



STRATEGIC OPERATING PLAN FY2016



*Clean Water
for a Healthy Community*

Report prepared July 2015

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Executive Summary

INTRODUCTION

The City of Charlotte and Mecklenburg County merged their water and wastewater systems in 1972 to form the Charlotte Mecklenburg Utility Department. Known today as **Charlotte Water**, and now including the other six towns in Mecklenburg County, it has become the largest public water and wastewater utility in the Carolinas, serving over 260,000 water service accounts and maintaining over 8,000 miles of pipe.

Charlotte Water's core business is to provide safe drinking water and safely transport and treat wastewater for the Charlotte-Mecklenburg community. Charlotte Water is organized into functional areas that all contribute to accomplishing the organization's objectives. A citizen Advisory Committee comprised of seven members representing neighborhoods, civil engineers, water-sewer contractors, financial experts, real estate developers, and Mecklenburg towns is charged with reviewing: Community Investment Plans (CIP), proposed changes and implementation of the water and sewer rate methodology, and proposed changes in the policy for extending water and sewer service.



Charlotte Water's plans for FY2016 to 2017 contain new actions designed to further align our priorities with our vision and mission and the goals and objectives of the City.

VISION AND MISSION

Vision

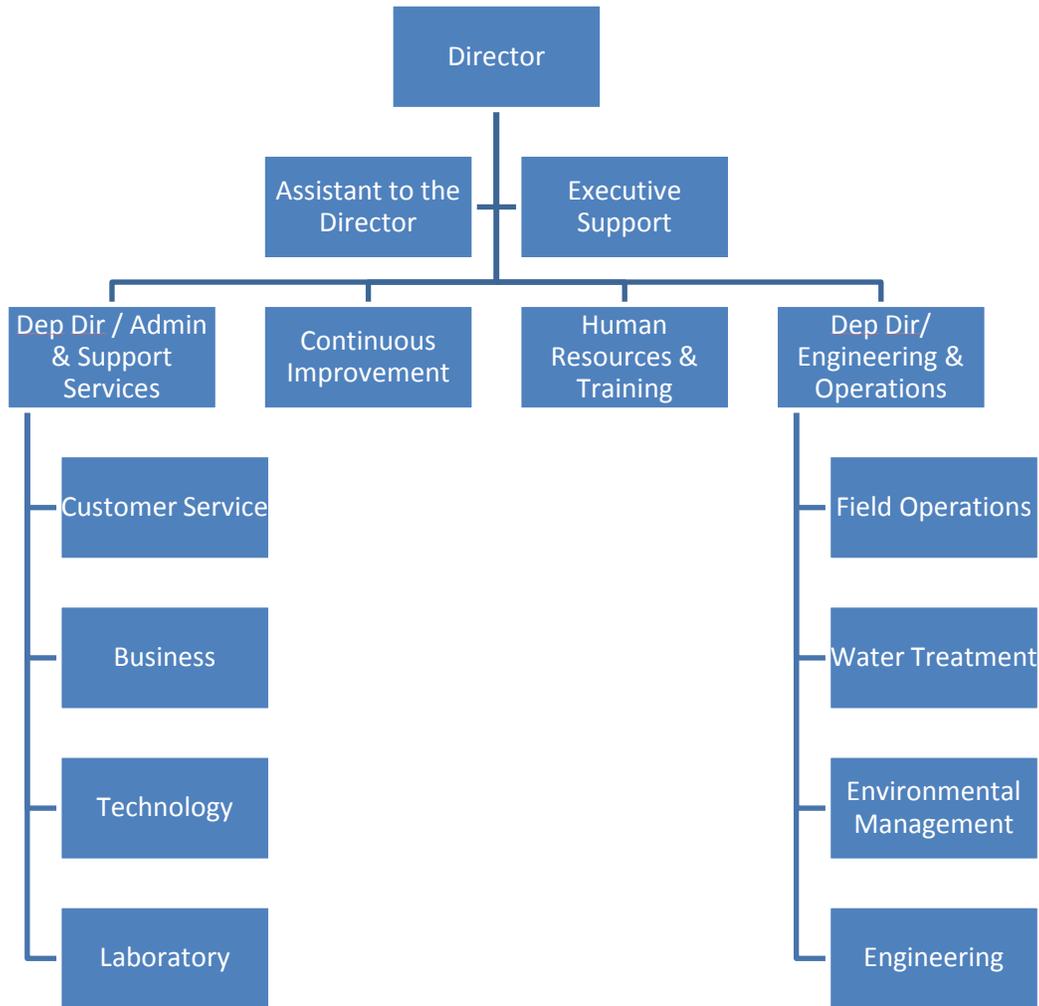
We will be the recognized leader in the region, state, and nation by contributing to the health, safety, and economic well-being of our customers; in protecting and conserving our natural resource and environment; and in providing for the growth and development of our employees.

Mission

We are committed to customer satisfaction and confidence by providing responsive services, reasonable rates, system capacity, and effective communication. We provide safe and sufficient drinking water by protecting, treating, and distributing drinking water. We protect the environment by collecting and treating wastewater, reusing residuals beneficially, and regulating system discharges. We accomplish our mission through well-trained employees dedicated to customer service.

ORGANIZATION CHART

Charlotte Water's core business is providing safe drinking water and safely transporting and treating wastewater for the Charlotte-Mecklenburg community. Charlotte Water is organized into key functions that contribute to carrying out the organization's objectives represented by the following chart:



NEEDS AND CHALLENGES

- **Regional Environmental and Water Supply Management** – In the subsequent five years since the South Carolina vs. North Carolina Water Rights law suit settled at the end of calendar year 2010, the management of our **regional water supply** has continued to be a key issue, particularly as unusual bouts of extended drought or extreme wet weather occur. Participation in groups such as the Catawba-Wateree Water Management Group and responding to the state's Water Allocation Study recommendations are now among the necessary actions undertaken by Charlotte Water. Continual planning and development of regional partnerships are needed to form the foundation to meet future wastewater treatment

needs. In **2013**, Charlotte Water helped to lead and co-sponsored the publication of the *Defining and Enhancing the Safe Yield of a Multi-Use, Multi-Reservoir Water Supply* report in conjunction with the Water Research Foundation and the Catawba-Wateree Water Management Group. This tailored collaboration project provides best practice guidance, integrating forecasted climate change, and identifies methods to potentially improve safe yield of the water supply. In **2014**, this partnership was extended by the release of the *Catawba-Wateree River Basin Water Supply Master Plan*. The Water Supply Master Plan is the most significant water supply management and planning endeavor undertaken in the Catawba-Wateree River Basin since original construction of the eleven-reservoir system began in the 1900s. It helps ensure our water supply will fully support the growing needs of the region into the next century. In July **2015**, we are in the Stage 1 of drought and are implementing our internal plans to be responsive to the Low Inflow Protocol (LIP) under the guidance of the Drought Management Advisory Group. The LIP is monitored and managed on an on-going basis by the DMAG that is made up of water suppliers, industry, and regulators from the region. Our prior planning and participation with this group has helped us to be more prepared than ever.

- **Branding for improved customer communication** - Based on extensive review and market research, the Charlotte Mecklenburg Utility Department (CMUD) is rebranding itself as “**Charlotte Water**” as of 2015. The new name is intended to clearly convey the mission of the department, both in providing safe drinking water and in treating used water for return to the environment. The name is intended to convey “Charlotte” in the sense of the **City and the surrounding region**, and “Water” in the sense of **drinking water and wastewater**. CMUD is an acronym that is not readily recognized and connotes something quite different than the mission of clean water. The transition of the change will occur in phases so as to minimize cost and avoid waste. The transition began January 1, 2015, but will span two years.
- **Operational resiliency tested** – One of the worst events faced in years at our plants was the **illegal PCB dumping incident** at the Mallard and McAlpine wastewater treatment plants in 2014. Decontamination after this event has placed a burden on operations and finances. This burden produced a cost in the millions that will need to be absorbed in calendar 2015 and, perhaps, beyond 2015, as we adjust our operations and staff emergency preparedness to identify and quickly mitigate potential future incidents. An After Action Assessment was completed with consultant support to help identify any potential risk reduction activities we may not have recognized. These actions will be implemented department wide.
- **Financial Challenges:**
 - As of **June 30, 2015**, it is anticipated that year-end operating expenses will be **over budget by \$3.5 million due to PCB clean-up efforts**. Other than the costs associated with the PCB clean-up, Charlotte Water’s operations experienced cost savings of approximately \$2.5 million due to effective operations and financial management. Additionally, although we are diligently working to fill vacant positions, some savings will result from vacancies.
 - As of July 30, 55 vacancies (about 6% of authorized positions) remain. Vacancies went up by 26 positions effective July 1 since these are newly authorized positions. All line items were carefully reviewed in detail with divisional budget representatives in December 2014 meetings as part of the departmental process.

- For FY15 performance through June 30, 2015, Charlotte Water's total revenues are on budget, largely due to overages in capacity and connection fee revenue resulting from increased growth and development in the service area. However, revenues from volumetric sale of water and sewer services are under budget projections. As such, we monitor volumetric revenues monthly, with recent months showing some improvement on water pumped data. When reviewing consumption on a more detailed level, Tier 1 and 2 are generally within expectations, but the higher consumption Tiers 3 and 4 are below expectations. The enactment of the availability fee in 2011 had a balancing effect on revenue stability, requiring less reliance on volumetric revenues. In addition to the largely volumetric revenue line items above, revenue collected from fixed and availability fees (over \$46 million), for example, are generally on track.
- Revenue and expenditure estimates are conservative; based on prior performance; the \$3.5 million overrun is expected to shrink once the final year-end numbers are calculated. **Charlotte Water plans to use prior-year unobligated fund balance to address any remaining overrun.** Charlotte Water expects it will end the fiscal year on budget.
- The Utility rate structure changed by Council in 2010 is designed around a tiered pricing model that encourages conservation. As customers have changed usage behavior and have become more efficient, the amount of water used per residential customer has decreased. While these decreases are good for the region's long-term water supply and to control long-term capital expenditures, in the short-term they pose potential revenue challenges until rate structures and capital expenditures are aligned with the lower consumption trends. Charlotte Water has taken initial steps in the FY16 budget to begin to address some of these needs.

Financial statistics of note include:

- Charlotte Water Operating Expenses Budget for FY16 is \$335,533,652 (includes debt service and Pay As You Go (PAYGO))
- The capital improvement budgets are:
 - Water CIP FY15 - \$51,997,000
 - Wastewater CIP FY15 - \$51,203,000
- There are 822 authorized FY16 Positions with approximately 55 current vacancies.
- Charlotte Water total revenues for FY 2016 are \$346,094,948.
- Projected debt ratios as of June 30, 2016 are:
 - Debt Service Coverage 2.07
 - Fund Balance to annual budget 60%
 - Debt service percent to total revenue 42%
 - PAYGO (of capital funding) 84%

FY16 Budget highlights include:

- Changed the 2010 rate methodology to eliminate the Tier 1 subsidy (which is not based on financial need as has been thought in the past)
- Increased the Availability Fee from \$7.03 to \$8.14 to recover 25% of Debt Service
- With the change in methodology, customer rate impacts will vary from \$0.93 per month to \$3.41 per month, depending on usage tier

- Tier 1 customers (0-4 ccf) will see the largest impact due to increased fixed costs and the elimination of the subsidized Tier 1 rate, with monthly impacts ranging from \$2.41 per month to \$3.41 per month
- For the typical 7 ccf customer in Tier 3, the increase will be \$1.55 per month, a 2.7% increase
- The chart below shows how monthly bill increases will impact all customers based on water usage rates

Usage	Percent of Customer Bills	Impact on Monthly Bill	Typical Monthly Bill*
Tier 1 (0-4 ccf)	41.1%	\$2.41 - \$3.41	\$32.71
Tier 2 (5-8 ccf)	37.7%	\$0.93 - \$2.79	\$58.45
Tier 3 (9-16 ccf)	13.0%	\$0.93	\$129.54
Tier 4 (16+ ccf)	9.2%	\$0.93	\$174.40

* Typical monthly bill amount is shown to provide context to the monthly increase impact for each tier. Although each unit of ccf usage within a tier has a different monthly bill, these amounts represent the total monthly cost for the typical customers in a specific range.

- The recommended rates summarized in the following table maintain current infrastructure and respond to changing economic and regulatory conditions such as new State laws requiring more locate services and Clean Water Act requirements to reduce sanitary sewer overflows.

