

Resolution No:	<u>17-1117</u>
Introduced:	<u>May 22, 2014</u>
Adopted:	<u>May 22, 2014</u>

**COUNTY COUNCIL
FOR MONTGOMERY COUNTY, MARYLAND**

By: County Council

SUBJECT: Approval of the FY 2015-2020 Capital Improvements Program for the Washington Suburban Sanitary Commission

Background

1. As required by Section 23-304 of the Public Utilities Article of the Maryland Code, before October 1 of each year, the Washington Suburban Sanitary Commission (WSSC) must prepare and submit to the County Executive and County Council of Montgomery County a 6-year Capital Improvements Program (CIP) for water and sewer facilities.
2. On October 1, 2013, WSSC transmitted its Proposed CIP for Fiscal Years 2015-2020.
3. On January 15, 2014, the County Executive transmitted his recommendations regarding the FY 2015-2020 WSSC CIP.
4. Section 23-306 of the Public Utilities Article of the Maryland Code authorizes the Council to approve, disapprove, or modify the WSSC CIP.
5. Section 23-305 of the Public Utilities Article of the Maryland Code requires that before final action on the WSSC CIP is taken, public hearings must be held on the Program. The Council held public hearings on the CIP on February 5 and 6, 2014.
6. The Council considered the recommendations of the Executive and the Montgomery County Planning Board regarding the CIP and reviewed the project description forms.
7. The Council recognizes that the information and documentation contained in the CIP are an integral part of the Comprehensive Water Supply and Sewerage Systems Plan which must be submitted to the State Department of the Environment in accordance with Section 9-501 et seq. of the Environment Article of the Maryland Code.
8. On May 8, 2014, the Montgomery County and Prince George's County Councils jointly reviewed their respective proposed additions to, deletions from, increases to, and decreases in the WSSC capital and operating budgets and further considered all proposed changes. The Councils agree on changes to the WSSC Proposed CIP.

Action

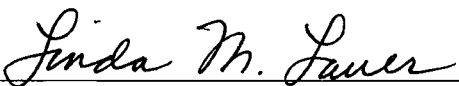
The County Council for Montgomery County, Maryland approves the following resolution for the Washington Suburban Sanitary Commission:

1. The Council approves the projects in the WSSC Proposed CIP for FY 2015-2020 as transmitted on October 1, 2013, except those projects which are approved as modified by the Montgomery and Prince George's County Councils. Amended project description forms are attached to this resolution and are identified by the following WSSC project numbers:

S-103.02

2. The Council approves the close out of the projects in Part I.

This is a correct copy of Council action.



Linda M. Lauer, Clerk of the Council

A. Identification and Coding Information			2. Date: October 1, 2013	7. Pre PDF Pg.No.: 8. Req. Adeq. Pub. Fac.
1. Project Number	Agency Number	Update Code	Revised: May 8, 2014	
153802	S-103.02	Add		
3. Project Name: Anaerobic Digestion/Combined Heat & Power			5. Agency: WSSC	
4. Program: Sanitation			6. Planning Area: Bi-County	

B. Expenditure Schedule (000's)											
Cost Elements	(8) Total	(9) Thru FY '13	(10) Estimate FY '14	(11) Total 6 Years	(12) Year 1 FY '15	(13) Year 2 FY '16	(14) Year 3 FY '17	(15) Year 4 FY '18	(16) Year 5 FY '19	(17) Year 6 FY '20	(18) Beyond 6 Years
Planning, Design & Supervision	23,878	1,218	4,532	18,128	6,798	618	3,708	3,708	3,296		
Land											
Site Improvements & Utilities											
Construction	113,300			113,300		6,180	37,080	37,080	32,960		
Other	6,802		228	6,674	340	340	2,040	2,040	1,814		
Total	143,980	1,218	4,760	138,002	7,138	7,138	42,828	42,828	38,070		

