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TECHNICAL MEMORANDUM
RATE IMPACT EVALUATION
FOR WEST VOLUSIA UTILITIES

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Technical Memorandum

Rate Impact Evaluation For West Volusia Utilities

To: Elizabeth Thomas, Senior Project Manager
St. Johns River Water Management District

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Date: September 30, 2008

1.0 Background

The St. Johns River Water Management District (District), pursuant to its authority to adopt Minimum Flows and Levels (MFLs), has established a minimum flow regime (MFR) for Blue Spring in Volusia County, Florida, effective December 3, 2006 (Section 40C-8, Florida Administrative Code). District staff evaluated the impact of groundwater withdrawals upon average annual discharge to Blue Spring with respect to the adopted Blue Spring Minimum Flow Regime (MFR) and the development of alternative water supplies in Volusia County. Based on these evaluations, District staff has determined that utilities in Volusia County will need to develop alternative water supplies.

Various cities and Volusia County expressed concern that the cost of new alternative water supplies, for both the new water supply demands and those that will be needed to reduce existing groundwater use, would not be affordable. The utilities included in this evaluation are the city of Deltona, city of Deland, city of Orange City and Volusia County. The District agreed to perform an evaluation to determine the impact to water rates and to specific utility customers as a result of developing the new alternative water supplies. To this end, the District contracted Hazen and Sawyer in association with Public Resources Management Group to perform this evaluation.

2.0 Project Purpose and Scope

This technical memorandum provides estimates of the impact of the cost of alternative water supply sources on the residential and commercial water rates and water bills of selected water utility customers. The results for each utility are provided in the body of this memorandum and in Appendices A through D. In addition, an Excel model was prepared by Public Resources Management Group for each utility that allows the utility to enter data related to costs and water demands and provides estimates of the impacts of these data on water revenue requirements (rates) and water bills of selected utility customers. The use of this Excel model is provided in Appendix E of this memorandum.

The cost of alternative water sources was provided by the St. Johns River Water Management District and the city of Deltona. Specific customer, water demand and utility cost data was requested from each utility. A copy of the memorandum to the utilities requesting this data is provided in Appendix F of this memorandum.

The most important deliverable of this project is the Excel model for each utility. As the estimated costs of alternative water supplies and/or forecasted water demands change, each utility may use their Excel model to enter this data and obtain estimated impacts to revenue requirements, water rates and water bills.

3.0 Cost of Alternative Water Sources

The four alternative water sources evaluated during this study are listed as follows.

A. St. Johns River at Yankee Lake Water Supply Project

B. St. Johns River at SR 44 Water Supply Project

C. St. Johns River at SR 46 Water Supply Project

D. Coquina Coast Desalination Project

Alternative water sources A, B, and C treat water from the St. Johns River. The water treatment system is designed to treat brackish surface water and includes the following components:

- Equalization tank
- Plate settlers (flocculation/clarification)
- Microfiltration/Ultrafiltration
- Brackish water Reverse Osmosis
- Chemical feed system
- Residuals handling
- High service pump station
- Operations and administration building

- Clearwell
- Sitework
- Yard piping
- General Requirements

The Coquina Coast Desalination Project is a seawater desalination plant whose preliminary design was based on typical ocean water quality. The plant has a subsurface intake structure located one mile off-shore. The intake structure is made of coated concrete, with stainless steel piping. A pipe connects the intake structure to a screening and pumping station which conveys the raw water to the desalination plant. The RO concentrate and wastewater from the plant are returned to the ocean through an outfall pipe with diffusers located 1.73 miles (1.5 nautical miles) offshore. This system includes the following components:

- Offshore ocean intake
- Plates settlers (flocculation/clarification)
- Microfiltration/Ultrafiltration
- Seawater RO
- Chemical feed system
- High service pump station
- Operations and administration building
- Residuals handling
- Clearwell
- Sitework
- Yard piping
- Ocean outfall
- Bathymetric study
- General Requirements

For each alternative water supply project, a transmission pipeline from the treatment plant to the distribution system of each utility is included in the cost estimates and these costs are specific to each utility. Conveyance and storage costs include pipe, repump, redisinfect and diurnal storage at the point of connection.

The body of this memorandum presents the results as the four water utilities develop the St. Johns River at Yankee Lake Water Supply Project where no outside funding is provided from the District or other entities. The Appendices provide the results for all other alternative water supply and outside funding scenarios, as follows.

Appendix A – City of Deland:

A-1 St. Johns River at Yankee Lake with 20 percent of the capital cost funded from outside entities

A-2 St. Johns River at Yankee Lake with 40 percent of the capital cost funded from outside entities

A-3 St. Johns River at SR 44 Water Supply Project with no outside funding

A-4 St. Johns River at SR 46 Water Supply Project with no outside funding

A-5 Coquina Coast Desalination Project with no outside funding

Appendix B – City of Deltona:

B-1 St. Johns River at Yankee Lake with 20 percent of the capital cost funded from outside entities

B-2 St. Johns River at Yankee Lake with 40 percent of the capital cost funded from outside entities

B-3 St. Johns River at SR 44 Water Supply Project with no outside funding

B-4 St. Johns River at SR 46 Water Supply Project with no outside funding

B-5 Coquina Coast Desalination Project with no outside funding

Appendix C – City of Orange City:

C-1 St. Johns River at Yankee Lake with 20 percent of the capital cost funded from outside entities

C-2 St. Johns River at Yankee Lake with 40 percent of the capital cost funded from outside entities

C-3 St. Johns River at SR 44 Water Supply Project with no outside funding

C-4 St. Johns River at SR 46 Water Supply Project with no outside funding

C-5 Coquina Coast Desalination Project with no outside funding

Appendix D – Volusia County:

D-1 St. Johns River at Yankee Lake with 20 percent of the capital cost funded from outside entities

D-2 St. Johns River at Yankee Lake with 40 percent of the capital cost funded from outside entities

D-3 St. Johns River at SR 44 Water Supply Project with no outside funding

D-4 St. Johns River at SR 46 Water Supply Project with no outside funding

D-5 Coquina Coast Desalination Project with no outside funding

For the Yankee Lake project, the water capacity allocations and costs to utilities were taken from the "Strategic Financial Planning Model for the Seminole County Regional Water Treatment Facility at Yankee Lake (SCRWTF@YL)", preliminary draft, subject to revision, Financial Scenario 2 results, February 25, 2008. This document was provided by the city of Deltona. Additional information regarding the timing of the conveyance and storage costs was provided in the Excel file called "Consolidated AWS Cost Data 080331.xls", provided by the District. The cumulative and incremental capital costs are provided in Tables 3.1 and 3.2, respectively. The annual O&M costs for the St. Johns River (SJR) at Yankee Lake Water Supply project are provided in Table 3.3.

Table 3.1
Capital Cost for St. Johns River at Yankee Lake Project, 2008 Dollars [(a)]

Project Component	Year 1 2013 Phase I	Year 5 2017 Phase II	Year 10 2022 Phase III	Year 20 2027 Phase IV	Year 25 2032 Phase V
RO Treatment					
Capital Cost	$288,930,000	$312,372,000	$327,676,000	$452,237,000	$466,839,000
Phase Size, mgd	40	50	60	75	85
Capital Cost per Gallon	7.22	6.25	5.46	6.03	5.49
Conveyance and Storage					
City of Deland					
Capital Cost	$10,313,594	$20,627,187	$20,627,187	$20,627,187	$20,627,187
Allocated Demand (mgd)	9	9	9	9	9
Capital Cost per Gallon	$1.15	$2.29	$2.29	$2.29	$2.29
City of Deltona					
Capital Cost	$15,097,904	$30,981,283	$30,981,283	$30,981,283	$30,981,283
Allocated Demand (mgd)	17.5	17.5	17.5	17.5	17.5
Capital Cost per Gallon	$0.86	$1.77	$1.77	$1.77	$1.77
City of Orange City					
Capital Cost	$2,432,074	$4,864,147	$4,864,147	$4,864,147	$4,864,147
Allocated Demand (mgd)	3	3	3	3	3
Capital Cost per Gallon	$0.81	$1.62	$1.62	$1.62	$1.62
Volusia County					
Capital Cost	$8,766,907	$16,334,180	$16,334,180	$16,334,180	$16,334,180
Allocated Demand (mgd)	7.5	7.5	7.5	7.5	7.5
Capital Cost per Gallon	$1.17	$2.18	$2.18	$2.18	$2.18

[(a)] *From "Strategic Financial Planning Model for the Seminole County Regional Water Treatment Facility at Yankee Lake (SCRWTF@YL)", preliminary draft, subject to revision, Financial Scenario 2 results, February 25, 2008, 3rd page. (Pages are not numbered.) The cost of conveyance and storage is divided up between Phases I and II as per page 2 of the above cited report and the Excel file called "Consolidated AWA Cost Data 080331.xls", spreadsheet "Compare Capital" for Deltona and Volusia County.*

Table 3.2
Incremental Cost for St. Johns River at Yankee Lake Project, 2008 Dollars [(a)]

Project Component	Year 1 2013 Phase I	Year 5 2017 Phase II	Year 10 2022 Phase III	Year 20 2027 Phase IV	Year 25 2032 Phase V
RO Treatment					
Capital Cost	$288,930,000	$23,442,000	$15,304,000	$124,561,000	$14,602,000
Phase Size, mgd	40	10	10	15	10
Capital Cost per Gallon	$7.22	$2.34	$1.53	$8.30	$1.46
Conveyance and Storage					
City of Deland					
Capital Cost	$10,313,594	$10,313,594	$0	$0	$0
Allocated Demand (mgd)	9	9			
Capital Cost per Gallon	$1.15	$1.15	$0.00	$0.00	$0.00
City of Deltona					
Capital Cost	$15,097,904	$15,883,379	$0	$0	$0
Allocated Demand (mgd)	17.5	17.5			
Capital Cost per Gallon	$0.86	$0.91	$0.00	$0.00	$0.00
City of Orange City					
Capital Cost	$2,432,074	$2,432,074	$0	$0	$0
Allocated Demand (mgd)	3	3			
Capital Cost per Gallon	$0.81	$0.81	$0.00	$0.00	$0.00
Volusia County					
Capital Cost	$8,766,907	$7,567,273	$0	$0	$0
Allocated Demand (mgd)	7.5	7.5			
Capital Cost per Gallon	$1.17	$1.01	$0.00	$0.00	$0.00

[(a)] *From "Strategic Financial Planning Model for the Seminole County Regional Water Treatment Facility at Yankee Lake (SCRWTF@YL)", preliminary draft, subject to revision, Financial Scenario 2 results, February 25, 2008, 3rd page. (Pages are not numbered.) The cost of conveyance and storage is divided up between Phases I and II as per page 2 of the above cited report and the Excel file called "Consolidated AWA Cost Data 080331.xls", spreadsheet "Compare Capital" for Deltona and Volusia County.*

Table 3.3
Annual O&M Cost per 1,000 gallons
For St. Johns River at Yankee Lake in 2008 dollars [(a)]

Cost Component	Allocation Basis (%)	Cost per 1,000 Gallons
Total O&M Cost	100%	$2.56
Fixed Portion	24%	$0.61
Variable Portion	76%	$1.95

[(a)] *From Strategic Financial Model for Yankee Lake cited above, 3rd page. Treatment fixed O&M ranges from $0.52 to $0.70 depending on year. Treatment variable O&M ranges from $1.91 to $1.96 depending on year. Conveyance and storage O&M is less than $0.01 per year.*

These incremental and annual O&M costs are incorporated in the Excel model under the spreadsheet called “AWS Input Sheet”. The calculations regarding SJR at Yankee Lake are in the spreadsheet called “Yankee Lake”.

For the St. Johns River at SR 44 (at Deland), at SR 46 and the Coquina Coast Desalination Project, the water capacity allocations and costs to utilities were taken from the Excel file called “Consolidated AWS Costs Data 080331.xls” which was provided by the District. The capital and annual O&M cost estimates for these three projects are provided in Table 3.4.

These costs are incorporated in the Excel model under the spreadsheet called “AWS Input Sheet”. The calculations regarding each alternative water source are provided in a spreadsheet identified by the name of the alternative water source.

Table 3.4
Capital and O&M Costs for Selected Alternative Water Supply Projects From St. Johns River Water Management District in 2008 dollars [a]

Cost Item / Project	Coquina Coast (wo/ Marion)	SJR at SR 46	SJR at SR 44
Capacity, mgd	44.63	63.13	64.24
Capital Cost of Treatment	$608,051,688	$439,128,663	$443,146,068
Capital Cost per Gallon of Capacity			
Treatment	$13.62	$6.96	$6.90
Conveyance and Storage	$6.08 [b]	$1.58 [c]	$0.44 [d]
Total	$19.70	$8.54	$7.34
Annual O&M Cost	$59,777,784	$51,507,067	$52,207,935
Annual O&M Cost per 1,000 Gallons	$3.67	$2.24	$2.23
Capital and O&M Costs per 1,000 gallons [e]	$6.32	$3.59	$3.57

[a] *From Excel file provided by the District called, "Consolidated AWS Cost Data 080331.xls"*

[b] *For Coquina Coast, conveyance and storage capital cost represents city of Deland ($51 million and 8.4 mgd of capacity). Cost per gallon for Volusia County ranges from $10.73 to $12.31. $11.57 was used for Volusia County. Costs for city of Deltona and city of Orange City are not available so the city of Deland capital cost per gallon of capacity, $6.08, was used for these utilities.*

[c] *For SJR at SR 46 conveyance and storage capital cost represents city of Deltona. This cost data is not available for the other 3 utilities so the city of Deltona capital cost per gallon of capacity, $1.58, was used.*

[d] *For SJR at SR 44 conveyance and storage capital cost represents city of Deland. ($3.6 million and 8.4 mgd of capacity). Cost per gallon for the city of Deltona is $1.25. Cost per gallon for the city of Orange City is $0.67. Cost per gallon for Volusia County ranges from $1.31 to $2.51. $1.95 was used per Volusia County.*

[e] *Capital cost was amortized over 25 years at 5% annual interest.*

Each alternative water supply project included in the Excel model has an alternative water source financing input area located in the spreadsheet called “AWS Input Sheet”. The information used for all four projects is provided in Table 3.5. The row numbers are those in the spreadsheet and correspond to the St. Johns River (SJR) at Yankee Lake. The blue cells indicate where the user may input the data. The non blue cells contain values calculated by the model.

Table 3.5
Alternative Water Source Financing

Row No.	Item	Value
	Gross Capital Cost of AWS Project	
4	SJRWMD Funding (Grants), enter negative %	0.00%
5	Other Outside Funding, enter negative %	0.00%
6	Water Utility Portion of Capital Cost	100.00%
	Financing Assumptions	
7	Debt Issuance and/or Administrative Costs	5.00%
8	Annual Interest Rate	5.00%
9	Term (Years)	25

4.0 Inputs and Results for the City of Deland

The section describes the data inputs and model results for the city of Deland. The tables are similar to those tables provided in the Excel model. The table cells that are highlighted in blue are the data entry cells.

The base year and the forecasted finished (after treatment) water capacity allocation, total water production, number of ERUs and the annual capital cost inflation factor for the city of Deland are provided in Table 4.1. The sources of these data are provided as follows.

1. Finished water capacity allocation – The allocation from existing sources which is the Floridan aquifer was taken from the consumptive use permit information provided by the City. The water allocation from existing sources is reduced over time in this analysis to reflect as much as possible the City's request regarding the amount of water to take from alternative sources. Water was allocated from the SJR at Yankee Lake to fill the water demand that could not be met by existing sources.

2. Base year water production – The City provided an estimate that the current water demand (for Fiscal Year 2008) is approximately 6.8 mgd. However, the City's consumptive use permit is for a quantity of 6.4 mgd. Therefore, 6.4 mgd was used as the water produced from the Floridan aquifer in 2009.

3. Water production annual growth rate –The growth rate was based on Schedule 3-1 of the "Comprehensive Water and Wastewater Rate and Charge Study", prepared for the City by Hartman Consulting and Design, November 29, 2007. The projected growth rate provided in this 2007 study was reduced to reflect current expectations affecting the future demand for water.

4. Current and projected number of ERUs – These values are calculated by the model and are equal to total water production in gallons per day divided by the 300 gallons per day per ERU (as defined by the City).

5. Annual inflation of capital costs – The 3.0 percent per year was based on the Consumer Price Index and the Implicit GDP Deflator forecast prepared by the Congressional Budget Office as contained in The Economic and Budget Outlook dated January 2008 as adjusted to provide for a contingency factor.

This information is entered into the spreadsheet called General Input Sheet, rows 3 through 13.

Table 4.1
Base Year and Forecasts of Finished Water Capacity Allocation and Total Water Production
City of Deland, Florida [a]

Row No.	Item	Fiscal Year Ending September 30, Base Year 2009 Phase 0	Year 1 2013 Phase I	Year 5 2017 Phase II	Year 10 2022 Phase III	Year 20 2027 Phase IV	Year 25 2032 Phase V
	Finished Water Capacity Allocation (mgd)						
3	From Existing Sources	6.40	3.30	3.30	2.00	1.40	1.40
4	SJR - Yankee Lake Project	0.00	4.10	4.90	6.80	8.00	9.00
5	SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
6	SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
7	Coquina Coast Desalination Project	0.00	0.00	0.00	0.00	0.00	0.00
8	**Total Water Capacity Allocation - (mgd)**	**6.40**	**7.40**	**8.20**	**8.80**	**9.40**	**10.40**
9	**Total Water Production - All Sources (mgd)**	**6.40**	**6.95**	**7.56**	**8.39**	**9.30**	**10.32**
	Input Annual Production Growth Rate	N/A					
10	Annual Production Growth Rate (Percentage)		2.10%	2.10%	2.10%	2.10%	2.10%
11	Level of Service Factor (GPD per ERU)	300	300	300	300	300	300
12	Projected Number of ERUs Served	21,333	23,183	25,192	27,951	31,011	34,407
	Annual Inflation Factor Capital Cost	N/A					
13		N/A	3.00%	3.00%	3.00%	3.00%	3.00%

[a] *From General Input Sheet of city of Deland Rate Impact Model.*

A graph of the total water capacity and total water production for the city of Deland is provided in Figure 4-1.

The anticipated cost to operate the water utilities in the base year for the city of Deland is provided in Table 4.2. These costs are the revenue requirements in 2009 and include the cost of water production, distribution, billing, administration, debt service, renewal and replacement and other transfers allocated to and from the Water System. These data were compiled from information contained in Section 6 of the "Comprehensive Water and Wastewater Rate and Charge Study" prepared by Hartman Consulting and Design, dated November 29, 2007. Also included in Table 4.2 are the expected annual inflation rates of the annual operating costs and of the other revenue requirements.

