



DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY  
**CAPITAL IMPROVEMENT PROGRAM**  
APPROVED BY **2010-2019**



**SECTION VIII**  
**Washington Aqueduct**

## **WASHINGTON AQUEDUCT**

The Washington Aqueduct, managed by the U.S. Army Corps of Engineers, provides wholesale water treatment services to DC Water and its partners in Northern Virginia, Arlington County and Falls Church. DC Water purchases approximately 73.73 percent of the water produced by the Aqueduct's two treatment facilities, the Dalecarlia and McMillan treatment plants, and thus is responsible for 73.73 percent of the Aqueduct's operating and capital costs. Under federal legislation and a memorandum of understanding enacted in 1997, DC Water and its Northern Virginia partners have a much greater role in oversight of the Aqueduct's operations and its capital improvement program.

The proposed lifetime budget for DC Water's share of Washington Aqueduct projects totals \$203 million or \$16.4 million more than last year's 10-year plan of \$186.6 million. This change is due primarily to an increase in infrastructure projects at the Aqueduct.

The Aqueduct CIP is broken into seven primary areas with specific Projects under each area:

### **Basin Waste Recovery/Residuals Disposal - \$86.4 Million**

*(project pages VIII-5)*

The residual project is the single largest project in the Aqueduct's CIP. In 2003, the EPA issued a revised NPDES permit to the Aqueduct and entered into a Federal Facilities Compliance Agreement (the federal agency equivalent of an Administrative Order) that requires the Aqueduct to have a new process in operation by Dec 31, 2010; because of schedule delays the Aqueduct is seeking a time extension for the completion of this project. The Aqueduct selected a process to meet the Compliance Agreement, which dewateres the residuals on site and trucks them off-site for disposal. The major contract was awarded in FY 2008 and construction is underway and the projected completion date is Oct 2011.

### **Dalecarlia Pumping Station Improvements - \$7.5 Million**

*(project pages VIII-6)*

Beginning in FY2011, the Aqueduct will start a series of initiatives at Dalecarlia Pumping Station aimed at modernizing and upgrading the facility. These initiatives include: fire protection system improvements (FY 2011- FY 2012); building renovation (FY 2011 - FY 2012); overhead crane replacements (FY 2012 - FY 2014) elevator replacements (FY 2013 - FY 2015); mechanical upgrades (FY 2016- FY 2018); SCADA upgrades (FY 2017 - FY 2019); valve and piping replacement (FY 2018 - FY 2019).

### **Cabin John Bridge Repairs - \$.9 Million**

*(project pages VIII-7)*

Scheduled in FY 2015 through FY 2017 are future improvements including parapet and additional roadway repairs. The most recent improvements to the bridge were completed in FY 2001.

**McMillian Water Treatment Plant Improvements - \$ 28 Million**

*(project pages VIII-8)*

The immediate focus for the Aqueduct will be on current projects including the transformer/switchgear building renovation, fire protection system improvements, chemical building renovations, east shaft pumping station pumping station renovation and sample line replacement. Future major projects include: sedimentation improvements (FY 2012 - FY 2013); boat dock/chemical storage building renovation (FY 2014 - FY 2016); chemical building renovations (FY 2011 - FY 2012; FY 2016 - FY 2018); clearwell maintenance & improvements - north (FY 2012 - FY 2013; FY 2019); clearwell maintenance & improvements – south (FY 2015 – FY 2016); GIS system ( FY 2017 – FY 2019); roof replacements (FY 2016 - FY 2018); SCADA upgrade (FY 2017 -FY 2019); instrumentation improvements starts in FY 2015; process improvements (FY 2017 – FY 2019); sample line replacement (FY 2011); EASA building demolition (FY 2013 – FY 2015) ; and roadway repairs (FY 2017 – FY 2019).

