Northwest Florida Water Management District Five-Year Water Resource Development Work Program

Overview

Each Water Management District is required by Section 373.536(6)(a)4, Florida Statutes, to prepare a Five-Year Water Resource Development Work Program. The Work Program must describe the strategies used for implementing the water resource development components found in each of the districts' approved Regional Water Supply Plans (developed or revised pursuant to Section 373.0361 F.S.). In accordance with the statute, the Work Program is submitted to over 45 separate entities, including the Governor, the President of the Senate, and the Speaker of the House of Representatives, the Department of Environmental Protection, legislative committees and the counties constituting each of the five districts. The Department of Environmental Protection (DEP) then conducts a review of the work program including a "written evaluation of the program's consistency with the furtherance of the district's approved regional water supply plans, and the adequacy of proposed expenditures." Following this review, each Water Management District Governing Board shall state in writing to DEP which of the recommended changes it will incorporate into its work program or specify the reasons for not incorporating the changes. Upon completion of the DEP review process, the Department will include each of the Water Management Districts' responses in a final evaluation report and submit copies to the Governor, Senate President, and Speaker of the House.

Introduction: Regional Water Supply Planning in Northwest Florida

In 1997, the Florida Legislature amended the Florida Water Resources Act (Chapter 373, F.S.) to provide additional guidance to the state's five Water Management Districts (WMDs) regarding regional water supply planning. This two-step process involves: (1) dividing the jurisdictions of each water management district into "water supply planning regions"; and assessing the water supply needs and sources of each region; and (2) developing regional water supply plans for those regions identified as either having, or being likely to develop, future water supply problems.

The Northwest Florida Water Management District (NWFWMD or District) established seven water supply planning regions (Figure 1.1) and completed the "District Water Supply

Assessment' (WSA) in 1998. Based on the WSA, and subsequent action by the District's Governing Board, it was determined that Region II (Santa Rosa, Okaloosa, and Walton counties) required a Regional Water Supply Plan. The primary resource concern in Region II is in the coastal area where excessive pumping from Floridan Aquifer wells could result in saltwater intrusion and damage to public water supply wells.



Virtually all of the water supply issues in the planning region are attributable to demands for potable water distributed by public supply water utilities in the coastal fringe of Santa Rosa, Okaloosa, and Walton counties. Water supply planning and resource management activities have focused on this issue during the past two decades, and the District has developed a close working relationship with the local governments and utilities in this region to monitor the water resources and develop solutions to meet future demands.

Pumping of local Floridan Aquifer wells to supply growing demands in the coastal fringe have resulted in formation of a substantial cone of depression in the aquifer, and current levels of water withdrawal may not be sustainable on a long-term basis. Public supply water use in the region is projected to increase 56 percent from 49.97 million gallons per day (Mgal/d) in 2000, to 77.70 Mgal/d in 2025. Roughly two-thirds of this increased demand is projected to occur in the region's coastal areas.

The first Regional Water Supply Plan (RWSP) developed in northwest Florida under §373.0361, Florida Statutes, was approved for Santa Rosa, Okaloosa and Walton counties in February 2001. The RWSP was developed to address the regional water supply planning requirements over a 20-year planning horizon, extending through the year 2020. It describes the region's water supply needs, identifies existing and alternative water source options and analyzes the ability of these sources to meet future demands. The RWSP also discusses alternatives to address unmet demands and to sustain the water resources and related natural systems.

Although water supply planning in Region II (Santa Rosa, Okaloosa and Walton counties) is the primary focus of the District's water supply efforts, the District also assists with implementing significant water supply projects in other planning regions. The District's involvement with these projects is typically limited to a partial share of the funding required for a project, and the requests are handled on a case-by-case basis. For example, in fiscal year 2001-2002, the District agreed to provide \$350,000 to the City of Port St. Joe (Region IV) to assist with the purchase of the Gulf County Canal. This purchase will provide a long-term source of water for public supply industrial and recreational. In FY 03-04 the District will begin an examination of water supply development projects in Franklin County (Region V).