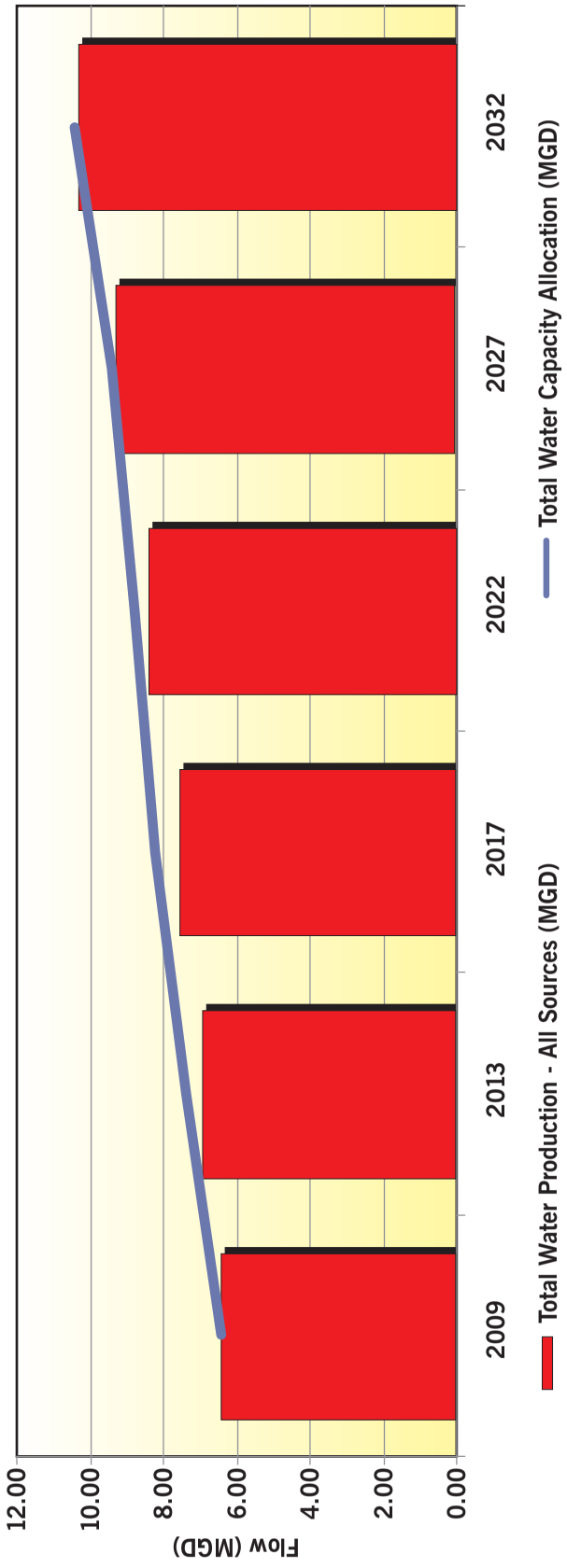

Figure 4-1
City of Deland
Total Water Capacity and Prouction (MGD)

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Table 4.2
Anticipated Water Utility Cost in Base Year (Water Revenue Requirements)
City of Deland

Row No.	Cost Item	Included in Cost Item	Cost in Base Year
14	Fixed O&M Cost	Personnel and administration costs	$4,140,500
15	Variable O&M Cost	Purchased water, power, chemicals and other costs that change with the amount of water produced	$543,400
16	Other Revenue Requirements	Debt service, R&R, General Fund, PILOT Transfers, and all other costs	$2,387,500
17	Total Cost in Base Year		$7,071,400
	Operating Cost Escalation Factors, Annual Inflation Factor:		
18	Fixed and Variable O&M	May Change Every Five Years	3%
19	Other Rev. Requirements	May Change Every Five Years	1%

The city of Deland's water rate structure and average monthly water use by customer type in the base year, 2009, are provided in Table 4.3. The monthly average usage per customer was derived from Table 3-3 of the "Comprehensive Water and Wastewater Rate and Charge Study" prepared by Hartman Consulting and Design, dated November 29, 2007. The current rates are based on schedules as shown on Article 30 of the City Code as provided by the City. The average monthly water bill for each customer type is provided in Table 4.4.

Table 4.3
Water System Rate Structure in Base Year, City of Deland

Row No.	Item	Single-Family 5/8" or 3/4" Meter		Multi-Family 5/8" or 3/4" Meter		General or Commercial 5/8" or 3/4" Meter	
20	Monthly Average Usage per Customer (Gallons)	7,500		4,000		9,000	
21	Administrative Charge	$4.02		$4.02		$4.02	
22	Base (Availability) Charge	$5.56		$3.90		$5.56	
23	Gallons Provided Under Base Charge	0.0		0.0		0.0	
	Block, 1,000 Gallons [(a)]	**Usage Charge**	**Upper Limit**	**Usage Charge**	**Upper Limit**	**Usage Charge**	**Upper Limit**
24	Block 1 (0 - 10)	$1.55	10.0	$1.55	10.0	$1.55	10.0
25	Block 2 (10 -15)	$2.17	15.0	$2.17	15.0	$2.17	15.0
26	Block 3 (> 15)	$3.10	0.0	$3.10	0.0	$3.10	0.0
27	Block 4 N/A	$0.00	0.0	$0.00	0.0	$0.00	0.0
28	Block 5 N/A	$0.00	0.0	$0.00	0.0	$0.00	0.0
29	Block 6 N/A	$0.00		$0.00		$0.00	

[(a)] *All values are in 1,000 gallons or per 1,000 gallons. For example, if the first block is 0-7,000 gallons, user will input 7 as the upper limit for block 1; if the second block is 7,000-14,000 gallons, user will input 14 as the upper limit for block 2, etc. Usage charge is in 1,000 gallons. These rates were in effect as of September 2008 and are exclusive of taxes or franchise fees.*

Table 4.4
Average Monthly Water Bill in Base Year
By Customer Type, City of Deland, Florida

Row No.	Customer Type	Average Gallons per Month	Water Bill, monthly
30	Single-Family	7,500	$21.21
31	Multi-Family	4,000	$14.12
32	Commercial	9,000	$23.53

The results of the analysis of alternative water supply costs on water production, water costs, water rates and water bills are provided in Tables 4.5 through 4.8 for the city of Deland where the SJR at Yankee Lake is the alternative water source and no outside funding is provided. The water source allocation over the next 25 years is provided in Table 4.5. The annual revenue requirements which are the water supply costs to be recovered from water rates in 2008 (current) dollars over the next 25 years in provided in Table 4.6. These are one year snapshots in the years 2009 (base year), 2013, 2017, 2022, 2027 and 2032.

The impacts of the SJR at Yankee Lake project on monthly revenue requirements per equivalent residential unit (ERU) in 2008 dollars are provided in Table 4.7. The percent changes in these values over time relative to the base year (2009) indicates the percentage increase in the water rates that would be necessary to recover the costs associated with the SJR at Yankee Lake project. For the city of Deland, the water rates in 2013 would need to increase by 74 percent of the base year water rates in order to pay for the SJR at Yankee Lake project. By 2032, the water rates would need to be 76 percent higher than in the base year.

The bottom part of Table 4.7 presents the average monthly water bill of single-family, multi-family and commercial water customers over the next 25 years if the water rates are increased to pay for the alternative water source project. The difference in the water bills between the year in question and the base year (2009) is the impact of the SJR at Yankee Lake project on monthly water bills. The difference is in 2008 dollars. The average single-family monthly water bill is expected to be $16 per month higher in 2013 due to the cost of the SJR at Yankee Lake project ($37 minus $21). By 2017, the monthly water bill will be $17 higher ($38 minus $21). By 2032, the monthly water will bill be $16 higher ($37 minus $21). These values reflect the relative prices and incomes that exist in 2008 and facilitate perceptions regarding the magnitude of the water rate increase.

The revenue requirements per ERU and the monthly water bill will fall over time if more of the available water capacity is being sold. The fixed cost of the water capacity allocations are paid for by the utility in the years that the capacity is assigned to the utility. The average monthly water bill is minimized if the excess water capacity is kept to a minimum.

The impacts of the SJR at Yankee Lake project on monthly revenue requirements per ERU in inflation-included (nominal) dollars are provided in Table 4.8. The percent change in these values relative to the base year value over time indicates the percentage increase in the water rates, in inflation-included dollars, that would be necessary to recover the costs associated with the SJR at Yankee Lake project. The bottom part of Table 4.8 presents the average monthly water bill of single-family, multi-family and commercial customers, in inflation-included dollars, over the next 25 years if the water rates are increased to pay for the alternative water source project. The difference in the water bills between the year in question and the base year (2009) is the impact of the SJR at Yankee Lake project on water bills in inflation-included dollars.

Table 4.5
City of Deland
Water Source Allocation: Capacity and Production

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Total Water Capacity - All Sources (mgd)	6.40	7.40	8.20	8.80	9.40	10.40
Total Water Production - All Sources (mgd)	6.40	6.95	7.56	8.39	9.30	10.32
Projected No. of ERUs Served	21,333	23,183	25,192	27,951	31,011	34,407
Water Production Allocation (mgd)						
From Existing Sources	6.40	3.30	3.30	2.00	1.40	1.40
SJR - Yankee Lake Project	0.00	3.65	4.26	6.39	7.90	8.92
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	**6.40**	**6.95**	**7.56**	**8.39**	**9.30**	**10.32**

Table 4.6
City of Deland
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Existing Water Source						
Fixed O&M Cost	$4,140,500	$4,140,500	$4,140,500	$4,140,500	$4,140,500	$4,140,500
Variable O&M Cost	$543,400	$280,191	$280,191	$169,813	$118,869	$118,869
Other Revenue Require-ments	$2,387,500	$2,484,442	$2,484,442	$2,509,286	$2,509,286	$2,509,286
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$7,071,400	$6,905,133	$6,905,133	$6,819,599	$6,768,655	$6,768,655
SJR - Yankee Lake Project	$0	$6,488,857	$8,004,142	$10,158,117	$12,248,268	$13,304,805
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$7,071,400**	**$13,393,990**	**$14,909,275**	**$16,977,716**	**$19,016,924**	**$20,073,461**

Table 4.7
City of Deland
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) to Support Utility System, Existing Water Source and Alternative Water Supply Development						
Value	$28	$48	$49	$51	$51	$49
% Change Relative to Base Year		**74%**	**79%**	**83%**	**85%**	**76%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$21	$37	$38	$39	$39	$37
Multi-Family (4,000 gal.)	$14	$25	$25	$26	$26	$25
Commercial (9,000 gal.)	$24	$41	$42	$43	$44	$41

Table 4.8
City of Deland
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) to Support Utility System, Existing Water Source and Alternative Water Supply Development						
Value	$28	$58	$64	$73	$83	$89
Base Year Value with Inflation	$28	$30	$33	$37	$42	$47
Change Relative to Base Year		**$27**	**$31**	**$35**	**$41**	**$42**
% Change Relative to Base Year		**91%**	**94%**	**95%**	**98%**	**89%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$21	$44	$49	$56	$63	$68
Multi-Family (4,000 gal.)	$14	$29	$33	$37	$42	$45
Commercial (9,000 gal.)	$24	$49	$55	$62	$70	$75

A graph of the monthly water bill of single-family customers at their average monthly water use in the base year and through 2032 is provided in Figure 4-2 in 2008 dollars and in nominal (inflation included) dollars. These water bills are influenced by the costs, capacity allocations, water demands, and customer water use data used to produce these impacts.

The rate impacts of other scenarios where the District or other outside entity funds 20 percent and 40 percent of the SJR at Yankee Lake project is provided in Appendix A. In addition, the rate impacts of the other three alternative water sources where no outside funding is provided are included in Appendix A. For each scenario, the types of information that is found in Tables 4.5 through 4.8 are provided. A summary of the results of these scenarios is provided in Table 4.9.

Table 4.9
City of Deland
Impact of Alternative Water Sources on the
Average Monthly Single Family Water Bill, 2008 Dollars

	No AWS	Alternative Water Supply Cost Included				
	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Scenario	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
St. Johns River at Yankee Lake						
No outside funding	$21	$37	$38	$39	$39	$37
Outside funding provides 20% of capital cost	$21	$35	$36	$37	$37	$35
Outside funding provides 40% of capital cost	$21	$34	$34	$35	$35	$34
Other Alternative Water Supplies, No Outside Funding						
St. Johns River at SR 44	$21	$35	$33	$34	$32	$31
St. Johns River at SR 46	$21	$37	$35	$35	$34	$32
Coquina Coast Desalination Project	$21	$57	$55	$55	$53	$50

5.0 Inputs and Results for the City of Deltona

The section describes the data inputs and model results for the city of Deltona. The tables are similar to those tables provided in the Excel model. The table cells that are highlighted in blue are the data entry cells.

The base year and the forecasted finished (after treatment) water capacity allocation, total water production, number of ERUs and the annual capital cost inflation factor for the city of Deltona are provided in Table 5.1. The sources of these data are provided as follows.

1. Finished water capacity allocation – For the existing water source (Floridan aquifer), the allocation reflects the City's current consumptive permit (CUP) as provided by the City.

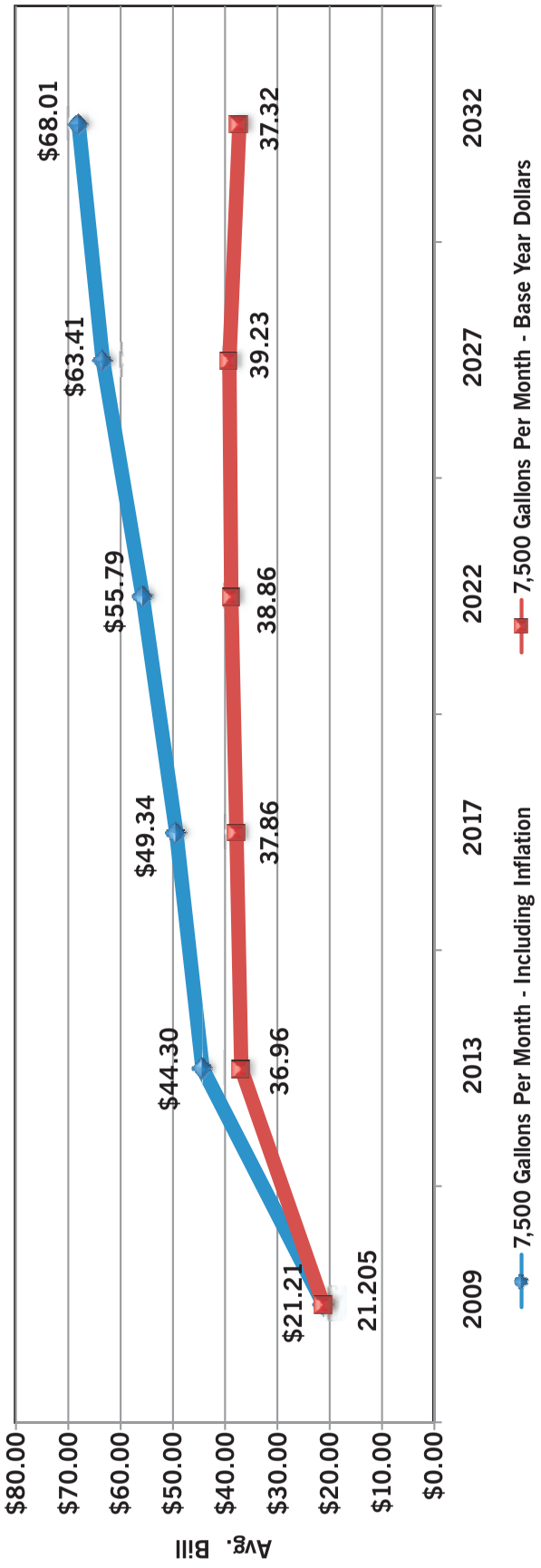

Figure 4-2
City of Deland
Single-Family Residential (5/8"-Inch) Monthly Water Bill with AWS

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The water allocation from existing sources is reduced over time in this analysis to reflect as much as possible the City's request regarding the amount of water to take from alternative sources. All additional needed water production is provided by the SJR at Yankee Lake. This is a simulation requested by the City and may not reflect the actual amount of water permitted from existing sources in the future.

2. Base year water production – The projected metered water flow was used as shown in Table 4-2 "Projected Metered/Billable Flows" for Fiscal Year 2009 on page 4-4 of the "City of Deltona Water and Wastewater Rate Study" prepared by Tetra Tech HAI, dated August 2006. An additional 10 percent was added for unaccounted water.

3. Water production annual growth rate – The annual growth rate from 2009 to 2013 of 3.4 percent was calculated from Schedule 4-1, page 2 of 6, total ERUs from 2006 through 2011 of the "City of Deltona Water and Wastewater Rate Study" prepared by Tetra Tech HAI, dated August 2006. The growth rate after 2011 was not provided so a growth rate of 2.0 percent was used.

4. Current and projected number of ERUs – These values are calculated by the model and are equal to total water production in gallons per day divided by the 300 gallons per day per ERU (as defined by the City).

5. Annual inflation of capital costs – The 3.0 percent per year was based on the Consumer Price Index and the Implicit GDP Deflator forecast prepared by the Congressional Budget Office as contained in The Economic and Budget Outlook dated January 2008 as adjusted to provide for a contingency factor.

This information was entered into the spreadsheet called General Input Sheet, rows 3 through 13.

Table 5.1
Base Year and Forecasts of Finished Water Capacity Allocation and Total Water Production
City of Deltona, Florida[a]

Row No.	Item	Fiscal Year Ending September 30, Base Year 2009 Phase 0	Year 1 2013 Phase I	Year 5 2017 Phase II	Year 10 2022 Phase III	Year 20 2027 Phase IV	Year 25 2032 Phase V
	Finished Water Capacity Allocation (mgd)						
3	From Existing Sources	13.957	10.000	9.000	7.500	5.000	2.500
4	SJR - Yankee Lake Project	0.000	5.000	5.000	10.000	15.000	17.500
5	SJR - SR 44 Project	0.000	0.000	0.000	0.000	0.000	0.000
6	SJR - SR 46 Project	0.000	0.000	0.000	0.000	0.000	0.000
7	Coquina Coast Desalination Project	0.000	0.000	0.000	0.000	0.000	0.000
8	**Total Water Capacity Allocation - (mgd)**	13.957	15.000	14.000	17.500	20.000	20.000
9	**Total Water Production - All Sources (mgd)**	**11.629**	13.293	14.389	15.886	17.540	19.365
	Input Annual Production Growth Rate	N/A					
10	Annual Production Growth Rate (Percentage)		3.40%	2.00%	2.00%	2.00%	2.00%
11	Level of Service Factor (GPD per ERU)	300.00	300.00	300.00	300.00	300.00	300.00
12	Projected Number of ERUs Served	38,763	44,309	47,962	52,954	58,465	64,550
	Annual Inflation Factor Capital Cost	N/A					
13		N/A	3.00%	3.00%	3.00%	3.00%	3.00%

[a] *From General Input Sheet of city of Deltona Rate Impact Model.*

A graph of the total water capacity and total water production for the city of Deltona is provided in Figure 5-1.

The anticipated cost to operate the water utilities in the base year for the city of Deltona is provided in Table 5.2. These costs are the revenue requirements in 2009 and include the cost of water production, distribution, billing, administration, debt service, renewal and replacement and other transfers allocated to and from the Water System. These data are from Section 6 of the "City of Deltona Water and Wastewater Rate Study" prepared by Tetra Tech HAI, dated August 2006. Also included in Table 5.2 are the expected annual inflation rates of the annual operating costs and of the other revenue requirements.

