

Broward County Water and Wastewater Services Water and Wastewater Systems Annual Report Fiscal Year 2010



Final Report Prepared June 2011 by
Hazen and Sawyer, P.C and **Milian, Swain & Associates, Inc.**

WATER AND WASTEWATER SYSTEMS ANNUAL REPORT

FISCAL YEAR 2010

Prepared for



*Prepared by
Hazen and Sawyer, P.C.
and
Milian, Swain & Associates, Inc.
June 2011*

Table of Contents

Section 1	Introduction.....	1-1
1.1	Purpose of the Report.....	1-1
Section 2	Administration and Management	2-1
2.1	History and Organization of Water and Wastewater Services	2-1
2.2	Mission.....	2-2
	Goals	2-2
	Water and Wastewater Services Administration	2-2
	Water and Wastewater Operations Division.....	2-3
	Water and Wastewater Engineering Division.....	2-4
	Water Management Division.....	2-6
	Fiscal Operations Division.....	2-7
	Water and Wastewater Information Technology Division	2-8
	Project and Community Coordination	2-9
Section 3	Retail Water and Wastewater Utilities System	3-1
3.1	General Description	3-1
	Service Area and Customer Base	3-1
3.2	Water System Regulatory Requirements	3-9
	Current Water Quality Regulations	3-9
	Water Quality Regulations.....	3-9
3.3	Water Supply	3-10
3.4	Water Supply Regulatory Requirements	3-10
3.5	Overview of the Facilities.....	3-14
	Water System.....	3-14
	Retail Wastewater System.....	3-15
3.6	Visual Inspection and Review	3-16
	Water Treatment Plant 1A.....	3-16
	Water Treatment Plant 2A.....	3-17
	Water Distribution System 3A	3-18
	Water Distribution System 3B and 3C	3-19
	Lift Stations	3-19
Section 4	Regional Wastewater System.....	4-1

Table of Contents

4.1	General Description	4-1
	Service Area and Customer Base	4-2
4.2	Wastewater System Regulatory Requirements	4-6
4.3	Wastewater Effluent Management	4-7
4.4	Biosolids Management	4-9
4.5	Wastewater Large User Agreements	4-9
4.6	Visual Inspection and Review	4-13
	North Regional Wastewater Treatment Plant	4-13
	Septage Receiving Facility	4-14
	Master Lift Stations	4-14
Section 5	Regional Raw Water Supply	5-1
5.1	General Description	5-1
5.2	North Regional Wellfield	5-1
5.3	South Regional Wellfield	5-1
5.4	Contractual Agreements	5-5
5.5	Large Users	5-5
5.6	Regional Raw Water Supply Regulations	5-6
5.7	Visual Inspection and Review	5-7
	North Regional and South Regional Wellfields	5-7
Section 6	Capital Improvement Program	6-1
6.1	Description of the Capital Improvement Program	6-1
6.2	Retail Water and Wastewater System Improvements	6-4
6.3	Neighborhood Improvement Program	6-4
6.4	Utility Analysis Zones	6-5
6.5	Regional Wastewater System Improvements	6-5
Section 7	Financial Conditions	7-1
7.1	Overview of Financial Operations	7-1
7.2	Water and Wastewater Rates and Charges	7-5
7.3	Revenue Projections	7-7
7.4	Comparison of Utilities Service Costs for Municipalities and the Unincorporated Area in Broward County	7-9
7.5	Insurance Coverage	7-11

Tables

3-1 SUMMARY OF RETAIL WATER SYSTEM AND RETAIL WASTEWATER SYSTEM	3-2
3-2 SUMMARY OF WATER SYSTEM FACILITIES AND CAPABILITIES AS OF SEPTEMBER 30, 2010	3-4
3-3 SUMMARY OF TREATED WATER SOLD AS OF SEPTEMBER 30, 2010	3-5
3-4 RETAIL WASTEWATER SYSTEM CHARACTERISTICS AS OF SEPTEMBER 30, 2010	3-7
3-5 SUMMARY OF BILLED WASTEWATER - RETAIL AS OF SEPTEMBER 30, 2010	3-7
3-6 WATER USAGE - FIVE YEAR HISTORY (1,000 GALLONS) THROUGH SEPTEMBER 2010.....	3-8
3-7 SUMMARY OF SFWMD WELLFIELD PERMITS AS OF SEPTEMBER 30, 2010.....	3-13
4-1 SUMMARY OF HISTORICAL LARGE USER WASTEWATER AVERAGE MONTHLY FLOW FOR TREATMENT AND DISPOSAL (1,000 GALLONS)	4-4
4-2 NRW SYSTEM RESERVE CAPACITY AS OF SEPTEMBER 30, 2010 (MGD)	4-5
4-3 SUMMARY OF LARGE USER WASTEWATER TREATMENT ANNUAL FLOWS FIVE-YEAR HISTORY AS OF SEPTEMBER 2010 (1,000 GALLONS)	4-6
5-1 NRW PHYSICAL DESCRIPTIONS	5-3
5-2 SRW PHYSICAL DESCRIPTIONS.....	5-4
5-3 (A) - (B) LARGE USER ACTUAL FLOW REGIONAL RAW WATER FLOW DISTRIBUTION (1,000 GALLONS)	5-6
5-4 NRW WELLFIELD INSPECTIONS.....	5-9
5-5 SRW WELLFIELD INSPECTIONS	5-10
6-1 CAPITAL IMPROVEMENT PROGRAM AS OF SEPTEMBER 30, 2010.....	6-2
6-2 CAPITAL PROJECTS BUDGETS BY TYPE THROUGH FISCAL YEAR 2015	6-3
6-3 SUMMARY OF NEIGHBORHOOD IMPROVEMENT PROGRAM AS OF SEPTEMBER 30, 2010.....	6-5
7-1 BROWARD COUNTY WATER AND SEWER MONTHLY SERVICE COSTS FOR A RESIDENTIAL CUSTOMER USING 5,000 GALLONS PER MONTH	7-2
7-2 BROWARD COUNTY SCHEDULE OF RETAIL RATES MINIMUM MONTHLY CHARGES BY CUSTOMER CLASS AND METER SIZE EFFECTIVE OCTOBER 1, 2010.....	7-3
7-3 BROWARD COUNTY SCHEDULE OF RETAIL RATES VOLUME CHARGE (PER 1,000 GALS) BY CUSTOMER CLASS AND METER SIZE EFFECTIVE OCTOBER 1, 2010	7-4
7-4 RETAIL WATER AND WASTEWATER BILLING VOLUMES AS OF SEPTEMBER 30, 2010 (1,000 GALLONS)	7-5
7-5 AUTOMATIC RATE ADJUSTMENTS FOR PERIODS OF MANDATED WATER RESTRICTIONS.....	7-6
7-6 HISTORICAL AND PROJECTED RATIOS OF LARGE USERS' REVENUE TO TOTAL REVENUES AND WASTEWATER REVENUES FOR FISCAL YEAR 2006 THROUGH 2015 (IN \$1,000S).....	7-8
7-7 SCHEDULE OF HISTORICAL AND PROJECTED NET REVENUES, DEBT SERVICE, AND DEBT SERVICE COVERAGE FOR FISCAL YEARS 2006 TO 2015 (\$1,000S)	7-9
7-8 COMPARATIVE RATE SURVEY FOR FY 2010 (USAGE OF 5,000 GALLONS PER MONTH)	7-10

Figures

FIGURE 2-1 ORGANIZATIONAL CHART 2-10
FIGURE 3-1 BROWARD COUNTY WWS RETAIL WATER SERVICE AREAS 3-3
FIGURE 3-2 BROWARD COUNTY WWS RETAIL WASTEWATER SERVICE AREAS..... 3-6
FIGURE 4-1 BROWARD COUNTY WWS WASTEWATER LARGE USER SERVICE AREAS..... 4-3
FIGURE 5-1 BROWARD COUNTY REGIONAL RAW WATER SERVICE AREA 5-2

Table of Contents

Appendix A

WATER PRODUCTION, WASTEWATER TREATMENT, AND REGIONAL RAW WATER	A-1
AVERAGE NUMBER OF ACCOUNTS / COMMERCIAL / MUNICIPAL/ INSTITUTIONAL CLASS, SEPTEMBER 30, 2010	A-2
RETAIL WATER AND WASTEWATER CUSTOMER AVERAGE MONTHLY DEMAND & REVENUES, SEPTEMBER 30, 2010	A-3
WATER AND WASTEWATER SERVICES ACTIVITY BASED COSTING REPORT FOR THE 12 MONTHS ENDED SEPTEMBER 30, 2010.....	A-4
WATER AND WASTEWATER SERVICES DISAGGREGATION OF OPERATING & MAINTENANCE EXPENSES FOR THE 12 MONTHS ENDED SEPTEMBER 30, 2010.....	A-5
OPERATING & MAINTENANCE EXPENSE FOR LARGE USER RATE FISCAL YEAR 2010 AND 2011 \$ PER 1,000 GALLONS.....	A-6
HISTORICAL AND BUDGETED LARGE USERS OPERATING & MAINTENANCE RATES	A-7
WATER AND WASTEWATER FUND STATEMENT OF NET ASSETS SEPTEMBER 30, 2010, 2009, 2008, 2007, AND 2006.....	A-8
WATER AND WASTEWATER FUND STATEMENT OF REVENUE, EXPENSE, AND CHANGES IN NET ASSETS SEPTEMBER 30, 2010, 2009, 2008, 2007, AND 2006	A-9
WATER AND WASTEWATER FUND STATEMENT OF CASH FLOWS SEPTEMBER 30, 2010, 2009, 2008, 2007, AND 2006.....	A-10
WATER AND WASTEWATER RETAIL STATISTICS (1,000's GALLONS) SEPTEMBER 30, 2010	A-11

Section 1 Introduction

1.1 Purpose of the Report

The purpose of this Engineer's Report for Water and Wastewater Services (WWS) of Broward County, Florida is to provide the following:

- A review of the management and organization of WWS which operates the County water and wastewater systems (collectively, the Utility);
- A description of the Utility;
- A financial review of the Utility regarding historical and prospective debt service coverage, insurance requirements, and future system funding needs.
- A summary of projections of future impacts on the Utility, projections of revenues and expenses, and a review of the planned capital improvements of the Utility.

Section 2

Administration and Management

Section 2 Administration and Management

2.1 History and Organization of Water and Wastewater Services

The Broward County Utilities Division was created on January 31, 1962, with the County's purchase of a small, investor-owned water and wastewater utility. Between 1962 and 1975, the County acquired a number of private utilities. In 1972, the Utility commenced construction of its North Regional Wastewater Treatment Plant (NRWWTP) and, in 1975, began providing wholesale wastewater treatment service to large users. In 1976, to achieve fiscal consolidation, the County established uniform rates throughout its service areas. The water utility service area is divided into districts, where District 1 is served by WTP 1A, District 2 by WTP 2A and District 3 by purchased water from the City of Hollywood.

Subsequent reorganizations created Water and Wastewater Services (WWS). WWS, consisting of five divisions within the Public Works Department, is responsible for planning, construction, operation, maintenance, customer service, water management, and financial management of the Utility. These divisions are Water and Wastewater Operations, Water and Wastewater Engineering, Water Management, Water and Wastewater Information Technology, and Fiscal Operations. In addition, within WWS Administration are two sections which support the Divisions. They are Human Resources and Project & Community Coordination. As of September 30, 2010, WWS employed 395 people, including 17 certified water operators, 19 certified wastewater operators, ten registered professional engineers, and five certified accountants. In addition, seven employees are dual certified as both water and wastewater operators. An organizational chart, **Figure 2-1**, is provided on page 2-10.

Under the County Code of Ordinances, the County exercises exclusive jurisdiction, control and supervision over the Utility system or any part of a utility system owned, operated or maintained by the County. The Board of County Commissioners of the County (the Board) has the specific legal authority to fix, charge and collect from its customers, rates, fees and charges, and to acquire, construct, finance and operate the utility without supervision or regulation by any other political subdivision of the State (provided that environmental impacts are regulated as described herein).

2.2 Mission

WWS is committed to being a benchmark comprehensive utility providing exceptional retail and regional water and wastewater management services and programs to its customers; supporting continuous improvement while maintaining the quality of life in Broward County through sound environmental practices.

The following goals were established to fulfill this mission.

Goals

- To provide high quality and cost-effective services.
- To treat customers professionally and with the utmost respect.
- To operate the facilities and execute programs in a manner that protects the environment.
- To protect and enhance the natural resources of Broward County.
- To create and maintain a workplace in which employees are provided the opportunity to develop to their maximum potential.
- To maintain honesty and integrity in every aspect of the operation.

Water and Wastewater Services Administration

Water and Wastewater Services Administration (Administration) manages and directs the activities of the five WWS divisions: Engineering, Fiscal Operations, Information Technology, Operations, Water Management; as well as the office of Project & Community Coordination, which assists in the management of the Neighborhood Improvement Projects (NIPs). Administration approves operating and capital budgets, assures rates, fees and charges are sufficient to support fund activities and debt service requirements while maintaining appropriate coverage to maintain or enhance bond ratings. Administration develops and implements financing plans for the successful implementation of the capital plan and policies to ensure environmentally safe water resources. Administration also actively coordinates with other County units, utilities, water related associations, groups, councils, and others. The program manages relationships with Large Users of the North Regional Wastewater System and the Regional Raw Water System. The section manages HR activities, including maintaining employee records, processing personnel actions and manages a program to promote

Section 2 Administration and Management

personal and professional employee development. Administration manages water and wastewater related public affairs, including publishing the award-winning, federally-mandated annual Consumer Confidence Report and WWS employee newsletter. Staff serves as liaison to the Office of Intergovernmental Affairs and Professional Standards for all water and wastewater-related legislative and regulatory activities at both the state and federal levels. Administration coordinates activities to identify efficiencies and synergies to reduce overall costs and enhance the delivery of services. The section develops and implements water conservation programs to benefit customers and to protect and preserve the environment and sponsors periodic customer service surveys.

For FY 2010, WWS Administration highlights included:

- Water and Wastewater Services' water and sewer utility bonds preserved strong long-term ratings—"AA", "AA" and "Aa3"—from the three major rating services during a year which saw down ratings for a significant number of government issuers.
- Completed a Retail Rate Study and implemented rates which included restructuring the rates to account for current usage patterns and to add a fourth tier to residential water volume charges.

Each division has developed and established policies and goals to support WWS mission.

Water and Wastewater Operations Division

Water and Wastewater Operations Division (WWOD) is committed to supplying high quality raw and potable water; reliable water distribution and wastewater collection services to its customers; reliable transmission, treatment and disposal of wastewater to large users in the north region of the County; and ensuring all services are delivered in a safe, efficient and cost-effective manner.

WWOD is responsible for pumping, treating, and distributing water and/or the provision of wastewater collection services to retail and water resale customers. The division operates and maintains water treatment plants; re-pumping and storage facilities; lift stations, underground water distribution and sewage collection systems; and other support facilities. The division is responsible for the preparation and submittal of reports to comply with Federal, State and Local requirements (such as the Safe Drinking Water Act) and to insure the reliable production of high quality, safe potable drinking water for our citizens. The division provides raw water from two regional wellfields to five large users and to Broward County retail operations.

Section 2 Administration and Management

WWOD is also responsible for providing wastewater transmission, treatment and disposal services to eleven large users and to Broward County through the operation and maintenance of a regional wastewater treatment facility and related master pumping stations. The division operates a reclaimed water facility, which provides reclaimed water to both industrial and retail customers. In addition, WWOD operates a State certified laboratory (NELAP), a nationally recognized Industrial Pretreatment Program (IPP), and provides critical environmental service through operating and maintaining the only Septage Receiving Facility located in Broward County.

During FY 2010:

- WWOD's North Regional Wastewater Facility effluent ocean outfall nutrient reduction goals exceed those established by the Florida DEP following the State of Florida legislation to permanently close all ocean outfalls by 2025.
- On November 1, 2010 WWOD achieved another milestone in the Maintenance Excellence program by upgrading the CMMS system from MAXIMO 4.11 to MAXIMO 7.15. This will enhance our work order and asset management system.
- WWS procedures for damage claims, sewer system overflows (SSO), and precautionary boil water notifications were mapped and implemented by the division in 2010. The precautionary boil water notification, multi-agency procedures will be further enhanced in 2011 by collaboration/communication with representatives from the cities, which are served by the WWOD, as an 'Our Best, Nothing Less' initiative.
- The Broward County FROG (fats, rags, oil, and grease elimination from the wastewater collection system) campaign was conceived and implemented thru the Office of Public Communication in November 2010.
- Water supply service was extended to the Broadview Park area from the Division's District 1 WTP reducing purchased water by about 600,000 gallons per day.

Water and Wastewater Engineering Division

Water and Wastewater Engineering Division (WWED) is committed to managing WWS' Capital Improvement Program by ensuring that cost-effective, reliable infrastructure is available in a timely manner to meet the current and projected demands and capacities for raw water, potable water, sanitary sewer and storm drainage within WWS service areas.

Section 2 Administration and Management

WWED is responsible for developing and implementing a capital improvements program for services provided by WWS including water, wastewater, and drainage. The division is also responsible for coordination of developer-donated facilities, the maintenance of record information on potable water and wastewater facilities, for administration of potable water and sewer easements, and for administration of permits to connect to the potable water and wastewater plants operated by the WWS. WWED also provides general potable water and wastewater engineering support for Broward County. These processes ensure compliance with the County's minimum standards for construction and integrity of WWS systems.

- The Neighborhood Improvement Program (NIP) encompasses a total area the size of a medium city with 9,223 acres, 92,000 people, and 28,382 homes. Planned improvements include 292 miles of roadways, 422 miles of sidewalk, and 617 miles of pipeline which will enable the elimination of 10,434 septic tanks. Construction started in 1996 and is currently scheduled to be completed in 2013. The current estimated cost of the NIP is \$747 million. Of the 65 planned bid packages, 49 have been completed and 11 are under construction. The total spent through fiscal year 2010 is \$533M.
- The Local Utility Program (LUP) includes an area of 1,479 acres. The planned improvements include approximately 54 miles of pipeline. Construction started in 2009. Each project is designed based on its Utility Analysis Zone (UAZ).
- Evolving regulations coupled with on-going facilities operations permit negotiations at the North Regional Wastewater Treatment Plant (NRWWTP) are developing into potential plant process improvements ranging from \$50M to \$900M in construction costs within the next 5 to 15 years. The scope and nature of the improvements will be determined through the master planning efforts to achieve compliance with legislative rule and permit negotiations. In addition, WWS is simultaneously implementing a series of collection system improvements to ensure adequate system capacity as well as reliability.
- In excess of \$67 million in construction is budgeted for potable water treatment facility improvements including the reverse osmosis treatment facility at Water Treatment Plant 1A.
- WWS currently has over \$216 million budgeted in retail water and sewer construction projects. These projects include water and sewer main construction, and engineering services.

Section 2 Administration and Management

- Chevron USA, Inc. is currently performing an investment grade energy audit of facilities for the application of energy conservation measures (ECMs) for Water & Wastewater Services wastewater treatment facilities. The goal of this project is to reduce the carbon footprint through the implementation of the ECMs thus resulting in reduced operational costs and improved environmental efficiency. The results of this audit are expected to be presented to the Board for approval in fiscal year 2011.

Water Management Division

Water Management Division (WMD) is committed to developing, managing, operating, and maintaining the surface and groundwater resources within our service area to provide recharge for water supply and wetlands, saltwater intrusion abatement, drainage and flood control, and environmental enhancements.

WMD programs in engineering, management, and development review provide for the planning, design, construction, and right-of-way management of waterways, culverts, pump stations and water control structures that provide flood protection, surface and ground water recharge, saltwater intrusion abatement, and urban water supply. Water supply planning, well site assessments, and permitting services are provided to apply for, obtain, and assure compliance with public water supply and diversion & impoundment water use permits. Staff also engineers and manages the inspection, cleaning, and repairs of County roadway drainage elements and assures compliance with the Florida DEP National Pollutant Discharge Elimination System (NPDES), Municipal Separate Storm Sewer Systems (MS4) Permit for Broward County and prepares and submits applications and data for the renewal of surface water management licenses for the roadway drainage system.

Other activities included:

- WMD staff continues to be actively involved in water supply and water resource development programs, including the C-51 Reservoir Project, Integrated Water Resources Management Master Plan, Broward County Water Resources Task Force and Technical Team and the Broward County Water Advisory Board and Technical Advisory Committee.
- Resolving SFWMD concerns regarding service to Hallandale Beach for the South Regional Wellfield water use permit renewal.
- Annual updates, water level, and chloride monitoring to SFWMD concerning the 1A, 2A/NRW, and SRW water use permits.

Section 2 Administration and Management

- Determining Floridan well sites for the District 1A WTP and groundwater assistance for the rehabilitation of District 2A wells 8 and 9.
- Negotiations to transfer Biscayne allocation from Plantation to District 1A for service to Broadview Park.
- Improvements to the SCADA system for wellfield recharge through the canal network.
- Emergency plan to supply additional raw water to Dania Beach and Hallandale Beach if necessary.

Fiscal Operations Division

Fiscal Operations Division (Fiscal Operations) is committed to supporting all WWS divisions by providing exceptional customer service and timely and accurate billing services; supporting sound financial management, fiscal planning and rate development; and providing efficient and effective support services.

Fiscal Operations provides accounting services for all divisions of WWS to provide timely financial reporting, ensure compliance with Federal and State laws, professional accounting standards and County policies and procedures. The division provides customer services including meter reading and meter repair, monthly billing, and collection of revenues. The division operates a warehouse for materials and supplies used in the operation and maintenance of utility infrastructure. Fiscal Operations coordinate materials management, purchasing and contract administration functions for all operational and administrative activities in WWS. In addition, the division provides Grounds and Building support services to over 200 locations owned and operated by WWS throughout the County. The division also coordinates the budgeting activities of all divisions of WWS and supports the development of fiscal plans and rates, fees and charges for the services provided by WWS.

For 2010, highlights included:

- As part of the Agency's water conservation efforts, the "Toilet Rebate" Program was expanded for water customers of Broward County Water and Wastewater Services who replaced old high flow toilets with new low flow toilets. Each customer would not only receive a \$100 credit to their water bill, but also a low flow showerhead and faucet flow -reducers.
- Achieved a 90% customer satisfaction rating. Our Quarterly Customer Service

Section 2 Administration and Management

Survey indicates that our customers rate WWS service as “above average” to “excellent” over 90% of the time.

- Upgraded the outdated R-Base program used for accounting of fixed assets to an oracle database.

Water and Wastewater Information Technology Division

Water and Wastewater Information Technology Division (WWITD) is committed to providing WWS divisions with current industry standard technologies to efficiently and effectively automate business functions and to providing a high level of service support for those systems.

WWITD provides specialized automation services to the water and wastewater utility by acquiring, developing, and maintaining the latest utility specific technology solutions on its proprietary utility network. WWITD is responsible for maintaining the automation and industrial control systems at all four main treatment and distribution facilities and over one hundred other distribution and storage facilities within Broward County on a 24-hour, 7 day-per-week basis. WWITD also provides desktop, server and network support for the WWS segment of the County’s administrative network. The division also manages the safety and security of WWS staff and facilities which have been designated critical infrastructure by Homeland Security.

During FY 2010:

- Created an intranet Portal using the Microsoft SharePoint framework, replacing the older portal FIMS. The implementation of SharePoint opens up a new platform for collaboration and information exchange between WWS users. WWS plans to leverage this platform to automate manual processes and increase productivity and efficiency of the users. We have extended the use of WWSNET by creating more team sites like the one for the Maximo implementation project. We have also added more channels of communication like blogs, and documents from committees and other divisions.
- Designed and implemented a virtualized server network on the admin network. The virtualized environment requires less energy and space, increases redundancy, and significantly improves administration of servers. The virtualized environment also significantly reduces the impact of downtime for clients.

Section 2 Administration and Management

- Implemented a change management process to ensure standardized methods and procedures are used for efficient and prompt handling of all software and system changes, in order to minimize the impact of change related incidents upon service delivery for the organization.
- Completed the implementation of the Transdyn control system for 3C water distribution facility, 2A disinfection project, 1A high service pump and Ion exchange project, and the south/north regional large user oxidation projects.
- Coordinated the conversion of the failed Wireless communication for 1B1 water distribution to a permanent Frame relay communication.
- Completed the implementation of the Maverick UCM Upgrade project which converted old UCM technology to Dell pc based UCM technology. In addition, the primary and operator control station and database server were relocated to the ICC for disaster recovery planning.
- Performed intrusion drills in conjunction with Broward Sheriff's Office/DHS to determine the vulnerability of our facilities. This exercise proved very valuable and as a result WTP's 1A and 2A perimeter fencing were upgraded to 10' with double barb wire.

Project and Community Coordination

Project and Community Coordination (P&CC) operates within WWS Administration and manages WWS' public affairs, including publishing the federally mandated annual Water Quality Report and the internal WWS employee newsletter "Keeping Connected". The group provides public information and supports public and customer relations to customers/residents impacted by construction projects (including the Neighborhood Improvement Projects) by keeping them informed of construction plans and schedules and investigating customers' construction related concerns. The group provides outreach and education for water conservation programs, sponsors periodic customer service surveys and works closely with other Agencies on special educational projects for Career Days, Earth Day, and Drinking Water Week and water conservation events.

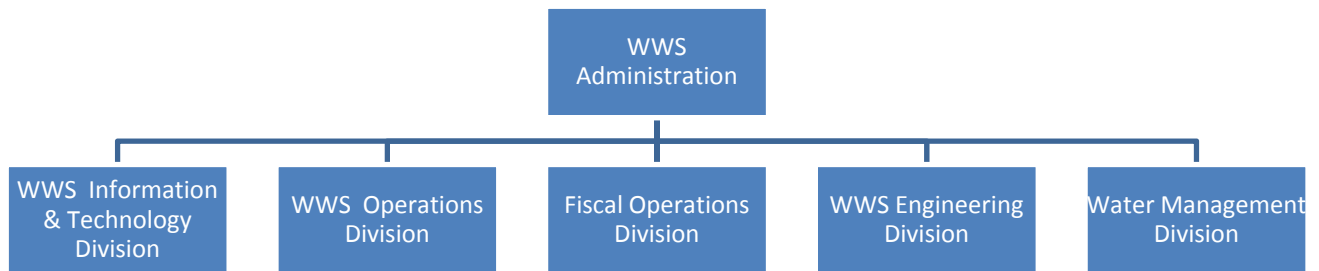
For FY 2010, highlights included:

- Won 2 awards in the National Association of County Information Officers (NACIO) "Awards of Excellence" competition, including awards for its most recent Water Quality Report and its employee newsletter.

