

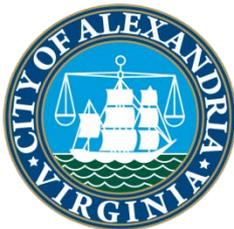
City of Alexandria, Virginia

Combined Sewer System Permit and Long Term Control Plan Update

Waterfront Commission
May 19, 2015

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Stormwater and Sanitary Infrastructure Division

Department of Transportation and Environmental Services



ECO-CITY  **ALEXANDRIA**

AGENDA

- City's Combined Sewer System (CSS)
- New Regulatory Requirements
- Long Term Control Plan Update
- Upcoming Outreach



City of Alexandria, Virginia

City's Combined Sewer System (CSS)



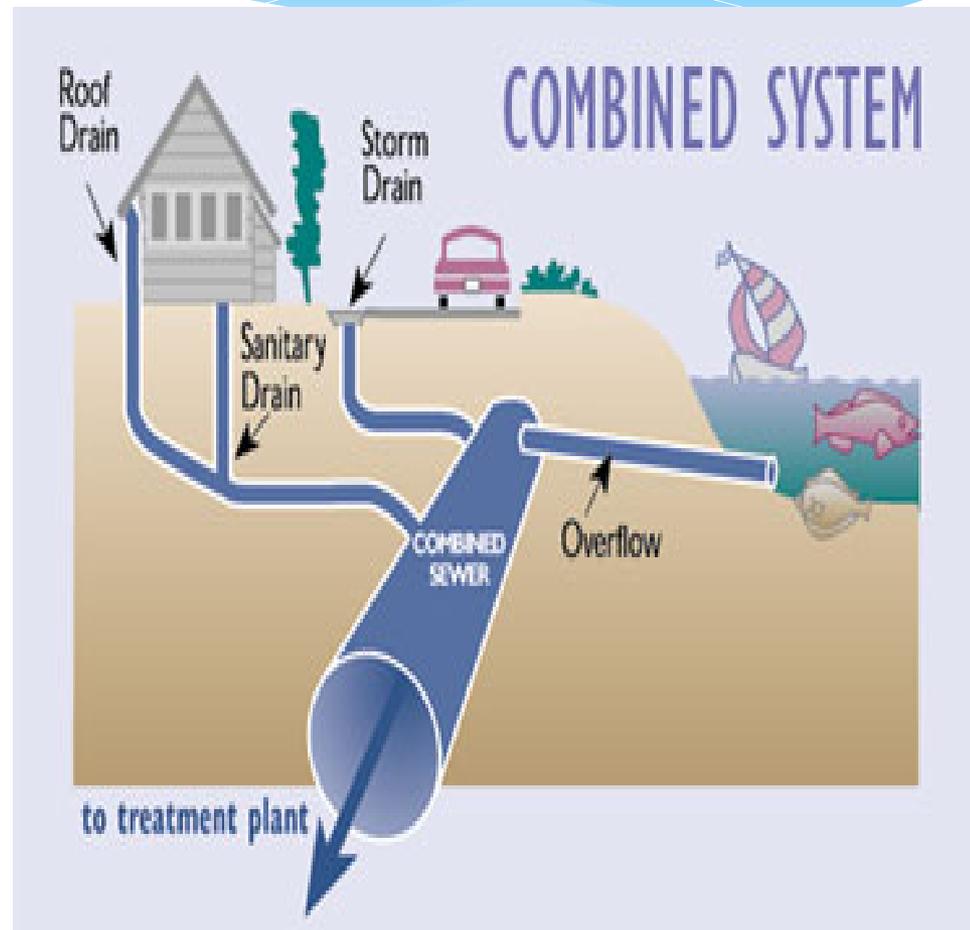
Types of Sewer Systems

Separate Sewer Systems:

Conveyance system involving two separate sets of pipes, one for carrying only stormwater, and the other for carrying only sanitary flows (wastewater/sewage).

Combined Sewer System:

Conveyance system involving single set of pipes that carries both stormwater, and sanitary flows (wastewater/sewage).

