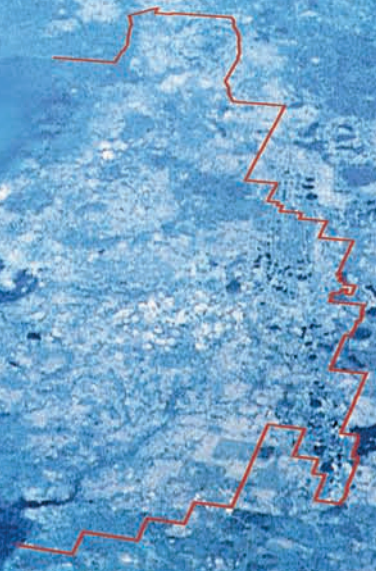


2010 Regional Water Supply Plan Executive Summary



The 2010 Update of the Regional Water Supply Plan

Board Approved July 2011

This document was prepared by the Planning Department with contributions from the Resource Projects, Communications and Finance Departments, and with assistance from Cardno ENTRIX.



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**This plan is also available on the District's
website at: www.WaterMatters.org**

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Chapter 1. Introduction

The 2010 Regional Water Supply Plan (RWSP) is an assessment of projected water demands in the Southwest Florida Water Management District (District) and potential sources of water to meet these demands for the period from 2005 through 2030. The RWSP has been prepared in accordance with the Florida Department of Environmental Protection's (FDEP) 2009 Format and Guidelines for Regional Water Supply Planning. The RWSP consists of four geographically based volumes that correspond to the District's four designated water supply planning regions (Figure 1). The RWSPs for each planning region contain the following chapters: Chapter 1, Introduction; Chapter 2, Resource Protection Criteria; Chapter 3, Demand Estimates and Projections; Chapter 4, Evaluation of Water Sources; Chapter 5, Overview of Water Supply Development Options; Chapter 6, Water Supply Projects Under Development; Chapter 7, Water Resource Development Component; and Chapter 8, Overview of Funding Mechanisms. This Executive Summary also contains a list of Guiding Principles outlining strategies to meet water supply demand throughout the planning period.



The Hillsborough River is a major water supply source for the Tampa Bay Region.

The purpose of the RWSP is to provide a framework for future water management decisions in the District. The 2010 RWSP for the four planning regions shows that water supply demands for all use sectors can be met through 2030. It also shows natural systems can be restored using a combination of alternative water sources, fresh groundwater and water conservation measures. The RWSP also identifies hundreds of potential options and associated costs for developing alternative sources as well as fresh groundwater. The options are not intended to represent the District's most preferable options for water supply development. However, they are provided as reasonable concepts that water users in the planning region can pursue to meet their water supply needs. Additionally, the RWSP provides information to assist water users in developing funding strategies to construct water supply projects. The District previously completed RWSPs in 2001 and 2006 that included the Southern, Heartland and Tampa Bay planning regions. The 2010 update includes the District's Northern Planning Region for the first time. This region was added because a number of factors indicate that the use of groundwater to supply future demand has the potential to cause significant impact to water resources in the area. These factors include:

- Existence of thousands of vested lots where residences will be built that will require potable wells and significant supplemental irrigation.
- Negative effects from groundwater withdrawals on water resources that include impacts to springs and lakes that are approaching their minimum levels.
- Areas adjacent to the District in Lake and Marion counties have been placed under focused monitoring and study by the St. Johns River Water Management District.

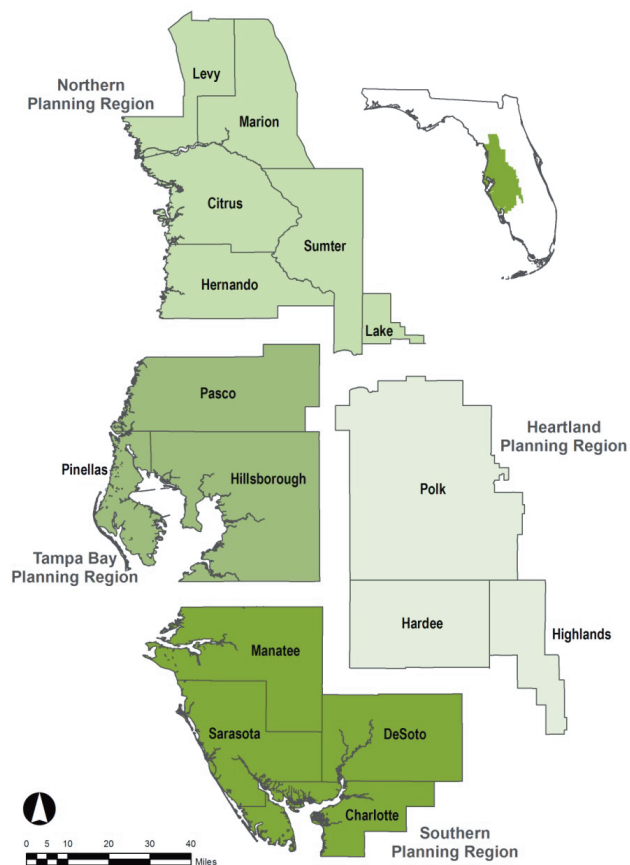


Figure 1. Location of the District's four water supply planning regions

In June 2008, the District's Governing Board responded to those concerns by including the District's northern six counties in the 2010 RWSP update process.

