



District of Columbia
Water and Sewer Authority

Approved FY 2005–2014 Capital Improvement Program

Adopted January 5, 2006
Glenn S. Gerstell, *Chairman*
Jerry N. Johnson, *General Manager*



STATION



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ACKNOWLEDGEMENTS

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The Office of Budget and Finance would like to extend its appreciation to all the departmental staff members whose hard work and dedication helped make this document possible.

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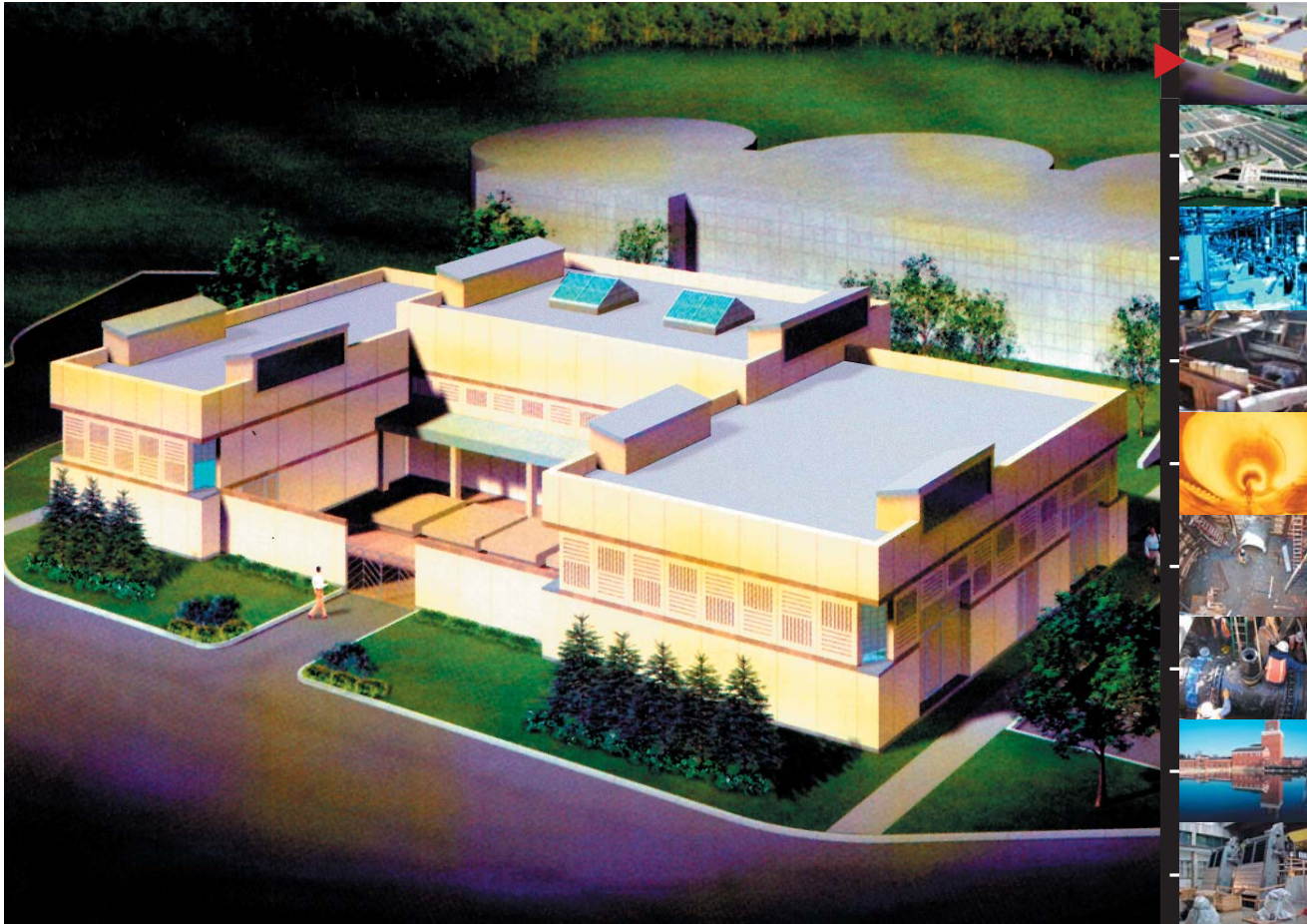


District of Columbia
Water and Sewer Authority

Approved FY 2005–2014 Capital Improvement Program

Artist rendering of the new East Side Sewage Pumping Station. With a capacity of 45 million gallons per day, the new facility will replace the existing underground station in FY 2006.

Adopted January 5, 2006
Glenn S. Gerstell, *Chairman*
Jerry N. Johnson, *General Manager*



2005

*Section I:
General
Manager's
Message*



DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY

5000 OVERLOOK AVENUE, S.W., WASHINGTON, D.C. 20032

Mr. Glenn S. Gerstell
Chairman
Board of Directors
District of Columbia Water and Sewer Authority
5000 Overlook Avenue, S.W.
Washington, D.C. 20032

January 5, 2006

Subject: Transmittal of Adopted FY 2005 – FY 2014 Capital Improvement Program

Dear Chairman Gerstell and WASA Board Members:

I am pleased to submit the FY 2005 – FY 2014 Capital Improvement Program (CIP) as adopted by the Board in January 2006. This document sets forth a 10-year, \$2.2 billion capital program (on a cash disbursements basis), representing a substantial investment in rebuilding critical water, sewer and wastewater infrastructure. These improvements will help improve service to our customers and to help the environment.

This transmittal letter serves as an addendum to the original General Manager's message that was submitted to the Board with the proposed CIP in October 2005, which is also included here in its entirety.

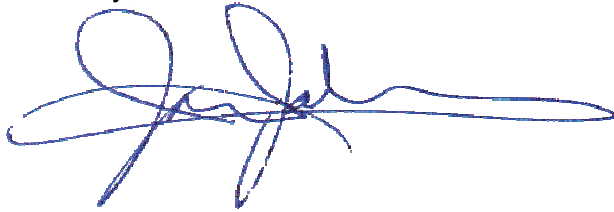
The adopted CIP reflects Board-adopted changes to the disbursements plan for the Washington Aqueduct's residuals disposal project at the Dalecarlia Water Treatment Plant. This change required spreading the disbursements over a three-year period instead of one year. We are also continuing our efforts with various federal agencies and Congressional staff to change the federal financing requirements for the project. This change also results in a reduction in the projected rate stabilization fund drawdown in FY 2007.

In February, the Board endorsed implementation of a more comprehensive program that combines replacement of lead service lines in the public space with other water supply system repairs and replacements to deteriorated mains, valves, and fire hydrants. This will continue to ensure improving service while minimizing costs to ratepayers and disruptions to neighborhoods.

I would like to thank the Board and particularly members of the Environmental Quality and Operations and Finance and Budget Committees for their thorough review of the CIP and their continuing commitment to providing world-class service to our customers. I also would like to thank the many Authority employees who assisted in developing the CIP.

The CIP as well as additional information about the Authority can be found on our website at www.dcwasa.com

Sincerely,

A handwritten signature in blue ink, appearing to read "Jerry N. Johnson", with a long horizontal flourish extending to the right.

Jerry N. Johnson
General Manager



DISTRICT OF COLUMBIA WATER AND SEWER AUTHORITY

5000 OVERLOOK AVENUE, S.W., WASHINGTON, D.C. 20032

Mr. Glenn S. Gerstell
Chairman
Board of Directors
District of Columbia Water and Sewer Authority
5000 Overlook Avenue, S.W.
Washington, D.C. 20032

October 20, 2005

Dear Chairman Gerstell and WASA Board Members:

I am pleased to submit for your review and consideration the FY 2005 – FY 2014 Capital Improvement Program (CIP). This document sets forth a 10-year, \$2.2 billion capital program (on a cash disbursements basis). We believe this book provides an enhanced framework for monitoring budgets and the progress of capital project completion, and also serves as a valuable tool for evaluating our performance by the financial markets and other stakeholders.

This year's CIP is \$106 million more than last year's plan, due primarily to the extension of the lead service line replacement program through 2014 as well as other increases in capital projects discussed in more detail below. The CIP also includes the first ten years of the Combined Sewer Overflow Control Plan (CSO LTCP) as discussed in more detail below.

SIGNIFICANT ISSUES AND INITIATIVES

Projects in WASA's CIP are broken down into seven service areas, including Wastewater Treatment, Combined Sewer Overflow, Stormwater, Sanitary Sewer, Water, Washington Aqueduct, and Capital Equipment.

Wastewater Treatment Service Area: The capital program at Blue Plains is well underway, with eleven large projects currently under construction, totaling over \$550 million in lifetime budgets. These projects include the additional dewatering facility upgrade, primary and secondary treatment facility upgrades, additional chemical systems, rehabilitation of the influent grit and screening facility, biological nutrient removal, gravity thickening facilities, process computer control system, filtration and disinfection facilities, and biological sludge thickening facilities.

In early 2006, we will begin construction on the digester project, the single largest plant project ever undertaken by WASA. Over the last two years, we have been engaged in final design, construction management review, and site visits to other Class A digestion projects. As a result of these efforts, we found that the program manager had underestimated the construction schedule by approximately eighteen months. Coupled with design and other delays, the overall project schedule has been extended by approximately 34 months. In addition, steel and concrete prices have risen significantly over the last two years. As previously discussed with the Environmental Quality & Operations Committee, the result of these schedule and inflation assumption changes is that the proposed project budget has increased by \$46 million to \$354 million. However, due to the increasing costs of energy the project continues to be financially attractive as well as providing a significant hedge against increased regulation of biosolids disposal.

The contract for the construction of foundations, digester vessels and silos is currently on the street, with bids expected in late November. This contract contains an extensive amount of steel and / or concrete, and because of the price volatility of these materials, is the highest risk portion of the project budget. The proposed budget includes an approximate \$25 million increase due to steel and concrete inflation; if bids come in lower than budget, we will brief the Board and potentially revise the project budget request. The second construction contract for mechanical, electrical and process facilities will be bid in summer 2006.

Combined Sewer Overflow Service Area: In December 2004, we reached agreement with the environmental plaintiffs, the U.S. Environmental Protection Agency, and the U.S. Department of Justice on the CSO Long-Term Control Plan, a major milestone in WASA and the District's history. This agreement has been formalized in a judicial consent decree entered by the U.S. District Court in March 2005. The agreement calls for WASA to complete the LTCP over a twenty-year period.

The benefits of our twenty-year plan are significant -- when fully implemented, combined sewer overflows will be reduced by a projected 96 percent (98 percent on the Anacostia River), resulting in improved water quality and a significant reduction in debris on our national capital's waterways. In addition, our clean-up efforts on the Anacostia River are a key cornerstone of the District's plan to redevelop both sides of the river, including the new baseball stadium, retail development and affordable housing among other projects.

The \$1.9 billion plan includes a variety of improvements throughout the District:

- Three large storage tunnels, which will allow the storage of flows from storm events until they can be conveyed to Blue Plains for treatment
- Pumping station improvements
- Targeted separation of combined sewers in several sections of the District that include areas in Anacostia
- Consolidation and elimination of 14 of 59 outfalls, including 4 outfalls on the Anacostia River
- Funds for low impact development (LID) at WASA facilities and to encourage LID across the District

We made great progress on our plan over the last two years. We are well underway with completion of approximately \$140 million of projects that were included in the settlement of a lawsuit against WASA regarding implementation of the federal CSO Nine Minimum

Controls program. These projects, which were previously budgeted and planned by WASA prior to the lawsuit, are projected to reduce combined sewer overflows by 40 percent. The completion in 2004 of twelve inflatable dams resulted in a 24 percent reduction in overflows. We are in design or construction on the rehabilitation of our major pumping stations to increase their capacity, with work scheduled to be complete in 2008. We are also underway with engineering to separate additional combined sewer areas in Anacostia and Rock Creek. Additionally, we are completing studies to add LID at several WASA facilities.

We recently began our Anacostia facilities planning efforts, including the retention of an engineering firm that will begin looking at tunnel alignment, and will begin geotechnical investigations and making borings to obtain information on underground soil conditions. This effort is projected to take three years. Successful implementation of this plan will require coordination with District and federal agencies, as well as community groups in the affected neighborhoods. Our three-year facilities plan includes a strategy to coordinate with the appropriate parties on right of way and permitting requirements, waterfront development efforts, and neighborhood issues.

The potential impact of the CSO LTCP on rates is great – if no additional federal assistance is provided, the typical residential customer's monthly wastewater bill will increase from \$26 to almost \$110 at the end of the twenty year plan, an increase of over 300 percent. Due to the efforts of a wide variety of WASA stakeholders, we have received over \$80 million in special CSO appropriations and we will continue to urge the federal government to provide additional financing for this vital project in the District.

Stormwater Service Area: This year's CIP totals \$43 million, a slight decrease from last year. As in last year's budget, we have not included funding for stormwater pumping rehabilitation projects. We have been engaged in extensive discussions with the District over the last two years regarding how responsibilities for a variety of stormwater-related functions are divided among District agencies, including responsibility for stormwater pumping stations, and all work had been deferred pending resolution of this issue. (See Section I of the operating budget document.) This year's budget does include increased funding for a variety of critical projects to replace undersized, aged or deteriorated sewers. This increase is offset by reductions in DDOT stormwater projects done on behalf of WASA, based on an analysis of actual spending and work completed over the last three to five years, which has been significantly less than budgeted.

Sanitary Sewer Service Area: Major initiatives in the sanitary sewer area are the continued rehabilitation of pumping stations, including Rock Creek, Upper Anacostia, and Earl Place stations. This area also includes the rehabilitation and permanent odor control improvements for the Potomac Interceptor, budgeted at \$44 million.

During FY 2005, WASA will continue the comprehensive evaluation of the sanitary, stormwater, and combined sewer systems, which will be accomplished through the services of an engineering project management consultant. The project is scheduled for completion in 2007.

Water Service Area: While recent focus has been on lead, WASA has long been focused on water quality, and has budgeted over \$698 million (cash disbursements basis) for water distribution system improvements (including lead) over the ten year plan, a substantial portion of which are for water quality-related initiatives. Since our creation in 1996, we have completed the following projects:

- *Water Storage Facility Rehabilitation* – All WASA storage facilities were drained, cleaned, and inspected in the late 1990's, and because of this process, five underground reservoirs and three elevated tanks were rehabilitated for a total cost of \$12 million. We will complete a similar process for all storage facilities in 2006 & 2007, and thereafter will drain, inspect, and disinfect each storage facility on a 5-year basis, consistent with AWWA standards.
- *Elimination of Dead Ends & Cross Connections* – We successfully eliminated close to 4,300 cross connections for a total cost of approximately \$19.5 million, and no known cross connections remain in our system. In 2005, we accelerated our efforts to eliminate dead ends, and expect to complete this work by 2007 at a total cost of \$17 million since we began this work in 1998.
- *Cleaning & Lining & Replacement of Water Mains* – We have completed cleaning and lining of 13 miles of water mains for a total cost of approximately \$9 million. As many of the unlined cast iron mains may be reaching the end of their useful lives, it will be determined if replacement is more economical than cleaning and lining. Over the next ten years, we have budgeted over \$190 million for replacement and rehabilitation of water mains. As part of our new asset management system and other programs (e.g. fire hydrant and valve assessments) that are currently underway, we will be able to better prioritize our work in this area.
- *Flushing* – In fall 2005 we will have completed unidirectional flushing of our entire water distribution system. Consistent with AWWA standards, we flush at high velocities to rid the system of sediment and debris. We are presently developing a long-term flushing plan that will incorporate additional water quality considerations into the design of the 2006 flushing program.
- *Valve Replacement & Exercising* – Broken valves can create unknown dead ends as well as delay critical capital and repair projects that improve water quality. Since 2001, almost \$34 million has been programmed for large valve replacement. During the same period, approximately \$8 million has been allocated for small valve replacements. We are also developing an integrated valve exercise program and database that will incorporate data with respect to valves operated under other WASA program, such as the flushing program, to minimize costs while ensuring that our investment in new valves lasts for many years. Our refined plan calls for all critical valves to be exercised at least annually, and non-critical valves every two years.

Lead Program -- The most significant change in this year's CIP is the extension of the lead program through 2014. The administrative order requires that WASA provide an updated inventory of lead service lines on annual basis. To that end, WASA conducted over 1,200 test pits of services lines made of unknown materials. As presented to the Board this past summer, an extrapolation of the results preliminarily indicate that the number of lead service lines could be significantly higher than what the records in our database originally indicated. As reported to EPA in September, the revised 2001 inventory is presently over 29,000 lines, and future determination of "unknown" lines has the potential to raise this number to approximately 35,000 lead service lines. As we complete more service line replacements over the next year, we will collect more data on the composition of the "unknown" service lines, and how many of them are lead. This year's CIP reflects continuation of the Board's 2004 goal of replacing the original inventory of 23,000 lines by 2010. While we are not yet certain about the exact number of lead lines in the system, given the 2005 test pit results, we have conservatively budgeted for the replacement of up to an additional 12,000 lines to the last five years of the CIP, beginning in FY 2011. We do not believe it is logistically or operationally feasible to

replace the potential 12,000 “unknown” lines prior to FY 2011, and we expect that better data on the lead inventory will be forthcoming as the program progresses over the next few years. The financial impact of this change is significant in the out-years of the CIP, with projected additional costs totaling over \$180 million (cash disbursements basis). I would note that the strong support we have received from DDOT has been critical to our success to date, and has resulted in significant savings in the early years of the program. By coordinating our construction schedule with DDOT, we are able to avoid a significant portion of paving costs, and we have reflected these savings in the early years of the CIP. It should be noted that in the latter years of the program, this cost will likely increase as we move to areas where the “block by block” construction approach is not practical.

