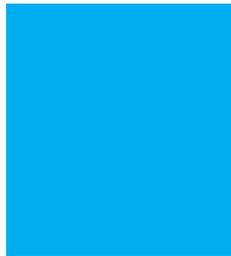
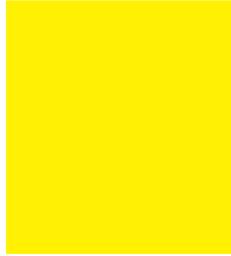


2015  
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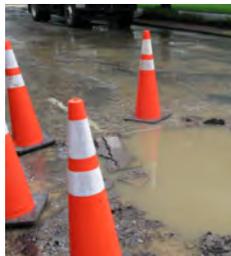
# ANNUAL REPORT

City of Richmond Department of Public Utilities



**CITY OF RICHMOND**

DEPARTMENT OF PUBLIC UTILITIES



*"We Touch People's Lives Every Day"*



## **DPU's Mission**

To provide safe and reliable utility service while creating exceptional value.

## **DPU's Vision to Our Customers**

To proactively serve the utility needs of regional customers through environmental stewardship and resource conservation while providing cost effective, safe service.

## **700 Strong Vision**

To be a premier employer that nurtures employee pride, success and development through honesty, integrity, respectfulness and service towards others.

## **Values**

Customer Satisfaction

Operational Excellence

Financial Growth and Stability

Employee Pride and Ownership



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# Leadership



*John Buturla  
Interim Deputy Chief Administrative  
Officer - Operations  
City of Richmond*

John J. Buturla was appointed interim deputy chief administrative officer for operations in October 2015. He oversees the departments of Public Utilities, Public Works, and Animal Care and Control. The former chief administrative officer for the City of New Haven, Connecticut, he most recently was deputy chief of Operations for the Richmond Police Department, a senior contractor at the Center for Homeland Defense and Security, and chief of police for Stratford, Connecticut. While with the Richmond Police Department, he was the lead coordinator for the UCI Road World Championships held in Richmond in September 2015. He has a BS degree in criminal justice from Sacred Heart University, an MS in forensic science from the University of New Haven, and leadership and management certifications from the FBI National Academy.



*Robert Steidel  
Director, Department of  
Public Utilities  
City of Richmond*

Robert Steidel was appointed director of the Department of Public Utilities in March 2011, after serving as interim director since July 2010. He had been a deputy director of DPU's Wastewater and Water treatment plants since 2003, and previously served as the environmental manager for the City of Hopewell's wastewater treatment facility, an industrial surveillance supervisor and an environmental health sanitarian in Illinois and a biologist for Winona State University in Minnesota. He has a BA degree from Winona State and an MA of public administration degree from Virginia Commonwealth University. He has served as the chair of the National Association of Clean Water Agencies' committee for Clean Water Agencies, Security, and Emergency Preparedness and is a board member of the Wet Weather Partnership and the James River Basin Association, president of the Virginia Association of Municipal Wastewater Agencies, and treasurer of the Virginia Water Environment Association.



# The Team



*Rosemary Green  
Deputy Director II  
Water, Technical Services*



*Wayne Lassiter  
Deputy Director II  
Finance*



*Alfred Scott  
Deputy Director II  
Natural Gas and Streetlights*



*Michael Kearns  
Energy Services Manager*



*Mark McClain  
Customer Service Administrator*



*Johnell Liggins  
Operations Manager*



*Pat Bradley  
Senior Policy Advisor  
Water Resources*



*Howard Glenn  
Operations Manager*



*Angela Fountain  
Public Information Manager II*



*Johnetta Taylor  
Executive Assistant III*

# 2015-2016 By the Numbers

## Most Viewed Web Pages

- 1 Payment Plans
- 2 Home Page
- 3 Services



## Most Viewed YouTube Videos

- 1 Mosquito Control
- 2 Gas Range - Your Beautiful Blue Flames
- 3 Combined Sewer Management Animation

## Most Read Blog Posts

- 1 2016 Elementary School Rain Barrel Contest
- 2 Second Baptist Church Gets a Rain Garden
- 3 Shelter Dog Gets a Job with the City



**2,578**

Twitter followers

**239**

water main breaks repaired

**987**

miles of water pipeline

**128,649**

feet of gas mains installed or renewed

**1,039**

gas leaks repaired

**2,200**

new gas service applications

**951**

completed and closed stormwater maintenance service requests

**3,021**

storm basins cleaned

**3,221**

permits, ordinances, resolutions, and projects reviewed



# Awards

The City of Richmond was inducted into the National Flood Insurance Program's Community Rating System by the Federal Emergency Management Agency, making all city residents with flood insurance eligible for a 10 percent rate discount.



*Jonet Prevost-White (center), Stormwater operations manager, accepted on behalf of the Stormwater Division an award from the Federal Emergency Management Agency (FEMA) in December 2015 for participating in the National Flood Insurance Program Community Rating System. The department qualified by undertaking a series of activities to protect residents from losses caused by flooding and exceeding the requirements for effective floodplain management. Presenting the award was Mari Radford (second from left), mitigation planner for FEMA. Also pictured are (left) Charles Kline from the Virginia Department of Conservation and Recreation, Chul Chong (second from right) from the City's Department of Public Works and Stewart Platt (right) DPU engineer.*



*DPU was one of 20 public drinking water systems recognized by the Association of Metropolitan Water Agencies (AMWA) for its utility management with the Gold Award for Exceptional Water Utility Performance. Gold Awards recognize outstanding achievement in implementing nationally recognized attributes of effective utility management, product quality, customer satisfaction, employee and leadership development, operational optimization, financial viability, infrastructure stability, operational resiliency, community sustainability, water resource adequacy, and stakeholder understanding and support. (Pictured) AMWA President Scott Potter presents the award to DPU Director Bob Steidel in October 2016.*



*The Water Plant received the Silver Award for Excellence in Waterworks Operations and Performance from the Virginia Department of Health.*

*The Gas Distribution Department received the Leadership Award from the Virginia State Corporation Commission for Pipeline Safety in March 2016 for reducing underground gas utility damages to less than one damage per 1,000 Miss Utility tickets over the past three years.*



# DPU Ongoing Programs

## ***MetroCare***

The MetroCare program provides bill pay heating assistance for eligible families and individuals who are experiencing hardships in the Richmond Department of Public Utilities service area. MetroCare is funded by tax-deductible contributions and administered by the United Way of Greater Richmond and Petersburg.

