



Combined Sewer System Long Term Control Plan Update

**City Council
May 10, 2016**

Purpose

Request that Council:

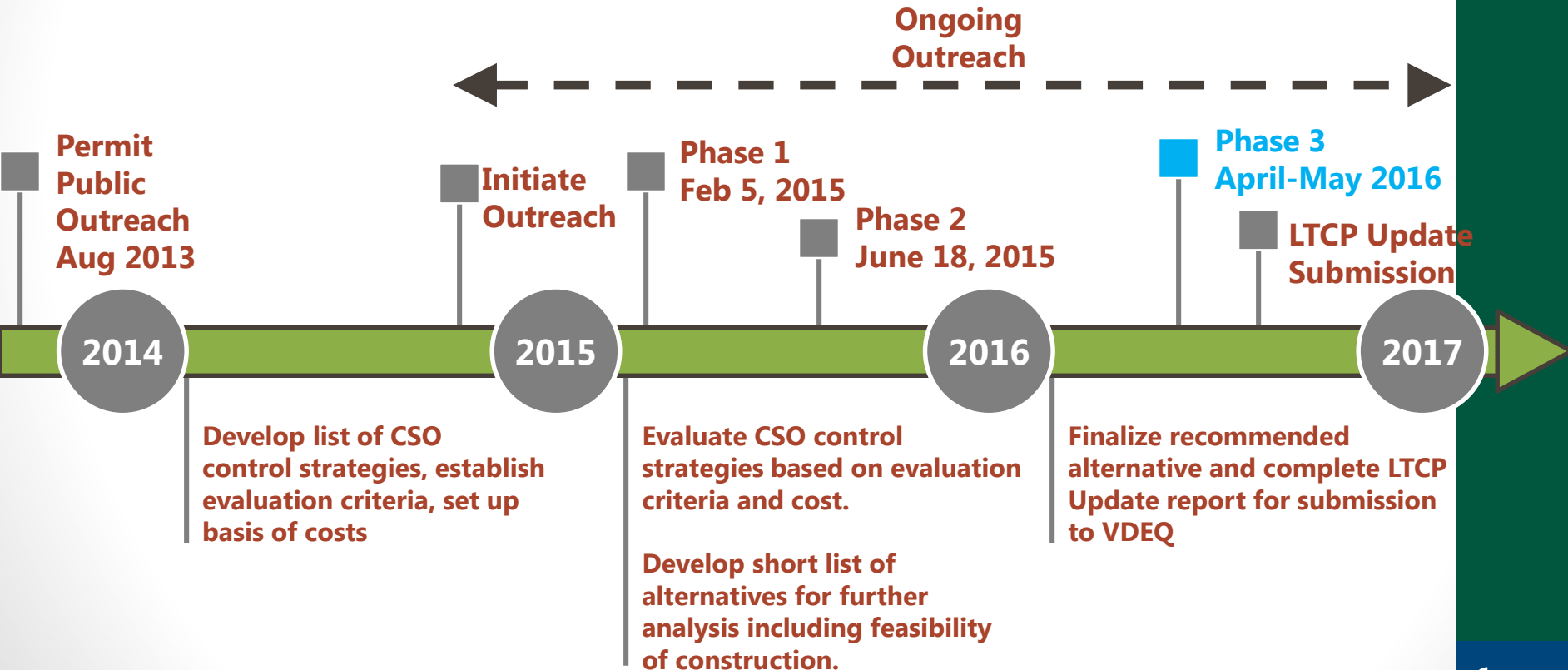
1. Receive the framework of the Long Term Control Plan Update
2. Recognize Stakeholder Group
3. Set Public Hearing for May 14, 2016
4. Approve the Long Term Control Plan framework following the Public Hearing

Combined Sewer System Mandate

- Hunting Creek Bacteria Total Maximum Daily Load (TMDL):
 - 80-99% reduction in combined sewer discharges from Royal St and Hooffs Run CSOs
- August 2013 Permit:
 - City must update plan to address Hunting Creek TMDL
 - Due to VDEQ in August 2016



