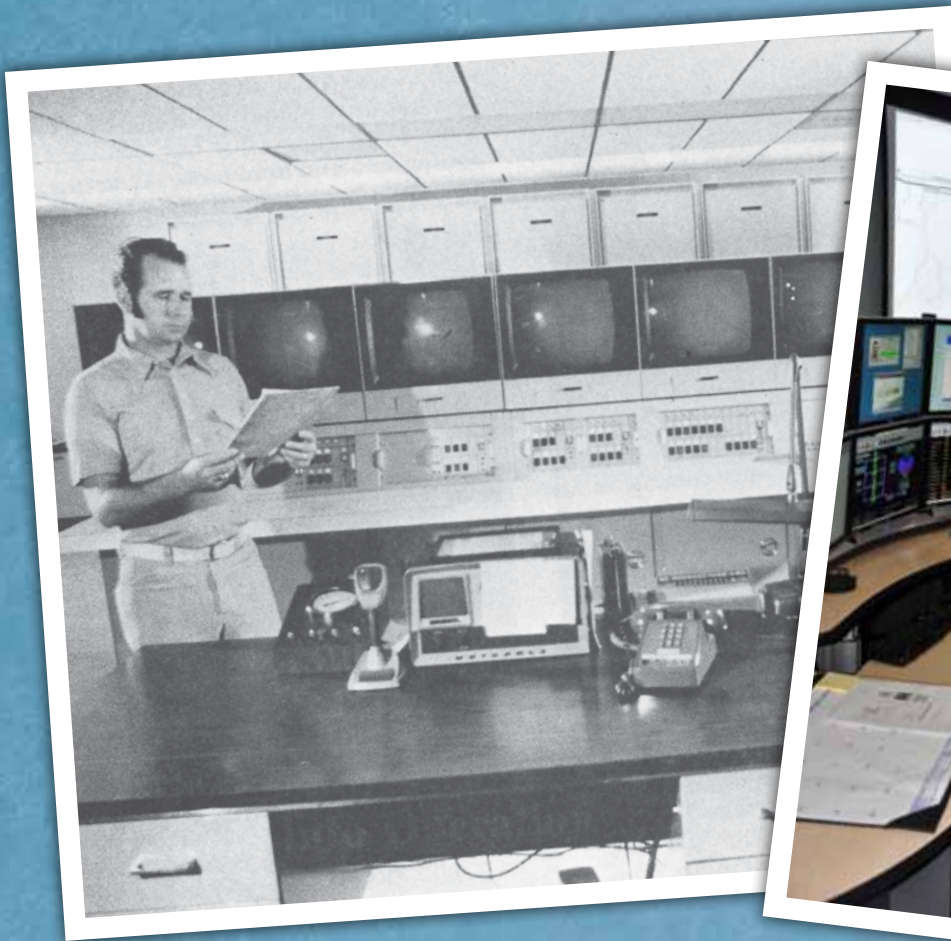


Water..Through the Years



1974



2010

2011 WATER BUSINESS UNIT ANNUAL REPORT

OUC 
The *Reliable One*®

2010

Ken Terry (System Operator), Lee Marshall (Supervisor of Operations) and Robert Sumpter (SCADA Coordinator) review the security event log. OUC's licensed operators are tasked with maintaining water quality, quantity, and pressure and monitoring all water facilities for possible intruders.

1974

John Banks, Water Production Supervisor of Operations, reviews a written daily log at the Lake Highland WTP Control Room. Operators at that time were primarily responsible for maintaining system pressure.

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2011 Water Business Unit Highlights

In the early days, Orlando utilized water from Lakes Ivanhoe and Underhill as its source of drinking water. OUC moved from surface water to Lower Floridan wells in the 1950's. Today, the groundwater is highly treated with ozone.

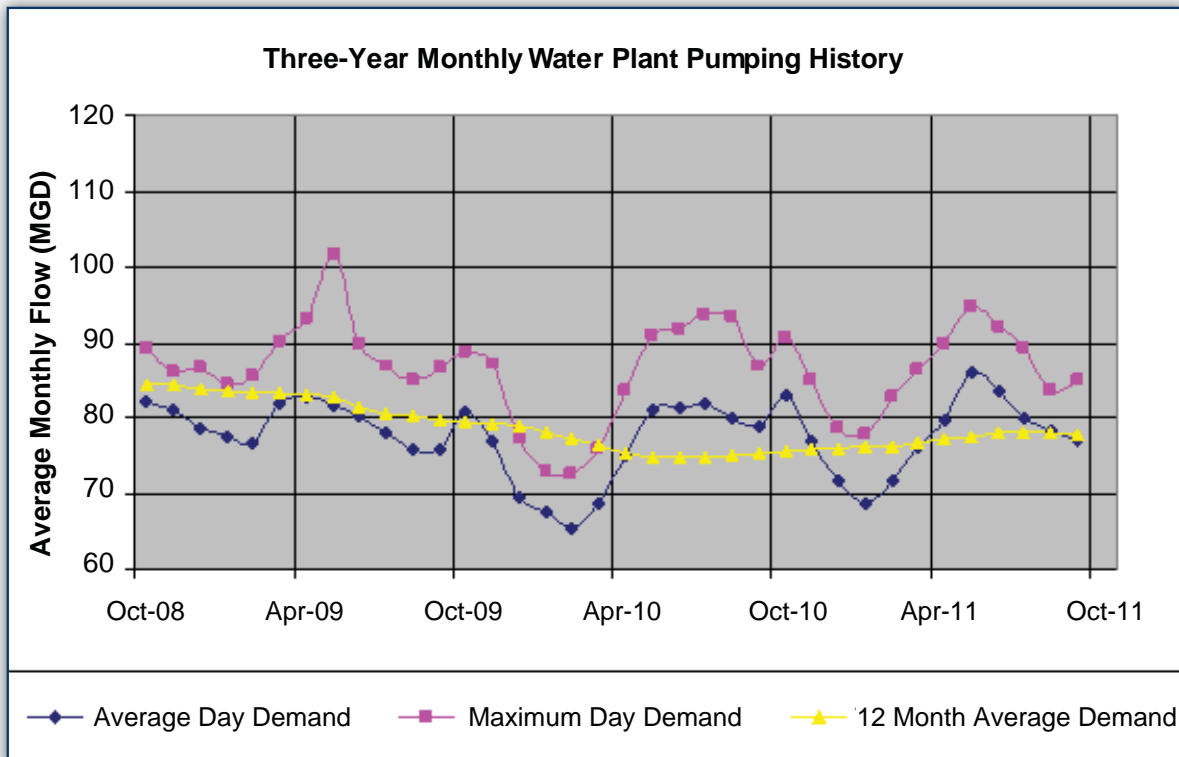
In 2011, the Water Business Unit (WBU) initiated a 10-year capital upgrade program to replace OUC's 21 ozone generators to ensure that all Water Treatment Plants (WTP) work reliably. Also, other system-wide ozone improvements will be installed such as side-stream injection of ozone gas. The primary reasons to replace the ozone generators are: the vendor for four WTPs is no longer in business; equipment at three WTPs has a defect and ozone parts for the existing generators are becoming scarce and obsolete. The first ozone improvement project will start construction in the fall of 2012 at the Southwest WTP. It is estimated to cost about \$11 million. The total cost for the ozone improvement program at all seven WTPs is estimated to be \$58 million over the next decade.

Risk tolerance levels were assessed to determine which ozone units could be repaired and which units could be recycled for potential spare parts in the event a failure occurs. The Water Production Division maintains its awareness of operations and technology developments to support the timely adoption of the improvements. The existing generator's asset lives will be flexibly prolonged and closely managed to avoid compromising high quality water or water system capacity.

The project delivery method selected for the ozone program is known as the Construction Manager at Risk (CMAR). OUC has master contracts with three CMARs. A Request for Proposal will be requested of one or more CMARs for each plant project. One ozone manufacturer was selected to provide ozone equipment system-wide. Standardization of equipment will reduce OUC's business and operations risk. Furthermore, OUC requires a performance guarantee for the ozone generators, replacement parts availability guarantees and price controls from the ozone manufacturer.

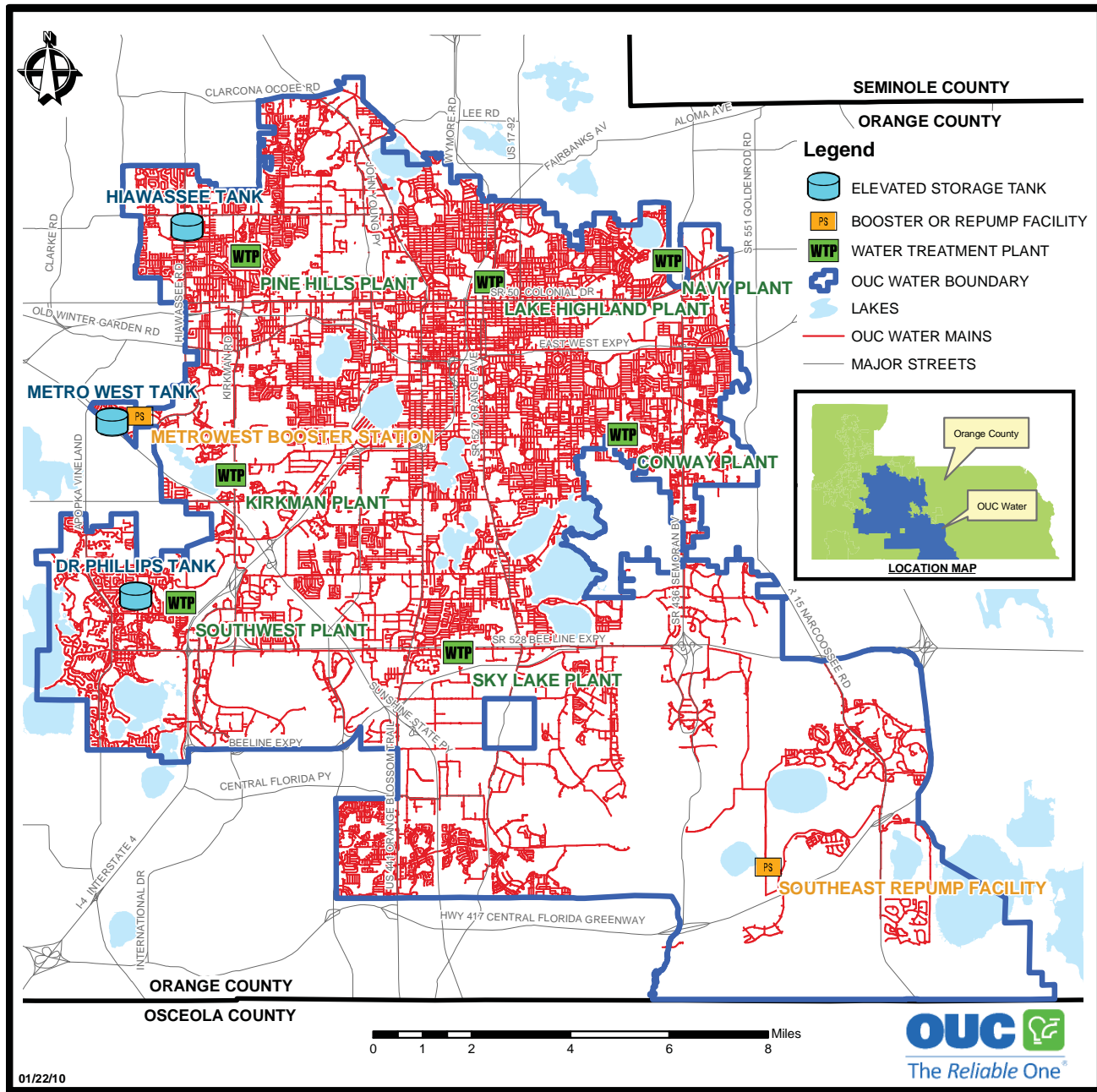
OUC is proactively following the Water Integrated Resources Plan (IRP) of 2010. The IRP establishes a framework for water resources decisions and policy briefings to senior management and the Commissioners. Future groundwater allocations continue to be uncertain for the Central Florida region.

OUC, Water Management Districts and other regional water entities are revisiting many of the underlying assumptions regarding development, timing and the possible governance of multi-jurisdictional water projects. To that end, OUC's Water Business Unit negotiated a Memorandum of Agreement to pursue a Consumptive Use Permit for the Taylor Creek Reservoir (TCR) as a regional water supply project with others. The project potentially allows a long-term wholesale agreement with the City of Cocoa, which is dependent upon the combined surface and ground water sources. Today, TCR appears to be the next most feasible option among several potential alternate water supply sources.



OUC Water System

ORLANDO UTILITIES COMMISSION WATER SERVICE AREA



WBU Statistical Summary

Fiscal Year	2011	2010	2006
Population Served	423,900	423,900	414,500
Employees			
Total Water Business Unit Funded Positions (Note 1)	121	119	118
Per 1,000 population	0.29	0.28	0.28
Consumption			
Total, billions of gallons treated water	28.49	27.68	32.74
Change from previous year	2.93%	-4.49%	3.02%
Total, billions of gallons water treated for sale	28.48	27.68	32.67
Total, billions of gallons unbilled	2.92	3.31	3.37
Percent unbilled, percent of water treated for sale	10.25%	11.96%	10.32%
Daily average, millions of gallons treated water	78.05	75.84	89.70
Per capita, gallons per day	184	179	216
Per mile of pipe, gallons per day	44,174	43,015	52,609
Per service, gallons per day	583	558	677
Services			
Active metered	133,967	135,939	132,512
Percent change from previous year	-1.45%	0.55%	1.37%
Per 1,000 population	316	321	320
Per mile of pipe	76	77	78
Pipe			
Miles	1,767	1,763	1,705
Population per mile	240	240	243
Hydrants			
Number	9,828	9,753	9,118
Per 1,000 population	23	23	22
Per mile of pipe	5.6	5.5	5.3
Income			
Water sales in millions	\$64.14	\$62.62	\$56.03
Per capita	\$151	\$148	\$135
Per mile of pipe	\$36,299	\$35,519	\$32,862
Per active metered service	\$479	\$461	\$423
Per million gallons treated water	\$2,251	\$2,262	\$1,711
Capital Investment (annual, in millions)			
Production Plant	\$0.71	\$0.77	\$2,015.00
Transmission & Distribution	\$6.19	\$12.20	\$12,608.00
Contributions in Aid of Construction (CIAC)	\$4.57	\$6.08	\$14,816.00
Total Capital Investment	\$11.47	\$19.05	\$29,439.00
Percent CIAC	39.84%	31.92%	50.33%
Operations & Maintenance Costs			
Total in millions	\$41.62	\$38.83	\$29.74
Per capita	\$98	\$92	\$72
Per mile of pipe	\$23,554	\$22,025	\$17,443
Per active metered service	\$311	\$286	\$224
Per million gallons treated water	\$1,461	\$1,403	\$908

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.

Water Business Unit

WBU ADMINISTRATIVE SPECIALISTS ROTATION PROGRAM

Water Business Unit (WBU) management and the administrative support team turned the tables in 2011 when the decision was made to begin a rotation program for administrative specialists within the business unit. This enhancement broke the mold for the way support roles typically work within OUC. This program allowed Administrative Specialists to cross train and rotate to a new assignment every six months rather than remain in one assignment indefinitely.

The Administrative Specialists Rotation Program (ASRP), which commenced in January 2011, was designed to enhance efficiency, communication, knowledge and support within WBU. The ASRP has progressed well despite losing one Administrative Specialist due to disability. This delayed the second rotation, which was scheduled for July 2011. However, this delay allowed additional time for the team to increase their knowledge and skills in their new assignments. The backflow prevention responsibilities were re-assigned permanently to an employee in Water Distribution (WDIS). Any WBU special projects that arise will be distributed among the three remaining ASRP team members, Tonie Lorenzo, Angela Scott, and La'Tanya Woodson, based on their workflow.

The ASRP team continues to collaborate and learn from each other through their weekly support group. Additionally, they have participated in refresher courses in Payroll, Enterprise One, Agenda Items and Supply Chain Management



Tonie Lorenzo, La'Tanya Woodson, and Angela Scott are team members of the WBU Administrative Specialists Rotation Program.

procedures. WBU Administrative Assistant, Audrey Schiff, coordinates with management to help ensure smooth communication and adequate administrative work flow within each division of WBU.