Statutory Requirements for Water Supply Planning

The requirement for regional water supply planning originated from legislation passed in 1997 that amended Chapter 373, Florida Statutes (F.S.). Regional water supply planning requirements are codified in Part VII of Chapter 373 (373.709), F.S., and the District's RWSP has been prepared pursuant to these provisions. Regional water supply planning requirements were amended as a result of the passage of Senate Bill 444 during the 2005 legislative session. The bill strengthened requirements for the identification and listing of water supply development projects. In addition, the legislation intended to foster better communications among water planners, local government planners and local utilities. Local governments are now permitted to develop their own water supply assessments, which the water management districts (WMDs) are required to consider when developing their RWSPs. Finally, a trust fund was created that provides the WMDs with state matching funds to support the development of alternative water supplies by local governments, water supply authorities and other water users.

Connection to Growth Management and Local Government Comprehensive Plans

Consistent with Subsection 373.061(7)(a), F.S., within six months following approval of a RWSP, the District is to notify each local government covered by the RWSP. Within one year after the notification, each local government is required to provide to the District notification of any alternative water supply projects or options that it has developed or intends to develop; an estimate of the quantity of water to be produced by each project; and the status of project implementation, including development of the financial plan. The information is updated annually in a progress report provided to the District. If an entity does not intend to develop an alternative water supply project option identified in the RWSP, the local government is to propose, within one year after notification, another alternative water supply project option sufficient to address the demands within the local government's jurisdiction and provide an estimate of the quantity of water to be produced by the project and the status of project implementation. The local government has the option to request the District consider a project not included in the RWSP.

Section 163.3177(6)(c), F.S., also indicates that within 18 months after Governing Board approval of a RWSP, local governments in the planning region must update their comprehensive plans. These updates must incorporate a work plan detailing alternative and traditional water supply projects, including conservation and reuse, within the local government's jurisdiction, covering at least a 10-year planning period.

Agency Coordination/Public Outreach

The RWSP was developed in an open public process, in coordination and cooperation with other WMDs, water supply authorities, local government utilities, the agricultural and industrial communities, environmental organizations and other interested parties. The District actively involved stakeholders in the RWSP planning process by facilitating public meetings in each of its four service offices as well as involving its standing advisory committees (public supply, agricultural, industrial, well drillers, green industry and environmental). In addition District staff facilitated presentations before the regional planning councils, professional organizations and numerous county commissions. District staff have also been involved with affected parties in the development of the RWSP by coordinating to develop methods for projecting water demands and assisting with the identification of potential options for water supply development. A District RWSP web page was developed to provide public drafts of the entire document, advertise all public meetings and solicit comments from interested parties, including the public. Because the Northern Planning Region was included in the RWSP process for the first time, the District formed the Northern Planning Region Water Supply Plan Work Group to help facilitate this process and receive direct stakeholder input.

Chapter 2. Resource Protection Criteria

This chapter addresses the primary strategies the District employs to protect water resources, which include minimum flows and levels (MFLs), water use caution areas (WUCAs), prevention and recovery strategies, and reservations.

Minimum Flows and Levels (MFLs)

An MFL is the limit at which further withdrawals would be significantly harmful to the water resources or ecology of the area. The District implements established MFLs primarily through its water supply planning, water use and environmental resource permitting programs, and funding of water resource and water supply development projects that are part of a recovery strategy. The District has established and annually updates a list of priority ground and surface waters for which MFLs will be set. Numerous factors are considered in determining which water resources are included, such as the importance of the water resources to the state or region, the existence of or potential for significant harm to occur, the required inclusion of all first-magnitude springs and all second-magnitude springs within state or federally owned lands purchased for conservation purposes, the availability of historic hydrologic records, the possibility that the water resource may be developed as a water supply, and the value of developing an MFL for regulatory purposes.

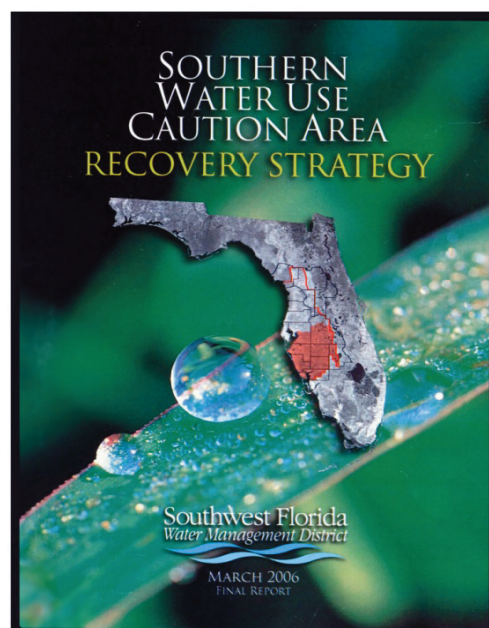
Water Use Caution Areas (WUCAs)

WUCAs are areas requiring regional action to address cumulative water withdrawal concerns that are causing or may cause adverse impacts to the water and related land resources or the public interest (Chapter 40D-2.801, F.A.C.). To determine whether an area should be declared a WUCA, the District considers factors that include the quantity and quality of water available for use from groundwater and surface water sources; the health of environmental systems, such as wetlands, lakes, streams, estuaries, fish and wildlife or other natural resources; and lake stages or surface water rates of flow. In response to continuing resource concerns, the District established the Northern Tampa Bay Water Use Caution Area (NTBWUCA) in 1989 and the Southern Water Use Caution Area (SWUCA) in 1992. The SWUCA encompasses the entire southern portion of the District.

Prevention and Recovery Strategies

Section 373.0421(2), F.S., requires that a recovery strategy be developed if the existing flow or level in a water resource is below, or within 20 years is projected to fall below, established MFLs. To date, the District has developed several recovery plans for achieving compliance with adopted MFLs. Regional plans have been developed for the NTBWUCA and SWUCA and recovery strategies have been developed for the lower Alafia and lower Hillsborough rivers. Regulatory components of the recovery strategies for water resources in these areas have been incorporated into District rules (Rule 40D-80, F.A.C.) and outlined in District reports.