Planning Timeline



Ad Hoc Combined Sewer System Plan Stakeholder Group

- Established by City Council June 2015
- 13-members appointed by the City Manager
- Charged with advising staff
- Receive input from public & represent diverse, citywide interests

Outreach & Coordination

- 25 meetings & AlexEngage
- Coordination with Virginia DEQ
- CSO Peer Review Panel
 - Third-party/independent check of progress
- Sample Recent Outreach
 - March 30 - Federation of Civic Associations
 - April 11 - NOTICE Board
 - April 13 - Old Town Civic Association
 - April 18 - Environmental Policy Commission
 - April 19 - Waterfront Commission, **AlexRenew**
 - April 21 - Public Meeting
 - April 28 - West Old Town Citizens Association

Long Term Control Plan Update Framework

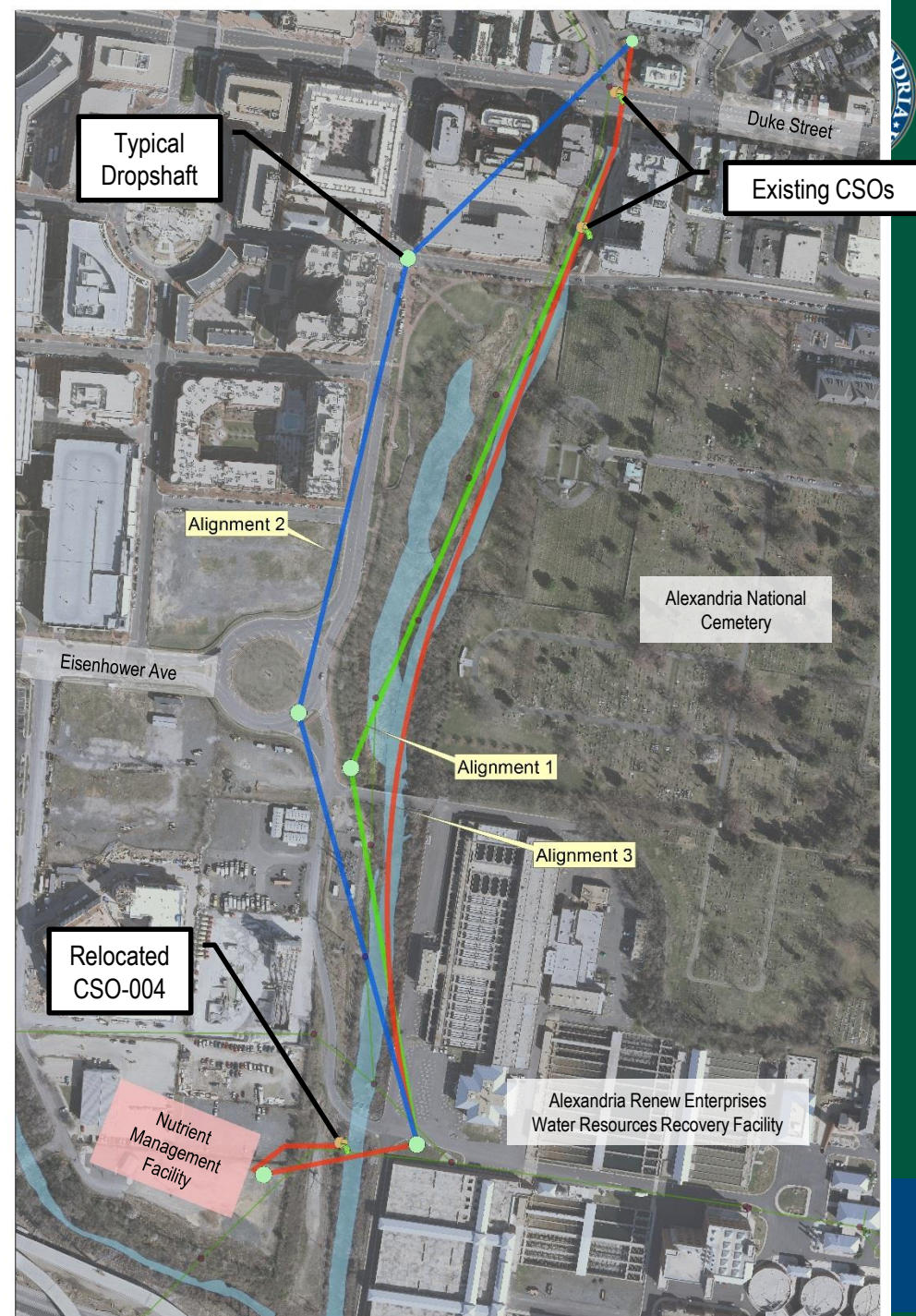


Store and Treat (Primary Strategy)

- **10-foot diameter tunnel for Hoofs Run and 3-million gallon tank for Royal Street**
 - More than the minimum
 - Helps to mitigate regulatory uncertainty
 - Helps to mitigate climate change
 - Less than 4 overflows per year during the typical year

Hooffs Run Tunnel Alignments

- Shafts range in diameter from 20-ft to 30-ft
- Shafts range in depth from 60-ft to 100-ft
- Alignment 2 eliminated from further consideration
- Alignment 3 preferred



Royal Street Storage Tank Alternatives

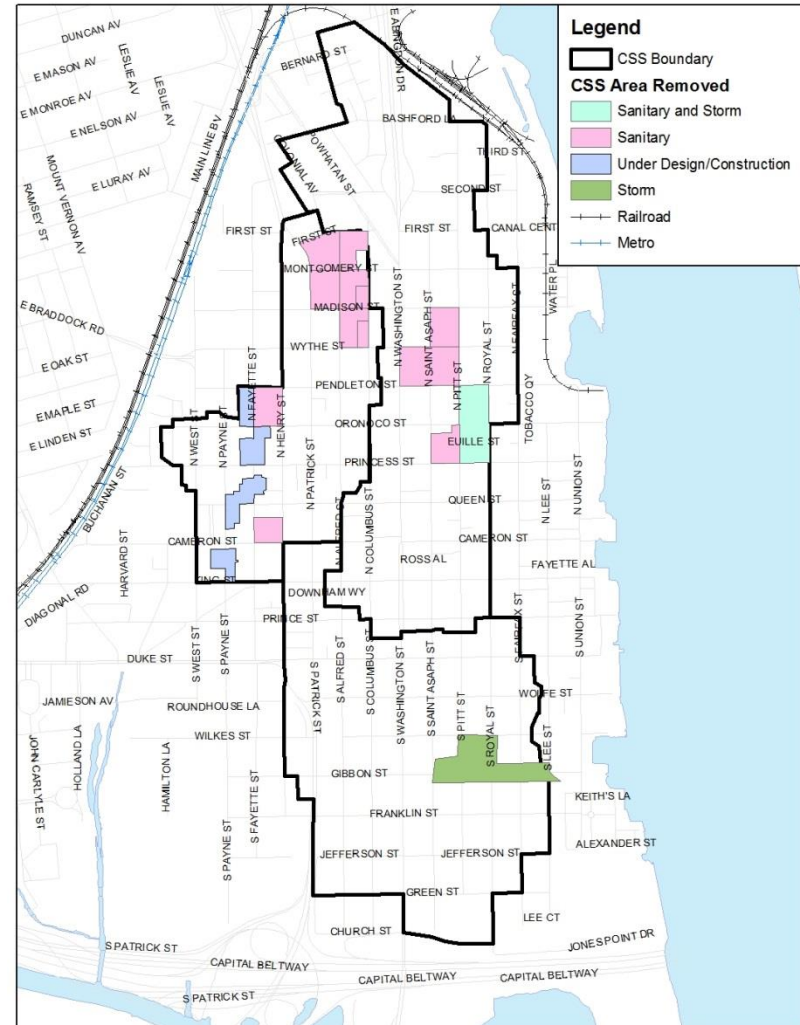


Green Infrastructure (Complementary Strategy)

