

Summary Report

Municipal Wastewater Public Education Programs



Overview

Public education programs on municipal wastewater systems across various U.S. communities are designed to raise awareness about the critical role of wastewater management in safeguarding public health, preventing waterborne diseases, preserving ecosystems, and ensuring sustainable water resources. These programs are meant to help users and ratepayers better understand their financial investment and what they can do to ensure safe, clean operations. Such programs may cover key topics such as:

- **System Operations** : Including collection through sewers, treatment at facilities like Publicly Owned Treatment Works (POTWs), and safe discharge or reuse, with explanations of processes like activated sludge treatment, chlorination, UV disinfection, and biosolids management.
- **System Types** : Distinguishing between centralized municipal systems and decentralized septic systems, addressing issues like combined sewer overflows (CSOs), sanitary sewer overflows (SSOs), and inflow and infiltration (I&I)—defined as unwanted stormwater (inflow) and groundwater (infiltration) entering sewers via cracks, leaky joints, or improper connections such as downspouts, sump pumps, or foundation drains.
- **Environmental and Health Impacts** : Highlighting pollution from nutrients, PFAS, and emerging contaminants, and the need for consumer behaviors like proper disposal (avoiding fats, oils, grease, wipes, or non-degradables) and water conservation to prevent blockages, overflows, and system strain.
- **Challenges** : Addressing aging infrastructure, high maintenance costs, and I&I contributions from private properties (e.g., 30–50% in some areas), which increase treatment expenses and risk overflows into waterways.
- **Engagement Methods May Include** :
 - School programs (e.g., curricula, field studies, art contests).
 - Facility tours (in-person or virtual).
 - Hands-on activities (e.g., water testing, clean-ups).
 - Workshops/events (e.g., webinars, community meetings, presentations).
 - Volunteer programs (e.g., stewardship, stakeholder groups).
 - Online resources (e.g., websites, social media, videos, FAQs, interactive maps, downloadable guides, campaigns like “Can the Grease,” “Sewer Smart,” or “Protect Our Pipes”).
- **Public Outreach** : Including hotlines for reporting issues, surveys, open houses, and cost-sharing initiatives (e.g., grants for private repairs like footing drain disconnections).
- **Regulatory Compliance** : Aligning with regulations like the Clean Water Act, NPDES permits, and EPA’s Minimum Control Measures for stormwater, promoting sustainability (e.g., water reuse, energy-efficient technologies) and community support for infrastructure investments.

Examples below from diverse municipalities highlight regional variations. Overall, these programs aim to reduce stigma, bridge knowledge gaps, encourage responsible usage, and foster public involvement to enhance system reliability and environmental protection.

Detailed Community Program Narratives

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- 1. Central Contra Costa County, California :** Central San provides a range of hands-on programs emphasizing the science and engineering behind wastewater systems, including classroom lessons, tours, and interactive assemblies to foster environmental stewardship.
 - Target audience: Students (TK-12th grade), educators, and community members.
 - Key topics: Wastewater journey from homes to treatment, pollution prevention, and ecosystem protection.
 - Unique features: Interactive elements like juggling and magic in assemblies, distance learning tools such as virtual tours and story maps, and use of repurposed materials for hands-on activities.
 - Link: <https://www.centralsan.org/post/program-resources>
- 2. Madison, Wisconsin:** The Madison Metropolitan Sewerage District offers educator-focused resources to empower community members in water protection, including videos and models demonstrating treatment processes.
 - Target audience: Educators, parents, and students (upper elementary to middle school).
 - Key topics: Watersheds, water cycle, wastewater treatment life cycle, and salt impacts on systems.
 - Unique features: Free loaner models like Enviroscape, child-friendly videos (e.g., Drip & Drop), virtual plant tours, and standards-aligned lesson plans.
 - Link: <https://www.madsewer.org/news-resources/blog/water-education-activities-and-resources-for-educators/>
- 3. Milwaukee, Wisconsin:** The Milwaukee Metropolitan Sewerage District (MMSD) delivers comprehensive water education through presentations, models, and field experiences to promote sustainability and water quality awareness.
 - Target audience: Teachers and students (grades 3-12).
 - Key topics: Watershed pollution, stormwater management, water reclamation, and biosolids reuse.
 - Unique features: Hands-on models (e.g., Stormwater Floodplain Simulator), facility tours with scholarships, digital tools like Water Story MKE, and community action programs such as Adopt-a-River.
 - Link: <https://www.mmsd.com/what-we-do/education/water-education-resources>
- 4. Los Angeles, California:** LA Sanitation's Sewer Science Program integrates STEM disciplines to advance environmental awareness, using lab-based activities to illustrate wastewater processes.
 - Target audience: Students and educators (primarily high school level).
 - Key topics: Microbiology, chemistry, and physics of sewer collection and treatment.
 - Unique features: Inter-disciplinary labs simulating real wastewater treatment, promoting stewardship through practical experiments.
 - Link: <https://sanitation.lacity.gov/san/faces/home/portal/s-lsh-es/s-lsh-es-sr/s-lsh-es-sr-ssp>

