subject to the conservation and reporting requirements of the WUCA within which the majority of permitted quantities are withdrawn, or projected to be withdrawn, in addition to all other rule criteria, including MFL requirements, as set forth in Chapter 40D-2, F.A.S. and this Basis of Review for WUP Applications. (page 23 of 69)

Note regarding Permits within the SWUCA. Under current rule, if any part of a permit is in the SWUCA, then the entire permit is in the SWUCA. Therefore, this proposed revision may cause some permits to no longer be in the SWUCA but will not add other permits to the SWUCA.

The following is deleted: District initiates a study if water used by a category of user, except public supply, during the average of the preceding three years exceeds the average water used by that category from January 1, 1989 through December 31, 1991. (page 24 of 69) This provision will be replaced by periodic review of the Recovery Strategy, Chapter 40D-80.074 (5).

Basis of Review 1.9.9 Duration of Permits Utilizing Alternative Water Supplies within the SWUCA
Permits for the development of alternative water supplies in the SWUCA shall be separately issued from other permits that the applicant may receive for non-alternative water supplies and shall have a permit duration of 20 years, subject to Section 373.236, F.S., if requested by the applicant and provided that the water use is intended to be in place for that duration. A longer duration may be granted provided that the conditions of 373.236(4) are met. (page 27 of 69)

Public Water Supply Service Area. Public Supply applicants must provide the following information to the District in addition to other information required by current rule.

- Provide updated service area maps at the time of permit application, modification and renewal and every five years for permits with durations longer than six years. Metadata must be provided with all electronic service area map submissions. (page 32 of 69)

- Provide the District permit numbers and Florida Department of Environmental Protection Public Water Supply Identifier (PWSI) numbers and area designation names for each service area or sub-service area, as applicable when the service area maps are provided. (page 32 of 69)

- Where there is potential for impacts to existing users within the applicant's service area, the applicant shall submit a plan by which the potential impacts shall be monitored and mitigated if such impacts should occur. (page 33 of 69) **Note:** This is a clarification of current rule. According to the District, affected water use permit applicants are required to provide a plan to monitor and mitigate under current rule.

Note regarding Public Water Supply Service Area. All other requirements are either existing rule or clarifications to existing rule.

3.1 Determining Reasonable Water Quantities (Basis of Review)

Reasonable Water Needs In The SWUCA - The reasonable water needs of all applicants for permit renewals and New Quantities will be closely evaluated to determine whether the need remains for the entire quantity previously allocated. For renewals the evaluation period will be the previous permit term, taking into account climate variability, market conditions, and other factors that influence water withdrawals. Permittees who have not utilized the full previous allocation because circumstances prevented full implementation of the plan on which the allocation was based will be required to demonstrate that the need for the full allocation will occur within the next permit term. To support any future needs, this demonstration must include substantive documentation of the proposed need such as materials orders or construction plans. In such cases, the permit term may be restricted to encompass the period over which the proposed need is projected to occur, or the permit may be conditioned to reduce the permitted quantities should the proposed need not develop. (Page 34 of 69)

Note regarding determining reasonable water quantities. This addition does not change existing rule. However, in practice, the District intends to require the current, most available information from the permittee to explain why the unused permitted quantities were not used in the past and whether and how the unused permitted quantities will be used in the near future. Under current rule, Chapter 40D-2.341 says, "(2) In determining whether the use is not reasonable beneficial or in the public interest, the Governing Board shall consider, (d) Nonuse of the water supply allowed by the permit for a period of 2 years or more unless the user can prove that his nonuse was due to extreme hardship caused by factors beyond his control;"

Permanent Loss of Alternative Water Supplies - Where a permittee has replaced the use of non-alternative water supplies with an alternative water supply and the alternative supply becomes temporarily (exceeding 30 days) unavailable, the permittee shall notify the District in writing within 15 days of the event. Such notification shall be submitted monthly for each subsequent 30 days, for up to one year from the date of first loss, while the supply of alternative water supplies remains insufficient or unsuitable for the authorized use. During this time, the withdrawal of standby quantities is allowed to meet the permitted demand up to the maximum

amount of the permitted standby quantities. If the loss of the alternative water supplies exceeds one year, the District shall issue a Letter of Modification, subject to all requirements of Rule 40D-2.331(2), F.A.C., to modify the non-alternative water supplies quantities that may be withdrawn from the natural resource. If the standby permit is for a withdrawal within the Southern Water Use Caution Area, a Letter of Modification shall be issued to modify the quantities that may be withdrawn even if the quantities to be withdrawn exceed the quantity thresholds included in Rule 40D-2.331(2), F.A.C. (pages 35 and 36 of 69)

Note regarding permanent loss of Alternative Water Supplies. These edits do not change existing rule except that the permittee had 14 days to notify the District instead of the proposed 15 days. Also the proposed rule requires notification to the District every 30 days thereafter until the Alternative Source is back on line. After one year, the District will issue a Letter of Modification to reflect the use of the standby quantities and the monthly notification will not be required.

Multiple Water Supply Sources within the SWUCA – "Where an applicant or permittee has non-alternative water supplies and alternative water supplies, the alternative water supplies shall be used in lieu of non-alternative water supplies to the greatest extent practical, based on economic, environmental and technical feasibility." (page 38 of 69)

Drought Annual Average Daily Withdrawal
The drought annual average daily withdrawal quantity is a statistical drought irrigation quantity that is the maximum annual irrigation amount permitted by the District, annualized over 365 days. For pasture the District uses a 60% statistical rainfall probability to calculate the drought annual average daily quantity, and for plastic mulched seasonal crops the District calculates the drought annual average assuming zero effective rainfall. For crops, other than pasture, that can utilize rainfall, the District uses an 80% statistical probability (i.e., an 8-in-10 chance that there will be more rainfall) to calculate drought annual average daily withdrawal quantity. (page 39 of 69)

Note regarding Drought Annual Average Daily Withdrawal. No additional costs to the permittee are anticipated from this new definition.

Irrigation Supplemental Allocation and Credit Calculation Efficiencies. For agricultural irrigation permittees growing crops, the water use efficiency used to calculate permitted water quantities beginning in 2004 and credits beginning in 2005 would be reduced from 80% to 75%. **Note:** According to the District, none of the existing agricultural water use permits reflect the 80% water use efficiency so no impacts to permittees from this proposed rule revision are expected. The future impact of this rule change is that permittees will not see a reduction in permitted quantities as is required under existing rule.

Per Capita Daily Water Use within the SWUCA

Adjusted Gross Per Capita Water Use - A public supply permittee's Adjusted Gross Per Capita Water Use cannot exceed 150 gallons per person per day (gpd). When significant uses are deducted, they must be "accounted for in a water conservation plan developed by the applicant/permittee which includes specific water conservation programs for each user or type of use, as described in the section "Deducted Water Uses Within the SWUCA", below." (page 42 of 69)

When calculating the Adjusted Gross Per Capita Water Use, the calculation of functional population is the permanent population as adjusted by the temporal, tourist, group quarters and commuter population within a utility's service area as determined in accordance with "Requirements for the Estimation of Permanent and Temporal Service Area Populations," dated ----------20XX, as set forth in Part D of the Basis of Review For Water Use Permit Applications. Public supply permittees whose permit requires the submittal of pumpage data shall submit the applicable Worksheets from Part D and supporting documentation for calculations of per capita rates utilizing this standardized methodology~~,~~ in accordance with the following reporting schedule:

1. Permitted quantities of 500,000 gpd or greater must implement and report within 2 years from [the effective date of the rule];

2. Permitted quantities between 100,000 and 500,000 gpd must implement and report within 3 years from [the effective date of the rule]; and

3. Permitted quantities less than 100,000 gpd must implement and report within 4 years from [the effective date of the rule]. New _____20XX

(pages 42 and 50 of 69)

Service Area Functional Population Estimates within SWUCA - "Permittees required to submit service area functional population estimates in the SWUCA shall estimate both permanent and seasonal resident populations. Estimation of service area tourist and net commuter population may be estimated as well. All estimates must be prepared in accordance with "Requirements for the Estimation of Permanent and Temporal Service Area populations" dated 20XX, as set forth in Part D of the Basis of Review for Water Use Permit Applications." (page 50 of 69)

Note regarding Adjusted Gross Per Capita Water Use: Under current rule, all permittees in the District must comply with Chapter 3.6 of the Basis of Review which states, "Where the per capita daily water use rate exceeds 150 gpd the applicant must address reduction of the high rate in the conservation plan." Public supply permittees in a WUCA must also comply with Chapter 7.0 of the Basis of Review which states, "Public Supply uses within the Water Use Caution Area shall meet, at a minimum, an overall maximum per capita use rate of 150 gallons per day for the January 1, 1993 management period." No other per capita rates have been adopted by rule since

January 1993. Under the proposed rule, this requirement would also apply to public supply permittees in areas of the SWUCA that are outside of the ETB-WUCA and the HR-WUCA.

Note regarding proposed functional population method. The proposed method for calculating functional population may increase the per capita water use rate of those utilities that did not take into account the seasonality of some customers and instead counted them as a non-seasonal (full time) customer. By counting a portion of a seasonal customer instead of one full time customer, the functional population will decrease and the per capita water use will increase.

Note Regarding Calculation and Reporting of Adjusted Gross Per Capita Water Use. The proposed revisions to the text on pages 42 through 50 of 69 pages regarding calculating and reporting the water use of significant users and the reporting of Adjusted Gross Per Capita Water Use are clarifications only and do not change existing rule.

Goal-based Water Conservation Plans
A public supply utility may propose a goal-based water conservation plan but the utility must demonstrate that the proposed plan will achieve water conservation at least as well as the water conservation requirements adopted by the District and that progress toward the stated goals is measurable. (page 51 of 69)

4.1 Reasonable Demand
Stressed Lakes, New Withdrawals – Current rule is that new withdrawals from stressed lakes within the SWUCA shall not be permitted. Proposed rule is that they shall be permitted "only if all the conditions for issuance are met and the permit contains a condition restricting withdrawals to those times when the lake is at or above the High Minimum Level or High Guidance Level, whichever is appropriate." (page 53 of 69)

4.3 Minimum Flows and Levels

B. Withdrawals Within the Southern Water Use Caution Area (SWUCA) That Affect Minimum Flows and Levels Water Bodies

GENERAL
In establishing Minimum Flows and Levels within the SWUCA as required by section 373.042, F.S. and which are set forth in Chapter 40D-8, F.A.C, the District has determined that the actual flows and water levels for most of the water bodies for which Minimum Flows and Levels have been established are below the Minimum Flow and Level. The District is expeditiously implementing a recovery strategy for the SWUCA in keeping with the District's legislative mandates pursuant to Sections 373.036, 373.0361, 373.0421 and 373.0831, F.S. The SWUCA provisions of Chapter 40D-2, F.A.C., the Basis of Review For Water Use Permit Applications and Chapter 40D-80, F.A.C., set forth the regulatory portion of the recovery strategy for the SWUCA. The District staff will update the Board every year and evaluate the status of the recovery strategy every five years prior to 2025. Based on that evaluation, the District may revise this Section 4.3 B. as appropriate. Compliance with Section 4.3 B. does not, by itself,

satisfy the requirements of Chapter 40D-2, F.A.C., for applications requesting new withdrawals submitted on or after [effective date of rule].

As of [effective date of rule], within the SWUCA the District has established a Salt Water Intrusion Minimum Aquifer Level (SWIMAL) in the Most Impacted Area (MIA) as set forth in rule 40D-8.626, F.A.C., Minimum Flows on the Peace River as set forth in rule 40D-8.041, F.A.C., and Minimum Lake Levels as set forth in rule 40D-8.624, F.A.C. In accordance with the District's Minimum Flows and Levels priority list additional Minimum Flows and Levels will be established. These minimum flows and levels and the rules in Chapter 40D-2, F.A.C., that implement recovery are intended to manage those withdrawals that can have a direct effect on the minimum flows and levels. Therefore, the effect of these minimum flows and levels on applications for New Quantities will vary depending upon the impact of the withdrawal on a water body with an established minimum flow or level. The District's evaluation of the potential impact of a proposed withdrawal will be based on factors such as the proximity of withdrawal to a minimum flow or level water body, the volume of the withdrawal, the number of withdrawal points, and whether the withdrawal is from the upper Floridan, intermediate or surficial aquifer or is a direct surface water withdrawal." _____, 2006

(page 54 and 55 of 69)

Note Regarding the Lakes Where Minimum Levels Are Proposed. Minimum lake levels are proposed for the eight lakes in the following table.

Lake Name	County	Acreage of Lake
Clinch	Polk	1,207
Eagle	Polk	651
McLeod	Polk	512
Wales	Polk	326
Jackson	Highlands	3,412
Little Jackson	Highlands	141
Letta	Highlands	478
Lotela	Highlands	802

Note Regarding Minimum Flows and Levels: Under current rule, no minimum or guidance flows are established for the Peace River. The proposed rule establishes Minimum Flows for the upper Peace River. Under current rule, Guidance Levels are established for the 8 Lakes. Guidance Levels are used as advisory information for the District, lake shore residents and local governments or to aid in the management or control of adjustable structures. The proposed rule establishes Minimum Levels for the 8 lakes. According to the District, the proposed SWIMAL will generally have the same effect as the current MIA constraints as described in the current Basis of Review, page B7.2-5. The difference is that withdrawals can be permitted under the proposed rule if a Net Benefit is provided. Current Basis of Review, page B7.2-5 states "the District presumes that new quantities of ground water use from the confined aquifers shall not be permitted from the Most Impacted Area (MIA) within the WUCA … New quantities outside the MIA shall only be

permitted at high efficiency. … B. In order to reduce ground water declines and the inland movement of the saline water interface, the District presumes that proposed new quantities of ground water applied for after March 30, 1993, from confined aquifers from areas outside the MIA, whether inside of or outside of the Eastern Tampa Bay Water Use Caution Area, that cause a potentiometric surface drawdown of 0.2 feet or greater within the MIA will significantly induce saline water intrusion."

The remainder of Chapter 2.0 is taken directly from the October 3, 2005 draft rule revision where words stricken from the rule have been removed. These proposed rule changes are those that may have an impact on costs to individuals and entities.

COMPLIANCE WITH RELATED PROVISIONS
Satisfying the conditions of this Section 4.3 Minimum Flows and Levels, shall also fulfill the provisions of Section 4.5 of this Basis of Review For Water Use Permit Applications with respect to the affected Minimum Flow or Level water body.
_____, 2006 (page 55 of 69)

APPLICATIONS FOR NEW QUANTITIES OF WATER SUBMITTED ON OR AFTER [effective date of rule]

Above Minimum Flow Or Level
For water bodies that are predicted to be impacted by the proposed withdrawal and where the actual flow or level is at or above a Minimum Flow or Level, withdrawals shall be limited to that quantity, as may be further limited by other provisions of 40D-2.301, F.A.C. and this Basis of Review, that does not cause the actual flow to fall below the Minimum Flow on a Long-term average basis, nor cause the actual level to fall below the Minimum Level on a Long-term average basis. Additionally, for the upper Peace River Minimum Flows, proposed withdrawals shall not cause the actual flow to fall below the Minimum Flow as described in 40D-8.041, F.A.C. For purposes of this Section 4.3 B, "Long-term" shall have the meaning and be determined as set forth in Section 4.3 A. above._____20XX (page 55 of 69)

Below Minimum Flow Or Level

1. **Existing Permits Within The SWUCA -** Applications for the renewal or modification of a permit with no proposed increase in permitted quantities or change in Permit Use Type will be evaluated to determine compliance with 40D-2.301, F.A.C., and this Basis of Review. When evaluating the reasonable-beneficial use of the water, emphasis will be given to reasonable water need, water conservation and use of alternative water supplies. However, the existing impacts of permitted quantities on an MFL water body will not be a basis for permit denial because the SWUCA Area Recovery Strategy taken as a whole is intended to achieve recovery to the established minimum flows and levels as soon as practicable. _____, 20XX (page 55 of 69)

2. **Self-Relocation** - The quantities potentially available to Self-Relocate include all of the used and unused reasonable-beneficial permitted quantity. The use of the quantities at

the new location(s) can not increase impacts to Minimum Flow and Level water bodies and must meet all other applicable permitting criteria included in 40D-2, F.A.C. and this Basis of Review. If the Self-Relocation involves uses eligible for water conserving credits, the credit balance at the time of the Self-Relocation will be maintained. If the Self-Relocation is only for a portion of the permitted quantity, or involves Self-Relocation to multiple properties, the credit balance will be accordingly apportioned. Crop rotation, by planting and irrigating non-contiguous properties within the same locale in a structured, revolving fashion, is allowed under a single permit and is not considered Self-Relocation. _____, 20XX (page 56 of 69)

3. Applications For New Ground Water Quantities Submitted On Or After (effective date of rule) - The District will evaluate applications for New Quantities of ground water to determine compliance with this section 4.3 B and all other 40D-2, F.A.C., rule criteria. Any application for a change of Use Type shall be treated as a new application. The District will not accept a waiver of the 90-day time clock for acting on permits set forth in section 120.60, F.S. on the basis of a request to re-evaluate the proposed withdrawal at a future time. (page 58 of 69)

a. SWUCA Salt Water Intrusion Minimum Aquifer Level, Upper Peace River Minimum Flows and Ridge Lakes Impact Evaluation

(1) Salt Water Intrusion Minimum Aquifer Level (SWIMAL) - All applications will be evaluated for the impact on the SWIMAL described in 40D-8.626(2)(a) F.A.C, utilizing a cumulative assessment based upon best available information. Impact on the SWIMAL means any lowering of the Floridan aquifer potentiometric surface within the MIA including the boundary of the MIA. If the evaluation indicates that a proposed withdrawal will result in increased impacts to the SWIMAL, or it is determined that proposed withdrawal does not meet paragraphs 2 and 3 below, the District will approve the application only if the applicant proposes to implement a Net Benefit as described in paragraph 4 below. (page 58 of 69)

(2) Upper Peace River – All applications shall be evaluated to determine whether the proposed withdrawal impacts ground water levels below the Upper Peace River. Where such an impact occurs, the proposed withdrawal can be authorized if the current 10-year moving average monthly water level in the area is above 53.3 feet, NGVD (the median for the 10 year moving average monthly water level of available information during the period 1990 to 1999), provided that the conditions of 40D-2.301(1)(b) and (c), F.A.C. and Basis of Review section 4.2 C. are met. If the above conditions are not met, the withdrawal can be authorized only if the applicant proposes to implement a Net Benefit as described in paragraph 4, below. However, the applicant has the option to reduce or redistribute the withdrawals to achieve no impact, in which case the withdrawal can be authorized. The current 10-year moving average ground-water level will be calculated based upon District ground water monitoring stations in the ground water basin which best represent (adjustments for extraordinary local impacts on a well can be considered as

to well location or water level effect) long-term trends in ground-water levels affecting the upper Peace River, including ROMP 60, ROMP 59, ROMP 45, ROMP 30 and ROMP 31. (pages 58 and 59 of 69)

(3) **Ridge Lakes** – All applications shall be evaluated to determine whether the proposed withdrawal impacts ground-water levels below Ridge lakes. Where such an impact occurs, the withdrawal can be authorized if the current 10-year moving average monthly water level for the area encompassing the Ridge lakes is above 91.5 feet, NGVD (the median for the 10 year moving average monthly water level of available information during the period 1990 to 1999), provided that the conditions of 40D-2.301(1)(b) and (c), F.A.C. and Basis of Review section 4.2 B. are met. If the above conditions are not met, the withdrawal can be authorized only if the applicant proposes to implement a Net Benefit as described in paragraph 4, below. However, the applicant has the option to reduce or redistribute the withdrawals to achieve no impact, in which case the withdrawal can be authorized. The current 10-year moving average ground-water level will be calculated based upon District ground water monitoring stations in the ground water basin which best represent (adjustments for extraordinary local impacts on a well can be considered as to well location or water level effect) long-term trends in Floridan ground-water levels affecting the Ridge lakes including Lake Alfred Deep, ROMP 28X, ROMP 57, ROMP 43XX and Coley Deep. _____, 20XX (page 59 of 69)

b. **No Impact to Salt Water Intrusion Minimum Aquifer Level, Upper Peace River and Ridge Lakes** - If the proposed withdrawal is determined to comply with 40D-2, F.A.C. and this Basis of Review, the withdrawal can be authorized. _____, 20XX (page 60 of 69)

4. **Net Benefit** - If an applicant must implement a Net Benefit to obtain the permit, the permit can be issued if the applicant provides reasonable assurance that implementation of its proposed Net Benefit will mitigate the predicted impacts by one or more of the options listed below. In order to provide a Net Benefit, the measures proposed by the applicant must offset the predicted impact of the proposed withdrawal and also provide an additional positive effect on the water body equal to or exceeding 10% of the predicted impact. For example, if the predicted impact on a water body is 1.0 foot, the mitigation must offset the 1.0 foot impact and provide another 0.1 foot (i.e., 10% of 1.0 foot) of positive effect. There are three forms of Net Benefit, including 1) mitigation plus recovery, 2) use of quantities created by District water resource development projects, and 3) Ground-water Replacement Credits, as described below.

a. **Mitigation Plus Recovery –** Mitigation plus recovery involves one or more of the following:

(1) Permanently retiring from use the reasonable-beneficial, historically used quantity associated with one or more permits within the SWUCA that impacts the same Minimum Flow and Level water body. Used quantities

are those permitted quantities of water that the District determines have been deemed reasonable-beneficial and historically used by a permittee, but not including Water-Conserving Credits obtained pursuant to 40D-2.621, F.A.C. Used quantities are determined based on documentation previously submitted by a permittee and available crosschecks. The types of documentation submitted by permittees include seasonal/annual crop reports, metered data, and other information. Crosschecks include aerial photography, receipts for supplies, equipment, and services, property appraisers' records and other methods. For small permits below thresholds for crop reporting and metering, aerial photography and other methods will be used to determine quantities, or

(2) recharging the aquifer and withdrawing water such that there remains a net positive impact on the Floridan aquifer potentiometric surface at least 10% greater than the impact of the proposed withdrawal, or

(3) undertaking other actions to offset the proposed impact of the withdrawal plus 10%.

Mitigation plus recovery must be in reference to the MFL water body that would be impacted by the proposed withdrawals, and must either precede or be coincident with any new permitted withdrawals. _____,20XX (pages 60 and 61 of 69)

b. Use of Quantities Created by District Water Resource Development Projects

The District anticipates that its water resource development projects will result in the development of new quantities above and beyond the quantities needed to achieve recovery to Minimum Flows and Levels. All or a portion of these new quantities that are not reserved or otherwise designated for recovery will be made available to permit applicants where a Net Benefit is needed.

If an applicant demonstrates compliance with all conditions in section 3, above and has contributed to a District water resource development project the applicant may apply for the quantities made available through a District water resource development project, provided the applicant demonstrates that:

(1) the proposed withdrawal affects the same MFL water body source associated with the water resource development project;

(2) the quantity developed in excess of the quantity reserved or otherwise designated for the Minimum Flow or Level has been determined; and

(3) allocating the proposed quantities to the applicant will not interfere with quantities reserved or otherwise designated by the District for water resource development. _____,20XX (pages 61 of 69)

c. Ground-Water Replacement Credit in the SWUCA

To reduce ground-water withdrawals, a Ground-Water Replacement Credit is proposed as an incentive for water users to provide water use permit holders with alternative supplies. The holder of a Ground-Water Replacement Credit can use the Credits to provide a Net Benefit in order to withdraw New Quantities. The process to obtain a Ground-Water Replacement Credit is set forth below.

(1) A Ground-Water Replacement Credit is created when an entity (Supplier) provides an alternative supply that offsets actual withdrawals by an existing permit holder (Receiver) that impact a Minimum Flow or Level water body. A Ground-Water Replacement Credit will be available to either the Supplier or the Receiver, or both.

(2) A Ground-Water Replacement Credit is equal to 50% of the amount that is offset that was reasonable-beneficial historically used.

(3) The Supplier and Receiver will indicate to the District which entity should obtain the credit quantity, or whether the credit quantity will be divided between them or assigned to a third party. To apply for a credit an entity must submit the Ground-Water Replacement Credit Application Form, Form No. XXX, which must be signed by all involved parties.

(4) The District will set aside the ground-water quantities that are discontinued as a result of the offset by alternative water supplies in a standby permit that will be issued to the Receiver to allow withdrawal of all or a portion of such quantities in the event that the alternative water supply is interrupted, becomes unsuitable or is decreased.

(5) The Ground-Water Replacement Credit will exist for only so long as the Receiver maintains its use of the alternative water supplies. The Credit will remain available if the Receiver transfers the standby permit to a new owner at the same site who continues the same water use with the alternative water supplies. _____,20XX (pages 61 and 62 of 69)

5. Surface-water Withdrawals Within the Southern Water Use Caution Area (SWUCA)

The District will not issue permits for surface-water withdrawals from streams or lakes where the Minimum Flow or Level is not achieved unless the applicant demonstrates that:

a. the withdrawal will not adversely affect the Minimum Flow or Level, or;

b. a Net Benefit, as described in paragraph 4 above, can be implemented. _____,20XX (page 62 of 69)

4.5 SALINE WATER INTRUSION

1. Performance Standards

A permit application shall be denied if the application requests withdrawals that would cause significant saline water intrusion. Significant saline water intrusion occurs if the movement of the salt water interface adversely affects, or is predicted to adversely affect, other existing legal uses of water; the Applicant; or the public health, safety, and general welfare. Note: This is a change in the definition of significant saline water intrusion. (page 63 of 69)

4.11 UTILIZATION OF ALTERNATIVE WATER SUPPLIES

Applicants shall demonstrate whether alternative water supplies are available and appropriate for use and shall incorporate use of alternative water supplies to the greatest extent practicable. It shall not be appropriate to use alternative water supplies where the use will interfere with recovery of a water body to its established minimum flow or level or it is either currently or projected to be adversely impacted. In determining whether an Applicant has demonstrated whether alternative water supplies are available and appropriate for use, the District shall consider whether the alternative water supplies are economically, environmentally and technically feasible. (page 63 of 69)

5.0 MONITORING REQUIREMENTS

Metering Of Alternative Water Supplies Within The Southern Water Use Caution Area -- Permittees shall meter alternative supplies of water supplied to the permittee within the SWUCA if the Annual Average quantity (Drought Annual Average quantity for irrigation permits) that would be permitted without the alternative water supplies would be 100,000 gpd or more. Meters shall meet the requirements of the first unnumbered paragraph of this Section 5.1, unless alternative methods or mechanisms are approved by the District. Reporting requirements are as specified in the fifth unnumbered paragraph of this Section 5.1. 1-1-03 Amended _____20XX (page 64 of 69)

6.2 SPECIAL PERMIT CONDITIONS
PUMPAGE REPORTING
6. Flow Meters

a. Permittees with permitted withdrawal facilities that are on standby status (a standby withdrawal point to be used when another withdrawal point cannot be used, or where all permitted quantities are on standby for alternative water supplies) shall install meters on District ID No(s). [Specify District ID No(s).], Permittee ID No(s). [Specify Permittee ID No(s).] before using the standby quantities 1-1-03, , amended _____, 2004 (page 65 of 69)

7.0 WATER USE CAUTION AREAS

~~7.1 HIGHLANDS RIDGE WATER USE CAUTION AREA~~

All provisions of Section 7.1 are deleted in their entirety.

~~7.2 EASTERN TAMPA BAY WATER USE CAUTION AREA~~

All provisions of Section 7.2 are deleted in their entirety.

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Chapter 40D-80 Recovery And Prevention Strategies
For Minimum Flows And Levels
Draft 10-5-05

40D-80.074 Regulatory Portion of Recovery Strategy For the Southern Water Use Caution Area

(1) Background

Section 373.042, F.S., requires the District to establish Minimum Flows and Levels for priority waters within its boundaries. The District has established Minimum Flows and Levels ("MFLs") within the Southern Water Use Caution Area (SWUCA), described in 40D-2.801(3), F.A.C, which includes all or portions of Hillsborough, Polk, Highlands, Hardee, DeSoto, Manatee, Sarasota, and Charlotte counties. In establishing the MFLs, the District determined that the existing flow rates and water levels of some of the priority waters are below the MFLs established for them. In such circumstances section 373.0421, Florida Statutes requires the District to implement a recovery strategy. The District has developed a recovery strategy that includes both regulatory and non-regulatory mechanisms as described in the SWUCA Recovery Strategy, dated XXXXX, 200X. The regulatory approach does not make the existing impacts of permitted quantities on an MFL water body a basis for permit denial because the Recovery Strategy taken as a whole is intended to achieve recovery to the established minimum flows and levels as soon as practicable. The Recovery Strategy involves water supply planning, the development of alternative sources to meet growing demands and allow for reductions in existing ground-water withdrawals, an emphasis on conservation, restoration of water bodies and flow patterns, and the regulation of existing and new water use withdrawals. This section 40D-80.074, F.A.C., describes the regulatory approach of the Recovery Strategy.

(2) Objectives of Recovery Strategy

Long-term (as defined in section 4.3 A of the Basis of Review for Water Use Permits, incorporated by reference in 40D-2.091, Florida Administrative Code) flow rates and water levels for most MFL water bodies are below the MFLs predominantly because ground water withdrawals have lowered Floridan aquifer levels in the SWUCA. As a result of the lowered aquifer levels, saltwater intrusion is occurring, and river flows and lake levels are impacted by reduced water levels, including some of those rivers and lakes for which MFLs have been established. The goals of the District's Recovery Strategy are the recovery of flows and levels to the MFLs and the provision of sufficient water supplies for all existing and projected reasonable-beneficial uses. The MFLs for rivers, lakes and aquifers are described in and established in 40D-8.041(2), and Table 8-5, in 40D-8.624, and Table 8-2, and 40D-8.626, Table 8-6. The District intends to maintain on its website at www.swfwmd.state.fl.us a current listing of those water bodies for which a recovery or prevention plan is in effect.

(3) Recovery Strategy Mechanisms

(a) The non-regulatory mechanisms include conservation and resource development efforts intended to increase the availability of alternative water supplies and to enhance the water resources of the SWUCA. Conservation, transitions in land use from agricultural to other use or changes in supply source, and the availability of alternative water supplies will help meet growing water demands in the SWUCA, and will also allow for reductions in ground-water withdrawals.

(b) The guiding principles for the regulatory portion of the Recovery Strategy are that it should (1) contribute significantly to resource management and recovery; (2) protect the investments of existing water use permit holders; and, (3) allow for economic expansion and new economic activities in the SWUCA. In addition, the District recognizes that the water resources in the SWUCA are subject to varying degrees of stress. The regulatory component of the Recovery Strategy has been designed in recognition of these variations. How water use permit applications will be affected by the regulatory mechanisms will vary depending on the resource conditions in the area affected by a proposed withdrawal and the extent to which the withdrawals will contribute to these resource conditions. For example, the regulatory mechanisms continue the existing "Most Impacted Area" (MIA) designation in coastal portions of southern Hillsborough, Manatee and northern Sarasota counties. The Salt Water Intrusion Minimum Aquifer Level is established within the MIA. New ground water withdrawals within the MIA and the area surrounding the MIA that impact saltwater intrusion will be affected more by the MIA designation and the Salt Water Intrusion Minimum Aquifer Level, than will permit applications for new ground water withdrawals in the eastern portions of the SWUCA. Conversely, permit applications for new ground water withdrawals in the coastal areas will be much less affected by the MFLs established for the upper Peace River and the priority lakes in Polk and Highlands

counties than permit applications for new ground water withdrawals on the Lake Wales Ridge.

(c) The water use permitting rules in Chapter 40D-2, F.A.C. address water conservation, alternative sources and implementation of MFLs. These water conservation rules and alternative source rules include the amendments to Chapter 40D-2, F.A.C., _____, 1990, January 1, 2003, as well as subsequent rules adopted as of _____, 20XX developed in conjunction with the implementation of the Minimum Flows and Levels Recovery Strategy. In combination, these rules result in more efficient use of water and therefore decreased withdrawals

(4) Restoration of river flows and lake levels

In addition to the reduction of pumpage and permitted quantities, and the development of new water supplies, the supplemental augmentation of rivers and lakes that are below their established Minimum Flow or Level will contribute to the attainment of the objectives of the Recovery Strategy set forth in 40D-80.074(2). The District will reserve quantities of water from water sources necessary for such augmentation.

(5) Periodic Review of Recovery Strategy

(a) The Governing Board will measure progress based on an annual assessment of the water resource criteria and cumulative impact analysis described below.

1. The water resource criteria referred to in (5) above are:

   a. Improving Upper Peace River flows, and Ridge Lake water levels;
   b. Maintaining or increasing ground-water levels below the Upper Peace River and in the Ridge Lakes area ; and
   c. Increasing ground-water levels in the Upper Floridan aquifer within the Most Impacted Area.

2. The cumulative impact analysis referred to in (5) above consists of the following:
   a. The development of alternative sources;
   b. The effects of water conservation;
   c. The hyrdrologic conditions and patterns;
   d. The effects of climatic conditions;
   e. The effects of water resource development activities;
   f. The changes in amounts, distributions and use types of existing and new water use withdrawals (actual and permitted) within the SWUCA; and
   g. The effect of land use changes on the water resources.

(b) As part of updating of its Regional Water Supply Plan, the District will review the Recovery Strategy at least every five years to assess its progress. If the annual assessments or five year reviews do not indicate progress, the Governing Board will revise the Recovery Strategy, as appropriate, to achieve progress.

(c) The District will also consider the information discussed in subparagraph 40D-80.074(5)(a) above during preparation of updates to the District's Water Management Plan as it relates to the Regional Water Supply Plan for the Central and Southern Planning Region and provide a review of the information to the Governing Board on an annual basis.

(6) The provisions of 40D-80.074(1)-(4), F.A.C. are informational, intended to provide an overview of resource conditions related to the water bodies for which minimum flows and levels have been established and the components of the Recovery Strategy. The provisions of the SWUCA minimum flows and levels and permitting rules in Chapters 40D-2, 40D-4 and 40D-80 shall control in the event of any conflict or inconsistency with the provisions of 40D-80.074(1)-(4).

(7) The District recognizes that although the rate of salt water intrusion (SWI) will be reduced through implementation of the Recovery Strategy, some existing legal uses of water may be affected by the continued movement of the salt water interface. The District's water supply planning indicates that much of the area potentially susceptible to SWI is experiencing land use transition from traditionally agricultural lands to forms of urban development. The water needs of these new land uses are planned to be met with alternative water supplies funded all or in part by the District to the greatest extent practical. In those cases where the existing permittee, impacted by SWI, desires to continue the existing legal water use, the District has a number of programs that address that situation. The District endeavors to minimize potential impact of any continued interface movement on existing legal uses that continue operations through proactive implementation of programs such as the Quality Water Improvement Program (QWIP), the Facilitating Agricultural Resource Management Systems program (FARMS), the New Water Source Initiative, the Water Supply and Resource Development Program, and the Cooperative Funding Program (as it relates to replacement of potentially affected water sources with alternative water supplies).

Specific Authority 120.54, 373.0421, 373.044, 373.113, 373.171 FS. Law Implemented 373.016, 373.023, 373.036, 373.0395, 373.042, 373.0421, 373.171 FS. History - New _____, 20XX.

3.0 Number of Individuals and Entities Likely to be Required to Comply

3.1 Summary of Compliance

Water use permittees and applicants for a Water Use Permit in the SWUCA will need to comply with the proposed rule revisions. The proposed rule revisions do not address individuals and entities located outside of the SWUCA. They are expected to have the following impacts on water use permittees and applicants in the SWUCA.

1. **Existing permittees who do not change the use type, who do not need additional water supplies, who apply to renew their permits on time, and who continue to put all of their permitted water quantities to reasonable beneficial uses** will be least affected by the proposed rule revisions. The following proposed rule revisions may apply to these permittees.

    a. Alternative Water Supplies. Consideration of the use of alternative water supplies upon permit renewal – Currently, conservation, reclaimed water and seawater desalination must be considered. The new definition of Alternative Water Supplies includes any water supply source that is designated as non-traditional for a water supply planning region. Alternative water sources that are economically, environmentally and technically feasible are to be evaluated by the renewal permittee or applicant to identify sources that could be used.

    b. Standby Water Quantities. For alternative water sources that are associated with standby water quantities, if standby water quantities need to be used because the alternative source fails to provide water, the permittee shall notifiy the District in writing each month for each subsequent 30 days that the standby source was used for up to one year.

    c. Multiple Water Supply Sources. Permittees with non-alternative and alternative supply shall use alternative supplies to replace non-alternative supplies to the greatest extent practical, based on economic, environmental and technical feasibility.

    d. Permitted Irrigation Water Quantities. For agricultural irrigation permittees growing crops without mulch, the water use efficiency used to calculate permitted water quantities and credits would be reduced from 80% to 75%.

    e. Self-Relocation. Permittees may move their permitted water quantities to other areas as long as there are no increased negative impacts to MFL water bodies at the new location above that which existed prior to the move and all other applicable permitting criteria are met.

f. Requirements for Public Supply Permittees and Applicants. Public supply permittees and applicants must comply with the following additions to current rule.

i. Provide updated service area maps at the time of permit modification and every five years for permits with durations longer than six years. Metadata must be provided with all electronic service area map submissions.

ii. Public supply applicants must provide the District permit numbers and the FDEP Public Water Supply Identifier numbers and area designation names for each service area when providing updated service area maps.

iii. Public supply permittees must use the "Requirements for the Estimation of Permanent and Temporal Service Area Populations," as set forth in Part D of the Basis of Review.

iv. A public supply utility may propose a Goal Based Water Conservation Plan in lieu of District water conservation requirements.

v. Permittees in the SWUCA who are not in the Eastern Tampa Bay Water Use Caution Area (ETB-WUCA) or the Highlands Ridge Water Use Caution Area (HR-WUCA) must achieve and maintain an adjusted gross per capita water use less than or equal to 150 gallons per person per day. Permittees in these WUCAs are required to comply with this water use standard under existing rule.

2. For existing permittees who change their Use Type, the application will be treated as a new application. The Use Types are Public Supply; Commercial/Industrial; Agricultural; Mining/Dewatering; and Recreation/ Aesthetic. This means that the permitted quantity associated with the change in use type will be treated as an application for new quantities. Withdrawal of these new quantities can be permitted only if they comply with the proposed MFLs with or without a Net Benefit and meet all other applicable rule criteria.

3. For renewing permittees who did not use all of their permitted quantities, the current, most available information will be needed from the permittee to justify the non-use and whether and how the unused quantities will be used in the future.

4. Existing permittees requesting new permitted water quantities and new water use permit applicants will be most impacted by the proposed rule revisions. If the requested new water withdrawal impacts an MFL water body as described in Chapter 2.0, then these permittees and applicants will need to use alternative water supplies in lieu of the non-alternative supplies or provide a Net Benefit to the affected surface or ground water resource. The rule revisions that may impact these permittees and new applicants are as follows.

a. **Additional application supplemental form** to fill out called, "Application for New Quantities within the SWUCA WUP" - In addition to filling out a regular "Water Use Permit Application", the applicant for new quantities from ground water will need to fill out this new supplemental form that addresses items in the proposed BOR 4.3.B regarding withdrawals in the SWUCA that affect MFLs water bodies.

b. **Stressed Lakes.** For applicants requesting new withdrawals from stressed lakes, they can get a permit if the withdrawals are restricted to times when the lake is at or above the High Minimum Level or the High Guidance Level provided all other conditions for permit issuance are met. Under current rule, new withdrawals from stressed lakes within the SWUCA shall not be permitted.

c. **Requested new withdrawals** that cause a water body's flow or level to fall below the MFL or where the withdrawal reduces the flow or level in water bodies already below the MFL will not be permitted unless a Net Benefit is provided. Under current rule, no minimum or guidance flows are established for the Peace River. The proposed rule establishes Minimum Flows for the upper Peace River. Under current rule, Guidance Levels are established for the 8 Lakes. Guidance Levels are used as advisory information for the District, lake shore residents and local governments or to aid in the management or control of adjustable structures. The proposed rule establishes Minimum Levels for the 8 lakes. The proposed salt water intrusion minimum aquifer level in the MIA (SWIMAL) will generally have the same effect as the current MIA constraints as described in the current Basis of Review, page B7.2-5. The difference is that withdrawals can be permitted under the proposed rule if a Net Benefit is provided. According to the District, in many cases, existing Chapter 40D-2 criteria is equally limiting in terms of the amount of water that may be permitted.

In addition to water use permittees and applicants in the SWUCA, the Southwest Florida Water Management District will incur costs associated with implementing the proposed rule revisions. These costs are addressed in Chapter 4.0 of this document.

3.2 Number of Existing Permittees Required to Comply

This section presents tables that summarize the number and types of existing water use permittees who will be required to comply with the proposed rule revisions. A summary of all existing water use permittees in the SWUCA is provided in Table 3.2-1. This table presents the number of permits, permitted water quantities, average permitted quantity per permittee and the percent of the total permitted quantity associated with each use type: Agriculture – Crop Irrigation; Agriculture – Livestock; Industrial / Commercial; Mining / Dewatering; Recreation / Aesthetic; and Public Supply. Within each use type, the information is presented for permits of all sizes; for permits with average daily permitted quantities less than 100,000 gallons per day (gpd); and for permits with average daily permitted quantities greater than or equal to 100,000 gpd. This information is from the District's regulatory database as of November 2005.

There are a total of 5,959 existing permits in the SWUCA as of November 2005. Each permit is associated with one or more persons listed as the permittee(s). Of these permits, 4,679 permits have average daily permitted quantities less than 100,000 gpd and 1,280 permits have average daily permitted quantities greater than or equal to 100,000 gpd. The total average daily permitted quantity is 1,228 million gallons per day (mgd) and the average permitted quantity per permittee is 206,051 gpd.

There are 4,887 water use permits for Agriculture – Crop Irrigation with 657.6 mgd of average daily permitted quantity, or 53.55% of the total permitted quantity in the SWUCA. The average permitted quantity per permittee is 134,552 gpd. Most of the permits, 3,898, have average daily permitted quantities less than 100,000 gpd.