The program began in 1999, started by a group of DPU employees. They organized the flagship event, the MetroCare Golf Tournament, to provide an additional source of funding for the program. Since its inception, and through March 2016, MetroCare has raised more than \$795,000 and assisted more than 2,500 families.

## METROCARE PROGRAM



Warm Hearts Lead to Warm Homes  
METROCARE PROGRAM

## ***MetroCare Water Assistance Program***

The MetroCare Water Assistance Program was established in 2016 to assist eligible DPU residential customers with paying their water utility bills. Approved applicants receive a credit adjustment toward billed water and wastewater charges.

## ***Lead Service Water Line Testing Program***

DPU has been monitoring and addressing the potential for lead contamination of drinking water since 1992. In addition to controls performed at the Water Treatment Plant, water that leaves the plant is monitored and tested for lead content by the Virginia Department of Consolidated Laboratories once a year. Every three years, DPU collects water samples from customers at 50 different locations throughout the service area and tests them for lead and copper concentrations. Ten specific locations are monitored every six months to confirm our corrosion control measures.

As needed, based on information or requests, DPU conducts samplings at specific customer locations and provides the customer with the results. Property owners decide how and when to replace their pipes, in compliance with current codes and lead-free fixture standards. A Lead Service Hotline was established for property owners to coordinate their lead line replacements with the City's lead service line replacements.

## ***Fire Hydrant Inspection Program***

The City maintains more than 6,000 fire hydrants and inspects them under a manual system on a bi-annual basis. The inspection program, providing preventive maintenance and flushing, ensures that the City's hydrants and associated valves are in proper working order, minimizing replacement costs and reducing risks.

Fire hydrants are an important part of the water distribution system's infrastructure and serve a critical role in public safety by providing water for fire emergencies. This inspection program ensures hydrants are kept in proper working order and geographic information system (GIS) records are current. Hydrants found to be non-operational get a visible "Out of Service" ring placed on the nozzle, saving valuable time for firefighters to access the next closest hydrant. DPU Operations immediately notifies the Fire Department of the out of service hydrant and repair or replacement is scheduled as quickly as possible.



# Communications

The Department of Public Utilities' Communications Division oversees internal and external communications, media relations, special events, social media, the department's website and intranet page, and employee and customer newsletters. It manages the Volunteer Program of DPU employees from other divisions to staff community events.

In the past fiscal year, the division has staffed 17 events, distributing information to more than 2,200 customers, hosted a Citizens' Academy for DPU customers over a four week period, assisted with providing waterfill stations at the Bon Secours Redskins Training Camp and UCI World Championship bike races, created a presentation for City Council on the status of lead in the city's water, and developed public information doorhangers for a variety of programs including lead and mosquito prevention.

The division also maintains a robust social media identity, updating the department website, maintaining a blog of pertinent information, YouTube videos, and providing immediate information to the public through Facebook and Twitter. A regular schedule of informational brochures are produced and distributed through the customer utility bills. The division communicates internally through StarNet and the Utility Review newsletter.

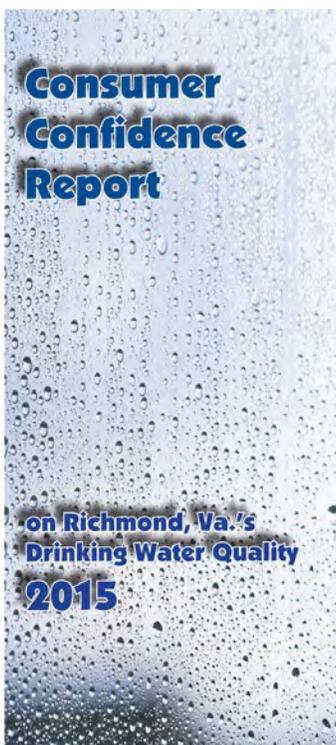
Through television, radio and print advertising, the importance of natural gas safety, fixing leaks and water conservation and safety are kept in public view year-round.



Drinking Water Week



Senior Weatherization Kit Give-Away



### DPU Wins Water Quality Award from AMWA

DPU was one of 20 public drinking water systems recognized by the Association of Metropolitan Water Agencies (AMWA) for its utility management with the Gold Award for Exceptional Water Utility Performance. Gold Awards recognize outstanding achievement in implementing nationally recognized attributes of effective utility management, product quality, customer satisfaction, employee and leadership development, operational optimization, financial viability, infrastructure stability, operational resiliency, community sustainability, water resource adequacy, and stakeholder understanding and support.



AMWA President Scott Pettit presents the award to DPU Director Bob Swisher (right) last October.

### Keep Meters Free of Ice and Snow

It's important to remove excessive accumulation of snow and ice from the natural gas meters and piping at your home or business. Removal of snow and ice from exhaust and combustion air vents ensures carbon monoxide does not build up in your home or place of business and will help prevent operational problems of your natural gas appliances.



### MetroCare Water Assistance Program

If you are having trouble paying your water utility bill, you might be eligible to receive financial assistance. The MetroCare Water Assistance Program offers a discount to customers who meet qualifying criteria. Whether you have delinquent water bills, are at risk of being disconnected, or struggle with paying on time, you are encouraged to apply. The program is available for Richmond Public Utilities customers.

To be eligible, the account must be in your name and you reside at the address on the bill, you have not received assistance during the current program year (July to June), your water bill balance has not been charged off to collections, and your total gross household income is at or below 225 percent of the federal poverty level.

If you meet the requirements, contact your nearest intake agency to schedule an appointment. The application and all necessary documentation to take to your appointment are listed at [www.corpu.blogspot.com](http://www.corpu.blogspot.com) or on the DPU website <http://www.richmond.gov/PublicUtilities/index.aspx> under 'Billing Requirements/Eligibility Programs'.

