# Combined Sewer System Long Term Control Plan Update

## City Council
## March 8, 2016

ECO-CITY ALEXANDRIA

# Purpose

Provide an update on the status of the Combined Sewer System Long Term Control Plan Update:

1. Outreach to date (Stakeholder Group)
2. Primary Strategy
3. Preliminary Sizing Recommendation
4. Green Infrastructure
5. Preliminary Costs & Next Steps

# 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
  - **<u>Includes public outreach requirement</u>**

# May 26, 2015 Council Work Session

- Council considered short list of combined sewer control strategies for further evaluation
- Council established the Ad Hoc Combined Sewer System Plan Stakeholder Group

| **Primary Strategies** (will select one for final plan) | **Complementary Strategies** (may include one or more) |
|---|---|
| 1. Separate storage tunnels<br>2. Storage Tunnel for Hooffs Run and Storage Tank at Royal Street<br>3. One storage tunnel | 1. Green Infrastructure<br>2. Targeted Sewer Separation |

# Outreach to Date

| Date | Audience | Date | Audience |
|---|---|---|---|
| 8/5/2013 | Public Meeting (through EPC) | 2/5/2015 | LTCPU Phase I Public Meeting |
| 10/30/2013 | Federation of Civic Associations | 2/11/2015 | Old Town Civic Association |
| 11/13/2013 | Old Town Civic Association | 3/18/2015 | NorthEast Citizens' Association |
| 11/14/2013 | West Old Town Citizens Association | 5/18/2015 | Environmental Policy Commission |
| 1/28/2014 | City Council Work Session | 5/19/2015 | Waterfront Commission |
| 5/19/2014 | Environmental Policy Commission | 5/26/2015 | City Council Work Session |
| 9/18/2014 | Porto Vecchio Condominium Association | 6/11/2015 | West Old Town Citizens Association |
| 10/21/2014 | AlexRenew Board | 6/18/2015 | LTCPU Phase II Public Meeting |
| 10/27/2014 | Agenda Alexandria | **10/7/2015** | **CSS Stakeholder Meeting #1** |
| 1/27/2015 | City Council Legislative Session | **11/2/2015** | **CSS Stakeholder Meeting #2** |
| 1/28/2015 | Federation of Civic Associations | **1/7/2016** | **CSS Stakeholder Meeting #3** |
| 2/2/2015 | Environmental Policy Commission | **2/4/2016** | **CSS Stakeholder Meeting #4** |
| | | **3/3/2016** | **CSS Stakeholder Meeting #5** |

# Engineer's Recommendation on Primary Strategies

- **Primary Strategy Recommendation: Separate storage tunnel for Hooffs Run and storage tank for Royal Street.**
  - More cost effective
  - Fewer construction impacts
  - Potential opportunities to improve embayment

# Preliminary Sizing
## (Staff Recommendation)

- **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 impacts
  - Less than 4 overflows per year during the typical year
  - General support among the majority of the members of the Combined Sewer System Stakeholder Group

# Hooffs Run Tunnel Sizing Comparison

| Tunnel Diameter | Tunnel Volume (MG) | Typical Year (1984) | | Recent (2004-2013) | | NPW Cost ($M) |
|---|---|---|---|---|---|---|
| | | Number of Overflows | Volume of Overflows (MG) | Number of Overflows per year | Volume of Overflows (MG) | |
| Current Conditions (no tunnel) | - | 67 | 29.1 | 65 | 52.4 | - |
| 8-foot | 1.0 | 5 | 2.9 | 11 | 27.1 | $69-$103 |
| **10-foot** | **1.6** | **3** | **1.1** | **6** | **22.7** | **$77-$115** |
| 12-foot | 2.3 | 0 | 0 | 3 | 19.8 | $85-$127 |

**Notes:**

1. **52-foot diameter** tunnel would be needed to eliminate all overflows for recent climate period

NPW = Net Present Worth
MG = million gallons
$M = cost in millions

# Royal Street Tank Sizing Comparison

| Tank Volume (MG) | Typical Year (1984) | | Recent (2004-2013) | | NPW Cost ($M) |
|---|---|---|---|---|---|
| | Number of Overflows | Volume of Overflows (MG) | Number of Overflows per year | Volume of Overflows (MG) | |
| Current Conditions (no tank) | 48 | 35.8 | 50 | 67.6 | - |
| 2.0 | 6 | 5.7 | 10 | 34.8 | $30-$45 |
| **3.0** | **2** | **3.1** | **7** | **26.7** | **$45-$67** |
| 4.0 | 1 | 1.9 | 4 | 21.8 | $56-$84 |