In August 2011, the ASRP team met with the WBU Vice President and Directors to review the progress of the program and discuss any necessary enhancements. The team expressed their satisfaction with the progression of the program and how it has contributed to their cohesiveness as a group and the entire business unit. The ASRP team presented the idea of an

“Accelerated Rotation Program”, which would include a rotation every four months for a two week period. After the two-week rotation period, team members would return to their previously assigned roles until the next scheduled two-week rotation. The Accelerated Rotation Program assures on-going job sharing and hands-on experience while maintaining some semblance of ownership for each assignment. WBU’s Management Team agreed to the proposed ASRP amendment to commence in February 2012.

The ASRP has proved to be a positive enhancement, encouraged a more cohesive work environment, and provided a source of support in all areas of the business unit. Future efforts will ensure continued flexibility within WBU and the Commission.



Water Resources and Engineering Division

WATER RESOURCES SECTION

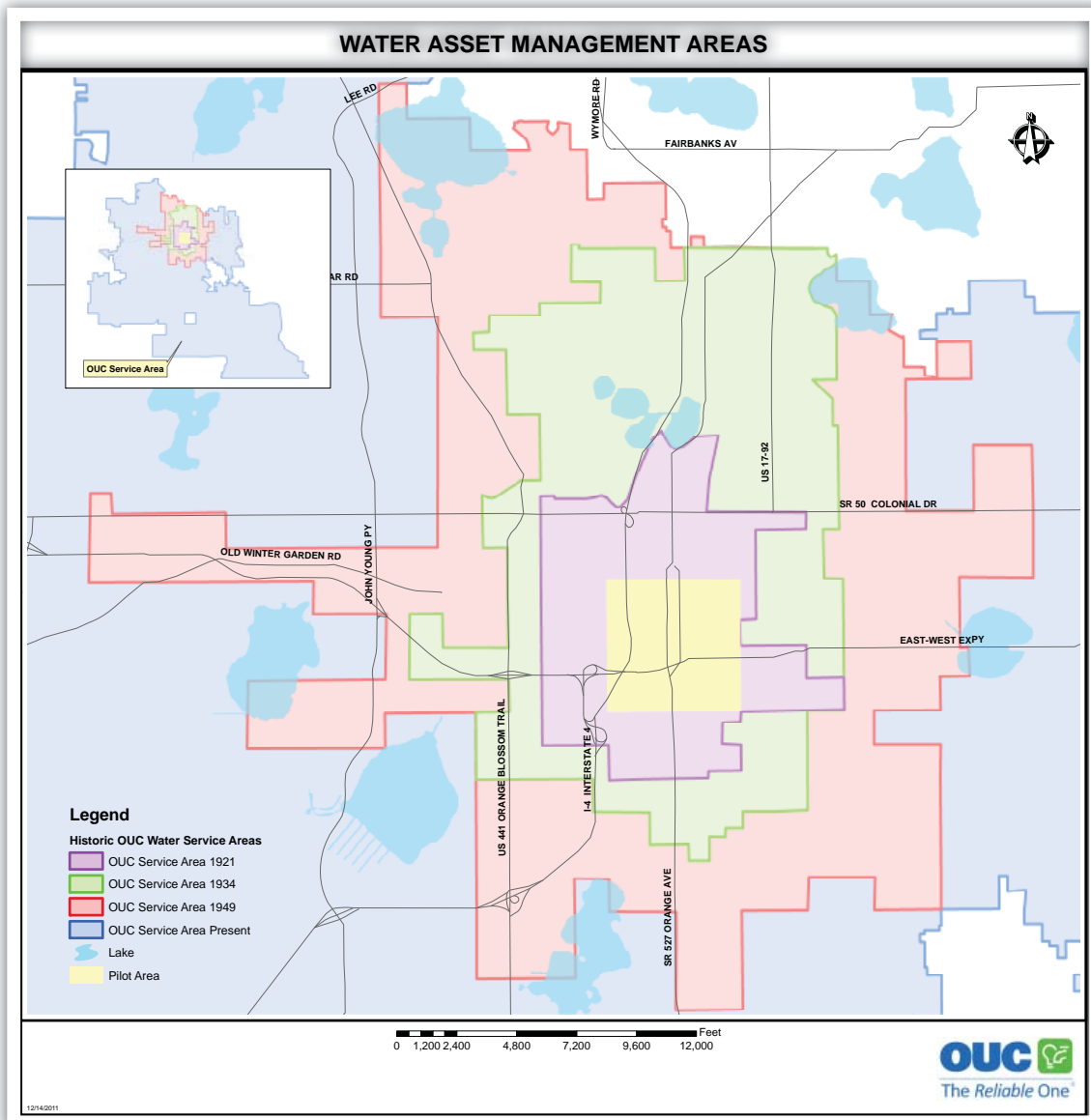
During FY 2011, Water Resources (WR) continued research and assessment, while primarily working on tasks related to the Central Florida Water Initiative (CFWI) and our Consumptive Use Permit (CUP) compliance.

Historically, OUC has supported and participated in many American Water Works Association (AWWA) Research Foundation projects. Recently, OUC was involved in a Water Research Foundation (formerly AWWARF)

project that published the final report this year. It focused on more efficient methods of treating reject water from desalination membranes. The results of the research could be useful in the evaluation or development of future alternative water supplies.

OUC has always managed its water assets well. In June 2009, WBU started to investigate a more formal process to enhance its asset management. In 2010, WR staff developed a relatively simple ranking system that includes risks and

consequences. This year most of the higher risk water distribution assets have been identified in the 1949 service area, which comprises 23 square miles of the current 200 square mile service area. A list of target projects was created, and several important high risk valves were found to be closed. By opening one of these critical valves, it is estimated that tens of thousands of dollars per year will be collected in the future. Work to update GIS records and complete the system risk rating is under way.



Water Resources and Engineering Division

WATER RESOURCES SECTION

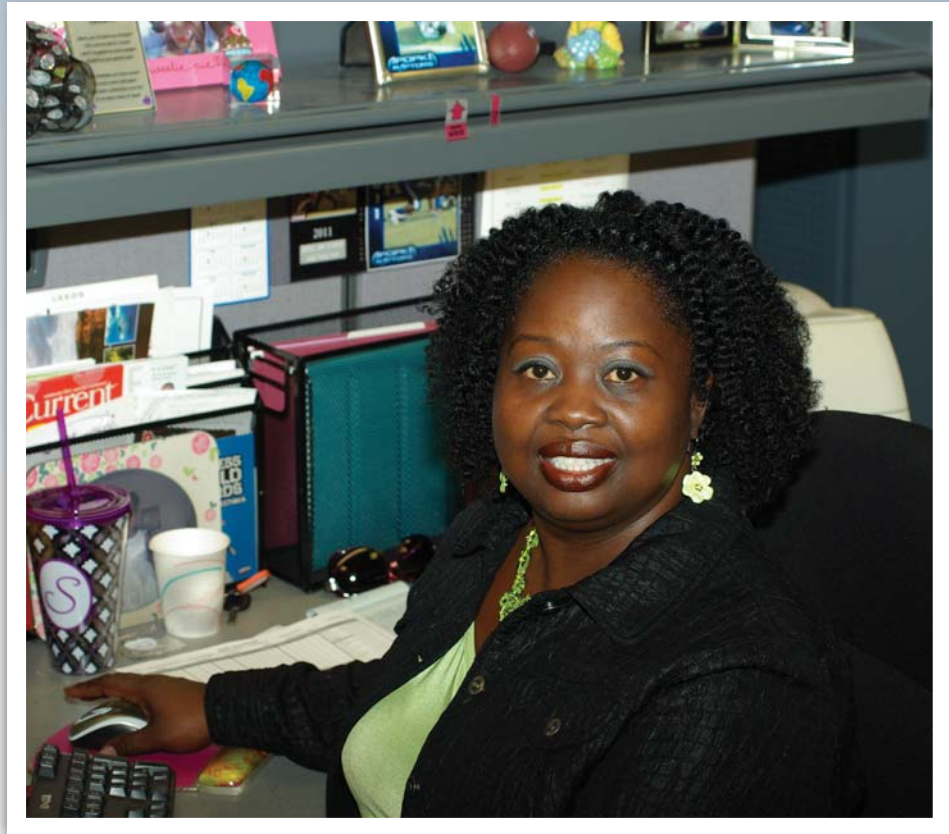
WATER INTEGRATED RESOURCE PLAN

WR and the Strategic Planning Group completed a Water Integrated Resource Plan (WIRP) for OUC in April 2011. The consulting engineering firm CH2MHILL assisted OUC with developing a plan to evaluate water supply options and develop a long-term and cost-effective plan to meet future water demands. Based on the results of the WIRP, OUC determined the best future water resource scenario is to maintain current groundwater allocations, modify the implementation timelines for Project RENEW and Alternative Water Supply (AWS), maintain current levels of reclaimed water use and practice conservation. One specific recommendation was to develop a water conservation plan to provide the level of certainty required to plan for water savings and meet anticipated regulatory requirements for improved water use efficiency. Another recommendation was to remain engaged in the regulatory process, which has a direct impact on the WIRP.

Groundwater (Project RENEW & Regulations)

Required by OUC's CUP, Project RENEW is a regional reclaimed water project to mitigate pumping impacts. In early FY 2011, OUC worked with AECOM to complete an evaluation of the City of Orlando reuse system. The evaluation revealed that the City's reclaimed water is more limited for Project RENEW than originally anticipated when OUC's CUP was issued in 2004. This finding, along with the fact that OUC's water pumping has decreased in the past few years, has allowed OUC to delay project RENEW and reevaluate its merits. In addition, Florida Gas Transmission Company continues to legally challenge a portion of the reclaimed water pipeline route to the City of Apopka.

OUC submitted a CUP modification to the St. Johns River Water Management District (SJRWMD) on February 2,



Angela Scott, Administrative Specialist I

2011 requesting a change in the Project RENEW schedule and a change in the five-year compliance report schedule. Due to OUC's reduced water demands, Project RENEW is not needed in the near future. OUC was granted a CUP modification from the SJRWMD on May 10, 2011, achieving the objectives of delaying RENEW and the next compliance report for five years. The completion dates for RENEW are now 2018 for Phase I and 2020 for Phase II. The next compliance report was extended to 2018.

Due to the changes made to the RENEW schedule, OUC must re-negotiate the terms of the RENEW Reclaimed Water Agreement with the City of Apopka. Since June 2011, OUC has been in negotiations with Apopka to amend the RENEW Agreement. A waiver and extension for the original

reclaimed water delivery date of October 8, 2011 was signed by OUC and Apopka.

To identify the sustainable quantities of groundwater available without causing environmental harm, OUC staff and consultants are actively involved in the new CFWI. The Central Florida Coordination Area (CFCA) rule will sunset December 31, 2012. A Steering Group comprising several utilities, three water management district Governing Board Members, FDEP, and the Department of Agriculture and Consumer Services has been formed to replace and build upon the water supply planning initiatives of the expiring CFCA. The Steering Group meets monthly. Four technical teams have been formed to work on the groundwater modeling, environmental measures, minimum flows and levels

Water Resources and Engineering Division

WATER RESOURCES SECTION

(MFLs), and monitoring data. Meetings and/or conference calls are held every other week or monthly, depending on the team. OUC staff and consultants are actively involved in many of the various meetings.

The SJRWMD held a meeting in May to start the collaborative process of developing prevention and recovery strategies for 37 MFL water bodies throughout the District. MFLs are potential regulatory constraints on groundwater allocations. OUC is participating in two of the four stakeholder teams for MFLs located in the South Lake-West Orange County and Seminole-North Orange County areas. Team meetings are held monthly. OUC held an ad-hoc meeting with the District to discuss our technical concerns regarding the MFL process.

Reclaimed Water

The City's Eastern Regional Reclaimed Water Distribution Project (ERRWDS) was completed as required by the CUP. Water Engineering, Water Distribution and Customer Billing successfully coordinated with the City of Orlando to transfer irrigation service from potable to reclaimed water in Baldwin Park on March 31, 2011. OUC estimates that water demands will decrease by about one mgd due to this transition to reclaimed water. The ERRWDS will serve reclaimed water to OUC's eastern service area in order to reduce groundwater use for irrigation.

A reclaimed water agreement between Orlando and OUC was drafted to allow OUC to manage the resource, bill the reclaimed water customers and pay wholesale to the City. In February, the City requested an indefinite hold on agreement negotiations due to other matters. A similar reclaimed water agreement is being considered between Orange County and OUC to better manage water resources and update an obsolete section of OUC's Territorial Agreement with the County.

Conservation

OUC contracted with CH2MHILL in November 2010 to develop a comprehensive water conservation master plan based on recommendations of the WIRP. The plan will provide OUC with potential water saving quantities and costs for various conservation initiatives. WR and the Strategic Planning group are working with the consultants to complete this effort. Numerous workshops have been held to exchange data and obtain concurrence on conservation goals and water conservation analyses. The project is expected to be completed in 2012.

Alternative Water Supply

OUC's preferred alternative water supply project is the St. Johns River/Taylor Creek Reservoir Water Supply Project (SJR/TCR). OUC is required to secure AWS capacity to satisfy our Settlement Agreement with the SJRWMD, South Florida Water Management District (SFWMD), and Orange County. Since June 2011, OUC has been meeting with Cocoa and East Central Florida Services, Inc. (ECFS) to discuss deal points and a tri-party agreement to obtain water from the Taylor Creek Reservoir (TCR). The agreement is for the development of information needed to obtain a CUP for water from TCR. The SJRWMD wants to advance the Cocoa permit application previously submitted for TCR and requests an agreement soon since state funding for the project could otherwise be lost. On September 8, 2011, a meeting was held with all three parties and the SJRWMD to discuss the SJRWMD/ECFS lawsuit regarding property rights; the SJRWMD design progress and cost estimate on TCR berm; the pending, competing CUP applications for TCR; and the permitting process for the tri-party TCR CUP. The parties agreed to move forward quickly toward finalizing an agreement with an option for other parties to join in.

CONSUMPTIVE USE PERMIT (CUP)

This year significant accomplishments were achieved on several major CUP conditions including modifying the Project RENEW schedule and completing the ERRWDS project, previously described in the WIRP section. A new multi-zone, deep monitoring well was completed in February. This well will be used to detect any movement of saline water into the aquifer.

Since 2005, WR and WPRO have been monitoring 25 lake/wetland sites required by the 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 are completed annually in September. 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 and analyzed semi-annually at four Floridan Aquifer monitoring wells and quarterly for the new multi-zone monitoring wells.

Per our new conditions from the five-year compliance CUP modification, OUC completed and submitted a number of compliance reports to the SJRWMD this year, including our first annual lake and wetland monitoring report and the first annual water use data report. OUC completed and submitted the water quality trend analysis report that is due every other year and the annual water audit. OUC's "unaccounted for" water losses of 6.57 percent for calendar year 2010 are well within the acceptable limits of 10 percent established by the SJRWMD.

Water Resources and Engineering Division

WATER ENGINEERING SECTION

During FY 2011, about 3.5 miles of water main pipe were added to the OUC water distribution system and about 1.78 miles of pipe were abandoned or removed. The OUC water distribution system contains 1,766 miles of pipeline.

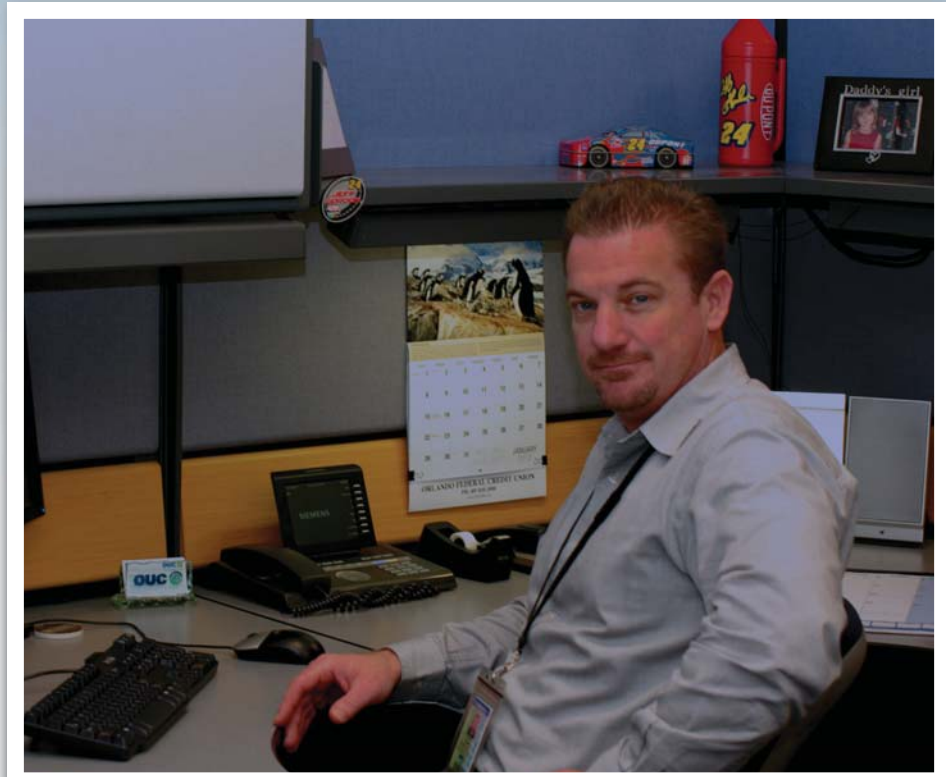
Several projects allowed OUC to replace older galvanized steel and cast iron pipe. The work was done in conjunction with Florida Department of Transportation (FDOT), City of Orlando, Orange County and Orlando Health. The old water mains replaced include 4,500 feet of 2-inch galvanized steel pipe, 660 feet of 4-inch, 70 feet of 6-inch and 240 feet of 8-inch, totaling about 1.04 miles of pipe.

