

ORLANDO UTILITIES COMMISSION

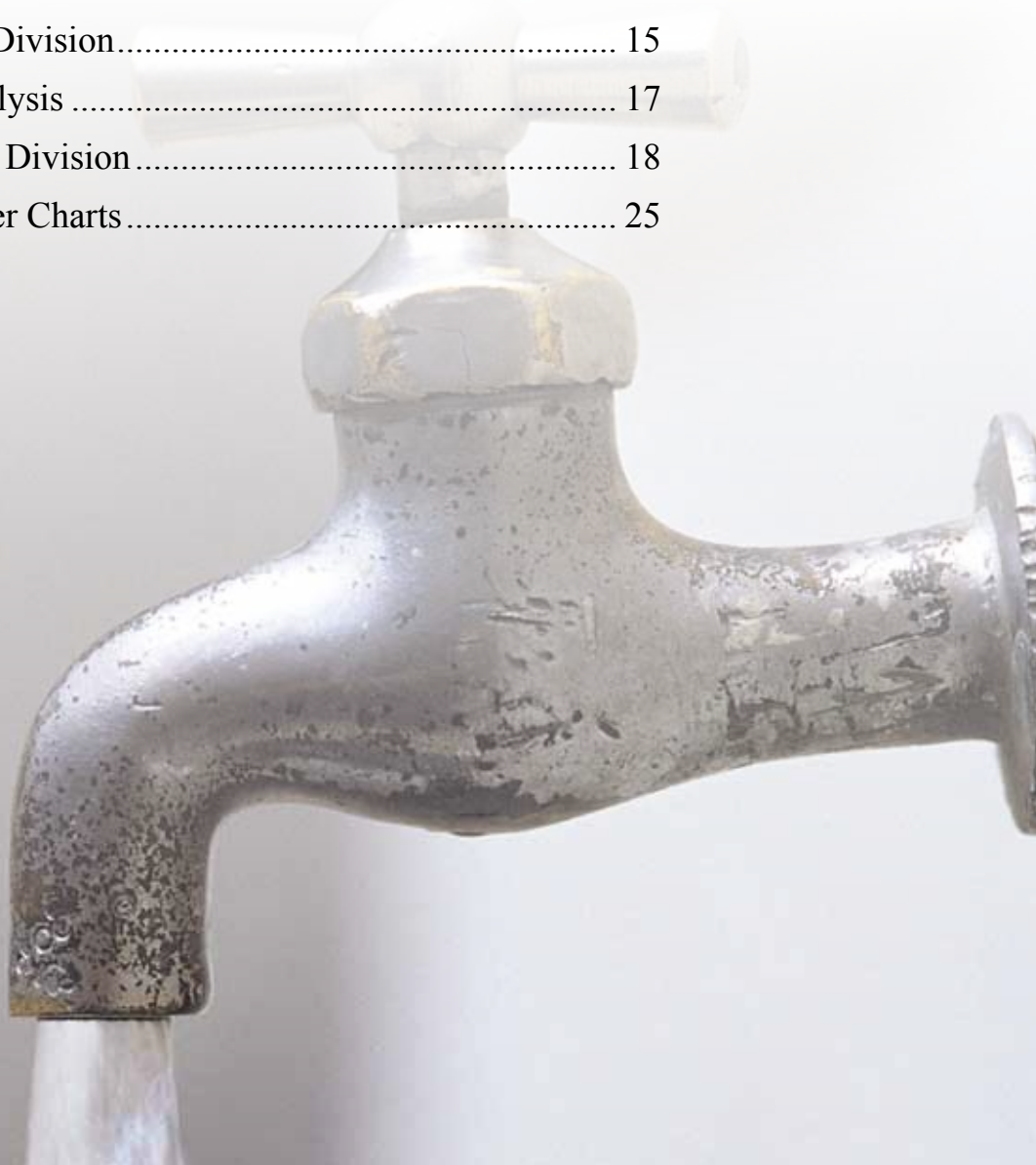


WATER BUSINESS UNIT | 2010 ANNUAL REPORT



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OUC's 2010 Water Integrated Resource Plan Lays the Foundation

Some citizens, water experts and scientists in Central Florida conclude the Floridan aquifer has supply capacity limits and the projected amount of pumping for all users is reaching or – in some cases – has reached the aquifer capacity. Due to the limitations of groundwater and the availability of other water sources, an expanded portfolio approach to water resource delivery is required to meet future customer water needs. For these reasons, OUC completed an updated Water Integrated Resource Plan (WIRP) in 2010 and reported our summary findings at a Commission Workshop on September 28, 2010. The Water Business Unit (WBU) will use the WIRP as a tool for communicating the framework for work on projects for reforming regulations and reporting progress about the topics of regional interests, groundwater, water conservation and alternate water supplies

Today the OUC water supply system consists of seven (7) interconnected Water Treatment Plants (WTP) that draw groundwater from the reliable and well protected Floridan aquifer. The prolific aquifer has been able to supply the quantities of high quality water needed for the OUC service area and the rest of Central Florida. The high quality of the groundwater supply, the ability to build facilities where water is needed and excellent operations and management allow OUC to supply water to its customers at reasonable rates. OUC uses ozone as the primary treatment process allowing OUC to produce very high quality finished water.

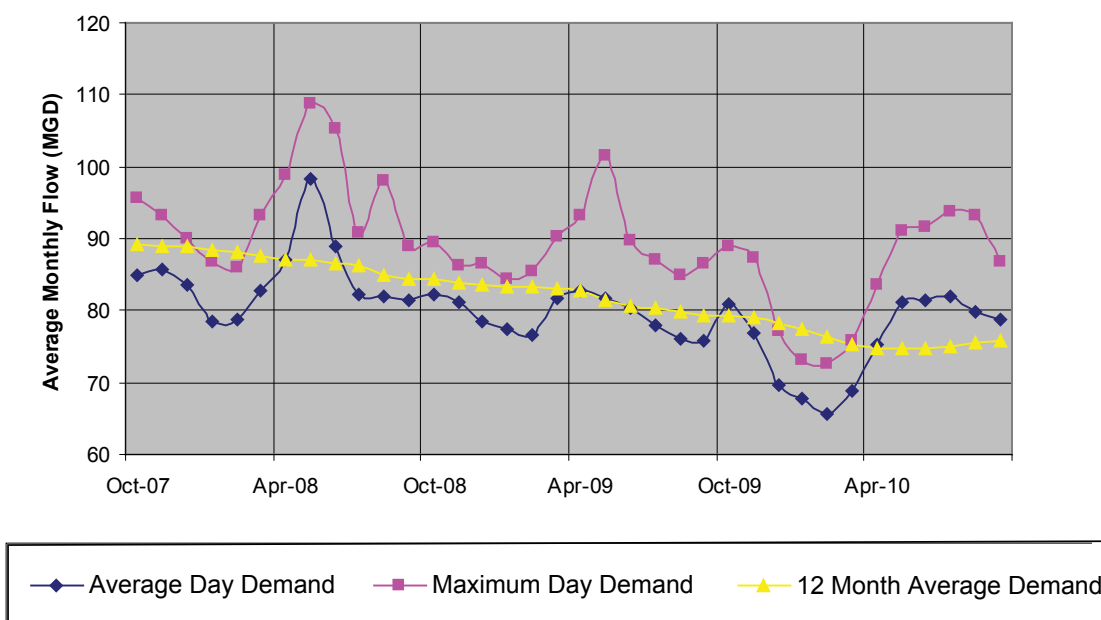
OUC serves more than 135,000 water customers with a portfolio of water types and management techniques. The potable water needs are met exclusively from high quality and reliable groundwater from the Floridan aquifer. Various water conservation programs assist customers in reducing water demands and offsetting some of the need for groundwater. Also offsetting a portion of Central Florida's groundwater needs is the non-potable use of reclaimed municipal wastewater from two City of Orlando and four Orange County Water Reclamation Facilities (WRFs) for irrigation in portions of the service area.

Despite an increase in service population and area, OUC produces the same average daily amount of groundwater from the lower Floridan aquifer as it did 20 years ago. We also estimate today that OUC's lowest annual average water production use was probably achieved during the winter of 2010 (*See 3-Year Monthly Water Plant Pumping History below*).

The WBU is committed to providing reliable water service, good water quality and affordable rates. Increasing regulations in the past several years have forced OUC to spend greater amounts of time and energy on regulations and consumptive use permit (CUP) compliance.

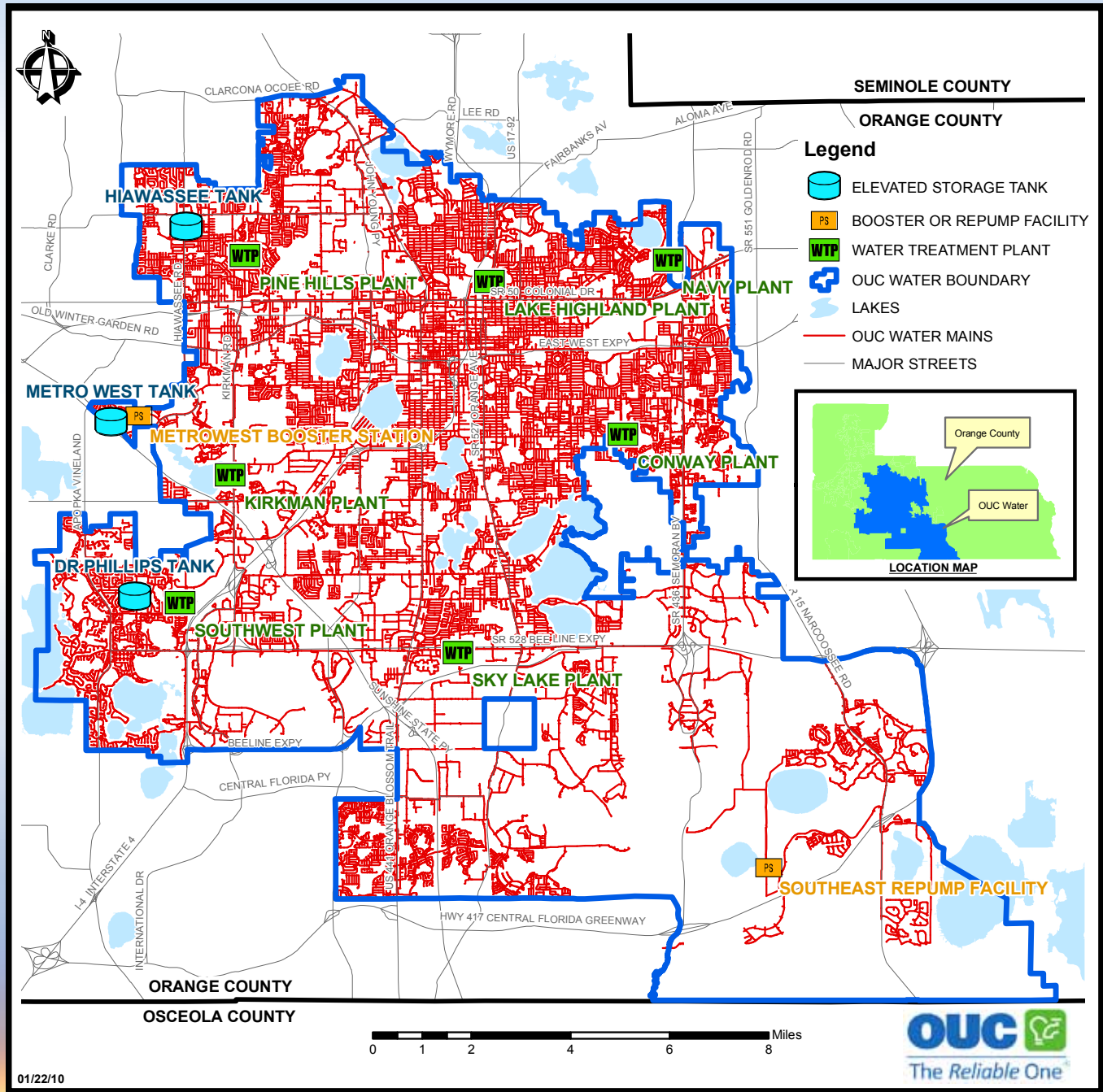
To continue this success, OUC will coordinate strategic business planning, asset management, financial planning and updates to the WIRP. The WIRP framework presented provides the convenient means for communicating to the Commission and customers.

3-Year Monthly Water Plant Pumping History



OUC Water System

ORLANDO UTILITIES COMMISSION WATER SERVICE AREA



WBU Statistical Summary

Fiscal Year	2010	2009	2005
Population Served	423,900	423,500	413,680
Employees			
Total Water Business Unit Funded Positions (Note 1)	119	132	115
Per 1,000 population	0.28	0.31	0.28
Consumption			
Total, billions of gallons treated water	27.68	28.98	31.78
Change from previous year	-4.49%	-12.05%	3.65%
Total, billions of gallons water treated for sale	27.68	28.97	31.76
Total, billions of gallons unbilled	2.81	3.31	2.78
Percent unbilled, % of water treated for sale	10.15%	11.43%	8.75%
Daily average, millions of gallons treated water	75.84	79.40	87.07
Per capita, gallons per day	179	187	210
Per mile of pipe, gallons per day	43,027	45,370	51,368
Per service, gallons per day	558	587	666
Services			
Active metered	135,939	135,189	130,719
Percent change from previous year	0.55%	-1.54%	3.26%
Per 1,000 population	321	319	316
Per mile of pipe	77	77	77
Pipe			
Miles	1,763	1,750	1,695
Population per mile	241	242	244
Hydrants			
Number	9,753	9,630	8,891
Per 1,000 population	23	23	21
Per mile of pipe	5.5	5.5	5.2
Income			
Water sales in millions	\$62.62	\$62.68	\$54.26
Per capita	\$148	\$148	\$131
Per mile of pipe	\$35,529	\$35,817	\$32,012
Per active metered service	\$461	\$464	\$415
Per million gallons treated water	\$2,262	\$2,163	\$1,707
Capital Investment (annual, in millions)			
Production Plant	\$0.77	\$1.82	\$4.11
Transmission & Distribution	\$12.20	\$11.56	\$9.92
Contributions in Aid of Construction (CIAC)	\$6.08	\$5.74	\$13.41
Total Capital Investment	\$19.05	\$19.12	\$27.44
Percent CIAC	31.92%	30.02%	48.87%
Operations & Maintenance Costs			
Total in millions	\$38.83	\$34.66	\$27.11
Per capita	\$92	\$82	\$66
Per mile of pipe	\$22,031	\$19,806	\$15,994
Per active metered service	\$286	\$256	\$207
Per million gallons treated water	\$1,403	\$1,196	\$853

Note 1: The number of employees is reported as the number of funded positions contained in the operating budget, which is adopted by the Commission annually in August.

Note 2: Unaccounted for water in 2010 and reported to SJRWMD was 6.6%

Water Business Unit

In 2010, the Water Business Unit (WBU) announced an organizational change involving the formation of an Administrative Specialists Rotation Program. The program, which commenced in January 2011, allows all WBU Administrative Specialists I to rotate within the business unit every six months to enhance the coverage, effectiveness and efficiency throughout the WBU.

The Administrative Specialists participating in the Rotation Program are Tonie Lorenzo, La'Tanya Woodson, Angela Scott and Gigi Anacleto. WBU Administrative Assistant Audrey Schiff is helping to facilitate and coordinate work flow and communication within each WBU division.

The program increases the effectiveness and efficiency of support for the entire WBU by sharing the administrative practices and providing greater staffing flexibility. Additionally, the program has provided participants with an opportunity to increase their skills and knowledge and enhance their potential for growth and promotion within OUC.

Angela Scott spearheaded the project and created a timeline for its successful implementation. Each participant was assigned the task of creating a desk manual outlining their specific job functions and responsibilities for their work division. The desk manual serves as a guide to providing all the necessary information to successfully perform the functions of each job assignment in the rotation. In October 2010, job shadowing and cross training commenced between each WBU division allowing each participant an opportunity to have hands-on experience in their upcoming roles.

A WBU administrative support group was formed before the rollout of the job rotation and with the assistance of Audrey Schiff. The participants met regularly to share ideas, provide updates and address any areas of potential concern. During these meetings, everyone expressed a desire to learn more about specific



*Administrative Specialists
La'Tanya Woodson (from left to right), Gigi Anacleto,
Tonie Lorenzo and Angela Scott*

functions within OUC. Based on these aspirations, invitations were extended to representatives of various OUC business units to meet with the WBU Administrative Specialists and provide an overview of their specific areas of expertise in addition to addressing questions and concerns. The information obtained from these meetings has enhanced the Administrative Specialists knowledge and streamlined and standardized certain business practices that are utilized in their day-to-day functions.

A few instances have demonstrated the importance of cross training to the WBU and endorsed our theory that this program will succeed. When one of the Administrative Specialists required hospitalization for a few days, the others stepped in and successfully administered the payroll for that division. When the Water Meter Shop was in desperate need of assistance because of absent staff, the

administrative support staff was able to pitch in and help. The Administrative Specialists are also expanding to assist other areas of the company including Chilled Water and Revenue Protection, as needed.