- Implement the program **citywide**, not just combined sewer area
- **\$1-2 million** for implementation of project in next permit cycle (2018-2023); already in CIP
- Evaluate increasing number of street trees (tree canopy) in combined sewer system
- Assess effectiveness and target goals for future permit cycles

Other Complementary Strategies

- Targeted Sewer Separation
 - Condition of redevelopment
 - Example: ABC/Giant
 - Onsite sanitary separation
 - Offsite sanitary separation of 173-room hotel
- Other Potential Opportunities
 - Private property incentives



Proposed Framework for Pendleton Street (CSO-001)



- **Phase I: Enhanced Sewer Separation and Green Infrastructure Opportunities**
 - Coordinate with North Old Town Small Area Plan implementation
- **Phase 2**
 - Reassess following construction of Hooffs Run tunnel and Royal Street tank
 - Implement plan consistent with regulatory requirements

Long Term Control Plan Update Framework

- Hooffs Run **tunnel** to be implemented first (approx. 2019-2025)
- Royal Street **tank** would follow (approx. 2027-2032)
- **Green** infrastructure and targeted sewer separation would be ongoing to 2035

Preliminary Capital Costs

Project	Capital Cost ¹
Hooffs Run Tunnel	\$80-120 million
Royal Street Tank	\$35-53 million
Green Infrastructure	\$5-7.5 million
Targeted Separation	\$5-7.5 million
TOTAL	\$125 - 188 million

¹Capital Costs in 2015 dollars

Sewer Rate Impacts

- Required infrastructure would be funded through sanitary sewer rates
 - Average current monthly bill = \$45
(includes City and AlexRenew)
 - Expected ultimate sewer bill impact due to LTCPU = \$10-15 additional monthly cost increasing over a period of 20 years
- Update to the Sanitary Sewer Master Plan in 2018 in coordination with AlexRenew

LTCPU Framework

- Reduce number of overflows from 60-70 per year to 4-6 per year
 - Overflow volume reduction of over 90%
- Major environmental & water quality benefits using a phased approach
- Consistent with Eco-City goals
- Broad support
 - Combined Sewer System Stakeholders
 - Alexandria Renew Enterprises
 - Majority of AlexEngage public feedback

Clean Waters Initiative

Coordinates mandated sewer programs into comprehensive environmental initiative:

- Chesapeake Bay Action Plan
- Stormwater Utility study
- Combined Sewer System update
- Advanced Wastewater Treatment at AlexRenew