Funding for Water Supply and Water Resource Development

Since the State Constitution limits the NWFWMD to only 1/20th of the *ad valorem* taxing authority afforded the other four water management districts, the additional legislative mandates for water supply planning and water resource development have required the NWFWMD to use other sources of revenue and to seek grant funds for addressing water supply issues. To date, the District has identified or secured funding for water supply planning and development from numerous sources, including:

- Water Management Lands Trust fund monies, as authorized by statute;
- Florida Forever (Capital Improvements only);
- District General Revenues;

- Special Appropriations;
- Special Reserves established in the District Budget;
- Federal Grants; and
- Local government and water supply utility cost-sharing.

It is important to note that a large part of the District's annual budget allocation for water resource development is from the Water Management Lands Trust Fund. The District has also set aside reserves that may be necessary to fund water resources development efforts and water supply assistance, including possible funding for other regions in future years. The total amounts identified in the District's annual budget for water resource development in Region II are summarized in Table A at the end of this document. It should also be noted that the budget figures provided for future year project funding may change from year to year, as more information becomes available and the scope of planned projects increase or decrease accordingly.

In FY 2003-2004, the District has budgeted approximately \$663,000 for water resource development in Region II. In addition to the water resource development efforts, the District will continue to assist local governments by funding water supply development projects within and outside of Region II. Major water resource development assistance projects budgeted in FY 03-04, include a \$3.1 million grant procured by the District for the Fairpoint wellfield, and the approximately \$150,000 the District expects to spend on test wells for public supply in Franklin County. Descriptions of the Region II water resource development projects planned for FY 2003-2004 through 2005-2008 are found on the following pages.

Water Resource Development Project

Strategy 1.0 Floridan Aquifer Sustainability Model Analysis

The District is presently developing two solute transport models to analyze the Floridan Aquifer in coastal Santa Rosa, Okaloosa and Walton counties. When completed, these models will be used to investigate the impacts of various ground water withdrawal scenarios in the region, with particular regard to saltwater intrusion, wellfield development and cumulative impact analysis. Initial calibration of the western sub-regional model covering coastal portions of eastern Santa Rosa and western Okaloosa counties was completed in FY 02-03. Model development is

expected to continue through FY 03-04. Development of the eastern sub-regional model (covering coastal portions of eastern Okaloosa and Walton counties) will continue through FY 03-04. The District has also completed model-specific initial monitoring, test drilling, and related research activities undertaken in support of model development.

Estimated 5-Year Cost (FY 2003-2008)	\$340,000	Potential Funding Source	NWFWMD, Local Governments, Utilities
Estimated District Participation	\$720,000	Quantity of Water Made Available	20-30 Mgal/d
Implementing Agency	NWFWMD	Project Status	Ongoing
Proposed FY Expense (FY 2003-2004)	\$300,000	Total Amount Spent to Date (Through FY 2002-2003)	\$558,044

This project's funding sources have been provided by the Water Management Lands Trust Fund, local governments, and general revenues of the District. An estimated sustainable amount of water withdrawal from the Floridan Aquifer that will be identified as a result of this modeling effort is 20 to 30 Mgal/d. Once the modeling effort is complete, it should be possible to determine more accurately if this amount of withdrawal is sustainable or if additional sources of water will need to be developed.

Water Resource Development Project

Strategy 2.0 Inland Sand-and-Gravel Aquifer Project

The District is currently analyzing the Sand-and-Gravel Aquifer between the Blackwater and Yellow rivers in Santa Rosa and Okaloosa counties as an alternative water source. The Sand-and-Gravel Aquifer in Santa Rosa County is believed to be capable of providing regionally significant quantities of water due to its high recharge rate, estimated to be 40 times that of the Floridan Aquifer. However, exploration of this water resource is needed to better assess its capability to yield sufficient quantities as a source for public supply.

This water resource development project has involved the installation of project-specific monitor wells, data collection to determine aquifer yield potential, aquifer geophysical characterization, and aquifer modeling. Data are also being collected and developed to evaluate ground water interaction with surface waterbodies including streams and wetlands.