Water Engineering prepared a total of 362 engineering construction estimates in 2011, as compared to 423 in 2010. Of these, 235 estimates were inside the City of Orlando and 127 were outside the City. The total construction value of the estimates for 2011 was \$3.47 million compared to \$2.48 million in 2010.

The dominant category of construction this year was commercial projects. There was some decline in the commercial market over the previous year. New plan reviews for single family and multi-family developments more than tripled to 2,055 residential units from 609 in 2010. Most of these were new developments as opposed to build out of existing developments. This year several new residential developments were initiated, which had been lacking the last couple of years.

WE helped convert the Baldwin Park reclaimed water system from potable water to reclaimed water and installed two flushing devices on the potable water system to maintain water quality.

The Water System Master Plan was completed after a complex analysis of all of the components associated with seven water plants: a separate pressure



Matt Tibbetts, Associate Engineer

zone for the Dr. Phillips area, a booster station, three elevated tanks and a re-pump station in the southeast area.

WATER MAIN PROJECTS

About \$6.29 million worth of work was completed in FY 2011. The work included renewal and replacement of polyline services, valves and hydrants, interagency projects, donated transmission and distribution piping and work performed by OUC Distribution crews for customers.

Road construction projects continued with nine interagency projects actively worked during 2011. These projects required extensive coordination with the WE staff due to the short design time frames, the many unknowns of doing work underground, particularly in older roadway sections, and long

construction periods. Projects that have commenced include ones that have been on hold for several years, such as the John Young Extension that includes a flyover of Orange Blossom Trail. Due to the extensive right of way requiring the purchase of several properties along the route, OUC eliminated several hundred feet of water main. Some projects are in the design phase and will not be constructed for several years until the 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 closed out by FDOT in July 2011. OUC has requested a refund of the unused funds for this project. Work on Narcoossee Road from SR 417 to the Osceola County Line was completed in early 2011.

Water Resources and Engineering Division

WATER ENGINEERING SECTION

Sand Lake Road: Presidents Drive to Orange Blossom Trail is nearly complete with only the final punch list items to be completed. 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.

Tavistock Road: This new roadway connecting Lake Nona Boulevard south of SR 417 to Narcoossee Road has been completed and is operational. The work included 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.

Tradeport Drive: The City is constructing a new pump station and fire line between two hangars at Orlando International Airport (OIA) along Tradeport Drive. During this construction, OUC will replace about 4,400 feet of 8-, 10-, 20- and 24-inch diameter asbestos cement water main with new ductile iron pipe as part of a JPA with the City. The project, which is expected to start construction in early 2012, will eliminate the existing brittle, highly regulated material.

Creative Village: This project includes the redevelopment of the area around the old City of Orlando Arena between Hughey and Parramore avenues and between Colonial Drive and south of Livingston Street. Project plans include several educational, residential and high technology developments. Also, OUC water mains will be re-routed during re-alignment of Livingston and Amelia streets. This project will be completed in multiple phases; therefore, careful coordination is required to comply with funding limitations.

Randal Park: This project on Dowden Road next to SR 417 was originally submitted in 2007 - 2008. Currently, it is being redesigned. Three phases

have been resubmitted and include the entrance road with 3,400 feet of 16-inch water main. Phase 1A and 1B for 256 single family homes and Colonial Grande which is a 462 unit multi-family apartment complex are under plan review.

The design of a 20-inch Southeast Secondary Pipeline to the Southeast Repump Station is continuing. 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.

PLANT PROJECTS

The results of the conceptual design report for the system-wide Ozone Generator Replacement Program was presented to the Commission in January 2011 and approved for an estimated cost of \$58 million.

The final design for the Southwest Water Treatment Plant is underway. In order to standardize all of the plants, OUC will select one Ozone System Supplier (OSS). The contract documents will be sent out for bids in October 2011. This year OUC selected three firms to act as Construction Manager At Risk (CMAR) for this and future plant projects. Request For Proposal documents for the Southwest Water Treatment Plant will be sent to the CMARs for pricing in October 2011.

WE is assisting WPRO with the design of new well piping at several of their water plants to add flow meters.

STAFF

John Perrin completed his fifth year with OUC.

Angela Scott earned an Associates of Arts degree in Business Administration.

Steve Grubbs and Johnny Reynolds completed the FDEP Water Distribution System Operator Level I training and earned their licenses.



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

Water Resources and Engineering Division

WATER ENGINEERING SECTION PROJECTS

Single Family Individually Metered Projects	No. of Units
Eagle Creek PD	217
Fell's Landing	146
Laureate Park-Phase 1A	355
Millenia Park PD, Ph 1	424
Village Walk at Lake Nona	24
SF Miscellaneous Domestic	80
Total	1246

Multi-Family Master Metered Projects	No. of Units
Baldwin Park Condominiums	12
Baldwin Park Unit 1 & 8	410
David Weekly Homes	6
Mattamy Homes	54
Millenia 700 Project	297
Tuscany Place Townhomes	12
Water's Edge at Northlake Park	18
Total	809

Inter-Agency Projects
City of Orlando Par Street
Lake Holden Terrace/Albert Shores
Barack Obama Parkway
Bumby Avenue Improvements
City of Orlando - South Street
City of Orlando Richmond Street
FDOT John Young Parkway (2 projects)
Orange County-Powers Drive
Orange County-Southwood Subdivision R&R

Special Projects
Dr Phillips Performing Arts Center
Habitat for Humanity
Nephron High Bay Warehouse
OUC Baldwin Park Flushing Devices
University of Central Florida

Water Resources and Engineering Division

WATER ENGINEERING SECTION PROJECTS

Commercial/Industrial Projects	
7-Eleven, Store # 27950	Gordon Food Service
AIPO	Great Oaks Village Youth
APASCORP LLC	Green Hill Presbyterian Church
AutoZone Inc	Greenleaf HOA
Bar Harbor Seafood Bldg Exp	I-4 Commerce Center
Bryn Mawr HOA Unit 5 Inc	Iglesia Pentacostal
Caravan Services Transportation	International Tile and Stone
Central Congregation of Jehovah's Witnesses	Jetport Business Park
Chatsworth Subdivision	Jimmy John's & Boardwalk Burgers & Fries
City of Orlando Recreation Maintenance	JK & M Auto Sales
City of Orlando	Kalos Services Inc
City of Orlando Lift Station	Kelly's Food Service
City of Orlando Parking	Kerry Giedd / Eola Eyes
City of Orlando Water Conserv2	Lake Nona South Middle School
Congregation Mita Church	Lake Nona South, Road Q Ext
Continental Real Estate Company	Lake Nona South/VAMC Access Road
Dave and Busters	Laurette Park Reclaimed
E. Wetherbee Rd Elementary School	Law Offices of Joy P. Ewertz
Evans Equipment Company	LT Nona, LLC
Ewing Irrigation Products Inc	Lymaris Deleon
First Haitian Free Church	Maxwell Terrace
Florida Hospital	Mech Technical College
FogoDeChao / Churrascaria	Millenia Plaza Expansion
Fong & Associates LLC	Miller Motor Car Company
George M. Philbeck, PA	Miller Street Water Main Exten

Water Resources and Engineering Division

WATER ENGINEERING SECTION PROJECTS

Commercial/Industrial Projects	
Missionary Church	Sanger Road
Mo's Retail	Scientific Pest Control
Nancy Conley	Shoe Carnival
Nephron Pharmaceuticals	Staghorn Villas Development
OBT Chase Bank	Tavistock Lakes Blvd Reclaim
Orange Blossom Consumer Square	Temporary Accessory Structure
Orange County Fire Station #51	TG Lee Foods, Inc - Orlando
Orlando Coalition for the Homeless	The Sanctuary at Conway
Orlando Fire Department	Tim's Wine Market
Orlando Health	Toufayan Bakery Of Florida Inc
Orlando Regional Health Irrigation	Toyota of Orlando
Orlando Regional Health Roadways	TRI -Translation Research
Parcel 14 Loop Road	TRI Translation Research Institute
Pardo & Sons Plumbing	Universal City Walk
Petals by Design	Universal Nissan-Hyundai
Princeton Elementary School	Valencia College
Pure Pest Management Inc	Walmart Neighborhood Market
Queen of Pawns	Wawa - OBT & OCP
Randal Park PD	Weigh House - Bryn Mawr
Ridhi Sighi Inc LLC	West Pine Street Property LLC
RNJ Health & Rehab	Westridge Middle School
Rollins Street and Orange Ave	Xymogen Headquarters
Ross Store	Xymogen Headquarters

GIS Technical Services

ACTIVITIES

Although as-built mapping projects increased 17 percent, this does not include the GIS modifications made to OUC's hydrants and valves from the Water Distribution audit programs or corrections made because of the Asset Management Program. About 910 hydrant corrections/updates were made to the Water GIS system. In addition, 1,971 valves and 12,037 water main sections were changed for the Asset Management Project. There are 256 water meter details linked to service points in the GIS. All GIS Technical Services' mapping statistics are located in Appendix 1.

SPECIAL PROJECTS

WaterEngine

OUC's mobile GIS map application is known as WaterEngine. WaterEngine was created internally and has proven to be invaluable 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 from feedback regarding the needs of the Water Distribution (WDIS) area. Several of the new features of WaterEngine include:

- Easier and faster location of addresses
- Inclusion of flushing points, backflow jumpers to the City's reclaim water mains and line stop saddles
- Update of edge-of-pavement lines and aerial photos
- Isolated pressure zones.
- Update of critical customer data for accuracy and improved visibility
- Linking of large water meter detail drawings and photos to the map
- Instituted process for capturing hydrant flushing activities in the field to easily track yearly hydrant activity work to comply with regulations.

Water As-built Data

The process of linking scanned images of the original as-built drawings from contractors and engineering firms to GIS mapping using new and past polygon boundaries is still ongoing. Once complete, a user can select an as-built boundary in an area of interest using a GIS application and see as-built information using their computer. This will lead to eventually eliminating the need to house paper water as-built information in filing cabinets.

The WDIS inspectors are receiving training on how to capture GPS locations of new facilities to verify contractor as-built information and improve accuracy and quality of the GIS mapping database.

GIS Mapping

Special Projects sometimes include presentation or informational maps to support the different areas in the Water Business Unit. Listed below are some of these maps:

- Water master plan maps for WRE
- Mains missing casing under railroads and major roads for the Asset Management Project
- Water plant mix zone maps for WRE and WPRO
- Sampling point location map for WPRO and WQL
- Reclaimed water areas and potential reclaimed water area maps for WRE and WE
- OUC planning map of the Deseret Ranch and surrounding county projects

Asset Management

OUC instituted an Asset Management Program in 2010 starting with a pilot area. The project has moved on to the entire system to gather information such as: install year, material, joint type, diameter and confidence of data. The program is almost 50 percent



Ron Hawkins, Supervisor of GIS Technical Services

complete with 40 percent being high confidence rating of age and material.

Software Upgrades

The ESRI and Telvent (Miner/Miner) GIS software will be updated from version 9.3.1 to 10.2 in January 2012. The 2011 upgrade included GIS editors, users and viewers for both office and field applications. The water modeling application, InfoWater, was upgraded accordingly. The GIS areas will be upgraded to Windows 7 and Office 2010 in January 2012. The WRE area will be upgraded to Windows 7 and Office 2010 at a later date because of their use of the STORMS application, which is not Windows 7 certified at this time. When STORMS is upgraded to ePETS, the Windows 7 upgrade will proceed.

Water Production Division

During Fiscal Year 2011, Water Production (WPRO) pumped 28.5 billion gallons of water, which is an average daily flow of 78 Million Gallons per Day (MGD). WPRO's peak day (97.41 MGD) occurred on May 25, 2011.

WPRO had a very challenging year with staffing. Two valuable employees, Russ Sheridan and Gino Smith, retired after 25 years of service. Russ, the senior control room operator, was extremely reliable. If there was an issue at any of the plants, Russ was aware of it and was always willing to lend a hand. Gino always reached out to people at work and in his community. His positive nature and lending hand were much appreciated during his tenure with the company.

Despite reduced staffing, WPRO was able to continue the process of improving and updating its facilities. Projects included:

Improving Signage: Having multiple plants designed by different engineers and built by various contractors can cause inconsistencies with equipment and piping labeling. As a part of WPRO's standardization project, a large label printer was purchased and the most recent AWWA naming and color coding standards were adopted. Technicians are relabeling most of the internal piping as they perform routine maintenance and repairs on the system.

Chlorine Vacuum Regulators: After several chlorine leaks and numerous discussions with engineers, it was determined that the currently installed vacuum regulators made of Acrylonitrile Butadiene Styrene (ABS) are no longer recommended for use in the southern states. Therefore, new vacuum regulators made of PVC were purchased because they are more durable and reliable than the ABS vacuum regulators.

Chlorine Regulators: Any equipment subjected to a corrosive atmosphere tends to malfunction, including chlorine regulators. Due to the increased cost



WPRO Staff

of repairs, technicians collaborated and devised a solution where a Programmable Logic Controller (PLC) is used to control the feed rate of chlorine. A new chlorine regulator was installed next to the two existing homemade units. All the technicians agreed that both units worked remarkably well; however, the vendor equipment requires less time to install and is easier to maintain. Therefore, the older existing units will remain in operation.

Pine Hills Off-site Well Flow Meters: The water from Pine Hills wells is the most cost-effective to treat due to its low hydrogen sulfide levels, however, OUC's CUP restricts withdrawals to 12 MGD or less. To meet the CUP requirement, WE and WDIS assisted WPRO with the installation of three new well flow meters at the off-site wells. The new flow meters replaced the aged propeller insertion style flow meters, which had to be removed from their hand-holes to be calibrated every three years. The new flow meters allow for easier calibration in the field.

New Variable Frequency Drives (VFD) High Service Pumps: Two new VFDs were installed on existing high service pumps, one each at Kirkman and Navy Water Treatment Plant. Redundant VFDs are installed at all WTP facilities and staff is now able to monitor the status of water pressure throughout the distribution system even in the event of a pump failure.

Proficy Workflow: Several years ago, Internal Audit recommended that an operator's manual be developed to outline a systematic response procedure in the event of any abnormality that could occur at a facility. WPRO consulted with SCADA Software Vendor, GE, who recommended the installation of Proficy Portal, a workflow management tool. Used in coordination with the current SCADA System, Proficy Portal allows the operators to create popup documents activated by different alarm conditions. The pop-up document posts the relevant standard operating procedure (SOP) automatically without research so the operators save valuable time.

NiSoft Safety Program: One difficulty of remote operations is trying to ensure the safety of WPRO technicians. Although a well-documented manual Lockout/Tagout Program has been incorporated, it is almost impossible to monitor from a remote location. After evaluating several software packages, NiSoft was selected. Stanton Energy Center uses this same software for some of their safety procedures. The program uses a central database to record the tagging out of equipment. In addition to allowing the supervisor sufficient time to review the safety procedures of each job from one location, the program provides the shift operator with enough information to track the safety of technicians at remote facilities. The data for this program is progressively being created from WPRO's iMaint records.

Water Production Division

iMaint: Updates are ongoing to the database, which contains current equipment and procedures. All major equipment has been added to the system. WPRO is also in the process of identifying all valving and piping, in conjunction with the NiSoft implementation. Inventory of spare parts, descriptions and locations for each plant is being added to the iMaint database.

Network Switches: As part of the conversion from the fiber optic network to the Sonet Ring, WPRO has replaced the SCADA network switches with switches for communications with the OUC business network. The upgrade has allowed for a smooth transition from WPRO's independent security system network to the OUC supported network. The need for data to pass through WPRO's SCADA firewall has been eliminated, making the SCADA system more secure. Bandwidth availability of the security system and camera resolution has improved at all facilities and additional cameras have been installed for more efficient monitoring at the plants.