To address the effects of water resource impacts in the NTBWUCA, the District took several important actions, including the establishment of MFLs for cypress wetlands, lakes, rivers and the Upper Floridan aquifer. In addition, Tampa Bay Water and its member governments entered into an agreement



in 1998 with the District (Partnership Agreement) to reduce groundwater withdrawals from its regional wellfields by 68 mgd by 2007 and work toward recovery in areas where water resources had been impacted. The SWUCA recovery strategy, adopted in 2006, provides a plan for reducing the rate of saltwater intrusion in the Upper Floridan aquifer, restoring low flows to the upper Peace River, and restoring lake levels by 2025 while ensuring sufficient water supplies and protecting the investments of existing water use permittees. The lower Hillsborough River recovery strategy is a plan to develop a number of projects that will supply quantities of water sufficient to meet the river's established minimum flow by 2017. The lower Alafia River recovery strategy requires major industrial water users to augment the river with groundwater to prevent their use of surface water from exceeding the established MFL.

Reservations

Subsection 373.223(4), F.S., authorizes reservations of water from use by permit applicants for the protection of fish and wildlife or the public health and safety. The District will consider establishing a reservation of water when a District water resource development project will produce water needed to achieve compliance with adopted MFLs. Reservations of water will be established by rule. The District initiated rule making in May 2009 to reserve from permitting the quantity of water to be stored in Lake Hancock through the lake level modification project.

Climate Change

Climate change may affect water supply sources and will be factored into evaluations of the adequacy of supplies to meet future demand. It also has potential to dramatically change patterns of demand and could, therefore, be an important consideration in demand projections. Changes in the nature of supply and demand would necessitate infrastructure adaptation. High cost and relative uncertainty make these adaptations somewhat problematic; however, as information is generated, existing and proposed water sources and projects will be evaluated to determine their feasibility and desirability. For these reasons, the District is assuming a "monitor and adapt" approach toward climate change. The District will actively monitor current research projects, both locally and nationally, interpret the results, and initiate appropriate actions deemed necessary to protect our water resources against the effects of climate change. For further information, see the climate change section in the Resource Protection Criteria chapter in each planning region's RWSP.

Chapter 3. Demand Estimates and Projections

This chapter includes a comprehensive analysis of the demand for water for all use categories in the District for the planning period. The analysis includes the District's methods and assumptions used in projecting water demand for each county, the demand projections in five-year increments and a discussion of important trends in the data. Water demand has been projected for the public supply, agricultural, industrial commercial, mining dewatering, power generation (I/C,M/D,PG), and recreational aesthetic use categories for each county in the District. An additional water use category, environmental restoration, comprises quantities of water that need to be retired to meet established MFLs. The environmental restoration demand could increase during the planning period based on the recovery requirements of MFLs established in future years. Table 1 summarizes the increases in demand for the average rainfall (5-in-10) condition for each water use category in the District in five-year increments during the planning period. The table shows that the increase in water supply demand for the planning

Table 1. Projected increase in demand by planning region (5-in-10) (mgd)

Water Use Categories	Planning Period						Total Increase	
	2005 Base	2005 2010	2010 2015	2015 2020	2020 2025	2025 2030	mgd	%
Southern Planning Region								
Public Supply	100.2	12.9	9.1	8.2	7.8	7.0	45.0	44.9%
Agriculture	117.8	6.1	0.1	0.04	0.04	1.0	7.3	6.2%
I/C,M/D,PG	6.3	1.6	0.2	0.1	0.2	0.2	2.3	36.5%
Rec/Aesthetic	27.4	1.8	2.4	2.6	2.4	2.4	11.6	42.3%
Env. Restoration	n/a	5.9	4.0	4.0	4.0	-	17.9	n/a
Incremental Increase	n/a	28.3	15.8	14.9	14.4	10.6	n/a	n/a
Cumulative Increase	251.7	280.0	295.8	310.7	325.1	335.7	84.1	33.4%
Heartland Planning Region								
Public Supply	91.6	22.9	14.3	12.6	12.4	12.3	74.5	81.3%
Agriculture	202.3	-	-	-	0.02	-	0.02	0.01%
I/C,M/D,PG	68.5	5.8	-	1.9	2.3	2.6	12.6	18.4%
Rec/Aesthetic	17.3	2.9	2.1	1.9	1.9	1.8	10.7	61.8%
Env. Restoration	n/a	3.2	12.9	7.9	7.9	-	31.9	n/a
Incremental Increase	n/a	34.8	29.3	24.3	24.5	16.7	n/a	n/a
Cumulative Increase	379.7	414.5	443.8	468.1	492.6	509.3	129.6	34.1%
Tampa Bay Planning Region								
Public Supply	299.2	26.1	17.4	16.6	16.8	14.4	91.3	30.5%
Agriculture	61.4	2.7	-	1.1	1.1	1.8	6.7	10.9%
I/C,M/D,PG	17.6	-	0.4	0.4	0.5	0.4	1.7	9.7%
Rec/Aesthetic	36.9	2.2	2.0	2.7	2.7	2.7	12.3	33.3%
Env. Restoration	n/a	2.5	0.9	10.6	0.9	-	14.9	n/a
Incremental Increase	n/a	33.5	20.7	31.4	22.0	19.3	n/a	n/a
Cumulative Increase	415.1	448.6	469.3	500.7	522.7	542.0	126.9	30.6%
Northern Planning Region								
Public Supply	82.4	24.0	13.2	13.7	10.0	11.2	72.1	87.5%
Agriculture	18.9	0.8	0.8	0.8	0.8	0.1	3.3	17.5%
I/C,M/D,PG	23.3	1.1	1.0	0.5	0.6	0.5	3.7	15.9%
Rec/Aesthetic	18.6	2.6	2.3	2.3	1.9	2.2	11.3	61.0%
Env. Restoration	n/a	-	-	-	-	-	0.0	n/a
Incremental Increase	n/a	28.5	17.3	17.3	13.3	14.0	n/a	n/a
Cumulative Increase	143.2	171.7	189.0	206.3	219.6	233.6	90.4	63.1%
Total	1,189.7	125.1	83.1	87.9	74.2	60.6	431.0	36.2%

