UNIVERSITY AREA JOINT AUTHORITY

Non-Point Source Nutrient Reductions Offset Proposal – University Area Joint Authority

SEPTEMBER 2016

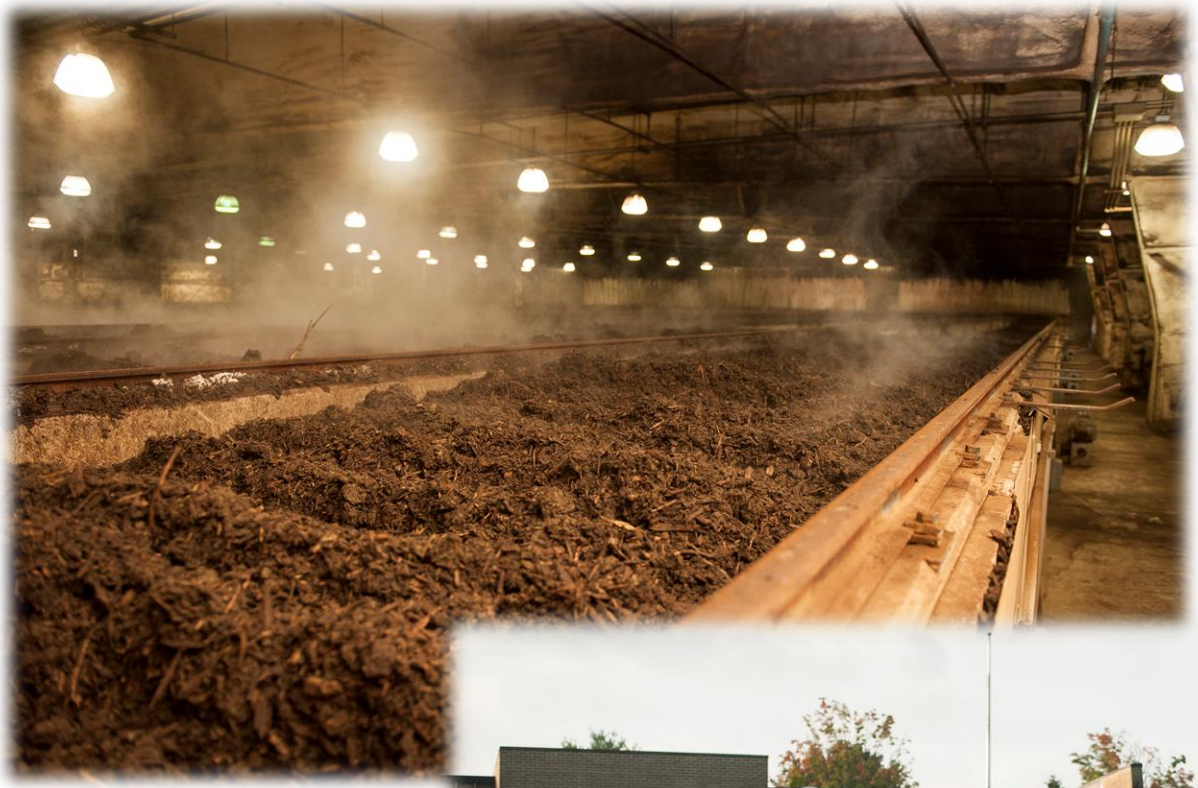
RETTEW
We answer to you.

Presentation Overview

- UAJA Overview
- Nutrient Challenges at UAJA
- Goal of Urban and Non-Point Source Runoff Controls
- Example Projects
- Proposed Offset Generation Process

UAJA Overview

- Advanced Wastewater Utility serving the Centre Region surrounding the Borough of State College and Pennsylvania State University
- Collection, Conveyance, Treatment, Discharge and Reuse
- Facility Capacity of 10.56 MGD (Maximum Monthly Average Flow). Reuse Capacity of 1.0 MGD
- Potable Quality Reuse Project, with reclamation of Secondary Clarifier Wastewater for Distribution and Use in Community
- EPA Award Winning Class A Biosolids Facility. ACEC Award Winning Wastewater Treatment Facility
- Utility of the Future Today Award Recipient – One of only Two in PA and ~60 Nationally



UNIVERSITY AREA JOINT AUTHORITY

UNIVERSITY AREA JOINT AUTHORITY

Nutrient Challenges

- UAJA has a fixed “budget” for Total Nitrogen and Total Phosphorus discharges through its Cap Limits in NPDES Permit
- Centre Region continues to grow and new development reduces the nutrient budget
- UAJA has optimized TN and TP discharges (TN <6 mg/l and TP <0.2 mg/l). Little room for future improvement through treatment
- Long term, community has to find ways to reduce Total Nitrogen and Total Phosphorus discharges to the Watershed to allow for continued development