Representative Sampling Plan: Florida Department of Environmental Protection (FDEP) requires routine

bacteriological sampling within the distribution system. When a sample fails (tests positive for Total Coliform bacteria), FDEP requires resampling of the distribution point of the failed sample and every raw water well that was pumping at the time of the initial sampling. This process would be extremely unproductive for WPRO staff. Therefore, the Operations section, with the help of WE and GIS, proposed an improved sampling plan. The new sampling plan takes into consideration the zone of influence for each facility and reduces the number of follow-up samples required in the event of a failed bacteriological sample. FDEP approved the new sampling plan.

STAFF

Service Awards

Benny Crawford	20 years
Jerry Farina	20 years
Marcia McBride	20 years
Gerald Conner	15 years
Angel Molina	15 years

Frank Dela Torre and Kevin Cooper passed their B Operators License exam. This higher level of licensure gives WPRO increased flexibility to operate the facilities in the event of

lost communications with the control center. During the fiscal year, Senior Staff approved a minimum staffing plan for the maintenance section. At least 19 technicians are required to maintain and repair the facilities as they exist today. Due to Fred Thompson's pending retirement, Bob Slattery assumed the role of Mechanical Lead while Fred concentrated on expanding iMaint's database with maintenance procedures (Condition Based Maintenance Lead). Bob easily transitioned into the day-to-day operations in the Mechanical Lead position. Although Fred adapted to his new role extremely well, he had a much harder time adjusting to being in the office all day! Another change was the assignment of the daily route to Benny Crawford. This change allows the other technicians to concentrate more on larger projects. Jerry Farina transferred to Operations; his prior hands-on experience at all of the facilities made for a smooth transition. WPRO hired Toby White as a replacement for new retiree, Russ Sheridan. Toby's prior experience with launching several surface water plants enabled him to adjust to OUC's processes quickly. Another addition to staff is Ron Byers (Electrician).

WATER QUALITY LABORATORY

During 2011, the Water Quality Laboratory (WQL) continued its main mission of compliance monitoring. The WQL continued to support divisions within OUC including Water Production, Water Engineering, Water Distribution, Stanton Energy Center (SEC) and the Environmental Division.

Two new rules from EPA resulted in additional monitoring of the distribution system. The ground water rules triggered some additional total coliform testing. This rule required certain source water or raw water wells to be evaluated to determine whether the presence of total coliform in the distribution systems was due to E-coli contamination in the ground water source. As referenced previously,

the Operations Section developed a new and improved sampling plan in response to this new rule.

Another rule by EPA required OUC to set and maintain certain optimal water quality parameters in the distribution system. These new parameters include pH, calcium and alkalinity. Samples must be collected from each water plant's point of entry and analyzed every two weeks.

The lead and copper testing was successfully completed, and no further testing is required until 2017. Results were submitted to customers and the Department of Environmental Protection (DEP).

The WQL continues to provide collection and testing of the monitoring wells at SEC. The work also includes monthly collection and testing of the wastewater treatment plant and other collection and testing as required.

Staff Achievements

Jaritzta Pluguez became a contract chemist. Jaritzta has been a chemist with OUC since 2007.

In June, 2011 the WQL officially moved from the Water Production Division to the Legislative and Regulatory Compliance Department.

Water Production Division

2011 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	---	<0.0025
Lead	0.015	<0.001	<0.001
Mercury	0.002	<0.0005	<0.0005
Selenium	0.05	<0.005	<0.005
Sodium	160	6.59	11.0
Nitrate	10	<0.10	<0.10
Nitrite	1.0	<0.10	<0.10
Fluoride	4	0.183	0.650
Turbidity in NTU	1.0	0.140	<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	<0.000
Organics			
Volatile Organics (21 total)	***	All BDL	All BDL
Disinfection By-Products			
THMs (Total)	0.080	—	0.049
HAA5	0.060	—	0.018
Bromate	0.010	—	0.003
Radionuclides			
Gross Alpha	15.0	—	<1.8
Radium 228	5	—	<1.0
Results in pCi/L <i>Reported in 2008</i>			

Abbreviations:

BDL	- Below Detectable Limits
<	- Less Than
>	- Greater Than
MCL	- Maximum Contamination Levels
NOD	- No Odor Detected
pCi/L	- Picocuries per liter
THMs	- Trihalomethanes
HAA5	- Haloacetic Acids
RAA	- Running Annual Average
µs/cm	- Microsiemens per centimeter

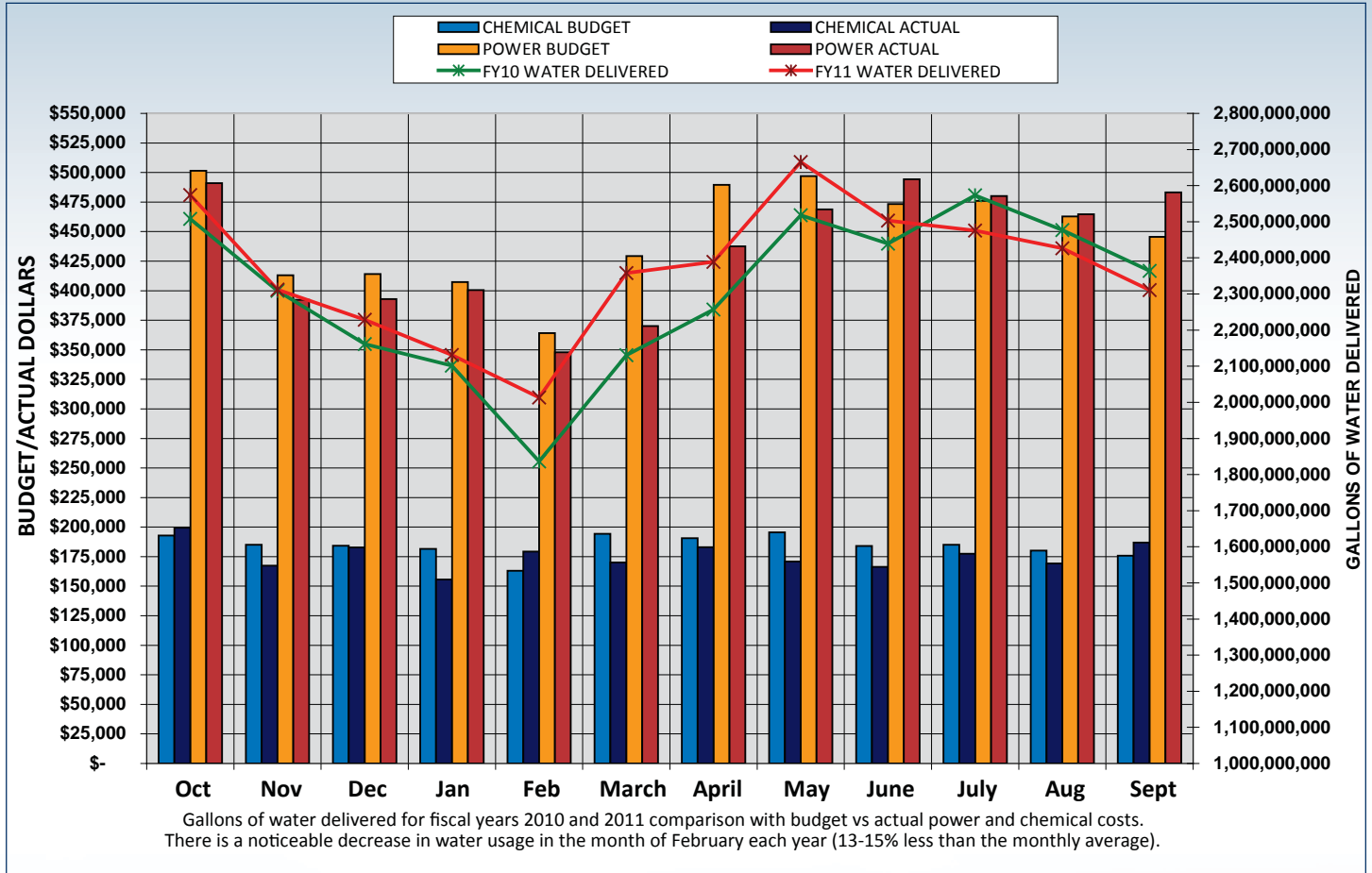
Comparison to Secondary Standards			
Secondary standards also have Maximum Contamination Levels, but are related to aesthetic qualities such as taste, odor and color.			
Secondary Standards	MCL	Raw Water	Treated**
Chloride	250	9.82	14.6
Color in Pt-Co Units	15	7.94	1.67
Copper	1.3	<0.002	0.017
Corrosivity	+0.2- 0.2	-0.237	-0.217
Iron	0.3	0.038	<0.010
Manganese	0.05	<0.002	<0.002
Odor Threshold # Units	3.0	1.68	NOD
pH Field	6.5-8.5	7.61	7.45
Sulfate	250	11.2	14.2
Total Dissolved Solids	500	156	169
Silver	0.100	<0.001	<0.001
Zinc	5.0	0.002	<0.002
Aluminum	0.200	<0.005	<0.005
Additional Testing (No Standards)****			
Alkalinity CaCO3	—	115	116
Ammonia	—	0.398	<0.10
Calcium as Ca	—	37.7	38.5
Carbon Dioxide	—	5.51	6.57
Conductivity in µs/cm	—	277	306
Dissolved Oxygen	—	0.17	13.0
Hydrogen Sulfide	—	1.78	<0.38
Magnesium as Mg	—	8.54	8.33
Phosphate as P	—	<0.10	<0.10
Potassium as K	—	0.950	1.01
Silica	—	10.2	10.8
Total Hardness as CaCO3	—	129	130
Total Hardness in Grains Per Gallon (GPG)	—		8
TOC - Total Organic Carbon	—	1.66	1.59

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

- ** Average treated water for eight plants based on 2011 test results.
- *** MCL varies with each parameter.
- **** No standards have been established for these parameters by the Safe Drinking Water Act.

Water Production Division

Comparison of the Monthly Water Delivered – Fiscal Year 2010-2011 Power and Chemical Costs – Budget vs Actual



Southeast Water Treatment Facility



Water Distribution Division

Operations

The Accountability, Inspection and Response sections of Water Distribution (WDIS) utilized their resources and worked effectively to deliver top notch service with minimal interruption to customers.

2011 presented some interesting challenges regarding staffing shortages. The Inspection section worked without its full complement of backflow technicians and pulled together using cross trained staff from the CREW section to fill the void. In the Response section, shortfalls in staffing required team members to be flexible and continue providing 24-hour coverage for OUC residential and commercial customers. The expertise, dedication and commitment of the entire WDIS team allows for a continuous flow of Operations at all times. Kudos to the team for always being there when they're needed most!

ACCOUNTABILITY

The Water Accountability section successfully performed more than 31,000 activities in 2011. Highlights include the exchange of more than 7,000 water meters. Administrative staff worked diligently to identify non-revenue meters and direct appropriate corrective action. To date, the staff has researched more than 50,000 metered accounts. The fire hydrant painting project continued in 2011. OUC contractor DMD painted 3,481 fire hydrants in the southeast and southwest service areas. Crews are more than half way through the 10,000-plus fire hydrants owned by OUC. The fire hydrant painting project is expected to be completed in 2012.

INSPECTION

The Inspection and Cross Connection Control section had a busy year as well. Construction Inspectors successfully completed 46 new construction projects, installing more than 28,000 feet of water main ranging



10-inch water meter at Valencia College on Kirkman Road

in size from 2-inch through 16-inch. Cross Connection Control staff along with OUC's contractor tested a total of 15,552 backflow devices and completed 108 assembly repairs. Revenues generated from testing fees were more than \$390,000 respectively. Cross Connection Control site inspections totaled 1,594 with no violations noted. Inspection staff participated in the annual fire hydrant audit by completing 2,260 inspections.

RESPONSE

Water Distribution's Response section answered about 5,100 calls for service in 2011 with an average response time of 27.86 minutes. Technicians continued to conduct leak detection surveys throughout the year. A total of 17.07 miles of distribution pipe was inspected that resulted in the detection of four meter leaks. No leaks were

detected on any of the distribution mains. The Response section also completed 2,196 fire hydrant inspections and 228 valve audits. New fleet additions were added in the beginning of the year; trucks #366 and #287 were replaced and equipped with a new bumper mounted crane hoist. The new hoist system is designed for a one-man operation and is stored out of sight inside the rear bumper of the truck. The new cranes have been incorporated into Water Distribution specifications for all Response trucks in an effort to reduce the risk of personal injury to WDIS staff.

STAFF

Promotions

Gloria Kelly was promoted from Administrative Specialist III to Administrative Specialist II.

Water Distribution Division

Service Awards

Mark Dennison	25 years
Tim Barley	20 years
Donny Capatosto	20 years
Easton Landells	20 years
James Applewhaite	5 years
Maniram Bhim	5 years
Leonel Dominguez	5 years

New Employees

George Bauknight
Jason Copeland
Michael Foster
Brandon Schremmer

FDEP Level III State Certification

Julian Avila
Scott Bassett
Paul Bleakney
Lee Davis
Mark Dennison
Eric Dettmer
Leonel Dominguez
Johnny Hersey
Merrill Markell
Tacares McCormick
Bruce Miller
William Munson
Trevor Parris
Mike Roberson
Brennan Scott
Dennis Singh
Nioker White
Steven Wray



Response Truck with Bumper Crane



48-inch pipe repair at Sky Lake Water Treatment Plant

Water Distribution Division

DISTRIBUTION CREWS

2011 PROJECTS

Blue Poly Replacement Project:

Meadow Woods Subdivision had a total of 55 services replaced, while Southgate Subdivision had 22 services replaced.

Blue Poly Projects: Ernst Court, Sand Pines Estates and Dover Gardens are 100 percent completed for a total of 137 services being replaced.

Pershing Facility Water Mains:

Replaced water mains in the driveways and parking lots due to excessive corrosion caused by the Positect fill material has been completed with the replacement of 1,200 feet of 8-inch DIP, 300 feet of 2-inch PVC, four fire hydrants and four fire services.

Valencia College: Installed a new 10-inch Sensus OMNI meter on Kirkman Road.

TG Lee Dairy: Installed new 4-inch Sensus meter on Robinson Street.

Powers Drive Drainage Project:

Replaced 650 feet of a 4-inch water main, one fire hydrant and replaced and adjusted six 1-inch services that were in conflict.

Emergency Broken Lines: A total of 357 emergency broken lines were replaced by the crew section in 2011.

In summary, the crew section installed approximately 1.4 miles of pipe, broken down as follows: 3,210 feet of 2-inch, 1,042 feet of 4-inch, 860 feet of 6-inch, 2,191 feet of 8-inch and 80 feet of 10-inch mains in 2011. There were 23 fire hydrants and one 4-inch fire service installed; 170 1-inch and 86 2-inch or larger service taps made in 2011.

MAJOR MAIN BREAKS

WDIS CREWS repaired the 48-inch high service pump discharge main at the Sky Lake Water Plant and a 16-inch main at the entrance of Eagle



10-inch sensus Omni meter at Valencia College on Kirkman Road

Creek. WDIS CREWS also assisted Stanton Energy Center by repairing a broken 14" High Density Polyethylene (HDPE) water line.

A 16-inch cast iron main was repaired after a contractor directional drilled into it on West Oak Ridge Road near Oak Ridge High School. The contractor was responsible for repairing the major road damage that resulted.

STAFF

Promotions

Jason Anastasi was promoted from a Distribution Technician I to an Equipment Operator.

Glenn Dyal and Brian Blake were promoted from Distribution Technician II to Distribution Technician I positions.

Training

17 employees passed the state exam to obtain DEP Level 3 State Certification.

James Applewhaite obtained DEP Level 2 State Certification and completed OUC's Track 1 Leadership Training.