Water and Sewer Rates

Current	Current FY2015	Recommended FY2016
Water Rates		
Fixed Billing Charges	\$2.50	\$3.15
Availability Fee	2.47	3.03
Tiered Rate		
Tier 1: 0-4 ccf	1.33	1.58
Tier 2: 5-8 ccf	2.66	2.04
Tier 3: 9-16 ccf	4.71	4.71
Tier 4: >16 ccf	8.91	8.91
Non Residential	2.61	2.73
Sewer Rates		
Fixed Billing Charges	\$2.50	\$3.15
Availability Fee	4.56	5.11
Volume Rate *	4.51	4.51

*up to 16 ccf for residential customers

1 ccf = 748 Gallons

Typical Residential Bill

Typical user = 7 ccf/month		
Water Rates for avg. ccf use:	\$13.30	\$12.44
Fixed Billing Charge:	2.50	3.15
Availability Fee:	2.47	3.03
Total Water Cost:	\$18.27	\$18.62
Sewer Rates:	\$31.57	\$31.57
Fixed Billing Charge:	2.50	3.15
Availability Fee:	4.56	5.11
Total Sewer Cost:	\$38.63	\$39.83
<i>Average User's Monthly Fee:</i>	\$56.90	\$58.45

The total cost increase for the typical user at 7 ccf/month is \$1.55 per month

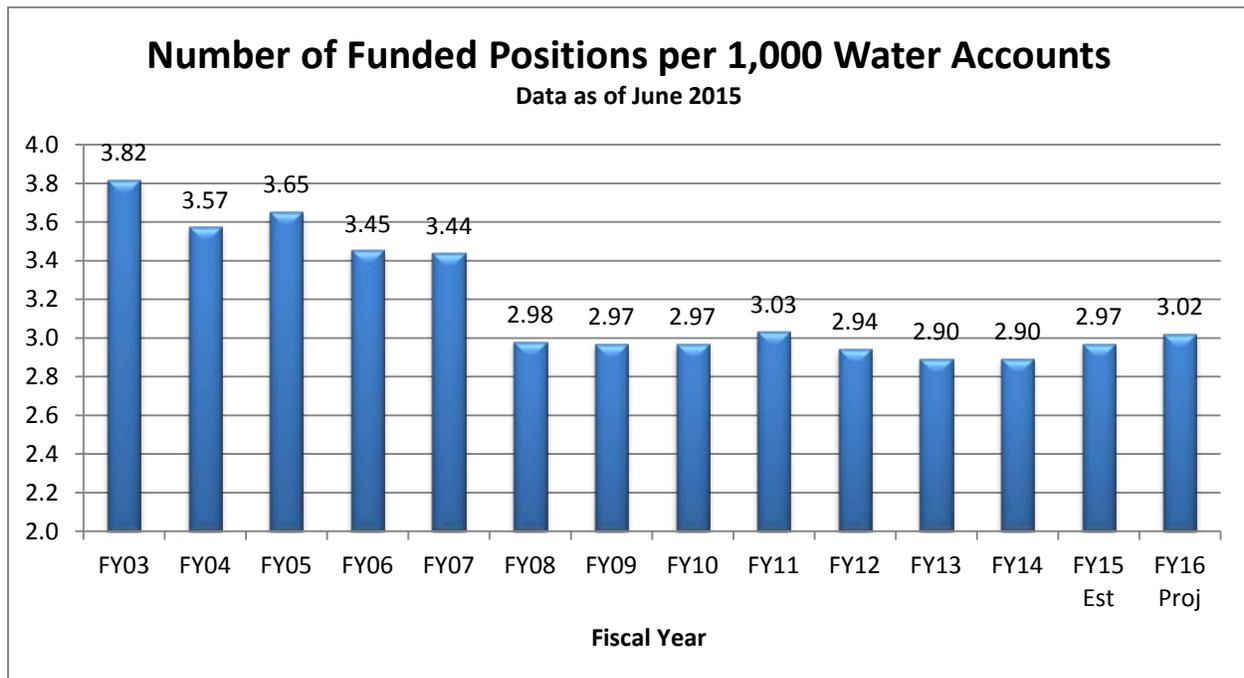
- **Performance Challenges:**

- For FY16, performance through July 1, 2015, Charlotte Water continues to ensure public health, safety, and protection of the environment by meeting the compliance goals for water and wastewater treatment. Charlotte Water FY16 projections indicate that the field operation pipe system for water distribution and wastewater collection is approximately 8,400 miles. Collection system integrity has been maintained with **sanitary sewer overflows down to a low of 4.1 per 100 miles** of pipe at FY15 close.
- Charlotte Water makes every effort to conserve water and avoid disruption to customers by repairing distribution system water leaks in a timely manner. Current results indicate 100% repair completion of all leaks within 8 calendar weeks. Additionally, an improved non-revenue water audit for identifying further opportunities has been performed and is currently being tested. Updates to this method, based on the AWWA M36 best practice standard, will help shape the next issue of the Distribution System Master Plan which guides Charlotte Water distribution operations.
- Further, Charlotte Water continues with the implementation of best practice standards throughout the department such as International Standards Organization (ISO), National Environmental Laboratory Accreditation Program (NELAP), and the Partnership for Safe Water, along with the promotion of employee and leadership development by implementing procedures for a streamlined vacancy filling process, offering internal CEU and PDH opportunities, and working collaboratively with other City of Charlotte departments to propose improvements to the Pay Plan.
- A City Manager sponsored evaluation of Charlotte Water customer service was completed in October 2011. Implementation of the resulting 40 Point Improvement Plan began immediately. In FY15 through FY16, the final three transactional programs will be put in place to transform the Customer Service Division. The completion of the three projects in FY15, utilizing existing shared staff resources, represented a performance challenge for Charlotte Water, but our staff rose to the moment. One project was to **stabilize** billing cycle reading with the **Billing Cycle Alignment (BCA)**. This alignment has resulted in increased capacity due to reduction in windshield time and improved work load balance. The second project was to

standardize to a best practice by pursuing ISO 9001 certification. Currently, a team of employees from all areas of Customer Service have established the foundation of the Quality Management System, by selecting a Quality Policy, Quality Objectives, and determining the processes essential to the organization to maintain quality for our customers. All ISO documentation has been uploaded to a SharePoint site which allows constant access for all employees. This adherence to best practice integrates quality standards into the organization's business processes. Certified to ISO9001 in June 2015, the Charlotte Water Customer Service team is one among the very few public water utility teams with this distinction. The final piece of the improvement puzzle is to **optimize** with consultant support as a result of the Request for Proposals (RFP) for the Water Meter Upgrade Program. To accommodate services in the future, the Water Meter Upgrade Program RFP was developed as a business service optimization, with RFP issuance in July 2014. This optimization is scheduled to provide new water meters, improved processes, and better distribution system monitoring over the long term. Responses are being evaluated in 2015. The first year of the program is planned as a value-added review of current processes, identification of a migration plan towards future optimization for improved system health monitoring, and full vetting of concepts for technological advancement.

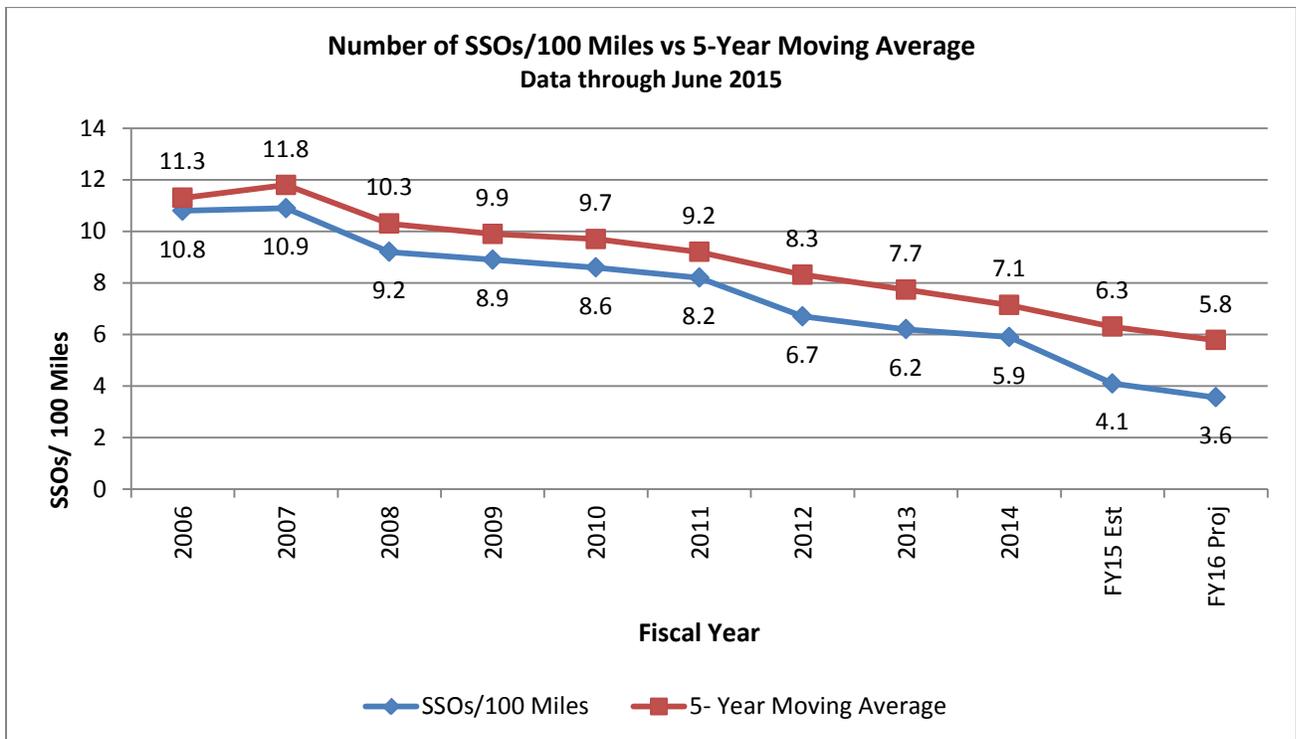
- Of particular note for the 2014 to 2015 calendar time frame, Charlotte Water had an unusual performance event related to water quality sampling. The Annual Water Quality Report (also known as the Consumer Confidence Report; available online at www.charlottewater.org under Education) is a mandatory summary of information required by the State of North Carolina and the U.S. Environmental Protection Agency (EPA) to inform Charlotte Water's customers about the quality of their drinking water. The Report is posted on our website and information on customer bills alerts them to the availability and location. For this year's compliance period, January 1, 2014 through December 31, 2014, a drinking water sampling **Notice of Violation (NOV)** was issued in February of 2015. The violation was a failure to collect one sample at one specific site in the water distribution system. The sample site at issue is at one of the elevated water storage tanks. This **tank was out of service for maintenance** at the time the sample was scheduled and Charlotte Water did not follow up on an assumption that the sample was not needed. Charlotte Water has since taken required samples at the particular site in question and the results demonstrate we are meeting drinking water standards. Staff conducted more than 150,000 drinking water tests during this same time period, monitoring for 150+ substances, many of which occur naturally in the environment. Even the highest contaminant levels detected were well below federal limits.
- As mentioned previously, the worst event faced in years at our plants was the illegal PCB dumping incident at the Mallard and McAlpine wastewater treatment plants. This burden has created a cost in the millions that will need to be absorbed in calendar 2015 and, perhaps, beyond 2015, as we adjust our operations and staff to identify and quickly mitigate potential future incidents.
- All of the operations groups are confronted with the challenge of keeping up with the welcomed increased Charlotte development and growth. Charlotte Water reduced positions during the economic downturn and must now return to higher staffing levels. For FY16, 26 new positions have been authorized:

Team	Purpose	# of Added Positions in FY16
Field Operations	Locate Technicians to meet rising workload demands	5
Field Operations	Sewer Cleaning Crewmembers to maintain the trend of decreasing sanitary sewer overflows	3
Field Operations	Rapid Leak Response crew members to continue to drive down leak repair time	2
Engineering	Plan Review & Construction Inspection staff to meet the increasing demand	6
Field Operations	Engineering Project Manager for Field Operations to focus on major pipe repair and rehabilitation as the system continues to age	1
Lab Services	Lab Services and Project Management staff to respond to increasing regulatory requirements and reduce overtime	2
Administration	Records Management Program Manager to replace current work that is contracted and develop a records management program	1
Administration	Construction related Procurement Support staff to improve accountability and ensure compliance with City policy and State statues	2
Lab Services	Lab Services staff members to bring lab services for Union County in house and decrease annual costs	4
TOTAL needed for improving economy and regulatory changes		26



