COMMISSION MEETING

April 18, 2018

Engineering and Construction Team

Piscataway WWTP Bio-Energy – Commissioners Status Briefing

Item Number:

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COMMISSION SUMMARY

AGENDA CATEGORY: Engineering and Construction Team

ITEM NUMBER: **DATE:** April 18, 2018

SUBJECT	Piscataway WWTP Bio-Energy
SUMMARY **SPECIAL COMMENTS**	Commissioners Status Briefing The Bio-Energy Project will result in a regional approach and supporting facilities to process and handle wastewater biosolids beneficially and cost effectively. The Project will create the path to a much-improved biosolids product which is pathogen-free (Class A) and has better aesthetic characteristics. The Project will also maximize energy recovery from the methane produced anaerobic digestion. The regional processing facility will be located at the Piscataway WWTP and will include thermal processing, anaerobic digestion, and energy recovery. This briefing is an update to the June 2017 presentation given that the project will be on the May 2018 Commission consent agenda.
CONTRACT NO./ REFERENCE NO.	CD5901A15
COSTS	N/A
AMENDMENT/ CHANGE ORDER NO. AMOUNT	N/A
MBE PARTICIPATION	N/A
PRIOR STAFF/ COMMITTEE REVIEW	Chief Engineer, General Manager/CEO

PRIOR STAFF/ COMMITTEE APPROVALS	
RECOMMENDATION TO COMMISSION	N/A
COMMISSION ACTION	N/A

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Where Water Matters

Piscataway Bio-Energy Project
Commission Briefing
April 18, 2018

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Agenda

- Goals and objectives
- Existing biosolids management practices
- Proposed biosolids management plan
- Project status update
- Budget and schedule

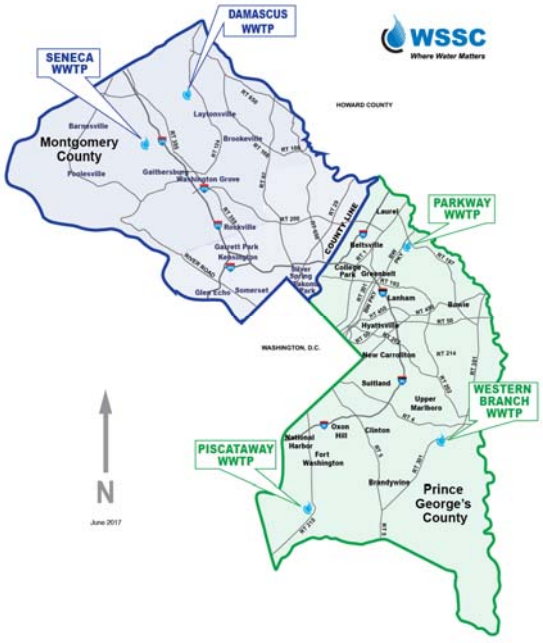
Goals and Objectives

- Total transformation of WSSC biosolids practices
- Save rate payer dollars through reduced operating costs
- Minimize the quantity of biosolids material
- Develop Class A (pathogen-free) biosolids material
- Maximize return on investment and energy recovery from biosolids, fats, oils and grease
- Reduce greenhouse gas emissions
- Improve power reliability
- Reduce nutrient loads to Chesapeake Bay

Existing Biosolids Management Practices

Existing Practices

- Individual handling at 5 WSSC Treatment Plants
- Class B land application
  - Meet EPA requirements
  - Land sites in VA
- Western Branch
  - Landfills in Virginia
- Fats, Oils and Grease
  - By gravity sewer to DC Water



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Drivers for Change

- Increased regulations will lead to higher costs for Class B disposal
- Fewer restrictions on more highly treated Class A biosolids (better product)
- Reduce quantity of biosolids to be land applied
- Recover energy (resource) during the process

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Proposed Biosolids Management Plan