Water Distribution Division

WATER ACCOUNTABILITY SECTION ACTIVITIES

Meter Shop	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Check meters for dead and read	679	1,214	1,371	1,383	2,216	1,065	431	677	9,136	3,180
Clean out meter and read	1,844	2,812	3,110	3,575	4,896	4,361	6,868	6,137	6,566	1,738
Clock meter for leaks	872	823	523	444	701	553	637	663	886	1,022
Dial exchanges	70	150	107	118	235	102	128	178	101	103
Install meter riser	567	493	341	467	382	463	327	351	276	300
Install special irrigation meters	-	-	100	361	265	281	80	74	96	119
AMR repair	20	28	24	15	4	16	27	20	24	15
Meters field tested	74	110	76	144	445	365	583	258	297	840
Meter removal	148	210	458	393	335	192	128	210	230	354
Meter shop tested	1,086	97	294	4	147	0	55	243	139	3,100
Raise meter box to grade	2,320	2,032	1,853	1,735	1,686	4,361	2,004	2,266	1,957	2,019
Hydrant - Audits	1,518	2,165	1,146	689	1,102	3,422	4,404	10,765	10,121	8,579
Hydrant - Painted	2,595	2,500	2,157	162	202	334	187	132	3,386	3,328
Hydrant - Repair	139	200	361	230	720	777	597	1,257	1,019	660
Repair meter leaks	823	781	623	657	666	565	469	397	293	250
Replace box and lid	2,352	2,571	2,170	2,825	3,885	3,164	3,227	3,641	2,891	2,341
Replace curb cock or coupling	441	351	367	415	372	422	405	309	280	320
AMR meter sets	6	31	22	13	0	0	3	6	3	2
Meter exchanges	2,761	3,446	4,700	9,312	8,775	7,022	6,751	6,611	5,828	7,005
Reclaim meter sets	-	396	1,028	1,028	315	383	134	61	51	10
Totals	18,315	20,410	20,831	23,970	27,349	27,848	27,445	34,256	43,580	35,285

DISTRIBUTION CREWS ACTIVITIES

Maintenance Tasks	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Adjust valve boxes	77	57	260	411	51	22	72	654	124	118
Exercise valves	68	186	712	1,069	165	4	2	301	734	213
Install meter riser	52	91	71	83	48	47	101	24	12	20
Locate valves	14	138	784	1,216	193	7	11	32	32	51
Meter exchanges	76	109	297	491	358	494	362	228	198	69
Relocate meter	251	197	222	186	192	156	85	99	116	192
Renew services	718	892	1,171	738	634	1,152	693	705	534	1,114
Repair mains	108	87	109	94	105	96	110	92	58	101
Repair valves	34	35	23	21	7	30	48	29	27	40
Replace hydrant	78	73	98	59	65	79	54	45	24	36
Replace/install valves	25	231	188	184	177	146	293	236	78	202
Totals	1,501	2,096	3,935	4,552	1,995	2,233	1,831	2,445	1,937	4,167

* Includes footage of main adjustments on Narcoossee Road.

Water Distribution Division

INSPECTION/RESPONSE SECTION ACTIVITIES

Maintenance Tasks	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Adjust mains or services	139	118	58	127	12	111	18	16	13	5
Adjust meter box to grade	735	596	372	441	443	392	401	455	556	625
Adjust/Replace valve boxes	105	124	194	127	223	292	192	807	419	515
Clean out meter box and read	1,614	1,245	1,008	1,097	1,097	1,400	1,754	2,856	4,690	980
Customer trouble	695	481	631	665	792	861	839	923	888	1,021
Customer water quality inquiry	105	64	42	30	37	14	5	16	6	15
Cut temporarily	411	316	361	351	314	459	506	723	614	576
Cut-on/off	407	372	336	350	396	424	494	747	903	685
Exercise valves	427	346	42	323	1,455	2,062	1,512	1,529	811	850
Flow test	102	62	104	139	240	122	128	122	114	96
Installed meter riser	604	477	421	360	325	341	393	327	338	361
Irrigation meter sets	393	269	254	16	36	14	13	8	3	10
Locate valves	1,977	1,202	1,103	858	2,845	4,314	3,645	6,154	2,637	2,900
Low pressure calls	90	60	58	51	58	66	57	59	44	78
Meter exchanges	773	825	686	759	730	692	799	727	828	920
Meter removal	223	184	74	20	20	40	50	58	19	23
Meter set	581	258	170	192	174	85	423	66	141	112
PM calls	2,351	1,696	1,351	924	977	1,161	903	665	768	1,629
Relocate meter	143	135	63	28	27	22	23	25	15	20
Renew services	348	243	507	167	147	127	103	166	143	153
Repair customer's service	321	294	246	298	228	239	239	232	218	254
Repair mains	81	77	66	67	71	43	46	49	66	63
Repair meter leaks	331	320	272	458	556	564	506	543	886	928
Repair services	533	412	246	490	371	406	325	367	335	409
Repair valves	57	29	401	12	23	24	20	23	13	27
Replace box/lid	766	716	710	169	212	351	484	516	422	432
Replace curb cock or coupling	997	727	595	597	556	632	552	574	625	589
Backflow prevention tests	3,968	4,473	4,201	4,034	5,461	11,095	11,208	15,940	14,079	10,351
Cross connection inspections	2,116	1,522	2,108	-	606	1,255	1,720	2,066	2,273	1,594
Totals	21,393	17,643	16,680	13,150	18,432	27,608	27,358	36,759	32,867	26,221

Water Distribution Division

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. 2010		SEPT. 30. 2011		All Activities	Abandoned
		MILES	%	MILES	%	MILES	MILES
		-		-		-	-
2 "	or Less GALV or Unk	147.930	8.40%	144.957	8.21%	(2.97)	0.714
2 "	or Less PVC	72.984	4.14%	76.242	4.32%	3.26	0.011
3 "		2.213	0.13%	2.216	0.13%	0.00	0.000
4 "		164.256	9.32%	164.304	9.31%	0.05	0.163
6 "		450.660	25.58%	451.710	25.59%	1.05	0.152
8 "		405.315	23.01%	406.204	23.01%	0.89	0.658
10 "		66.735	3.79%	67.010	3.80%	0.28	0.000
12 "		251.467	14.28%	251.585	14.25%	0.12	0.015
14 "		2.267	0.13%	2.267	0.13%	(0.00)	0.000
16 "		111.177	6.31%	112.055	6.35%	0.88	0.066
18 "		1.195	0.07%	1.195	0.07%	0.00	0.000
20 "		70.076	3.98%	70.083	3.97%	0.01	0.000
24 "		10.109	0.57%	10.108	0.57%	(0.00)	0.000
30 "		3.260	0.19%	3.296	0.19%	0.04	0.000
36 "		1.803	0.10%	1.822	0.10%	0.02	0.000
42 "		0.035	0.00%	0.035	0.00%	0.00	0.000
48 "		0.078	0.00%	0.120	0.01%	0.04	0
TOTALS		1761.56	100.00%	1765.21	100.00%	3.65	1.78

2010 AVG DIA. 8.164"

2011 AVG DIA. 8.168"

- 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: 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 instead left in the ground.

Appendix 1 – Water Charts

This section contains a wide range of 2011 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 – 2011

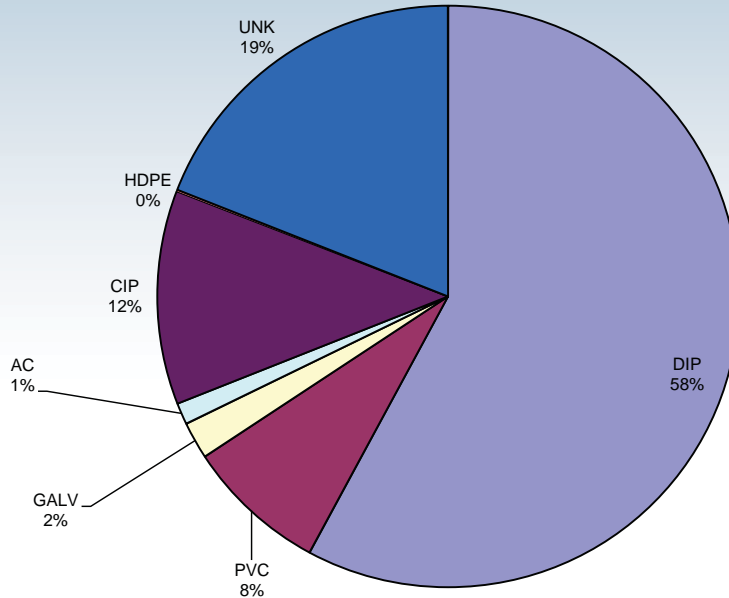


Figure 1a. Total percentage of the various types of pipe material used for distribution of potable water in the OUC service territory through 2011. Ductile iron pipe is installed most often because it is a superior product for water lines 4-inches in diameter or larger.

Percentage of Types of Pipe Material Abandoned – 2011

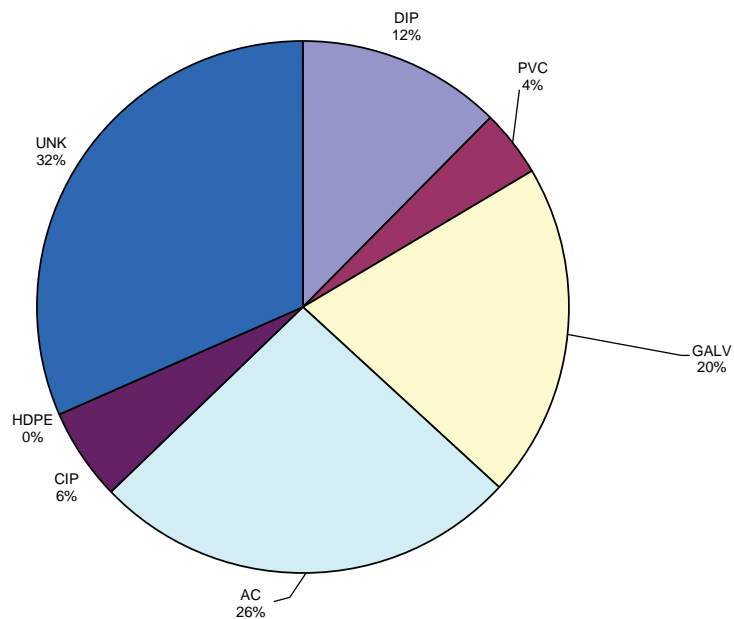


Figure 1b. Total percentage of the various types of pipe material abandoned or replaced due to capital improvements or maintenance projects for the OUC service territory in 2011. The greatest percentage is classified as “unknown”, but typically a form of cast iron pipe.

Appendix 1 – Water Charts

GIS Technical Services Statistics – 2008 to 2011

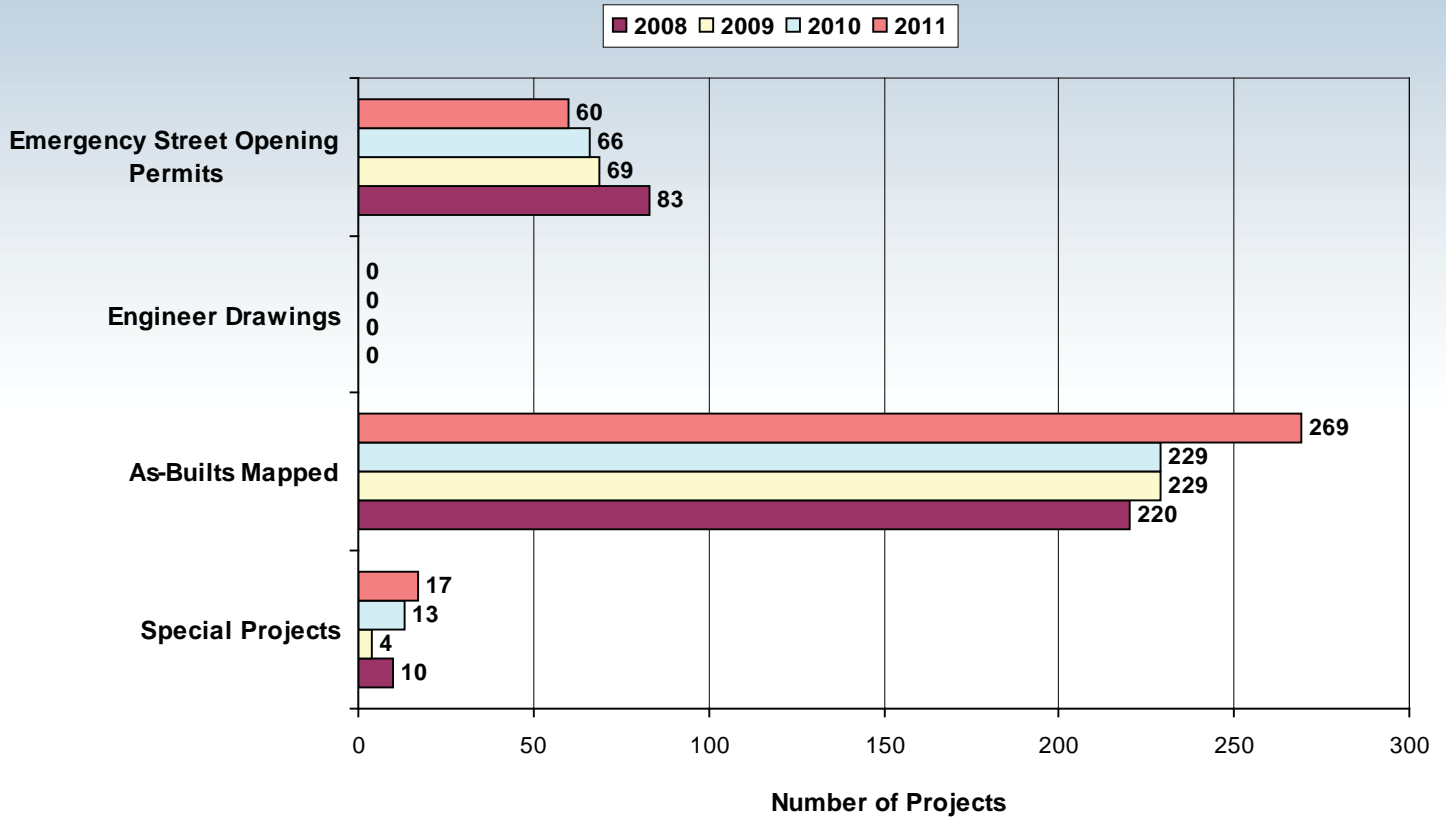


Figure 2. Total number of the various technical engineering support services over the past four years. Trend shows a 22 percent increase in permitting and as-built mapping since 2008.

Appendix 1 – Water Charts

Total Value of Projects Estimated – 2007 to 2011

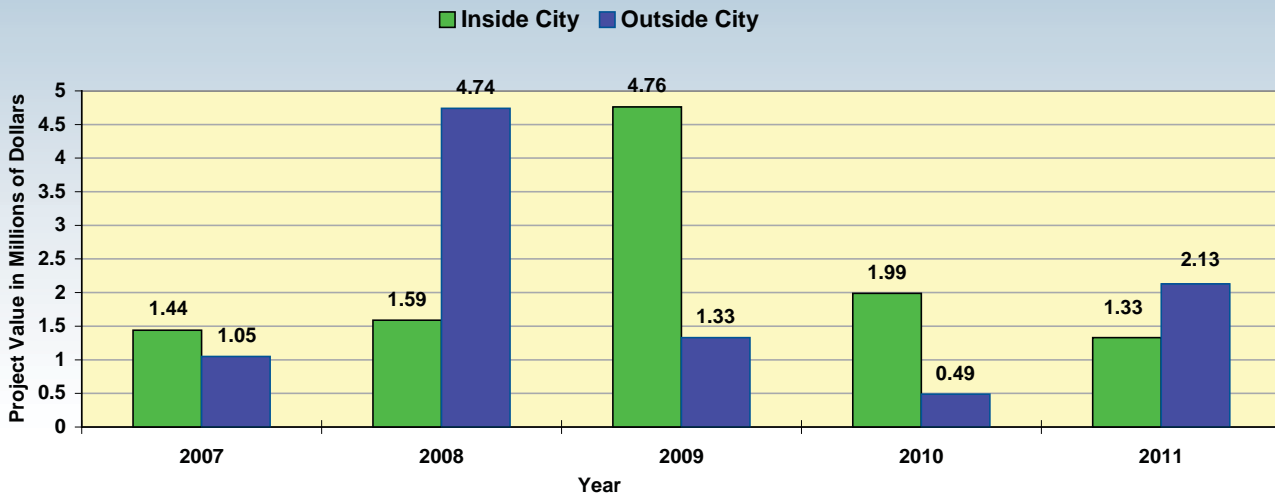


Figure 3. Total dollar value, in millions of dollars, for engineering projects estimated over the last five years for water customers inside and outside the city limits. 2008 was the largest value for projects outside the city (\$4.7 million) and in 2009 was the largest value for projects inside the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

Total Number of Construction Projects – 2007 to 2011

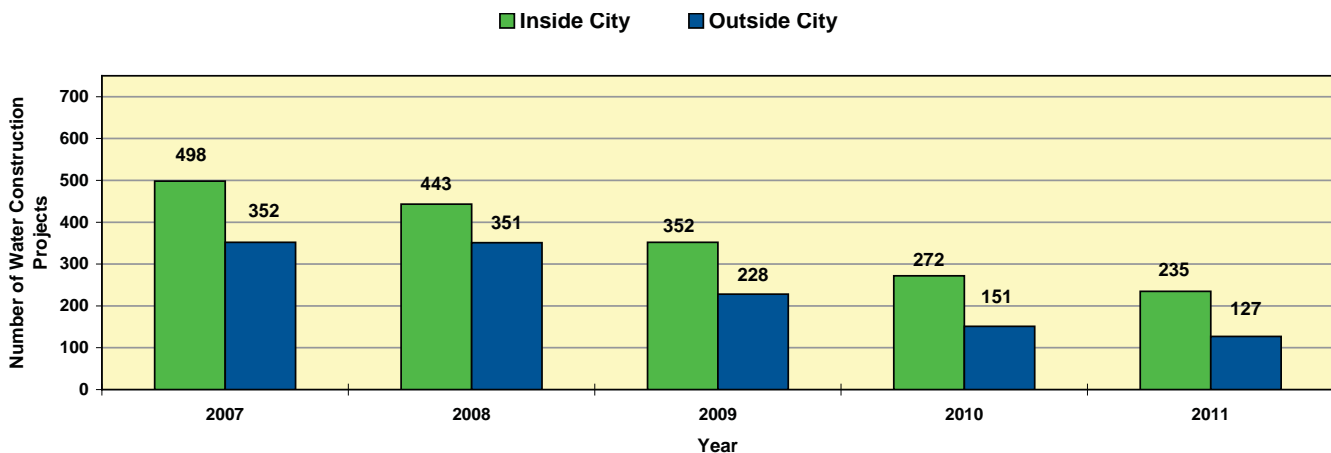


Figure 4. Total number of construction projects occurring over the last five years inside and outside the city limits. There has been a 57 percent decrease in construction since 2007.