Intake agencies are:  
Capital Area Partnership Uplifting People (CAPUP), 3023 Oliver Hill Way, 788-0050  
The Salvation Army, 2 W. Grace Street, 225-7470  
Richmond Department of Social Services (for existing clients only) at 300 E. Marshall St., 4300 Hull Street Road, or the East District Intake Agency.

Customers receiving assistance are subject to all provisions of applicable city ordinances. If you need more information, contact one of the partnering intake agencies.

[www.RichmondGov.com](http://www.RichmondGov.com)  
 Follow us on Twitter @UtilityBluddy, read the latest news at [www.corpu.blogspot.com](http://www.corpu.blogspot.com),  
 and join DPU on Facebook at [www.facebook.com/rvdpu](http://www.facebook.com/rvdpu)  
**IMPORTANT PHONE NUMBERS**  
 Customer Services: Streetlight Outages, Gas, Water and Sewer: 646-7000 TDD: 1-800-855-1155  
 Emergencies: 646-7000 TDD: 1-800-855-1155  
 Miss Utility (Call Before You Dig): 811  
 3081-641-6



Party on the Avenues

# Customer Service

The Customer Service Division (CSD) is the customer facing division of DPU, making it the eyes and ears of the organization. CSD includes the Customer Care Center, the City's 311 Call Center, billing operations, field operations, and natural gas and water service technicians. CSD employees responded to over 440,000 customer utility requests for information and services during fiscal year 2016. This response included completion of over 100,000 service orders. CSD Field Operations employees are the first responders who ensure the safety of DPU customers reporting gas odors, and they are often the first face of DPU and the City government seen by residents new to the city. CSD Billing Operations employees ensured that 98 percent of the over 2 million utility service bills rendered were accurate and based upon an actual meter reading. And, CSD Revenue Recovery staff pursued collection of delinquent bills while protecting DPU and the City from fraudulent requests for service. CSD employees shape the perception customers and citizens have about the services they receive from DPU and the City. Being the face and voice of DPU enables the CSD to positively impact the lives of DPU's customers and the citizens of the city each and every day.

## Highlights:

- Successfully implemented Call Center business continuity plan for UCI World Championships resulting in a call wait time of 12.6 seconds and a 99.5 percent answer rate of calls received within 60 seconds during the race.
- Successfully launched DPU MetroCare Water Assistance Program to help income challenged citizens pay water and wastewater service charges.
- Promulgated department regulation for DPU MetroCare Water Conservation Program to promote water conservation through the replacement and repair of inefficient water fixtures and appliances, and repair of water service lines.
- Met 94.6 percent of service appointments on time. (Goal: 90 percent.)
- Responded to 92.5 percent of gas odor calls within 30 minutes. (Goal: 90 percent.)
- Emergency response time for natural gas leak calls 19 minutes. (Goal: 30 minutes or less.)
- Call center received 714,934 phone calls.



# Energy Services

Energy Services Division of the Department of Public Utilities is responsible for sales and marketing of natural gas services to residential commercial and industrial customers in Richmond, Henrico, North Chesterfield, and a section of Hanover along Route 33.



This past fiscal year, DPU's Energy Services Division:

- Processed more than 2,200 new natural gas service applications
- Developed a new brand for the gas utility—Richmond Gas Works—including a new name and logo. This initiative supports business growth goals and provides a framework for the organization to become market-driven and customer-focused.
- The new brand campaign positions the gas utility as the preferred choice across multiple platforms including media and advertising campaigns targeted to key markets, social/digital media, website redesign and launch, market research, and organizational brand integration plan to foster adoption of the brand values among employees. The new brand will be displayed on trucks, uniforms and signage.
- Leveraged the Multi-Family Incentive Fund to incentivize developers to use gas for large multi-family residential and mixed use projects.
- Increased the Compressed Natural Gas (CNG) fleet to more than 100 vehicles. Grants to the City provide funding to offset the cost of vehicle conversion to CNG and the removal and destruction of diesel engines.
- Initiated discussions for a new gate station in Goochland. This project will provide high pressure infrastructure enhancement for overall distribution reliability and provide access to additional supply from shale production fields.

All projects are long-term and ongoing.



*Artist rendering of a Richmond Gas Works branded vehicle*



# Natural Gas Distribution and Water Construction

The goal of the Department of Public Utilities' Natural Gas Distribution section is paving restoration, construction to install and renew gas and water mains and services, to respond to gas leaks and odor complaints, to ensure the steel gas mains and services are cathodically protected from corrosion, and pressure control.

This year, the Gas Distribution division:

- Installed or renewed 128,649 feet of gas mains
- Disabled 151,396 feet of high risk gas mains and services
- Installed 957 gas services for new customers
- Repaired 1,039 gas leaks
- Renewed or transferred 716 gas services under the cast iron renewal project
- Completed 36 out of 66 on-going gas renewal projects in Claremont, Old Jahnke Road, Orleans Avenue, Williamsburg Road area, Carillon District, Kingscrest Parkway area, Flicker area, Forest Hill Avenue from 48th to Powhite, Morningside Drive area, Meadow Run Apartments, Commerce and Maury area, and Hungary Road's new high power main.
- The Corrosion section installed 44 out of 66 remote monitoring units for monitoring the cathodic protection of the City's steel gas mains
- Raised more than \$24,000 for the MetroCare Program (See DPU Ongoing Programs page)
- Installed and renewed 26,376 feet of water main in FY 15

Ongoing projects include the revitalization of Fulton Gas Works, building a new gas gate station for Goochland County, and building a new Department of Public Utilities Training Center located at 2990 Cardwell Road at the site of the old Propane Air Gas Plant.



*Future home of the training center on Cardwell Road*

# Streetlighting

The Streetlight Utility operates and maintains approximately 37,000 City-owned streetlights, five electric distribution subsystems, more than 350 miles of overhead and underground wiring, thousands of various pole types and works with the Richmond Police Department to improve public safety.