There are 165 water use permits for Agriculture – Livestock with 10.5 mgd of total permitted quantities or 0.86 percent of the total permitted quantity in the SWUCA. The average permitted quantity per permittee is 63,905 gpd. Most of the permits, 145, have average daily permitted quantities less than 100,000 gpd.

There are 140 water use permits for Industrial / Commercial, which includes electric power generation, with 104.7 mgd of total permitted quantities or 8.53 percent of the total permitted quantity in the SWUCA. The average permitted quantity per permittee is 748,178 gpd. Most of the permits, 99, have average daily permitted quantities less than 100,000 gpd.

There are 61 water use permits for Mining / Dewatering, which includes phosphate mining, with 111.3 mgd of total permitted quantities or 9.06 percent of the total permitted quantity in the SWUCA. The average permitted quantity per permittee is 1,823,881 gpd. About one-half of the permits, 34, have average daily permitted quantities less than 100,000 gpd.

There are 522 water use permits for Recreation / Aesthetic, which includes golf course irrigation, with 54.5 mgd of total permitted quantities or 4.44 percent of the total permitted quantity in the SWUCA. The average permitted quantity per permittee is 104,412 gpd. Most of the permits, 396, have average daily permitted quantities less than 100,000 gpd.

There are 184 water use permits for Public Supply, which includes public and private water utilities, with 289.3 mgd of total permitted quantities or 23.56 percent of the total permitted quantity in the SWUCA. The average permitted quantity per permittee is 1,572,042 gpd. Almost 60 percent of the permits, 107, have average daily permitted quantities less than 100,000 gpd.

The next group of tables presents the number of permits and average daily permitted quantities for the primary uses within each use type. A summary of the Agricultural – Crop Irrigation water use permits by primary type of crop grown and by permit size is presented in Table 3.2-2. A water use permit may include multiple crops and uses. An Agricultural – Crop Irrigation permit is defined as one where the highest water use is allocated to irrigating a crop. The primary crop is that which is allocated the most permitted water. This table shows that the

largest primary use is citrus irrigation with 4,151 permits and 338.5 mgd of average daily permitted quantities allocated to 350,773 irrigated acres. Most of these permits, 3,539, are associated with less than 100,000 gpd average daily permitted quantity on the permit and are used to irrigate 122,455 acres. There are 612 citrus permits with at least 100,000 gpd average daily permitted quantity that are used to irrigate 228,318 acres.

Table 3.2-1
Summary of ALL Water Use Permittees in the SWUCA by Permittee Type, Number of Permits, and Average Daily Permitted Quantities in Gallons per Day (gpd), 2005

Permittee Type (Primary Water Use)	Size of Average Permitted Quantity per Permittee	No. of Permits	Permitted Quantity (gpd)	Permitted Quantity per Permittee	% of All Quantity
AGRICULTURE - Crop Irrigation	All Sizes	**4,887**	**657,555,605**	**134,552**	**53.55%**
	< 100,000 gpd	3,898	124,009,029	31,814	10.10%
	>or=100,000 gpd	989	533,546,576	539,481	43.45%
AGRICULTURE - Livestock	All Sizes	**165**	**10,544,400**	**63,905**	**0.86%**
	< 100,000 gpd	145	4,028,100	27,780	0.33%
	>or=100,000 gpd	20	6,516,300	325,815	0.53%
INDUSTRIAL/ COMMERCIAL	All Sizes	**140**	**104,744,900**	**748,178**	**8.53%**
	< 100,000 gpd	99	2,367,150	23,911	0.19%
	>or=100,000 gpd	41	102,377,750	2,497,018	8.34%
MINING/ DEWATERING	All Sizes	**61**	**111,256,750**	**1,823,881**	**9.06%**
	< 100,000 gpd	34	1,213,800	35,700	0.10%
	>or=100,000 gpd	27	110,042,950	4,075,665	8.96%
RECREATION/ AESTHETIC	All Sizes	**522**	**54,502,917**	**104,412**	**4.44%**
	< 100,000 gpd	396	9,451,215	23,867	0.77%
	>or=100,000 gpd	126	45,051,702	357,553	3.67%
PUBLIC SUPPLY	All Sizes	**184**	**289,255,656**	**1,572,042**	**23.56%**
	< 100,000 gpd	107	3,440,291	32,152	0.28%
	>or=100,000 gpd	77	285,815,365	3,711,888	23.28%
ALL PERMITTEE TYPES	All Sizes	**5,959**	**1,227,860,228**	**206,051**	**100.00%**
	< 100,000 gpd	**4,679**	**144,509,585**	**30,885**	**11.77%**
	>or=100,000 gpd	**1,280**	**1,083,350,643**	**846,368**	**88.23%**

Source: *Southwest Florida Water Management District, "Regulatory Database," as of November 2005.*

Table 3.2-2
Summary of Agricultural Irrigation Water Use Permits by Type of Crop Grown and by Permit Size, 2005

Primary Crop [a]	All Sizes			Less Than 100,000 gpd Average Permitted Quantity			Equal to and More Than 100,000 gpd Average Permitted Quantity		
	Number of Permits	Permitted Quantity (gpd)	Acres	Number of Permits	Permitted Quantity (gpd)	Acres	Number of Permits	Permitted Quantity (gpd)	Acres
Citrus	4,151	338,486,047	350,773	3,539	109,688,294	122,455	612	228,797,753	228,318
Pasture	130	35,793,500	35,743	79	3,515,400	4,422	51	32,278,100	31,321
Fall and Spring tomatoes	125	128,159,720	59,539	8	451,000	252	117	127,708,720	59,287
Melons	51	16,183,200	10,820	14	632,000	553	37	15,551,200	10,267
Container Nursery (incl. Citrus)	61	4,366,900	1,031	46	1,658,100	375	15	2,708,800	655
Fall and Spring Small Vegetable	45	8,072,400	6,718	31	1,255,500	1,167	14	6,816,900	5,552
Field Nursery (incl. Citrus)	55	9,971,251	3,823	39	1,668,650	562	16	8,302,601	3,260
Nurseries	29	1,967,840	491	24	915,640	216	5	1,052,200	275
Strawberries	38	6,372,742	3,093	20	1,018,140	431	18	5,354,602	2,662
Sod	51	32,619,300	19,583	7	520,500	277	44	32,098,800	19,306
Lawn & landscape irrigation	28	186,300	118	28	186,300	118	0	0	0
Commercial hay	22	2,385,900	3,064	16	978,100	1,000	6	1,407,800	2,064
Fall and Spring Peppers	10	7,055,100	4,050	3	258,800	124	7	6,796,300	3,926
Squash, zuchinni - (non cover crop)	4	513,100	293	2	159,200	110	2	353,900	183
Cucumbers, Fall & Spring	22	27,235,400	19,513	2	13,900	9	20	27,221,500	19,504
Blueberry	24	1,343,400	713	22	551,800	384	2	791,600	329
All Other Agricultural Uses (b)	41	36,843,505	23,581	18	537,705	595	23	36,305,800	22,986
Total	**4,887**	**657,555,605**	**542,946**	**3,898**	**124,009,029**	**133,051**	**989**	**533,546,576**	**409,895**

Source: *Southwest Florida Water Management District, "Regulatory Database," as of November 2005.*

(a) For permit numbers with "multiple withdrawal points" different crop types may be grown under the same permit. This table presents the total permitted quantity and total acreage of all crop types under the permit. The primary crop designation is the crop-type with the maximum acreage of all the uses. The acreage represents the intended land use at the time of permit application, renewal or modification. In any year, the land is not necessarily planted to the identified crop.

(b) "All Other Agricultural Uses" includes the following "use-types": All Beans; All Grains (Wheat, Rye, Barley, Sorghum, Etc.); Cabbage; Bok Choy; Celery; Cover Crop; Dairy Farming; Deciduous Fruit Trees (Incl. Lychee Nuts); Feed Corn, Silage Corn; Field Caladiums; Fish Farm (Edible); Other (Non-Crop) Miscellaneous Water Needs; Personal Sanitary Use; Potato; Research; Spray Mix For Crops; Spring Peanuts; Sweet Corn; Vegetables, Oriental.

A summary of the Agricultural – Livestock water use permits by primary water use and by permit size is presented in Table 3.2-3. This table shows that the largest primary use is tropical fish farms with 78 permits and 5.65 mgd of average daily permitted quantities. Most of these permits, 69, are associated with less than 100,000 gpd average daily permitted quantity on the permit. There are 9 tropical fish farm permits with at least 100,000 gpd average daily permitted quantity.

A summary of the Commercial / Industrial water use permits by primary water use and by permit size is presented in Table 3.2-4. This table shows that the largest primary use is consumptive cooling including cooling for chemical plants and electricity generation. This use is associated with 18 permits and 42.2 mgd of average daily permitted quantities. Most of these permits, 15, are associated with at least 100,000 gpd average daily permitted quantity on the permit. The average daily permitted quantity per permittee of these large users is 2.8 mgd.

A summary of the Mining / Dewatering water use permits by primary water use and by permit size is presented in Table 3.2-5. This table shows that the largest primary use is phosphate ore production with 5 permits and 94.8 mgd of average daily permitted quantities. All of these permits are associated with at least 100,000 gpd average daily permitted quantity on the permit. The average daily permitted quantity per permittee of these large users is 19 mgd.

A summary of the Recreation / Aesthetic water use permits by primary water use and by permit size is presented in Table 3.2-6. This table shows that the largest primary use is golf course irrigation with 126 permits and 30.3 mgd of average daily permitted quantities. Of these permits, 88, or 70 percent, are associated with at least 100,000 gpd average daily permitted quantity on the permit. The average daily permitted quantity per permittee of these large users is 324,259 gpd. There are more permits for lawn and landscape irrigation than for golf course irrigation, 326 versus 126. This use category has 18 mgd of average daily permitted quantities and most of these permittees have less than 100,000 gpd permitted to them. The average daily permitted quantity per permittee is 55,240 gpd.

A summary of the Public Supply water use permits by primary water use and by permit size is presented in Table 3.2-7. This table shows that the largest primary use is residential single family with 100 permits and 211.7 mgd of average daily permitted quantities. The average daily permitted quantity per permittee is 2.1 mgd. The majority of these permits, 57 percent, are associated with at least 100,000 gpd average daily permitted quantity on the permit. The average daily permitted quantity per permittee of these large users is 3.6 mgd. The average daily use of the smaller permittees that are permitted less than 100,000 gpd is 44,312 per permittee.

Table 3.2-3
Summary of Livestock Water Use Permits by Primary Water Use, Number of Permits and Permitted Quantities, 2005

Primary Water Use (a)	All Sizes				Less Than 100,000 gpd Average Permitted Quantity			Greater than or Equal to 100,000 gpd Average Permitted Quantity		
	No. of Permits	Permitted Quantity (gpd)	Permitted Quantity per Permittee	% of Total Permitted Quantity	No. of Permits	Permitted Quantity (gpd)	Permitted Quantity per Permittee	No. of Permits	Permitted Quantity (gpd)	Permitted Quantity per Permittee
Animals Unspecified	30	540,060	18,002	5.12%	29	130,060	4,485	1	410,000	410,000
Cattle - Feedlot	1	82,000	82,000	0.78%	1	82,000	82,000	0	0	- - -
Cattle - Pastured	28	151,200	5,400	1.43%	28	151,200	5,400	0	0	- - -
Cleaning/Maintenance	1	1,000	1,000	0.01%	1	1,000	1,000	0	0	- - -
Dairy Farming	16	3,395,550	212,222	32.20%	9	518,800	57,644	7	2,876,750	410,964
Fish Farm (Edible)	6	481,350	80,225	4.56%	4	138,500	34,625	2	342,850	171,425
Fish Farm (Tropical)	78	5,650,200	72,438	53.58%	69	2,935,500	42,543	9	2,714,700	301,633
Horses	2	2,240	1,120	0.02%	2	2,240	1,120	0	0	- - -
Livestock Cooling	2	204,800	102,400	1.94%	1	32,800	32,800	1	172,000	172,000
Poultry	1	36,000	36,000	0.34%	1	36,000	36,000	0	0	- - -
Total	**165**	**10,544,400**	**63,905**	**100%**	**145**	**4,028,100**	**27,780**	**20**	**6,516,300**	**325,815**

Source: *Southwest Florida Water Management District, "Regulatory Database," as of November 2005.*

(a) There may be more than one use per permit. The primary water use has the largest permitted quantities assigned to it within the permit.

Table 3.2-4
Summary of Industrial/Commercial Water Use Permits by Primary Water Use, Number of Permits and Permitted Quantities, 2005

	All Sizes				Less Than 100,000 gpd Average Permitted Quantity			Greater than or Equal to 100,000 gpd Average Permitted Quantity		
Primary Water Use [a]	**No. of Permits**	**Permitted Quantity (gpd)**	**Permitted Quantity per Permittee**	**% of Total Permitted Quantity**	**No. of Permits**	**Permitted Quantity (gpd)**	**Permitted Quantity per Permittee**	**No. of Permits**	**Permitted Quantity (gpd)**	**Permitted Quantity per Permittee**
Phosphate Chemical Processing	6	23,897,600	3,982,933	22.82%	0	0	- - -	6	23,897,600	3,982,933
Cement Manufacturing	18	554,000	30,778	0.53%	18	554,000	30,778	0	0	- - -
All Other [b]	60	4,130,800	68,847	3.94%	56	930,500	16,616	4	3,200,300	800,075
Chemical Manufacturing	5	11,479,200	2,295,840	10.96%	2	106,100	53,050	3	11,373,100	3,791,033
Juice Processing	6	3,114,700	519,117	2.97%	3	158,000	52,667	3	2,956,700	985,567
Food Processing	4	601,500	150,375	0.57%	2	7,800	3,900	2	593,700	296,850
Citrus and Truck Crop Packing	10	475,250	47,525	0.45%	9	342,850	38,094	1	132,400	132,400
Power Plant Boiler Make-Up Water	1	234,000	234,000	0.22%	0	0	- - -	1	234,000	234,000
Non-Power Plant Boiler Makeup Water	2	3,876,100	1,938,050	3.70%	1	76,100	76,100	1	3,800,000	3,800,000
Non-Power Plant Non-Consumptive Cooling	3	8,650,800	2,883,600	8.26%	1	13,400	13,400	2	8,637,400	4,318,700
Consumptive Cooling (Chemical,Cement, Electricity)	18	42,201,350	2,344,519	40.29%	3	130,800	43,600	15	42,070,550	2,804,703
General Product Manufacturing	7	5,529,600	789,943	5.28%	4	47,600	11,900	3	5,482,000	1,827,333
Total	**140**	**104,744,900**	**748,178**	**100.00%**	**99**	**2,367,150**	**23,911**	**41**	**102,377,750**	**2,497,018**

Source: *Southwest Florida Water Management District, "Regulatory Database," as of November 2005.*

(a) There may be more than one use per permit. The primary water use has the largest permitted quantities assigned to it within the permit.

(b) All other includes Air Conditioning, Aquifer Remediation, Asphalt Manufacturing, Augmentation for Replacement, Bottled Water, Cleaning and Maintenance, Commercial Use, Dilution, Fire protection/testing, Industrial Other Uses, Lime Processing Preparation, Personal Sanitary Use, Refrigeration, Water Used for Construction Purposes, Water Well Contracting and Permits Classified as Other.

Table 3.2-5
Summary of Mining/Dewatering Water Use Permits by Primary Water Use, Number of Permits and Permitted Quantities, 2005

Primary Water Use [a]	All Sizes				Less Than 100,000 gpd Average Permitted Quantity			Greater than or Equal to 100,000 gpd Average Permitted Quantity		
	No. of Permits	Permitted Quantity (gpd)	Permitted Quantity per Permittee	% of Total Permitted Quantity	No. of Permits	Permitted Quantity (gpd)	Permitted Quantity per Permittee	No. of Permits	Permitted Quantity (gpd)	Permitted Quantity per Permittee
Types of Permits That Use Permitted Water Quantities – Might Be in Need of Alternative Water Sources										
Phosphate Ore Production [b]	5	94,835,700	18,967,140	85.2%	0	0	- - -	5	94,835,700	18,967,140
Sand and Gravel Processing	16	4,193,700	262,106	3.8%	4	246,700	61,675	12	3,947,000	328,917
Types of Permits That Do Not Use Permitted Water Quantities – Would Not Be in Need of Alternative Water Sources										
Agricultural Production w/ Water Entrained	3	1,950,900	650,300	1.8%	0	0	- - -	3	1,950,900	650,300
Entrained Water w/ Product	21	534,700	25,462	0.5%	20	414,700	20,735	1	120,000	120,000
Environmental Dewatering	3	1,209,600	403,200	1.1%	2	109,600	54,800	1	1,100,000	1,100,000
Recirculated Mining Quantities	2	6,395,750	3,197,875	5.7%	0	0	- - -	2	6,395,750	3,197,875
Shell Pit Dewatering	9	1,040,900	115,656	0.9%	7	347,300	49,614	2	693,600	346,800
Water Discharges - Off-Site	2	1,095,500	547,750	1.0%	1	95,500	95,500	1	1,000,000	1,000,000
Total	**61**	**111,256,750**	**1,823,881**	**100%**	**34**	**1,213,800**	**35,700**	**27**	**110,042,950**	**4,075,665**

Source: *Southwest Florida Water Management District, "Regulatory Database," as of November 2005.*

(a) There may be more than one use per permit. The primary water use has the largest permitted quantities assigned to it within the permit.

(b) Includes one permittee with permitted quantity of 51.5 mgd issued on 5/5/05.

Table 3.2-6
Summary of Recreational/Aesthetic Water Use Permits by Primary Water Use, Number of Permits and Permitted Quantities, 2005

	All Sizes				Less Than 100,000 gpd Average Permitted Quantity			Greater than or Equal to 100,000 gpd Average Permitted Quantity		
Primary Water Use [(a)]	**No. of Permits**	**Permitted Quantity (gpd)**	**Permitted Quantity per Permittee**	**% of Total Permitted Quantity**	**No. of Permits**	**Permitted Quantity (gpd)**	**Permitted Quantity per Permittee**	**No. of Permits**	**Permitted Quantity (gpd)**	**Permitted Quantity per Permittee**
Golf course irrigation	126	30,290,002	240,397	55.6%	38	1,755,200	46,189	88	28,534,802	324,259
Lawn/landscape irrigation	326	18,008,120	55,240	33.0%	299	6,207,620	20,761	27	11,800,500	437,056
Augmentation for replacement	12	3,758,300	313,192	6.9%	4	310,800	77,700	8	3,447,500	430,938
Cemetary/parks/playgrounds	8	260,020	32,503	0.5%	8	260,020	32,503	0	0	- - -
Sports playing fields	26	648,800	24,954	1.2%	25	545,500	21,820	1	103,300	103,300
Personal sanitary use	5	41,575	8,315	0.1%	5	41,575	8,315	0	0	- - -
Augmentation for environmental	1	81,100	81,100	0.1%	1	81,100	81,100	0	0	- - -
Botanical specimen irrigation	4	913,500	228,375	1.7%	3	83,700	27,900	1	829,800	829,800
Augmentation for aesthetic	4	397,200	99,300	0.7%	3	61,400	20,467	1	335,800	335,800
Other uses	3	33,300	11,100	0.1%	3	33,300	11,100	0	0	- - -
Recreational animal watering use	1	30,000	30,000	0.1%	1	30,000	30,000	0	0	- - -
Water-based recreation	1	20,200	20,200	0.0%	1	20,200	20,200	0	0	- - -
Aesthetic use other than augmentation	1	4,800	4,800	0.0%	1	4,800	4,800	0	0	- - -
Fire fighting/testing	3	12,300	4,100	0.0%	3	12,300	4,100	0	0	- - -
Maintenance & Cooling	1	3,700	3,700	0.0%	1	3,700	3,700	0	0	- - -
Unaccounted Use	0	0	- - -	0.0%	0	0	- - -	0	0	- - -
Total	**522**	**54,502,917**	**104,412**	**100%**	**396**	**9,451,215**	**23,867**	**126**	**45,051,702**	**357,553**

Source: *Southwest Florida Water Management District, "Regulatory Database," as of November 2005.*
(a) There may be more than one use per permit. The primary water use has the largest permitted quantities assigned to it within the permit.

Table 3.2-7
Summary of Public Supply Water Use Permits by Primary Use, Number of Permits and Permitted Quantities, 2005

	All Sizes				Less Than 100,000 gpd Average Permitted Quantity			Greater than or Equal to 100,000 gpd Average Permitted Quantity		
Primary Water Use [(a)]	**No. of Permits**	**Permitted Quantity (gpd)**	**Permitted Quantity per Permittee**	**% of Total Permitted Quantity**	**No. of Permits**	**Permitted Quantity (gpd)**	**Permitted Quantity per Permittee**	**No. of Permits**	**Permitted Quantity (gpd)**	**Permitted Quantity per Permittee**
Residential Single Family	100	211,743,165	2,117,432	73.20%	43	1,905,400	44,312	57	209,837,765	3,681,364
Personal Sanitary Use	35	1,437,950	41,084	0.50%	32	634,050	19,814	3	803,900	267,967
Other Uses (Metered & Unmetered)	21	49,974,440	2,379,735	17.28%	14	423,640	30,260	7	49,550,800	7,078,686
Residential Multi-Family	12	1,110,500	92,542	0.38%	7	274,700	39,243	5	835,800	167,160
Fire Fighting/Testing	4	4,500	1,125	0.00%	4	4,500	1,125	0	0	- - -
Regional Public Supply System	4	24,550,000	6,137,500	8.49%	0	0	- - -	4	24,550,000	6,137,500
Residential Mobile Home	4	326,300	81,575	0.11%	3	89,200	29,733	1	237,100	237,100
Lawn & Landscape Irrigation	2	24,100	12,050	0.01%	2	24,100	12,050	0	0	- - -
Residential (Provided By A Non-Utility Provider)	2	84,701	42,351	0.03%	2	84,701	42,351	0	0	- - -
Total	**184**	**289,255,656**	**1,572,042**	**100%**	**107**	**3,440,291**	**32,152**	**77**	**285,815,365**	**3,711,888**

Source: *Southwest Florida Water Management District, "Regulatory Database," as of November 2005.*

(a) There may be more than one use per permit. The primary water use has the largest permitted quantities assigned to it within the permit.

The next group of tables summarizes the location of the existing permitted quantities in the SWUCA. The locations are the Eastern Tampa Bay WUCA outside of the Most Impacted Area, the Highlands Ridge WUCA, the Most Impacted Area of the Eastern Tampa Bay WUCA (MIA) and the rest of the SWUCA (non-WUCA SWUCA). A summary of all the permitted water use quantities by use type and location is provided in Table 3.2-8. Of the 1,228 mgd total permitted quantity in the SWUCA, 592 mgd are permitted in the non-WUCA SWUCA; 248 mgd are permitted in the MIA; 219 mgd are permitted in the Eastern Tampa Bay WUCA outside the MIA; and 169 mgd are permitted in the Highlands Ridge WUCA.

The locations of permitted quantities for each of the six use types by primary activity are provided in Table 3.2-9 through Table 3.2-14.

Table 3.2-8
Location of Permitted Quantities in SWUCA by Permittee Type, 2005

Permittee Type (Primary Water Use of Permittee)	Average Daily Permitted Quantities in gallons per day (gpd)				
	EASTERN TAMPA BAY WUCA (a)	HIGHLANDS RIDGE WUCA	MOST IMPACTED AREA	NON-WUCA SWUCA	TOTAL
AGRICULTURE - Crop Irrigation	92,361,150	113,262,352	163,535,416	288,396,687	657,555,605
AGRICULTURE - Livestock	390,650	549,100	3,477,700	6,126,950	10,544,400
INDUSTRIAL /COMMERCIAL	5,987,800	3,115,100	339,400	95,302,601	104,744,901
MINING/DEWATERING	57,963,700	5,525,500	3,352,050	44,415,500	111,256,750
RECREATION/ AESTHETIC	4,076,300	8,567,300	19,279,715	22,579,602	54,502,917
PUBLIC SUPPLY	57,968,040	37,740,965	58,057,741	135,488,910	289,255,656
TOTAL USAGE	**218,747,640**	**168,760,317**	**248,042,022**	**592,310,250**	**1,227,860,229**

Source: *Southwest Florida Water Management District, "Regulatory Database," as of November 2005.*
(a) Outside of the Most Impact Area which is reported separately.

Table 3.2-9
Location of Agricultural Irrigation Average Daily Permitted Water Quantities and Acreage by Type of Crop Grown, 2005

	EASTERN TAMPA BAY WUCA (b)		HIGHLANDS RIDGE WUCA		MOST IMPACTED AREA		NON-WUCA SWUCA		TOTAL	
Primary Crop (a)	**Permitted Quantity (gpd)**	**Acres**	**Permitted Quantity (gpd)**	**Acres**	**Permitted Quantity (gpd)**	**Acres**	**Permitted Quantity (gpd)**	**Acres**	**Permitted Quantity (gpd)**	**Acres**
Citrus	17,840,500	19,280	104,134,352	93,639	28,367,751	24,751	188,143,444	213,104	338,486,047	350,773
Pasture	1,962,700	2,218	1,355,500	2,389	2,660,000	1,401	29,815,300	29,735	35,793,500	35,743
Fall and Spring tomatoes	43,272,700	21,029	0	0	62,557,319	26,236	22,329,701	12,274	128,159,720	59,539
Melons	725,400	555	10,200	5	5,510,500	2,614	9,937,100	7,647	16,183,200	10,820
Container Nursery (incl. Citrus)	80,800	18	607,800	141	1,504,400	457	2,173,900	414	4,366,900	1030.54
Fall and Spring Small Vegetable	168,000	198	23,000	20	3,753,200	2,255	4,128,200	4,246	8,072,400	6,718
Field Nursery (incl. Citrus)	1,132,050	605	2,529,700	905	4,709,500	1,762	1,600,001	551	9,971,251	3,823
Nurseries	13,500	3	169,800	38	1,137,000	309	647,540	142	1,967,840	490.9
Strawberries	2,581,600	1,305	16,400	12	2,067,541	928	1,707,201	848	6,372,742	3,093
Sod	7,189,700	3,722	3,191,600	1,732	6,996,300	2,953	15,241,700	11,176	32,619,300	19,583
Lawn & landscape irrigation	6,700	4	59,000	35	0	0	120,600	79	186,300	118.1
Commercial hay	202,400	176	375,100	710	495,900	440	1,312,500	1,739	2,385,900	3,064
Fall and Spring Peppers	6,293,200	3,631	0	0	583,200	285	178,700	134	7,055,100	4,050
Squash, zuchinni	93,900	44	0	0	180,200	92	239,000	157	513,100	293
Cucumbers, Fall & Spring	2,740,100	1,945	0	0	21,656,700	14,941	2,838,600	2,627	27,235,400	19,513
Blueberry	147,700	98	736,500	354	299,800	160	159,400	102	1,343,400	713.1
All Other Agricultural Uses (c)	7,910,200	6,848	53,400	65	21,056,105	10,212	7,823,800	6,455	36,843,505	23,581
Total	**92,361,150**	**61,678**	**113,262,352**	**100,045**	**163,535,416**	**89,795**	**288,396,687**	**291,429**	**657,555,605**	**542,946**

Source: *Southwest Florida Water Management District, "Regulatory Database," as of November 2005.*

(a) For permit numbers with "multiple withdrawal points" different crop types may be grown under the same permit. This table presents the total permitted quantity and total acreage of all crop types under the permit. The primary crop designation is the crop-type with the maximum acreage of all the uses. The acreage represents the intended land use at the time of permit application, renewal or modification. In any year, the land is not necessarily planted to the identified crop.

(b) Outside the Most Impacted Area which is reported separately.

(c) "All Other Agricultural Uses" includes the following "use-types": All Beans; All Grains (Wheat, Rye, Barley, Sorghum, Etc.); Cabbage Bok Choy; Celery; Cover Crop (variable); Dairy Farming; Deciduous Fruit Trees (Incl. Lychee Nuts); Feed Corn, Silage Corn; Field Caladiums; Fish Farm (Edible); Other (Non-Crop) Miscellaneous Water Needs; Personal Sanitary Use; Potato; Research; Spray Mix For Crops; Spring Peanuts; Sweet Corn; Vegetables, Oriental.

Table 3.2-10
Location of Livestock Permitted Water Quantities by Primary Water Use, 2005

Primary Water Use [(a)]	Average Daily Permitted Quantities in gallons per day (gpd)				
	EASTERN TAMPA BAY WUCA (b)	HIGHLANDS RIDGE WUCA	MOST IMPACTED AREA	NON-WUCA SWUCA	TOTAL
Animals (Not Specified)	0	420,300	29,560	90,200	**540,060**
Cattle - Feedlot	0	0	0	82,000	**82,000**
Cattle - Pastured	13,600	1,900	6,600	129,100	**151,200**
Cleaning & Maintenance (i.e., Livestock Equipment)	1,000	0	0	0	**1,000**
Dairy Farming	42,000	90,900	381,300	2,881,350	**3,395,550**
Fish Farm (Edible)	152,850	0	82,300	246,200	**481,350**
Fish Farm (Tropical)	148,400	0	2,803,700	2,698,100	**5,650,200**
Horses	0	0	2,240	0	**2,240**
Livestock Cooling	32,800	0	172,000	0	**204,800**
Poultry	0	36,000	0	0	**36,000**
Total	**390,650**	**549,100**	**3,477,700**	**6,126,950**	**10,544,400**

Source: *Southwest Florida Water Management District, "Regulatory Database," as of November 2005.*

(a) There may be more than one use per permit. The primary water use has the largest permitted quantities assigned to it within the permit.

(b) Outside the Most Impacted Area which is reported separately.

Table 3.2-11
Location of Industrial/Commerical Permitted Water Quantities by Primary Water Use, 2005

Primary Water Use [a]	Average Daily Permitted Quantities in gallons per day (gpd)				
	EASTERN TAMPA BAY WUCA (b)	HIGHLANDS RIDGE WUCA	MOST IMPACTED AREA	NON-WUCA SWUCA	TOTAL
Phosphate Chemical Processing	0	0	0	23,897,600	**23,897,600**
Cement Manufacturing	0	35,600	126,600	391,800	**554,000**
All Other (c)	0	1,460,100	169,100	2,501,601	**4,130,801**
Chemical Manufacturing	5,985,000	0	0	5,494,200	**11,479,200**
Juice Processing	0	354,800	0	2,759,900	**3,114,700**
Food Processing	2,800	0	5,000	593,700	**601,500**
Citrus and Truck Crop Packing	0	169,200	29,000	277,050	**475,250**
Power Plant Boiler Make-Up Water	0	0	0	234,000	**234,000**
Non-Power Plant Boiler Makeup Water	0	0	0	3,876,100	**3,876,100**
Non-Power Plant Non-Consumptive Cooling	0	13,400	0	8,637,400	**8650800**
Consumptive Cooling (Chemical, Cement, Electricity)	0	0	0	42,201,350	**42,201,350**
General Product Manufacturing	0	1,082,000	9,700	4,437,900	**5,529,600**
Total	**5,987,800**	**3,115,100**	**339,400**	**95,302,601**	**104,744,901**

Source: *Southwest Florida Water Management District, "Regulatory Database," as of November 15, 2005.*

(a) There may be more than one use per permit. The primary use has the largest permitted quantities assigned to it within the permit.

(b) Outside the MIA which is reported separately.

(c) All other includes Air Conditioning, Aquifer Remediation, Asphalt Manufacturing, Augmentationf or Replacement, Bottled Water, Cleaning and Maintenance, Comercial Use, Dilution, Fire protection/testing, Industrial Other Uses, Lime Processing Preparation, Personal Sanitary Use, Refrigeration, Water Used for Construction Purposes, Water Well Contracting and Permits Classified as Other.

Table 3.2-12
Location of Mining/Dewatering Permitted Water Quantities by Primary Water Use, 2005

Primary Water Use [(a)]	Average Daily Permitted Quantities in gallons per day (gpd)				
	EASTERN TAMPA BAY WUCA (b)	HIGHLANDS RIDGE WUCA	MOST IMPACTED AREA	NON-WUCA SWUCA	TOTAL
Types of Permits That Use Permitted Water Quantities – Might Be in Need of Alternative Water Sources					
Phosphate Ore Production (c)	57,885,000	0	0	36,950,700	**94,835,700**
Sand and Gravel Processing	0	312,100	661,900	3,219,700	**4,193,700**
Types of Permits That Do Not Use Permitted Water Quantities – Would Not Be in Need of Alternative Water Sources					
Agricultural Production w/ Water Entrained	0	0	215,300	1,735,600	**1,950,900**
Entrained Water w/ Product	0	104,200	0	430,500	**534,700**
Environmental Dewatering	0	0	109,600	1,100,000	**1,209,600**
Recirculated Mining Quantities	0	5,109,200	1,286,550	0	**6,395,750**
Shell Pit Dewatering	78,700	0	78,700	883,500	**1,040,900**
Water Discharges - Off-Site	0	0	1,000,000	95,500	**1,095,500**
Total	**57,963,700**	**5,525,500**	**3,352,050**	**44,415,500**	**111,256,750**

Source: *Southwest Florida Water Management District, "Regulatory Database," as of November 2005.*

(a) There may be more than one use per permit. The primary water use has the largest permitted quantities assigned to it within the permit.

(b) Outside the Most Impacted Area which is reported separately.

(c) Includes one permittee with permitted quantity of 51.5 mgd issued on 5/5/05.

Table 3.2-13
Location of Recreational/Aesthetic Permitted Water Quantities by Primary Water Use, 2005

	Average Daily Permitted Quantities in gallons per day (gpd)				
Primary Water Use [(a)]	**EASTERN TAMPA BAY WUCA (b)**	**HIGHLANDS RIDGE WUCA**	**MOST IMPACTED AREA**	**NON-WUCA SWUCA**	**TOTAL**
Golf course irrigation	1,541,400	5,875,100	9,683,600	13,189,902	**30,290,002**
Lawn/landscape irrigation	1,762,800	1,315,500	9,038,720	5,891,100	**18,008,120**
Augmentation for replacement	549,000	0	195,800	3,013,500	**3,758,300**
Cemetary/parks/playgrounds	148,900	61,900	10,320	38,900	**260,020**
Sports playing fields	74,200	51,700	166,500	356,400	**648,800**
Personal sanitary use	0	15,400	24,475	1,700	**41,575**
Augmentation for environmental	0	81,100	0	0	**81,100**
Botanical specimen irrigation	0	829,800	83,700	0	**913,500**
Augmentation for aesthetic	0	335,800	4,000	57,400	**397,200**
Other uses	0	0	33,300	0	**33,300**
Recreational animal watering use	0	0	30,000	0	**30,000**
Water-based recreation	0	0	0	20,200	**20,200**
Aesthetic use other than augmentation	0	0	0	4,800	**4,800**
Fire fighting/testing	0	1,000	9,300	2,000	**12,300**
Maintenance & Cooling	0	0	0	3,700	**3,700**
Unaccounted Use	0	0	0	0	**0**
Total	**4,076,300**	**8,567,300**	**19,279,715**	**22,579,602**	**54,502,917**

Source: *Southwest Florida Water Management District, "Regulatory Database," as of November 2005.*

(a) There may be more than one use per permit. The primary use has the largest permitted quantities assigned to it within the permit.

(b) Outside the Most Impacted Area which is reported separately.

Table 3.2-14
Location of Public Supply Permitted Water Quantities by Primary Water Use, 2005

Primary Water Use [(a)]	Average Daily Permitted Quantities in gallons per day (gpd)				
	EASTERN TAMPA BAY WUCA (b)	HIGHLANDS RIDGE WUCA	MOST IMPACTED AREA	NON-WUCA SWUCA	TOTAL
Residential Single Family	24,198,100	35,839,965	57,499,000	94,206,100	**211,743,165**
Other Uses	16,172,000	454,600	123,840	33,224,000	**49,974,440**
Regional Public Supply System	17,510,000	732,000	0	6,308,000	**24,550,000**
Personal Sanitary Use	87,940	220,300	71,200	1,058,510	**1,437,950**
Residential Multi-Family	0	472,500	41,900	596,100	**1,110,500**
Residential Mobile Home	0	0	237,100	89,200	**326,300**
Residential (Provided By A Non-Utility Provider)	0	0	84,701	0	**84,701**
Lawn & Landscape Irrigation	0	19,600	0	4,500	**24,100**
Fire Fighting/Testing	0	2,000	0	2,500	**4,500**
Total	**57,968,040**	**37,740,965**	**58,057,741**	**135,488,910**	**289,255,656**

Source: *Southwest Florida Water Management District, "Regulatory Database," as of November 2005.*

(a) There may be more than one use per permit. The primary use has the largest permitted quantities assigned to it within the permit.

(b) Outside the Most Impacted Area which is reported separately.

3.3 New and Expanding Permittees in the SWUCA

This section estimates the potential number of new and expanding permittees that would request permits for new withdrawals in the SWUCA over the next 20 years (2005 to 2025). It is not known how many of these permittees and applicants requesting new quantities will need to provide a Net Benefit or obtain water from Alternative Water Sources. This section is comprised of two parts. Section 3.3.1 summarizes the current and future water demand and supply in the SWUCA. Section 3.3.2 provides estimates of the potential number of applicants for new permitted water quantities.

3.3.1 Current and Future Water Demand and Supply in the SWUCA

The forecasted water demands by use type and the available supplies by type of source and county were obtained from the District's draft Regional Water Supply Plan Update prepared in November 2005, Chapters 4 and 5. A summary of the additional water available by county and by source is provided in Table 3.3-1. The largest quantity of water is available in Sarasota County where 91 mgd of new water is available from nine sources. The largest source is 25.2 mgd of un-permitted surface water supplies. The next largest source is 20 mgd of seawater desalination. Other sources are 16.9 mgd saved from non-agricultural water conservation; 10.2 mgd from reclaimed water; 7.6 mgd of fresh ground water from the intermediate aquifer and the surficial aquifer; 7.5 mgd from desalinated brackish ground water; 1.8 mgd from unused permitted quantities in the upper Floridan Aquifer; 1.1 mgd from agricultural water conservation savings; and 0.7 mgd from permitted, unused surface water.

Manatee County has the next largest potential supply of water, or 64.2 mgd, distributed among nine source categories with 20 mgd coming from desalinated seawater, 10.4 mgd saved from non-agricultural water conservation and 10.2 mgd from reclaimed water. DeSoto County has about 63.4 mgd that could be developed with 35.3 mgd from un-permitted surface water and 22.3 mgd from permitted, unused surface water. Polk County has 50.7 mgd of new water that could potentially be available from five sources including 20.8 mgd of water saved from non-agricultural water conservation and 17.1 mgd of unused permitted quantities from the upper Floridan aquifer.

Charlotte County has 39.6 mgd potentially available from eight sources of which 17.6 mgd is un-permitted surface water and 7.8 mgd is fresh ground water from the intermediate and surficial aquifers. The portion of Hillsborough County that is in the SWUCA has 35.2 mgd that is potentially available from eight sources including 10 mgd from desalinated seawater and 6.8 mgd of water saved from non-agricultural conservation.

Highlands County has 15.9 mgd potentially available from six sources including 4.5 mgd from un-permitted surface water, 3.4 mgd saved from non-agricultural water conservation and 3.2 mgd from unused permitted quantities from the upper Floridan Aquifer. Hardee County has 15.1 mgd potentially available from six sources including 10 mgd from un-permitted surface water and 3.2 mgd saved from agricultural water conservation.

Table 3.3-1 Additional Water Available if Developed, 2000 to 2025, mgd

County	Total	Conservation		Desalination		Reclaimed Water (offset)	Surface Water		Fresh Ground Water	
		Agricult-ural	Non-Agricult-ural	Sea-water	Brackish Ground Water (a)		Permitted / Unused (b)	Un-permitted	IAS and SAS (c)	UFA Unused Permitted
CHARLOTTE	39.6	0.6	6.3	0.0	1.3	4.5	1.4	17.6	7.8	0.1
DESOTO	63.4	1.8	1.0	0.0	0.0	0.8	22.3	35.3	2.2	0.0
HARDEE	15.1	3.2	0.7	0.0	0.0	0.7	0.0	10.0	0.3	0.2
HIGHLANDS	15.9	1.4	3.4	0.0	0.0	1.7	0.0	4.5	1.7	3.2
HILLSBOROUGH (d)	35.2	3.4	6.8	10.0	0.0	4.2	4.3	0.4	3.5	2.6
MANATEE	64.2	4.3	10.4	20.0	0.0	10.2	8.0	3.9	6.7	0.7
POLK (d)	50.7	2.7	20.8	0.0	0.0	5.8	NA	NA	4.3	17.1
SARASOTA	91.0	1.1	16.9	20.0	7.5	10.2	0.7	25.2	7.6	1.8
TOTAL	375.1	18.5	66.3	50.0	8.8	38.1	36.7	96.9	34.1	25.7

Note: Values are rounded to the nearest 0.1 mgd.

Source: Taken from information in the SWFWMD's Regional Water Supply Plan Update, draft, November 2005, Chapter 5, Table 5-12.

(a) Available potable water supply is the currently unused permitted withdrawal times an assumed treatment efficiency of 0.7.

(b) With the exception of the Alafia River, which is part of Tampa Bay Water's Enhanced Surface Water System, surface water sources were generally assigned to the county and "area" in which the point of withdrawal occurs. A portion of the available flows from the Alafia and Hillsborough Rivers and the Tampa Bypass Canal will be used to complete the replacement of the scheduled reduction in capacities (68 mgd) of the central system wellfields by 2008. Water from the Peace River was distributed to Polk County for the MFLs restoration effort and Hardee County. (From draft November 2005 Regional Water Supply Plan Update, Chapter 5, Table 5-12.)

(c) Quantities are based on the projected demand that could be met using lower rates of production from the SAS and IAS. Assumes 30 percent of potable water demand is for outdoor use.

(d) The portions of Hillsborough County and Polk County that are in the SWUCA.