Washington Aqueduct: The ten-year disbursements budget for WASA’s share of Washington Aqueduct projects totals \$144.3 million, or \$17 million more than last year’s 10-year plan of \$127.3 million. This change is due to an increase in the Aqueduct’s residuals disposal project.

Currently, solids that settle out from water at the Dalecarlia Treatment Plant and Georgetown Reservoir are periodically discharged to the Potomac River during high river flow conditions. Under the Aqueduct’s NPDES permit and a related Federal Facilities Compliance Agreement, the Aqueduct is required to remove 85 percent of incoming sediments and not return them to the Potomac River. The Aqueduct has developed a proposed plan to build new dewatering facilities on site at its Dalecarlia treatment plant, and truck the dewatered sediments to land application sites. This proposed plan is currently going through the environmental impact statement process, which will be finished later this fall. Construction is scheduled to start in late FY 2007, with completion in 2009.

The projected cost of these facilities is significant, with current estimates ranging from \$90 million to \$117 million (all customers’ share), a significant increase from last year due to rising steel and concrete prices, revised Aqueduct engineering estimates, and higher contingencies. We have included in our CIP a “mid-range” estimate of these costs, totaling WASA’s share of \$95 million, a significant increase over the Aqueduct’s prior year estimate of \$66.5 million and what we had previously budgeted. WASA and its partners in Northern Virginia have been actively involved in reviewing this budget increase and will be participating in the review of design and construction bid documents and contractor selection. We are working with the Corps and other federal agencies on financing alternatives for this project, particularly in light of its size.

Capital Equipment Service Area: Our CIP includes \$90 million for various capital equipment projects. Over fifty percent of spending in the capital equipment area continues to be on major information technology projects, including the new document management system and the asset management system. WASA continues its commitment to vehicle fleet replacements, with a lifetime budget of \$10.7 million, representing twelve percent of the ten-year plan. Finally, maintenance of large equipment at Blue Plains and in the major water and sewer pumping stations totals \$13 million, or fifteen percent of the ten-year plan.

FUTURE CONSIDERATIONS

We closely monitor emerging issues, including regulatory and development-related issues, to gauge their impact on our operations, the capital improvement program and the impact on our ratepayers. We also look beyond our current ten-year plan for projects or operational changes that may be necessary to ensure reliable service to our customers.

Anacostia Waterfront Development & New Baseball Stadium – We are actively engaged with the District and the Anacostia Waterfront Development Corporation in their efforts to build the new Major League Baseball stadium and redevelopment of the Anacostia waterfront. WASA's sewer service and fleet operations, with over 150 employees and contractors and a significant portion of our 570-piece vehicle fleet, are headquartered at Main and O Streets, directly across from the location of the new stadium. Over the next few months, we will be evaluating the potential relocation of these facilities to other WASA facilities across the District. We have included planning funds in this year's CIP to begin these efforts, and additional funding requests will be included in next year's budget when plans are finalized. As we evaluate these options, we will work to ensure that this property is put to its highest and best use and our ratepayers appropriately share in the revenue benefits. I would note that we have already taken action to locate screening facilities inside the pumping station and are working on façade improvements, in support of the development effort.

Chesapeake Bay Agreement changes – The 1987 Chesapeake Bay Agreement called for a 40 percent voluntary nitrogen reduction by its signatories by 2000. The District of Columbia was the first signatory in the region to meet this voluntary commitment due to significant improvements by WASA at Blue Plains. The EPA Chesapeake Bay Program is currently in the process of setting new nutrient limits for all jurisdictions, and making these limits mandatory instead of voluntary by including these requirements in NPDES permits. If these new targets are implemented, WASA could be required to invest an estimated \$500 to \$820 million in capital improvements at Blue Plains. While there are indications of how EPA plans to set and permit nitrogen discharges, the final method of permitting is still under discussion. Staff is currently working with EPA and other stakeholders to investigate methods to minimize the potential costs associated with various levels of treatment that may be required.

Egg-Shaped Digester Permitting – WASA has obtained all permits required to begin construction of the new digester facility with the exception of the air quality permit. A draft permit was recently published in the D.C. Register for a thirty-day period. Based on the nature and volume of comments received during this period, a public hearing or additional review may be required. Approval of this permit will move Blue Plains to a major source category under existing District regulations that set a twenty-five tons per year threshold for nitrogen oxide emissions, conforming to outdated EPA requirements. In 2005, EPA moved this threshold to 100 tons per year. However, in order for Blue Plains to qualify under the 100 ton threshold, the District's Department of Health will have to revise their State Implementation Plan to incorporate the higher limit. WASA is pursuing this with the District so that WASA can apply for an operating permit as a minor source in the future. Because of the positive environmental benefits associated with the digesters, it is anticipated that the air quality permit for construction will be issued prior to award of the first digester construction contract.

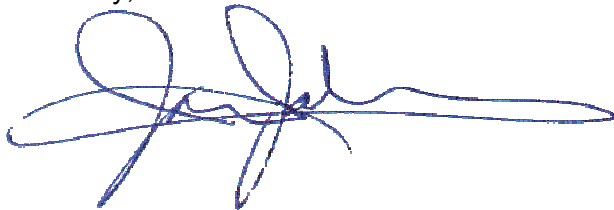
Sanitary Sewer Overflows & CMOM – The EPA is developing a sanitary sewer overflow (SSO) policy to regulate overflows of the sanitary sewer system, including dry weather overflows. A component of this policy is the development of minimum capacity, management, operation, and maintenance standards (CMOM) that potentially could be incorporated into NPDES permits. We are currently evaluating the proposed policy and potential impacts on WASA as part of our overall sewer system assessment.

Sewer System Assessment – In FY 2003, we initiated our first comprehensive assessment of the sewer system. While we have included limited funding in the CIP (approximately \$3-5 million annually), the results of this study, projected to be complete in FY 2007, will allow us to identify specific projects and a spending plan for improvements to the sewer system. It is anticipated that sewer system rehabilitation will require an increasing level of future investment.

ACKNOWLEDGEMENTS

I would like to extend a special thanks to the WASA employees who have prepared the CIP. Special thanks go to staff in the Departments of Engineering and Technical Services, Information Technology, Public Affairs, and Office of the Chief Financial Officer for their hard work and dedication that made this document possible.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jerry N. Johnson", with a long horizontal flourish extending to the right.

Jerry N. Johnson
General Manager



District of Columbia
Water and Sewer Authority

Approved FY 2005–2014 Capital Improvement Program

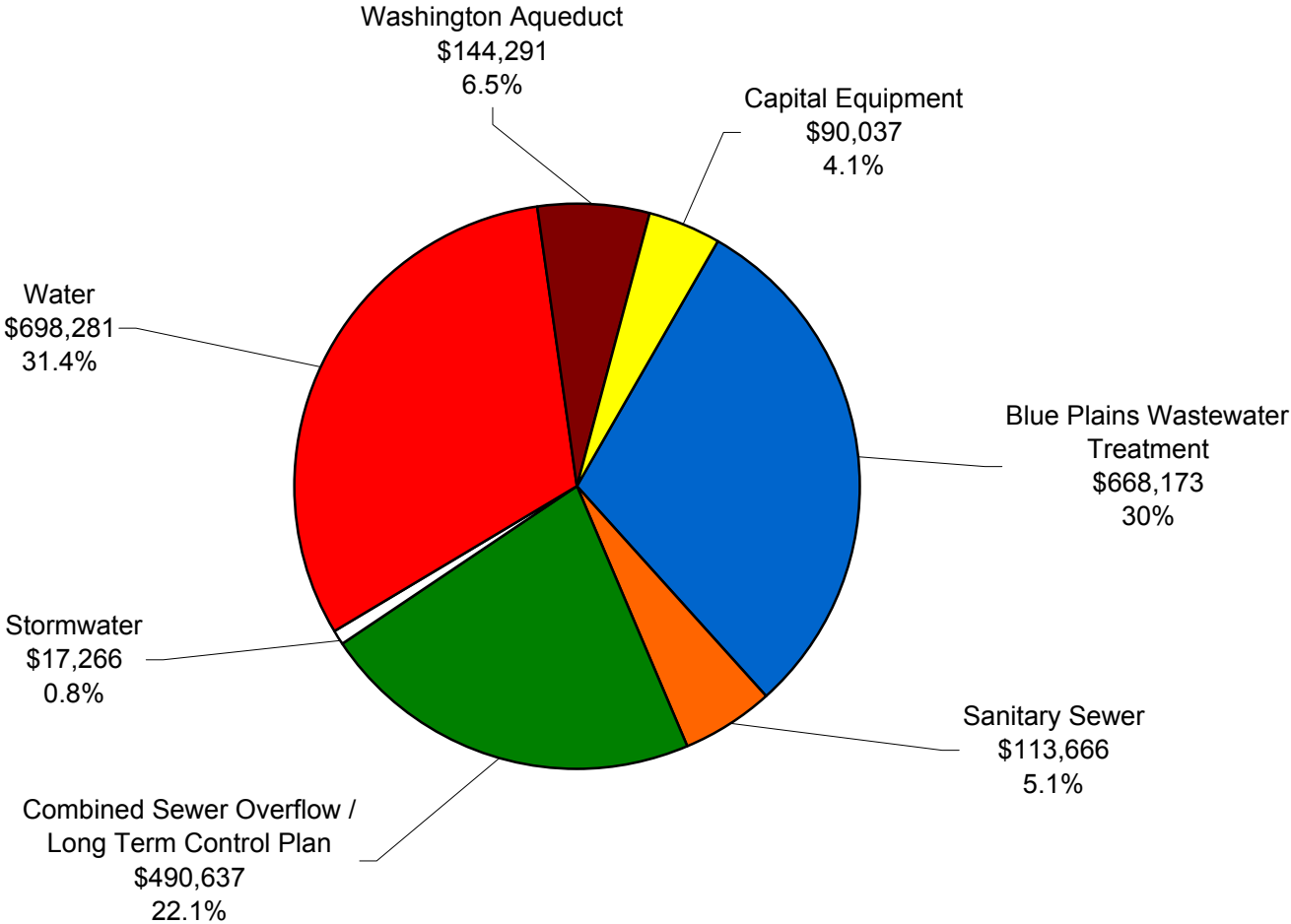
Artist rendering of WASA's proposed Egg-shaped Digesters Facility at the Blue Plains Advanced Wastewater Treatment Plant. Construction on this \$354 million project is scheduled to begin in FY 2006.

Adopted January 5, 2006
Glenn S. Gerstell, *Chairman*
Jerry N. Johnson, *General Manager*



*Section II:
Capital
Improvement
Program (CIP)
Overview
& Summary*

**FY 2005 - FY 2014 Capital Improvement Program
(\$ in 000's)**



Total \$2.2 billion (cash disbursements)

FY 2005 – 2014 CAPITAL IMPROVEMENT PROGRAM OVERVIEW

WASA's ten-year capital improvement program (CIP) totals \$2.2 billion (cash disbursements basis), approximately \$106 million more than last year's plan. As discussed in Section I and in more detail throughout this document, the increase is due primarily to the extension of the lead service line replacement program through 2014. Other major projects and initiatives include:

- Continuation of the twenty-year CSO Long-Term Control Plan
- Initial phase of construction on the new digesters, and a related budget increase of \$44 million
- Water quality initiatives, including dead end elimination, small water main repair, and others
- Comprehensive sewer system assessment

The following sections summarize major projects and changes in each service area, with additional details for each project included in each service area section. Please note that all dollar amounts are presented on a project lifetime basis, except where noted otherwise.

WASTEWATER TREATMENT

The lifetime budget for the Wastewater Treatment Service Area is \$1.4 billion dollars, reflecting a \$50 million net increase over last year's budget, due primarily to increased costs for the new digestion facilities, the single largest plant project ever undertaken by WASA. Over the last two years, we have been engaged in final design, construction management review, and site visits to other Class A digestion projects. As a result of these efforts, we found that the program manager had underestimated the construction schedule by approximately eighteen months. Coupled with other design and procurement-related delays, the overall project schedule has been extended by approximately 34 months. In addition, steel and concrete prices have risen significantly over the last two years. The result of these schedule and inflation assumption changes is that the proposed project budget has increased by \$44 million to \$354 million. However, due to the increasing costs of energy the project continues to be financially attractive as well as providing a significant hedge against increased regulation of biosolids disposal.

The contract for the construction of foundations, digester vessels and silos is currently on the street, with bids expected in late November. This contract contains an extensive amount of steel and / or concrete, and because of the price volatility of these materials, is the highest risk portion of the project budget. The proposed budget includes an approximately \$25 million increase due to steel and concrete inflation; if bids come in lower than budget, we will brief the Board and potentially revise the project budget request. The second construction contract for mechanical, electrical and process facilities will be bid in summer 2006.

We have made great progress on a number of other major projects at Blue Plains over the last year. The primary treatment facilities upgrade was completed, and in early 2006, we will complete the new additional dewatering facilities, resulting in a direct reduction in contract dewatering costs. We are also scheduled to complete a significant portion of grit and screen facility upgrades over the next year. We are well underway with secondary treatment upgrades and implementation of the process computer control system, which will also yield operating savings when completed. We also are beginning a number of projects to enhance our nitrification / denitrification processes.

COMBINED SEWER

The lifetime budget for the Combined Sewer Service Area is \$2.1 billion, which includes the twenty-year CSO LTCP. The benefit of this plan are significant – when fully implemented, combined sewer overflows will be reduced by a projected 96 percent (98 percent on the Anacostia River), resulting in improved water quality.

We have made great progress on our plan over the last two years. We are well underway with completion of approximately \$140 million of projects that were included in the settlement of a lawsuit against WASA regarding implementation of the federal CSO Nine Minimum Controls program. These projects, which were previously budgeted and planned by WASA prior to the lawsuit, are projected to reduce combined sewer overflows by 40 percent. The completion in 2004 of twelve inflatable dams resulted in a 24 percent reduction in overflows. We are in the construction phase on three pumping stations (Main & O; Potomac, and Eastside), significantly increasing our pumping capacity. Finally, we have begun engineering to separate additional combined sewer areas in Rock Creek and Anacostia, and are completing studies to add low impact development options to WASA facilities.

We recently began our Anacostia facilities planning efforts for the large tunnels, including the retention of an engineering firm that will begin looking at alignment and siting. This effort is projected to take three years.

STORMWATER

The lifetime budget for the Stormwater Service Area is \$43 million, a slight decrease from last year. As in last year's budget, we have not included funding for stormwater pumping rehabilitation projects. There have been ongoing discussions between WASA and District Department of Transportation (DDOT) regarding the responsibility for the Stormwater infrastructure including the maintenance and cleaning of the catch basins. These infrastructures are integral components of roads and highways in the District, and as such are seen by WASA as responsibilities of DDOT. All work had been deferred pending resolution of this issue.

This year's budget includes increased funding for a variety of projects to replace undersized, aged or deteriorated sewers. This increase is offset by reductions in DDOT stormwater projects done on behalf of WASA, based on an analysis of actual spending and work completed over the last three to five years, which has been significantly less than budgeted.

SANITARY SEWER

Lifetime budgets in the Sanitary Sewer Service Area total \$196 million, slightly higher than last year's CIP. Increases in the Potomac Interceptor project have been offset by reductions in other sewer rehabilitation projects, pending completion of the comprehensive sewer system evaluation in FY 2007.

WASA has completed improvements to the Potomac Interceptor to address odor complaints on an interim basis, and completion of final design of permanent odor control improvements is scheduled for FY 2006, with construction scheduled to begin thereafter. The costs of this project have increased substantially due to larger equipment needed to control odors, high architectural costs related, in part to historical preservation requirements of the National Park Service and other various permitting agencies, and difficult construction locations. In addition to the odor control improvements, we are in the process of designing significant structural improvements to two large pipe segments of the Potomac Interceptor in Fairfax and Loudoun Counties. The project is scheduled to be bid in FY 2006, with completion of construction currently anticipated in late 2007. The total lifetime budget for Potomac Interceptor projects are \$44 million.

The comprehensive sewer system assessment, begun in 2003, will continue through 2007. This assessment will determine the condition of the system, verify that there is adequate capacity, analyze potential new regulations and their impact on infrastructure needs and CIP, and develop new capital projects as appropriate. The CIP includes limited funding (approximately \$3-5 million annually) in the out-years to help address any new capital projects identified as a result of this assessment.

WATER

The lifetime budget for the Water Service Area is \$1 billion, an increase of \$255 million from last year's CIP. This year's CIP reflects continuation of the Board's 2004 goal of replacing the original inventory of 23,000 lines by 2010. While we are not yet certain about the exact number of lead lines in the system, given results of test pitting conducted in 2005, we have conservatively budgeted for the replacement of an additional 12,000 lines in later years of the CIP, beginning in FY 2011. We do not believe it is logistically or operationally feasible to replace the potential 12,000 "unknown" lines prior to FY 2011, and we expect that better data on the lead inventory will be forthcoming as the program progresses over the next few years.