As the Administrative Specialists get acclimated and become more comfortable with the various tasks involved in each of our divisions, we anticipate better communication, efficiency and back-up support to the entire WBU. Further, we hope that this expands individual opportunities to the WBU Administrative Specialists and open doors to their future success at OUC.

Water Resources and Engineering Division

WATER RESOURCES SECTION

During FY 2010, the Water Resources (WR) section performed research and analysis, participated in alternative water supply investigations and performed the tasks necessary for OUC to comply with our Consumptive Use Permit (CUP).

Water Resources continued work on an asset management program with the objective of determining the risks, criticality and data needs to establish an efficient method to prioritize construction and maintenance activities in the water distribution system. A risk rating system was developed and tested using a one-square-mile pilot area of the water distribution system to evaluate its effectiveness. Based on favorable results from the pilot project, work began to extend the program to the entire water service area.

A reclaimed water partnership with the City of Orlando appears likely to move forward, and OUC has started drafting an agreement.

OUC was involved in three ongoing research projects in partnership with the Water Research Foundation (formerly AwwaRF). The results of one study revealed that less costly alternative methods to treat reject water from desalination membranes are available. The final report is expected to be published in FY2011. Another study determined that meter accuracy is very difficult to estimate based upon volume and age since too many uncontrolled variables exist and meter test results varied substantially. OUC is continuing work in this area to optimize meter maintenance and replacement schedules. A third Research Foundation study focuses on improving the measurement and management of biofilms in water distribution systems.

Considerable effort was focused on the St. Johns River Water Management District's (SJRWMD) Minimum Flows and Levels (MFL) regulatory program. MFLs are the minimum levels set on water bodies by the Water Management Districts that may constrain the ability



Conway WTP-ITT Wedeco (foreground) and PTOC (rear) Ozone Generators

of utilities to use allocated ground water and potentially create the need to develop large amounts of expensive alternative water supply. The MFL process is heavily dependent on computer models of both surface and groundwater.

ALTERNATIVE WATER SUPPLY

OUC's preferred alternative water supply project is the St. Johns River/Taylor Creek Reserve Water Supply Project. A joint venture comprising consultants, CH2MHILL and PB Water completed the preliminary design report and the environmental information document in late 2009. Other utilities participating in the project included Orange County, Cocoa, Titusville, Toho Water Authority and East Central Florida Service, which is associated with Deseret Properties. The final business meeting, which

directed and reviewed the preliminary design work, was held on October 29, 2009. The governance meetings concluded on October 21, 2009.

During FY2010, OUC met with Cocoa and Orange County on several occasions to express our desire to partner in future phases of the project and secure AWS capacity for Central Florida. OUC is required to secure AWS capacity to satisfy our Settlement Agreement with the SJRWMD, South Florida Water Management District (SFWMD) and Orange County.

WATER INTEGRATED RESOURCE PLAN

Water Resources and the Strategic Planning group spent a considerable amount of time in 2010 developing a

Water Resources and Engineering Division

WATER RESOURCES SECTION (CONTINUED)

Water Integrated Resource Plan (WIRP) for OUC. Consulting engineering firm CH2MHILL assisted OUC with developing the plan. The plan evaluates water supply options and develops a long-term and cost-effective plans to meet future water demands. Three workshops were held with OUC senior staff to provide background information, inform them of water rules and water supply alternatives and involve them in the decision process. A final workshop was held to present summary findings to OUC's Commission in September 2010. The final published report for the WIRP is expected to be complete by the second quarter of FY2011.

CONSUMPTIVE USE PERMIT (CUP)

OUC's CUP five-year compliance report was submitted to the St. Johns River Water Management District (SJRWMD) in April 2008. Extraordinary amounts of time were spent by OUC staff during FY2009 and FY2010 responding to requests for additional information from the SJRWMD and in meetings with both the SJRWMD and the SFWMD. SJRWMD deemed OUC's five-year compliance report complete on September 10, 2009. A draft Technical Staff Report (TSR) with stringent CUP conditions was issued by the SJRWMD on October 20, 2009. OUC met and held teleconferences with the SJRWMD a number of times in the first and second quarters of FY 2010 to discuss the new conditions. The new conditions added a 26th monitoring site at Lake Ruby, additional reporting requirements, construction of a multi-zone monitoring well by the end of 2010, and the requirement to promote and enact a landscape irrigation ordinance by the County, City, or both. After two years of extensive work, OUC finally received a modified CUP on April 29, 2010.

Project RENEW is a regional reclaimed water project required by OUC's CUP. An annual report documenting the progress on Project RENEW was submitted to SJRWMD in October 2009. At the October 1, 2009 meeting with Florida Gas Transmission Company



From left, Christine Russell (WRE) and Chuck DiGerlando (WR) work on several CUP related projects, including Project Renew and the drilling of a new deep monitoring well.

(FGT), Orange County Public Works and OUC, FGT strongly opposed any piping installed parallel to its high pressure gas transmission main in the area between Old Winter Garden Road and the East-West Expressway. FGT has since filed a verified complaint for eminent domain against the unopened right of way. It remains quite uncertain how much of a time and cost delay this will cause Project RENEW. OUC requested a CUP modification for the extension of the Phase I RENEW milestone in November 2009 due to FGT's position regarding the RENEW pipe installation. An extension of the Phase I RENEW milestone through October 8, 2013 was granted by the District in February 2010.

Water Resources continues to track the progress of the City's Eastern Regional Reclaimed Water Distribution

Project (ERRWDS). An annual report documenting the status of the ERRWDS construction and the reclaimed water quantities being used in the OUC service area was submitted to the SJRWMD in October 2009. Specified quantities of reclaimed water must be delivered to the OUC service area by certain dates. The reclaimed water will be conveyed to Baldwin Park and the southeast area through the ERRWDS. The CUP includes a milestone to complete construction of the ERRWDS by March 31, 2011. The final segment of the transmission main will be completed prior to the milestone. OUC is providing more reclaimed water to the water service area than is required by the CUP.

Water Resources, with assistance from the Water Production section, monitors 25 lake/wetland sites required by the

Water Resources and Engineering Division

WATER ENGINEERING SECTION (CONTINUED)

CUP. Water level data is downloaded to a computer on a monthly basis and reviewed for data errors. Water level sensors are repaired and replaced periodically as needed. Panoramic photos for the 25 monitoring sites were completed in September 2010, as annually required by the CUP. The water level data, daily rainfall from 10 stations and daily pumping from all of OUC's wells are submitted to the SJRWMD every six months. Water quality is sampled in May and August at four Floridan Aquifer monitoring wells and submitted to the SJRWMD the following month.

The Water Resources and Water Production sections calibrated all of OUC's well flow meters in the spring of 2010. The meters are required to be calibrated every three years by the SJRWMD and in accordance with OUC's CUP.

A multi-zone, deep monitoring well, which will be used to detect any movement of saline water into the aquifer, is underway in the southeast portion of the OUC water service area. Design specifications for the well were finalized in April. Bidding for a construction contractor was conducted during May and June. The construction contract was awarded to Florida Design Drilling Corporation in late July and construction will be completed by the second quarter of FY 2011. Groundwater samples will be collected and analyzed quarterly from the well starting in February 2011 to monitor the saline water content.

An annual water audit was performed in accordance with the SJRWMD's methodology to estimate "unaccounted for" water losses in the treatment facilities and distribution systems. The results of the audit were submitted to the SJRWMD. OUC's water losses (5.87 percent) for calendar year 2009 are well within the acceptable limit of 10 percent established by SJRWMD.



Drilling of a multi-zone deep monitoring well in OUC's Southeast Water Resource area

Water Resources and Engineering Division

WATER ENGINEERING SECTION (CONTINUED)

ACTIVITIES

During fiscal year 2010, OUC added about 12.5 miles of water main pipe to the water distribution system and abandoned or removed about 6.1 miles of pipe. The OUC water distribution system contains 1,762.5 miles of pipeline. Some of the oldest pipe is more than 125 years old, as recently discovered as part of the asset management pilot program.

Water Engineering prepared a total of 423 engineering construction estimates in 2010, as compared to 580 in 2009. Of these, 272 estimates were inside the City of Orlando and 151 were outside the City. The total construction value of the estimates for 2010 was \$2.48 million compared to \$6.09 million in 2009.

The dominant category of construction projects this year was commercial projects. There was some decline in the commercial market over last year. New plan reviews for single family and multi-family developments increased slightly to 609 from 512 units in 2009. Toward the latter part of the year, there was an increase in the multi-family residential projects for townhomes and similar developments. Several of these were areas where the basic infrastructure was already in place and actual vertical construction of the units commenced. The large residential type subdivision developments were absent for the second year in a row. Overall, the decline in OUC's plan review numbers was quite indicative of the economic conditions in 2010.

PROJECTS

This year, about \$9.98 million worth of work was completed. The work included renewal and replacement of polyline services, valves and hydrants, inter-agency projects, donated transmission and distribution piping and work performed by OUC Distribution crews for customers.

Road construction projects continued with 16 *inter-agency projects* actively worked during 2010. Many of these projects required extensive coordination



Engineer John Perrin is responsible for reviewing project reports for a new development.

with the Water Engineering team due to the short design timeframes from when roadway plans are ready for markup by the utilities and when the agencies request input. This extensive coordination effort is also required because of the many unknowns of doing work underground, particularly in older roadway sections, and the long construction periods. Some of the projects are in the design phase and will not be constructed for several years until right of way is obtained and funding is available.

The water main work on SR 50 between Good Homes Road and Pine Hills Road was completed and is awaiting final closeout by FDOT. Work on Narcoossee Road from SR 417 to the Osceola County Line continued in 2010. Rather than taking the water main out of service several times to construct pipe offsets, it was decided, due to its shallow depth, to lower about 6,000-feet of 16-inch water main while the main was still in service. This work was performed by Jim Coffee's crew from Water Distribution with support from Johnny Reynolds in Water Engineering. This unique construction method prevented several potential outages to Eagle Creek and the new Lake Nona High School. The final portion of the pipe lowering was completed in October 2010.

Special projects in 2010 included completion of work at Nemours, VA Medical Center and the University of Florida Research Facility in the Lake Nona Area. Construction of two new emergency interconnects with Orange County Utilities was completed, one in the Conway area and the other in the Baldwin Park area.

Several projects in 2010 allowed OUC to *replace older pipe* - galvanized steel and cast iron pipe. The work was done in conjunction with FDOT, City of Orlando, Orange County and Orlando Health. The old water mains replaced include 4,490-feet of 2-inch galvanized steel pipe, 50-feet of 4-inch, 150 feet of 6-inch, 580-feet of 8-inch, 1,700-feet of 16-inch and 700-feet of 20-inch cast iron water main, totaling about 1.45 miles of pipe.

SOME OTHER PROJECTS OF INTEREST INCLUDE:

Sand Lake Road – Presidents Drive to Orange Blossom Trail. A Joint Project Agreement (JPA) was initiated between OUC, FDOT, Orange County and Simons Properties (the owners of The Florida Mall). The work consists of the relocation of 4,700 feet of 20-inch water main with a completion date expected in 2011.

Water Resources and Engineering Division

WATER ENGINEERING SECTION (CONTINUED)

Tavistock Road – This roadway is being constructed as part of the Lake Nona development and will connect Lake Nona Boulevard south of SR 417 to Narcoossee Road. The work funded by Lake Nona Land Development will include 560-feet of 4-inch, 480 feet of 8-inch, 595-feet of 10-inch, 690-feet of 12-inch, 7,830-feet of 16-inch and 3,215-feet of 20-inch water main. We plan on suspending a portion of the 20-inch water main from a bridge. This work is scheduled to be constructed in 2011.

Lake Nona Middle School – The work is along Narcoossee Road south of Emerson Lake Boulevard/Tavistock Road. This project consisted of the construction of 2,760-feet of 16-inch water mains funded by Lake Nona Land Development.

Spine Road – A new area within the Eagle Creek development, this road will connect to Narcoossee Road. The piping work, funded by Eagle Creek, will include 475-feet of 6-inch, 700-feet of 8-inch, 1,890-feet of 10-inch and 415-feet of 16-inch water main. The 16-inch water main will cross Narcoossee Road and connect to the end of the 16-inch water main at the Lake Nona Middle School. We anticipate this project will be completed in 2011.

The design of a 20-inch **secondary feed pipeline to the Southeast Repump Station** has begun. This line will initially be an emergency interconnect with Orange County Utilities. The pipe will extend from the intersection of J. Lawson Boulevard and Boggy Creek Road, east and north along the OUC electric transmission easement to the southeast water treatment plant. A small portion of the pipe will also extend along the OUC railroad. Tetra Tech Inc. is providing surveying, geotechnical and environmental services. The project will be designed in-house.

Water Engineering designed the new aboveground **30-inch mag meter** to replace the existing 40-year-old venturi meter at the Kirkman Water Treatment Plant (WTP). The new meter installation also included the replacement of one existing 30-inch butterfly valve with



*Sky Lake WTP - Day Ozone Generator
Manufactured by Ozonia*

a new one. A second meter was also installed at Well #1. This project required that the Kirkman WTP be shut down for about one week.

At the intersection of Gem Street and Hansel Avenue, an **8-inch emergency bypass** was constructed to provide service to a 24-hour surgical center in the event of a water main outage on the existing 16-inch water main on Hansel Avenue. A 16-inch insertion valve was placed into the line without taking the line out of service. During the installation, several local contractors visited the site to view the installation.

The draft **Water System Master Plan** is currently under review for completion in 2011.

Camp, Dresser and McKee (CDM) prepared the draft conceptual design implementation plan for the Ozone Generator Replacement Project for all seven of OUC's WTPs. They also prepared the draft preliminary design report specifically for the Southwest WTP. Negotiations were started with CDM on the scope and budget for the final design and construction phase services for the Southwest WTP and the preliminary design for the remaining six WTPs. Construction at the Southwest

WTP is planned for FY2012.

Preparations have begun to obtain qualifications from general contractors for a Construction Manager At Risk (CMAR) for the Ozone Generator Replacement Project. The selected CMAR will provide services during final design consisting of value engineering, preparation of schedules and cost estimates. The CMAR will then obtain bids from subcontractors for the work and coordinate the construction.

A request for statement of qualifications was prepared for an engineering consultant to design new emergency generator systems for the Lake Highland WTP and Southeast Repump Station and to relocate an existing emergency generator from the Southeast Repump Station to the Kirkman WTP. The consultant also will prepare an updated control system for the Pine Hills WTP and provide an overall evaluation of the emergency generators at the other plants.

STAFF

Matthew Tibbetts was promoted from Senior Distribution Designer to Associate Engineer in April 2010. Matt has been an employee of Water Resources & Engineering since 2007.