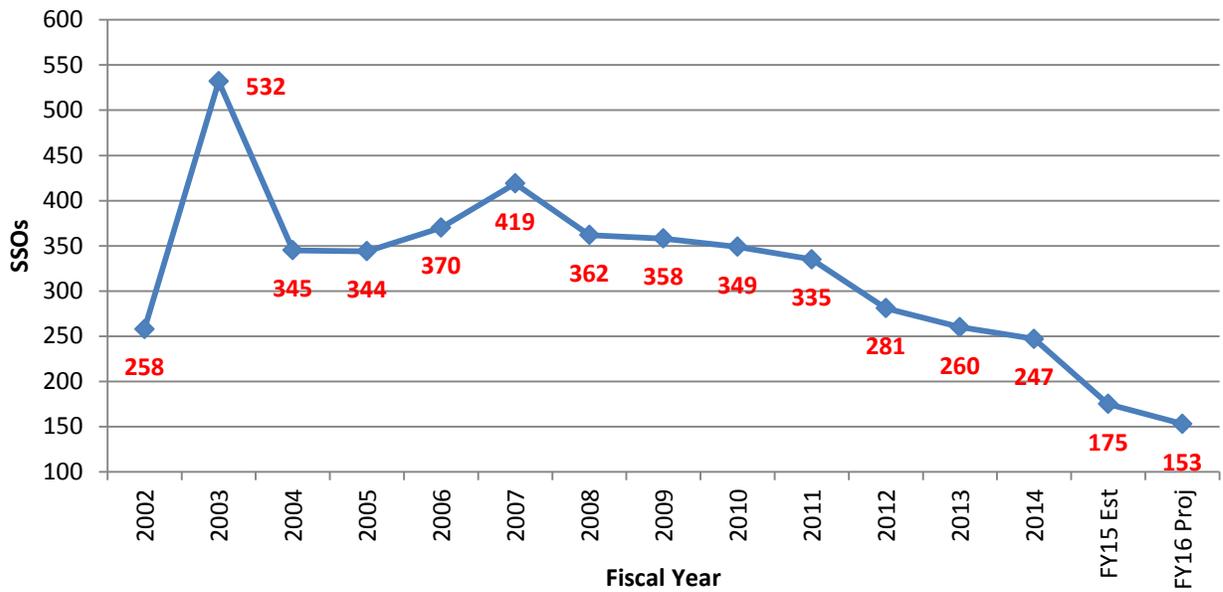
- Charlotte Water performance challenges experienced in FY15 tie back to the long range strategic operating plan objectives stated in our business plan and balanced scorecard of **Product Quality/Regulatory Compliance, Customer Satisfaction, Community Sustainability/Economic Development, and Infrastructure Stability**. Please see the Balanced Scorecard at the end of this document for more information.
- Implementation of the new Enterprise Resource Program financial system, Munis, has been a huge test for staff throughout the City while maintaining operations. It resulted in some issues with service providers receiving late or non-payments. Issues have been resolved and the system shows signs that we are edging into a more stable construct. Moreover, other technology support and upgrades are still a major need, and resource limitations affect productivity and efficiency in our operations.
- All of Charlotte Water was faced with a challenging year in calendar 2014, with new challenges presented in early 2015; however, with staff support and effective management, **achievement of core performance objectives remained largely on target**.
- **Operational Specifics:**
- **Complying with the NC Underground Utility Safety and Damage Prevention Act (SL 2013-407, s. 2.)** - For the fiscal year 2014, Charlotte Water locates staff received 152,532 locate requests through the NC811 system. Actual locates performed were 90,448 for a 59.3% completion rate. Charlotte Water has historically been staffed at a level to perform locates on those requests that were deemed to have significant risk if the excavator damaged the line. In October, 2014, the Underground Utility Safety and Damage Prevention Act became effective which mandates that all utility owners respond to 100% of the locate requests or be subject to enforcement actions by the state. In FY15, there has been a 16% increase in total locates service calls and Charlotte Water is on track to have the highest number of requests since FY08. Charlotte Water currently has 17 full time staff locators, and has added additional full time employees (FTE) to meet the new requirements of the law. We do, however, think that there could be fluctuations in workload and will test this assumption in FY16. As needed, we will solicit proposals from private companies that would provide the completion of the need and balance of the workload. This will enable more departmental flexibility in meeting anticipated workload fluctuations in the future. Initial conversations with the private sector have indicated that their cost should be within approximately a +/-5% margin of the cost of the in-house costs. Additional staffing will enhance the ability to protect Charlotte Water's distribution and collection system, avoid possible civil penalties, and take on the additional responsibility of locating gravity sewer lines. **Staffing for expanded locates has been added in FY16 along with a continued effort to maintain a lowered vacancy rate in positions.**
- **Reducing the number of Sanitary Sewer Overflows (SSOs)** remains a challenge in the Charlotte Water system even with the ongoing strategic cleaning focus. Charlotte Water is responsible for over 4,200 miles of sanitary sewer main. Approximately 2590 miles of these are located along streets and roads (on-street) and 1600 miles are in easements on private property (off-street). Charlotte Water has resolved the EPA

Administrative Order to reduce sewer spills, which was a formal regulatory agreement requiring the completion of a list of actions within a specified time frame. Since 2007, the department has put an additional focus on reducing sewer overflows through additional rehab and cleaning. Despite completion of these concerted actions, SSOs have not been sufficiently decreased, and still occur too often. In the past due to unfunded vacancies, Charlotte Water had been challenged to perform the labor intensive work necessary to clean sewer lines to remove grease build-up that significantly contributes to sewer overflows. Significant progress was made filling vacant positions, training new hires, and maintaining additional crews filled in FY13. Most of the focus on preventative cleaning has been for grease related overflows for on-street sewer lines with 15 crews dedicated to this on-street effort, which must be continued. The success of all these efforts has reduced overflows from an average of over 400 per year in 2007 to less than 200 for the last two years (see incorporated graphs below). However, additional focus is now needed in the preventative cleaning of **off-street sewers** as there has been only 3 crews dedicated to this off-street effort and **61% of the remaining overflows** are occurring in these off-street sewers. Based on the nature of current off-street sewer overflows, it is projected that an additional crew could result in a further annual reduction of approximately 35 overflows. Likewise, an ongoing focus on maintaining a low level of vacancy and high productivity will be required to continue reducing the number of SSO's. In FY16, Charlotte Water will expand off-street sewer line cleaning by adding one crew (3 positions) to further reduce sewer overflows.

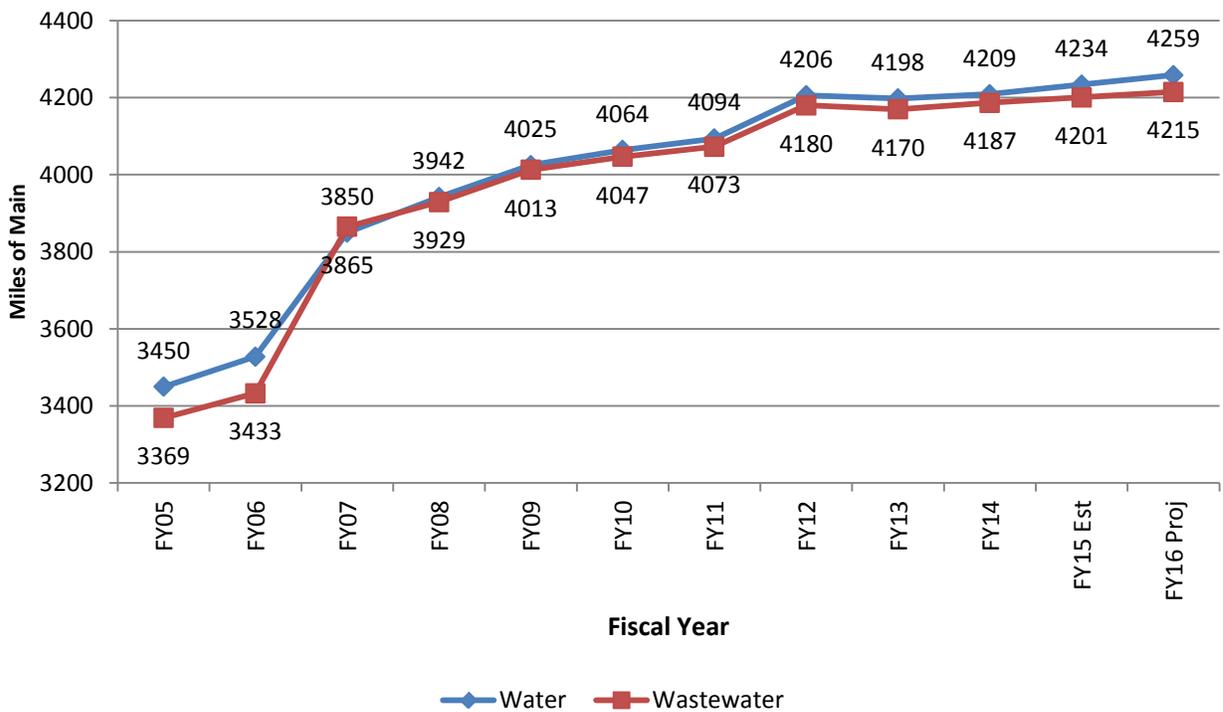


Number of Sewer Overflows Over Time

Data Through June 2015



System Growth: Miles of Main Through June 2015



- Resources normally responding to **water leaks** have been diverted to respond to SSOs and SSO prevention in the past. SSOs are a matter of public health and are a high level priority. Prior to 2014, the average response time to repair a water leak (not including emergency leaks) was 8 weeks. To note, water leaks result in loss water, can cause property damage, and increase the number of calls for service from customers. Restoration of some field operations crews, along with the use of private contractors in FY2012 and FY2013, stabilized our response times. Greater focus on reducing water leaks occurring in our 4000 plus miles of water distribution main has begun and will need to increase. While reviewing ways in FY14 to reduce response time without adding full repair crews unless needed, it was determined that a number of the leaks were small leaks within or just outside the meter box that could be repaired by one technician onsite. Conversely, under the previous operating plan, the first responder was a technician who was also assigned to a route for turning water services on and off for customers and, therefore, was not able to spend time on repairs. This led to a full repair crew being dispatched to small leaks. In FY2015, four repair technician positions, with one being deployed to each of the 4 service zones, were approved as **FY15 SLCs for a pilot program** to determine the impact on reducing the overall leak repair response times. From October 2014 until mid-December 2014, service records show they responded to over 900 leak service calls and were able to immediately repair over 140 of those calls. Since implementing this program, leak repair response times have dropped from 8 weeks to approximately 7 weeks. This is indicative of a strong result. On the other hand, with only the 4 current repair technicians covering weekday calls, service calls on weekends and nights are still addressed by a full repair crew. The addition of two repair technicians (Utility Service Technicians) would allow for some night and weekend coverage and further improve leak repair response by allowing the full repair crews to focus on larger leaks requiring excavation equipment. **Staffing for leak response has been added in FY16 along with a continued effort to maintain a lowered vacancy rate.**
- **Improve Service Level to Development Community** – Due to the continued increase in development activity resulting from improved economic conditions, our ability to respond to the public in a timely manner has been exceeded in FY14. This FY16 SLC includes 6 full time positions designed to address response levels: four Construction Inspectors, an Engineering Project Coordinator, and an Engineering Assistant. Specifics of the service demand increase include: (a) a 350% increase in linear footage of pipe installed by developers over the past six years; (b) a 310% increase in **Capacity Assurance Program** and **Willingness to Serve** requests over the past five years; and (c) a 587% increase in subdivision plan submittal over the past five years. The inspectors are needed to be able to adequately inspect developer constructed infrastructure (which has previously been identified as a deficiency by stakeholders) and provide timely final inspections to allow water and sewer line activations and connections. The Engineering Coordinator resides in the engineering planning group and will focus on performing the EPA required Capacity Assurance Analysis within the group’s response time goal. With a 300% increase in these requests, the existing group cannot meet the response time goal. The Engineering Assistant will serve as a “plan review gatekeeper” to work with developers and engineers to identify any construction plan submittal information deficiencies very early in the review process

thereby creating a more efficient review flow. This gatekeeper is a function also used in the City of Charlotte Land Development group and Mecklenburg County with some success. Currently, Charlotte Water requires only a minimal \$200 fee for subdivision plan reviews, which is not consistent with the City's service cost fee methodology used in other land development groups. It is further proposed that a plan review fee be developed this year to recover the cost of this Service Level Change as the first step in a gradual implementation of a full recovery fee as used elsewhere in the City and County. Two scenarios for offsetting costs are being explored: One scenario is based on the anticipated number of new subdivision plan reviews, while the other is based on anticipated linear footage of new pipe installed by developers. **Staffing has been added in FY16.**

- **Water and Sewer Line Rehabilitation Program** - Reduced levels of **maintenance** to plant equipment and piping systems increases the risk of equipment failure. This results in higher risk of failure to satisfy customer service needs and regulatory requirements, along with a higher risk of potential environmental impacts as the water and sewer system continues to age. The Charlotte Water system includes over 8,000 miles of pipe, 5 wastewater treatment plants, 3 water treatment plants, and more than 70 lift stations. Measures have been taken to re-focus resources on maintenance throughout the treatment, collection, and distribution system, such as the addition of Field Operations crews in FY13 achieved by filling long-term frozen vacancies. In order to further minimize sanitary sewer overflows and maintain drinking water quality, the need for additional rehabilitation and replacement efforts has grown. More detailed analysis of maintenance needs have become available to Charlotte Water as a result of new practices using technology tools such as work and asset management (WAM) data. Along with more available data, a recent restructuring to co-locate the engineering rehabilitation team with the Field Operations group as a step in re-focusing resources, has revealed greater repair/rehabilitation needs within the system than were previously identified. The capital expenditures for the major repair and rehabilitation work to meet the **identified needs have increased by almost 50% over the past 5 years.** However, the engineering team managing these community investment needs has not grown. Moreover, in most cases, a field investigation is required to determine if a problem warrants a repair, rehabilitation of the entire line, or replacement so that the solution is a long term one. As additional capital projects have been added to the team, it has not been possible to complete these investigations adequately and manage the capital contracts at the same time without developing a backlog as repair/rehabilitation contracts continue to climb. In fact, the team was not able to put all the contracts in place in FY14 to meet all the identified needs. The group currently consists of 5 engineers managing over \$23 million in capital repair work each year spread over hundreds of work sites throughout the 550 square miles service area. The addition of a Project Manager position will allow the completion of additional problem investigations and repairs resulting in a more timely solution to the rehabilitation concerns. **Staffing has been added in FY16.**

- **Business and Service Specifics:**
- **Laboratory needs** for maintaining, enhancing, and expanding efficient use in Charlotte Water operations particularly in field applications are underway. Sampling and analysis conducted by Charlotte Water is required by multiple regulations, such as the Clean Water Act, Safe Drinking Water Act and permitting based on the National Pollutant Discharge Elimination System (NPDES), and is not discretionary. Lab Services suffered a serious loss of productivity and technical expertise in calendar year 2014, in part due to retirements, requiring work to be subcontracted. Although Supervisors, Lab Analysts and Water Quality Technicians logged over 2900 hours of overtime last year, the supplemental contract amount related solely to lab needs was \$75,093 in 2014. The addition of two positions will make that additional contract expenditure unnecessary. With appropriate staffing, the laboratory can return to its former capacity and levels of productivity. Likewise, the LabWorks Preventative Maintenance software contract was used in FY14 to partially offset the cost of subcontracted work and will not be carried over to FY16. New revenue expected in FY16 could offset a portion of the cost to hire a Project Manager and an Analyst II. This revenue has not been included in FY16 projections as data is still being confirmed. In a similar manner, four positions will be needed to support the Union County laboratory service needs, but these positions are fully offset by the Union County contract agreement. Service needs persist and **Staffing has been added in FY16.**
- **Records Management needs** for maintaining, enhancing, and expanding efficient use in Charlotte Water administration, particularly in Freedom of Information Act requests are underway. In FY14 and FY15, Charlotte Water faced several requests for large number of records; requests in calendar year 2014 were approximately 90 individual requests. Despite mobilizing available staff, contractors and City Attorney's office personnel to assist, the Department struggled to collect, review and disseminate the records in a timely fashion as required by the NC Public Records Law. The City Attorney's office spent over 450 hours reviewing information to assist Charlotte Water with responding to information requests. Charlotte Water staff members have committed over 100 hours, and contract legal support was utilized at a cost of approximately \$45,000. The largest challenge facing Charlotte Water to comply with future records requests is the comingling of public and non-public records due to a lack of an effective records management system. Best practice standards exist for a system, and staffing will be needed to implement and support this effort. **Staffing has been added in FY16.**
- **Procurement support needs have developed** in Charlotte Water administration for reducing risk of compliance issues and decreasing wait times to complete bid projects associated with economic development and infrastructure maintenance. A shared resource is needed between Engineering and Administration to provide contract requisition entry and invoice processing. This position will be responsible for uploading all Requests for Council Actions (RCA) into Granicus, associated information into Munis, and bid process clerical support. Currently, these tasks are handled by various staff positions creating process inconsistencies, unpredictable delays, and confusion with our internal and external customers. Equally, a second

position will be needed to support the Procurement Manager in creating a more comprehensive, department-wide procurement strategy. This will be a continuous improvement effort to develop yearly strategic purchasing goals across the department, while collaborating with internal and external stakeholders to address consistent procurement options. The department would like to decrease the dependence on sole-source procurement by being actively involved in the early stages of contract scope development and currently does not have the staffing to complete this early procurement intervention effort. **Staffing has been added in FY16.**