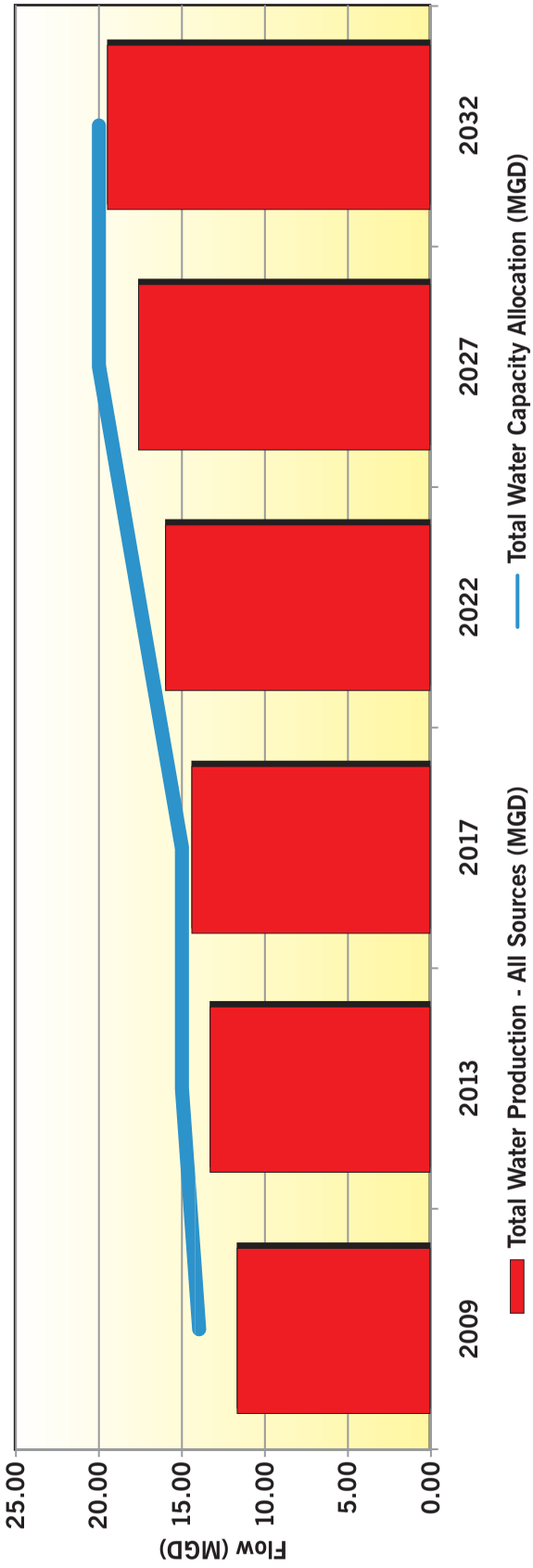

Figure 5-1
City of Deltona
Total Water Capacity and Production (MGD)

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Table 5.2
Anticipated Water Utility Cost in Base Year (Water Revenue Requirements)
City of Deltona

Row No.	Cost Item	Included in Cost Item	Cost in Base Year
14	Fixed O&M Cost	Personnel and administration costs	$2,932,020
15	Variable O&M Cost	Purchased water, power, chemicals and other costs that change with the amount of water produced	$1,596,319
16	Other Revenue Requirements	Debt service, R&R, General Fund, PILOT Transfers, and all other costs	$4,543,040
17	Total Cost in Base Year		$9,071,378
	Operating Cost Escalation Factors, Annual Inflation Factor:		
18	Fixed and Variable O&M	May Change Every Five Years	3%
19	Other Rev. Requirements	May Change Every Five Years	1%

The city of Deltona's water rate structure and average monthly water use by customer type in the base year, 2009, are provided in Table 5.3. The monthly average usage per customer was derived from Schedule 4-1 of the "City of Deltona Water and Wastewater Rate Study" prepared by Tetra Tech HAI, dated August 2006. The current rates are based on schedules as provided by the City. The average monthly water bill for each customer type is provided in Table 5.4.

Table 5.3
Water System Rate Structure in Base Year, City of Deltona

Row No.	Item	Single-Family 5/8" or 3/4" Meter		Multi-Family 5/8" or 3/4" Meter		General or Commercial 5/8" or 3/4" Meter	
20	Monthly Average Usage per Customer (Gallons)	9,000		6,000		7,000	
21	Administrative Charge	$0.00		$0.00		$0.00	
22	Base (Availability) Charge	$7.42		$7.42		$7.42	
23	Gallons Provided Under Base Charge	0.0		0.0		0.0	
	Block, 1,000 Gallons [(a)]	**Usage Charge**	**Upper Limit**	**Usage Charge**	**Upper Limit**	**Usage Charge**	**Upper Limit**
24	Block 1 (0 - 5)	$1.02	5.0	$1.02	5.0	$1.02	5.0
25	Block 2 (5 -11)	$1.35	11.0	$1.35	11.0	$1.35	11.0
26	Block 3 (11 - 20)	$1.69	20.0	$1.69	20.0	$1.69	20.0
27	Block 4 (> 20)	$2.03		$2.03		$2.03	
28	Block 5 N/A	$0.00		$0.00		$0.00	
29	Block 6 N/A	$0.00		$0.00		$0.00	

[(a)] *All values are in 1,000 gallons or per 1,000 gallons. For example, if the first block is 0-7,000 gallons, user will input 7 as the upper limit for block 1; if the second block is 7,000-14,000 gallons, user will input 14 as the upper limit for block 2, etc. Usage charge is in 1,000 gallons. These rates were in effect as of September 2008 and are exclusive of taxes or franchise fees.*

Table 5.4
Average Monthly Water Bill in Base Year
By Customer Type, City of Deltona, Florida

Row No.	Customer Type	Average Gallons per Month	Water Bill, monthly
30	Single-Family	9,000	$17.92
31	Multi-Family	6,000	$13.87
32	Commercial	7,000	$15.22

The results of the analysis of alternative water supply costs on water production, water costs, water rates and water bills are provided in Tables 5.5 through 5.8 for the city of Deltona where the SJR at Yankee Lake is the alternative water source and no outside funding is provided. The water source allocation over the next 25 years is provided in Table 5.5. The annual revenue requirements which are the water supply costs to be recovered from water rates in 2008 (current) dollars over the next 25 years in provided in Table 5.6. These are one year snapshots in the years 2009 (base year), 2013, 2017, 2022, 2027 and 2032.

The impacts of the SJR at Yankee Lake project on monthly revenue requirements per equivalent residential unit (ERU) in 2008 dollars are provided in Table 5.7. The percent changes in these values over time relative to the base year (2009) indicates the percentage increase in the water rates that would be necessary to recover the costs associated with the SJR at Yankee Lake project. For the city of Deltona, the water rates in 2013 would need to increase by 57 percent of the base year water rates in order to pay for the SJR at Yankee Lake project. By 2032, the water rates would need to be 118 percent higher than in the base year.

The bottom part of Table 5.7 presents the average monthly water bill of single-family, multi-family and commercial water customers over the next 25 years if the water rates are increased to pay for the alternative water source project. The difference in the water bills between the year in question and the base year (2009) is the impact of the SJR at Yankee Lake project on monthly water bills. The difference is in 2008 dollars. The average single-family monthly water bill is expected to be $10 per month higher in 2013 due to the cost of the SJR at Yankee Lake project ($28 minus $18). By 2017, the monthly water bill will be $11 higher ($29 minus $18). By 2032, the monthly water will bill be $21 higher ($39 minus $18). These values reflect the relative prices and incomes that exist in 2008 and facilitate perceptions regarding the magnitude of the water rate increase.

The revenue requirements per ERU and the monthly water bill will fall over time if more of the available water capacity is being sold. The fixed cost of the water capacity allocations are paid for by the utility in the years that the capacity is assigned to the utility. The average monthly water bill is minimized if the excess water capacity is kept to a minimum.

The impacts of the SJR at Yankee Lake project on monthly revenue requirements per ERU in inflation-included (nominal) dollars are provided in Table 5.8. The percent change in these values relative to the base year value over time indicates the percentage increase in the water rates, in inflation-included dollars, that would be necessary to recover the costs associated with the SJR at Yankee Lake project. The bottom part of Table 5.8 presents the average monthly water bill of single-family, multi-family and commercial customers, in inflation-included dollars, over the next 25 years if the water rates are increased to pay for the alternative water source project. The difference in the water bills between the year in question and the base year (2009) is the impact of the SJR at Yankee Lake project on water bills in inflation-included dollars.

Table 5.5
City of Deltona
Water Source Allocation: Capacity and Production - St. Johns River at Yankee Lake

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Total Water Capacity - All Sources (mgd)	13.96	15.00	15.00	17.50	20.00	20.00
Total Water Production - All Sources (mgd)	11.63	13.29	14.39	15.89	20.00	19.37
Projected No. of ERUs Served	38,783	44,309	47.962	52,954	58,465	64,550
Water Production Allocation (mgd)						
From Existing Sources	11.63	10.00	10.00	7.50	5.00	2.50
SJR - Yankee Lake Project	0.00	3.29	4.39	8.39	12.54	16.87
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	**11.63**	**13.29**	**14.39**	**15.89**	**17.54**	**19.37**

Table 5.6
City of Deltona
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at Yankee Lake - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Existing Water Source						
Fixed O&M Cost	$2,932,020	$2,932,020	$2,932,020	$2,932,020	$2,932,020	$2,932,020
Variable O&M Cost	$1,596,319	$1,372,732	$1,372,732	$1,029,549	$686,366	$343,183
Other Revenue Require-ments	$4,543,040	$4,727,506	$4,727,506	$4,774,781	$4,774,781	$4,774,781
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$9,071,378	$9,032,257	$9,032,257	$8,736,349	$8,393,166	$8,049,983
SJR - Yankee Lake Project	$0	$7,272,347	$9,235,562	$13,764,157	$20,926,885	$24,834,168
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$9,071,378**	**$16,304,604**	**$18,267,819**	**$22,500,506**	**$29,320,051**	**$32,884,152**

Table 5.7
City of Deltona Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
St. Johns River at Yankee Lake - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) to Support Utility System, Existing Water Source and Alternative Water Supply Development						
Value	$20	$31	$32	$35	$42	$42
% Change Relative to Base Year		**57%**	**63%**	**82%**	**114%**	**118%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$18	$28	$29	$33	$38	$39
Multi-Family (4,000 gal.)	$14	$22	$23	$25	$30	$30
Commercial (9,000 gal.)	$15	$24	$25	$28	$33	$33

Table 5.8
City of Deltona Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at Yankee Lake - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) to Support Utility System, Existing Water Source and Alternative Water Supply Development						
Value	$20	$39	$44	$53	$68	$78
Base Year Value with Inflation	$20	$21	$23	$25	$28	$31
Change Relative to Base Year		**$18**	**$21**	**$27**	**$40**	**$47**
% Change Relative to Base Year		**86%**	**94%**	**108%**	**145%**	**153%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$18	$36	$41	$48	$63	$71
Multi-Family (4,000 gal.)	$14	$28	$31	$37	$48	$55
Commercial (9,000 gal.)	$15	$31	$35	$41	$53	$61

A graph of the monthly water bill of single-family customers at their average monthly water use in the base year and through 2032 is provided in Figure 5-2 in 2008 dollars and in nominal (inflation included) dollars. These water bills are influenced by the costs, capacity allocations, water demands, and customer water use data used to produce these impacts.

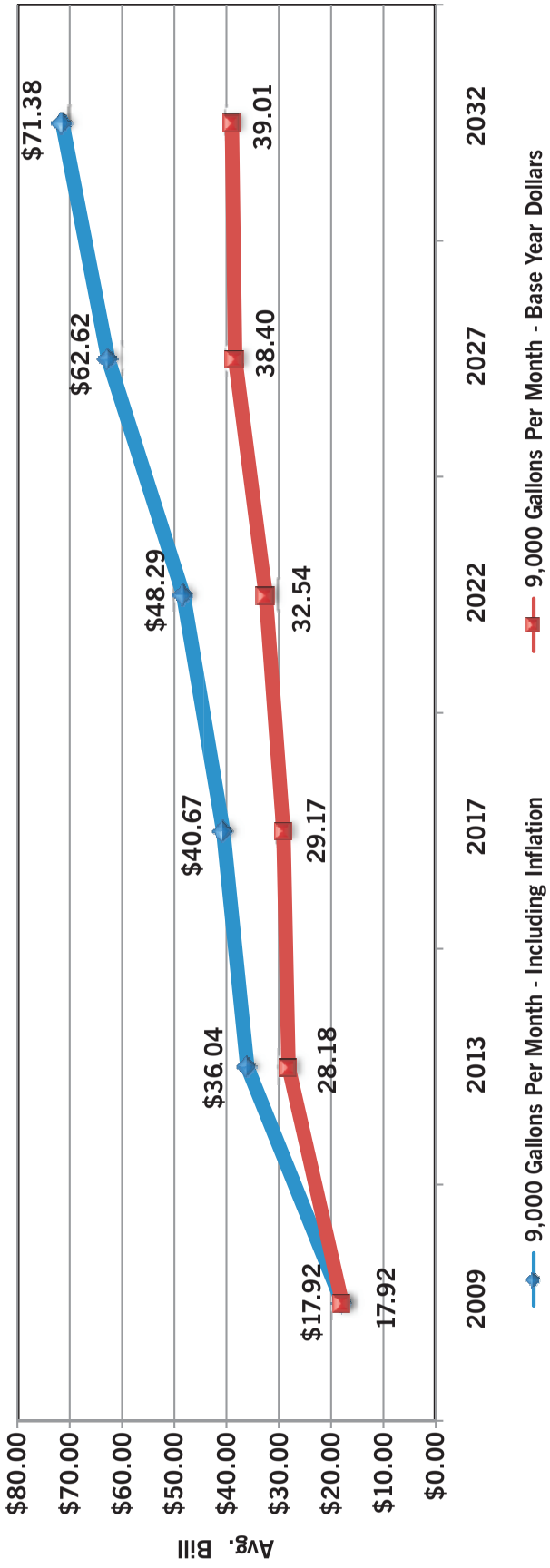

Figure 5-2
City of Deltona
Single-Family Residential (5/8"-Inch) Monthly Water Bill with AWS

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The rate impacts of other scenarios where the District or other outside entity funds 20 percent and 40 percent of the SJR at Yankee Lake project is provided in Appendix B. In addition, the rate impacts of the other three alternative water sources where no outside funding is provided are included in Appendix B. For each scenario, the types of information that is found in Tables 5.5 through 5.8 are provided. A summary of the results of these scenarios is provided in Table 5.9.

Table 5.9
City of Deltona
Impact of Alternative Water Sources on the
Average Monthly Single Family Water Bill, 2008 Dollars

	No AWS	Alternative Water Supply Cost Included				
	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Scenario	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
St. Johns River at Yankee Lake						
No outside funding	$18	$28	$29	$33	$38	$39
Outside funding provides 20% of capital cost	$18	$27	$28	$31	$36	$37
Outside funding provides 40% of capital cost	$18	$26	$26	$29	$34	$35
Other Alternative Water Supplies, No Outside Funding						
St. Johns River at SR 44	$18	$29	$27	$30	$32	$31
St. Johns River at SR 46	$18	$30	$28	$31	$33	$32
Coquina Coast Desalination Project	$18	$49	$46	$50	$54	$53

6.0 Inputs and Results for the City of Orange City

The section describes the data inputs and model results for the city of Orange City. The tables are similar to those tables provided in the Excel model. The table cells that are highlighted in blue are the data entry cells.

The base year and the forecasted finished (after treatment) water capacity allocation, total water production, number of ERUs and the annual capital cost inflation factor for the city of Orange City are provided in Table 6.1. The sources of these data are provided as follows.

1. Finished water capacity allocation – The City's consumptive use permit is under District review. The amount of water from existing sources (Floridan aquifer) used in this analysis was 1.66 mgd which is the 2005 water treatment plant production from the Orange City Capacity Analysis Report prepared for the City by Hartman and Associates, January 2005, Table 2-4, page 2-14. As requested by the City, this allocation was reduced over time and water from the SJR at Yankee Lake was allocated to supply the remaining water demand up to 3.0 mgd by 2032.

2. Base year water production – This value is the projected metered water flow provided in the "Orange City Fiscal Year 2005/06 Water and Wastewater Revenue Sufficiency Analysis" prepared by Tetra Tech HAI, dated June 2006, Schedule 1 for Fiscal Year 2009 plus an additional 10% for unaccounted water.

3. Water production annual growth rate – The annual growth rate was calculated from Schedule 1 of the "Orange City Fiscal Year 2005/06 Water and Wastewater Revenue Sufficiency Analysis" prepared by Tetra Tech HAI, dated June 2006. The Test Year (2006) and 2010 Equivalency numbers were used.

4. Current and projected number of ERUs – These values are calculated by the model and are equal to total water production in gallons per day divided by the 300 gallons per day per ERU (as defined by the City).

5. Annual inflation of capital costs – The 3.0 percent per year was based on the Consumer Price Index and the Implicit GDP Deflator forecast prepared by the Congressional Budget Office as contained in The Economic and Budget Outlook dated January 2008 as adjusted to provide for a contingency factor.

This information was entered into the spreadsheet called General Input Sheet, rows 3 through 13.

Table 6.1
Base Year and Forecasts of Finished Water Capacity Allocation and Total Water Production
City of Orange City, Florida [(a)]

Row No.	Item	Fiscal Year Ending September 30, Base Year 2009 Phase 0	Year 1 2013 Phase I	Year 5 2017 Phase II	Year 10 2022 Phase III	Year 20 2027 Phase IV	Year 25 2032 Phase V
	Finished Water Capacity Allocation (mgd)						
3	From Existing Sources	1.660	1.500	1.300	1.000	0.800	0.500
4	SJR - Yankee Lake Project	0.000	1.750	2.000	2.300	2.500	3.000
5	SJR - SR 44 Project	0.000	0.000	0.000	0.000	0.000	0.000
6	SJR - SR 46 Project	0.000	0.000	0.000	0.000	0.000	0.000
7	Coquina Coast Desalination Project	0.000	0.000	0.000	0.000	0.000	0.000
8	**Total Water Capacity Allocation - (mgd)**	1.660	3.250	3.300	3.300	3.300	3.500
9	**Total Water Production - All Sources (mgd)**	1.428	1.545	1.706	1.930	2.184	2.470
	Input Annual Production Growth Rate	N/A					
10	Annual Production Growth Rate (Percentage)		2.00%	2.50%	2.50%	2.50%	2.50%
11	Level of Service Factor (GPD per ERU)	300.00	300.00	300.00	300.00	300.00	300.00
12	Projected Number of ERUs Served	4,759	5,151	5,686	6,433	7,278	8,235
	Annual Inflation Factor Capital Cost	N/A					
13		N/A	3.00%	3.00%	3.00%	3.00%	3.00%

[(a)] *From General Input Sheet of city of Orange City Rate Impact Model.*

A graph of the total water capacity and total water production for the city of Orange City is provided in Figure 6-1.

The anticipated cost to operate the water utilities in the base year for the city of Orange City is provided in Table 6.2. These costs are the revenue requirements in 2009 and include the cost of water production, distribution, billing, administration, debt service, renewal and replacement and other transfers allocated to and from the Water System. These data are from Schedule 6 of the "Orange City Fiscal Year 2005/06 Water and Wastewater Revenue Sufficiency Analysis" prepared by Tetra Tech HAI, dated June 2006. Also included in Table 6.2 are the expected annual inflation rates of the annual operating costs and of the other revenue requirements.

