Decentralized Wastewater Management – Why Does it Matter to Your Jurisdiction?

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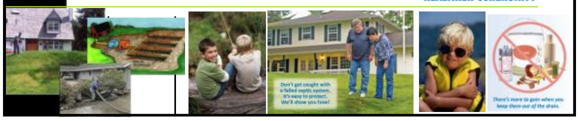
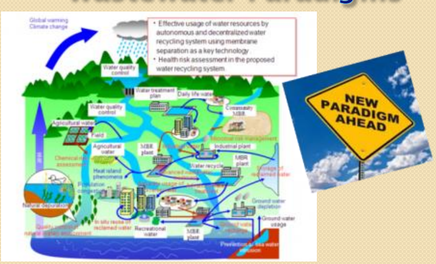


Decentralized Wastewater Management – Why does it matter to your jurisdiction?

1. Changing water and wastewater system paradigms
2. Septic systems in urban areas

Changing Water and Wastewater Paradigms



Schematic representation of an autonomous and decentralized water recycling system for the effective usage of available water resources (http://water.jst.go.jp/en/project)

Changing Water and Wastewater Paradigms

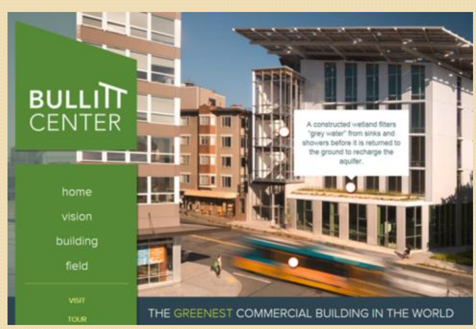
Decentralized Wastewater Management Has Possibilities - Victor D'Amato, Elizabeth Striano, and Jeff Moeller

In a distributed approach to wastewater management, a variety of system scales are used to provide treatment that matches the context.

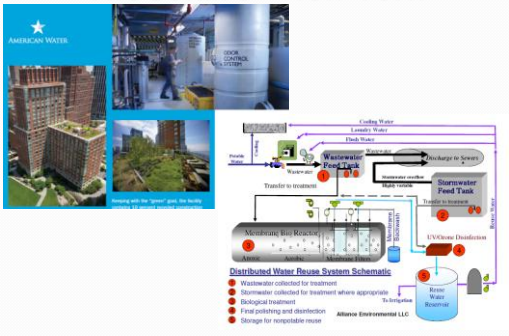
Changing Water and Wastewater Paradigms

Curtesy of Orenco

Bullitt Center - Seattle



The Solaire – New York



Dockside Green – Victoria, BC

SYSTEM DESCRIPTION

Location: Victoria, British Columbia, Canada (latitude: 48° 26' N; longitude: 123° 22' W)

Treatment: Zenon membrane bioreactor plant with UV disinfection.

Product disposition: Reclaimed water reused for landscape irrigation, toilet and on-site stream.

Flowrate: Initially, the plant will process 140 m^3/d, or 1 L/s of treated water. At full build-out, treated flows from the site will equal 380 m^3/d (100 000 gpd).

Service area: Mixed use urban community including residential, office, commercial and light industrial uses. Service area was established on a 6.5-ha (16-ac) brownfield site in downtown Victoria and is controlled by Vancity.

Case study type: Development-scale wastewater and rainwater harvesting/stormwater reuse for high-density mixed-use redevelopment.

Management type: Private

Septic Systems in Urban Areas

Challenges left over from previous paradigm:

Septic systems installed until sewer could be extended:

- Limited information about # and location
- Failing
- Undersized
- Old
- Not designed to today's standards
- Impacts to collection and sewer system
- Benefitting from but not sharing cost of sewers

Decentralized Wastewater Management

- ❑ Decentralized wastewater systems are a reality today and usage will likely increase in the future
- ❑ Ensuring proper operation and maintenance is critical to their success
- ❑ Understanding the local impacts from failing systems is important for protecting ground and surface water
- ❑ It makes sense to manage wastewater systems in your jurisdiction!