STRATEGY AND PLANNING

Over the past several years, Charlotte Water has experienced several challenges and transitions. Responding to these challenges and transitions has required deliberate evaluation and planning. Effective planning requires not only understanding what is to be accomplished, but also what resources are available and how best to use them. Successful planning identifies the obstacles faced and determines what change is needed to succeed. The strategic planning process defines major projects and initiatives, and anticipates significant needs, challenges and risks. Strategic planning is a continuous process. In many ways, the thought process utilizing Leadership Team collaboration is as valuable as the final plan itself. The planning must be completed with our core principles in mind:

- Providing safe drinking water and efficient sewer service to our community year after year.
- Maintaining exemplary financial management.
- Providing excellent customer service.

Long Range Strategic Plan

To assist in periodically refreshing the department’s long range strategy, a SWOT (strengths, weaknesses, opportunities, and threats) analysis is deployed by the Charlotte Water Leadership Team. Most recently, Charlotte Water’s Leadership Team utilized a SWOT analysis in 2012 and refreshed with another business review of objectives in 2015. The FY2012 analysis resulted in the identification of strengths, weaknesses, opportunities and threats shown below, while the 2015 review reaffirmed the commitment to particular areas including: Employees, Community, and the Environment.

	Helpful to achieving the objective(s)	Harmful to achieving the objective(s)
	Strengths	Weaknesses
Internal Origin (attributes of the organization)	<ul style="list-style-type: none"> • Quality people – diverse, flexible, nimble, creative/knowledge, well-trained, team ethic, dedication 	<ul style="list-style-type: none"> • Adequate Staff Resources going forward – more cross training for redundancy is needed, more procedures, more use of technology; Knowledge retention
	<ul style="list-style-type: none"> • Strong Financial Positions - AAA bond rating, competitive rates, adequate funding 	<ul style="list-style-type: none"> • Manage financial factors – mitigate large annual rate increases, mitigate variable revenue stream, cut debt without loss in maintenance
	<ul style="list-style-type: none"> • Good utility capacity – reliability, compliance with Safe Drinking Water Act, compliance with Clean Water Act, Biosolids handling, sufficient lines to support growth 	<ul style="list-style-type: none"> • Manage Customer relations and service access/delivery – develop brand/image, improve performance to maintain customer support, increase satisfaction
	<ul style="list-style-type: none"> • Leadership focus on continuous improvement, sustainability, innovation, communication, engagement with City and industry 	<ul style="list-style-type: none"> • Agility – be more preventive with our actions and less reactive, do more root cause analysis, measurement and control of the right things
	<ul style="list-style-type: none"> • Community Support and Awareness – public education, environmental awareness, improving customer service relationship, stakeholder interest and support 	<ul style="list-style-type: none"> • Silo (work) mentality has to be removed – City; Division to division; Individual

External Origin (attributes of the environment)	Helpful to achieving the objective(s)	Harmful to achieving the objective(s)
	Opportunities	Threats
	<ul style="list-style-type: none"> Financial Viability - Develop alternative revenue sources 	<ul style="list-style-type: none"> Threats to infrastructure and Operational resiliency
	<ul style="list-style-type: none"> Operational Resiliency - Develop/implement all hazard emergency preparedness plan 	<ul style="list-style-type: none"> Challenges to water supply – water resource adequacy, IBT, product quality
	<ul style="list-style-type: none"> Customer Satisfaction – continue to enhance customer service 	<ul style="list-style-type: none"> Instability in economy, politics, regulations, etc. – challenge to planning and financial viability
	<ul style="list-style-type: none"> Stakeholder Understanding and Support - Implement comprehensive communications plan for internal and external Community Sustainability and Water Supply Adequacy - Expand and strengthen regional partnerships 	<ul style="list-style-type: none"> Potential loss of partnerships – Duke Energy, Counties like Union, York, and Cabarrus, other water users, etc. Identifying and maintaining needed resources – need stakeholder understanding and support ; need strong leadership, qualified staff, technical resources, security, tools

The results of the 2012 SWOT analysis and discussion were used to develop the key list of long term objectives (shown below). These objectives are reflected in our Balanced Scorecard as Initiatives and Measures.

OBJECTIVES FOR STRENGTHS AND WEAKNESSES (INTERNAL FOCUS)
PRODUCT QUALITY
Meet all requirements of the Safe Drinking Water Act and Clean Water Act.
CUSTOMER SATISFACTION
Manage Customer Relations & service access/delivery.
EMPLOYEE & LEADERSHIP DEVELOPMENT
Promote employee and leadership development.
EMPLOYEE & LEADERSHIP DEVELOPMENT
Encourage Wellness.
OPERATIONAL OPTIMIZATION
Define and prioritize staff resources to optimize operations.
FINANCIAL VIABILITY
Maintain stability in financial management by maintaining fund balance ratio of 50% of operating fund budget, debt-to-PAYGO capital funding mix of 60-40 and debt coverage ratio of at least 2.0.
OPERATIONAL RESILIENCY
Foster culture of agility and adaptability.
COMMUNITY SUSTAINABILITY
Engage in Citywide efforts for change management and continuous improvement.
INFRASTRUCTURE STABILITY
Reduce risk management exposure

OBJECTIVES FOR OPPORTUNITIES AND THREATS (EXTERNAL FOCUS)
OPERATIONAL RESILIENCY
Complete development and implementation of the All Hazards Emergency Preparedness plan.
COMMUNITY SUSTAINABILITY AND WATER RESOURCE ADEQUACY
Continue a leadership role in regional water resources planning and ensure long term availability of water supply
STAKEHOLDER UNDERSTANDING AND SUPPORT
Develop and Implement a Comprehensive External Communication Plan.
STAKEHOLDER UNDERSTANDING AND SUPPORT
Expand and Strengthen external partnerships
OPERATIONAL RESILIENCY
Develop agility in response to risks.
FINANCIAL VIABILITY
Expand alternative revenue sources.
CUSTOMER SATISFACTION
Enhance Customer Service

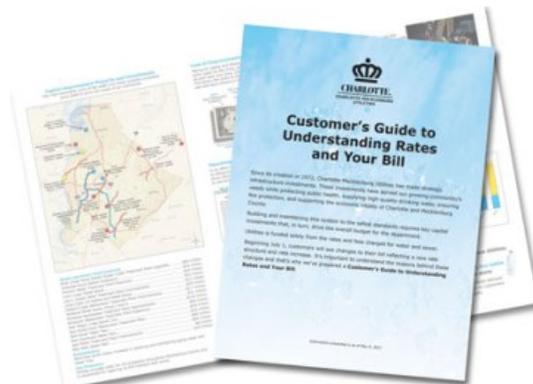
Charlotte Water’s long range strategic plan includes a multipronged approach to several core Utility topics detailed below:



Core Topic: Financial Management

Strategy:

Charlotte Water continues to offer competitive rates. Charlotte Water’s AAA bond ratings have saved ratepayers millions of dollars as a result of securing low interest rates. Rates and fees will be set to recover the full cost of operating, financing, maintaining, replacing, and expanding the Utility as needed. Rates and fees are based on equitable distribution of the costs to provide service. Efforts continue to reach and maintain the goals of a fund balance ratio of 50% of operating fund budget, debt to PayGo capital funding mix of 60/40, and debt coverage ratio of at least 2.0.



To re-focus on equitable distribution of costs and recovering full operational costs, a comprehensive rate methodology study was completed in FY2011. The rate methodology study involved citizen input and is expected to help address public concerns about *how* customers are charged for water and sewer service. It defines the next evolution in the rate structure by addressing public concerns about rate equity, environmental and economic sustainability, water conservation, and affordability. Charlotte Water's competitive rates result from effective management, strategic use of technology, and managed competition efforts. Over the years, Charlotte Water has maintained some of the lowest rates in the region.



Core Topic: Drinking water quality

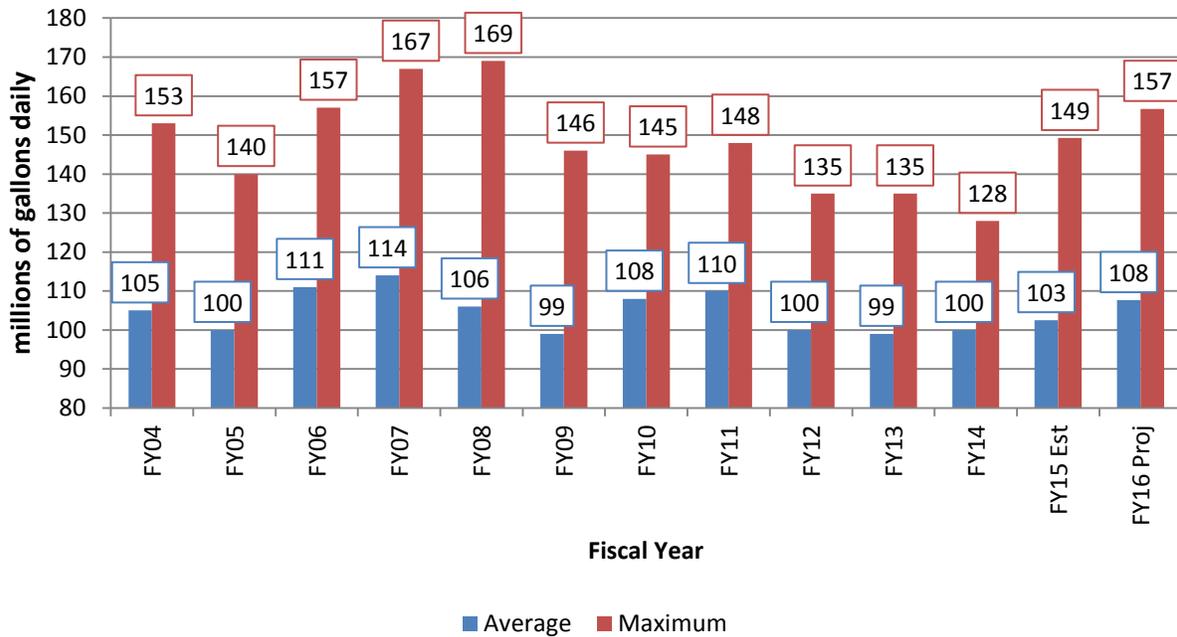
Strategy:

Provide water treatment and distribution to reliably, consistently, and efficiently produce and distribute drinking water that meets or surpasses all regulatory requirements and that is aesthetically pleasing to customers. This is accomplished through a multi-barrier approach by protecting and utilizing the highest quality supply source(s), operating and maintaining modern treatment facilities to high standards, protection from contamination caused by backflow and/or distribution system deficiencies, and monitoring and measuring water quality throughout the system.

Performance levels are continually improved, sustained, and monitored through active participation in the Partnership for Safe Water and through audited compliance with other industry standards.

Water Pumped Daily Average & Maximum Day

Data as of June 2015



Core Topic: Interbasin Transfer (IBT)

Strategy:

The existing IBT Authorization Certificate issued by N.C. regulators allows for up to 33 MGD (millions of gallons per day) of IBT from the Catawba River basin to the Rocky River Basin on any single day each year. Charlotte Water will extend indefinitely the ability to comply with this Authorization by timely and accurate monitoring of actual and committed IBT amounts, along with planning for and developing infrastructure that controls future IBT amounts.



Core Topic: Water Metering

Strategy:

Meter all water usage to provide accurate, timely data that is used for:

- Customer billing

- Detection of leaks downstream of meters
- Resolution of billing complaints
- Customer account management
- Evaluation of system performance

Water metering is accomplished through a reliable, consistent, cost effective process utilizing one or more service providers that minimizes risk, provides for ongoing technology and process updates, instills customer confidence, and that complies with industry standards.

AWWA standards are followed to estimate the ratio of revenue (metered) to non-revenue water. Metering accuracy within AWWA standards are maintained through the proper maintenance, replacement, and/or calibration of metering equipment and through an established metering and billing audit program.