Water demand by county and use type in 2000, 2005, that projected for 2025 and the total additional water supplies that are potentially available are provided in Table 3.3-2. In Charlotte County, year 2000 water use was 42.2 mgd and 2005 water use was 42.4 mgd. By 2025, water demand is expected to increase to 48.8 mgd. This is a demand increase of 6.6 mgd from 2000 to 2025 and 6.4 mgd from 2005 to 2025. Two use types are expected to grow. Public Supply water demand is expected to grow by 10.4 mgd from 2000 to 2025 and by 8.2 mgd from 2005 to 2025. Recreation / Aesthetic water demand is expected to grow by 2.9 mgd from 2000 to 2025 and by 2.2 mgd from 2005 to 2025. The additional water available is 39.6 mgd which is sufficient to supply projected increased water demands in Charlotte County through 2025.

In DeSoto County, water demand is expected to fall from 59.6 mgd in 2005 to 48.2 mgd in 2025 or 11.4 mgd reduction. This reduction is attributed to a 13.1 mgd drop in demand by agriculture with no change in demand expected from Industrial / Commercial and Mining / Dewatering. Public Supply demand is expected to increase by 1.6 mgd and Recreation / Aesthetic demand is expected to increase by 0.1 mgd. Total additional available water supplies that could be developed in DeSoto County total 63.4 mgd.

Projections for Hardee County include a 36.2 mgd increase in demand from 2000 to 2025 and a 32.1 mgd increase in demand from 2005 to 2025. Most of this increase, 27.9 mgd and 25.6 mgd, respectively, is for agricultural irrigation. Only 15.1 mgd of additional alternative water supplies and water conservation savings is available to supply this demand increase. The District anticipates that some of this demand increase can be met by new ground water withdrawals that are not constrained by the proposed MFLs and meet the other, applicable permitting criteria. Also, self-relocation of permitted quantities from other counties may occur. For ground water withdrawals that cannot be permitted due to MFL constraints, a Net Benefit would need to be provided in order to access the ground water source. The District anticipates that the Net Benefit could come from reductions in ground water withdrawals in Hardee County, or, more likely, in Manatee, Polk and DeSoto counties where water demand for agricultural production is expected to decrease through 2025.

Highlands County is expected to experience a 7.1 mgd overall reduction in water demand through 2025 due to reduced demand for agricultural irrigation water. Water demands for Public Supply and Recreation / Aesthetic use types are expected to increase over the period. Additional available water supplies in the county total 15.9 mgd so it is likely that there will be significant additional water available through 2025.

Water demand is expected to increase significantly in the SWUCA portion of Hillsborough County through 2025. Demand by all use types is expected to increase by 31 mgd from 2000 to 2025 and by 26.9 mgd from 2005 to 2025. Most of this demand increase is attributed to Public Supply. Additional available water supplies in the county total 35.2 mgd which is sufficient to supply projected increased water demands in the county through 2025.

In Manatee County, increased Public Supply demand is expected to increase by 17.0 mgd through 2025 while Agricultural irrigation demand is expected to fall by 17.0 mgd through 2025.

Water demand by Commercial / Industrial water users and Recreation / Aesthetic water users is anticipated to increase by 0.3 mgd and 3.0 mgd, respectively, from 2005 to 2025. Overall water demand is expected to increase by 3.2 mgd from 2005 to 2025. Additional available water supplies in the county total 64.2 mgd which is sufficient to supply projected increased water demands in the county through 2025.

In Polk County, water demand reductions are expected in Agricultural irrigation and Industrial / Commercial and Mining / Dewatering use types. Water demand increases are expected for Public Supply and Recreation / Aesthetic use types. Overall water demand is expected to fall by 8.8 mgd from 2000 to 2025 and to increase by 3.7 mgd from 2005 to 2025. Additional available water supplies in the county total 50.7 mgd which is sufficient to supply projected increased water demands in the county through 2025.

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Water demand in Sarasota County is expected to increase by 28.7 mgd from 2000 to 2025 and by 19.0 mgd from 2005 to 2025. While all use types are expected to grow, Public Supply water demand growth is expected to comprise 22.7 mgd and 14.1 mgd of the growth in water demand, respectively. Additional available water supplies in the county total 91.0 mgd which is sufficient to supply projected increased water demands in the county through 2025.

According to the District's draft Regional Water Supply Plan Update, November 2005, Chapter 4, Section 5, "Environmental restoration comprises quantities of water that may need to be developed and/or existing quantities that need to be retired to meet established MFLs. The District is in the process of developing a recovery strategy for the SWUCA. One of the requirements of the strategy is a 50 mgd reduction in ground-water withdrawals in order to meet the Salt-Water Intrusion Minimum Aquifer Level in the Upper Floridan aquifer. This 50 mgd is included as a demand in the environmental restoration category. It is anticipated that this demand will be met between 2005 and 2025 by the gradual reduction in agricultural ground-water use as agricultural lands are replaced by urban land uses that will be supplied by alternative sources. Since the 50 mgd reduction will occur gradually, it is divided into increments of 12.5 mgd in each five-year time increment from 2005 to 2025."

From Table 3.3-2, the sum of the agricultural demand reductions through 2025 is 70.7 mgd. Assuming that 50.0 mgd of permitted groundwater quantities are retired for environmental restoration, 20.7 mgd would be available to supply increased demands of other counties and/or Use Types.

Detailed tables of the water use projections for each Use Type are provided in Tables 3.3-3 to 3.3-7. These tables were created using information in the District's draft Regional Water Supply Plan Update of November 2005 and water use forecast results provided by District staff.

Table 3.3-2
Water Demand Forecasts in the SWUCA by County Compared to Total Additional Water Available

County and Water Use Category	Water Demand, mgd					Additional MGD Available
	2000	2005	2025	Additional, 2000 to 2025	Additional, 2005 to 2025	
CHARLOTTE	**42.2**	**42.4**	**48.8**	**6.6**	**6.4**	**39.6**
Agriculture	18.7	17.6	13.5	-5.2	-4.0	
Public Supply	18.8	21.0	29.2	10.4	8.2	
IC / MD (a)	1.6	0.2	0.2	-1.4	0.0	
Rec./Aesthetic	3.0	3.6	5.8	2.9	2.2	
DESOTO	**82.9**	**59.6**	**48.2**	**-34.7**	**-11.4**	**63.4**
Agriculture	77.7	55.4	42.4	-35.3	-13.1	
Public Supply	3.6	3.8	5.5	1.8	1.6	
IC / MD	1.4	0.1	0.1	-1.3	0.0	
Rec./Aesthetic	0.2	0.2	0.2	0.1	0.1	
HARDEE	**62.9**	**67.1**	**99.1**	**36.2**	**32.1**	**15.1**
Agriculture	54.3	56.6	82.2	27.9	25.6	
Public Supply	2.5	2.5	3.1	0.6	0.6	
IC / MD	5.9	7.7	13.5	7.6	5.8	
Rec./Aesthetic	0.1	0.2	0.3	0.2	0.1	
HIGHLANDS	**56.6**	**60.3**	**53.2**	**-3.5**	**-7.1**	**15.9**
Agriculture	40.3	43.5	31.5	-8.8	-12.0	
Public Supply	12.7	13.1	17.3	4.6	4.2	
IC / MD	0.3	0.2	0.2	-0.1	0.0	
Rec./Aesthetic	3.3	3.5	4.1	0.9	0.7	
HILLSBOROUGH (b)	**77.4**	**81.5**	**108.4**	**31.0**	**26.9**	**35.2**
Agriculture	46.8	47.3	51.0	4.2	3.6	
Public Supply	22.0	24.0	45.1	23.1	21.1	
IC / MD	5.6	6.8	7.7	2.1	0.9	
Rec./Aesthetic	3.0	3.4	4.6	1.6	1.2	
MANATEE	**123.1**	**124.1**	**127.4**	**4.2**	**3.3**	**64.2**
Agriculture	77.0	70.8	53.8	-23.2	-17.0	
Public Supply	39.5	42.5	59.5	20.0	17.0	
IC / MD	1.0	4.3	4.6	3.6	0.3	
Rec./Aesthetic	5.6	6.5	9.4	3.8	3.0	
POLK (b)	**277.1**	**264.6**	**268.3**	**-8.8**	**3.7**	**50.7**
Agriculture	105.7	102.3	77.7	-28.0	-24.6	
Public Supply	81.7	80.9	106.0	24.4	25.1	
IC / MD	81.6	71.9	70.6	-10.9	-1.3	
Rec./Aesthetic	8.1	9.4	13.9	5.8	4.5	
SARASOTA	**57.3**	**67.0**	**86.0**	**28.7**	**19.0**	**91.0**
Agriculture	12.5	12.6	13.9	1.3	1.3	
Public Supply	35.9	44.5	58.7	22.7	14.1	
IC / MD	0.6	0.7	0.8	0.2	0.1	
Rec./Aesthetic	8.2	9.1	12.6	4.4	3.5	
RESTORATION	**0.0**	**0.0**	**50.0**	**50.0**	**50.0**	
TOTAL	**779.5**	**766.6**	**889.3**	**109.8**	**122.7**	**375.1**

Source: Taken from information in the District's draft Regional Water Supply Plan Update, November 2005, Section 4 and information provided by District staff.

(a) I/C M/D means Industrial / Commercial and Mining / Dewatering Use Types.

(b) The portions of Hillsborough County and Polk County that are in the SWUCA.

Table 3.3-3
Summary of Current and Forecasted SWUCA Public Supply, Domestic Self-Supplied and Additional Residential/Commercial Irrigation Demands in mgd By County

	2000				Change in Demand from 2000 to 2005			
County	**Public Supply**	**Domestic Self Supplied**	**Additional Irrigation Demand**	**Total**	**Public Supply**	**Domestic Self Supplied**	**Additional Irrigation Demand**	**Total**
Charlotte	14.21	3.46	1.14	18.81	1.14	0.93	0.10	2.17
DeSoto	1.30	2.15	0.16	3.62	0.12	0.10	0.01	0.23
Hardee	1.72	0.64	0.16	2.52	-0.01	0.03	0.00	0.03
Highlands	8.90	1.32	2.47	12.69	0.25	0.03	0.12	0.41
Hillsborough	19.50	1.85	0.69	22.04	1.96	-0.09	0.08	1.95
Manatee	38.25	0.17	1.09	39.51	2.87	0.02	0.14	3.03
Polk	75.31	5.13	1.22	81.66	-0.94	0.10	0.12	-0.72
Sarasota	31.68	0.86	3.38	35.92	8.25	0.10	0.25	8.60
Total	**190.89**	**15.58**	**10.30**	**216.77**	**13.65**	**1.21**	**0.84**	**15.70**
	2005				**Change in Demand from 2005 to 2025**			
County	**Public Supply**	**Domestic Self Supplied**	**Additional Irrigation Demand**	**Total**	**Public Supply**	**Domestic Self Supplied**	**Additional Irrigation Demand**	**Total**
Charlotte	15.35	4.39	1.23	20.98	5.98	1.71	0.48	8.17
DeSoto	1.43	2.25	0.17	3.85	0.60	0.94	0.08	1.62
Hardee	1.71	0.67	0.16	2.55	0.38	0.15	0.04	0.56
Highlands	9.15	1.36	2.60	13.10	2.92	0.43	0.83	4.18
Hillsborough	21.46	1.76	0.77	23.99	18.92	1.55	0.68	21.15
Manatee	41.12	0.19	1.23	42.54	16.43	0.07	0.49	16.99
Polk	74.37	5.22	1.35	80.94	23.06	1.62	0.42	25.10
Sarasota	39.94	0.95	3.63	44.52	12.69	0.30	1.15	14.14
Total	**204.54**	**16.80**	**11.14**	**232.47**	**80.97**	**6.78**	**4.17**	**91.92**
	2025				**Change in Demand from 2000 to 2025**			
County	**Public Supply**	**Domestic Self Supplied**	**Additional Irrigation Demand**	**Total**	**Public Supply**	**Domestic Self Supplied**	**Additional Irrigation Demand**	**Total**
Charlotte	21.33	6.11	1.71	29.15	7.12	2.65	0.58	10.34
DeSoto	2.02	3.19	0.25	5.46	0.72	1.03	0.09	1.84
Hardee	2.09	0.82	0.20	3.11	0.37	0.18	0.04	0.59
Highlands	12.07	1.79	3.42	17.29	3.17	0.47	0.95	4.59
Hillsborough	40.38	3.31	1.45	45.14	20.88	1.46	0.76	23.10
Manatee	57.55	0.26	1.72	59.53	19.30	0.09	0.63	20.03
Polk	97.43	6.84	1.76	106.04	22.12	1.71	0.54	24.38
Sarasota	52.62	1.25	4.78	58.66	20.94	0.40	1.41	22.75
Total	**285.51**	**23.58**	**15.30**	**324.39**	**94.62**	**8.00**	**5.00**	**107.62**

From: District-supplied Excel file of water demand calculations. Hillsborough County and Polk County include only that portion in the SWUCA.

Table 3.3-4
Water Demand Projections in the SWUCA for Industrial/Commercial, Mining/Dewatering and Power Generation in mgd, average rainfall year (a)

	Year						Additional Demand From 2005 to 2025	
County	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**MGD**	**% Increase**
Charlotte	1.62	0.19	0.20	0.20	0.21	0.21	0.02	1%
DeSoto	1.38	0.11	0.11	0.11	0.11	0.12	0.01	1%
Hardee	5.93	7.74	12.46	12.80	13.16	13.52	5.79	98%
Highlands	0.33	0.17	0.17	0.18	0.18	0.19	0.02	6%
Hillsborough in SWUCA	5.63	6.84	7.05	7.26	7.47	7.70	0.85	15%
Manatee	1.01	4.29	4.36	4.44	4.53	4.61	0.32	32%
Polk in SWUCA	81.56	71.94	66.05	67.53	69.06	70.63	-1.31	-2%
Sarasota	0.65	0.73	0.75	0.78	0.80	0.82	0.09	14%
TOTAL	**98.11**	**92.00**	**91.14**	**93.30**	**95.51**	**97.80**	**5.80**	**5.91%**

(a) Water demand for Mining/Dewatering and phosphate processing (industrial/commercial) is expected to remain constant through 2025 by moving south from Polk County to Hardee and Manatee counties. Water demand for power generation is expected to increase slightly.

Source: Southwest Florida Water Management District, Regional Water Supply Plan Update, draft, November 2005, Chapter 4, pages 7 and 8.

Table 3.3-5
Water Demand Projections in the SWUCA for Recreation / Aesthetic Uses in mgd, average rainfall year (a)

							Additional Demand From 2005 to 2025	
County	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**		
	Avg	**Avg**	**Avg**	**Avg**	**Avg**	**Avg**	**MGD**	**% Increase**
Charlotte	2.99	3.65	4.20	4.75	5.30	5.85	2.20	74%
DeSoto	0.17	0.18	0.20	0.21	0.23	0.24	0.06	33%
Hardee	0.15	0.19	0.22	0.25	0.29	0.32	0.13	90%
Highlands	3.26	3.48	3.65	3.82	3.98	4.14	0.66	20%
Hillsborough (b)	3.01	3.38	3.70	4.01	4.32	4.62	1.23	41%
Manatee	5.65	6.50	7.24	7.98	8.72	9.45	2.95	52%
Polk	8.15	9.39	10.53	11.66	12.80	13.92	4.53	56%
Sarasota	8.18	9.12	10.00	10.88	11.76	12.62	3.49	43%
TOTAL	**31.55**	**35.89**	**39.74**	**43.57**	**47.39**	**51.15**	**15.26**	**48%**

(a) Water demand for golf course and landscape irrigation is expected to increase through 2025 with increases in the demand for golf and population.

(b) The portions of Hillsborough County and Polk County that are in the SWUCA.
Source: Southwest Florida Water Management District, Regional Water Supply Plan, draft, November 2005, Chapter 4, pages 13 through 16.

Table 3.3-6
Environmental Restoration Needs in the SWUCA to Comply with the Saltwater Intrusion MFL in mgd, average rainfall conditions

Year	mgd
2005	0.00
2010	12.50
2015	25.00
2020	37.50
2025	50.00

Source: Southwest Florida Water Management District Regional Water Supply Plan, draft November 2005, Chapter 4, pagers 16 and 17.

Table 3.3-7
Irrigated Acreage and Annual Water Demand by Agriculture in the SWUCA and by County, 2005 and 2025

	SWUCA			CHARLOTTE			DESOTO		
	Irrigated Acres								
Major Crop Categories	**2005**	**2025**	**% Change**	**2005**	**2025**	**% Change**	**2005**	**2025**	**% Change**
Citrus	273,210	243,234	-10.97%	13,523	9,688	-28.36%	46,067	33,941	-26.32%
Cucumbers	2,090	1,449	-30.71%	21	15	-28.57%	69	48	-30.43%
Field Crops	2,909	2,818	-3.13%	0	0		0	0	
Melons	4,666	2,575	-44.82%	455	0	-100.00%	1,195	0	-100.00%
Nurseries	5,535	6,521	17.81%	200	354	77.00%	39	0	-100.00%
Other Veg/Row Crops	12,772	13,625	6.68%	300	300	0.00%	728	728	0.00%
Pasture	4,881	4,881	0.00%	150	150	0.00%	1,200	1,200	0.00%
Potatoes	2,882	2,526	-12.35%	0	0		252	221	-12.30%
Sod	14,608	14,608	0.00%	450	450	0.00%	3,660	3,660	0.00%
Strawberries	5,222	5,798	11.03%	12	12	0.00%	100	100	0.00%
Tomatoes	12,819	10,232	-20.18%	137	122	-10.95%	447	400	-10.51%
Total	**341,595**	**308,266**	**-9.76%**	**15,248**	**11,091**	**-27.26%**	**53,757**	**40,298**	**-25.04%**
	Annual Water Use Projections - Average Rainfall Conditions (MGD)								
Major Crop Categories	**2005**	**2025**	**% Change**	**2005**	**2025**	**% Change**	**2005**	**2025**	**% Change**
Citrus	250.53	215.03	-14.17%	13.39	9.59	-28.36%	38.70	28.51	-26.32%
Cucumbers	3.45	2.39	-30.71%	0.04	0.03	-28.57%	0.11	0.08	-30.43%
Field Crops	2.64	2.55	-3.13%	0.00	0.00		0.00	0.00	
Melons	10.16	5.69	-44.04%	0.98	0.00	-100.00%	2.53	0.00	-100.00%
Nurseries	26.99	31.94	18.32%	1.02	1.81	77.00%	0.19	0.00	-100.00%
Other Veg/Row Crops	16.28	17.30	6.23%	0.39	0.39	0.00%	0.95	0.95	0.00%
Pasture	4.42	4.42	0.00%	0.14	0.14	0.00%	1.08	1.08	0.00%
Potatoes	2.34	2.05	-12.35%	0.00	0.00		0.24	0.21	-12.30%
Sod	36.17	36.17	0.00%	1.15	1.15	0.00%	9.33	9.33	0.00%
Strawberries	11.99	13.30	10.95%	0.03	0.03	0.00%	0.24	0.24	0.00%
Tomatoes	30.61	24.51	-19.94%	0.34	0.30	-10.95%	1.07	0.96	-10.51%
Livestock Demand	10.60	10.60	0.00%	0.10	0.10	0.00%	1.00	1.00	0.00%
Total	**406.18**	**365.94**	**-9.91%**	**17.57**	**13.53**	**-22.96%**	**55.44**	**42.35**	**-23.61%**

Table 3.3-7, continued
Irrigated Acreage and Annual Water Demand by Agriculture in the SWUCA and by County, 2005 and 2025

	HARDEE			HIGHLANDS			HILLSBOROUGH IN SWUCA		
	Irrigated Acres								
Major Crop Categories	**2005**	**2025**	**% Change**	**2005**	**2025**	**% Change**	**2005**	**2025**	**% Change**
Citrus	56,779	92,163	62.32%	25,100	14,123	-43.73%	14,952	9,413	-37.05%
Cucumbers	692	479	-30.78%	0	0		392	272	-30.82%
Field Crops	634	614	-3.15%	53	52	-1.89%	266	258	-3.08%
Melons	993	0	-100.00%	222	179	-19.37%	101	82	-19.25%
Nurseries	405	546	34.81%	1,537	1,944	26.48%	1,413	1,866	32.06%
Other Veg/Row Crops	2,100	2,100	0.00%	34	34	0.00%	1,476	2,329	57.79%
Pasture	300	300	0.00%	210	210	0.00%	816	816	0.00%
Potatoes	0	0		0	0		0	0	
Sod	150	150	0.00%	1,090	1,090	0.00%	1,806	1,806	0.00%
Strawberries	300	300	0.00%	6	6	0.00%	4,004	4,580	14.38%
Tomatoes	537	480	-10.61%	0	0		2,592	4,163	60.58%
Total	**62,890**	**97,132**	**54.45%**	**28,252**	**17,638**	**-37.57%**	**27,820**	**25,583**	**-8.04%**
	Annual Water Use Projections - Average Rainfall Conditions (MGD)								
Major Crop Categories	**2005**	**2025**	**% Change**	**2005**	**2025**	**% Change**	**2005**	**2025**	**% Change**
Citrus	44.29	71.89	62.32%	31.88	17.94	-43.73%	11.96	7.53	-37.05%
Cucumbers	1.15	0.80	-30.78%	0.00	0.00		0.65	0.45	-30.82%
Field Crops	0.56	0.55	-3.15%	0.06	0.06	-1.89%	0.24	0.23	-3.08%
Melons	2.18	0.00	-100.00%	0.49	0.40	-19.37%	0.22	0.18	-19.25%
Nurseries	1.98	2.68	34.81%	7.69	9.72	26.48%	6.88	9.09	32.06%
Other Veg/Row Crops	2.77	2.77	0.00%	0.05	0.05	0.00%	1.76	2.77	57.79%
Pasture	0.27	0.27	0.00%	0.18	0.18	0.00%	0.73	0.73	0.00%
Potatoes	0.00	0.00		0.00	0.00		0.00	0.00	
Sod	0.37	0.37	0.00%	2.69	2.69	0.00%	4.50	4.50	0.00%
Strawberries	0.70	0.70	0.00%	0.01	0.01	0.00%	9.13	10.44	14.38%
Tomatoes	1.30	1.16	-10.61%	0.00	0.00		6.25	10.03	60.58%
Livestock Demand	1.00	1.00	0.00%	0.50	0.50	0.00%	5.00	5.00	0.00%
Total	**56.58**	**82.18**	**45.24%**	**43.55**	**31.54**	**-27.56%**	**47.32**	**50.96**	**7.68%**

Table 3.3-7, continued
Irrigated Acreage and Annual Water Demand by Agriculture in the SWUCA and by County, 2005 and 2025

	MANATEE			POLK			SARASOTA		
	Irrigated Acres								
Major Crop Categories	**2005**	**2025**	**% Change**	**2005**	**2025**	**% Change**	**2005**	**2025**	**% Change**
Citrus	20,316	11,855	-41.65%	94,107	68,939	-26.74%	2,366	3,114	31.61%
Cucumbers	830	575	-30.72%	0	0		86	60	-30.23%
Field Crops	455	441	-3.08%	823	797	-3.16%	678	656	-3.24%
Melons	1,579	2,216	40.34%	0	0		121	98	-19.01%
Nurseries	935	664	-28.98%	609	584	-4.11%	397	563	41.81%
Other Veg/Row Crops	7,024	7,024	0.00%	537	537	0.00%	573	573	0.00%
Pasture	1,450	1,450	0.00%	200	200	0.00%	555	555	0.00%
Potatoes	2,630	2,305	-12.36%	0	0		0	0	
Sod	4,000	4,000	0.00%	1,452	1,452	0.00%	2,000	2,000	0.00%
Strawberries	500	500	0.00%	300	300	0.00%	0	0	
Tomatoes	8,561	4,579	-46.51%	98	88	-10.20%	447	400	-10.51%
Total	**48,280**	**35,609**	**-26.25%**	**98,126**	**72,897**	**-25.71%**	**7,223**	**8,019**	**11.02%**
	Annual Water Use Projections - Average Rainfall Conditions (MGD)								
Major Crop Categories	**2005**	**2025**	**% Change**	**2005**	**2025**	**% Change**	**2005**	**2025**	**% Change**
Citrus	16.86	9.84	-41.65%	91.28	66.87	-26.74%	2.18	2.86	31.61%
Cucumbers	1.35	0.94	-30.72%	0.00	0.00		0.14	0.10	-30.23%
Field Crops	0.39	0.38	-3.08%	0.77	0.75	-3.16%	0.61	0.59	-3.24%
Melons	3.49	4.90	40.34%	0.00	0.00		0.26	0.21	-19.01%
Nurseries	4.38	3.11	-28.98%	2.92	2.80	-4.11%	1.93	2.74	41.81%
Other Veg/Row Crops	8.92	8.92	0.00%	0.71	0.71	0.00%	0.74	0.74	0.00%
Pasture	1.32	1.32	0.00%	0.17	0.17	0.00%	0.53	0.53	0.00%
Potatoes	2.10	1.84	-12.36%	0.00	0.00		0.00	0.00	
Sod	9.68	9.68	0.00%	3.51	3.51	0.00%	4.94	4.94	0.00%
Strawberries	1.17	1.17	0.00%	0.70	0.70	0.00%	0.00	0.00	
Tomatoes	20.34	10.88	-46.51%	0.24	0.21	-10.20%	1.08	0.97	-10.51%
Livestock Demand	0.80	0.80	0.00%	2.00	2.00	0.00%	0.20	0.20	0.00%
Total	**70.81**	**53.78**	**-24.06%**	**102.31**	**77.73**	**-24.03%**	**12.61**	**13.88**	**10.06%**

Source: Southwest Florida Water Management District, unpublished data received in November 2005.

3.3.2 Estimated Number of Applicants for New Permitted Quantities

The potential number of additional applicants for new water withdrawals was estimated by adding together the increased demands of those Use Types and counties where demands are expected to increase from 2005 to 2025 and dividing by the average daily permitted quantity per permittee for each Use Type. The demands were taken from the tables in Section 3.3 and the permitted quantity per permittee was taken from the tables in Section 3.2. The results are provided in Table 3.3-8.

Table 3.3-8
Estimated Potential Number of Additional Applicants for New Water Withdrawals in the SWUCA, 2005 to 2025, by Use Type (Applicants may be Existing Permittees or New Applicants) (a)

Use Type	Amount of Water Projected to be Requested, 2005 to 2025, mgd	Average Permitted Quantity per Permittee, mgd	Potential No. of Applicants for New Quantities Between 2005 and 2025	Number of Permittees in 2005	No. of Applicants as a % of Current Permittees
(1)	(2)	(3)	(4) = (2) / (3)	(5)	(6) = (4) / (5)
Public Supply (b)	80.97	1.60	51	184	28%
Agriculture – Irrigation (c)	42.33	0.13	315	4887	6%
Agriculture - Livestock	0.00	0.06	0	165	0%
Industrial/Commercial /Mining/Dewatering (d)	7.10	1.07	7	201	3%
Recreation/Aesthetic (e)	15.26	0.10	153	522	29%

(a) For each used type, based on increased demand from 2005 to 2025 divided by average permitted water quantity per permittee.

(b) Increased public supply demand is expected in all counties.

(c) Increased agricultural irrigation demand represents only those crops and counties for which an increase in demand is projected. It does not include the decreases in irrigation demand projected for all other crops and counties.

(d) Increased Industrial/Commercial/Mining/Dewatering demand represents only those counties for which an increase in demand is projected. It does not include the decreases in demand projected for all other counties.

(e) Increased demands for Recreation/Aesthetic Uses are projected in all counties except one which will see no change in demand.

The amount of water projected to be requested by applicants for Public Supply uses from 2005 to 2025 is estimated to be 80.97 mgd. The average permitted quantity per Public Supply permittee in 2005 was 1.6 mgd. Thus, the potential number of permittees and new applicants who could potentially request additional permitted quantities for Public Supply over the next 20 years is about 51. This represents 28 percent of the current number of Public Supply permittees. Some of these applicants may be existing permittees or entities who did not hold a water use permit for this Use Type in the District in 2005.

The amount of water projected to be requested by applicants for Agricultural irrigation uses from 2005 to 2025 is estimated to be 42.33 mgd. The average permitted quantity per Agricultural irrigation permittee in 2005 was 0.13 mgd (130,000 gpd). Thus, the potential number of permittees and new applicants who could potentially request additional permitted quantities for Agricultural irrigation over the next 20 years is about 315. This represents 6 percent of the current number of Agricultural irrigation permittees. Some of these applicants may be existing permittees or entities who did not hold a water use permit for this Use Type in the District in 2005.

No increases in water demand are projected for Agriculture – livestock uses. Therefore, applicants for new quantities to support livestock operations over the next 20 years are not anticipated. However, because this result is based on forecasted water demand, it is possible that some applicants could request permitted quantities to support livestock operations over the next 20 years.

The amount of water projected to be requested by applicants for Industrial/ Commercial and Mining/ Dewatering uses from 2005 to 2025 is estimated to be 7.10 mgd. The average permitted quantity per Industrial/ Commercial and Mining/ Dewatering permittee in 2005 was 1.07 mgd. Thus, the potential number of permittees and new applicants who could potentially request additional permitted quantities for Industrial/ Commercial and Mining/ Dewatering uses over the next 20 years is about 7. This represents 3 percent of the current number of Industrial/ Commercial and Mining/ Dewatering permittees. Some of these applicants may be existing permittees or entities who did not hold a water use permit for this Use Type in the District in 2005.

The amount of water projected to be requested by applicants for Recreation/ Aesthetic uses from 2005 to 2025 is estimated to be 15.26 mgd. The average permitted quantity per Recreation/ Aesthetic permittee in 2005 was 0.10 mgd (100,000 gpd). Thus, the potential number of permittees and new applicants who could potentially request additional permitted quantities for Recreation/ Aesthetic uses over the next 20 years is about 146. This represents 28 percent of the current number of Recreation/ Aesthetic permittees. Some of these applicants may be existing permittees or entities who did not hold a water use permit for this Use Type in the District in 2005.

4.0 Cost to the District and Any Other State and Local Government Entity

4.1 Cost to State or Local Government Entities Other than the District

The proposed rule revision is not expected to affect any State or local government entity other than the District unless the entity is a water use permittee in the SWUCA or requests new ground or surface water withdrawals in the SWUCA in the future. In these cases, Chapter 3 and 5 of this SERC describe and estimate the costs to these government entities as water use permittees and applicants.

4.2 Cost to the District

There are a number of proposed revisions to District rules that have the potential to increase costs to the District. Some increased costs are relatively easy to estimate as they are based on a known number of permits and activities such as the number of utilities that will have to submit a population estimate each year using the proposed estimation methodology. Others depend on one of a number of actions an individual permittee or applicant may take based on their particular circumstance. Their choices are affected by multiple and often site-specific factors that cannot be easily predicted and aggregated to a total cost. Where reasonable assumptions can be employed, cost estimates are provided. Times for activity subtasks are generally based on interviews with knowledgeable staff.

Most of the proposed revisions require only incremental changes to existing permitting activities. They are not expected to require significant reprogramming of software or new equipment. Overall, the proposed rule revision will likely require an additional full time equivalent regulatory professional engineer/geologist position. This person would be a permit evaluator. In general, the additional impact on other positions is relatively low. However, these estimates are believed to be conservative.

The following provides brief descriptions of the proposed rule revisions that may cause increases in costs to the District on both a recurring and non-recurring basis. Estimates are based primarily on the average annual number of new permits, modifications and renewals issued in the SWUCA in 2002, 2003 and 2004.

4.1.1 Recurring Annual Costs

The average costs expected to be incurred by the District on an annual basis are described below for each aspect of the proposed rule revisions. Given the best available information at this time, the total labor cost of the proposed rule revisions to the District is estimated to be about $112,000 per year, which includes the salary of the additional professional engineer/geologist position. The three activities most likely to increase staff costs are: increased emphasis on alternative source review (.436 full-time-equivalent persons or FTEs), review of need for unused permitted quantities (.372 FTEs) and the modeling and review of net benefit activities (.265 FTEs). There is reason to believe, however, that these are conservative estimates of future staffing needs. Emphasis on the use of alternative water sources resulting from this proposed rule revisions and previous rule revisions will increase the number of permit evaluations requiring more complex analysis of alternative and multiple water sources over time.

Evaluating Self-Relocation Requests. This is an expansion of self-relocation from the Most Impacted Area to the entire SWUCA. Under a self-relocation, the District must model the permitted water withdrawal at the existing site in order to determine the extent of the impacts that can be allowed at the proposed new site. Thus, the additional effort will be modeling the withdrawal at the existing site. Modeling at the new site would be conducted for a new permit request so it is not considered a cost of the proposed rule. The estimated annual number of self-relocations outside the MIA is based on the percentage of all new permits, modifications and renewals represented by self-relocations in the MIA times the number of new permits, modifications and renewals outside the MIA. This provision is not expected to cause a significant increase in workload. Calculation of the number of full time equivalent persons (FTEs) needed to conduct these modeling activities is provided in Table 4.1-1. Approximately 0.027 additional FTEs would be required per year.

Table 4.1-1
Self Relocation Expanded from MIA to SWUCA-Wide[(a)]

ACTIVITY DESCRIPTION	Number of Requests Per Year	Professional Geologist/ Professional Engineer	Water Use Permit Manager	Records Input	Records QA/QC	Staff Hydrologist
Activity - Small General Permits	5.03					
Minutes per Request:						
Modeling Old Site Change Impact		144	40			36
Input Changes at Old Site				2	2	
Sub-Total Minutes		723.83	201.06	10.05	10.05	180.96
Activity - Large General Permits	1.89					
Minutes per Request:						
Modeling Old Site Change Impact		192	40			48
Input Changes at Old Site				2	2	
Sub-Total Minutes		361.94	75.40	3.77	3.77	90.49
Activity - Individual Permits	3.36					
Minutes per Request:						
Modeling Old Site Change Impact		240	60			60
Input Changes at Old Site				2	2	
Sub-Total Minutes		805.40	201.35	6.71	6.71	201.35
Total Minutes/Year		1,891.17	477.82	20.54	20.54	472.79
Total FTEs		**0.018**	**0.005**	**0.000**	**0.000**	**0.004**

Increased Emphasis on Alternative Source Review. Increased emphasis will be placed on identifying feasible alternative sources to replace Floridan aquifer withdrawals. It is expected that the greatest emphasis will be placed on larger permits (general and individual) with Floridan aquifer quantities on the permit. The estimated number of permits subject to the increased emphasis was based on the annual number of new permits, non-letter modifications and renewals with Floridan or unidentified aquifer sources. This is one of the more labor-intensive activities. An estimated 0.273 FTEs of permit reviewer time and 0.092 FTEs of Water Use Permit Manager time will be needed each year. The calculation of this time is presented in Table 4.1-2. Approximately 0.436 FTEs would be required per year.

Documentation of Unused Quantities on Permit Renewals and Modifications. Increased emphasis is to be placed on addressing the future need for unused quantities on the permit at renewal or modification using the current, best available information. It is assumed that all renewals and modifications with unused quantities will undergo District review. For the purposes of this analysis, those permits (using any source) where less than 95 percent of the permit has been used would be subject to additional review. An estimated 0.282 FTEs of permit reviewer time and 0.070 FTEs of Staff Hydrologist time will be needed each year. The calculation of this time is presented in Table 4.1-3. Approximately 0.372 FTEs would be required per year.

Table 4.1-2
Increased Emphasis on Alternative Sources [(a)]

ACTIVITY DESCRIPTION	Number of Requests Per Year	Professional Geologist/ Professional Engineer	Water Use Permit Manager	Records Input	Records QA/QC	Staff Hydrologist
Activity - Small General Permits	458.09					
Minutes per Request:						
Increased Evaluator Research/Review		30	10			10
Sub-Total Minutes		13,742.60	4,580.87	0	0	4580.87
Activity - Large General Permits	123.00					
Minutes per Request:						
Increased Evaluator Research/Review		90	30			15
Sub-Total Minutes		11,069.70	3,689.90	0	0	1,844.95
Activity - Individual Permits	33.01					
Minutes per Request:						
Increased Evaluator Research/Review		120	45			30
Sub-Total Minutes		3960.80	1,485.3	0	0	900.20
Total Minutes/Year		28,773.10	9,756.07	0	0	7,416.02
Total FTEs		**0.273**	**0.092**	**0.000**	**0.000**	**0.070**

(a) Note: New/Renewals/Modifications w/Floridan or Unknown Aquifer - All Counties/Areas

Table 4.1-3
Documentation of Unused Quantities on Renewals/Modifications [(a)]

ACTIVITY DESCRIPTION	Number of Requests Per Year	Professional Geologist/ Professional Engineer	Water Use Permit Manager	Records Input	Records QA/QC	Staff Hydrologist
Activity - Small General Permits	24.72					
Minutes per Request:						
Increased Evaluator Research/Review		30	10			15
Sub-Total Minutes		741.60	247.20	0	0	370.80
Activity - Large General Permits	80.16					
Minutes per Request:						
Increased Evaluator Research/Review		225	15			60
Sub-Total Minutes		18,036.00	1,202.4	0	0	4809.60
Activity - Individual Permits	24.28					
Minutes per Request:						
Increased Evaluator Research/Review		450	30			90
Sub-Total Minutes		10,926.00	728.40	0	0	2,185.20
Total Minutes/Year		29,703.60	2,178.00	0	0	7,365.60
Total FTEs		**0.282**	**0.021**	**0.000**	**0.000**	**0.070**

(a) Note: Non-Letter Modifications and Renewals Where Pumpage < 95% of Prior Permitted Quantities.

New Public Supply Service Area Population Methodology Annual Review. The proposed estimation methodology requires more specific calculations and documentation that must be reviewed. The estimated number of annual submissions was based on the number of water supply utility permits in the SWUCA that have permitted quantities greater than or equal to 100,000 gpd. This is the number of permittees that will be required to submit per capita calculations annually using the proposed methodology. The workload is spread across several departments, depending on the complexity of the review. Approximately 0.114 FTEs of time among six positions will be needed each year. The calculation of this time is presented in Table 4.1-4.

Table 4.1-4
New PS Methodology Annual Review [(a)]

ACTIVITY DESCRIPTION	Number of Requests Per Year	PG/PE	Water Use Permit Manager	Records Input	Records QA/QC
Activity - All Permits	65.00				
Minutes per Request:					
Verification of Worksheets/Values		30		5	2
Reasonability Review		15	15		
Sub-Total Minutes		2,925.00	975.00	325.00	130.00
Activity - Problematic Review [(b)]	7.80				
Percent of Applicable Permits:	12.00%				
Minutes per Request:					
Geographic Area Selection		90	20		
Tourist/Commuter		90	40		
Per Permit Sub-Total		180	60	0	0
Sub-Total Minutes		1,404.00	468.00	0	0
Total Minutes/Year		4,329.00	1,443.00	325.00	130.00
Total FTEs		**0.041**	**0.014**	**0.003**	**0.001**

ACTIVITY DESCRIPTION	Water Conservation	Economist	Staff Hydrologist	Regulatory GIS	Senior Economist
Activity – All Permits					
Minutes per Request:					
Verification of Worksheets/Values			30		
Reasonability Review	30				
Sub-Total Minutes	1950.00	0	1950.00	0	0
Activity - Problematic Review [(b)]					
Minutes per Request:					
Geographic Area Selection	20	30			30
Tourist/Commuter	40	60			60
Per Permit Sub-Total	60	90	0	0	90
Sub-Total Minutes	468.00	702.00	0	0	702
Total Minutes/Year	2,418.00	702.00	1950.00	0	702
Total FTEs	**0.023**	**0.007**	**0.018**	**0.000**	**0.007**

(a) Note: PS Utilities Greater than or Equal to 100,000 gpd; (b) Assumes one additional RAI letter.

New Public Supply Service Area Population Methodology Review upon Renewal or Modification. This is usually a more in-depth review of population estimates to determine if service area population is growing at the projected rate. The incremental effort is due to the more specific calculations and documentation that must be reviewed. The estimated number of reviews was based on the annual number of renewals and modifications of public supply utility permits. Again, the workload is spread over several departments, depending on the complexity of the review. About 0.035 FTEs of time among 6 positions will be needed each year. The calculation of this time is presented in Table 4.1-5.

Table 4.1-5
New PS Methodology Renewal/Modification Review [(a)]

ACTIVITY DESCRIPTION	Number of Requests Per Year	PG/PE	Water Use Permit Manager	Records Input	Records QA/QC
Activity - All Permits	13.00				
Minutes per Request:					
Verification of Worksheet/Values		15		5	2
Reasonability Review		60	30		
Geographic Area Selection		15			
Sub-Total Minutes		1,170.00	390.00	65.00	26.00
Activity - Problematic Review	1.56				
% of Applicable Permits:	12.00%				
Minutes per Request:					
Geographic Area Selection		90	20		
Tourist/Commuter		120	40		
Per Permit Sub-Total		210	60	0	0
Sub-Total Minutes		327.60	93.6	0	0
Total Minutes/Year		1,497.60	483.60	65.00	26.00
Total FTEs		**0.014**	**0.005**	**0.001**	**0.000**

ACTIVITY DESCRIPTION	Water Conservation	Economist	Staff Hydrologist	Regulatory GIS	Senior Economist
Activity - All Permits					
Minutes per Request:					
Verification of Worksheet/Values			60		
Geographic Area Selection				15	
Sub-Total Minutes	0	0	780.00	195.00	0
Activity - Problematic Review					
% of Applicable Permits:					
Minutes per Request:					
Geographic Area Selection	20	45	60	30	45
Tourist/Commuter	40	90			90
Per Permit Sub-Total	60	135	60	30	135
Sub-Total Minutes	93.60	210.60	93.60	46.80	210.60
Total Minutes/Year	93.60	211	873.60	241.80	210.60
Total FTEs	**0.001**	**0.002**	**0.008**	**0.002**	**0.002**

(a) Based on estimate of utility renewals and modifications per year.

New Public Supply Service Area Boundary/Information Update. The proposed rules require that the service area boundaries and service area-related information be updated once every 5 years on permits with durations greater than six years. It was assumed that the typical duration of a utility permit is 10 years so each permit would be updated once during its life. The number of updates per year was estimated as the number of public supply utility permits divided by 10 (assuming they are spread evenly over time). The additional workload is spread over many positions. Approximately 0.014 additional FTEs of time will be needed each year. The calculation of this time is presented in Table 4.1-6.