Streetlight completed projects include:

- Provided 4,231 lamp maintenance services
- Processed 49 new lighting applications
- Closed out 87 streetlighting jobs, including special projects
- Installed 140 new streetlights throughout the city
- Installed more than 40 pole bases in preparation for the UCI World Championship Bike Race
- Installed 48 ornamental lights along Virginia Capital Trail
- Installed 30 ornamental lights along Cannon Creek
- Installed 32 lights in the Fan District
- Relocated ornamental streetlights and temporarily removed overhead wires to support Stone Brewery new construction project
- Completed Meadowbridge lighting project to increase illumination levels at various locations as requested by Richmond City Police
- Installed 10 ornamental lights along the Canal Walk and provided a power source for pedestrian bridge light-emitting diode (LED) handrails
- Continued to conduct LED streetlight study in and around the city



*Ornamental lights along Mulberry Street in the Fan District*

# Technical Services

Technical Services provides support services to all five DPU utilities. These services include: Plant and Pumping Engineering services to support our water treatment facilities; Dry Utilities Engineering services to support our streetlight and gas engineering utilities; Collections Engineering services to manage large pipeline rehabilitation projects; an Engineering Management Services division to manage all utility infrastructure through a deliberate prioritization process; mapping and computer-added drafting services provided by our GIS division; permitting services provided by the Development Services division; and a Financial Services division for the processing of requisitions and the accounts payable documents.

## *Development Services*

Development Services processes both residential and commercial utility permits and conducts plan reviews for development related projects planned within the city. The table below provides statistics for the number of documents processed in FY16.

Document Type	Number Processed	Comments
Gas permits	1,808	Includes new services, additions and re-installations. Many of these permits are issued for properties outside the city limits.
Water permits	352	Water services and meters only
Work-in-street permits	464	Permits issued by the Department of Public Works
Building permits	380	Permits issued by Planning and Development Review (PDR)
Ordinances and resolutions reviewed	163	Includes some of the following: Special use permits, conditional use permits, plans of development
Review of Public Works Capital Improvement Projects	54	Plans reviewed for potential conflicts with DPU infrastructures and opportunities to consolidate paving work.

Development Services is also charged with managing the Virginia Department of Health’s required Backflow Prevention Program for the protection of the public water supply. The division’s three cross connection specialists review plans and building permits as they relate to backflow prevention, perform site assessments and verifications to ensure proper device and service line protection. This division also oversees process improvements for EnerGov implementation, training and development, and is responsible for section oversight and development of recommendations pertaining to code and policy. EnerGov is a GIS-infused technology brought on-line in May 2016 by the Department of Planning and Development Review (PDR) with intense coordination with all other using agencies, that utilizes spatial data to automate and streamline daily permitting and inspection operations. Development Services continues to work closely with PDR on improvements to the EnerGov system as they prepare to launch the Customer Access Portal in FY17.

The “non-potable water for flushing toilets” ordinance was initiated by Development Services and received Council approval in September 2015. Director Regulations to manage this change are under development.

*Continued on next page*

# Technical Services

## ***Dry Utilities Engineering -- Distribution Natural Gas and Streetlights***

This division works with the GIS team and the Gas and Streetlight Operations groups, and is responsible for developing and maintaining the gas and streetlight design and construction standards and procedures. Significant FY16 projects include: gas distribution upgrades to allow use of the North Gates' full allowable capacity and installation of 50 new ornamental streetlights along Mulberry Street in the Fan District.

Future projects include construction of a new Goochland Gate Station with a 40,000 decatherms/day supply, high pressure pipeline along Broad Street to bring new capacity into the distribution system, and the conversion to light-emitting diode (LED) streetlights for lower power consumption and maintenance.

## ***Plant and Pumping Engineering***

This section manages all large water and wastewater design and construction projects related to water treatment. This includes projects at the Water Treatment Plant and at any pump station, storage facility and transmission and distribution systems as well as projects at the Wastewater Treatment Plant, retention facilities, waste pump stations and combined sewer systems. Current projects include:

<b>Projects in Construction or Active Construction Procurement in FY16</b>	
<b>Water Utility</b>	<b>Wastewater Utility</b>
Byrd Park Reservoir cover replacement	Completion of Nutrient Reduction Program Contract #5
Sedimentation basins upgrade	Effluent Filter Rehabilitation Phase II
Church Hill tank replacement (5 million gallon ground storage tank)	Upgrade of CSO 14 Regulator to a Solids and Floatables Control Regulator
Upgrades to Plant Supervisory Control and Data Acquisition (SCADA) software	
<b>Projects in Design</b>	
<b>Water Utility</b>	<b>Wastewater Utility</b>
Multiple pump station upgrades	Wet weather disinfection facility
Transmission main replacements	New screenings and grit removal facilities
Distribution system SCADA upgrades	Replacement of Shockoe Diversion trash rake
Accelerated lead service line replacements to include replacements on customer property	Disposal system replacement

## ***Engineering Management Services***

The division of Engineering Management Services officially launched Enterprise Asset Management (EAM). EAM is a structured approach for maximizing the value and reliability of physical assets by managing all business processes associated with the asset. Successful asset management practices allow utilities to balance risk, cost and level of service decisions. Asset Management drives decision-making regarding what assets to install, when to install, which to retire, and which to rehabilitate or replace. It provides methodologies for minimizing full lifecycle costs and acts as the intersection between the traditional capital and operational realms when new and refurbished assets are (re)introduced into the utilities.

*Continued on next page*

# Technical Services

This initiative was launched in response to the City’s ambitious effort to transform under then Mayor Dwight Jones’ “Tier One City” plan and achieve a AAA bond rating. The effort was led by the mayoral initiative “Building the Best Richmond” Focus Area Six: Sustainability and the Natural Environment. The initiative includes the incorporation of asset management practices throughout Richmond departments and DPU is pioneering the effort for the City.

## ***Collections Engineering***

The Collections Engineering division provides capital engineering design and project management services for Sanitary Sewer Rehabilitation, Trunk Sewer Investigations and Rehabilitation and Stormwater improvement projects to include stream restoration projects. Construction Inspection Services for all developer or City-initiated projects that might impact a sewer or stormwater facility is also provided by this group.

There are approximately 400 identified stormwater projects on the Stormwater Master Project Prioritization list and an approximately two-year backlog of sanitary sewer rehabilitation projects.

## ***Geographical Information System (GIS)***

This division’s mission is to utilize GIS technology to improve service delivery, data storage and information processing while providing a valued data source for utilities information. GIS maps provide the location of installed underground utility infrastructure and reflects the location of pending new infrastructure installations and provides timely map updates when new or abandoned piping, or other infrastructure, is changed.