**Appurtenant Transmission & Storage Facility - \$33.4 Million**

*(project pages VIII-9)*

This project area covers improvements to the Aqueduct's major transmission mains, storage facilities and outlying structures. Current major projects include: Little Falls Pumping Station motor control upgrades (FY 2011 - FY 2012); Warehoused No. 6 Improvements; and reservoir maintenance & improvements - 1st high. Future projects include: Little Falls Pumping Station HVAC Upgrades ( FY2012 – FY 2014); reservoir maintenance & improvements – 2<sup>nd</sup> & 3<sup>rd</sup> high ( FY 2016 – FY 2017, FY 2014 – FY 2015); transmission main improvements ( FY2012 – FY 2014);city tunnel repairs (FY 2019); conduit repairs (FY 2015 – FY 2019); cross connection structure upgrade ( FY2015 – FY 2017); great falls intake building improvements (FY 2016 – FY 2018); Little Falls Pumping Station crane overhaul (FY 2014 - FY 2016); SCADA upgrades ( FY 2017 – FY 2019); Champlain street building renovation (FY 2017 - FY 2018); Rock Creek Blow-Off Valve Replacements starts in FY 2019;Sluice Gate Replacements starts in FY 2019; and Warehouse No. 8 Improvements (FY 2015 – FY 2016).

**Dalecarlia Water Treatment Plant Improvements - \$44.8 Million**

*(project pages VIII-10)*

Dalecarlia WTP will continue to improve its infrastructure with current projects including the sample line replacements, Maintenance Building Renovation, Fire Protection System Improvements and Intake Building Renovation. Future projects include: visitors center exhibits (FY 2013 – FY 2015);administration building improvements (FY 2015 - FY 2017); basin no. 3 & no. 4 flocculation/sedimentation improvements (FY2018 - FY 2019); carbon facility tank renovations (FY 2014 -FY 2016); chemical building electrical upgrades (FY 2013 - FY 2015); clearwell maintenance & improvements – 15 & 30 MG (FY 2013 – FY 2014, FY 2017 – FY 2018); east filter building renovation phase II (FY 2013- FY 2015); GIS System (FY 2017 - FY 2019); intake building renovation (FY 2012 – FY 2014); maintenance building renovation ( FY 2012 - FY 2014); roadway improvements (FY 2017 - FY 2019); roof replacements (FY 2016 - FY 2018); SCADA Upgrades (FY 2017 – FY 2019); south connection building renovation (FY 2015 - FY 2016); wash water tank renovations ( FY 2015 - FY 2017); west filter building improvements (FY 2015 - FY 2017); and instrumentation improvements will start in FY 2016.

**Alternate Treatment Methods - \$1.8 Million**

*(project pages VIII-11)*

In FY2015 Aqueduct will begin the 30 MG clearwell mixing improvements project, while future projects include Georgetown mixing improvements starts in FY 2018.

**Financing of Aqueduct Capital Projects**

The U.S. Army Corps of Engineers in accordance with Federal procurement regulations require DC Water to remit cash in an amount equal to the total project cost in advance of advertising contracts, and these funds are transferred immediately to a Corps/U.S. Treasury account to be drawn down by Washington Aqueduct during the execution of the project through completion with no interest to DC Water. Over the last few years, extensive discussions with the U.S. Office of Management and Budget (OMB) and the Corps resulted in a proposal in the President's FY2006 and FY2007 budgets that would allow Aqueduct customers to deposit funds for any projects required by their NPDES permit (including the residuals project) to a separate escrow account, allowing the Aqueduct customers to retain interest on these funds. The proposal was submitted in May 2006 to the Senate and House. During FY 2006, the Corps briefed the Senate Environment and Public Works committee staff and in conjunction with DC Water briefed the Senate Homeland Security and Government Affairs committee staff. Additionally DC Water and Washington Aqueduct staff provided DC Delegate Norton's office with the Administration's proposal. Neither of the Senate committees acted on the proposal.