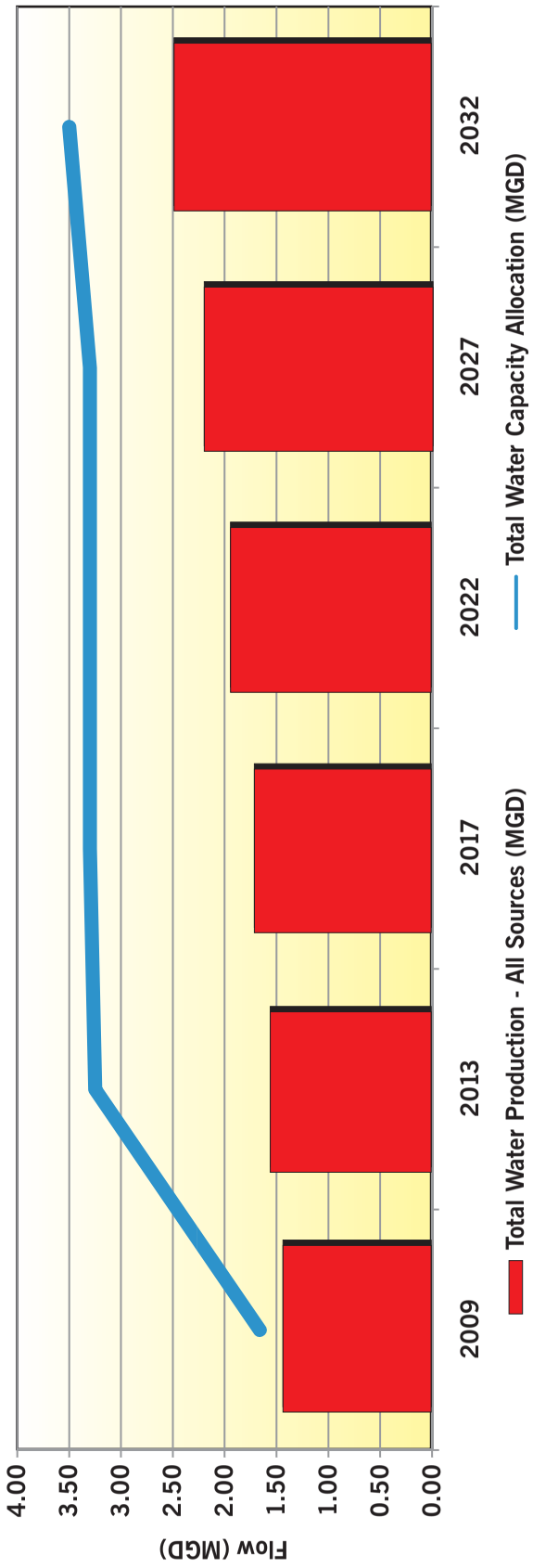

Figure 6-1
City of Orange City
Total Water Capacity and Production (MGD)

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Table 6.2
Anticipated Water Utility Cost in Base Year (Water Revenue Requirements)
City of Orange City

Row No.	Cost Item	Included in Cost Item	Cost in Base Year
14	Fixed O&M Cost	Personnel and administration costs	$902,000
15	Variable O&M Cost	Purchased water, power, chemicals and other costs that change with the amount of water produced	$82,300
16	Other Revenue Requirements	Debt service, R&R, General Fund, PILOT Transfers, and all other costs	$1,188,800
17	Total Cost in Base Year		$2,173,100
	Operating Cost Escalation Factors, Annual Inflation Factor:		
18	Fixed and Variable O&M	May Change Every Five Years	3%
19	Other Rev. Requirements	May Change Every Five Years	1%

The city of Orange City's water rate structure and average monthly water use by customer type in the base year, 2009, are provided in Table 6.3. The monthly average usage per customer was derived from Schedule 1 of the "Orange City Fiscal Year 2005/06 Water and Wastewater Revenue Sufficiency Analysis" prepared by Tetra Tech HAI, dated June 2006. The current rates are based on schedules as provided by the City. The average monthly water bill for each customer type is provided in Table 6.4.

Table 6.3
Water System Rate Structure in Base Year, City of Orange City

Row No.	Item	Single-Family 5/8" or 3/4" Meter		Multi-Family 5/8" or 3/4" Meter		General or Commercial 5/8" or 3/4" Meter	
20	Monthly Average Usage per Customer (Gallons)	6,000		6,000		10,000	
21	Administrative Charge	$0.0		$0.0		$0.0	
22	Base (Availability) Charge	$8.29		$8.29		$8.29	
23	Gallons Provided Under Base Charge	0.0		0.0		0.0	
	Block, 1,000 Gallons [(a)]	**Usage Charge**	**Upper Limit**	**Usage Charge**	**Upper Limit**	**Usage Charge**	**Upper Limit**
24	Block 1 (0 - 10)	$2.560	7.0	$2.560	7.0	$3.340	7.0
25	Block 2 (10 -15)	$3.340	12.0	$3.340	12.0	$3.630	12.0
26	Block 3 (> 15)	$3.630		$3.630		$3.930	
27	Block 1 (0 - 7)	$0.000		$0.000		$0.000	
28	Block 2 (7 -12)	$0.000		$0.000		$0.000	
29	Block 3 (> 12)	$0.000		$0.000		$0.000	

[(a)] *All values are in 1,000 gallons or per 1,000 gallons. For example, if the first block is 0-7,000 gallons, user will input 7 as the upper limit for block 1; if the second block is 7,000-14,000 gallons, user will input 14 as the upper limit for block 2, etc. Usage charge is in 1,000 gallons. These rates were in effect as of September 2008 and are exclusive of taxes or franchise fees.*

Table 6.4
Average Monthly Water Bill in Base Year
By Customer Type, City of Orange City, Florida

Row No.	Customer Type	Average Gallons per Month	Water Bill, monthly
30	Single-Family	6,000	$23.65
31	Multi-Family	6,000	$23.65
32	Commercial	10,000	$42.56

The results of the analysis of alternative water supply costs on water production, water costs, water rates and water bills are provided in Tables 6.5 through 6.8 for the city of Orange City where the SJR at Yankee Lake is the alternative water source and no outside funding is provided. The water source allocation over the next 25 years is provided in Table 6.5. The annual revenue requirements which are the water supply costs to be recovered from water rates in 2008 (current) dollars over the next 25 years in provided in Table 6.6. These are one year snapshots in the years 2009 (base year), 2013, 2017, 2022, 2027 and 2032.

The impacts of the SJR at Yankee Lake project on monthly revenue requirements per equivalent residential unit (ERU) in 2008 dollars are provided in Table 6.7. The percent changes in these values over time relative to the base year (2009) indicates the percentage increase in the water rates that would be necessary to recover the costs associated with the SJR at Yankee Lake project. For the city of Orange City, the water rates in 2013 would need to increase by 60 percent of the base year water rates in order to pay for the SJR at Yankee Lake project. By 2032, the water rates would need to be 55 percent higher than in the base year.

The bottom part of Table 6.7 presents the average monthly water bill of single-family, multi-family and commercial water customers over the next 25 years if the water rates are increased to pay for the alternative water source project. The difference in the water bills between the year in question and the base year (2009) is the impact of the SJR at Yankee Lake project on monthly water bills. The difference is in 2008 dollars. The average single-family monthly water bill is expected to be $14 per month higher in 2013 due to the cost of the SJR at Yankee Lake project ($38 minus $24). By 2017, the monthly water bill will be $15 higher ($39 minus $24). By 2032, the monthly water will bill be $13 higher ($37 minus $24). These values reflect the relative prices and incomes that exist in 2008 and facilitate perceptions regarding the magnitude of the water rate increase.

The revenue requirements per ERU and the monthly water bill will fall over time if more of the available water capacity is being sold. The fixed cost of the water capacity allocations are paid for by the utility in the years that the capacity is assigned to the utility. The average monthly water bill is minimized if the excess water capacity is kept to a minimum.

The impacts of the SJR at Yankee Lake project on monthly revenue requirements per ERU in inflation-included (nominal) dollars are provided in Table 6.8. The percent change in these values relative to the base year value over time indicates the percentage increase in the water rates, in inflation-included dollars, that would be necessary to recover the costs associated with the SJR at Yankee Lake project. The bottom part of Table 6.8 presents the average monthly water bill of single-family, multi-family and commercial customers, in inflation-included dollars, over the next 25 years if the water rates are increased to pay for the alternative water source project. The difference in the water bills between the year in question and the base year (2009) is the impact of the SJR at Yankee Lake project on water bills in inflation-included dollars.

Table 6.5
City of Orange City
Water Source Allocation: Capacity and Production - St. Johns River at Yankee Lake

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Total Water Capacity - All Sources (mgd)	1.66	3.25	3.30	3.30	3.30	3.50
Total Water Production - All Sources (mgd)	1.43	1.55	1.71	1.93	2.18	2.47
Projected No. of ERUs Served	4,759	5,151	5,686	6,433	7,278	8,235
Water Production Allocation (mgd)						
From Existing Sources	1.43	1.50	1.30	1.00	0.80	0.50
SJR - Yankee Lake Project	0.00	0.05	0.41	0.93	1.38	1.97
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	**1.43**	**1.55**	**1.71**	**1.93**	**2.18**	**2.47**

Table 6.6
City of Orange City
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at Yankee Lake - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Existing Water Source						
Fixed O&M Cost	$902,000	$902,000	$902,000	$902,000	$902,000	$902,000
Variable O&M Cost	$82,300	$86,471	$74,942	$57,647	$46,118	$28,824
Other Revenue Requirements	$1,188,800	$1,237,070	$1,237,070	$1,249,441	$1,249,441	$1,249,441
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$2,173,100	$2,225,541	$2,214,012	$2,209,088	$2,197,559	$2,180,264
SJR - Yankee Lake Project	$0	$1,544,823	$2,081,869	$2,555,932	$3,047,047	$3,630,513
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$2,173,100**	**$3,770,364**	**$4,295,880**	**$4,765,020**	**$5,244,605**	**$5,810,777**

Table 6.7
City of Orange City Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
St. Johns River at Yankee Lake - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) to Support Utility System, Existing Water Source and Alternative Water Supply Development						
Value	$38	$61	$63	$62	$60	$59
% Change Relative to Base Year		**60%**	**65%**	**62%**	**58%**	**55%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$24	$38	$39	$38	$37	$37
Multi-Family (4,000 gal.)	$24	$38	$39	$38	$37	$37
Commercial (9,000 gal.)	$43	$68	$70	$69	$67	$66

Table 6.8
City of Orange City Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at Yankee Lake - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) to Support Utility System, Existing Water Source and Alternative Water Supply Development						
Value	$38	$72	$80	$88	$97	$107
Base Year Value with Inflation	$38	$41	$44	$49	$53	$59
Change Relative to Base Year		**$31**	**$36**	**$39**	**$43**	**$48**
% Change Relative to Base Year		**75%**	**81%**	**80%**	**81%**	**82%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$24	$45	$50	$54	$60	$66
Multi-Family (4,000 gal.)	$24	$45	$50	$54	$60	$66
Commercial (9,000 gal.)	$43	$80	$90	$98	$108	$119

A graph of the monthly water bill of single-family customers at their average monthly water use in the base year and through 2032 is provided in Figure 6-2 in 2008 dollars and in nominal (inflation included) dollars. These water bills are influenced by the costs, capacity allocations, water demands, and customer water use data used to produce these impacts.

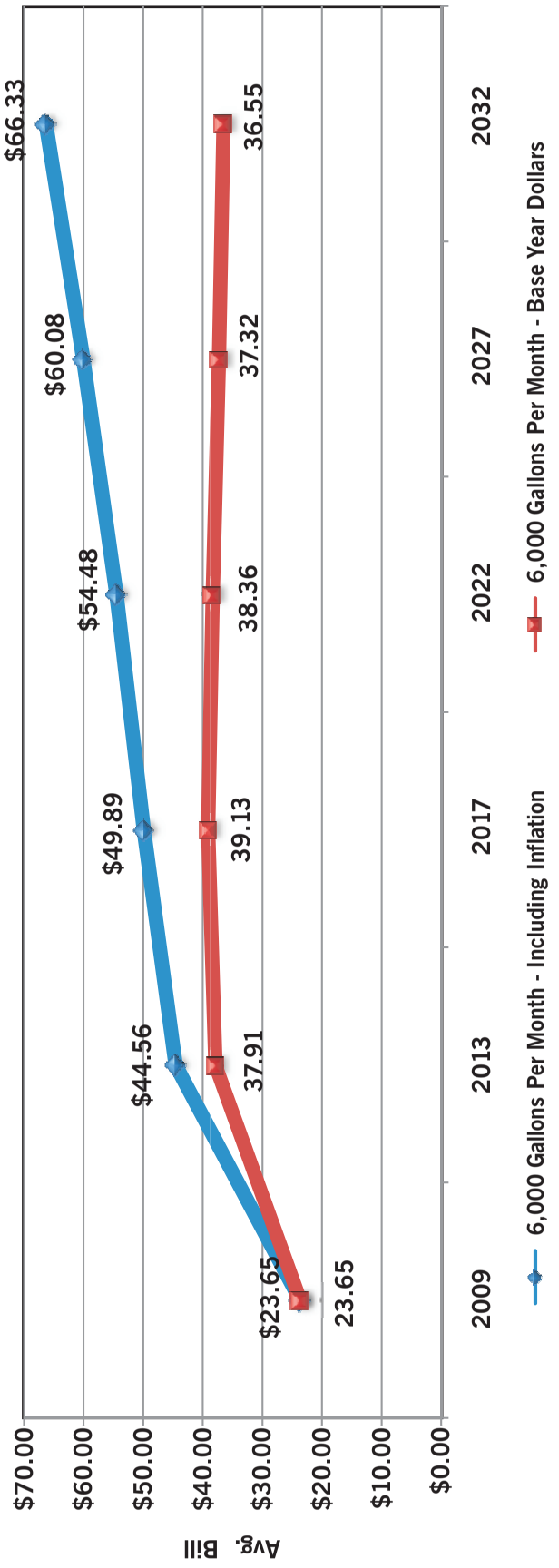

Figure 6-2
City of Orange City
Single-Family Residential (5/8"-Inch) Monthly Water Bill with AWS

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The rate impacts of other scenarios where the District or other outside entity funds 20 percent and 40 percent of the SJR at Yankee Lake project is provided in Appendix C. In addition, the rate impacts of the other three alternative water sources where no outside funding is provided are included in Appendix C. For each scenario, the types of information that is found in Tables 6.5 through 6.8 are provided. A summary of the results of these scenarios is provided in Table 6.9.

Table 6.9
City of Orange City
Impact of Alternative Water Sources on the
Average Monthly Single Family Water Bill, 2008 Dollars

	No AWS	Alternative Water Supply Cost Included				
	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Scenario	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
St. Johns River at Yankee Lake						
No outside funding	$24	$38	$39	$38	$37	$37
Outside funding provides 20% of capital cost	$24	$36	$37	$36	$35	$35
Outside funding provides 40% of capital cost	$24	$33	$34	$34	$33	$33
Other Alternative Water Supplies, No Outside Funding						
St. Johns River at SR 44	$24	$44	$42	$39	$36	$34
St. Johns River at SR 46	$24	$48	$45	$42	$38	$37
Coquina Coast Desalination Project	$24	$75	$71	$66	$61	$58

7.0 Inputs and Results for Volusia County

The section describes the data inputs and model results for Volusia County. The tables are similar to those tables provided in the Excel model. The table cells that are highlighted in blue are the data entry cells.

The base year and the forecasted finished (after treatment) water capacity allocation, total water production, number of ERUs and the annual capital cost inflation factor for Volusia County are provided in Table 7.1. The sources of these data are provided as follows.

1. Finished water capacity allocation – The 2009 water allocation from existing sources (Floridan aquifer) that was used in this analysis is 6.4 mgd in 2009. The allocation is reduced each year until it reaches 2.0 mgd in 2022. This scenario follows the information provided by the County. Additional water supply to meet needed water production is from the SJR at Yankee Lake project.

2. Base year water production – This value, 4.107 mgd, was provided by the County.

3. Water production growth rate – This annual growth rate was derived from the current water demand, 4.1 mgd, and the estimated Fiscal Year 2030 water demand, 6.5 mgd, provided by the County. This annual growth rate is 2.12 percent per year. However, based on growth expectations over the planning period, 2.0 percent was used for the first five years and 2.5 percent was used thereafter.

4. Current and projected number of ERUs – These values are calculated by the model and are equal to total water production in gallons per day divided by the 300 gallons per day per ERU (as defined by the City).

5. Annual inflation of capital costs – The 3.0 percent per year was based on the Consumer Price Index and the Implicit GDP Deflator forecast prepared by the Congressional Budget Office as contained in The Economic and Budget Outlook dated January 2008 as adjusted to provide for a contingency factor.

This information was entered into the spreadsheet called General Input Sheet, rows 3 through 13.

Table 7.1
Base Year and Forecasts of Finished Water Capacity Allocation and Total Water Production
Volusia County, Florida[a]

Row No.	Item	Fiscal Year Ending September 30, Base Year 2009 Phase 0	Year 1 2013 Phase I	Year 5 2017 Phase II	Year 10 2022 Phase III	Year 20 2027 Phase IV	Year 25 2032 Phase V
	Finished Water Capacity Allocation (mgd)						
3	From Existing Sources	6.400	2.500	2.500	2.000	2.000	2.000
4	SJR - Yankee Lake Project	0.000	4.000	4.900	5.800	6.600	7.500
5	SJR - SR 44 Project	0.000	0.000	0.000	0.000	0.000	0.000
6	SJR - SR 46 Project	0.000	0.000	0.000	0.000	0.000	0.000
7	Coquina Coast Desalination Project	0.000	0.000	0.000	0.000	0.000	0.000
8	**Total Water Capacity Allocation - (mgd)**	6.400	6.500	7.400	7.800	8.600	9.500
9	**Total Water Production - All Sources (mgd)**	4.107	4.446	4.907	5.552	6.281	7.107
	Input Annual Production Growth Rate	N/A					
10	Annual Production Growth Rate (Percentage)		2.00%	2.50%	2.50%	2.50%	2.50%
11	Level of Service Factor (GPD per ERU)	300.00	300.00	300.00	300.00	300.00	300.00
12	Projected Number of ERUs Served	13,690	14,818	16,357	18,506	20,938	23,690
	Annual Inflation Factor Capital Cost	N/A					
13		N/A	3.00%	3.00%	3.00%	3.00%	3.00%

[a] *From General Input Sheet of Volusia County Rate Impact Model.*

A graph of the total water capacity and total water production for Volusia County is provided in Figure 7-1.

The anticipated cost to operate the water utilities in the base year for Volusia County is provided in Table 7.2. These costs are the revenue requirements in 2009 and include the cost of water production, distribution, billing, administration, debt service, renewal and replacement and other transfers allocated to and from the Water System. These data were compiled from information in Tables 10, 11, and 12 of the "2005 Water and Wastewater System Financial Forecast Update" prepared by PRMG, dated October 2005 and information in the County's Operating Budget FY2008-2009. Also included in Table 7.2 are the expected annual inflation rates of the annual operating costs and of the other revenue requirements.