Estimated 5-Year Cost (FY 2003-2008)	\$105,000	Funding Source	NWFWMD
Estimated District Participation	\$350,000	Quantity of Water Made Available	18 Mgal/d
Implementing Agency	NWFWMD	Project Status	Ongoing
Proposed FY Expense (FY 2003-2004)	\$80,000	Total Amount Spent to Date (Through FY 2002-2003)	\$246,075

The total estimated cost of this project is \$350,000, and approximately 18 Mgal/d of water is currently estimated to be available from this source. Water developed through this project will help to both alleviate pressure on coastal Floridan Aquifer sources, and provide for future demands. During FY 02-03 the drilling program associated with this project will continue in support of aquifer tests, planning for tests and data collection in support of model development. The District continues with field data collection and aquifer modeling activities and expects to complete development of the Sand-and-Gravel Aquifer flow model in FY 03-04. Depending on initial model results, additional aquifer testing may be required.

Water Resource Development Project

Strategy 3.0 Coastal Sand-and-Gravel Aquifer Sources

Preliminary analyses indicate that a usable amount of water (approximately 5 Mgal/d) may be available from the Sand-and-Gravel Aquifer in the Region II coastal area. While this source of water may not seem substantial, it is likely to be an inexpensive source of water that utilities may be interested in developing. The District will continue to evaluate this local source of water as part of the solution to alleviate coastal pumping from the Floridan Aquifer and will work cooperatively with utilities interested in its development. An initial evaluation and detailed

mapping of where water would be available from this resource is estimated to cost \$50,000. Total projects costs, including additional aquifer testing and analyses, are \$100,000.

Estimated 5-Year Cost (FY 2003-2008)	\$55,000	Potential Funding Source	NWFWMD, Utilities
Estimated District Participation	\$116,000	Quantity of Water Made Available	5 Mgal/d
Implementing Agency	NWFWMD	Project Status	Ongoing
Proposed FY Expense (FY 2003-2004)	\$50,000	Total Amount Spent to Date (Through FY 2002-2003)	\$61,300

In FY 03-04, the District will continue to identify and map specific areas where the aquifer could be used for a public supply water source.

Water Resource Development Project

Strategy 4.0 Development of Regional Water Management Strategies and RWSP Updates

Along with administrative responsibilities to implement the RWSP, the District will undertake a number of coordination and technical work activities necessary to support implementation and further development of the plan. Administration activities include funding and project management, coordination with DEP and other WMDs as necessary, grant writing for project funding, reporting on the status of the plan, coordination with local governments and utilities, and technical assistance to local utilities. The total estimated cost of these activities in FY 03-04 is \$40,000. Primarily, funding will be from the Water Management Lands Trust Fund.

Estimated 5-Year Cost (FY 2003-2008)	\$100,000	Potential Funding Source	NWFWMD	
Estimated District Participation	\$135,000	Quantity of Water Made Available	NA	
Implementing Agency	NWFWMD	Project Status	Ongoing	
Proposed FY Expense (FY 2003-2004)	\$40,000	Total Amount Spent to Date (Through FY 2002-2003)	\$586,595	

In many cases, these activities will help to facilitate and coordinate the activities of utilities that may wish to participate in cooperative water supply planning efforts or plan implementation. This includes assistance with development of inland wellfields, reuse, conservation, aquifer storage and recovery, and surface water for water supply. It is possible that additional funding may be needed for this element to provide for further investigation into capital project options. This may require providing assistance to utilities and local governments with well siting, raw water transport, hydrogeology, and related engineering work for development of inland ground water sources, including the Floridan Aquifer and the Sand-and-Gravel Aquifer. These further investigations, which have not been identified at this time, could lead to specific water supply or water resource development projects that support dependable and sustainable supplies of water.

Water Resource Development Project

Strategy 5.0 Water Reuse Coordination Program

The District's water supply consultant estimates that 5 Mgal/d of withdrawals from the coastal Floridan Aquifer can be replaced with reclaimed wastewater. While the cost of developing and distributing reclaimed water in Region II may be expensive compared to traditional sources, its use has substantial environmental benefits when properly applied for irrigation purposes. Achieving the 5 Mgal/d goal requires a detailed logistics analysis for the delivery and distribution of reuse water. The District's primary role for reuse will be to coordinate and facilitate this effort among the various Region II utilities. The logistics analysis includes the mapping and quantification of reuse sources, analysis of supply line capacities and needs to demand centers, and reuse demand. In FY 01-02, a map showing existing and potential areas for reuse was produced and in FY 02-03, District staff and interested utilities have been updating and utilizing this information to further develop reuse in the area. The District also produced a reuse project plan outlining the specific steps to be taken under this program, which DEP subsequently reviewed. At DEP's request, the District increased budgeted amounts for this effort to provide for increased reuse coordination efforts.