We continue to pursue other options that would be more favorable to DC Water, including transferring dollars on a phased basis, utilizing taxable bonds, taxable commercial paper, or providing the Corps with a bank line of credit. In the past, some of these options have not been viewed favorably by the U.S. Treasury, but we will continue to educate and work with Congressional staff, federal agencies and the Corps on this critical issue.

**District of Columbia Water and Sewer Authority  
FY 2010 - 2019 Capital Improvement Program**

**Service Area Title:** Washington Aqueduct  
**Program Title:** Washington Aqueduct  
**Activity Group/Project Title:** **WAD121 Basin Waste Recovery**  
**Managing Department:** **EPMC:**  
**Priority:** Federal Facilities Compliance Agreement

<u>Phase</u>	<u>Start Date</u>
<b>Design:</b>	
<b>Construction:</b>	10/1/2007
<b>Project Completion:</b>	10/1/2011

**Project Description:**

Under the Aqueduct's NPDES permit and a related FFCA (the federal agency equivalent of an administrative order), the Aqueduct is required to remove 85 percent of incoming sediments, rather than periodically discharging them to the Potomac River. The FFCA requires that the new process be in place by Dec. 31, 2010; because of schedule delays the Aqueduct is seeking time extension on the completion of this project. The Aqueduct is implementing a plan it developed to build new residuals processing facilities at the Dalecarlia treatment plant. The construction started in April 2008, with completion expected in 2011.

**Impact on Operations:**

The estimated increase to the Washington Aqueduct Operating budget due to the Residual Facilities is in the range of \$2.2 to \$4.0 million. We anticipate future cost increases in areas of personnel, building maintenance, chemicals, electricity and contract disposal. The major portion of the increase will be in the areas of electrical consumption and contract trucking for disposal. Funding is included in FY 2011.

**Funding by User (percent):**

DC - 100.00%  
 EPA -  
 WSSC -  
 Fairfax -  
 Loudoun/PI -



<b>FY 2011 Approved Life Budget</b>	93,949,635
<b>FY 2012 Approved Life Budget</b>	86,481,590
<b>Increase/(Decrease) to Approved Life Budget:</b>	-7,468,045

	<u>Pre FY 2011</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Post FY 2019</u>
<b>Disbursements Budget</b>	4,045	1,995									
<b>Commitments Budget</b>	4,045	1,995									

*(projected disbursements do not include contingencies)*

*(dollars in thousands)*

**District of Columbia Water and Sewer Authority  
FY 2010 - 2019 Capital Improvement Program**

**Service Area Title:** Washington Aqueduct  
**Program Title:** Washington Aqueduct  
**Activity Group/Project Title:** WAD122 Dalecarlia Pumping Station  
**Managing Department:** **EMPC:**  
**Priority:** Good Engineering Practices

<u>Phase</u>	<u>Start Date</u>
<b>Design:</b>	
<b>Construction:</b>	10/1/2010
<b>Project Completion:</b>	10/1/2017

**Project Description:**

The Dalecarlia Pumping Station was built over forty years ago and beginning in FY2011, the Aqueduct will start a series of initiatives at Dalecarlia Pumping Station aimed at modernizing and upgrading the facility. These initiatives include: fire protection system improvements (FY 2011- FY 2012); building renovation (FY 2011 - FY 2012); overhead crane replacements (FY 2012 - FY 2014) elevator replacements (FY 2013 - FY 2015); mechanical upgrades (FY 2016- FY 2018); SCADA upgrades (FY 2017 - FY 2019); and valve and piping replacement (FY 2018 - FY 2019).

**Impact on Operations:**

Improvements to the Dalecarlia pumping station are not expected to have significant impact on operating costs.