Thank You

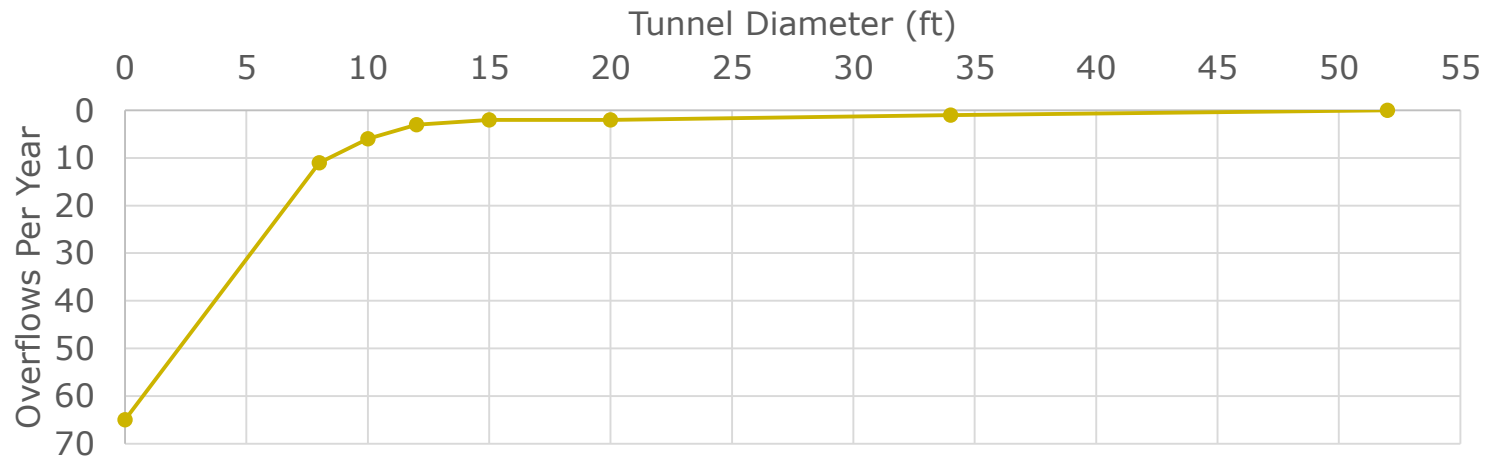
Questions/Discussion

Resource Slides

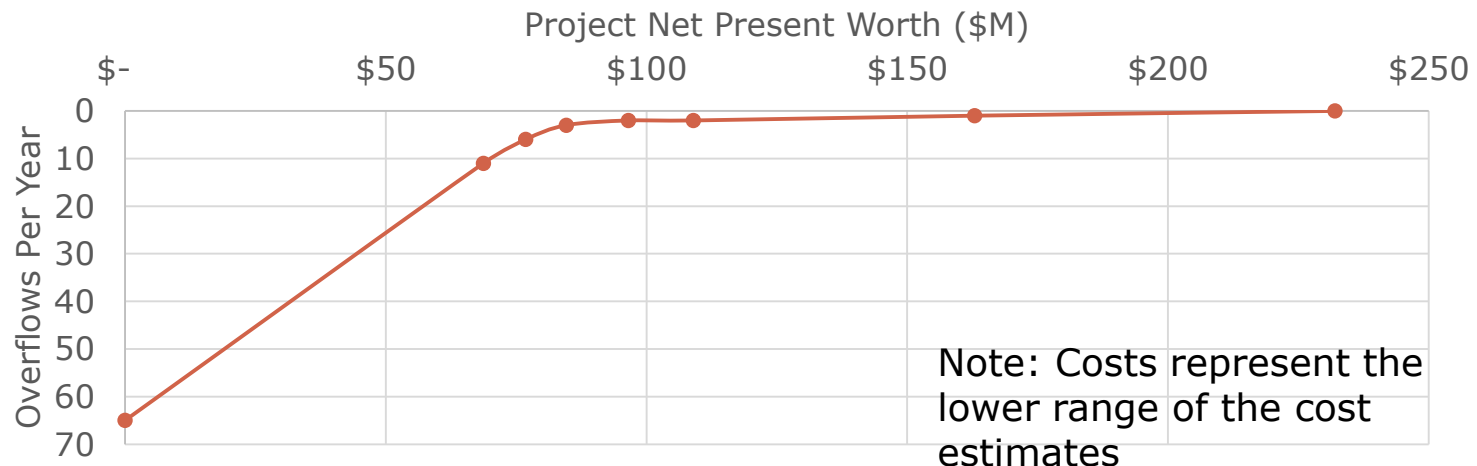
CSO-003/004 Tunnel



Diameter vs Overflows Per Year (2004-2013)