Section 2 Administration and Management

- Participated in a number of community events in 2010, including activities commemorating “Drinking Water Week”, “Earth Day” and “Broward: Water Matters Day”. These events attracted several hundred members of WWS’s public constituencies who received rain gauges, water bottles, crayons, coloring books and other giveaways.
- Published and distributed nearly 50,000 copies of its annual Consumer Confidence Report to all of its customers in 2010, pursuant to Federal law.

Figure 2-1 Organizational Chart



Section 3

Retail Water and Wastewater Utilities System

Section 3 Retail Water and Wastewater Utilities System

This section describes the water and wastewater retail system including the service area, results of the physical inspection and review of the renewal and replacement program.

3.1 General Description

The retail water system supplies potable water to retail customers in several sections of the County and to one significant bulk water user. Over the past ten years, the County's retail water system has grown from 50,544 customers (connections) to its present retail base of 58,323. This represents a population of approximately 238,000. The City of Coconut Creek, a sale for resale customer, has approximately 55,000 residents. Including the City of Coconut Creek, the retail water system serves approximately 14 percent of Broward County's total population.

The retail wastewater system provides wastewater collection service to approximately 77 percent of the County's retail water customers. The County's wastewater retail customer base has grown from 34,391 customers (connections) to its present base of 44,953 customers in the past ten years and will continue to grow through the County's extension of sanitary sewers into currently un-served areas. Treatment and disposal is provided by the County-operated North Regional Wastewater System (the "Regional Wastewater System" discussed in Section 4 and collectively with the retail wastewater system the "Wastewater System") and by the Southern Regional Wastewater System operated by the City of Hollywood. A summary of the Retail Water and Wastewater systems is presented in **Table 3-1**.

Service Area and Customer Base

The retail water system is divided into three (3) service districts - Districts 1, 2 and 3. District 2 sells water to the City of Coconut Creek which re-sells it to its customers. These water service districts cover approximately 41 square miles. Two (2) water treatment plants, one each in District 1 and District 2, has a combined permitted water treatment capacity of 46 MGD (million gallons per day). However, potable water production is constrained by consumptive use permits from the South Florida Water Management District to an allocation of 30.7 MGD of raw water from the Biscayne aquifer on an annual average daily basis through March 2013. Water for District 3 is provided by the City of Hollywood through a water-for-resale agreement.

Section 3 Retail Water and Wastewater Utilities System

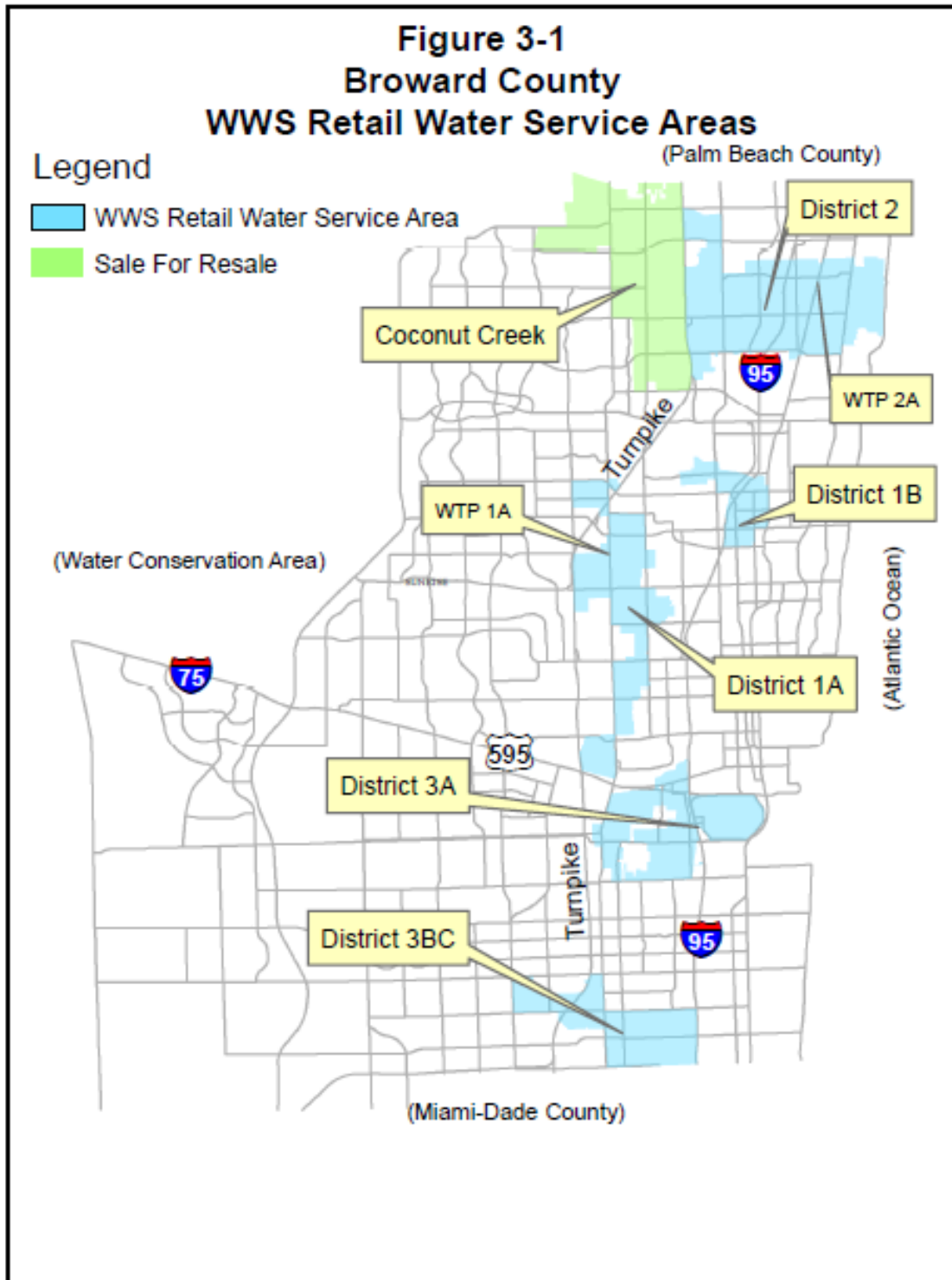
The distribution systems in the three Districts contain approximately 698 miles of water distribution and transmission mains with 2-inch or greater diameters. **Figure 3-1** shows the geographic location of each service district as well as the large user (the City of Coconut Creek). **Table 3-2** summarizes information on the production wells, treatment plants, and water system storage capacity in each district.

3-1 Summary of Retail Water System and Retail Wastewater System

Table 3-1					
Summary of Retail Water System and Retail Wastewater System					
System Component	Units	Fiscal Year 2001	Fiscal Year 2010	Change	Percent Change
Water System					
Customer Base	Customers	50,544	58,323	7,779	15.39%
Water Service Area	Square Miles	40.10	40.99	0.89	2.22%
Water Lines	Miles	634.15	698.41	64.26	10.13%
Water Plant Capacity:					
Plant Capacity ¹	MGD ³	52.70	46.00	(6.70)	-12.71%
Avg. Daily Production ^{1,2}	MGD ³	28.14	20.29	(7.85)	-27.90%
Max. Daily Production ^{1,2}	MGD ³	31.66	22.75	(8.91)	-31.66%
Purchased Water ¹	MGD ³	0.00	6.038	6.038	N/A
Wastewater System					
Customer Base	Customers	34,391	44,953	10,562	30.71%
Wastewater Service Area	Square Miles	39.95	40.63	0.68	1.70%
<p>¹ Water Treatment Plant 3A was deactivated in 2001. Water for District 3 is now provided through a wholesale agreement with the City of Hollywood.</p> <p>² The drought which began in April 2007 has resulted in reduced water use due to restrictions mandated by SFWMD. In 2010, Broward County passed a year-round irrigation water conservation ordinance.</p> <p>³MGD = Million Gallons Per Day.</p>					
Source: Broward County Water and Wastewater Services					

Section 3 Retail Water and Wastewater Utilities System

Figure 3-1 Broward County WWS Retail Water Service Areas



Section 3 Retail Water and Wastewater Utilities System

3-2 Summary of Water System Facilities and Capabilities as of September 30, 2010

Table 3-2				
Summary of Water System Facilities and Capabilities as of September 30, 2010				
	District 1	District 2	District 3	Total
Production Wells	9	11	0	20
Wellfield Firm Capacity, (MGD) ^{1,2,3}	19.6	28.9	0	48.5
Treatment Plants ⁴	1	1	0	2
Permitted Plant Capacity (MGD) ²	16	30	0	46
Permitted Allocation (MGD) ^{2,3,5}	10.7	20.0	0	30.7
Storage Capacity (Million Gallons) ⁴	6.2	8.5	5	19.7
Distribution Mains (Miles)	241.53	244.50	212.38	698.41
Service Area (Square Miles)	11.99	14.79	14.21	40.99
Purchased Water (MGD) ²	.554	0	5.484	6.038
Produced Water (MGD) ²	7.851	12.48	0	20.331
<p>¹Firm Capacity refers to the available flow with the largest well in each district out of service.</p> <p>²MGD = million gallons per day</p> <p>³Does not reflect consumptive use permit restrictions. Separate permits exist for supply and treatment capacities, with supply capacities less than permitted treatment capacities.</p> <p>⁴Includes clearwells, on site and distribution storage facilities.</p> <p>⁵Does not include purchased water from the City of Plantation. Includes finished water sold to Coconut Creek.</p>				
Source: Water & Wastewater Services				

The Water System supplies water primarily to retail customers but also serves the City of Coconut Creek under a resale agreement. Presently, there is no practical or economic incentive for the City of Coconut Creek to pursue development of its own facility or to develop alternative sources of supply. Without prior approval by the County, the City of Coconut Creek is prohibited from buying or otherwise providing water within its service area from any source other than the County during the term of the resale agreement, and cannot provide more than 100,000 gallons per day of water to any customer unless approved by the County. The County cannot charge rates to Coconut Creek greater than those charged to other customers in the same class. Billing based upon water meter readings is provided monthly. A summary of historical treated

Section 3 Retail Water and Wastewater Utilities System

water sold and consumption data, including service to the City of Coconut Creek, is shown in **Table 3-3**. Values for annual average daily consumption will differ from the sum of production plus purchased water due to system losses.

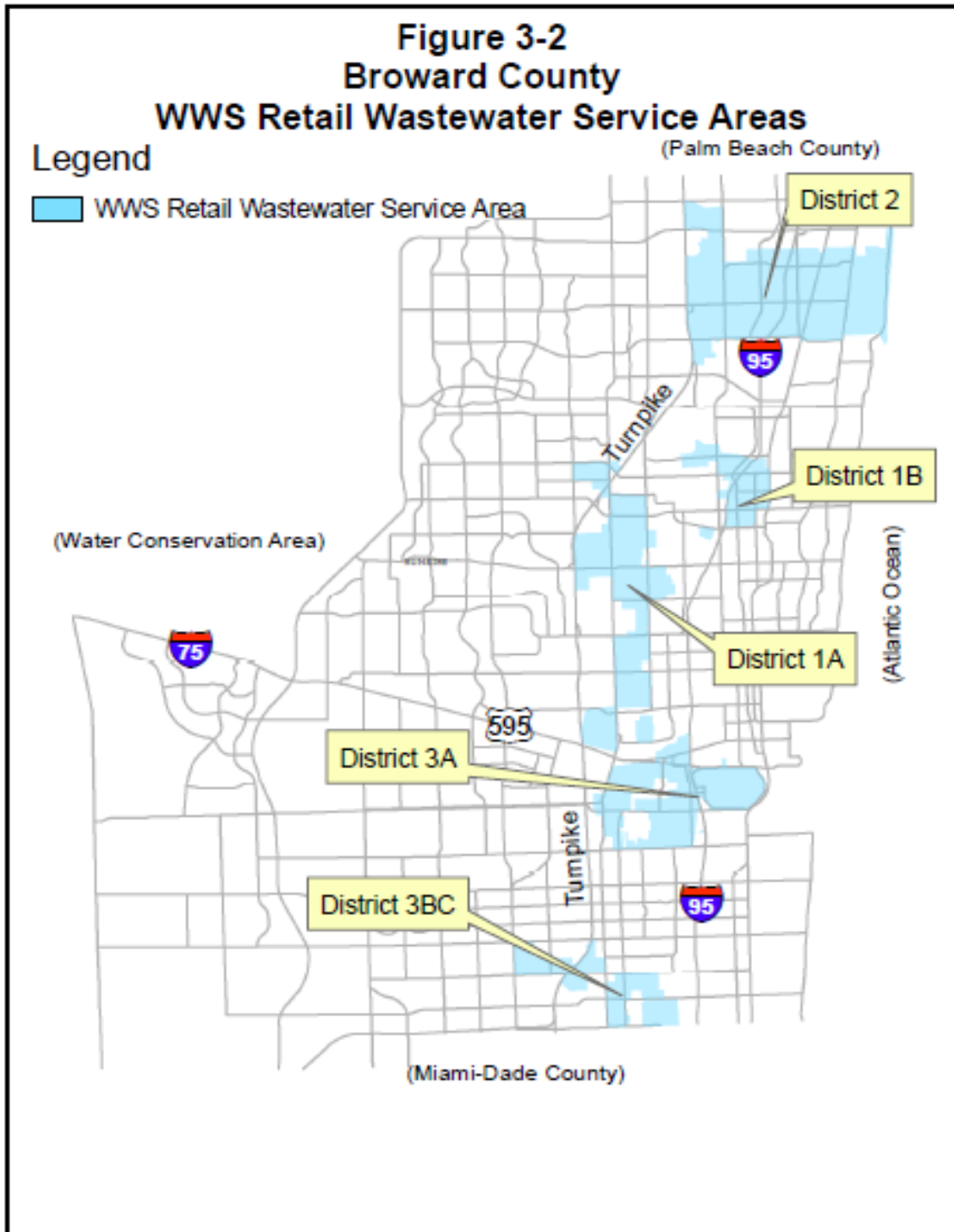
3-3 Summary of Treated Water Sold as of September 30, 2010

Table 3-3 Summary of Treated Water Sold as of September 30, 2010					
Fiscal Year	Average Number of Units¹	Average Number of Metered Customers	Total Billed Treated Water (1,000 GAL)	Total Billed Water for Resale (1,000 GAL)²	Annual Average Daily Consumption (MGD)
2001 ³	80,810	50,544	9,319,520	1,998,410	25.53
2002	81,058	50,709	9,916,497	2,126,774	27.17
2003	81,658	51,044	9,962,676	2,104,272	27.30
2004	82,171	51,525	10,574,616	2,190,845	28.97
2005 ⁴	84,203	53,705	11,383,041	2,178,609	31.19
2006	83,725	52,938	10,362,713	2,005,205	28.39
2007 ⁵	87,539	55,596	9,725,151	1,958,720	26.64
2008 ⁵	89,452	57,003	9,063,644	1,868,562	24.83
2009 ⁵	92,870	58,287	9,001,466	1,872,821	24.66
2010 ⁵	93,183	58,323	8,628,876	1,754,856	23.64
<p>¹ The term "unit" means individual living unit for residential (single family), multifamily, hotel/motel and mobile home categories. Several units may be served through one connection. For commercial, the term means the number of connections.</p> <p>² Included in the total water billed; most represents service to the City of Coconut Creek.</p> <p>³ A brief drought occurred during this period resulting in reduced water use due to restrictions mandated by SFWMD.</p> <p>⁴ Several hurricanes resulted in significant water losses from line breaks and leaks throughout the system.</p> <p>⁵ The drought which began in April 2007 has resulted in reduced water use due to restrictions mandated by SFWMD. In 2010, Broward County passed a year-round irrigation water conservation ordinance.</p>					
Source: Broward County Water and Wastewater Services					

The retail wastewater system service area covers approximately 41 square miles with approximately 396 miles of gravity sewers, 224 lift stations, 5 master pump stations, and 105 miles of force mains. **Figure 3-2** shows the service districts for the retail wastewater system. **Table 3-4** presents retail wastewater system characteristics. A 10-year summary of the Retail Wastewater System customers and billed wastewater flows is presented in **Table 3-5**. **Table 3-6** presents a five-year history of water usage by customer type.

Section 3 Retail Water and Wastewater Utilities System

Figure 3-2 Broward County WWS Retail Wastewater Service Areas



Section 3 Retail Water and Wastewater Utilities System

3-4 Retail Wastewater System Characteristics as of September 30, 2010

Table 3-4				
Retail Wastewater System Characteristics as of September 30, 2010				
	District 1	District 2	District 3	Total
Service Area (Square Miles)	12.98	15.58	12.07	40.63
Gravity Sewer (Miles)	164.11	154.56	76.92	395.59
Lift Stations	69	94	61	224
Force Mains (Miles)	37.28	33.77	33.70	104.75
Master Pump Stations	-	4	1	5

Source: Broward County Water and Wastewater Services

3-5 Summary of Billed Wastewater - Retail as of September 30, 2010

Table 3-5				
Summary of Billed Wastewater – Retail				
as of September 30, 2010				
Fiscal Year	Average Number of Units¹	Average Number of Metered Customers	Total Billed Treated Wastewater (1,000 GAL)	Annual Average Daily Flow (MGD)
2001	62,495	34,391	5,065,656	13.88
2002	63,050	34,847	5,077,785	13.91
2003	64,377	35,704	5,121,649	14.03
2004	65,029	36,654	5,310,427	14.55
2005	67,116	38,257	5,700,915	15.62
2006	67,736	40,021	6,055,641	16.59
2007	70,361	41,297	5,733,391 ²	15.71
2008	71,718	42,163	5,373,713 ²	14.72
2009	74,146	43,591	5,468,973 ²	14.98
2010	74,547	44,953	5,230,943 ²	14.32

¹ The term "unit" means individual living unit for residential (single family), multifamily, Hotel / Motel, and mobile home categories. Several units may be served through one connection. For commercial, the term means the number of connections and does not include the large user.

² Water restrictions in place since April 2007 as the result of a drought have reduced water sales. Billed wastewater is primarily based upon water sold.

Source: Broward County Water and Wastewater Services

Section 3 Retail Water and Wastewater Utilities System

3-6 Water Usage - Five Year History (1,000 gallons) Through September 2010

Table 3-6 Water Usage – Five Year History (1,000 gallons) Through September 2010					
Customer Class	Fiscal Year 2006	Fiscal Year 2007	Fiscal Year 2008	Fiscal Year 2009	Fiscal Year 2010
Residential	5,340,125	5,062,677	4,811,170	4,788,005	4,608,329
Commercial	2,492,417	2,260,552	2,032,324	1,924,704	1,848,557
Irrigation	524,966	443,202	351,588	415,936	417,134
Sale For Resale	2,005,205	1,958,720	1,868,562	1,872,821	1,754,856
Total	10,362,713	9,725,151¹	9,063,644¹	9,001,466¹	8,628,876¹
¹ The drought which began in April 2007 has resulted in reduced water use due to restrictions mandated by SFWMD.					
Source: Broward County Water and Wastewater Services					

3.2 Water System Regulatory Requirements

Current Water Quality Regulations

The Safe Drinking Water Act (SDWA, 1974) and the Safe Drinking Water Act Amendments (SDWAA, 1986) authorized the United States Environmental Protection Agency (EPA) to establish national primary and secondary drinking water regulations to regulate maximum permissible levels of contaminants in finished drinking water. These standards were incorporated into the State of Florida Water Quality Regulations in 1993, making all regulated parameters enforceable within the State.

WWOD annually performs a complete analysis for all primary and secondary drinking water standards on raw and finished water supplies to meet the State of Florida Water Quality Regulations (Chapter 62-550.300, Florida Administrative Code). No maximum contaminant levels (MCLs) have been exceeded by WWOD's finished water. WWS tests raw water quality only for the development of baseline data, MCL limitations do not apply. The annual report presenting the results of the analysis is available at <http://www.broward.org/waterservices>.

Water Quality Regulations

The Stage I Disinfectant/Disinfection By-Products Rule (D/DB") was promulgated in 1998 and required all groundwater treatment plants, which include the WWS water treatment plants, to comply with MCL's for trihalomethanes (THMs), five haloacetic acids (HAAs), chlorite, and bromate and maximum residual disinfectant levels (MRDLs) for a number of common disinfectants including chlorine, chloramines, and chlorine dioxide. The Stage I limits for THMs and HAAs were 80 mg/l and 60 mg/l respectively, with measurements based upon a distribution system wide average.

WWS water treatment plants (WTP) currently meet all regulations and comply with current Stage I disinfection by-products regulations.

The Stage II M/DBPR was promulgated on January 4, 2006, and the regulation became effective March 6, 2006. The purpose of the Stage 2 M/DBPR is to reduce DBP occurrence peaks in the distribution system by using a new method to determine MCL compliance, defining operational evaluation levels, and regulating consecutive systems. Over the past year, no problems have been detected.

The County has completed the Stage II By-product Rule Standard Monitoring for all water distribution systems and in accordance with the rule submitted the Initial Distribution System Evaluation (IDSE) Report on December 8th, 2008 to meet the January 2009 deadline. By April 2012, the County is required to develop and

Section 3 Retail Water and Wastewater Utilities System

implement a Compliance Monitoring Plan and to begin compliance monitoring; Compliance Calculation Procedures were included in the IDSE Reports, as provided by the U.S. EPA-IDSE Guidance document (EPAQ 815-B-06-002) to meet the Compliance Monitoring Plan requirement.

3.3 Water Supply

The primary source of water supply for WWS is the Biscayne Aquifer. Presently, WWS operates well fields for Water Treatment Plants 1A and 2A with firm capacities of 19.6 and 28.9 MGD, respectively. Additional water is provided to District 2 by the North Regional Wellfield with a firm capacity of 18.1 MGD. A physical description of the regional system and wellfields is provided in a subsequent section. Water for District 3 is provided by the City of Hollywood.

In 1979, the Biscayne Aquifer was designated as the County's sole drinking water source by the EPA. The water in the aquifer is replenished by rainfall and recharged by water flowing from Lake Okeechobee and conservation areas through an extensive canal system. Presently, in addition to the Utility, the Biscayne Aquifer is also used for most of the municipal raw water supplies in the County.

Section 3.0 of the South Florida Water Management District Basis of Review for Water Use Permit Allocations limits raw water usage from the Biscayne aquifer for public water supply to the maximum quantity of water withdrawn during any consecutive twelve month period during the five years preceding April 1, 2006.

Due to its cost-effectiveness, the relatively shallow Biscayne Aquifer is, and is likely to remain, the County's primary source of raw water supply. Additional demands are anticipated to be met from the Floridan Aquifer.

3.4 Water Supply Regulatory Requirements

The volume of raw water withdrawal from the Utility's wellfields is regulated by the South Florida Water Management District (SFWMD). Each wellfield is governed by a water use permit that stipulates the maximum allowable annual and monthly withdrawal. These permits are reissued for periods of five to twenty years. The Utility's current annual permitted rate of raw water allocations is 18.3 billion gallons from all wellfields combined, including the Regional Raw Water Wellfields. The Utility holds three permits from the SFWMD for the wellfields 1A, 2A/North Regional Wellfield (NRW), and the South Regional Wellfield (SRW). The permits for 2A/NRW were consolidated into one 20 year permit in March 2008. The 1A Wellfield was also granted a 20-year permit in April 2008.

Section 3 Retail Water and Wastewater Utilities System

The permit for the SRW expired in October 2007, and the submitted application for SRW permit renewal is currently under review by the SFWMD. Table 3-7 highlights information from the 20-year permit renewals for the 1A Wellfield and the 2A/NRW. Beginning in 2013, the SFWMD is requiring transitioning of water supply above the baseline allocation from the Biscayne Aquifer to the Floridan Aquifer or to another alternative water supply such as the C-51 reservoir project. This requirement for shifting of additional water supply to an alternative source will have implications for future treatment technology and capital investment, as well as operating costs. As additional water supplies are needed, the Utility will evaluate the available water treatment technologies and their associated fiscal and environmental factors in making treatment decisions.

Long term water supply in South Florida will also be affected by the Everglades Restoration Project and by regional water supply planning undertaken by the SFWMD and the U. S. Army Corps of Engineers (ACOE). The effect of these plans will be a reallocation of historical water supplies to secure additional fresh water for restoration of the Florida Everglades. Current planning documents known as the Lower East Coast Water Supply Plan (LECWSP), and the Comprehensive Everglades Restoration Plan (CERP) account for future needs of water utilities by utilization of new surface water reservoirs, and by implementation of Aquifer Storage and Recovery (ASR) wells. A recent decision by the State to endeavor to acquire the property owned and farmed by US Sugar as part of the CERP may limit the option of utilities to store and use excess stormwater as an alternative to water supply.

It is possible that the new water supply technologies could be delayed, or could be less effective than SFWMD and ACOE expect. Recognizing this, the Utility has taken multiple proactive steps in order to assure that a continuous adequate raw water supply is available:

- The County has been actively participating in the LECWSP, the CERP and the SFWMD regulatory revision process.
- New infrastructure has been installed in order to maximize the effectiveness of the existing raw water recharged through the canal system. The most recent efforts include widening of the C-5 canal in the Cocomar Water Control District to enhance aquifer recharge for the 2A/NRW.
- The County has constructed and operates a 10 MGD wastewater reuse facility for potable water demand reduction.
- The County continues to implement the Integrated Water Resources Plan (IWRP) in order to maximize the utilization of available water. Current

Section 3 Retail Water and Wastewater Utilities System

projects include the design of interconnects between the C-1 and C-2 Canals and between the C-12 and C-13 Canals.

- The County has initiated planning for an alternative technology in case an alternate source of water may be necessary. In South Florida, this alternative could be the Floridan Aquifer and/or the Atlantic Ocean. The Floridan Aquifer is an artesian water supply located approximately 700 feet below the land surface in the County. Waters within the Floridan Aquifer contain higher total dissolved solids than the waters of the Biscayne Aquifer. Reverse osmosis membrane technology will readily treat Floridan Aquifer water to meet all applicable regulatory requirements. The City of Hollywood and the Town of Jupiter currently use the Floridan Aquifer for a portion of their drinking water supply.