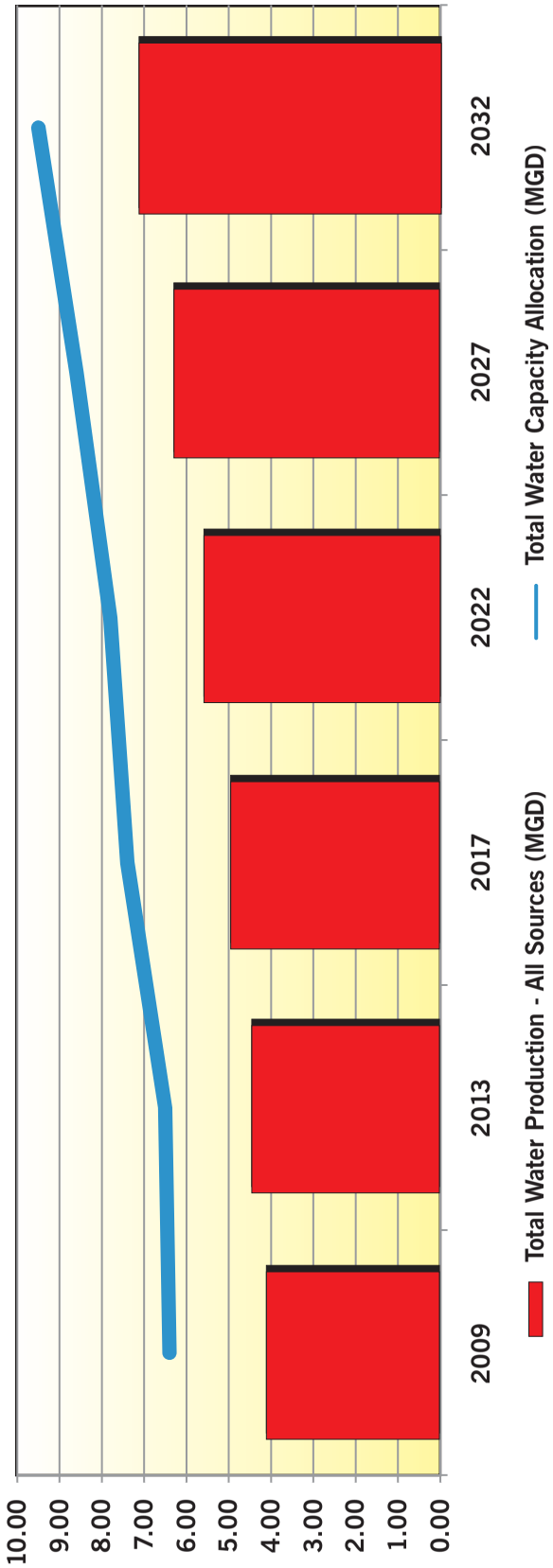

Figure 7-1
Volusia County
Total Water Capacity and Production (MGD)

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Table 7.2
Anticipated Water Utility Cost in Base Year (Water Revenue Requirements)
Volusia County

Row No.	Cost Item	Included in Cost Item	Cost in Base Year
14	Fixed O&M Cost	Personnel and administration costs	$2,475,077
15	Variable O&M Cost	Purchased water, power, chemicals and other costs that change with the amount of water produced	$933,462
16	Other Revenue Requirements	Debt service, R&R, General Fund, PILOT Transfers, and all other costs	$2,591,462
17	Total Cost in Base Year		$6,000,000
	Operating Cost Escalation Factors, Annual Inflation Factor:		
18	Fixed and Variable O&M	May Change Every Five Years	3%
19	Other Rev. Requirements	May Change Every Five Years	1%

Volusia County's water rate structure and average monthly water use by customer type in the base year, 2009, are provided in Table 7.3. The monthly average usage per customer was derived from Table 18 of the "2005 Water and Wastewater System Financial Forecast Update" prepared by PRMG, dated October 2005. The current rates are based on schedules as provided by the City. The average monthly water bill for each customer type is provided in Table 7.4.

Table 7.3
Water System Rate Structure in Base Year, Volusia County

Row No.	Item	Single-Family 5/8" or 3/4" Meter		Multi-Family 5/8" or 3/4" Meter		General or Commercial 5/8" or 3/4" Meter	
20	Monthly Average Usage per Customer (Gallons)	10,000		3,000		10,000	
21	Administrative Charge	$0.0		$0.0		$0.0	
22	Base (Availability) Charge	$9.80		$9.80		$9.80	
23	Gallons Provided Under Base Charge	0.0		0.0		0.0	
	Block, 1,000 Gallons [(a)]	**Usage Charge**	**Upper Limit**	**Usage Charge**	**Upper Limit**	**Usage Charge**	**Upper Limit**
24	Block 1 (0 - 7)	$1.600	7.0	$1.600	7.0	$1.600	7.0
25	Block 2 (7 -14)	$1.830	14.0	$1.830	14.0	$1.830	14.0
26	Block 3 (14 - 21)	$2.320	21.0	$2.320	21.0	$2.320	21.0
27	Block 4 (> 21)	$4.810		$4.810		$4.810	
28	Block 5 N/A	$0.000		$0.000		$0.000	
29	Block 6 N/A	$0.000		$0.000		$0.000	

[(a)] *All values are in 1,000 gallons or per 1,000 gallons. For example, if the first block is 0-7,000 gallons, user will input 7 as the upper limit for block 1; if the second block is 7,000-14,000 gallons, user will input 14 as the upper limit for block 2, etc. Usage charge is in 1,000 gallons. These rates were in effect as of September 2008 and are exclusive of taxes or franchise fees. These rates reflect the unsoftened water system.*

Table 7.4
Average Monthly Water Bill in Base Year
By Customer Type, Volusia County, Florida

Row No.	Customer Type	Average Gallons per Month	Water Bill, monthly
30	Single-Family	10,000	$ 26.49
31	Multi-Family	3,000	$ 14.60
32	Commercial	10,000	$ 26.49

The results of the analysis of alternative water supply costs on water production, water costs, water rates and water bills are provided in Tables 7.5 through 7.8 for Volusia County where the SJR at Yankee Lake is the alternative water source and no outside funding is provided. The water source allocation over the next 25 years is provided in Table 7.5. The annual revenue requirements which are the water supply costs to be recovered from water rates in 2008 (current) dollars over the next 25 years in provided in Table 7.6. These are one year snapshots in the years 2009 (base year), 2013, 2017, 2022, 2027 and 2032.

The impacts of the SJR at Yankee Lake project on monthly revenue requirements per equivalent residential unit (ERU) in 2008 dollars are provided in Table 7.7. The percent changes in these values over time relative to the base year (2009) indicates the percentage increase in the water rates that would be necessary to recover the costs associated with the SJR at Yankee Lake project. For Volusia County, the water rates in 2013 would need to increase by 67 percent of the base year water rates in order to pay for the SJR at Yankee Lake project. By 2032, the water rates would need to be 46 percent higher than in the base year.

The bottom part of Table 7.7 presents the average monthly water bill of single-family, multi-family and commercial water customers over the next 25 years if the water rates are increased to pay for the alternative water source project. The difference in the water bills between the year in question and the base year (2009) is the impact of the SJR at Yankee Lake project on monthly water bills. The difference is in 2008 dollars. The average single-family monthly water bill is expected to be $18 per month higher in 2013 due to the cost of the SJR at Yankee Lake project ($44 minus $26). By 2017, the monthly water bill will be $19 higher ($45 minus $26). By 2032, the monthly water will bill be $13 higher ($39 minus $26). These values reflect the relative prices and incomes that exist in 2008 and facilitate perceptions regarding the magnitude of the water rate increase.

The revenue requirements per ERU and the monthly water bill will fall over time if more of the available water capacity is being sold. The fixed cost of the water capacity allocations are paid for by the utility in the years that the capacity is assigned to the utility. The average monthly water bill is minimized if the excess water capacity is kept to a minimum.

The impacts of the SJR at Yankee Lake project on monthly revenue requirements per ERU in inflation-included (nominal) dollars are provided in Table 7.8. The percent change in these values relative to the base year value over time indicates the percentage increase in the water rates, in inflation-included dollars, that would be necessary to recover the costs associated with the SJR at Yankee Lake project. The bottom part of Table 7.8 presents the average monthly water bill of single-family, multi-family and commercial customers, in inflation-included dollars, over the next 25 years if the water rates are increased to pay for the alternative water source project. The difference in the water bills between the year in question and the base year (2009) is the impact of the SJR at Yankee Lake project on water bills in inflation-included dollars.

Table 7.5
Volusia County
Water Source Allocation: Capacity and Production - St. Johns River at Yankee Lake

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Total Water Capacity - All Sources (mgd)	6.40	6.50	7.40	7.80	8.60	9.50
Total Water Production - All Sources (mgd)	4.11	4.45	4.91	5.55	6.28	7.11
Projected No. of ERUs Served	13,690	14,818	16,357	18,506	20,938	23,690
Water Production Allocation (mgd)						
From Existing Sources	4.11	2.50	2.50	2.00	2.00	2.00
SJR - Yankee Lake Project	0.00	1.95	2.41	3.55	4.28	5.11
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	**4.11**	**4.45**	**4.91**	**5.55**	**6.28**	**7.11**

Table 7.6
Volusia County
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at Yankee Lake - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Existing Water Source						
Fixed O&M Cost	$2,475,077	$2,475,077	$2,475,077	$2,475,077	$2,475,077	$2,475,077
Variable O&M Cost	$933,462	$568,214	$568,214	$454,571	$454,571	$454,571
Other Revenue Requirements	$2,591,462	$2,696,685	$2,696,685	$2,723,652	$2,723,652	$2,723,652
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$6,000,000	$5,739,976	$5,739,976	$5,653,300	$5,653,300	$5,653,300
SJR - Yankee Lake Project	$0	$5,081,011	$6,330,813	$7,448,642	$8,640,952	$9,526,745
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$6,000,000**	**$10,820,986**	**$12,070,789**	**$13,101,942**	**$14,294,251**	**$15,180,045**

Table 7.7
Volusia County Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
St. Johns River at Yankee Lake - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) to Support Utility System, Existing Water Source and Alternative Water Supply Development						
Value	$37	$61	$61	$59	$57	$53
% Change Relative to Base Year		**67%**	**68%**	**62%**	**56%**	**46%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$26	$44	$45	$43	$41	$39
Multi-Family (4,000 gal.)	$15	$24	$25	$24	$23	$21
Commercial (9,000 gal.)	$26	$44	$45	$43	$41	$39

Table 7.8
Volusia County Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at Yankee Lake - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) to Support Utility System, Existing Water Source and Alternative Water Supply Development						
Value	$37	$72	$79	$84	$91	$96
Base Year Value with Inflation	$37	$40	$43	$48	$53	$59
Change Relative to Base Year		**$32**	**$35**	**$36**	**$37**	**$36**
% Change Relative to Base Year		**82%**	**82%**	**74%**	**70%**	**61%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$26	$52	$57	$61	$66	$69
Multi-Family (4,000 gal.)	$15	$29	$31	$33	$36	$38
Commercial (9,000 gal.)	$26	$52	$57	$61	$66	$69

A graph of the monthly water bill of single-family customers at their average monthly water use in the base year and through 2032 is provided in Figure 7-2 in 2008 dollars and in nominal (inflation included) dollars. These water bills are influenced by the costs, capacity allocations, water demands, and customer water use data used to produce these impacts.

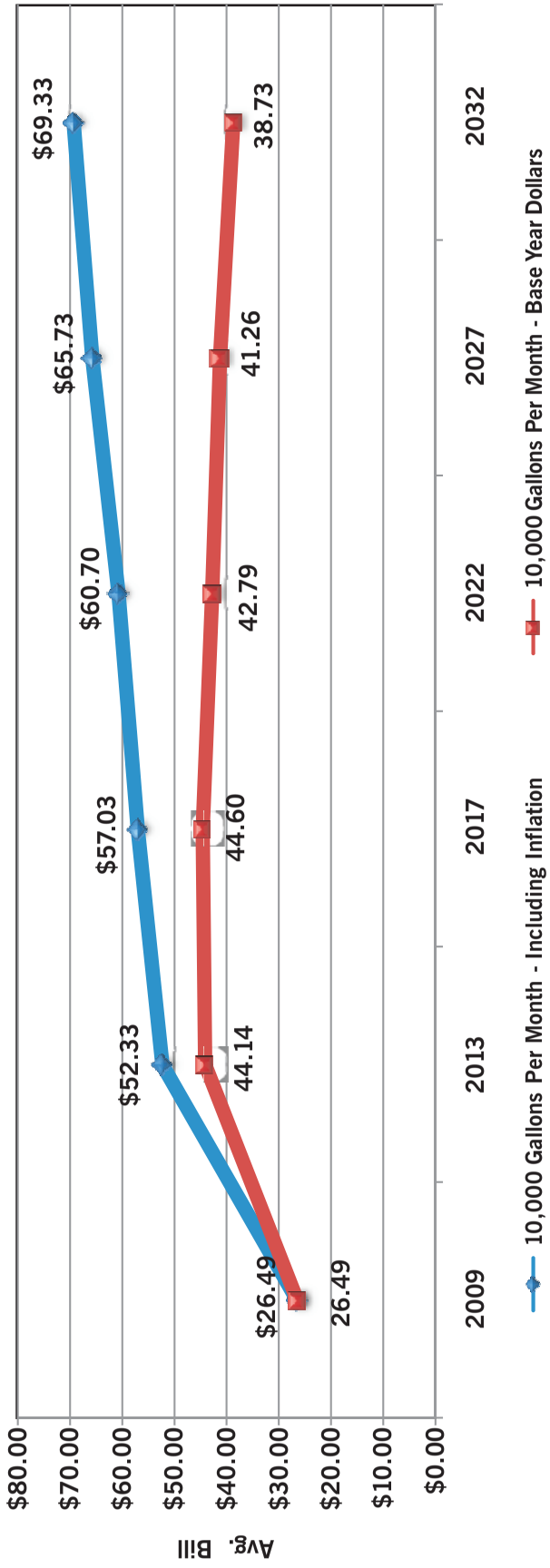

Figure 7-2
Volusia County
Single-Family Residential (5/8"-Inch) Monthly Water Bill with AWS

44229-000TM1.cdr

The rate impacts of other scenarios where the District or other outside entity funds 20 percent and 40 percent of the SJR at Yankee Lake project is provided in Appendix D. In addition, the rate impacts of the other three alternative water sources where no outside funding is provided are included in Appendix D. For each scenario, the types of information that is found in Tables 7.5 through 7.8 are provided. A summary of the results of these scenarios is provided in Table 7.9.

Table 7.9
Volusia County
Impact of Alternative Water Sources on the
Average Monthly Single Family Water Bill, 2008 Dollars

	No AWS	Alternative Water Supply Cost Included				
	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Scenario	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
St. Johns River at Yankee Lake						
No outside funding	$26	$44	$45	$43	$41	$39
Outside funding provides 20% of capital cost	$26	$42	$42	$40	$39	$37
Outside funding provides 40% of capital cost	$26	$40	$39	$38	$37	$34
Other Alternative Water Supplies, No Outside Funding						
St. Johns River at SR 44	$26	$48	$46	$43	$40	$37
St. Johns River at SR 46	$26	$48	$46	$43	$40	$37
Coquina Coast Desalination Project	$26	$87	$83	$77	$71	$66

c: File No. 44229-000

Appendix A-1

City of Deland

St. Johns River at Yankee Lake

With 20 percent of the capital cost funded from outside entities

Table A-1
City of Deland
Water Source Allocation: Capacity and Production - St. Johns River at Yankee Lake

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	6.40	7.40	8.20	8.80	9.40	10.40
Total Water Production - All Sources, MGD	6.40	6.95	7.56	8.39	9.30	10.32
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	6.40	3.30	3.30	2.00	1.40	1.40
SJR - Yankee Lake Project	0.00	3.65	4.26	6.39	7.90	8.92
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.40	6.95	7.56	8.39	9.30	10.32

Table A-2
City of Deland
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at Yankee Lake and 20 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$4,140,500	$4,140,500	$4,140,500	$4,140,500	$4,140,500	$4,140,500
Variable O&M Cost	$543,400	$280,191	$280,191	$169,813	$118,869	$118,869
Other Revenue Requirements	$2,387,500	$2,484,442	$2,484,442	$2,509,286	$2,509,286	$2,509,286
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$7,071,400	$6,905,133	$6,905,133	$6,819,599	$6,768,655	$6,768,655
SJR - Yankee Lake Project	$0	$5,893,916	$7,227,585	$9,338,234	$11,279,909	$12,314,689
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$7,071,400**	**$12,799,048**	**$14,132,718**	**$16,157,833**	**$18,048,564**	**$19,083,344**

Table A-3
City of Deland
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (No inflation)
St. Johns River at Yankee Lake and 20 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Water Source and Alternative Water Supply Development						
Value	$28	$46	$47	$48	$48	$46
% Change Relative to Base Year		**67%**	**69%**	**74%**	**76%**	**67%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$21	$35	$36	$37	$37	$35
Multi-Family (4,000 gal.)	$14	$24	$24	$25	$25	$24
Commercial (9,000 gal.)	$24	$39	$40	$41	$41	$39

Table A-4
City of Deland
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at Yankee Lake and 20 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Water Source and Alternative Water Supply Development						
Value	$28	$55	$61	$70	$79	$86
Base Year Value with Inflation	$28	$30	$33	$37	$42	$47
Change Relative to Base Year		**$25**	**$28**	**$33**	**$38**	**$39**
% Change Relative to Base Year		**83%**	**85%**	**87%**	**90%**	**83%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$21	$42	$47	$54	$61	$66
Multi-Family (4,000 gal.)	$14	$28	$31	$36	$41	$44
Commercial (9,000 gal.)	$24	$47	$52	$59	$68	$73

Appendix A-2

City of Deland

St. Johns River at Yankee Lake

With 40 percent of the capital cost funded from outside entities

Table A-5
City of Deland
Water Source Allocation: Capacity and Production - St. Johns River at Yankee Lake

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	6.40	7.40	8.20	8.80	9.40	10.40
Total Water Production - All Sources, MGD	6.40	6.95	7.56	8.39	9.30	10.32
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	6.40	3.30	3.30	2.00	1.40	1.40
SJR - Yankee Lake Project	0.00	3.65	4.26	6.39	7.90	8.92
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.40	6.95	7.56	8.39	9.30	10.32

Table A-6
City of Deland
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at Yankee Lake and 40 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$4,140,500	$4,140,500	$4,140,500	$4,140,500	$4,140,500	$4,140,500
Variable O&M Cost	$543,400	$280,191	$280,191	$169,813	$118,869	$118,869
Other Revenue Requirements	$2,387,500	$2,484,442	$2,484,442	$2,509,286	$2,509,286	$2,509,286
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$7,071,400	$6,905,133	$6,905,133	$6,819,599	$6,768,655	$6,768,655
SJR - Yankee Lake Project	$0	$5,298,974	$6,451,028	$8,518,351	$10,311,549	$11,324,572
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$7,071,400**	**$12,204,107**	**$13,356,161**	**$15,337,950**	**$17,080,204**	**$18,093,227**

Table A-7
City of Deland
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (No inflation)
St. Johns River at Yankee Lake and 40 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Water Source and Alternative Water Supply Development						
Value	$28	$44	$44	$46	$46	$44
% Change Relative to Base Year		**59%**	**60%**	**66%**	**66%**	**59%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$21	$34	$34	$35	$35	$34
Multi-Family (4,000 gal.)	$14	$22	$23	$23	$23	$22
Commercial (9,000 gal.)	$24	$37	$38	$39	$39	$37

Table A-8
City of Deland
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at Yankee Lake and 40 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Water Source and Alternative Water Supply Development						
Value	$28	$53	$58	$67	$76	$82
Base Year Value with Inflation	$28	$30	$33	$37	$42	$47
Change Relative to Base Year		**$23**	**$25**	**$30**	**$34**	**$36**
% Change Relative to Base Year		**75%**	**76%**	**80%**	**82%**	**76%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$21	$41	$45	$51	$58	$63
Multi-Family (4,000 gal.)	$14	$27	$30	$34	$39	$42
Commercial (9,000 gal.)	$24	$45	$50	$57	$65	$70

Appendix A-3

City of Deland

St. Johns River at SR 44 Water Supply Project

With no outside funding

Table A-9
City of Deland
Water Source Allocation: Capacity and Production - St. Johns River at SR 44

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	6.40	7.40	8.20	8.80	9.40	10.40
Total Water Production - All Sources, MGD	6.40	6.95	7.56	8.39	9.30	10.32
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	6.40	3.30	3.30	2.00	1.40	1.40
SJR - Yankee Lake Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 44 Project	0.00	3.65	4.26	6.39	7.90	8.92
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.40	6.95	7.56	8.39	9.30	10.32

Table A-10
City of Deland
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at SR44 and No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$4,140,500	$4,140,500	$4,140,500	$4,140,500	$4,140,500	$4,140,500
Variable O&M Cost	$543,400	$280,191	$280,191	$169,813	$118,869	$118,869
Other Revenue Requirements	$2,387,500	$2,484,442	$2,484,442	$2,509,286	$2,509,286	$2,509,286
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$7,071,400	$6,905,133	$6,905,133	$6,819,599	$6,768,655	$6,768,655
SJR - Yankee Lake Project	$0	$0	$0	$0	$0	$0
SJR - SR 44 Project	$0	$5,641,150	$6,251,257	$7,841,630	$8,881,525	$9,698,038
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$7,071,400**	**$12,546,283**	**$13,156,390**	**$14,661,229**	**$15,650,180**	**$16,466,693**