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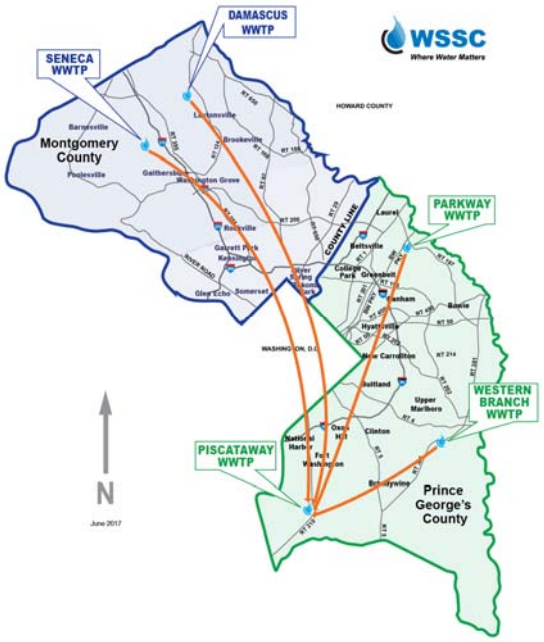
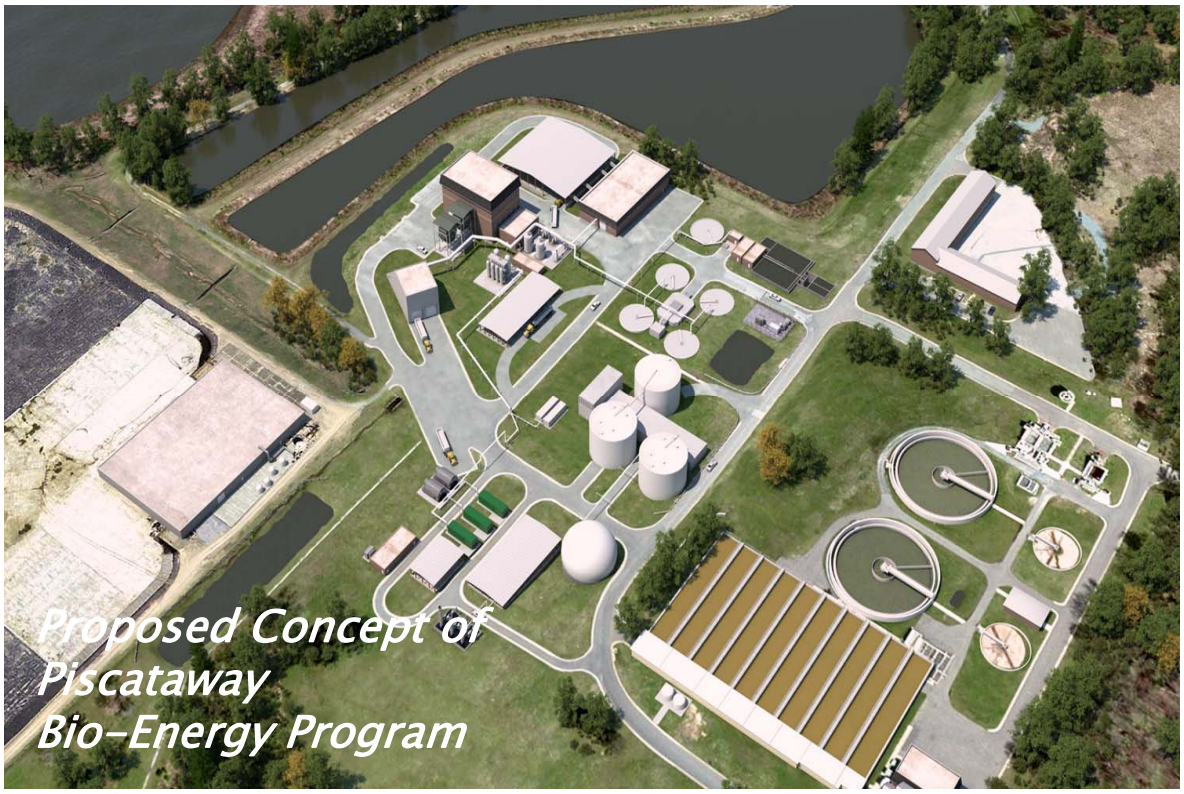
Location

- Biosolids (sludge) will be screened and dewatered at each plant
- Haul biosolids from four remote treatment plants to Piscataway WWTP



Existing Piscataway Facility



Proposed Concept of Piscataway Bio-Energy Program

Major New Treatment Processes

- Thermal Hydrolysis
  - "Pressure cooker" – breaks down cells to improve downstream treatment
- Anaerobic Digestion
  - "Digests" solids, reducing quantity and creating methane gas
- Combined Heat and Power
  - Recovers energy from gas created
  - Provides heat for thermal hydrolysis process

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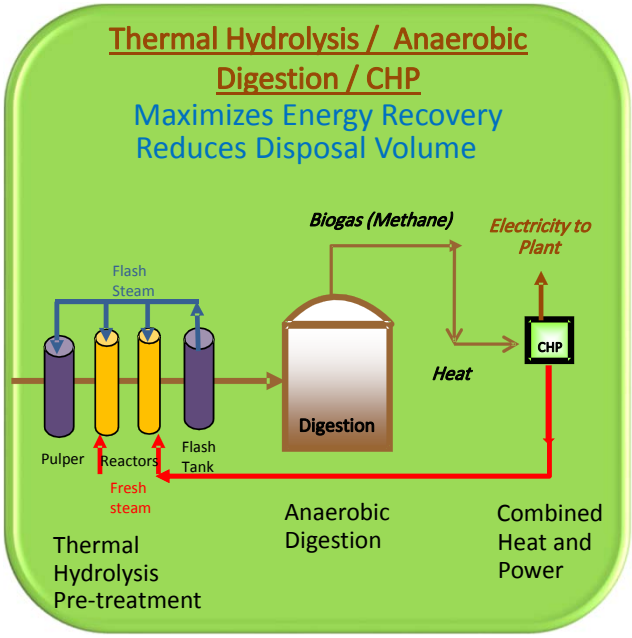
Technical Process



Project Benefits

- Reduces volume of biosolids for disposal
- Mitigates risks with future product use and regulations
- Very low odor and highly-stable product
- Eliminates use of lime
- Generates 2.7 MW of efficient natural gas power with steam recovery
- Reduces WSSC greenhouse gas emissions by 15%

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Project Status Update

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Selection of Design-Build Contractor

- Advantages
  - Collaborative design
  - Schedule/cost
  - Single source accountability
  - Risk allocation

WSSC selected Progressive Design-Build to foster and encourage collaboration and innovation.

- Selection Process
  - May 2017 – Request for Qualifications
  - September 2017 – Request for Proposals
  - January 2018 – Began negotiations
  - May 2018 – On Commission agenda

Budget and Schedule

Bio-Energy Budget

- $248.7 million CIP budget
- Progressive Design-Build Contract
  - Initial approval – May 2018
  - Design – $22.2 million
  - Early construction – $21.8 million
- Contract amendment with Guaranteed Maximum Price
  - Second approval – Summer 2019
  - Complete design/construction – $190 million

Bio-Energy Schedule

- Commission approval – May 2018
  - Cambi supply agreement
- Notice to Proceed for design – June 2018
- Start construction of early work package – December 2018
- Amend contract with Guaranteed Maximum Price – Late Summer/Early Fall 2019
- Construction substantial completion and begin commissioning – Early 2023

Questions