Section 3 Retail Water and Wastewater Utilities System

3-7 Summary of SFWMD Wellfield Permits as of September 30, 2010

Table 3-7			
Summary of SFWMD Wellfield Permits as of September 30, 2010			
Description	Wellfield		
	1A	2A/NRW	SRW
Permit Period:			
Issuance	4/10/2008	3/13/2008	10/10/2002
Expiration	4/10/2028	3/13/2028	10/10/2007 ¹
Total Allocations:			
Annual Average Daily (MGD)	13.9	22.1	14.2
Maximum Monthly (MGD)	15.2	24.3	-
Maximum Day (MG)	-	-	22.4
BISCAYNE AQUIFER WITHDRAWALS			
Initial Period:			
Thru	4/1/2013	3/1/2013	1
Annual Average Daily (MGD)	10.7	20	1
Maximum Monthly (MGD)	11.6	21.7	1
Subsequent Period:			
Thru	4/10/2028	3/13/2028	1
Annual Average Daily (MGD)	9.2	17.5	1
Maximum Monthly (MGD)	9.9	19.2	1
FLORIDAN AQUIFER WELLS			
Annual Average Daily (MGD)	4.7	4.6	1
Maximum Monthly (MGD)	5.3	5.0	1
Number of Wells	4	4	-
Diameter (Inches)	16	16	-
Depth (Feet)	1200	1200	-
To Be Implemented By	2013	2013	-
Proposed Implementation Date Modification	2017	2023	-
¹ Permit for SRW expired October 2007, and application submitted for permit renewal is under review by SFWMD while sub-regional solutions for Hallandale Beach and Dania Beach are sought.			
Source: South Florida Water Management District			

3.5 Overview of the Facilities

Water System

District 1

District 1 has a combined service area of 11.99 square miles, permitted plant capacity of 16.0 MGD, and 241.53 miles of water distribution and transmission mains. WWS maintains District 1 water system interconnections with the systems of the City of Fort Lauderdale, the City of Tamarac, and the City of Lauderhill to provide for emergency water supply. Water is currently purchased from the City of Plantation to serve customers in Broadview Park.

District 2

District 2, includes the Utility's largest wholesale water customer, the City of Coconut Creek. The District, not including the City of Coconut Creek, has a service area of 14.79 square miles, a permitted plant capacity of 30 MGD, and contains 244.5 miles of water distribution and transmission mains. The facilities of District 2 are interconnected with the City of Deerfield Beach, the Town of Hillsboro Beach, the City of Pompano Beach and Palm Beach County to provide for emergency water supply.

The County has an agreement with the City of Coconut Creek under which the County has agreed to provide the City of Coconut Creek with potable water for a term that exceeds by one year the last payment of any potable water system debt obligation of the County or 2040, whichever is less. The City of Coconut Creek constitutes approximately 20% of the total potable water consumption by customers of the Utility, and pays compensation amounting to 4.4% of the Utility's gross revenues. The agreement provides that, except by written consent of the County, the City of Coconut Creek will not purchase water other than from the County or pump water into its water distribution system from its own facilities. The County has agreed not to sell water to anyone else within the defined service area and the City of Coconut Creek is not permitted to increase its water service area without the written consent of the County.

District 3

District 3 is the southernmost service area of the County and is geographically separated into subdistricts referred to as 3A, 3B, and 3C. Subdistricts 3B and 3C are interconnected. 3A, 3B and 3C receive potable water through interconnects principally with the City of Hollywood. District 3 has a combined service area of

Section 3 Retail Water and Wastewater Utilities System

approximately 14.21 square miles and contains 212.38 miles of transmission and distribution mains. Subdistrict 3A has interconnects with the City of Fort Lauderdale, the City of Hollywood, and the City of Dania Beach to provide for emergency water supply. Subdistrict 3B has interconnects with the City of Hollywood. Subdistrict 3C has interconnects with the City of Hollywood, the City of Pembroke Pines and the City of Miramar to provide for emergency water supply.

Retail Wastewater System

District 1

District 1 has a service area of 12.98 square miles and includes 164.11 miles of gravity collection sewers and 69 lift stations. There are 37.28 miles of force mains.

District 2

The size of the District 2 service area is 15.58 square miles. The collection system consists of 154.56 miles of gravity sewer, 94 lift stations, 4 master pump stations, and 33.77 miles of force mains.

District 3

District 3 serves an area of 12.07 square miles. The gravity collection system has 76.92 miles of gravity sewer and 61 lift stations. The force main network contains 33.70 miles of pipe that delivers the wastewater from this area to the Southern Regional Wastewater Treatment Facilities operated by the City of Hollywood. District 3A and District 3B wastewater is treated by the City of Hollywood under a large user wastewater agreement with the County. The County has 5 MGD of reserved capacity in the Southern Regional Wastewater Treatment Plant. The City of Hollywood has 48.75 MGD of plant capacity. One (1) of the master pump stations are located within District 3.

The agreement between the County and the City of Hollywood contains a number of major provisions including: identification of the service area; requirements for the use of metering devices; reserve capacity requirements; restrictions on excessive flows; and charges for damages to the system. Debt service and operation and maintenance costs are paid on an actual flow basis. The agreement can be terminated by either party with a 365-day notice, if all financial requirements have been met. The City of Hollywood may not

Section 3 Retail Water and Wastewater Utilities System

terminate the agreement, unless there shall be a readily available alternative means of treating and disposing of County wastewater.

3.6 Visual Inspection and Review

The visual inspections of the District 1 water treatment plant, District 2 water treatment plant and District 3 water treatment plant were performed on May 4 and 9, 2011. These inspections were performed by Milian, Swain & Associates, Inc. accompanied by WWS staff.

Water Treatment Plant 1A

WTP 1A was originally constructed in 1960 with a treatment capacity of 3.0 MGD, which was expanded to 10.5 MGD in 1979, and finally to 16.0 MGD in 1994. Overall, the plant is in very good condition as a result of the 1994 expansion and improvement project. Water quality standards were maintained at WTP 1A throughout the year.

During the visual inspection of the plant, all equipment was operating in a satisfactory manner. The plant is clean and well maintained. The following summarizes the observations resulting from the inspection:

Plant modifications performed through December 2010:

- Installation of two (2) ammonia tanks.
- Construction of an open cover structure for High Service Pumps No. 1, No. 3 and No. 5 from east clear room located next to the 2.0 MG storage tank.
- Installation of new VFD units for the High Service Pumps across from Pumps No. 1, No. 3 and No. 5.
- Installation of 24-inch DIP discharge pipe from the high service pump (1, 3, & 5) building to the distribution system.
- Backwash Pump No. 2 was eliminated from the clear well and a new connection made to the 2.0 MG storage tank.

The plant modifications to be initiated for FY 2011:

- Installation of two (2) new constant speed transfer pumps (No. 2 & No. 3) from the east clear well (ongoing).

Section 3 Retail Water and Wastewater Utilities System

- Modification of piping from the transfer pump room to the storage tank.
- Installation of baffling to increase contact time at east clear well (ongoing).
- Dismantling of the 3.0 MG steel tank.
- Construction of a new 1.0 MG concrete storage tank.
- Installation of 24-inch and 36-inch piping from the east transfer pump room to existing and proposed storage tanks.
- Structural repairs to Treatment Unit no. 1.
- Continue to work towards achieving the 4-log virus credit for underground rule.

Water Treatment Plant 2A

The WTP 2A was originally constructed in 1975 with a treatment capacity of 20 MGD. In FY 1994, the treatment capacity was expanded to 40 MGD with permitted capacity of 30 MGD. Water quality standards were maintained at WTP 2A throughout the year.

During the visual inspection of the plant, all mechanical and electrical equipment were operating in satisfactory condition and well maintained.

Plant modifications performed through December 2010:

- Replacement of two (2) 10,000 gallon diesel fuel tanks to replace the existing underground tanks.
- Replacement of A/C unit at transfer pump building
- Transfer Pump No. 2 motor and drive were rebuilt.

Plant modifications to be initiated for 2011:

- Correction of surface cracks on filter exterior walls (ongoing).
- Recoating of flume filter No. 6 wall to stop leaks (ongoing).
- Installation of lighting improvements for the plant (ongoing).
- Rehabilitation of wells No. 7, No. 8 and No. 9 and relocation of well No. 4 (ongoing)
- Transfer Pump No. 1 will be sent out to be rebuilt.
- Replacement of chemical feed pumps (ongoing).

Section 3 Retail Water and Wastewater Utilities System

- Implementations of flume filter wall pipe penetration (ongoing).
- Replacement of backwash tanks (ongoing).
- Rehabilitation of switch gear at high service pump room at building No.1 (ongoing).
- Replacement of lime slacker No. 1 (ongoing).
- Plans to construct a new 5MG storage tank (ongoing)
- Installation of a recarbonation system for the water treatment process.
- Replacement of weirs and louvers at Treatment Unit No.1 (ongoing).
- Continue to work towards achieving 4-log virus credit for underground rule (ongoing).
- Replace the VFD for High Service Pump No. 6 at building No. 9.
- Construction of concrete pad for the carbon dioxide tanks.
- Construction of an open concrete roof structure to house the sodium hypochlorite tanks.
- Construction of day tank containment and metering room for the hypochlorite tanks.

Water Distribution System 3A

In December 2001 the City of Hollywood began providing water for resale to the County in System 3A. Then re-pumping facilities consisting of a 2.0 MG storage tank and high service pumps supplying the 3A distribution system which includes the Fort Lauderdale / Hollywood International Airport were constructed at the site of the former WTP 3A.

Two (2) new Ammoniators and a new VFD for Pump No. 2 were installed in FY-2010.

Planned modifications to the plant for FY-2011 include the repair or replacement of the diesel engine and generator at the high service pump building.

The chlorine equipment appears in fair condition but in good working order.

The overall distribution facility is well maintained and operating properly.

Water Distribution System 3B and 3C

The 3B distribution system water supply is fed primarily by the City of Hollywood through two (2) 12-inch potable water interconnect treatment stations located at the City's south system perimeter (on Pembroke Road at Park Road and at S.W. 57th Avenue). Another connection from the City of Pembroke Pines supplies water to the North Perry Airport perimeter. The County maintains a 2.5 MG storage tank and high service pumps and an emergency generator, all in very good condition. These facilities are remotely monitored and controlled via SCADA equipment/instrumentation.

During the visual inspection of plant 3B it was observed that the wall of the 2.5 MG storage tank had the same surface structural cracks that were previously reported. The discharge pipes on the exterior wall of the high service pump building have been re-grouted and painted. The motor for Pump No.1 was replaced; also the impellers were replaced on pumps No.1 and No.2. Pump No.4 was not in service at this time. The pump room, electrical controls and generator equipment are in good condition and operating properly. Overall the facility is very well maintained.

The 3C repump facility currently consists of a 2.0 MG concrete tank and three (3) high service pumps, VFD controls, sodium hypochlorite disinfection system and emergency standby diesel engine with generator housed in a brand new concrete building structure. The facility is equipped with a SCADA system to allow staff to monitor and control the facility operation remotely. The entire site is fenced with a decorative fence in the front of the facility and a standard 6-foot chain link fence on the sides and back of the property.

During the visual inspection of plant 3C it was reported that high service pump No.2 was replaced in FY-2010, also that the ammonia system was not in service due to minor problems with the connecting fittings to the ammonia cylinders. This minor issue was in the process of being resolved.

The remaining existing re-pump facility reported in FY-2009 was dismantled and removed from site in FY-2010.

Lift Stations

There are a total of 224 lift stations operated by the County. A representative 20 lift stations were inspected by Milian, Swain & Associates, Inc. on April 26 and 27, 2011. Overall, the lift stations inspected appeared to be efficiently operated and well maintained, and the mechanical and electrical components (control panels, variable

Section 3 Retail Water and Wastewater Utilities System

frequency drives, motor control centers, generators, telemetry units, pumps, pipes, and accessories) appeared to be in good condition unless noted. The following serves to summarize the observations made during the visual inspection of the lift stations:

- LS 10C Lift station appears in good condition. The wet well and interior piping are sealed coated and in good condition. The valve vault walls and piping are also sealed coated and in good condition. The electro-mechanical equipment appears in good condition. Station is equipped with SCADA system.
- LS 21A Lift station appears in fair condition. The wet well interior walls are rectangular in shape and are sealed coated, but in some areas the coating is peeling from the walls. The interior piping is showing signs of light corrosion. The valve vault interior walls and piping are sealed coated but the coating is peeling from the walls and the piping is showing signs of heavy corrosion and should be painted. The electro-mechanical equipment appears in fair condition. The station is equipped with SCADA system and the station is fenced for security.
- LS 21D Lift station appears in fair condition. The wet well is rectangular in shape and the walls are losing the seal coating, the interior piping is showing signs of light corrosion. The valve vault interior walls and bottom are sealed coated and in good condition. The valve vault piping is also showing signs of corrosion and need a coat of paint. The check valves have been replaced. The 4-inch wet well vent is showing signs of light corrosion and needs to be re-painted. The electro-mechanical equipment is in good condition. The station is equipped with SCADA system and is fenced for security.
- LS 22A Lift station appears in fair condition. This station has a rectangular shape wet well. The interior wet well and piping is sealed coated, but the seal coat is peeling from the walls and should be re-sealed. The valve vault interior walls are sealed coated and in good condition. The piping is showing signs of heavy corrosion and need to be re-painted. The electro-mechanical equipment is in fair condition. Station is equipped with SCADA system.
- LS 23B Lift station appears in fair condition. The wet well is square in shape and the interior walls and piping are sealed coated and in good condition. The interior wet well piping is showing signs of corrosion and need to be sealed coated. The valve vault interior walls and piping are also sealed coated and in fair condition. The emergency pump out valve in the vault needs to be painted and the missing cam lock needs to be replaced. The

Section 3 Retail Water and Wastewater Utilities System

electro-mechanical equipment and structure are in fair condition. This station is equipped with SCADA system.

- LS 23C Lift station appears in good condition. Wet well interior wall is sealed coated and appears in good condition. The interior piping has been replaced but needs to be sealed coated. The valve vault walls and piping are sealed coated and are in good condition. The electro-mechanical equipment appears in good condition. Station is equipped with SCADA system.
- LS 24A Lift station is in fair condition. The wet well interior wall and piping are sealed coated, but the piping is showing signs of light corrosion and needs to be sealed coated. The discharge pipes have been replaced and need to be sealed coated. The valve vault interior walls and piping are sealed coated and in good condition. The cam lock is missing and needs to be replaced. The electro-mechanical equipment is in fair condition. This station is equipped with SCADA system.
- LS 24G Lift station is in substantially good condition. Wet well interior wall and piping are sealed coated and in good condition. The valve vault is sealed coated but the coating is peeling off the walls. The valve piping is also sealed coated and showing signs of corrosion. The electro-mechanical equipment is in good condition. The station is equipped with SCADA system.
- LS 29A Lift station appears in good condition. Wet well interior wall is losing the seal coating and needs to be re-coated. The interior piping is showing signs of light corrosion and should be repainted. This station is equipped with above ground Gorman- Rupp pumps that appears to be in good working condition. The motor has been replaced in one of the pumps. The suction pipes at the top slab need to be re-grouted to stop rain water from infiltrating into the wet well. The valve vault interior walls are sealed coated and in good condition, but the bottom of vault is constructed of gravel. The interior piping is showing signs of light corrosion and need to be resealed. The electro-mechanical equipment appears in good condition. This station is equipped with SCADA system and is fenced for security.
- LS 30A Lift station appears in good condition. The interior wet well wall is sealed coated and in good condition. The interior pipes have been replaced, but need to be sealed coated. The valve vault interior walls are sealed coated and in good condition, but the vault has approximately one foot of ground water standing in the bottom. The piping needs to be painted due to light

Section 3 Retail Water and Wastewater Utilities System

interior corrosion. The Electro-mechanical system appears in good condition. This station is equipped with SCADA system.

- LS 30B Lift station appears in fair condition. Wet well interior wall appears in good condition, but sections of wet well joints are seeping and need to be sealed. The interior wet well piping is showing signs of heavy corrosion and need to be sealed coated. The seal coat on the valve vault interior walls is peeling and needs to be recoated. The valve vault piping is showing signs of light corrosion and need to be repainted. The electro-mechanical system appears in fair condition. This station is equipped with SCADA system and is fenced for security.
- LS 30GI Lift station appears in good condition. The wet well interior wall is sealed coated and in good condition. The interior piping are also sealed coated, but are showing signs of corrosion. The valve vault interior wall are also sealed coated and in good condition. The valve vault piping is showing signs of corrosion and need to be re-painted. This station does not have a wet well vent and should have one installed. The electro-mechanical equipment appears in good condition. This station is equipped with SCADA system and is fenced for security.
- LS 31B Lift station is in good condition. The wet well interior wall is sealed coated and in good condition. The interior piping is also sealed coated and shows no signs of corrosion. The valve vault interior walls and piping are sealed coated and in good condition. The valve vault has about one foot of water standing in the bottom possibly the sump pump is not working; the electro-mechanical equipment is in good condition. This station is equipped with SCADA system and is fenced for security.
- LS 31D Lift station is in fair condition. The interior wet well wall seal coating is peeling off the wall. The interior piping is showing signs of heavy corrosion and needs to be recoated. This station was converted from above ground Gorman-Rupp pump to submersible pumps. The valve vault was eliminated and the valves and fittings were installed above ground. The electro-mechanical equipment is in fair condition. This station is equipped with SCADA system and is fenced for security.
- LS 31F1 Lift station appears in good condition. The wet well interior wall is sealed coated and in good condition. The interior piping is showing signs of corrosion and need to be re-coated. Valve vault and interior piping are also sealed coated and in good condition. The cam lock is missing from the emergency pump out, and needs to be replaced. The electro-

Section 3 Retail Water and Wastewater Utilities System

mechanical equipment is in good condition. This station is equipped with SCADA system and is fenced for security.

- LS 31G Lift station is in good condition. The wet well and interior suction pipes are sealed coated and in good condition. The valve vault and piping are also sealed coated, but the coating is peeling from the pipes and need to be re-coated. The Electro-mechanical system is in good condition. Station is equipped with SCADA system and is fenced for security.
- LS 50B1 Lift station appears in good condition. The wet well wall is in good condition and is sealed coated. The interior piping is showing signs of corrosion. The 4-inch wet well vent needs a coat of paint due to signs of corrosion. The valve vault walls appear in good condition, but the discharge piping and valves are showing signs of light corrosion and need to be painted. The electro-mechanical equipment is in good condition. This station is equipped with SCADA system and is fenced for security.
- LS 50JI Lift station appears in good condition. Interior wet well wall is sealed coated and in good condition. The interior piping are also sealed coated and show no sign of corrosion. The valve vault and interior piping appear in good condition with signs of light corrosion on the piping. The electro-mechanical equipment appears in good condition. The 4-inch wet well vent needs to be re-painted. This station is equipped with SCADA system that is incorporated into the control panel.
- LS 50M Lift station appears in good condition. The wet well is rectangular in shape and the interior walls appear in good condition. The interior wet well piping appear in good condition, but are showing signs of light corrosion and need to be sealed coated. The valve vault is sealed coated and in good condition. The valve vault piping is also showing signs of light corrosion. The electro-mechanical equipment appears in good condition. Station is equipped with SCADA and is fenced for security.
- LS 56B Lift station is in good condition. The wet well interior walls are sealed coated and piping is in good condition with no signs of corrosion. The valve vault is also sealed coated and piping is in good condition with no sign of corrosion on the discharge pipes. The electro-mechanical equipment and structure are in good condition. This station is equipped with SCADA.

Section 4

Regional Wastewater System

Section 4 Regional Wastewater System

This section describes the North Regional Wastewater System (NRWWS) including the service area, visual inspection and review of the renewal and replacement program.

4.1 General Description

The Utility owns and operates the North Regional Wastewater Treatment Plant (NRWWTP), which has provided contract wholesale wastewater services to 11 large users plus the County since 1974. The large users include the Cities of Coconut Creek, Coral Springs, Deerfield Beach, Lauderhill, North Lauderdale, Oakland Park, Pompano Beach, Tamarac; and, North Springs Improvement District (NSID), Parkland Utilities, and Royal Utilities. Service is also provided to WWS Districts 1 and 2 retail wastewater systems. The NRWWS includes 15 master pumping stations and approximately 98 miles of force mains. All of the wastewater collected from retail Districts 1 and 2 and large user customers are treated at the NRWWTP located in Pompano Beach, Florida. The plant has a permitted treatment capacity of 84 MGD. With the completion of the expansion project, the plant will treat up to 100 MGD of which 87.015 MGD has been reserved by the large users. During Fiscal Year 2010, the annual average daily flow at the NRWWTP was approximately 65 MGD, and the plant currently has sufficient capacity to meet the projected demands of all large users through 2025.

The large user agreements are substantially similar. Each is for a term that exceeds by one year the last payment of any wastewater system debt obligation applicable to the NRWWS. In addition to stipulating points of connection and establishing minimum quality limitations on all wastewater, the agreements designate reserve capacity in the plant for each user and provide for the method to charge each user for the availability and provision of service. The agreements also require the large users to deliver all wastewater collected within the service area to the County. On a monthly basis, each user is billed a fixed charge depending upon the user's reserve capacity in the plant. This fixed charge is designated to recover each large user's equitable share of debt service including coverage (1.2x principal and interest). The operation and maintenance costs associated with provision of treatment and transmission service, also billed monthly to each large user, are based upon the large user's pro rata usage of the NRWWS. Additionally, the contracts provide restrictions on excessive and peak flows, limitations on type of wastes allowed to be discharged and requirements to pay for damages caused by a large user.

The NRWWTP was designed and constructed in accordance with a master plan approved by regulatory authorities specifically to encourage the use of regional,

Section 4 Regional Wastewater System

technologically advanced wastewater treatment processes and to discourage development and use of smaller, less efficient systems. A difficult permitting process, outstanding contractual obligations with the County, and high capital costs of constructing and operating a new facility should discourage any large users from abandoning the NRWWS.

The NRWWTTP utilizes an activated sludge treatment process for liquid treatment and an anaerobic digestion system for handling the sludge produced from the liquid treatment process. After digestion, the sludge is dewatered and disposed of by landfilling and landspreading. The effluent from the liquid treatment process is chlorinated and either pumped through the outfall pipe into the Atlantic Ocean, disposed of in on-site deep injection wells, or filtered via the County's 10 MGD reclaimed water system. The reclaimed water is used for irrigation and industrial process water at the North Resource Recovery Plant (Solid Waste Incinerator) and the NRWWTTP, and for landscape irrigation at a nearby commerce center.

Service Area and Customer Base

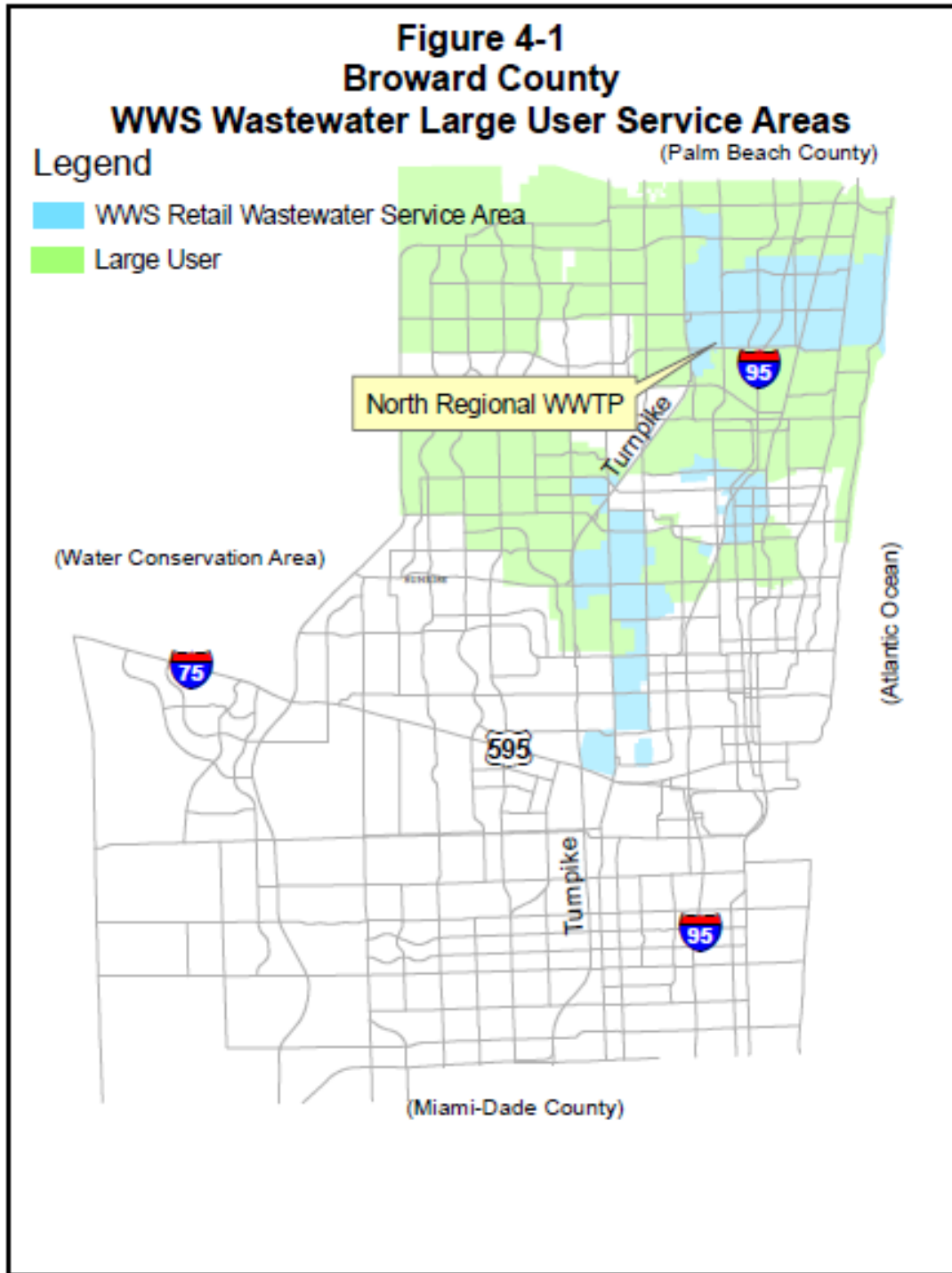
Figure 4-1 shows the NRWWS service Area. All of the wastewater collected from retail Districts 1 and 2, and all large user customers, are treated at the NRWWTTP located in Pompano Beach, Florida.

The NRWWS service area provides service to 40 percent of the population in the County. In addition to providing treatment service to the retail customers in Districts 1 and 2 (District 3 treatment is provided by contract with the City of Hollywood at the South Regional Wastewater System), the NRWWTTP provides treatment to 11 large users plus the County. Service is provided pursuant to individual, contractual agreements between the County and each large user. Generally, such agreements specify each large user's reserve capacity in the plant and provisions for billing and payment for service. The large users and WWS have currently subscribed to 87.015 MGD of treatment and disposal capacity.