Water Resources and Engineering Division (continued)

WATER ENGINEERING SECTION PROJECTS

Single Family Individually Metered Projects	No. of Units
SF Miscellaneous Domestic	49
SF Miscellaneous Reclaimed	10
Total	59

Multi-Family Master Metered Projects	No. of Units
Delaney Townhomes	7
Mattamy Homes, Inc	60
Tuscany Place Townhomes	24
Water's Edge at Northlake Park	12
Baldwin Park Condominiums	27
Camden Lake Nona	420
Total	550

Special Projects

OUC Sample Points
Nemours Children's Hospital
VA Medical Center
Lake Nona South Tavistock Road
Lake Nona South Narcoossee Road
OUC-Orange County Interconnects
UF Research & Academic Center
Orange County Convention Center
Southwood Subdivision R&R
Tradeport Drive - AC Pipe R&R.
OUC Gem and Hansel Bypass

Inter-Agency Projects	
Grand National Drive Overpass	1
Orange County Narcoossee Road	2
Thorpe Road Drainage Improvements	3
Orange County Project Texas Avenue	4
City of Orlando Narcoossee Road	5
City of Orlando Division Avenue	6
City of Orlando Church Street Streetscape	7
City of Orlando South Street	8
FDOT Orange Avenue Resurfacing	9
Orange County Silver Star Streetscape	10
Mills Avenue-Marks and Highland Intersection Improvements	11
City of Orlando Sidewalk Project	12
Maury Road Sidewalk Improvements	13
City of Orlando Metrowest	14
City of Orlando Pine Street and OBT	15
City of Orlando Conway Road	16

Water Resources and Engineering Division (continued)

WATER ENGINEERING SECTION PROJECTS (CONTINUED)

Commercial/Industrial Projects

Crocker Heights	Walker Middle School Renovation
Interventional Cardiology	Chatham Steel Corporation
Pegasus Bus Depot	Staghorn Villas Development
Lake Nona Middle School	Brenntag Mid-South Inc
The Other Bar	Amscott Corporation
College Park Commerce Center	Edgewater LLC
Apostolic Church of Jesus	Devry University
Catholic Charities of Central Florida	Baldwin Park Realty LP
City of Orlando, Fire Station #9	Dick's Sporting Goods
City of Orlando, Fire Station #10	Evans Replacement High School
City of Orlando, Fire Station #11	Shelby West Distribution Center
East Coast Ice LLC	Drivetime Auto
S R Business Center Corporation	Oak Ridge High School
Pentecostal Visionary	Barry University School of Law
Iglesia Casa del Alfarero Inc	Old Cheney/North Forsyth Area
Vascular Specialists	The Fountains at Pershing Park
HOA of Eagle Creek, Inc	Carver Theatre Redevelopment
Sperling Dental Office	Winegard Elementary School
Parkline Industrial Project	Pine Castle Christian School
Dave Schmitt Engineering Inc	Sand Lake Medical Park
Eagle Creek Planned Development	GOAA
God's Church of Praise	Florida Mall
Lake Nona South	Michael Spnich
Lee Vista Commerce Park	James Property Holdings LLC
The Montage	Sage Builders, Inc
Oakwater Medical Center	Nona Crest
Hershey's Warehouse	Taft 6 (aka Wagg Property)
Mark L Kinchla & Co	City of Orlando ZL Riley Park
ORHS West Central	E. Wetherbee Road Elementary School
Center for Drug Free Living	Florida Hospital Nursing Center

Water Resources and Engineering Division (continued)

WATER ENGINEERING SECTION PROJECTS (CONTINUED)

Commercial/Industrial Projects

ORHS Package G	Bright Horizons
ORHS Lucerne Improvements	College Park Baptist Church
Sand Lake Medical Park	Rose Realty Group
Wells Landing	Silver Star Recreation Center
Missionary Church	DEC Construction
West of Eden LTD	Cajarow, Inc
True Vision in Christ Church	Motor Car Concept
Century Plaza Trust	Health Center-Windermere
Oak Ridge Autosales	Thrify Redevelopment
City of Orlando LS #37	Ramada Plaza Resort
OWGR Commerce Center	Saigon Plaza 2
Solutions Bridal & Formal Wear	Strollo Architects Inc Office
Altier Mechanical	Coye Law Office Building
Guitar Center	Dr Phillips Foundation
Mt Vernon Condo Association	777 North Orange Ave
Crystal Lake Supportive	Jos. A. Bank Clothiers
Bettole Corporation	Ultimate Escapes
John Young Crossing Inc	Dellagio PD Ph II
Bumby Medical Building	Dragonfly Sushi
Nazine Merchant, MD PA	Hypoxi Studio
Tangelo Baptist Church	Jamaican Court Restaurant Development
Miro, Inc	Ligato Citgo
Community Funeral Home & Sunset Cremations	Preview Center
City of Orlando LS #38	Nona Tap Room
Florida Hospital Orlando	Lake Nona Orthodontics
Azalea Park Elementary School	Procacci Orlando LLC
OIA	Peabody Hotel Expansion-Phase 2
Del Rio Heavy Equipment Repair	GOAA BP-425 / International
Templo Ebenezer Asambleas	Premier Helicopter Tours
Tropical Tire	Semoran Partners, LLC

GIS Technical Services

ACTIVITIES

During the past couple of years, the construction growth in OUC's water service area has slowed dramatically. This decreased activity affected the projects being produced by the GIS Technical Services (GTS) area. No engineering drawings were created this year due to the slowdown in construction and the fact that Water Engineering is now reviewing and creating more of their own designs. Although as-built mapping project remains the same, this does not include the GIS modifications made to OUC's hydrants and valves from the Water Distribution audit programs. About 624 hydrant corrections/updates were made to the Water GIS system; about 359 valves were moved to their audited GPS location; and 100 valve attributes were changed for the Asset Management Project. All GIS Technical Services' mapping statistics are located in Appendix 1.

2010 PROJECTS

DATAMART

Significant progress was made on the Datamart project. Many issues were identified early that required reloading of the data and were successfully resolved. The two issues still to be addressed are: 1) why weather data is not updated; and 2) updating the premise/parcel information annually.

OUTAGE WEBSITE

A website project showing electric outages was recently completed by Sai Vaddadi, OUC Electric GIS Analyst. The website, which is linked to ouc.com, shows the number of electric incidents and the related number of electric customers affected in the Orlando and St. Cloud service areas. The information is updated every 10 minutes. A similar functionality will be implemented in fiscal year 2011 for water outages and will be shown on the same website map.

WATERENGINE

OUC's mobile GIS map application is known as WaterEngine. WaterEngine was created internally and has proven to be an invaluable tool for the WBU field personnel. It allows address locating, viewing and valve isolation of OUC's water infrastructure. New and additional enhancements to WaterEngine maps were added this year by Leslie Roddam, GIS Technical Support Administrator, who receives feedback regarding the needs of the Water Distribution (WDIS) area. Several new features of WaterEngine added in 2010 are:

- Layout tab to allow for improved printing with choice of landscape or portrait layout
- A Find Subdivision tool
- The address locator was fixed (previously it wasn't finding some addresses or intersections due to problems with abbreviations)
- Aerial photos shown on map with an on/off toggle button
- A listing of affected hydrants to the Valve Isolation routine
- A rotate map tool
- A continuous pan/zoom tool
- Now showing leak-detected mains, hospitals, public schools and casings

A hydrant flushing tool will be implemented FY2011 to allow field personnel to input hydrant flushing data directly into WaterEngine. The tool will increase the efficiency of collecting the hydrant flushing data and will assist in tracking the hydrants flowed per the State regulatory requirement on hydrant flushing.

ASSET MANAGEMENT

OUC instituted an asset management program for WDIS in 2010 using GIS data within a pilot study area consisting of one square mile of downtown Orlando. It was determined that mains and valves inside this pilot area will be assessed based on the consequence and likelihood of failure. This assessment depends on



Leslie Roddam, GIS Technical Support Administrator, adds enhancements to OUC's mobile GIS map application, WaterEngine

GIS fields consisting of: installation year, material, joint type, customer criticality, diameter and access to infrastructure. GIS data was exported into a scoring matrix based on assessment criteria using Excel. Once scoring was completed, the Excel file was joined to GIS by object IDs and maps were created. These maps include main/valve age score, main/valve total consequence/likelihood and main/valve total risk. In this data scrubbing process, historic Water Service Areas (WSA) were created by Jim Beck, GIS Tech II. The next area to be assessed will be inside the 1949 historic WSA.

SOFTWARE UPGRADES

The Environmental Services and Research Institute (ESRI) and Telvent (Miner/Miner) GIS software was updated in May 2010 from version 9.2.1 to 9.3.1 and is to be upgraded to version 10.0 in 2011. The 2010 upgrade included GIS editors, users and viewers for both office and field applications. The water modeling application, InfoWater, also was upgraded to version 7.0, SP1, update #2 in July. This upgrade was necessary because of the GIS upgrade; Infowater uses ESRI's ArcView as the graphic interface.

Water Production Division

Water Production (WPRO) produced 27.74 billion gallons of drinking water in Fiscal Year 2010, a water volume decrease of 1.23 billion gallons (4.2 percent) over 2009. For the year, a decrease in water customer demands can be attributed to a higher than average annual rain fall and a sluggish economy. Average daily flows ranged from a high of 93.68 million gallons per day (MGD) in July 2010 to a minimum flow 59.97 MGD in February 2010.

PREVENTIVE MAINTENANCE

The maintenance technicians cleaned Ozone Generator # 3 at the Southwest Water Treatment Plant (SW WTP). It is the only WTP using air to produce ozone; the others use liquid oxygen, which is a much cleaner process. During this nine-day cleaning process the ozone generator was removed from service; 800 dielectrics were removed and cleaned; stainless steel tubes were cleaned; and the unit was reassembled. Post cleaning, the efficiency of the unit increased by 25 percent.

Chlorination system reliability and safety requires persistent attention. The technicians routinely inspect the systems for wear and rebuild at the first sign of any potential issues. The Southeast Water Re-pump Station's chlorine manifold was rebuilt in 2010 and new control valves were installed. The WPRO technicians also installed a new style control valve at the Conway WTP. This valve allows for multiple calibration points along the range of operation, replacing the valve that only allowed for two calibration points. The operators noticed that our chlorine residuals tracked better than before, thus preventing even minor over or under chlorinating. A proof is planned in FY2011 to install these valves at the other facilities as their chlorination systems are replaced.

READY TO RESPOND

Even with good maintenance and constant attention to the chlorination system, WPRO experienced two chlorine



Operator Station at the Southwest Water Treatment Plant

leaks in 2010 that required responses from the local fire departments. Both leaks at the Southwest WTP were minor and without damage. Both were the result of defective pressure gauges on the pressure side of the chlorine system. Although these gauges were less than one year old, they still failed. The supplier of these gauges was contacted about these failures and was unable to determine the exact cause. WPRO technicians inspect all gauges weekly on the pressure side of the chlorine system and replace the gauge if any changes are noted in their condition.

The technicians now have a forklift and trailer to assist with their work. A new forklift is incredibly valuable when replacing compressors and motors. In addition, it has allowed us to stack materials at the Sky Lake WTP.

Mike Isabelle (at right) retired January 3, 2010, after 31 years of service. His OUC career began as a mechanic helper at the Lake Highland WTP. Subsequently, he was promoted to mechanic and later capped his tenure with OUC as

the Mechanic Supervisor for Water Production.

The Water Production control room was enhanced in 2010. We added real-time critical alarm alert functions by installing WIN-911 on our network. Water Production staff now receive real-time



Mechanic Supervisor Mike Isabelle retired January 3, 2010, after 31 years of service

Water Production Division (continued)

chemical leak, fire and power failure alarms, via text, directly to their cell phones.

The Backup Control Center at the Southwest WTP was improved by adding an Operator Station in the office. This location is manned during any major emergency. This additional operator's console becomes our primary Control Center if anything should happen at the Pershing operations location.

A new redundant network monitoring PC and a second database server were added to the network at Southwest, which gives us increased availability and reliability.

WATER QUALITY

Monitoring of water quality through specified sampling points in the Eagle Creek subdivision enabled us to detect and improve low chlorine residuals. The low chlorine residuals were due to low demands and flushing will be required for the foreseeable future until more customers are connected. The DEP Water Standards mandates a free chlorine residual of at least 0.2 ppm, and Eagle Creek's sampling points were showing residuals well below this level. A part-time worker assists WPRO in conducting extra flushing in the Eagle Creek subdivision.

The Water Quality Laboratory (WQL) continued its mission of water quality monitoring throughout OUC's distribution system. In-house monitoring increased from the previous year due in part to the Trihalomethanes (THM) testing performed in conjunction with the Ozone Generator Replacement Project. The WQL's NELAC (National Environmental Laboratory, Accreditation Conference) certified in both drinking water and non-potable water.

The WQL also is providing analysis for SEC to meet the drinking water monitoring requirements from DEP.

During the past two years, a greater emphasis has been placed on supporting divisions within OUC. In late 2009, the



Water Production Staff

WQL obtained additional certification that allowed WQL staff to begin performing compliance testing at Stanton Energy Center (SEC) starting in April 2010. In previous years, this work traditionally was contracted to an outside laboratory. The work includes monthly collection and testing of the

waste water treatment plant, quarterly collection and analysis of the monitoring wells at SEC and other collection and testing as required. All monitoring and testing is required by the Department of Environmental Protection (DEP) and will continue indefinitely.



Well Sampling at SEC

Water Quality Analysis

Listed in this chart are the parameters set by the Safe Drinking Water Act. The methods used to analyze the water are in accordance with those set forth in the Safe Drinking Water Act.

The characteristics of untreated groundwater from the Floridan Aquifer are relatively stable. It provides an excellent source of high quality drinking water. As indicated below, the water provided by OUC meets and exceeds all standards established by the Safe Drinking Water Act.

Comparison to Primary Standards			
Primary standards relate to health and are expressed as Maximum Contamination Levels (MCL).			
Inorganics	MCL	Raw Water	Treated**
Arsenic	0.010	<0.001	<0.001
Barium	2	0.018	0.020
Cadmium	0.005	<0.002	<0.002
Chromium	0.1	<0.002	<0.002
Cyanide	0.20	---	<0.003
Lead	0.015	<0.001	<0.001
Mercury	0.002	<0.0005	<0.0005
Selenium	0.05	<0.005	<0.005
Sodium	160	6.34	11.1
Nitrate	10	<0.15	<0.15
Nitrite	1.0	<0.15	<0.15
Fluoride	4	0.19	0.85
Turbidity in NTU	1.0	0.15	<0.12
Antimony	0.006	<0.002	<0.002
Beryllium	0.004	<0.001	<0.001
Nickel	0.100	<0.002	<0.002
Thallium	0.002	<0.001	<0.001
Organics			
Volatile Organics (21 total)	***	All BDL	All BDL
Disinfection By-Products			
THMs (Total)	0.080	—	0.050
HAAs	0.060	—	0.017
Bromate	0.010	—	0.004
Radionuclides			
Gross Alpha	15.0	—	<1.8
Radium 228	5	—	<1.0
Results in pCi/L Reported in 2008			

Abbreviations:

- BDL - Below Detectable Limits
- < - Less Than
- > - Greater Than
- MCL - Maximum Contamination Levels
- NOD - No Odor Detected
- pCi/L - Picocuries per liter
- THMs - Trihalomethanes
- HAAs - Haloacetic Acids
- RAA - Running Annual Average
- µs/cm - Microsiemens per centimeter

Comparison to Secondary Standards			
Secondary standards also have Maximum Contamination Levels, but are related to aesthetic qualities such as taste, odor and color.			
Secondary Standards	MCL	Raw Water	Treated**
Chloride	250	10.1	14.6
Color in Pt-Co Units	15	4.31	1.38
Copper	1.3	<0.002	0.016
Corrosivity	+0.2- 0.2	-0.17	-0.28
Iron	0.3	0.040	0.008
Manganese	0.05	<0.002	<0.002
Odor Threshold # Units	3.0	3.84	NOD
pH Field	6.5-8.5	7.71	7.54
Sulfate	250	12.9	13.3
Total Dissolved Solids	500	187	200
Silver	0.100	<0.001	<0.001
Zinc	5.0	<0.002	0.002
Aluminum	0.200	0.010	0.010
Additional Testing (No Standards)****			
Alkalinity CaCO3	—	117	116
Ammonia	—	0.33	<0.10
Calcium as Ca	—	38.0	39.6
Carbon Dioxide	—	4.52	6.36
Conductivity in µs/cm	—	279	304
Dissolved Oxygen	—	0.37	12.1
Hydrogen Sulfide	—	1.94	<0.38
Magnesium as Mg	—	8.58	8.39
Phosphate as P	—	<0.15	<0.15
Potassium as K	—	1.05	1.11
Silica	—	10.4	10.9
Total Hardness as CaCO3	—	137	138
Total Hardness in Grains Per Gallon (GPG)	—	—	8
TOC - Total Organic Carbon	—	1.65	1.63

Notes: All results in milligrams per liter (mg/L) unless noted otherwise.

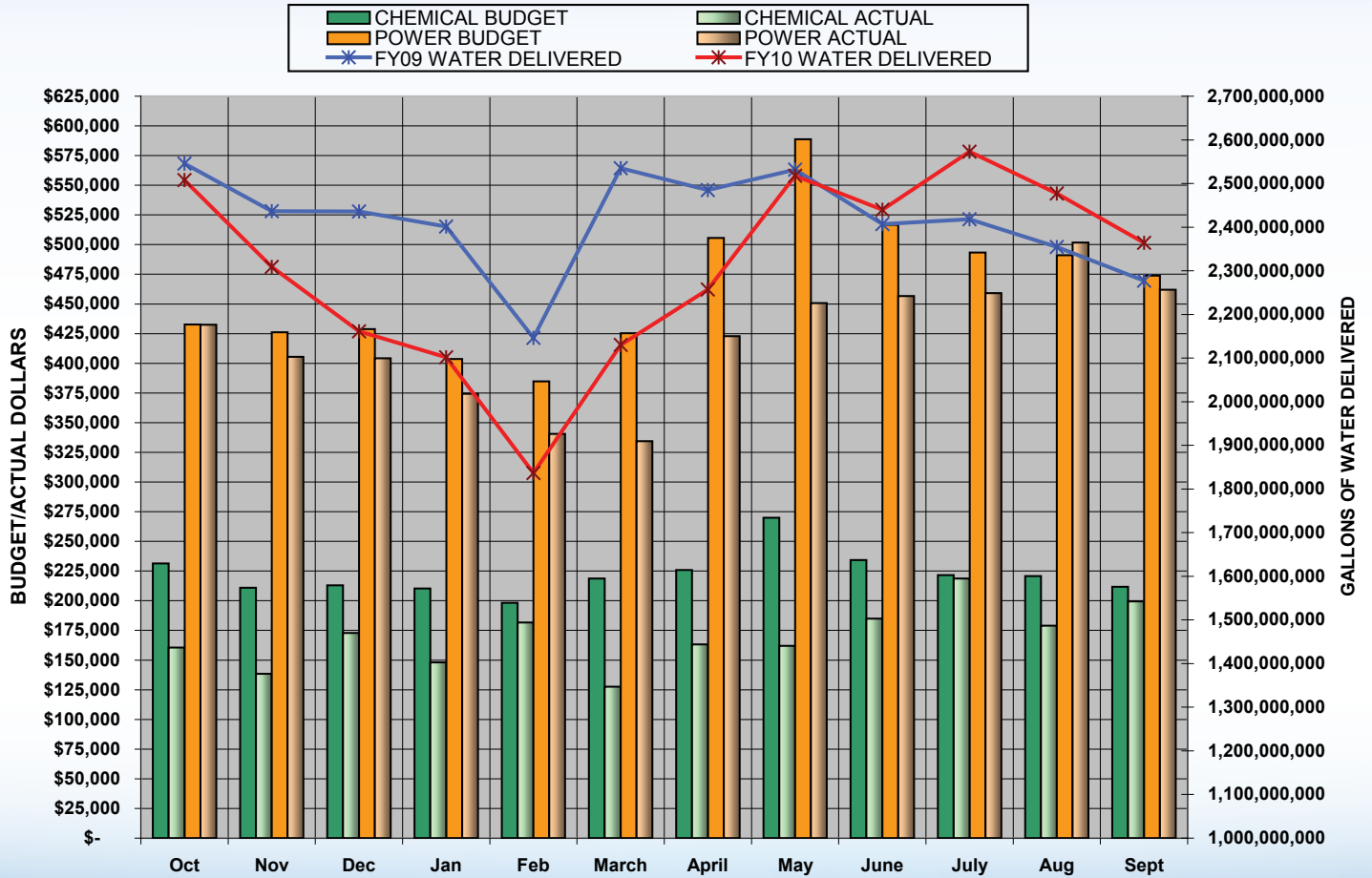
** Average treated water for eight (8) locations based on 2010 test results.