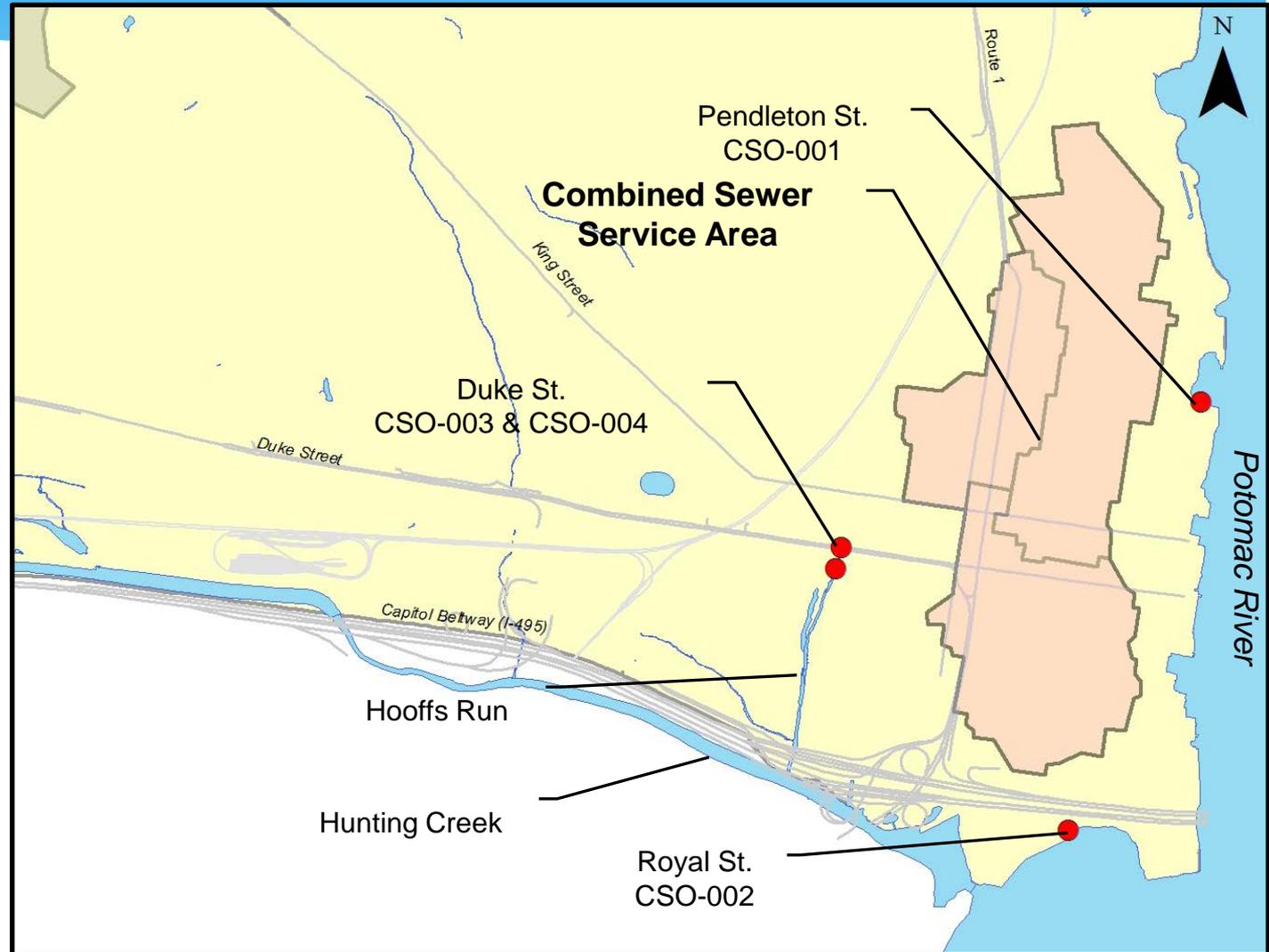


Combined Sewer System

Total area = 540 acres

Four permitted outfalls:

- CSO-001 to Oronoco Bay
- CSO-002 to Hunting Creek
- CSO-003 to Hooffs Run
- CSO-004 to Hooffs Run



Combined Sewer Overflow (CSO) Locations



Oronoco Bay: CSO-001



Hunting Creek: CSO-002



Hooffs Run: CSO-003 & 004

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New Regulatory Requirements



Paradigm Shift

- * Previous Combined Sewer System Permits (before 2013):
 - City's approved Long Term Control Plan based on best practices for operation and maintenance of combined systems
 - Monitoring and modeling of combined sewer overflows
- * Current and Future Combined Sewer System Permits:
 - New regulations due to Hunting Creek Total Maximum Daily Load
 - Must address new regulations and incorporate required reductions in combined sewer bacteria discharged