Appendix 1 – Water Charts

Funding Sources for Capital Improvements – 2007 to 2011

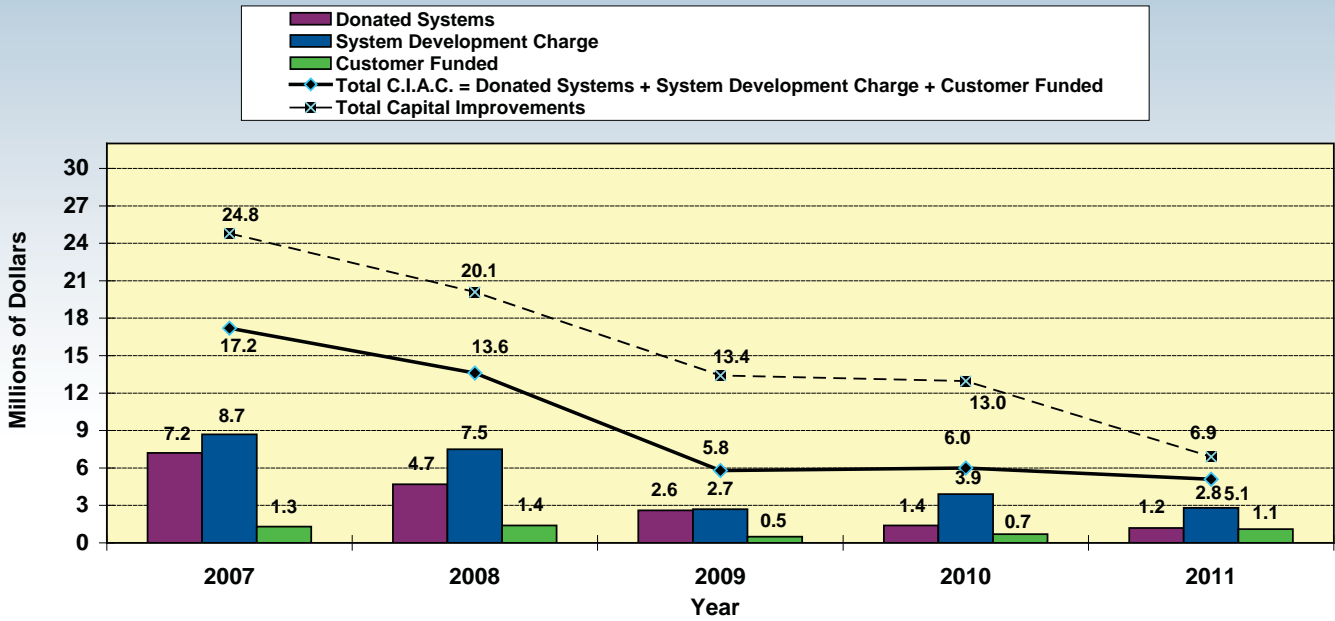


Figure 5. Funding sources for capital improvements in millions of dollars over the last five years. The majority of the funding is derived from developer donated assets with the greatest amount of improvements in 2007.

Total Capital Improvements 2007 to 2011

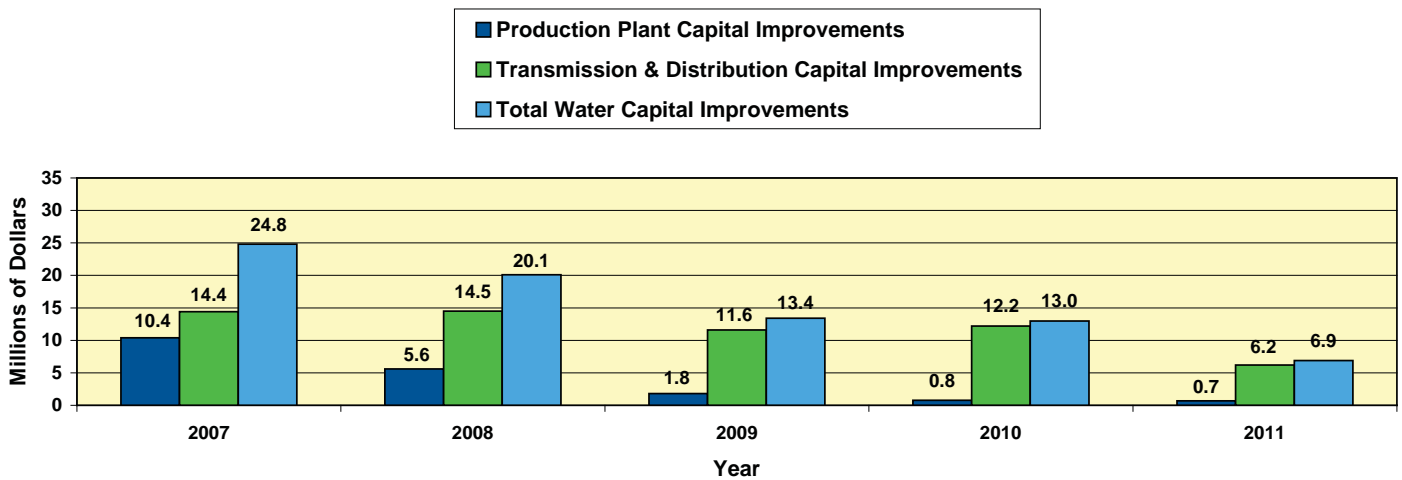


Figure 6. Total amount of capital expenditures in millions of dollars over the past five years. The peak expenditures in the amount of \$24.8 million was in 2007 with 2011 being \$17.9 million less than 2007, thus indicating the decrease in economic growth.

Appendix 1 – Water Charts

Total Number of Chemical Analyses – 2001 to 2011

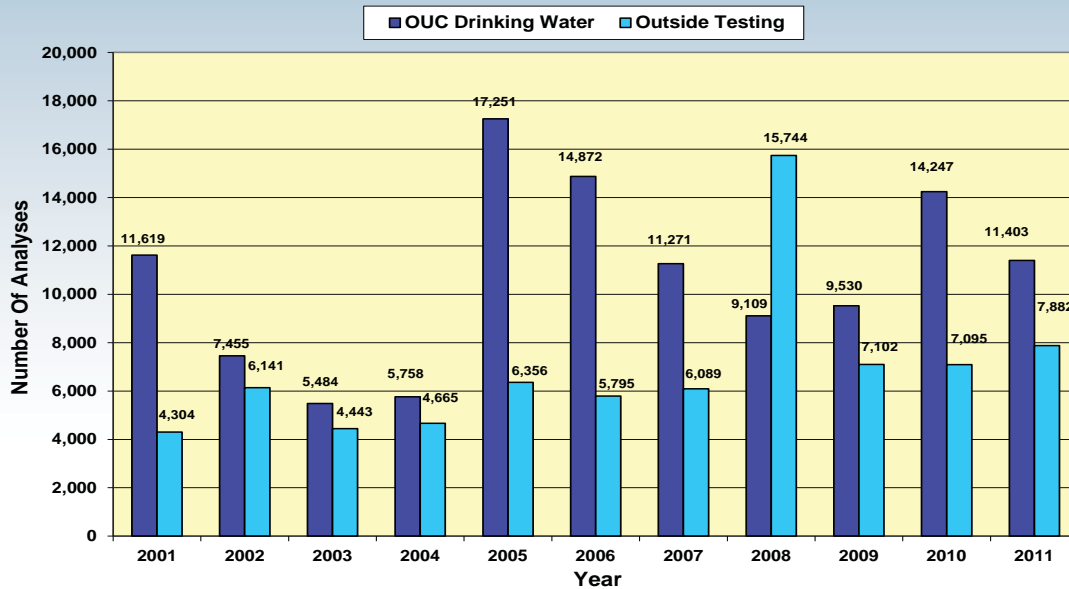


Figure 7. Total number of laboratory chemical analyses for OUC drinking water compliance and outside clients for the past eleven years. Routine analyses are done for environmental and distribution compliance with 2005 and 2006 being peak years nearing the end of the construction boom. 2008 was a productive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

Total Number of Bacteriological Analyses – 2001 to 2011

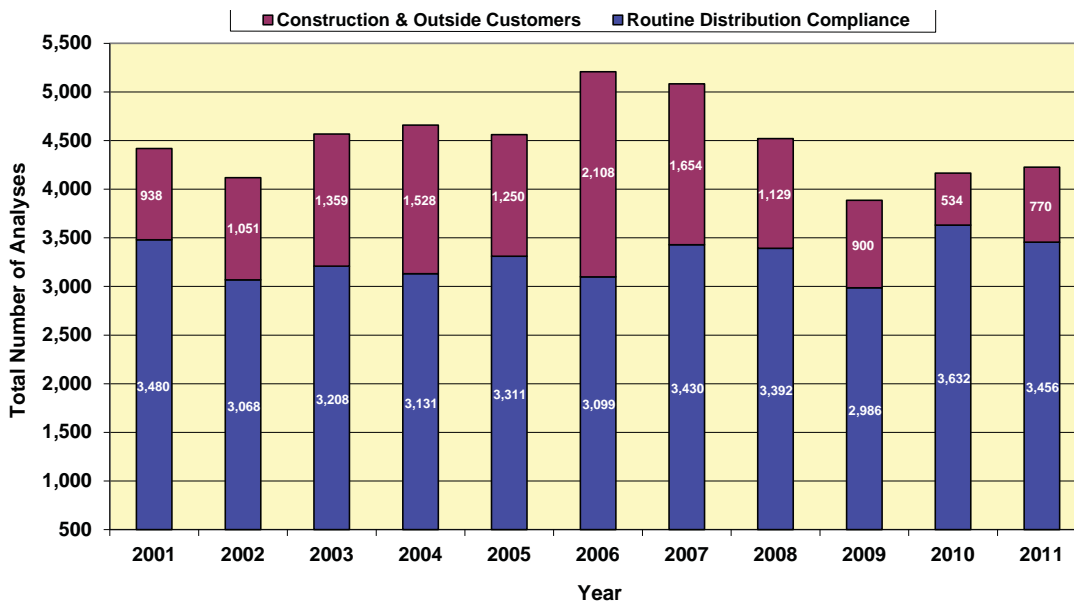


Figure 8. Total number of laboratory bacteriological analyses over the last eleven years. Analyses are performed for routine distribution compliance, new construction and outside customers. 2006 was a peak growth year for construction customers. The minimum amount analyses for routine distribution compliance is 2,520 samples.

Appendix 1 – Water Charts

Well Capacity and Pumping Rates – 1981 to 2011

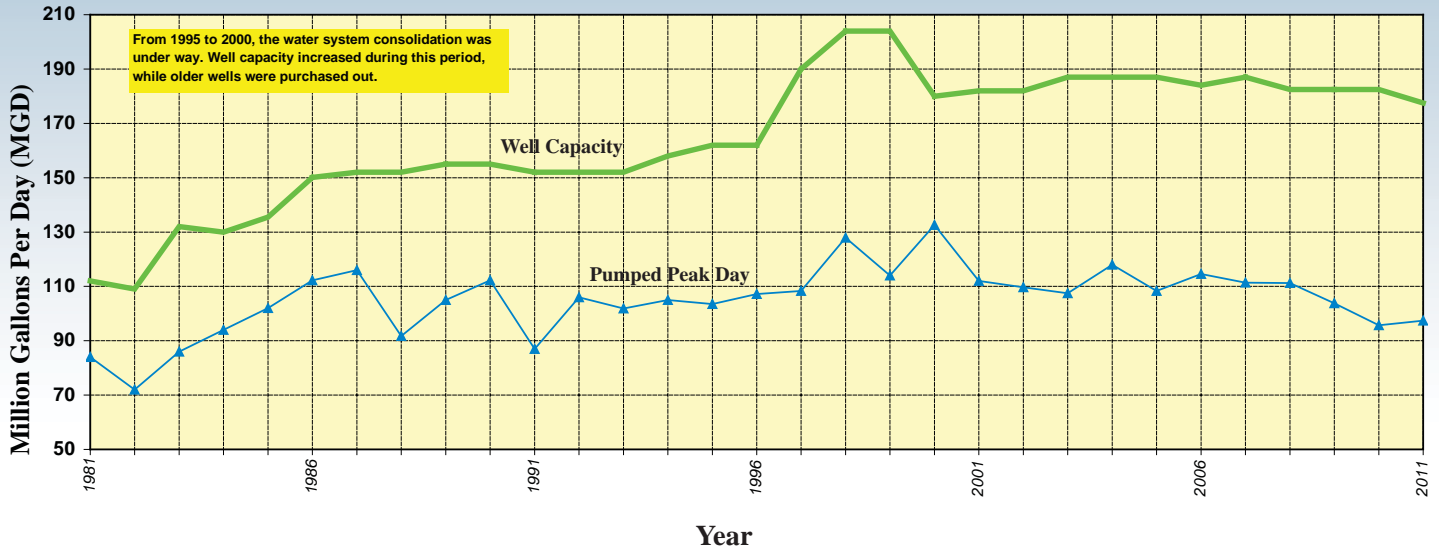


Figure 9. OUC’s total well capacity in mgd and the peak day amount of water pumped from OUC wells in millions of gallons delivered to the customers for the past thirty years. The peak day pumping rate typically occurs in the month of May each year. The greatest total peak day well pumping rate was over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

High Service Pump Capacity and Pumping Rates – 1981 to 2011

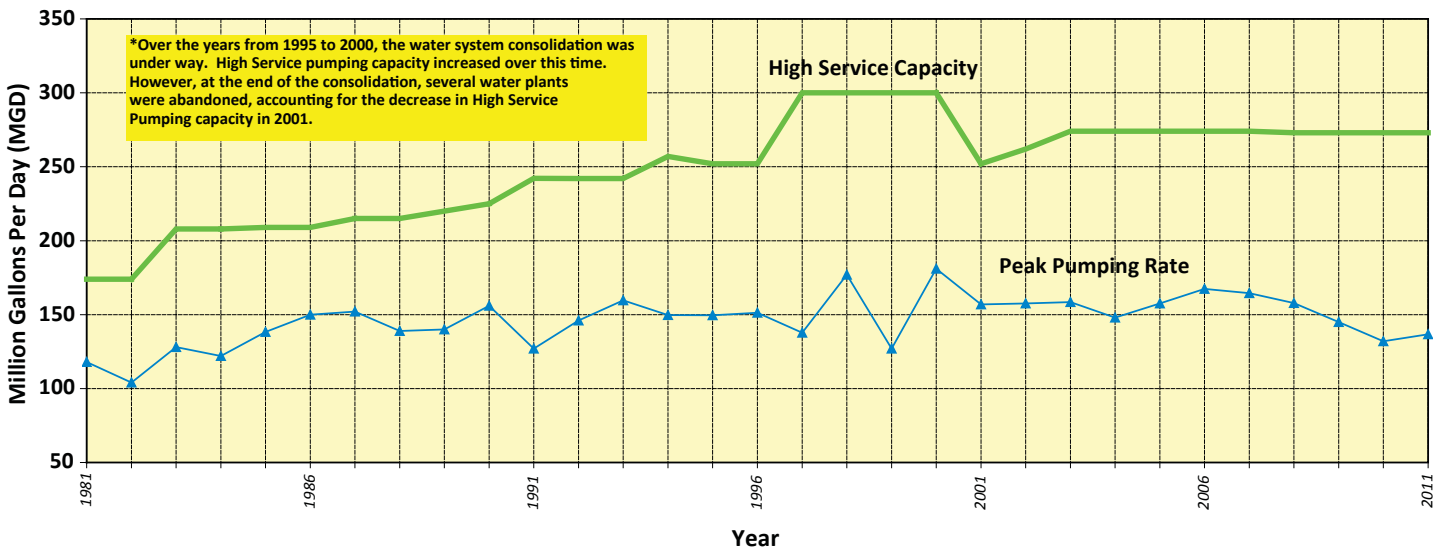


Figure 10. Water Treatment Plant’s total high service pump capacity in mgd and the annual peak pumping rate in millions of gallons delivered over the past thirty years. In 2000, the largest annual peak rate ever observed was over 180 mgd.