**Funding by User (percent):**

DC - 100.00%  
 EPA -  
 WSSC -  
 Fairfax -  
 Loudoun/PI -



<b>FY 2011 Approved Life Budget</b>	8,753,739
<b>FY 2012 Approved Life Budget</b>	7,559,511
<b>Increase/(Decrease) to Approved Life Budget:</b>	-1,194,228

	<u>Pre FY 2011</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Post FY 2019</u>
<b>Disbursements Budget</b>	1,297	627	1,917	295	700	442	147	332	1,401	811	
<b>Commitments Budget</b>	1,297	627	1,917	295	700	442	147	332	1,401	811	

*(projected disbursements do not include contingencies)*

*(dollars in thousands)*

**District of Columbia Water and Sewer Authority  
FY 2010 - 2019 Capital Improvement Program**

**Service Area Title:** Washington Aqueduct  
**Program Title:** Washington Aqueduct  
**Activity Group/Project Title:**   
**Managing Department:**   
**Priority:** Good Engineering Practices

Phase	Start Date
<b>Design:</b>	
<b>Construction:</b>	10/1/2010
<b>Project Completion:</b>	10/1/2015

**Project Description:**

This project includes roadway and parapet repairs to the historic Cabin John Bridge. The bridge is over 140 years old and carries a nine foot conduit that runs from Great Falls to the Dalecarlia Reservoir. The most recent improvements to the bridge were completed in 2001. Future improvements scheduled for FY 2015 through FY 2017 are additional roadway and parapet repairs.

**Impact on Operations:**

Improvements to the Cabin John Bridge are not expected to have a significant impact on operating costs.

**Funding by User (percent):**

DC - 100.00%  
 EPA -  
 WSSC -  
 Fairfax -  
 Loudoun/PI -



<b>FY 2011 Approved Life Budget</b>	<input type="text" value="808,940"/>
<b>FY 2012 Approved Life Budget</b>	<input type="text" value="921,625"/>
<b>Increase/(Decrease) to Approved Life Budget:</b>	<input type="text" value="112,685"/>

	<u>Pre FY 2011</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Post FY 2019</u>
<b>Disbursements Budget</b>						147	184	590			
<b>Commitments Budget</b>						147	184	590			

*(projected disbursements do not include contingencies)*

*(dollars in thousands)*

**District of Columbia Water and Sewer Authority  
FY 2010 - 2019 Capital Improvement Program**

**Service Area Title:** Washington Aqueduct  
**Program Title:** Washington Aqueduct  
**Activity Group/Project Title:** **WAD126 McMillian WTP Improvements**  
**Managing Department:** **EPMC:**  
**Priority:** Good Engineering Practices

Phase	Start Date
<b>Design:</b>	
<b>Construction:</b>	10/1/2007
<b>Project Completion:</b>	10/1/2017

**Project Description:**  
 The McMillan Water Treatment Plant was originally built in 1905 and was replaced in 1985 by a 120 MGD rapid-sand filtration facility, located in Northwest Washington adjacent to DC Water’s Bryant Street pumping station. The immediate focus for the Aqueduct will be on current projects including the transformer/switchgear building renovation, fire protection system improvements, chemical building renovations, east shaft pumping station pumping station renovation and sample line replacement. Future major projects include: sedimentation improvements (FY 2012 - FY 2013); boat dock/chemical storage building renovation (FY 2014 - FY 2016); chemical building renovations (FY 2011 - FY 2012; FY 2016 - FY 2018); clearwell maintenance & improvements - north (FY 2012 - FY 2013; FY 2019); clearwell maintenance & improvements – south (FY 2015 – FY 2016); GIS system ( FY 2017 – FY 2019); roof replacements (FY 2016 - FY 2018); SCADA upgrade (FY 2017 -FY 2019); instrumentation improvements starts in FY 2015; process improvements (FY 2017 – FY 2019); sample line replacement (FY 2011); EASA building demolition (FY 2013 – FY 2015) ; and roadway repairs (FY 2017 – FY 2019).

**Impact on Operations:**  
 Improvements to the McMillian WTP are not expected to have a significant impact on operating costs.