Table A-11
City of Deland
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (No inflation)
St. Johns River at SR44 and No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$28	$45	$44	$44	$42	$40
% Change Relative to Base Year		**63%**	**58%**	**58%**	**52%**	**44%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$21	$35	$33	$34	$32	$31
Multi-Family (4,000 gal.)	$14	$23	$22	$22	$21	$20
Commercial (9,000 gal.)	$24	$38	$37	$37	$36	$34

Table A-12
City of Deland
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at SR44 and No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$28	$60	$62	$66	$69	$73
Base Year Value with Inflation	$28	$30	$33	$37	$42	$47
Change Relative to Base Year		**$30**	**$29**	**$28**	**$28**	**$26**
% Change Relative to Base Year		**99%**	**87%**	**76%**	**66%**	**56%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$21	$46	$48	$50	$53	$56
Multi-Family (4,000 gal.)	$14	$31	$32	$34	$35	$37
Commercial (9,000 gal.)	$24	$51	$53	$56	$59	$62

Appendix A-4

City of Deland

St. Johns River at SR 46 Water Supply Project

With no outside funding

Table A-13
City of Deland
Water Source Allocation: Capacity and Production - St. Johns River at SR 46

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	6.40	7.40	8.20	8.80	9.40	10.40
Total Water Production - All Sources, MGD	6.40	6.95	7.56	8.39	9.30	10.32
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	6.40	3.30	3.30	2.00	1.40	1.40
SJR - Yankee Lake Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	3.65	4.26	6.39	7.90	8.92
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	6.40	6.95	7.56	8.39	9.30	10.32

Table A-14
City of Deland
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at SR46 and No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$4,140,500	$4,140,500	$4,140,500	$4,140,500	$4,140,500	$4,140,500
Variable O&M Cost	$543,400	$280,191	$280,191	$169,813	$118,869	$118,869
Other Revenue Requirements	$2,387,500	$2,484,442	$2,484,442	$2,509,286	$2,509,286	$2,509,286
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$7,071,400	$6,905,133	$6,905,133	$6,819,599	$6,768,655	$6,768,655
SJR - Yankee Lake Project	$0	$0	$0	$0	$0	$0
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$6,438,298	$7,050,798	$8,647,409	$9,691,382	$10,511,097
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$7,071,400**	**$13,343,430**	**$13,955,931**	**$15,467,008**	**$16,460,037**	**$17,279,752**

Table A-15
City of Deland
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (No inflation)
St. Johns River at SR46 and No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$28	$48	$46	$46	$44	$42
% Change Relative to Base Year		**74%**	**67%**	**67%**	**60%**	**52%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$21	$37	$35	$35	$34	$32
Multi-Family (4,000 gal.)	$14	$25	$24	$24	$23	$21
Commercial (9,000 gal.)	$24	$41	$39	$39	$38	$36

Table A-16
City of Deland
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at SR46 and No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$28	$64	$65	$68	$72	$75
Base Year Value with Inflation	$28	$30	$33	$37	$42	$47
Change Relative to Base Year		**$33**	**$32**	**$31**	**$30**	**$28**
% Change Relative to Base Year		**110%**	**96%**	**84%**	**72%**	**61%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$21	$49	$50	$53	$55	$58
Multi-Family (4,000 gal.)	$14	$33	$33	$35	$37	$38
Commercial (9,000 gal.)	$24	$54	$56	$58	$61	$64

Appendix A-5

City of Deland

Coquina Coast Desalination Project

With no outside funding

Table A-17
City of Deland
Water Source Allocation: Capacity and Production - Coquina Coast Desalination Project

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	6.40	7.40	8.20	8.80	9.40	10.40
Total Water Production - All Sources, MGD	6.40	6.95	7.56	8.39	9.30	10.32
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	6.40	3.30	3.30	2.00	1.40	1.40
SJR - Yankee Lake Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	3.65	4.26	6.39	7.90	8.92
Total	6.40	6.95	7.56	8.39	9.30	10.32

Table A-18
City of Deland
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
Coquina Coast Desalination Project and No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$4,140,500	$4,140,500	$4,140,500	$4,140,500	$4,140,500	$4,140,500
Variable O&M Cost	$543,400	$280,191	$280,191	$169,813	$118,869	$118,869
Other Revenue Requirements	$2,387,500	$2,484,442	$2,484,442	$2,509,286	$2,509,286	$2,509,286
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$7,071,400	$6,905,133	$6,905,133	$6,819,599	$6,768,655	$6,768,655
SJR - Yankee Lake Project	$0	$0	$0	$0	$0	$0
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$13,669,558	$14,714,680	$17,290,039	$18,939,950	$20,281,871
Total Water System	**$7,071,400**	**$20,574,691**	**$21,619,813**	**$24,109,638**	**$25,708,605**	**$27,050,526**

Table A-19
City of Deland
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (No inflation)
Coquina Coast Desalination Project and No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$28	$74	$72	$72	$69	$66
% Change Relative to Base Year		**168%**	**159%**	**160%**	**150%**	**137%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$21	$57	$55	$55	$53	$50
Multi-Family (4,000 gal.)	$14	$38	$37	$37	$35	$33
Commercial (9,000 gal.)	$24	$63	$61	$61	$59	$56

Table A-20
City of Deland
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
Coquina Coast Desalination Project and No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$28	$102	$103	$104	$106	$109
Base Year Value with Inflation	$28	$30	$33	$37	$42	$47
Change Relative to Base Year		**$72**	**$69**	**$67**	**$64**	**$62**
% Change Relative to Base Year		**238%**	**209%**	**180%**	**154%**	**132%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$21	$79	$79	$80	$82	$83
Multi-Family (4,000 gal.)	$14	$52	$52	$53	$54	$56
Commercial (9,000 gal.)	$24	$87	$87	$89	$91	$93

Appendix B-1

City of Deltona

St. Johns River at Yankee Lake

With 20 percent of the capital cost funded from outside entities

Table B-1
City of Deltona

Water Source Allocation: Capacity and Production - St. Johns River at Yankee Lake						
Description	**Base Year**	**Year 1**	**Year 5**	**Year 10**	**Year 20**	**Year 25**
	2009	**2013**	**2017**	**2022**	**2027**	**2032**
Total Water Capacity - All Sources (MGD)	13.96	15.00	15.00	17.50	20.00	20.00
Total Water Production - All Sources, MGD	11.63	13.29	14.39	15.89	17.54	19.37
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	11.63	10.00	10.00	7.50	5.00	2.50
SJR - Yankee Lake Project	0.00	3.29	4.39	8.39	12.54	16.87
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	11.63	13.29	14.39	15.89	17.54	19.37

Table B-2
City of Deltona
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at Yankee Lake - 20 Percent Outside Funding

	Base Year	**Year 1**	**Year 5**	**Year 10**	**Year 20**	**Year 25**
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Existing Water Source						
Fixed O&M Cost	$2,932,020	$2,932,020	$2,932,020	$2,932,020	$2,932,020	$2,932,020
Variable O&M Cost	$1,596,319	$1,372,732	$1,372,732	$1,029,549	$686,366	$343,183
Other Revenue Requirements	$4,543,040	$4,727,506	$4,727,506	$4,774,781	$4,774,781	$4,774,781
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$9,071,378	$9,032,257	$9,032,257	$8,736,349	$8,393,166	$8,049,983
SJR - Yankee Lake Project	$0	$6,509,255	$8,235,807	$12,650,388	$19,194,462	$23,047,353
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$9,071,378**	**$15,541,512**	**$17,268,065**	**$21,386,737**	**$27,587,629**	**$31,097,336**

Table B-3
City of Deltona
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
St. Johns River at Yankee Lake - 20 Percent Outside Funding

	Base Year	**Year 1**	**Year 5**	**Year 10**	**Year 20**	**Year 25**
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$20	$29	$30	$34	$39	$40
% Change Relative to Base Year		**50%**	**54%**	**73%**	**102%**	**106%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$18	$27	$28	$31	$36	$37
Multi-Family (4,000 gal.)	$14	$21	$21	$24	$28	$29
Commercial (9,000 gal.)	$15	$23	$23	$26	$31	$31

Table B-4
City of Deltona
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at Yankee Lake - 20 Percent Outside Funding

	Base Year	**Year 1**	**Year 5**	**Year 10**	**Year 20**	**Year 25**
Description	**2009**	**2013**	**2017**	**2022**	**2027**	**2032**
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$20	$38	$42	$50	$65	$74
Base Year Value with Inflation	$20	$21	$23	$25	$28	$31
Change Relative to Base Year		**$17**	**$19**	**$25**	**$37**	**$44**
% Change Relative to Base Year		**78%**	**85%**	**100%**	**133%**	**142%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$18	$35	$39	$46	$60	$68
Multi-Family (4,000 gal.)	$14	$27	$30	$36	$46	$53
Commercial (9,000 gal.)	$15	$29	$33	$39	$51	$58

Appendix B-2
City of Deltona

St. Johns River at Yankee Lake

With 40 percent of the capital cost funded from outside entities

Table B-5
City of Deltona
Water Source Allocation: Capacity and Production - St. Johns River at Yankee Lake

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	13.96	15.00	15.00	17.50	20.00	20.00
Total Water Production - All Sources, MGD	11.63	13.29	14.39	15.89	17.54	19.37
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	11.63	10.00	10.00	7.50	5.00	2.50
SJR - Yankee Lake Project	0.00	3.29	4.39	8.39	12.54	16.87
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	11.63	13.29	14.39	15.89	17.54	19.37

Table B-6
City of Deltona
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at Yankee Lake - 40 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$2,932,020	$2,932,020	$2,932,020	$2,932,020	$2,932,020	$2,932,020
Variable O&M Cost	$1,596,319	$1,372,732	$1,372,732	$1,029,549	$686,366	$343,183
Other Revenue Requirements	$4,543,040	$4,727,506	$4,727,506	$4,774,781	$4,774,781	$4,774,781
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$9,071,378	$9,032,257	$9,032,257	$8,736,349	$8,393,166	$8,049,983
SJR - Yankee Lake Project	$0	$5,746,163	$7,236,053	$11,536,618	$17,462,039	$21,260,538
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$9,071,378**	**$14,778,421**	**$16,268,310**	**$20,272,968**	**$25,855,206**	**$29,310,521**

Table B-7
City of Deltona
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
St. Johns River at Yankee Lake - 40 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$20	$28	$28	$32	$37	$38
% Change Relative to Base Year		**43%**	**45%**	**64%**	**89%**	**94%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$18	$26	$26	$29	$34	$35
Multi-Family (4,000 gal.)	$14	$20	$20	$23	$26	$27
Commercial (9,000 gal.)	$15	$22	$22	$25	$29	$30

Table B-8
City of Deltona
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at Yankee Lake - 40 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$20	$36	$40	$48	$61	$71
Base Year Value with Inflation	$20	$21	$23	$25	$28	$31
Change Relative to Base Year		**$15**	**$17**	**$23**	**$34**	**$41**
% Change Relative to Base Year		**71%**	**76%**	**92%**	**120%**	**132%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$18	$33	$37	$44	$56	$65
Multi-Family (4,000 gal.)	$14	$26	$29	$34	$44	$51
Commercial (9,000 gal.)	$15	$28	$31	$38	$48	$56

Appendix B-3

City of Deltona

St. Johns River at SR 44 Water Supply Project

With no outside funding

Table B-9
City of Deltona
Water Source Allocation: Capacity and Production - St. Johns River at SR 44

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	13.96	15.00	15.00	17.50	20.00	20.00
Total Water Production - All Sources, MGD	11.63	13.29	14.39	15.89	17.54	19.37
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	11.63	10.00	10.00	7.50	5.00	2.50
SJR - Yankee Lake Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 44 Project	0.00	3.29	4.39	8.39	12.54	16.87
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	11.63	13.29	14.39	15.89	17.54	19.37

Table B-10
City of Deltona
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at SR 44 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$2,932,020	$2,932,020	$2,932,020	$2,932,020	$2,932,020	$2,932,020
Variable O&M Cost	$1,596,319	$1,372,732	$1,372,732	$1,029,549	$686,366	$343,183
Other Revenue Requirements	$4,543,040	$4,727,506	$4,727,506	$4,774,781	$4,774,781	$4,774,781
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$9,071,378	$9,032,257	$9,032,257	$8,736,349	$8,393,166	$8,049,983
SJR - Yankee Lake Project	$0	$0	$0	$0	$0	$0
SJR - SR 44 Project	$0	$7,913,390	$8,136,020	$11,995,858	$15,887,365	$18,290,021
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$9,071,378**	**$16,945,648**	**$17,168,278**	**$20,732,208**	**$24,280,531**	**$26,340,004**

Table B-11
City of Deltona
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
St. Johns River at SR 44 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$20	$32	$30	$33	$35	$34
% Change Relative to Base Year		**63%**	**53%**	**67%**	**77%**	**74%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$18	$29	$27	$30	$32	$31
Multi-Family (4,000 gal.)	$14	$23	$21	$23	$25	$24
Commercial (9,000 gal.)	$15	$25	$23	$25	$27	$27

Table B-12
City of Deltona
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at SR 44 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$20	$49	$50	$53	$57	$61
Base Year Value with Inflation	$20	$21	$23	$25	$28	$31
Change Relative to Base Year		**$28**	**$27**	**$28**	**$29**	**$30**
% Change Relative to Base Year		**131%**	**120%**	**111%**	**103%**	**97%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$18	$45	$46	$49	$52	$56
Multi-Family (4,000 gal.)	$14	$35	$36	$38	$40	$43
Commercial (9,000 gal.)	$15	$38	$39	$41	$44	$47

Appendix B-4

City of Deltona

St. Johns River at SR 46 Water Supply Project

With no outside funding

Table B-13
City of Deltona
Water Source Allocation: Capacity and Production - St. Johns River at SR 46

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	13.96	15.00	15.00	17.50	20.00	20.00
Total Water Production - All Sources, MGD	11.63	13.29	14.39	15.89	17.54	19.37
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	11.63	10.00	10.00	7.50	5.00	2.50
SJR - Yankee Lake Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	3.29	4.39	8.39	12.54	16.87
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	11.63	13.29	14.39	15.89	17.54	19.37

Table B-14
City of Deltona
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at SR 46 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$2,932,020	$2,932,020	$2,932,020	$2,932,020	$2,932,020	$2,932,020
Variable O&M Cost	$1,596,319	$1,372,732	$1,372,732	$1,029,549	$686,366	$343,183
Other Revenue Requirements	$4,543,040	$4,727,506	$4,727,506	$4,774,781	$4,774,781	$4,774,781
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$9,071,378	$9,032,257	$9,032,257	$8,736,349	$8,393,166	$8,049,983
SJR - Yankee Lake Project	$0	$0	$0	$0	$0	$0
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$8,590,942	$8,680,343	$12,678,001	$16,688,375	$18,877,040
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$9,071,378**	**$17,623,199**	**$17,712,601**	**$21,414,350**	**$25,081,542**	**$26,927,024**

Table B-15
City of Deltona
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
St. Johns River at SR 46 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$20	$33	$31	$34	$36	$35
% Change Relative to Base Year		**70%**	**58%**	**73%**	**83%**	**78%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$18	$30	$28	$31	$33	$32
Multi-Family (4,000 gal.)	$14	$24	$22	$24	$25	$25
Commercial (9,000 gal.)	$15	$26	$24	$26	$28	$27

Table B-16
City of Deltona
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at SR 46 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$20	$53	$54	$56	$58	$61
Base Year Value with Inflation	$20	$21	$23	$25	$28	$31
Change Relative to Base Year		**$32**	**$31**	**$31**	**$30**	**$30**
% Change Relative to Base Year		**150%**	**137%**	**122%**	**109%**	**98%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$18	$49	$50	$51	$53	$56
Multi-Family (4,000 gal.)	$14	$38	$38	$40	$41	$43
Commercial (9,000 gal.)	$15	$41	$42	$44	$45	$47

Appendix B-5

City of Deltona

Coquina Coast Desalination Project

With no outside funding

Table B-17
City of Deltona
Water Source Allocation: Capacity and Production - Coquina Coast Desalination Project

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	13.96	15.00	15.00	17.50	20.00	20.00
Total Water Production - All Sources, MGD	11.63	13.29	14.39	15.89	17.54	19.37
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	11.63	10.00	10.00	7.50	5.00	2.50
SJR - Yankee Lake Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	3.29	4.39	8.39	12.54	16.87
Total	11.63	13.29	14.39	15.89	17.54	19.37

Table B-18
City of Deltona
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
Coquina Coast Desalination Project - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$2,932,020	$2,932,020	$2,932,020	$2,932,020	$2,932,020	$2,932,020
Variable O&M Cost	$1,596,319	$1,372,732	$1,372,732	$1,029,549	$686,366	$343,183
Other Revenue Requirements	$4,543,040	$4,727,506	$4,727,506	$4,774,781	$4,774,781	$4,774,781
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$9,071,378	$9,032,257	$9,032,257	$8,736,349	$8,393,166	$8,049,983
SJR - Yankee Lake Project	$0	$0	$0	$0	$0	$0
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$19,469,132	$19,615,898	$26,178,672	$32,762,324	$36,355,357
Total Water System	**$9,071,378**	**$28,501,389**	**$28,648,155**	**$34,915,022**	**$41,155,490**	**$44,405,340**

Table B-19
City of Deltona
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
Coquina Coast Desalination Project - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$20	$54	$50	$55	$59	$57
% Change Relative to Base Year		**175%**	**155%**	**182%**	**201%**	**194%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$18	$49	$46	$50	$54	$53
Multi-Family (4,000 gal.)	$14	$38	$35	$39	$42	$41
Commercial (9,000 gal.)	$15	$42	$39	$43	$46	$45

Table B-20
City of Deltona
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
Coquina Coast Desalination Project - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$20	$86	$86	$88	$90	$93
Base Year Value with Inflation	$20	$21	$23	$25	$28	$31
Change Relative to Base Year		**$65**	**$64**	**$63**	**$62**	**$63**
% Change Relative to Base Year		**307%**	**279%**	**249%**	**224%**	**203%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$18	$79	$79	$81	$83	$86
Multi-Family (4,000 gal.)	$14	$61	$62	$63	$64	$66
Commercial (9,000 gal.)	$15	$67	$67	$69	$70	$73

Appendix C-1
City of Orange City

St. Johns River at Yankee Lake

With 20 percent of the capital cost funded from outside entities

Table C-1
City of Orange City
Water Source Allocation: Capacity and Production - St. Johns River at Yankee Lake

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	1.66	3.25	3.30	3.30	3.30	3.50
Total Water Production - All Sources, MGD	1.43	1.55	1.71	1.93	2.18	2.47
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	1.43	1.50	1.30	1.00	0.80	0.50
SJR - Yankee Lake Project	0.00	0.05	0.41	0.93	1.38	1.97
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.43	1.55	1.71	1.93	2.18	2.47

Table C-2
City of Orange City
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at Yankee Lake - 20 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$902,000	$902,000	$902,000	$902,000	$902,000	$902,000
Variable O&M Cost	$82,300	$86,471	$74,942	$57,647	$46,118	$28,824
Other Revenue Requirements	$1,188,800	$1,237,070	$1,237,070	$1,249,441	$1,249,441	$1,249,441
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$2,173,100	$2,225,541	$2,214,012	$2,209,088	$2,197,559	$2,180,264
SJR - Yankee Lake Project	$0	$1,320,239	$1,812,314	$2,279,537	$2,745,905	$3,318,493
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$2,173,100**	**$3,545,780**	**$4,026,326**	**$4,488,625**	**$4,943,464**	**$5,498,757**