period for all use categories and for restoration of natural systems is 431 mgd; a 36.2 percent increase over the quantity used in the 2005 base year. Approximately 169 mgd, or 39 percent, of this demand has been met by projects that the District considers to be under development. Of the 262 mgd projected demand that is not yet under development, 53.1 mgd, or 20 percent, will be for environmental restoration. Approximately 38.4 mgd of this quantity will consist of decreases in groundwater withdrawals necessary to meet the saltwater intrusion minimum aquifer level in the SWUCA in the Southern, Heartland and Tampa Bay planning regions. The remaining 14.7 mgd is needed to meet the Hillsborough River and Alafia River minimum flows in the Tampa Bay Planning Region and the upper Peace River minimum flow in the Heartland Planning Region.

Decreases in demand will occur during the planning period in the agricultural and I/C,M/D,PG categories. Decreases in demand, which are reductions in the use of groundwater, are not subtracted from increases in demand but are tracked in separate tables. This is because increases in demand may be met with alternative sources and/or conservation, and the retired groundwater quantities may be reallocated for mitigation of new groundwater permits for other use categories and/or permanently retired to help meet environmental restoration goals. Table 2 shows that decreases of approximately 32 mgd will occur through 2030 for these categories.

Table 2. Projected decrease in demand¹ by planning region (5-in-10) (mgd)

Water Use Categories	Planning Period						Total Decrease	
	2005 Base	2005 2010	2010 2015	2015 2020	2020 2025	2025 2030	mgd	%
Southern Planning Region								
Agriculture	117.8	-0.16	-1.1	-1.5	-0.9	-0.07	-3.7	3.1%
I/C,M/D,PG	6.3	-1.5	-	-	-	-	-1.5	23.8%
Incremental Decrease	n/a	-1.7	-1.1	-1.5	-0.9	-0.07	-5.3	n/a
Heartland Planning Region								
Agriculture	202.3	-4.3	-0.8	-0.04	-	-0.01	-5.2	2.6%
I/C,M/D,PG	68.5	-0.2	-6.1	-	-	-	-6.3	9.2%
Incremental Decrease	n/a	-4.5	-6.9	-0.04	-	-0.01	-11.5	n/a
Tampa Bay Planning Region								
Agriculture	61.4	-0.2	-0.9	-0.1	-0.1	-0.1	-1.3	2.1%
I/C,M/D,PG	17.6	-3.5	-	-	-	-	-3.5	19.9%
Incremental Decrease	415.1	-3.7	-0.9	-0.1	-0.1	-0.1	-4.8	n/a
Northern Planning Region								
Agriculture	18.9	-0.2	-0.1	-0.1	-0.1	-0.1	-0.6	3.2%
I/C,M/D,PG	23.3	-9.8	-	-	-	-	-9.8	42.0%
Incremental Decrease	n/a	-10.0	-0.1	-0.1	-0.1	-0.1	-10.4	n/a
Total	1,189.7	-19.9	-9.0	-1.7	-1.1	-0.28	-32.0	2.3%

¹Only the agricultural and I/C,M/D,PG use categories are projected to experience declining demands.

Chapter 4. Evaluation of Water Sources

This chapter outlines the District's investigations to quantify the amount of water that is potentially available from all sources of water within each planning region to meet demands through 2030. Sources of water that were evaluated include surface water, stormwater, reclaimed water, seawater desalination, brackish groundwater desalination, fresh groundwater and conservation. Aquifer storage and recovery (ASR) is also discussed as a storage option with great potential to maximize the utilization of surface water and reclaimed water.

Table 3 summarizes the potential availability of water from each source and potential for water conservation measures to reduce demand through 2030 in each of the planning regions. The table shows that approximately 668 mgd is available from alternative sources and 177 mgd is available from fresh groundwater. The table also shows that water conservation measures have the potential to reduce demand by 92 mgd. The total water supply availability and potential for water conservation to reduce demand in the District through 2030 is approximately 937 mgd. When compared to the projected 2030 additional demand of 431 mgd (Table 1), it can be concluded that the available water supplies and conservation measures are sufficient to meet the 2030 projected demands.

Water demand will be met differently in each planning region. The following is a general overview of how the projected water demands in each planning region are likely to be met with the identified sources.

Southern Planning Region

The 2005–2030 increase in water demand in the Southern Planning Region is projected to be 84.1 mgd. As of 2010, it is estimated that at least 66 percent of that demand (54 mgd) has either been met or will be met by projects that meet the District's definition of being under development. The majority of the remaining 30 mgd could be supplied by some combination of projects that will develop surface water, reclaimed water and brackish groundwater, and through non-agricultural water conservation — the potential for which is approximately 7 mgd through 2030. Reductions in agricultural water demand will be very significant in the planning region due to the District's focus on reducing agricultural runoff in the Shell, Prairie, Joshua and upper Myakka River watersheds. The projected reduction in agricultural and I/C,M/D,PG groundwater use of 5.3 mgd, resulting from conservation measures and land-use transitions, could be permanently retired to help achieve the saltwater intrusion minimum aquifer level in the planning region. It could also allow for the development of a limited amount of fresh groundwater by mitigating predicted impacts to the Upper Floridan aquifer.