Table 4.1-6
PS Service Area Boundary/Information Update [(a)]

ACTIVITY DESCRIPTION	Number of Requests/Yr	PG/PE	WUP Manager	Records Input	Records QA/QC
Activity - Mid-Term Updates	9.00				
Minutes per Request:					
Gather/Review Data		20	10		
Input Data				20	5
Review/Revise Boundaries					
Per Permit Sub-Total		20	10	20	5
Sub-Total Minutes		180.00	90.00	180.00	45.00
Activity - Problematic Review	1.08				
% of Applicable Permits:	12.00%				
Minutes per Request:					
Gather/Review Data		60	20		
Per Permit Sub-Total		60	20	0	0
Sub-Total Minutes		64.80	21.60	0.00	0
Total Minutes/Year		244.80	111.60	180.00	45.00
Total FTEs		**0.002**	**0.001**	**0.002**	**0.000**
ACTIVITY DESCRIPTION	**Water Conservation**	**Econ.**	**Staff Hydrologist**	**Regulatory GIS**	**Senior Economist**
Minutes per Request:					
Gather/Review Data			60		
Input Data				5	
Review/Revise Boundaries				15	
Per Permit Sub-Total				20	
Sub-Total Minutes	0.00	0.00	540.00	180.00	0.00
Activity - Problematic Review					
% of Applicable Permits:					
Minutes per Request:					
Gather/Review Data		60	15		30
Input Data				30	
Review/Revise Boundaries				30	
Per Permit Sub-Total	0	60	15	60	30
Sub-Total Minutes	0.00	64.80	16.20	64.80	32.40
Total Minutes/Year	0.00	64.80	556.20	244.8	32.40
Total FTEs	**0.000**	**0.001**	**0.005**	**0.002**	**0.000**

(a) Based on estimated duration and number of utility permits.

SWIMAL Impact Analysis. The proposed rules require cumulative analysis of withdrawals that could impact the Saltwater Intrusion Minimum Aquifer Level. The greatest incremental staffing impact will be from analysis of General permits. Small General permits generally have little or no measurable impact and Individual permit applications already generally undergo cumulative impact analysis. The number of additional cumulative analyses is estimated as the average annual number of new permits, non-letter modifications, and renewals that are Generals with increases in permitted quantities in Hardee, Hillsborough, Manatee, Polk and Sarasota counties that have Floridan or unidentified aquifer withdrawals. The additional workload primarily impacts water use permitting evaluators and managers. Approximately 0.026 additional FTEs of time will be required each year. The calculation of this time is presented in Table 4.1-7.

Table 4.1-7
SWIMAL Impact Analysis [(a)]

ACTIVITY DESCRIPTION	Number of Requests Per Year	Professional Geologist/ Professional Engineer	Water Use Permit Manager
Activity - All Permits	60.32		
Minutes per Request:			
Run/Review Models		30	15
Sub-Total Minutes		1,809.7	904.85
Total Minutes/Year		1809.7	904.85
Total FTEs		**0.017**	**0.009**

(a) New/Mod w/Increase/Renewal w/increase for Floridan or unknown aquifer for Hillsborough, Manatee, Sarasota, Polk, and Hardee counties.

Net Benefit – Mitigation with Recovery and Groundwater Replacement Credit. It is assumed in the SWUCA Recovery Strategy that about 41 percent of the quantities needed to meet future demand will come from land conversion and non-residential reuse. Given this assumption, it may be reasonable to assume that 41 percent of the estimated annual number of permits issued as new applications or modifications with requested increases in permitted quantities would involve some form of retirement of existing Floridan aquifer water with a change in use and location. These types of retirements are most likely to occur in Hillsborough, Hardee, Highlands, Manatee, Polk and Sarasota counties where impacts to MFLs are most likely to occur. Therefore, the estimated number of permits requiring additional analysis would be the average number of permits in the above mentioned counties that were new or had an increase in Floridan or unidentified aquifer withdrawals from 2002 to 2004, times 41 percent. An estimated additional 0.265 FTEs of permit evaluator/manager time will be required per year. The incremental costs of reviewing/processing other forms of net benefit are not estimated as they are not well known. The calculation of this time is presented in Table 4.1-8.

Table 4.1-8
Net Benefit [(a)]

ACTIVITY DESCRIPTION	Number of Requests Per Year	PG/PE	Water Use Permit Manager	Records Input	Records QA/QC	Staff Hydrologist
Activity - Small General Permits (Retirement)	84.5					
Minutes per Request:						
Historic Use Review & Modeling Old Site Change in Impact		144	40			36
Input Changes at Old Site				5	5	
Per Permit Sub-Total		144	40	5	5	36
Sub-Total Minutes		12,167.56	3,379.88	422.48	422.48	3,041.89
Activity - Large General Permits (Retirement)	23.96					
Minutes per Request:						
Historic Use Review & Modeling Old Site Change in Impact		192	40			48
Input Changes at Old Site				5	5	
Per Permit Sub-Total		192	40	5	5	48
Sub-Total Minutes		4,600.26	958.39	119.80	119.80	1,150.06
Activity - Individual Permits (Retirement)	4.13					
Minutes per Request:						
Historic Use Review & Modeling Old Site Change in Impact		240	60			60
Input Changes at Old Site				10	10	
Per Permit Sub-Total		240	60			60
Sub-Total Minutes		990.64	247.66	41.28	41.28	247.66
Total Minutes/Year		17,758.46	4,585.92	583.56	583.56	247.66
Total FTEs		**0.168**	**0.043**	**0.006**	**0.006**	**0.042**

(a) New/Mod w/Increase/Renewal w/increase for Hillsborough, Manatee, Sarasota, Polk, Highlands and Hardee counties where source is Floridan or unidentified aquifer.

4.1.2 Periodic and Non-Recurring Costs

Periodic Five Year Aquifer Level Review - Proposed revisions require the review of Floridan aquifer recovery progress every five years. It is anticipated that the data analysis required for the progress report would require about 320 hours (0.l82 FTE) of effort by a Professional Geologist or Engineer and 40 hours (0.022 FTE) of review time by the Hydrologic Evaluation Manager. The total labor cost per five-year review is $19,319.

Establishment of Reservations from Use - The proposed rules indicate that "The Governing Board anticipates reserving water from use water necessary to recover and protect the Minimum Flows and Levels established for the Southern Water Use Caution Area as set forth in Chapter 40D-8, F.A.C." The rule further indicates that the reservations will be adopted through future

rulemaking on a case-by-case basis. As of this time, it is not known how many reservations will be adopted by rule or when they will be adopted. It is expected, however, that the data analysis and rulemaking effort will be substantial.

Data Storage Requirements - There may be a need to develop new data fields or adapt existing but unused fields to accommodate new data storage requirements. This will likely be needed for the storage of public supply utility service area computer files and stressed lake withdrawal monitoring data. If data field programming is required, it is expected that it would require less than one-quarter FTE on a non-recurring basis.

4.1.3 Summary of Estimable Costs to the District

A summary of the District's annual cost to implement the proposed rule revisions is provided in Table 4.1-9. Overall, the proposed rule revision will likely require an additional full time equivalent regulatory professional engineer/geologist position. This person would be a permit evaluator. In general, the additional impact on other positions is relatively low. Given the best available information at this time, the total annual cost of the proposed rule revisions to the District is estimated to be about $112,000 per year, which includes the salary of the additional professional engineer/geologist position. These estimates are believed to be conservative.

Table 4.1-9
Summary of Estimable Annual Costs to the District

POSITION	Ratios / Total	PG/PE	Water Use Permit Manager	Records Input	Records QA/QC
Grade		18	20	12	14
Annual Mid-Point Salary		$66,144	$81,702	$32,552	$39,790
Salary w/Benefits @	**1.319**	$87,244	$107,765	$42,936	$52,483
Total Minutes		86,007	19,941	1,174	805
Total Hours		133.46	332.35	19.57	13.42
Hours/FTE		1,758	1,758	1,758	1,758
Total FTE	**1.289**	**0.815**	**0.189**	**0.011**	**0.008**
Total Cost	**$111,758**	**$71,138**	**$20,373**	**$478**	**$401**
POSITION	**Conservation Analyst**	**Economist**	**Staff Hydrologist**	**Regulatory GIS**	**Senior Economist**
Grade	15	16	17	15	18
Annual Mid-Point Salary	$44,491	$51,043	$56,576	$44,491	$66,144
Salary w/Benefits @	$58,684	$67,326	$74,624	$58,684	$87,244
Total Minutes	2,512	977	23,074	487	945
Total Hours	41.86	16.29	384.56	8.11	15.75
Hours/FTE	1,758	1,758	1,758	1,758	1,758
Total FTE	**0.024**	**0.009**	**0.219**	**0.005**	**0.009**
Total Cost	**$1,397**	**$624**	**$16,324**	**$271**	**$782**

The District will also incur costs every five years to evaluate progress in recovery of the Floridan aquifer. These costs are estimated to be approximately $19,000 every 5 years. As a result of the proposed rules, the District will also bear the costs of creating Reservations from use by rule to protect quantities needed for recovery. The District's cost to create Reservations is unknown at this time.

5.0 Transactional Costs

This chapter presents estimates of the transactional costs that may be incurred by water use permittees and applicants in the SWUCA as a result of the proposed rule revisions.

5.1 Summary of Costs

A summary of the transactional costs that might be incurred by individuals and entities identified in Chapter 3.0 is provided in Table 5.1-1 with explanatory notes. The table includes a description of the proposed rule change, a description of the cost, an estimate of the cost per permittee or applicant, and comments regarding how the costs were estimated.

Most of the costs were based on estimates of the number of hours it would require an applicant or permittee to take the actions necessary to comply and an average opportunity cost of time at $50 per hour. This opportunity cost represents the amount of money and other benefits that an applicant or permittee would pay or would receive if that person was engaged in his/her most productive activity, which would typically be other activities necessary to run a business or a water utility. For example, the $50 per hour could represent an employee earning $25 per hour or $52,000 per year plus a markup of 100 percent to cover health insurance, other benefits, overhead and profit.[1] These costs are estimates and will vary with the specific situation of each water use permittee and applicant.

The next section presents estimates of the incremental costs to develop alternative water sources. The remaining sections of this chapter present the potential financial impacts associated with developing and using alternative water sources to each Use Type.

5.2 Costs of Alternative Water Sources

The average incremental annualized capital and annual operations and maintenance (O&M) costs per 1,000 gallons of water supplied or saved, as in the case of conservation, for selected water supply projects and water conservation activities are provided in Table 5.2-1. All costs are in 2005 dollars. Costs are provided for projects located in: (1) the Peace River / Manasota Regional Water Supply Area (PR/M RWSA) which includes the counties of Manatee, DeSoto, Sarasota and Charlotte; (2) the Heartland Water Alliance (HWA) area which includes the counties of Polk, Highlands and Hardee; and (3) the portion of Hillsborough County in the SWUCA.

The estimated costs of developing and using Alternative Water Sources were taken from cost estimates provided in the draft Regional Water Supply Plan Update of November 2005. Projects were chosen that are expected to represent the variety of projects that would likely be available. The costs of the water sources were converted into the annualized capital and O&M costs per 1,000 gallons of water produced or, in the case of water conservation, of

[1] The average annual pay of all full-time employees in Florida in 2005 was estimated to be $41,600 which was inferred from information in the Florida Statistical Abstract 2004, University of Florida, Bureau of Economic and Business Research in Gainesville, Florida, page 232 and includes proprietor's income, wages and salaries and other labor income.

water saved. All capital costs were annualized over 20 years at 5.375 percent interest rate.[2] A description of the projects, the type of water user that could be served, the capital costs, the annual O&M costs, and the costs per 1,000 gallons are provided in this sub-section. The capital and O&M costs per 1,000 gallons (kgal) for each type of alternative water source are provided in Table 5.2-2.

The costs of a traditional water source that would be developed if protection of water resources was not a concern was deducted from these costs to obtain an incremental cost change associated with the use of alternative water sources in lieu of traditional sources. While the available traditional water source would vary by permittee, the Floridan aquifer was used as the traditional alternative source in this SERC. The estimated cost of this source is $0.22 per 1,000 gallons ($0.22 per kgal) which is composed of a $0.02 per kgal annualized capital cost and a $0.20 per kgal O&M cost. This cost estimate is the mid-point of the estimated costs of a one million gallon per day (mgd) Floridan aquifer well and a four mgd Floridan aquifer well. The itemized cost estimates are provided in Table 5.2-3 and Table 5.2-4 for a one mgd well and a four mgd well, respectively.

[2] The 2005 Federal planning rate for water resources projects is 5.375 percent per year. From Federal Register, December 9, 2004, Volume 69, Number 236, pages 71425 to 71426.

Table 5.1-1
Summary of Transactional Costs Associated with Proposed SWUCA II Rules to Water Use Permittees and Applicants in the SWUCA

Description of Proposed Rule Change	Description of Cost	Estimated Cost Per Permittee or Applicant	Comments
1. Additional application to fill out called, "Application for New Quantities within the SWUCA WUP" (pages 5 and 27 of 69)	In addition to filling out a regular "Water Use Permit Application", the applicant will need to fill out a new supplemental form that addresses items in the proposed BOR 4.3.B regarding withdrawals in the SWUCA that affect MFLs water bodies.	$400	Cost will vary among applicants. This cost estimate is a ball park estimate that includes the value of the applicant's time to fill out and review the form (8 hours at $50 per hour). This supplemental form is not an application so significant permittee time is not likely to be required. Excludes Cost to District to model impacts to MFL water bodies
2. WUP applicants and renewal permittees must consider the use of alternative sources in addition to those required by current rule and use them if feasible. Currently, evaluation of water reuse, conservation and seawater desalination is required. The additional sources include water storage, brackish water desalination or other non-traditional source. (pages 9, 38, and 63 of 69)	Applicants and permittees would need to identify potential alternative sources and assess whether they are economically, technically and environmentally feasible. The District will also be making this assessment so the person requesting permitted quantities from non-alternative sources would likely work with the District in this effort.	$3,600 to $240,000	The amount of effort that would need to be expended will likely increase with (1) increases in the size of the requested permitted quantities from non-alternative sources and (2) increases in the number of alternative sources that are evaluated over and above those already required to be evaluated under current rule. This cost estimate includes an engineering consultant's formal evaluation of alternatives associated with a range of 100,000 gpd to 5 mgd of requested water quantities and a 20% markup for permittee supervision.
3. Public supply permittees must provide: (1) updates of the utility's service area map at permit renewal and every 5 years (for permit durations > 6 years), (2) the metadata for the service area map if an electronic map is provided & (3) District	The effort involves providing an updated map to the District and saving the metadata on CD and giving it to the District. The public supply applicant would need to know the District and FDEP numbers to comply with current rules so the only effort is to provide them to the District	$100 at permit renewal and every five years	Two hours at $50 per hour. A compact disk costs about $0.25.

Table 5.1-1
Summary of Transactional Costs Associated with Proposed SWUCA II Rules to Water Use Permittees and Applicants in the SWUCA

Description of Proposed Rule Change	Description of Cost	Estimated Cost Per Permittee or Applicant	Comments
permit numbers and the FDEP Public Water Supply Identifier numbers and area designation names for each service area. (page 32 of 69)	during WUP application.		
4. If a renewing permittee did not use all of his/her permitted quantities, the current, most available information will be needed from the permittee to justify the non-use and how the unused quantities will be used in the future. (page 34 of 69)	The permittee may need to obtain and provide available documentation to the District such as materials orders or construction plans.	$150 to $800	The incremental cost will vary among permittees depending on the reason for their non-use and may be $0 relative to current rule. This cost estimate is provided as a range from 3 hours to 16 hours to document reason for non-use and justification for future use. Cost per hour is $50.
5. If standby quantities need to be used, the permittee shall notifiy the District in writing each month for each subsequent 30 days that the standby source was used for up to one year. (pages 35 and 36 of 69)	The permittee would need to write and mail a letter to the District each month for up to one year while the Alternative Source is not in use.	$25 to $305	One-half hour at $50 per hour per letter. Range reflects number of months: 1 and 12. Plus cost of stamps at $0.40 per stamp.
6. Permittees with non-alternative and alternative supply shall use alternative supplies to replace non-alternative supplies to the greatest extent practical, based on economic, environmental and technical feasibility. (page 38 of 69)	The cost to use the alternative supplies less the cost to use non-alternative supplies for a portion or all of the non-alternative permitted quantity.	See Table 5.2-1 and Chapter 5 for cost estimates	

Table 5.1-1
Summary of Transactional Costs Associated with Proposed SWUCA II Rules to Water Use Permittees and Applicants in the SWUCA

Description of Proposed Rule Change	Description of Cost	Estimated Cost Per Permittee or Applicant	Comments
7. Public supply permittees in the non-WUCA SWUCA must maintain the adjusted gross per capita water use at or below 150 gpcd. (page 38 of 69)	If the utility's adjusted gross per capita water use is greater than 150 gpcd, then the cost to the utility is the cost of additional water conservation programs or an approved goal-based water conservation plan.	See Table 5.2-1 and Chapter 5 for cost estimates	
8. Public supply permittees must use the "Requirements for the Estimation of Permanent and Temporal Service Area Populations," as set forth in Part D of the BOR. (pages 42 and 50 of 69)	Each year, public supply permittees would need to use certain data sources and mathematical formulas to calculate functional population.	Year 1 - $2,000 to $4,000; Years 2 and beyond - $1,000 to $2,000 per year. The annual cost increases with the geographic extent of the permittee's population because permanent population is obtained for each census block in the service area. The first year requires the most effort as the permittee learns the methods and data sources and sets up the computer file. In subsequent years, the effort required will be lower as the permittee becomes familiar with the process. 2 ranges of cost estimates are provided: One for Year 1 and one for each subsequent year. The cost includes the estimation of the required permanent and seasonal populations. The range represents a small utility (10,000 persons) and a large utility (200,000 persons). For the large utility the hours of effort are 80 in year one and 40 per year thereafter. For the small utility the hours of effort are 40 in year 1 and 20 per year thereafter. The hourly cost is $50.	
9. A public supply utility may propose a Goal Based Water Conservation Plan in lieu of District water conservation requirements. (page 51 of 69)	A utility will elect to participate in this opportunity if the cost-effectiveness to the utility is greater than current rule.	Benefit to Water Utility	No costs were estimated for this proposed rule change because a utility who chose to participate would do so only if it is better off financially.

Table 5.1-1
Summary of Transactional Costs Associated with Proposed SWUCA II Rules to Water Use Permittees and Applicants in the SWUCA

Description of Proposed Rule Change	Description of Cost	Estimated Cost Per Permittee or Applicant	Comments
10. For applicants requesting new withdrawals from stressed lakes, they can get a permit if the withdrawals are restricted to times when the lake is at or above the High Minimum Level or the High Guidance Level provided all other conditions for permit issuance are met. (page 53 of 69)	Under current rule, new withdrawals from stressed lakes within the SWUCA shall not be permitted.	Benefit to Applicants for new permitted quantities from stressed lakes.	More water from lakes is available if the applicant can use those quantities available when lake levels are at or above the High Minimum Level or the High Guidance Level, whichever is appropriate.
11. Requested new withdrawals that cause a water body's flow or level to fall below the MFL or where the withdrawal reduces the flow or level in water bodies already below the MFL will not be permitted unless a Net Benefit is provided. (pages 58 to 62 of 69)	Requests for new quantities in the SWUCA will be issued only where: (1) it is demonstrated that there will be no increased impacts to the Floridan aquifer Saltwater Intrusion Minimum Aquifer Level (SWIMAL); (2) that ground water resources in proximity to other MFL water bodies are stable or improving, and (3) the application meets all other applicable rule criteria. Existing saltwater intrusion, lake level, and stream flow criteria, including MFLs, may be equally or more limiting.	See Table 5.2-1 and Chapter 5 for cost estimates	Chapter 5.0 describes the cost to permittees and applicants in the event that no additional fresh ground water is available.

Table 5.1-1
Summary of Transactional Costs Associated with Proposed SWUCA II Rules to Water Use Permittees and Applicants in the SWUCA

Description of Proposed Rule Change	Description of Cost	Estimated Cost Per Permittee or Applicant	Comments
12. If a requested new withdrawal cannot be permitted because of its effect on MFL water bodies, then if the applicant can provide a Net Benefit, then the new withdrawal can be permitted provided that all other rule requirements are satisifed. (pages 60 to 62 of 69)	This option is voluntary on the part of the applicant. The applicant may provide a Net Benefit through Mitigation Plus Recovery, Use of Quantities Created by District Water Resource Development Projects or by obtaining Ground-Water Replacement Credits.	Benefit to applicants	Item 13 described in the previous row, provides the costs of having to develop alternative sources and/or implement additional water conservation when no additional water is available from fresh ground water sources. The Net Benefit option would be chosen by the applicant if it is less expensive than directly developing its own alternative sources and/or conservation programs either by itself or by cooperating with other entities.
13. Permittees may move their permitted quantities to other areas as long as there are no increased impacts to MFL water bodies at the new location and all other rule criteria are met. Called Self-Relocation.	This proposed rule change provides flexibility to a permittee who will be able to move permitted quantities to other areas and would be allowed to have the same and not greater impacts to the resource at the new location as at the old location.	Benefit to permittees	No costs of this proposed rule change are anticipated. Because it is voluntary, the permittee would only request a self-relocation if the benefits of requesting a self-relocation are expected to be greater than the costs of requesting a self-relocation.
14. In the SWUCA, any application for a change in Use Type shall be treated as a new application. Under current rule, a Formal Modification would be required before or at renewal. The difference is that a new application is treated as a request for new withdrawals and needs to comply with the SWUCA requirements for new withdrawals.	The same "Water Use Permit Application" would be filled out regardless of whether it is a new application, a formal modification or a renewal. If the withdrawals affect MFL water bodies then a Net Benefit would have to be provided in order to obtain the change in Use Type. Also, the fee for a new application is higher than the fee for a Formal Modification or a renewal.	See Table ES-5 and Chapter 5. If the request changes from a Formal Mod. to a new application, the fee increase is $700 for Individual permits, $174 for Large General permits: and $35 for Small General Permits.	

Table 5.2-1
Incremental Annualized Capital and O&M Costs per 1,000 Gallons of Water Supplied and Conserved Over and Above the Estimated Cost of Non-Alternative Water Supplies, All Water Users, 2005 Dollars (a)

Type of Water Supply	PR/MRWSA - Manatee, DeSoto, Sarasota, Charlotte			HWA - Polk, Higlands, Hardee			Hillsborough County in SWUCA		
	Capital	O&M	Total	Capital	O&M	Total	Capital	O&M	Total
Conservation (b)									
Agriculture	$0.00	$0.23	$0.23	$0.00	$0.23	$0.23	$0.00	$0.23	$0.23
Public Supply	$0.00	$0.45	$0.45	$0.00	$0.45	$0.45	$0.00	$0.45	$0.45
Domestic Self-Supply	$0.00	$0.06	$0.06	$0.00	$0.06	$0.06	$0.00	$0.06	$0.06
Non-Public and Non-Domestic Supply	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Desalination									
Seawater	$1.74	$2.59	$4.33	Not available in area			$0.94	$1.40	$2.34
Brackish Water	$1.38	$0.95	$2.33	Not available in area			Not available in area		
Reclaimed Water	$0.79	$0.25	$1.04	$1.10	$0.21	$1.31	$0.98	$0.15	$1.13
Surface Water – Permitted / Unused	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Surface Water – Unpermitted									
Potable	$1.65	$0.84	$2.49	$1.77	$0.73	$2.50	$1.22	$0.23	$1.45
Urban Irrigation (includes Rec/Aes)	$1.46	$0.40	$1.86	$1.77	$0.73	$2.50	--	--	--
All Other Water Use Permittees	$2.55	$1.15	$3.69	$1.77	$0.73	$2.50	--	--	--
Fresh Ground water									
Intermediate and Surficial Aquifer Systems (c)	$0.48	$0.00	$0.48	$0.48	$0.00	$0.48	$0.48	$0.00	$0.48
Upper Floridan Aquifer, unused permitted	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Rainwater Harvesting - Agriculture (d)	$1.14	$0.80	$1.94	$1.14	$0.80	$1.94	$1.14	$0.80	$1.94

From SWFWMD, draft 2005 Regional Water Supply Plan Update, November 2005, Chapter 7 - Water Supply Development Component, supplemented with information from District staff in early December 2005 and Floridan aquifer cost information from the District..

Notes: "Not available in area" Means that seawater or brackish water desalination is not available in these counties. "--" means that it is anticipated that the use of this water source in this area to supply additional water demands will be insignificant.

(a) The incremental cost of the alternative source is the cost of the alternative source as presented in the subsequent tables minus the estimated cost to pump water from the Floridan aquifer of $0.22 per kgal total cost ($0.02 per kgal capital cost and $0.20 per kgal O&M cost). The costs of unused permitted quantities from surface water sources were set to zero because they would be the likely source of most new water supplies if protection of water resources was not a concern.

(b) Conservation costs were not broken out by capital and O&M in the draft Regional Water Supply Plan Update. Thus, all costs were entered as O&M costs even though the actual costs are a combination of each.

Table 5.2-2
Annualized Capital and O&M Costs per 1,000 Gallons of Water Supplies and Conservation, All Water Users, 2005 Dollars

Type of Water Supply	PR/MRWSA - Manatee, DeSoto, Sarasota, Charlotte			HWA - Polk, Higlands, Hardee			Hillsborough County in SWUCA		
	Capital	O&M	Total	Capital	O&M	Total	Capital	O&M	Total
Conservation (a)									
Agriculture	$0.00	$0.45	$0.45	$0.00	$0.45	$0.45	$0.00	$0.45	$0.45
Public Supply	$0.00	$0.67	$0.67	$0.00	$0.67	$0.67	$0.00	$0.67	$0.67
Domestic Self-Supply	$0.00	$0.28	$0.28	$0.00	$0.28	$0.28	$0.00	$0.28	$0.28
Non-Public and Non-Domestic Supply	$0.00	$0.11	$0.11	$0.00	$0.11	$0.11	$0.00	$0.11	$0.11
Desalination									
Seawater	$1.76	$2.79	$4.55	NA in this area			$0.96	$1.60	$2.56
Brackish Water	$1.40	$1.15	$2.55	NA in this area			NA in this area		
Reclaimed Water	$0.81	$0.45	$1.26	$1.12	$0.41	$1.53	$1.00	$0.35	$1.35
Surface Water – Unpermitted									
Potable	$1.67	$1.04	$2.71	$1.79	$0.93	$2.72	$1.24	$0.43	$1.67
Urban Irrigation (includes Rec/Aes Use Type)	$1.48	$0.60	$2.08	$1.79	$0.93	$2.72	--	--	--
All Other Water Use Permittees	$2.57	$1.35	$3.91	$1.79	$0.93	$2.72	--	--	--
Fresh Ground water									
Intermediate and Surficial Aquifer Systems (b)	$0.50	$0.00	$0.50	$0.50	$0.00	$0.50	$0.50	$0.00	$0.50
Rainwater Harvesting - Irrigated Agriculture (c)	$1.16	$1.00	$2.16	$1.16	$1.00	$2.16	$1.16	$1.00	$2.16

Notes: "NA in this area" Means that seawater or brackish water desalination is not available in these counties. "--" means that it is anticipated that the use of this water source in this area to supply additional water demands will be insignificant.
From SWFWMD, draft 2005 Regional Water Supply Plan Update, November 2005, Chapter 7 - Water Supply Development Component, supplemented with information from District staff in early December 2005.
(a) Conservation costs were not broken out by capital and O&M in the draft Regional Water Supply Plan Update. Thus, all costs were entered as O&M costs even though the actual costs are a combination of each.
(b) From Chapter 7, page 62 of SWFWMD, draft 2005 Regional Water Supply Plan Update, November 2005. Includes only capital cost of horizontal wells to access the surficial aquifer. Unit cost includes well construction, pump, engine, piping, and controls and was estimated using FARMS methodology to be $0.50 per 1,000-gal for a system having a 400 gpm capacity.
(c) From Chapter 7, page 61 of SWFWMD, draft 2005 Regional Water Supply Plan Update, November 2005. Estimated cost of rainwater harvesting.

Table 5.2-3
Estimated Cost to Obtain Water from Fresh Ground Water Well - One MGD (a)

ITEM	UNIT	UNIT COST	NO. OF UNITS	TOTAL COST
Capital Cost				
I. Construction Costs				
Well Construction	Each	$60,000	1	$60,000
Pump	Each	$20,000	1	$20,000
I. Total Construction Cost				$80,000
II. Total Non-Construction Capital Costs				$36,000
III. Total Capital Cost				$116,000
Operating and Maintenance Cost (annual)				
Fuel ($2.5/gal *12gal/h)	Hours	$30	2433	$73,000
Total Annual O&M Cost				$73,000
Annualized Total Cost				$82,606
Total Project Cost per 1,000 gallons ADF				**$0.2263**
Annualized Capital Cost per 1,000 gallons ADF				**$0.0263**
Annual O&M Cost per 1,000 gallons ADF				**$0.2000**

Source: SWFWMD Estimate, January 2006
(a) Cost to install a well in Manatee County with 500 feet of casing and approximately 1200 to 1300 feet total depth. Pump capacity is 2,500 gpm. Project life is 20 years. Interest rate is 5.375% per year. Non-Construction cost is 0.45 times Construction cost.

Table 5.2-4
Estimated Cost to Obtain Water from Fresh Ground Water Well - Four MGD (a)

ITEM	UNIT	UNIT COST	NO. OF UNITS	TOTAL COST
Capital Cost				
I. Construction Costs				
Well Construction	Each	$60,000	1	$60,000
Pump	Each	$20,000	1	$20,000
I. Total Construction Cost				$80,000
II. Total Non-Construction Capital Costs				$36,000
III. Total Capital Cost				$116,000
Operating and Maintenance Cost (annual)				
Fuel ($2.5/gal *12gal/h)	Hours	$30	9733	$292,000
Total Annual O&M Cost				$292,000
Annualized Total Cost				$301,606
Total Project Cost per 1,000 gallons ADF				**$0.2066**
Annualized Capital Cost per 1,000 gallons ADF				**$0.0066**
Annual O&M Cost per 1,000 gallons ADF				**$0.2000**

Source: SWFWMD Estimate, January 2006
(a) Cost to install a well in Manatee County with 500 feet of casing and approximately 1200 to 1300 feet total depth. Pump capacity is 2,500 gpm. Project life is 20 years. Interest rate is 5.375% per year. Non-Construction cost is 0.45 times Construction cost.

The derivation of the alternative water source and conservation costs presented in Table 5.2-2 is provided below.

Conservation – Agriculture. The cost of $0.45 per kgal of water saved was derived from the District's assessment of the FARMS program that about 40 mgd of water could be saved over the next 25 years at a total cost of $80 million of which $40 million would be paid by the State of Florida and $40 million would be paid by growers. Amortizing the $80 million over 20 years at 5.375 percent interest rate yields an annualized cost of $6,625,092. Dividing this annualized cost by 40,000,000 gpd times 365 days per year times 1,000 gallons results in $0.45 per 1,000 gallons (kgal) of water saved. This would be an average cost over all conservation investments. Some of these investments are expected to cost less than $0.45 per kgal and others are expected to cost more than $0.45 per kgal.

FARMS stands for Facilitating Agricultural Resource Management Systems. The FARMS program is sponsored by the Southwest Florida Water Management District and the Florida Department of Agriculture and Consumer Services. It is a "cost-share reimbursement program for agricultural projects that benefit the environment", according to the program brochure. The State of Florida will reimburse growers for approved investments made to improve water quality; reduce Floridan Aquifer withdrawals; and/or conserve, restore or augment the area's water resources and ecology. The State will reimburse up to 50 percent for water quantity or water quality best management practices (BMPs) and up to 75 percent for water quality and water quantity combination BMPs.

Conservation – Public Supply, Domestic Self-Supply and Other Water Users. The calculation of cost per 1,000 gallons of water saved for non-agricultural water users is provided in Table 5.2-5. This information comes from pages 54 to 60 of the draft Regional Water Supply Plan Update of November 2005, Chapter 7 – Water Supply Development Component. The total capital and O&M cost per 1,000 gallons saved for each of eight water conservation programs and use categories is provided. For each program and use category, the estimated amount of water saved is also provided. From this information, the weighted average cost of conservation per 1,000 gallons was calculated for each use category over the eight programs where the weights are the quantity conserved by the use category as a percent of all water conserved in all programs for that use category. The weighted average cost of water conservation programs for Public Supply is $0.67 per kgal saved. The weighted average cost of water conservation programs for domestic self-supply is $0.28 per kgal saved.

The weighted average cost of water conservation programs for non-Public Supply water users is $0.11 per kgal saved. Within this category are Industrial / Commercial; Mining / Dewatering; and Recreation / Aesthetic Use Types. The weighted average cost of water conservation programs for Industrial / Commercial and Mining / Dewatering uses is $0.33 per kgal saved. The weighted average cost of water conservation programs for Recreation / Aesthetic uses is $0.08 per kgal saved.

Table 5.2-5
Non-Agricultural Water Conservation Program Costs

Project Name	Total Cost per 1,000 Gallons Saved					
	Public Supply	Domestic Self-Supply	Non-Residential Public Supply	I/C and M/D	Recreation / Aesthetic	Non-Public Supply
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Plumbing Retrofit Kit Give-Aways (Option #1)	0.35	0.29				
Ultra Low Flow Toilet (ULFT) Rebates (Option #2)	1.35	0.47				
Water Efficient Landscape & Irrigation System Rebates (Option #3)	0.8	0.62				
Industrial, Commercial & Institutional (ICI) Water Use Surveys (Opt. #4)			0.34	$0.17		
Industrial/Commercial Spray Valve Replacement Rebates (Option #5)			0.25			
Large Landscape Water Use Surveys (Option #6)	1.28			$1.16	$0.05	
Rain Sensor Shut-off Device Rebates (Option #7)	0.35	0.23			$0.10	
Landscape Water Budgeting (Option #8)	0.37					$0.13
Project Name	**Quantity Conserved (gpd)**					
Plumbing Retrofit Kit Give-Aways (Option #1)	23,440,000	950,000				
Ultra Low Flow Toilet (ULFT) Rebates (Option #2)	23,438,000	2,850,000				
Water Efficient Landscape & Irrigation System Rebates (Option #3)	27,030,000	5,320,000				
Industrial, Commercial & Institutional (ICI) Water Use Surveys (Option #4)			3,230,000	337,000		
Industrial/Commercial Spray Valve Replacement Rebates (Option #5)			600,000			
Large Landscape Water Use Surveys (Option #6)	610,000			66,000	4,230,000	
Rain Sensor Shut-off Device Rebates (Option #7)	17,427,000	44,070,000			5,290,000	
Landscape Water Budgeting (Option #8)	17,998,000					11,330,000
Total	109,943,000	53,190,000	3,830,000	403,000	9,520,000	11,330,000

Source: SWFWMD, draft 2005 Regional Water Supply Plan, Chapter 7 - Water Supply Development Component, pages 54 to 60.

Weighted Average Cost of Water Conservation Programs, Total Cost per 1,000 gallons Saved

Type of Water User	Cost per 1,000 Gallons Saved
Public Supply (columns (2) and (4))	$0.67
Domestic Self-Supply (column (3))	$0.28
Non-Public Supply Water Users (cols. (5),(6)&(7))	$0.11
Industrial/Commercial and Mining/Dewatering	$0.33
Recreation/Aesthetic	$0.08

Desalination Costs. Additional seawater desalination could be developed in the Northern Tampa Bay (NTB) Planning Area to serve the portion of Hillsborough County in the SWUCA. Seawater and brackish water desalination could be developed in the PR/M RWSA Planning Area to serve the counties of Manatee, DeSoto, Sarasota and Charlotte. Desalinated Brackish water could be produced in Charlotte County. The estimated costs of facilities to provide additional water from these sources and the estimated annual O&M costs are provided in the District's draft Regional Water Supply Plan Update of November 2005, Chapter 7 – Water Supply Development Component, pages 65 to 71.

These costs are provided in Table 5.2-6. The weighted average annualized capital and O&M cost of two desalination projects in the NTB planning area is $2.56 per kgal of water produced. The weighted average annualized capital and O&M cost of two desalination projects in the PR/MRWSA planning area is $4.55 per kgal.

In each planning area, the weights are based on the amount of water produced from each project as a percent of water produced by both projects. The one small brackish water desalination project in Charlotte County has an estimated annualized capital and O&M cost of $2.55 per kgal. The table provides separate estimates of the annualized capital cost per 1,000 gallons and the annual O&M cost per 1,000 gallons.

Reclaimed Water. Reclaimed water projects were identified in the District's Regional Water Supply Plan Update for the PR/MRWSA Planning Area, the HWA Planning Area, and south Hillsborough County in Chapter 7 – Water Supply Development Component on pages 34 through 51. These projects and their estimated annualized capital and O&M costs are listed in Tables 5.2-7, 5.2-8 and 5.2-9, respectively.

The weighted average annualized capital and O&M cost of the 45 projects in the PR/MRWSA Planning Area is $1.26 per kgal as shown at the bottom of Table 5.2-7. The weighted average annualized capital and O&M cost of the 32 projects in the HWA Planning Area is $1.53 per kgal as shown at the bottom of Table 5.2-8. The weighted average annualized capital and O&M cost of the 6 projects in south Hillsborough County is $1.35 per kgal as shown at the bottom of Table 5.2-9. In each area, the weights are based on the amount of water produced from each project as a percent of the water produced by all reclaimed water projects in the area. The tables provide separate estimates of the annualized capital cost per 1,000 gallons and the annual O&M cost per 1,000 gallons.

Surface Water. Surface water projects were identified in the District's Regional Water Supply Plan Update for the PR/MRWSA Planning Area and the HWA Planning Area in Chapter 7 – Water Supply Development Component on pages 3 through 29. These projects and their estimated annualized capital and O&M costs are listed in Tables 5.2-10 and 5.2-11, respectively. In the SWUCA area of southern Hillsborough County, the cost per 1,000 gallons associated with Tampa Bay Water's Enhance Surface Water System is also included.

This system is expected to provide the area with 3 mgd of water at a cost of $1.67 per kgal. (From District: 66 mgd at $361 million capital cost and $10.3 million annual O&M cost).

In the PR/MRWSA Planning Area, weighted average costs per kgal were estimated for potable water projects, urban irrigation projects, and non-urban irrigation projects in Table 5.2-10. Urban irrigation projects include projects that supply water to Recreation / Aesthetic Use Types, and non-urban irrigation projects include projects that supply water to Agricultural irrigation, Industrial/Commercial and Mining / Dewatering Use Types. The weighted average annualized capital and O&M cost of the 8 potable water projects is $2.71 per kgal. The weighted average annualized capital and O&M cost of the 3 urban irrigation projects is $2.08 per kgal. The weighted average annualized capital and O&M cost of the 4 non-urban projects is $3.91 per kgal. The weights are based on the amount of water produced from each project as a percent of water produced by all water projects in the sample. The tables provide separate estimates of the annualized capital cost per 1,000 gallons and the annual O&M cost per 1,000 gallons.

In the HWA Planning Area, weighted average costs per kgal were estimated for projects that can serve many types of water users – Public Supply, Agricultural, Industrial/Commercial and Recreation/Aesthetic Use Types. The weighted average annualized capital and O&M cost of the 6 water projects is $2.72 per kgal as shown in Table 5.2-11. A very high cost project is also included in Table 5.2-8. It is the development of a surface water source for agricultural ground water users that has been estimated to be able to supply 12 mgd at a cost of $5.45 per kgal. It is likely that such a high cost source would not be developed until all other lower cost sources were developed. Also, it is very unlikely that agricultural irrigators would be able to afford such a source unless others paid for most of this cost.

Fresh Ground Water From the Surficial and Intermediate Aquifers. Fresh water from the intermediate aquifer system and/or the surficial aquifer system are likely to be available in all SWUCA counties, with Charlotte, Manatee and Sarasota counties likely having access to 7.8 mgd, 6.7 mgd, and 7.6 mgd, respectively as shown in Table 3.3-1.

According to the District's draft Regional Water Supply Plan Update, "A significant percentage of agricultural production in the SWUCA is on spodic soils, which have a distinct layer called a spodic horizon. The spodic horizon, generally at a depth of three feet, acts as an aquitard, restricting the downward movement of water and maintaining the water table at, near, or above land surface, especially during the wet season (normally June through September). The close proximity to the surface of the surficial aquifer facilitates its use for options that include tailwater recovery and horizontal wells." (RWSP, 11/05, page 62)

The unit cost of a horizontal well system to obtain water from the surficial aquifer is estimated to be $0.50 per kgal for a system having a 400 gallons per minute (gpm) capacity and includes the horizontal well construction, pump, engine, piping, and controls. This value was estimated by the District using the FARMS methodology and is found on page 62 of Chapter 7 – Water Supply Development Component. This cost was used to represent the cost to access the surficial and intermediate aquifers.

Unused, Permitted Quantities from the Floridan Aquifer and Surface Water Sources. Polk, Highlands and Hillsborough counties have 17.1 mgd, 3.2 mgd and 2.6 mgd of unused, permitted quantities from the Floridan aquifer as shown in Table 3.3-1. DeSoto, Hillsborough and Manatee counties have 22.3 mgd, 4.3 mgd and 8 mgd of unused, permitted surface water as shown in Table 3.3-1. The incremental costs of these sources were set to zero because these water resources would be the likely source of most new water supplies if protection of water resources was not a concern.

Rainwater Harvesting for Irrigated Agriculture. In addition to water conservation activities, growers may be able to access additional water supplies by controlling the water that would otherwise run off the land. According to the District's Regional Water Supply Plan Update, November 2005, Chapter 7, page 63:

> "Because normal annual precipitation is greater than evapotranspiration, there is a net excess of water that runs off nearly all agricultural land in the District. During the wet season there is an abundance of runoff; during a normal dry season the runoff is sporadic. During the wet season a relatively small network of ditches can provide the necessary hydraulic conditions to yield meaningful quantities of water. However, during the dry season the ability to store water between runoff events in a reservoir becomes critical.
>
> Given these commonly encountered design conditions, a farm-scale prototype rainwater harvesting conceptual plan was developed to generate planning estimates of potential water savings. The site is typical of many row crop farms in the SWUCA. The crops assumed to be grown are fall and spring tomatoes; the total field acreage is approximately 1,000-acres, split in thirds between fall land, spring land, and fallow land. The production land is assumed to be rotated among all the fields. The predominate soil is the Myakka series. This scenario could justify an annual average water use allocation of approximately 1.5 mgd.
>
> The major components of the conceptual plan include: a surface water withdrawal pump station; a 30-acre irrigation reservoir, pump station, and distribution system; and a surface water runoff interception/diversion ditch."