Table C-3
City of Orange City
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
St. Johns River at Yankee Lake - 20 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$38	$57	$59	$58	$57	$56
% Change Relative to Base Year		**51%**	**55%**	**53%**	**49%**	**46%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$24	$36	$37	$36	$35	$35
Multi-Family (4,000 gal.)	$24	$36	$37	$36	$35	$35
Commercial (9,000 gal.)	$43	$64	$66	$65	$63	$62

Table C-4
City of Orange City
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at Yankee Lake - 20 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$38	$68	$76	$84	$93	$103
Base Year Value with Inflation	$38	$41	$44	$49	$53	$59
Change Relative to Base Year		**$27**	**$31**	**$35**	**$39**	**$44**
% Change Relative to Base Year		**65%**	**71%**	**72%**	**73%**	**75%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$24	$42	$47	$52	$58	$64
Multi-Family (4,000 gal.)	$24	$42	$47	$52	$58	$64
Commercial (9,000 gal.)	$43	$76	$85	$93	$103	$115

Appendix C-2
City of Orange City

St. Johns River at Yankee Lake

With 40 percent of the capital cost funded from outside entities

Table C-5
City of Orange City
Water Source Allocation: Capacity and Production - St. Johns River at Yankee Lake

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	1.66	3.25	3.30	3.30	3.30	3.50
Total Water Production - All Sources, MGD	1.43	1.55	1.71	1.93	2.18	2.47
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	1.43	1.50	1.30	1.00	0.80	0.50
SJR - Yankee Lake Project	0.00	0.05	0.41	0.93	1.38	1.97
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.43	1.55	1.71	1.93	2.18	2.47

Table C-6
City of Orange City
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at Yankee Lake - 40 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$902,000	$902,000	$902,000	$902,000	$902,000	$902,000
Variable O&M Cost	$82,300	$86,471	$74,942	$57,647	$46,118	$28,824
Other Revenue Requirements	$1,188,800	$1,237,070	$1,237,070	$1,249,441	$1,249,441	$1,249,441
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$2,173,100	$2,225,541	$2,214,012	$2,209,088	$2,197,559	$2,180,264
SJR - Yankee Lake Project	$0	$1,095,654	$1,542,760	$2,003,142	$2,444,764	$3,006,472
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$2,173,100**	**$3,321,196**	**$3,756,771**	**$4,212,230**	**$4,642,322**	**$5,186,737**

Table C-7
City of Orange City
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
St. Johns River at Yankee Lake - 40 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$38	$54	$55	$55	$53	$52
% Change Relative to Base Year		**41%**	**45%**	**43%**	**40%**	**38%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$24	$33	$34	$34	$33	$33
Multi-Family (4,000 gal.)	$24	$33	$34	$34	$33	$33
Commercial (9,000 gal.)	$43	$60	$62	$61	$59	$59

Table C-8
City of Orange City
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation

St. Johns River at Yankee Lake - 40 Percent Outside Funding						
	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$38	$64	$71	$79	$88	$99
Base Year Value with Inflation	$38	$41	$44	$49	$53	$59
Change Relative to Base Year		**$22**	**$27**	**$31**	**$35**	**$40**
% Change Relative to Base Year		**55%**	**61%**	**63%**	**65%**	**68%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$24	$39	$44	$49	$55	$62
Multi-Family (4,000 gal.)	$24	$39	$44	$49	$55	$62
Commercial (9,000 gal.)	$43	$71	$80	$89	$99	$111

Appendix C-3

City of Orange City

St. Johns River at SR 44 Water Supply Project

With no outside funding

Table C-9
City of Orange City
Water Source Allocation: Capacity and Production - St. Johns River at SR 44

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	1.66	3.25	3.30	3.30	3.30	3.50
Total Water Production - All Sources, MGD	1.43	1.55	1.71	1.93	2.18	2.47
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	1.43	1.50	1.30	1.00	0.80	0.50
SJR - Yankee Lake Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 44 Project	0.00	0.05	0.41	0.93	1.38	1.97
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.43	1.55	1.71	1.93	2.18	2.47

Table C-10
City of Orange City
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at SR 44 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$902,000	$902,000	$902,000	$902,000	$902,000	$902,000
Variable O&M Cost	$82,300	$86,471	$74,942	$57,647	$46,118	$28,824
Other Revenue Requirements	$1,188,800	$1,237,070	$1,237,070	$1,249,441	$1,249,441	$1,249,441
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$2,173,100	$2,225,541	$2,214,012	$2,209,088	$2,197,559	$2,180,264
SJR - Yankee Lake Project	$0	$0	$0	$0	$0	$0
SJR - SR 44 Project	$0	$2,124,108	$2,349,719	$2,639,072	$2,853,138	$3,277,151
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$2,173,100**	**$4,349,649**	**$4,563,731**	**$4,848,160**	**$5,050,697**	**$5,457,416**

Table C-11
City of Orange City
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
St. Johns River at SR 44 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$38	$70	$67	$63	$58	$55
% Change Relative to Base Year		**85%**	**76%**	**65%**	**52%**	**45%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$24	$44	$42	$39	$36	$34
Multi-Family (4,000 gal.)	$24	$44	$42	$39	$36	$34
Commercial (9,000 gal.)	$43	$79	$75	$70	$65	$62

Table C-12
City of Orange City
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at SR 44 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$38	$88	$89	$92	$95	$99
Base Year Value with Inflation	$38	$41	$44	$49	$53	$59
Change Relative to Base Year		**$46**	**$45**	**$43**	**$41**	**$40**
% Change Relative to Base Year		**113%**	**101%**	**88%**	**77%**	**68%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$24	$54	$55	$57	$59	$61
Multi-Family (4,000 gal.)	$24	$54	$55	$57	$59	$61
Commercial (9,000 gal.)	$43	$98	$100	$102	$106	$110

Appendix C-4

City of Orange City

St. Johns River at SR 46 Water Supply Project

With no outside funding

Table C-13
City of Orange City
Water Source Allocation: Capacity and Production - St. Johns River at SR 46

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	1.66	3.25	3.30	3.30	3.30	3.50
Total Water Production - All Sources, MGD	1.43	1.55	1.71	1.93	2.18	2.47
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	1.43	1.50	1.30	1.00	0.80	0.50
SJR - Yankee Lake Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.05	0.41	0.93	1.38	1.97
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.43	1.55	1.71	1.93	2.18	2.47

Table C-14
City of Orange City
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at SR 46 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$902,000	$902,000	$902,000	$902,000	$902,000	$902,000
Variable O&M Cost	$82,300	$86,471	$74,942	$57,647	$46,118	$28,824
Other Revenue Requirements	$1,188,800	$1,237,070	$1,237,070	$1,249,441	$1,249,441	$1,249,441
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$2,173,100	$2,225,541	$2,214,012	$2,209,088	$2,197,559	$2,180,264
SJR - Yankee Lake Project	$0	$0	$0	$0	$0	$0
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$2,548,696	$2,761,678	$3,024,733	$3,208,602	$3,623,639
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$2,173,100**	**$4,774,237**	**$4,975,689**	**$5,233,821**	**$5,406,161**	**$5,803,903**

Table C-15
City of Orange City
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
St. Johns River at SR 46 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$38	$77	$73	$68	$62	$59
% Change Relative to Base Year		**103%**	**92%**	**78%**	**63%**	**54%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$24	$48	$45	$42	$38	$37
Multi-Family (4,000 gal.)	$24	$48	$45	$42	$38	$37
Commercial (9,000 gal.)	$43	$86	$82	$76	$69	$66

Table C-16
City of Orange City
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at SR 46 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$38	$97	$97	$98	$100	$102
Base Year Value with Inflation	$38	$41	$44	$49	$53	$59
Change Relative to Base Year		**$56**	**$53**	**$50**	**$47**	**$44**
% Change Relative to Base Year		**136%**	**120%**	**103%**	**87%**	**74%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$24	$60	$61	$61	$62	$64
Multi-Family (4,000 gal.)	$24	$60	$61	$61	$62	$64
Commercial (9,000 gal.)	$43	$108	$109	$110	$112	$115

Appendix C-5

City of Orange City

Coquina Coast Desalination Project

With no outside funding

Table C-17
City of Orange City
Water Source Allocation: Capacity and Production - Coquina Coast Desalination Project

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	1.66	3.25	3.30	3.30	3.30	3.50
Total Water Production - All Sources, MGD	1.43	1.55	1.71	1.93	2.18	2.47
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	1.43	1.50	1.30	1.00	0.80	0.50
SJR - Yankee Lake Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.05	0.41	0.93	1.38	1.97
Total	1.43	1.55	1.71	1.93	2.18	2.47

Table C-18
City of Orange City
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
Coquina Coast Desalination Project - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$902,000	$902,000	$902,000	$902,000	$902,000	$902,000
Variable O&M Cost	$82,300	$86,471	$74,942	$57,647	$46,118	$28,824
Other Revenue Requirements	$1,188,800	$1,237,070	$1,237,070	$1,249,441	$1,249,441	$1,249,441
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$2,173,100	$2,225,541	$2,214,012	$2,209,088	$2,197,559	$2,180,264
SJR - Yankee Lake Project	$0	$0	$0	$0	$0	$0
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$5,250,600	$5,600,242	$6,032,087	$6,333,937	$7,015,285
Total Water System	**$2,173,100**	**$7,476,141**	**$7,814,254**	**$8,241,175**	**$8,531,496**	**$9,195,549**

Table C-19
City of Orange City
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
Coquina Coast Desalination Project - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$38	$121	$115	$107	$98	$93
% Change Relative to Base Year		**218%**	**201%**	**181%**	**157%**	**145%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$24	$75	$71	$66	$61	$58
Multi-Family (4,000 gal.)	$24	$75	$71	$66	$61	$58
Commercial (9,000 gal.)	$43	$135	$128	$119	$109	$104

Table C-20
City of Orange City
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
Coquina Coast Desalination Project - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$38	$153	$151	$149	$149	$149
Base Year Value with Inflation	$38	$41	$44	$49	$53	$59
Change Relative to Base Year		**$112**	**$106**	**$101**	**$95**	**$91**
% Change Relative to Base Year		**272%**	**240%**	**207%**	**178%**	**154%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$24	$95	$94	$93	$92	$93
Multi-Family (4,000 gal.)	$24	$95	$94	$93	$92	$93
Commercial (9,000 gal.)	$43	$171	$168	$167	$166	$167

Appendix D-1

Volusia County

St. Johns River at Yankee Lake

With 20 percent of the capital cost funded from outside entities

Table D-1
Volusia County
Water Source Allocation: Capacity and Production - St. Johns River at Yankee Lake

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	6.40	6.50	7.40	7.80	8.60	9.50
Total Water Production - All Sources, MGD	4.11	4.45	4.91	5.55	6.28	7.11
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	4.11	2.50	2.50	2.00	2.00	2.00
SJR - Yankee Lake Project	0.00	1.95	2.41	3.55	4.28	5.11
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.11	4.45	4.91	5.55	6.28	7.11

Table D-2
Volusia County
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at Yankee Lake - 20 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$2,475,077	$2,475,077	$2,475,077	$2,475,077	$2,475,077	$2,475,077
Variable O&M Cost	$933,462	$568,214	$568,214	$454,571	$454,571	$454,571
Other Revenue Requirements	$2,591,462	$2,696,685	$2,696,685	$2,723,652	$2,723,652	$2,723,652
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$6,000,000	$5,739,976	$5,739,976	$5,653,300	$5,653,300	$5,653,300
SJR - Yankee Lake Project	$0	$4,519,877	$5,625,492	$6,722,798	$7,816,123	$8,682,335
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$6,000,000**	**$10,259,853**	**$11,365,467**	**$12,376,098**	**$13,469,423**	**$14,335,635**

Table D-3
Volusia County
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)

St. Johns River at Yankee Lake - 20 Percent Outside Funding						
	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$37	$58	$58	$56	$54	$50
% Change Relative to Base Year		**58%**	**59%**	**53%**	**47%**	**38%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$26	$42	$42	$40	$39	$37
Multi-Family (4,000 gal.)	$15	$23	$23	$22	$21	$20
Commercial (9,000 gal.)	$26	$42	$42	$40	$39	$37

Table D-4
Volusia County
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at Yankee Lake - 20 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$37	$69	$74	$80	$87	$92
Base Year Value with Inflation	$37	$40	$43	$48	$53	$59
Change Relative to Base Year		**$29**	**$31**	**$32**	**$33**	**$32**
% Change Relative to Base Year		**73%**	**72%**	**66%**	**62%**	**55%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$26	$50	$54	$58	$63	$67
Multi-Family (4,000 gal.)	$15	$27	$30	$32	$35	$37
Commercial (9,000 gal.)	$26	$50	$54	$58	$63	$67

Appendix D-2
Volusia County

St. Johns River at Yankee Lake

With 40 percent of the capital cost funded from outside entities

Table D-5
City of Volusia County
Water Source Allocation: Capacity and Production - St. Johns River at Yankee Lake

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	6.40	6.50	7.40	7.80	8.60	9.50
Total Water Production - All Sources, MGD	4.11	4.45	4.91	5.55	6.28	7.11
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	4.11	2.50	2.50	2.00	2.00	2.00
SJR - Yankee Lake Project	0.00	1.95	2.41	3.55	4.28	5.11
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.11	4.45	4.91	5.55	6.28	7.11

Table D-6
City of Volusia County
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at Yankee Lake - 40 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$2,475,077	$2,475,077	$2,475,077	$2,475,077	$2,475,077	$2,475,077
Variable O&M Cost	$933,462	$568,214	$568,214	$454,571	$454,571	$454,571
Other Revenue Requirements	$2,591,462	$2,696,685	$2,696,685	$2,723,652	$2,723,652	$2,723,652
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$6,000,000	$5,739,976	$5,739,976	$5,653,300	$5,653,300	$5,653,300
SJR - Yankee Lake Project	$0	$3,958,744	$4,920,170	$5,996,954	$6,991,294	$7,837,925
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$6,000,000**	**$9,698,720**	**$10,660,146**	**$11,650,254**	**$12,644,594**	**$13,491,225**

Table D-7
City of Volusia County
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
St. Johns River at Yankee Lake - 40 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$37	$55	$54	$52	$50	$47
% Change Relative to Base Year		**49%**	**49%**	**44%**	**38%**	**30%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$26	$40	$39	$38	$37	$34
Multi-Family (4,000 gal.)	$15	$22	$22	$21	$20	$19
Commercial (9,000 gal.)	$26	$40	$39	$38	$37	$34

Table D-8
City of Volusia County
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at Yankee Lake - 40 Percent Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$37	$65	$70	$76	$83	$88
Base Year Value with Inflation	$37	$40	$43	$48	$53	$59
Change Relative to Base Year		**$25**	**$27**	**$28**	**$29**	**$29**
% Change Relative to Base Year		**64%**	**63%**	**58%**	**55%**	**48%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$26	$47	$51	$55	$60	$64
Multi-Family (4,000 gal.)	$15	$26	$28	$30	$33	$35
Commercial (9,000 gal.)	$26	$47	$51	$55	$60	$64

Appendix D-3

Volusia County

St. Johns River at SR 44 Water Supply Project

With no outside funding

Table D-9
Volusia County
Water Source Allocation: Capacity and Production - St. Johns River at SR 44

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	6.40	6.50	7.40	7.80	8.60	9.50
Total Water Production - All Sources, MGD	4.11	4.45	4.91	5.55	6.28	7.11
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	4.11	2.50	2.50	2.00	2.00	2.00
SJR - Yankee Lake Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 44 Project	0.00	1.95	2.41	3.55	4.28	5.11
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.11	4.45	4.91	5.55	6.28	7.11

Table D-10
Volusia County
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at SR 44 - No Outside Funding

Description	Base Year 2009	Year 1 2013	Year 5 2017	Year 10 2022	Year 20 2027	Year 25 2032
Existing Water Source						
Fixed O&M Cost	$2,475,077	$2,475,077	$2,475,077	$2,475,077	$2,475,077	$2,475,077
Variable O&M Cost	$933,462	$568,214	$568,214	$454,571	$454,571	$454,571
Other Revenue Requirements	$2,591,462	$2,696,685	$2,696,685	$2,723,652	$2,723,652	$2,723,652
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$6,000,000	$5,739,976	$5,739,976	$5,653,300	$5,653,300	$5,653,300
SJR - Yankee Lake Project	$0	$0	$0	$0	$0	$0
SJR - SR 44 Project	$0	$5,977,320	$6,619,660	$7,400,834	$8,036,684	$8,752,965
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$6,000,000**	**$11,717,296**	**$12,359,636**	**$13,054,134**	**$13,689,984**	**$14,406,265**

Table D-11
Volusia County
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)

St. Johns River at SR 44 - No Outside Funding

Description	Base Year 2009	Year 1 2013	Year 5 2017	Year 10 2022	Year 20 2027	Year 25 2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Water Source and Alternative Water Supply Development						
Value	$37	$66	$63	$59	$54	$51
% Change Relative to Base Year		**80%**	**72%**	**61%**	**49%**	**39%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$26	$48	$46	$43	$40	$37
Multi-Family (4,000 gal.)	$15	$26	$25	$23	$22	$20
Commercial (9,000 gal.)	$26	$48	$46	$43	$40	$37

Table D-12
Volusia County
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation

St. Johns River at SR 44 - No Outside Funding

Description	Base Year 2009	Year 1 2013	Year 5 2017	Year 10 +	Year 20 2027	Year 25 2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Water Source and Alternative Water Supply Development						
Value	$37	$84	$84	$86	$87	$89
Base Year Value with Inflation	$37	$40	$43	$48	$53	$59
Change Relative to Base Year		**$44**	**$41**	**$37**	**$34**	**$30**
% Change Relative to Base Year		**112%**	**95%**	**78%**	**63%**	**50%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$26	$61	$61	$62	$63	$65
Multi-Family (4,000 gal.)	$15	$34	$34	$34	$35	$36
Commercial (9,000 gal.)	$26	$61	$61	$62	$63	$65

Appendix D-4

Volusia County

St. Johns River at SR 46 Water Supply Project

With no outside funding

Table D-13
Volusia County
Water Source Allocation: Capacity and Production - St. Johns River at SR 46

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	6.40	6.50	7.40	7.80	8.60	9.50
Total Water Production - All Sources, MGD	4.11	4.45	4.91	5.55	6.28	7.11
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	4.11	2.50	2.50	2.00	2.00	2.00
SJR - Yankee Lake Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	1.95	2.41	3.55	4.28	5.11
Coquina Coast Desal Project	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.11	4.45	4.91	5.55	6.28	7.11

Table D-14
Volusia County
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
St. Johns River at SR 46 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$2,475,077	$2,475,077	$2,475,077	$2,475,077	$2,475,077	$2,475,077
Variable O&M Cost	$933,462	$568,214	$568,214	$454,571	$454,571	$454,571
Other Revenue Requirements	$2,591,462	$2,696,685	$2,696,685	$2,723,652	$2,723,652	$2,723,652
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$6,000,000	$5,739,976	$5,739,976	$5,653,300	$5,653,300	$5,653,300
SJR - Yankee Lake Project	$0	$0	$0	$0	$0	$0
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$6,051,535	$6,750,059	$7,504,334	$8,151,298	$8,879,515
Coquina Desal. Project	$0	$0	$0	$0	$0	$0
Total Water System	**$6,000,000**	**$11,791,511**	**$12,490,035**	**$13,157,634**	**$13,804,598**	**$14,532,814**