Heartland Planning Region

The 2005–2030 increase in water demand in the Heartland Planning Region is projected to be 129.6 mgd. As of 2010, it is estimated that at least 16 percent of that demand (22 mgd) has either been met or will be met by projects that meet the District's definition of being under development. The remaining 107.6 mgd will be supplied by 41 mgd of unused groundwater quantities that have been permitted to utilities in Polk County, by 43 mgd of offset quantities of reclaimed water that will be available in the region by 2030, and through non-agricultural water conservation — the potential for which is nearly 21 mgd through 2030. An additional source available to meet demand includes nearly 11.5 mgd in projected reductions in agricultural and I/C,M/D,PG groundwater use resulting from conservation measures and land-use transitions.

Regional Water Supply Plan Executive Summary

Table 3. Potential additional water availability in the District from sources in each planning region through 2030 (mgd)

Planning Region	Surface Water		Reclaimed Water	Desalination		Fresh Groundwater		Water Conservation		Total
	Permitted Unused	Available Unpermitted	Offsets	Seawater	Brackish Groundwater	Surficial and Intermediate	Upper Floridan Unused/Permitted	Non-Agricultural	Agricultural	
Southern	31.0	173.4	39.4	40.0	16.2	17.4	3.5	7.0	6.5	334.4
Heartland	0.05	4.3	42.5	N/A	TBD	8.0	40.9	20.9	6.9	123.6
Tampa Bay	55.7	18.7	75.8	35.0	10.6	5.5	11.0	18.9	6.3	237.5
Northern	0.49	93.1	16.8	15.0	TBD	N/A	90.4 ¹	20.5	5.3	241.5
Total	87.2	289.5	174.5	90.0	26.8	30.9	145.8	67.3	25.0	937.0

¹The Northern Planning Region is the only region where groundwater from the Upper Floridan aquifer will be available in quantities sufficient to meet the 2030 demand. Therefore, the 88.7 mgd of groundwater has been set equal to the projected 2030 demand for the planning region. However, it is anticipated that the District's efforts to aggressively promote and develop reclaimed water and conservation will significantly reduce the amount of groundwater needed to meet the projected demand.



Tampa Bay Water's facility on Tampa Bay is the largest seawater desalination facility currently in operation in North America.

This quantity could be permanently retired to help achieve the saltwater intrusion minimum aquifer level and/or used to allow development of a limited amount of fresh groundwater by mitigating predicted impacts to the Upper Floridan aquifer. Finally, the potential exists to import water into Polk County from supplies developed by Tampa Bay Water in the Tampa Bay Planning Region and/or from surface and groundwater supplies in the portion of Polk County in the South Florida Water Management District.

Tampa Bay Planning Region

The 2005–2030 increase in water demand in the Tampa Bay Planning Region is projected to be approximately 126.9 mgd. As of 2010, it is estimated that at least 74 percent of that demand (91 mgd) has either been met or will be met by projects that meet the District’s definition of being under development. The remaining 35.9 mgd will be supplied by 11 mgd of unused groundwater quantities that have been permitted to utilities and by some combination of projects to develop additional surface water from the Hillsborough River/Tampa Bypass Canal System and the Alafia River, the large quantity of reclaimed water that will be available in the region (76 mgd), and through non-agricultural water conservation — the potential for which is nearly 19 mgd through 2030. An additional source available to meet demand includes 4.8 mgd in projected reductions in agricultural and I/C,M/D,PG groundwater use resulting from conservation measures and land-use transitions. This quantity could be permanently retired to help achieve the saltwater intrusion minimum aquifer level and/or used to allow development of a limited amount of fresh groundwater by mitigating predicted impacts to the Upper Floridan aquifer.

Northern Planning Region

The 2005–2030 increase in demand in the Northern Planning Region is projected to be 90.4 mgd. As of 2010, it is estimated that nearly 4 percent of that demand (3.5 mgd) has either been met or will be met by projects that meet the District’s definition of being under development. The remaining 86.9 mgd can be supplied entirely by fresh groundwater from the Upper Floridan aquifer. However, the amount of fresh groundwater used to meet this demand could be significantly reduced if the region maximizes its reclaimed water supplies, which will total 17 mgd by 2030, and its 2030 non-agricultural water conservation potential of 21 mgd.

Chapter 5. Overview of Water Supply Development Options

The water supply development component of the RWSP requires the District to identify water supply options from which water users in each planning region can choose to meet their individual needs. In addition, the District is to determine the associated costs of developing these options. As discussed in Chapter 4, the sources of water that are potentially available to meet projected water demand in the District include surface water, stormwater, reclaimed water, seawater desalination, brackish groundwater desalination, fresh groundwater and conservation. Investigations were conducted to identify reasonable options for developing each of the sources, to provide planning level technical and environmental feasibility analyses, and to determine costs to develop the options.