Other major projects include the ongoing rehabilitation of the Bryant Street pumping station, with a lifetime budget of \$61 million, and the Anacostia pumping station, with a lifetime budget of \$24 million. The automated meter reading project, which began in FY 2002, is scheduled to be substantially complete in 2006, with the replacement of the largest commercial and federal meters.

WASHINGTON AQUEDUCT

The lifetime budget for Washington Aqueduct projects totals \$181 million, a \$26 million increase over last year's plan due to increased costs for the Aqueduct's residuals disposal project, described in more detail in Sections I & VIII of this document.

CAPITAL EQUIPMENT

The lifetime capital equipment budget (disbursements and commitments basis) totals approximately \$90 million for FY 2005 – FY 2014 plan, approximately the same as last ten-year plan's \$91 million. Over fifty percent of spending in the capital equipment area continues to be on major information technology projects, including the new document management system (lifetime budget of \$4 million) and the asset management system (lifetime budget of \$9 million). WASA continues its commitment to vehicle fleet replacements, with a lifetime budget of \$10.7 million, representing twelve percent of the ten-year plan. Finally, maintenance of large equipment at Blue Plains and in the major water and sewer pumping stations totals \$13 million, or fifteen percent of the ten-year plan.

CIP DEVELOPMENT AND APPROVAL PROCESS

WASA's capital budget review process begins each year in the spring, as part of both our capital and operating budget review process. This process includes a review of major accomplishments, priorities, status of major projects and emerging regulatory and related issues impacting the capital program. Projections of changes in project lifetime budgets are also included. The review process involves the WASA departments with responsibility for managing the capital projects as well as finance and budget staff and executive management. The CIP is integrated into WASA's ten-year financial plan; because of its size, it is the primary driver of WASA's projected rate increases over the next ten years.

This review process lasts over several months and culminates with the presentation of the updated CIP to WASA's Board of Directors' Environmental Quality & Operations and Finance & Budget Committees in October. The Committees complete their review from October through December. The operating budgets, capital improvement program, and ten-year financial plan are then forwarded to the full Board for its consideration in January.

After adoption by the Board of Directors, WASA is required to submit its annual operating and capital budgets to the Mayor and the District of Columbia Council for its review and comment; however, neither has power to change WASA's annual budgets. Final operating and capital budget numbers, along with the capital authority request will be forwarded to the District for inclusion in the District of Columbia's budget submission to Congress. WASA's request for capital authority is ultimately made to and approved by the U.S. Congress.

FACILITIES MASTER PLAN AND OTHER FACILITIES PLANNING TOOLS

The Water and Sewer Facilities Master Plan provides a twenty-year framework for developing, analyzing and evaluating changes to the CIP and includes projects currently in the ten-year CIP as well as proposed projects projected to begin after completion of the current ten-year planning period. It describes current conditions and presents a vision of the needs for the water and sewer systems and the actions planned to meet those needs.

WASA has also developed more detailed facilities plans for specific areas including; a Biosolids Management Plan for dealing specifically with biosolids issues, and Water Systems and Liquid Processing Facilities Plans for use as project planning tools in those areas.

DISBURSEMENTS AND PROJECT LIFETIME BUDGETS

As in the past, we have presented the CIP on both a project lifetime basis and cash disbursement basis. During the CIP review process, we perform an extensive review of the total project, or "lifetime" budgets, which also reflect historical spending prior to the current ten-year period, projected spending beyond the current ten-year period and project contingencies. Project lifetime budgets are our primary area of focus in budget development and day-to-day monitoring. In addition to lifetime budgets, we also develop a cash disbursements forecast. Actual cash disbursements are critical to forecasting the anticipated level of rate increases and the amount and timing of capital financings. While cash disbursements are a function of project lifetime budgets, they reflect a more realistic projection of actual "cash out the door" excluding contingencies and taking into account historical and projected completion rates.

As in prior years, the budget document includes a comparison of this year's vs. last year's lifetime project budgets by program area for the Board's review. Changes have been made to some of the project lifetime budgets approved from last year due to a change in project scope, engineering cost estimates, site changes and other related issues. In addition, some projects are either closed or dropped from the CIP. In general, projects are closed or dropped from the CIP in the fiscal year following the end of project activity.

CAPITAL AUTHORITY

As part of WASA's enabling legislation, Congressional appropriations authority is required before any capital design or construction contract can be entered into. The FY 2007 request totals \$286 million, and reflects the following:

- Remaining authority from prior years' appropriations;
- Projected commitments in FY 2006 and 2007;
- Planned FY 2008 commitments to ensure adequate authority exists, in the event that any projects are accelerated

Due to the timing of the Congressional appropriations process, authority requests must be made well in advance of commitment execution. Including projected FY 2007 and FY 2008 commitments allows us adequate flexibility to continue with contract commitments in the event that the U.S Congress delays budget approval and allows us to quickly accelerate or reprioritize projects into earlier years as approved by the Board, as we did with lead this past year. While this gives us flexibility to reprioritize projects, it should be noted that such changes and execution of any contract still require General Manager approval, with major projects and contracts requiring Board approval. We have also included \$50 million of additional commitments for CSO LTCP projects to address any unforeseen needs as facilities planning continues.

MAJOR ASSUMPTIONS

Inflation: All project costs are inflated at three percent annually to the mid-point of construction; personnel services are inflated at three percent per year throughout the 10-year plan.

Contingency: WASA capital projects include project contingencies ranging from 5 – 15 percent, based on the size of the project.

PROJECT PAGES

This document contains individual sections for each of WASA's seven service areas. Each service area is made up of specific projects. Within each service area section in this document, there are individual project sheets for each current capital project in that section. The capital project sheets contain general information for each project. The following information is included:

Service Area Title – currently, there are seven defined project service areas in WASA's CIP. The seven areas are: Wastewater Treatment, Combined Sewer Overflow / LTCP, Stormwater, Sanitary Sewer, Water, Washington Aqueduct and Capital Equipment. The service area categorization groups together like projects based on facility location and type of work being done in the project. Congressional capital authority is requested at this level.

Program Title – is a further categorization within the Service Area and groups projects by type of process. For example, in the Wastewater Treatment Service Area, there are three programs: Liquid Processing, Plantwide projects and Solids Processing.

Activity Group/Project Title – The activity group is the level at which WASA manages and monitors projects, including in the financial system and project management system. The project title reflects the descriptive name given to the project.

Service Area Manager – lists which department or organization manages the project. The majority of the projects in WASA's CIP are managed by an internal WASA operating department. WASA's CIP also includes some projects which are managed by outside organizations. It is advantageous for WASA to coordinate some of its capital work on the water and sewer infrastructure with the District's Department of Transportation (DDOT). The funding required for WASA's work is included in the CIP, but those projects are managed by DDOT. Approximately 75 percent of the Washington Aqueduct's capital program is funded by WASA, but the U.S. Army Corps of Engineers actually manages those projects.

Priority – WASA engages in and prioritizes capital projects based on specific criteria. The following is a list of definitions of the priorities shown on the individual project sheets:

National Pollutant Discharge Elimination (NPDES) Permit – The Blue Plains Wastewater Treatment Plant operates under the guidelines and restrictions of its NPDES permit issued by the EPA. This permit also includes provisions relating to the operation and improvement of the combined sewer system. It is anticipated that implementation of any approved CSO plan will be addressed in the NPDES permit and other legally enforceable agreements.

Administrative Order and Stipulated Agreement – WASA is under an administrative order that started in 2004 requiring lead service line replacements. Pursuant to Board Policy all lead service line replacements will be completed by 2016.

Consent Decree – This 1995 Consent Decree required a variety of operational reviews as well as implementation of pilot Biological Nitrogen Removal (BNR) and Return Sludge Chlorination projects at Blue Plains. Both of these projects have been completed. Although WASA is planning additional BNR Improvements that are still budgeted in this CIP, we are currently awaiting action by the federal government to terminate this agreement which related to the already completed projects.

Stipulated Agreement & Order – Wastewater Treatment Plant – This 1996 agreement required various operational activities and completion of upgrades to the Secondary Metal Salts facilities. This project was completed in FY 2002, and we are awaiting action by the federal government to terminate this agreement.

Good Engineering Practices – This category includes projects that are needed for rehabilitation and upgrading of facilities and pipelines required in order for WASA to fulfill its mission, as well as projects needed to resolve operational issues and inefficiencies (for example, the Process Computer Control System). Such projects utilize state of the art technology, will improve operations, and in some cases, will reduce operating costs.

Public Health and Safety – these are projects that are required to eliminate or mitigate a threat to human health or safety. These projects are also required to ensure that there is not a failure to comply with WASA's NPDES permit requirements.

District of Columbia Department of Transportation (Highway Projects) – projects managed by the D.C. Department of Transportation.

Project Description – general description of the work to be done within the project.

Impact on Operations – describes the anticipated impact on WASA's operations when the project is completed.

Design / Construction / Project Completion Dates– anticipated dates are shown.

Funding by User – lists the anticipated project funding, by source and is based on the current Intermunicipal Agreement and anticipates EPA funding where grants have been previously approved or in anticipation of that approval.

Life Budget – the full project budget is approved and reviewed each year by WASA's Board of Directors. Proposed increases or decreases to the total project life budget are shown, if applicable. Lifetime budgets for program management have been reduced, and project budgets increased, to reflect the allocation of costs for program management services at the conclusion of the prior fiscal year.

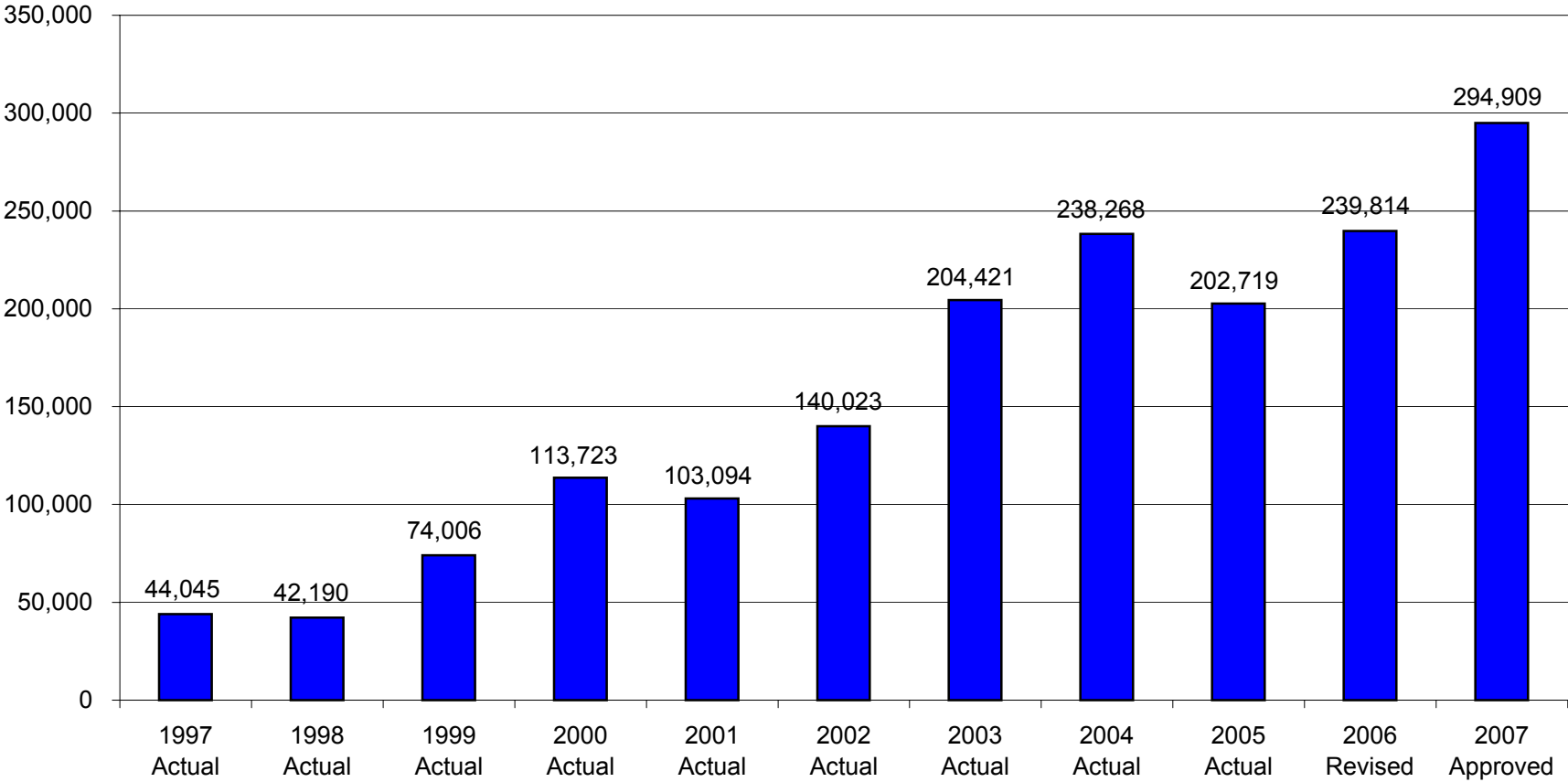
Disbursements / Commitments Budgets – projected project disbursements and commitments are shown by fiscal year in which they are anticipated. Commitments budgets are based on total project budgets, which reflect the fully loaded, anticipated costs of a project, including project contingencies. Contingencies are not included when calculating disbursement budgets.

CAPITALIZATION POLICY

WASA's capitalization policy determines how expenditures will be recognized and accounted for. Because we also match the financing to the projected useful life of the item, it also determines how projects will be financed. The following guidelines are used to categorize items as capital, capital equipment or operating (maintenance):

- Maintenance related items – are routine, cost under \$5,000, and do not extend the life of the item more than 3 years,
- Capital Equipment – has a life of at least 3 years, a cost exceeding \$5,000 and is financed with short-term debt or cash,
- Capital Project – has a long life (average of 30 years), a minimum cost of \$500,000, and is financed with 30 year bonds.

Historical and Projected Capital Spending
FY 1997 - FY 2007
(\$ in 000's)



FY 2005 - FY 2014 PROJECTED CAPITAL IMPROVEMENT PLAN - DISBURSEMENTS BASIS (\$ in 000's)

	FY 2005 Actual	FY 2006 Revised	FY 2007 Approved	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	Total FY '05-'14
Wastewater Treatment											
Liquid Processing Projects	57,597	44,747	47,943	45,828	16,288	3,238	902	1,785	2,229	3,416	223,974
Plantwide Projects	16,688	16,885	17,376	13,066	16,288	10,606	4,341	956	796	2,185	99,186
Solids Processing Projects	18,405	24,706	37,880	66,733	87,777	58,325	41,074	8,420	638	1,055	345,013
Sub-total	92,690	86,338	103,199	125,627	120,353	72,168	46,318	11,161	3,664	6,655	668,173
Sanitary Sewer											
Sanitary Collection Sewers	1,744	1,291	1,007	95	-	-	-	-	-	-	4,137
Sanitary On-Going Projects	1,787	6,800	4,364	3,499	2,535	3,829	4,128	4,052	4,551	4,924	40,469
Sanitary Pumping Facilities	551	3,577	8,329	3,093	246	2	2	2	2	3	15,808
Sanitary Sewer Projects Program Management	2,346	3,893	2,463	592	357	445	367	307	-	-	10,770
Sanitary Interceptor/Trunk Force Sewers	2,339	2,414	12,488	12,753	4,036	1,865	1,526	1,651	1,698	1,712	42,482
Sub-total	8,767	17,974	28,651	20,032	7,173	6,142	6,024	6,012	6,252	6,638	113,666
Combined Sewer Overflow / Long Term Control Plan											
CSO Program Management	1,434	524	51	57	-	-	-	-	-	-	2,066
Combined Sewer Projects	12,187	20,689	24,018	27,047	3,374	70	36	-	-	-	87,421
Long-Term Control Plan-											-
Blue Plains		850	300	300	800	1,000	1,500	1,500	2,068	7,030	15,348
Anacostia Tunnel		8,900	14,760	16,240	18,490	15,520	73,620	81,820	84,842	71,610	385,802
Potomac Tunnel		-	-	-	-	-	-	-	-	-	-
Rock Creek Tunnel		-	-	-	-	-	-	-	-	-	-
Sub-total	13,621	30,963	39,129	43,644	22,664	16,590	75,156	83,320	86,910	78,640	490,637
Stormwater											
Stormwater Extensions/Local Drainage	201	209	247	-	-	-	-	-	-	-	656
Stormwater On-Going Program	170	400	380	225	226	256	299	332	350	367	3,004
Stormwater Pumping Facilities	6	46	-	-	-	-	-	-	-	-	52
DDOT Stormwater Program	388	51	52	81	84	90	95	107	112	117	1,178
Stormwater Projects Program Management	964	688	590	246	155	102	48	36	10	-	2,840
Stormwater Trunk/Force Sewers	330	406	3,212	2,176	-	-	-	1,253	1,090	1,068	9,536
Sub-total	2,059	1,800	4,481	2,728	465	449	442	1,728	1,562	1,552	17,266
Water											
Water Distribution Systems	10,833	14,324	21,795	17,118	9,288	7,128	10,061	17,704	13,776	14,549	136,576
Water On-Going Projects	5,260	3,590	5,379	3,757	3,357	3,486	3,597	3,824	4,091	4,377	40,718
Water Pumping Facilities	16,714	9,548	8,937	10,015	1,657	-	-	-	-	-	46,870
DDOT Water Projects	2,044	1,892	552	1,200	1,000	960	1,279	1,421	1,463	1,537	13,350
Water Storage Facilities	88	189	781	2,581	492	203	676	1,088	7,869	3,055	17,022
Water Projects Program Management	3,761	2,486	2,262	2,364	2,355	2,359	3,249	2,917	2,995	3,023	27,771
Water Lead Program	31,260	38,310	31,706	33,214	39,838	41,912	43,451	45,253	46,974	48,749	400,668
Meter Replacement /AMR Installation	4,270	4,466	2,756	251	275	275	291	491	865	1,366	15,306
Sub-total	74,230	74,805	74,168	70,500	58,263	56,323	62,604	72,699	78,033	76,656	698,281
Washington Aqueduct	1,992	13,391	32,183	28,111	29,707	10,315	7,045	7,661	7,114	6,772	144,291
Capital Equipment	9,360	14,543	13,097	11,942	8,353	6,508	6,398	6,305	5,853	7,678	90,037
Total FY 2007 WASA Capital Improvement Program	202,719	239,814	294,909	302,584	246,978	168,495	203,986	188,886	189,387	184,592	2,222,351