C. Funding Schedule (000's)											
WSSC Bonds	72,028	647	2,380	69,001	3,569	3,569	21,414	21,414	19,035		
Federal Aid	71,952	571	2,380	69,001	3,569	3,569	21,414	21,414	19,035		

D. Description & Justification

DESCRIPTION

This project will develop a comprehensive program for the engineering, design, construction, maintenance, and monitoring and verification necessary to add sustainable energy equipment and systems to produce biogas at a location(s) to be determined. The program will provide a reduction in energy and energy-related costs (electricity, natural gas, transportation, and disposal of biosolids) which may in part be guaranteed by the contractor. The potential guaranteed reduction component includes annual avoided energy costs as well as operations and maintenance, chemicals, and biosolids transportation and disposal costs. The program will enhance existing operating conditions and reliability while continuing to meet all permit requirements, and ensure a continued commitment to environmental stewardship at WSSC sites. The scope of work will include, but is not limited to, the addition of anaerobic digestion equipment, thermal hydrolysis pretreatment equipment, gas cleaning systems, hydrogen sulfide and siloxane removal, tanks, piping, valves, pumps, sludge dewatering/thickening equipment, grit removal, effluent disinfection systems, instrumentation, flow metering, power measurement, and combined heat and power generation systems.

In March 2009, the WSSC received approval for a federal Department of Energy grant of \$570,900 for the feasibility study/conceptual design phase. On June 16, 2010, the WSSC awarded the study contract to AECOM Technical Services, Inc., of Laurel, Maryland. The study was completed in December 2011, and the Thermal Hydrolysis/Mesophilic Anaerobic Digestion/Combined Heat & Power facility was recommended to be constructed and was presented to the Commission in April 2012. The WSSC will continue to pursue federal capital funding as a source of cost sharing as the project develops.

JUSTIFICATION

Plans & Studies

Appel Consultants, Urban Waste Grease Resource Assessment-NREL (November 1998); Environmental Protection Agency (EPA), Opportunities For and Benefits Of Combined Heat and Power at Wastewater Treatment Facilities (December 2006); Brown & Caldwell, Anaerobic Digestion and Electric Generation Options for WSSC (November 2007); Metcalf & Eddy, WSSC Sludge Digestion Study for Piscataway and Seneca (December 2007); Black & Veatch, WSSC Digester Scope and Analysis (December 2007); JMT, Prince George's County Septage (FOG) Discharge Facility Study (February 2008); JMT, Western Research Institute (WRI) Biogas Feasibility Study Scope of Work - WSSC (April 2008); JMT, Montgomery County Septage (FOG) Discharge Facility Study (January 2010); Facility Plan for the Rock Creek Wastewater Treatment Plant (January 2010); AECOM Technical Services, Inc., Anaerobic Digestion/Combined Heat & Power Study (December 2011).

E. Annual Operating Budget Impact (000's)				FY of Impact
Program Costs	Staff	.....	....
	Other	.....	....
Facility Costs	Maintenance	.....	....
	Debt Service	.....	3425	20
Total Costs	.....	.....	3425	20
Impact on Water or Sewer Rate	.....	8¢	.....	20

F. Approval and Expenditure Data (000's)

Date First in Capital Program	FY 15
Date First Approved	FY 10
Initial Cost Estimate	345
Cost Estimate Last FY	146,399
Present Cost Estimate	143,980
Approved Request, Last FY	4,840
Total Expenditures & Encumbrances	1,218
Approval Request FY 15	7,138
Supplemental Approval Request Current FY (14)	

G. Status Information

Land Status: No land or R/W required
 % Project Completion: P-99%
 Est. Completion Date: (See "Specific Data" for details)

H. Map Map Reference Code:

MAP NOT AVAILABLE

D. DESCRIPTION & JUSTIFICATION (CONT.)

Agency Number: S - 103.02

Project Name: Anaerobic Digestion/Combined Heat & Power

Specific Data

The EPA is urging wastewater utilities to utilize this commercially available technology (anaerobic digestion) to produce power at a cost below retail electricity, displace purchased fuels for thermal needs, produce renewable fuel for green power programs, enhance power reliability for the wastewater treatment plant to prevent sanitary sewer overflows, reduce biosolids production and improve the health of the Chesapeake Bay, and to reduce greenhouse gas (GHG) and other air pollutants. In April 2009, the EPA announced that greenhouse gases contributed to air pollution that may endanger public health or welfare, and began proceedings to regulate CO2 under the Clean Air Act.