Where applicable, water supply options developed through other regional planning efforts conducted by Tampa Bay Water, the Withlacoochee Regional Water Supply Authority, the Peace River Manasota Regional Water Supply Authority (PRMRWSA) and Polk County were incorporated into the RWSP for each planning region. These options are not necessarily the

District's preferred options but are provided as reasonable concepts that water users in the region may pursue in their water supply planning efforts. A number of the options are of such a scale that they would likely be implemented by either a regional water supply authority or a group of users. Other options, such as those involving reclaimed water and conservation, could be implemented by individual utilities, farmers or other permittees. It is anticipated that users will choose an option or combine elements of different options that best fit their needs for water supply development, provided they are consistent with the RWSP. Following a decision to pursue an option identified in the RWSP, it will be necessary for the parties involved to conduct more detailed technical assessments to provide the necessary support for developing the option. See Chapter 5 in the respective planning region RWSP for a complete listing of water supply development options in the District.

Chapter 6. Water Supply Projects Under Development

This chapter is an overview of water supply projects that are under development in the planning regions. Projects under development are those the District is co-funding that have either been (1) completed since the year 2005 — the base year for the 2010 RWSP, (2) are in the planning, design or construction phase or (3) are not yet in the planning phase but have been at least partially funded through the 2010 fiscal year. Below are brief summaries of the planning regions' water supply projects under development. See Chapter 6 in the respective planning region RWSP for a complete listing of water supply projects under development in the District.

Southern Planning Region

The PRMRWSA recently completed a major regional expansion project, which enabled it to produce its total permitted allocation of 32.7 mgd from the Peace River. The project included a new reservoir with a capacity of 6 billion gallons, increased water treatment plant capacity and an extension of its regional transmission system. The expansion project produces 16.4 mgd of additional water supply at a cost of approximately \$167 million. The PRMRWSA is also developing its Regional Integrated Loop System — a series of transmission pipelines that will regionally transfer and deliver water from existing and future alternative supplies to demand centers within its four-county service area. Surface water projects under development include the City of North Port's Myakkahatchee Creek/Cocoplum Waterway River Bank Filtration/Reverse Osmosis Water Treatment Project and the City of Bradenton's Reservoir Expansion Project.



Construction of an early phase of the Peace River Manasota Regional Water Supply Authority's water treatment plant.

There are 24 reclaimed water projects under development that include transmission pipelines, pump stations, storage tanks and ponds, aquifer storage and recovery systems, and feasibility studies. The projects will deliver 26 mgd of reclaimed water that will offset 17 mgd of potable-quality water supplies at a total cost of approximately \$67 million. The District is partnering with

the City of Punta Gorda to develop a brackish groundwater wellfield and reverse osmosis treatment facility that will produce 2 mgd of finished water. The cost of the project is approximately \$37 million. There are two potable water ASR projects being developed in the planning region by the City of Bradenton and the City of North Port. When completed, these projects will produce 3.5 mgd of dry-season supply at a cost of nearly \$4 million. There are also operational ASR systems: the PRMRWSA's potable ASR wellfield at the Peace River facility and a reclaimed water ASR well at the Englewood Water District facility. There are currently 11 non-agricultural water conservation projects under development that include low-flow toilet rebates, plumbing retrofits and outdoor irrigation system retrofits. The projects will save nearly 314,000 gallons per day at a cost of approximately \$1 million. There are seven agricultural research and education projects under development that involve best management practices to increase the efficiency of agricultural operations. The total cost of these projects is \$683,000.

Heartland Planning Region

There are 17 reclaimed water projects under development that include transmission pipelines, pump stations, storage tanks and ponds, and feasibility studies. The projects will deliver 18 mgd of reclaimed water that will offset 13 mgd of potable-quality water supplies at a total cost of more than \$109 million. There are two aquifer recharge/recovery projects under development. When completed, these projects have the potential to produce 4.6 mgd of dry season supply. There are eight non-agricultural water conservation projects under development that include low-flow toilet rebates, plumbing retrofits and outdoor irrigation system audits and retrofits. The projects will save more than 776,000 gallons per day at a cost of approximately \$1.2 million. There are four agricultural research and education projects under development that will result in water savings in the region. These projects involve best management practices to increase the efficiency of agricultural operations. The total cost of these projects is \$539,000.

Tampa Bay Planning Region

Tampa Bay Water's regional water supply system is undergoing a major expansion as part of its System Configuration II Project. This project will expand the capacity of the Regional Surface Water Treatment Plant from 72 to 99 mgd. This additional capacity will be achieved by adding pumping and distribution capacity to existing infrastructure, enabling the capture of higher surface water flows on the Hillsborough River and additional flows from the Tampa Bypass Canal. An added benefit of the project is the ability to store more water in the C.W. Bill Young Regional Reservoir. The project will produce an additional 25 mgd at a cost of approximately \$255 million.

There are 49 reclaimed water projects under development that include transmission pipelines, pump stations, storage tanks and ponds, aquifer storage and recovery systems, and feasibility studies. When complete, these projects will deliver 26 mgd of reclaimed water that will offset 13 mgd of potable-quality water supplies at a total cost of approximately \$234 million. The Tampa Bay Seawater Desalination facility is an integral part of Tampa Bay Water's regional water supply system. The facility is capable of producing 25 mgd of potable water and produced an annual average of 20.1 mgd in its first full year of operation (December 2007 to December 2008). The total cost of the facility was \$156 million. Three brackish groundwater projects are under development in the region. The projects are being developed by the cities of Clearwater, Oldsmar and Tarpon Springs and will produce a total of 11 mgd of additional water supply at a cost of approximately \$92 million. There is one potable ASR project under development in the planning region that could potentially provide 10 mgd of water supply during the dry season.

There are 22 non-agricultural water conservation projects under development that include low-flow toilet rebates, plumbing retrofits and outdoor irrigation system audits and retrofits. The projects will save nearly 2.7 mgd at a cost of more than \$12.7 million. There are three agricultural research and education projects under development that involve the implementation of best management practices to increase the efficiency of agricultural operations. The total cost of these projects is \$322,500.