Estimated 5-Year Cost (FY 2003-2008)	\$150,000	Potential Funding Source	NWFWMD, grants	
Estimated District Participation	\$227,100	Quantity of Water Made Available	5 Mgal/d	

Implementing Agency	NWFWMD	Project Status	Ongoing
Proposed FY Expense (FY 2003-2004)	\$30,000	Total Amount Spent to Date (Through FY 2002-2003)	\$77,100

As opportunities arise, the District will work with interested parties to develop reuse projects, including assistance for projects eligible for grant funds. This will include continuation of closely coordinated efforts to facilitate reuse with local utilities and water users. Coordination with DEP on wastewater regulatory and NWFWMD Consumptive Use Permitting decision-making, as well as opportunities to participate in rulemaking activities that further the beneficial use of reclaimed water, will also continue. The estimated cost of this program is \$30,000 in FY 03-04. Funding will be provided through the Water Management Lands Trust Fund. The District may also consider seeking federal financial assistance to encourage reuse; however further analysis would be necessary prior to the commitment of District or federal funds.

Water Resource Development Project

Strategy 6.0 Water Conservation Program

Due largely to the high level of conservation already taking place in Region II and the District's earlier success through its regulatory program to maximize water conservation, the District's water supply planning consultant projected only up to a 2.5 Mgal/d increase that could become available to offset future Floridan Aquifer demands within the region.

Although the amount of water to be developed though this program is relatively small, the District will work to enhance its conservation program through the development of specific projects to insure that successful conservation practices will continue through and beyond the RWSP's 20-year planning horizon. As specific projects are determined to be viable and cost effective, increased funding may be made available for implementation as necessary.

Progress to date includes the District partaking in a statewide study identifying impacts of water rate pricing and structures on public supply water demand, researching possible specific additional conservation techniques that could be applied in the region for increased water conservation and collecting background data concerning residential conservation habits and practices. The District will also continue its participation in the statewide water conservation initiative activities begun in 2001.

Estimated 5-Year Cost (FY 2003-2008)	\$75,000	Potential Funding Source	NWFWMD		
Estimated District Participation	\$112,600	Quantity of Water Made Available	2.5 Mgal/d		
Implementing Agency	NWFWMD	Project Status	Ongoing		
Proposed FY Expense (FY 2003-2004)	\$15,000	Total Amount Spent to Date (Through FY 2002-2003)	\$37,590		

The District estimates the cost of the initial analyses of potential, viable resource conservation measures and participating in the water conservation initiative to be \$15,000 in FY 03-04. Funding will be provided through the Water Management Lands Trust Fund.

Water Resource Development Project

Strategy 7.0 Surface Water Monitoring for Surface Water Supply Feasibility

The Choctawhatchee and Yellow rivers and their tributaries are potential alternative water supply sources in Region II. Although these sources are not likely to be needed in the immediate future, they may play a role in meeting the needs of the region beyond the 2020 planning horizon. However, there are several limitations that would have to be overcome before these sources would be viable. The primary focus of this water resource development project has been to collect adequate hydrologic and water quality data that is needed to properly analyze the viability of these potential surface water sources.

To further examine surface water sources, the District began conducting additional streamflow monitoring in the Yellow and Choctawhatchee river basins. This included continued monitoring operations, in cooperation with the US Geological Survey surface water gauging network, and the installation of a new station on the Yellow River. In addition, the District installed new stream flow gauging stations on several small tributaries of the river. Flow monitoring and modeling data obtained through this project will also be useful for ground water yield analyses being conducted in the region. Furthermore, the surface water data collected through this project may be useful in future evaluations of possible aquifer storage and recovery alternatives. This monitoring work will take approximately three years to complete.