The rainwater harvesting system's cost per kgal is reported on page 61 and is $2.16 per kgal. This is a relatively expensive water source for agricultural operations. The higher valued agricultural products such as nurseries may be able to use this option. Because the costs are expected to vary from farm to farm, this investment may provide additional water supplies that are affordable to some growers. However, water efficient technology and management and other water sources are usually more cost-effective.

Table 5.2-6
Desalination Costs

Project Description	Quantity Produced (mgd)	Capital Cost	Cost per MGD	Annual O&M	Cost per 1,000 Gallons		
					Capital	O&M	Total
SEAWATER DESALINATION							
NTB Planning Area							
Anclote Power Plant (Option #1)	25	$123,553,032	$4,942,121	$14,967,140	$1.12	$1.64	$2.76
Big Bend Power Plant Expansion (Option #2)	10	$24,337,623	$2,433,762	$5,493,431	$0.55	$1.51	$2.06
Weighted Average Cost					**$0.96**	**$1.60**	**$2.56**
PR/MRWSA Planning Area							
Port Manatee (Option #1)	20	$157,295,192	$7,864,760	$20,359,461	$1.78	$2.79	$4.57
Venice (Option #2)	20	$152,925,988	$7,646,299	$20,318,888	$1.73	$2.78	$4.52
Weighted Average Cost					**$1.76**	**$2.79**	**$4.55**
BRACKISH WATER DESALINATION							
PR/MRWSA Planning Area							
Charlotte County Conceptual Site (Option #1)	1	$6,151,925	$6,151,925	$421,287	**$1.40**	**$1.15**	**$2.55**

Source: SWFWMD, draft 2005 Regional Water Supply Plan, Chapter 7 - Water Supply Development Component, pages 65 to 71.

Table 5.2-7
Reclaimed Water Supply Projects Selected to Represent the Costs of Alternative Water Supplies in the Peace River Area
(Manatee, DeSoto, Sarasota and Charlotte Counties)

Future Project Name	County	Type	Supply	Offset	Capital Cost	Cost per 1,000 gallons Offset		
						Capital	O&M	Total
Bradenton Agricultural Reuse and Natural Systems Restoration	Manatee	Sys. Expan	4.80	4.00	$4,770,000	$0.27	$0.36	$0.63
Punta Gorda Saltwater Barrier	Charlotte	Saltwater Bar.	2.49	2.49	$10,260,000	$0.93	$0.30	$1.23
Reuse Expan in Charlotte Corr. WWTP 2011-2025	Charlotte	Sys. Expan. Toilet	0.15	0.15	$485,000	$0.73	$0.30	$1.03
Reuse Expan in Charlotte Co. East WWTP 2011-2025	Charlotte	Sys. Expan.	1.15	0.69	$3,715,000	$1.22	$0.50	$1.72
Reuse Expan in Charlotte Co. W. WWTP 2011-2025	Charlotte	Sys. Expan	0.01	0.01	$32,000	$0.73	$0.30	$1.03
Reuse Expan in Rampart WWTP 2011-2025	Charlotte	Sys. Expan	0.13	0.08	$420,000	$1.19	$0.49	$1.68
Reuse Expan in Riverwoods WWTP 2011-2025	Charlotte	Sys. Expan	0.05	0.03	$162,000	$1.23	$0.50	$1.73
Reuse Expan in Sandlehaven WWTP 2011-2025	Charlotte	Sys. Expan	0.05	0.03	$162,000	$1.23	$0.50	$1.73
Reuse Expan in Punta Gorda WWTP 2011-2025	Charlotte	Sys. Expan	2.49	1.49	$8,043,000	$1.22	$0.50	$1.72
Reuse Expan in Burnt Store WWTP 2011-2025	Charlotte	Sys. Expan	0.25	0.15	$808,000	$1.22	$0.50	$1.72
Reuse Expan in Englewood WWTP 2011-2025	Charlotte	Sys. Expan	0.01	0.01	$32,000	$0.73	$0.30	$1.03
Rotunda Long Marsh Golf Expansion	Charlotte	Trans.	0.40	0.30	$460,000	$0.35	$0.40	$0.75

Table 5.2-7
Reclaimed Water Supply Projects Selected to Represent the Costs of Alternative Water Supplies in the Peace River Area
(Manatee, DeSoto, Sarasota and Charlotte Counties)

Future Project Name	County	Type	Supply	Offset	Capital Cost	Cost per 1,000 gallons Offset		
						Capital	O&M	Total
Reuse Expan in Arcadia WWTP 2011-2025	DeSoto	Sys. Expan	0.37	0.22	$1,200,000	$1.24	$0.50	$1.74
Arcadia Ag. Reuse Expan.	DeSoto	Sys. Expan	0.37	0.28	$1,200,000	$0.97	$0.40	$1.37
DeSoto Correctional WWTP 2011-2025	DeSoto	Sys. Expan Toilet	0.20	0.20	$646,000	$0.73	$0.30	$1.03
Wood Memorial Hospital WWTP 2011-2025	DeSoto	Sys Expan Ind.	0.11	0.11	$355,000	$0.73	$0.30	$1.03
S. Hills./MARS Intercon.	Hills/Man.	Intercon.	5.00	3.75	$6,900,000	$0.42	$0.40	$0.82
Manatee Co. ASR Expansion Wells	Manatee	ASR	1.00	0.75	$4,300,000	$1.30	$0.40	$1.70
Longboat Key/Manatee Co./Sarasota Intercon.	Manatee	Intercon.	2.00	1.50	$8,434,650	$1.28	$0.40	$1.68
Bradenton/MARS Intercon.	Manatee	Intercon.	3.00	2.25	$2,350,000	$0.24	$0.40	$0.64
Palmetto/MARS Intercon.	Manatee	Intercon.	0.48	0.36	$1,550,000	$0.98	$0.40	$1.38
IMC/MARS Augmentation	Manatee	Storage/Augment.	15.00	9.00	$20,996,000	$0.53	$0.50	$1.03
Manatee River Downstream Aug.	Manatee	Streamflow	1.00	1.00	$3,230,000	$0.73	$0.30	$1.03
Reuse Expan in Manatee Co. Sys. 2011-2025 (w/ int)	Manatee	Sys. Expan.	0.50	0.30	$1,615,000	$1.22	$0.50	$1.72
Reuse Expan in Bradenton WWTP 2011-2025	Manatee	Sys. Expan.	7.14	4.28	$23,062,000	$1.22	$0.50	$1.72
Reuse Expan in Palmetto WWTP 2011-2025	Manatee	Sys. Expan.	0.48	0.29	$1,550,000	$1.21	$0.50	$1.71
Sarasota Regional ASR System Expansion	Sarasota	ASR	1.00	0.75	$4,300,000	$1.30	$0.40	$1.70

Table 5.2-7
Reclaimed Water Supply Projects Selected to Represent the Costs of Alternative Water Supplies in the Peace River Area
(Manatee, DeSoto, Sarasota and Charlotte Counties)

Future Project Name	County	Type	Supply	Offset	Capital Cost	Cost per 1,000 gallons Offset		
						Capital	O&M	Total
Celery Fields Reuse Aug.	Sarasota	Aug.	1.00	0.60	$3,230,000	$1.22	$0.50	$1.72
Sarasota Co. North/South Intercon.	Sarasota	Intercon.	2.00	1.20	$7,056,000	$1.33	$0.63	$1.96
Sarasota Golf Reuse	Sarasota	Trans.	0.25	0.19	$750,000	$0.90	$0.39	$1.29
Sarasota, FGUA Intercon. & Expansion	Sarasota	Intercon./Sys. Expan.	3.39	2.03	$10,950,000	$1.22	$0.50	$1.72
MARS/Sarasota Co. Intercon.	Sarasota	Intercon.	0.70	0.42	$2,260,000	$1.22	$0.50	$1.72
Sarasota Co./Siesta Key Intercon.	Sarasota	Intercon.	2.09	1.25	$6,750,000	$1.23	$0.50	$1.73
Flatford Swamp Reuse	Sarasota	Recharge/Reuse	10.00	7.50	$13,800,000	$0.42	$0.40	$0.82
Reuse Expan in Sarasota N./S. Co. Sys. 2011-2025	Sarasota	Sys. Expan.	0.70	0.42	$2,260,000	$1.22	$0.63	$1.85
Reuse Expan in Aquasource Monica/27th st. 2011-2025	Sarasota	Sys. Expan	0.15	0.09	$485,000	$1.22	$0.50	$1.72
Reuse Expan in Aquasource Longwood 2011-2025	Sarasota	Sys. Expan.	0.21	0.13	$678,000	$1.18	$0.48	$1.66
Reuse Expan in Aquasource Tri-Par 2011-2025	Sarasota	Sys. Expan.	0.29	0.17	$937,000	$1.25	$0.51	$1.76
Reuse Expan in City of Venice Sys. 2011-2025 (w/intercon)	Sarasota	Sys. Expan	0.10	0.06	$323,000	$1.22	$0.50	$1.72
Reuse Expan in Camelot Lakes 2011-2025	Sarasota	Sys. Expan.	0.03	0.02	$97,000	$1.10	$0.45	$1.55
Reuse Expan in N. Port WWTP 2011-2025	Sarasota	Sys. Expan	1.38	0.83	$4,457,000	$1.22	$0.50	$1.72
Reuse Expan in City of Sarasota WWTP 2011-2025	Sarasota	Sys. Expan	5.62	3.37	$18,153,000	$1.22	$0.50	$1.72

Table 5.2-7
Reclaimed Water Supply Projects Selected to Represent the Costs of Alternative Water Supplies in the Peace River Area (Manatee, DeSoto, Sarasota and Charlotte Counties)

Future Project Name	County	Type	Supply	Offset	Capital Cost	Cost per 1,000 gallons Offset		
						Capital	O&M	Total
Reuse Expan in Siesta Key WWTP 2011-2025	Sarasota	Sys. Expan	2.09	1.25	$6,751,000	$1.23	$0.50	$1.73
Reuse Expan in Gulfgate WWTP 2011-2025	Sarasota	Sys. Expan	2.04	1.22	$6,589,000	$1.23	$0.50	$1.73
Reuse Expan in S.gate WWTP 2011-2025	Sarasota	Sys. Expan	1.35	0.81	$4,361,000	$1.22	$0.50	$1.72
Total MGD				56.03	$200,924,650			
Weighted Average						**$0.81**	**$0.45**	**$1.26**

Source: SWFWMD, draft 2005 Regional Water Supply Plan Update, Chapter 7, pages 39 to 45 and Table 7-10.

Table 5.2-8
Reclaimed Water Supply Projects Selected to Represent the Costs of Alternative Water Supplies in the Heartland Water Alliance (Polk, Highlands and Hardee Counties)

Future Project Name	County	Type	Supply	Offset	Capital Cost	Cost per 1,000 gallons Offset		
						Capital	O&M	Total
Reuse Expan in Hardee Correctional WWTP 2011-2025	Hardee	Sys. Expan. Toilet Flushing/Laundry	0.16	0.16	$517,000	$0.73	$0.30	$1.03
Reuse Expan in Zolfo Springs WWTP 2011-2025	Hardee	Sys. Expan. Ag.	0.14	0.14	$452,000	$0.73	$0.30	$1.03
Reuse Expan in Bowling Green WWTP 2011-2025	Hardee	Sys. Expan.	0.05	0.05	$162,000	$0.74	$0.30	$1.04
Reuse Expan in Wauchula WWTP 2011-2025	Hardee	Sys. Expan	0.08	0.08	$258,000	$0.73	$0.30	$1.03
Reuse Expan in Lake Placid WWTP 2011-2025	Highlands	Sys. Expan.	0.01	0.01	$32,000	$0.73	$0.30	$1.03
Reuse Expan in Sun n Lake WWTP 2011-2025	Highlands	Sys. Expan.	0.62	0.37	$2,003,000	$1.23	$0.50	$1.73
Reuse Expan in Kissimmee River Resort WWTP 2011-2025	Highlands	Sys. Expan.	0.01	0.01	$32,000	$0.73	$0.30	$1.03
Reuse Expan in Avon Park WWTP 2011-2025	Highlands	Sys. Expan.	0.92	0.55	$2,972,000	$1.23	$0.50	$1.73
Reuse Expan in Sebring WWTP 2011-2025	Highlands	Sys. Expan.	1.25	0.75	$4,038,000	$1.22	$0.50	$1.72
Sebring Reuse	Highlands	Sys./Ag. Reuse	1.25	0.94	$4,038,000	$0.97	$0.40	$1.37
Winter Haven Plant III Reuse	Polk	Ag. Reuse	3	2.25	$9,690,000	$0.98	$0.40	$1.38
Lakeland Wetland-Hwy 60 Industrial Reuse	Polk	Trans.	2	2	$6,460,000	$0.73	$0.30	$1.03
Lakeland/Polk Intercon.	Polk	Intercon.	2	1.2	$6,460,000	$1.22	$0.50	$1.72
Lakeland Electric Storage Facility	Polk	Storage	0.3	0.3	$8,676,307	$6.56	$0.30	$6.86

Table 5.2-8
Reclaimed Water Supply Projects Selected to Represent the Costs of Alternative Water Supplies in the Heartland Water Alliance (Polk, Highlands and Hardee Counties)

Future Project Name	County	Type	Supply	Offset	Capital Cost	Cost per 1,000 gallons Offset		
						Capital	O&M	Total
Lakeland Zero Liquid Discharge-Power	Polk	Trans./Treatment	2	2	$7,500,000	$0.85	$0.30	$1.15
Reuse Expan in Polk Cnt Regional WWTP 2011-2025	Polk	Sys. Expan.	0.01	0.01	$32,000	$0.73	$0.30	$1.03
Reuse Expan in Polk NE Regional WWTP 2011-2025	Polk	Sys. Expan.	0.01	0.01	$32,000	$0.73	$0.30	$1.03
Reuse Expan in Polk NW Regional WWTP 2011-2025	Polk	Sys. Expan	0.01	0.01	$32,000	$0.73	$0.30	$1.03
Reuse Expan in Polk SW Regional WWTP 2011-2025	Polk	Sys. Expan	0.08	0.05	$258,000	$1.17	$0.48	$1.65
Reuse Expan in Bartow WWTP 2011-2025	Polk	Sys. Expan	0.54	0.54	$1,744,000	$0.73	$0.30	$1.03
Reuse Expan in Fort Meade WWTP 2011-2025	Polk	Sys. Expan	0.14	0.11	$452,000	$0.93	$0.38	$1.31
Reuse Expan in Cypress Wood WWTP 2011-2025	Polk	Sys. Expan	0.28	0.17	$904,000	$1.21	$0.49	$1.70
Reuse Expan in Haines City WWTP 2011-2025	Polk	Sys. Expan	1.17	0.7	$3,779,000	$1.22	$0.50	$1.72
Reuse Expan in Lake Wales WWTP 2011-2025	Polk	Sys. Expan	0.59	0.35	$1,906,000	$1.24	$0.51	$1.75
Reuse Expan in Winter Haven #2 WWTP 2011-2025	Polk	Sys. Expan	0.25	0.15	$808,000	$1.22	$0.50	$1.72
Reuse Expan in Winter Haven #3 WWTP 2011-2025	Polk	Sys. Expan	3.59	2.15	$11,596,000	$1.22	$0.50	$1.72

Table 5.2-8
Reclaimed Water Supply Projects Selected to Represent the Costs of Alternative Water Supplies in the Heartland Water Alliance (Polk, Highlands and Hardee Counties)

Future Project Name	County	Type	Supply	Offset	Capital Cost	Cost per 1,000 gallons Offset		
						Capital	O&M	Total
Reuse Expan in Auburndale Sys. WWTP 2011-2025	Polk	Sys. Expan	0.55	0.41	$1,777,000	$0.98	$0.40	$1.38
Reuse Expan in Lakeland Sys WWTP 2011-2025	Polk	Sys Expan.	3.73	2.24	$12,048,000	$1.22	$0.50	$1.72
Lakeland Cleveland Heights Golf	Polk	Trans.	0.5	0.38	$1,616,000	$0.96	$0.39	$1.35
Reuse Expan in Avon Park Correctional WWTP 2011-2025	Polk	Sys. Expan. Toilet Flushing/Laundry	0.52	0.52	$1,680,000	$0.73	$0.30	$1.03
Reuse Expan in Lake Alfred System 2011-2025	Polk	Sys. Expan.	0.1	0.07	$323,000	$1.05	$0.43	$1.48
Reuse Expan in Polk Co. Correctional WWTP 2011-2025	Polk	Sys. Expan. Toilet Flushing/Laundry	0.23	0.23	$743,000	$0.73	$0.30	$1.03
Total MGD				18.91	$93,020,307			
Weighted Average						**$1.12**	**$0.41**	**$1.53**

Source: SWFWMD, draft 2005 Regional Water Supply Plan, Chapter 7, pages 45 to 51 and Table 7-12.

Table 5.2-9
Reclaimed Water Supply Projects Selected to Represent the Costs of Alternative Water Supplies in South Hillsborough County

Future Project Name	County	Type	Supply	Offset	Capital Cost	Cost per 1,000 gallons Offset		
						Capital	O&M	Total
S. Hills. ASR Wells/ Recharge/ Saltwater Intru. Bar.	Hills.	ASR, Rech., SWB	10.00	10.00	$40,300,000	$0.91	$0.29	$1.20
Reuse Expan in Hills. Co.-S. Co. Sys. 2011-2025	Hills.	Sys. Expan.	1.10	0.66	$3,550,000	$1.22	$0.48	$1.70
Reuse Expan in Plant City WWTP 2011-2025	Hills.	Sys. Expan.	4.31	2.59	$13,920,000	$1.22	$0.50	$1.72
Plant City Walden Lakes	Hills.	Trans.	1.00	0.60	$3,230,000	$1.22	$0.50	$1.72
Plant City Hardie Board Trans.	Hills.	Trans.	0.35	0.35	$1,130,500	$0.73	$0.30	$1.03
Plant City Trans. Expan. I	Hills.	Trans.	1.00	0.60	$3,230,000	$1.22	$0.50	$1.72
Total MGD				14.80	$65,360,500			
Weighted Average						**$1.00**	**$0.35**	**$1.35**

Source: SWFWMD, draft 2005 Regional Water Supply Plan, Chapter 7, pages 46 to 51 and Table 7-12.

Table 5.2-10
Surface Water Supply Projects Selected to Represent the Costs of Alternative Water Supplies in the Peace River Area
(Manatee, DeSoto, Sarasota and Charlotte Counties)

Option Or Map #	Description	Type of Source	Users	Quantity Available, mgd	Cost, 2005 Dollars		Cost per 1,000 Gallons		
					Capital	Annual O&M	Annualized Capital Cost	Annual O&M Cost	Total
Potable Water Projects									
1	Manatee River Public and Agricultural Supply/ Maintenance of Minimum Flows	surface water	Agricultural Irrigation and Public Supply Customers of PR/Mana RWSA	2.9	$4,298,931	$947,707	$0.34	$0.90	$1.23
2	Myakka River - Raw Water ASR	surface water	Public Supply and Aquifer Storage	15	$87,325,320	$7,460,593	$1.32	$1.36	$2.68
4	Peace River - Treated Water ASR	surface water	Public Supply and Aquifer Recharge	40	$281,407,251	$8,199,141	$1.60	$0.56	$2.16
6	Shell Creek Public Supply - Instream Reservior	surface water	Public Supply	5	$78,453,051	$3,765,647	$3.56	$2.06	$5.62
25	Braden River	surface water	Distributed to city of Bradenton's public supply system, ASR / 1	2.3	$3,992,800	$2,078,707	$0.39	$2.48	$2.87
S16	Frog Creek (stormwater)	surface water	Distributed to PRMRWSA public supply system, Off-stream reservoir, ASR	1	$1,257,000	$1,837,703	$0.29	$5.03	$5.32
27 CP	Cow Pen Slough	surface water	Distributed to Sarasota County's public supply system, Off-stream reservoir, ASR / 1	4.4	$33,030,800	$829,919	$1.70	$0.52	$2.22
32	Myakkahatchee Creek	surface water	Distributed to PRMRWSA public supply system, ASR / 1	2.6	$48,724,000	$2,569,000	$4.25	$2.71	$6.96
	Total MGD			73.2					

Table 5.2-10
Surface Water Supply Projects Selected to Represent the Costs of Alternative Water Supplies in the Peace River Area
(Manatee, DeSoto, Sarasota and Charlotte Counties)

Option Or Map #	Description	Type of Source	Users	Quantity Available, mgd	Cost, 2005 Dollars		Cost per 1,000 Gallons		
					Capital	Annual O&M	Annualized Capital Cost	Annual O&M Cost	Total
	Weighted Average	surface water	**All Surface Water Projects for Potable Supply**				**$1.67**	**$1.04**	**$2.71**
Urban Irrigation									
3A	Cow Pen Slough - Raw Water ASR w/ Surface Storage	surface water	Non-Potable use such as irrigation	4.4	$18,801,869	$317,767	$0.97	$0.20	$1.17
7	Storm Water Onsite Water Supply	surface water	Golf Course Irrigation	0.41	$3,390,000	$44,895	$1.88	$0.30	$2.18
S19	Gamble Creek	surface water	Distributed to MARS system, Off-stream reservoir, ASR / 2	3.9	$34,452,600	$1,544,000	$2.00	$1.08	$3.09
	Total MGD			8.71					
	Weighted Average	surface water	**All Surface Water Projects for Urban Irrigation**				**$1.48**	**$0.60**	**$2.08**
Non-Urban Irrigation									
S20	Tatum Sawgrass area- Upper Myakka River	surface water	Aquifer conveyance to agricultural ground water users, Off-stream reservoir, AR / 1	8.4	$105,823,200	$1,906,074	$2.86	$0.62	$3.48
18	Little Manatee River	surface water	Distributed to MARS system or aquifer conveyance to agricultural ground water users, Off-stream reservoir, AR / 1	14	$62,272,000	$2,303,628	$1.01	$0.45	$1.46
39b	Joshua Creek	surface water	Piped to Joshua Water Control District, Off-stream reservoir / 3	3.8	$31,646,400	$1,765,000	$1.89	$1.27	$3.16

Table 5.2-10
Surface Water Supply Projects Selected to Represent the Costs of Alternative Water Supplies in the Peace River Area
(Manatee, DeSoto, Sarasota and Charlotte Counties)

Option Or Map #	Description	Type of Source	Users	Quantity Available, mgd	Cost, 2005 Dollars		Cost per 1,000 Gallons		
					Capital	Annual O&M	Annualized Capital Cost	Annual O&M Cost	Total
38a	Prairie Creek	surface water	Aquifer convenance to agricultural ground water users, AR / 2	12	$232,476,000	$12,806,000	$4.40	$2.92	$7.32
	Total MGD			38.2					
	Weighted Average	surface water	**All Surface Water Projects for Non-Urban Irrigation**				**$2.57**	**$1.35**	**$3.91**

Source: SWFWMD, draft 2005 Regional Water Supply Plan, Chapter 7.0, Water Supply Development Component, pages 3 through 21 including Table 7-2.

Table 5.2-11
Surface Water Supply Projects Selected to Represent the Costs of Alternative Water Supplies in the Heartland Water Alliance (Polk, Highlands and Hardee Counties)

Option Or Map #	Description	Type of Source	Users	Quantity Available, mgd	Cost, 2005 Dollars		Cost per 1,000 Gallons		
					Capital	Annual O&M	Annualized Capital Cost	Annual O&M Cost	Total
Aquifer Conveyance of Freshwater to All Types of Ground water Users (public supply, agricultural, industrial, recreation/aesthethic)									
S15	Peace Creek Canal, Off-stream reservoir, AR / 2	surface water	Aquifer conveyance to agricultural, public supply, & industrial ground water users	8.5	$69,793,500	$704,370	$1.86	$0.23	$2.09
S14	IMC Clay Settling Ponds (stormwater), AR / 3			3	$10,425,000	$461,618	$0.79	$0.42	$1.21
S11	Upper Peace River, Clay settling ponds, AR / 1			10	$69,780,000	$6,460,000	$1.58	$1.77	$3.35
S13	Upper Saddle Creek, Clay settling ponds, AR / 1			2.9	$47,760,100	$905,000	$3.74	$0.85	$4.59
27	Josephine Creek, AR / 1			3	$14,793,000	$778,788	$1.12	$0.71	$1.83
19	Upper Horse Creek, Off-stream reservoir, AR / 2			1.4	$14,708,400	$479,000	$2.38	$0.94	$3.32
	Total MGD			28.8					
	Weighted Average	surface water	**All Surface Water Projects for Aquifer Conveyance**				**$1.79**	**$0.93**	**$2.72**
Aquifer Conveyance of Freshwater to Agricultural Ground water Users									
40	Charlie Creek, AR / 2	surface water	Agricultural ground water users	12	$174,528,000	$9,413,000	**$3.30**	**$2.15**	**$5.45**

Source: SWFWMD, draft 2005 Regional Water Supply Plan, Chapter 7.0 and Table 7-5, pages 24 to 29.

5.3 Potential Costs to New and Expanding Water Users - Public Supply

This section describes the potential costs and financial impact of developing and using alternative water sources to water utilities and households. Most water supply permittees in the SWUCA are water utilities. Others are homeowner associations, schools, residential developments, and corporations that supply water to fewer than 2,000 people.

5.3.1 Case Study Utilities

The financial impacts of alternative water source development on water supply utilities and their customers in the SWUCA were modeled by simulating the actions that utilities might need to take to obtain sufficient water supplies from alternative sources and the estimated costs. To this end, four case study utilities were chosen that represent the types of utilities in the SWUCA. This sub-section summarizes the characteristics of water supply permittees in the SWUCA and presents the case study utilities.

The utilities were stratified based on whether the utility was located along the coast or inland; whether the utility was large or small; and whether the utility's population served is expected to grow over the next 20 years. The distinction between inland and coastal is because all inland utilities rely exclusively on ground water while the coastal utilities rely on a combination of ground water and surface water.

The distribution of gross water use among the water utilities in the SWUCA by county is provided in Table 5.3-1. Gross water use is withdrawals minus treatment losses plus imports minus exports.

In the SWUCA portion of Polk County, the largest utilities are City of Lakeland and Polk County. In 2002, gross water use in the Lakeland service area was 24.27 mgd and the population served was 157,094.[3] In the Polk County service area, gross water use was 14.30 mgd and the population served was 86,205. Lakeland provided 36 percent of all utility-supplied potable water in Polk County while Polk County provided 21 percent of utility-supplied potable water in the county. Polk County has many smaller utilities including Lake Wales, Winter Haven, Bartow, Auburndale, Fort Meade and Mulberry, among others.

In the SWUCA portion of Highlands County, the largest utilities are the City of Sebring and the City of Avon Park. In 2002, each utility supplied 3.61 mgd and 2.32 mgd of gross water to their customers, respectively. The populations served by these utilities were 32,558 and 14,150 people, respectively. Other SWUCA utilities in Highlands County include Lake Placid and Sebring Ridge.

There are three water utilities in Hardee County. The largest is the City of Wauchula with a population served of 4,377 people. In 2002, gross water use was 0.83 mgd. The other two utilities are City of Bowling Green and Town of Zolfo Springs. DeSoto County has one water

[3] *Data representing the year 2002 was used in Table 5.3-1 because this was the most recent year available at the time this table was produced.*

utility, the City of Arcadia that supplied 1.09 mgd of water to its customers in 2002. The utility's population served was 7,371 people.

Moving to the coastal counties, the largest SWUCA utility permit in the SWUCA portion of Hillsborough County is Tampa Bay Water's Hillsborough County South Central wellfield, providing 96 percent of the utility-supplied water in the SWUCA portion of the county. Each of the other permittees provided from three percent to less than one percent of the utility-supplied potable water to the SWUCA portion of Hillsborough County.

Manatee County is the largest utility in that county followed by the City of Bradenton. Manatee County provided 28.85 mgd to its customers in 2002. The utility's population served is 226,483 people. Bradenton provided 5.7 mgd and served 49,958 people. The other two utilities in Manatee County are Longboat Key and City of Palmetto.

About 73 percent of utility-supplied potable water provided to those who live in Sarasota County comes from either the county-owned utility or the City of Sarasota. Other smaller utilities are Englewood Water District, City of Venice, Siesta Key Utilities Authority and the City of Northport.

In Charlotte County about 66 percent of the utility-supplied potable water is from the county-owned utility. The county provided 9.83 mgd of water to 81,702 people. Another 24 percent is supplied by the City of Punta Gorda. In 2002, gross water use in Punta Gorda was 3.54 mgd and the population served was 27,514.

Table 5.3-1
Distribution of Utility Gross Water Use by County (SWUCA Only) – 2002 (a)

Utility	Gross Water Use (mgd) (b)	Population Served	% of Total Gross Use Supplied by Utilities in County
POLK COUNTY (SWUCA)			
LAKELAND, CITY OF	24.268	157,094	36%
POLK COUNTY	14.300	86,205	21%
ALL OTHER UTILITIES	29.737	186,881	44%
TOTAL	**68.305**	**430,180**	**100%**
HIGHLANDS COUNTY (SWUCA)			
SEBRING, CITY OF	3.612	32,558	44%
AVON PARK, CITY OF	2.319	14,150	28%
ALL OTHER UTILITIES	2.362	18,989	28%
TOTAL	**8.293**	**65,697**	**100%**
HARDEE AND DESOTO COUNTIES			
WAUCHULA, CITY OF	0.827	4,377	34%
BOWLING GREEN, CITY OF	0.271	2,191	11%
ZOLFO SPRINGS, TOWN OF	0.195	1,560	8%
ARCADIA, CITY OF (DeSoto County)	1.09	7,371	45%

Table 5.3-1
Distribution of Utility Gross Water Use by County (SWUCA Only) – 2002 (a)

Utility	Gross Water Use (mgd) (b)	Population Served	% of Total Gross Use Supplied by Utilities in County
ALL OTHER UTILITIES	0.063	1,289	3%
TOTAL	**2.446**	**16,789**	**100%**
HILLSBOROUGH COUNTY (SWUCA)			
TBW / HILLS. CO. S. CENTRAL	24.389	208,307	96%
FLA WATER SERVICES / SEABOARD (c)	0.636	8,542	3%
FLA WATER SERVICES / VALRICO HILLS	0.09	876	<1%
FLA WATER SERVICES / HERSHEL HEIGHTS	0.09	797	<1%
ALL OTHER UTILITIES	0.109	1,005	<1%
TOTAL	**25.314**	**219,527**	**100%**
MANATEE COUNTY			
MANATEE COUNTY	28.846	226,483	75%
BRADENTON, CITY OF	5.673	49,958	15%
LONGBOAT KEY	2.358	15,977	6%
PALMETTO, CITY OF	1.438	11,608	4%
TOTAL	**38.315**	**304,026**	**100%**
SARASOTA COUNTY			
SARASOTA CO. / UNIV. PARKWAY (14)	15.809	186,265	50%
SARASOTA, CITY OF	7.187	70,569	23%
ENGLEWOOD WATER DISTRICT	2.608	35,599	8%
VENICE, CITY OF	2.246	22,090	7%
SIESTA KEY UTILITIES AUTHORITY	1.674	16,473	5%
NORTHPORT, CITY OF	1.954	18,863	6%
ALL OTHER UTILITIES	0.229	4,576	1%
TOTAL	**31.707**	**354,435**	**100%**
CHARLOTTE COUNTY (SWUCA)			
CHARLOTTE COUNTY UTILITY	9.83	81,702	66%
PUNTA GORDA, CITY OF	3.543	27,514	24%
GASPARILLA ISLAND WATER ASSN INC	0.938	3,744	6%
FLA WATER SERVICES/BURNT STORE	0.319	4,375	2%
CHARLOTTE HARBOR WATER ASSOC INC	0.346	4,866	2%
TOTAL	**14.976**	**122,201**	**100%**

Source: SFWMD, "Estimated Water Use, 2002", Table A-1, Brooksville, Florida.

(a) Data representing the year 2002 was used in this table because this was the most recent data available at the time this table was produced.

(b) Gross Water Use is Withdrawals plus Imports minus Exports minus Treatment Losses.

(c) Florida Water Services has since sold its water utilities.

The SWUCA utilities were further evaluated with respect to size, water source and per capita water use. The utility stratification by size, water source and per capita water use is provided in Table 5.3-2. Most utilities are relatively small in that they serve fewer than 30,000 people.

The per capita water use of most utilities is lower than 150 gallons per capita per day (gpcd). For these utilities that are located inland, the per capita water usage ranges from 47 to 147 gpcd, gross use less significant use.[4] The range for the coastal utilities is 56 to 148 gpcd. Fourteen inland and two coastal utilities have per capita water usage above 150 gpcd. For these utilities, the range is 158 to 551 gpcd for the inland utilities and 161 to 458 gpcd for the coastal utilities.

Table 5.3-2
SWUCA Public Water Supply Permittees: Location, Water Sources, Per Capita Water Use, Population Served, County and Permittee Name, 2002

Inland Utilities Relying on Ground water
>150 gpcd
Large (>30,000) none
Small (<30,000) *Polk County:* City of Haines City; City of Bartow; City of Frostproof; Century Realty Fund – CHC VII; Winter Haven/Garden Grove; Mountain Lake Corp.; Sports Shinko (Fla)/Grenelefe; Polk County / NE Regional SA *Highlands County:* City of Avon Park; Sebring Land/Highlands Ridge Association; Country Club of Sebring; Crystal Lake Club; Town of Lake Placid *Hardee County:* City of Wauchula
<150 gpcd
Large (>30,000) *Polk County:* City of Lakeland; City of Winter Haven; Polk County Utilities *Highlands County:* City of Sebring
Small (<30,000) *Polk County:* City of Lake Wales; City of Auburndale; City of Fort Meade; City of Lake Alfred; Town of Dundee; City of Davenport; City of Mulberry; Cypress Lakes Utilities, Inc.; Florida Water Services / Lake Gibson; City of Eagle Lake; Crooked Lake Park Water Co, Inc.; Town of Lake Hamilton; Century Realty Funds / Swiss Village; Sweetwater Coop, Inc.; Cypres Lakes Venture; Lake Region Mobile Homeowners, Four Lake Golf Club; Sweetwater East/Lake Henry; Orchid Springs Development Corp.; Saddlebag Lake Owners Assn, Inc.; Plantation Landings, Ltd. *Highlands County:* Sun'n Lake of Sebring Impr.; Lake Placid Holding Company; Highlands County / Tomoka Heights; Sebring Ridge Utilities; The Woodlands of Lake Placid; Buttonwood Bay / Pugh Utilities; Lake Josephine Heights Water *Hardee County:* City of Bowling Green; Town of Zolfo Springs *DeSoto County:* City of Arcadia; PRMRWSA/ Lake Suzy
Coastal Utilities Relying on Ground water and Reverse Osmosis
>150 gpcd

[4] *Significant use is the sum of annual average water consumption of each non-residential customer that uses at least 25,000 gpd or 5 percent of system use.*

Table 5.3-2
SWUCA Public Water Supply Permittees: Location, Water Sources, Per Capita Water Use, Population Served, County and Permittee Name, 2002

Large (>30,000) None
Small (<30,000) *Charlotte County:* Gasparilla Island Water Association, Inc.
<150 gpcd
Large (>30,000) *Sarasota County:* Englewood Water District;
Small (<30,000) *Charlotte County:* Charlotte Harbor Water Association, Inc.; Florida Water Services / Burnt Store *Sarasota County:* City of Venice; Royalty Resorts/ Sun 'n Fun RV; ELL-CAP 66 / Camelot Lakes
Coastal Utilities Relying on Ground water and Surface Water
>150 gpcd
Large (>30,000) None
Small (<30,000) None
<150 gpcd
Large (>30,000) Charlotte County Utilities; Manatee County Utilities
Small (<30,000) *Hillsborough County:* Florida Water Services / Hershel Heights
Coastal Utilities Relying on Ground water Only
>150 gpcd
Large (>30,000) None
Small (<30,000) CAX Riverside LLC
<150 gpcd
Large (>30,000) *Sarasota County:* City of Sarasota; Sarasota County *Hillsborough County:* Tampa Bay Water / Hillsborough County South Central
Small (<30,000) *Sarasota County:* Siesta Key Utilities Authority *Hillsborough County:* Florida Water Services / Seaboard; Florida Water Services / Valrico Hills; Wilder Mobile Homes
Coastal Utilities Relying on Surface Water Only
>150 gpcd
Large (>30,000) None
Small (<30,000) None
<150 gpcd
Large (>30,000) *Manatee County:* City of Bradenton
Small (<30,000) *Charlotte County:* City of Punta Gorda *Manatee County:* Longboat Key; City of Palmetto *Sarasota County:* City of Northport

Source: Southwest Florida Water Management District, "2002 Estimated Water Use", Brooksville, Florida

Note: Tampa Bay Water / Brandon Urban Wellfield and Tampa Bay Water / Alafia River had no reported gross use or population in 2002.

County-wide functional population projections developed by the District in 2005 are provided in Table 5.3-3. The SWUCA population is expected to increase by 452,000 people between 2000 and 2025. Overall growth rates from 2000 to 2025 range from 22 percent in Hardee County to 46 percent in Manatee County. The change in population from 2000 to 2025 in terms of number of persons is expected to be greatest in Manatee County, where 170,000 more people are expected.

The second greatest population increase is expected in the SWUCA portion of Polk County where 169,000 more people are expected between 2000 and 2025, or a 37 percent overall increase. About 149,000 more people are expected in Sarasota County. An additional 110,000 people are expected in the SWUCA portion of Hillsborough County, an additional 79,000 people are expected in the SWUCA portion of Charlotte County, an additional 34,000 people are expected in the SWUCA portion of Highlands County and about 20,000 more people are expected in DeSoto County. The smallest increase of 7,300 people is expected in Hardee County.

Table 5.3-3
Projected County-Wide Functional Population By Year in the SWUCA (a)

	Number of Persons				Change in Population 2000 to 2025 (b)		
COUNTY (c)	2000	2005	2020	2025	Persons	%	% / Year
Charlotte	154,870	168,078	217,899	233,553	78,683	41%	1.64%
DeSoto	35,717	39,072	51,837	55,389	19,672	44%	1.76%
Hardee	29,160	29,867	34,880	36,480	7,320	22%	0.90%
Highlands	87,278	91,598	113,910	120,859	33,581	33%	1.30%
Hillsborough	204,802	230,634	294,714	314,547	109,745	43%	1.72%
Manatee	291,524	329,914	430,241	461,704	170,180	46%	1.84%
Polk	380,402	419,215	518,183	549,195	168,793	37%	1.47%
Sarasota	358,227	385,173	478,400	507,520	149,293	35%	1.39%
TOTAL	1,541,980	1,693,550	2,140,064	2,279,247	451,922	39%	1.56%

Source: SWFWMD, "Regional Water Supply Plan", Brooksville, Florida, draft November 2005, Table 4-4 with adjustments to Hillsborough and Polk counties to reflect the portions of these counties within the District that are in the SWUCA (0.2008 for Hillsborough County and 0.8003 for Polk County).

(a) Functional population includes the permanent and seasonal populations.

(b) Percent change in population was calculated using the formula: $Population_t = Population_{t-1} \times e^{rt}$, where r is the growth rates and t is time. Therefore, the percent change in population from 2000 to 2005 is $Ln(population_{2025}) - Ln(population_{2000})$ and the average annual percent change is $[Ln(population_{2025}) - Ln(population_{2000})]/25$.

(c) The populations of Charlotte, Highlands, Hillsborough and Polk Counties include only those portions located in the District and in the SWUCA. The entire areas of the other counties are located in the District and in the SWUCA.

The choice of the case study utilities was based on an attempt at choosing four utilities that represent the population of utilities in the SWUCA in terms of their need for and accessibility to alternative water sources. To this end, a description of the four case study utilities is provided in Tables 5.3-4 through 5.3-7. The four utilities include a large inland utility, a small inland utility, a large coastal utility and a small coastal utility. The tables describe the characteristics of each case study utility. The county, water source, current water supply and historic gross water use of each case study utility are provided in Table 5.3-4. The historic and forecasted populations of each case study utility are provided in Table 5.3-5. The historic per capita water use of each case study utility is provided in Table 5.3-6. The projected water demand and the amount of additional water needed in the year 2025 for each case study utility are provided in Table 5.3-7.

Each utility was modeled using the water use characteristics of a chosen SWUCA utility. However, the evaluation of each model utility is not meant to provide recommendations to any specific utility. Instead, it is meant to identify the actions that the utility might need to take to obtain sufficient water supplies and the associated cost.

Large Inland Utility. The large inland utility is located in Polk County. Water is supplied from the Floridan Aquifer. Its available water supply is 27.22 mgd which is equal to permitted water quantity minus treatment losses plus net imports. In 2002, the utility served a population of 157,094 people and supplied 24.27 mgd of water to its customers. Gross water use per person per day averaged 156 gallons over the six year period from 1997 through 2002. In 2001, gross per capita water use was 152 gallons per person (capita) per day (gpcd). This is the gross water use value used in the water use projections consistent with the District's methodology. The year 2001 was an average rainfall year.

The service area population of the large inland utility is projected to increase by 35 percent between 2000 and 2025. By 2025, gross water use is projected to be 34.14 mgd while existing supplies are 27.22 mgd. Thus, the utility would like to increase water supply and/or reduce water demand by 9.64 mgd over the next 20 years. This amount is equal to 2025 projected gross water use minus 90 percent of the existing water supply. The value of 90 percent was used to provide a water supply cushion in the event that actual 2025 water use is higher than the projections. It provides a high-end estimate of future water needs.