Comparison visits to other Utilities for Meter Strategy

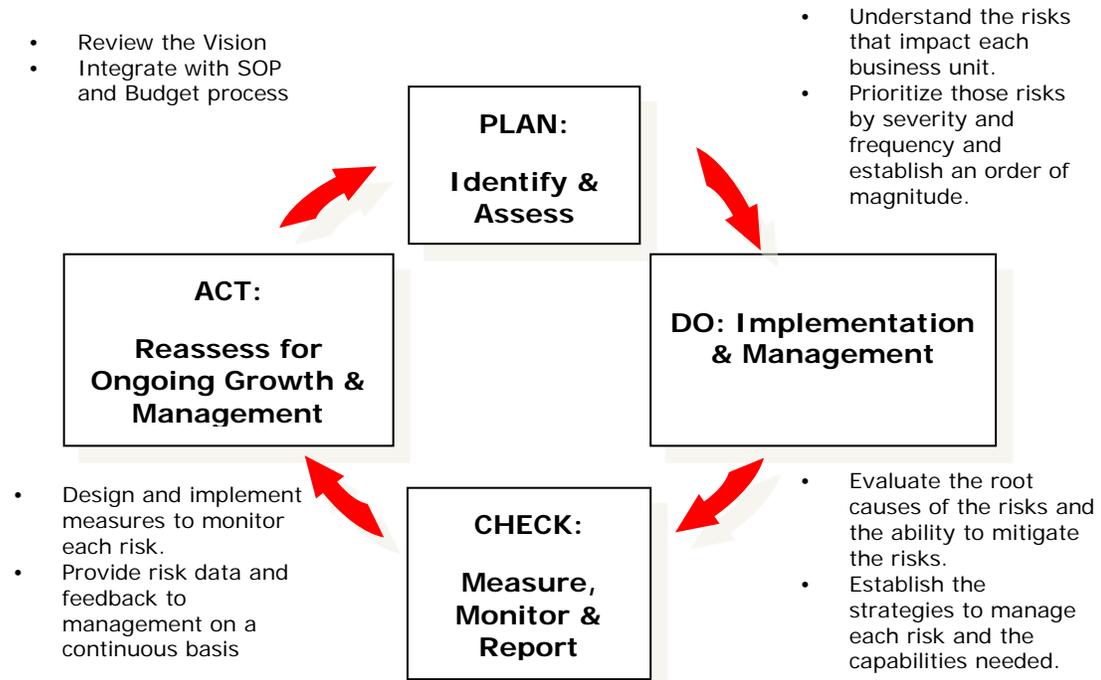


Core Topic: Risk Management

Strategy:

Improve the reliability, safety, and cost control capabilities of the operation, management, financing, and expansion of the utility system by developing enhanced risk management practices. Identification and mitigation of risks is an integral part and consideration of each significant action by Charlotte Water. The types of risk considered include risks to the public, risks to employees, risk to the environment, risk to the economies of the service area, financial risks to the utility, risk of reduced service levels, and risk to the good reputation of the City and Charlotte Water.

Significant on-going actions include development of study recommendations and implementation of study results, design and construction of infrastructure, large maintenance and/or rehabilitation projects, development of capital investment plans, recommendation of capital and operating budgets, recommendation of changes to rates and fees and/or rate and fee methodology, and the purchase of major equipment. In each case, deliberate decisions are made and communicated about acceptable risk and mitigation levels. Risk Management is coordinated at the Department level, and is the responsibility of each Charlotte Water employee.



RISK PROFILE IMPROVEMENT PLAN

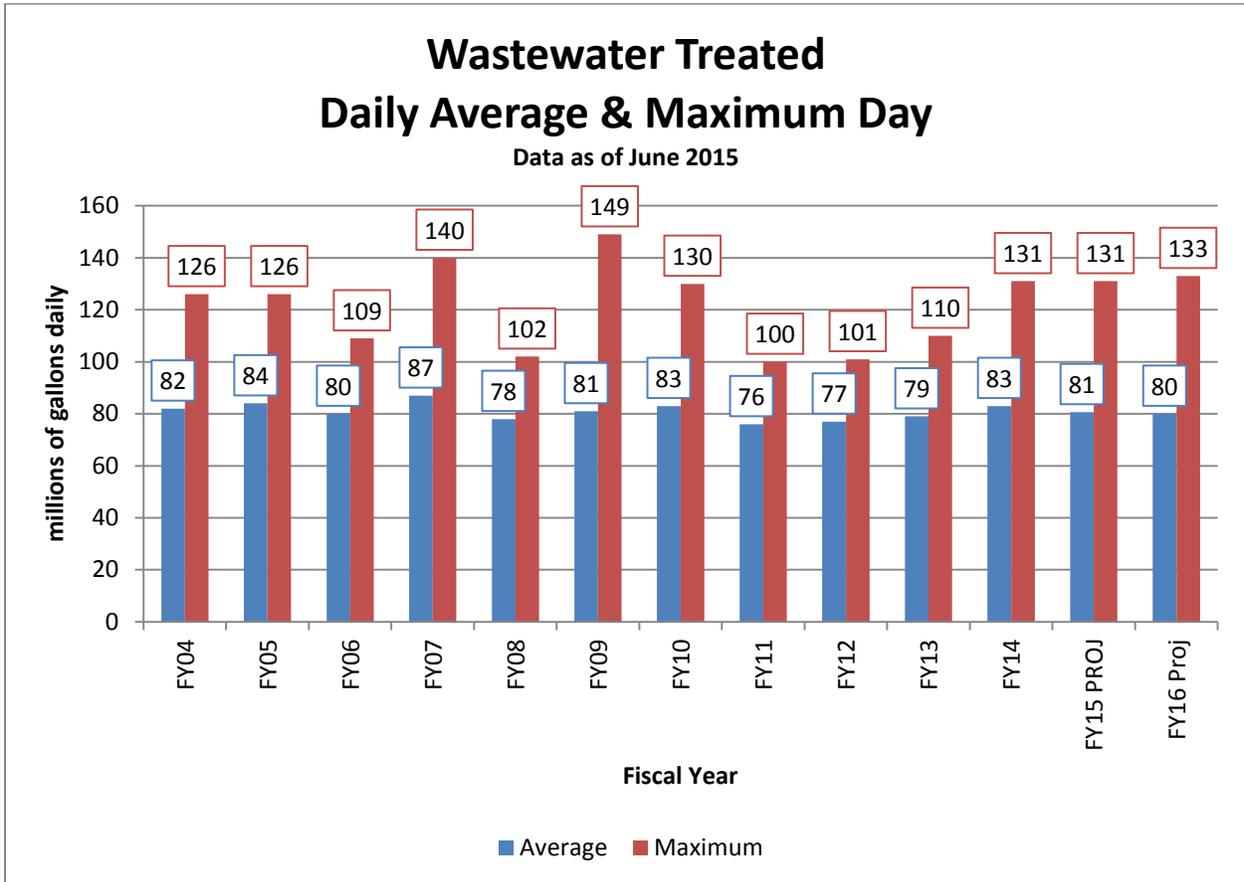


Core Topic: Wastewater Treatment

Strategy:

Wastewater produced by Charlotte Water’s customers is treated reliably, consistently, and efficiently to produce effluent that meets or surpasses all regulatory requirements, protects the environment and is aesthetically pleasing to customers. This is accomplished through management of discharges into the wastewater collection system, operating and maintaining modern treatment facilities to high standards, and monitoring and measuring water quality throughout the system. Effluent is discharged in accordance with existing and future NPDES Discharge Permits. Charlotte Water is developing programs and options to reduce wastewater production, along with reducing the volume and pollutant loading discharged to surface waters.

Wastewater flows are managed between various treatment plants operated by Charlotte Water or by Charlotte Water’s partners. Regional wastewater management plans are being developed and implemented in a way that maximizes regulatory compliance and environmental protection and minimizes costs and risks for Charlotte Water’s customers and for the region. Performance levels are being improved, sustained, and monitored through audited conformance to continuous improvement via ISO 14001 Environmental Management System standards and other appropriate industry standards.



Core Topic: Treatment Capacity

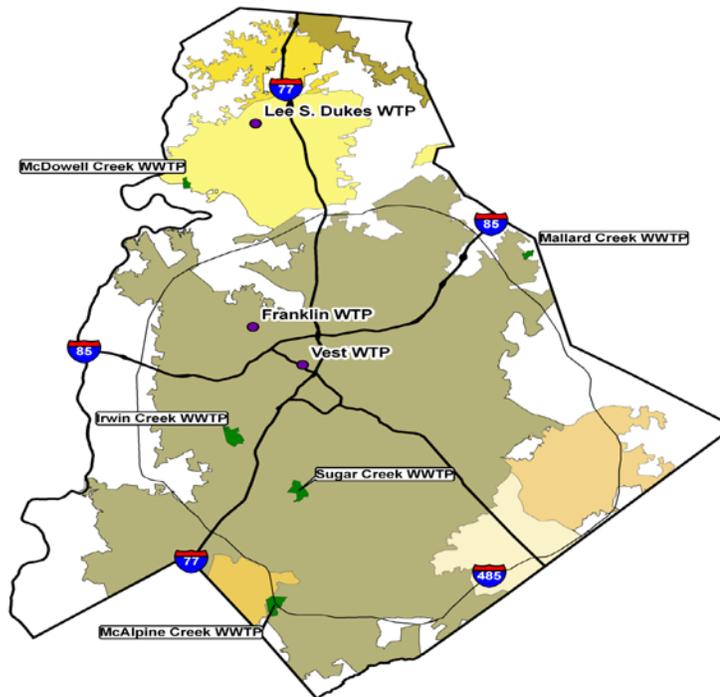
Strategy:

Charlotte Water will maintain reserve capacity for water and wastewater treatment that is at least 20% above the average daily demand as measured over the course of each calendar year. Before reserve capacity falls below 20%, studies will be completed to determine how to restore and maintain the reserve capacity goals.

Reserve capacity needed to meet peak demands will be maintained at 30% above the average of the highest peak demand experienced over the previous three calendar year period. Effective treatment capacity, (average and peak), will be increased as needed

through reliable reduction in demands, regional partnerships, increased utilization of existing facilities, expansion of existing facilities, and/or construction of new facilities. Available treatment capacity is determined based on reliable plant capabilities, NPDES Permits, and other appropriate factors. The amount of capacity used will be monitored and communicated.

Planning and Engineering are further embedded into operations and maintenance to provide design and contract administration and support for construction, operations, and maintenance of capital facilities to ensure system infrastructure stability and capacity.



Core Topic: Collection and Distribution System Capacity System Capacity

Strategy:

Charlotte Water provides maintenance of infrastructure to effectively deliver treated water and collect wastewater through over 8,000 miles of water and sewer mains. Focus continues on the reduction of sanitary sewer overflows (SSOs) in the collection system and maintaining a high level of leak repair response in the distribution system.

Less frequent equipment maintenance, due to funding constraints, increases the risk of repeated and unexpected equipment failure. This results in higher repair and replacement costs due to deferred maintenance. Measures have been taken to re-focus on maintenance throughout the treatment, collection, and distribution system and will need to be monitored and measured for results.



Core Topic: Continuous Improvement / Competitiveness

Strategy:

Charlotte Water has increased performance levels using continuous improvement processes and techniques coordinated at the Department level and implemented at the division level. Our continuous improvement program will be used to achieve and maintain ongoing operational and economic competitiveness and is coordinated with the Balanced Scorecard/Business Planning process. The attributes of Effective Utility Management are prime drivers for continuous improvement efforts.

Continuous improvement processes encourage and support operations and management of the Utility in accordance with recognized best practice standards such as ISO, AWWA, NELAP, and other as appropriate. Compliance with those standards is measured and confirmed by periodic and recurring audit procedures.



Core Topic: Communication

Strategy:

Charlotte Water communicates with customers, elected officials, employees, regulators, and stakeholders to assure that operation and management of the Utility is transparent, well understood, and meeting the needs of each group. Charlotte Water's communications plan is being updated to focus on engaging the community and bridging the gap between citizens and government. This plan exists to coordinate and build upon Charlotte Water's established tools and actions that support community outreach, which in turn supports Charlotte Water operations performance and service delivery.



Core Topic: Customer Service

Strategy:

Charlotte Water is implementing the strategic actions identified in the 40 Point plan and will obtain certification to a best practice standard for ongoing performance management.

An Evaluation Project initiated by the City Manager was completed in September 2010. The evaluation has led to a valuable reset in the strategic plan for customer service. A field audit of 9,000 meters was completed in the summer of 2010 as part of the evaluation and has led to an ongoing internal operational audit of meter reading equipment. A benchmark study was completed to evaluate current policies related to delinquency, payment arrangements, account holder requirements and leak adjustment practices. The benchmark study highlighted areas where Charlotte Water led other water service organizations and where Charlotte Water could improve.



Shown: Customer Service neighborhood fair to assist with billing.



Core Topic: Biosolids Management

Strategy:

Biosolids are the nutrient-rich organic materials resulting from the treatment of domestic sewage at a wastewater treatment facility. Through biosolids management, solid residue from wastewater treatment is processed to reduce or eliminate pathogens and minimize odors, forming a safe, beneficial agricultural product. Farmers and gardeners have been recycling biosolids for ages. Biosolids can be applied as fertilizer to improve and maintain productive soils and stimulate plant growth. They also are used to fertilize gardens and parks and reclaim mining sites. Biosolids are carefully monitored and must be used in accordance with regulatory requirements.

Charlotte Water continues to manage its biosolids program with a best practice EMS which is ISO 14001:2004 certified (or equivalent) by an external audit process. The *Environmental Management Systems* (EMS) emphasizes commitment to continuous improvement and pollution prevention. A Biosolids Master Plan has been completed to review past practices for return on investment, sustainability, and to project the best path forward.

Charlotte Water's land application program permit was renewed by South Carolina in 2014 for a 10 year period. The program's permit for North Carolina expires in March 2015. Charlotte Water has already submitted the North Carolina permit renewal application which is currently under review by North Carolina Department of Environment and Natural Resources (DENR). It is expected that a public hearing process will be conducted by DENR early in 2015.



Biosolids are land applied to farm land in the region.