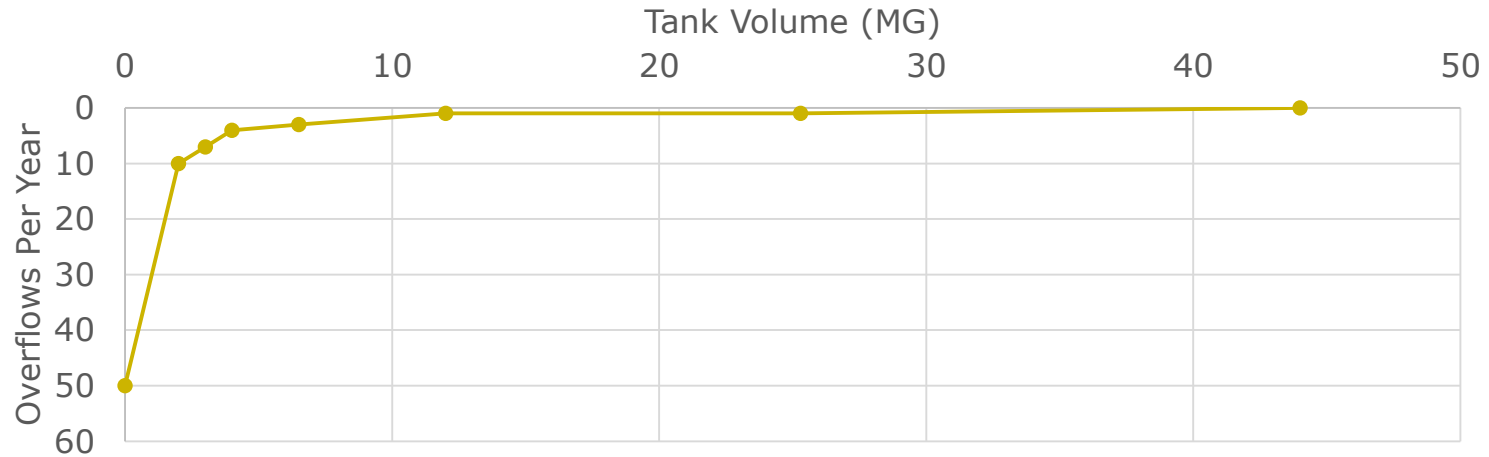


Cost vs Overflows Per Year (2004-2013)

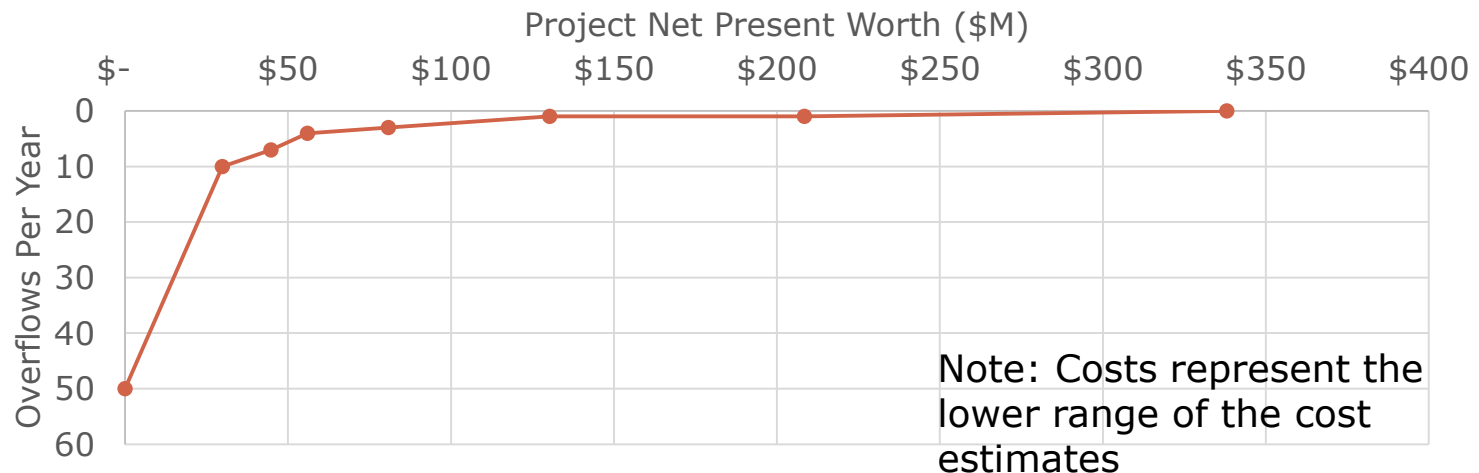


CSO-002 Tank

Volume vs Overflows Per Year (2004-2013)