<b>GIS Accomplishments</b>	
Gas	<ul style="list-style-type: none"> <li>• All backlogged (recently installed) gas services plans were converted from paper to digital format</li> <li>• 25,000 historical gas service files (25 percent) were also converted to digital format for long-term storage</li> <li>• Supported timely delivery of all required reports to section heads and Miss Utility</li> </ul>
Streetlights	<ul style="list-style-type: none"> <li>• Maps updated for additional Fan District lights, Cannon Creek lights and Nine Mile and 25th Street lights</li> <li>• Continuous updates to geodatabase for lamp and pole numbers and correcting labels on light sources from gas to electric</li> </ul>
Water	<ul style="list-style-type: none"> <li>• Posted 24 as-built (that reflect actual conditions) drawings and 85 water services/maintenance work orders</li> <li>• Assisted with Hydrant Inspection Pilot program by providing maps for 300 hydrant locations</li> </ul>
Wastewater	<ul style="list-style-type: none"> <li>• Continued updating manhole database with descriptive information such as depth and direction of flow</li> <li>• Assisted with conversion of wastewater construction drawings to electronic format to reduce potential for loss of drawings in transit</li> </ul>
Stormwater	<ul style="list-style-type: none"> <li>• Assisted with mapping of all outfalls and implementation of a mobile mapping solution</li> <li>• Assisted with program to mark all stormwater and combined sewer inlets with a serial number medallion as required by Environmental Protection Agency in MS4 areas.</li> <li>• Updated outdated and missing stormwater infrastructure data</li> </ul>

# Organizational Development

The Organizational Support Team oversees human resources, organizational structure, and employee training and development. In Fiscal Year 2015-16, the team accomplished:

- Ongoing support for DPU's 700 Strong Initiative
- Launched Cultural Allies Program for managers and supervisors and created the Cultural Allies Ambassadors program design
- Implemented the 700 Strong Award to recognize employees who embody both the Mission of DPU and the Vision of the DPU 700 Strong Strategy
- Pilot 360 Assessment for leaders in the Customer Service Division
- 95 percent employee completion of Phase 1 of the DPU Strong tools for high performing teams



# RVA H2O Initiative

RVA H2O, launched in 2014, is a DPU initiative to educate the community about ways to keep waterways pollution-free and the importance of integrating drinking water, wastewater, and stormwater under one watershed management program.



The RVA H2O plan is a four-year process to seek an innovative permit granted by the Environmental Protection Agency's National Pollutant Discharge Elimination System (NPDES) program.

Some of the ways DPU helps water work is through flood prevention, drain upkeep and maintenance, pollution prevention, water quality, and green infrastructure. Community outreach includes presentations to groups, associations, schools and churches, rain barrel classes, stormwater credits, rain garden projects, and community clean-ups.

RVA H2O's colorful interactive website at <https://dpu-rvah2o.squarespace.com> includes maps of Richmond's watersheds, and a tour of completed green alleys and stream restoration projects. The website also collects entries to the Storm Drain Art Project where local artists compete for a chance to paint a mural on a storm drain.



# Water Resources

Water Resources' main function is to review development commercial and residential construction projects according to local, state and federal codes for erosion and sediment control, stormwater management, and Chesapeake Bay and floodplain regulations. The division tracks and inspects all public and private stormwater control measures within the city as part of the required Multiple Separate Storm Sewer System (MS4) program compliance. Additionally, the division provides outreach and education to the general public and the development community on stormwater and floodplain awareness.



Some of those outreach projects included

- A household hazardous waste disposal event, which collected eight 55-gallon drums of hazardous waste
- Trash clean-up at Bryan Park where 22 volunteers collected 15 bags of trash
- Stormwater education and awareness to neighborhood and civic group meetings
- Stormwater education programs for Richmond Public Schools
- Conducting annual rain barrel decorating contest with Richmond Public Schools
- Local environment non-profit group collaboration on various outreach projects
- Launched a billboard campaign, “It’s Your River,” in English and Spanish, at four locations
- Provided storm drain markings for public group participation
- Coordinated Bellemeade neighborhood cleanup
- Hosted citywide tire recycling event

Water Resources unveiled three new high water mark signs at the Pony Pasture, Tredegar Street boat put-in at Brown’s Island, and Great Shiplock Park at the city locks to bring floodplain awareness to those areas still at risk for severe flooding. The signs show the water levels of the historical flood event Hurricane Agnes (1972) and is the first phase of a High Water Mark Campaign collaboration between the City, the U.S. Army Corps of Engineers Silver Jackets team, Federal Emergency Management Agency, U.S. Geological Survey, Virginia Department of Emergency Management, the National Weather Service, and the Virginia Department of Conservation and Recreation. The pilot project is the first in Virginia.

Working with RVA H2O, an initiative of the Department of Public Utilities to educate the community about waterway pollution, a drain art contest was planned to select five local artists to paint five storm drains along Tredegar Street between 5th and Brown’s Island Way with a colorful message about stormwater awareness. Planning has begun for a storm drain stencil to mark neighborhood drains, inundation mapping for areas at risk for flooding during severe storm events, and mapping of all Municipal Separate Storm Sewer (MS4) outfalls.



# Environmental Management Laboratory

The function of the Department of Public Utilities' Environmental Management Laboratory is to collect water samples from the Water Treatment Plant, Wastewater Plant, and water distribution system and analyze them for 20 different compounds to maintain Virginia Health Department and the Department of Environmental Quality's permit compliance and operational control. The testing is required by the National Drinking Water Standards of the Federal Safe Drinking Water Act. Special project testing is also performed when new equipment goes on line at the plants and when special investigations are requested by Operations.



The laboratory maintains various equipment, including sophisticated testing instrumentation and a well-trained staff of scientists dedicated to providing data with exceptional quality control.