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5. **Onondaga County, New York:** The Department of Water Environment Protection hosts annual open houses at the Metro Wastewater Treatment Plant to engage the public in understanding stormwater and treatment processes.
 - Target audience: General public, including families.
 - Key topics: Stormwater management, wastewater treatment operations, and environmental protection.
 - Unique features: Community event with tours, presentations by characters like New York State Conservation District Employees Association, Inc.'s "Ronny the Raindrop" and safety gear provided; publicized via local media.
 - Link: <https://efc.syr.edu/wp-content/uploads/2015/03/Chapter5-web.pdf> (references the program; utility site: <http://www.ongov.net/wep/>)

6. **Richardson Bay, California:** The Richardson Bay Sanitary District provides access to free resources from EPA and WEF to educate on wastewater prevention and global water issues.
 - Target audience: Homeowners, students, and the general public.
 - Key topics: Emergency prevention, wastewater treatment importance, and historical water use.
 - Unique features: Interactive tools like wastewater plant diagrams and timelines, plus global involvement opportunities in sanitation programs.
 - Link: <http://richardsonbaysd.org/environmental-resources/>

7. **Chicago, Illinois:** The Metropolitan Water Reclamation District (MWRD) uses storytelling to explain wastewater treatment, with resources like books and videos for young learners.
 - Target audience: Children and school groups.
 - Key topics: Wastewater journey post-flush, treatment processes, and water careers.
 - Unique features: Award-winning animated video and STEM workbook activities following character adventures.
 - Link: <https://mwrdd.org/education>

8. **Twin Cities (Minneapolis-St. Paul), Minnesota:** The Metropolitan Council offers kid-friendly materials to demystify wastewater systems, including guided tours and educational PDFs.
 - Target audience: Children and educators.
 - Key topics: Water cycle, sewer collection from homes/schools, and treatment for environmental return.
 - Unique features: Character-led video presentations and downloadable books like "How Wastewater Gets Clean Again."
 - Link: <https://metrocouncil.org/Wastewater-Water/Services/Wastewater-Treatment/Wastewater-Treatment-for-Kids.aspx>

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9. **King County, Washington:** The Wastewater Treatment Division offers educational experiences about water for all ages, including tours, lessons, and community events to promote stewardship.
 - Target audience: Students (K-12), educators, and the general public.
 - Key topics: Water cycle, wastewater treatment processes, and daily impacts on water quality.
 - Unique features: Partnerships with organizations like IslandWood for hands-on programs at facilities like Brightwater Education Center, virtual resources, and free classroom programs.
 - Link: <https://kingcounty.gov/en/dept/dnrp/waste-services/wastewater-treatment/education>