Small Inland Utility. The small inland utility is located in Hardee County. Water is supplied from the Floridan Aquifer. Its available water supply is 0.95 mgd which is equal to permitted water quantity minus treatment losses plus net imports. In 2002, the utility served a population of 4,377 people and supplied 0.83 mgd of water to its customers. Gross water use per person per day has averaged 156 gallons over the six year period from 1997 through 2002. In 2001, gross per capita water use was 131 gallons per person (capita) per day (gpcd). This is the gross water use value used in the water use projections consistent with the District's methodology. The year 2001 was an average rainfall year.

The service area population of the small inland utility is projected to increase by 29 percent between 2000 and 2025. By 2025, gross water use is projected to be 1.00 mgd while existing supplies are 0.95 mgd. Thus, the utility would like to increase water supply and/or reduce water demand by 0.15 mgd over the next 20 years. This amount is equal to 2025 projected gross water use minus 90 percent of the existing water supply. The value of 90 percent was used to provide a water supply cushion in the event that actual 2025 water use is higher than the projections. It provides a high-end estimate of future water needs.

Large Coastal Utility. The large coastal utility is located in Manatee County. Water is supplied from the Floridan Aquifer and from surface water sources. Its available water supply is 35.6 mgd which is equal to permitted water quantity minus treatment losses plus net imports. In 2002, the utility served a population of 226,483 people and supplied 28.85 mgd of water to its customers. Gross water use per person per day has averaged 132 gallons over the six year period from 1997 through 2002. In 2001, gross per capita water use was 133 gallons per person (capita) per day (gpcd). This is the gross water use value used in the water use projections consistent with the District's methodology. The year 2001 was an average rainfall year.

The service area population of the large coastal utility is projected to increase by 43 percent between 2000 and 2025. By 2025, gross water use is projected to be 44.18 mgd while existing supplies are 35.60 mgd. Thus, the utility would like to increase water supply and/or reduce water demand by 12.14 mgd over the next 20 years. This amount is equal to 2025 projected gross water use minus 90 percent of the existing water supply. The value of 90 percent was used to provide a water supply cushion in the event that actual 2025 water use is higher than the projections. It provides a high-end estimate of future water needs.

Small Coastal Utility. The small coastal utility is located in Charlotte County. Water is supplied from surface water sources. Its available water supply is 5.25 mgd which is equal to permitted water quantity minus treatment losses plus net imports. In 2002, the utility served a population of 27,514 people and supplied 3.54 mgd of water to its customers. Gross water use per person per day has averaged 133 gallons over the six year period from 1997 through 2002. In 2001, gross per capita water use was 143 gallons per person (capita) per day (gpcd). This is the gross water use value used in the water use projections consistent with the District's methodology. The year 2001 was an average rainfall year.

The service area population of the small coastal utility is projected to increase by 39 percent between 2000 and 2025. By 2025, gross water use is projected to be 5.86 mgd while existing supplies are 5.25 mgd. Thus, the utility would like to increase water supply and/or reduce water demand by 1.14 mgd over the next 20 years. This amount is equal to 2025 projected gross water use minus 90 percent of the existing water supply. The value of 90 percent was used to provide a water supply cushion in the event that actual 2025 water use is higher than the projections. It provides a high-end estimate of future water needs.

Table 5.3-4
Description of Case Study Water Utilities

Water Utility	County	Water Source	Net Permitted Water (e)	Available Water Supply (f)	Gross Water Use, mgd (g)				
					1998	1999	2000	2001	2002
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Large Inland Utility (a)	Polk	GW	27.26	27.22	24.58	24.52	25.52	23.92	24.27
Small Inland Utility (b)	Hardee	GW	0.95	0.95	1.02	0.88	0.87	0.75	0.83
Large Coastal Utility (c)	Manatee	GW & SW	48.30	35.60	25.43	27.86	28.37	28.69	28.85
Small Coastal Utility (d)	Charlotte	SW	5.25	5.25	3.18	3.49	3.78	3.97	3.54

(a) Modeled using water use characteristics of City of Lakeland Water Utility. Permit numbers 4912 and 8468.

(b) Modeled using water use characteristics of City of Wauchula, Florida. Permit number 4461.

(c) Modeled using water use characteristics of Manatee County Utilities. Permit numbers 5387 and 7470.

(d) Modeled using water use characteristics of City of Punta Gorda Utilities. Permit number 871.

(e) Permitted Water Quantity Minus Treatment Losses. From "SWUCA Recovery Strategy - Revised", draft, Appendix 4, Southwest Florida Water Management District, Brooksville, Florida, March 2004.

(f) Permitted Water Quantity Minus Treatment Losses Plus Net Imports. From "SWUCA Recovery Strategy - Revised", draft, Appendix 4, Southwest Florida Water Management District, Brooksville, Florida, March 2004.

(g) Data from Estimated Water Use 1998, 1999, 2000, 2001 and 2002, Appendix A, Southwest Florida Water Management District, Brooksville, Florida. Gross water use is withdrawals minus treatment losses plus imports minus exports.

Table 5.3-5
Population of Case Study Water Utilities

Water Utility	Population (a)						% Change from 2000 to 2025 (b)
	1998	1999	2000	2001	2002	2025	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Large Inland Utility	158,416	161,141	155,567	157,566	157,094	224,596	35%
Small Inland Utility	5,838	6,000	6,121	5,735	4,377	7,658	29%
Large Coastal Utility	198,943	204,251	209,746	215,124	226,483	332,187	43%
Small Coastal Utility	25,726	26,425	27,193	27,758	27,514	41,009	39%

(a) Data from Estimated Water Use 1998, 1999, 2000, 2001 and 2002, Southwest Florida Water Management District, Brooksville, Florida. 2025 Population is equal to 2000 population increased each year by the average annual growth rate of county in the SWUCA area from 2000 to 2025.

(b) Percent change in population calculated using the formula: $Pop_t = Pop_{t-1} \times e^{rt}$, where r is the growth rate and t is time. Therefore, the percent change in population from 2000 to 2025 is $Ln(pop_{2025}) - Ln(pop_{2000})$ and the average annual percent change is $[Ln(pop_{2025}) - Ln(pop_{2000})]/25$.

Table 5.3-6
Per Capita Water Use of Case Study Utilities

	Gross Water Use Per Person Per Day (a)						
Water Utility	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**6-Year Average**
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Large Inland Utility	156	155	152	164	152	154	155.63
Small Inland Utility	152	175	146	142	131	189	155.82
Large Coastal Utility	131	128	136	135	133	127	131.76
Small Coastal Utility	132	124	132	139	143	129	133.15

(a) Gross use from Table 5.3-4 in gallons per day divided by population from Table 5.3-5. In gallons per capita per day (gpcd).

Table 5.3-7
Projected Water Demand and New Water Needed in 2025

Water Utility	**Projected Gross Water Use in 2025, mgd (a)**	**% Change in Water Use - 2000 to 2025, mgd (b)**	**Water Use Growth Rate Per Year - 2000 to 2025**	**New Water Needed, mgd (c)**	**Water Needed as % of Current Water Available (d)**
(1)	(2)	(3)	(4)	(5)	(6)
Large Inland Utility	34.14	29%	1.16%	9.64	35%
Small Inland Utility	1.00	14%	0.57%	0.15	16%
Large Coastal Utility	44.18	44%	1.77%	12.14	34%
Small Coastal Utility	5.86	44%	1.76%	1.14	22%

(a) Year 2001 average gross per person water use per day from Table 5.3-6 times 2025 population from Table 5.3-5 divided by 1,000,000. Use of the year 2001 in this calculation is consistent with the District's methodology. The year 2001 was an average rainfall year.

(b) Percent change in water use calculated using the formula: Water use$_t$ = Water use$_{t-1}$ x e^{rt}, where r is the growth rate and t is time. Therefore, the percent change in water use from 2000 to 2025 is Ln(water use$_{2025}$) – Ln(water use$_{2000}$).

(c) 2025 projected gross water use (Column 2) minus 90% of Available Supply (from Column (5) of Table 5.3-4).

(d) Column (5) divided by Available Water Supply in Table 5.3-4.

***Note:** All calculations in this report were made using computer spreadsheets. The values in the tables are rounded for presentation purposes. Thus, using the values reported in the tables to compute other values reported in the tables may result in slightly different values than those reported in the tables.*

5.3.2 New Water Source Development and Conservation Opportunities Available to Public Supply Utilities

The decisions regarding what water sources to access and what types of water conservation methods to employ require significant time and effort for a water utility. Many factors must be considered including degree of access to additional water sources, ability to team with other utilities or purchase additional water from the regional water authority, customer-specific characteristics, and existing financial position of the utility, among other factors.[5] This financial analysis does not attempt to provide a water master plan for each of the case study utilities. Instead, it uses data and information from publicly available sources, in particular, documents of the Southwest Florida Water Management District (District), to provide an overall assessment of water supply and conservation opportunities, their potential costs, and the financial impacts to households.

The water sources that would be used by the case study utilities to obtain additional water are those identified for the case study's county in Chapter 3, Table 3.3-1. The amount of additional water that the case study utility obtains from each source matches the distribution of water found in this table. These sources are seawater desalination, brackish ground water desalination, reclaimed water[6], surface water, fresh ground water and non-agricultural water conservation. Thus, the total mgd of additional water supply/conservation needed by a case study utility was allocated across the sources based on the proportion of the mgd provided by that source in the county where the case study utility is located.

For example, the large coastal utility is located in Manatee County. For this county, Table 3.3-1 identified 10.4 mgd of water to be saved via additional non-agricultural conservation, 20 mgd of water to be provided by seawater desalination, 10.2 mgd of water to be provided by reclaimed water, 8.0 mgd of water from permitted, unused surface water sources, 3.9 mgd from un-permitted surface sources, 6.7 mgd from the intermediate and/or surficial aquifers and 0.7 mgd of permitted, unused water from the Floridan Aquifer. This is a total of 59.9 mgd of water supply/conservation options identified by the District for Manatee County.

Thus, the 12.14 mgd of water identified as needed by the Large Coastal Utility is allocated as follows: 4.05 mgd from seawater desalination (12.14 x 20/59.9), 2.07 mgd from reclaimed water (12.14 x 10.2/59.9), 1.62 mgd from permitted, unused surface water (12.14 x 8/59.9), 0.79 mgd from un-permitted surface water (12.14 x 3.9/59.9), 1.36 mgd from the intermediate and/or surficial aquifers (12.14 x 6.7/59.9), 0.14 mgd from permitted, unused quantities in the Florida Aquifer (12.14 x 0.7/59.9), and 2.11 mgd from non-agricultural conservation (12.14 x 10.4/59.9).

[5] The estimated increased cost of additional time and effort due to the proposed rule revision was presented in Table 5.1-1, item number 2.

[6] The reclaimed water would be either (1) used directly in place of potable water or (2) a ground water offset. A ground water offset is a quantity of ground water available to the utility for potable use after providing reclaimed water to non-potable water users who would then be able to reduce ground water pumpage.

The water source/conservation options for each case study utility are provided in Table 5.3-8. The inland utilities would rely on reclaimed water, un-permitted surface water, ground water and conservation to meet water demands through 2025. Additional surface water sources are being investigated by the District for inland counties. The coastal utilities would rely on all of the potential water sources: desalination, reclaimed water, surface water, ground water and conservation. Alternatively, depending on the situation of each utility, one or two of these options might be used instead of all four. Distributing the water source/conservation options in proportion to availability within each county provides a weighted average cost of these options.

The incremental capital cost and the annual O&M cost were calculated for each case study utility and each water source using the cost per 1,000 gallons (kgal) information presented in Chapter 5.2 and the mgd needed from each source as presented in Table 5.3-8. These costs are net of the estimated cost of using the Floridan aquifer, which is the traditional or non-alternative water source used for the cost analyses in this SERC. All references to costs throughout the remainder of this chapter refer to the incremental costs (water source costs net of the cost to obtain water from the Floridan aquifer).

The total incremental capital costs of additional water supplies needed to meet 2025 water demands in 2005 dollars for each water source and case study utility are provided in Table 5.3-9. For the large inland utility, the total capital cost to obtain 9.64 mgd of additional water is estimated to be $7.5 million. For the small inland utility, the total capital cost to obtain 0.15 mgd of additional water is estimated to be $1.0 million. For the large coastal utility, the total capital cost to obtain 12.14 mgd of additional water is estimated to be $47 million. For the small coastal utility, the total capital cost to obtain 1.14 mgd of additional water is estimated to be $4.9 million. These incremental capital costs were annualized over 20 years at 5.375 percent interest rate.[7] The annualized values for each supply source and utility are provided in Table 5.3-10.

The incremental annual O&M costs of additional water supplies needed to meet 2025 water demands in 2005 dollars for each water source and case study utility are provided in Table 5.3-11. The annualized capital costs in Table 5.3-10 were added to the annual O&M costs in Table 5.3-11 to obtain the total annualized incremental cost of each water source to the case study utility presented in Table 5.3-12. For the large inland utility, the total annualized incremental capital and O&M cost to obtain 9.64 mgd of additional water is estimated to be $1.4 million per year. For the small inland utility, the total annualized incremental capital and O&M cost to obtain 0.15 mgd of additional water is estimated to be $122,200. For the large coastal utility, the total annualized incremental capital and O&M cost to obtain 12.14 mgd of additional water is estimated to be $8.5 million. For the small coastal utility, the total annualized incremental capital and O&M cost to obtain 1.14 mgd of additional water is estimated to be $618,300.

[7] The 2005 Federal planning rate for water resources projects is 5.375 percent per year. From Federal Register, December 9, 2004, Volume 69, Number 236, pages 71425 to 71426.

The average incremental annualized capital and O&M cost per 1,000 gallons to obtain water from these new sources for each case study utility is provided in Table 5.3-13. The average cost per 1,000 gallons of the 9.64 mgd of additional water produced and conserved over all projects to be developed by the large inland utility is $0.40 per 1,000 gallons. This relatively low cost is due to the use of permitted, unused quantities that are available to supply over one-third of the additional water demand which has a net cost of $0 and the reliance on relatively low cost conservation programs to reduce demand. The average cost per 1,000 gallons of the 0.15 mgd of additional water produced and conserved over all projects to the small inland utility is $2.26 per 1,000 gallons. The average cost per 1,000 gallons of the 12.14 mgd of additional water produced and conserved over all projects to the large coastal utility is $1.92 per 1,000 gallons. For the small coastal utility, the average cost per 1,000 gallons of the 1.14 mgd of additional water produced and conserved over all projects is $1.49 per 1,000 gallons. These costs reflect the distribution of the relatively high cost and low cost water sources and conservation programs used.

Table 5.3-8
Amount of Water To Be Obtained from New Sources by 2025, mgd (a)

Water Utility	Seawater Desal	Brackish Desal	Reclaimed Water	Surface Water		Ground Water		Conserv - ation	All Sources - Total	New Conservation - % of 2025 Demand
				Permitted / Unused (b)	Un-permitted	IAS and SAS (c)	UFA Unused Permitted			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Large Inland Utility	0.00	0.00	1.16	0.00	0.00	0.86	3.43	4.18	9.64	12%
Small Inland Utility	0.00	0.00	0.01	0.00	0.13	0.00	0.00	0.01	0.15	1%
Large Coastal Utility	4.05	0.00	2.07	1.62	0.79	1.36	0.14	2.11	12.14	5%
Small Coastal Utility	0.00	0.04	0.13	0.04	0.51	0.23	0.00	0.18	1.14	3%

(a) The total amount of water needed by the utility was distributed to new water supplies based on the distribution of new water supplies by source and county provided in Table 3.3-1.

Table 5.3-9
Total Incremental Capital Cost of New Water Supplies to Meet 2025 Water Demand, 2005 dollars

Water Utility	Seawater Desal	Brackish Ground Water Desal	Reclaimed Water	Surface Water		Fresh Ground Water		Conserv - ation	All Sources - Total
				Permitted / Unused	Un-permitted	IAS and SAS	UFA Unused Permitted		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Large Inland Utility	$0	$0	$5,625,478	$0	$0	$1,826,412	$0	$0	$7,451,890
Small Inland Utility	$0	$0	$43,120	$0	$994,950	$0	$0	$0	$1,038,070
Large Coastal Utility	$31,088,369	$0	$7,233,104	$0	$5,746,667	$2,873,611	$0	$0	$46,941,751
Small Coastal Utility	$0	$230,087	$459,432	$0	$3,733,776	$481,650	$0	$0	$4,904,946

Source: Each entry is calculated as follows. The total annualized capital cost is the present value of the amount of water needed from that water source as indicated in Table 5.3-8 times the annualized incremental capital cost per 1,000 gallons associated with the source type from Table 5.2-1 in Chapter 5.2 over 20 years at 5.375% annual interest.

Table 5.3-10
Annualized Incremental Capital Cost of New Water Supplies to Meet 2025 Water Demand, 2005 dollars

Water Utility	Seawater Desal	Brackish Ground Water Desal	Reclaimed Water	Surface Water		Fresh Ground Water		Conserv - ation	All Sources - Total
				Permitted / Unused	Un-permitted	IAS and SAS	UFA Unused Permitted		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Large Inland Utility	$0	$0	$465,866	$0	$0	$151,252	$0	$0	$617,118
Small Inland Utility	$0	$0	$3,571	$0	$82,395	$0	$0	$0	$85,966
Large Coastal Utility	$2,574,541	$0	$599,000	$0	$475,902	$237,974	$0	$0	$3,887,418
Small Coastal Utility	$0	$19,054	$38,047	$0	$309,208	$39,887	$0	$0	$406,196

Source: Each entry calculated as the amount water needed from that water source as indicated in Table 5.3-8 times the annualized incremental capital cost per 1,000 gallons associated with the source type from Chapter 5.2, Table 5.2-1.

Table 5.3-11
Annual Incremental O&M Cost of New Water Supplies to Meet 2025 Water Demand, 2005 dollars

Water Utility	Seawater Desal	Brackish Ground Water Desal	Reclaimed Water	Surface Water		Fresh Ground Water		Conserv - ation	All Sources - Total
				Permitted / Unused	Un-permitted	IAS and SAS	UFA Unused Permitted		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Large Inland Utility	$0	$0	$90,803	$0	$0	$0	$0	$686,300	$777,102
Small Inland Utility	$0	$0	$696	$0	$34,031	$0	$0	$1,467	$36,194
Large Coastal Utility	$3,827,401	$0	$187,217	$0	$241,352	$0	$0	$346,503	$4,602,473
Small Coastal Utility	$0	$13,216	$11,892	$0	$156,814	$0	$0	$30,220	$212,141

Source: Each entry calculated as the amount water needed from that water source as indicated in Table 5.3-8 times the annual incremental O&M cost per 1,000 gallons associated with the source type from Chapter 5.2, Table 5.2-1.

Table 5.3-12
Total Annualized Incremental Cost of New Water Supplies to Meet 2025 Water Demand, 2005 dollars (a)

Water Utility	Seawater Desal	Brackish Ground Water Desal	Reclaimed Water	Surface Water		Fresh Ground Water		Conserv - ation	All Sources - Total
				Permitted / Unused	Un-permitted	IAS and SAS	UFA Unused Permitted		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Large Inland Utility	$0	$0	$556,669	$0	$0	$151,252	$0	$686,300	$1,394,220
Small Inland Utility	$0	$0	$4,267	$0	$116,427	$0	$0	$1,467	$122,161
Large Coastal Utility	$6,401,942	$0	$786,217	$0	$717,255	$237,974	$0	$346,503	$8,489,891
Small Coastal Utility	$0	$32,270	$49,939	$0	$466,021	$39,887	$0	$30,220	$618,337

Source: Each entry is the sum of the incremental capital and O&M costs presented in Table 5.3-10 and Table 5.3-11.

Table 5.3-13
Average Incremental Cost of Additional Water Produced and Saved Per 1,000 Gallons, 2005 dollars

Water Utility	Total Water Produced or Saved		Total Annualized Cost (b)	Cost per 1,000 Gallons (c)
	Million gallons per day (mgd) (a)	1,000 gallons per year		
(1)	(2)	(3) = (2) x 365 days/year x 1,000,000 / 1,000	(4)	(5) = (4) / (3)
Large Inland Utility	9.64	3,517,486	$1,394,220	$0.40
Small Inland Utility	0.15	55,385	$122,161	$2.26
Large Coastal Utility	12.14	4,432,417	$8,489,891	$1.92
Small Coastal Utility	1.14	415,492	$618,337	$1.49

(a) From Table 5.3-8. (b) From Table 5.3-12. (c) Includes capital and O&M costs.

5.3.3 Financial Impact of New Water Sources and Conservation Programs on Water Utility Customers

The financial impact of these costs on households was evaluated under two scenarios that define how these projects would be financed. Under Scenario 1, all of the costs would be spread throughout the rate base and paid by all water utility customers. The annual cost per household was calculated and compared to the median annual household income for the county. Scenario 2 assumes that all of the capital costs are recovered through impact fees charged to new residential and commercial development, instead of through the water utility customer rate base. Here the absolute and percent increase in the monthly mortgage payment of new home owners was calculated. The annual O&M cost would be recovered through the water rate.

The calculations and results for Scenario 1 are provided for each of the four case study utilities in Table 5.3-14. If all of the incremental costs are financed through the variable water rate, then this rate would be higher than the rate that would be charged by these case study utilities over the next 20 years if these alternative water sources and conservation projects were not implemented (in 2005 dollars). Depending on the case study utility, the increase would range from $0.11 to $0.53 per 1,000 gallons, in 2005 dollars. This rate increase would be phased in over the period 2005 through 2025 as water sources and conservation programs are developed.

Depending on the case study utility, this translates into an annual water cost increase ranging from $10 per household per year for customers of the large inland utility to $38 per household per year for customers of the large coastal utility. Adding this increase to the existing household water bill, the water bill as a percent of median household income would range from 0.48 percent for customers of the Large Coastal Utility to 0.83 percent for customers of the Small Coastal Utility. According to the U.S. Environmental Protection Agency, a guideline for determining if a water bill is affordable is that the total water bill is less than two percent of median household income.[8] The average household size and median household income for each SWUCA county are presented in Table 5.3-15. Each case study utility was assigned one of these values depending on the utility's county.

The blending of water from diverse sources (blending of ground water, surface water and/or desalinated water) may cause undesirable changes in water chemistry. A potential additional cost not included in the cost estimates is the cost to add certain additional chemicals to the water to prevent these changes. Research by the American Water Works Association

[8] *U.S. Environmental Protection Agency, "Affordability of the 1986 Amendments to Community Water Systems", Washington, D.C., 1993. See also, U.S. EPA, "Information for States on Developing Affordability Criteria for Drinking Water".*

Research Foundation and regional water suppliers is addressing this issue[9]. The utility's cost to address this issue is not likely to result in unaffordable potable water supply.

The financial impact simulated above may be an overestimate of the impact to water bills because the impact of higher prices in lowering water demand was not considered in this analysis. Customers may be able to lower their water use through increases in efficiency or by reducing waste in response to higher prices.

The calculations and results for Scenario 2 are provided for each of the four case study utilities in Table 5.3-16. The capital cost per 1,000 gallons per day of capacity ranges from $64 for the Large Inland Utility to $581 for the Small Inland Utility. Using the average daily household water use of each utility, the estimated increase in the impact fee per new homeowner would range from $16 to $152, depending on the case study utility. If the fee is financed through a mortgage, then the monthly mortgage payment would increase by $0.11 to $1.03 per month, depending on the case study utility. This amount would increase the monthly mortgage payment by 0.01 percent to 0.12 percent, depending on the case study utility.

The annual O&M cost under Scenario 2 would be financed through the water bill. The impact of this cost on the annual water bill and the affordability of the water bill are provided in Table 5.3-17. The increase in the variable water rate in over the period 2005 to 2025 would range from $0.062 per 1,000 gallons to $0.285 per 1,000 gallons. For the average household, the annual water bill would increase in the range of $5.68 to $20.75 depending on the case study utility. The total water bill would range from 0.44 percent to 0.78 percent of median household income. According to the U. S. Environmental Protection Agency, the guideline for determining if a water bill is affordable is that the total water bill is less than two percent of median household income.[10]

[9] *See for example, Rajendra D. Vaidya, John D Dietz and James S. Taylor, University of Central Florida, "Iron Release in Drinking Water Distribution Systems", proceedings of the Florida Section American Water Works Association, November 2005.*

[10] *U.S. Environmental Protection Agency, "Affordability of the 1986 Amendments to Community Water Systems", Washington, D.C., 1993. See also, U.S. EPA, "Information for States on Developing Affordability Criteria for Drinking Water".*

Table 5.3-14
Cost of New Water Sources to Households and Percent of Median Income That is Water Bill by 2025 (In 2005 Dollars)

Row No.	Item	Large Inland Utility	Small Inland Utility	Large Coastal Utility	Small Coastal Utility
(1)	Increase in Variable Water Rate over period 2005 to 2025 (dollars per 1,000 gallons) (a)	$0.112	$0.334	$0.526	$0.289
(2)	Residential Per Capita Daily Water Use as % of Gross Water Use, 2001 (b)	65%	65%	65%	74%
(3)	Annual Water Use Per Household, kgal (c)	91.06	95.25	72.72	84.34
(4)	Annual Cost Of New Water Supplies per Household, 2025 (4) = (1) x (3) (d)	$10.19	$31.78	$38.28	$24.37
(5)	Annual Water Cost per Household Without Project, 2025 (e)	$200	$171	$171	$299
(6)	Annual Water Cost per Household With Project, 2025 (in 2003 dollars) (6) = (4) + (5)	$210	$203	$210	$323
(7)	Median Household Income in 2005 (f)	$37,969	$30,735	$43,219	$39,139
(8)	Water Cost with Project as % of Median Hhd Income (8) = (6) / (7) (g)	0.55%	0.66%	0.48%	0.83%

(a) Total Annual Cost of New Water Supplies divided by the product of Projected Gross Water Use in mgd in 2025, 365 and 1,000.
(b) From Table A-2 of "Estimated Water Use 2001", Southwest Florida Water Management District, Brooksville, Florida. Small inland utility value from City of Wauchula water use information reported to the District in 2001 as fax'd to Hazen and Sawyer from Andy Maddox, Supervisor of Water/Wastewater Services at City of Wauchula, Florida.
(c) Per capita water use times percent that is residential per capita use times average household size in county times 365 divided by 1,000.

(d) Numbers may not multiply to exactly the number shown due to rounding.
(e) For Large Inland Utility, the City of Lakeland's rate structure as of December 2005 was used: $200 = ($5.78 + $1.43 x (91.06/12)) x 12. For Small Inland Utility, City of Wauchula's rate structure as of January 2006 was used: $171 = ($7.18 (for 1st 3,000 gallons) + $1.04 x 3 + $2.04 x (95.25/12 - 6)) x 12. For Large Coastal Utility, Manatee County's rate structure as of December 2005 was used: $171 = ($6.25 + $1.32 x 6 + $1.64 x (72.72/12 - 6)) x 12. For Small Coastal Utility, City of Punta Gorda's rate structure as of December 2005 was used: $299 = ($5.78 + $2.72 x 84.34/12) x 12.

(f) See Tables 5.3-15.

(g) Numbers may not divide to exactly the number shown due to rounding.

Table 5.3-15
Average Household Size and Median Household Income of SWUCA Counties

Item	Polk	Highlands	Hardee	DeSoto
Average household size, 2003 (a)	2.52	2.30	3.06	2.68
Median Household Income, 1993 (b)	$26,244	$21,592	$21,182	$20,515
Median Household Income, 2002 (c)	$34,620	$28,718	$28,004	$27,850
% Annual Growth in Median Income, 1993 to 2002 (d)	3.08%	3.17%	3.10%	3.40%
Est. Median Household Income in 2005	$37,969	$31,582	$30,735	$30,837
Median Household Income Per Month, 2005	$3,164	$2,632	$2,561	$2,570

Item	Hillsborough	Manatee	Sarasota	Charlotte
Average household size, 2003 (a)	2.50	2.29	2.13	2.18
Median Household Income, 1993 (b)	$30,354	$27,633	$30,710	$26,217
Median Household Income, 2002 (c)	$42,407	$38,647	$41,360	$35,408
% Annual Growth in Median Income, 1993 to 2002 (d)	3.72%	3.73%	3.31%	3.34%
Est. Median Household Income in 2005	$47,407	$43,219	$45,675	$39,139
Median Household Income Per Month, 2005	$3,951	$3,602	$3,806	$3,262

(a) Average household size by county from University of Florida Bureau of Economic and Business Research, Florida Statistical Abstract, Gainesville, Florida, 2004, pg. 78.

(b) Median household income 1993 by county from University of Florida Bureau of Economic and Business Research, Florida Statistical Abstract, Gainesville, Florida, 1998, pg. 198.

(c) Median household income 2002 by county from University of Florida Bureau of Economic and Business Research, Florida Statistical Abstract, Gainesville, Florida, 2004, pg. 223.

(d) Percent annual growth in median income calculated using the formula: Median Income$_t$ = Median Income$_{t-1}$ x e^{rt}, where r is the growth rate and t is time. Therefore, the average percent change in median income from 1993 to 2002 is [Ln(median income$_{2002}$) – Ln(median income$_{1993}$)] / 9.

Table 5.3-16
Simulation of How Impact Fees To Finance New Water Sources Affect Monthly Home Mortgage Payment, 2005 Dollars

Row No.	Item	Large Inland Utility	Small Inland Utility	Large Coastal Utility	Small Coastal Utility
(1)	Annualized Capital Cost of New Water Supplies (From Table 5.3-10)	$617,118	$85,966	$3,887,418	$406,196
(2)	Total New Water Capacity, 1,000 gallons per day (From Table 5.3-8 times 1,000)	9,637	148	12,144	1,138
(3)	Capital Cost Per 1,000 GPD of Capacity (3) = (1)/(2)	$64	$581	$320	$357
(4)	Household Water Use, 1,000 gallons per day (From Table 5.3-14 / 365)	0.2495	0.2610	0.1992	0.2311
(5)	Increase in Impact Fee per New Homeowner (5) = (3) x (4)	$16	$152	$64	$82
(6)	Annualized Impact Fee (Row (5) amortized at 7.10% per year over 30 years)(a)	$1.30	$12.34	$5.19	$6.71
(7)	Increase in Monthly Mortgage Payment (7) = (6) / 12	$0.11	$1.03	$0.43	$0.56
(8)	Purchase Price of New Home in County, 2000 (b)	$137,508	$128,255	$154,961	$140,450
(9)	Average Monthly Mortgage Payment Before Increase (a)	$932	$870	$1,051	$952
(10)	% Increase in Monthly Mortgage Payment Due to Impact Fee (10) = (7) / (9)	0.01%	0.12%	0.04%	0.06%

(a) Mortgage calculation assumes a 7.10 percent interest rate per year and a 30 year loan. The 7.10 percent interest rate is the average 30-year mortgage interest rate over the past 10 years (1995 to 2004) from the Federal Home Mortgage Corporation www.federalreserve.gov/releases/h15/data/a/cm.txt).

(b) From University of Florida, Bureau of Economic and Business Research, "Florida Statistical Abstract 2004", Gainesville, Florida, Table 2.10, page 81. Values represent purchase price of new homes. Excludes mobile homes. For Large Inland Utility, Polk County value was used. For Small Inland Utility, Hardee County value was used. For Large Coastal Utility, Manatee County value was used. For Small Coastal Utility, Charlotte County value was used.

Table 5.3-17
Annual O&M Cost of New Water Sources to Households and Percent of Median Income That is Water Bill by 2025 (In 2005 Dollars)

Row No.	Item	Large Inland Utility	Small Inland Utility	Large Coastal Utility	Small Coastal Utility
(1)	Increase in Variable Water Rate Over Period 2005 to 2025 to Pay for Annual O&M Cost (dollars per 1,000 gallons) (a)	$0.062	$0.099	$0.285	$0.099
(2)	Residential Per Capita Daily Water Use as % of Gross Water Use, 2001 (b)	65%	65%	65%	74%
(3)	Annual Water Use Per Household, kgal (c)	91.06	95.25	72.72	84.34
(4)	Annual O&M Cost Of New Water Supplies per Household, 2025 (4) = (1) x (3) (d)	$5.68	$9.42	$20.75	$8.36
(5)	Annual Water Cost per Household Without Project, 2025 (e)	$200	$171	$171	$299
(6)	Annual Water Cost per Household With Project, 2025 (in 2003 dollars) (6) = (4) + (5)	$205	$180	$192	$307
(7)	Median Household Income in 2005 (f)	$37,969	$30,735	$43,219	$39,139
(8)	Water Cost with Project as % of Median Hhd Income (8) = (6) / (7) (g)	0.54%	0.59%	0.44%	0.78%

(a) Annual O&M Cost of New Water Supplies (Table 5.3-11) divided by the product of Projected Gross Water Use in mgd in 2025, 365 and 1,000.

(b) From Table A-2 of "Estimated Water Use 2001", Southwest Florida Water Management District, Brooksville, Florida. Small inland utility value from City of Wauchula water use information reported to the District in 2001 as fax'd to Hazen and Sawyer from Andy Maddox, Supervisor of Water/Wastewater Services at City of Wauchula, Florida.

(c) Per capita water use times percent that is residential per capita use times average household size in county times 365 divided by 1,000.

(d) Numbers may not multiply to exactly the number shown due to rounding.

(e) For Large Inland Utility, the City of Lakeland's rate structure as of December 2005 was used: $200 = ($5.78 + $1.43 x (91.06/12)) x 12. For Small Inland Utility, City of Wauchula's rate structure as of January 2006 was used: $171 = ($7.18 (for 1st 3,000 gallons) + $1.04 x 3 + $2.04 x (95.25/12 - 6)) x 12. For Large Coastal Utility, Manatee County's rate structure as of December 2005 was used: $171 = ($6.25 + $1.32 x 6 + $1.64 x (72.72/12 - 6)) x 12. For Small Coastal Utility, City of Punta Gorda's rate structure as of December 2005 was used: $299 = ($5.78 + $2.72 x 84.34/12) x 12.

(f) See Table 5.3-15.

(g) Numbers may not divide to exactly the number shown due to rounding.

5.3.4 Potential Financial Impact of 100 Percent Alternative Water Source Use to Residential Water Utility Customers

The proposed rule addresses the use of alternative water sources to replace non-alternative supplies "to the greatest extent practical, based on economic, environmental and technical feasibility." This section provides an example of the impact of replacing all of the non-alternative source water of a utility with alternative water supplies. This example is not meant to reflect the requirements of any particular water utility and may never actually be required of a water utility. Each utility or permittee would be evaluated on a case-by-case basis.

The example uses the four case study utilities described previously in this Chapter: a large inland utility; a small inland utility; a large coastal utility and a small coastal utility. The new distribution of all water sold by the utility over all of the alternative water sources available to the utility is provided in Table 5.3-18 for each case study utility. In the same manner that was used in the case study analysis described previously in this Chapter, the total incremental capital costs, the annualized incremental capital costs, the annual incremental O&M costs and the total annualized incremental costs are provided in Tables 5.3-19 to 5.3-22.

The average incremental cost of water produced and saved per 1,000 gallons is provided in Table 5.3-23. The average cost of all water supplies to each utility ranges from $2.16 per 1,000 gallons for the large inland utility to $3.84 per 1,000 gallons to the large coastal utility. These incremental costs would increase the annual residential customer water bill by $183 per year for the small coastal utility to $279 per year for the large coastal utility. These costs would result in water bills that are from 1.04 percent to 1.32 percent of median household income. Relative to the guidance value of 2.0 percent of median household income, the costs would be affordable to the utility's customers.

In the event that the capital costs are financed through an impact fee and the annual O&M costs are financed through the variable water rate, the financial results are provided in Table 5.3-25 and 5.3-26. The monthly mortgage payment would increased by 0.07 percent for customers of the large coastal utility to 0.13 percent for customers of the small inland utility. Including the annual O&M cost in the variable rate results in the new water bill increasing so that the total bill becomes 0.68 percent of median household income for customers of the large inland utility to 0.95 percent for customers of the small coastal utility.

Table 5.3-18
Amount of Water To Be Obtained from Alternative Sources by 2025 When All Water Use Is From Alternative Sources, mgd (a)

Water Utility	Seawater Desal	Brackish Desal	Reclaimed Water	Surface Water		Fresh Ground		Conserv - ation	All Sources - Total	New Conservation - % of 2025 Demand
				Permitted / Unused (b)	Un-permitted	IAS and SAS (c)	UFA Unused Permitted			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Large Inland Utility	0.00	0.00	1.16	0.00	27.93	0.86	0.00	4.18	34.14	12%
Small Inland Utility	0.00	0.00	0.01	0.00	0.98	0.00	0.00	0.01	1.00	1%
Large Coastal Utility	37.86	0.00	2.07	0.00	0.79	1.36	0.00	2.11	44.18	5%
Small Coastal Utility	0.00	4.76	0.13	0.04	0.51	0.23	0.00	0.18	5.86	3%

(a) Total 2025 water use allocated to all available alternative sources for the utility.

Table 5.3-19
Total Incremental Capital Cost of 100 Percent Alternative Water Source Use in 2025, 2005 dollars

Water Utility	Seawater Desal	Brackish Ground Water Desal	Reclaimed Water	Surface Water		Fresh Ground Water		Conserv - ation	All Sources - Total
				Permitted / Unused	Un-permitted	IAS and SAS	UFA Unused Permitted		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Large Inland Utility	$0	$0	$5,625,478	$0	$217,969,993	$1,826,412	$0	$0	$225,421,884
Small Inland Utility	$0	$0	$43,120	$0	$7,638,273	$0	$0	$0	$7,681,393
Large Coastal Utility	$290,253,956	$0	$7,233,104	$0	$5,746,667	$2,873,611	$0	$0	$306,107,337
Small Coastal Utility	$0	$28,886,882	$459,432	$0	$3,733,776	$481,650	$0	$0	$33,561,741

Source: Each entry calculated as follows. The total annualized capital cost is the amount water needed from that water source as indicated in Table 5.3-18 times the annualized capital cost per 1,000 gallons associated with the source type from Table 5.2-1 in Chapter 5.2. This value is then converted to the total capital cost by calculating the present value of the total annualized capital cost over 20 years at 5.375% annual interest.

Table 5.3-20
Annualized Incremental Capital Cost of 100 Percent Alternative Water Source Use in 2025, 2005 dollars

Water Utility	Seawater Desal	Brackish Ground Water Desal	Reclaimed Water	Surface Water		Fresh Ground Water		Conserv - ation	All Sources – Total
				Permitted / Unused	Un-permitted	IAS and SAS	UFA Unused Permitted		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Large Inland Utility	$0	$0	$465,866	$0	$18,050,891	$151,252	$0	$0	$18,668,009
Small Inland Utility	$0	$0	$3,571	$0	$632,553	$0	$0	$0	$636,124
Large Coastal Utility	$24,036,990	$0	$599,000	$0	$475,902	$237,974	$0	$0	$25,349,867
Small Coastal Utility	$0	$2,392,228	$38,047	$0	$309,208	$39,887	$0	$0	$2,779,370

Source: Each entry calculated as the amount water needed from that water source as indicated in Table 5.3-18 times the annualized capital cost per 1,000 gallons associated with the source type from Chapter 5.2, Table 5.2-1.

Table 5.3-21
Annual Incremental O&M Cost of 100 Percent Alternative Water Source Use in 2025, 2005 dollars

Water Utility	Seawater Desal	Brackish Ground Water Desal	Reclaimed Water	Surface Water		Fresh Ground Water		Conserv - ation	All Sources - Total
				Permitted / Unused	Un-permitted	IAS and SAS	UFA Unused Permitted		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Large Inland Utility	$0	$0	$90,803	$0	$7,455,454	$0	$0	$686,300	$8,232,556
Small Inland Utility	$0	$0	$696	$0	$261,260	$0	$0	$1,467	$263,423
Large Coastal Utility	$35,734,209	$0	$187,217	$0	$241,352	$0	$0	$346,503	$36,509,281
Small Coastal Utility	$0	$1,659,183	$11,892	$0	$156,814	$0	$0	$30,220	$1,858,109

Source: Each entry calculated as the amount water needed from that water source as indicated in Table 5.3-18 times the annual O&M cost per 1,000 gallons associated with the source type from Chapter 5.2, Table 5.2-1.

Table 5.3-22
Total Annualized Incremental Cost of 100 Percent Alternative Water Source Use in 2025, 2005 dollars

Water Utility	Seawater Desal	Brackish Ground Water Desal	Reclaimed Water	Surface Water		Fresh Ground Water		Conserv - ation	All Sources - Total
				Permitted / Unused	Un-permitted	IAS and SAS	UFA Unused Permitted		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Large Inland Utility	$0	$0	$556,669	$0	$25,506,345	$151,252	$0	$686,300	$26,900,566
Small Inland Utility	$0	$0	$4,267	$0	$893,813	$0	$0	$1,467	$899,547
Large Coastal Utility	$59,771,199	$0	$786,217	$0	$717,255	$237,974	$0	$346,503	$61,859,148
Small Coastal Utility	$0	$4,051,412	$49,939	$0	$466,021	$39,887	$0	$30,220	$4,637,479

Source: Each entry is the sum of the capital and O&M costs presented in Table 5.3-20 and Table 5.3-21.

Table 5.3-23
Average Incremental Cost of Additional 100 Percent Alternative Water Source Use in 2025, 2005 dollars

Water Utility	Total Water Produced or Saved		Total Annualized Cost (b)	Cost per 1,000 Gallons (c)
	Million gallons per day (mgd) (a)	1,000 gallons per year		
(1)	(2)	(3) = (2) x 365 days/year x 1,000,000 / 1,000	(4)	(5) = (4) / (3)
Large Inland Utility	34.14	12,460,570	$26,900,566	$2.16
Small Inland Utility	1.00	364,749	$899,547	$2.47
Large Coastal Utility	44.18	16,126,032	$61,859,148	$3.84
Small Coastal Utility	5.86	2,140,446	$4,637,479	$2.17

(a) From Table 5.3-18. (b) From Table 5.3-22. (c) Includes capital and O&M costs.