FY 2005 - FY 2014 Capital Improvement Plan

Project Lifetime Budgets by Program Area (\$ 000's)

	FY 2006 Revised	FY 2007 Approved	Variance
<u>Wastewater Treatment</u>			
Liquid Processing Projects	521,907	507,289	(14,618)
Plantwide Projects	275,634	293,617	17,983
Solids Processing Projects	515,197	562,414	47,217
Sub-total	1,312,738	1,363,320	50,582
<u>Sanitary Sewer</u>			
Sanitary Collection Sewers	12,024	12,824	800
Sanitary On-Going Projects	65,361	63,540	(1,821)
Sanitary Pumping Facilities	21,977	22,577	600
Sanitary Sewer Projects Program Management	14,930	14,930	-
Sanitary Interceptor/Trunk Force Sewers	79,754	82,225	2,471
Sub-total	194,046	196,096	2,050
<u>Combined Sewer Overflow</u>			
CSO Program Management	17,254	17,254	-
Combined Sewer Projects	149,034	159,034	10,000
Long-Term Control Plan- Total			
Blue Plains	36,846	36,846	-
Anacostia Tunnel	1,372,545	1,372,545	-
Potomac Tunnel	418,700	418,700	-
Rock Creek Tunnel	70,342	70,342	-
Sub-total	2,064,721	2,074,721	10,000
<u>Stormwater</u>			
Stormwater Extensions/Local Drainage	2,270	2,488	218
Stormwater On-Going Program	6,241	6,840	599
Stormwater Pumping Facilities	3,108	1,173	(1,935)
DDOT Stormwater Program	14,648	4,739	(9,909)
Stormwater Projects Program Management	5,830	5,830	-
Stormwater Trunk/Force Sewers	13,580	22,048	8,468
Sub-total	45,677	43,118	(2,559)

FY 2005 - FY 2014 Capital Improvement Plan

Project Lifetime Budgets by Program Area (\$ 000's)

	FY 2006 Revised	FY 2007 Approved	Variance
<u>Water</u>			
Water Distribution Systems	181,613	257,955	76,342
Water Lead Program	300,750	438,486	137,736
Water On-Going Projects	59,985	63,776	3,791
Water Pumping Facilities	85,488	90,003	4,515
DDOT Water Projects	31,772	33,360	1,588
Water Storage Facilities	14,140	36,970	22,830
Water Projects Program Management	24,480	31,603	7,123
Meter Replacement /AMR Installation	46,500	47,336	836
Sub-total	744,728	999,489	254,761
Washington Aqueduct	154,498	180,693	26,195
Capital Equipment	90,589	90,037	(552)
Total WASA CIP Lifetime (see notes)	4,606,997	4,947,474	340,477

Notes:

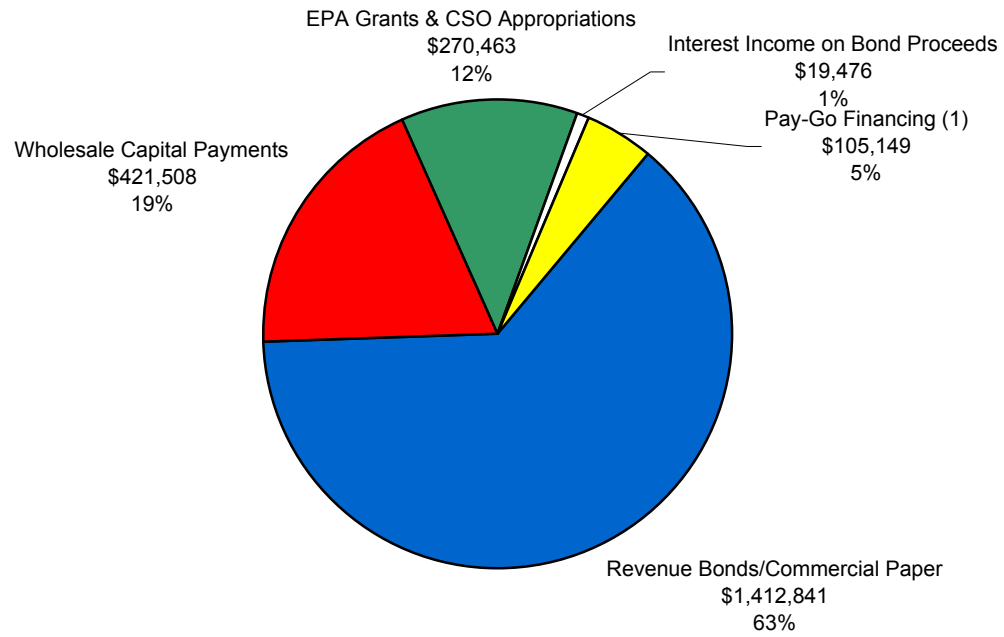
- 1 Lifetime budgets shown here represent total budgets for projects that are active during the current 10-year CIP. Lifetime budgets include historical spending prior to the beginning of the current 10-year plan, spending during the 10-year plan, and projected spending beyond the current 10-year plan. Projects completed in FY 2005 will be dropped from the CIP next year.
- 2 These budgets do not include inhouse labor costs, which historically have averaged \$7 to \$8 million annually and are applicable primarily to time charged to capital projects by employees in the Departments of Engineering, Sewer Services, and Water Services.

**Fiscal Year 2007 Capital Authority Request
(\$000's)**

<u>Program Areas</u>	<u>Fiscal Year 2007 Capital Authority Request</u>
Blue Plains Wastewater Treatment	136,424
Sanitary Sewer System	18,834
Combined Sewer Projects	50,000
Stormwater ¹	0
Water System	37,524
Washington Aqueduct (WASA share)	41,252
Capital Equipment	<u>1,757</u>
Total	<u>285,791</u>

¹ The Stormwater projects' authority request is zero, as, existing (currently available) capital authority in this service area is in excess of projected commitments in FY 2006, FY 2007, FY 2008 and FY2009.

FY 2005 - 2014 CAPITAL IMPROVEMENT PROGRAM
Sources of Funds
(In \$000's)



(1) Pay-go financing is any funds available after funding the 180 day operating and maintenance reserve, approximately \$102.4 million in FY 2006. These transfers reduce the amount of new debt issuance.

**Capital Improvement Program
Dropped or Closed Project Listing**

Activity Group	Project Title	Service Area	Cost at Completion
<u>Closed Projects:</u>			
D3	Oregon Ave Drainage Complaint	Stormwater	\$16,720
E7	Northeast Boundary Drainage Areas	Stormwater	2,197,265
F3	Storm Sewer - Lawrence Ave. NE	Stormwater	10,120
F4	3rd Street SE Storm Sewer	Stormwater	23,540
J5	Repair Of Slash Run Sewer	Sanitary	83,982
NN	873BM - Fort Reno Rehab.	Water	4,682,575
NP	873BS - Rehab. Blvd. Elev'd Tk. Phase I	Water	359,957
OU	Wtrmain Replace Livingston Rd SE	Water	1,272,245
S1	WDSC2 -Lg. Valve Replace.-Contract 1	Water	871,688
S4	WDSC5 - 48"(3rd High)/42"(2nd High) Internal Jt.	Water	2,409,708
TI	504F8 - AREA SUBSTATION NO. 5	Wastewater Treatment	9,349,388
			\$21,277,188
<u>Dropped Projects:</u>			
AH	579I7 - FY99 Sewer Lateral Program	Sanitary	\$2,655,436
AX	Tide Gate Structure Rehab.	Sanitary	1,894,318
C3	FY2003 - DSS Storm Sewer Project	Stormwater	\$416,000
E0	FY2000 - DWS Water Projects	Water	1,966,678
K6	Wet-Weather Water Qual.Monitor. CSO	Combined Sewer Overflow	858,000
M5	WDSC1 -Sm. Valve Replace. Contract 3	Water	540,306
NJ	873B3 - Valve Replace II, Various Locs.	Water	1,330,000
O8	504E3 - Master Landscaping Phase I	Wastewater Treatment	846,618
Q1	FY2001 - DSS Sanitary Sewer Project	Sanitary	4,611,750
TB	504A7 - Primary Sedimentation Tanks	Wastewater Treatment	25,518,388
ZA	901A8 - HVAC & STEAM SYSTEM UPGRADES	Wastewater Treatment	1,042,688
			\$41,680,182



District of Columbia
Water and Sewer Authority

*Chemical feed pumps
for metering and dosing
of chemicals through-
out the wastewater
treatment process.*

Approved FY 2005–2014 Capital Improvement Program

Adopted January 5, 2006
Glenn S. Gerstell, *Chairman*
Jerry N. Johnson, *General Manager*



2014

*Section III:
Wastewater
Treatment
Service Area*

WASTEWATER TREATMENT

WASA operates the Blue Plains Advanced Wastewater Treatment Plant, the world's largest advanced wastewater treatment facility. At Blue Plains, WASA provides wastewater treatment services to over two million people in our service area, including residents of the District of Columbia and significant portions of Montgomery and Prince George's Counties in Maryland and Fairfax and Loudoun Counties in Virginia. Wastewater treatment includes liquid process facilities that provide treatment for both sanitary wastewater flows and peak storm flows, along with solids processing facilities that treat the residual solids removed by the liquid process facilities. Blue Plains is rated for an average flow of 370 million gallons per day (MGD), and is required by its National Pollutant Discharge Elimination System (NPDES) permit to treat a peak flow rate of 740 MGD through the complete treatment process for up to four hours, and continuous peak complete treatment flows of 511 MGD thereafter. The plant treats these flows to a level that meets one of the most stringent NPDES discharge permits in the United States. Additionally, up to 336 MGD storm water flow must receive partial treatment, resulting in a total plant capacity of 1,076 MGD.

Overview of the Wastewater Treatment Process

The first wastewater treatment phase begins as debris and grit are removed by screens and grit chambers and trucked to a landfill. The sewage then flows into primary sedimentation tanks that separate about half of the suspended solids from the liquid. The liquid flows to the secondary treatment process where oxygen is provided to allow bacteria to break down the organic matter. In the next stages of treatment, bacteria convert ammonia into other forms of nitrogen and then into harmless nitrogen gas. Residual solids are settled out in each biological process. The water is percolated down through dual-media effluent filters, removing most of the remaining suspended solids. The water is disinfected and then treated to remove residual chlorine and discharged into the Potomac. The solids from primary sedimentation tanks go to gravity thickening process units where the dense sludge settles to the bottom and thickens. Biological solids from the secondary and nitrification processes are thickened separately using flotation thickeners. All thickened sludge is dewatered, lime is added to reduce pathogens, and the organic biosolids are applied to agricultural land in Maryland and Virginia.

The lifetime budget for the Wastewater Treatment Service Area is \$1.4 billion dollars, reflecting a \$50 million net increase over the last year's budget, due primarily to increased costs for the new digestion facilities, the single largest plant project ever undertaken by WASA. As described in more detail below, capital projects in the Wastewater Treatment Service Area are required to rehabilitate, upgrade or provide new facilities at Blue Plains to ensure that it can reliably meet its NPDES permit requirements and produce a consistent, high-quality dewatered solids product for land application. In addition to meeting permit requirements, WASA strives to reduce biosolids odors, both onsite and in the final product leaving Blue Plains.

We have made great progress on a number of other major projects at Blue Plains over the last year. The primary treatment facilities upgrade was completed in late 2005, and in early 2006, we will complete the new additional dewatering facilities, resulting in a direct reduction in contract dewatering costs. We are also scheduled to complete a significant portion of grit and screen facility upgrades over the next year. We are well underway with secondary treatment upgrades and implementation of the process computer control

system, which will also yield operating savings when completed. We also are beginning a number of projects to enhance our nitrification / de-nitrification processes.

In FY 2005 five long-term upgrade construction projects were placed in service. These are:

- Additional Chemical Systems - Phases 1 and 2 – Phase 1 metal salt systems provide centralized receiving and storage of chemicals and distribution to application points throughout the plant. Phase 2 polymer systems were placed in operation to provide polymer distribution and dosage control for polymer used within the plant. The central facility has polymer batching systems to receive, store, wet, and batch dry polymer.
- Primary Treatment Facilities – The rehabilitated east and west primary sedimentation tanks, control house upgrades and new pumps and piping systems are in service
- Secondary Treatment Facilities, Phase 1 – The East Process secondary treatment facilities have been upgraded with new sludge and scum collection equipment and support systems
- Gravity Thickener Facilities – The thickener mechanisms, pumps, and piping to improve process efficiency and reliability of the facilities have been replaced

Long-term upgrade projects now under construction include:

- Additional Dewatering Facilities – construction of seven new centrifuge dewatering units and two new sludge storage vessels, scheduled to be complete in mid 2006
- Process Control Computer System – system will provide automated monitoring and control for processes throughout the plant, and will improve treatment, control and optimize chemical and power costs, and increase reliability of the facilities
- Secondary Treatment Facilities, Phases 2 – upgrade of the West Process secondary treatment facilities will rebuild the concrete basin structures that are deteriorated and provide new sludge and scum collection equipment. The aeration blowers and motors will be rehabilitated
- Grit and Screen Facilities – upgrade of the West process grit chamber building, East and West Process influent screens, West grit chambers, and conveyance and loading systems to facilitate off-site grit disposal
- East Grit Facilities - upgrade of the East process grit chamber building and grit chambers with conveyance systems to carry the grit to storage facilities
- Filtration and Disinfection Facility, Phase 1 - replacement of filter underdrains, media, and washwater troughs to prepare filters for conversion to air-water wash system
- Switchgear Replacement – Main Substation – replacement of switchgear with new, larger units and supporting equipment and structure

Liquid Processing Program – \$507 million

(project pages III-8 to III-26)

Projects in this program area encompass upgrading and rehabilitating facilities involved in handling flows from the sanitary and combined sewer systems. These flows progress sequentially through the plant processes to ultimate discharge of the treated effluent into the Potomac River. Liquid treatment systems include headworks facilities that screen and pump the wastewater flows, grit facilities that remove sand and grit particles, primary treatment facilities that remove solids by sedimentation, secondary treatment facilities that remove organic pollutants using a biological process, nitrification/denitrification facilities that remove nitrogen using a biological process, and effluent filtration, disinfection, and dechlorination facilities.

Specific major projects under this program that are now underway include:

- *Raw Wastewater Pumping Station 1 Upgrade (Project UD) \$11.1 million* – This project will rehabilitate pumping equipment and appurtenances in one of the two stations that pump incoming wastewater into the plant. Final design was started in FY 2005 and will be completed in FY 2006.
- *Influent Screening Facilities Upgrade (Project TM) \$38 million* – This project will install fine screens to replace existing coarse screens at the head of the plant, as well as screenings conveyance, storage and outloading facilities. Construction began in early FY 2003. While sufficient screens are now in place to screen all flows, which greatly reduces clogging of sludge pumps in downstream processes, the conveyor system will be completed by end of FY 2006.
- *Grit Chamber Facilities Upgrade (Project TF) \$66.3 million* – This project provides for the construction of an automated, continuous grit removal system in all sixteen chambers. Impacts on operations include the elimination of current manual cleaning of each grit tank and lowered maintenance costs of tanks and pumps. Construction is now underway and the first four grit systems will be started up in FY 2006.
- *Secondary Treatment Facilities Upgrade (Project TO) \$69.1 million (Phases I and II)* –
 - *Phase II-* This project includes the rehabilitation of the West Secondary Sedimentation Basins (basins number 1-12) and the West Secondary Reactors. This will result in improved process efficiency, lowered chemical usage and lower maintenance costs. Construction started in FY 2003 and is scheduled to be complete in late FY 2007. Six of the twelve sedimentation basins are scheduled to be returned to service in early FY 2006.
- *Nitrification/Denitrification Facilities Upgrade (Projects TQ & BR) \$90.4 million* – This project is comprised of two liquid processing projects, one for rehabilitation and upgrade of nitrification facilities and one for improvement of denitrification-related process components. This project will result in lowered maintenance and energy costs due to improved efficiency. Final design will be completed and the project will be advertised for construction bids in FY 2006.
- *Filtration and Disinfection Facilities Upgrade (Project UC) \$54.5 million* – Replacement of existing filter media and the addition of an air/water backwash system and improvements to pump operation will result in reduced power usage and treatment costs due to reduced backwash water usage. This project was split into two contracts in order to expedite the full rehabilitation of the facility, which has experienced filter failures. The first contract will result in all of the filters being restored to operability with new filter underdrains and media. The second contract will provide a new air-water wash system and improve backwashing controls

and instrumentation. Design started in FY 2002, the first construction contract was bid in FY 2004, and construction is now underway. Design for the second contract is done and this contract will be advertised for construction bids early in FY 2006.