Core Topic: Information Management

Strategy:

Charlotte Water has increased the use of technology in the field to provide better service to customers. Additional emphasis has been placed on the deployment of technology to assist with metrics for monitoring and measurement, and the use of technology for conformance to best practice standards. Technology will be a primary tool that assists in the improvement in business processes as part of the continuous improvement effort.



Core Topic: Employee Training and Development

Strategy:

Charlotte Water strives to hire and maintain a skilled diverse workforce. Due to higher requirements for entry-level positions in the utility field, Charlotte Water has at times experienced difficulty finding qualified applicants. The strategy is to remove any barriers in the hiring and onboarding process to insure a timely hiring schedule. Once hired, training and skills development process focuses on internal training opportunities supplemented by external development courses as needed to maintain a known level of technical and professional expertise.



Crews use robotic cameras to check wastewater pipes

ACCOMPLISHMENTS

Over the past several years, Charlotte Water has achieved numerous accomplishments. The most recent significant achievements include:

- **Providing safe drinking water and efficient sewer service to our community year after year.** Charlotte Water consistently meets Environmental Protection Agency's *Safe Drinking Water Act* and *Clean Water Act* requirements.
- **Maintaining exemplary financial management.** Charlotte Water's AAA bond ratings have saved ratepayers millions of dollars as a result of securing low interest rates.

Several Awards were recently earned for our environmental stewardship and operational efficiency, along with other significant accomplishments:

- **All five Charlotte Water wastewater treatment plants earned Peak Performance Awards from the National Association of Clean Water Agencies (NACWA) for calendar year 2014** for outstanding compliance with NPDES Discharge Permit requirements. NACWA Peak Performance Awards recognize wastewater treatment professionals throughout the nation for protecting the environment and public health through outstanding treatment and discharge regulatory compliance. Over 5,000 compliance tests were conducted during the 2014 calendar year and Charlotte Water successfully passed those tests over 99.9% of the time.
- In 2013, Charlotte Water achieved another milestone on its journey toward full-agency **International Standards Organization (ISO) 14001 Environmental Management System** Compliance, by adding Sugar Creek Wastewater Treatment Plant into Charlotte Water's EMS Corporate Certification following a thorough review. Sugar Creek became Charlotte Water's fourth team to earn ISO 14001; the EMS covering the wastewater treatment plants (Sugar, Mallard, and McDowell) along with the Charlotte Water Biosolids program will continue leading the way for the City. In 2015, implementation and planning for the remaining two wastewater plants, Irwin and McAlpine, began. ISO, and similar best practices, help organizations to capture explicit knowledge by documenting procedure and reinforcing continuous improvement and environmental protection. The ISO program includes a preventative action committee that develops programs centered on the sustainable 5Ms of Manpower, Machinery, Material, Measurement, and Method. Storm water pollution prevention is one of the key focus areas of the preventative action committee.
- The water treatment plants are undergoing an accreditation process similar to ISO14001 known as the **AWWA Partnership for Safe Water**. The Partnership is a voluntary program for water organizations designed to **optimize** water treatment plant and distribution system performance through preventative measures, upgrades, and technology applications. It was created through the collaborative effort of the 6 largest drinking water organizations in the US and is managed by the American Water Works Association (AWWA). Currently, two of our three water treatment plants (Franklin and Vest) along with our distribution system are at the Phase 3 level, with the third plant (Dukes) at the Phase 2 level. Charlotte Water was awarded the AWWA Partnership for Safe Water **Director's Award in 2013**. In 2015, implementation and planning for the remaining water treatment plants began. Further, Charlotte Water's Lee S. Dukes Water Treatment Plant received an **EPA Area Wide Optimization Program (AWOP) award for 2014** for maintaining the turbidity below .10 ntu in filtered water and <1.0 ntu in settled water 95% of the time.
- For field operations, the distribution system is undergoing an accreditation process similar to ISO14001 known as the **AWWA Partnership for Safe Water-Distribution. Phase III was completed in January 2015**. Staff will continue to work on action plans and improvements to maintain and exceed this high operational level. An ISO 55000 best practice approach is intended for the collection system asset

- management with planning beginning in 2015. It must be noted that through an innovative partnership with the University of NC at Charlotte, an acoustic technology called the Sewer Line Rapid Assessment Tool (SL-RAT) was developed in the past to determine the impairment of the sewer lines without going through the more time consuming process of inspecting the lines via a CCTV rover. This technology, now commercially available to other utilities, has done much to aid in the maintenance of sewer lines and reduces the opportunities for SSOs to reach surface waters.
- In our Laboratory Services area, we gained **NELAP accreditation** for Wet Chemistry and renewal for both Metals and Microbiology as of January 2015 (final confirmation of the audit results is awaited but the auditor indicated that the team would receive this accolade). As an example of the service level provided, our lab was instrumental in the rapid identification of PCB and trichlorobenzene in February 2014 (<3 hrs.), which contributed to the emergency response for the illegal PCB dumping. The staff of our environmental laboratory maintains and exceeds state certification requirements.



Shown: The Lab Services Team under the guidance of Myra Zabec-Thompson.

- Recent past awards include: Charlotte Water received the **Platinum Award for Utility Excellence** from the Association of Metropolitan Water Agencies (AMWA) in 2012. Further, in **2013**, Charlotte Water was awarded the **NACWA Gold Award for Excellence in Management**, which is based on achieving the attributes for Effective Utility Management. In 2012, Charlotte Water won the state-wide competition for the **Best Tasting Water**. As part of a tasting competition, a panel of judges selected the winning sample that was produced by the Franklin WTP. In 2013, Charlotte Water won second place in the statewide competition for the Best Tasting Water. This was not quite as thrilling as our first place finish last year, but still

gratifying to see a panel of expert judges continue to highly rate Charlotte's drinking water among a stiff field of competition.



- The NC American Water Works Association – Water Environment Association (NC AWWA-WEA) is the primary professional association for the water/wastewater industry in NC. At its annual conference in November 2014, many of Charlotte Water staff members received prestigious awards and honors. These included:
 - Charlotte Water received the state 2013 **Collection System of the Year Award** which recognizes municipalities that protect public health and the environment through “above and beyond” performance relative to management, operations and maintenance of their sanitary sewer collection systems beyond the basic requirements of their state-issued operating permits. This is a BIG award, recognizing the large and successful team effort over many years toward reducing and preventing sanitary sewer overflows in our community. **In 2014, we did it again!** Charlotte Water was the winner of the Wastewater Collection System of the Year (Large Systems) for the second consecutive year.



Shown: The collection system is maintained by the Charlotte Water Field Operations staff under the guidance of Angela Lee.

- Charlotte Water’s Operations Challenge Team known as “Operational Hazards” won first place overall in the **Operations Challenge** competition and will represent N.C. at the national competition at WEFTEC in Chicago in October 2015. Members of that team are Ben Silvers, Jack Reece, Travis O’Leary, Clifton Messer, and Andy Taylor (Coach).
- Jackie Jarrell was presented with the prestigious **Arthur Sidney Bedell Award** – for her service and dedication to the association and industry. This is a national recognition and one of the highest honors bestowed by the Water Environment Federation (WEF). Jackie also serves on the highest governing board of WEF as a Trustee, which is an international level role.



Shown: Jackie Jarrell with the management staff of Charlotte Water Environmental Management team.

- Angela Lee was presented with the prestigious **Warren G. Fuller Award** – for her service and dedication to the association. This is a national recognition and one of the highest honors bestowed by the American Water Works Association (AWWA).
- Bert Gallaher received the **Kenneth J. Miller Award** for his years of service and dedication to the work of Water for People.
- Carolyn Ross was inducted into the “**Select Society of Sanitary Sludge Shovelers**” in recognition of her service to the association and the industry.
- Mark Krouse received the “**AWWA Meritorious Operator of the Year**” Award and was recognized for his work which earned the national “**AWWA Section Education Award.**” Mark led the construction of a mobile backflow prevention training laboratory which has been used to train many, many professionals.
- Ron Weathers, Barry Shearin, and Barry Gullet were presented the “**AWWA Silver Water Drop**” Award for 30 years of membership.



Shown: City Manager Ron Carlee presenting Charlotte Water engineer Maggie Macomber the city manager award in 2015 for her outstanding work and service including the management of the PCB decontamination.

- Charlotte Water began a **knowledge transfer pilot study** in 2014. This pilot will continue through 2015 as the human resource staff explores ways to capture and retain implicit knowledge from our highly skilled staff as retirements increase. This project is exploratory but will help address an industry challenge area as many utility staff members continue to retire.
- In 2012, our CityWorks Work and Asset Management (WAM) go-live for Field Operations, Locates Lift Stations, and other field staffs, was completed including a move to paperless work order process and implementation of the Storeroom module.

- Over 95,000 service requests processes and 25,000 work orders were initiated. The storeroom module is a major key to more efficiently managing the 1.9 million dollar field operations inventory as part of the **Charlotte Water assets management approach**, and in reducing system downtime during the annual audit from over 30 days to around 1 day. This project was a collaborative effort between Charlotte Water, E&PM, and Shared Services Technology Management. The team was awarded the 2012 Exemplary CityWorks User Award at the CityWorks User conference. This national award is the only awarded once per year. The Charlotte Water technology staff continues to support and achieve new Charlotte Water goals by:
1. Supporting improved customer service through advancing the **Billing Cycle Alignment Project** (finalized the implementation approach, completed business case, engaged implementation consultants, received Charlotte Water Director and City Manager Approval, and supported the completion of the on-time and under budget process improvement).
 2. Active participation in **Department of Homeland Security's Regional Resiliency Assessment Program (RRAP)**,
 3. Planning and executing departmental component of Citywide Windows Server 2003 Upgrade program,
 4. Completing the selection process for an electronic document management system that will undergird the departmental records management program,
 5. And initiating Phase I implementation activities (Installation and Development Services process base) for Permits, Licensing and Land module of Azteca CityWorks.
- **OnBase**, an enterprise content management solution, was acquired by Charlotte Water in FY15. Final stages of planning are in progress with the implementation vendor, ISSI. **OnBase provides a foundational solution to provide effective electronic document/records management with integrated workflows.** The selection process was a collaborative effort across City departments that were invited to participate by providing requirements for their areas, attending vendor demos, and providing input for final vendor selection. Implementation is set to begin in July and will be complete in FY16.
 - **Habitat for Humanity.** Twice a year, Charlotte Water Customer Service staff joins the Neighborhood and Business Services Department staff for a one-day-home-build with Habitat for Humanity. Staff has participated in this partnership for 5 years.



Shown: Steve Miller with the staff of Charlotte Water Customer Service Team building homes with Habitat for Humanity in 2014 and 2015.

LINKS TO CORPORATE STRATEGY

Charlotte Water has reviewed and updated its Balanced Scorecard initiatives to maintain alignment with the goals of City Council and the mission and vision of our organization.

Serve the
Customer

The Customer Perspective

Charlotte Water is committed to customer satisfaction and confidence by safeguarding the environment and providing responsive services, reasonable rates, system capacity, and effective communication.

Run the
Business

The Internal Process Perspective

Charlotte Water continues to leverage technology and collaborate with other business units in efforts to optimize business processes with the ultimate goal of enhancing customer service. Run the Business is being re-focused to Build the Community.

Manage
Resources

The Financial Perspective

Sound financial management is a responsibility Charlotte Water takes seriously, as we owe it to our ratepayers who support our operation. Effective management, along with a comprehensive Community Investment Program for use of capital, contributes to our excellent bond ratings.

Develop
Employees

The Learning and Growth Perspective

Hiring and retaining competent staff is vital to our success. Employee training and development continues to be a high priority for Charlotte Water.

STRATEGIC INITIATIVES

The table below identifies a few of the initiatives Charlotte Water will undertake and how they align with the City’s corporate objectives and/or focus areas. The Charlotte Water FY2016 Balanced Scorecard can be found in Appendix of this report.

	<i>Department Initiative</i>	<i>Linkage to Corporate Strategy</i>
Serve the Customer	Environmental Stewardship: <ul style="list-style-type: none"> • Maintain 100% compliance for Operational Permits • Reduce sanitary sewer overflows and water leaks • Meet or exceed all requirements of the Safe Drinking Water Act and Clean Water Act. 	Corporate Objective: Safeguard the Environment Focus Area: Environment
	Enhance Customer Service: <ul style="list-style-type: none"> • Reduce risk by improving records management • Update and implement sustainability initiatives. 	Corporate Objective: Enhance Customer Service
Run the Business	Prepare for the Future: <ul style="list-style-type: none"> • Review and prioritize continuous improvement best practices 	Corporate Objective: Invest in Infrastructure
Manage Resources	Provide Learning and Growth for the Future: <ul style="list-style-type: none"> • Promote employee and leadership development by continuing the build out of an Employee Recognition Program and reducing vacancies. • Promote employee and leadership development by the expansion of the knowledge base. 	Corporate Objective: Promote Learning and Growth
Develop Employees		

Service Delivery

SERVICES

Charlotte Water is organized around seven service areas. These areas and the services they provide are described briefly below.

Administration: Provides departmental level functions such as key business decisions, human resources, budget, financial management, rate setting, procurement, technology, communications, training, revenue recovery, safety, security, and competitiveness via continuous improvement.

Customer Service: Oversees new connections, service availability and customer account management including bill inquiries, meter reading, leak investigation, and backflow prevention.

Laboratory Services: Provides testing of water, wastewater, and industrial users for compliance and manages water quality issues relating to taste, color, and odor.

Engineering: Provides design and construction of Charlotte Water facilities, water and sewer main rehabilitation and extensions, donated projects, and surveying.

Environmental Management: Manages the treatment of wastewater before it is discharged back into the environment and protects our system by regulating industrial/commercial wastewater discharges, and oil and grease reduction.

Field Operations: Maintains more than 8,000 miles of water and sewer pipe and more than 255,000 service connections.