Table 4-1 provides a summary of historical large user wastewater flows for treatment and disposal. The reserve capacity for each large user of the NRWWS is shown in **Table 4-2**. **Table 4-3** provides information on the wastewater annual flows for the past five years. While some of the large users individually may be utilizing high percentages of their reserve capacity, collectively the large users will not exceed permitted plant capacity. Hence, such individual wastewater flows do not constitute a liability issue from the standpoint of capacity.

Section 4 Regional Wastewater System

Figure 4-1 Broward County WWS Wastewater Large User Service Areas



Section 4 Regional Wastewater System

4-1 Summary of Historical Large User Wastewater Average Monthly Flow for Treatment and Disposal (1,000 Gallons)

Table 4-1					
Summary of Historical Large User Wastewater					
Average Monthly Flow for Treatment and Disposal					
(1,000 Gallons)					
Large User	FY 2008¹	FY 2009¹	FY 2010¹	Change From	
				Prior Year	% of Change
Coconut Creek	104,918	102,452	109,675	7,222	7.05%
Coral Springs	258,051	255,782	261,008	5,226	2.04%
Deerfield Beach	223,349	213,446	213,438	(8)	0.00%
Lauderhill	184,982	184,215	181,413	(2,802)	-1.52%
North Lauderdale	97,468	99,543	82,375	(17,168)	-17.25%
NSID	83,607	81,508	80,336	(1,172)	-1.44%
Oakland Park	37,498	53,526	61,731	8,205	15.33%
Parkland Utilities	7,773	5,601	6,651	1,050	18.74%
Pompano Beach	409,864	367,407	385,597	18,190	4.95%
Royal Utilities	8,526	9,831	8,980	(851)	-8.65%
Tamarac	192,263	195,063	201,687	6,624	3.40%
Subtotal	1,608,299	1,568,374	1,592,890	24,517	1.56%
Broward County	488,039	414,413	394,804	(19,609)	-4.73%
Total	2,096,338	1,982,786	1,987,694	4,908	0.25%
¹ Water conservation efforts as well as water restrictions in place since April 2007 as the result of a drought have reduced water sales and the amount of water returned to the wastewater system.					
Source: Broward County Water and Wastewater Services					

Section 4 Regional Wastewater System

4-2 NRW System Reserve Capacity as of September 30, 2010 (MGD)

Table 4-2 North Regional Wastewater System Reserve Capacity as of September 30, 2010 (MGD)		
Large User	Capacity	
	Treatment	Transmission
Broward County	19.42	19.42
Coconut Creek ¹	6.54	4.41
Coral Springs	9.79	9.79
Deerfield Beach	8.50	8.50
Lauderhill	7.10	7.10
N S I D	3.53	3.53
North Lauderdale	4.40	4.40
Oakland Park	1.52	1.52
Parkland Utilities	.265	.265
Pompano Beach ¹	17.00	N/A
Royal Utilities	0.45	0.45
Tamarac	8.50	8.50
Total	87.015	67.885
¹ All of Pompano Beach and portions of Coconut Creek do not use the North Regional Wastewater System transmission facilities.		
Source: Broward County Water and Wastewater Services		

Section 4 Regional Wastewater System

4-3 Summary of Large User Wastewater Treatment Annual Flows Five-Year History as of September 2010 (1,000 Gallons)

TABLE 4-3					
Summary of Large User Wastewater Treatment Annual Flows					
Five-Year History as of September 2010 (1,000 Gallons)					
Large User (LU)	Fiscal Year 2006	Fiscal Year 2007	Fiscal Year 2008¹	Fiscal Year 2009¹	Fiscal Year 2010
Coconut Creek	1,390,108	1,336,757	1,259,011	1,229,427	1,316,095
Coral Springs	2,873,541	2,762,105	3,096,615	3,069,385	3,132,096
Deerfield Beach	1,621,217	2,145,876	2,680,185	2,561,348	2,561,252
Lauderhill	2,235,628	2,107,495	2,219,783	2,210,581	2,176,961
North Lauderdale	1,462,676	1,218,069	1,169,616	1,194,511	988,496
NSID	929,151	927,497	1,003,282	978,100	964,037
Oakland Park	511,290	439,333	449,973	642,310	740,767
Parkland	79,487	87,728	93,272	67,215	79,808
Pompano Beach	5,213,300	4,944,777	4,918,370	4,408,880	4,627,160
Royal Utilities	75,409	75,659	102,307	117,969	107,764,
Tamarac	2,394,739	2,298,144	2,307,154	2,340,756	2,420,243
Total LU	18,786,546	18,343,440	19,299,568	18,820,482	19,114,679
Broward County	6,323,777	5,913,178	5,856,469	4,972,950	4,737,647
Total LU and County	25,110,323	24,256,618	25,156,037	23,793,432	23,852,326
¹ A drought and reduced water sales have reduced the amount of water returned to the wastewater system.					
Source: Broward County Water and Wastewater Services					

4.2 Wastewater System Regulatory Requirements

Operations of the NRWWTP are regulated by the EPA, the Florida Department of Environmental Protection (FDEP), and the Broward County Environmental Protection and Growth Management Department. Regulatory requirements are focused on effluent management, sludge disposal, reclaimed water, and an industrial pretreatment program.

In Fiscal Year 2010, the Regional Wastewater System (NRWWTP) had no permit violations. The NRWWTP is in compliance with effluent quality standards; fifty-one (51) parameters are checked daily to assess conformance with these standards, amounting to 18,615 parameter checks in the year. During Fiscal Year 2010, there were 2 limit excursions, or only 0.01 percent of the total checks at the NRWWTP. These excursions were the result of reclaimed water plant maintenance cleaning activities, which resulted in elevated suspended solids values in the reclaimed water.

4.3 Wastewater Effluent Management

The NRWWTP currently disposes of treated effluent via an open ocean outfall pipeline, a reclaimed water system and deep injection wells. The open ocean outfall is regulated through the Federal National Pollutant Discharge Elimination System (NPDES) permit program, and is administered by the FDEP. Injection to the deep wells is permitted by the FDEP Underground Injection Control Section.

Open ocean outfalls are utilized by several south Florida utilities. Concerns over possible environmental impacts exist and have been the subject of extensive study such as the Southeast Florida Ocean Outfall Experiments (SEFLOE) I and II conducted by the National Oceanic and Atmospheric Administration (NOAA). The SEFLOE studies indicated that there has been no unreasonable degradation of the discharge environment. WWS is currently participating in a joint study with NOAA titled Florida Atlantic Coastal Environment (FACE) study. The County has finished executing a memorandum of understanding with NOAA for a Coastal Water Quality Monitoring Plan, which will involve monthly monitoring of water quality associated with the ocean outfall discharges. Work is scheduled to commence November 2010.

The County's facility permit from the FDEP rates the NRWWTP at 84 MGD and acknowledges 66 MGD of effluent disposal capacity through the ocean outfall. Broward County submitted an application to the FDEP on August 2, 2007 for the renewal of the NPDES/Facility Permit for the NRWWTP, which expired on February 2, 2008. The NRWWTP is currently operating under an administratively extended NPDES/Facility Permit until the FDEP issues the new permit accompanied by an order establishing a compliance schedule consistent with recently enacted legislation. The application has been reviewed by the FDEP and issuance of the facility permit is anticipated by the end of 2011. The range of estimated capital improvement costs associated with complying with the as-yet-uncertain regulations is described in Section 6.5.

The FDEP continues to promote a reduction of nutrients in the face of growing opposition to ocean discharges from interested groups, but they have worked with the wastewater utilities with ocean outfalls (including Broward County) to reduce the economic impact of the Leah Schad Memorial Ocean Outfall Program, which became the law effective July 1, 2008. The House Agriculture and Natural Resources Subcommittee heard and passed HB 613 relating to Ocean Outfalls. The bill was amended to reflect the agreement reached between the FDEP and affected outfall utilities. As passed, the bill makes the following changes to the current law:

- Extends the date for discharges of domestic wastewater through an ocean outfall to meet advanced wastewater treatment and management (AWTM) requirements from December 31, 2018 to December 31, 2023.

Section 4 Regional Wastewater System

- Maintains the date for eliminating discharges of wastewater through an ocean outfall and for utilities to have in place a functioning reuse system that reclaims at least 60% of the facility's baseline flow at December 31, 2025.
- For utilities operating more than one facility, the 60% reuse may be met from the entire wastewater systems' annual flow as of December 31, 2025.
- Maintains the unlimited backup discharges of domestic wastewater through an ocean outfall during times of reduced demand for reclaimed water from the functioning reuse system. Such discharges must meet the AWTM requirements.
- Allows peak flow backup discharges not exceeding 5% of the facility's cumulative baseline flow, measured on a 5-year rolling average and requires that such discharges meet the FDEP's applicable secondary waste treatment and water-quality-based effluent limitations.
- Extends certain planning and reporting compliance dates.
- Requires the detailed plan that an outfall utility must submit to FDEP to identify technically and economically feasible reuse options, and to include an analysis of the costs associated with meeting state and local water quality requirements, and comparative costs for reuse using outfall flows and other domestic wastewater flows.
- Requires the detailed plan to evaluate reuse demand in context with several factors considered in the South Florida Water Management District's (SFWMD) Lower East Coast Regional Water Supply Plan.
- Requires FDEP, SFWMD and the outfall utilities to consider the above information for the purpose of adjusting, as needed, the reuse requirements, and requires FDEP to report to the Legislature any changes that may be necessary in the reuse requirements by February 15, 2019.

In lieu of enhancing the wastewater facility to advanced wastewater treatment by 2018, the County has met its outfall nutrient loading goal in 2010 by reducing flow and by modifying treatment to augment biological nutrient removal.

As noted, the effluent management system also includes Class I injection wells. The Operation Permit 0051336-502-UO for Injection Wells 1 through 6 was issued on July 2, 2010 and is valid for five (5) years. This permit requires the installation of a new monitoring well (number 5) to replace monitoring well number 4, because its lower zone no longer appears to be a reliable source of data. This determination was made based on the modified monitoring protocols and data collected under the permit 0051336-439 UO administrative order.

The County's effluent management program currently includes a 10 MGD system providing highly treated reclaimed water for industrial and landscape uses. Due to

Section 4 Regional Wastewater System

state law, the County will be required to increase production of reclaimed water by 2025. Long term effluent management improvements include combinations of injection wells, Biscayne aquifer recharge, Floridan aquifer recharge, offsite large user reuse, and residential reuse. An increase in the consumptive use permit raw water allocation for the water treatment facilities may be authorized by SFWMD when effluent management results in the potential beneficial reuse of the water.

4.4 Biosolids Management

Pollutant concentrations in wastewater residuals are regulated by both federal and state sludge regulations. The federal regulation that currently regulates disposal is 40 CFR Part 503. The Part 503 rule regulates five categories of wastewater residuals disposal: agricultural land application, non-agricultural land application, distribution and marketing, monofills and surface disposal. WWS currently employs landfilling (20,000 tons per year) and landspreading (60,000 tons per year) for wastewater residuals disposal. H & H Liquid Sludge Disposal, Inc. is under contract to dispose of biosolids by landspreading.

The County is currently managing most biosolids by land application of the treated residuals. Land application is a beneficial reuse of this wastewater treatment byproduct and is subject to both Federal and state regulations. The County produces Class B residuals allowable for application to non-food agricultural sites.

The FDEP has initiated a rule making process to modify state regulations for land application of biosolids. It is anticipated that the current site permitted for land application will be eliminated as a part of the plant's new operating permit. Land application would still be an option but permitted sites would be at greater distances than are currently available. Given the possibility that hauling costs to new disposal sites would be prohibitive, the County has secured alternate disposal capacity at a nearby Class I landfill and continues to investigate cost-effective long-term biosolids management alternatives. Disposal at the landfill meets all current Federal, state, and local regulations and since the landfill cogenerates electricity from its methane gas production, this disposal option is currently the most carbon neutral.

4.5 Wastewater Large User Agreements

The County is under obligation to provide large users with capacity under the terms of Large User Agreements (Agreements) it has executed with the cities of Coconut Creek, Coral Springs, Deerfield Beach, Lauderhill, North Lauderdale, Oakland Park, Pompano Beach, and Tamarac; and the North Springs Improvement District, and the private utility companies of Parkland Utilities, Inc. and Royal Utilities, which provide for wastewater transmission, treatment and disposal services. The Agreements terminate at the end of the County's fiscal year following the date all obligations, notes or bonds

Section 4 Regional Wastewater System

at any time issued for the NRWWTP and associated transmission and disposal facilities, or any part thereof, are retired or satisfied. The current large user reserved capacity in the NRWWTP is set forth in **Table 4-2**.

The Agreements are substantially alike in form and a brief summary of significant provisions follows:

- A. Provisions Pertaining to Connection to the County System. The Agreements require that during the term of the Agreement, each user except the City of Oakland Park will deliver all existing water flows collected by it to the County. Oakland Park sends a portion of their flow to the City of Ft Lauderdale's wastewater treatment plant. The Consulting Engineers are of the opinion that a difficult permitting process, outstanding contractual obligations with the County and high capital costs of constructing and operating a new facility should discourage any defection of users from the NRWWS.

The Agreements also identify the points of connection of the users' systems to the County's system, and state that the user will convey to the County land needed by the County for the point of connection and access thereto. The users agree to maintain their own systems, the elevation and pressure of which are required to be sufficient to deliver wastewater to the County's facility without backing up or reversing flow. The users' systems must include provisions to prevent excessive peak flow rates and extended periods of no flow. Each of the users must list in the Agreement estimates of its future flow projection and the user must submit annual updates of these estimates to the County. The County is required to use these estimates to plan future treatment capacity and to determine whether facilities should be extended or modified. The County's obligation to provide service is limited to the capacities reserved by users, which may be increased or decreased by amendment or modification to the Agreements. The Agreements allow users to lease or sell excess capacity to other users, subject to the County's approval. The County is required to install and maintain a meter at each point of connection to determine the volume and rates of flow and to inspect the meters at least annually to determine the accuracy thereof. The Agreements provide for credits or additional charges in the event of the inaccuracy of the meters. If the meters are inoperative, the users are required to pay an amount based on the average flow of the prior month.

- B. Provisions Relating to Discharge Sampling. The Agreements specify quality limitations for wastewater discharges. A user's failure to comply with these limitations places the user in default under this Agreement and allows the County either to initiate programs to bring the user's discharge into compliance at the user's expense or to seek damages from the user. A user's system must include a sampling station and the user must upon receipt of written request from the County submit a complete laboratory analysis of a composite sample of

Section 4 Regional Wastewater System

combined wastes leaving the user's facilities. The County and the user may enter into an agreement whereby the County would accept an industrial waste of unusual strength. The County may surcharge high strength industrial waste received from large user systems.

- C. Provisions Pertaining to Charges. The County is required to conduct an annual review of the costs of providing service to users, which will provide the preliminary basis for establishing fees, rates and other charges for the next succeeding fiscal year. The fees and rates charged to the users constitute the full cost of the transmission, treatment and disposal service provided to the users, including operation and maintenance charges and debt service charges for both the NRWTP and the NRWWS transmission facilities, and include an Improvement Repair and Replacement Surcharge. Such fees, rates and charges are required to be set at a public hearing by the Board, which is required to be held after 30 days written notice to the users. The Board is required to consider recommendations of the individual users or the advisory board, which is composed of representatives from each of the users. The operation and maintenance charges applicable to the NRWTP or the transmission system are included in the monthly rate charged to the users based upon the users' actual monthly flow in thousands of gallons. The rate is to be set by dividing the total annual budgeted operation and maintenance expense for each fiscal year by the number of gallons estimated to be treated or transmitted in that fiscal year, and is to be adjusted at year end to reflect the actual number of gallons treated and actual operation and maintenance expense.

The debt service charge included in monthly rates charged to the users include principal, interest and coverage requirements on obligations issued at any time for the NRWWS and is computed by determining the ratio of the amount of capacity reserved by the user to the amount reserved by all users. The debt service charge for the NRWWS transmission facilities is computed by reference to transmission reserved capacity in the same manner. A user's contribution to the Improvement, Repair and Replacement Surcharge, which is part of the monthly rate charged to users, may not exceed 10 percent of that user's monthly bill. In addition, the Agreements provide for additional charges in the event that a customer requests additional transmission or treatment capacity or in the event that the monthly flow of a user exceeds the capacity reserved by such user for three consecutive months. A user that fails to pay the monthly bill within 45 days of its due date is required to pay an interest penalty on the unpaid balance; and if the payment is not made within 60 days, the user is in default of the Agreement and the County may enforce the Agreement by suit. The users agree to establish service charges or other means of obtaining funds sufficient to enable them to pay the monthly charge.

Section 4 Regional Wastewater System

- D. Provisions Pertaining to Additional Obligations of Both Parties. The Agreements provide that the County will extend and expand its NRWWS to provide for the user's scheduled flow. The users must deliver their wastewater to the County facilities for treatment and the County must accept all wastewater flows collected by the users, provided the amount of such flow does not exceed the capacity reserved by such users.
- E. Provisions Pertaining to Violations and Exceptions to the Terms of Agreements. If a user violates the Agreement, the County must give written notice of the violation and allow a reasonable time to correct the violation. The user must correct the violation within the stated time. If either party violates the Agreement, that party becomes liable to the other for any expense, loss or damage occasioned by such violation; provided that any payment by the County to a user for violation of any provision of the Agreement shall be from any legally available source other than the revenues pledged to any bondholders. If there is a dispute concerning a violation that cannot be settled, the user will pay the full amount billed, and the amount in dispute will be escrowed or held in a joint trust, interest-bearing bank account and held pending settlement of such dispute. Each user agrees to hold the County harmless from costs and expenses incurred by such user or the County in any litigation resulting from the improper introduction of materials by such user into the County facility. Any temporary cessation of wastewater transmission and treatment services caused by an act of God, a fire, strikes, casualty, necessary maintenance work, breakdown of or injury to machinery, pumps or pipeline shall not constitute a breach of the Agreement. The County is required to accept and dispose of wastewater transmitted by the users, if physically possible, regardless of the degree of treatment available, until written notice to the contrary is received from a government agency.
- F. Provisions Relating to the Term of the Agreements and Cancellation. The users and the County were bound by the Agreements at the date of their execution. The County and each user may terminate their Agreements by mutual written consent. Otherwise, the Agreements terminate at the end of the County's next full fiscal year after all obligations issued at any time during the term of the Agreements for the NRWWS have been retired or satisfied.

4.6 Visual Inspection and Review

North Regional Wastewater Treatment Plant

The visual inspection of the NRWWTW was performed on May 3, 2011. Since the last report most of the expansion construction to the plant have been completed and are operational. The visual inspection indicates that the plant is well maintained and operated properly.

Plant modifications performed through December 2010:

- Rehabilitation of Clarifier C-2 at C-MOD.
- Replacement of VFD at Clarifier B-MOD and C-MOD.
- Recirculation Pump No. 3 was replaced at the Clarifier C-MOD.
- Replacement of clarifier drive at D-4 MOD.
- Replacement of VFD at the reuse pump station.
- Replacement of strainers on pumps at the reclaim water plant.
- Repaving of road at the sludge pad.

Plant modifications to be initiated for FY 2011 and FY 2012:

- Replacement of aerator blades at D-1 MOD and D-4 MOD.
- Replacement of liquid rheostat 5.
- Rehabilitation of plant lift stations No. 1 and No. 2.
- Install drive at clarifier D-3 MOD.
- Repair RAS pumps at the E-3 and D-3 MOD.
- Repaint the monitoring wells.
- Replacement of skimmers at No. 4 DAFT.
- Repair aeration weirs at A-1, A-2, A-3 and A-4 MOD.
- Repair and repaint Boilers No.1, No.2 and No.3 at south complex
- Repair and repaint Boilers No.4, No.5, No.6, No.7 and No.8 at the north complex.
- Replace pump and shredder at No.7 slot
- Removal of sand and replacement of diffusers at C-MOD.
- Replacement of generator No.4.

Section 4 Regional Wastewater System

- Replacement of VFD at drive No.2 at injection well building.
- Replacement of control panel for outfall effluent pumps.
- Replacement of the VFD for two water cool injection wells No.1 and No.3 (ongoing)
- Eliminate evaporators at the chlorine facility; change piping and add two scales.
- Initiation of the Chevron Project.

Septage Receiving Facility

The septage receiving facility receives waste from septic tank pump outs, portable toilets, vacuum trucks, grease traps, leachate from landfills, etc. The waste is separated into three categories: liquids, solids and truck washout water. The equipment which must be maintained includes grinders, transfer pumps, a diesel generator set, biofilter and miscellaneous valves.

The septage receiving facility was inspected on May 3, 2011 and was found to be well maintained. The 10-inch isolation valve previously reported in FY-2009 is scheduled for replacement in FY-2011. The media was replaced in the bio-filters in FY-2010.

Future plans for this facility include new settlers to remove excess grit from the liquids and the purchase of equipment to manage solids in tipping floor.

Master Lift Stations

(5) Master Lift Stations representative of the sizes and ages of master lift stations throughout Broward County were inspected on April 26 and 27, 2011. Overall, the lift stations inspected appeared to be efficiently operated and well maintained. The mechanical and electrical components (control panels, variable frequency drives, motor control centers, generators, telemetry units, pumps, pipes, and accessories) appeared to be in good condition.

LS 220 Master lift station is in substantially good condition. Station has three 100 HP pumps and is operating in good condition. Pumps No.1 and No.2 had the pump shoe replaced. The wet well interior walls are sealed coated and appear in good condition, but the interior piping is showing signs of corrosion and need to be sealed coated. The 8-inch wet well vent is showing signs of light corrosion and needs to be painted. The interior valve vault and piping are also sealed coated and in good condition. The

Section 4 Regional Wastewater System

electro-mechanical panel and SCADA system appear in good condition. This station has a portable generator on site.

- LS 221 Master lift station is in substantially good condition. All three pumps (100 HP each) are in operation and in good working condition. Two check valves were replaced in January 2011. The wet well is rectangular in shape and the interior walls are sealed coated and in good condition. The interior wet well piping and shoe and all the pumps were replaced. The exterior above ground piping is painted and in good condition. Electrical control panels, generator and building structural components are in substantially good condition. The interior and exterior wall paint on the building is in good condition. Station is equipped with SCADA and is fenced for security.
- LS 226 Master lift station appears in good condition. This station is equipped with three submersible pumps, one is 50 HP and the other two 100 HP all in good working condition. The three pumps had the pump shoe and all three check valves replaced. The wet well interior wall (rectangular shaped) are sealed coated but the coatings is peeling from the walls and need to be re-sealed. Interior wet well piping is showing signs of corrosion and need to be sealed coated. The above ground piping are painted and in good condition. The electrical control panels, mechanical and building structure components are in good condition. The building interior and exterior walls are painted and in good condition. Emergency standby generator engine is down for repair due to leaking manifold, but a portable standby generator is on site. Station is equipped with a SCADA system.
- LS 410 Master lift station is in good condition. That station has no wet well on site. The station has four (4) pumps all are in operation and good working condition. All the pumps, motors and piping are painted and in good condition. Electrical control panels, generator and structural components of the station are in good condition. The interior walls of the building are all painted and in good condition. Diesel fuel tank and containment structure are in good condition. Building exterior walls are painted and in good condition. The exterior piping are all painted and in good condition. Windows are equipped with roll down hurricane shutters.
- LS 462 Master lift station is in substantially good condition. This station has a wet well adjoining the pump room with three pumps operating in good working condition. The motors for Pumps No.1 and Pump No. 3 appeared to have been reconditioned. The interior and exterior piping are painted and in good condition. The electrical control panels, generator and

Section 4 Regional Wastewater System

structural components of the station are in substantially good condition. The interior and exterior paint on the building structure is in good condition. The emergency generator has a 6000 gallon diesel fuel tank with containment structure.

Section 5

Regional Raw Water Supply

Section 5 Regional Raw Water Supply

There are currently two wellfields operated by Broward County as part of the regional system, the NRW and SRW. This section describes the regional raw water supply system, including the large users, physical descriptions, and visual inspections.

5.1 General Description

The Biscayne Aquifer, currently the County's primary source of drinking water, is subject to saltwater intrusion. In 1986, the County adopted the Regional Raw Water Supply (RRWS) Program, which calls for centralized wellfields further inland to ensure a continual water supply for potable water to Broward County. Under the program, new wellfields and raw water delivery systems were financed, constructed and are operated as a regional system for large users. Large users are Dania Beach, Deerfield Beach, Hallandale Beach, Florida Power and Light Corporation, Hollywood and WWS District 2. The wellfields were constructed using general County revenues and the assets were contributed to the utility. **Figure 5-1** depicts the regional wellfields.