This fiscal year, the lab:

- Achieved a 100 percent passing rate for the required performance evaluation testing for inorganic analyses at the wastewater lab
- Achieved 100 percent passing rate for its annual microbiological performance testing study at the water lab
- Dramatically reduced the number of error findings in this year's Virginia Division of Consolidated Laboratory Services' audit from the last audit two years ago, from 21 in 2014 to six in 2016, a 71 percent improvement in lab operations and record maintenance

Construction has begun for renovations at 1801 Commerce Road where the new laboratory will be located. When complete, this single laboratory will house both the water and wastewater staff in a state-of-the-art facility, alleviating the current inadequate space, heating, ventilation and air conditioning issues, and work inefficiencies. The new lab will replace outdated software used to manage lab functions with a more robust system that will meet the requirements of state and federal agencies.



*1801 Commerce Road under construction*

# Water Treatment and Distribution

The Water Treatment Plant (WTP) was established in 1924 and provides safe drinking water to the 62,000 city customers as well as wholesale customers in Henrico, Chesterfield and Hanover counties, totaling 500,000 people. The plant is one of the largest water producers in Virginia, treating up to 132 million gallons of water a day from the James River.



The plant is staffed with operators, maintenance technicians and administrative personnel. Laboratory services are provided by the Water Quality division of DPU.

This past fiscal year, the second of four sedimentation basins went into service after upgrades, and there is a new chemical feed system for lime that will save money on maintenance. The WTP plant was in 100 percent compliance for the year and went 430 days without a reportable accident.

The following projects are underway to improve operations and reliability of the plant. Design and Construction management of these projects is provided by the services of the Plant and Pumping Engineering division of Technical Services:

- Sediment basin improvements for water quality
- Church Hill water tank replacement
- Korah 3, installing new Variable Frequency Drives (VFD) on two pumps for improved performance
- Westhampton Pump Station upgrades to replace three aging pumps and drives
- Supervisory Control and Data Acquisition (SCADA) upgrades to update hardware and software
- Replacement of reservoir roof, which is nearing 40 years old

## ***Water Distribution***

Water Distribution oversees the maintenance of 987 miles of pipeline constructed of various materials, more than 6,300 fire hydrants, and approximately 22,000 valves. The division handles both normal repair and renewal of water facilities as well as capital improvement projects involving new main installation, services and facilities.

DPU uses corrosion control measures required by the state and Environmental Protection Agency to prevent lead from leaching out of lead pipes and plumbing fixtures. Ten specific locations are monitored every six months to confirm those corrosion control measures and lead and copper levels are routinely monitored at 50 locations throughout the service area. A Lead Service Hotline was established to coordinate lead line replacement in homes with the City's lead service line replacement.

Recent 2015-2016 year accomplishments include:

- Updating the Broadband program, which defines requirements and criteria for employee advancement
- Hydrant Pilot Program gathered information that will establish a vital hydrant preventive maintenance program in connection to Initiative DPU5, the hydrant inspection program.
- Responded to and repaired 239 water main breaks, an average of 4.6 a week.

# PreTreatment

The Wastewater Treatment Plant (WWTP) collects and treats waste and stormwater from more than 1,500 miles of sanitary and combined sewer lines before returning the water to the James River. The pretreatment program protects the plant and its personnel, ensures compliance with the Virginia Pollution Discharge Elimination System permit and prevents toxic pollutants from affecting river quality.



Pretreatment staff inspect and map all tributaries within the city, document illegal dry weather discharges, and enters this data into the GIS system.

In 2016, 37 new sampling sites joined the current 155. Almost 200 sample events were conducted throughout 2016, in addition to and including:

- 13 sewer interceptor sampling events
- 35 sampling events at permitted industrial facilities
- 35 samples of significant industrial users, of which nine were categorical industrial users
- A special 55-day sampling study at Stone Brewery
- 43 permitted facilities inspected at least once
- 13 illicit discharge detection and elimination inspections
- 232 Stormwater Pollution Prevention Plan inspections
- 132 Fats, Oils and Grease inspections
- Issued Stone Brewing permit, reissued five additional permits, and modified five permits
- 2,192 hauled waste discharges (septage, portable toilet waste, grease-laden waste, and laundry lint waste) were accepted with a total of 2.99 million gallons
- Issued six notices of violations

Pretreatment continues to educate restaurants, waste haulers and the public on proper fats, oil and grease disposal, and illicit discharge programs through community meetings, outreach materials, and the Internet. Inspections have been significantly increased and Pretreatment is now working on fats, oil and grease residential materials.



*Delivery of hauled waste*



*WWTP administration building*

# Wastewater Collection and Treatment

Richmond's Wastewater Treatment Plant (WWTP) was built in 1958 and serves more than 200,000 people in the Richmond metropolitan area. Over the last seven years, the plant has planned and implemented \$130 million in upgrades to treatment capacity. This investment has resulted in reductions of more than 80 percent in nitrogen and 50 percent in phosphorus, resulting in millions of pounds of pollutants no longer going into the James River, resulting in a much cleaner river and Chesapeake Bay. The City of Richmond is a combined sewer community and the WWTP has a permitted dry weather treatment capacity of 45 million gallons per day (MGD) and a permitted wet weather treatment capacity of 75 MGD. Fifty to 70 wet tons of biosolids are produced each day.



The WWTP's five-year plant upgrade project for nutrient removal was completed in 2015. The construction also included an upgrade to Ultra Violet light for effluent disinfection. With the removal of chlorine gas used for disinfection, the plant also become a safer work environment.

The plant is staffed by operators, maintenance techs and administrative personnel. Laboratory and Pretreatment services are provided by the Water Quality division of DPU. Collections Operations for wastewater and stormwater are managed by the Stormwater Utility.

Biosolids Environmental Management System passed their five-year external audit and are fully compliant through the National Biosolids Partnership.



*Sedimentation basins*



*Finished biosolids*



# Stormwater



The Stormwater Division is tasked with controlling stormwater discharges into creeks, streams and rivers in the City of Richmond. The city is similar to many other heavily urbanized areas in the country. When it rains, the runoff flows into waterways very quickly due to the large amount of impervious area and carries picked up pollution from those surfaces. The large volume of water and its velocity also causes erosion of stream banks in localized areas where the flow is very high. Given the potential for significant adverse impact on creeks, rivers and streams, Congress enacted legislation requiring cities to reduce the impacts of stormwater on local waterways. These requirements are contained in permits issued to the City by the Virginia Department of Environmental Quality in compliance with state and federal laws. The City is required to provide education and outreach on stormwater impacts and include the public in activities designed to control stormwater pollution. The City is also required to inspect storm sewers to prevent illicit discharges of pollutants into the storm sewer system. One of the largest responsibilities the City has is to ensure construction site stormwater runoff is controlled and post-construction stormwater management in new development and redevelopment does not cause water quality problems. The City must also institute pollution prevention and good housekeeping practices at municipal operation sites.