Water Treatment: Provides treatment and pumping of water to distribute drinking water to customers.

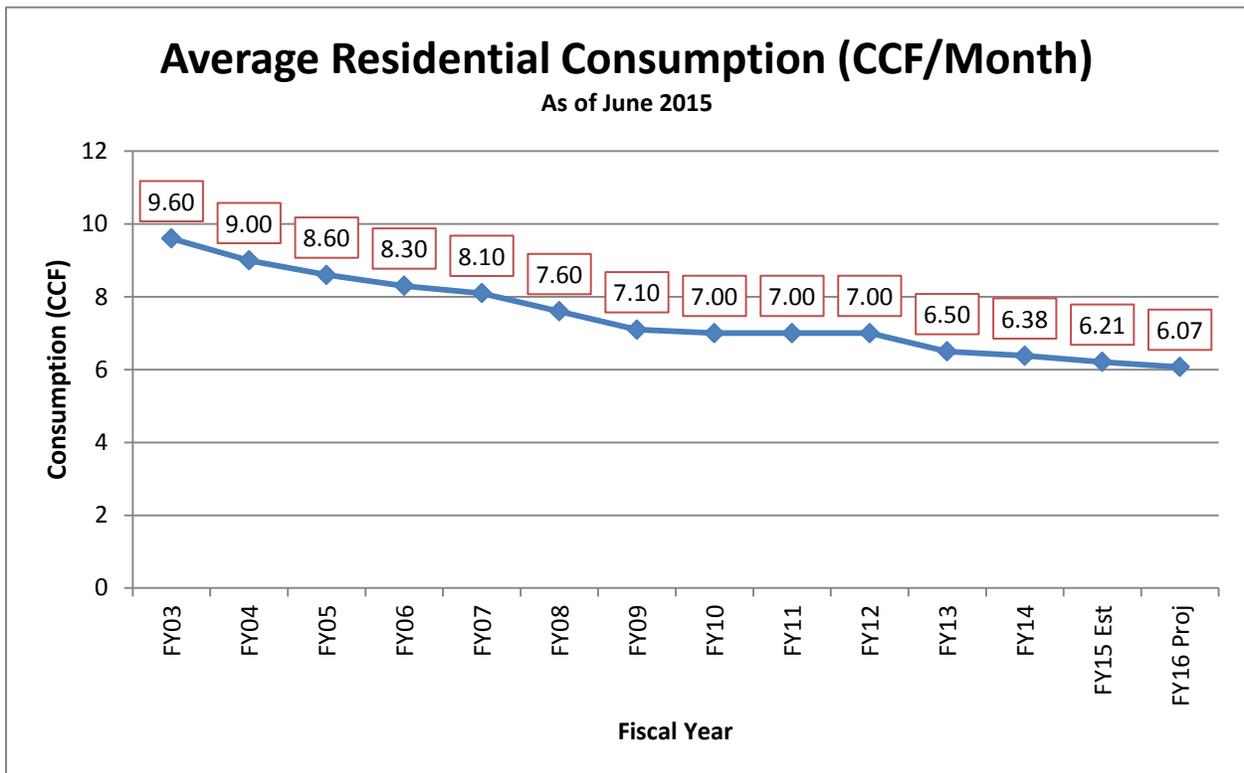


HISTORY and TRENDS

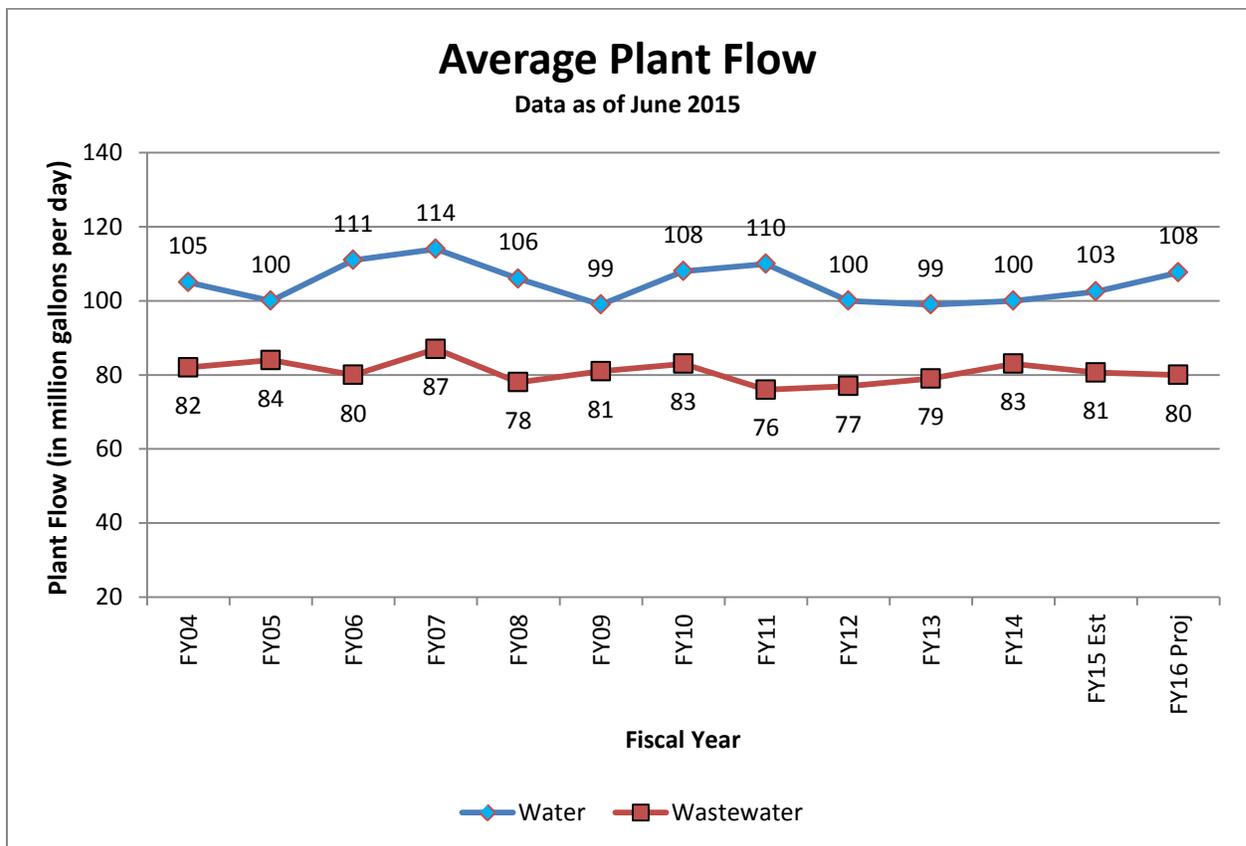
Our customer base and water and wastewater system continued to grow through 2015. The FY2013 statistics show a slight decrease in miles of pipe that was largely due to the completion of a GIS survey project.

As of June 2015										
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 Proj
Water Accounts	237,930	241,637	242,631	245,854	248,257	253,557	257,683	262,607	268,150	272,849
Wastewater Accounts	219,154	222,887	223,855	226,978	229,002	235,157	238,854	242,959	243,770	248,032
Water Mains (miles)	3,850	3,929	4,025	4,064	4,094	4,206	4,198	4,208	4,234	4,259
Wastewater Mains (miles)	3,865	3,942	4,028	4,047	4,073	4,180	4,170	4,187	4,201	4,215

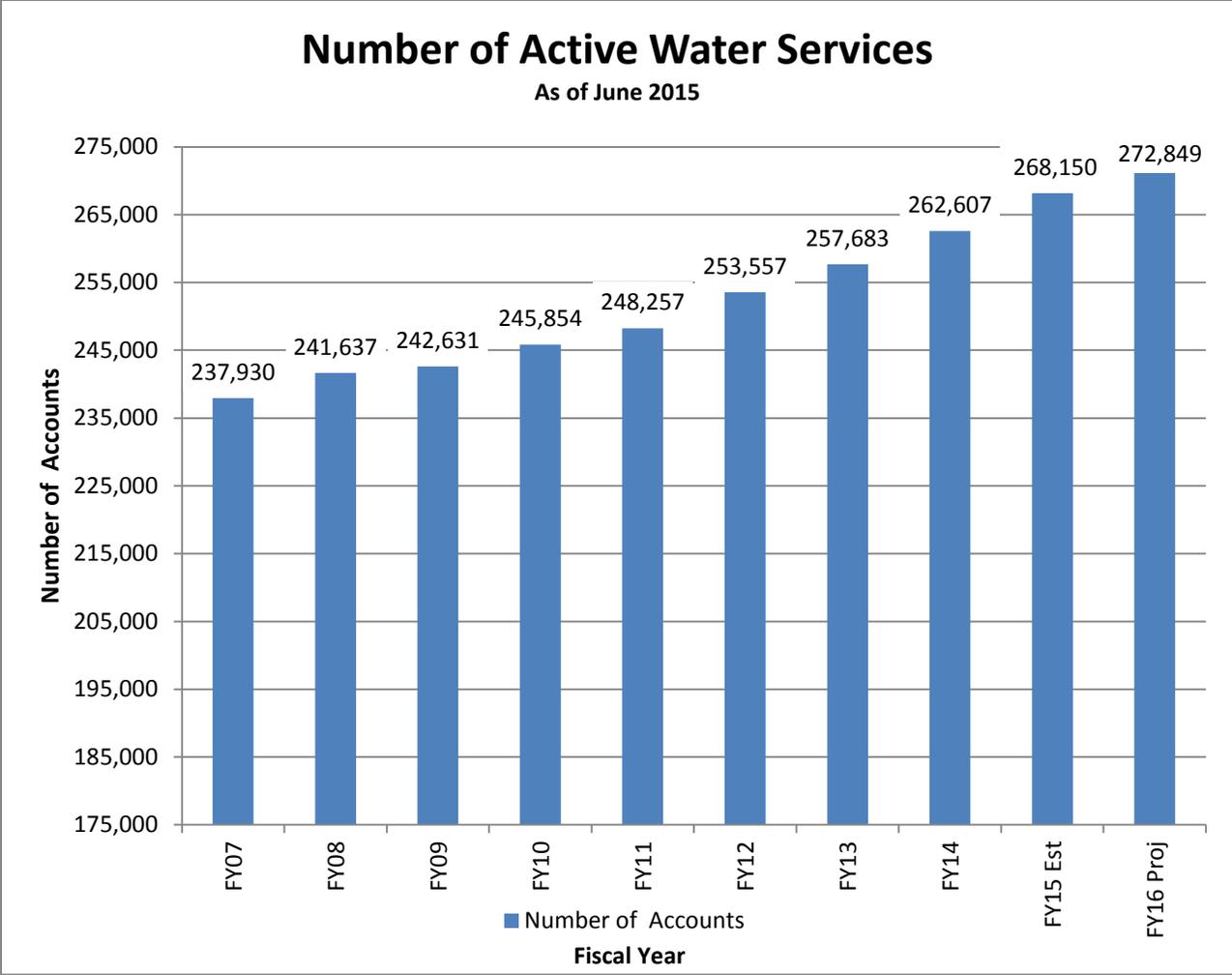
From FY2003 to FY2009, Charlotte Water had seen a decrease in the average consumption per residential account for consecutive years. Following the drought restrictions during FY2008-09, when average consumption declined notably, residential customers have continued to use less water. Evidence indicates that customers have adopted and maintained conservation habits, such as using low flow shower heads and low flow toilets.



As can be seen in the Average Plant Flow graph below, during the first half of FY2011, with all restrictions lifted and only a mild persistent dryness, the water treatment plants saw a 14% increase in average daily pump rates while the wastewater treatment plants flow remained largely unchanged. By FY2012, average water treatment plant flows had decreased by about 10% as compared to the year prior, with wastewater treatment plant flows holding fairly steady. The gap between the water plant flows and the wastewater plant flows has been consistent and somewhat reflective of weather patterns. This gap is indicative of water being used but not returned to the system, e.g. lawn irrigation and the use of water for the testing and flushing of the distribution system. In FY2013, Charlotte Water saw a slight decrease in water plant flow and a slight increase in wastewater plant flow which can both be attributed to wet weather conditions. Wet weather can lead to inflow into the wastewater treatment system and can cause the decreased consumption of water from the treatment plant, particularly consumption associated with irrigation.