Other Liquid Processing Program projects included in the CIP but not scheduled to start until later in the CIP include:

- *Dual Purpose Sedimentation Basin Rehabilitation (Project BG) \$20.0 million* – Replacement of sludge collection equipment, sludge and scum pumps, and support process equipment with design starting in FY2011.
- *Filtration/Disinfection Facility Phase II (Project BT) - \$14.6 million* – Replaces motors and variable speed drives, recently rebuilt under the Filtration Facility Pumping System Upgrade project, on selected pumping units with design starting in FY 2011
- *Nitrification / Denitrification Facilities Phase II upgrades (Project BR) \$50.3 million* - Rehabilitation of lower priority items identified in concept in the Facility upgrade, such as major electrical rehabilitation of entire facility, major HVAC and plumbing upgrade for all building and galleries, and architectural rehabilitation for the Nitrification blower building, control buildings, and electrical buildings.
- *Primary Treatment Facilities Phase II (Project BQ) \$14.8 million* – Structural repairs to the primary sedimentation tanks.
- *Grit Chamber Facilities Phase II (Project BP) \$5.5 million* – Upgrade the grit chamber building structures and facilities including structural, architectural and building system renovation of office and storage spaces in each building.

Solids Processing Program – \$562 million

(project pages III-43 to III-51)

Biosolids processing involves reductions in volume along with treatment to meet federal or state and local requirements, as applicable, for the ultimate disposal method. Treatment is provided by a system of processing facilities that include gravity thickening of primary sludge, flotation thickening of the biological waste sludges produced by the secondary and nitrification/denitrification processes, digestion of all biosolids streams, dewatering by centrifuge or belt press and lime stabilization. Dewatered biosolids are conveyed to the Dewatered Sludge Loading Facility for outloading to tractor-trailers for hauling to offsite land application sites, silviculture, and land reclamation sites. Solids processing facilities are required to produce a biosolids product that can be reused or disposed of in an economical and environmentally acceptable manner.

We are continuing implementation of our Biosolids Management Program, originally adopted by the Board in 1999. This plan, which included input from our neighbors, environmental groups, and other stakeholders, evaluated a number of options for long-term biosolids processing and disposal, and identified full biosolids digestion as a common element of all long-term approaches and continuing land application as long as financially advantageous. The total cost of this plan is close to \$540 million, including the new egg-shaped digesters as well as a variety of ancillary projects, including portions of the process computer control system, additional dewatering facilities, etc.

The digester project is the single largest project undertaken by WASA to date. Over the last two years, we have been engaged in final design, construction management review, and site visits to other Class A digestion projects. As a result of these efforts, we found that the program manager had underestimated the construction schedule by approximately eighteen months. Coupled with other design and procurement-related delays, the overall project schedule has been extended by approximately 34 months. In

addition, steel and concrete prices have risen significantly over the last two years. As previously discussed with the Environmental Quality & Operations Committee, the result of these schedule and inflation assumption changes is that the proposed project budget has increased by \$46 million to \$344 million. However, due to the increasing costs of energy the project continues to be financially attractive as well as providing a significant hedge against increased regulation of biosolids disposal.

The contract for the construction of foundations, digester vessels and silos entails an extensive amount of steel and / or concrete, and because of the price volatility of these materials, is the highest risk portion of the project budget. The proposed budget includes an approximate \$25 million increase due to steel and concrete inflation; if bids come in lower than budget, we will brief the Board and potentially revise the project budget request. The second construction for mechanical, electrical and process facilities will be bid in summer 2006.

We are evaluating other ways to save costs, including a “shared savings” or partnering approach with the contractor, whereby any savings due to favorable design, construction or schedule changes are shared with the contractor

We also continue our outreach efforts to the end user communities of our biosolids product, primarily farms, forest land, and mine reclamation projects in Virginia. We have undertaken an innovative project at the Stafford County Airport for utilization of biosolids in generating ground cover in a previously non-productive area, and are applying biosolids to titanium mine sites in Dinwiddie County. We are also working to encourage the District government to utilize biosolids for fertilization of trees. We received a general permit for land application of biosolids from the Pennsylvania Department of Environmental Protection and are working with the State of West Virginia at a mine site, providing additional opportunities for cost-effective reuse of biosolids. We have also participated in a number of research projects related to biosolids utilization and odor control, which are described in more detail later in this document. We are closely monitoring the status of legislation in Virginia relating to land application for biosolids, as well as actively participating in the work of national organizations addressing technical issues related to beneficial reuse of biosolids. For example, through our research, we are helping provide information to Virginia, which is considering regulations that may limit nitrogen applications during winter months. Additionally, DCWASA has gained certification from the National Biosolids Partnership (WEF, EPA, AMSA) recognizing a program that goes beyond mere regulatory compliance. DCWASA was the third organization certified nationally, and the first on the east coast. In addition, WASA received an EPA award for large operating systems operations excellence (first place), in November 2005, for its biosolids reuse program. The award recognizes excellence in operations, diversity, research, and outreach.

Other major projects under this program include:

- *Additional Dewatering Facilities (Project XC) \$79.9 million* – This project provides additional centrifuge dewatering equipment and modification of existing centrifuges to reduce dewatered solids generation. Impacts on operational costs include reductions in hauling and contract dewatering costs. It also includes first-in/first-out silos for biosolids cake storage to minimize odors that occur from biosolids being stored for extended periods. Construction commenced in December 2001 and is scheduled for completion in FY 2006.

- *Biological Sludge Thickening Facilities (Project XB - formerly Centrifuge Thickener Facility) \$46.9 million* - This project will upgrade the existing dissolved air flotation thickening units and provide mechanical thickening equipment. Improvements are expected to reduce sludge processing and chemical costs through improved efficiency. A design study commenced in late FY 2003. Final design began in FY 2005.
- *Gravity Thickening Facility Upgrade (Project BX) \$14.8 million* -- This project includes the rehabilitation of gravity thickeners 1-4 and all sludge and scum pumping systems, as well as rehabilitation of equipment in the degritting and grinding facility and the addition of a system to add chemicals to the influent flow for odor control. Construction is scheduled to be completed in mid 2006.

Plantwide Facilities Program – \$294 million

(project pages III-27 to III-42)

This program provides for upgrading, rehabilitating, or installing support systems and facilities that are required for both the liquid processing and solids processing programs. Systems include a process control and computer system for monitoring and control of all processes and facilities, upgrades to city and plant water systems, chemical systems, electrical power and distribution systems upgrade, telephone service, and data highway infrastructure for process, safety, security and information needs. Facilities comprise chemical receiving, storage, transmission and feed systems for chemicals used throughout the liquid and solids processes, including metal salts, polymers, sodium hypochlorite, and sodium bisulfite. Support facilities projects include the rehabilitation of the Central Operations Facility and the Central Maintenance Facility. Specific projects under this program include:

- *Additional Chemical Systems - Phases I and 2 (Project TC) \$74.1 million* –
 - *Phase I* - This project replaces all of the chemical storage, transmission, and feed facilities at Blue Plains that are used for metal salts. Construction of this project was initiated in April 2001 and became operational in FY 2005.
 - *Phase II* – This project involves installation of new centralized bulk dry polymer receipt, batching, storage and feed facilities for the entire plant’s polymer needs. This new installation will result in improved process efficiencies and reduced maintenance requirements. The construction contract was initiated in August 2002 and became operational in the latter part of FY2005.
- *Process Control and Computer System - Phases 1, 2 and 3 (Project TA) \$61 million* – This new system allows for automation of a significant number of plant processes at Blue Plains, and better management of processes that are currently manually monitored. Operating savings are anticipated from lowered chemical usage and electricity consumption, due to minimizing peak demand, as well as lower staffing levels. This project is critical to achieving the goals presented in the Blue Plains Internal Improvement Plan. The new system is being implemented in three phases, beginning with the grit chambers, primary and secondary treatment facilities, and dewatering processes. Phase II will include nitrification, filtration, disinfection facilities, and Phase III will add the solids processing facilities. WASA has selected an equipment vendor and construction began in August 2002 and will continue through 2009. The new system is being constructed in conjunction with the major upgrade projects and is placed in service with the new treatment systems.



District of Columbia
Water and Sewer Authority

Approved FY 2005–2014 Capital Improvement Program

*Tide gate replacement
at Poplar Point. This \$2.1
million project includes
replacing several tide gates
at various sewer pumping
stations and will help reduce
inflow and infiltration into
the sewer system.*

Adopted January 5, 2006
Glenn S. Gerstell, *Chairman*
Jerry N. Johnson, *General Manager*



2005-2014

*Section IV:
Sanitary
Sewer
Service Area*

SANITARY SEWER

WASA is responsible for wastewater collection and transmission in the District of Columbia, including operation and maintenance of the sanitary sewer system. WASA's sanitary sewer system includes approximately 600 miles of large interceptor sewers and smaller gravity collection sewers. WASA is also responsible for sewer lateral connections from mains to the property lines of residential, government, and commercial properties. In addition, WASA is responsible for the 50 mile long Potomac Interceptor System, which provides conveyance of wastewater from areas in Virginia and Maryland to Blue Plains. The existing sanitary sewer system in the District of Columbia dates back to 1810, and includes a variety of materials such as brick and concrete, vitrified clay and concrete, reinforced concrete, ductile iron, plastic, steel, brick, cast iron, cast in place concrete, and even fiberglass.

During FY 2006, WASA will continue the evaluation of the sewer system to determine its condition, verify adequate capacity, and to develop new capital projects, as appropriate. A five-year contract is underway with an engineering program management consultant (EPMC-III A) to provide services for the comprehensive assessment, and this work is scheduled to be completed in FY 2007. Approximately \$3 million to \$5 million in annual funding is included in the CIP for capital projects that may come out of the assessment. Projects that have been identified in FY 2005 that will be addressed include the Rehabilitation of Georgetown Sanitary Sewers, which entails the replacement of existing sewers found to have numerous structural defects. In general, projects in the existing sanitary sewer service area program provide for replacement or rehabilitation of the system as well as extensions to this system for development and growth as needed.

The current CIP includes the following projects:

Sanitary Sewer Service Area - Management – \$15 million

(project pages IV-26 to IV-26)

During FY 2006, WASA will continue the comprehensive evaluation of the sanitary and combined sewer systems, as well as design management for sewer pumping station rehabilitations, as described in more detail below.

- Sanitary Sewer Program Management & Planning (EPMC-III A) - This planning allows WASA to assess the sewer system to determine if it is in an adequate structural condition, and has sufficient capacity to meet current service demands and planned growth. The planning effort is also required to comply with the current National Pollutant Discharge Elimination System (NPDES) permit, the Nine Minimum Controls consent decree, and pending federal regulations addressing sanitary sewer overflows.
- Design Management for Sanitary Sewer Pumping Stations - This ongoing project began in FY 2001, and provides for the management of the design of three small sanitary sewage pumping stations requiring major rehabilitation or replacement. A project design engineer has been selected and the design will be finalized in FY 2006.

Collection Sewer Projects – \$13 million

(project pages IV-6 to IV-8)

This program includes studies and projects to effectively eliminate stormwater, groundwater, and other infiltration and inflow to the sewer system, to separate stormwater flows, and to reduce other extraneous flows to Blue Plains. This category also includes projects to rehabilitate collection system sewers as well as projects that serve existing properties and new development. Noteworthy projects are:

- East Side Interceptor Rehabilitation – The portion of the sewer that traverses the National Arboretum has significant structural distress. Design is underway for the rehabilitation of the sewer. Construction is scheduled to start in the summer of 2006.
- Infiltration/Inflow City Wide (excluding National Park Service areas) – This project corrects infiltration/inflow problems throughout the City that have been identified as cost effective. Construction of this project is underway and is expected to be completed in FY 2006.
- Sewer Rehabilitation on 10th & 12th, N.W. – This project consists of rehabilitation of deteriorated 36” and 30” diameter sewers on 10th Street, N.W. and on 12th Street, N.W.

Interceptor/Trunk Sewer/Force Sewers – \$82 million

(project pages IV-27 to IV-32)

This program includes large diameter sewers that may be required to serve new development, replace undersized sewers, or replace or rehabilitate large diameter sewers that have reached their useful life or are in need of major repair. In addition, this category includes approximately \$7 million in FY 2006 for capital projects that may be identified as part of the comprehensive assessment of the sewer system.

The current CIP contains several projects in this service area, including:

- Potomac Interceptor Rehabilitation – The Potomac Interceptor Sewer System is a 50-mile long sewer that provides conveyance of wastewater from areas in Virginia, Maryland and the District to Blue Plains. WASA has been working with our wholesale customers on a variety of capital projects to address odor control issues related to the Potomac Interceptor and to ensure the long-term structural integrity of this major sewer. Costs have increased significantly on this project due to larger equipment needed to control odors, high architectural costs related in part to historical preservation requirements of the National Park Service, and difficult construction locations, including:

- Potomac Interceptor Rehabilitation in Fairfax and Loudon Counties – The capital improvement program includes funding to design and reconstruct portions of the interceptor in Fairfax and Loudoun Counties. The design is almost complete and construction bidding will take place in FY 2006; construction is expected to begin at the end of FY 2006.
- General Potomac Interceptor Rehabilitation Projects – Funding is included to repair appurtenances of the Potomac Interceptor as determined by a study that was completed to assess the condition of the pipeline. This includes manhole replacement and rehabilitation of miscellaneous structures along the length of the line. Construction is underway, and is expected to be completed in FY 2006.
- Additional Inspections and Access Road Improvements – Three projects are included in the CIP to further assess over 20 miles of the pipeline, improve deteriorated access roads for operations and maintenance needs, and to evaluate soil erosion along the pipeline at stream crossings and along the banks of the C&O Canal.
- Odor Control Projects:
 - Interim Odor Controls – As an interim step, WASA installed odor-absorbing chemicals and passive carbon filters in manholes at selected locations where problems have been experienced. This interim project cost approximately \$0.4 million and was completed in October 2000. These interim controls have been continually maintained, pending the implementation of the permanent odor controls, currently scheduled to begin in FY 2006.
 - Permanent Odor Controls – WASA plans to install a permanent odor control system that includes a forced air/activated carbon filter system. This project will cost approximately \$12 million. The conceptual design was completed in FY 2003. During the past three years, WASA has been seeking the requisite National Park Service permit, performing associated environmental assessments, and coordinating with the community. The National Park Service has issued a Finding of No Significant Impact in 2004 and permits are expected in the near future. Design of the project is ongoing, and the schedule calls for construction to begin in FY 2006 and to be completed in FY 2008.
- Additional Tide Gate Structure Replacements – This new project recommends the study, design, and replacement of five additional tide gates at various locations that are impacted by high tides. Similar to the previous tide gate improvements project, this project involves replacement of existing gates with elastomeric-type gates that ensure more positive closure. The design of this project is underway, and construction is scheduled to be completed in FY 2008.
- Upper Potomac Interceptor Rehabilitation – This project involves the repair of a major portion of the trunk sewer. This project was initially delayed due to inadequate capacity in the Upper Potomac Interceptor Relief Sewer, which is now available. The design will be completed in FY2006, and construction is anticipated to start in the fall of 2007.

Pumping Facilities – \$23 million*(project pages IV-22 to IV-25)*

This program includes projects required for the rehabilitation or replacement of existing wastewater pumping stations as well as projects for the engineering and construction of new wastewater pumping facilities, as required. The current program includes projects to rehabilitate three existing wastewater pumping stations (Upper Anacostia, Earl Place, and Rock Creek pumping stations). The conceptual design of these pumping stations is completed, and the detailed design was also completed in FY 2005. Construction began in FY 2005 and is expected to be completed in FY 2008.

Ongoing Sanitary Sewer Projects – \$64 million*(project pages IV-9 to IV-21)*

This area includes capital projects managed by the Department of Sewer Services including the replacement of sewer laterals and related capital improvements. The program also includes funding for the District of Columbia Department of Transportation (DDOT) road projects, which often require the relocation of sewers. Budget requirements are projected based on the best available information from DDOT. Other projects include:

- Pope Branch 12 inch Sewer Replacement – This involves the complete rehabilitation of the existing sanitary sewer that runs along Pope Branch as part of an intergovernmental project to restore the park.