**Notes:**

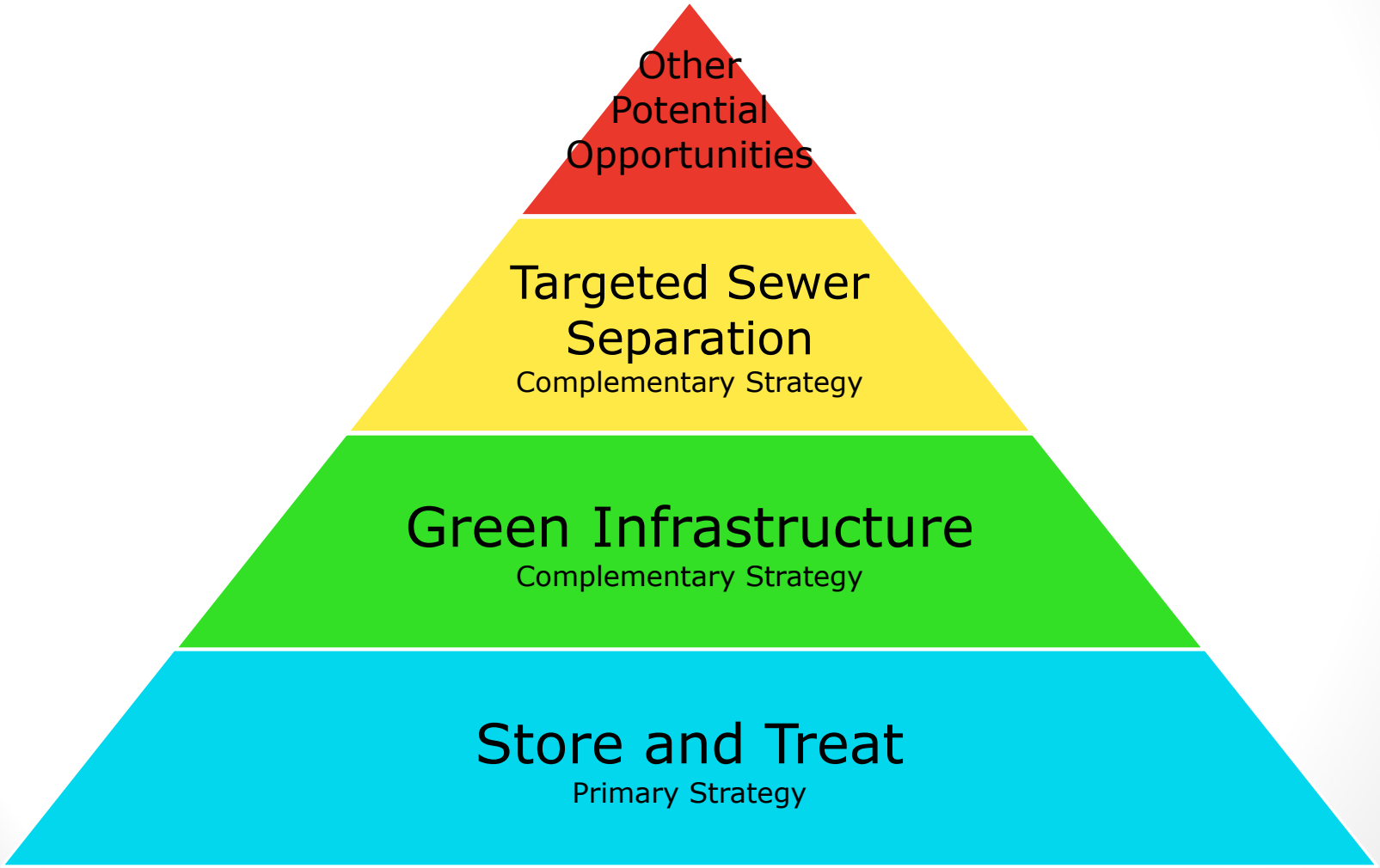
1. **44 million gallon** tank would be needed to eliminate all overflows for the recent climate period.

NPW = Net Present Worth
MG = million gallons
$M = cost in millions

# Green Infrastructure
## (Staff Preliminary Recommendation)

- Implement the program citywide, not just combined sewer area
- **$1-2 million** for implementation of projects in next permit cycle (2018-2023) in Capital Improvement Program
- Evaluate incentive programs for private property
- Evaluate increasing number of street trees (tree canopy) in combined sewer system
- Assess effectiveness and based on assessment, consider establishing program and target goals for future permit cycles