Northern Planning Region

There are 10 reclaimed water projects under development that include transmission pipelines, pump stations, storage tanks and ponds, and feasibility studies. The projects will deliver 5 mgd of reclaimed water that will offset 3.5 mgd of potable-quality water supplies at a total cost of \$35.5 million. There is one outdoor water conservation project under development in the region: an outdoor irrigation system audit with rebates for retrofits. The projects will save nearly 35,000 gallons per day at a cost of \$51,000.

Chapter 7. Water Resource Development Component

The intent of the Water Resource Development Component is to enhance the amount of water available for water supply development. The District classifies water resource development projects into two broad categories. The first category encompasses data collection and analysis activities that support water supply development by local governments, utilities, regional water supply authorities and others. The second category includes projects that meet the more narrow statutory definition of water resource development, i.e., “regional projects designed to create from traditional or alternative sources an identifiable, quantifiable supply of water for existing and/or future reasonable-beneficial uses.” The District has 20 projects under development that meet this definition. These projects include (1) alternative water supply research, restoration and pilot projects that further the development of innovative technologies to produce water from alternative sources and achieve hydrologic restoration, (2) agricultural water supply/environmental restoration projects that employ agricultural water conservation strategies to increase the water use efficiency of agricultural operations, and (3) projects to restore minimum flows to impacted water resources. Districtwide, these 20 projects will produce or conserve a minimum of 55 mgd at a total cost of nearly \$196 million.



The Lake Hancock Lake Level Modification Project is a major water resource development project designed to restore minimum flows to the upper Peace River.

Chapter 8. Overview of Funding Mechanisms

This chapter provides an overview of mechanisms available to generate the necessary funds to implement the water supply and water resource development projects proposed by the District and its cooperators to meet the water supply demand projected through 2030 and to restore MFLs to impacted natural systems. To develop an estimate of capital costs to meet the portion of the 2030 demand that is not yet under development, the District compiled a list of large-scale water supply development projects. The water supply produced from these large-scale water supply development projects, combined with the water supply to be produced from numerous smaller-scale water supply and water conservation projects currently under development, will meet more than one-half of the projected demand. The District anticipates that a large portion of the remaining half of the demand will be met through projects that users will select from the water supply options listed in Chapter 5 of the RWSP for each planning region. Finally, a significant portion of this remaining demand is in the Northern Planning Region, where more than half will be met with fresh groundwater from the Upper Floridan aquifer. To determine the availability of funding to cover the costs of developing projects needed to meet the portion of demand that is not yet under development, the capital cost of the potential large-scale projects discussed above is compared to the amount of funding that will be generated through 2030 by the various District and state and federal funding mechanisms.

Projection of the Amount of Funding Anticipated to be Generated or Made Available Through District and State Funding Programs

Table 4 is a projection of the amount of funding that could be generated by District and state funding programs. Many potential funding sources, such as the District's Basin Board Cooperative Funding Initiative, the District's Water Supply and Resource Development Program and the state's Water Protection and Sustainability Trust Fund, were evaluated to create the projection. The table illustrates that a minimum of \$1.2 billion could potentially be generated or made available to fund the water supply and water resource development projects necessary to meet the water supply demand through 2030 and to restore MFLs for impacted natural systems. This figure may be conservative since it is not possible to determine the amount of funding that may be available in the future from the federal government and state of Florida legislative appropriations.

Evaluation of Project Costs to Meet Projected Demand

Of the 431 mgd of new water supply that will need to be developed during the 2005–2030 planning period to meet the demand for all users and to restore MFLs for impacted natural systems, it is estimated that 169 mgd, or 39 percent of the demand, has either been met or will be met by projects that are under development as of Dec. 30, 2010. The total cost for the projects currently under development is \$1.02 billion. Of this amount, \$889 million has been funded through FY2010, leaving \$131 million to be funded beginning in FY2011.

To develop an estimate of the capital cost of projects that will need to be developed to meet the 262 mgd of demand that is not yet under development, the District compiled a list of large-scale water supply development projects that have been proposed by the Peace River Manasota Regional Water Supply Authority, Tampa Electric Company, Mosaic and Polk County that will produce an additional 36 mgd of water supply. These projects as well as their estimated costs

Table 4. Projection of amount of funding that could be generated or made available through District funding programs (District and cooperators) from 2011 through 2030 (millions of \$)

Funding Projection	
Source	Amount (\$Millions)
Basin Board Cooperative Funding Initiative (CFI)	\$300
Funding provided assuming all Basin Board CFI water supply funds used for projects matched by a partner on an equal cost-share basis	\$300
District Water Supply and Resource Development (WSRD) program funding	\$400
Funding provided assuming one half of WSRD funds are used for projects that would be matched by a partner on an equal cost-share basis.	\$200
State of Florida, Water Protection and Sustainability Trust Fund	TBD
State of Florida, Florida Forever Trust Fund	TBD
State of Florida legislative appropriations	TBD
State of Florida legislative appropriations for FARMS	TBD
State of Florida legislative appropriations for West-Central Florida Water Restoration Action Plan (WRAP)	TBD
Federal funds	TBD
Total	\$1,200

and quantities of water they will produce are listed in Table 5. The table shows that the estimated total cost of the 36 mgd of water supply that will be produced by these projects is nearly \$534 million.