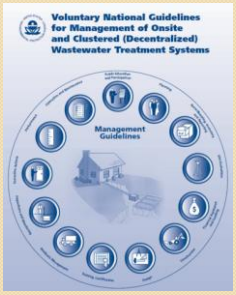
Decentralized Wastewater Management - Resources

- ❑ Management includes:
  - Knowing where systems are located
  - Knowing the type of system – old system, straight pipe, steel tank, cesspool?
  - Ensuring it functions as designed
  - Assessing risks
    - ✓ High number of failing systems
    - ✓ Areas where water (ground or surface) degradation is occurring (nitrogen loading can be a concern, even when systems function as designed)
    - ✓ Public exposure – reuse inside of buildings
    - ✓ Drinking water – using rain catchment

How to Get Started

- ❑ Assess local conditions and need
- ❑ Work with interested stakeholders and the local health jurisdiction to develop a management program – incorporate a funding mechanism! *Implementing a management program costs $!*
- ❑ Consider incorporating decentralized systems into your jurisdiction's wastewater management plan

Decentralized Wastewater Management - Resources



Decentralized Wastewater Management - Resources

Funding Considerations

EXAMPLE – (different infrastructure – similar problem):
Arizona Approves Grid-Connection Fees for Solar Rooftops
By Christopher Martin Nov 15, 2013

Arizona will permit the state's largest utility to charge a monthly fee to customers who install photovoltaic panels on their roofs, in a closely watched hearing that drew about 1,000 protesters and may threaten the surging residential solar market.

The Arizona Corporation Commission, which regulates utilities in the state, agreed in a 3-to-2 vote at a meeting yesterday in Phoenix that Arizona Public Service Co. may collect about $4.90 a month from customers with solar systems.

Example

Metro Vancouver

- Inventoried OSS by querying each of its member municipalities databases for lots with improvements greater than $20 000 where the lot was not connected to the central system.
- From this they deducted the presence of an onsite system.
- Useful for assessing the nitrogen load in one particular area and suggesting improvements and possible management scenarios for the onsite systems.

Local Examples?

If there is enough time, please share your examples.

Questions?

Don't Panic! Resources are Available

- **Lynn Schneider – lynn.schneider@doh.wa.gov** (360) 236-3379
- **USEPA - http://water.epa.gov/infrastructure/septic/manuals.cfm**
- **Decentralized Water Resources Collaborative (DWRC) - http://www.ndwrcdp.org/default.asp**

Finding a balance for Septic Systems (OSS): A Strategic Approach to OSS Management in the Urban Growth Area

Olympia: One City's Experience with Septic Systems
Diane Utter, City of Olympia
dutter@ci.olympia.wa.gov

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Olympia: One City's Experience with Septic Systems

Diane Utter, P.E.
Water Resources Engineer
City of Olympia
October 1, 2014

City of Olympia | Capital of Washington State

Background

- ~4,140 OSS (on-site sewage or septic systems) in City and its Urban Growth Area
- Over 700 are adjacent to an existing sewer main.
- With few exceptions, new OSS are not allowed in the City. Failed systems within 300' of sewer must connect.
- One barrier to conversion is high cost of sewer extensions - $25,000 - $100,000+ for an individual property, along with usual conversion costs: $10,000 to $18,000.

Olympia Septic to Sewer Program

- Waiver of City's general facility charge (GFC – currently $3,342) is available for two years after notification of sewer availability.
- Technical assistance to property owners – dedicated staff. Provide information about cost, contractors, steps to take, sewer main/lateral location.
- Neighborhood Sewer Extension program
  - City pays for project up-front.
  - Residents pay their portion back, at the time of connection.
  - Resident's portion is discounted by 50% for all costs over $20,000.
  - Financing available for $200/month at 3.7% interest

Thurston County Risk Analysis

Thurston County
Environmental Health
Contact: Sue Davis
(360) 867-2643
daviss@co.thurston.wa.us

- *http://www.co.thurston.wa.us/HEALTH/ehadm*

A New Approach

1. Make it easier for properties with septics to convert to sewer.
2. Encourage more infill development (single homes, not subdivisions).
3. Allow some additional septics to be repaired rather than connected to sewer.

1. Easier Conversions

- Eliminate the requirement for septic system conversions to sewer extend the sewer on all property frontages.
- Fund a limited number of small-scale sewer extension projects to assist residents ($100,000-$150,000/year). Construct a full block at a time.
- Allow for the payment of City General Facility Charges (GFC) and LOTT Capacity Development Charges (CDC) over time rather than as a lump sum.

Currently converting 10-15 OSS per year to municipal sewer. Changes should increase the number of conversions per year – maybe by 5 – and could keep increasing over time.

Sewer Extension Example

2. Infill development

- Allow septic systems to be constructed on infill, vacant lots in existing septic system-dominated neighborhoods.
- Only in areas not identified as high-risk by Thurston County Environmental Health.
- Allow the limited use of alternative sewer technologies including STEP and grinder pump systems to facilitate difficult connections to municipal sewer.
- Requirements for non-infill developments will not be changed.

Changes should increase the number of new OSS per year – maybe by 5 – and will likely decrease over time.

Infill Example

3. Septic Repairs

- Reduce the threshold for failed septics to connect to sewer from 300 feet from sewer to 200 feet.

Implication is that financial burden on residents will be decreased.

Extension Example


Questions?
Olympia