10. **Seattle, Washington:** Seattle Public Utilities and King County collaborate on education about drainage, wastewater, and environmental impacts, including tours and resources.
 - Target audience: Students, teachers, and community groups.
 - Key topics: Stormwater runoff effects on watersheds, sewer systems, and water quality protection.
 - Unique features: Virtual learning tools and integration with regional wastewater tours.
 - Link: <https://www.seattle.gov/utilities/protecting-our-environment/education>

11. **Orlando, Florida:** The city offers group tours of the Conserv II Education Center and Water Reclamation Facility to teach about wastewater processes.
 - Target audience: Schools, organizations, and the public.
 - Key topics: Wastewater treatment tours, reclamation, and conservation.
 - Unique features: Hands-on tours demonstrating real-time processes, with an education center for interactive learning.
 - Link: <https://www.orlando.gov/Community-Programs-Events/Educational-Programs-for-Schools-and-Organizations> (Note: This page includes a variety of educational opportunities related to community services, such as public safety, etc.)

12. **New York City, New York:** The Department of Environmental Protection provides interactive STEM lessons and modules on the city's sewer system.
 - Target audience: Students, educators, and the public.
 - Key topics: Sewer infrastructure, wastewater treatment, and water cycle.
 - Unique features: Multi-disciplinary online modules with activities, virtual tours of facilities like Newtown Creek, and educator resources.
 - Link: <https://www.nyc.gov/site/dep/environment/sewer-system-education-module.page>

13. **Eugene-Springfield, Oregon:** The Metropolitan Wastewater Management Commission runs Clean Water University, offering free programs on wastewater treatment.
 - Target audience: 5th-grade students and classes.
 - Key topics: Clean water processes, wastewater tours, and environmental protection.

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- Unique features: Classroom visits and field trips tailored to local systems, emphasizing regional partnerships.
 - Link: <https://mwmcpartners.org/>
14. **Burlington, Vermont:** The city participates in public outreach for integrated wastewater and stormwater planning, including educational resources on water quality.
- Target audience: Residents, families, and community groups.
 - Key topics include wastewater management, pollution reduction, and system improvements.
 - Unique features: Surveys and case studies on public engagement, linked to broader Vermont resources and in Onondaga, NY (see below).
 - Link: https://19january2021snapshot.epa.gov/sites/static/files/2018-10/documents/public_outreach_for_integrated_wastewater_stormwater_planning.pdf
15. **Raleigh, North Carolina:** Raleigh Public Utilities offers tours of the Neuse River Wastewater Treatment Plant and video resources on sewer science.
- Target audience: Students, educators, and the public.
 - Key topics: Wastewater treatment tours, sewer collection, and STEM applications.
 - Unique features: Award-winning Sewer Science video program and guided plant tours promoting 21st-century learning.
 - Link: <https://raleighnc.gov/water-and-sewer/services/water-wastewater-treatment-plants>
16. **Boise, Idaho:** The Boise WaterShed Environmental Education Center features exhibits and programs on the wastewater treatment process within the river watershed.
- Target audience: All ages, including families and schools.
 - Key topics: Water cycle, treatment facility tours, and conservation.
 - Unique features: Over 25 interactive exhibits at community “WaterShed,” with hands-on learning about local water stewardship.
 - Link: <https://www.boisewatershed.org/>
17. **Tacoma, Washington:** The WET Science Center serves as a dedicated wastewater education facility with exhibits and programs on treatment and careers.
- Target audience: Families, students, and the public.
 - Key topics: Water cycle, advanced wastewater treatment, and reclaimed water.
 - Unique features: Water-themed learning space with state-of-the-art exhibits on clean water careers and sustainability.
 - Link: <https://www.wetsciencecenter.org/>
18. **Tucson, Arizona:** Pima County Regional Wastewater Reclamation Department conducts tours focused on the science and technology of wastewater treatment.
- Target audience: Public groups, including schools and residents.

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- Key topics: Wastewater reclamation, public health protection, and system operations.
- Unique features: Educational tours showcasing wetlands and recharge, with emphasis on water reuse in arid regions.
- Link: <https://www.pima.gov/1944/Water-Reclamation-Facilities-WRF>