Estimated 5-Year Cost (FY 2003-2008)	\$258,000	Potential Funding Source	NWFWMD	
Estimated District Participation	\$300,000	Quantity of Water Made Available	20 Mgal/d	
Implementing Agency	NWFWMD	Project Status	Ongoing	
Proposed FY Expense (FY 2003-2004)	\$58,000	Total Amount Spent to Date (Through FY 2002-2003)	\$44,700	

The District estimates the cost of continuing monitoring work to be \$58,000 in FY 03-04, with the funding being provided through the Water Management Lands Trust Fund. Possible funding sources for development of regional surface water supply facilities would include public supply utilities, Florida Forever, and the federal government.

Water Resource Development Project

Strategy 8.0 Hydrologic Data Collection and Analysis

The NWFWMD has a limited hydrologic data collection network of stream gages and monitoring wells in Region II. As part of the regional water supply planning process and implementation of the RWSP, the District has enhanced its ground- and surface water monitoring capabilities. This includes an expanded network for the Sand-and-Gravel Aquifer and the Floridan Aquifer where new water sources have been identified. (For further information regarding monitoring activities see: http://www.state.fl.us/nwfwmd/hydrology/monthly/monthly_stations.htm). The expanded network will be useful for future, long-term water supply planning, refining ground water models used to make management decisions, and developing water management strategies.

Estimated 5-Year Cost (FY 2003-2008)	\$220,000	Potential Funding Source	NWFWMD		
Estimated District Participation	\$300,000	Quantity of Water Made Available	e NA		
Implementing Agency	NWFWMD	Project Status	Ongoing		
Proposed FY Expense (FY 2003-2004)	\$60,000	Total Amount Spent to Date (Through FY 2002-2003)	\$87,120		

The District anticipates this will be an ongoing annual project, both up to and beyond the RWSP's 20-year planning horizon, with an estimated cost of \$60,000 in FY 03-04 to account for the annual maintenance, operation and data analyses costs. Funding sources include the District's General Fund, Water Management Lands Trust Fund, federal funding, and local governments.

Water Resource Development Project

Strategy 9.0 Abandoned Well Plugging

From 1976 to 2003, District efforts have resulted in the plugging of nearly 1,700 abandoned wells within Region II. The overall goal of this program is to protect available ground water resources from aging, uncontrolled or improperly constructed wells that are no longer in use. The District achieves the proper abandonment of such wells through the use of two methods: requiring contractors to plug abandoned wells found on site during new well construction; or initiating a well abandonment contract with a well-owner or local government. During FY 02-03, the District entered into well plugging contracts that resulted in the proper plugging of 201 abandoned wells (43 Santa Rosa, 119 Okaloosa and 29 Walton) in Region II. An additional 227 abandoned wells were plugged in Escambia County in FY 02-03.

Since this is an ongoing project it is likely that many more wells will be added to the list before the project is completed. Plugging the wells is contingent upon agreements with well-owners, local governments and utilities.

Estimated 5-Year Cost (FY 2003-2008)	\$150,000	Potential Funding Source	NWFWMD, State of Florida, Federal, Local Governments		
Estimated District Participation	\$181,564	Quantity of Water Made Available	NA NA		
Implementing Agency	NWFWMD	Project Status	Ongoing		
Proposed FY Expense (FY 2003-2004)	\$30,000	Total Amount Spent to Date (Through FY 2002-2003)	\$31,564		

This project supports District efforts to sustain coastal water supply sources, which currently are withdrawn at more than 25 Mgal/d. Sources of funding for abandoned well plugging have traditionally been through cooperative efforts, including the Florida Pollution Recovery Trust

Fund, EPA, District general revenues, individual well-owners, and local governments. The District anticipates continued use of these sources to fund the well plugging program.

Water Resource Development Project

Strategy 10.0 Aquifer Storage and Recovery (ASR) Viability

While large-scale District-funded ASR operations may not be economically feasible at present, this option may be explored further by utilities. The District's efforts in this regard would be aimed at working cooperatively with interested parties wherever viable ASR opportunities exist, and would include technical, financial and educational assistance. The District will also explore, in more detail, the use of ASR as a salinity barrier to protect existing water supplies. As such, this project needs to be coordinated closely with ongoing aquifer sustainability efforts, surface water monitoring and supply feasibility analyses, and it is not planned to start until after the Floridan Aquifer Sustainability Model analysis tool is developed. Possible funding sources for future ASR testing and development include Florida Forever, Water Management Lands Trust Fund, federal funds and coastal public utilities interested in pursuing this alternative.

