



Department of
Environmental
Conservation



LONG ISLAND REGIONAL PLANNING COUNCIL



Water Reuse

Water Reuse Workgroup Kickoff Meeting

Long Island Nitrogen Action Plan

Date and Time: Thursday, November 9th 2017, 11:00 am

Location: Suffolk County Water Authority Education Center



- Long Island Nitrogen Action Plan (LINAP)
 - Provide assessment of conditions based on existing ground- and surface water data
 - Determine nitrogen load targets as well as alternatives and strategies to meet those goals

LINAP Scope, Section 6.17 - water reuse practices for additional nitrogen removal

Purpose of Workgroup

- Discuss potential opportunities and challenges for water reuse on Long Island, as it relates to additional nitrogen removal

Water Reuse

- Why reuse?
 - ***Environmental Protection***
 - *Manage nutrients in treated effluent*
 - Maintain environmental flows
 - Water Scarcity/Water Conservation
 - Energy Efficiency and Sustainability



(photo source: www.cityofnorthport.com/government/city-services/utilities-3076)

Current Framework for Reuse in NY

- New York State – Water Quality Standards
 - Nutrients regulated by narrative water quality standard
 - Nitrogen Standard: “none in amounts that result in the growths of algae, weeds and slimes that will impair the waters for their best usages”
- SPDES Program
 - DEC regulates reclaimed wastewater from WWTPs through State Pollutant Discharge Elimination System (SPDES) permits on a case-by-case basis
 - SPDES permits must meet all applicable water quality standards and effluent limitations

Potential Sources of Water for Reuse

- Reclaimed water derived from treated sanitary effluent
- Greywater

Jurisdiction

- Reclaimed water derived from treated sanitary effluent
 - DEC administers SPDES permits, but has authorized Nassau and Suffolk County Health Departments to administer the permits for discharges to groundwaters from PCIs and some industrial facilities
 - DOH in an advisory role to the DEC for treatment and water quality criteria as they apply to reuse under SPDES permits
 - Greywater
 - Jurisdiction over in-building and small household wastewater design resides with:
 - Department of State for building and plumbing codes;
 - Department of Health for onsite waste treatment and disposal standards
- *Generally, oversight is delegated to local agencies

Urban Reuse

- Irrigation of:
 - Golf Courses
 - Residential Fields and Landscaping
 - School Yards
 - Large office parks
 - Cemeteries
 - Highway Medians
 - Athletic Fields
 - Parks
- Ornamental Fountains
- Fire Protection
- HVAC Processes
- Toilet Flushing
- Car Washes
- Commercial Laundries
- Street Sweeping
- Construction and Dust Control



Gillette Stadium in Massachusetts reuses water for toilet flushing
(photo source: www.gillettestadium.com)

Industrial Reuse

- Cooling Towers
- Boiler Feed Water
- Cleaning
- Process Water
 - Electronics
 - Prepared Food Manufacturing/Processing
 - Pulp and Paper Facilities
 - Textile Facilities
- Power Generation
- Flushing toilets and site irrigation



Xcel Energy's Cherokee Station in Denver, Colorado
where reclaimed water feeds the plant's cooling towers
(photo source: Xcel Energy)

Agricultural Reuse

- Irrigation of Food Crops
- Irrigation of Processed Food Crops
- Irrigation of Non-Food Crops
 - Seed Crops
 - Industrial Crops
 - Fodder Crops
 - Sod Farms
 - Plant Nurseries
- Pasture Land Irrigation
- Livestock Watering



(photo source: patch.com/new-York/farmingdale/long-island-farmers-markets-farm-stands-check-out-summer)

Environmental Reuse

- Wetlands
 - Habitat Restoration
- Supplement Stream and River Flows
- Increase Lake Levels
- Groundwater Recharge
 - Infiltration Basins
 - Injection Wells
- Saltwater Intrusion Barrier



E.L. Huie Constructed Wetlands in Clayton County, Georgia
(photo source: Aerial Innovations of Georgia, Inc., found in EPA 2012 Guidelines
for Water Reuse)

Recreational Reuse

- Recreational Impoundments
 - Contact - beaches, swimming areas
 - Non-Contact – boating, fishing
- Landscape Impoundments
- Snowmaking
- Manufacturing Ice for Ice Rinks



(photo source: www.snowmakers.com)

Other

- Indirect Potable Reuse
- Direct Potable Reuse/Drinking Water
- Urine Separation



Lavon Lake, Texas receives return flow from wastewater treatment facilities after flowing through a constructed wetland

(photo source: www.lake-lavon.com)

Greywater

- The New York State Department of State (DOS) regulates greywater reuse within buildings through the state's plumbing code
 - Enforced by local building inspectors



References

- New York State Department of Environmental Conservation and Long Island Regional Planning Council. (2016). Long Island Nitrogen Action Plan Scope.
- www.dec.ny.gov
- United States Environmental Protection Agency (2012). 2012 Guidelines for Water Reuse. Washington, D.C. WPA/600/R-12/618.
- New York State Department of Environmental Conservation (2010). Potential Reuses of Greywater and Reclaimed Wastewater in New York State.
- 2015 International Residential Code (2nd Printing as adopted by New York State)
- 2015 International Plumbing Code (3rd Printing as adopted by New York State)

Summary of Reuse Opportunities

- Reclaimed water derived from treated sanitary effluent
 - Urban
 - Industrial
 - Agricultural
 - Environmental
 - Recreational
- Greywater
- Urine Separation
- Indirect Potable Reuse
- Direct Potable Reuse