Stormwater maintenance received a total of 990 service requests through the Customer Request System in Fiscal Year 2015. Of those, 96 percent were completed and closed.

## Maintenance operations

- Performed maintenance on 105,233 linear feet (19.9 miles) of ditches and easements
- Cleaned 24,103 linear feet (4.5 miles) of pipe
- Cleaned 3,021 basins
- Removed 628.93 tons of debris and sediment from basins and ditches
- Treated 4,126 sites for mosquitoes

Drainage improvement projects are funded and in the planning stages for Berkshire, Oxford Circle, Barcroft Lane at Honaker, Bay Street at Henri, Castlewood and Berry Road, Floyd at Granby, Gun at Tomacee, Green Ridge Road, Wright Avenue, Forest Circle, W. 7th St at Legends Brewing Company, Horne Street, Kingsbury Road, Dorset Court, and St. Andrews Lane.

Ongoing long-term projects include maintenance and inspection of various public Best Management Practices (BMPs), including rain gardens, wet ponds, grass swales, and maintenance of the artificial Cherokee Lake in Bon Air used for flood control.



# Financial Operations

Financial Operations oversees general accounting, accounts payable, accounts receivables, cash and debt management, grants management, capital assets, budgeting, financial reporting, cost of service, financial and rate modeling, audit relations, wholesale contract administration, natural gas supply contracts, human resources, and information technology for the department.



**Department of Public Utilities**  
**STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN THE FUND NET ASSETS**  
**Fiscal Year Ended June 30, 2015**

	<u>Gas</u>	<u>Water</u>	<u>Wastewater</u>	<u>Stormwater</u>	<u>Electric</u>	<u>Stores</u>	<u>Total DPU</u>
<b>Operating Revenues</b>							
Charges for Goods and Services	<u>162,454,508</u>	<u>63,700,064</u>	<u>82,341,759</u>	<u>11,135,003</u>	<u>8,794,313</u>	<u>665,373</u>	<u>329,091,020</u>
<b>Operating Expenses</b>							
Purchased Gas	81,296,945	0	0	0	0	0	81,296,945
Salaries and Wages & Benefits	17,439,146	12,251,281	14,211,604	4,729,857	2,166,324	452,844	51,251,056
Materials and Supplies	1,720,074	1,178,354	1,406,635	247,737	603,789	3,397	5,159,986
Rents and Utilities	77,857	3,792,821	4,550,583	16,602	2,786,643	19,455	11,243,961
Maintenance and Repairs	5,071,444	3,587,330	4,158,397	1,753,403	463,734	0	15,034,308
Depreciation and Amortization	20,008,522	14,552,588	20,477,609	599,883	2,102,486	116,940	57,858,028
Uncollectible Expense	1,567,819	974,250	1,753,179	236,550	22,512	0	4,554,310
Miscellaneous Operating Expenses	<u>13,709,090</u>	<u>13,856,046</u>	<u>19,214,384</u>	<u>22,877</u>	<u>525,033</u>	<u>178,821</u>	<u>47,506,251</u>
Total Operating Expenses	<u>140,890,897</u>	<u>50,192,670</u>	<u>65,772,391</u>	<u>7,606,909</u>	<u>8,670,522</u>	<u>771,456</u>	<u>273,904,844</u>
Operating Income (Loss)	<u>21,563,611</u>	<u>13,507,394</u>	<u>16,569,368</u>	<u>3,528,094</u>	<u>123,791</u>	<u>(106,083)</u>	<u>55,186,176</u>
<b>Non-Operating Revenues (Expenses)</b>							
Intergovernmental Grants and Contributions	147,729	13,597,524	4,920,956	131,227	769,709	0	19,567,145
Interest on Long-Term Debt and Fiscal Cc	(12,424,614)	(9,788,880)	(10,453,823)	0	(27,005)	0	(32,694,322)
Interest Income	231,114	205,904	237,261	1,704	0	0	675,983
Interest Expense	(41,495)	(9,976)	0	0	0	0	(51,472)
Miscellaneous Revenues (Expense)	19,758	591,354	(1,763)	(417)	(66,792)	34,815	576,954
Total Non-Operating Revenues (Expenses)	<u>(12,067,508)</u>	<u>4,595,926</u>	<u>(5,297,369)</u>	<u>132,514</u>	<u>675,912</u>	<u>34,815</u>	<u>(11,925,712)</u>
Net Income (Loss) Before Transfers	9,496,103	18,103,320	11,271,999	3,660,608	799,703	(71,269)	43,260,465
Transfers In-Other Funds	0	0	0	0	0	0	0
Capital Contributions							
Transfers Out-Other Funds	<u>(828,447)</u>	<u>(965,077)</u>	<u>(1,039,176)</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>(2,832,700)</u>
Change In Net Assets	<u>8,667,656</u>	<u>17,138,243</u>	<u>10,232,823</u>	<u>3,660,608</u>	<u>799,703</u>	<u>(71,269)</u>	<u>40,427,765</u>

Audited financial statements for FY2016 were not available at the time of printing of this report.