**Funding by User (percent):**

DC - 100.00%  
 EPA -  
 WSSC -  
 Fairfax -  
 Loudoun/PI -



<b>FY 2011 Approved Life Budget</b>	25,853,206
<b>FY 2012 Approved Life Budget</b>	28,033,651
<b>Increase/(Decrease) to Approved Life Budget:</b>	2,180,445

	<u>Pre FY 2011</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Post FY 2019</u>
<b>Disbursements Budget</b>	2,531	1,471	2,986	5,898	590	1,526	1,364	885	2,728	3,392	
<b>Commitments Budget</b>	2,531	1,472	2,986	5,898	590	1,526	1,264	885	2,728	3,392	

*(projected disbursements do not include contingencies)* *(dollars in thousands)*

**District of Columbia Water and Sewer Authority  
FY 2010 - 2019 Capital Improvement Program**

**Service Area Title:** Washington Aqueduct  
**Program Title:** Washington Aqueduct  
**Activity Group/Project Title:** **WAD127 Appurtenant Transmission and Storage Facilities**  
**Managing Department:** EPMC:  
**Priority:** Good Engineering Practices

<u>Phase</u>	<u>Start Date</u>
<b>Design:</b>	
<b>Construction:</b>	10/1/2010
<b>Project Completion:</b>	10/1/2017

**Project Description:**

Raw water is taken from Great Falls on the Potomac River into two raw water conduits. Raw water is also taken at the Little Falls Pumping Station on the Potomac. Both discharge into the Dalecarlia Reservoir. This project area covers improvements to the Aqueduct's major transmission mains, storage facilities and outlying structures. Current major projects include: Little Falls Pumping Station motor control upgrades (FY 2011 - FY 2012); Warehoused No. 6 Improvements; and reservoir maintenance & improvements - 1st high. Future projects include: Little Falls Pumping Station HVAC Upgrades (FY 2012 – FY 2014); reservoir maintenance & improvements – 2nd & 3rd high (FY 2016 – FY 2017, FY 2014 – FY 2015); transmission main improvements (FY 2012 – FY 2014); city tunnel repairs (FY 2019); conduit repairs (FY 2015 – FY 2019); cross connection structure upgrade (FY 2015 – FY 2017); great falls intake building improvements (FY 2016 – FY 2018); Little Falls Pumping Station crane overhaul (FY 2014 - FY 2016); SCADA upgrades (FY 2017 – FY 2019); Champlain street building renovation (FY 2017 - FY 2018); Rock Creek Blow-Off Valve Replacements starts in FY 2019; Sluice Gate Replacements starts in FY 2019; and Warehouse No. 8 Improvements (FY 2015 – FY 2016).

**Impact on Operations:**

Improvements to the appurtenant transmission and storage facility are not expected to have a significant impact on operating costs.

**Funding by User (percent):**

DC - 100.00%  
 EPA -  
 WSSC -  
 Fairfax -  
 Loudoun/PI -



<b>FY 2011 Approved Life Budget</b>	22,026,793
<b>FY 2012 Approved Life Budget</b>	33,479,065
<b>Increase/(Decrease) to Approved Life Budget:</b>	11,452,272

	<u>Pre FY 2011</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Post FY 2019</u>
<b>Disbursements Budget</b>	147	5,397	4,092	2,138	1,880	1,806	4,166	5,309	1,880	2,728	
<b>Commitments Budget</b>	148	5,397	4,092	2,138	1,880	1,806	4,166	5,309	1,880	2,728	

*(projected disbursements do not include contingencies)*

*(dollars in thousands)*

**District of Columbia Water and Sewer Authority  
FY 2010 - 2019 Capital Improvement Program**

**Service Area Title:** Washington Aqueduct  
**Program Title:** Washington Aqueduct  
**Activity Group/Project Title:** WAD128 Dalecarlia WTP improvements  
**Managing Department:** EPMC:  
**Priority:** Good Engineering Practices