# Long Term Control Plan Update Overall Strategy



# Long Term Control Plan Update Framework

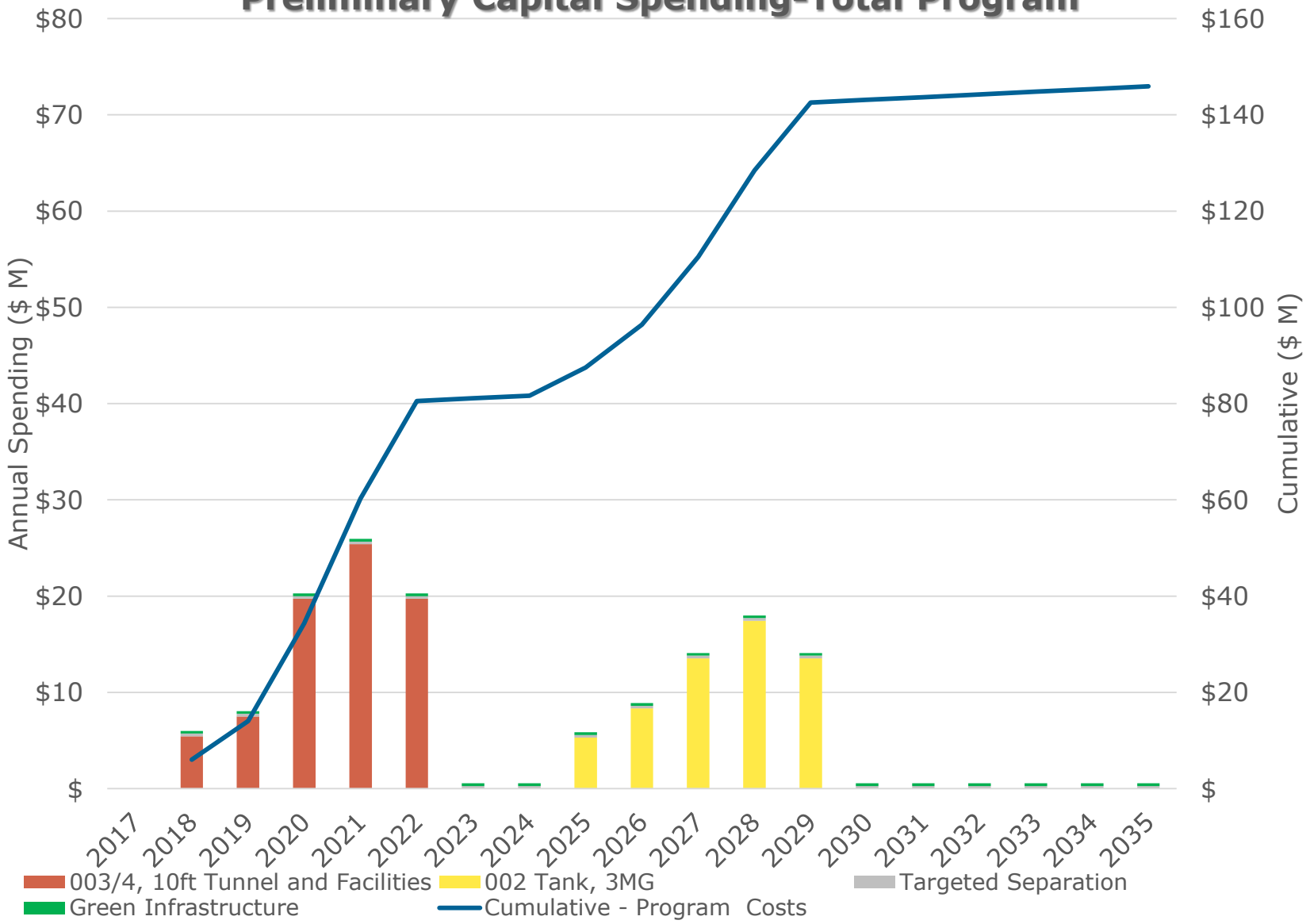
- CSO 003/004 tunnel to be designed and constructed first (2018-2023)
- CSO 002 tank to be designed and constructed between 2025-2030
- Green infrastructure and targeted separation between 2015-2035

## Preliminary Capital Costs

| Project | Capital Cost[1] |
|---|---|
| CSO 003/004 Tunnel | $66-99 million |
| CSO 002 Tank | $40-60 million |
| Green Infrastructure | $5-7.5 million |
| Targeted Separation | $5-7.5 million |
| **TOTAL** | **$116 - 174 million** |

[1]Capital Costs in 2015 dollars

# Long Term Control Plan Update
# Preliminary Capital Spending-Total Program




**Notes:**

1. Above costs are planning level costs (-30%/+50% of $116 million)
2. Escalation rate at 3%
3. Sewer rate impact analysis ongoing

# Upcoming Outreach

- March 2016
  - March 30 - Federation of Civic Associations
- April 2016
  - April 7 – Combined Sewer Stakeholder Group Meeting
  - April 11 - NOTICE Board
  - April 13 – Old Town Civic Association (tentative)
  - April 14 - West Old Town Citizens Association
  - April 18 – Environmental Policy Commission
  - April 19 - Waterfront Commission
  - April 20 - Porto Vecchio Condominium Association
  - April 21 – Public Meeting
- **May 2016 – City Council Public Hearing and Consideration of Long Term Control Plan Update**