District of Columbia
Water and Sewer Authority

Approved FY 2005–2014 Capital Improvement Program

Conceptual image of underground tunnel to retain combined sewer overflows. Preliminary engineering work on these 25 feet in diameter tunnels begins in FY 2006.

Adopted January 5, 2006
Glenn S. Gerstell, *Chairman*
Jerry N. Johnson, *General Manager*



*Section V:
Combined Sewer
Overflow
Service Area*

2005-14

COMBINED SEWER AREA

Similar to many older communities in the Mid-Atlantic, Northeast, and Midwest portions of the country, a portion of the District of Columbia is served by a combined sewer system. Approximately one-third of the system is combined, mostly in the downtown and older parts of the city. In dry weather, the system delivers wastewater to the Blue Plains Wastewater Treatment Plant. In wet weather, storm water also enters the system, and if the conveyance capacity of the system is exceeded, the excess flow spills into the waterways of the District of Columbia. This discharge is called Combined Sewer Overflow (CSO). There are 60 permitted CSO outfalls in the District.

In December 2004, WASA reached agreement with the environmental plaintiffs, the U.S. Environmental Protection Agency, and the U.S. Department of Justice on the CSO Long-Term Control Plan (LTCP), a major milestone in WASA and the District's history. This agreement has been formalized in a judicial consent decree entered by the U.S. District Court in March 2005. The agreement calls for WASA to complete the LTCP over a twenty-year period. The judicial consent decree includes provisions to modify the selected CSO controls and schedules included in the decree. Modifications may be requested because of changes in the technical, regulatory, financial and institutional bases used to develop the LTCP. Currently, WASA is in the process of evaluating a modification request for the Blue Plains Excess Flow Treatment Facilities that are part of the selected CSO controls included in the decree. This modification may be required to accommodate a new total nitrogen effluent limit that EPA intends to include in the Blue Plains NPDES Permit.

Additionally, we recently initiated our Anacostia River CSO projects facility planning efforts. This planning will include advancing the conceptual designs developed in the LTCP to the preliminary design stage. The outcome of the facility planning may identify the need for additional modifications to the selected CSO controls and schedules included in the decree.

The benefits of our twenty-year plan are significant - when fully implemented, combined sewer overflows will be reduced by a projected 96 percent (98 percent on the Anacostia River), resulting in improved water quality and a significant reduction in debris on our national capital's waterways. In addition, WASA's clean-up efforts on the Anacostia River are a key cornerstone of the District's plan to redevelop both sides of the river, including the new baseball stadium, retail development and affordable housing among other projects.

The \$1.9 billion plan includes a variety of improvements throughout the District:

- \$37 million (Project BL) to increase excess flow treatment capacity at Blue Plains: facility planning began in FY 2005 with project completion in FY 2016.
- \$1.4 billion (Project CY) to construct an eight-mile tunnel system to control Anacostia River overflows, two side tunnels for flood control, a lift station and an interceptor, with project completion in FY 2025.
- \$419 million (Project CZ) to construct a three-mile tunnel system to control Potomac River overflows and a lift station, with facility planning to begin in 2015 and project completion in FY 2025.

- \$70 million (Project DZ) to construct a mile long tunnel system to control Piney Branch/Rock Creek overflows, with facility planning to begin in 2016 and project completion in FY 2025.

WASA has made great progress on the plan over the last two years. Construction is well underway with completion of approximately \$140 million of projects that were included in the settlement of a lawsuit against WASA regarding implementation of the federal CSO Nine Minimum Controls program. These projects, which were previously budgeted and planned by WASA prior to the lawsuit, are projected to reduce combined sewer overflows by 40 percent. The completion in 2004 of twelve inflatable dams resulted in a 24 percent reduction in overflows. We are also underway with engineering to separate additional combined sewer areas in Anacostia and Rock Creek. Additionally, we are completing studies to add LID at several WASA facilities. We are in design or construction on the rehabilitation of our major pumping stations to increase their capacity, with work scheduled to be complete in 2008:

- Potomac Pumping Station rehabilitation (Project BB), with a lifetime budget of \$17.5 million, includes replacing pump motors, motor controls, adding variable speed drives, upgrading the electrical system and electrical feeders, and modifying the existing wet-wells and influent channels.
- Main & "O" Street Pumping Stations rehabilitation (Project K1) has a project lifetime budget of \$75.7 million, and includes rebuilding and upgrading sanitary pumps, upgrading electrical and ventilation systems, replacing screens, installing a screening handling system, and installing odor control systems.
- East Side Pumping Station rehabilitation (Project K3), with a lifetime budget totaling \$18.5 million, provides for a new above-grade pumping station. This project is currently under construction.
- Poplar Point Pumping Station rehabilitation (Project K4) has a lifetime budget of \$6.3 million and provides for improvements that include structural and architectural repairs, HVAC upgrades, the addition of an odor control system, and electrical and lighting upgrades.



District of Columbia
Water and Sewer Authority

Approved FY 2005–2014 Capital Improvement Program

*Construction of a new
access shaft on the Capitol
Hill Relief Sewer. This
project is part of the storm
sewer system located at
6th Street and Virginia
Avenue, SE.*

Adopted January 5, 2006
Glenn S. Gerstell, *Chairman*
Jerry N. Johnson, *General Manager*



2005-14

*Section VI:
Stormwater
Service Area*

STORMWATER

WASA is responsible for the design, construction and maintenance of certain public facilities that convey stormwater runoff to the Anacostia and Potomac Rivers, Rock Creek, and other receiving streams. The stormwater system includes approximately 600 miles of storm sewer pipes, catch basins, inlets, special structures and related facilities. Some components of the existing storm sewer system are over 100 years old. The system is constructed of a variety of materials such as ductile iron, plastic, steel, brick, cast iron, cast-in place concrete, brick and concrete, vitrified clay, and concrete. Projects include extensions to the system, relief of certain storm sewers, as well as projects to rehabilitate or replace storm sewer systems that have experienced structural deterioration.

The lifetime budget for the Stormwater Service Area is \$43 million, a slight decrease from last year. As in last year's budget, we have not included funding for stormwater pumping rehabilitation projects. We have been engaged in extensive discussions with the District over the last two years regarding how responsibilities for a variety of stormwater-related functions are divided among District agencies, including responsibility for stormwater pumping stations, and all work had been deferred pending resolution of this issue.

This year's budget includes increased funding for a variety of projects to replace undersized, aged or deteriorated sewers. This increase is offset by reductions in DDOT stormwater projects done on behalf of WASA, based on an analysis of actual spending and work completed over the last three to five years, which has been significantly less than budgeted. There have been on-going discussions between WASA and DDOT regarding the responsibility for the storm water infrastructure, including the maintenance and cleaning of the catch basins. These infrastructures are integral components of roads and highways in the District, whose sole purpose is to drain out the city to avoid street and basement flooding. As such these are seen by WASA as responsibilities of DDOT.

District of Columbia Stormwater Permit and Enterprise Fund

Under the District of Columbia Storm Water permit Compliance Act (DC law 13-311), DCWASA was designated as the Administrator of the District's MS4 Administration. It was also charged with the responsibility to collect and dispense the Storm Water Enterprise Funds. WASA's primary function is to coordinate the activities of the storm water Task Force Agencies (DPW, DOT & the Environmental Health Administration within the DOH – now called the Department of Environment, or DOE) to ensure that the District is in compliance with the requirements of the MS4 NPDES permit issued to the District of Columbia government.

Fees collected in the MS4 Enterprise Funds have been approximately \$3 million per year. However, except DCWASA and DPW, funds have not been fully utilized by the Task Force agencies. However, all of the reporting requirements of the permits have been met. There have been deficiencies in storm water monitoring to be undertaken by DOE, and in some cases WASA had to step in and undertake some of the monitoring. More importantly, there has not been any significant reduction in storm water pollution control during the first permit period (2000-2004). Under the new permit issued in August 2004, DC is expected to undertake specific projects that would move the city towards compliance with the Total Maximum Daily Load (TMDL) requirements set for stormwater effluents by the DOE. The MS4 Administration has provided to EPA Region III the Anacostia TMDL Compliance Plan and the Rock Creek TMDL Compliance Plan, as required by the permit. It is estimated that approximately \$7 million per year will be required to

meet all the requirements of the permit. Efforts are underway by the highest level of the government and WASA to identify specific projects, systems, management tools and funds that would be required to make significant progress in reducing storm water pollution.

Recently, D.C. City Council has enacted and the Mayor has approved the “District Department of Environment Establishment Act”. Section 103 E (2) of the Act provides for the transfer of the MS4 Administration from WASA to the District’s DOE within one year.

WASA will continue to contribute towards storm water pollution control as the MS4 Administrator during this time and will remain engaged after the transfer. WASA’s General Manager has already offered to assist DOE with the transition.

Stormwater Program Management - \$5.8 million

(project pages VI-38 to VI-38)

This area provides for design management and construction management of all storm sewage pumping stations requiring major rehabilitation or replacement, as well as long term planning. It also provides for funding for the sewer system program management consultant for work associated with the storm sewer system.

Trunk/Force Sewers – \$22 million

(project pages VI-39 to VI-41)

This program includes large diameter storm sewers and pumping station force sewers that replace undersized sewers, or replace or rehabilitate storm sewers that have reached their useful life or have experienced structural deterioration. In 2005, WASA completed construction on improvements to the Northeast Boundary sewer in Northeast Washington, which helped relieve localized flooding in this area. We will be starting three significant projects to address drainage problems in 2006, one near Broad Branch Road, another near Macomb Street, and one near the Henson Ridge development in the southeast quadrant of the District. Additional projects will be developed based on the results of comprehensive sewer system evaluation, which is being performed by the engineering project management consultant over the next several years.

Pumping Facilities - \$1.2 million

(project pages VI-23 to VI-23)

As in last year’s budget, we have not included funding for stormwater pumping rehabilitation projects. We have been engaged in extensive discussions with the District over the last two years regarding how responsibilities for a variety of stormwater-related functions are divided among District agencies, including responsibility for stormwater pumping stations, and all work had been deferred pending resolution of this issue.

Extension/Local Drainage Projects - \$2.5 million

(project pages VI-5 to VI-10)

This category includes several projects to relieve local flooding and to address short term needs for improvements to storm sewers located in the separate and combined sewer areas. A significant project to highlight is the sewer lining at 22nd & P Streets, NW, which will correct a drainage and flooding problem. The design will be completed during FY 2006, and construction is scheduled to begin later this year.

On-Going Stormwater Projects – \$6.8 million

(project pages VI-11 to VI-22)

These include projects carried out by WASA's Department of Sewer Services, including storm sewer rehabilitation and extensions to serve new development.

DDOT Storm Projects – \$4.8 million

(project pages VI-24 to VI-37)

This program funds projects associated with DDOT road projects, which often require relocation of storm sewers, inlets or other structures. We have reduced the lifetime budgets in this area based on an analysis of actual spending and work completed over the last three to five years, which has been significantly less than budgeted.



District of Columbia
Water and Sewer Authority

Approved FY 2005–2014 Capital Improvement Program

Replacement of a 24-inch valve at 21st and Constitution Avenue, NW. These large water transmission lines are critical in the operation and maintenance of the water distribution system.

Adopted January 5, 2006
Glenn S. Gerstell, *Chairman*
Jerry N. Johnson, *General Manager*



2014

Section VII:
Water System
Service Area

WATER

Projects in the Water Service Area are designed to maintain an adequate and reliable potable water supply to customers, and fire protection. Categories of projects include the rehabilitation and replacement of water mains, storage facilities, and pumping stations. This area also includes water service line and meter replacement.

The water distribution system includes appurtenances necessary for proper system operation, inspection, and repair. WASA's system includes approximately 1,300 miles of pipe and over 36,000 valves of various sizes. A variety of valve types allow flow control, prevent air entrapment, allow watermain draining, permit flow in only one direction, and allow water transfer between service areas during emergencies. The system also includes approximately 9,000 hydrants.

The lifetime budget for the Water Service Area is almost \$1 billion, an increase of \$255 million from last year's CIP due primarily to the extension of the lead program through 2014. Major water projects also include rehabilitation and / construction of pumping stations such as Anacostia and Bryant Street; elimination of dead ends; water main replacement, rehabilitation and extension; and valve replacement.

Lead Service Replacement Program – \$438 million

(project pages VII-79 to VII-79)

This year's CIP reflects continuation of the Board's 2004 goal of replacing the original inventory of 23,000 lines by 2010, resulting in a \$137 million increase in the lifetime budget to \$438 million. While we are not yet certain about the exact number of lead lines in the system, given results of test pitting conducted in 2005, we have conservatively budgeted for the replacement of an additional 12,000 lines during the later years of the CIP, beginning in FY 2011. We do not believe it is logistically or operationally feasible to replace the potential 12,000 "unknown" lines prior to FY 2011, and we expect that better data on the lead inventory will be forthcoming as the program progresses over the next few years. In addition to the physical replacement of the service lines, a comprehensive approach to environmental compliance, public information and relations, and customer service has been developed.

Water Service Area - Management – \$32 million

(project pages VII-78 to VII-78)

This program area provides engineering program management services for the water system capital improvements program, including assessing system needs, developing facilities plans and conceptual designs, and managing design consultants through the development of scope of work, cost estimates, task orders or agreements, and design document review.

Water Pumping Facilities – \$90 million

(project pages VII-52 to VII-55)

This program includes several projects to rehabilitate or replace water pumping stations in the system.

- The Bryant Street Pumping Station (Project M6) is undergoing a major rehabilitation to meet current code requirements and maintain the reliability of the water distribution system. Work includes replacing 11 high lift pumps, architectural improvements to the building, replacing heating, cooling and ventilating system, site improvements, replacing water mains, cathodic protection of a 48-inch steel water main, rehabilitating the warehouse and shop buildings, upgrading SCADA for the water distribution system, and an electronic security system. Construction is underway and will be completed in early 2006 at a total cost of \$61 million.
- The Fort Reno Pumping Station (Project AY) will be upgraded to improve pressure in the fourth high service area in the northwest quadrant of the District. Construction is currently scheduled for spring 2006 through spring 2007 at a total project cost of \$2.6 million.
- The Anacostia Pumping Station (Project M7) will be replaced on the same site it presently occupies, and will include multiple sets of booster pumps and a 30-inch transmission main to increase pressure in the southern portion of the Anacostia first high service area. Final design will be completed in spring 2006 with construction beginning in fall 2006 at a total project cost of \$24.4 million.

Water Storage Facilities – \$37 million

(project pages VII-71 to VII-77)

Studies have identified the need for several new storage facilities to support changing development patterns, to provide additional water pressure to certain areas of the District, and to provide emergency backup service. The most immediate need is for two million gallons of elevated storage tank in the southern portion of the Anacostia first high service area. Necessary approvals and permits are being pursued, with construction expected to start in 2007. In addition, two storage projects have been added to the latter years of the CIP, including a 5 million gallon reservoir in the 2nd high service area, expected to commence in FY 2012, and another 2 million gallon storage tank in the 4th high service area, expected to start in 2014.

Water Distribution System – \$258 million

(project pages VII-6 to VII-37)

This program provides for rehabilitation, replacement or extension of the water distribution system through several categories of projects. This year's water distribution system budget includes increases for a variety of water quality-related work, primarily in the small main area. Highlights of the work under this program by project category includes:

- *Valve Replacements* - This involves replacing defective valves throughout the water distribution system. Operable valves are necessary to complete the annual flushing program, for routine and emergency system repairs, and for support of capital projects

that require valve operation to isolate portions of the system. Five contracts replacing 79 large valves (16-inch and larger) are either completed or under construction, and four additional contracts to replace approximately 120 large valves are planned for construction in 2007 through 2012. Additionally, construction was started for replacing small diameter (12-inch and smaller) defective single and multi-stem valves at 177 sites throughout the District.