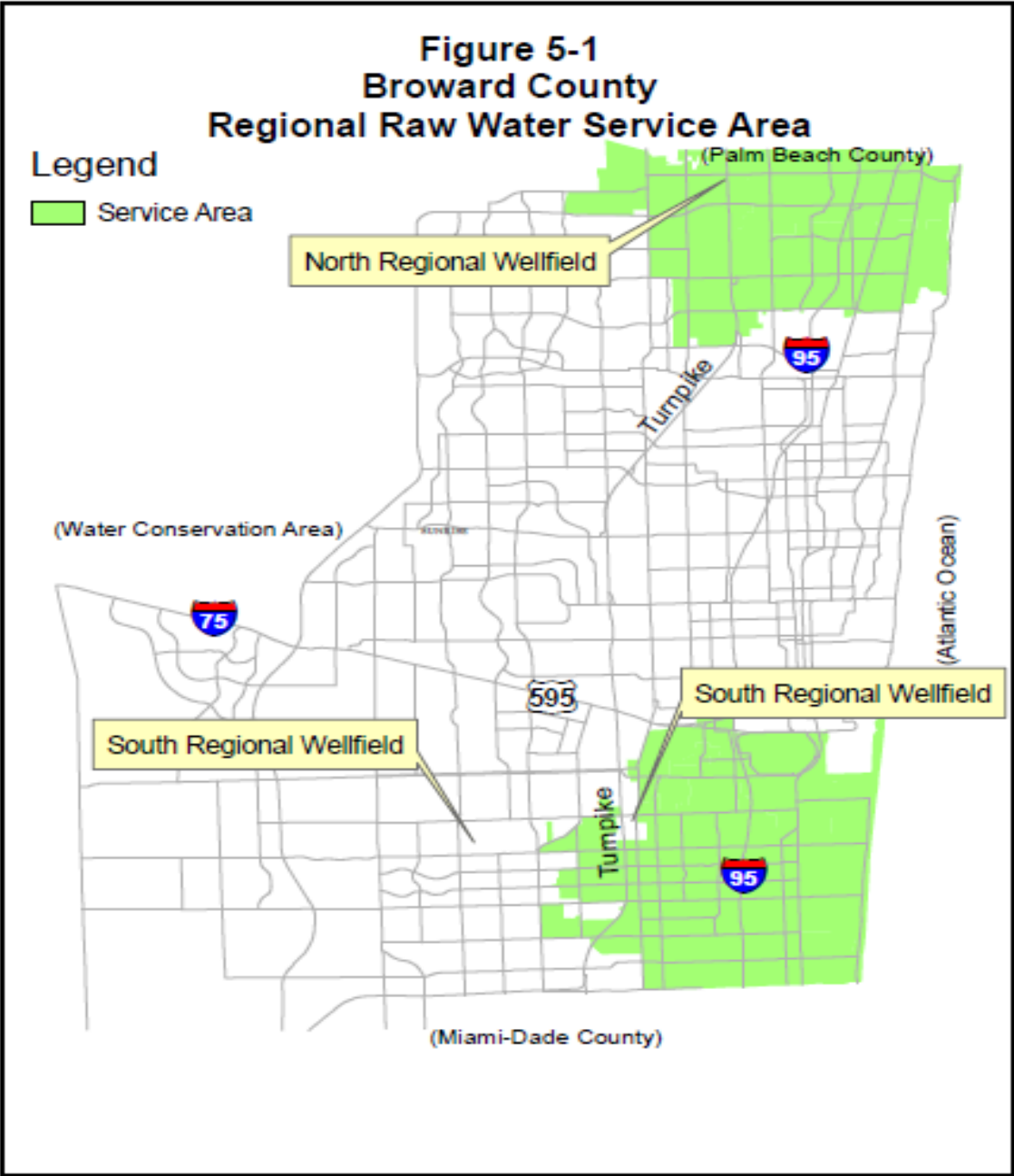
5.2 North Regional Wellfield

The NRW includes 10, 2-MGD wells and approximately 30,000 linear feet of pipeline, ranging from 12-inches to 48-inches in diameter. A permit application combining the District 2A retail wellfield and NRW permits was approved by the SFWMD and issued in March 2008. The permit expires in the year 2028. The well casings at the NRW are set in the Biscayne aquifer at a depth of approximately 100 feet below land surface. The NRW has two emergency generators capable of powering pumps for six wells. A physical description of the NRW is presented in **Table 5-1**.

5.3 South Regional Wellfield

The SRW includes eight 4-MGD wells, two 2- MGD wells and approximately 79,000 linear feet of transmission pipeline, ranging in size from 20-inches to 42-inches in diameter. Six wells have the ability to run under permanently installed auxiliary generator power with three wells being connected to one generator. The remaining wells have connections for a portable generator. The permitted capacity of the SRW is 22.4 MGD maximum day and 14.2 MGD annual average day. The permit expired in October 2007, and the application submitted for permit renewal is under review by the SFWMD. Wells 5 and 6 were formerly associated with WTP 3A. The well casings at the SRW are set in the Biscayne Aquifer at a depth of approximately 100 feet below land surface. A physical description of the SRW is presented in **Table 5-2**. All wells in SRW have PVC casings.

Figure 5-1 Broward County Regional Raw Water Service Area



Section 5 Regional Raw Water Supply

5-1 NRW Physical Descriptions

Table 5-1 NRW Physical Descriptions								
Wellfield	Well No.	Size (in)	Depth (ft)	Casing Depth (ft)	Type of Casing	Normal Yield (GPM)	Capacity (GPM)	Service Status
NRW	1	20	170	112	PVC	1400	1400	ON LINE
NRW	2	20	130	116	PVC	1400	1400	ON LINE
NRW	27	20	130	95	PVC	1400	1400	ON LINE
NRW	29	20	130	94	PVC	1400	1400	ON LINE
NRW	30	20	121	92	PVC	1400	1400	ON LINE
NRW	31	20	121	92	PVC	1400	1400	ON LINE
NRW	32	20	120	88	PVC	1400	1400	ON LINE
NRW	33	20	121	92	PVC	1400	1400	ON LINE
NRW	45	20	112	94	PVC	1400	1400	*OFF LINE
NRW	46	20	170	131	PVC	1400	1400	ON LINE

*Needs new pump and motor.

Section 5 Regional Raw Water Supply

5-2 SRW Physical Descriptions

Table 5-2 SRW Physical Descriptions								
Wellfield	Well No.	Size (in)	Depth (ft)	Casing Depth (ft)	Type of Casing	Normal Yield (GPM)	Capacity (GPM)	Service Status
SRW	5	20	110	75	PVC	2083	1400	*OFF LINE
SRW	6	20	110	75	PVC	2083	1400	ON LINE
SRW	17	12	115	81	PVC	2800	2800	ON LINE
SRW	18	12	140	80	PVC	2800	2800	**OFF LINE
SRW	19	12	140	80	PVC	2800	2800	ON LINE
SRW	20	12	140	80	PVC	2800	2800	ON LINE
SRW	21	12	140	80	PVC	2800	2800	ON LINE
SRW	22	12	140	80	PVC	2800	2800	ON LINE
SRW	23	12	140	80	PVC	2800	2800	ON LINE
SRW	24	12	140	80	PVC	2800	2800	ON LINE

*Offline due to salt intrusion.

** Needs new motor.

5.4 Contractual Agreements

The contractual agreements with each of the large users are substantially similar and run for an indefinite period of time. The exception is the City of Hollywood agreement that has a four-year term with an automatic renewal for four years unless otherwise terminated. The large user agreements provide for a method to charge each user a pro rata share of system operations and maintenance costs. The capital costs were funded using general County revenues.

5.5 Large Users

The North and South Regional Well fields serve different areas in Broward County. The NRW serves the City of Deerfield Beach and the County's District 2. The SRW serves the Cities of Dania Beach, Hollywood, and Hallandale Beach and Florida Power and Light. The consumption by Large Users from fiscal year 2006 through 2010 are presented in tables 5-3 (A) and 5-3 (B).

Section 5 Regional Raw Water Supply

5-3 (A) - (B) Large User Actual Flow Regional Raw Water Flow Distribution (1,000 Gallons)

Table 5-3 (A)			
LARGE USER ACTUAL FLOW			
Regional Raw Water Flow Distribution			
(1,000 Gallons)			
Fiscal Year	Deerfield	BC2A	NRWF
FY 2010	220,694	2,299,487	2,520,181
FY2009	216,400	2,280,890	2,497,290
FY2008	217,800	2,303,290	2,521,090
FY2007	218,280	2,338,418	2,556,698
FY2006	226,340	2,345,010	2,571,350
GRAND TOTAL	1,099,514	11,567,095	12,666,609

Table 5-3 (B)					
LARGE USER ACTUAL FLOW					
Regional Raw Water Flow Distribution					
(1,000 Gallons)					
FISCAL YEAR	Hallandale	Hollywood	Dania	FPL	SRWF
FY 2010	1,401,787	1,539,507	433,268	479,590	3,854,152
FY 2009	1,392,030	1,632,870	348,470	567,210	3,940,580
FY2008	1,288,330	2,190,930	384,970	637,940	4,502,170
FY2007	877,010	2,410,180	359,270	592,240	4,238,700
FY2006	828,240	2,242,700	425,030	529,290	4,025,260
GRAND TOTAL	5,787,397	10,016,187	1,951,008	2,806,270	20,560,862

5.6 Regional Raw Water Supply Regulations

The volume of raw water withdrawal from the Utility's regional raw water supply wellfields is regulated by the SFWMD. Each wellfield is governed by a water use permit that stipulates the raw water maximum allowable annual and daily withdrawals. These permits are reissued for periods of five to 20 years. The permit for the combined 2A/NRW was issued in March 2008 for a 20-year period. The application for the South Regional Wellfield has been filed. The Utility has responded to permit application review comments from the SFWMD and has coordinated the review of this application with the raw water permitting needs of the Cities of Hallandale Beach and

Dania Beach. Because the SFWMD permit terms and conditions are dependent on the issuance of the Hallandale Beach water use permit, SFWMD has indicated that the SRW permit will not be issued until after the Hallandale Beach permit is issued in the near future.

For wells that are in service, the County operating personnel regularly monitor pH, alkalinity, hardness, iron, chloride, color, standard plate count (SPC), coliforms, quarterly wellfield protection monitoring and annual analysis to comply with the SDWA. All water quality parameters are regulated by the FDEP.

5.7 Visual Inspection and Review

North Regional and South Regional Wellfields

Visual inspections of the County's regional wellfields were performed on May 4 and 9, 2011 by Milian, Swain & Associates, Inc. The findings of these inspections are summarized in **Tables 5-4** and **5-5**.

Overall, the NRW was observed to be in good operating condition and well maintained. During the inspection it was observed that the all piping and well head were painted and well maintained. One well was off line for repair.

- Well No. 45 at the NRW was off line for pump and motor replacement.

The SRW was also observed to be in good operating condition and well maintained with two wells off line.

- Well No. 5 at the SRW is off line due to salt intrusion.
- Well No. 18 at the SRW is off line for pump and motor replacement.

There were other repairs, observed during the visual inspection and Milian, Swain & Associates, Inc. recommends that the following be performed:

- Well No.6 at the SRW needs to have the piping repainted due to light corrosion.
- Well No. 17 at the SRW need a coat of paint on the well head and piping due to corrosion.

Section 5 Regional Raw Water Supply

- Well No.19 at the SRW needs to have the well head repainted due to light corrosion.
- Well No. 20 at the SRW needs to have the well head and piping repainted due to light corrosion.
- Well No. 21 at SRW needs the well head repainted due to light corrosion.
- Well No. 22 at the SRW needs the well head to be repainted due to light corrosion.
- Well No. 23 at the SRW needs the well head and piping repainted.

Section 5 Regional Raw Water Supply

5-4 NRW Wellfield Inspections

Table 5-4 NRW WELLFIELD INSPECTIONS						
Wellfield	Well Number	Wellhead Completion	Pump Type	Sustained Moisture on Wellhead	Seals at Top of Well Casing/Wellhead	Additional Comments
NRW	1	Vault	S	No	Good	Well facility with generator in good condition. Piping paint in good condition. New A/C planned for FY-2011 or 2012. Electrical controls and generator in good condition.
NRW	2	Vault	S	No	Good	Well facility in good condition. Piping and well head paint is in good condition. Electrical controls in good condition.
NRW	27	Vault	S	No	Good	Well facility in good condition. Well head and piping paint in good condition. Electrical controls in good condition.
NRW	29	Vault	S	No	Good	Well facility in good condition. Paint on piping and well head in good condition. Electrical controls in good condition.
NRW	30	Vault	S	No	Good	Well facility in good condition. Well head and piping in good condition. Electrical controls in good condition.
NRW	31	Vault	S	No	Good	Well facility in good condition. Paint on well head and piping in good condition. Electrical controls in good condition.
NRW	32	Vault	S	No	Good	Well facility with generator in good condition. Piping and well head paint is in good condition. Electrical controls in good condition. New A/C planned for FY-2011 or 2012
NRW	33	Vault	S	No	Good	Well facility in good condition. Paint on well head and piping in good condition. Electrical controls in good condition.
NRW	45	Vault	S	No	Good	Offline - needs new pump and motor. Well facility in good condition. Paint on well head and piping in good condition. Electrical controls in good condition.
NRW	46	Vault	S	No	Good	Well facility in good condition. Paint on well head and piping is in good condition. Electrical controls in good condition.

Section 5 Regional Raw Water Supply

5-5 SRW Wellfield Inspections

Table 5-5 SRW WELLFIELD INSPECTIONS						
Wellfield	Well Number	Wellhead Completion	Pump Type	Sustained Moisture on Wellhead	Seals on Top of Well Casing/Wellhead	Additional Comments
SRW	5	Vault	S	No	Good	Well facility in fair condition. Well is out of service due to salt intrusion.
SRW	6	Vault	S	No	Good	Well facility in fair condition. Replaced Clay valve. Piping needs a coat of paint. Electrical controls in good condition. Added new water sample tap.
SRW	17	Vault	S	No	Good	Well facility in good condition. Well head and piping need a fresh coat of paint. Electrical controls in good condition. Added new water sample tap.
SRW	18	Vault	S	No	Good	Offline - needs new motor. Well facility with generator in good condition. Piping and well head paint in fair condition, should be repainted. Electrical controls in good condition. Added new water sample tap.
SRW	19	Vault	S	No	Good	Well facility in good condition. Well head is showing signs of corrosion and need a fresh coat of paint. Electrical controls in good condition. Added new water sample tap.
SRW	20	Vault	S	No	Good	Well facility in good condition. Well head and piping need a fresh coat of paint. Electrical controls in good condition. Added new water sample tap.
SRW	21	Vault	S	No	Good	Well facility with generator appears to be in good condition. Well head needs a fresh coat of paint, piping is ok. Electrical controls in good condition. Added new water sample tap.
SRW	22	Vault	S	No	Good	Well facility in good condition. Well head flange is showing signs of light corrosion and need a fresh coat of paint. Piping paint in good condition. Electrical controls in good condition. Added new water sample tap.
SRW	23	Vault	S	No	Good	Well facility in good condition. Well head has new meter. Paint on piping and well head need a fresh coat of paint. Electrical controls in good condition. Added new water sample tap.
SRW	24	Vault	S	No	Good	Well facility appears in good condition. Well head has light corrosion on top and bottom and needs painting. Paint on piping in fair condition. Electrical controls in good condition. Added new water sample tap.

S = Submersible

Section 6

Capital Improvement Program

Section 6 Capital Improvement Program

6.1 Description of the Capital Improvement Program

As part of the growth management efforts mandated by State legislation, the County initiated planning efforts to accommodate future growth and regulatory requirements. The plan is updated regularly with the latest revision completed in 2004. The revision addresses the need for services and facilities based upon anticipated build out conditions of the service area in the year 2025. Current planning efforts include the Alternative Water Supply Master Plan and the Effluent Disposal and Reclaimed Water Master Plan. These plans were presented to the Board of County Commissioners during a Commission Workshop in October 2010. The Alternative Water Supply Master Plan will be updated subsequent to the 2010 US Decennial Census.

The Utility develops a five-year capital improvement program (CIP) recognizing costs associated with the future growth and regulatory requirements. **Table 6-1** presents the current CIP categorized by expenditure category. The Board approved the CIP for Fiscal Years 2011 through 2015 in September, 2010. The five-year CIP reflects the total estimated project costs for each project which is expected to be initiated within the five-year plan regardless of the estimated time required to design and complete construction of the project. Projects remain open for many years until all related construction activities are complete. The budgets by capital project type through Fiscal Year 2015 are presented in **Table 6-2**.

Section 6 Capital Improvement Program

6-1 Capital Improvement Program as of September 30, 2010

Table 6-1 Capital Improvement Program as of September 30, 2010							
Capital Budgets	Water Treatment	Water and Sewer Mains	Wastewater Treatment	Regional Transmission	Miscellaneous Services	Engineering Services	Total
Available for Carryover	\$ 13,201,055	\$ 131,366,008	\$ 19,389,453	\$ 12,229,022	\$ 2,041,204	\$ -	\$ 178,226,742
2011	4,425,990	27,177,330	42,879,590	2,554,390	1,387,500	3,701,670	82,126,470
2012	1,800,000	11,514,120	13,033,850	9,720,940	200,000	3,701,670	39,970,580
2013	1,866,810	11,661,000	23,100,000	4,606,050	0	3,701,670	44,935,530
2014	39,350,000	19,036,910	1,103,100	750,000	0	3,701,670	63,941,680
2015	6,300,000	15,069,290	3,450,000	4,975,000	0	3,701,670	33,495,960
Totals	\$ 66,943,855	\$ 215,824,658	\$ 102,955,993	\$ 34,835,402	\$ 3,628,704	\$ 18,508,350	\$ 442,696,962
Funding:							
Debt FY 2011-2015	\$ 42,500,651	\$ 36,204,259	\$ 60,696,700	\$ 5,494,500	\$ 3,628,704	\$ -	\$ 148,524,814
Cash FY 2011-2015 ¹	23,954,340	35,533,660	38,442,000	4,070,000	-	10,000,000	112,000,000
Future Needs Beyond 2015	488,864	144,086,739	3,817,293	25,270,902	-	8,508,350	182,172,148
Totals	\$ 66,943,855	\$ 215,824,658	\$ 102,955,993	\$ 34,835,402	\$ 3,628,704	\$ 18,508,350	\$ 442,696,962
¹ Cash reflects net revenues, capital recovery charges, large user contributions, and grants.							
Source: Broward County Water and Wastewater Services							

Section 6 Capital Improvement Program

6-2 Capital Projects Budgets by Type Through Fiscal Year 2015

Table 6-2	
Capital Projects Budgets by Type Through Fiscal Year 2015	
Water Treatment	Budget
WTP1A Treatment Expansion	\$44,862,584
WTP2A Treatment Plant Expansion	\$6,300,000
Treatment Process Improvements	\$9,445,145
Energy Efficiency for Retail Facilities	\$1,350,000
Security System Upgrades	\$1,163,858
Misc. WTP Rehabilitation Projects	\$3,822,268
Water Treatment Subtotal	\$66,943,855
Water Distribution and Sewer Collection	
Neighborhood Improvement Program (NIP)	\$110,861,270
Local Utility Improvement Projects (UAZ)	\$51,103,872
Misc. Sewer Main Improvements	\$17,781,883
Misc. Water Main Improvements	\$6,671,297
Lift Station Improvements	\$8,086,255
Potable Water Storage Improvements	\$18,688,076
Misc. Main Rehabilitation Projects	\$2,632,005
Water Distribution and Sewer Collection Subtotal	\$215,824,658
Wastewater Treatment	
NRWWTP Expansion	\$5,871,718
NRWWTP Effluent Disposal Treatment Enhancements	\$52,196,873
NRWWTP Ocean Outfall Improvements	\$5,969,401
Plant Equipment Rehabilitation	\$22,967,824
Monitoring Well Improvements	\$2,914,998
Misc. Plant Rehabilitation Projects	\$13,035,179
Wastewater Treatment Subtotal	\$102,955,993
Regional Transmission	
Master Pump Station Improvements	\$31,882,046
Force Main Extensions/Improvements	\$2,953,356
Regional Transmission Subtotal	\$34,835,402
Misc. Projects	
Misc. Projects Subtotal	\$3,628,704
Engineering Services	
Engineering Services Subtotal	\$18,508,350
GRAND TOTAL	\$442,696,962
Source: Broward County Water and Wastewater Services	

The estimated funding requirements for this five-year period ending Fiscal Year 2015 are expected to be met by net revenues, debt proceeds, capital recovery charges, contributions from large users, grants and future borrowings. The County currently anticipates cash financing at least 43 percent of the actual funding requirements. The proceeds of the Series 2009A Bonds are being used to finance a portion of the CIP. Many of the projects and improvements in the CIP are in the planning stages with cost

Section 6 Capital Improvement Program

estimates that are preliminary and contracts have not been awarded. The County plans to re-prioritize projects as needed to maintain an affordable rate structure. Current projections anticipate levelized rate increases of approximately five percent annually through Fiscal Year 2015. The County estimates it will issue approximately \$148 million of debt in Fiscal Year 2012 and an additional \$154 million in 2016.

The County reviews and updates the CIP annually and includes separate estimates for the Water and Wastewater Systems. The total cost of the CIP could vary from these annual estimates depending upon future demands, regulatory requirements, actual contract awards and other economic factors.

6.2 Retail Water and Wastewater System Improvements

The five-year CIP for the retail water and wastewater systems has the principal objectives of: rehabilitating or replacing water distribution systems; extending sanitary sewers to currently unsewered customers. The estimated cost of these improvements totals approximately \$216 million.

WWS began implementing local utility improvement projects, called Utility Analysis Zones (UAZ) in mid 2009. While the NIP included drainage, landscaping and sidewalk improvements, which were paid for from County general funds, UAZ's focus solely on water and sanitary sewer improvements. The total cost estimate for these improvements is nearly \$275 million dollars over the next twenty plus years.

The five-year CIP includes projects of approximately \$67 million to improve the retail water treatment systems. The Multi-District Inflow and Infiltration Program is continuing with \$9.5 million budgeted for repairs to the wastewater collection system.

6.3 Neighborhood Improvement Program

The NIP was initiated by the County in 1993 to upgrade the infrastructure in the then unincorporated neighborhoods. The improvements include upgrades to the existing water and sewer system, installation of drainage, new pavement, swales, and landscaping. The total estimated cost of the program is approximately \$748 million dollars. Approximately \$389 million, or 52 percent of total cost, is for water and sewer upgrades of which approximately \$273 million has been spent to date. The remaining 48 percent of total cost associated with sidewalk, drainage and landscaping improvements is being funded by the County's general fund. A summary of the NIP projects is listed on **Table 6-3**.

The NIP encompasses an area the size of a medium city with 9,223 acres, 92,000 people and 28,200 homes. The planned improvements include 292 miles of roadways, 422

Section 6 Capital Improvement Program

miles of sidewalk, and 617 miles of pipeline which will enable the elimination of 10,434 septic tanks. Construction started in 1996 and is currently scheduled to be completed in 2013. Of the 65 planned bid packages, 49 have been completed and 11 are in construction.

6-3 Summary of Neighborhood Improvement Program as of September 30, 2010

Table 6-3					
Summary of Neighborhood Improvement Program as of September 30, 2010					
Neighborhood Improvement Project	Total Costs All Improvements¹	Percent Complete	Bid Packages	No. Completed	Under Const.
North County	\$226,121,660	56%	15	8	3
South County and Riverland Village	118,503,748	100%	17	17	0
North Andrews Gardens	102,462,359	100%	9	9	0
Central County	125,665,258	92%	12	11	1
North Central County	74,832,172	84%	5	2	3
Broadview Estates	31,130,862	67%	2	1	1
Broadview Park	61,790,000	52%	4	1	3
Twin Lakes South	7,253,000	1%	1	0	0
Program Total Costs	\$747,759,059		65	49	11
¹ Includes costs for sidewalks, drainage and landscaping improvements. Source: Broward County Water and Wastewater Services					

6.4 Utility Analysis Zones

WWS began implementing local utility improvement projects, called Utility Analysis Zones (UAZ) in mid 2009. Where the NIP included drainage, landscaping and sidewalk improvements, which were paid for from County general funds, the UAZ projects focus solely on water and sanitary sewer improvements. The total cost estimate for these improvements is nearly \$275 million dollars over the next twenty plus years.

6.5 Regional Wastewater System Improvements

Evolving regulations affecting the NRWWTP coupled with on-going facilities operations permit negotiations have required plant process improvement requirements with estimated costs ranging from \$50 million to \$900 million. This range will be refined as we evaluate alternatives to meet the regulatory requirements. The lower end of this cost range reflects improvements to achieve nutrient reduction. The higher end of this cost range is for advanced wastewater treatment to drinking water standards

Section 6 Capital Improvement Program

including micro-filtration, reverse osmosis and ultraviolet disinfection. Under current regulations the County is required to reduce nutrients in the ocean outfall by 50 percent and to plan for the elimination of the ocean outfall by the year 2025. The County has included approximately \$50 million in the 5 year CIP to start addressing these improvements to meet the future requirements.

In addition, the CIP includes a series of master pump station improvements to ensure adequate system capacity as well as reliability in the regional transmission system. The CIP anticipates investing approximately \$32 million in improvements to the master pumping stations. Various other system improvements are budgeted at approximately \$54 million including digester improvements, grit removal improvements, replacement and repairs, control centers upgrades, and replacement of the aging SCADA control system.

Section 7 Financial Conditions

7.1 Overview of Financial Operations

Operating and general maintenance costs of the retail portion of the Utility are recovered through service charges, connection charges, and miscellaneous fees and charges. Capital costs for system development, large maintenance projects, and renewal and replacement projects are funded through net revenues, bond proceeds, developer contributions, contributions from other municipalities, and capital recovery charges.

User charges and fees are developed by WWS and approved by the Board. The Board has specific legal authority to fix charges and collect rates, fees, and charges from its customers and to acquire, construct, finance, and operate the Utility. The existing rate structure for retail customers is based on meter size and consumption. The County, as a matter of policy, reviews revenue requirements on an annual basis and institutes required rate increases. Revised retail water and wastewater rates were approved by the Board in September 2010 and became effective October 1, 2010. These rates are presented in **Tables 7-1, 7-2, and 7-3**. The rate resolutions also address rates for irrigation, reclaimed water, septage, and high strength industrial wastewater surcharge, an emergency rate adjustment for water conservation during drought conditions, capital recovery charges per equivalent residential unit (ERU), customer deposits, and specific service charges. Capital recovery charges underwrite the investment in additional capacity needed to serve new (additional) customers.

Since the last comprehensive Rate Study was performed in 1994, average residential use of water has decreased from 220 gpd (gallons per day) to 185 gpd. The decrease appears to be the result of ongoing water restrictions and the water conservation initiatives of Broward County and the SFWMD. Further study has indicated that the treatment plant must produce 206 gpd of water to deliver 185 gpd to the average residential customer. Converting this demand to the maximum average daily flow (a factor of 1.33x) yields the requirement of 274 gpd of plant capacity necessary to serve an ERU (equivalent residential unit). Similarly, the ratio of billed water to treated wastewater is 1.13x which yields the requirement of 209 gpd of wastewater treatment capacity per ERU. As a result of the rate study, the capital recovery charges for FY2011 are expected to change from \$1,185 and \$2,140 to \$1,440 and \$1,960 for water and sewer respectively. The County adopted the policy of not charging for the first ERU for wastewater per customer.

Section 7 Financial Conditions

Charges for large users of the NRWWS are defined by the large user agreements, and consist of charges for operation and maintenance costs assessed on the basis of flows, debt service costs assessed on the basis of reserve capacity, and improvement, repair, and replacement fund costs that are assessed as a percentage of other charges. The charges for operation and maintenance costs are adjusted annually to reflect each user's proportionate share of actual costs during the fiscal year.