*** MCL varies with each parameter.

**** No standards have been established for these parameters by the Safe Drinking Water Act.

Water Distribution Division

Comparison of the Monthly Water Delivered Power and Chemical Costs – Fiscal Years 2009-2010



Conway Water Treatment Facility

Water Distribution Division



Installing 30" Valve at Kirkman Water Plant

WDIS Crews Section faced several unique challenges in FY 2010 requiring innovation and exceptional teamwork to minimize water service interruptions to our customers. These included the collapse of a historic sinkhole under Orange Avenue, the lowering of a water main along Narcoossee Road, and the replacement of a very large meter and valve at the Kirkman Water Treatment Plant.

HISTORIC RESPONSE

A muck pocket, which may be part of a historic sink hole under Orange Avenue between Gore and Columbia streets, caused the road to sink and damage the underlying infrastructure that included OUC's 16-inch water main. When the call came in from Orlando Fire Department reporting the ruptured water

main a little before 7 a.m. on Tuesday, April 6, OUC water crews responded quickly to isolate the break and shut off the water. The fast action of the crews helped avoid any service interruptions to the nearby Orlando Regional Medical Center (ORMC) and limit the number of impacted customers to 12. After installing a new 16-inch valve about 300-feet north of Annie Street on Orange Avenue and replacing 20 feet of the 70-year-old cast iron water main, the line was charged up only to discover another break that filled a neighboring electrical manhole with water. The water was again shut down, and a second 16-inch valve was installed south of Annie Street to isolate the sinkhole area. Crews also replaced about 80 feet of 6-inch old cast iron pipe with new ductile iron pipe across Orange Avenue connecting to Annie Street. Before the road restoration began, the road contractor installed about 28 feet of

new 16-inch ductile iron pipe to replace the old universal cast iron where the sinkhole was located and between the two new valves. The road restoration was completed by Monday, April 12.

EXTREME SKILLS

As part of the Narcoossee Road (SR15) widening project, OUC's Water Distribution Team eliminated the need to cut, remove, abandon and replace several segments of open pipe adjustments of the 16-inch ductile iron transmission main laying on the east side of Narcoossee Road in the Lake Nona area. By lowering 5,600 continuous feet of pipe under pressure from SR417 south to Boggy Creek Road, the WDIS crew was able to maintain water service, prevent precautionary boil water notices and provide a significant cost savings. The eight-year-old water main conflicted

Water Distribution Division (continued)



Narcoossee pipe lowering

with proposed storm system installation at 33 different points. The original estimate for adjusting and relocating the main at 33 points was \$650,000. By lowering the water main with continuous open excavation under pressure, WDIS eliminated every conflict, avoided water outages and saved about \$226,000, or 54 percent.

A new 30-inch mag meter was installed at the Kirkman Water Treatment Plant (WTP) to replace the existing 40-year-old venturi meter of questionable accuracy. The existing meter was located about six feet underground. The meter was removed and the piping extended to install the new meter aboveground. Water Distribution Crews also replaced an existing 30-inch butterfly valve, which was believed to be partially closed, with a new one. The challenging work required a five-man crew and took about one week

to complete. The WTP also was shut down for about one week to complete the work and perform the required bacteriological testing. Several months prior to this, a new 12-inch mag meter also was installed by Water Distribution Crews at Well #1 to meet regulatory requirements.

SUMMARY OF WDIS PROJECTS

- Work continues with the Poly Replacement Project in 2010 in the Meadow Woods Subdivision with 180 services being replaced.
- Pheasant Run and Bablonica Blue Poly Projects are 100 percent completed with 100 services replaced.
- Narcoossee Road widening project from SR417 South to Boggy Creek Road required WDIS to lower

approximately 5,600 feet of 16-inch ductile iron pipe while keeping the water main in service.

- A historic sinkhole under Orange Avenue required the replacement of 28 feet of old 16-inch cast iron pipe and 80 feet of old 6-inch cast iron pipe with new 16-inch ductile iron pipe and new 6-inch ductile iron pipe respectively.
- Installed two new 8-inch interconnect emergency meters with Orange County Utilities. Meter #1 is located at 1400 N. Truman Rd and Meter #2 is located at Lake Margaret and Massachusetts Street.
- Installed 600 feet of new 20-inch ductile iron water main abandon and removed 600 feet of CI in the street of Summerlin Avenue for the City of Orlando road widening project.
- Thornton Avenue project replacing about 50 feet of 6-inch, 680 inches of 2-inch and 21 1-inch service lines.
- Pine Bluff and Kaley project offset 16-inch water main and 80 feet of 16-inch ductile iron main. Installed 320 feet of 2-inch PVC main. Installed four 4-inch restraints. Renewed six back lot services. Abandoned 120 feet of 2-inch galvanized main. Poured two blockings. Tied in 2-inch loop at Esther Street.
- Neal Isles Subdivision water main replacement project. The crew section completed an OUC water renewal and replacement project, abandoned 520 feet of 3-inch AC pipe and 3,600 feet of 2-inch galvanized pipe on this project and replaced it with 3,100 feet of 2-inch PVC pipe and 1,020 feet of 4-inch PVC pipe. Also replaced 53 water services with 1-inch copper.
- Gem & Hansel inserted a 16-inch EZ Valve on an existing 16-inch main. We also installed an 8-inch bypass to prevent future outages to this medical

Water Distribution Division (continued)

facility. There was no outage for this installation.

- There was a total of 271 emergency broken lines that were worked on by the crew section in 2010.
- Kirkman WTP meter and valve replacement and well #1 new meter installation.

In summary, the crew section installed about a half mile of pipe broken down as follows: 2,560 feet of 2-inch, 160 feet of 6-inch, 38 feet of 8-inch, and 100 feet of 12-inch mains in 2010. There were 43 fire hydrants, three 4-inch and two 10-inch fire services installed; 95 1-inch, 38 2-inch and larger service taps made in 2010.

OPERATIONS

WDIS Operations Section stepped up with exceptional teamwork in all sections to successfully operate and test more than 10,000 OUC-owned fire hydrants. Other challenges included efforts to identify non-revenue water through our leak detection survey, the meter replacement program and our backflow testing program.

RESPONSE

The Response Section answers trouble calls 24 hours/7 days per week and ensures reliable customer service. In 2010, technicians answered 4,610 service calls with an average response time of 26.23 minutes. The Response section supervisor is Donny Capatosto. Leak detection surveys are conducted using state-of-the-art listening equipment to identify hidden leaks in OUC's water distribution system. More than 20 miles of water main were surveyed, and five leaks were pinpointed and repaired. The valve exercise program continues to benefit water operations, and we are collecting asset data about OUC's distribution system, which is tracked through our water GIS platform. The valve operation truck located and exercised 2,637 valves this year. Because OUC water crews are able to quickly

access critical valves during emergency events or under harsh conditions, mains are isolated and repaired while the damages due to water flow are minimized. Also, restoration times and costs are minimized.

INSPECTION

The Inspection Section checks construction projects and oversees the Cross Connection Control (CCC) operations. In 2010, 65 commercial and joint partnership construction projects were completed within the OUC water service area. OUC state certified technicians performed tests on 14,079 backflow devices ranging in sizes from ¾-inch up to 12-inch diameter. Estimates of revenues generated from CCC testing were about \$384,000. The Inspection section supervisor is Lee Davis. Angela Scott, Admin Specialist I, assisted with the streamlined backflow reporting and notification processes. The Cross Connection inspections are aimed at identifying unauthorized water connections and protecting OUC's water system from cross contamination. CCC inspections totaled 2,273. OUC's Inspection and CCC team is committed to providing service that ensures our customers receive safe, reliable drinking water.

ACCOUNTABILITY

The Accountability Section administers the meter exchange program and audits all fire hydrants. The Accountability section is supervised by Corey Johnson. In 2010, OUC started re-painting all fire hydrants through a painting contractor. Accountability staff successfully exchanged and processed 5,800 water meters in 2010. The fire hydrant audit program audited more than 10,000 OUC-owned fire hydrants. In 2010, hydrant crews repaired 1,019 fire hydrants. Fire hydrants were repaired within 48 hours of the audit.

STAFF

- Promotions: Brennan Scott and Andy Ulrey were promoted from Distribution Technician II to Distribution Technician I. James Applewhaite was promoted to Crew Coordinator and Rhea Henry-Foster was promoted from Administrative Assistant III to Administrative Assistant II.
- Angela Scott joined the Backflow Department as Administrative Specialist I.
- Training: Brian Blake completed cross training in the Response and Accountability sections. Keith Bostwick completed cross training for the Crew Supervisor.
- Level III Distribution Class: 13 WDIS Crew employees successfully passed the required Level III Distribution training class this year and qualified to take the State of Florida Department of Environmental Protection certification exam. They include: Tim Barley, Brian Blake, Andy Ulrey, Brad Hall, Randy Nixon, Randy Belcher, Martin Scurry, Louis Long, Luis Febres, Clement White, Chrisnor Henry and Robert Williams.
- DEP Level III State Certification: Tonney Preston, James Applewhaite, Tim Barley and Vern Kivel passed the state exam to obtain their Level III certification.
- Randy Belcher, Clement White, Tim Barley, and Keith Bostwick completed a four-day interviewing skills workshop.
- James Applewhaite attended a 12-month long "Track I Leadership Development" course.

Water Distribution Division (continued)

WATER ACCOUNTABILITY SECTION ACTIVITIES

Meter Shop	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Check meters for dead and read	825	679	1,214	1,371	1,383	2,216	1,065	431	677	9,136
Clean out meter and read	2,703	1,844	2,812	3,110	3,575	4,896	4,361	6,868	6,137	6,566
Clock meter for leaks	739	872	823	523	444	701	553	637	663	886
Dial exchanges	120	70	150	107	118	235	102	128	178	101
Installed meter riser	596	567	493	341	467	382	463	327	351	276
Installed special irrigation meters	-	-	-	100	361	265	281	80	74	96
AMR repair	21	20	28	24	15	4	16	27	20	24
Meters field tested	199	74	110	76	144	445	365	583	258	297
Meter removal	-	148	210	458	393	335	192	128	210	230
Meter shop tested	1,995	1,086	97	294	4	147	0	55	243	139
Raise meter box to grade	2,330	2,320	2,032	1,853	1,735	1,686	4,361	2,004	2,266	1,957
Hydrant - Audits	1,995	1,518	2,165	1,146	689	1,102	3,422	4,404	10,765	10,121
Hydrant - Painted	664	2,595	2,500	2,157	162	202	334	187	132	3,386
Hydrant - Repair	120	139	200	361	230	720	777	597	1,257	1,019
Repair meter leaks	668	823	781	623	657	666	565	469	397	293
Replace box and lid	2,573	2,352	2,571	2,170	2,825	3,885	3,164	3,227	3,641	2,891
Replace curb cock or coupling	523	441	351	367	415	372	422	405	309	280
AMR meter sets	-	6	31	22	13	0	0	3	6	3
Meter exchanges	-	2,761	3,446	4,700	9,312	8,775	7,022	6,751	6,611	5,828
Submeters	-	165	1,232	20	683	894	0	0	0	0
Reclaimed meter sets	-	-	396	1,028	1,028	315	383	134	61	51
Totals	16,071	18,480	21,642	20,851	23,464	28,243	27,848	27,445	34,256	43,580

DISTRIBUTION CREWS ACTIVITIES

Maintenance Tasks	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Adjust hydrants	5	-	-	-	-			1	13	22
Adjust mains or services	877	122	54	83	8	5	98	169	199	*5204
Adjust meter box to grade	270	353	432	437	480	614	464	414	199	227
Adjust valve boxes	66	77	57	260	411	51	22	72	654	124
Exercise valves	186	68	186	712	1,069	165	4	2	301	734
Installed meter riser	65	52	91	71	83	48	47	101	24	12
Locate valves	55	14	138	784	1,216	193	7	11	32	32
Meter exchanges	50	76	109	297	491	358	494	362	228	198
Relocate meter	140	251	197	222	186	192	156	85	99	116
Renewed mains	193	118	97	56	37	2	89	253	611	*536
Renewed services	614	718	892	1,171	738	634	1,152	693	705	534
Repair hydrants	4	2	-	5	3	16	5	2	3	1
Repair mains	77	108	87	109	94	105	96	110	92	58
Repair valves	24	34	35	23	21	7	30	48	29	27
Replace box/lid	37	55	119	209	139	124	272	225	273	190
Replace curb cock/coupling	104	81	109	64	12	8	4	5	69	93
Replace hydrant	49	78	73	98	59	65	79	54	45	24
Replace/install valves	100	25	231	188	184	177	146	293	236	78
Totals	2,995	2,312	2,968	4,854	5,316	2,764	3,165	2,899	3,799	2,448

* Includes footage of main adjustments on Narcoossee Rd.