Estimated 5-Year Cost (FY 2003-2008)	\$90,000	Potential Funding Source	NWFWMD, Utilities, Local Governments	
Estimated District Participation	\$90,000	Quantity of Water Made Available	TBD	
Implementing Agency	NWFWMD	Project Status	Ongoing	
Proposed FY Expense (FY 2003-2004)	\$0	Total Amount Spent to Date (Through FY 2002-2003)	\$0	

Water Resource Development Project Summary

Overall, the District's FY 03-04 funding for water resource development projects in Region II is \$663,000. The total cost of the program is currently estimated to be at \$2,530,590 by the end of FY 07-08. The figures in the Water Resource Development Work Plan Funding Summary table (below) address only currently planned water resource development expenditures to implement the District's Region II Water Supply Plan for Santa Rosa, Okaloosa and Walton counties, and therefore do not directly correspond, in total, to the figures provided in the program and activity

spreadsheet of the District's FY 03-04 budget. In this regard, the FY 03-04 WRDWP budget of \$663,000 is only that portion of the District's funds budgeted specifically for Region II under the "Water Resource Development Projects" (Activity Code 2.2.1). This amount will adequately fund the planned water resource development projects in Santa Rosa, Okaloosa and Walton counties. The remaining funds budgeted are those that have been reserved for future water supply planning and development expenditures. These future reserves are for work that could include additional water resource development projects in Santa Rosa Okaloosa and Walton counties, or be used to develop (or update) and implement additional RWSPs, or provide financial assistance for water supply in other regions.

	Table A. NWFWMD 2003-2008 Water Resource Development Work Plan Funding Summary									
				Plan Imp	lementatio	n Costs				Total
Region II Water Resource Development Projects		RWSP Page #	FY 03-04	FY 04-05	FY 05-06	FY 06-07	FY 07-08	Estimated Entire Project Cost*	l otal or Reocc- uring	Amount Spent through FY 02-03**
1	Floridan Aquifer Sustainability Model Analysis	77	\$300,000	\$40,000	\$0	\$0	\$0	\$720,000	Т	\$558,044
2	Inland Sand-and-Gravel Aquifer Project	78	\$80,000	\$10,000	\$10,000	\$5,000	\$0	\$350,000	Т	\$246,075
3	Coastal Sand-and- Gravel Aquifer Sources	80	\$50,000	\$5,000	\$0	\$0	\$0	\$116,000	Т	\$61,300
4	Dev. of Regional Strategies & RWSP Updates	83	\$40,000	\$15,000	\$15,000	\$15,000	\$15,000	\$135,000	R	\$586,595
5	Water Reuse Coordination Program	80	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$227,000	R	\$77,100
6	Water Conservation Program	81	\$15,000	\$15,000	\$15,000	\$15,000	\$15,000	\$112,600	R	\$37,590
7	Surface Water Monitoring for Water Supply Feasibility	82	\$58,000	\$50,000	\$50,000	\$50,000	\$50,000	\$300,000	R	\$44,700
8	Hydrologic Data Collection & Analysis	84	\$60,000	\$40,000	\$40,000	\$40,000	\$40,000	\$300,000	R	\$87,120
9	Abandoned Well Plugging	85	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$180,000	R	\$31,564
10	Aquifer Storage and Recovery Viability	80	\$0	\$10,000	\$70,000	\$10,000	\$0	\$90,000	Т	\$0
	TOTAL		\$663,000	\$245,000	\$260,000	\$195,000	\$180,000	\$2,530,590		\$1,730,088

*Cost estimates beginning FY 02-03 through FY 07-08; this cost estimate is District funds only and does not include limited funding provided by outside entities. **Floridan Aquifer Sustainability Model Analysis, and Development of Regional Strategies commenced prior to development of the WRDWP (2000 and 1998, respectively); therefore amounts spent to date exceed the amounts budgeted for FY 01-02.

Figures in "Total Amount Spent through FY 02-03" column include partial year costs for FY 02-03 because final cost distribution information was not available at the time this report was prepared