Table D-15
Volusia County
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
St. Johns River at SR 46 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$37	$66	$64	$59	$55	$51
% Change Relative to Base Year		**82%**	**74%**	**62%**	**50%**	**40%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$26	$48	$46	$43	$40	$37
Multi-Family (4,000 gal.)	$15	$27	$25	$24	$22	$20
Commercial (9,000 gal.)	$26	$48	$46	$43	$40	$37

Table D-16
Volusia County
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
St. Johns River at SR 46 - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$37	$87	$87	$87	$88	$90
Base Year Value with Inflation	$37	$40	$43	$48	$53	$59
Change Relative to Base Year		**$47**	**$44**	**$39**	**$35**	**$31**
% Change Relative to Base Year		**118%**	**101%**	**81%**	**65%**	**51%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$26	$63	$63	$63	$64	$65
Multi-Family (4,000 gal.)	$15	$35	$35	$35	$35	$36
Commercial (9,000 gal.)	$26	$63	$63	$63	$64	$65

Appendix D-5
Volusia County

Coquina Coast Desalination Project

With no outside funding

Table D-17
Volusia County
Water Source Allocation: Capacity and Production - Coquina Coast Desalination Project

Description	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
	2009	2013	2017	2022	2027	2032
Total Water Capacity - All Sources (MGD)	6.40	6.50	7.40	7.80	8.60	9.50
Total Water Production - All Sources, MGD	4.11	4.45	4.91	5.55	6.28	7.11
Projected No. of ERCs Served						
Water Production Allocation (MGD)						
From Existing Sources	4.11	2.50	2.50	2.00	2.00	2.00
SJR - Yankee Lake Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 44 Project	0.00	0.00	0.00	0.00	0.00	0.00
SJR - SR 46 Project	0.00	0.00	0.00	0.00	0.00	0.00
Coquina Coast Desal Project	0.00	1.95	2.41	3.55	4.28	5.11
Total	4.11	4.45	4.91	5.55	6.28	7.11

Table D-18
Volusia County
Annual Water Supply Costs (Revenue Requirements) in 2008 Dollars
Coquina Coast Desalination Project - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Existing Water Source						
Fixed O&M Cost	$2,475,077	$2,475,077	$2,475,077	$2,475,077	$2,475,077	$2,475,077
Variable O&M Cost	$933,462	$568,214	$568,214	$454,571	$454,571	$454,571
Other Revenue Requirements	$2,591,462	$2,696,685	$2,696,685	$2,723,652	$2,723,652	$2,723,652
All Water Sources - Total Amortized Capital and Annual O&M Cost						
Existing Water Sources	$6,000,000	$5,739,976	$5,739,976	$5,653,300	$5,653,300	$5,653,300
SJR - Yankee Lake Project	$0	$0	$0	$0	$0	$0
SJR - SR 44 Project	$0	$0	$0	$0	$0	$0
SR 46 Project	$0	$0	$0	$0	$0	$0
Coquina Desal. Project	$0	$15,604,862	$16,751,597	$17,989,857	$19,051,949	$20,247,429
Total Water System	**$6,000,000**	**$21,344,838**	**$22,491,573**	**$23,643,157**	**$24,705,249**	**$25,900,729**

Table D-19
Volusia County
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, 2008 Dollars (no inflation)
Coquina Coast Desalination Project - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Developmen						
Value	$37	$120	$115	$106	$98	$91
% Change Relative to Base Year		**229%**	**214%**	**192%**	**169%**	**149%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$26	$87	$83	$77	$71	$66
Multi-Family (4,000 gal.)	$15	$48	$46	$43	$39	$36
Commercial (9,000 gal.)	$26	$87	$83	$77	$71	$66

Table D-20
Volusia County
Impact of Alternative Water Supply Development on Water Rates
Revenue Requirements to Support AWS, With Inflation
Coquina Coast Desalination Project - No Outside Funding

	Base Year	Year 1	Year 5	Year 10	Year 20	Year 25
Description	2009	2013	2017	2022	2027	2032
Projected Monthly Revenue Requirements per Equivalent Residential Unit (ERU) To Support Utility System, Existing Wate Source and Alternative Water Supply Development						
Value	$37	$155	$151	$147	$145	$143
Base Year Value with Inflation	$37	$40	$43	$48	$53	$59
Change Relative to Base Year		**$115**	**$108**	**$99**	**$91**	**$84**
% Change Relative to Base Year		**290%**	**249%**	**206%**	**171%**	**141%**
Average Monthly Water Bill						
Single-Family (7,500 gal.)	$26	$112	$110	$107	$105	$104
Multi-Family (4,000 gal.)	$15	$62	$60	$59	$58	$57
Commercial (9,000 gal.)	$26	$112	$110	$107	$105	$104

Appendix E

Memorandum

Utility Data Request

July 10, 2008

HAZEN AND SAWYER
Environmental Engineers & Scientists

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July 10, 2008

MEMORANDUM

TO: City of Deltona, City of DeLand, Orange City and Volusia County

FROM: Grace Johns, Ph.D., Senior Associate and Economist

SUBJECT: Water Utility Data Request for Rate Impact Evaluation for West Volusia Utilities

This memorandum identifies the types of water demand and financial information that we would like to use to evaluate of the impact on water rates associated with meeting future water demands from alternative water supply sources in west Volusia County. We request this data from the following water utilities that are included in our study.

- City of Deltona
- City of DeLand
- Orange City
- Volusia County

We are also collecting relevant data from the St. Johns River Water Management District through Elizabeth Thomas.

We would like the four water utilities to provide us with the following information for their utility to the extent that such information is available. We would appreciate receiving this data and information no later than **Friday, July 31, 2008**. If possible, please submit this information to me via email at gjohns@hazenandsawyer.com. Time is limited because we must finish the evaluation by Mid September. After September 30, 2008 we will lose any unspent funding for this project and, if this happens, we will not be able to finish the evaluation.

Water demand information

1. Current and projected raw or finished water demands through 2030. Please indicate whether water demands are raw (before treatment) or finished (after treatment) and the units of measurement.
2. Amount of raw or finished water expected to be produced from each alternative water source and from the Floridan aquifer (current water sources) in order to comply with the Minimum Flows and Levels (MFLs) for Blue Spring and the adopted Blue Spring Minimum Flow Regime (MFR). Please indicate whether water demands are raw (before treatment) or finished (after treatment) and the units of measurement.

   According to the draft 2007 District report titled "Implementation Strategy for Achieving the Minimum Flow Regime for Blue Spring and Other Water Resource Constraints for Volusia County, Florida" the following water quantities were estimated as needed from alternative water supply sources. Are these values still correct?

   DeLand -5.8 mgd

   Deltona-13.7 mgd

   Orange City-2.3 mgd

   Volusia County- 7.9 mgd

Which of these projects (and the water quantities from each) does the utility plan to utiltize for alternative water supply?

- SJR @Yankee Lake WSP
- SJR @ SR44 WSP
- SJR@SR46 WSP
- Coquina Coast Desal

Is the utility planning to use any other projects besides these four listed above? If so, please describe them.

3. Current number of water customers by customer type and current water use by customer type: residential single-family, residential multi-family, commercial, industrial, institutional, wholesale, etc., to the extent such information is available.
4. Projected number of water customers by customer type and projected water use by customer type: residential single-family, residential multi-family, commercial, industrial, institutional, wholesale, etc., to the extent such information is available.

Financial Information

5. Current water and sewer rates, including the usage cap on the sewer rate.
6. Average monthly residential single family water bill using the current rate structure and the average monthly water use of a single-family water customer. Please provide the usage, the rate structure used and the bill amount.
7. Current Water and Sewer Impact Fee and the utility's plans to change it especially to help finance the cost of developing alternative water supply sources.
8. Any other ideas or plans that the utility may have to finance the cost of developing alternative water supply sources.
9. Average monthly residential multi-family water bill using the current rate structure and the average monthly water use of a multi-family water customer. Please provide the usage, the rate structure used and the bill amount.
10. Average monthly commercial water bill using the current rate structure and the average monthly water use of a commercial water customer. Please provide the usage, the rate structure used and the bill amount.
11. Expected future changes to the water and sewer rates, if any.
12. Recent water rate and/or water utility financial studies (within last 5 years).
13. Comprehensive Annual Financial Report (CAFR) for Fiscal Year 2006/07.
14. Current annual capital and direct O&M costs to operate the water utility and any available projections of future costs, including current and future anticipated debt service. Please provide O&M costs in as much detail as possible (e.g. labor, electric, administration, etc.).
15. A list of cost components that the utility requires to have included in the cost analysis.
16. Capital and annual O&M costs to develop the identified alternative water sources by type of water source to the extent such information is available.
17. Any other data or information that the utility believes may be relevant to assessing the impact on the utility's water rates associated with meeting future water demands from alternative water supply sources.

We would appreciate receiving this data and information no later than **Friday, July 31, 2008**. Please call me at (954) 987-0066 or email me at gjohns@hazenandsawyer.com if you have any questions or comments. Any data and information not received on or before this date will be estimated using the other available information that was collected during that time. Such estimated data and information will be used during this study. We thank you very much for your assistance and we look forward to working with you.

Appendix F

Excel Model Instructions

Impact of Alternative Water Supply on Utility Water Rates

Appendix F
Excel Model
Impact of Alternative Water Supply On Utility Water Rates
Instructions

One Excel model for each utility was developed. The 2007 Excel compatibility version was used. This version should be compatible with older versions of Excel. Please contact Grace Johns if this is not the case.

The Excel files are called:

1. City of Deland Rate Impact V.5.3.xls
2. City of Deltona Rate Impact V.5.3.xls
3. City of Orange City Rate Impact V.5.3.xls
4. Volusia County Rate Impact V.5.3.xls

Within each Excel file, there are eleven spreadsheets. These spreadsheets are as follows.

ID – This spreadsheet identifies the name of the model and the client (St. Johns River Water Management District)

Instructions – This spreadsheet provides the instructions for using this model. These instructions are included verbatim in this Appendix.

General Input Sheet – This spreadsheet is one of two spreadsheets where the user enters specific water supply and utility data. This spreadsheet allows the user to enter the data on the utility's water capacity allocations in mgd from each of five water sources: the existing water source and four alternative water sources. These alternative sources are the St. Johns River at Yankee Lake; St. Johns River at SR 44; St. Johns River at SR 46 and Coquina Coast Desalination Project.

The spreadsheet also allows the user to enter the total base year water production from all sources and the annual growth rate of this water production. The model then allocates production to the different water sources as follows: All of the capacity associated with the existing water source is used first. Then the rest of the needed water production is assigned to an alternative water source based on the capacity allocation of that source as a proportion of the total capacity of all of the alternative water sources. So the user assigns water sources to production based on the finished water capacity numbers entered in this spreadsheet.

The General Input Spreadsheet also allows the user to enter the anticipated water cost in the base year, the capital and operating cost escalation (inflation) factors, and the base year water rate structure (called existing water system rates in the model).

AWS Input Sheet – This spreadsheet allows the user to enter the capital costs per gallon of capacity for each of the alternative water sources, the percent of each project financed from

outside sources, debt issuance and administrative costs, financing assumptions, and the fixed and variable annual operations and maintenance cost of each alternative water source.

Graphs 1 and Graphs 2 – These two spreadsheets provide the results of the model in graphic form.

Graphs 1 provides the base year and five year capacity allocations, projected number of ERUs served, annual costs including inflation, annual revenue requirements including inflation, and the cumulative change in revenue requirements relative to the base year.

Graphs 2 provides the average monthly water bills of single-family, multi-family and commercial customers over time at their average monthly water uses, the water capacity allocations over time (repeated from Graphs 1), the average monthly bill per ERU and the percent change in monthly average revenue per ERU with and without inflation.

Summary Sheet – This spreadsheet provides a wealth of information, much of which was used to create the graphs in Graphs 1 and Graphs 2. In addition, the costs of existing water sources and the debt service and annual O&M costs of the alternative water sources each year are provided.

The remaining spreadsheets contain the calculations regarding each alternative water source. The spreadsheet names are: **Yankee Lake; SR 44; SR46 and Coquina Desal.**

The table below is the instruction sheet for filling in the input data into the General Input Sheet and the AWS Input Sheet.

Instructions Sheet

	Please note that blue cells are inputs, black cells are calculations or labels, and red cells are links from other tabs	Line Number
General Input Sheet		
	1. General Model Inputs	
(a)	Choosing utility: Select the name of the utility from the drop-down menu.	Line 1
(b)	Base Year: Please insert year in format 2XXX; e.g., 2009, 2010.	Line 2
(c)	Year 1: Should be the first milestone year for the AWS projects; e.g., when construction starts, when monies for capital projects are due, etc.	Line 3
	Finished Water Capacity Allocation (MGD)	
(a)	From Existing Sources: CUP or estimated gallons of existing water capacity in Million of Gallons per Day (MGD).	Line 4
(b)	SJR - Yankee Lake Project: If any, the amount of MGD the utility is expected to be allocated from this AWS project.	Line 5
(c)	SJR - SR 44 Project: If any, the amount of MGD the utility is expected to be allocated from this AWS project.	Line 6
(d)	SJR - SR 46 Project: If any, the amount of MGD the utility is expected to be allocated from this AWS project.	Line 7
(e)	Coquina Coast Desalination Project: If any, the amount of MGD the utility is expected to be allocated from this AWS project.	Line 8
(f)	Total Water Production - All Sources (MGD): (Excel Cell G30) Amount of existing (Base Year) actual water demand (not capacity).	Line 10
(g)	Input Annual Production Growth Rate: Percentage annual growth rate of water production. It determines the implicit number of ERUs/customers being served.	Line 11
(h)	Level of Service Factor (GPD per ERU): It will determine the number of implicit ERUs and the per ERU calculations on the model by using the water production. E.g., if the Level of Service Factor is 300 gpd and the water production is 3.00 MGD, the implicit number of ERUs would be ((3.0*1,000,000)/300) = 10,000 ERUs.	Line 12
(i)	Annual Inflation Factor Capital Cost: percentage annual growth rate inflation for the Capital Cost. (Not to be confused with the inflation factor for Operating and Maintenance cost).	Line 14
	1.A. Anticipated Water Cost in Base Year (Revenue Requirements)	
(a)	These inputs include the utility's existing annual cost for the base year. All water related costs include production, distribution, billing, administration, etc., debt service, R&R and other transfers allocated to the Water System.	
(b)	Fixed O&M Cost: The annual amount of water costs described above that do not tend to change based on variation on production levels (e.g., personnel cost, administration costs). Exclude variable costs and other revenue requirements.	Line 15
(c)	Variable O&M Cost: The annual amount of water cost that tend to change based on the amount of water produced; e.g., power, chemicals, purch.	Line 16

Instructions Sheet

	Please note that blue cells are inputs, black cells are calculations or labels, and red cells are links from other tabs	Line Number
	water, etc.	
(d)	Other Revenue Requirements: Transfers and other revenue req'ments (e.g., R&R, General Fund and/or PILOT Transfers, Debt Service, Pay-go Capital, etc). It is important to include all other current water system costs in order to estimate future bill impacts.	Line 17
(e)	Total O&M Cost in Base Year: Verify that the total shown based on inputs above approximates existing water rate revenue.	Line 18
	1.B. Operating Cost Escalation Factors	
(a)	Annual Inflation Factor Fixed and Variable O&M Cost: The model will apply this inflation factor to existing and AWS estimated O&M cost.	Line 19
(b)	Other Rev. Requirements Annual Inflation Factor: The model will apply this factor only to existing other revenue requirements (R&R Fund Transfers, debt service payments, General Fund transfers, etc).	Line 20
	1.C. Existing Water System Rates	
(a)	Monthly Average Usage per Customer (Gallons): Input the gallons per month that the average single-family, multi-family and commercial customer for the different class is expected to use.	Line 21
(b)	Administrative Charge (Excel Columns G, K and O): Input the current monthly rate charged for the different class (if any).	Line 22
(c)	Base (Availability) Charge (Excel Columns G, K and O): Input the current monthly rate charged for the different class (if any).	Line 23
(d)	Gallons Provided Under Base Charge (Excel Columns G, K and O): Input the amounts of gallons allowed (i.e., not billed, if any).	Line 24
(e)	Usage Charge per Th. Gallons (Excel Columns G, K and O): Input the current rate charged for each of the respective usage blocks for single-family, multi-family and commercial customers.	Lines 25, 26, 27, 28, 29, 30
(f)	Block Size Upper Limit Th. Gallons (Excel Columns I, M, and Q): Input the upper threshold (in thousand gallons) for each respective usage block. Please note that it requires user to enter the UPPER limit, please input zero (0) if the block is not applicable for your utility.	
AWS input Sheet		
	2.A. SJR - Yankee Lake Capital Cost	
	Information presented below applies to all of the AWS projects (items # 2 to 5 on the AWS Input Sheet) but uses the SJR at Yankee Lake project as an example	
(a)	Yankee Lake- Incremental Treatment Capacity Capital Cost: Input the capital cost of capacity (on a per gallon basis) related to treatment. E.g., if the capital cost for the treatment plant is $288.93 Million that will yield a capacity of 40.0 MGD, then the capital cost related to capacity will be (288.93/40) = 7.22 per gallon of capacity.	Line 1

Instructions Sheet

	Please note that blue cells are inputs, black cells are calculations or labels, and red cells are links from other tabs	Line Number
(b)	Yankee Lake- Conveyance and Storage Capital Cost: Input the capital cost of capital cost (on a per gallon basis) related to conveyance and storage. E.g., if the capital cost for conveyance and treatment is $16.33 Million that will yield a total capacity of 7.5 MGD, then the capital cost related to capacity will be (16.33/7.5) = 2.17 per gallon. Please note that the conveyance and storage costs is not uniform for all the participants on the AWS; therefore, it is important to use the specific utility allocated cost and gallons. For instance, using the example calculation above, the $16.33 Million will be the allocation to the utility as opposed to the total cost for all participants, similarly, the 7.5 MGD is the utility specific portion (allocated) of capacity as opposed to total plant capacity.	Line 2
(c)	SJRWMD Funding (Grants): Input the estimated amount of grant funding. Please enter the number as a negative percentage.	Line 4
(d)	Other Outside Funding: Input the estimated amount of other funding (for example, use of impact fees, funding from outside sources, etc). Please enter the number as a negative percentage.	Line 5
(e)	Debt Issuance and/or Administrative Costs: Input the estimated cost (as a percentage of gross capital cost) of issuing the debt.	Line 7
(f)	Annual Interest Rate: Input the estimated annual interest rate.	Line 8
(g)	Term (Years): Input the number of annual principal payments to be made.	Line 9
	2.B. SJR - Yankee Lake O&M Cost	
(a)	Total O&M Cost per Thousand Gallons: Input the O&M cost (per thousand gallons) for AWS project operations. Do not include inflation or capital cost. Please see description below for fixed and variable costs to use as a guide.	Line 10
(b)	O&M Cost - Fixed Portion Cost: Because of this cost not being linear for different levels of production, this cost tends to be lower as the plant has higher production. Please use a number that represents the average cost during the project life (including the interim project stages where the plant is not producing at full capacity). For example, if the terminal treatment capacity of the plant is 85.0 MGD and it is expected that at full utilization the total fixed O&M cost would be $16.275 million (In today's dollars); then the calculated per thousand gallons costs would be ($16.275/85/365) = $0.525 *[365 because of number of days during a year]*. User might want to utilize the $0.525; however, since this cost assumes full build-out capacity, This cost could be higher when the plant is not built at full capacity; therefore, the user needs to make adjustments accordingly to reflect the true average O&M fixed cost.	Line 11
(c)	O&M Cost - Variable Portion: This is, by definition, the total cost less fixed costs, and is shown both a s percentage of total costs and as the calculated cost per thousand gallons. The user may want to adjust the previous inputs if the resulting variable costs does not fully reflect the estimated level of cost for the AWS project.	Line 12