Water Distribution Division (continued)

INSPECTION/RESPONSE SECTION ACTIVITIES

Maintenance Tasks	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Adjust mains or services	178	139	118	58	127	12	111	18	16	13
Adjust meter box to grade	573	735	596	372	441	443	392	401	455	556
Adjust/Replace valve boxes	114	105	124	194	127	223	292	192	807	419
Clean out meter box and read	1,061	1,614	1,245	1,008	1,097	1,097	1,400	1,754	2,856	4,690
Customer trouble	632	695	481	631	665	792	861	839	923	888
Customer water quality inquiry	103	105	64	42	30	37	14	5	16	6
Cut temporarily	410	411	316	361	351	314	459	506	723	614
Cut-on/off	448	407	372	336	350	396	424	494	747	903
Exercise valves	467	427	346	42	323	1,455	2,062	1,512	1,529	811
Flow test	103	102	62	104	139	240	122	128	122	114
Flush mains	97	112	78	55	65	194	490	639	687	288
Installed meter riser	542	604	477	421	360	325	341	393	327	338
Irrigation meter sets	442	393	269	254	16	36	14	13	8	3
Locate valves	1,920	1,977	1,202	1,103	858	2,845	4,314	3,645	6,154	2,637
Low pressure calls	110	90	60	58	51	58	66	57	59	44
Meter exchanges	439	773	825	686	759	730	692	799	727	828
Meter removal	188	223	184	74	20	20	40	50	58	19
Meter set	449	581	258	170	192	174	85	423	66	141
PM calls	1,632	2,351	1,696	1,351	924	977	1,161	903	665	768
Relocate meter	163	143	135	63	28	27	22	23	25	15
Renew services	255	348	243	507	167	147	127	103	166	143
Repair customer's service	293	321	294	246	298	228	239	239	232	218
Repair hydrants	16	41	13	15	9	6	10	15	20	15
Repair mains	78	81	77	66	67	71	43	46	49	66
Repair meter leaks	312	331	320	272	458	556	564	506	543	886
Repair services	582	533	412	246	490	371	406	325	367	335
Repair valves	57	57	29	401	12	23	24	20	23	13
Replace box/lid	648	766	716	710	169	212	351	484	516	422
Replace curb cock or coupling	856	997	727	595	597	556	632	552	574	625
Backflow prevention tests	1,604	3,968	4,473	4,201	4,034	5,461	11,095	11,208	15,940	14,079
Cross connection inspections	940	2,116	1,522	2,108	-	606	1,255	1,720	2,066	2,273
Valve Audits						2,036	3,239	3,158	2,866	1,956
Totals	27,027	35,964	32,983	35,266	13,224	22,674	31,347	31,170	40,332	35,126

Water Distribution Division (continued)

WBU SUMMARY OF ALL PIPE IN SERVICE & CATEGORIZED BY PIPE SIZES

Pipe Size (in)	Pipe Material ⁽²⁾	Pipe in Service ⁽¹⁾ as of:				Net Gain (Loss) ⁽³⁾	
		SEPT. 30. 2009		SEPT. 30. 2010		All Activites	Abandoned
		MILES	%	MILES	%	MILES	MILES
		-		-		-	-
2 "	or Less GALV or Unk	149.060	8.56%	147.930	8.40%	(1.13)	1.346
2 "	or Less PVC	71.645	4.11%	72.984	4.14%	1.34	0.009
3 "		1.921	0.11%	2.213	0.13%	0.29	0.000
4 "		162.273	9.32%	164.256	9.32%	1.98	0.114
6 "		451.151	25.90%	450.660	25.58%	(0.49)	2.051
8 "		401.397	23.05%	405.315	23.01%	3.92	1.145
10 "		64.802	3.72%	66.735	3.79%	1.93	0.026
12 "		245.948	14.12%	251.467	14.28%	5.52	0.000
14 "		2.264	0.13%	2.267	0.13%	0.00	0.000
16 "		107.891	6.19%	111.177	6.31%	3.29	1.028
18 "		1.199	0.07%	1.195	0.07%	(0.00)	0.000
20 "		67.410	3.87%	70.076	3.98%	2.67	0.000
24 "		10.034	0.58%	10.109	0.57%	0.07	0.000
30 "		2.823	0.16%	3.260	0.19%	0.44	0.000
36 "		1.697	0.10%	1.803	0.10%	0.11	0.000
42 "		0.052	0.00%	0.035	0.00%	(0.02)	0.000
48 "		0.088	0.01%	0.078	0.00%	(0.01)	0
TOTALS		1741.66	100.00%	1761.56	100.00%	19.90	5.72

2009 AVG DIA. 8.116"

2010 AVG DIA. 8.164"

- Note 1: Pipe in Service is based on information contained in the GIS database as of the stated date excluding abandoned pipe
- Note 2: Pipe material is based on information contained in the GIS database as of the stated date. It excludes abandoned pipe. Pipe materials include ductile iron, cast iron, PVC, galvanized (Galv), asbestos cement, high density polyethylene, and unknown (unk). Pipe material is summarized in Appendix 1, Figure 1
- Note 3: Net gain (Loss) is calculated by subtracting the Pipe in service as of Sept 30, 2009 from the pipe in service as of Sept. 30, 2010. The gain or loss in pipe is dependant on several activities that occurred during the year, including the installation of new pipe (gain), removal of pipe that is not in service (loss), abandonment of pipe that is not in service (loss), and corrections that are made to the GIS database as a result of new information collected during the year (gain or loss). Abandoned pipe is pipe that is not in service and is left in the ground instead

Appendix 1 – Water Charts

This section contains a wide range of 2010 performance data and water statistics from the three divisions within the Water Business Unit: Water Production, Water Distribution and Water Resources & Engineering.

Percentage of Types of Pipe Material Used – 2010

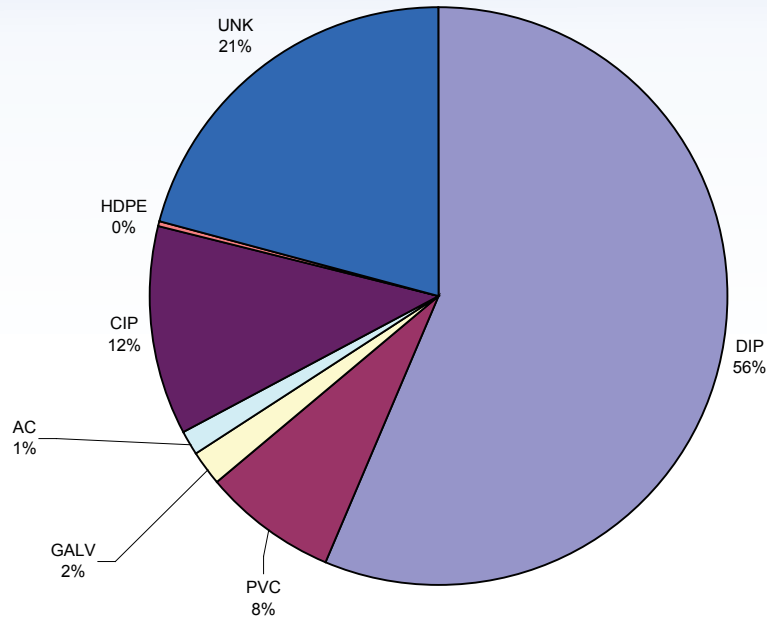


Figure 1a. Total percentage of the various types of pipe material used for distribution of potable water in the OUC service territory through 2010. Ductile iron pipe is installed most often because it is a superior product for water lines 4-inches in diameter or larger.

Percentage of Types of Pipe Material Abandoned – 2010

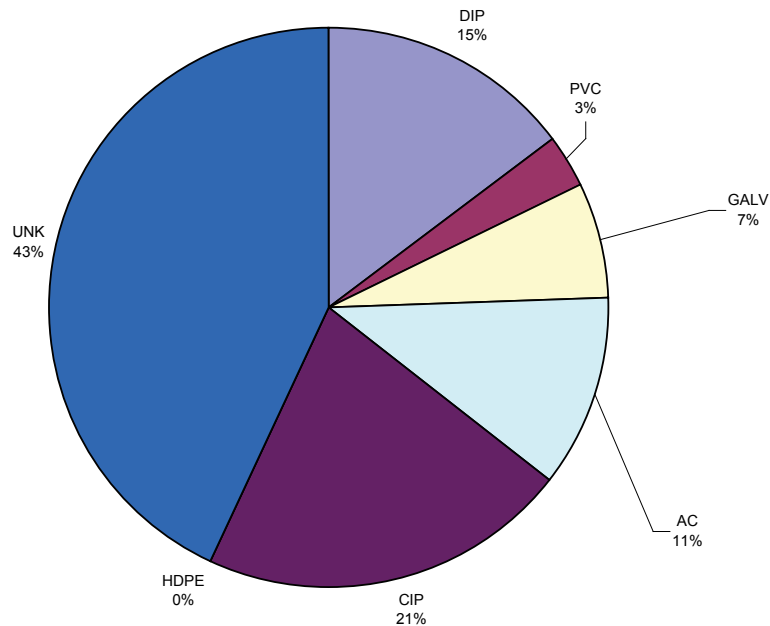


Figure 1b. Total percentage of the various types of pipe material abandoned or replaced due to capital improvements or maintenance projects for the OUC service territory in 2010. The greatest percentage is classified as “unknown”, but typically a form of cast iron pipe.

Appendix 1 (continued)

Total Number of Various Water Engineering Services – 2007 to 2010

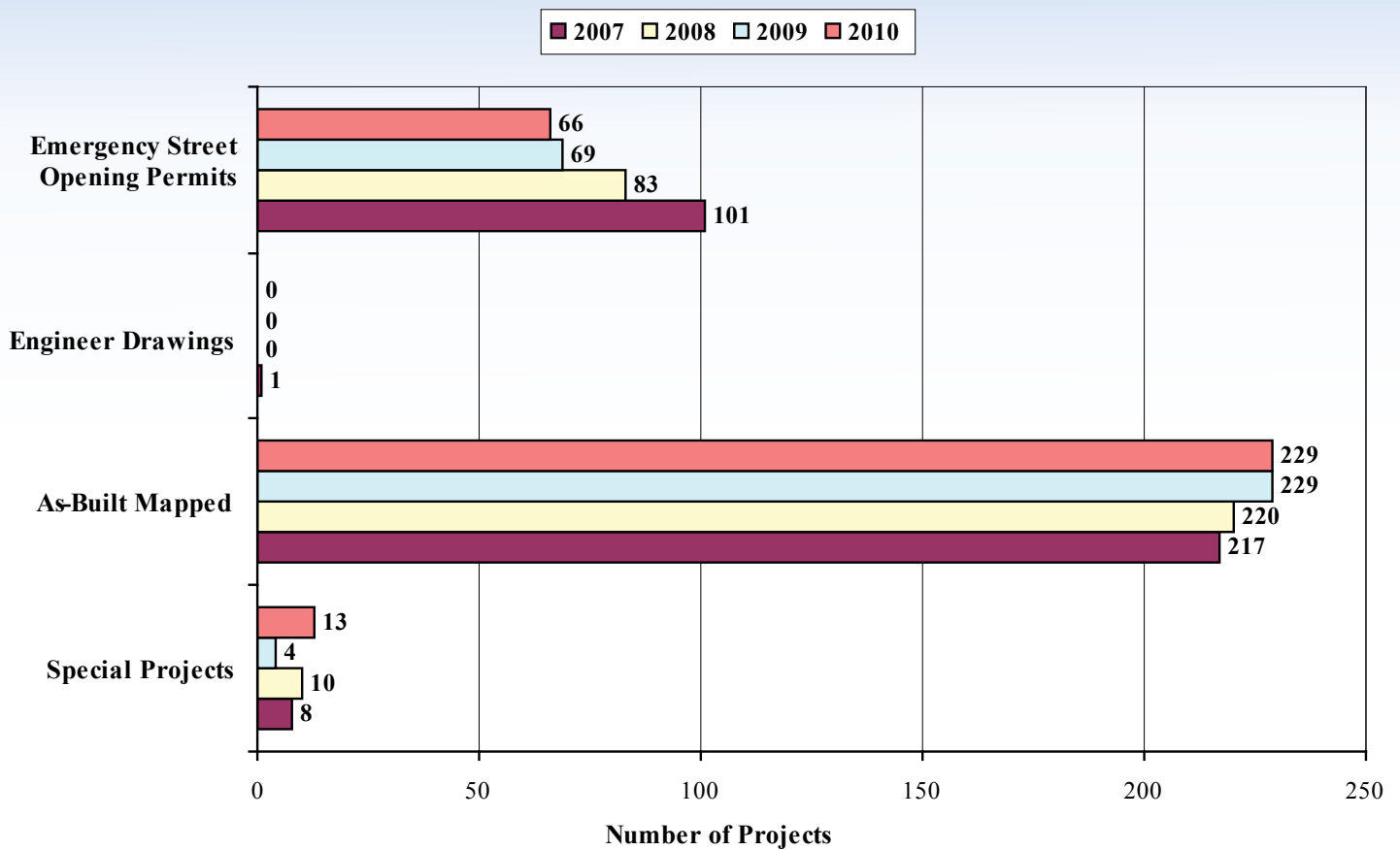


Figure 2. Total number of the various technical engineering support services over the last four years, trend shows an increase in permitting and as-built mapping.

Appendix 1 (continued)

Total Value of Projects Estimated – 2006 to 2010

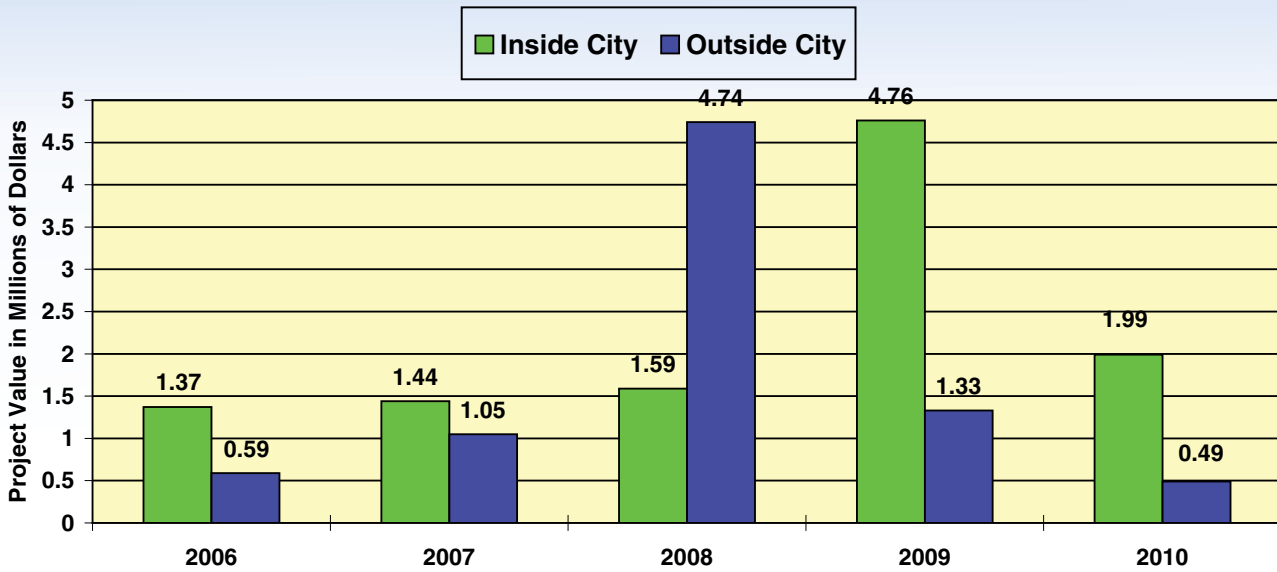


Figure 3. Total dollar value, in millions of dollars, for engineering projects estimated over the last five years for water customers inside and outside the city limits. 2008 was the largest value for projects outside the city (\$4.7 million) and in 2009 was the largest value for projects inside the city (\$4.7 million).

Total Number of Construction Projects – 2006 to 2010

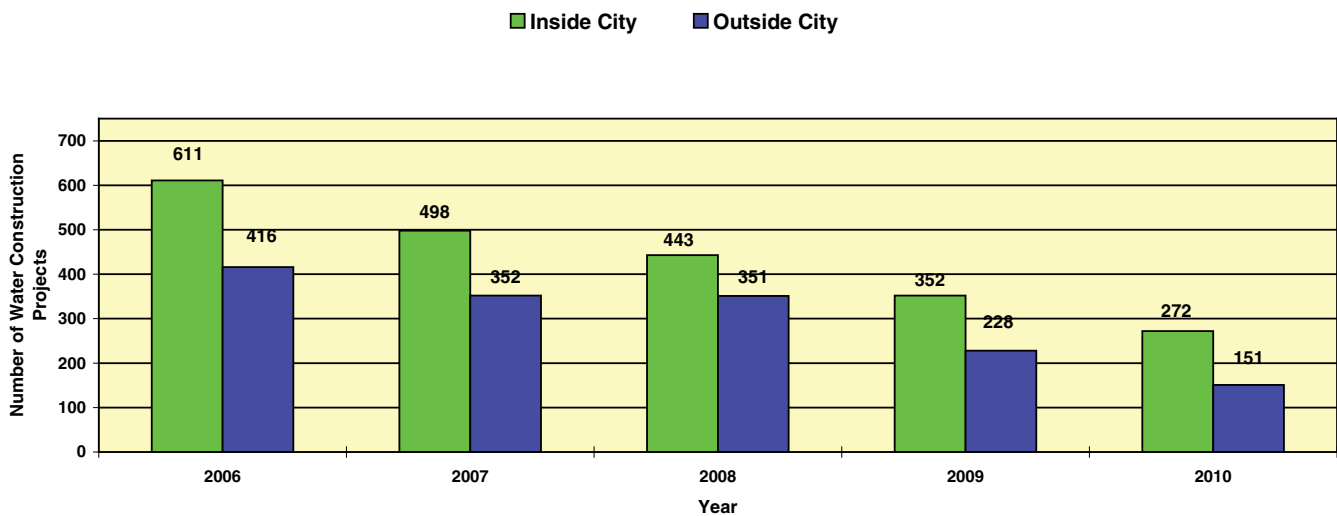


Figure 4. Total number of construction projects occurring over the last five years inside and outside the city limits. There has been a 59% decrease in construction growth since 2006.