**Department of Public Utilities**  
**STATEMENT OF NET ASSETS**  
**Fiscal Year Ended June 30, 2015**

	Gas	Water	Wastewater	Stormwater	Electric	Stores	Total DPU
<b>Assets</b>							
<b>Current Assets:</b>							
Cash and Cash Equivalents (Note 3)	37,820,552	38,790,122	100,165,698	5,409,986	8,228,681	1,594	190,416,633
Restricted Assets - Cash and Investments	-	-	-	-	-	-	-
Accounts Receivables (Net of Doubtful Account	9,657,189	15,566,816	14,085,532	3,670,178	4,656,549	-	47,636,264
Due From Other Funds (Note 4)	76,078	36,040	250	504	-	-	112,872
Due From Other Governments (Note 5)	-	6,069,759	494,086	52,338	-	-	6,616,183
Inventories of Materials and Supplies	8,350,966	-	-	-	-	4,226,317	12,577,283
Prepaid Expenses and Other Current Assets	1,986,165	1,899,183	2,391,958	-	144,457	83,002	6,504,765
Total Current Assets	<u>57,890,950</u>	<u>62,361,920</u>	<u>117,137,524</u>	<u>9,133,006</u>	<u>13,029,687</u>	<u>4,310,913</u>	<u>263,864,000</u>
<b>Noncurrent Assets:</b>							
Restricted Assets - Cash and Investments	36,250,925	55,973,126	58,420,248	-	-	-	150,644,299
Advances To Other Funds	-	-	-	-	-	-	-
Deferred Expenses	-	-	-	-	-	-	-
Land	219,200	878,307	1,101,261	-	265,389	1,686,532	4,150,689
Buildings and Structures	5,170,823	92,929,346	160,135,091	54,636	585,056	2,873,190	261,748,142
Equipment	10,994,057	42,204,197	73,427,086	1,240,697	1,078,214	31,737,698	160,681,949
Infrastructure	506,726,932	276,149,483	100,163,509	4,781,470	42,966,130	605,240	931,392,764
Completed Construction	55,985,419	91,047,169	302,212,501	8,302,476	12,027,324	38,083	469,612,972
Less: Accumulated Depreciation	(214,353,823)	(171,640,535)	(251,569,133)	(2,174,102)	(36,690,059)	(33,966,587)	(710,394,239)
Construction in Progress	22,244,484	28,618,937	52,536,278	4,713,010	178,942	-	108,291,651
Total Capital Assets, Net	<u>386,987,092</u>	<u>360,186,904</u>	<u>438,006,593</u>	<u>16,918,187</u>	<u>20,410,996</u>	<u>2,974,156</u>	<u>#####</u>
Total Noncurrent Assets	<u>423,238,017</u>	<u>416,160,030</u>	<u>496,426,841</u>	<u>16,918,187</u>	<u>20,410,996</u>	<u>2,974,156</u>	<u>#####</u>
Total Assets	<u>481,128,967</u>	<u>478,521,950</u>	<u>613,564,365</u>	<u>26,051,193</u>	<u>33,440,683</u>	<u>7,285,068</u>	<u>#####</u>
<b>Deferred Outflow of Resources:</b>							
Refunding of Debt	3,851,853	3,147,900	2,564,326	-	10,665	-	9,574,744
Pension Experience Gain	2,138,327	1,337,140	1,631,844	533,257	261,834	53,100	5,955,502
Total Deferred Outflows	<u>5,990,180</u>	<u>4,485,040</u>	<u>4,196,170</u>	<u>533,257</u>	<u>272,499</u>	<u>53,100</u>	<u>15,530,246</u>
<b>Liabilities:</b>							
<b>Current Liabilities:</b>							
Accounts Payable	9,158,739	4,606,367	7,741,679	588,782	97,397	992,946	23,185,910
Accrued Liabilities	4,781,499	253,531	329,261	36,579	2,070,743	3,511	7,475,124
Due To Other Funds	-	-	-	-	-	112,871	112,871
Due to Other Governments	-	-	-	-	-	-	-
Accrued Interest on Bonds Payable	6,047,907	4,932,705	5,250,435	-	12,861	-	16,243,908
General Obligation Bonds	6,923,977	5,738,086	4,459,010	11,250	115,486	-	17,247,809
Revenue Bonds Payable	4,718,816	3,674,224	8,968,762	-	-	-	17,361,802
Compensated Absences	667,869	457,967	515,213	171,738	76,328	19,082	1,908,197
Total Current Liabilities	<u>32,298,807</u>	<u>19,662,880</u>	<u>27,264,360</u>	<u>808,349</u>	<u>2,372,815</u>	<u>1,128,410</u>	<u>83,535,621</u>
<b>Noncurrent Liabilities:</b>							
Customers' Deposits	6,390,850	1,716,549	-	-	-	-	8,107,399
General Obligation Bonds	41,996,572	32,315,390	12,231,477	180,000	794,459	-	87,517,898
Revenue Bonds Payable	246,024,874	202,135,849	286,324,490	-	-	-	734,485,213
Compensated Absences	140,939	96,644	108,724	36,241	16,107	4,027	402,682
Net Pension Liability	14,235,147	8,901,531	10,863,415	3,549,972	1,743,070	353,500	39,646,635
Other Liabilities and Claims Payable	19,844	-	-	-	-	-	19,844
Total Noncurrent Liabilities	<u>308,808,226</u>	<u>245,165,963</u>	<u>309,528,106</u>	<u>3,766,213</u>	<u>2,553,636</u>	<u>357,527</u>	<u>870,179,671</u>
Total Liabilities	<u>341,107,033</u>	<u>264,828,843</u>	<u>336,792,466</u>	<u>4,574,562</u>	<u>4,926,451</u>	<u>1,485,936</u>	<u>953,715,291</u>
<b>Deferred Inflow of Resources:</b>							
Rate Stabilization	-	-	6,500,000	3,500,000	-	-	10,000,000
Deferred Changes in Net Pension Liability	2,595,208	1,622,838	1,980,508	647,195	317,778	64,446	7,227,973
Total Deferred Inflows	<u>2,595,208</u>	<u>1,622,838</u>	<u>8,480,508</u>	<u>4,147,195</u>	<u>317,778</u>	<u>64,446</u>	<u>17,227,973</u>
<b>Net Assets:</b>							
Invested in Capital Assets, Net of Related Debt	127,425,631	175,444,381	187,007,428	16,726,937	19,511,716	2,974,156	529,090,249
Unrestricted	15,991,275	41,110,928	85,480,133	1,135,756	8,957,237	2,813,630	155,488,959
Total Net Assets	<u>143,416,906</u>	<u>216,555,309</u>	<u>272,487,561</u>	<u>17,862,693</u>	<u>28,468,953</u>	<u>5,787,786</u>	<u>684,579,208</u>

Audited financial statements for FY2016 were not available at the time of printing of this report.