7-1 Broward County Water and Sewer Monthly Service Costs for a Residential Customer Using 5,000 Gallons per Month

Table 7-1 Broward County Water and Sewer Monthly Service Costs for a Residential Customer Using 5,000 Gallons per Month										
Fiscal Year	Water Fixed Charge¹	Water Volume Charge	Total Water	% Change From Prev. Year	Sewer Fixed Charge	Sewer Volume Charge	Total Sewer	% Change From Prev. Year	Total Water and Sewer	Total % Change From Prev. Year
2007	9.57	9.30	18.87	4.4%	13.32	12.80	26.12	3.7%	44.99	4.0%
2008	10.08	9.75	19.83	5.1%	13.99	13.50	27.49	5.2%	47.32	5.2%
2009	11.69	11.30	22.99	15.9%	14.55	14.05	28.60	4.0%	51.59	9.0%
2010	12.14	11.75	23.89	3.9%	15.43	14.90	30.33	6.0%	54.22	5.1%
2011 ²	14.20	8.58	22.78	-4.6%	17.44	15.65	33.09	9.1%	55.87	3.0%

¹ Includes customer charge.
² Based on rates adopted by the Board effective October 1, 2010.
Source: Broward County Water and Wastewater Services

Section 7 Financial Conditions

7-2 Broward County Schedule of Retail Rates Minimum Monthly Charges by Customer Class and Meter Size Effective October 1, 2010

Table 7-2 Broward County Schedule of Retail Rates Minimum Monthly Charges by Customer Class and Meter Size Effective October 1, 2010			
Customer Class	Meter Size (inches)	Water (\$)	Wastewater (\$)
Residential, Commercial, Municipal and Institutional	5/8" Residential	10.14	17.44
	1" Residential	25.92	22.67
	5/8	15.83	18.10
	1	32.81	63.09
	1 1/2	70.63	125.91
	2	156.14	369.21
	3	496.00	852.83
	4	1,907.96	1,630.88
	6	7,234.50	13,333.15
	8	10,259.22	17,039.10
Sale for Resale	4 or less	1,907.96	-
	6	7,234.50	-
	8	10,259.22	-
	10+	43,339.33	-
Multi-Family and Mobile Home (per unit)	All sizes	6.57	12.21
Hotels and Motels (per unit)	All sizes	5.60	11.09
Recreational Vehicles (per unit)	All sizes	5.09	10.16
Private Fire Protection	All Sizes	114.00	-
Irrigation	5/8	13.59	-
	1	26.33	-
	1 1/2	62.75	-
	2	140.39	-
	3	431.22	-
	4	1,907.96	-
Reclaimed Water (based on 1,000 GPD demand and 20% discount on capital contribution)	All sizes	6.00	-
Source: Broward County Water and Wastewater Services			

Section 7 Financial Conditions

7-3 Broward County Schedule of Retail Rates Volume Charge (per 1,000 Gals) by Customer Class and Meter Size Effective October 1, 2010

Table 7-3 Broward County Schedule of Retail Rates Volume Charge (per 1,000 Gals) by Customer Class and Meter Size Effective October 1, 2010					
Customer Class (all Meter sizes unless noted)	Water		Wastewater		
	Volume (per 1,000 Gals)	Charge (\$)	Volume (per 1,000 Gals)	Charge (\$)	
Residential	0-3	1.32	0 - 15	3.13	
	4-6	2.31	Over 15	No Charge	
	7-12	4.79			
	Over 12	6.43			
Commercial, Municipal and Institutional	0 - 75% of Avg Consumption	3.30	All Volumes	3.13	
	Over 75% of Avg. Consumption	6.43			
Sale for Resale	Water Treatment Charge	2.12	N/A	-	
	Water Transmission Charge	0.07	N/A	-	
Multi-Family and Mobile Homes (per unit)	0-2	1.32			
	3-4	2.31	0-8	3.13	
	5-6	4.79			
	Over 6	6.43	Over 8	No Charge	
Hotels and Motels (per unit)	0 - 75% of Avg Consumption	3.3	All Volumes	3.13	
	Over 75% of Avg. Consumption	6.43			
Recreational Vehicles (per unit)	0 - 75% of Avg Consumption	3.3	0-8	3.13	
	Over 75% of Avg. Consumption	6.43	Over 8	No Charge	
Private Fire Protection	All Volumes	4.79	N/A	-	
Irrigation 5/8" meter	0-8	4.79	N/A	-	
	Over 8	6.43	N/A	-	
	1" meter	0-22	4.79	N/A	-
		Over 22	6.43	N/A	-
	1 1/2" meter	0-55	4.79	N/A	-
		Over 55	6.43	N/A	-
	2 to 3" meter	0-142	4.79	N/A	-
		Over 142	6.43	N/A	-
Reclaimed Water	All Volumes	0.07	N/A	-	

Source: Broward County Water and Wastewater Services

Charges for large users of the Raw Water System are defined by agreements and consist of charges for operation and maintenance costs assessed by flows and improvement, repair and replacement fund cost as a percentage of other charges. The operation and maintenance costs are adjusted annually to reflect actual costs for the fiscal year. A summary of retail volume billing data, including service to Coconut Creek, is shown in **Table 7-4**.

7-4 Retail Water and Wastewater Billing Volumes as of September 30, 2010 (1,000 Gallons)

Table 7-4 Retail Water and Wastewater Billing Volumes as of September 30, 2010 (1,000 Gallons)				
Fiscal Year Ended 9/30	Treated Retail	Coconut Creek	Treated Water Total	Wastewater Water
2006	8,357,508	2,005,205	10,362,713	6,055,641
2007 ¹	7,766,431	1,958,720	9,725,151	5,733,391
2008 ¹	7,195,082	1,868,562	9,063,644	5,373,713
2009 ¹	7,128,645	1,872,821	9,001,466	5,468,973
2010 ¹	6,874,020	1,754,856	8,628,876	5,230,943

¹ Water restrictions in place since April 2007 as the result of a drought have reduced water and wastewater sales.

Source: Broward County Water and Wastewater Services

7.2 Water and Wastewater Rates and Charges

A rate study performed for the County in 1994 recognized an economic advantage in encouraging retail customers to conserve water. The County has continued to use a rate schedule that sets higher rates for levels of consumption considered discretionary and excessive. As a result of a rate study completed in 2010, a fourth rate tier was added. The current rate schedule is composed of four tiers:

- Rates for basic use
- Rates for normal use
- Rates for discretionary use
- Rates for excessive use

As noted in **Table 7-1**, there will be an increase of 3.0% in the average monthly residential bill of 5,000 gallons from Fiscal Year 2010 to Fiscal Year 2011. **Tables 7-2** and **7-3** show the minimum monthly fixed charges and volume charges for all customer classes based upon rates approved by the County which went into effect October 1, 2010.

In the event additional water restrictions are imposed, the County has instituted an automatic adjustment as noted in **Table 7-5** to the water rate to encourage customers to reduce consumption. The automatic rate adjustment was adopted by the Board of County Commissioners as a way to maintain the revenues required for operations while water consumption is curtailed. SFWMD imposes phased restrictions as drought

Section 7 Financial Conditions

conditions warrant to achieve reduction of water used in increments of 15 percent for each phase.

With the automatic adjustment, the higher water rates established for larger consumption levels are applied at lower levels of consumption. The result is that customers who do conserve as required will experience a reduction in their water bills. Conversely, customers who fail to achieve reductions will pay even greater amounts for water consumed than they would otherwise pay without the adjustment. As targeted reductions increase the associated levels at which increased rates become effective decrease.

7-5 Automatic Rate Adjustments for Periods of Mandated Water Restrictions

Table 7-5 Automatic Rate Adjustments for Periods of Mandated Water Restrictions			
Customer Class and Block	Restrictions Per Unit Per Month (1,000 gallons)		
	Standard	Drought	Extreme Drought
Single Family (all meter sizes)			
First Tier	0-3	0-2	1
Second Tier	4-6	3-5	2-4
Third Tier	7-12	6-9	5-6
Final Tier	Over 12	Over 9	Over 6
Multi-Family (per unit, all meters)			
First Tier	0-2	1	1
Second Tier	3-4	2-3	2
Third Tier	5-6	4-5	3
Final Tier	Over 6	Over 5	Over 3
Irrigation			
5/8" Meter, First Tier	0-8	0-4	0-2
5/8" Meter, Second Tier	Over 8	Over 4	Over 2
1" Meter, First Tier	0-22	0-11	0-5
1" Meter, Second Tier	Over 22	Over 11	Over 5
1 1/2" Meter, First Tier	0-55	0-27	0-14
1 1/2" Meter, Second Tier	Over 55	Over-27	Over 14
2" and Over Meter, First Tier	0-142	0-71	0-35
2" and Over Meter, Second Tier	Over 142	Over 71	Over 35
Commercial, Municipal, Institutional, Hotels, Motels and Recreational Vehicles			
First Tier	0 -75%	0-60%	0-45%
Second Tier	Over 75%	Over 60%	Over 45%

Source: Broward County Water and Wastewater Services

The NRWWS large users' rates are reviewed and adjusted annually by the County as part of the budget process. The rates are based on the County's estimation of total costs and total flows. Debt service requirements (including required coverage) for the NRWWS are allocated to each large user in proportion to their reserved capacity. A surcharge of up to 10 percent is added to fund improvements, repairs and replacements

to the NRWWS. Currently the surcharge is 5%. These funds are currently maintained separately from the Renewal, Replacement and Improvement Fund established by Bond Resolution to provide a reserve for the Utility.

Presently, the Renewal, Replacement and Improvement Fund is required by the Bond Resolution to maintain a minimum balance of five percent of the previous year's revenues, or a greater amount if recommended by the Consulting Engineer. Five percent of FY 2010 revenues is approximately \$5.6 million. The current balance in the Renewal, Replacement and Improvement Fund is \$5.6 million.

7.3 Revenue Projections

Annual water and wastewater revenues and expenditures for Fiscal Year 2010 are based on actual values from financial statements prepared as of September 30, 2010. Fiscal Year 2011 revenues and expenditures have been projected based upon the rates approved by the County, which were implemented October 1, 2010 in conjunction with estimated expenses for the year. Revenues for Fiscal Years 2012 through 2015 have been based on average annual number of customers, historical average consumption, and the retail service rates shown in **Tables 7-2** and **7-3**. Growth rates in the retail water and retail wastewater system customer base beginning in Fiscal Year 2012 have been estimated at two percent annually for wastewater only. Operation and Maintenance costs are assumed to increase by an average of two percent annually for both water and wastewater beginning in Fiscal Year 2012. Retail rate increases from Fiscal Years 2012 through FY 2015 of approximately four percent per year for both retail water and wastewater are necessary to meet the projected revenue requirements as presented in **Table 7-6**. The revenue forecast for the large users of the NRWWS have been projected to recover costs as defined under the large user agreement.

Table 7-7 shows historical and projected ratios of large user's (regional and resale) revenues to total revenues. In Fiscal Year 2010, the total revenues generated by the Utility were sufficient to meet the bond covenant requirement of 120 percent coverage of all debt service obligations. The audited financial statements at September 30, 2010 present the computation of debt service coverage on all outstanding revenue bonds as 1.54. In addition, a Balance Available for Renewal, Replacement and Capital Expenditures of approximately \$16.1 million was generated during Fiscal Year 2010. Debt service coverage for Fiscal Year 2010 and projected values for Fiscal Year 2011 through Fiscal Year 2015 are presented in **Table 7-6**.

An estimate of interest income is projected annually from Fiscal Year 2011 through Fiscal Year 2015. Interest income is generated from three main sources: debt service reserve fund, general reserve fund, and investments of fund balances as permitted under the Bond Resolution.

Section 7 Financial Conditions

7-6 Historical and Projected Ratios of Large Users' Revenue to Total Revenues and Wastewater Revenues for Fiscal Year 2006 through 2015 (in \$1,000s)

Table 7 - 6 Historical and Projected Ratios of Large Users' Revenue to Total Revenues and Wastewater Revenues (in \$1,000s)										
	Historical					Projected				
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total Revenues (A)	93,695	95,957	97,668	111,614	111,634	114,016	119,256	128,036	132,494	137,096
Large User Revenues (Excluding Broward County)	23,209	25,764	25,883	29,943	31,361	32,000	33,459	38,462	39,120	39,797
Percentage Large User to Total Revenues	24.8%	26.8%	26.5%	26.8%	28.1%	28.1%	28.1%	30.0%	29.5%	29.0%
Regional Raw Water Revenues	1,061	1,155	983	1,076	833	962	1,008	1,028	1,049	1,070
Percentage Regional Raw Water Total Revenues	1.1%	1.2%	1.0%	1.0%	0.7%	0.8%	0.8%	0.8%	0.8%	0.8%
Sale for Resale/Water*	4,719	4,096	4,273	5,044	4,931	5,226	5,278	5,331	5,384	5,438
Percentage Sale for Resale Revenues to Total Revenues	5.0%	4.3%	4.4%	4.5%	4.4%	4.6%	4.4%	4.2%	4.1%	4.0%
Note:										
(A) Total Revenues do not include interest earned on the construction account.										
*Principally Sales to City of Coconut Creek										
Source: Broward County Water and Wastewater Services										

Section 7 Financial Conditions

7-7 Schedule of Historical and Projected Net Revenues, Debt Service, and Debt Service Coverage for Fiscal Years 2006 to 2015 (\$1,000s)

Table 7-7 Schedule of Historical and Projected Net Revenues, Debt Service and Debt Service Coverage (\$1,000)										
	Historical					Projected				
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Revenues:										
Water	\$ 37,874	\$ 35,846	\$ 37,388	\$ 42,305	\$ 42,771	\$ 43,723	\$ 43,581	\$ 46,432	\$ 49,289	\$ 51,229
Wastewater	51,832	53,174	55,290	61,640	62,946	63,582	65,861	71,452	72,716	75,029
Other	1,202	4,121	3,481	4,451	4,159	5,102	8,217	8,555	8,892	9,241
Interest Income	2,787	2,816	1,507	3,218	1,758	1,609	1,597	1,597	1,597	1,597
Total Revenues	\$ 93,695	\$ 95,957	\$ 97,668	\$ 111,614	\$ 111,634	\$ 114,016	\$ 119,256	\$ 128,036	\$ 132,494	\$ 137,096
Current Expenses:										
Water Transmission & Distrib	\$ 6,693	\$ 8,676	\$ 8,189	\$ 8,838	\$ 8,962	\$ 8,829	\$ 8,637	\$ 8,810	\$ 8,986	\$ 9,166
Water Source of Supply, Treatment & Pumping	7,917	9,880	9,229	9,961	9,420	9,951	9,734	9,929	10,128	10,330
Wastewater Collection & Transmission	11,813	7,959	11,356	9,751	10,185	9,741	9,529	9,720	9,914	10,112
Wastewater Treatment	16,121	14,896	14,869	15,529	14,955	15,513	15,176	15,479	15,789	16,105
Customer Service	3,194	3,435	3,774	4,134	5,229	4,130	4,040	4,121	4,203	4,287
Administrative/General	12,537	14,093	15,156	16,576	16,736	16,559	16,199	16,523	16,853	17,190
Total Current Expenses	\$ 58,275	\$ 58,939	\$ 62,573	\$ 64,789	\$ 65,487	\$ 64,723	\$ 63,315	\$ 64,582	\$ 65,873	\$ 67,190
Net Revenues	\$ 35,420	\$ 37,018	\$ 35,095	\$ 46,825	\$ 46,147	\$ 49,293	\$ 55,941	\$ 63,454	\$ 66,621	\$ 69,906
Debt Service:										
Senior Lien Debt:										
Series 1988-A Bonds	\$ 2,533	\$ 2,341	\$ 2,380	\$ 2,380	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Series 1988-B Bonds	-	-	-	-	-	-	-	-	-	-
Series 1991 Bonds	-	-	-	-	-	-	-	-	-	-
Series 1993 Bonds	-	-	-	-	-	-	-	-	-	-
Series 2003-A Bonds	5,059	5,063	5,062	5,061	5,867	5,867	5,868	5,867	5,862	5,865
Series 2003-B Bonds	8,244	8,434	8,393	8,291	9,970	9,970	9,970	9,973	9,975	9,971
Series 2005-A Bonds	3,837	3,837	3,837	3,837	3,837	3,837	3,837	3,837	3,837	3,837
Series 2009-A Bonds	-	-	-	5,361	10,324	10,324	10,324	10,322	10,324	10,326
Future Debt	-	-	-	-	-	1,763	5,064	8,742	8,742	8,740
Total Debt Service	\$ 19,673	\$ 19,675	\$ 19,672	\$ 24,930	\$ 29,998	\$ 31,761	\$ 35,063	\$ 38,741	\$ 38,740	\$ 38,739
Debt Coverage Senior Lien	1.80	1.88	1.78	1.88	1.54	1.55	1.60	1.64	1.72	1.80
Debt Coverage Senior and Junior Lien Debt	1.80	1.88	1.78	1.88	1.54	1.55	1.60	1.64	1.72	1.80

SOURCE : BROWARD COUNTY WATER AND WASTEWATER SERVICES

7.4 Comparison of Utilities Service Costs for Municipalities and the Unincorporated Area in Broward County

Table 7-8 shows the current water and wastewater monthly service charges for residential customers of municipalities and the unincorporated area in the County, as well as Miami-Dade and Palm Beach Counties.

Section 7 Financial Conditions

7-8 Comparative Rate Survey for FY 2010 (Usage of 5,000 Gallons per Month)

Table 7-8			
Comparative Rate Survey as of 2/28/2010			
(Based On Usage Of 5,000 Gallons Per Month)			
Utility	Water	Sewer	Total
Sunrise (outside City)	35.49	43.40	78.89
Davie	29.11	47.99	77.10
Margate	25.51	48.60	74.11
Wilton Manors	42.70	30.10	72.80
Parkland	22.17	46.04	68.21
Dania	25.19	42.31	67.50
Oakland Park	31.07	33.30	64.37
Sunrise	28.40	34.70	63.10
North Lauderdale	25.29	37.02	62.31
Cooper City	23.90	37.03	60.93
Hallandale	26.36	30.45	56.81
Average Water & Sewer for Broward	24.24	31.30	55.54
Hollywood	18.28	37.19	55.47
Broward County (WWS)	23.89	30.33	54.22
Deerfield	28.25	24.53	52.78
Royal Utility	25.38	26.10	51.48
Miramar	19.27	29.69	48.96
Tamarac	17.23	31.73	48.96
Coral Springs	19.94	28.24	48.18
Lauderhill	16.57	29.43	46.00
Coconut Creek	26.92	18.77	45.69
Plantation	15.77	28.46	44.23
Pompano Beach	20.74	21.96	42.70
Fort Lauderdale	15.43	25.87	41.30
CSID	20.63	20.63	41.26
Pembroke Pines	19.06	22.07	41.13
NSID	20.56	15.35	35.91
Water Only			
Hillsboro	29.64		
Pompano (outside City)	25.90		
Sewer Only			
Pembroke Park		38.45	
Lauderdale by the sea		16.60	
Tri-County Utilities			
Palm Beach County	19.12	20.58	39.70
Miami Dade County	8.27	16.45	24.71

7.5 Insurance Coverage

The bond covenants require that customary insurance be carried on the physical assets of the system. The property insurance carried by WWS on its physical assets is part of a County-wide policy with FM Global. The term of the present policy is from February 1, 2010 to February 1, 2011.

The policy automatically insures new assets up to \$10 million per location, for 90 days; upon declaration, the policy limit applies.

The policy provides for coverage of underground mains that are within 1,000 feet of a Scheduled Location as described in Appendix A of the FM Global policy. Under a County-wide policy limits of liability per occurrence are as follows:

2011-2012

FM Global \$705,000,000 Excess of \$295,000,000 Excluding Named Windstorm Earthquake Sublimited at \$350,000,000								
FM Global \$95,000,000 Excess of \$200,000,000 All Risk Coverage Flood Sublimited \$230,000,000								
Various Excess Carriers – See Participation Schematic \$60,000,000 Excess of \$140,000,000 All Risk Coverage								
Various Excess Carriers – See Participation Schematic \$40,000,000 Excess of \$100,000,000 All Risk Coverage								
FM Global \$100,000,000 All Risk Coverage								
\$20M - Airport, \$25M- Port, \$35M – ALL other Maximum - \$75M any one occurrence combined Named Windstorm Deductibles \$50,000 All Other Perils Deductible								
LIMITS								
<table style="width: 100%; border: none;"> <tr> <td style="padding: 2px;">Windstorm:</td> <td style="padding: 2px;">\$ 295,000,000 Each Occurrence</td> </tr> <tr> <td style="padding: 2px;">Flood:</td> <td style="padding: 2px;">\$ 230,000,000 Each Occurrence/Annual Aggregate</td> </tr> <tr> <td style="padding: 2px;">Earthquake:</td> <td style="padding: 2px;">\$ 350,000,000 Each Occurrence/Annual Aggregate</td> </tr> <tr> <td style="padding: 2px;">All Other Perils:</td> <td style="padding: 2px;">\$1,000,000,000 Per Occurrence</td> </tr> </table>	Windstorm:	\$ 295,000,000 Each Occurrence	Flood:	\$ 230,000,000 Each Occurrence/Annual Aggregate	Earthquake:	\$ 350,000,000 Each Occurrence/Annual Aggregate	All Other Perils:	\$1,000,000,000 Per Occurrence
Windstorm:	\$ 295,000,000 Each Occurrence							
Flood:	\$ 230,000,000 Each Occurrence/Annual Aggregate							
Earthquake:	\$ 350,000,000 Each Occurrence/Annual Aggregate							
All Other Perils:	\$1,000,000,000 Per Occurrence							

Section 7 Financial Conditions

In addition, approximately sixteen (16) other insurance carriers provided a \$100,000,000 All Risk (excluding Boiler & Machinery) layer excess of FM Global's primary layer of \$100,000,000.

The four major aboveground water and wastewater facilities and their estimated value as of February, 2010 are as follows:

Facility	FY 2010 Estimated Bldg Value (\$1,000s)
NRWWTP Complex	\$221,911
Water Treatment Plant 2 A	\$ 58,403
Water Treatment Plant 1 A	\$ 49,041
Water Treatment Plant 3 A	\$ 13,471

The level of coverage (less deductible) is sufficient to fund the loss of the single most expensive asset, the NRWWTP Complex; although the potential for the complete destruction of this facility is minimal. Any losses in excess of the coverage amount would have to be covered by the County through its own resources or through federal or state emergency management assistance.

The inability to rely on investments gains continued in 2010 and underwriters began to narrow their writings, from both the standpoint of capacity and scope in an effort to earn underwriting profit. Additionally, carriers monitored program aggregates in high CAT prone areas to further protect themselves from financial loss. Broward County's goal in 2010 was to seek premium reductions while maintaining current coverage terms. The County was successful in reaching this goal with their new agent/broker partner; a reduction of over 20% on the entire program was attained; windstorm limits remained at \$295,000,000 per occurrence and the application of windstorm deductible improved. Now the County has a "Named Windstorm" deductible that only applies when the US National Hurricane Service identifies the storm or weather disturbance by name, along with capping the deductible for both Named Windstorm and Flood for all County locations not to exceed \$75,000,000 in any one occurrence.

Appendix A

Table A-1
Water Production, Wastewater Treatment, and Regional Raw Water
(Million Gallons)

	FY-2001	FY-2002	FY-2003	FY-2004	FY-2005	FY-2006	FY-2007	FY-2008	FY-2009	FY-2010
Water Production										
Plant 1A	2,765	3,077	3,026	3,158	3,210	3,147	2,977	3,059	2,835	2,865
Plant 1B	0	0	0	0	0	0	0	0	0	0
Plant 2A	4,798	5,447	5,574	5,913	5,752	5,568	5,179	4,599	4,571	4,555
Plant 3A	1,073	169	0	0	0	0	0	0	0	0
Plant 3B	0	0	0	0	0	0	0	0	0	0
Plant 3C	0	0	0	0	0	0	0	0	0	0
Broadview	0	0	0	0	0	0	0	0	0	0
Purchased Water From Municipality	1,636	2,563	2,615	2,571	2,831	2,568	2,608	2,486	2,597	2,203
Total Water Production	10,272	11,256	11,215	11,642	11,793	11,283	10,764	10,143	10,003	9,623
Wastewater Treatment										
North Regional WWTP	25,530	27,436	25,486	24,841	25,807	25,110	24,257	25,156	23,793	23,852
WW Flows to Hlwd. Regional Treatment	624	746	844	926	913	988	967	1,053	1,162	1,069
Total Wastewater Treatment	26,154	28,182	26,330	25,767	26,720	26,098	25,224	26,209	24,955	24,921
Regional Raw Water										
	5,802	5,514	5,297	6,247	5,668	6,597	6,795	7,023	6,438	6,374
Notes:										
1. Water for 1B and Broadview produced by 1A.										
2. Water for 3B/3C purchased from Hollywood (after October 15, 1996).										
3. Water restrictions in effect for most of the year.										