Clean Water Act Goals

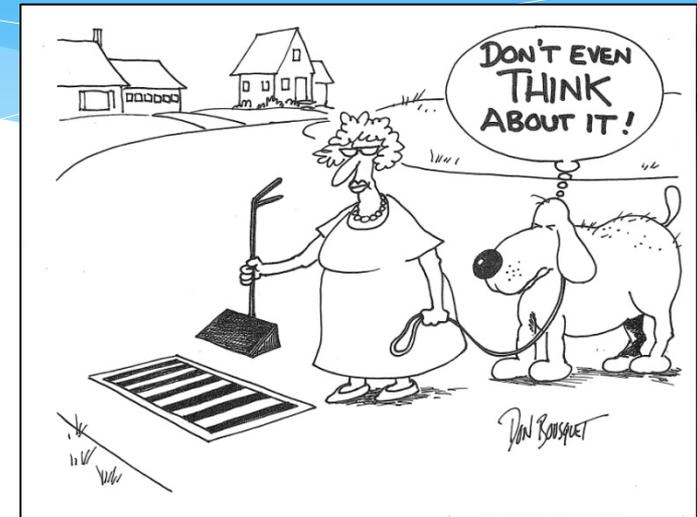
Total Maximum Daily Load (TMDL)

- * Clean Water Act goal that all waters of the United States be “fishable” and “swimmable”
 - State develops impaired waters list and total maximum daily loads
- * Aspirational goals of Clean Water Act versus actual conditions of Hunting Creek



Sources of Bacteria in Hunting Creek TMDL

- * Virginia Bacteria Water Quality Criteria
 - 126 *E.coli* counts per 100mL
- * Sources of Bacteria:
 - Stormwater
 - Wildlife
 - Pets
 - Combined Sewer System
 - Sanitary Sewer Overflows
 - AlexRenew Water Resource Reclamation Facility
 - Septic Systems



Hunting Creek Bacteria Total Maximum Daily Load (TMDL)

- * Hunting Creek Bacteria TMDL and combined sewers:
 - Total overall bacteria reduction from combined sewer discharges of 86%:
 - 99% reduction from Outfalls 003 and 004 (Hooffs Run)
 - 80% reduction from Outfall 002 (Hunting Creek)
 - Applicable to Outfalls 002, 003, and 004 only
- * CSS Permit issued in August 2013 requires City to address TMDL through update to its Long Term Control Plan

City of Alexandria, Virginia

Long Term Control Plan Update



Long Term Control Plan Goals

- * Comply with the new regulations
- * Develop a plan that best meets the unique needs of Alexandria
- * Active participation by stakeholders
- * Limit impacts to residents and businesses
- * Preserve the historic character of the City
- * Improve and address legacy infrastructure
- * Remain fiscally responsible



Combined Sewer Control Impacts and Challenges

- * Construction in old and historic area
- * Significant conflict with existing utilities
- * Existing infrastructure is old and antiquated and may require rebuilding beyond planned sewer work
- * Quality of life: temporary disruption to community and businesses
- * Economic: potential for temporary loss to business and tax revenue
- * Cost to implement combined sewer controls

Combined Sewer Control Strategies to be Evaluated

- * **Store and treat:** build combined sewer storage and send to wastewater treatment facility after combined sewer event for high level of treatment
 - Storage tanks (aboveground or underground)
 - Deep tunnels
- * **Sewer separation:** build new sewers to separate all storm and sanitary sewers in Old Town
- * **Green Infrastructure:** reduce stormwater runoff
- * **Disinfection:** kill the bacteria in the overflow
- * **Combination of the above strategies**

Implementation

- * **Long Term Control Plan Update due August 2016**
 - Must include schedule for implementation
 - Schedule based on cost and complexity of recommended alternative(s)
 - Implementation likely to be done in phases
 - Phases likely to coincide with 5-year permit cycles
 - All phases must be fully implemented (completed) no later than 2035
 - Recommended alternative(s) and schedule will be future permit requirement(s)

- * **Total Estimated Cost: \$150-300 million**

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Upcoming Outreach



Upcoming Outreach

Upcoming Outreach:

- May 26, 2015: City Council Work Session
 - Present evaluation of combined sewer control strategies
 - Confirmation of short list of primary and complementary strategies for further analysis
- June 18, 2015: Public Meeting
 - Background information on CSOs and new permit requirements
 - Discussion of combined sewer control strategies and evaluation criteria
 - Discussion of recommended strategies for further evaluation
- June/July 2015: Civic Association/Citizen Associations
- Update to Waterfront Commission?

Questions/Suggestions

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