Of the remaining demand of 226 mgd (262 mgd minus 36 mgd), the demand in the Northern Planning Region of 89 mgd will potentially be met by 46 mgd of fresh groundwater and 43 mgd of reclaimed water and conservation projects. Because the District does not fund fresh groundwater projects, matching financial resources may only need to be generated by the District for the 43 mgd of reclaimed water and conservation projects in the Northern Planning Region. The remaining demand the District will provide co-funding for is 180 mgd (226 mgd minus 46 mgd). This demand will be met through the development of alternative water source and conservation projects chosen by users from the list of potential options in Chapter 5.

Evaluation of Potential Available Funding to Assist With the Cost of Meeting Projected Demand

The \$1.2 billion in cooperator and District financial resources that will be generated through 2030 (Table 4) will be sufficient to fund the \$534 million total cost of the projects listed in Table 5 and the \$131 million portion of the cost of the projects under development that has not yet been funded. The remaining \$535 million will be available to assist with the cost of alternative water source projects and water conservation measures that will be required to meet the remaining demand of 180 mgd that is not under development or will not be met by fresh groundwater. It may also serve as a reserve for the development of projects to replace water supplies that may be reduced as the result of the establishment or revision of MFLs.

If current economic conditions worsen and result in District ad valorem tax revenue continuing to decline and federal and state funding continuing to be unavailable, the funding plan levels and timelines will need to be adjusted through 2030. For a complete discussion of funding options, see Chapter 8 of the respective planning region RWSP.

Regional Water Supply Plan Executive Summary

Table 5. Proposed large-scale water supply and water resource development projects to be completed by 2030 (millions of \$)

Project	Entity Responsible for Implementation	Quantity (mgd)	Capital Costs	Land Costs	Potential Eligible Land Costs	Total Costs (Capital + Land)
Regional Resource Development	PRMRWSA	8	\$117	\$4	-	\$121
Regional Loop System	PRMRWSA	N/A	\$104	\$3	-	\$107
Polk County Water Supply Development	Polk County and potentially municipalities	10	\$143	\$7	-	\$150
Flatford Swamp Hydrologic Restoration	Mosaic	12	\$82	\$4	-	\$86
Southwest Polk County/Tampa Electric RW (Phase 2)	Tampa Electric Co.	6	\$70	-	-	\$70
Subtotal – Southern and Heartland planning regions		36	\$516	\$18	-	\$524
Total – Southern, Heartland, and Tampa Bay planning regions		36	\$516	\$18	-	\$534

Guiding Principles

The analysis provided in the RWSP is based on a number of important principles that will guide the District's strategies to meet water supply demand throughout the planning period. The principles that follow take into account statutory directives, the hydrologic conditions in the planning regions, existing and potential impacts to natural systems, the characteristics of water user groups, and other factors.

- *An emphasis on water conservation.* Conservation is considered to be a potential source of water for all major use types. Future water demand is projected based on current water use efficiencies. If efficiency is increased through conservation, future demand will be offset and reduced. Conservation is strongly recommended for all users; however, special emphasis is placed on public supply use in the Northern Planning Region, which has tremendous potential for water savings. Regarding agricultural demand, the District, in cooperation with the Florida Department of Agriculture and Consumer Services, has developed the Facilitating Agricultural Resource Management Systems (FARMS) Program to promote agricultural water conservation. FARMS is a cost-share reimbursement program aimed at the implementation of best management practices that conserve water and improve water quality.
- *An emphasis on reclaimed water.* Reclaimed water is an important resource that can help meet future demands in all use sectors. The District's goals are to utilize 75 percent of all reuse flows and to achieve a 75 percent offset of potable sources. To meet these goals, the District will emphasize water-conserving rate structures, wet-weather storage and system augmentation, where appropriate.
- *Regional cooperation in water supply planning.* The District promotes regional approaches to water supply planning and development. The benefits of regional systems include economies of scale, better ability to manage environmental impacts, improved system reliability, operational flexibility and emergency backup capability. Larger, regional systems are also able to take advantage of conjunctive use, wherein both groundwater and alternative sources are available and can be managed to mimic natural hydrologic cycles. The primary vehicles for regional cooperation in the District are the three regional water supply authorities whose jurisdictions correspond closely to three of the four planning regions. The RWSP was developed in close coordination with these authorities and also with Polk County and its municipalities, which worked together in 2009 to develop a countywide water supply plan.
- *Focus on alternative sources.* Because three of the four planning regions are subject to MFL recovery strategies due to the effects of groundwater withdrawals, the RWSP focuses on alternative water sources, including surface water, brackish groundwater, seawater desalination, reclaimed water and water conservation. Fresh groundwater supplies are available in the Northern Planning Region and could continue to meet demand beyond the 20-year planning period if the region's considerable potential for reuse and conservation was realized.
- *Meeting future demand through land-use transitions.* In the SWUCA, land uses such as agriculture and mining are being displaced by residential and commercial land uses. It is anticipated that the water needs of these new land uses will be met in many areas by

alternative supplies, such as harvesting and storing the wet-season flow of rivers, reclaimed water and conservation. Because the land uses being replaced rely almost entirely on groundwater, there will be a net reduction in groundwater use. While a portion of this groundwater will be retired to help meet the saltwater intrusion minimum aquifer level, the remainder can be used to meet the demands of development in areas where access to alternative supplies is limited.

- *The role of constraints such as MFLs.* In three of the four planning regions, some water resources are not meeting their established minimums. In these areas, it will be necessary to continue implementation of MFL recovery strategies while also identifying potential water supply options to meet future demands. In the Northern Planning Region, where only a few MFLs have been established to date, it is anticipated that water resources will generally meet their MFLs as they are set. Thus, in the north, the District's focus is on preventing resource impacts as water demand increases and additional supplies are developed during the planning period.