Appendix 1 (continued)

Funding Sources for Capital Improvements – 2006 to 2010

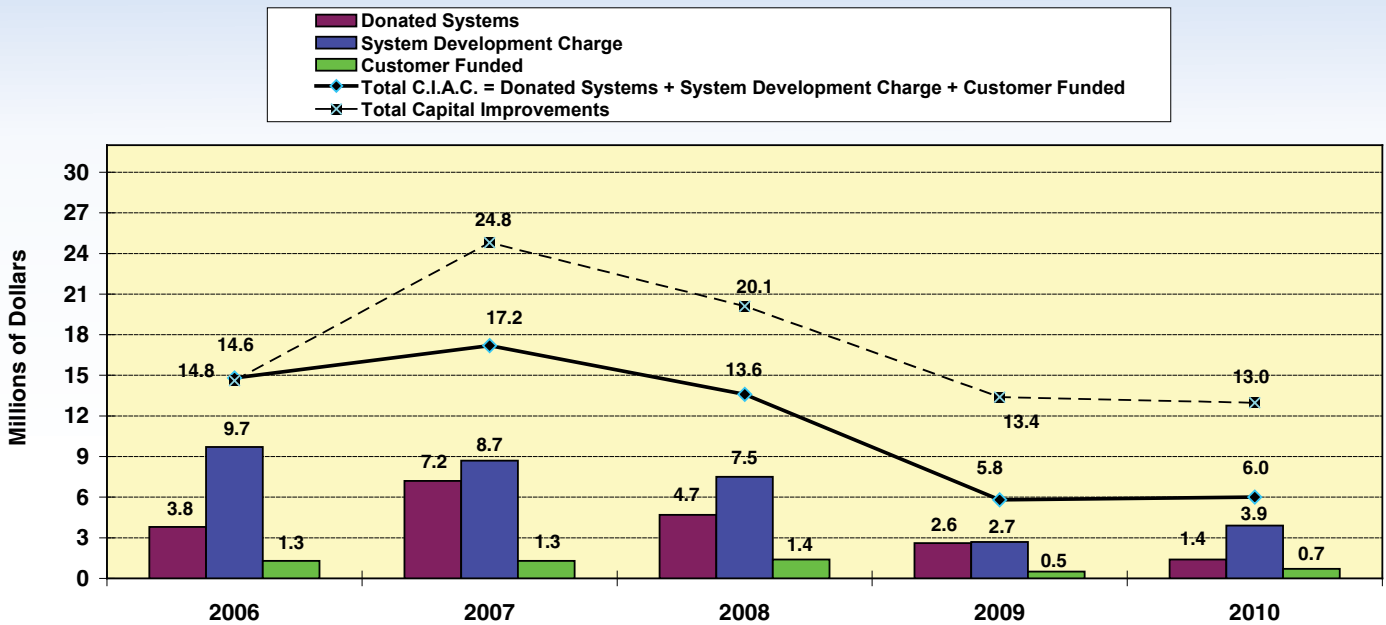


Figure 5. Funding sources for capital improvements in millions of dollars over the last five years. The majority of the funding is derived from developer donated assets with the greatest amount of improvements in 2007.

Total Capital Improvements 2006 to 2010

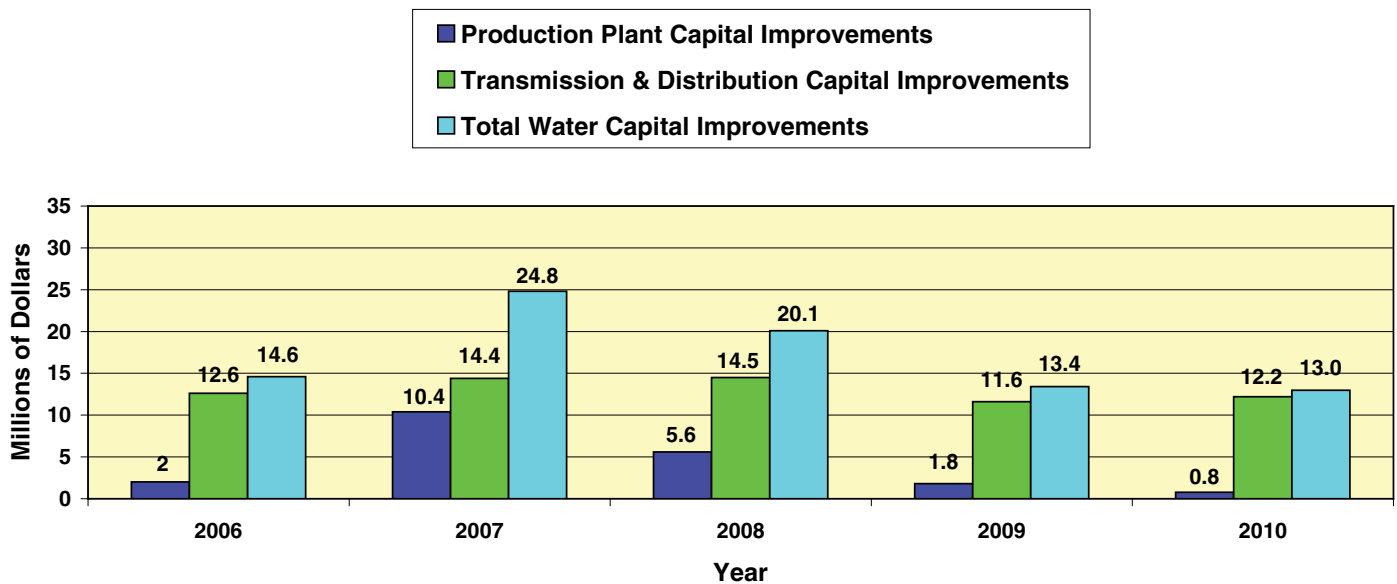


Figure 6. Total amount of capital expenditures in millions of dollars over the past five years. The peak expenditures in the amount of \$24.8 million was in 2007 with 2010 being \$11.8 million less than 2007, thus indicating the decrease in economic growth.

Appendix 1 (continued)

Total Number Of Chemical Analyses – 2000 to 2010

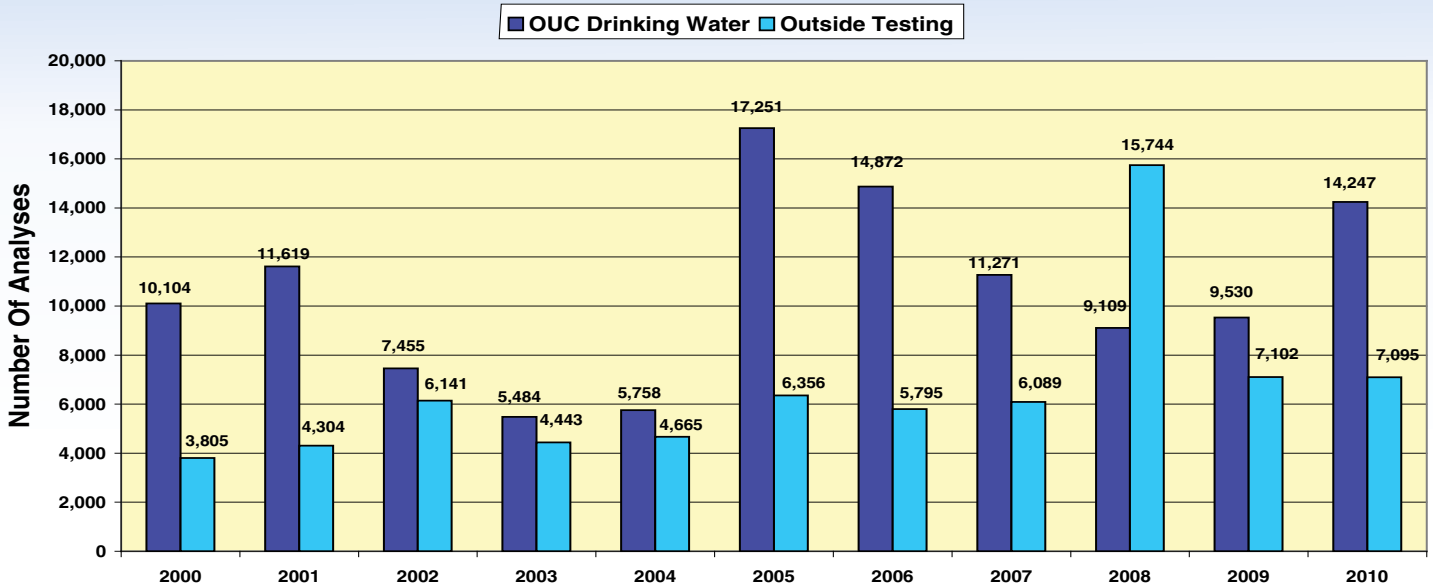


Figure 7. Total number of laboratory chemical analyses for OUC drinking water compliance and outside clients for the past ten years. Routine analyses are done for environmental and distribution compliance with 2005 and 2006 being peak years nearing the end of the construction boom. 2008 was a productive year for outside customers due to the number of analyses performed for the Seminole County Master Water Plan.

Total Number of Bacteriological Analyses – 2000 to 2010

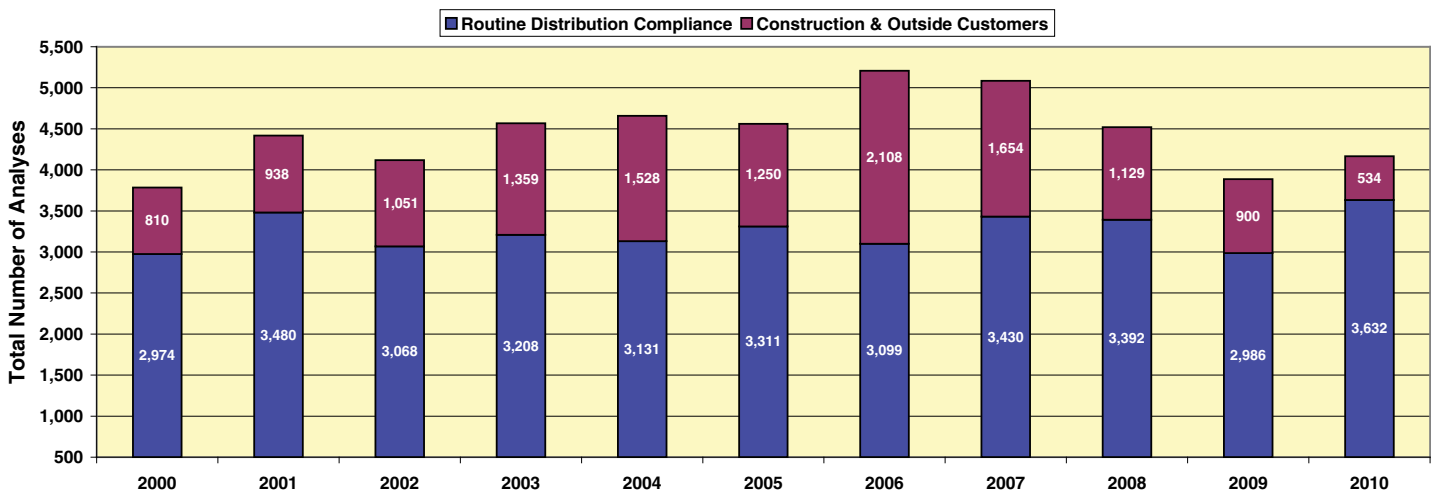


Figure 8. Total number of laboratory bacteriological analyses over the last ten years. Analyses are performed for routine distribution compliance, new construction and outside customers. 2005 and 2006 are peak growth years for construction customers. The minimum amount analyses for routine distribution compliance is 2,520 samples. In year 2010, there were a peak amount of routine samples in the amount of 3,632 analyses.

Appendix 1 (continued)

Well Capacity and Pumping Rates – 1980 to 2010

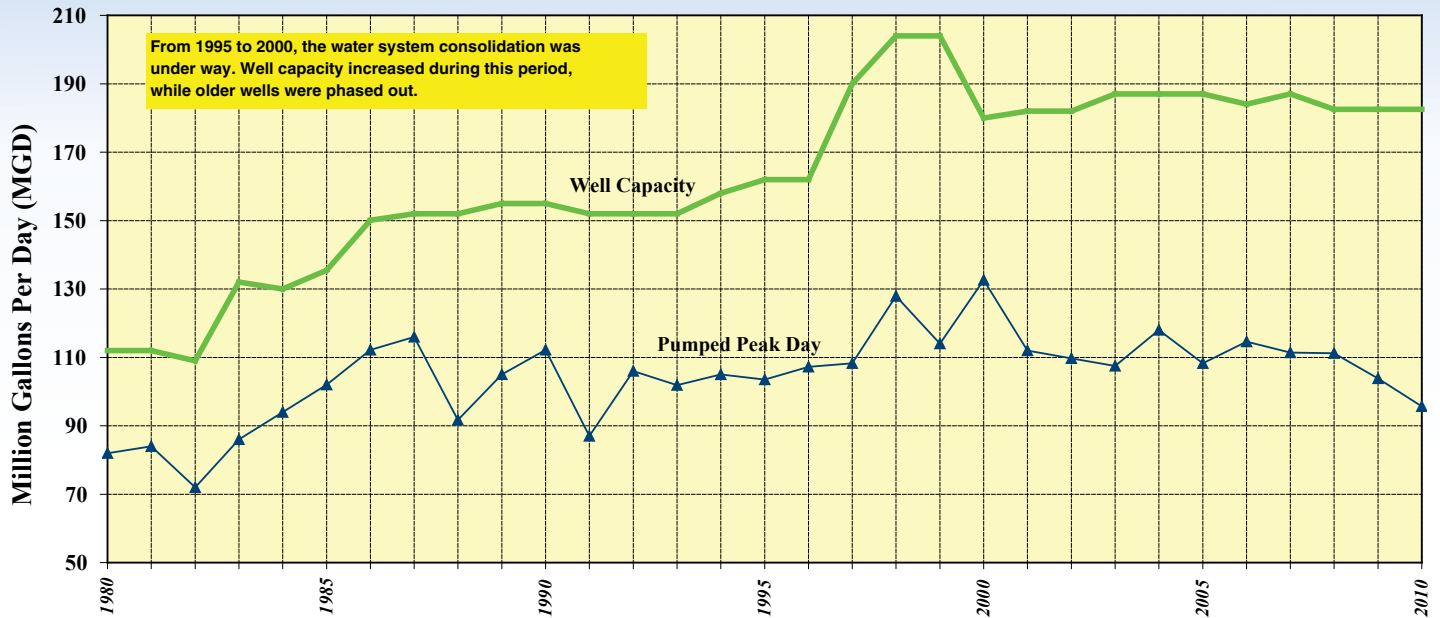


Figure 9. OUC’s total well capacity in mgd and the peak day amount of water pumped from OUC wells in millions of gallons delivered to the customers for the past thirty years. The peak day pumping rate typically occurs in the month of May each year. Their greatest total peak day well pumping rate was over 130 mgd in the drought of 2000.

High Service Pump Capacity and Pumping Rates – 1980 to 2010

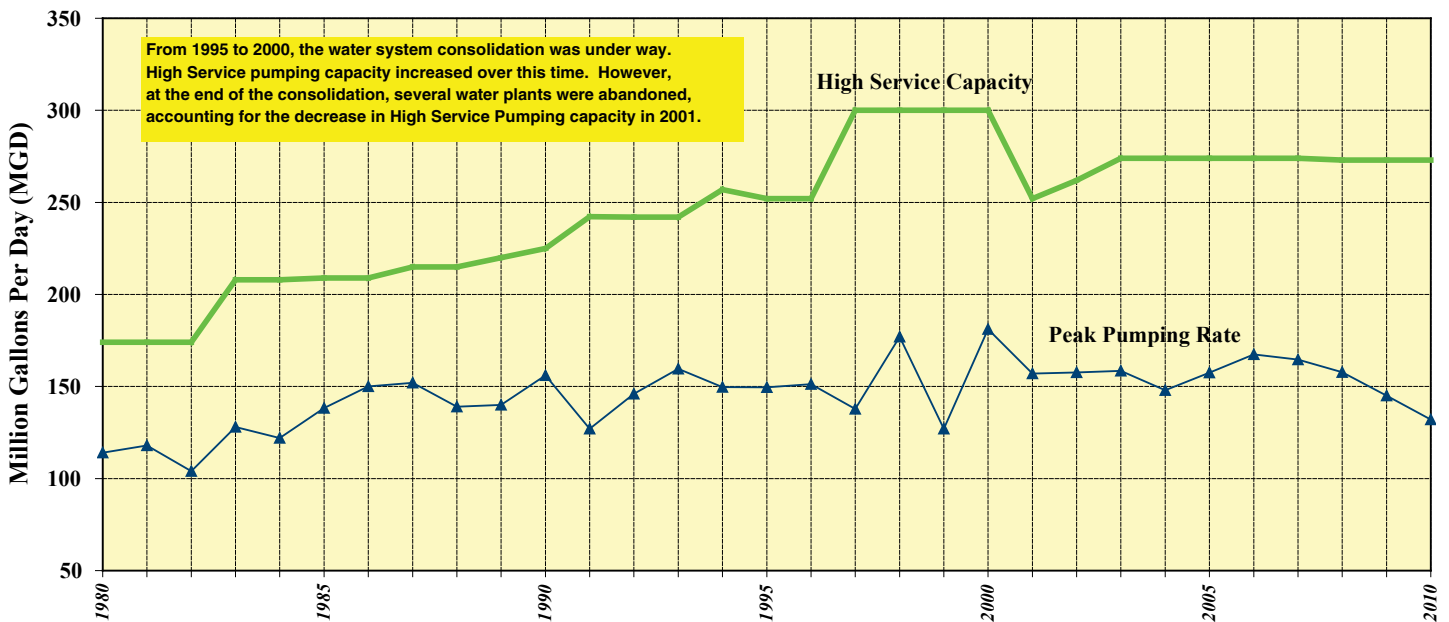


Figure 10. Water Treatment Plant’s total high service pump capacity in mgd and the annual peak pumping rate in millions of gallons delivered over the past thirty years. In 2000, the largest annual peak rate ever observed was over 180 mgd.