Based on AECOM's feasibility study work as of May 2011, the capital cost (detail design + construction) estimate for a regional/centralized plant at a location to be determined based on a Thermal Hydrolysis/Mesophilic Anaerobic Digestion/Combined Heat & Power (TH/MAD/CHP) process supplemented by restaurant grease fuel design is \$110 million, with a 36 month construction period. The environmental benefits and expected outcomes determined from the feasibility study are estimated as follows:

1. Recover 2-3 MW of renewable energy from biomass
2. Reduce Greenhouse Gas production by 11,800 tons/year
3. Reduce biosolids output by more than 50,500 tons/year
4. Reduce lime demand by 4,100 tons/year
5. Reduce nutrient load to the Chesapeake Bay
6. Reduce 5 million gallons/year of grease discharge to sewers
7. Produce Class A Biosolids

The economic benefits determined from the feasibility study are estimated as follows:

1. Recover more than \$1.5 million of renewable energy costs/year
2. Reduce biosolids disposal costs by ~ \$1.7 million/year
3. Reduce chemical costs by ~ \$400,000/year
4. Hedge against rising costs of power, fuel, and chemicals
5. Net Payback of 15 to 18 years (net based on capital cost of TH/MAD/CHP minus capital cost of lime stabilization upgrade of WSSC WWTP facilities through 2030) (Any Federal Aid received would shorten the payback period.)

Cost Change

Order of Magnitude cost estimates were adjusted for inflation and to reflect the reduction in the "Other" calculated cost percentage from 10% to 5%.

STATUS Planning**OTHER**

The project scope has remained the same. Now that the feasibility study has been completed, the Commission has a defined scope, capital cost, and energy and energy-related cost savings estimates to be able to proceed with the detailed design and construction of the anaerobic digestion, biomass, and combined heat and power generation system facilities.

The Montgomery and Prince George's Councils must be briefed on the project and approve by resolution before the project can move into design.

It is envisioned that either the entire project, or only portions of the project that include the thermal hydrolysis, anaerobic digestion or combined heat and power, include a guarantee by the contractor that the capital cost will be paid back 100% from energy and energy-related cost savings with the payback period not exceeding 15 years. The energy savings for other completed WSSC Energy Performance projects have surpassed the contracts' guaranteed amount every year of the monitoring and verification period. Any Federal Aid received would shorten the payback period. Previous expenditures reflect the planning phase of this project which was completed under the Information Only project A-103.01, Anaerobic Digestion/Combined Heat & Power.

COORDINATION

Montgomery County Government, Prince George's County Government, Maryland-National Capital Park & Planning Commission (Mandatory Referral Process), Montgomery County Department of Environmental Protection, Maryland Department of the Environment and WSSC Project S-96.14, Piscataway WWTP Facility Upgrades.

NOTE This project supports 100% System Improvement.

**PART I: WASHINGTON SUBURBAN SANITARY COMMISSION
CAPITAL PROJECTS TO BE CLOSED OUT**

The Washington Suburban Sanitary Commission has authorized the close out of the following Montgomery County and Bi-County Projects.

<u>COUNTY NUMBER</u>	<u>CATEGORY</u>	<u>PROJECTS</u>
093800	Montgomery	Countryside Drive Water Loop
063802	Montgomery	Damascus Centre WWPS Replacement
063803	Montgomery	White Flint East (No. Bethesda Center) Sewer Main
113801	Montgomery	Reddy Branch WWPS Augmentation
093802	Bi-County	Anacostia No. 2 Screenings Handling Facilities