Goals of Urban and Non-Point Source Runoff Control

- UAJA has commitment to Centre Region Water Quality and best positioned to enhance non-point source pollution reductions
- Improves Water Quality in Spring Creek and Tributaries, synergistic with Beneficial Reuse Project
- Reductions in non-point source pollution through treatment of agricultural and urban runoff decreases nutrient loadings to Watershed
- Cost Effective Method for UAJA to increase Nutrient Capacity

Goals of Urban and Non-Point Source Runoff Control

- Further reductions via treatment facility are expensive operationally
- UAJA has amongst the tightest Phosphorus limits in-place in PA (0.13 mg/l), chemical dosages are very high and counterproductive to Nitrogen removal
- By investing in Urban and Non-Point Source Controls, Reduced Chemical Discharge to Spring Creek Watershed (Aluminum and Carbon)
- Improved Local Water Quality, from Runoff Controls and from Facility

Projects UAJA has undertaken already to enhance non-point source reductions

- Gordon D. Kissinger Meadow and Wetland Project
  - Combination of Subsurface Wetlands and Stream Augmentation of High Quality Reuse Water (11 Acre Site)
  - Riparian Buffers and Slope Tree Plantings
  - Invasive Species Reduction
- Ghaner Road Pump Station
  - Porous Pavement Installation
- Big Hollow Pump Station
  - Porous Pavement Installation


UNIVERSITY AREA JOINT AUTHORITY-
BENEFICIAL REUSE PROJECT
KISSINGER MEADOW WETLAND CONSTRUCTION AND STREAM AUGMENTATION
PROPERTY OWNER: COLLEGE TOWNSHIP
THIS PROJECT WAS FUNDED, IN PART, BY A GRANT FROM THE NATIONAL FISH AND WILDLIFE FOUNDATION.
NFWF
College Township

UNIVERSITY AREA JOINT AUTHORITY

UNIVERSITY AREA JOINT AUTHORITY

UNIVERSITY AREA JOINT AUTHORITY

UNIVERSITY AREA JOINT AUTHORITY

Proposed Offset Generation Process for UAJA

- UAJA has been working with PA DEP since September 2015 on proposed protocol for generation and recording of offsets.
- Multiple versions of protocol, most recent meeting was approximately 60 days ago
- Direction from PA DEP that EPA needs to be involved as a “Pilot Project”
- In interest of focus and concluding a methodology, UAJA reaching out to EPA
- Multiple projects await clear direction so UAJA can prioritize by offset value.

Proposed Offset Generation Process for UAJA

1. UAJA identifies Projects in Watershed with partners and stakeholders
2. UAJA funds and constructs improvements, following all regulatory and best practices for Urban or Non-Point Stormwater Management
3. Offset Certification
    1. UAJA Evaluates Pre-Project Annual Stormwater Contribution (based on Annual Rainfall and realistic infiltration/runoff calculations)
    2. UAJA determines Pre-Project Annual Nutrient Loading (utilizing EPA and PA DEP figures for TN and TP of non-point source pollution)

Proposed Offset Generation Process for UAJA

Offset Certification (cont'd)

3. UAJA determines BMP's and Efficiencies utilizing Chesapeake Bay Modelling Efficiencies
4. UAJA calculates annual nutrient loading reduction (#'s per year of TN, TP and Sediment)
5. UAJA calculates final Offset (TN and TP) for Project
6. UAJA provides Certification Report to PA DEP for review and approval
7. When approved, PA DEP provides supplement to UAJA NPDES permit for offset (letter)

Proposed Offset Generation Process for UAJA

Offset Certification (cont'd)

UAJA will provide all routine Nutrient Certification requirements such as Verification Plan, Documentation of Calculations, etc.

For Agricultural Runoff Projects, UAJA will follow current Certification Program submission requirements. PA DEP will provide offset in lieu of credit generation.

Proposed Offset Generation Process for UAJA

Offset Verification

1. UAJA provides annual report that documents current condition of each BMP and routine maintenance completed by UAJA
2. Facilities will be owned by UAJA or long-term easement to protect features from damage, etc.
3. If BMP's are destroyed in Water Year (flooding, etc.), UAJA will provide update in annual Verification report, along with any change to Offset quantity

Next Steps

- Work with EPA/PA DEP on clear direction to achieve offset program
- Provide completed projects for analysis and identified projects for future consideration
- Goal of completing efforts for projects to begin in spring 2017 for execution