Table 5.3-24
Cost of 100 Percent Alternative Sources to Households and Percent of Median Income That is Water Bill by 2025 (In 2005 Dollars)

Row No.	Item	Large Inland Utility	Small Inland Utility	Large Coastal Utility	Small Coastal Utility
(1)	Increase in Variable Water Rate over period 2005 to 2025 (dollars per 1,000 gallons) (a)	$2.159	$2.457	$3.836	$2.167
(2)	Residential Per Capita Daily Water Use as % of Gross Water Use, 2001 (b)	65%	65%	65%	74%
(3)	Annual Water Use Per Household, kgal (c)	91.06	95.25	72.72	84.34
(4)	Annual Cost Of New Water Supplies per Household, 2025 (4) = (1) x (3) (d)	$197	$234	$279	$183
(5)	Annual Water Cost per Household Without Project, 2025 (e)	$200	$171	$171	$299
(6)	Annual Water Cost per Household With Project, 2025 (in 2003 dollars) (6) = (4) + (5)	$396	$405	$450	$482
(7)	Median Household Income in 2005 (f)	$37,969	$30,735	$43,219	$39,139
(8)	Water Cost with Project as % of Median Hhd Income (8) = (6) / (7) (g)	1.04%	1.32%	1.04%	1.23%

(a) Total Annual Cost of New Water Supplies divided by the product of Projected Gross Water Use in mgd in 2025, 365 and 1,000.

(b) From Table A-2 of "Estimated Water Use 2001", Southwest Florida Water Management District, Brooksville, Florida. Small inland utility value from City of Wauchula water use information reported to the District in 2001 as fax'd to Hazen and Sawyer from Andy Maddox, Supervisor of Water/Wastewater Services at City of Wauchula, Florida.

(c) Per capita water use times percent that is residential per capita use times average household size in county times 365 divided by 1,000.

(d) Numbers may not multiply to exactly the number shown due to rounding.

(e) For Large Inland Utility, the City of Lakeland's rate structure as of December 2005 was used: $200 = ($5.78 + $1.43 x (91.06/12)) x 12. For Small Inland Utility, City of Wauchula's rate structure as of January 2006 was used: $171 = ($7.18 (for 1st 3,000 gallons) + $1.04 x 3 + $2.04 x (95.25/12 - 6)) x 12. For Large Coastal Utility, Manatee County's rate structure as of December 2005 was used: $171 = ($6.25 + $1.32 x 6 + $1.64 x (72.72/12 - 6)) x 12. For Small Coastal Utility, City of Punta Gorda's rate structure as of December 2005 was used: $299 = ($5.78 + $2.72 x 84.34/12) x 12.

(f) See Tables 5.3-15.

(g) Numbers may not divide to exactly the number shown due to rounding.

Table 5.3-25
Simulation of How Impact Fees To Finance 100 Percent Alternative Water Sources Affect Monthly Home Mortgage Payment, 2005 Dollars

Row No.	Item	Large Inland Utility	Small Inland Utility	Large Coastal Utility	Small Coastal Utility
(1)	Annualized Capital Cost of New Water Supplies (From Table 5.3-20)	$18,668,009	$636,124	$25,349,867	$2,779,370
(2)	Total New Water Capacity, 1,000 gallons per day (From Table 5.3-18 times 1,000)	34,139	999	44,181	5,864
(3)	Capital Cost Per 1,000 GPD of Capacity (3) = (1)/(2)	$547	$637	$574	$474
(4)	Household Water Use, 1,000 gallons per day (From Table 5.3-24 / 365)	0.2495	0.2610	0.1992	0.2311
(5)	Increase in Impact Fee per New Homeowner (5) = (3) x (4)	$136	$166	$114	$110
(6)	Annualized Impact Fee (Row (5) amortized at 7.10% per year over 30 years) (a)	$11.10	$13.51	$9.30	$8.91
(7)	Increase in Monthly Mortgage Payment (7) = (6) / 12	$0.92	$1.13	$0.78	$0.74
(8)	Purchase Price of New Home in County, 2000 (b)	$137,508	$128,255	$154,961	$140,450
(9)	Average Monthly Mortgage Payment Before Increase (a)	$932	$870	$1,051	$952
(10)	% Increase in Monthly Mortgage Payment Due to Impact Fee (10) = (7) / (9)	0.10%	0.13%	0.07%	0.08%

(a) Mortgage calculation assumes a 7.10 percent interest rate per year and a 30 year loan. The 7.10 percent interest rate is the average 30-year mortgage interest rate over the past 10 years (1995 to 2004) from the Federal Home Mortgage Corporation www.federalreserve.gov/releases/h15/data/a/cm.txt).

(b) From University of Florida, Bureau of Economic and Business Research, "Florida Statistical Abstract 2004", Gainesville, Florida, Table 2.10, page 81. Values represent purchase price of new homes. Excludes mobile homes. For Large Inland Utility, Polk County value was used. For Small Inland Utility, Hardee County value was used. For Large Coastal Utility, Manatee County value was used. For Small Coastal Utility, Charlotte County value was used.

Table 5.3-26
Annual O&M Cost of New Water Sources to Households and Percent of Median Income That is Water Bill by 2025 (In 2005 Dollars)

Row No.	Item	Large Inland Utility	Small Inland Utility	Large Coastal Utility	Small Coastal Utility
(1)	Increase in Variable Water Rate Over Period 2005 to 2025 to Pay for Annual O&M Cost (dollars per 1,000 gallons) (a)	$0.661	$0.719	$2.264	$0.868
(2)	Residential Per Capita Daily Water Use as % of Gross Water Use, 2001 (b)	65%	65%	65%	74%
(3)	Annual Water Use Per Household, kgal (c)	91.06	95.25	72.72	84.34
(4)	Annual O&M Cost Of New Water Supplies per Household, 2025 (4) = (1) x (3) (d)	$60.16	$68.53	$164.64	$73.22
(5)	Annual Water Cost per Household Without Project, 2025 (e)	$200	$171	$171	$299
(6)	Annual Water Cost per Household With Project, 2025 (in 2003 dollars) (6) = (4) + (5)	$260	$240	$336	$372
(7)	Median Household Income in 2005 (f)	$37,969	$30,735	$43,219	$39,139
(8)	Water Cost with Project as % of Median Hhd Income (8) = (6) / (7) (g)	0.68%	0.78%	0.78%	0.95%

(a) Annual O&M Cost of New Water Supplies (Table 5.3-21) divided by the product of Projected Gross Water Use in mgd in 2025, 365 and 1,000.

b) From Table A-2 of "Estimated Water Use 2001", Southwest Florida Water Management District, Brooksville, Florida. Small inland utility value from City of Wauchula water use information reported to the District in 2001 as fax'd to Hazen and Sawyer from Andy Maddox, Supervisor of Water/Wastewater Services at City of Wauchula, Florida.

(c) Per capita water use times percent that is residential per capita use times average household size in county times 365 divided by 1,000.

(d) Numbers may not multiply to exactly the number shown due to rounding.

(e) For Large Inland Utility, the City of Lakeland's rate structure as of December 2005 was used: $200 = ($5.78 + $1.43 x (91.06/12)) x 12. For Small Inland Utility, City of Wauchula's rate structure as of January 2006 was used: $171 = ($7.18 (for 1st 3,000 gallons) + $1.04 x 3 + $2.04 x (95.25/12 - 6)) x 12. For Large Coastal Utility, Manatee County's rate structure as of December 2005 was used: $171 = ($6.25 + $1.32 x 6 + $1.64 x (72.72/12 - 6)) x 12. For Small Coastal Utility, City of Punta Gorda's rate structure as of December 2005 was used: $299 = ($5.78 + $2.72 x 84.34/12) x 12.

(f) See Table 5.3-15.

(g) Numbers may not divide to exactly the number shown due to rounding.

5.4 Potential Costs to New and Expanding Self-Supplied Water Users – Agricultural, Industrial, Commercial, Mining, Dewatering, Recreation and Aesthetic Water Uses

This sub-section provides cost estimates associated with obtaining new water supplies for self-supplied agricultural, industrial, commercial, mining, dewatering, recreation and aesthetic water use permittees and applicants in the SWUCA. The potential financial impacts of these costs as agricultural businesses and golf courses seek to establish or expand in the area are also presented.

5.4.1 Costs of New Water Supplies

The potential water sources available to these water users include reclaimed water, stormwater, surface water, stored surface water and the surficial aquifer. Treatment and distribution methods can vary and will determine the overall cost of the project. Various filtration methods can be used depending on the source water quality, the required finished water quality, and land availability. The water can be distributed via pipelines or underground aquifers. Review of the projects evaluated in the District's Regional Water Supply Plan, August 2001 and the District's November 2005 draft Regional Water Supply Plan Update finds that costs vary significantly because of these differences.

There is not one predominant water source or water project that is expected to be available to meet all future demands. Instead, many types of water projects will likely supply new water demands in the future.

These projects include:

- Traditional reclaimed water projects where wastewater from treatment plants is treated to reclaimed water standards and piped to large water users,

- Experimental reclaimed water projects where the mining pits, clay settling areas and sand tailing areas left from phosphate mining operations are used to treat water in inland areas for storage and distribution using the underground aquifer;

- Surface water projects using pipelines or the underground aquifer for distribution to large water users;

- Use of horizontal wells to capture water from the surficial aquifer at either a regional or individual property level; and,

- Use of stormwater or tailwater recovery systems to capture water on-site that would otherwise be discharged from the property.

As a group, these projects have the potential to provide water supplies to coastal/urban and inland/rural areas of the SWUCA. In addition or alternatively, these self-supplied water users may be able to implement additional water conservation practices to reduce water needs.

The estimated incremental costs associated with the new water sources by type of water use permittee were presented in Table 5.2-1 in Section 5.2 of this report. The costs range from $0.00 to $0.23 per 1,000 gallons for non-public supply water conservation and agricultural

conservation, respectively, to $1.86 to $3.69 per 1,000 gallons for developing currently un-permitted surface water sources. These surface water source costs represent the average of the projects evaluated in the Highlands Water Alliance planning area (Polk, Highlands and Hardee counties) and the Peace River / Manasota Regional Water Supply Authority planning area (Manatee, DeSoto, Sarasota and Charlotte counties), respectively.

In practice, non-residential self-supplied water users rely on relatively inexpensive ground water or surface water sources. Currently, the most common alternative water source used is reclaimed water and the users typically do not pay its full cost. Instead, Florida's wastewater utilities, in an effort to obtain environmentally acceptable effluent disposal methods, have provided reclaimed water to large water users either free of charge or for a very small price. As the demand for reclaimed water increases relative to supply, the incentive for wastewater utilities to provide reclaimed water at such low prices will fall.

The estimated range of reclaimed water prices per 1,000 gallons actually paid by non-residential reclaimed water users in Florida vary among users. The most common amount paid is $0.0 to about $0.10 per 1,000 gallons. Agricultural irrigators pay very little to nothing relative to the cost of supply. Large landscape irrigators and industrial businesses may pay as much as $0.79 per 1,000 gallons[11].

Thus, the economic impact of water costs to non-residential self-supplied water users will depend on how much they will pay for the water. This price may be lower than the total cost of the water. The extent to which they will pay less than the full cost will primarily depend on their ability to pay and policies that shift costs to those better able to accept the burden. Historically, in the United States, the bulk of the cost of relatively expensive water supply projects has been paid primarily by residential and commercial water utility customers and taxpayers. For example, agricultural water users in southern California have been able to obtain water at low prices relative to the total cost of supplying the water. Much of the cost has been paid by water utility customers and taxpayers.

The remainder of this section provides ranges of the potential costs of these alternative sources to non-residential self-supplied water users. The breakeven costs of new water supply sources to agriculture and the financial impact of these costs on golf course operations are discussed.

[11] *(c) From Water Conserv II, Orange County, Florida; Manatee County, Florida; and Florida DEP, 2004 Reuse Inventory, Tallahassee.*

5.4.2 Agricultural Water Users

This section described the maximum about of additional money growers could pay for water supply before residual returns to land and risk fall to zero. It also presents a range of estimated incremental costs of water conservation and alternative water sources given the average permitted quantities associated with agricultural operations.

Historically and today, agriculture in the SWUCA relies on relatively inexpensive ground and surface water sources to irrigate cropland. Most of this water, or about 85 percent, is obtained from ground water.[12] As permitted water supplies from relatively inexpensive ground water sources become scarce, new and expanding growers may need to obtain water from projects that are more expensive relative to traditional sources.

While it is not known how much additional cost growers will incur, as discussed in the previous sub-section, it is useful to compute and examine estimates of the breakeven cost of water among farms. The breakeven cost of water is the cost per 1,000 gallons of water that extracts all return to land and risk from the farming operation.[13] As water prices increase, the return to land and risk falls. When the return to land and risk declines and is less than the return that could be gained from another use on that land, the land will be put into that other land use.

In the case where the land has no associated water use permit or feasible water source, alternative land uses may be limited. If the land is located near a growing urban area, the landowner may choose to produce the crop until returns fall to zero, buying time to take advantage of rising land prices before selling. Thus, the breakeven cost provides some idea about how much of the water cost growers might be able to bear before significant quantities of land leave production.

To this end, 11 model farms were chosen that represent the characteristics of farms in the SWUCA. The characteristics are crop type, irrigation system, location, cultural practices and seasonality. This sub-section summarizes the characteristics of farms in the SWUCA, crop acreage projections, and the model farms chosen.

Crop Acreage Projections. Year 2000 and 2005 and projections of irrigated acreage through 2025 by major crop type are presented in Table 5.4-1. These are recent projections from the District that represent the SWUCA area. The acreages for an individual crop may be less than the permitted acreage for that crop because permitted crops are not produced every year.

[12] *Southwest Florida Water Management District, Regulatory Database as of November 2005.*

[13] *Return to land and risk is revenue from sales of agricultural product minus all costs of production including the opportunity cost of investments as reflected in the interest cost (average rate of return) and not including land rent (or value of the land).*

Table 5.4-1
Irrigated Crop Acreage Projections in the SWUCA

Major Crop Categories	Year						% Growth from 2005 to 2025
	2000	2005	2010	2015	2020	2025	
Citrus	303,383	273,210	258,058	253,202	248,873	243,234	-11%
Cucumbers	3,023	2,090	1,449	1,449	1,449	1,449	-31%
Field Crops	2,971	2,909	2,818	2,818	2,818	2,818	-3%
Melons	5,013	4,666	3,536	2,937	2,538	2,575	-45%
Nurseries	4,878	5,535	6,086	6,231	6,377	6,521	18%
Other Veg./Row Crops	12,911	12,772	13,380	13,473	13,551	13,625	7%
Pasture	4,873	4,881	4,881	4,881	4,881	4,881	0%
Potatoes	3,288	2,882	2,526	2,526	2,526	2,526	-12%
Sod	14,608	14,608	14,608	14,608	14,608	14,608	0%
Strawberries	4,746	5,222	5,798	5,798	5,798	5,798	11%
Tomatoes	13,942	12,819	11,791	11,313	10,762	10,232	-20%
Total	373,634	341,595	324,930	319,235	314,180	308,266	-10%

Source: Southwest Florida Water Management District, unpublished data, December 2005.

The acreages of three major crop categories are expected to grow through the year 2025. Nursery production is expected to grow by 18 percent between the year 2005 and 2025 while strawberries and other vegetable and row crops (primarily peppers and squash) are expected to grow by 11 percent and 7 percent, respectively, over the same period. Pasture and sod acreages are not expected to grow while acreages in all other crops are expected to fall.

Selection of 11 Model Farms. Given the crop water use characteristics in the SWUCA and the crop acreage projections, eleven model farms were chosen. These 11 model farms are described in Table 5.4-2. These model farms address those crops that are predominant in the SWUCA.

Table 5.4-2
Description of Model Farms

Farm #	Crop Type	Season	Irrigation System (a)	Location or Soil
1	Sod – St. Augustine grass	Year round	Seepage or sprinkler	SWUCA
2	Sod – Bahia grass	Year round	Seepage or sprinkler	SWUCA
3	Container Woody Ornamentals	Year round	Micro-jet, drip or sprinkler	SWUCA
4	Field Woody Ornamentals	Year round	Seepage, microjet, drip or sprinkler	SWUCA
5	Flowering Plants		Micro-jet, drip or sprinkler	
6	Citrus - ridge	Year round	Microjet or sprinkler	Highlands and Polk
7	Citrus - flatwoods	Year round	Microjet or sprinkler	Hillsborough, Manatee, Hardee, DeSoto, Charlotte and Sarasota
8	Tomatoes - Fall	Fall	Seepage or drip	Myakka soil (mulched)
9	Tomatoes - Spring	Spring	Seepage or drip	Myakka soil (mulched)
10	Strawberries	Year round	Drip	Hillsborough, Manatee, Polk
11	Cucumbers	Spring and Fall	Seepage or drip	SWUCA

(a) Listed in order of predominance. From HSW Engineering, Inc. in association with Gary Bethune, P.E., Hazen and Sawyer and Water Resources Associates, Inc., "Irrigation Water Conservation Options and Water Resource / Water Supply Development Opportunities for Agricultural Water Users", August 2000, Appendix A of Technical Memorandum No. 1, Prepared for the Southwest Florida Water Management District. Tables 2.4A through 2.10A.

Breakeven Cost of Water for Irrigation. The data needed to estimate breakeven costs are the return to land and risk per acre by crop type and the irrigation water requirement by crop type. Each is discussed in turn below.

In order to estimate the breakeven cost for irrigation, estimates of revenues and costs of agricultural products grown in the SWUCA must be obtained. The best available estimates are from the University of Florida, Institute of Food and Agricultural Sciences, Extension Service. These were used in this analysis. However, bear in mind that agricultural practices are very diverse in the SWUCA even within a crop category.

A summary of the revenues and costs for the 11 model farms is provided in Table 5.4-3. The value per unit is the expected revenue per acre or per 1,000 square feet from selling the commodity. The cost per unit is the expected costs of production, management, taxes, regulations, interest, and depreciation. The net value per acre is the return to land and risk. When the return to land and risk is less than zero, the land leaves production and converts to a more profitable land use or becomes fallow if no other land uses are profitable. Estimated net values per unit range from -$221 per acre for southwest Florida citrus production to $1,519 per acre for Spring Tomatoes.

These estimates of net revenue were calculated as the average real price of the product over the past five years minus the most recent costs of production. Using this method, single-cropped strawberries and southwest Florida citrus were found to have negative returns to land and risk. Strawberry production in southwest Florida is often part of a double crop system where cucumbers, onions, radishes, cherry tomatoes or cantaloupe is grown after the strawberries are harvested to take advantage of the mulch and soil nutrients provided during strawberry production. This lowers the production cost of the second crop and increases its returns such that the double crop combination may be profitable. Due to differences in production and management practices among growers, the net returns to some strawberry and southwest Florida citrus growers may be positive. If net returns remain negative for several years, industry contraction is expected.

Table 5.4-3
Estimated Revenues and Costs of Agricultural Products Grown in the SWUCA, 2005

Crop	Unit of Measure	Value per Unit	Cost per Unit	Net Value per Unit
Sod - St. Augustine grass	Acres (a)	$4,675	$3,269	$1,406
Sod – Bahia grass	Acres (a)	NA	NA	$1,054
Container Woody Ornamentals	1,000 Square Feet (b)	$838	$682	$157
Field Woody Ornamentals	1,000 Square Feet (b)	$872	$615	$257
Flowering Plants	1,000 Square Feet (b)	$4,092	$3,980	$112
Citrus – Central Florida (c)	Acres	$1,819	$1,351	$468
Citrus – Southwest Florida (d)	Acres	$1,295	$1,423	-$127
Tomatoes – Fall	Acres	$12,017	$11,367	$650
Tomatoes – Spring	Acres	$13,118	$11,599	$1,519
Strawberries – single cropped (e)	Acres	$24,597	$24,723	-$126
Cucumbers in a double cropped system	Acres	$6,683	$4,944	$1,739

(a) This is a gross acre and equals 4,840 square yards. The land use includes sod, canals, roads and ditches. The net value per unit for Bahia grass is from telephone conversation with Dr. Alan Hodges, University of Florida Institute of Food and Agricultural Sciences, January 2006.

(b) A square foot includes net usable growing area and includes production plus space within growing beds and fields and excludes space in aisles, driveways, and other service areas. Revenue and cost data from Alan W. Hodges, Loretta N. Satterthwaite and John J. Haydu, "Business Analysis of Ornamental Plant Nurseries in Florida, 1998", University of Florida, Institute of Food and Agricultural Sciences, Food and Resource Economics Department, pages 9 and 13. Costs include labor, supplies, facility and equipment operaton, repair and maintenance, overhead, depreciation and interest. Revenue and costs converted from 1998 dollars to 2005 dollars using the GDP chained price index (1998 value x 1.12 = 2005 value). Net returns were verified by Dr. Alan Hodges except that his estimate of net value per unit for Flowering Plants is higher than that reported here.

(c) Central Florida includes the counties of Polk, Highlands, Hardee and Hillsborough.

(d) Southwest Florida includes the counties of Desoto and Charlotte.

(e) Double cropped strawberry production would be more profitable.

The sources of these estimates are provided in Tables 5.4-4 through 5.4-6, except for the ornamentals and flowering plants which are from Hodges, Satterthwaite and Haydu as indicated in footnote (b) of Table 5.4-3. For southwest Florida citrus and central Florida citrus, the itemized revenue and cost data are presented in Table 5.4-4 and Table 5.4-5, respectively. For fall and spring tomatoes, the revenue and cost data are presented in Table 5.4-6. For strawberries, cucumbers and sod, the revenue and cost data are presented in Table 5.4-7.

Table 5.4-4
Revenue and Costs of Southwest Florida Hamlin Oranges Grown for Processed Market, 2004-2005 Season [(a)]

Item	**$ per Acre**
Revenue, on-tree, 506 boxes at $2.56 per box [(b)]	$1,295
Costs [(c)]	
Production & Cultural Costs	$833
Interest on Production & Cultural Costs	$42
Management Costs	$48
Taxes / Regulatory Costs	$66
Depreciation and Interest [(d)]	$435
Total Cost	$1,423
Returns to Land, Trees and Risk [Revenue - Total Cost]	**-$127**

(a) Represents a mature (10+ years old) Southwest Florida orange grove.
(b) On-tree price per box is average price for Hamlin oranges (early-midseason excluding navel) in Florida from 1999-2000 to 2003-2004 from Florida Agricultural Statistics Service, preliminary Citrus Summaries 2002-2003, 2003-2004. All nominal prices were converted to 2005 dollars using the GDP Chained Price Index. According to page 2 of the FASS "Florida Citrus Summary, 2003-2004" report, "All prices ... are on-tree prices representing the average price received by growers for their fruit. The term "on-tree" relates to fruit returns to the grower after the costs of picking, hauling, and packing have been removed. Prices are based on records of commmercial fresh fruit sales and processed fruit returns." Yield of 506 boxes per acre is based on distribution of trees by age and boxes per tree by age and is from Ronald P. Muraro, Fritz M. Roka, Robert E. Rouse, "Budgeting Costs and Returns for Southwest Florida Citrus Production, 2003-2004, University of Florida IFAS Extension, EDIS FE 528, September 2004, page 14.
(c) Costs from: Muraro, Ronald P., "Summary of 2004-2005 Citrus Budgets for the Southwest Forida Production Region." University of Florida, IFAS, CREC, Lake Alfred, Florida. August 2005. Table 3. Processed Hamlin oranges, low cost cultural program, online version available from EDIS).
(d) Page 7 of Muraro, Roka and Rouse, September 2003, "Also, average annual debt payment (principal and interest) may be as high as $435 per acre ($3,700 average debt per acres @ 10 percent interest amortized over 20 years) …" This value was used as an estimate for depreciation and interest.

Table 5.4-5
Revenue and Costs of Central Florida Valencia Oranges Grown for Processed Market, 2003-2004 Season [(a)]

Item	$ per Acre per Year
Revenue, on-tree, 450 boxes at $4.04 per box [(b), (c)]	$1,819
Costs [(d)]	
Production & Cultural Costs	$774
Interest on Production & Cultural Costs	$21
Management Costs	$48
Taxes / Regulatory Costs	$67
Depreciation and Interest [(e)]	$440
Total Cost	$1,351
Returns to Land, Trees and Risk [Revenue - Total Cost]	**$468**

(a) Represents a mature (10+ years old) Central Florida (Ridge) Orange Grove.

(b) On-tree price per box is average price in Florida from 1999-2000 to 2003-2004 adjusted to 2004 dollars; obtained from Ronald P. Muraro, W. Greg Hartt and W.C. Oswalt, "Budgeting Costs and Returns for Central Florida Citrus, 2003-04", page 9, EDIS FE 526, University of Florida, IFAS Extension, Food and Resource Economics Department, September 2004 and represent Florida Valencia oranges for processing.

(c) From page 2 of the FASS "Florida Citrus Summary, 2003-04" report, "All prices ... are on-tree prices representing the average price received by growers for their fruit. The term "on-tree" relates to fruit returns to the grower after the costs of picking, hauling, and packing have been removed. Prices are based on records of commmercial fresh fruit sales and processed fruit returns." Average yield from 1999-2000 season through 2003-2004 season of 450 boxes per acre is based on distribution of trees by age and boxes per tree by age and is from Ronald P. Muraro, W. Greg Hartt, Robert E. Rouse, "Budgeting Costs and Returns for Southwest Florida Citrus Production, 2002-2003, University of Florida IFAS Extension, EDIS FE 526, September 2004, page 8.

(d) Costs from: Ronald P. Muraro, W. Greg Hartt, and W.C. Oswalt, "Budgeting Costs and Returns for Central Florida Citrus Production, 2003-2004, University of Florida IFAS Extension, EDIS FE 526, September 2004, page 7 (Table 4).

(e) Page 5 of Muraro, Hartt and Oswalt September 2004, "Also, average annual debt payment (principal and interest) may be as high as $440 per acre ($3,750 average debt per acres @ 10 percent interest amortized over 20 years) …" This value was used as an estimate for depreciation and interest on capital investments.

Table 5.4-6
Revenue and Costs of Tomatoes Grown in the Manatee/Ruskin Area of Florida, 2003-2004

Item	$ per Acre per Year		
	Fall - Single Crop	Fall - Double Crop	Spring - Single Crop
Revenue (Cartons per acre times Price per Carton) (a)	$12,017	$12,017	$13,118
Costs (b)			
Operating Costs	$3,515	$3,515	$3,297
Plant Management	$1,283	$1,152	$1,252
Fixed Costs, excluding land rent (c)	$1,925	$1,886	$1,796
Harvest and Marketing Costs	$4,644	$4,644	$5,255
Total Cost	**$11,367**	**$11,196**	**$11,599**
Returns to Land and Risk	**$650**	**$820**	**$1,519**

(a) Price is $8.90 per carton for Fall tomatoes and $8.46 per carton for Spring tomatoes from Florida Agricultural Statistics Service, "Florida Agricultural Facts 2003", page E-17, National Agricultural Statistics Service, www.nass.usda.gov. Weighted average price per 25 pound carton in Fall (Sept through Feb) and in Spring (Mar through Aug) averaged over 1999 to 2003. Prices converted to 2003 dollars using the GDP chained price index. Yield per acre is 1,350 cartons for Fall tomatoes and 1,550 for Spring tomatoes from Scott and Taylor, 2005, as cited in the next footnote, no page or table number. The five year yield per acre from 1999 to 2003 is 1,385 cartons per acre over both the Fall and Spring seasons (source is page E-17 of Florida Agricultural Facts 2003 cited above).

(b) From Scott Smith and Timothy Taylor, "Cost of Production for Florida Vegetables, 2003-04", Department of Food and Resource Economics, Florida Cooperative Extension Service, UF/IFAS, University of Florida, Gainesville, Florida, 2005. Website: http://www.agbuscenter.ifas.ufl.edu/cost/cop03-04/tableofcontents.htm.

(c) Includes machinery fixed cost, farm management and overhead.

Table 5.4-7
Revenue and Costs of Strawberries, Cucumbers and Sod in Southwest Florida, 2003-2004

Item	$ per Acre		
	Strawberries in Plant City, single crop (a)	**Cucumbers, SW Fla, double crop (b)**	**Sod - St. Augustine Grass (c)**
Revenue			
Pricing Units	12lb Flats	55 lb-bushel	square yard
Price	$11.22	$11.72	$1.22
Yield per acre	2,192	570	3,848
Total Revenue	**$24,597**	**$6,683**	**$4,675**
Costs			
Variable Costs	$5,025	$1,160	$1,111
Plant Management	$2,351	$289	
Operator Labor Management	$0	$0.00	$124
Fixed Costs, excluding land rent	$2,787	$700	$1,022
Harvest and Marketing Costs	$14,560	$2,796	$1,012
Total Cost	**$24,723**	**$4,944**	**$3,269**
Returns to Land and Risk (Total Revenue minus Total Cost)	**-$126**	**$1,739**	**$1,406**

(a) Strawberry costs from Scott Smith and Timothy Taylor, "Strawberries: Estimated Production Costs in the Plant City Area - 2003-2004." Department of Food and Resource Economics, Florida Cooperative Extension Service, UF/IFAS, University of Florida, Gainesville, Florida, December 2005. Strawberry prices and yields are 5 year averages from 1999 to 2003 and are from Florida Agricultural Statistics Service, "Florida Agricultural Facts 2003", page E-16, National Agricultural Statistics Service, www.nass.usda.gov. Nominal prices were converted to 2005 dollars. Double cropping strawberries with other crops will increase the overall net returns to the land.

(b) Cucumber costs from Scott Smith and Timothy Taylor, "Cucumbers: Estimated Production Costs in a Double-Crop System for the Southwest Florida Area - 2003-2004." Department of Food and Resource Economics, Florida Cooperative Extension Service, UF/IFAS, University of Florida, Gainesville, Florida, December 2005. Cucumber prices and yields are 5 year averages from 1999 to 2003 and are from Florida Agricultural Statistics Service, "Florida Agricultural Facts 2003", page E-11, National Agricultural Statistics Service, www.nass.usda.gov. Nominal prices were converted to 2003 dollars.

(c) Costs based on Hazen and Sawyer, SWUCA Economic Impact Statement prepared for the Southwest Florida Water Management District, November 1994. Table 2-13 in Appendix 9.3-B, Summary Budgets for Model Farms and Irrigation Systems. Costs include labor, supplies, facility and equipment operation, repair and maintenance, overhead, depreciation and interest. Updated to 2003 using information from JJ. Haydu, L.N. Satterthwaite and J.L. Cisar, "An Economic and Agronomic Profile of Florida's Sod Industry in 2003", April 2005, University of Florida IFAS, Food and Resource Economics Department, Gainesville, Florida, page 22 and "An Economic and Agronomic Profile of Florida's Sod Industry in 2000", July 2002, page 22. Prices from Haydu, et.al, April 2005, page 13. The square yards harvested per acre are also from Haydu, et.al., April 2005, page 11 and from Haydu, July 2002.

The estimated water use per acre was obtained from a source document to the District's 2001 Regional Water Supply Plan that estimated the water savings from water conservation in irrigated agriculture. The supplemental crop water requirements per year per acre for each

model farm are summarized in Table 5.4-8. For each model farm, the water requirements are based on the weighted average acreages in each type of irrigation system in the SWUCA as well as the weighted average of other factors that affect supplemental water requirements and include crop establishment quantities.

Table 5.4-8
Estimated Water Use per Acre from AGMOD Using Water Use Efficiencies Implied from Distribution of Irrigation System in Each County

Crop	County	Acres in 2000	Water Need For Crop		
			MGD in 5-in-10 Rainfall Year	Kgal per day per acre	Kgal per year per acre
Citrus	Highlands	42,896	61.01	1.42	519
Citrus	Polk	101,699	109.08	1.07	391
Citrus - Ridge	Highlands and Polk	144,595	170.09	1.18	429
Citrus	SWUCA	323,180	329.10	1.02	372
Citrus - Flatwoods	Rest of SWUCA	178,585	159.01	0.89	325
Tomatoes - Fall	SWUCA	6,600	14.69	2.23	812
Tomatoes - Spring	SWUCA	9,866	32.88	3.33	1,216
Sod	SWUCA	23,029	63.17	2.74	1,001
Strawberries	SWUCA	1,789	4.53	2.53	924
Cucumbers - Fall	SWUCA	3,193	4.95	1.55	566
Cucumbers - Spring	SWUCA	2,909	6.89	2.37	865
Cucumbers - Fall and Spring	SWUCA	6,102	11.84	1.94	708
Container Nurseries	SWUCA	2,084	9.55	4.58	1,673
Field Nurseries	SWUCA	4,275	21.99	5.14	1,878

Source: HSW Engineering, Inc. in association with Gary Bethune, P.E., Hazen and Sawyer and Water Resources Associates, Inc., "Irrigation Water Conservation Options and Water Resource / Water Supply Development Opportunities for Agricultural Water Users", August 2000, Appendix A of Technical Memorandum No. 1, Prepared for the Southwest Florida Water Management District. Tables 2.4A, 2.4B, 2.9A, 2.9B, 2.15A and 2.15B. Includes crop establishment quantities.

The estimated breakeven cost was then calculated for each model farm. The breakeven cost of water is the cost per 1,000 gallons of water that extracts all return to land and risk from the farming operation. The results are provided in Table 5.4-9. The estimated breakeven cost per 1,000 gallons of water used above what they already pay for water ranges from $0.0 for southwest Florida citrus and strawberries to $5.80 for field woody ornamentals.

For Fall Tomatoes, the estimated breakeven water cost is $0.80 per 1,000 gallons. For cucumber, a $2.40 per 1,000 water cost would cause the model cucumber farm to leave production permanently. As the return to land and risk falls, the model farm becomes more vulnerable to other events that cause returns to fall such as chronic low commodity prices, increases in other costs, and pest or disease outbreaks. Farm owner reaction to higher water costs will likely be to significantly increase water use efficiency through improved irrigation management and technologies to the extent that they are affordable.

The purpose of presenting the breakeven costs is to demonstrate that most agricultural operations are not likely to be able to afford the full cost of all new water supplies. However, additional water conservation activities and investments may be economically feasible for many growers. According to the District's 2001 RWSP, page 136, "Although there will be opportunities for agricultural users to make use of alternative sources such as surface water and reclaimed water, in general, they will need to continue to rely to a large degree on access to ground water. This is because the cost of conveying water from alternative sources will, in many cases, be prohibitive."

Table 5.4-9
Impact of Alternative Water Source Cost on Economic Feasibility of Agricultural Production by Crop Type

Crop	Unit of Measure	Applied Water Needs - Kgal per Unit per Year	Breakeven Cost of Alternative Water Supply, $/kgal (a)	Cost of Alternative Water Supply, $/unit/year (a)	Net Crop Returns After Water Cost, $/unit
				Low	
Sod – St. Augustinegrass	Acres	1,001	$1.40	$1,402	$4
Sod – Bahiagrass	Acres	1,001	$1.05	$1,051	$3
Container Woody Ornamentals	1,000 Sq. Ft.	38	$3.90	$150	$2
Field Woody Ornamentals	1,000 Sq. Ft.	43	$5.80	$250	$0
Flowering Plants	1,000 Sq. Ft.	38	$2.80	$108	$1
Citrus – Central Florida	Acres	429	$1.05	$451	$17
Citrus – Southwest Florida	Acres	325	$0.00	$0	-$127
Tomatoes – Fall	Acres	812	$0.80	$650	$0
Tomatoes – Spring	Acres	1,216	$1.24	$1,508	$10
Strawberries – single cropped	Acres	924	$0.00	$0	-$126
Cucumbers – double cropped	Acres	708	$2.40	$1,700	$39

(a) The breakeven cost of water is the cost per 1,000 gallons of water that extracts all return to land and risk from the farming operation.
(b) Double cropping strawberries with other crops will increase the overall net returns to the land.

Irrigation Districts. To achieve economies of scale in obtaining new water supplies, growers may wish to form a water district for the purpose of developing and financing water sources. Such districts could be created under Chapter 298, Florida Statutes, "Drainage and Water Control" or under Chapter 190, Florida Statutes, "Community Development Districts."[14]

Historically, most Chapter 298 districts were created for both flood control and irrigation, beginning with the Everglades Drainage District. The Chapter 298 districts in the agricultural parts of Florida still perform these functions. For example, there are Chapter 298 Districts in the Everglades Agricultural Area and in several citrus growing areas of Florida. Chapter 190 Districts also have the authority to provide irrigation water but, in practice, rarely use it. As Community Development Districts they are used more frequently for flood control, roads, bridges, sewage disposal, recreation, and the like for new communities.

Chapter 298 Districts are created by a special act of the Legislature. If there is no controversy, they are usually fairly simple to create. The basic steps to create a Chapter 298 district are: (a) identify the lands to be included and get the consent of all landowners, (b) request and obtain a letter of support or no objection from the local general purpose government where the district will be located, (c) draft legislation and request sponsorship by members of county legislative delegation, (d) obtain approval for introduction of legislation by county legislative delegation, (e) lobby passage of bill through the Legislature and approval by the Governor.

If a Chapter 190 District is formed, the area must be larger than 1,000 acres. The process is: (a) identify the lands to be included and get the consent of all landowners, (b) prepare a petition and various plan documents and file them with The Florida Land and Water Adjudicatory Commission (FLAWAC), (c) conduct a hearing on the matter of creation before a Department of Administrative Hearing officer, (d) prepare a proposed order creating the District by rule, and (e) appear before the FLAWAC for final hearing and adoption of a rule creating the district.

The biggest obstacles to creating a Chapter 298 or 190 district would be any citizen or political opposition to its creation. Either type of district can accept grants.

For a Chapter 298 district, if there is no opposition, the cost has typically run $20,000 to $35,000. For a Chapter 190 district, creation is more costly because of the need for detailed engineering and planning documents and expert testimony at the hearing. With lawyers, engineers, planners, economists, etc, creation could cost from $50,000 to $100,000.

[14] *We thank Mr. Terry Lewis, J.D., of Lewis, Longman and Walker for providing valuable information regarding Chapter 298 and Chapter 190 Districts.*

Potential Increases in Water Supplies Costs for New Water for Agricultural Irrigation. Water use permit applicants, including permittees requesting new water withdrawals, might not be able to obtain new permitted water quantities from the Floridan Aquifer, the Peace River, the eight lakes in Polk and Highlands counties. Once minimum flows and levels are established, requests for new quantities in the SWUCA will be issued only where: (1) it is demonstrated that there will be no increased impacts to the Floridan aquifer Saltwater Intrusion Minimum Aquifer Level (SWIMAL); (2) that ground water resources in proximity to other MFL water bodies are stable or improving, and (3) the application meets all other applicable rule criteria. Existing saltwater intrusion, lake level, and stream flow criteria, including MFLs, may be equally or more limiting.

Section 120.54 requires estimates of the transactional costs associated with a proposed rule. While the actual costs will vary from one water user to the next, this section provides a range of incremental cost estimates associated with using alternative water sources and conservation for all water needs. To get an idea of how much alternative water source and additional water conservation projects might cost an average water user, a small water user and a large water user for agricultural irrigation, a low and high end annual water cost estimate was calculated for each major crop type and water use size. The incremental cost range is $0.23 per kgal for additional conservation to $3.69 per kgal for surface water source development projects that do not impact MFL water bodies. Where additional water conservation is not possible (e.g. a new operation), the lowest cost source becomes horizontal wells with an estimated cost of $0.50 per kgal.

The cost per water user is also based on the average permitted water quantity per permittee from the District's Regulatory Database in November 2005. This water use may be higher than that which is actually used by the permittee. Thus, these costs may overestimate the actual costs to a water user who obtains water from alternative sources. The incremental cost range within the low and high values represents different combinations of alternative water sources of various types and costs per kgal and 100 percent of all water needed is supplied from alternative water sources and/or is conserved water.

The ranges of estimated costs to agricultural irrigators per water user for the average water user, the small water user and the large water user by major crop type are provided in Table 5.4-10. For an average water user irrigating citrus, the cost ranges from $6,800 to $110,000 per water user per year if all of the 81,543 gallons per day are from alternative water sources. For a small water user irrigating citrus, the cost ranges from $2,600 to $41,700 per water user per year if all of the 30,994 gallons per day are from alternative water sources. For a large water user irrigating citrus, the cost ranges from $31,400 to $503,500 per water user per year if all of the 373,853 gallons per day are from alternative water sources. For an average water user among all crops irrigated, the cost ranges from $11,300 to $181,200 per water user per year if all of the 134,552 gallons per day are from alternative water sources. The cost per each additional 1,000 gallons per day obtained from an alternative source ranges from $84 to $1,347 per year.

The ranges of increased water costs per water user per acre per year due to the use of alternative water sources for the average water user, the small water user and the large water user for each major crop type are presented in Table 5.4-11. Among all crops, the cost of alternative sources for the average water user irrigating 1,122 gallons per day per acre ranges from $102 to $1,631 per acre per year. The cost of alternative sources for the small water user irrigating 932 gallons per day per acre ranges from $78 to $1,255 per acre per year. The cost of alternative sources for the large water user irrigating 1,302 gallons per day per acre ranges from $109 to $1,753 per acre per year.