Appendix 1 (continued)

Water Treatment Power Costs In Cents Per 1000 Gallons – 2000 to 2010

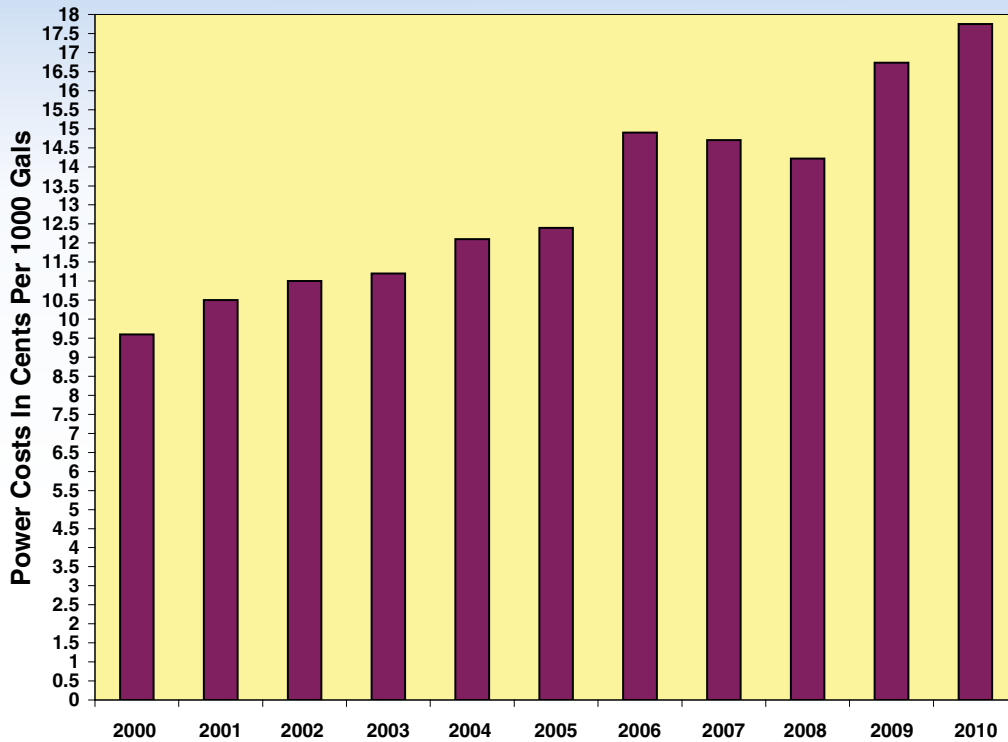


Figure 11. Power cost in cents per 1000 gallons to treat and deliver potable water over the past ten years. Even though the total amount of treated water may have decreased, the cost of power has increased over time.

Treated Water Pumped In Gallons Per kWh – 2010

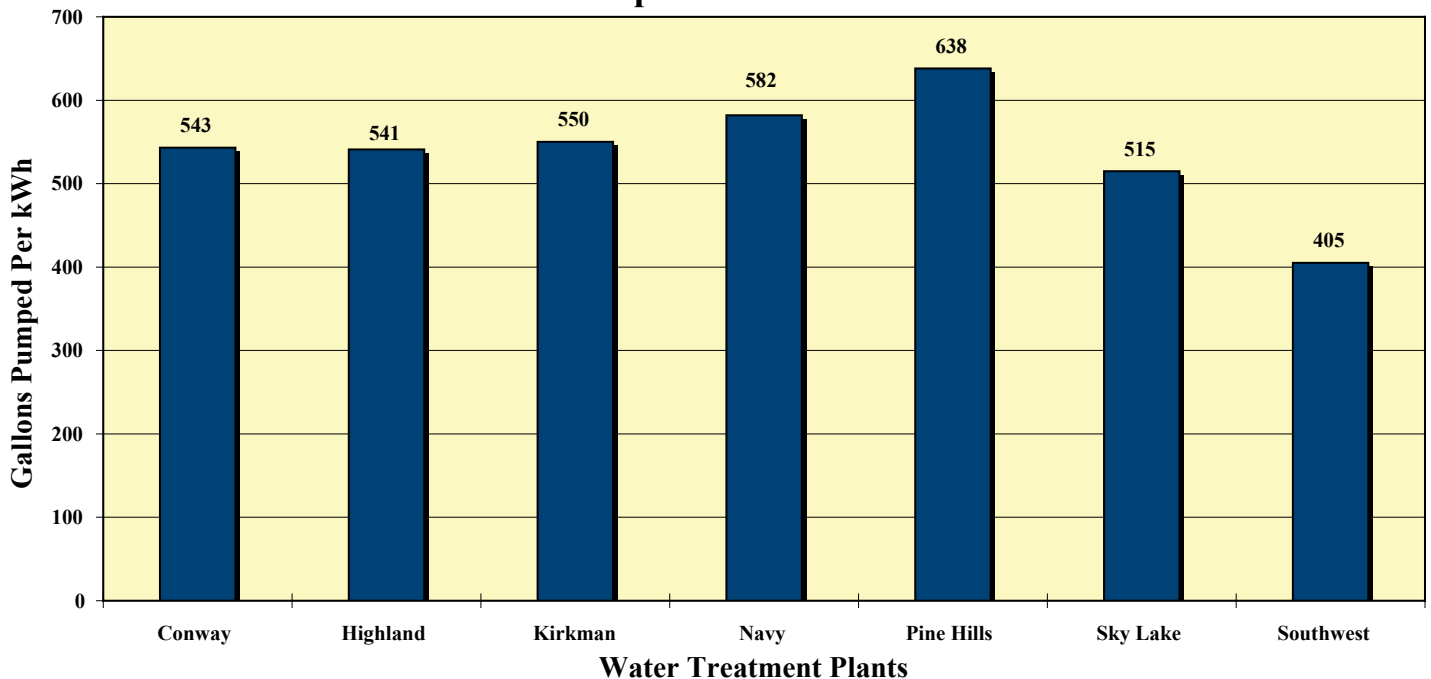


Figure 12. The amount of treated water pumped in thousands of gallons per kilowatt hour used at each water treatment plant in 2010.

Appendix 1 (continued)

Total Amount of Treated Water Pumped – 2010

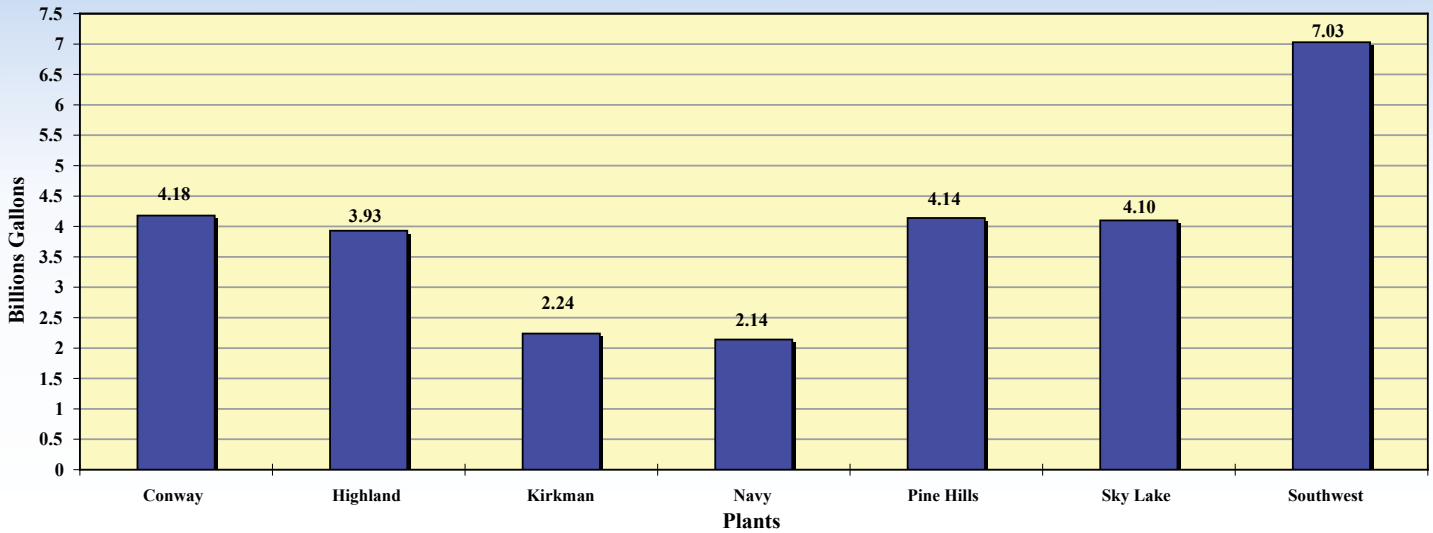


Figure 13. Total volume of water produced by each Water Treatment Plant in billions of gallons in 2010. Southwest covers the largest zone and includes the Dr. Philips area.

Average Day Vs. System Peak Day Water Pumped – 2010

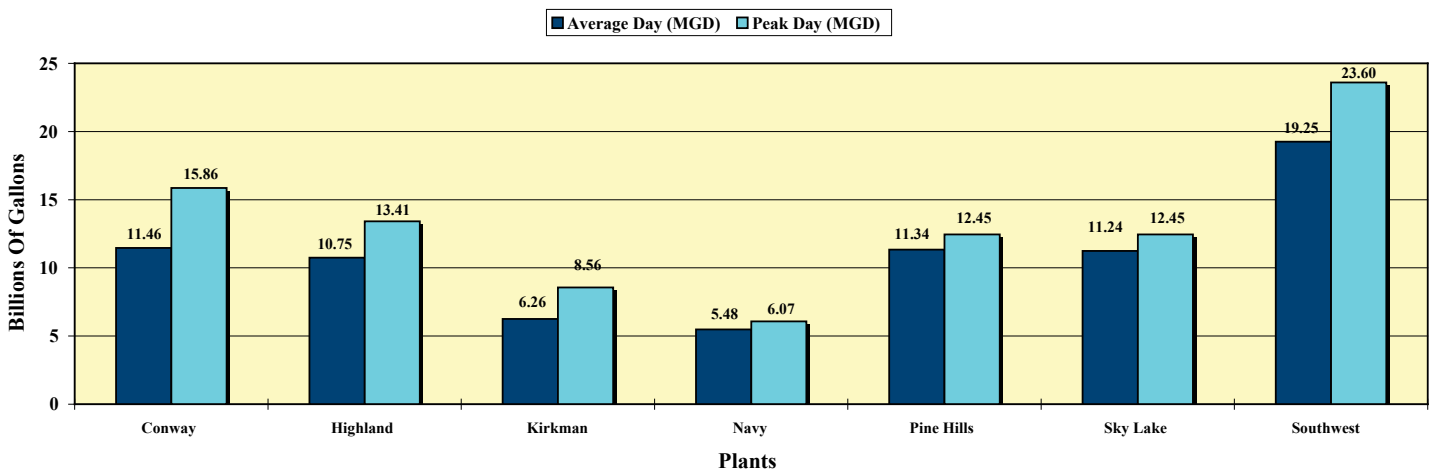


Figure 14. The comparison between the average day (mgd) and the peak day (mgd) of water pumped for each Water Treatment Plant in 2010. Conway Plant has the greatest difference of 4.4 billions of gallons between the system average day and the peak pumped day than the other plants. Southwest was close with a difference of 4.35 billions of gallons.

Appendix 1 (continued)

Lower Floridan Aquifer Level Vs. Twelve Months Rainfall – 2000 to 2010

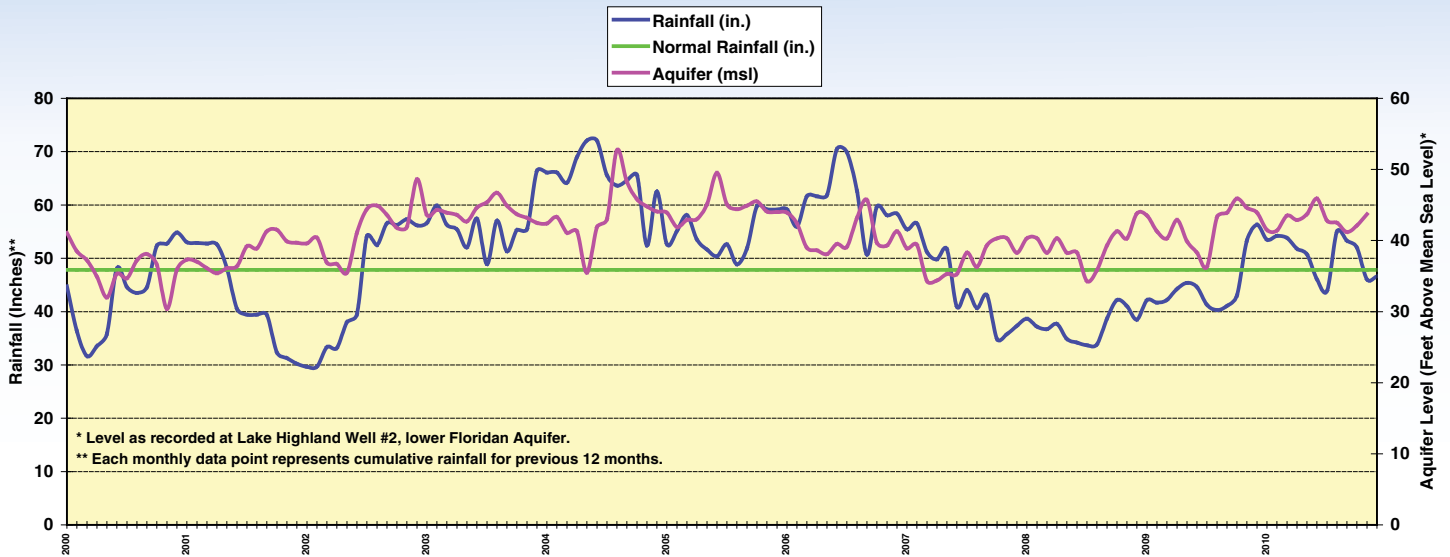


Figure 15. Comparison between the cumulative annual amount of rainfall and the Floridan aquifer level over the past ten years. Normal annual rainfall is around 47-inch and trend shows that the amount of rainfall and the aquifer level closely track with each other.

Number of New Water Customer Service Connections – 2004 to 2010

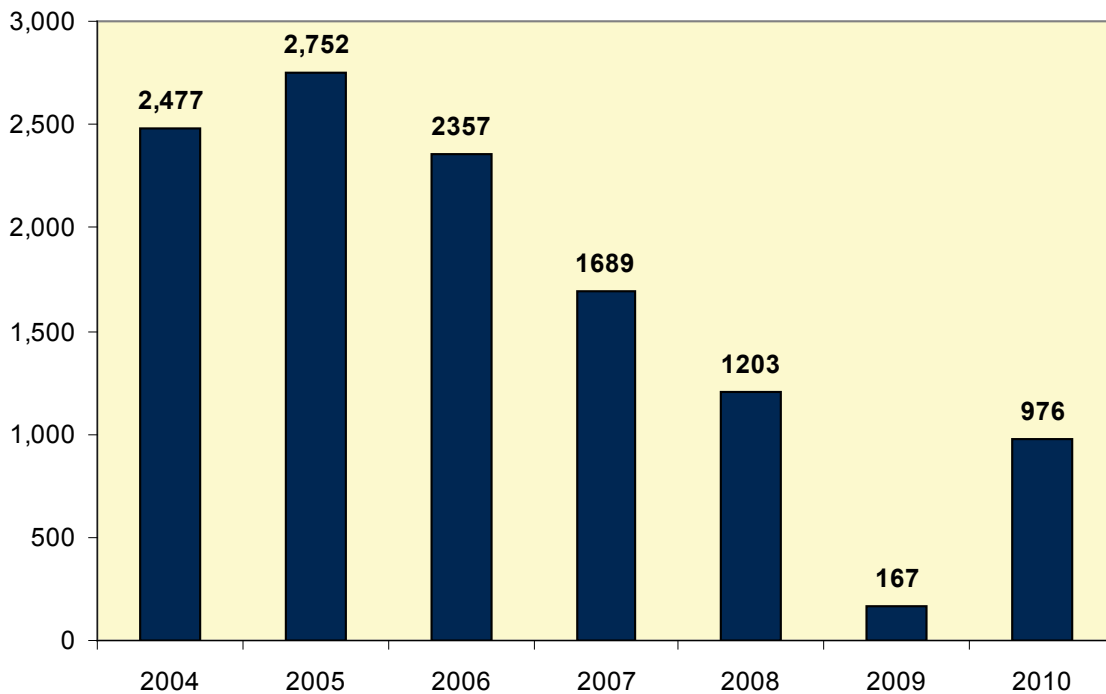


Figure 16. The total annual number of new water service connections for customers in the past seven years. The number of new customers to the area decreased greatly in 2009 and 2004-2006 were strong growth years.