- *Water Main Dead End Elimination* - This will eliminate the potential for stagnant water to accumulate at the ends of water mains and will assist in maintaining water quality in the distribution system. Eliminating dead end water mains is accomplished by looping to other water mains or by providing a fire hydrant to flush the line. The three projects in the capital program to perform this work were accelerated to commence construction in 2005 as part of our overall focus on water quality projects.
- *Water Main Extension and Replacement* - Extension and replacement of water mains is required to provide service to new developments, or to replace undersized or defective mains in the system. One job is currently under construction which will replace 5,000 linear feet of undersized cast iron water mains.
- *Large Diameter Water Main Rehabilitation* - This project consists of performing internal joint repairs on large diameter (16-inch diameter and larger) water mains exhibiting a high frequency of joint leaks. It also includes cleaning and lining water mains, if necessary, and replacing or rehabilitating smaller segments of water mains. Work also includes the relocation of water mains from underneath private property when necessary. The rehabilitation of a 48-inch water main in the third high service area near the Bryant Street pumping station and a 42-inch concrete pipe water main in the second high service area in the northeast quadrant of the District was completed in 2005. Two contracts for internal joint repairs were deferred to address other priority projects, and are now scheduled for construction in 2011 and 2013.
- *Water Distribution/Transmission Mains* - These projects include replacing and constructing distribution and transmission mains in the system. In 2005, WASA replaced 5,000 linear feet of a 20-inch Anacostia First High Service Area water main. Design is being completed for replacing 6,100 linear feet of 20-inch water main in Minnesota Avenue S.E. with a 30-inch water main, and for installing approximately 5,300 linear feet of 24-inch water main to reinforce the supply to the Fort Stanton Reservoirs. Construction to install approximately 5,100 linear feet of 16-inch PVC water main in Michigan Avenue NE to reinforce the supply to the McMillan Water Treatment Plant will commence in early 2006.
- *Small Diameter Water Main Rehabilitation* - Work includes rehabilitating small diameter (12-inch diameter and smaller) water mains to improve system reliability as well as to improve water pressure, maintain water quality and ensure adequate flows in the system. One contract is under construction and two contracts are scheduled for construction in FY 2006. In addition design will be accomplished for a contract to replace small diameter mains in the new pressure zone east of the Anacostia River. Higher pressures combined with older mains in this area makes replacement necessary. In addition, planning commenced for a holistic

approach combining the lead service replacement program and the water main condition assessment program, along with coordinating work for all utilities on a given block. The concept for this approach is, for a given block where lead service replacement is required, WASA will also assess the condition of the small diameter main in the street. If the condition warrants replacement and if the main is adequate, it will be cleaned and lined. In addition, replacement of all valves and hydrants will be accomplished at the same time as required. Finally, through coordination with the District Department of Transportation, all required road and sidewalk reconstruction or road resurfacing will be accomplished at the same time. The concept is to complete all needed improvements to a block at one time to minimize disruption and costs. Design of the first contract is scheduled to commence in early 2006 with construction planned for 2008.

- *Cleaning & Lining Large Diameter Water Mains* – WASA is re-evaluating the rehabilitation program for large diameter water mains and alternative rehabilitation or replacement methods may be proposed in the future.

On-Going Water Projects – \$64 million

(project pages VII-38 to VII-51)

WASA's Department of Water Services manages projects in this program area. The ongoing program includes small projects for extension of water mains to service new development in the District of Columbia, repairing water main breaks, replacing valves and fire hydrants, replacing water service connections, and other minor water main rehabilitation work. Project budgets reflect the substantial costs of street repaving due to the street repair and restoration regulations required of WASA and other area utilities.

DDOT Water Program – \$33 million

(project pages VII-56 to VII-70)

This program includes projects for relocation, rehabilitation, replacement and extension of water mains, for which the work is completed under District Department of Transportation (DDOT) construction contracts for street paving or reconstruction.

Metering – \$47 million

(project pages VII-80 to VII-82)

The meter installation / Automated Meter Reading program is 95 percent complete, with only 4,500 meters yet to install. Of these, approximately 450 meters are large (three inches or greater.) WASA is in the process of hiring a new contractor to complete this project and expects to finish installation within the next two years. This year's CIP also includes out-year funding for ongoing meter replacement and AMR system upgrades.



**District of Columbia
Water and Sewer Authority**

Dalecarlia Water Treatment Plant. The CIP includes WASA's share of Washington Aqueduct projects, including improvements to the Dalecarlia plant.

Approved FY 2005–2014 Capital Improvement Program

Adopted January 5, 2006
Glenn S. Gerstell, *Chairman*
Jerry N. Johnson, *General Manager*



2005-14

*Section VIII:
Washington
Aqueduct*

WASHINGTON AQUEDUCT

The Washington Aqueduct, managed by the U.S. Army Corps of Engineers, provides wholesale water treatment services to WASA and its partners in Northern Virginia, Arlington County and Falls Church. WASA purchases approximately 75 percent of the water produced by the Aqueduct's two treatment facilities, the Dalecarlia and McMillan treatment plants, and thus is responsible for 75 percent of the Aqueduct's operating and capital costs. Under federal legislation and a memorandum of understanding enacted in 1997, WASA 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 WASA's share of Washington Aqueduct projects totals \$180.7 million, or \$26.2 million more than last year's 10-year plan of \$154.5 million. This change is due to an increase in the Aqueduct's residuals disposal project, which is described in more detail below.

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

- *Residuals Disposal* – See description under "Residuals Disposal" below.
- *Dalecarlia Pumping Station* – Project include: SCADA Upgrade; HVAC improvements; Roof Repairs; Elevator Replacement; Overhead Crane Replacement; Building Renovation; Pump and Motor Replace/Rebuild. Almost half of the Dalecarlia Capital Improvements relate to the Pump and Motor Replace/Rebuild effort, scheduled to begin in FY2012.
- *Cabin John Bridge* – Roadway and parapet repairs .
- *Dalecarlia Water Treatment Plant Improvements* – Projects include: Fire Alarm System improvements; Admin Building Improvements; Clearwell Cleaning and Disinfection; Admin Building elevator replacement; Warehouse Six Improvements; Maintenance Building Improvements; Roadway Improvements; SCADA Upgrades, Chemical Building Process Improvements; Electrical Renovations; Security Improvements; Security Improvements/Hypo Chloride/Caustic; Floc/Sed Basin Improvements; East Filter Bldg Renovation, Phase II; Instrumentation Improvements; Washwater Tank Improvements; West Filter Building Improvements; Renovation of Old P.S./Visitors Center; Water Quality Lab Renovations.
- *McMillan Water Treatment Plant Improvements* – Projects include: Fire Alarm system improvements; Environmental Improvements; East Shaft Pumping Station renovation; Clearwell Cleaning and Disinfecting; Silt Curtain Replacement; Maintenance – Flume and Gatehouse Imps; Roadway Repairs; SCADA Upgrade; Instrumentation Improvements; Pumping Station motor drive improvements; Roof Replacements; HVAC Improvements; Security Improvements; Chemical Building Process Improvements; Annex I Building Renovation; E.S. Pump Replacement; ESA Building Demo; Filter Media and Valve Replacement; transitioning to sodium hypochlorite.

- *Transmission and Storage* – Projects include: Transmission Main Improvements; Reservoir and Flood Control Improvements; Georgetown Reservoir Improvements; Reservoir Dredging; Conduit Repairs; Finished Water Reservoir Sealing; Hydro Building and Champlain Ave Bldg renovations; Little Falls Pumping Station (LFPS). – Elevator Replacement, Overhead Crane Replacement, Pump and Motor Replacement/Rebuilding, HVAC and Plumbing improvements; Geat Falls Intake Building Improvements. Conduit Repairs (scheduled to begin in FY2014) and LFPS Pump and Motor rebuild/replacement (scheduled to begin in FY2011) account for half of the Transmission and Storage budget.
- *Alternate Treatment Methods* –Process Testing and Studies (Mixing Improvements) are scheduled for FY2008.

Near-term projects include Residuals, Georgetown Reservoir improvements and renovation of the laboratory and chemical buildings, which will renovate the four existing, forty-year old labs. As part of next years CIP document, we will add individual pages on each project area.

Residuals Disposal Project

The single largest project in the Aqueduct's CIP is the Residuals project. Currently, solids that settle out from water at the Dalecarlia Treatment Plant and Georgetown Reservoir are periodically discharged to the Potomac River during high river flow conditions. Under the Aqueduct's NPDES permit and a related Federal Facilities Compliance Agreement (the federal agency equivalent of an administrative order), the Aqueduct is required to remove 85 percent of incoming sediments and not return them to the Potomac River. Further, the Federal Facilities Compliance Agreement also requires the Aqueduct to have a new process in operation by December 31, 2009, and to develop a proposed construction schedule to meet this deadline. The Aqueduct has developed a proposed plan to build new dewatering facilities on site at its Dalecarlia treatment plant, and truck the dewatered sediments to land application sites. This proposed plan has gone through the environmental impact statement process, which found no scientific environmental problems, and culminated in a 'Record of Decision' to that effect, in November 2005. The Agency is now scheduling public meetings on the selected residuals-handling alternatives, and negotiating the A&E design contract. Construction is scheduled to start in late FY 2007, with completion in 2009.

The projected cost of the Residuals facilities is significant, with current estimates ranging from \$90 million to \$117 million (all customers' share), a significant increase from last year due to rising steel and concrete prices, revised Aqueduct engineering estimates, and higher contingencies. We have included in our CIP a "mid-range" estimate of these costs, totaling WASA's share of \$95 million, a significant increase over the Aqueduct's prior year estimate of \$66.5 million and what we had previously budgeted. WASA and its partners in Northern Virginia have been actively involved in reviewing this budget increase and will be participating in the review of design and construction bid documents and contractor selection.

Financing of Aqueduct Capital Projects

The U.S. Army Corps of Engineers requires WASA 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 held until project completion with no interest to WASA. Over the last two 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. Proposed legislation to accomplish this change is currently being drafted by OMB. While this is a significant improvement over current Corps practice, we continue to pursue other options that would be more favorable to WASA, including transferring dollars on a phased basis, utilizing U.S. Treasury notes, 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.

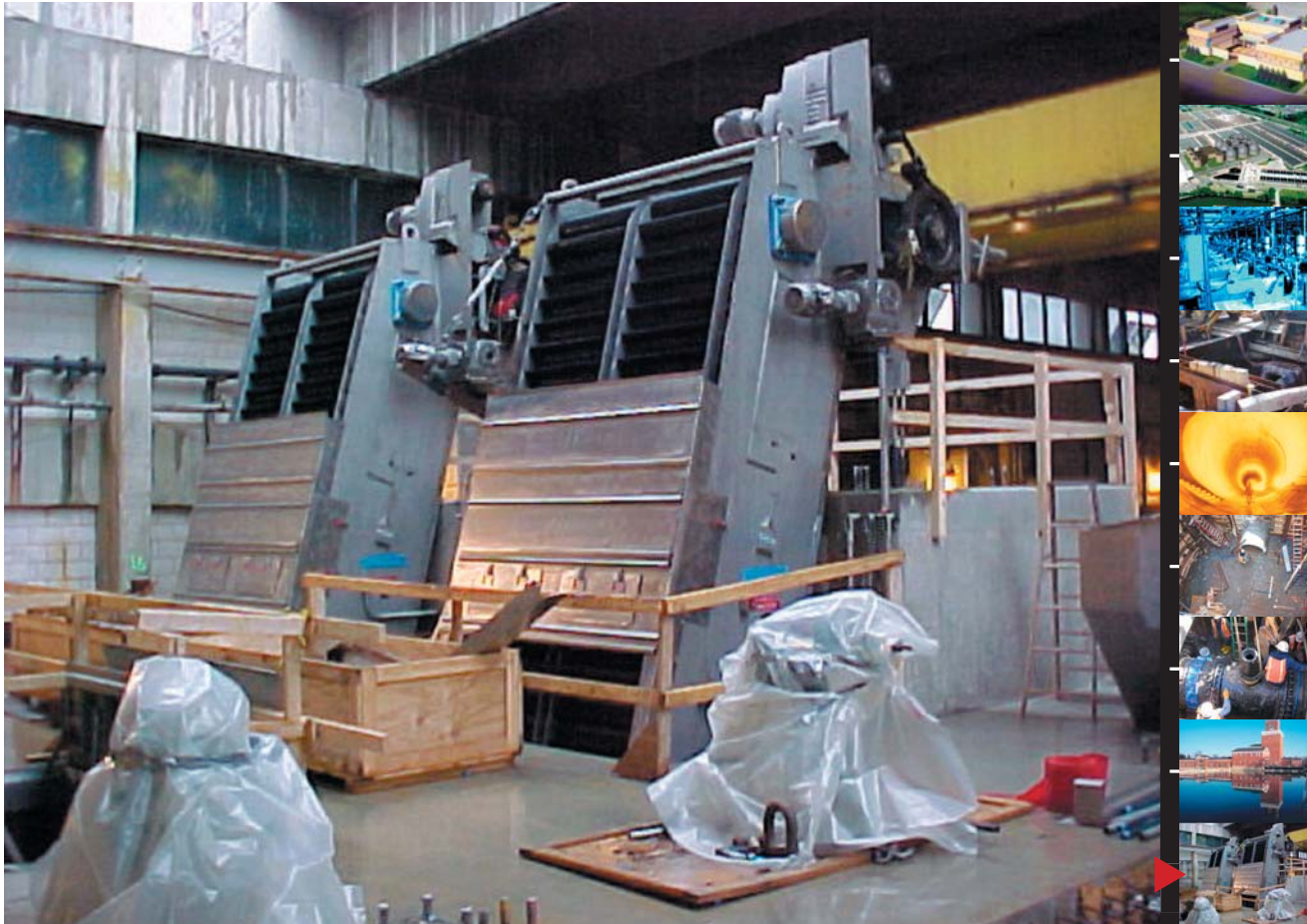


District of Columbia
Water and Sewer Authority

Approved FY 2005–2014 Capital Improvement Program

*Screening room at Blue
Plains Advanced Waste-
water Treatment Plant.
These huge screens are
used to collect debris
from wastewater entering
the treatment plant.*

Adopted January 5, 2006
Glenn S. Gerstell, *Chairman*
Jerry N. Johnson, *General Manager*



2005-2014

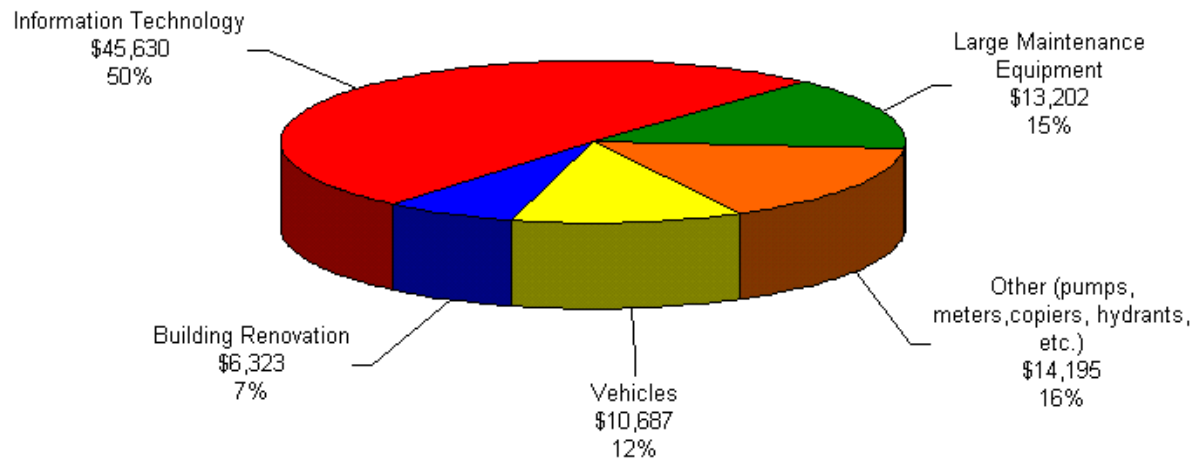
*Section IX:
Capital
Equipment*

CAPITAL EQUIPMENT

WASA's lifetime capital equipment budget (disbursements and commitments basis) totals approximately \$90 million for FY 2005 – FY 2014 plan, approximately the same as last year's \$91 million plan. Over fifty percent of spending in the capital equipment area continues to be on major information technology projects, including the new document management system (lifetime budget of \$4 million) and the asset management system (lifetime budget of \$9 million). WASA continues its commitment to vehicle fleet replacements, with a lifetime budget of \$10.7 million, representing twelve percent of the ten-year plan. Finally, maintenance of large equipment at Blue Plains and in the major water and sewer pumping stations totals \$13 million, or fifteen percent of the ten-year plan.

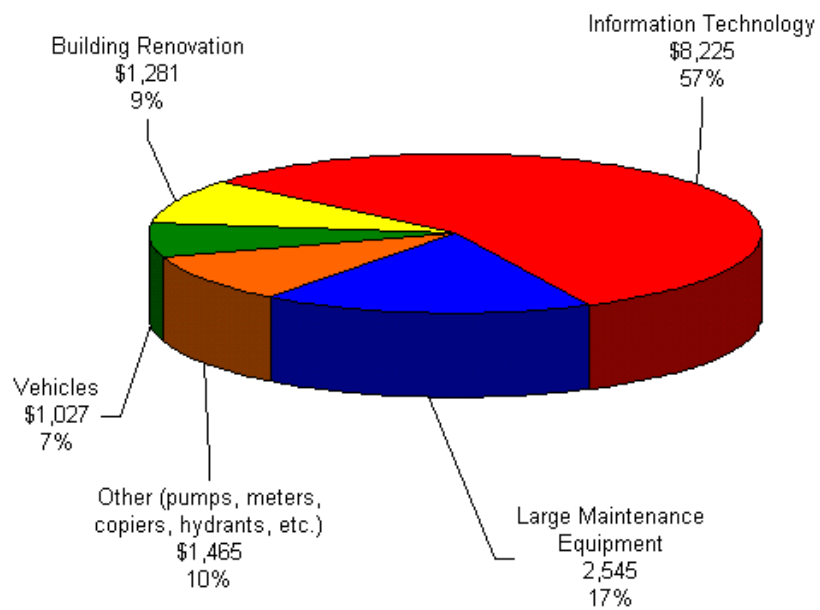
The revised FY 2006 disbursement budget is \$2.1 million higher than the FY 2006 approved budget. The \$2.1 million increase is attributable to the addition of Homeland Security grant-funded projects in the sewer system, a critical Stormwater pumping station elevator renovation at 1st and Canal St.; and near-term improvements to fire suppression and detection systems at certain WASA facilities. The remainder of the increase is due to lower than anticipated disbursements in 2005 on the asset management system that are projected to be recovered in FY 2006 and FY 2007.