Source: Broward County Water and Wastewater Services

Table A - 2
Average Number of Accounts
Commercial / Municipal / Institutional Class
As of September 30, 2010

Meter Size (Inches)	WATER		SEWER	
	Average Monthly Number of Accounts	Average Monthly Consumption (1,000 Gallon)	Average Monthly Number of Accounts	Average Monthly Consumption (1,000 Gallon)
5/8	2,549	17,820	1,731	12,233
1	1,348	21,113	671	12,016
1-1/2	793	33,194	482	18,323
2	577	72,630	399	49,526
3	15	7,031	7	6,177
4	7	22,243	5	8,397
6	3	11,705	1	147
8	0	-	1	5,580
10	1	142,293	-	-
TOTAL	5,292	328,028	3,298	112,400

Source: Broward County Water and Wastewater Services

**Table A-3
Broward County Water and Wastewater Services
Retail Water & Wastewater
Customer Average Monthly Demand & Revenues
As of September 30, 2010**

Revenue Class	Water					Wastewater				
	Demand			Revenue		Demand			Revenue	
	Number of Units	Total 1,000 Gal	Per Unit (Gallons)	\$ Total	\$ Per 1,000 Gal	Number of Units	Total 1,000 Gal	Per Unit (Gallons)	\$ Total	\$ Per 1,000 Gal
Residential	50,604	269,223	5,320	1,487,697	5.53	38,947	230,602	5,921	1,206,585	5.23
Multiple/Mobile	31,148	115,725	3,715	529,081	4.57	27,948	106,269	3,802	628,442	5.91
Recreational	1,208	2,767	2,291	14,954	5.40	888	1,892	2,132	12,455	6.58
Com/Institutional	6,505	321,857	49,482	1,391,954	4.32	3,797	100,086	26,361	615,155	6.15
Hotel	3,195	9,345	2,925	48,308	5.17	2,969	9,332	3,143	52,090	5.58
Fire Protection	524	132	253	54,412	410.92	N/A	N/A	N/A	N/A	N/A
TOTAL	93,183	719,050	7,717	3,526,406	4.90	74,547	448,180	6,012	2,514,726	5.61

Source: Broward County Water and Wastewater Services

Table A-4
WATER & WASTEWATER SERVICES
ACTIVITY BASED COSTING REPORT
FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2010

RETAIL WATER	Wellfields	Treatment	Purchased Water	Distribution	Total Water
PERSONAL SERVICES	35,685	3,078,455	11,800	1,222,800	4,348,740
OPERATING MATERIAL	6,425	388,313	0	223,779	618,517
OTHER MATERIAL	25	36,061	0	1,120	37,206
UTILITIES-OTHER	0	604	0	7,684	8,288
ELECTRIC	105,796	934,933	0	283,289	1,324,018
TREAT/TRANS	0	0	0	0	0
PURCHASED WATER	0	0	4,723,395	0	4,723,395
RENTAL/LEASES	0	16,671	0	190	16,861
MOTOR POOL	0	221,569	0	89,167	310,736
CONTRACT SERVICE	10,127	358,699	0	714,717	1,083,542
OTHER	382,760	665,687	0	22,310	1,070,757
EDUCATIONAL COURSES	0	0	0	3,751	3,751
COMPUTER MAINTENANCE	0	28,716	0	0	28,716
TRAVEL	0	0	0	0	0
OTHER CHEMICALS	0	406,805	0	21,658	428,463
CHEMICALS CHLORINE	0	151,891	0	9,209	161,100
CHEMICALS LIME	10,575	1,225,557	0	0	1,236,132
<i>SUBTOTAL</i>	551,392	7,513,960	4,735,195	2,599,673	15,400,221
<u>OPERATING COST RECLASS</u>		0			
ONE CALL	0	0	0	272,445	272,445
PAINT SHOP	0	101,092	0	0	101,092
HEAVY EQUIPMENT	0	0	0	210,240	210,240
<i>SUBTOTAL</i>	0	101,092	0	482,684	583,776
<u>ALLOCATE:</u>					
SECTION ADMIN.	2,306	31,615	0	6,875	40,796
DIVISION ADMINISTRATION	29,981	408,557	257,467	141,352	837,356
SUBTOTAL DIRECT OVERHEAD	32,287	440,172	257,467	148,227	878,153
TOTAL	583,679	8,055,224	4,992,662	3,230,584	16,862,150

Table A-4
WATER & WASTEWATER SERVICES
ACTIVITY BASED COSTING REPORT
FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2010

ACTIVITY - Retail Wellfields	District One			District Two			Total		
	Operations	Maintenance	Total O & M	Operations	Maintenance	Total O & M	Operations	Maintenance	Total O & M
PERSONAL SERVICES	10,504	19,932	30,436	47	5,202	5,249	10,551	25,134	35,685
OPERATING MATERIAL	84	5,176	5,260	0	1,165	1,165	84	6,340	6,425
OTHER MATERIAL	25	0	25	0	0	0	25	0	25
UTILITIES-OTHER	0	0	0	0	0	0	0	0	0
ELECTRIC	0	0	0	105,796	0	105,796	105,796	0	105,796
TREAT/TRANS	0	0	0	0	0	0	0	0	0
PURCHASED WATER	0	0	0	0	0	0	0	0	0
RENTAL/LEASES	0	0	0	0	0	0	0	0	0
MOTOR POOL	0	0	0	0	0	0	0	0	0
CONTRACT SERVICE	5,014	0	5,014	5,014	100	5,113	10,027	100	10,127
OTHER	0	192,971	192,971	11	189,778	189,789	11	382,749	382,760
EDUCATIONAL COURSES	0	0	0	0	0	0	0	0	0
COMPUTER MAINTENANCE	0	0	0	0	0	0	0	0	0
TRAVEL	0	0	0	0	0	0	0	0	0
OTHER CHEMICALS	0	0	0	0	0	0	0	0	0
CHEMICALS CHLORINE	0	0	0	0	0	0	0	0	0
CHEMICALS LIME	10,408	0	10,408	167	0	167	10,575	0	10,575
<u>SUBTOTAL</u>	26,035	218,079	244,114	111,034	196,244	307,279	137,069	414,323	551,392
<u>OPERATING COST RECLASS</u>									
ONE CALL	0	0	0	0	0	0	0	0	0
PAINT SHOP	0	0	0	0	0	0	0	0	0
HEAVY EQUIPMENT	0	0	0	0	0	0	0	0	0
<u>SUBTOTAL</u>	0	0	0	0	0	0	157,682	797,172	0
<u>ALLOCATE:</u>									
SECTION ADMIN.	113	945	1,058	451	797	1,248	564	1,742	2,306
DIVISION ADMINISTRATION	1,416	11,858	13,273	6,037	10,670	16,708	7,453	22,528	29,981
SUBTOTAL DIRECT OVERHEAD	1,528	12,803	14,331	6,488	11,467	17,956	8,017	24,270	32,287
TOTAL	27,563	230,882	258,445	117,523	207,712	325,234	302,768	1,235,766	583,679

**Table A-4
WATER & WASTEWATER SERVICES
ACTIVITY BASED COSTING REPORT
FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2010**

OPERATION AND MAINTENANCE EXPENSES:	ACTIVITY - Retail Water Treatment									ACTIVITY - Purchased Water
	WTP 1-A			WTP 2-A			Total Treatment			
	Operations	Maintenance	Total O & M	Operations	Maintenance	Total O & M	Operations	Maintenance	Total O & M	
PERSONAL SERVICES	923,085	781,362	1,704,447	715,366	658,643	1,374,008	1,638,450	1,440,005	3,078,455	11,800
OPERATING MATERIAL	7,605	178,363	185,968	17,501	184,844	202,345	25,106	363,207	388,313	0
OTHER MATERIAL	16,494	1,879	18,373	14,310	3,378	17,688	30,804	5,257	36,061	0
UTILITIES-OTHER	604	0	604	0	0	0	604	0	604	0
ELECTRIC	421,045	0	421,045	513,888	0	513,888	934,933	0	934,933	0
TREAT/TRANS	0	0	0	0	0	0	0	0	0	0
PURCHASED WATER	0	0	0	0	0	0	0	0	0	4,723,395
RENTAL/LEASES	235	9,041	9,276	0	7,395	7,395	235	16,436	16,671	0
MOTOR POOL	73,115	61,020	134,135	60,276	27,158	87,434	133,391	88,178	221,569	0
CONTRACT SERVICE	11,054	184,459	195,512	12,566	150,621	163,187	23,619	335,080	358,699	0
OTHER	132,995	418,802	551,798	124,384	-10,495	113,889	257,379	408,307	665,687	0
EDUCATIONAL COURSES	0	0	0	0	0	0	0	0	0	0
COMPUTER MAINTENANCE	3,515	13,304	16,820	2,876	9,020	11,896	6,391	22,324	28,716	0
TRAVEL	0	0	0	0	0	0	0	0	0	0
OTHER CHEMICALS	347,434	0	347,434	59,371	0	59,371	406,805	0	406,805	0
CHEMICALS CHLORINE	0	0	0	151,891	0	151,891	151,891	0	151,891	0
CHEMICALS LIME	429,969	0	429,969	795,587	0	795,587	1,225,557	0	1,225,557	0
SUBTOTAL	2,367,150	1,648,231	4,015,380	2,468,016	1,030,564	3,498,580	4,835,166	2,678,794	7,513,960	4,735,195
OPERATING COST RECLASS										
ONE CALL	0	0	0	0	0	0	0	0	0	
PAINT SHOP		35,265	35,265		65,827	65,827	0	101,092	101,092	
HEAVY EQUIPMENT	0	0	0	0	0	0	0	0	0	
SUBTOTAL	0	35,265	35,265	0	65,827	65,827	0	101,092	101,092	
ALLOCATE:										
SECTION ADMIN.	10,262	7,145	17,407	10,023	4,185	14,208	20,285	11,331	31,615	0
DIVISION ADMINISTRATION	128,709	89,619	218,328	134,193	56,035	190,228	262,903	145,654	408,557	257,467
SUBTOTAL DIRECT OVERHEAD	138,971	96,765	235,736	144,216	60,220	204,437	283,187	156,985	440,172	257,467
TOTAL	2,506,121	1,780,260	4,268,973	2,612,232	1,156,611	3,754,635	5,118,353	2,936,871	8,023,608	4,992,662

**Table A-4
WATER & WASTEWATER SERVICES
ACTIVITY BASED COSTING REPORT
FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2010**

ACTIVITY -Distribution	District One			District Two			District Three			Total Distribution		
	Operations	Maintenance	Total O & M	Operations	Maintenance	Total O & M	Operations*	Maintenance	Total O & M	Operations	Maintenance	Total O & M
PERSONAL SERVICES	0	116,100	116,100	0	138,685	138,685	831,764	136,251	968,015	831,764	391,036	1,222,800
OPERATING MATERIAL	0	76,965	76,965	0	58,947	58,947	15,690	72,178	87,868	15,690	208,089	223,779
OTHER MATERIAL	0	0	0	0	0	0	1,120	0	1,120	1,120	0	1,120
UTILITIES-OTHER	0	0	0	0	0	0	7,684	0	7,684	7,684	0	7,684
ELECTRIC	135,459	0	135,459	0	0	0	147,831	0	147,831	283,289	0	283,289
TREAT/TRANS	0	0	0	0	0	0	0	0	0	0	0	0
PURCHASED WATER	0	0	0	0	0	0	0	0	0	0	0	0
RENTAL/LEASES	0	0	0	0	0	0	190	0	190	190	0	190
MOTOR POOL	0	0	0	0	0	0	89,167	0	89,167	89,167	0	89,167
CONTRACT SERVICE	0	298,904	298,904	0	140,838	140,838	100,449	174,526	274,975	100,449	614,268	714,717
OTHER	0	21,689	21,689	0	25,574	25,574	(49,024)	24,071	(24,953)	(49,024)	71,334	22,310
EDUCATIONAL COURSES	0	0	0	0	0	0	3,751	0	3,751	3,751	0	3,751
COMPUTER MAINTENANCE	0	0	0	0	0	0	0	0	0	0	0	0
TRAVEL	0	0	0	0	0	0	0	0	0	0	0	0
OTHER CHEMICALS	0	0	0	0	0	0	21,658	0	21,658	21,658	0	21,658
CHEMICALS CHLORINE	0	0	0	0	0	0	9,209	0	9,209	9,209	0	9,209
CHEMICALS LIME	0	0	0	0	0	0	0	0	0	0	0	0
<u>SUBTOTAL</u>	135,459	513,657	649,116	0	364,044	364,044	1,179,487	407,026	1,586,513	1,314,946	1,284,727	2,599,673
<u>OPERATING COST RECLASS</u>												
ONE CALL	94,139	0	94,139	95,336	0	95,336	82,970	0	82,970	272,445	0	272,445
PAINT SHOP	0	0	0	0	0	0	0	0	0	0	0	0
HEAVY EQUIPMENT	0	82,412	82,412	0	62,771	62,771	0	65,057	65,057	0	210,240	210,240
<u>SUBTOTAL</u>	94,139	82,412	176,551	95,336	62,771	158,106	82,970	65,057	148,027	272,445	210,240	482,684
<u>ALLOCATE:</u>												
SECTION ADMIN.	587	2,227	2,814	0	1,478	1,478	818	1,765	2,582	1,405	5,470	6,875
DIVISION ADMINISTRATION	7,365	27,929	35,294	0	19,794	19,794	64,132	22,131	86,263	71,498	69,854	141,352
SUBTOTAL DIRECT OVERHEAD	7,953	30,156	38,108	0	21,273	21,273	64,950	23,896	88,846	72,902	75,324	148,227
TOTAL	237,550	626,225	863,775	95,336	448,087	543,423	1,327,407	495,979	1,823,386	1,660,293	1,570,291	3,230,584

**Table A-4
WATER & WASTEWATER SERVICES
ACTIVITY BASED COSTING REPORT
FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2010**

ACTIVITY -Collection	District One			District Two			District Three			Total Collection		
	Operations	Maintenance	Total O & M	Operations	Maintenance	Total O & M	Operations*	Maintenance	Total O & M	Operations	Maintenance	Total O & M
PERSONAL SERVICES	134	105,091	105,225	1,081	101,313	102,394	524,652	16,861	541,513	525,867	223,265	749,132
OPERATING MATERIAL	0	11,615	11,615	0	31,291	31,291	3,754	783	4,537	3,754	43,689	47,442
OTHER MATERIAL	0	0	0	0	0	0	138	0	138	138	0	138
UTILITIES-OTHER	2,508,722	0	2,508,722	0	0	0	0	0	0	2,508,722	0	2,508,722
ELECTRIC	0	0	0	0	0	0	0	0	0	0	0	0
TREAT/TRANS	0	0	0	0	0	0	0	0	0	0	0	0
PURCHASED WATER	0	0	0	0	0	0	0	0	0	0	0	0
RENTAL/LEASES	0	0	0	0	0	0	478	0	478	478	0	478
MOTOR POOL	0	0	0	0	0	0	79,029	0	79,029	79,029	0	79,029
CONTRACT SERVICE	0	121,850	121,850	0	203,500	203,500	94,809	0	94,809	94,809	325,350	420,159
OTHER	30	19,916	19,946	162	20,507	20,669	(53,006)	3,331	(49,675)	(52,814)	43,754	(9,060)
EDUCATIONAL COURSES	0	0	0	0	0	0	0	0	0	0	0	0
COMPUTER MAINTENANCE	0	0	0	0	0	0	1,917	0	1,917	1,917	0	1,917
TRAVEL	0	0	0	0	0	0	0	0	0	0	0	0
OTHER CHEMICALS	0	0	0	0	0	0	0	0	0	0	0	0
CHEMICALS CHLORINE	0	0	0	0	0	0	0	0	0	0	0	0
CHEMICALS LIME	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	2,508,886	258,472	2,767,358	1,243	356,611	357,854	651,772	20,975	672,746	3,161,901	636,058	3,797,958
ALLOCATE:												
SECTION ADMIN.	10,876	1,121	11,997	5	1,448	1,453	0	91	91	10,881	2,660	13,541
DIVISION ADMINISTRATION	136,416	14,054	150,470	68	19,390	19,458	35,439	1,140	36,579	171,922	34,584	206,506
ONE CALL PAINT SHOP HEAVY EQUIPMENT	59,036	0	59,036	59,834	0	59,834	31,114		31,114	149,984	0	149,984
SUBTOTAL DIRECT OVERHEAD	206,328	15,174	221,503	59,907	20,838	80,745	66,553	1,231	67,784	332,788	37,244	370,032
TOTAL	2,715,214	273,646	2,988,861	61,150	377,449	438,599	718,324	22,206	740,530	3,494,688	673,302	4,167,990

* includes Underground

**Table A-4
WATER & WASTEWATER SERVICES
ACTIVITY BASED COSTING REPORT
FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2010**

ACTIVITY -Lift Stations	District One			District Two			District Three			Field	Total Lift Stations		
	Operations	Maintenance	Total O & M	Operations	Maintenance	Total O & M	Operations	Maintenance	Total O & M	Support	Operations	Maintenance	Total O & M
PERSONAL SERVICES	0	258,104	258,104	237	150,092	150,329	0	57,059	57,059	862,786	863,023	465,255	1,328,278
OPERATING MATERIAL	0	236,298	236,298	0	448,766	448,766	0	76,672	76,672	45,299	45,299	761,736	807,035
OTHER MATERIAL	0	0	0	0	0	0	0	0	0	2,797	2,797	0	2,797
UTILITIES-OTHER	4,056	0	4,056	2,103	0	2,103	0	0	0	0	6,159	0	6,159
ELECTRIC	202,380	0	202,380	158,019	0	158,019	85,556	0	85,556	0	445,955	0	445,955
TREAT/TRANS	0	0	0	0	0	0	0	0	0	0	0	0	0
PURCHASED WATER	0	0	0	0	0	0	0	0	0	0	0	0	0
RENTAL/LEASES	0	0	0	0	0	0	0	0	0	403	403	0	403
MOTOR POOL	0	0	0	0	0	0	0	0	0	171,607	171,607	0	171,607
CONTRACT SERVICE	0	6,907	6,907	0	2,075	2,075	0	3,400	3,400	16,760	16,760	12,382	29,142
OTHER	0	49,178	49,178	19	25,870	25,889	0	10,421	10,421	(86,901)	(86,882)	85,469	(1,413)
EDUCATIONAL COURSES	0	0	0	0	0	0	0	0	0	0	0	0	0
COMPUTER MAINTENANCE	0	0	0	0	0	0	0	0	0	17,723	17,723	0	17,723
TRAVEL	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER CHEMICALS	0	0	0	0	0	0	0	0	0	0	0	0	0
CHEMICALS CHLORINE	0	0	0	0	0	0	0	0	0	770	770	0	770
CHEMICALS LIME	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	206,436	550,487	756,923	160,378	626,803	787,180	85,556	147,552	233,108	1,031,245	1,483,615	1,324,842	2,808,457
ALLOCATE:													
SECTION ADMIN.	895	2,386	3,281	651	2,546	3,197	371	640	1,011	0	1,917	5,572	7,489
DIVISION ADMINISTRATION	11,225	29,932	41,156	8,720	34,081	42,801	4,652	8,023	12,675	56,072	80,669	72,036	152,704
ONE CALL	0	(28)	(28)	0	0	0	0	0	0	0	0	(28)	(28)
PAINT SHOP	0	32,914	32,914	0	32,914	32,914	0	32,914	32,914	0	0	98,741	98,741
HEAVY EQUIPMENT	0	34,189	34,189	0	19,664	19,664	0	41,036	41,036	0	0	94,889	94,889
GENERATORS	21,340	0	21,340	30,000	0	30,000	18,248	0	18,248	0	69,588	0	69,588
SUBTOTAL DIRECT OVERHEAD	12,120	99,393	111,513	9,372	89,204	98,576	5,023	82,612	87,635	56,072	82,586	271,210	353,795
TOTAL	218,556	649,880	868,436	169,749	716,007	885,756	90,579	230,165	320,743	1,087,317	1,566,200	1,596,052	3,162,252

Table A-4
WATER & WASTEWATER SERVICES
ACTIVITY BASED COSTING REPORT
FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2010

ACTIVITY -Retail Sewer	Collection	Lift Stations	Retail Sewer
	Total O & M	Total O & M	TOTAL
PERSONAL SERVICES	749,132	1,328,278	2,077,410
OPERATING MATERIAL	47,442	807,035	854,478
OTHER MATERIAL	138	2,797	2,935
UTILITIES-OTHER	2,508,722	6,159	2,514,881
ELECTRIC	0	445,955	445,955
TREAT/TRANS	0	0	0
PURCHASED WATER	0	0	0
RENTAL/LEASES	478	403	882
MOTOR POOL	79,029	171,607	250,636
CONTRACT SERVICE	420,159	29,142	449,302
OTHER	(9,060)	(1,413)	(10,473)
EDUCATIONAL COURSES	0	0	0
COMPUTER MAINTENANCE	1,917	17,723	19,641
TRAVEL	0	0	0
OTHER CHEMICALS	0	0	0
CHEMICALS CHLORINE	0	770	770
CHEMICALS LIME	0	0	0
<i>SUBTOTAL</i>	3,797,958	2,808,457	6,606,415
<u>OPERATING COST RECLASS</u>			
ONE CALL	149,984	0	149,984
PAINT SHOP	0	98,741	98,741
HEAVY EQUIPMENT	0	94,889	94,889
GENERATORS	0	69,588	69,588
<i>SUBTOTAL</i>	149,984	193,630	413,203
<u>ALLOCATE:</u>			
SECTION ADMIN.	13,541	7,489	21,030
DIVISION ADMINISTRATION	206,506	152,704	359,211
SUBTOTAL DIRECT OVERHEAD	220,048	160,193	380,241
<i>TOTAL</i>	4,167,990	3,162,280	7,399,858

Table A-4
WATER & WASTEWATER SERVICES
ACTIVITY BASED COSTING REPORT
FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2010

ACTIVITY - Regional Raw Water	North System			South System			Total		
	Operations	Maintenance	Total O & M	Operations	Maintenance	Total O & M	Operations	Maintenance	Total O & M
PERSONAL SERVICES	9,409	48,377	57,786	0	14,624	14,624	9,409	63,001	72,410
OPERATING MATERIAL	0	77,705	77,705	0	100,259	100,259	0	177,963	177,963
OTHER MATERIAL	0	0	0	0	0	0	0	0	0
UTILITIES-OTHER	0	0	0	0	0	0	0	0	0
ELECTRIC	0	0	0	323,997	0	323,997	323,997	0	323,997
TREAT/TRANS	0	0	0	0	0	0	0	0	0
PURCHASED WATER	0	0	0	0	0	0	0	0	0
RENTAL/LEASES	0	0	0	0	0	0	0	0	0
MOTOR POOL	0	0	0	0	0	0	0	0	0
CONTRACT SERVICE	5,014	32,118	37,132	17,316	4,381	21,697	22,330	36,499	58,829
OTHER	80,272	10,710	90,982	80,000	3,233	83,233	160,272	13,943	174,215
EDUCATIONAL COURSES	0	0	0	0	0	0	0	0	0
COMPUTER MAINTENANCE	0	0	0	0	0	0	0	0	0
TRAVEL	0	0	0	0	0	0	0	0	0
OTHER CHEMICALS	253	0	253	167	0	167	420	0	420
CHEMICALS CHLORINE	0	0	0	0	0	0	0	0	0
CHEMICALS LIME	0	0	0	0	0	0	0	0	0
<u>SUBTOTAL</u>	94,948	168,910	263,858	421,480	122,496	543,977	516,428	291,407	807,835
<u>OPERATING COST RECLASS</u>									
ONE CALL	4,188	0	4,188	4,188	0	4,188	8,377	0	8,377
PAINT SHOP	0	0	0	0	0	0	0	0	0
HEAVY EQUIPMENT	0	1,144	1,144	0	0	0	0	1,144	1,144
<u>SUBTOTAL</u>	4,188	1,144	5,332	4,188	0	4,188	8,377	1,144	9,521
<u>ALLOCATE:</u>									
SECTION ADMIN.	386	686	1,072	1,827	531	2,358	2,213	1,217	3,430
DIVISION ADMINISTRATION	5,163	9,184	14,347	22,917	6,660	29,578	28,080	15,845	43,924
SUBTOTAL DIRECT OVERHEAD	5,548	9,870	15,418	24,744	7,192	31,936	30,293	17,062	47,354
TOTAL	104,684	179,924	284,608	450,413	129,688	580,101	555,097	309,612	864,709

Table A-4
WATER & WASTEWATER SERVICES
ACTIVITY BASED COSTING REPORT
FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2010

ACTIVITY - Wastewater Treatment (Other)	Reuse Distribution			C&M & Septage	Total
	Operations	Maintenance	Total O & M		
PERSONAL SERVICES	9,701	1,811	11,512	945,151	956,663
OPERATING MATERIAL	0	5,545	5,545	41,569	47,114
OTHER MATERIAL	0	0	0	9,392	9,392
UTILITIES-OTHER	0	0	0	2,049	2,049
ELECTRIC	0	0	0	0	0
TREAT/TRANS	0	0	0	0	0
PURCHASED WATER	0	0	0	0	0
RENTAL/LEASES	0	0	0	1,431	1,431
MOTOR POOL	0	0	0	27,827	27,827
CONTRACT SERVICE	0	0	0	8,189	8,189
OTHER	2,176	400	2,576	7,801	10,377
EDUCATIONAL COURSES	0	0	0	0	0
COMPUTER MAINTENANCE	0	0	0	3,483	3,483
TRAVEL	0	0	0	0	0
OTHER CHEMICALS	0	0	0	0	0
CHEMICALS CHLORINE	0	0	0	250	250
CHEMICALS LIME	0	0	0	0	0
<i>SUBTOTAL</i>	11,877	7,756	19,633	1,047,143	1,066,776
<u>OPERATING COST RECLASS</u>					
ONE CALL	0	0	0	0	0
PAINT SHOP	0	0	0	0	0
HEAVY EQUIPMENT		150,183	150,183	0	150,183
<i>SUBTOTAL</i>	0	150,183	150,183	0	150,183
<u>ALLOCATE:</u>					
SECTION ADMIN.	155	101	257	0	257
DIVISION ADMINISTRATION	646	422	1,068	56,936	58,004
SUBTOTAL DIRECT OVERHEAD	801	523	1,324	56,936	58,260
<i>TOTAL</i>	12,678	158,462	171,140	1,104,079	1,275,219

**Table A-4
WATER & WASTEWATER SERVICES
ACTIVITY BASED COSTING REPORT
FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2010**

ACTIVITY - Wastewater Treatment	Solids			Liquids			Reuse			Total Plant			Other	Total Treatment
	Operations	Maintenance	Total O & M	Operations	Maintenance	Total O & M	Operations	Maintenance	Total O & M	Operations	Maintenance	Total O & M		
PERSONAL SERVICES	2,072,808	1,692,521	3,765,330	0	5,250	5,250	8,114	13,593	21,707	2,080,922	1,711,364	3,792,287	956,663	4,748,950
OPERATING MATERIAL	6,180	1,205,854	1,212,034	262	597	859	0	6,761	6,761	6,442	1,213,211	1,219,654	47,114	1,266,768
OTHER MATERIAL	3,678	6,633	10,311	0	0	0	0	0	0	3,678	6,633	10,311	9,392	19,703
UTILITIES-OTHER	166,612	0	166,612	313	0	313	0	0	0	166,925	0	166,925	2,049	168,973
ELECTRIC	3,415,435	0	3,415,435	0	0	0	0	0	0	3,415,435	0	3,415,435	0	3,415,435
TREAT/TRANS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PURCHASED WATER	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RENTAL/LEASES	0	25,476	25,476	0	0	0	0	0	0	0	25,476	25,476	1,431	26,907
MOTOR POOL	115,773	37,249	153,022	0	0	0	0	0	0	115,773	37,249	153,022	27,827	180,850
CONTRACT SERVICE	1,798,576	433,490	2,232,066	0	0	0	0	0	0	1,798,576	433,490	2,232,066	8,189	2,240,255
OTHER	(127,259)	524,571	397,312	0	1,163	1,163	1,818	3,014	4,832	(125,441)	528,748	403,307	10,377	413,684
EDUCATIONAL COURSES	8,935	0	8,935	0	0	0	0	0	0	8,935	0	8,935	0	8,935
COMPUTER MAINTENANCE	0	14,676	14,676	0	0	0	0	0	0	0	14,676	14,676	3,483	18,159
TRAVEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER CHEMICALS	600,697	0	600,697	0	0	0	1,629	0	1,629	602,325	0	602,325	0	602,325
CHEMICALS CHLORINE	127,182	833	128,015	0	0	0	0	0	0	127,182	833	128,015	250	128,265
CHEMICALS LIME	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	8,188,616	3,941,304	12,129,920	575	7,010	7,585	11,561	23,368	34,928	8,200,752	3,971,681	12,172,433	1,066,776	13,239,209
OPERATING COST RECLASS														
ONE CALL	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PAINT SHOP	0	35,265	35,265	0	0	0	0	0	0	0	35,265	35,265	0	35,265
HEAVY EQUIPMENT	0	0	0	0	0	0	0	0	0	0	0	0	150,183	150,183
SUBTOTAL	0	35,265	35,265	0	0	0	0	0	0	0	35,265	35,265	150,183	185,447
ALLOCATE:														
SECTION ADMIN.	107,047	51,523	158,570	8	92	99	151	305	457	107,205	51,920	159,126	257	159,382
DIVISION ADMINISTRATION	445,240	214,301	659,540	31	381	412	629	1,271	1,899	445,900	215,952	661,852	58,004	719,856
SUBTOTAL DIRECT OVERHEAD	552,286	265,824	818,110	39	473	512	780	1,576	2,356	553,105	267,873	820,978	58,260	879,238
TOTAL	8,740,903	4,242,392	12,983,295	614	7,482	8,096	12,340	24,944	37,284	8,753,857	4,274,818	13,028,675	1,275,219	14,303,894