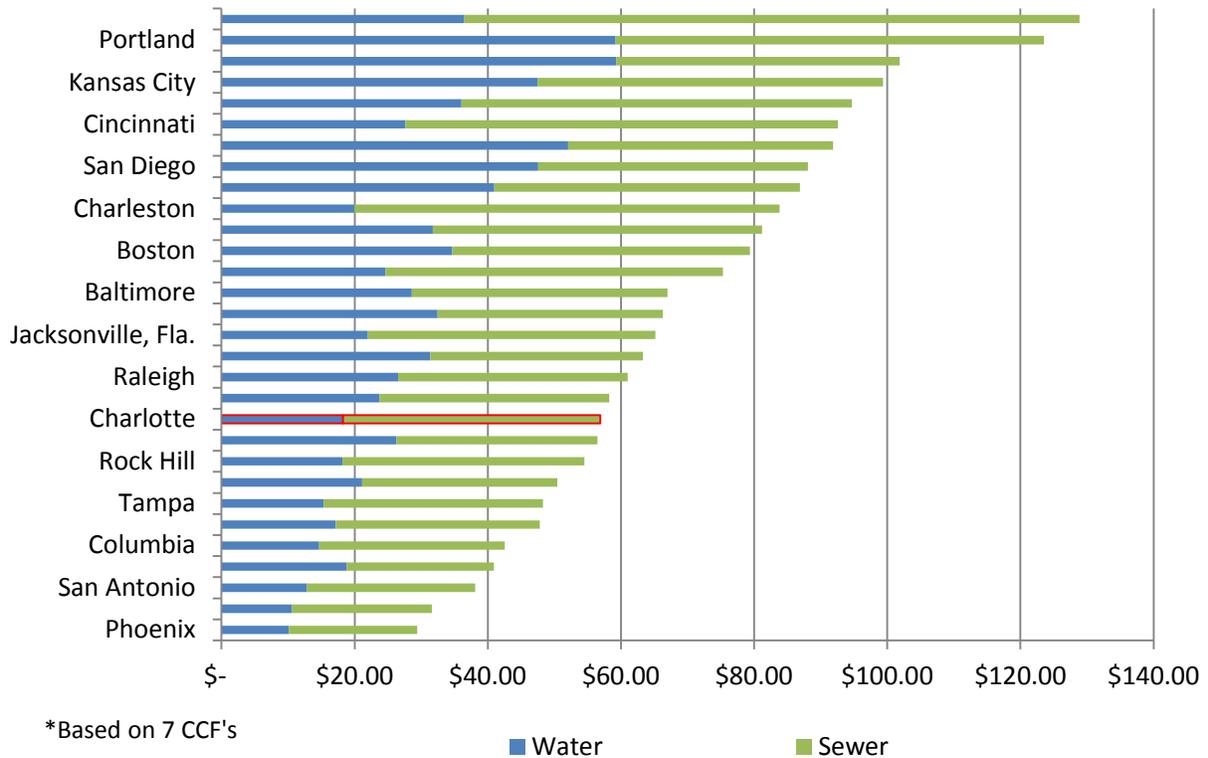


Despite an increasing customer base, Charlotte Water has successfully managed resources to minimize operating costs. Optimization, including continuous improvement, competition, and benchmarking help Charlotte Water provide efficient, quality services while minimizing rate increases.



Charlotte Water consistently ranks among the lowest rates for average residential customers in regional and national surveys. This is a result of efficient service delivery and capital financing strategies. The following graph shows 2015 data unless otherwise noted. Current bond information is also shown.

Water and Sewer Bill Comparison Data as of January 13, 2015



MOODY'S

INVESTORS SERVICE

Rating Action: Moody's confirms Aaa on Charlotte, NC's \$1.3B Combined Enterprise Revenue Bonds; Outlook stable

Global Credit Research - 19 Mar 2015

New York, March 19, 2015 -- Moody's Investors Service confirms the Aaa rating on the City of Charlotte, NC's \$1.3 billion Combined Enterprise System Revenue debt. Concurrently, Moody's revises the outlook to stable. This action concludes a review for possible downgrade that Moody's initiated on December 15, 2014.

SUMMARY RATING RATIONALE

The high quality Aaa rating reflects the large size and diversity of the service area's economic base, and strong management practices including comprehensive fiscal policies, regular rate adjustments and long term planning. The rating also incorporates improved debt service coverage and liquidity levels as well as a somewhat elevated yet manageable debt ratio with manageable exposure to variable rate debt. Legal provisions are satisfactory with no debt service reserve requirement on bonds issued in 2008 and after which is offset by maintenance of healthy reserves.

OUTLOOK

Revision of the outlook to stable reflects the establishment and strict adherence to prudent codified policies leading to improved debt service coverage and liquidity. The stable outlook also incorporates the expansion and further growth potential of the service area and management's regional approach.

Resource Allocation Summary

	FY2011 Budget	FY2012 Budget	FY2013 Budget	FY2014 Budget	FY2015 Budget	FY2016 Budget
Budget	\$268,734,053	\$288,860,220	\$291,085,960	\$347,718,850	\$308,312,251	\$335,533,652
Authorized Positions	791.50	746.25	746.25	761.50	799.75	822*
Water CIP	\$29,084,000	\$67,572,575	\$28,375,000	\$38,075,000	\$33,843,000	\$51,997,000
Wastewater CIP	\$83,262,600	\$50,327,000	\$52,983,400	\$68,280,400	\$73,045,400	\$51,203,000

*Note: There were 3.75 temp positions in the FY15 count and they are not included in the FY16 positions.

Conclusion

Charlotte Water remains committed to the City's corporate strategy and to providing high-quality, low-cost services to our customers. One primary lesson learned in FY2011 and continued forward was that Charlotte Water understands the need to shift focus from a high growth oriented utility to a utility focused on sustaining and improving operations, maintenance, and customer service. This is due to the dramatic slowing of growth that occurred in FY2011 to FY2013. Although Charlotte Water saw some increase in growth rate beginning in the end of FY2013, and solid economic development in FY2014 and FY2015, this lesson learned will impact how we reposition to best respond to customer needs and maintain efficient operations in the future. This strategic operating plan promotes the achievement of organizational goals and objectives as well as continuing Charlotte Water's commitment to providing vital basic services to our customers.

Appendix A: Department Link to Corporate Scorecard



Charlotte Water Strategy FY 2015 – FY2017

City Vision

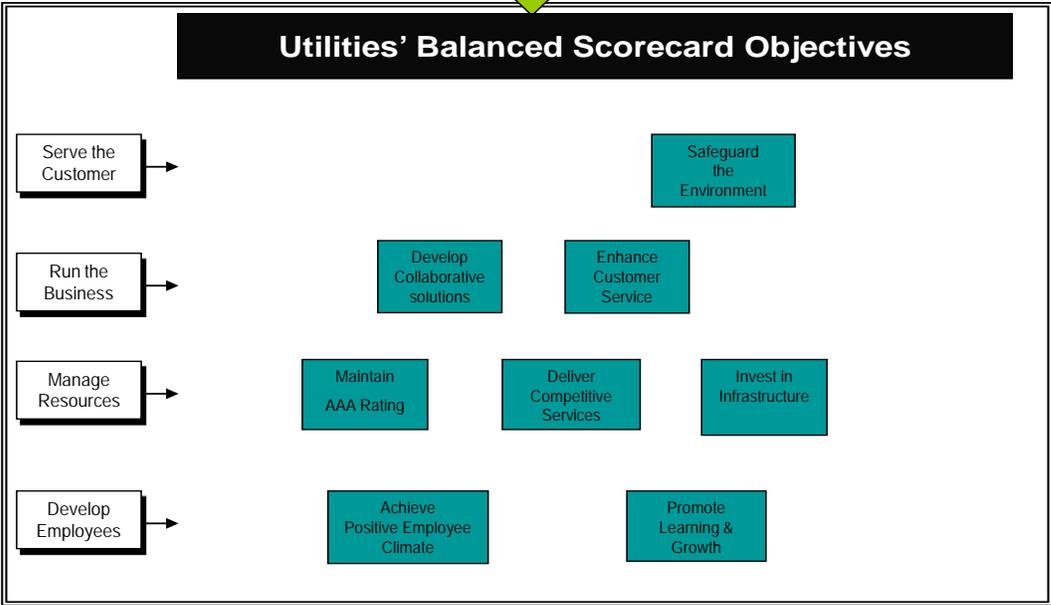
Community of Choice for Living, Working and Leisure

Strategic Themes



Strategic Principles

Comprehensive Citizen Service



Appendix B: FY2015 BALANCED SCORECARD – FINAL STATUS AND FY2016 NEW TARGETS

FY15 Balanced Scorecard Results directly linked to Focus Area Initiatives

Focus Area	Focus Area Indicator	Name	Target	FY15 Results
Environment	Maintained water quality in lakes and streams as well as ensured safe and adequate drinking water supply	Define and prioritize resources to optimize operations - Overflows	less than 6.1 per 100 miles	4.1 per 100 miles
Environment	Maintained water quality in lakes and streams as well as ensured safe and adequate drinking water supply	Define and prioritize staff resources to optimize operations- Leaks	100% in 8 calendar weeks	100%
Environment	Maintained water quality in lakes and streams as well as ensured safe and adequate drinking water supply	Ensure long term availability of water supply - Regional Planning	6 public meetings	6
Environment	Maintained water quality in lakes and streams as well as ensured safe and adequate drinking water supply	Meet all applicable requirements of the Safe Drinking Water Act and Clean Water Act.	100% compliance	99.9%
Environment	Maintained water quality in lakes and streams as well as ensured safe and adequate drinking water supply	Comply with National Pollution Discharge Elimination permit requirements - Erosion	100% compliance	100%

FY2016 CHARLOTTE WATER BALANCED SCORECARD

City Strategy Vision Component	City Corporate Objective	Utilities Initiative (based on Core Objectives and Effective Utility Management)	Measure:	Focus Area/Initiative/Key Indicator	Target:	Measurement Validation (Specific Actions to complete during the fiscal year)	Leadership Team Sponsors (or other significant responsible party)
Develop Employees	Achieve Positive Employee Climate	Employees/Culture	Encourage Wellness.		Improve Wellness program	(1) Reestablish the Wellness Ambassadors Team by Sept 1, 2015 and hold at least one meeting in 2015 and one meeting in 2016. (2) Assess ways to improve future participation. Present recommendations to LT by June 2016.	Sam Chaney and Wellness team
Develop Employees	Promote Learning and Growth	Employees/Culture	Promote employee and leadership development.		Continue the work of the Employee Recognition Team and the Vacancy Task Force	Implement at least one recommendation from the Employee Recognition Survey Team and one recommendation from the FY15 Vacancy Task Force by April 1, 2016.	Bab and HR team
Develop Employees	Promote Learning and Growth	Employees/Knowledge	Promote employee and leadership development.		Expand Knowledge Base	(1) Establish and pilot a job shadowing program with at least 3 employees by April 1, 2016. Evaluate success and make recommendations for FY17 by May 31, 2016. (2) Host quarterly lunch and learn sessions during 2016 to increase collaboration and shared knowledge among employees.	Bab, Doug, Kim, Barry Shearin, Steve, Chad, Regina, and teams

Manage Resources	Invest in Infrastructure	Employees/Knowledge	Define and prioritize resources to optimize operations.		Review and prioritize CI best practices	(1) Review accomplishments of the CI initiatives since 2009 and document resources needed to maintain CI best practice requirements such as ISO, NELAP, Partnership, etc. by March 2016. (2) Evaluate certifications we want to maintain and provide recommendations to LT by June 2016.	Regina (CI team along with LT Q&P team)
Serve the Customer	Enhance Customer Service	Community/Customer Satisfaction	Define and prioritize resources to optimize operations.		Customer follow-up process to keep customers informed on pending and completed service requests	(1) Analyze current processes and document response time baseline by December 2015. (2) Establish and implement process improvements to keep customers informed by April 2016. (3) Track and report response times by June 2016.	Steve Miller, Angela Lee, Jennifer Frost, and Barry Gullet, (CS, FO, and Communications team)
Run the Business	Enhance Customer Service	Community/Customer Satisfaction	Promote employee and leadership development.		Update and implement community outreach and workforce development	(1) Set up at least 3 presentations about water and waste water jobs at high schools, colleges, universities throughout the year for career days. Volunteers from each division will be selected and allowed to participate during work hours as needed. (2) Define and complete phase 1 of the slated website improvements by June 2016.	Jennifer, Barry Gullet, Kim, Bab, Regina, and Doug (Communication, CI, HR, and IT teams)

<p>Run the Business</p>	<p>Optimize Business Processes</p>	<p>Community/Sustainability</p>	<p>Define and prioritize resources to optimize operations.</p>	<p>Environment/ Develop baseline towards using water as efficiently as possible</p>	<p>Update and implement sustainability initiatives</p>	<p>(1) Restart the Charlotte Water Green Team by holding 8 meetings of staff representing at least every Division by June 2016. (2) Charge the Green Team with developing before June 30, 2016 a list of feasible activities to be implemented by Charlotte Water by investigating green purchasing, duplex printing, increased recycling, low/no Styrofoam lunches, more recycling containers, gradually removing individual trash cans, Adopt a stream volunteer activities and other activities. (3) Organize and implement a Green Minute program by May 2016 that parallels the Safety Minute program. (4) Convene a group of Leadership Team, Green Team members, and relevant staff to draft a long-term Department Sustainability Plan that aligns with the City's Environmental Focus Area Plan and Internal Environmental Operations Plan.</p>	<p>Jennifer, Regina, Carl, Chad, and Doug (Communication, CI, Engineering, Business, and IT teams)</p>
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Run the Business	Enhance Customer Service	Environment/Responsible Operations	Reduce Risk Management exposure		Records management implementation	Measure by phases of the project as they are completed: 1. complete inventory of records on-hand by December 2015. 2. Provide guidance on retention schedule by February 2016. 3. Upgrade document management software by June 2016.	Doug Groce / Ann White (IT and Records Mgmt. Team)
Serve the Customer	Safeguard the Environment	Environment/Natural Resource Stewardship	Meet all applicable requirements of the Safe Drinking Water Act and Clean Water Act.		Maintain 100% compliance for Operational Permits	1. Maintain 100% compliance for Safe Drinking Water Act and NPDES Permits - June 2016. 2. No NCDENR violations on NPDES permits for construction sites - no NOV's for erosion and sedimentation control - June 2016.	Barry Shearin / Carl Wilson/ John Huber / Angela Lee / Jackie Jarrell (Operations team)
Serve the Customer	Safeguard the Environment	Environment/Natural Resource Stewardship	Define and prioritize resources to optimize operations.		Continue with Field Operations optimizations for Sanitary Sewer Overflow and Water Leak Reduction	1. Conduct a look back analysis of prior actions since 2005 taken to reduce SSOs, assess the actions, and report on the determined significant controlling factors - December 2015. 2. Continue with reduction of SSOs per 100 miles to revise target downward based on requested service level changes to lower than 5.5 incidents per 100 miles of collection main - June 2016. 3. Repair Water Leaks - Complete 100% of leak repairs in 7 calendar weeks at current service level - June 2016.	Angela Lee/ Barry Shearin / Carl Wilson (Operations team); Jennifer and Communications team