CAPITAL EQUIPMENT DISBURSEMENTS BY MAJOR EXPENDITURE CATEGORIES
FY 2005 – FY 2014
(\$ in 000's)

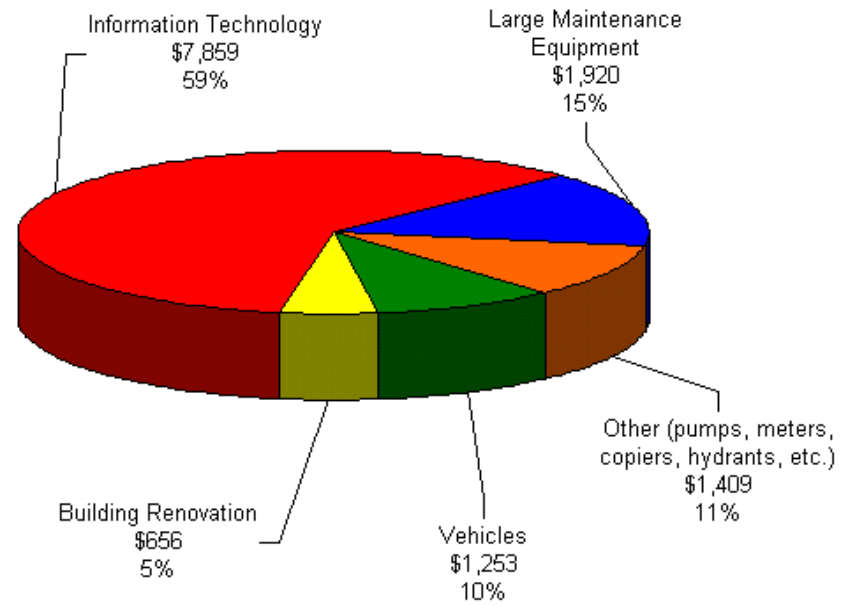


CAPITAL DISBURSEMENTS BY MAJOR EXPENDITURE CATEGORIES
FY 2006 Revised vs. FY 2007 Approved
 (\$ in 000's)

FY 2006 Revised



FY 2007 Approved



FY 2006 Revised	= \$14,543
FY 2007 Approved	= \$13,097

Capital equipment is defined by a purchase price greater than \$5,000 and an item that has a useful life of more than three years, or will extend the life of an asset by more than three years. Capital equipment expenditures fall into two broad categories: equipment purchases and ongoing projects. Purchases include items such as fire hydrants, catch basin components, water meters, vehicles, and computers. Budgets for equipment purchases are closed out at the end of each fiscal year. Ongoing projects extend over multiple years and are largely technology-related.

Equipment Purchases

Equipment purchases are made by the Departments of Wastewater Treatment, Water Services, Sewer Services, Customer Service, Fleet Management, Facilities and Security, Information Technology, and Maintenance Services. Amounts shown below are 10-year disbursement totals.

Department of Wastewater Treatment - \$0.4 million

Capital equipment expenditures for this department are for laboratory equipment purchases to maintain a certified laboratory. The bulk of planned metering and recording device purchases were made in FY 2005, and the web-based virtual tour of the Blue Plains Advanced Wastewater Treatment Plant was completed and deployed to DCWASA's internet website. A planned plant model revision scheduled for FY 2005 has been moved to FY 2006, the goal of which is to show the change to sodium hypochlorite disinfection.

Department of Water Services - \$7.7 million

The Department of Water Services is responsible for replacing deteriorated or damaged fire hydrants, water system valves, and system appurtenances. These purchases are separate from Capital Improvement Program activities for the systematic replacement of valves; rather they are for interim replacement of these items as individual needs are encountered by field crews. Activities in the FY 2006 revised and FY 2007 proposed budgets largely remain the same as those carried out by the department in previous years for fire hydrant and water service replacements.

Department of Sewer Services - \$2.8 million

This department is responsible for replacing catch basins, manhole covers and frames, and rehabilitating regulators and outfall gates. The South Capitol Street outfall gate project was completed in FY 2005, a major accomplishment for the department. This budget reflects \$500,000 in FY 2006 & FY 2007 for Homeland Security grant-funded projects for vulnerability analysis and SCADA improvements to remote sewer facilities.

Department of Fleet Management - \$11 million

A major emphasis will be placed on coordinating equipment purchases with the realigned needs of the Authority as Internal Improvement Plans implemented in prior years continue to be carried out over the next few years. In addition to the replacements planned by the Fleet Department, a supplemental replacement program for Customer Service reflects the changing needs of the department due to the automated meter installation program.

Department of Facilities and Security - \$9.5 million

Capital equipment activities for this department in FY 2006 include HVAC system upgrades at various locations, fencing and rollup door replacements. Additionally, the organization has established a five year reassessment and replacement schedule for its photocopier requirements. FY 2014 is now within the 10-year disbursement schedule and funding for this iteration of copier purchases is the primary item affecting the increase in this department's 10 year disbursement budget. This capital program also includes funding for major projects at the Central Operations Facility (COF) and other key facilities, including the priority renovation of the 1st and Canal Stormwater pumping station elevator.

Department of Information Technology - \$ 45.6 million

In addition to managing WASA-wide technology projects, the Department of Information Technology is responsible for computer, printer, and other hardware purchases. The department has additional responsibilities for installing telecommunications equipment throughout the Authority, and for replacing copper cabling with fiber cabling. The 10-year spending plan for the Information Technology Department includes a new project for a wireless technology survey, a document management system, a redundant data center, an automated dispatching system, upgrades of several critical computer systems, and a comprehensive asset management system which supports GIS throughout the organization's operational infrastructure.

Department of Maintenance Service - \$13.2 million

This department is responsible for rehabilitating and replacing large process equipment throughout the Authority, including pumps, screens, variable frequency drives, and large motors. A major emphasis has been placed on the High Priority Rehab Program over the past several years, which ensures that large equipment will function properly until its scheduled replacement in the Capital Improvement Program. FY 2005 saw the completion of the overhaul of filter influent pumps in the filtration / disinfection facility at Blue Plains.

Capital Equipment Technology Projects

In addition to carrying out its own technology projects, such as Web Development and Network Renewal, the Department of Information Technology supports technology projects that are managed by departments throughout the Authority. Continuing into FY 2006 are enhancements to the customer information and billing system, and re-engineering of the online forms employee use to access payroll and benefit information in the Payroll/HR system. Migration from Lotus Notes to Microsoft Exchange is scheduled to begin in FY 2006, as is the development of an Enterprise Backup Solution, the migration of the Department of Engineering and Technical Services' Project Management software to the Information Technology department's server array, and the establishment of video conferencing capability.

A recap of the most significant efforts underway within the Technology Projects area follows.

Asset Management System - \$9 million

The Asset Management System is a major WASA-wide undertaking, which began in FY 2004. This project was originally planned to be a water and sewer infrastructure asset management system that would complement the recently implemented maintenance management system. After a full year of assessment in FY 2003, this system is now planned to encompass the entire organization and integrate technology already in place at WASA (customer information and billing, maintenance management, financial management systems), as well as technology planned for the future, such as geographic information, electronic maps, and process control computer systems. Implementation and integration will span four years. The first operational phase of this system went live in October 2005.

EMAP Phases I and II - \$0.4 million

In order to prepare for integration into the asset management system, WASA's as-built maps and drawings need to be brought up to date and totally incorporated into an electronic environment. Phase I addresses 'as-builts' for all of WASA's infrastructure outside of Blue Plains, and Phase II encompasses 'as-builts' at the treatment plant.

Maintenance Management System - \$0.5 million

This system, needed to replace an obsolete materiel management system, went live in FY 2003 and is an integral component of the asset management system. There will be ongoing enhancements throughout the 10-year plan.

Audio Visual, Video Conferencing, and TV Camera Equipment - \$1.4 million

In a continued effort to bring beneficial technology advancements to the way we work, the Department of Information Technology has upgraded the Audio Visual equipment in the Board room, redeploying the current monitors as event calendars in the second and third floor reception areas, and acquiring TV camera and Video Conferencing Equipment. This equipment is scheduled to be replaced every three years.

Radios - \$0.4 million

At the end of FY 2003, WASA deployed new radios for use with the District's 800 MHz system, replacing a 20-year old system. This system has increased geographic coverage, and allows departments to communicate with each other across the Authority.

Document Management System - \$4 million

In 2004 WASA completed an assessment of its document management needs, and has developed a comprehensive plan for a new system that will be implemented over the next 2-3 years.

Financial Management System - \$1 million

This project is managed by the Office of the Chief Financial Officer, with the support of the Information Technology Department. A system upgrade was conducted in FY 2005, with additional functionality such as Microsoft Add-ins, implementation of a Contract Module, and additional reporting functionality planned over the span covered by the 10 year disbursement schedule.

Payroll/Human Resources System - \$0.5 million

This project is also managed by the Office of the Chief Financial Officer, with the support of the Information Technology Department. During FY 2006 re-engineering of the on-line forms used by employees to access payroll and benefit information in the Payroll/HR system is scheduled to take place. Ongoing updates and enhancements are budgeted through the 10-year program, now that the major implementation activities have been completed.

Customer Information and Billing System - \$2 million

The Customer Service Department manages the customer information and billing system project, supported by the Information Technology Department. The system went into service in June 2001, and continued updates to the system are scheduled throughout the life of the 10 year disbursement plan.

Redundant Data Center - \$1.6 million

In keeping with the Information Technology Strategic Plan, WASA has been creating a Redundant Data Center. This facility, complete with uninterrupted power supply and system backup capability, when completed, will provide the ability to seamlessly switch from the computers and servers located within the COF building to the Redundant Data Center without data loss and with minimal down time.

Web Development - \$1.2 million

In keeping with the Information Technology Strategic Plan, WASA's website will be completely updated every 18 months. The first update since the site's 2003 unveiling was completed early in FY 2005, with continued enhancements and functionality deployments over the next 10 years.

Field Services Management System – 2.3 million

The FY 2007 budget submission includes a new effort being undertaken which will place computers in the Field Services vehicles to streamline call dispatch and job completion reporting. .

Note:

On the project pages that follow, lifetime budgets prior to FY 2006 reflect only FY 2005 actual disbursements, with the exceptions of the Asset Management, EMAP Phases I and II, and the Document Management System. Additionally, out year budgets show only through FY 2014 expected spending. This is due to the generally annual nature of purchases and projects occurring in the Capital Equipment service area of WASA's capital program.

FY 2005 - FY 2014 Capital Equipment Disbursements
(\$ in 000's)

Department	Equipment Type	FY 2005 Actuals	FY 2006 Revised	FY 2007 Approved	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY2014	FY '05 - FY '14 Total
Facilities and Security												
	Water System Security	\$327	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$327
	Photocopier Purchase	17	0	0	0	1,300	0	0	0	0	1,500	2,817
	WASA-wide fire suppress/detection	0	250	0	0	0	0	0	0	0	0	250
	Plumbing at Various Locations	0	150	150	50	50	25	25	25	25	25	525
	Furniture and Fixtures	0	150	0	0	0	0	0	0	0	0	150
	Facilities Improvements	278	150	200	350	350	350	350	350	350	350	3,078
	Signage	0	0	0	0	0	0	0	0	0	0	0
	Rollup Doors	0	81	81	81	0	0	0	0	0	0	243
	WASA-wide Fencing	15	0	0	0	0	0	0	0	0	0	15
	HVAC at Various Locations	287	250	225	150	150	150	150	150	150	150	1,812
	Elevator Repairs	0	250	0	0	0	0	0	0	0	0	250
Total		\$924	\$1,281	\$656	\$631	\$1,850	\$525	\$525	\$525	\$525	\$2,025	\$9,467
Information Technology												
	Desktop Replacements	\$533	\$500	\$500	\$672	\$515	\$500	\$500	\$672	\$515	\$500	\$5,407
	Cable Renewal	178	200	200	200	200	200	200	200	200	200	1,978
	Telephone System Renewal/Replacement	86	740	565	200	100	100	100	100	100	100	2,191
	Software Applications/Licenses	230	225	150	150	150	150	150	150	150	150	1,655
	Messaging Services	7	195	145	10	10	70	10	10	70	10	537
	Windows 2003 Migration	29	150	30	30	30	30	30	30	30	30	419
	Radios	8	150	30	30	30	30	30	30	30	30	398
	Redundant Data Center	409	400	250	60	210	60	60	60	60	60	1,629
	Network System Renewal	486	525	525	775	650	650	865	565	565	565	6,171
	Audio Visual Equipment - IT	81	0	0	100	0	0	100	0	0	100	381
	Interactive Voice Response	15	150	20	20	20	20	20	20	20	20	325
	EMAP Phases I and II	19	150	170	0	0	0	0	0	0	0	339
	Engineering Plotters/Scanners	24	45	0	0	0	15	25	45	0	0	154
	Field Laptops for Engineering	0	0	30	0	0	0	0	0	0	0	30
	Engineering MIS Modifications	0	40	0	0	0	0	0	0	0	0	40
	Primavera Migration	0	85	0	0	0	0	0	0	0	0	85
	Re-engineer HR on-line forms	0	60	10	0	0	0	0	0	0	0	70
	TV Camera Equipment	0	0	0	0	130	0	0	260	0	0	390

FY 2005 - FY 2014 Capital Equipment Disbursements
(\$ in 000's)

Department	Equipment Type	FY 2005 Actuals	FY 2006 Revised	FY 2007 Approved	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY2014	FY '05 - FY '14 Total
Information Technology												
	Network Systems Security	79	30	100	30	100	30	100	30	100	30	629
	Intranet	0	75	0	50	0	50	0	50	0	50	275
	Command Center	1	0	0	0	0	0	0	0	0	0	1
	Handheld Inventory	64	150	350	100	50	50	50	50	50	50	964
	Wireless Technology Survey	3	45	0	0	0	0	0	0	0	0	48
	Enterprise Backup Solution	0	130	0	0	0	130	0	0	0	130	390
	Video Conferencing	0	200	10	10	10	200	10	10	10	200	660
	Field Services Mgmt System	0	0	400	1,050	550	50	50	50	50	50	2,250
	Web Development	244	75	150	75	75	75	200	75	75	75	1,119
	Financial Management System	184	100	100	100	100	100	100	100	100	100	1,084
	Customer Information & Billing System	471	575	324	100	100	100	100	100	100	100	2,070
	Payroll/HR System	7	180	50	30	30	30	30	30	30	30	447
	Maintenance Management System	26	50	50	50	50	50	50	50	50	50	476
	Document Management System	75	1,000	1,500	1,175	50	50	50	50	50	50	4,050
	Asset Management System	1,516	2,000	2,200	2,651	100	100	100	100	100	100	8,967
Total		\$4,777	\$8,225	\$7,859	\$7,668	\$3,260	\$2,840	\$2,930	\$2,837	\$2,455	\$2,780	\$45,631
Maintenance Services												
	Pump Repair/Replacement	819	1,000	700	500	300	300	200	200	200	200	4,419
	Large Electric Motors	376	700	500	400	300	300	200	200	200	200	3,376
	High Priority Rehab Program	821	500	300	300	200	100	100	100	0	0	2,421
	Shop Equipment and Plant Lighting	\$19	\$145	\$120	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$284
	Centrifuge Repair/Replace	103	200	300	300	300	300	300	300	300	300	2,703
Total		\$2,137	\$2,545	\$1,920	\$1,500	\$1,100	\$1,000	\$800	\$800	\$700	\$700	\$13,202
Total Capital Equipment		\$9,360	\$14,543	\$13,097	\$11,942	\$8,353	\$6,508	\$6,398	\$6,305	\$5,853	\$7,678	\$90,037

**Capital Improvement Program
Dropped or Closed Project Listing**

Activity Group	Project Title	Department	Budget
<u>Closed Projects:</u>			
EF1	Water System Electronic Security	Facilities and Security	\$1,467,000
EF5	Photocopy Equipment	Facilities and Security	854,000
EA3	Plant Model	Wastewater Treatment	189,000
EZ2	Customer Billing and Information System	Customer Services	2,754
EZ5	Maintenance Management System	Maintenance Services	1,829,000
EX7	Web Development	Information Technology	815,000
ES1	Outfall Gates	Sewer Services	185,000
ET3	Consolidated Command Center	Customer Service	327,000
			\$5,668,754
<u>Dropped Projects:</u>			
ED4	Electric Analysis and Modelling System	Engineering	\$30,000
ER1	Owner Controlled Insurance Program Study	Risk Management	50,000
EP3	e-Procurement System	Procurement	100,000
EX2	Floatable Visitors' Center	Facilities and Security	2,000
EF9	Facilities Management System (rolled into Asset Mgmt)	Facilities and Security	50,000
EF6	Facilities Technical Program (rolled into Asset Mgmt)	Facilities and Security	70,000
			\$302,000