Phase	Start Date
<b>Design:</b>	
<b>Construction:</b>	10/1/2007
<b>Project Completion:</b>	10/1/2017

**Project Description:**

The existing rapid-sand filtration Dalecarlia Water Treatment Plant was built in 1928, with significant improvements made over time, bringing total plant capacity to 220 MGD. Dalecarlia WTP will continue to improve its infrastructure with current projects including the sample line replacements, Maintenance Building Renovation, Fire Protection System Improvements and Intake Building Renovation. Future projects include: visitors center exhibits (FY 2013 – FY 2015); administration building improvements (FY 2015 - FY 2017); basin no. 3 & no. 4 flocculation/sedimentation improvements (FY2018 - FY 2019); carbon facility tank renovations (FY 2014 -FY 2016); chemical building electrical upgrades (FY 2013 - FY 2015); clearwell maintenance & improvements – 15 & 30 MG (FY 2013 – FY 2014, FY 2017 – FY 2018); east filter building renovation phase II (FY 2013- FY 2015); GIS System (FY 2017 - FY 2019); intake building renovation (FY 2012 – FY 2014); maintenance building renovation ( FY 2012 - FY 2014); roadway improvements (FY 2017 - FY 2019); roof replacements (FY 2016 - FY 2018); SCADA Upgrades (FY 2017 – FY 2019); south connection building renovation (FY 2015 - FY 2016); wash water tank renovations ( FY 2015 - FY 2017); west filter building improvements (FY 2015 - FY 2017); and instrumentation improvements will start in FY 2016.

**Impact on Operations:**

Improvements to the Dalecarlia WTP are not expected to have a significant impact on operating costs

**Funding by User (percent):**

DC - 100.00%  
 EPA -  
 WSSC -  
 Fairfax -  
 Loudoun/PI -



FY 2011 Approved Life Budget	35,349,547
FY 2012 Approved Life Budget	44,849,953
Increase/(Decrease) to Approved Life Budget:	9,500,406

	<u>Pre FY 2011</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Post FY 2019</u>
<b>Disbursements Budget</b>	4,089	958	1,475	2,322	7,631	7,004	4,999	4,534	4,939	3,723	
<b>Commitments Budget</b>	4,089	958	1,475	2,322	7,631	7,004	4,999	4,534	4,940	3,723	

*(projected disbursements do not include contingencies)*

*(dollars in thousands)*

**District of Columbia Water and Sewer Authority  
FY 2010 - 2019 Capital Improvement Program**

**Service Area Title:** Washington Aqueduct  
**Program Title:** Washington Aqueduct  
**Activity Group/Project Title:** WAD130 Alternate Treatment Methods  
**Managing Department:** **EPMC:**  
**Priority:** Good Engineering Practices

<u>Phase</u>	<u>Start Date</u>
<b>Design:</b>	
<b>Construction:</b>	10/1/2008
<b>Project Completion:</b>	10/1/2017

**Project Description:**

The Aqueduct undertakes various studies and pilot projects to optimize plant treatment and model the potential impact of future regulatory changes on plant operations. In FY2015 Aqueduct will begin the 30 MG clearwell mixing improvements project, while future projects include Georgetown mixing improvements starts in FY 2018.

**Impact on Operations:**

Depending on study results and application to existing and future treatment methods, operating costs could increase or decrease.

**Funding by User (percent):**

DC - 100.00%  
 EPA -  
 WSSC -  
 Fairfax -  
 Loudoun/PI -



<b>FY 2011 Approved Life Budget</b>	1,386,181
<b>FY 2012 Approved Life Budget</b>	1,812,395
<b>Increase/(Decrease) to Approved Life Budget:</b>	426,214

	<u>Pre FY 2011</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Post FY 2019</u>
<b>Disbursements Budget</b>						147	479		295	369	
<b>Commitments Budget</b>						147	479		295	369	

*(projected disbursements do not include contingencies)*

*(dollars in thousands)*