Appendix 1 – Water Charts

Water Treatment Power Costs in Cents per 1000 Gallons – 2001 to 2011

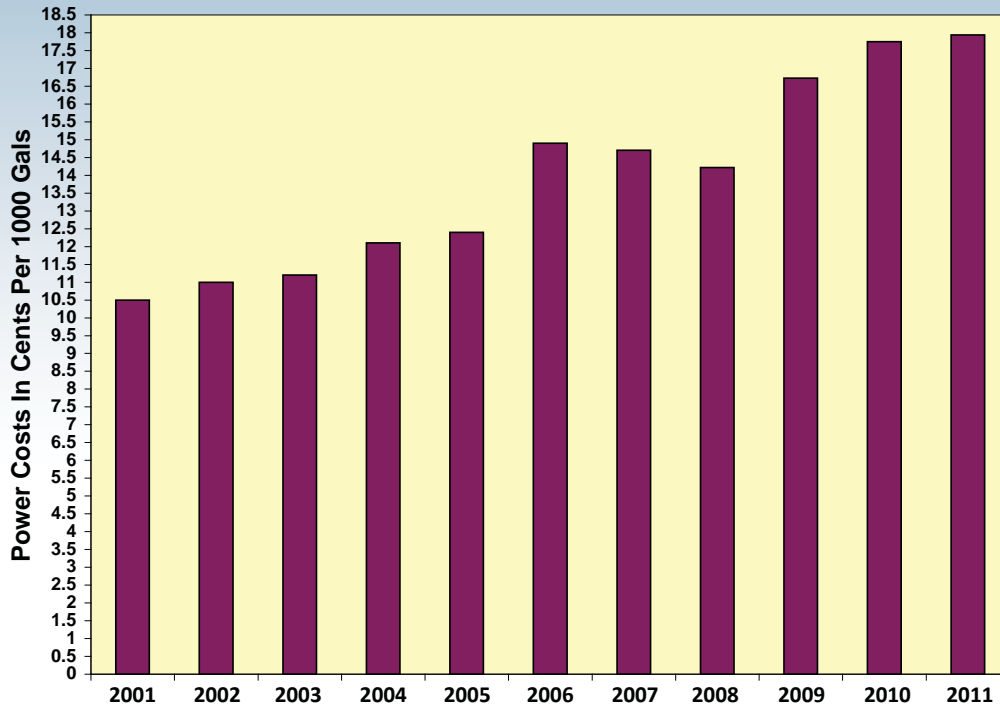


Figure 11. Power cost in cents per 1000 gallons to treat and deliver potable water over the past ten years. Even though the total amount of treated water may have decreased, the cost of power has increased over time.

Treated Water Pumped in Gallons per kWh – 2011

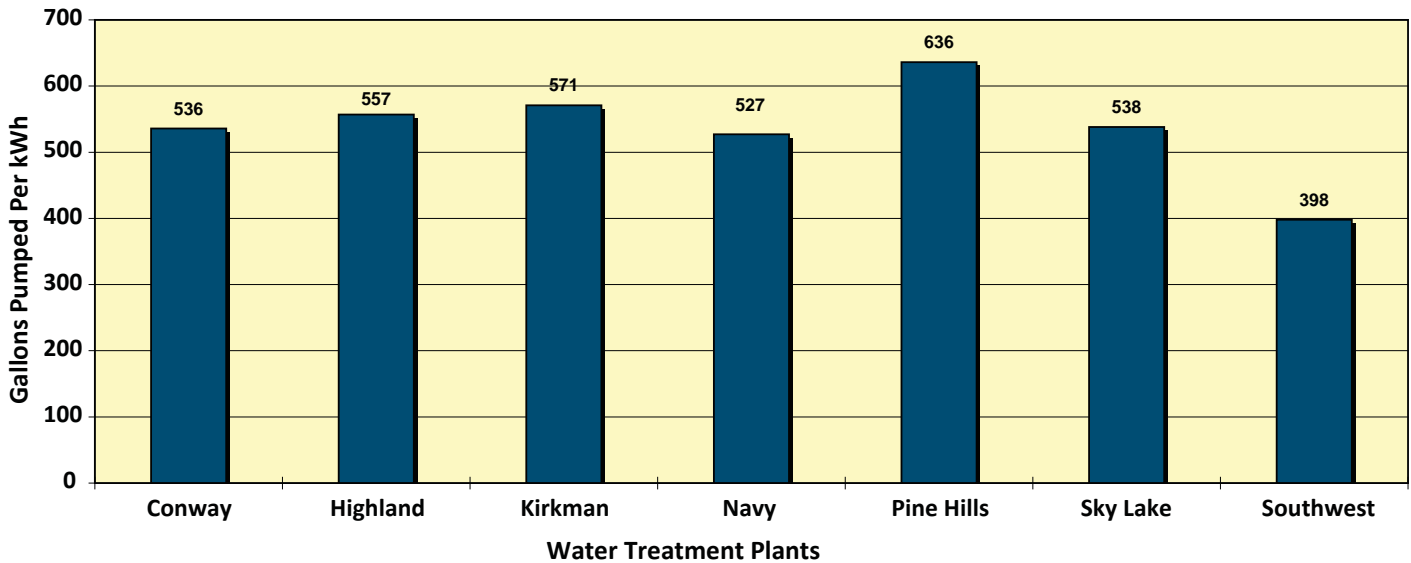


Figure 12. The amount of treated water pumped in thousands of gallons per kilowatt hour used at each water treatment plant in 2011.

Appendix 1 – Water Charts

Total Amount of Treated Water Pumped – 2011

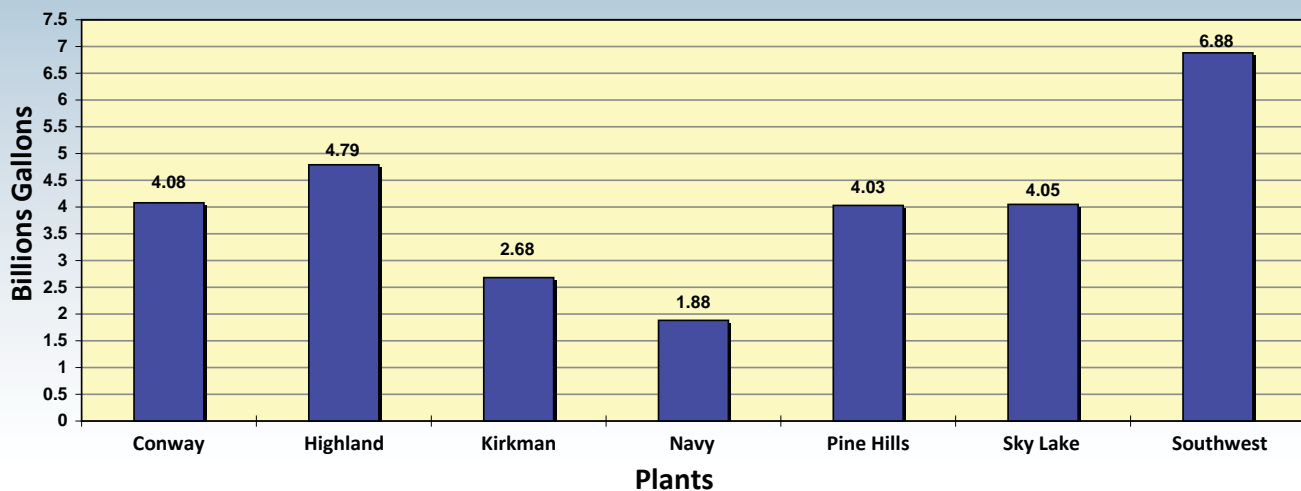


Figure 13. Total volume of water produced by each Water Treatment Plant in billions of gallons in 2011. Southwest covers the largest zone and includes the Dr. Phillips area. The Southeast zone is serviced by Conway and Sky Lake.

Average Day vs. System Peak Day Water Pumped – 2011

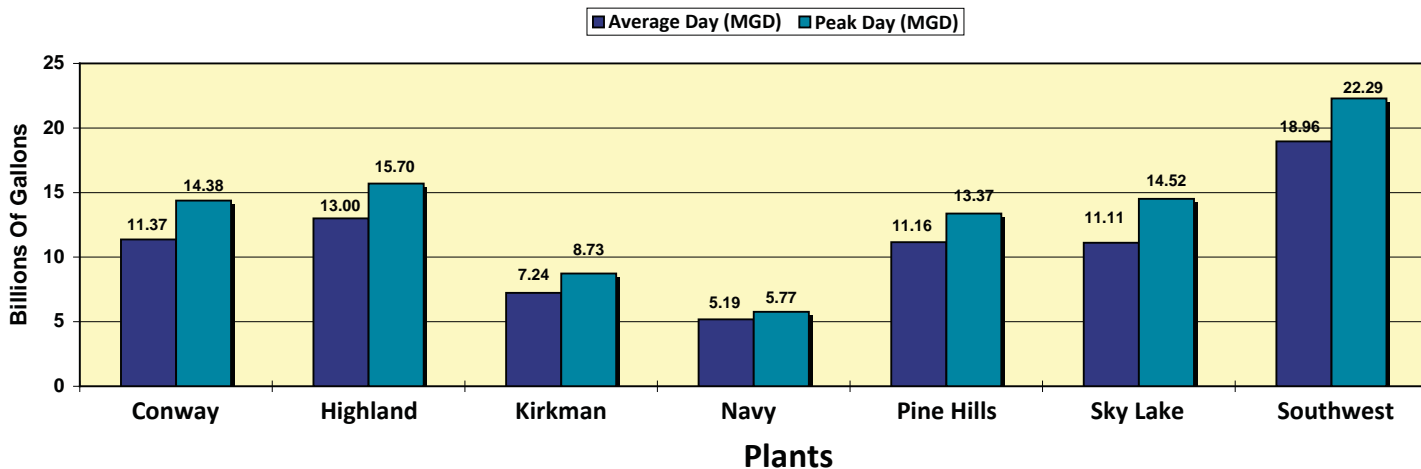


Figure 14. The comparison between the average day (mgd) and the peak day (mgd) of water pumped for each Water Treatment Plant in 2011. Sky Lake Plant has the greatest difference of 3.41 billions of gallons between the system average day and the peak pumped day than the other plants. Southwest was close with a difference of 3.33 billions of gallons.

Appendix 1 – Water Charts

Lower Floridan Aquifer Level vs. 12 Months Rainfall – 2001 to 2011

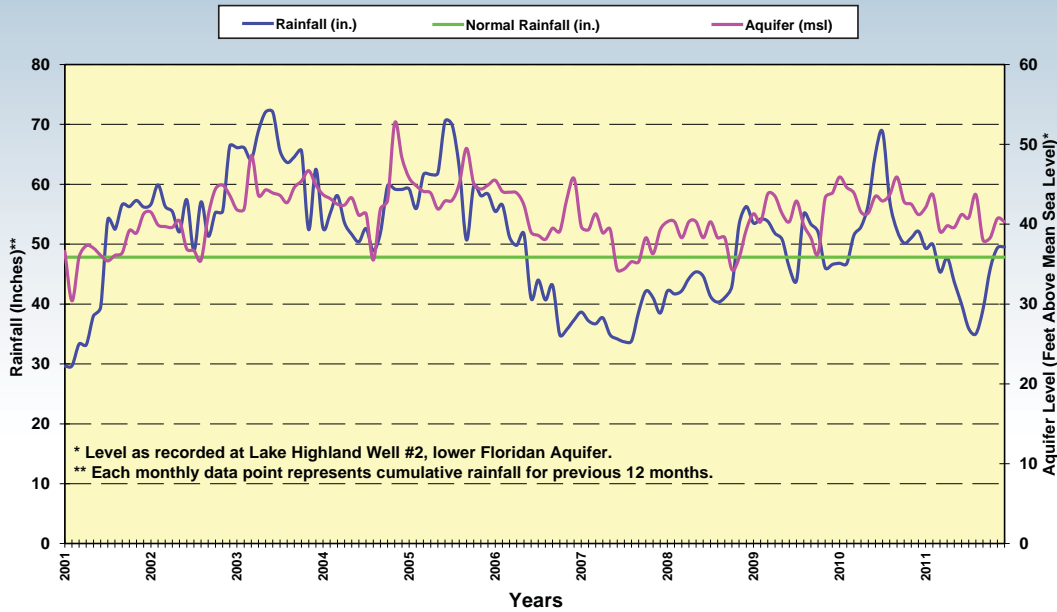


Figure 15. Comparison between the cumulative annual amount of rainfall and the Floridan aquifer level over the past ten years. Normal annual rainfall is around 47 inches and trend shows that the amount of rainfall and the aquifer level closely track with each other.

Water Distribution Water Service Connections – 2008 to 2011

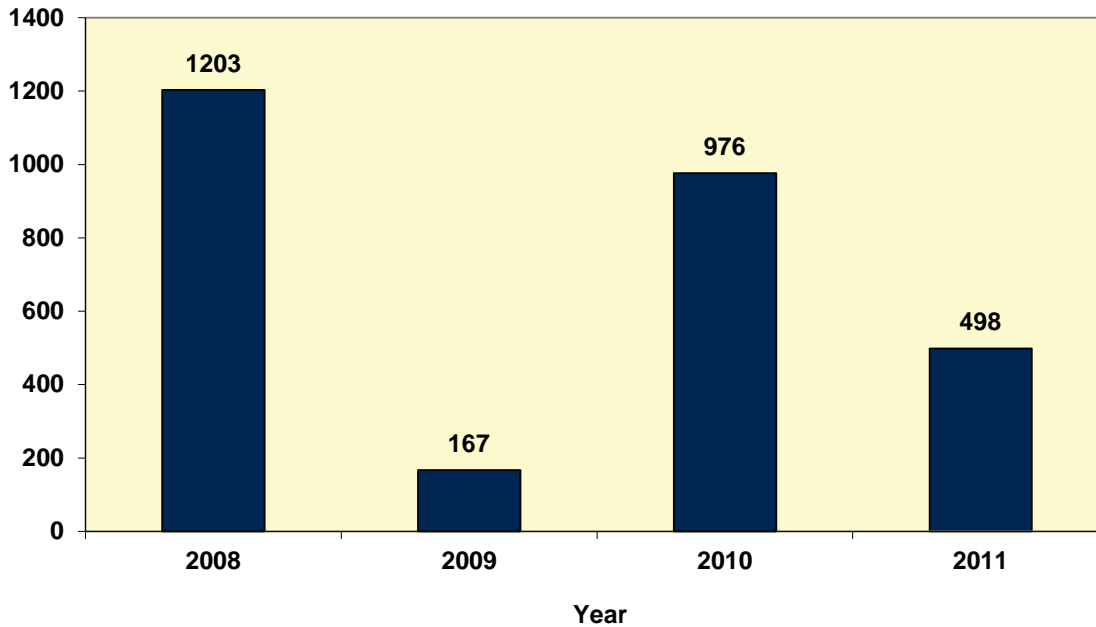


Figure 16. The total annual number of new water service connections for customers in the past seven years. The number of new customers to the area decreased greatly in 2009 and 2008 was a strong growth year.