Table A-4
WATER & WASTEWATER SERVICES
ACTIVITY BASED COSTING REPORT
FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2010

ACTIVITY -Regional Transmission (Master Lift Stations)	District Four		
	Operations	Maintenance	Total O & M
PERSONAL SERVICES	932,077	206,926	1,139,004
OPERATING MATERIAL	362	459,436	459,797
OTHER MATERIAL	293	298	591
UTILITIES-OTHER	108,948	0	108,948
ELECTRIC	565,308	0	565,308
TREAT/TRANS	0	0	0
PURCHASED WATER	0	0	0
RENTAL/LEASES	0	2,750	2,750
MOTOR POOL	0	40,755	40,755
CONTRACT SERVICE	0	277,077	277,077
OTHER	(86,893)	37,543	(49,350)
EDUCATIONAL COURSES	0	0	0
COMPUTER MAINTENANCE	26,995	190	27,185
TRAVEL	0	0	0
OTHER CHEMICALS	0	0	0
CHEMICALS CHLORINE	0	0	0
CHEMICALS LIME	0	0	0
<i>SUBTOTAL</i>	1,547,090	1,024,975	2,572,065
<u>OPERATING COST RECLASS</u>			
ONE CALL	26,726	0	26,726
<i>SUBTOTAL</i>	26,726	0	26,726
<u>ALLOCATE:</u>			
SECTION ADMIN.	20,225	13,399	33,624
DIVISION ADMINISTRATION	84,120	55,731	139,851
SUBTOTAL DIRECT OVERHEAD	104,344	69,130	173,475
<i>TOTAL</i>	1,678,160	1,094,106	2,772,266

**Table A-5
Water & Wastewater Services
Disaggregation of Operating & Maintenance Expenses
FOR THE TWELVE MONTHS ENDED SEPTEMBER 30, 2010**

OPERATION AND MAINTENANCE EXPENSES:	RETAIL WATER	RETAIL WASTEWATER	WHOLESALE RAW WATER	WHOLESALE TREATMENT	WHOLESALE TRANSMISSION	WWS ADMIN, IT & FOD	ENGINEERING	TOTAL
Personal Services	4,348,740	2,077,410	72,410	4,748,950	1,139,004	8,264,587	2,184,005	22,835,106
Utility Services	1,332,306	2,960,836	323,997	3,584,408	674,256	545,800	456	9,422,060
Material & Supplies	655,723	857,412	177,963	1,286,471	460,388	873,132	34,162	4,345,251
Chemicals	1,825,695	770	420	730,590	0	0	0	2,557,475
Motor Pool	310,736	250,636	0	180,850	40,755	93,760	41,206	917,942
Contractual Services	1,083,542	449,302	58,829	2,240,255	277,077	2,475,141	49,780	6,633,927
Purchased Insurance	0	0	0	0	0	3,658,281	0	3,658,281
County Administrative Service	0	0	0	0	0	329,732	0	329,732
Purchased Water	4,723,395	0	0	0	0	0	0	4,723,395
Rental & Leases	16,861	882	0	26,907	2,750	8,659	13,686	69,744
Travel	0	0	0	0	0	10,202	0	10,202
Other	1,070,757	(10,473)	174,215	413,684	(49,350)	3,666,413	(1,162,663)	4,102,583
Educational Courses	3,751	0	0	8,935	0	66,657	6,232	85,574
Computer Maintenance	28,716	19,641	0	18,159	27,185	100,457	0	194,158
IRR Charges	0	0	0	0	0	0	0	0
SUBTOTAL O & M EXPENSES	15,400,221	6,606,415	807,835	13,239,209	2,572,065	20,092,821	1,166,863	59,885,429
SECTION ADMINISTRATION	40,796	21,030	3,430	159,382	33,624	0	0	258,262
DIVISION ADMINISTRATION	837,356	359,211	43,924	719,856	139,851	705,672	0	2,805,870
ONE CALL	272,445	149,984	8,377	0	26,726	0	0	457,532
PAINT SHOP	101,092	98,741	0	35,265	0	0	0	235,097
HEAVY EQUIPMENT	210,240	94,889	1,144	150,183	0	0	0	456,456
GENERATORS	0	69,588	0	0	0	0	0	69,588
LAB	617,161	0	38,243	651,447	11,868	0	0	1,318,720
SUBTOTAL OPERATING O/H	2,079,089	793,443	95,118	1,716,133	212,069	705,672	0	5,601,524
TOTAL COSTS	17,479,310	7,399,858	902,952	14,955,342	2,784,134	20,798,494	1,166,863	65,486,954
CUSTOMER SERVICE	2,654,997	1,894,350	52,291	522,913	104,583	(5,229,135)	0	0
WWS ADMINISTRATION	6,721,666	2,845,614	347,230	5,751,074	1,070,638	(15,569,359)	(1,166,863)	(0)
SUBTOTAL ALLOCATION	9,376,663	4,739,964	399,522	6,273,987	1,175,221	(20,798,494)	(1,166,863)	(0)
TOTAL OPERATING EXPENSES	26,855,973	12,139,823	1,302,474	21,229,329	3,959,355	0	0	65,486,954

Source: Broward County WATER & WASTEWATER SERVICES

Table A-6
Operating and Maintenance Expense for Large User Rate
Fiscal Year 2010 and 2011 ⁽¹⁾
\$ per 1000 Gallons

	Fiscal 2010		Fiscal 2011	
	Treatment & Disposal	Transmission	Treatment & Disposal	Transmission
Total Direct Operating Costs	13,552,910	4,254,470	16,591,771	3,310,172
Allocated A & G Costs	5,413,700	1,545,400	6,026,800	908,260
Projected Annual Average Daily Flow (MGD)	68.5	50.4	65.2	51.8
Operating and Maintenance Rate Per 1,000 Gallons	0.795	0.179	0.886	0.211

NOTE: ⁽¹⁾ This charge does not include costs of debt service which are fixed monthly charges to large users or IRR.

Source: Broward County Water & Wastewater Services

**Table A-7
Historical and Budgeted Large Users
Operating & Maintenance Rates**

Period Large User Charge in Effect	Treatment & Disposal Rate Per 1,000 Gallons	Transmission Rate Per 1,000 Gallons	Combined Rate Per 1,000 Gallons
Fiscal 2002	\$0.47	\$0.07	\$0.54
Fiscal 2003	\$0.47	\$0.10	\$0.57
Fiscal 2004	\$0.51	\$0.09	\$0.60
Fiscal 2005	\$0.61	\$0.12	\$0.73
Fiscal 2006	\$0.58	\$0.12	\$0.70
Fiscal 2007	\$0.69	\$0.14	\$0.83
Fiscal 2008	\$0.70	\$0.14	\$0.84
Fiscal 2009	\$0.68	\$0.14	\$0.81
Fiscal 2010	\$0.80	\$0.18	\$0.97
Fiscal 2011 (Proposed)	\$0.89	\$0.21	\$1.10

Source: Broward County Water & Wastewater Services

Table A - 8
Broward County Public Works Department
Water & Wastewater Fund
Statement of Net Assets
September 30, 2010, 2009, 2008, 2007, and 2006

	FY 2010	FY 2009	FY 2008	FY 2007	FY 2006
ASSETS					
Current Assets:					
Cash & Cash Equivalents	\$ 19,153,888	\$ 17,467,136	\$ 20,964,003	\$ 10,181,770	\$ 9,630,370
Accounts Receivable (Net)	14,778,576	14,903,333	12,137,601	16,667,959	11,835,909
Inventory	7,242,284	6,590,565	5,438,132	3,712,854	2,611,070
Other Current Assets	1,262,565	1,107,662	817,973	860,180	796,824
Total Current Assets	42,437,313	40,068,696	39,357,709	31,422,763	24,874,173
Noncurrent Assets:					
Restricted Assets:					
Cash & Cash Equivalents	63,470,062	96,486,201	35,589,820	34,482,651	35,840,973
Investments	36,008,673	38,497,045	4,499,100	10,592,034	9,013,786
Total Restricted Assets	99,478,735	134,983,246	40,088,920	45,074,685	44,854,759
Property, Plant and Equipment					
Land	4,896,059	4,896,059	4,874,216	4,874,216	4,874,216
Buildings	209,769,182	199,109,808	197,865,989	195,483,344	170,819,260
Equipment	739,769,678	641,410,769	601,781,596	565,035,966	562,520,143
Utility Plant in Service before Depreciation	954,434,919	845,416,636	804,521,801	765,393,526	738,213,619
Less Accumulated Depreciation	(358,281,688)	(329,407,410)	(306,231,826)	(278,270,312)	(267,358,167)
Utility Plant in Service (Net)	596,153,231	516,009,226	498,289,975	487,123,214	470,855,452
Construction in Progress	65,978,177	115,108,702	118,800,015	124,784,435	119,784,145
Property, Plant, and Equipment (Net)	662,131,408	631,117,928	617,089,990	611,907,649	590,639,597
Deferred Bond Issuance Costs	2,750,043	3,012,561	2,781,755	3,010,811	3,220,358
Total Noncurrent Assets	764,360,186	769,113,735	659,960,665	659,993,145	638,714,714
Total Assets	\$ 806,797,499	\$ 809,182,431	\$ 699,318,374	\$ 691,415,908	\$ 663,588,887
LIABILITIES					
Current Liabilities:					
Vouchers Payable and Accrued Liabilities	\$ 12,375,750	\$ 10,135,356	\$ 12,949,847	\$ 13,845,368	\$ 17,590,878
Due Other Governments	1,949,153	2,003,168	3,364,275	2,693,953	1,290,652
Customer Deposits	-	-	-	5,573,127	-
Commercial Paper	-	-	58,578,000	38,722,000	-
Total Current Liabilities	14,324,903	12,138,524	74,892,122	60,834,448	18,881,530
Noncurrent Liabilities:					
Liabilities Payable from Restricted Assets					
Accrued Interest Payable	10,116,680	10,257,680	6,033,563	6,119,513	6,190,213
Current Portion Long Term Debt	9,765,000	7,810,006	7,605,006	7,436,131	7,293,122
Customer Deposits	8,173,542	7,881,669	7,517,976	1,500,000	6,853,201
Total Liabilities Payable from Restricted Assets	28,055,222	25,949,355	21,156,545	15,055,644	20,336,536
Long Term Liabilities:					
Revenue Bonds Payable	412,674,304	422,418,643	256,356,660	264,041,736	271,496,563
Long Term OPEB Obligation	346,202	220,187	105,540	-	-
Other Long Term Liabilities	2,963,000	2,501,000	2,280,000	1,921,000	1,993,000
Total Long Term Liabilities	415,983,506	425,139,830	258,742,200	265,962,736	273,489,563
Total Noncurrent Liabilities	444,038,728	451,089,185	279,898,745	281,018,380	293,826,099
Total Liabilities	\$ 458,363,631	\$ 463,227,709	\$ 354,790,867	\$ 341,852,828	\$ 312,707,629
NET ASSETS					
Invested in Capital Assets, Net of Related Debt	\$ 275,515,952	\$ 274,923,504	\$ 294,550,324	\$ 305,126,011	\$ 315,070,270
Restricted For:					
Debt Service Reserve	39,764,667	37,809,672	27,555,357	27,197,095	27,346,345
Renewal, Replacement and Improvement	5,600,000	5,000,000	5,000,000	4,685,000	4,465,000
Unrestricted	27,553,249	28,221,546	17,421,826	12,554,974	3,999,643
Total Net Assets	\$ 348,433,868	\$ 345,954,722	\$ 344,527,507	\$ 349,563,080	\$ 350,881,258

Table A - 8
Broward County Public Works Department
Water & Wastewater Fund
Statement of Net Assets
September 30, 2010, 2009, 2008, 2007, and 2006

	FY 2010	FY 2009	FY 2008	FY 2007	FY 2006
ASSETS					
Current Assets:					
Cash & Cash Equivalents	\$ 19,153,888	\$ 17,467,136	\$ 20,964,003	\$ 10,181,770	\$ 9,630,370
Accounts Receivable (Net)	14,778,576	14,903,333	12,137,601	16,667,959	11,835,909
Inventory	7,242,284	6,590,565	5,438,132	3,712,854	2,611,070
Other Current Assets	1,262,565	1,107,662	817,973	860,180	796,824
Total Current Assets	42,437,313	40,068,696	39,357,709	31,422,763	24,874,173
Noncurrent Assets:					
Restricted Assets:					
Cash & Cash Equivalents	63,470,062	96,486,201	35,589,820	34,482,651	35,840,973
Investments	36,008,673	38,497,045	4,499,100	10,592,034	9,013,786
Total Restricted Assets	99,478,735	134,983,246	40,088,920	45,074,685	44,854,759
Property, Plant and Equipment					
Land	4,896,059	4,896,059	4,874,216	4,874,216	4,874,216
Buildings	209,769,182	199,109,808	197,865,989	195,483,344	170,819,260
Equipment	739,769,678	641,410,769	601,781,596	565,035,966	562,520,143
Utility Plant in Service before Depreciation	954,434,919	845,416,636	804,521,801	765,393,526	738,213,619
Less Accumulated Depreciation	(358,281,688)	(329,407,410)	(306,231,826)	(278,270,312)	(267,358,167)
Utility Plant in Service (Net)	596,153,231	516,009,226	498,289,975	487,123,214	470,855,452
Construction in Progress	65,978,177	115,108,702	118,800,015	124,784,435	119,784,145
Property, Plant, and Equipment (Net)	662,131,408	631,117,928	617,089,990	611,907,649	590,639,597
Deferred Bond Issuance Costs	2,750,043	3,012,561	2,781,755	3,010,811	3,220,358
Total Noncurrent Assets	764,360,186	769,113,735	659,960,665	659,993,145	638,714,714
Total Assets	\$ 806,797,499	\$ 809,182,431	\$ 699,318,374	\$ 691,415,908	\$ 663,588,887
LIABILITIES					
Current Liabilities:					
Vouchers Payable and Accrued Liabilities	\$ 12,375,750	\$ 10,135,356	\$ 12,949,847	\$ 13,845,368	\$ 17,590,878
Due Other Governments	1,949,153	2,003,168	3,364,275	2,693,953	1,290,652
Customer Deposits	-	-	-	5,573,127	-
Commercial Paper	-	-	58,578,000	38,722,000	-
Total Current Liabilities	14,324,903	12,138,524	74,892,122	60,834,448	18,881,530
Noncurrent Liabilities:					
Liabilities Payable from Restricted Assets					
Accrued Interest Payable	10,116,680	10,257,680	6,033,563	6,119,513	6,190,213
Current Portion Long Term Debt	9,765,000	7,810,006	7,605,006	7,436,131	7,293,122
Customer Deposits	8,173,542	7,881,669	7,517,976	1,500,000	6,853,201
Total Liabilities Payable from Restricted Assets	28,055,222	25,949,355	21,156,545	15,055,644	20,336,536
Long Term Liabilities:					
Revenue Bonds Payable	412,674,304	422,418,643	256,356,660	264,041,736	271,496,563
Long Term OPEB Obligation	346,202	220,187	105,540	-	-
Other Long Term Liabilities	2,963,000	2,501,000	2,280,000	1,921,000	1,993,000
Total Long Term Liabilities	415,983,506	425,139,830	258,742,200	265,962,736	273,489,563
Total Noncurrent Liabilities	444,038,728	451,089,185	279,898,745	281,018,380	293,826,099
Total Liabilities	\$ 458,363,631	\$ 463,227,709	\$ 354,790,867	\$ 341,852,828	\$ 312,707,629
NET ASSETS					
Invested in Capital Assets, Net of Related Debt	\$ 275,515,952	\$ 274,923,504	\$ 294,550,324	\$ 305,126,011	\$ 315,070,270
Restricted For:					
Debt Service Reserve	39,764,667	37,809,672	27,555,357	27,197,095	27,346,345
Renewal, Replacement and Improvement	5,600,000	5,000,000	5,000,000	4,685,000	4,465,000
Unrestricted	27,553,249	28,221,546	17,421,826	12,554,974	3,999,643
Total Net Assets	\$ 348,433,868	\$ 345,954,722	\$ 344,527,507	\$ 349,563,080	\$ 350,881,258

Table A - 9
Broward County Public Works Department
Water & Wastewater Fund
Statement of Revenue, Expense, and Changes in Net Assets
September 30, 2010, 2009, 2008, 2007, and 2006

	FY 2010	FY 2009	FY 2008	FY 2007	FY 2006
Operating Revenue:					
Retail Services:					
Water	\$ 41,938,529	\$ 41,228,986	\$ 35,888,604	\$ 30,603,909	\$ 32,089,463
Wastewater	29,925,893	29,668,289	27,528,566	25,151,031	27,440,192
Septic Charges	1,659,400	2,027,870	1,879,407	1,939,437	1,894,505
Other Services	3,889,586	4,140,658			
	77,413,408	77,065,803	65,296,577	57,694,377	61,424,160
Wholesale Services:					
Water	832,617	1,076,284	1,499,824	5,241,738	5,785,038
Wastewater	31,360,994	29,943,381	25,882,550	25,078,707	22,497,276
Other Services	-	-	3,089,093	3,128,263	838,692
Total Operating Revenue	109,607,019	108,085,468	95,768,044	91,143,085	90,545,166
Operating Expenses:					
Personal Services	26,881,760	26,309,820	25,634,621	24,968,706	23,623,568
Utilities Services	14,016,533	14,445,819	15,167,271	14,380,038	13,443,989
Chemicals	2,555,622	2,567,199	2,317,645	2,352,152	2,240,973
County Services	3,583,190	3,255,410	3,030,850	2,532,290	2,887,860
Material and Supplies	4,837,310	4,962,861	5,138,548	4,650,449	5,001,231
Motor Pool	1,279,250	1,226,051	1,428,115	1,363,596	1,495,790
Contractual Services	7,412,282	7,967,224	7,729,129	6,851,981	5,933,915
Other	4,921,007	4,054,301	2,127,206	1,840,250	3,647,613
Total Operating Expense (Excluding Depreciation)	65,486,954	64,788,684	62,573,385	58,939,462	58,274,939
Operating Income Before Depreciation	44,120,065	43,296,784	33,194,659	32,203,623	32,270,227
Depreciation Expense	28,924,359	33,120,285	34,357,177	32,631,304	30,551,156
Operating Income	15,195,706	10,176,499	(1,162,518)	(427,681)	1,719,071
Non-Operating Income (Expense):					
Interest Income	1,757,549	3,218,290	1,507,408	2,807,060	2,786,948
Interest Expense	(18,014,253)	(15,814,160)	(9,876,717)	(10,698,049)	(10,593,701)
Other Expense	(4,314,509)				
Gain/(Loss) on Disposal of Assets	269,204	310,334	353,242	911,660	(1,300,003)
Other Income	(33,534)	(121,481)	(254,577)	(217,895)	300,710
Other Debt Service	37,628	(2,427,507)	(544,402)	81,412	(71,290)
Total Non-Operating Income (Expense)	(20,297,915)	(14,834,524)	(8,815,046)	(7,115,812)	(8,877,336)
Income Before Contributions and Transfers	(5,102,209)	(4,658,025)	(9,977,564)	(7,543,493)	(7,158,265)
Capital Contributions and Operating Transfers:					
Capital Contributions	7,581,355	6,085,240	4,941,991	6,225,315	1,540,581
Total Capital Contributions and Operating Transfers	7,581,355	6,085,240	4,941,991	6,225,315	1,540,581
Changes In Net Assets Before Extraordinary/Special Item	2,479,146	1,427,215	(5,035,573)	(1,318,178)	(5,617,684)
Total Net Assets - Beginning	345,954,722	344,527,507	349,563,080	350,881,258	356,498,942
Total Net Assets - Ending	\$ 348,433,868	\$ 345,954,722	\$ 344,527,507	\$ 349,563,080	\$ 350,881,258

Table A - 10
Broward County Public Works Department
Water & Wastewater Fund
Statement of Cash Flows
September 30, 2010, 2009, 2008, 2007, and 2006

	FY 2010	FY 2009	FY 2008	FY 2007	FY 2006
Cash Flows From Operating Activities:					
Cash Received from Customers	\$ 109,969,634	\$ 104,322,322	\$ 100,149,582	\$ 95,388,686	\$ 89,276,366
Cash Payments to Suppliers for Goods and Services	(39,030,655)	(41,710,796)	(37,513,353)	(45,153,423)	(32,050,121)
Other Cash Paid	(4,045,179)	314,947	353,242	775,178	
Cash Payments to Employees for Services	(26,136,688)	(25,770,910)	(25,201,824)	(24,635,265)	(22,965,981)
Net Cash Provided by Operating Activities	40,757,112	37,155,563	37,787,647	26,375,176	34,260,264
Cash Flows From Non-Capital Financing Activities:					
Other Non-Operating Income	-	-	-	-	300,710
Net Cash Provided By Non-Capital Financing Activities	-	-	-	-	300,710
Cash Flows From Capital and Related Financing Activities					
Acquisition and Construction of Capital Assets	(52,408,654)	(48,488,022)	(37,061,268)	(52,508,140)	(55,353,249)
Proceeds from Sale of Capital Assets	37,628	-	39,142	94,889	62,530
Proceeds From Revenue Bonds	-	174,088,731	-	-	-
Proceeds from Commercial Paper Debt	-	-	19,856,000	38,722,000	-
Commercial Paper Debt Retired	-	(58,578,000)	-	-	-
Capital Recovery Fees	421,632	671,802	1,857,355	3,893,898	136,830
Capital Recovery Fees Refunded	(146,991)	(976,030)	-	-	-
Capital Surcharges Contributed from Other Governments	1,742,223	2,178,587	1,439,117	708,457	614,036
Principal Paid on Revenue Bonds	(7,789,345)	(7,821,748)	(7,436,125)	(5,439,182)	(5,355,105)
Interest Paid on Revenue Bonds	(18,155,253)	(9,021,581)	(13,244,826)	(15,092,439)	(14,047,030)
Interest Paid on Commercial Paper	-	(862,702)	-	-	-
Debt Service Cost Paid	(33,534)	(162,818)	(254,577)	(217,895)	(71,290)
Net Cash Used For Capital and Related Financing Activities	(76,332,294)	51,028,219	(34,805,182)	(29,838,412)	(74,013,278)
Cash Flows From Investing Activities:					
Purchase of Investment Securities	(51,448,753)	(64,838,704)	(59,871,248)	(39,379,314)	(22,140,376)
Proceeds from Sale and Maturities of Investment Securities	53,937,125	30,840,759	67,021,000	39,234,578	60,246,625
Interest on Investments	1,757,423	3,213,677	1,757,185	2,801,050	2,573,781
Net Cash Provided By Investing Activities	4,245,795	(30,784,268)	8,906,937	2,656,314	40,680,030
Net Increase (Decrease) In Cash & Cash Equivalents	(31,329,387)	57,399,514	11,889,402	(806,922)	1,227,726
Cash & Cash Equivalents, Beginning of Period	113,953,337	56,553,823	44,664,421	45,471,343	44,243,517
Cash & Cash Equivalents, End of Period (1)	\$ 82,623,950	\$ 113,953,337	\$ 56,553,823	\$ 44,664,421	\$ 45,471,243
(1) Cash & Cash Equivalents:					
Current Assets	\$ 19,153,888	\$ 17,467,136	\$ 20,964,003	\$ 10,181,770	\$ 9,630,370
Restricted Assets	63,470,062	96,486,201	35,589,820	34,482,651	35,840,973
Total Cash & Cash Equivalents	\$ 82,623,950	\$ 113,953,337	\$ 56,553,823	\$ 44,664,421	\$ 45,471,343
Reconciliation of Operating Income to Net Cash Provided by Operating Activities:					
Operating Income	\$ 15,195,706	\$ 10,176,499	\$ (1,162,518)	\$ (427,680)	\$ 1,719,071
Depreciation	28,924,359	33,120,285	34,357,177	32,631,304	30,551,156
Miscellaneous Non-Operating Income (Expense)	(4,045,179)	314,947	353,242	775,178	
Change in Assets and Liabilities:					
(Increase) Decrease in Accounts Receivable	124,757	(2,765,732)	4,530,357	(2,251,945)	468,384
(Increase) Decrease in Inventory	(651,719)	(1,152,433)	(1,725,278)	(1,101,784)	(355,514)
(Increase) Decrease in Other Current Assets	107,615	(520,495)	42,207	146,191	17,824
Increase (Decrease) in Vouchers Payable	863,715	(1,020,094)	277,289	(4,579,462)	3,510,632
Increase (Decrease) in Due Other Governments	(54,015)	(1,361,107)	670,322	1,403,301	(1,803,480)
Increase (Decrease) in Customer Deposits	291,873	363,693	444,849	(219,926)	152,291
Total Adjustments	25,561,406	26,979,064	38,950,165	26,802,856	32,541,293
Net Cash Provided By Operating Activities	\$ 40,757,112	\$ 37,155,563	\$ 37,787,647	\$ 26,375,176	\$ 34,260,364

**Table A-11
Water and Wastewater Retail Statistics
(1,000's gallons)**

As of September 30,2010

Water	Produced	Purchased	Billed	System Uses & Losses
District 1	2,665,000	202,481	2,531,181	336,300
District 2	4,559,000	0	2,394,207	-
District 2 - Resale	0	0	1,748,303	416,490
District 3A	0	998,417	900,479	97,938
District 3BC	0	1,026,530	1,054,705	(28,175)
Total	7,224,000	2,227,428	8,628,876	822,552

Wastewater	Billed *	Wastewater Transmission to Plant
District 1	2,129,642	2,166,452
District 2	2,220,537	2,571,193
District 3A	550,912	783,260
District 3BC	329,852	285,807
Total	5,230,943	5,806,712

* Based upon water billed to wastewater customers. Residential billing capped at 15,000 gallons.

Source: Broward County Water and Wastewater Services