Cost vs Overflows Per Year (2004-2013)



Green Infrastructure Examples



Bioswales



Rain Gardens



Planter Boxes



Permeable Pavement



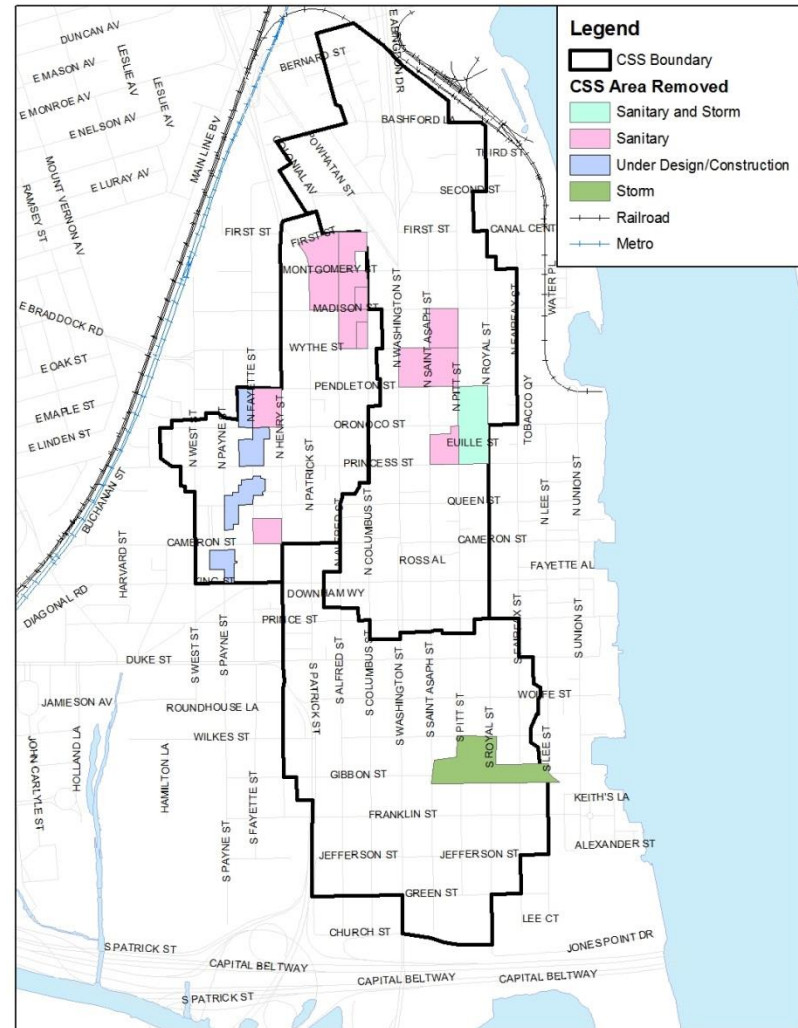
Rainwater Harvesting



Green Roofs

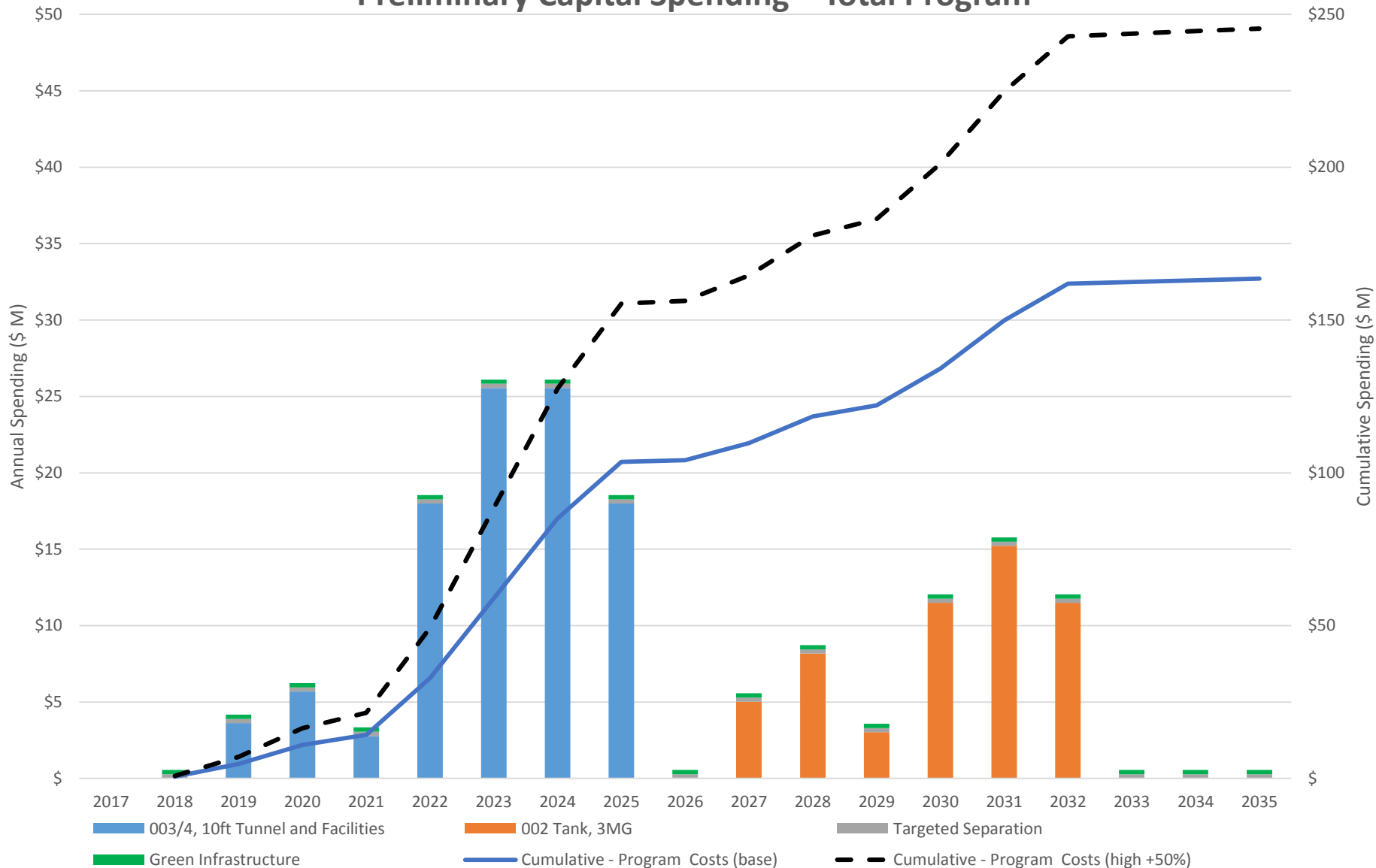
City's Existing Area Reduction Plan

- Formalized program and policies requiring sewer separation as condition of redevelopment
 - If separation infeasible, then contribute funds to City-led projects
 - 46 acres separated to date
 - Primarily sanitary sewer separation
- Recently completed sewer separation projects
 - James Bland
 - Harris Teeter
- City-led separation projects
 - Payne and Fayette Sewer Separation Project
 - Under construction
 - ~90 sanitary laterals to be separated



City of Alexandria Long Term Control Plan Update

Preliminary Capital Spending – Total Program



Notes:

1. Above costs are planning level costs (-30%/+50% of \$125 million)
2. Escalation rate at 3%