Appendix 1 (continued)

Water Mains Installed by Distribution Crews – 2006 to 2010

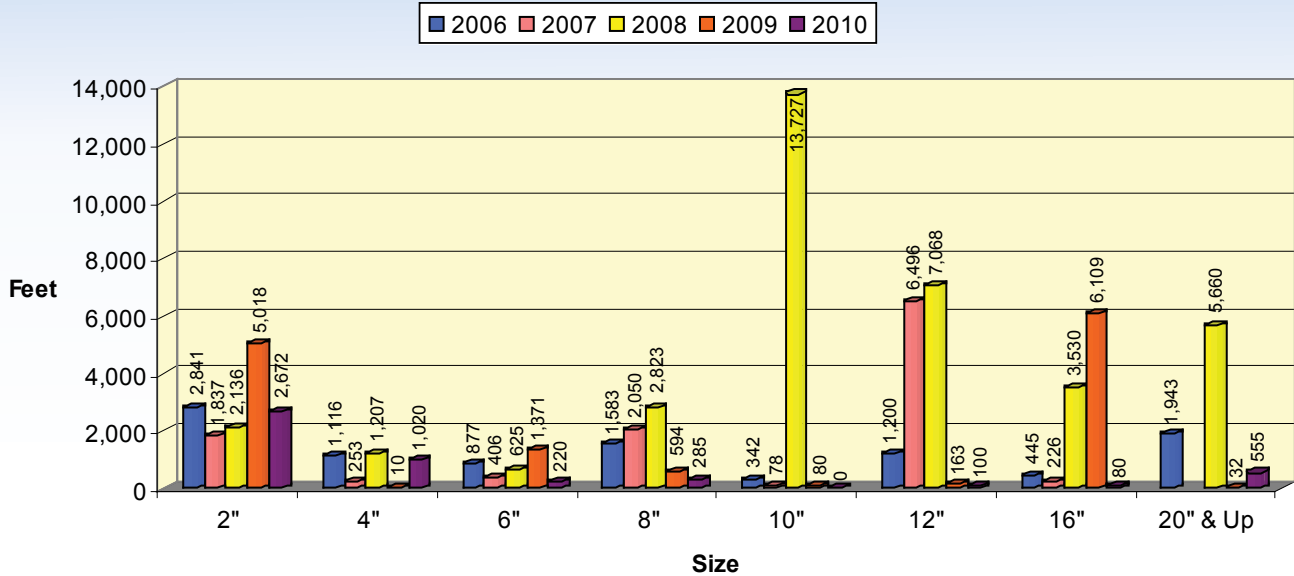


Figure 17. Total amount of feet of water mains in sizes of 2-inch to 20-inch and above installed by the Water Distribution crews over the past five years. In 2008, the crews were involved in a project that required over 13,000-feet of 10-inch main installed.

Water Mains Installed by Contractors – 2006 to 2010

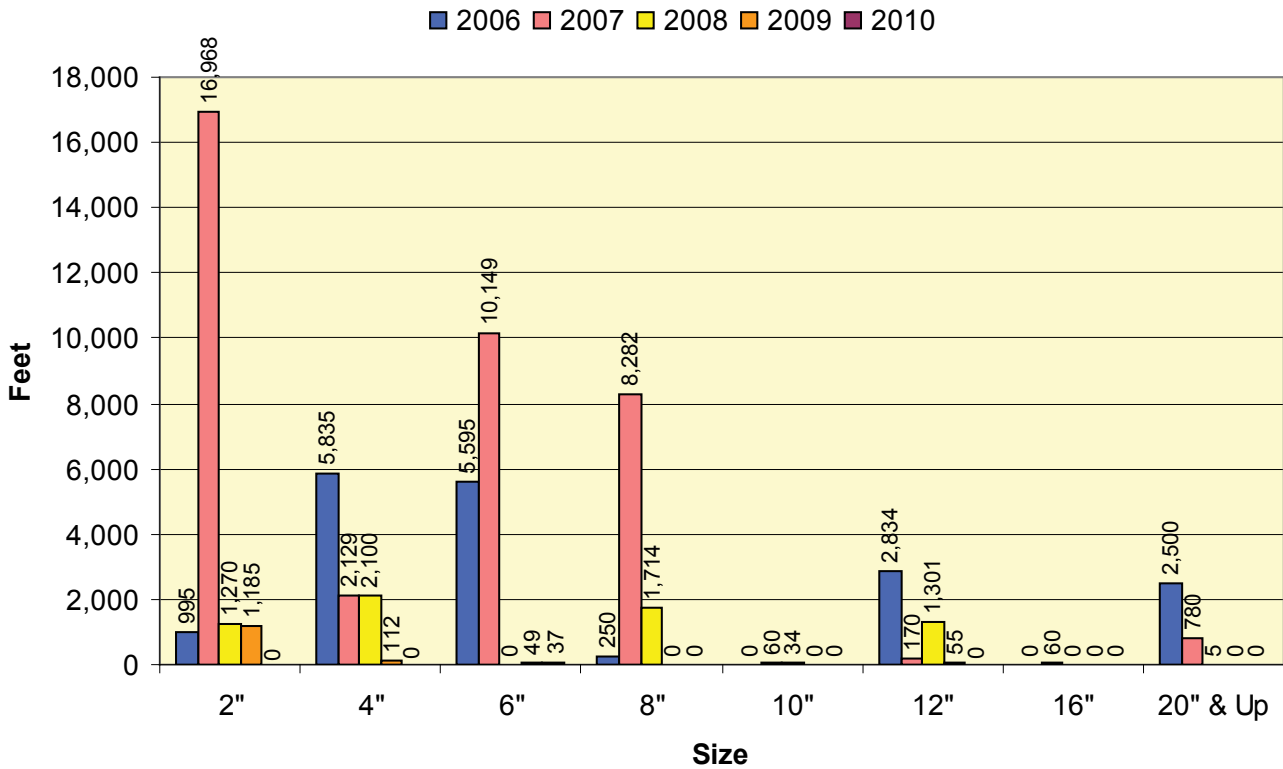


Figure 18. Total amount of water mains in sizes of 2-inch to 20-inch and above installed by outside contractors over the past five years. In 2007, contractors installed over 16,000-feet of 2-inch main.

Appendix 1 (continued)

Number of Fire Services Installed by Distribution Crews – 2006 to 2010

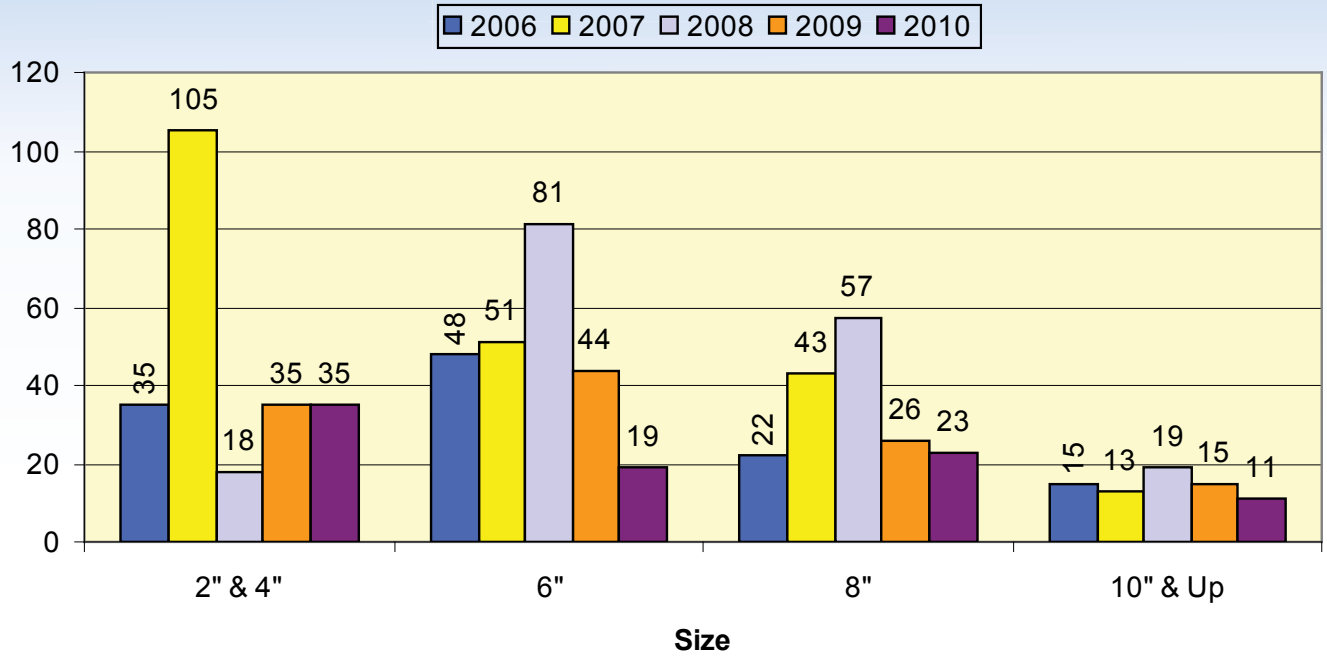


Figure 19. Total number of fire services in sizes of 2-inch to 10-inch and above installed by Water Distribution crews over the past five years. In 2007, crews installed 105 new 2-inch – 4-inch fire services.

Number of Water Mains Installed by Developers – 2006 to 2010

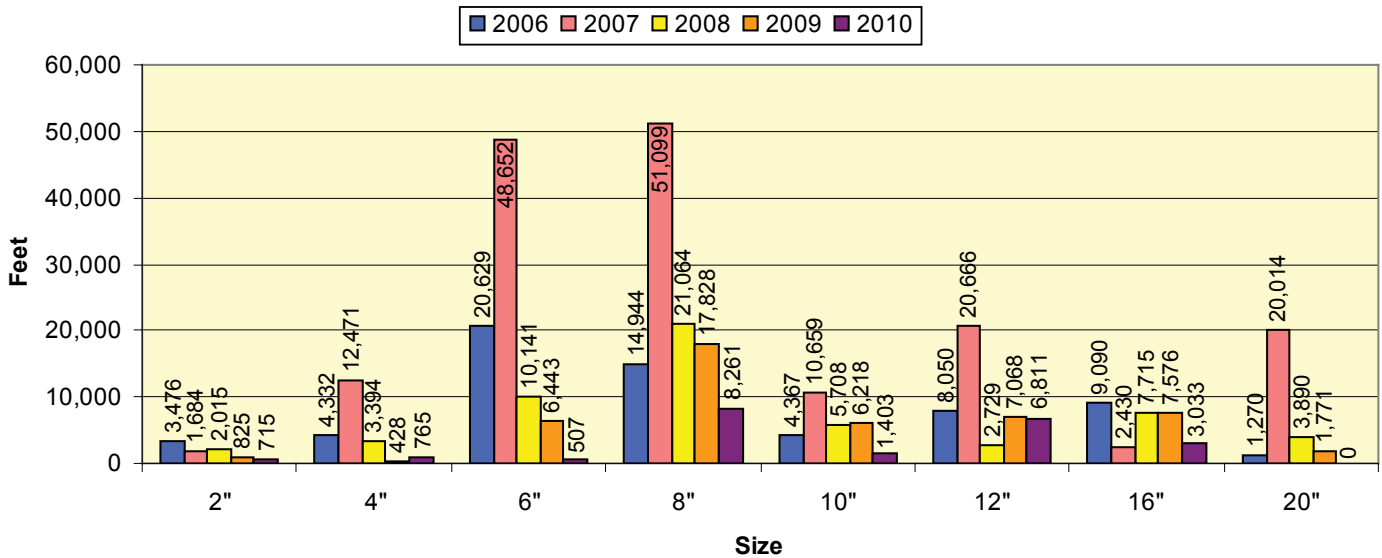


Figure 20. Total amount of feet of water mains in sizes of 2-inch to 20-inch installed by developers over the past five years. In 2007, developers installed over 48,000 feet of 8-inch main and over 51,000 feet of 10-inch main.

Appendix 1 (continued)

Distribution System Operations and Maintenance Expenses – 2006 to 2010

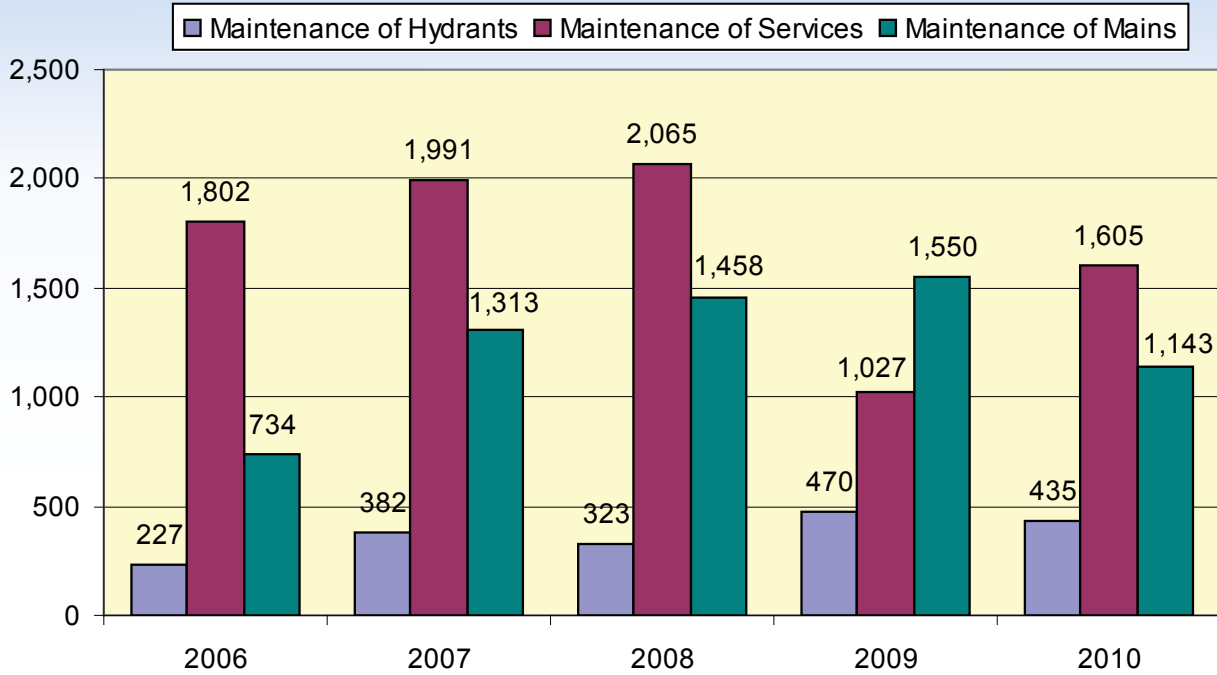


Figure 21. Annual amount of O&M expenses for the Water Distribution system categories by type of expense (hydrants, services, mains). Maintenance of service charges was the largest category of expense from 2006 to 2008.

Sizes of Water Services Installed – 2010

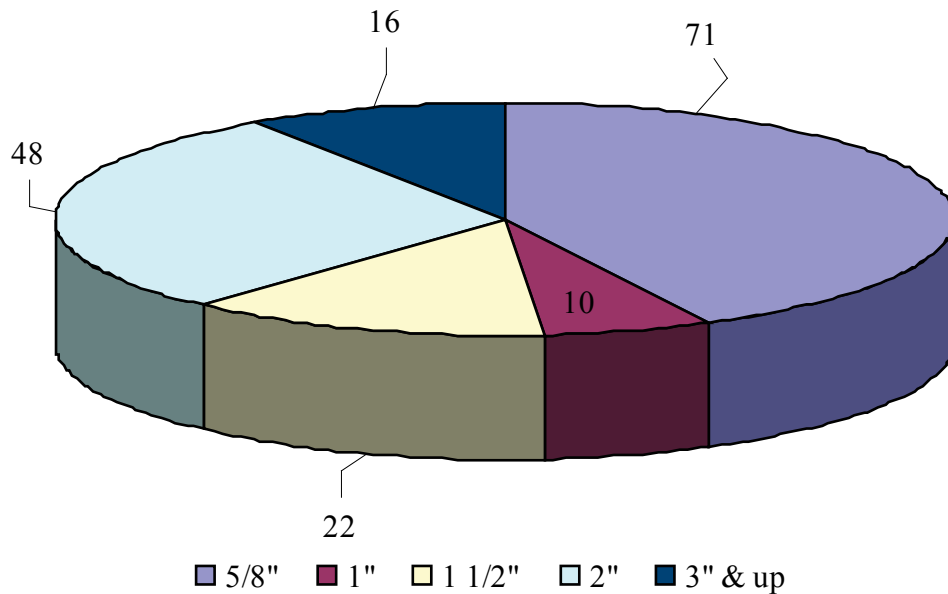


Figure 22. The number of water services installed by sizes from 5/8-inch to 3-inch and above in 2010. Most services installed are 5/8-inch in size.



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