Table 5.4-10
New Water Use for Agricultural Irrigation - Potential Incremental Water Supply Costs from Alternative Water Sources by Primary Water Use
(Assumes Traditional Water Supplies Not Available)

Primary Water Use	Average Water User			Small Water User			Large Water User		
	Average Gallons per Day per Water User [a]	Potential Increased Water Cost Per Year to Water User From Using Alternative Sources [b]		Average Gallons per Day per Water User [a]	Potential Increased Water Cost Per Year to Water User From Using Alternative Sources [b]		Average Gallons per Day per Water User [a]	Potential Increased Water Cost Per Year to Water User From Using Alternative Sources [b]	
		Low	High		Low	High		Low	High
Citrus	81,543	$6,800	$109,800	30,994	$2,600	$41,700	373,853	$31,400	$503,500
Pasture	275,335	$23,100	$370,800	44,499	$3,700	$59,900	632,904	$53,100	$852,400
Fall and Spring tomatoes	1,025,278	$86,100	$1,380,900	56,375	$4,700	$75,900	1,091,528	$91,600	$1,470,100
Melons	317,318	$26,600	$427,400	45,143	$3,800	$60,800	420,303	$35,300	$566,100
Container Nursery	71,589	$6,000	$96,400	36,046	$3,000	$48,500	180,587	$15,200	$243,200
Small Vegetables	179,387	$15,100	$241,600	40,500	$3,400	$54,500	486,921	$40,900	$655,800
Field Nursery	181,295	$15,200	$244,200	42,786	$3,600	$57,600	518,913	$43,600	$698,900
Nurseries	67,857	$5,700	$91,400	38,152	$3,200	$51,400	210,440	$17,700	$283,400
Strawberries	167,704	$14,100	$225,900	50,907	$4,300	$68,600	297,478	$25,000	$400,700
Sod	639,594	$53,700	$861,400	74,357	$6,200	$100,100	729,518	$61,200	$982,600
Lawn/landscape irrigation	6,654	$600	$9,000	6,654	$600	$9,000	---	---	---
Commercial hay	108,450	$9,100	$146,100	61,131	$5,100	$82,300	234,633	$19,700	$316,000
Fall and Spring Peppers	705,510	$59,200	$950,200	86,267	$7,200	$116,200	970,900	$81,500	$1,307,700
Squash, zuchinni	128,275	$10,800	$172,800	79,600	$6,700	$107,200	176,950	$14,900	$238,300
Cucumbers, Fall & Spring	1,237,973	$103,900	$1,667,400	6,950	$600	$9,400	1,361,075	$114,300	$1,833,200
Blueberry	55,975	$4,700	$75,400	25,082	$2,100	$33,800	395,800	$33,200	$533,100
Other Agricultural Uses (c)	898,622	$75,400	$1,210,300	29,873	$2,500	$40,200	1,578,513	$132,500	$2,126,000
All Uses	**134,552**	**$11,300**	**$181,200**	**31,814**	**$2,700**	**$42,800**	**539,481**	**$45,300**	**$726,600**
Annual Cost / 1,000 gpd	**1,000**	**$84**	**$1,347**						

(a) The cost per water user is based on the average permitted water quantity per permittee from the District's Regulatory Database in November 2005. This water use may be higher than that which is actually used by the permittee. Thus, these costs may overestimate the actual costs to a water user who obtains water from alternative sources. Small water users use less than 100,000 gpd. Large water users use at least 100,000 gpd.

(b) The low cost alternative source represents water conservation with average cost of $0.45 per kgal. The high cost alternative source represents a surface water source and is $3.91 per 1,000 gallons. The $0.22 per kgal estimated cost from ground water source was deducted from these values. The range within the two values represents different combinations of alternative water sources of various types and costs per kgal and 100% of all water needed is supplied from alternative water sources and/or is conserved water. If a portion of the water is from lower cost ground water, then the cost to the water user will be lower than that reported here.

(c) "All Other Agricultural Uses" includes the following "use-types": All Beans; All Grains (Wheat, Rye, Barley, Sorghum, Etc.); Cabbage; Bok Choy; Celery; Cover Crop; Dairy Farming; Deciduous Fruit Trees (Incl. Lychee Nuts); Feed Corn, Silage Corn; Field Caladiums; Fish Farm (Edible); Other (Non-Crop) Miscellaneous Water Needs; Personal Sanitary Use; Potato; Research; Spray Mix For Crops; Spring Peanuts; Sweet Corn; Vegetables, Oriental.

Table 5.4-11
New Water Use for Agricultural Irrigation - Potential Incremental Water Supply Costs Per Acre from Alternative Water Sources By Primary Water Use (Assumes Traditional Water Supplies Not Available)

Primary Water Use	Average Water User			Small Water User			Large Water User		
	Water Use per Acre (gpd) [a]	Increased Water Cost to Water User Per Acre Per Year Due To Alternative Sources [b]		Water Use per Acre (gpd) [a]	Increased Water Cost to Water User Per Acre Per Year Due To Alternative Sources [b]		Water Use per Acre (gpd) [a]	Increased Water Cost to Water User Per Acre Per Year Due To Alternative Sources [b]	
		Low	High		Low	High		Low	High
Citrus	965	$81	$1,300	896	$75	$1,206	1,002	$84	$1,350
Pasture	1,001	$84	$1,349	795	$67	$1,071	1,031	$87	$1,388
Fall and Spring tomatoes	2,153	$181	$2,899	1,793	$150	$2,414	2,154	$181	$2,901
Melons	1,496	$126	$2,014	1,143	$96	$1,539	1,515	$127	$2,040
Container Nursery	4,237	$356	$5,707	4,420	$371	$5,953	4,133	$347	$5,567
Fall and Spring Small Vegetable	1,202	$101	$1,618	1,076	$90	$1,449	1,228	$103	$1,654
Field Nursery	2,609	$219	$3,513	2,968	$249	$3,997	2,547	$214	$3,430
Nurseries	4,009	$337	$5,399	4,231	$355	$5,699	3,833	$322	$5,163
Strawberries	2,061	$173	$2,775	2,364	$198	$3,185	2,011	$169	$2,709
Sod	1,666	$140	$2,243	1,877	$158	$2,528	1,663	$140	$2,239
Lawn & landscape irrigation	1,577	$132	$2,125	1,577	$132	$2,125	---	---	---
Commercial hay	779	$65	$1,049	978	$82	$1,317	682	$57	$919
Fall and Spring Peppers	1,742	$146	$2,346	2,087	$175	$2,811	1,731	$145	$2,332
Squash, zuchinni	1,751	$147	$2,359	1,447	$121	$1,949	1,934	$162	$2,605
Cucumbers, Fall & Spring	1,396	$117	$1,880	1,504	$126	$2,026	1,396	$117	$1,880
Blueberry	1,884	$158	$2,537	1,437	$121	$1,935	2,405	$202	$3,240
Other Agricultural Uses (c)	1,562	$131	$2,104	904	$76	$1,218	1,579	$133	$2,127
All Uses	**1,211**	**$102**	**$1,631**	**932**	**$78**	**$1,255**	**1,302**	**$109**	**$1,753**

(a) The cost per water user is based on the average permitted water quantity per permittee from the District's Regulatory Database in November 2005. This water use may be higher than that which is actually used by the permittee. Thus, these costs may overestimate the actual costs to a water user who obtains water from alternative sources. Small water users use less than 100,000 gpd. Large water users use at least 100,000 gpd.

(b) The low cost alternative source represents water conservation with average cost of $0.45 per kgal. The high cost alternative source represents a surface water source and is $3.91 per 1,000 gallons. The $0.22 per kgal estimated cost from ground water source was deducted from these values. The range within the two values represents different combinations of alternative water sources of various types and costs per kgal and 100% of all water needed is supplied from alternative water sources and/or is conserved water. If a portion of the water is from lower cost ground water, then the cost to the water user will be lower than that reported here.

(c) "All Other Agricultural Uses" includes the following "use-types": All Beans; All Grains (Wheat, Rye, Barley, Sorghum, Etc.); Cabbage Bok Choy; Celery; Cover Crop (variable); Dairy Farming; Deciduous Fruit Trees (Incl. Lychee Nuts); Feed Corn, Silage Corn; Field Caladiums; Fish Farm (Edible); Other (Non-Crop) Miscellaneous Water Needs; Personal Sanitary Use; Potato; Research; Spray Mix For Crops; Spring Peanuts; Sweet Corn; Vegetables, Oriental.

Livestock Operations. Water demand for livestock operations is not expected to increase over the next 20 years. For informational purposes, the potential costs to livestock operators were estimated in a manner identical to that used for evaluating the potential costs to agricultural irrigators.

The ranges of estimated agricultural irrigation costs per water user for the average water user, the small water user and the large water user by primary water use are provided in Table 5.4-12. As with agricultural irrigation, the cost range is $0.45 per kgal for additional conservation to $3.91 per kgal for surface water source development projects that do not impact MFL water bodies. From these cost estimates $0.22 per kgal was deducted to represent the cost of water withdrawals from traditional water sources, such as the Floridan Aquifer.

The cost per water user is also based on the average permitted water quantity per permittee from the District's Regulatory Database in November 2005. This water use may be higher than that which is actually used by the permittee. Thus, these costs may overestimate the actual costs to a water user who obtains water from alternative sources.

The ranges of estimated costs per livestock water user per year for the average water user, the small water user and the large water user by primary water use are provided in Table 5.4-12. For an average water user operating a tropical fish farm, the cost ranges from $6,100 to $97,600 per water user if all of the 72,438 gallons per day are from alternative water sources. For a small water user operating a tropical fish farm, the cost ranges from $3,600 to $57,300 per water user if all of the 42,543 gallons per day are from alternative water sources. For a large water user operating tropical fish farms, the cost ranges from $25,300 to $406,300 per water user if all of the 301,663 gallons per day are from alternative water sources.

For an average water user among all livestock operations, the cost ranges from $5,400 to $86,000 per water user if all of the 63,905 gallons per day are from alternative water sources. The cost per each additional 1,000 gallons per day obtained from an alternative source ranges from $84 to $1,347.

Table 5.4-12
New Water Use for Livestock Operations - Potential Incremental Water Supply Costs from Alternative Water Sources by Primary Water Use
(Assumes Traditional Water Supplies Not Available)

Primary Water Use	Average Water User			Small Water User			Large Water User		
	Average Gallons per Day per Water User [(a)]	Potential Increased Water Cost Per Year to Water User From Using Alternative Sources [(b)]		Average Gallons per Day per Water User [(a)]	Potential Increased Water Cost Per Year to Water User From Using Alternative Sources [(b)]		Average Gallons per Day per Water User [(a)]	Potential Increased Water Cost Per Year to Water User From Using Alternative Sources [(b)]	
		Low	High		Low	High		Low	High
Animals (Not Specified)	18,002	$1,500	$24,200	4,485	$400	$6,000	410,000	$34,400	$552,200
Cattle - Feedlot	82,000	$6,900	$110,400	82,000	$6,900	$110,400	- - -	---	---
Cattle - Pastured	5,400	$500	$7,300	5,400	$500	$7,300	- - -	---	---
Cleaning & Maintenance	1,000	$100	$1,300	1,000	$100	$1,300	- - -	---	---
Dairy Farming	212,222	$17,800	$285,800	57,644	$4,800	$77,600	410,964	$34,500	$553,500
Fish Farm (Edible)	80,225	$6,700	$108,100	34,625	$2,900	$46,600	171,425	$14,400	$230,900
Fish Farm (Tropical)	72,438	$6,100	$97,600	42,543	$3,600	$57,300	301,633	$25,300	$406,300
Horses	1,120	$100	$1,500	1,120	$100	$1,500	- - -	---	---
Livestock Cooling	102,400	$8,600	$137,900	32,800	$2,800	$44,200	172,000	$14,400	$231,700
Poultry	36,000	$3,000	$48,500	36,000	$3,000	$48,500	- - -	---	---
All Uses	**63,905**	**$5,400**	**$86,100**	**27,780**	**$2,300**	**$37,400**	**325,815**	**$27,400**	**$438,800**
Annual Cost / 1,000 gpd	**1,000**	**$84**	**$1,347**						

(a) The cost per water user is based on the average permitted water quantity per permittee from the District's Regulatory Database in November 2005. This water use may be higher than that which is actually used by the permittee. Thus, these costs may overestimate the actual costs to a water user who obtains water from alternative sources. Small water users use less than 100,000 gpd. Large water users use at least 100,000 gpd.

(b) The low cost alternative source represents water conservation with average cost of $0.45 per kgal. The high cost alternative source represents a surface water source and is $3.91 per 1,000 gallons. The $0.22 per kgal estimated cost from ground water source was deducted from these values. The range within the two values represents different combinations of alternative water sources of various types and costs per kgal and 100% of all water needed is supplied from alternative water sources and/or is conserved water. If a portion of the water is from lower cost ground water, then the cost to the water user will be lower than that reported here.

5.4.3 Industrial and Commercial Self-Supplied Water Users

Water use permit applicants, including permittees requesting new water withdrawals, might not be able to obtain new permitted water quantities from the Floridan Aquifer, the Peace River, the eight lakes in Polk and Highlands counties. Once minimum flows and levels are established, requests for new quantities in the SWUCA will be issued only where: (1) it is demonstrated that there will be no increased impacts to the Floridan aquifer Saltwater Intrusion Minimum Aquifer Level (SWIMAL); (2) that ground water resources in proximity to other MFL water bodies are stable or improving, and (3) the application meets all other applicable rule criteria. Existing saltwater intrusion, lake level, and stream flow criteria, including MFLs, may be equally or more limiting.

Section 120.54 requires estimates of the transactional costs associated with a proposed rule. While the actual costs will vary from one water user to the next, this section provides a range of incremental cost estimates associated with using alternative water sources and conservation for all water needs. To get an idea of how much other water resource development projects might cost an average water user, a small water user and a large water user for agricultural irrigation, a low and high end annual water cost estimate was calculated for each major crop type and water use size.

The incremental cost range is $0.11 per kgal for additional conservation to $3.69 per kgal for surface water source development projects that do not impact MFL water bodies. The cost per water user is also based on the average permitted water quantity per permittee from the District's Regulatory Database in November 2005. This water use may be higher than that which is actually used by the permittee. Thus, these costs may overestimate the actual costs to a water user who obtains water from alternative sources. The incremental cost range within the low and high values represents different combinations of alternative water sources of various types and costs per kgal and 100 percent of all water needed is supplied from alternative water sources and/or is conserved water.

The ranges of estimated incremental costs to industrial and commercial self-supplied water users per firm for the average water user, the small water user and the large water user by primary water use are provided in Table 5.4-13. For a chemical manufacturing plant, the cost to an average water user ranges from $92,200 to $3.1 million per year if all of the 2.3 million gallons per day are from alternative water sources. The cost to a small water-using chemical manufacturing plant ranges from $2,100 to $71,500 per year if all of the 53,050 gallons per day are from alternative water sources. The cost to a large water-using chemical plant ranges from $152,200 to $5.1 million per year if all of the 3.8 million gallons per day are from alternative water sources.

For an average water user among all types of industrial and commercial self-supplied water users, the cost ranges from $30,000 to $1.0 million per water user per year if all of the 748,000 gallons per day are from alternative water sources. The cost per each additional 1,000 gallons per day obtained from an alternative source ranges from $40 to $1,347 per year.

Table 5.4-13
New Water Use for Self-Supplied Industrial / Commercial Water Users - Potential Incremental Water Supply Costs From Alternative Water Sources by Primary Water Use (Assumes Traditional Water Supplies Not Available)

Primary Water Use	Average Water User			Small Water User			Large Water User		
	Average Gallons per Day per Water User [a]	Potential Increased Water Cost Per Year to Water User From Using Alternative Sources [b]		Average Gallons per Day per Water User [a]	Potential Increased Water Cost Per Year to Water User From Using Alternative Sources [b]		Average Gallons per Day per Water User [a]	Potential Increased Water Cost Per Year to Water User From Using Alternative Sources [b]	
		Low	High		Low	High		Low	High
Phosphate Chemical Processing	3,982,933	$159,900	$5,364,400	- - -	---	---	3,982,933	$159,900	$5,364,400
Cement Manufacturing	30,778	$1,200	$41,500	30,778	$1,200	$41,500	- - -	---	---
All Other [c]	68,847	$2,800	$92,700	16,616	$700	$22,400	800,075	$32,100	$1,077,600
Chemical Manufacturing	2,295,840	$92,200	$3,092,200	53,050	$2,100	$71,500	3,791,033	$152,200	$5,106,000
Juice Processing	519,117	$20,800	$699,200	52,667	$2,100	$70,900	985,567	$39,600	$1,327,400
Food Processing	150,375	$6,000	$202,500	3,900	$200	$5,300	296,850	$11,900	$399,800
Citrus and Truck Crop Packing	47,525	$1,900	$64,000	38,094	$1,500	$51,300	132,400	$5,300	$178,300
Power Plant Boiler Make-Up Water	234,000	$9,400	$315,200	- - -	---	---	234,000	$9,400	$315,200
Non-Power Plant Boiler Makeup Water	1,938,050	$77,800	$2,610,300	76,100	$3,100	$102,500	3,800,000	$152,600	$5,118,000
Non-Power Plant Non-Consumptive Cooling	2,883,600	$115,800	$3,883,800	13,400	$500	$18,000	4,318,700	$173,400	$5,816,600
Consumptive Cooling (Chemical, Cement, Electric Generation)	2,344,519	$94,100	$3,157,700	43,600	$1,800	$58,700	2,804,703	$112,600	$3,777,500
General Product Manufacturing	789,943	$31,700	$1,063,900	11,900	$500	$16,000	1,827,333	$73,400	$2,461,100
All Uses	**748,178**	**$30,000**	**$1,007,700**	**23,911**	**$1,000**	**$32,200**	**2,497,018**	**$100,300**	**$3,363,100**
Annual Cost / 1,000 gpd	**1,000**	**$40**	**$1,347**						

(a) The cost per water user is based on the average permitted water quantity per permittee from the District's Regulatory Database in November 2005. This water use may be higher than that which is actually used by the permittee. Thus, these costs may overestimate the actual costs to a water user who obtains water from alternative sources. Small water users use less than 100,000 gpd. Large water users use at least 100,000 gpd.

(b) The low cost alternative source represents water conservation with average cost of $0.33 per 1,000 gallons (kgal). The high cost alternative source represents a surface water source and is $3.91 per kgal. The $0.22 per kgal estimated cost from ground water source was deducted from these values. The range within the two values represents different combinations of alternative water sources of various types and costs per kgal and 100% of all water needed is supplied from alternative water sources and/or is conserved water. If a portion of the water is from lower cost ground water, then the cost to the permittee will be lower than that reported here.

5.4.4 Mining and Dewatering Self-Supplied Water Users

Water use permit applicants, including permittees requesting new water withdrawals, might not be able to obtain new permitted water quantities from the Floridan Aquifer, the Peace River, the eight lakes in Polk and Highlands counties. Once minimum flows and levels are established, requests for new quantities in the SWUCA will be issued only where: (1) it is demonstrated that there will be no increased impacts to the Floridan aquifer Saltwater Intrusion Minimum Aquifer Level (SWIMAL); (2) that ground water resources in proximity to other MFL water bodies are stable or improving, and (3) the application meets all other applicable rule criteria. Existing saltwater intrusion, lake level, and stream flow criteria, including MFLs, may be equally or more limiting.

Section 120.54 requires estimates of the transactional costs associated with a proposed rule. While the actual costs will vary from one water user to the next, this section provides a range of incremental cost estimates associated with using alternative water sources and conservation for all water needs. To get an idea of how much other water resource development projects

might cost an average water user, a small water user and a large water user for agricultural irrigation, a low and high end annual water cost estimate was calculated for each major crop type and water use size.

The incremental cost range is $0.11 per kgal for additional conservation to $3.69 per kgal for surface water source development projects that do not impact MFL water bodies. The cost per water user is also based on the average permitted water quantity per permittee from the District's Regulatory Database in November 2005. This water use may be higher than that which is actually used by the permittee. Thus, these costs may overestimate the actual costs to a water user who obtains water from alternative sources. The incremental cost range within the low and high values represents different combinations of alternative water sources of various types and costs per kgal and 100 percent of all water needed is supplied from alternative water sources and/or is conserved water.

The ranges of estimated incremental costs to mining and dewatering self-supplied water users per firm for the average water user, the small water user and the large water user by primary water use are provided in Table 5.4-14. For a sand and gravel processing plant, the cost to an average water user ranges from $10,500 to $353,000 per year if all of the 262,000 gallons per day are from alternative water sources. The cost to a small water-using sand and gravel plant ranges from $2,500 to $83,100 per year if all of the 62,000 gallons per day are from alternative water sources. The cost to a large water-using sand and gravel processing plant ranges from $13,200 to $443,000 per year if all of the 329,000 gallons per day are from alternative water sources.

For an average water user among all types of mining and dewatering self-supplied water users, the cost ranges from $189,300 to $6.4 million per water user per year if all of the 4.7 million gallons per day are from alternative water sources. The cost per each additional 1,000 gallons per day obtained from an alternative source ranges from $40 to $1,347 per year.

Table 5.4-14
New Water Use for Self-Supplied Mining / Dewatering Water Users - Potential Incremental Water Supply Costs From Alternative Water Sources by Primary Water Use (Assumes Traditional Water Supplies Not Available)

Primary Water Use	Average Water User			Small Water User			Large Water User		
	Average Gallons per Day per Water User [(a)]	Potential Increased Water Cost Per Year to Water User From Using Alternative Sources [(b)]		Average Gallons per Day per Water User [(a)]	Potential Increased Water Cost / Year to Water User From Using Alternative Sources [(b)]		Average Gallons per Day per Water User [(a)]	Potential Increased Water Cost Per Year to Water User From Using Alternative Sources [(b)]	
		Low	High		Low	High		Low	High
Phosphate Ore Production	18,967,140	$761,500	$25,545,900	- - -	---	---	18,967,140	$761,500	$25,545,900
Sand and Gravel Processing	262,106	$10,500	$353,000	61,675	$2,500	$83,100	328,917	$13,200	$443,000
All Uses	**4,715,686**	**$189,300**	**$6,351,300**	**61,675**	**$2,500**	**$83,100**	**5,810,747**	**$233,300**	**$7,826,200**
Annual Cost / 1,000 gpd	**1,000**	**$40**	**$1,347**						

(a) The cost per water user is based on the average permitted water quantity per permittee from the District's Regulatory Database in November 2005. This water use may be higher than that which is actually used by the permittee. Thus, these costs may overestimate the actual costs to a water user who obtains water from alternative sources. Small water users use less than 100,000 gpd. Large water users use at least 100,000 gpd.

(b) The low cost alternative source represents water conservation with average cost of $0.33 per 1,000 gallons (kgal). The high cost alternative source represents a surface water source and is $3.91 per kgal. The $0.22 per kgal estimated cost from ground water source was deducted from these values. The range within the two values represents different combinations of alternative water sources of various types and costs per kgal and 100% of all water needed is supplied from alternative water sources and/or is conserved water. If a portion of the water is from lower cost ground water, then the cost to the permittee will be lower than that reported here.

5.4.5 Recreation and Aesthetic Self-Supplied Water Users

Water use permit applicants, including permittees requesting new water withdrawals, might not be able to obtain new permitted water quantities from the Floridan Aquifer, the Peace River, the eight lakes in Polk and Highlands counties. Once minimum flows and levels are established, requests for new quantities in the SWUCA will be issued only where: (1) it is demonstrated that there will be no increased impacts to the Floridan aquifer Saltwater Intrusion Minimum Aquifer Level (SWIMAL); (2) that ground water resources in proximity to other MFL water bodies are stable or improving, and (3) the application meets all other applicable rule criteria. Existing saltwater intrusion, lake level, and stream flow criteria, including MFLs, may be equally or more limiting.

Section 120.54 requires estimates of the transactional costs associated with a proposed rule. While the actual costs will vary from one water user to the next, this section provides a range of incremental cost estimates associated with using alternative water sources and conservation for all water needs. To get an idea of how much other water resource development projects might cost an average water user, a small water user and a large water user for agricultural irrigation, a low and high end annual water cost estimate was calculated for each major crop type and water use size. The incremental cost range is $0.00 per kgal for additional conservation to $1.86 per kgal for surface water source development projects that do not impact MFL water bodies. The $0.0 per kgal is from the estimated $0.08 per kgal for recreation / aesthetic water conservation (see Table 5.2-5) minus the $0.22 per kgal cost to access the Floridan aquifer. The net cost of $0.0 was used instead of -0.14 per kgal. The negative number means that it costs less to conserve the most amount of water possible than to pump from the Floridan aquifer. As the cost per kgal of water conservation increases the Floridan aquifer then becomes less expensive.

The cost per water user is also based on the average permitted water quantity per permittee from the District's Regulatory Database in November 2005. This water use may be higher than that which is actually used by the permittee. Thus, these costs may overestimate the actual costs to a water user who obtains water from alternative sources. The incremental cost range within the low and high values represents different combinations of alternative water sources of various types and costs per kgal and 100 percent of all water needed is supplied from alternative water sources and/or is conserved water.

The ranges of estimated costs to recreation and aesthetic self-supplied water users per firm for the average water user, the small water user and the large water user by primary water use are provided in Table 5.4-15. For golf course irrigation, the cost to an average water user ranges from $0 to $323,800 per year if all of the 240,000 gallons per day are from alternative water sources. The cost to a small water-using golf course ranges from $0 to $62,200 per year if all of the 46,000 gallons per day are from alternative water sources. The cost to a large water-using golf course ranges from $0 to $436,700 per year if all of the 324,000 gallons per day are from alternative water sources.

For an average water user among all types of recreation and aesthetic self-supplied water users, the cost ranges from $0 to $140,600 per water user per year if all of the 104,400 gallons per day are from alternative water sources. The cost per each additional 1,000 gallons per day obtained from an alternative source ranges from $0 to $1,347 per year.

Table 5.4-15
New Water Use for Self-Supplied Recreation / Aesthetic Water Users - Potential Incremental Water Supply Costs from Alternative Water Sources By Primary Water Use (Assumes Traditional Water Supplies Not Available)

Primary Water Use	Average Water User			Small Water User			Large Water User		
	Average Gallons per Day per Water User [(a)]	Potential Increased Water Cost Per Year to Water User From Using Alternative Sources [(b)]		Average Gallons per Day per Water User [(a)]	Potential Increased Water Cost Per Year to Water User From Using Alternative Sources [(b)]		Average Gallons per Day per Water User [(a)]	Potential Increased Water Cost Per Year to Water User From Using Alternative Sources [(b)]	
		Low	High		Low	High		Low	High
Golf course irrigation	240,397	$0	$323,800	46,189	$0	$62,200	324,259	$0	$436,700
Lawn/landscape irrigation	55,240	$0	$74,400	20,761	$0	$28,000	437,056	$0	$588,600
Augmentation for replacement	313,192	$0	$421,800	77,700	$0	$104,700	430,938	$0	$580,400
Cemetary/parks/playgrounds	32,503	$0	$43,800	32,503	$0	$43,800	- - -	---	---
Sports playing fields	24,954	$0	$33,600	21,820	$0	$29,400	103,300	$0	$139,100
Personal sanitary use	8,315	$0	$11,200	8,315	$0	$11,200	- - -	---	---
Augmentation for environmental	81,100	$0	$109,200	81,100	$0	$109,200	- - -	---	---
Botanical specimen irrigation	228,375	$0	$307,600	27,900	$0	$37,600	829,800	$0	$1,117,600
Augmentation for aesthetic	99,300	$0	$133,700	20,467	$0	$27,600	335,800	$0	$452,300
Other uses	11,100	$0	$15,000	11,100	$0	$15,000	- - -	---	---
Recreational animal watering use	30,000	$0	$40,400	30,000	$0	$40,400	- - -	---	---
Water-based recreation	20,200	$0	$27,200	20,200	$0	$27,200	- - -	---	---
Aesthetic use other than augmentation	4,800	$0	$6,500	4,800	$0	$6,500	- - -	---	---
Fire fighting/testing	4,100	$0	$5,500	4,100	$0	$5,500	- - -	---	---
Maintenance & Cooling	3,700	$0	$5,000	3,700	$0	$5,000	- - -	---	---
Unaccounted Use	- - -	---	---	- - -	---	---	- - -	---	---
All Uses	**104,412**	**$0**	**$140,600**	**23,867**	**$0**	**$32,100**	**357,553**	**$0**	**$481,600**
Annual Cost / 1,000 gpd	**1,000**	**$0**	**$1,347**						

(a) The cost per water user is based on the average permitted water quantity per permittee from the District's Regulatory Database in November 2005. This water use may be higher than that which is actually used by the permittee. Thus, these costs may overestimate the actual costs to a water user who obtains water from alternative sources. Small water users use less than 100,000 gpd. Large water users use at least 100,000 gpd.

(b) The low cost alternative source represents water conservation with average cost of $0.08 per 1,000 gallons (kgal). The high cost alternative source represents a surface water source and is $2.08 per kgal. The $0.22 per kgal estimated cost from ground water source was deducted from these values. The range within the two values represents different combinations of alternative water sources of various types and costs per kgal and 100% of all water needed is supplied from alternative water sources and/or is conserved water. If a portion of the water is from lower cost ground water, then the cost to the permittee will be lower than that reported here.

The impacts of reclaimed water and surface water source costs on the net operating income of golf courses are provided in Table 5.4-16 and Table 5.4-17. The information used for this evaluation is from the National Golf Foundation. When reclaimed water costs $1.26 per 1,000 gallons (from Table 5.2-1) presented in Table 5.4-16, the net cost increase is $1.04 per 1,000 gallons assuming that ground water source cost is $0.22 per 1,000 gallons. Using the average permitted water quantity per permittee of 240,000 gallons per day (from Table 5.4-15) or 87,600,000 gallons per year, the increase in annual water cost is $91,104. This represents from 3.52 percent to 4.26 percent of the median daily green fees of daily fee and municipal golf courses and annual membership fee of private golf courses. The increased water cost as a percent of net operating income is 16 to 35 percent.

When the surface water source costs $2.08 per 1,000 gallons (from Table 5.2-1) as presented in Table 5.4-17, the net cost increase is $1.86 per 1,000 gallons assuming that ground water source cost is $0.22 per 1,000 gallons. Using the average permitted water quantity per permittee of 240,000 gallons per day (from Table 5.4-15) or 87,600,000 gallons per year, the increase in annual water cost is $162,936. This represents 6.3 to 7.6 percent of the median daily green fees of daily fee and municipal golf courses and annual membership fee of private golf courses. The increased water cost as a percent of net operating income is 28 to 62 percent.

In 2004, the highest reclaimed water charge to golf courses documented in the 2004 Reuse Inventory prepared by the Florida Department of Environmental Protection is $0.79 per 1,000 gallons. Alternatively, golf course owners may be able to access the surficial aquifer using horizontal wells at a cost that is significantly lower than the costs evaluated here. The District estimates that the capital cost to access the surfical aquifer is about $0.50 per 1,000 gallons.

Table 5.4-16
Financial Impact of Reclaimed Water Supply Costs on Golf Fees and Net Operating Income, 2005 Dollars, Water Cost is $1.26 per 1,000 gallons
18-Hole Golf Facilities in South Florida

	Type of Golf Course		
Item	**Daily Fee**	**Municipal**	**Private**
Cost of Alternative Water Source per 1,000 gallons	$1.26	$1.26	$1.26
Cost Of Ground water per 1,000 gallons	$0.22	$0.22	$0.22
Water Cost Increase Per 1,000 Gallons	$1.04	$1.04	$1.04
Water Use Per Year in kgal, avg per golf course	87,600	87,600	87,600
Increase in Annual Water Cost	$91,104	$91,104	$91,104
Annual Rounds of Golf Per Course in south Florida	45,000	72,000	30,000
Number of Members Estimate			392
Water Cost Per Round of Golf	$2.02	$1.27	$3.04
Annual Water Cost Per Member - Private Golf Course			$232
Median Daily Weekend Fee In south Florida	$48	$36	
Water Cost as Percent of Median Daily Weekend Fee	**4.26%**	**3.52%**	
New Daily Fee to Recover Increased Water Cost	$49.57	$37.19	
Median Annual Dues			$5,494
Water Cost as Percent of Annual Dues			**4.23%**
Net Operating Income (median)	$369,803	$581,120	$263,089
Water Cost As % of Net Operating Income (a)	**24.64%**	**15.68%**	**34.63%**

(a) Net operating income is total revenue less total expenses, before taxes, debt service and depreciation.

Source: National Golf Foundation, "Operating and Financial Performance Profiles of 18-Hole Golf Facilities in the U.S., Climate Region 1", Jupiter, Florida, 2001 (Climate Region 2 includes all of southeastern U.S. so the smaller Climate Region 1, which is Florida from just north of Lake Okeechobee to Key West was used.) Pages 57, 38, 58, 60, 11, 23, 35, 20, 32. All 2001 dollar values converted to 2005 dollars using GDP Chained Price Index Factor of 1.06.

Table 5.4-17
Financial Impact of Surface Water Source Costs on Golf Fees and Net Operating Income, 2005 Dollars Water Cost is $2.08 per 1,000 gallons
18-Hole Golf Facilities in South Florida

Item	Type of Golf Course		
	Daily Fee	Municipal	Private
Cost of Alternative Water Source per 1,000 gallons	$2.08	$2.08	$2.08
Cost Of Ground water per 1,000 gallons	$0.22	$0.22	$0.22
Water Cost Increase Per 1,000 Gallons	$1.86	$1.86	$1.86
Water Use Per Year in kgal, avg per golf course	87,600	87,600	87,600
Increase in Annual Water Cost	$162,936	$162,936	$162,936
Annual Rounds of Golf Per Course in south Florida	45,000	72,000	30,000
Number of Members Estimate - Private Golf Course			392
Water Cost Per Round of Golf	$3.62	$2.26	$5.43
Annual Water Cost Per Member - Private Golf Course			$416
Median Daily Weekend Fee In south Florida	$48	$36	
Water Cost as Percent of Median Daily Weekend Fee	**7.62%**	**6.30%**	
New Daily Fee to Recover Increased Water Cost	$51.17	$38.19	
Median Annual Dues - Private Golf Course			$5,494
Water Cost as Percent of Annual Dues			**7.57%**
Net Operating Income (median)	$369,803	$581,120	$263,089
Water Cost As % of Net Operating Income (a)	**44.06%**	**28.04%**	**61.93%**

(a) Net operating income is total revenue less total expenses, before taxes, debt service and depreciation.

Source: National Golf Foundation, "Operating and Financial Performance Profiles of 18-Hole Golf Facilities in the U.S., Climate Region 1", Jupiter, Florida, 2001 (Climate Region 2 includes all of southeastern U.S. so the smaller Climate Region 1, which is Florida from just north of Lake Okeechobee to Key West was used.) Pages 57, 38, 58, 60, 11, 23, 35, 20, 32. All 2001 dollar values converted to 2005 dollars using GDP Chained Price Index Factor of 1.06.

6.0 Impact on Small Business, Small Cities and Small Counties

According to Section 120.541, Florida Statutes, the Statement of Estimated Regulatory Costs shall include "An analysis of the impact on small businesses as defined by s. 288.703, and an analysis of the impact on small counties and small cities as defined by s. 120.52."

A small business is defined in Section 288.703, Florida Statutes as "an independently owned and operated business concern that employs 200 or fewer permanent full-time employees and that, together with its affiliates, has a net worth of not more than $5 million or any firm based in this state which has a Small Business Administration 8(a) certification. As applicable to sole proprietorships, the $5 million net worth requirement shall include both personal and business investments."

A small city is defined in s. 120.52 as "any municipality that has an unincarcerated population of 10,000 or less according to the most recent decennial census." A small county is defined in s. 120.52 as "any county that has an unincarcerated population of 75,000 or less according to the most recent decennial census.

The numbers of firms by employee size for those entire counties that are included in the SWUCA are provided in Table 6-1 and Table 6-2. This information is from the U.S. Census which uses a breakeven point of 100 employees and 250 employees. According to the information in Table 6-1, 99 percent of all businesses in the SWUCA have 250 or fewer employees. According to the information in Table 6-2, 98 percent of all businesses in the SWUCA have 100 or fewer employees. Thus, all but one to two percent of all businesses in the SWUCA counties are "small" businesses. Farms in the SWUCA are not included in these tables and such data is not available. However, it is very likely that most farms have fewer than 200 permanent full time employees.

Small businesses in the SWUCA may be affected by the proposed rule revisions. These impacts are described in Section 3.0 and Section 5.0 of this SERC. The number of existing permittees by size of their permitted water quantities and water uses are provided in Section 3.0. The potential costs to permittees by size of withdrawal are provided in Section 5.0. This information is provided for water users with average daily permitted quantities less than 100,000 gallons per day. These users are likely to be "small businesses".

There are 23 "small" cities in the SWUCA as identified in Table 6-3. There are 2 counties in the SWUCA, Hardee and DeSoto, that are "small" counties as identified in Table 6-4. Only those cities and counties that have a water use permit or that would need to request new water quantities in the future will be affected by the proposed rule revisions. These impacts are described in Section 3.0 and Section 5.0 of this SERC.

Table 6-1
Number of Firms By Employee Size in the SWUCA Counties Using a 250 Employee Breakpoint, 2003 (a)

NAICS Industry Code	Industry Code Description	Total Establishments		% of All Establish-ments with 250 or Fewer Employees
		With 250 or Fewer Employees	With More than 250 Employees	
All	Total	63,275	410	99%
11----	Forestry, fishing, hunting, and agriculture support	154	1	99%
21----	Mining	56	1	98%
22----	Utilities	122	4	97%
23----	Construction	6,286	17	100%
31----	Manufacturing	2,080	41	98%
42----	Wholesale trade	3,877	21	99%
44----	Retail trade	9,710	41	100%
48----	Transportation & warehousing	1,496	19	99%
51----	Information	1,096	22	98%
52----	Finance & insurance	4,362	46	99%
53----	Real estate & rental & leasing	3,693	3	100%
54----	Professional, scientific & technical services	7,794	22	100%
55----	Management of companies & enterprises	455	22	95%
56----	Admin, support, waste mgt, remediation services	4,026	63	98%
61----	Educational services	639	7	99%
62----	Health care and social assistance	6,391	58	99%
71----	Arts, entertainment & recreation	824	7	99%
72----	Accommodation & food services	4,043	12	100%
81----	Other services (except public administration)	5,979	3	100%
99----	Unclassified establishments	192	0	100%

(a) The data reported in this table represent the entire counties of Hillsborough, Manatee, Sarasota, Charlotte, Polk, Hardee, DeSoto and Highlands. The data source is United States Census Bureau, "2003 County Business Patterns, Florida" (NAICS) - Major Industry: For Selected Counties." The definition of a small business is 200 or fewer permanent full time employees. However the U.S Census Bureau uses a breakpoint of 250 when reporting the number of establishments.

Table 6-2
Number of Firms By Employee Size in the SWUCA Counties Using a 100 Employee Breakpoint, 2003 (a)

NAICS Industry Code	Industry Code Description	Total Establishments		% of All Establish-ments with 100 or Fewer Employees
		With 100 or Fewer Employees	With More than 100 Employees	
All	Total	62,145	1,536	98%
11----	Forestry, fishing, hunting, and agriculture support	149	6	96%
21----	Mining	53	4	93%
22----	Utilities	113	13	90%
23----	Construction	6,221	82	99%
31----	Manufacturing	1,981	140	93%
42----	Wholesale trade	3,828	70	98%
44----	Retail trade	9,472	278	97%
48----	Transportation & warehousing	1,461	54	96%
51----	Information	1,060	58	95%
52----	Finance & insurance	4,305	103	98%
53----	Real estate & rental & leasing	3,677	19	99%
54----	Professional, scientific & technical services	7,736	80	99%
55----	Management of companies & enterprises	435	42	91%
56----	Admin, support, waste mgt, remediation services	3,905	184	96%
61----	Educational services	619	27	96%
62----	Health care and social assistance	6,251	196	97%
71----	Arts, entertainment & recreation	794	37	96%
72----	Accommodation & food services	3,941	113	97%
81----	Other services (except public administration)	5,952	30	99%
99----	Unclassified establishments	192	0	100%

(a) The data reported in this table represent the entire counties of Hillsborough, Manatee, Sarasota, Charlotte, Polk, Hardee, DeSoto and Highlands. The data source is United States Census Bureau, "2003 County Business Patterns, Florida" (NAICS) - Major Industry: For Selected Counties." The definition of a small business is 200 or fewer permanent full time employees. However the U.S Census Bureau uses a breakpoint of 250 when reporting the number of establishments.

Table 6-3
Populations of Cities in the SWUCA Counties

City	County	Population in 2000	Population in 2003	City Size
Highland Park	Polk	244	246	Small
Hillcrest Heights	Polk	266	264	Small
Lake Hamilton	Polk	1,304	1,358	Small
Bradenton Beach	Manatee	1,482	1,505	Small
Zolfo Springs	Hardee	1,641	1,642	Small
Lake Placid	Highlands	1,668	1,686	Small
Polk City	Polk	1,516	1,710	Small
Anna Maria	Manatee	1,814	1,830	Small
Davenport	Polk	1,924	2,059	Small
Eagle Lake	Polk	2,496	2,507	Small
Longboat Key (part)	Manatee	2,591	2,596	Small
Dundee	Polk	2,912	2,952	Small
Frostproof	Polk	2,975	2,982	Small
Bowling Green	Hardee	2,892	3,012	Small
Mulberry	Polk	3,230	3,385	Small
Lake Alfred	Polk	3,890	3,981	Small
Wauchula	Hardee	4,368	4,327	Small
Holmes Beach	Manatee	4,966	5,015	Small
Longboat Key (part)	Sarasota	5,012	5,072	Small
Fort Meade	Polk	5,691	5,828	Small
Arcadia	DeSoto	6,604	6,860	Small
Avon Park	Highlands	8,542	8,596	Small
Sebring	Highlands	9,667	9,853	Small
Auburndale	Polk	11,032	11,203	Large
Lake Wales	Polk	10,194	11,626	Large
Palmetto	Manatee	12,571	12,944	Large
Haines City	Polk	13,174	14,115	Large
Bartow	Polk	15,340	15,492	Large
Punta Gorda	Charlotte	14,344	16,591	Large
Venice	Sarasota	17,864	19,290	Large
Winterhaven	Polk	26,487	26,867	Large
North Port	Sarasota	22,797	31,352	Large
Plant City	Hillsborough	29,915	31,841	Large
Bradenton	Manatee	49,504	52,181	Large
Sarasota	Sarasota	52,715	54,434	Large
Lakeland	Polk	78,452	88,741	Large
Tampa	Hillsborough	303,447	318,258	Large

Source: University of Florida, Bureau of Economic and Business Analysis, "Florida Statistical Abstract, 2004", Gainesville, Florida, pages 15 to 20.

Table 6-4
Population Estimates for SWUCA Counties
In 2000 and 2003

County	Population in 2000	Population in 2003	Population Size
Hardee	26,938	27,400	Small
DeSoto	32,209	33,713	Small
Highlands	87,366	90,393	Large
Charlotte	141,627	151,994	Large
Manatee	264,002	286,884	Large
Sarasota	325,961	348,761	Large
Polk	483,924	511,929	Large
Hillsborough	998,948	1,079,587	Large

Source: University of Florida, Bureau of Economic and Business Analysis, "Florida Statistical Abstract, 2004", Gainesville, Florida, page 12.