Appendix 1 – Water Charts

Water Mains Installed by Distribution Crews – 2008 to 2011

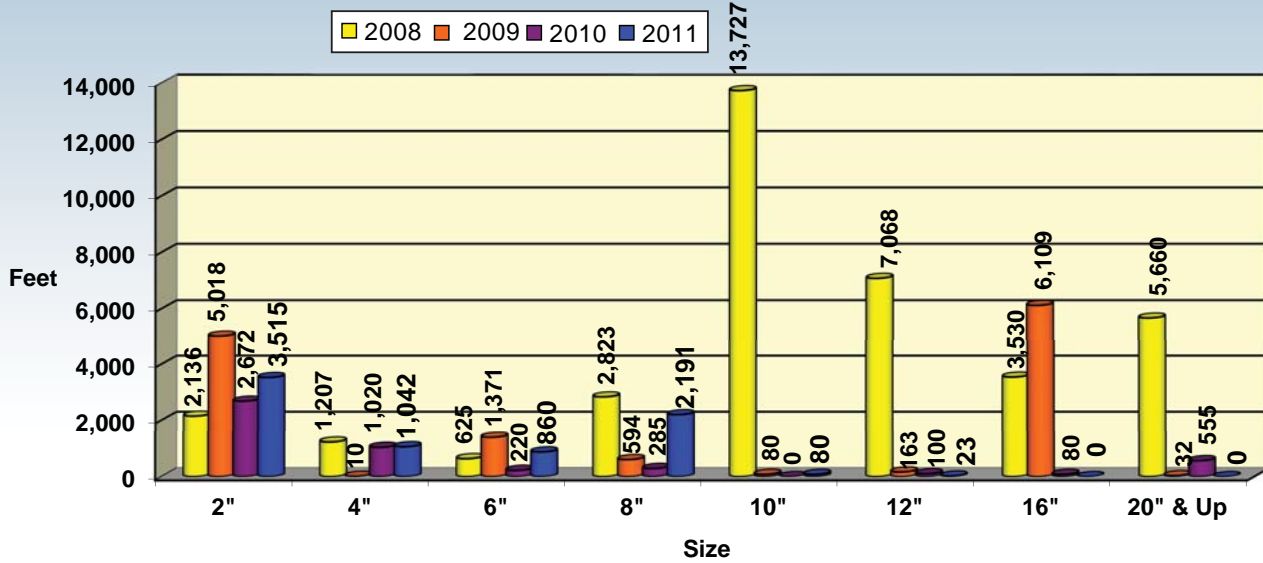


Figure 17. Total amount of feet of water mains in sizes of 2-inch to 20-inch and above installed by the Water Distribution crews over the past four years. In 2008, the crews were involved in a project that required over 13,000-feet of 10-inch main installed.

Water Mains Installed by Contractors – 2008 to 2011

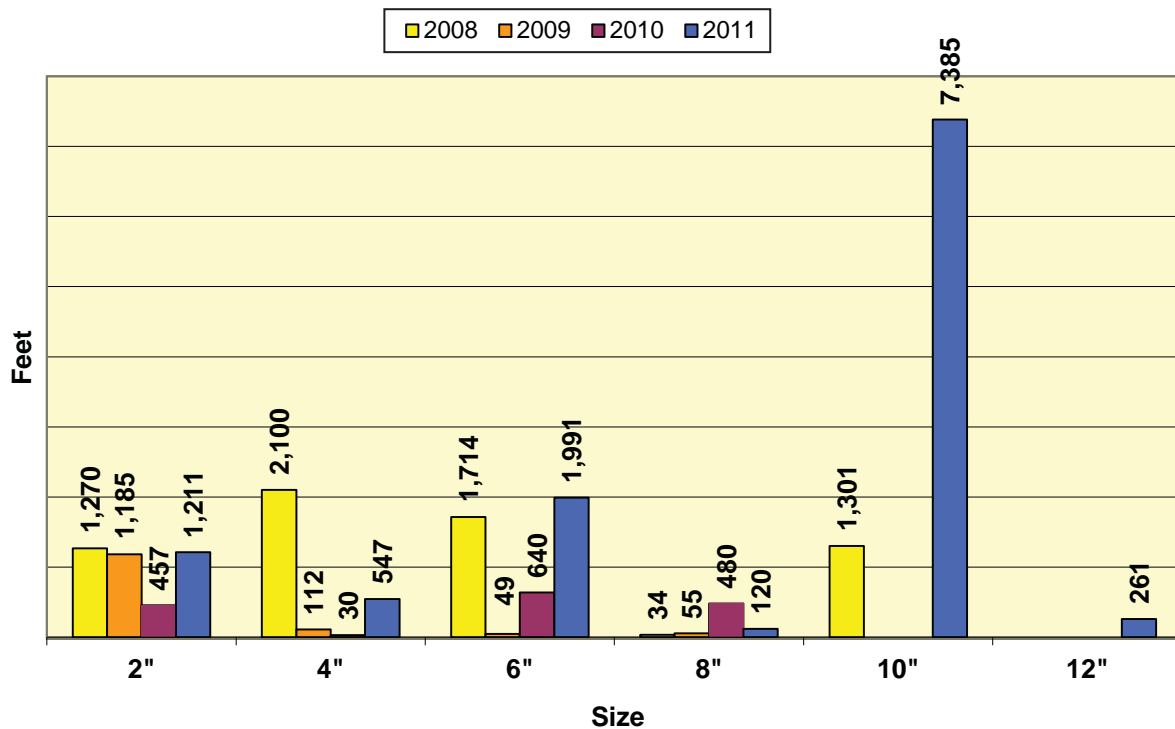


Figure 18. Total amount of water mains in sizes of 2-inch to 20-inch and above installed by outside contractors over the past four years. In 2011, contractors installed over 7,000-feet of 12-inch main.

Appendix 1 – Water Charts

Number of Fire Services Installed by Distribution Crews – 2008 to 2011

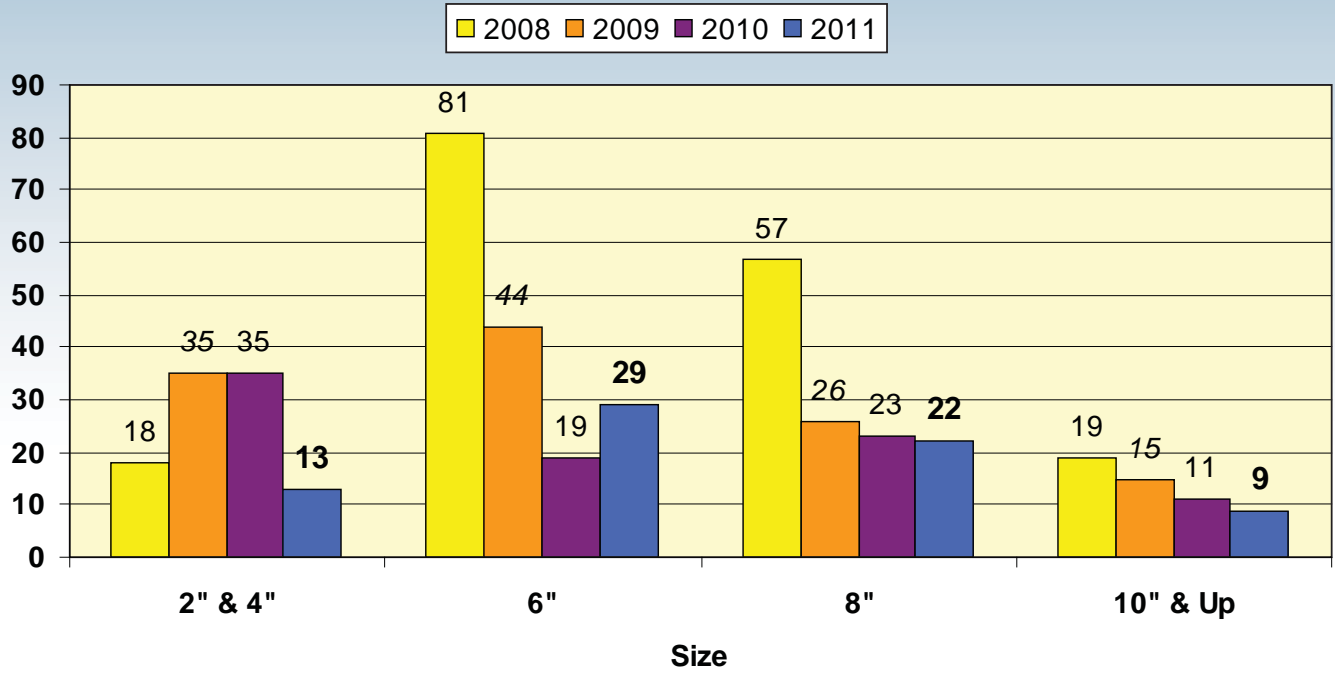


Figure 19. Total number of fire services in sizes of 2-inch to 10-inch and above installed by Water Distribution crews over the past four years. In 2008, crews installed 81 new 6-inch fire services.

Number of Water Mains Installed by Developers – 2008 to 2011

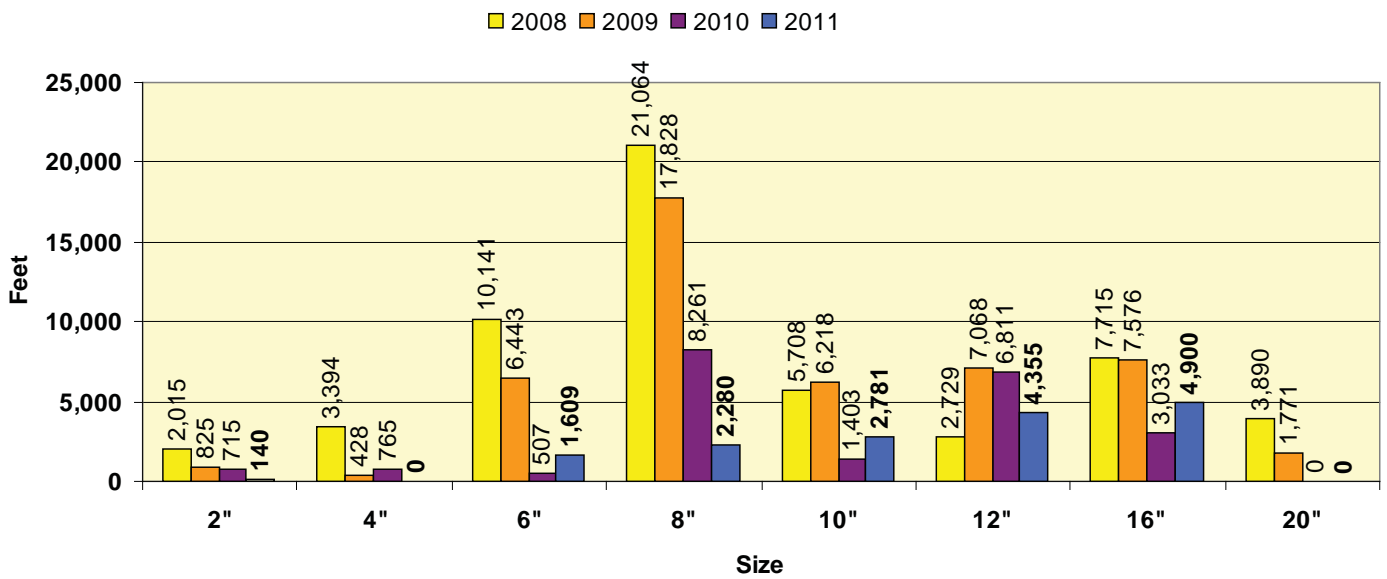


Figure 20. Total amount of feet of water mains in sizes of 2-inch to 20-inch installed by developers over the past four years. From 2008–2009, developers installed over 38,000 feet of 8-inch main.

Appendix 1 – Water Charts

Distribution System Operations and Maintenance Expenses – 2008 to 2011

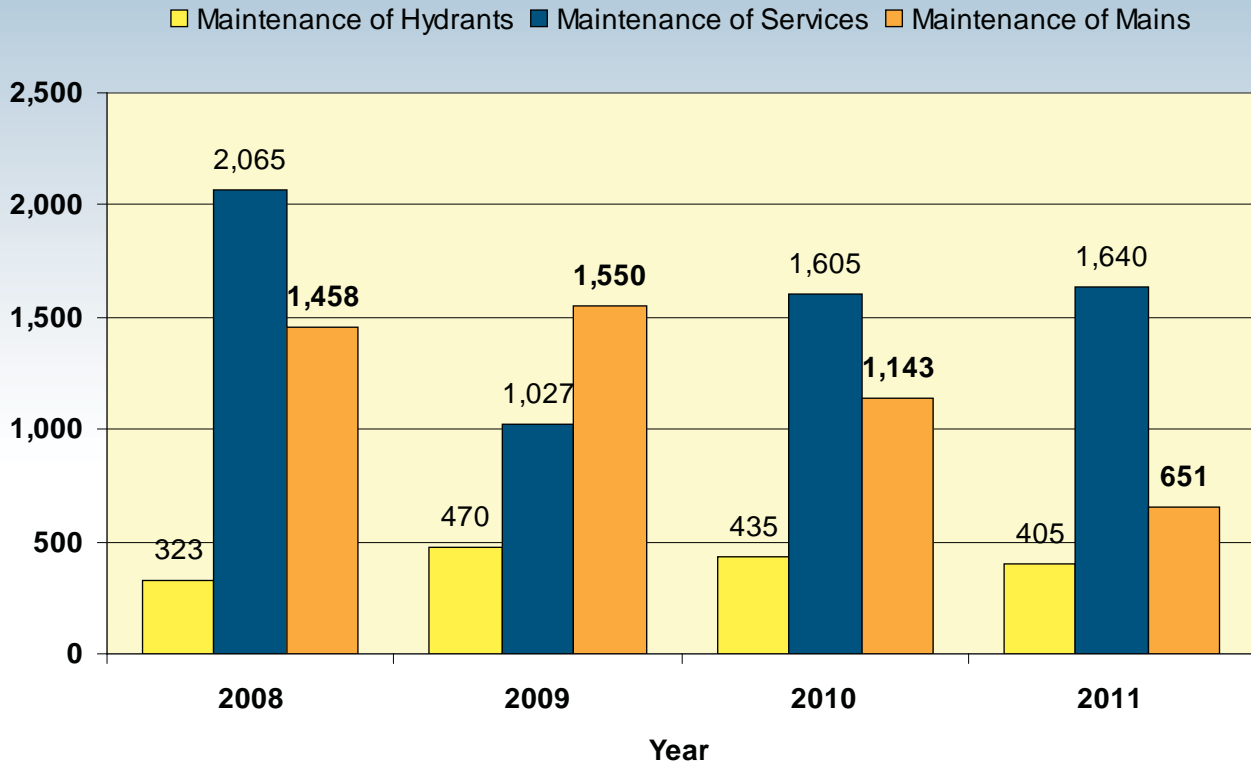


Figure 21. Annual amount of O&M expenses for the Water Distribution system categories by type of expense (hydrants, services, mains). Maintenance of service charges was the largest category of expense over the past four years.

Sizes of Water Services Installed – 2011

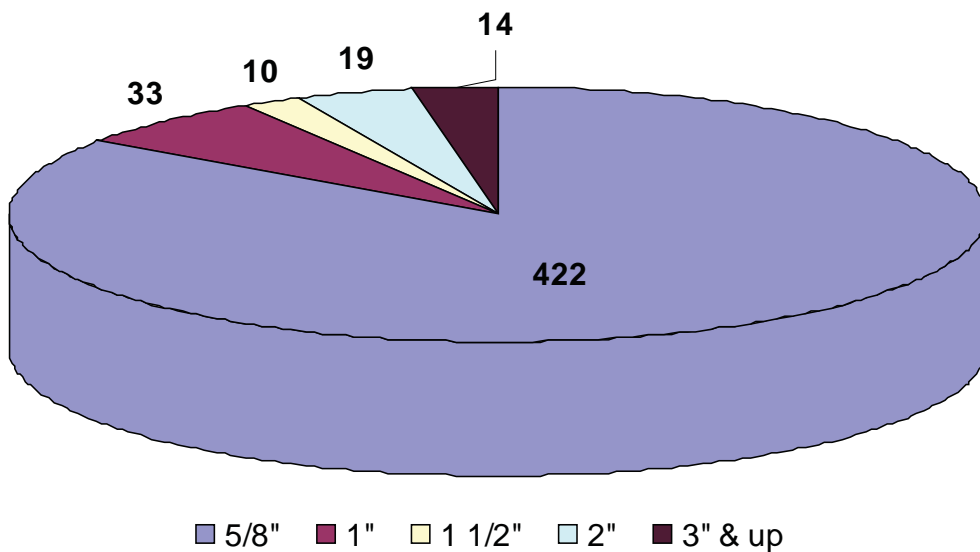


Figure 22. The number of water services installed by sizes from 5/8-inch to 3-inch and above in 2011. Most services installed are 5/8-inch in size.



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