City of Alexandria, Virginia

Combined Sewer System Permit and Long Term Control Plan Update

Waterfront Commission
April 19, 2016

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Department of Transportation and Environmental Services

ECO-CITY ALEXANDRIA

City of Alexandria, Virginia

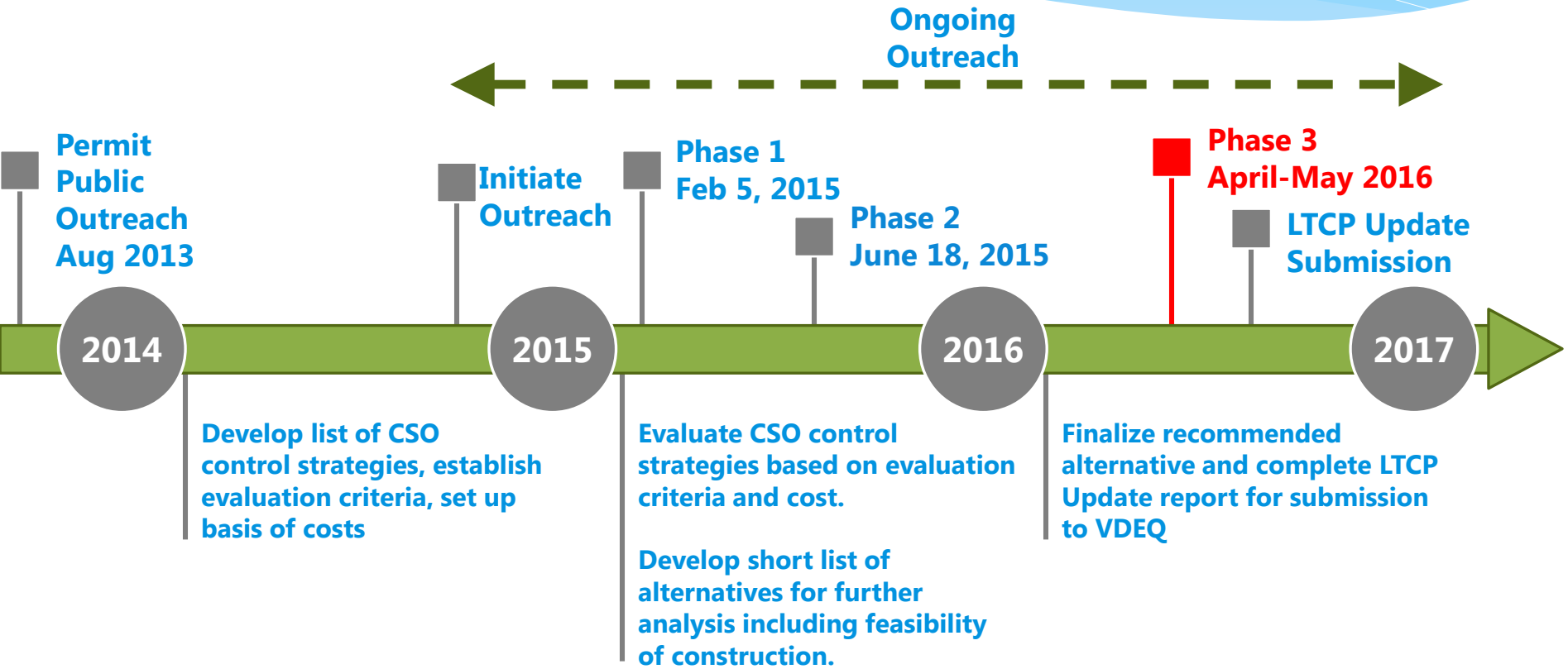
AGENDA

- Long Term Control Plan Update Process
- City's Combined Sewer System and Regulatory Requirements
- Proposed Long Term Control Plan Framework
  - Overall Strategy
  - Infrastructure Sizing
  - Infrastructure Siting
  - Implementation Plan (Schedule, Costs, Rate Impacts)
- Public Participation and Input

City of Alexandria, Virginia

Long Term Control Plan Update Process

Planning Timeline



CSO: Combined Sewer Overflow
LTCP: Long Term Control Plan
VDEQ: Virginia Department of Environmental Quality

Prior Outreach

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**
		4/7/2016	**CSS Stakeholder Meeting #6**

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 during development of Long Term Control Plan Update
  - Consideration of impacts to the community while meeting City's environmental goals
  - Consideration of regulatory issues, engineering and analysis of potential locations of future sewer infrastructure facilities
  - Consideration of implementation plan schedule and cost
  - Receive input from the public

City of Alexandria, Virginia

City's Combined Sewer System and Regulatory Requirements

Combined Sewer System

≈540 acres (6.4% of total City area)

Four Combined Sewer Overflow Outfalls permitted by VDEQ

- Outfall 001 discharges into Oronoco Bay
- Outfall 002 discharges into Hunting Creek
- Outfall 003 discharges into Hooff's Run
- Outfall 004 discharges into Hooff's Run

Combined Sewer System Permitting

* Previous Combined Sewer System Permits:
  - Requires best practices for operation and maintenance of combined systems
  - Proactive sewer separation as part of Area Reduction Plan

* Current and Future Combined Sewer System Permits:
  - Must address the Hunting Creek Total Maximum Daily Load (TMDL)
  - TMDL requires overall bacteria reduction from CSO discharges of 86%
    - 99% reduction from Outfalls 003 and 004 (Hooffs Run)
    - 80% reduction from Outfall 002 (Hunting Creek)
  - **Current permit requires City to address TMDL by updating its Long Term Control Plan and submit new plan to State by August 2016**

City of Alexandria, Virginia

Proposed Long Term Control Plan Update Framework

Long Term Control Plan Update
Overall Strategy

Primary Strategy Recommendation

* **Primary Strategy Recommendation: Separate storage tunnel for Hooffs Run (CSO-003/004) and storage tank for Royal Street (CSO-002)**
  - Most cost effective alternative
  - Fewer construction impacts
  - Potential opportunities to improve embayment
  - Supported by members of the Combined Sewer System Stakeholder Group

Infrastructure Sizing Recommendation

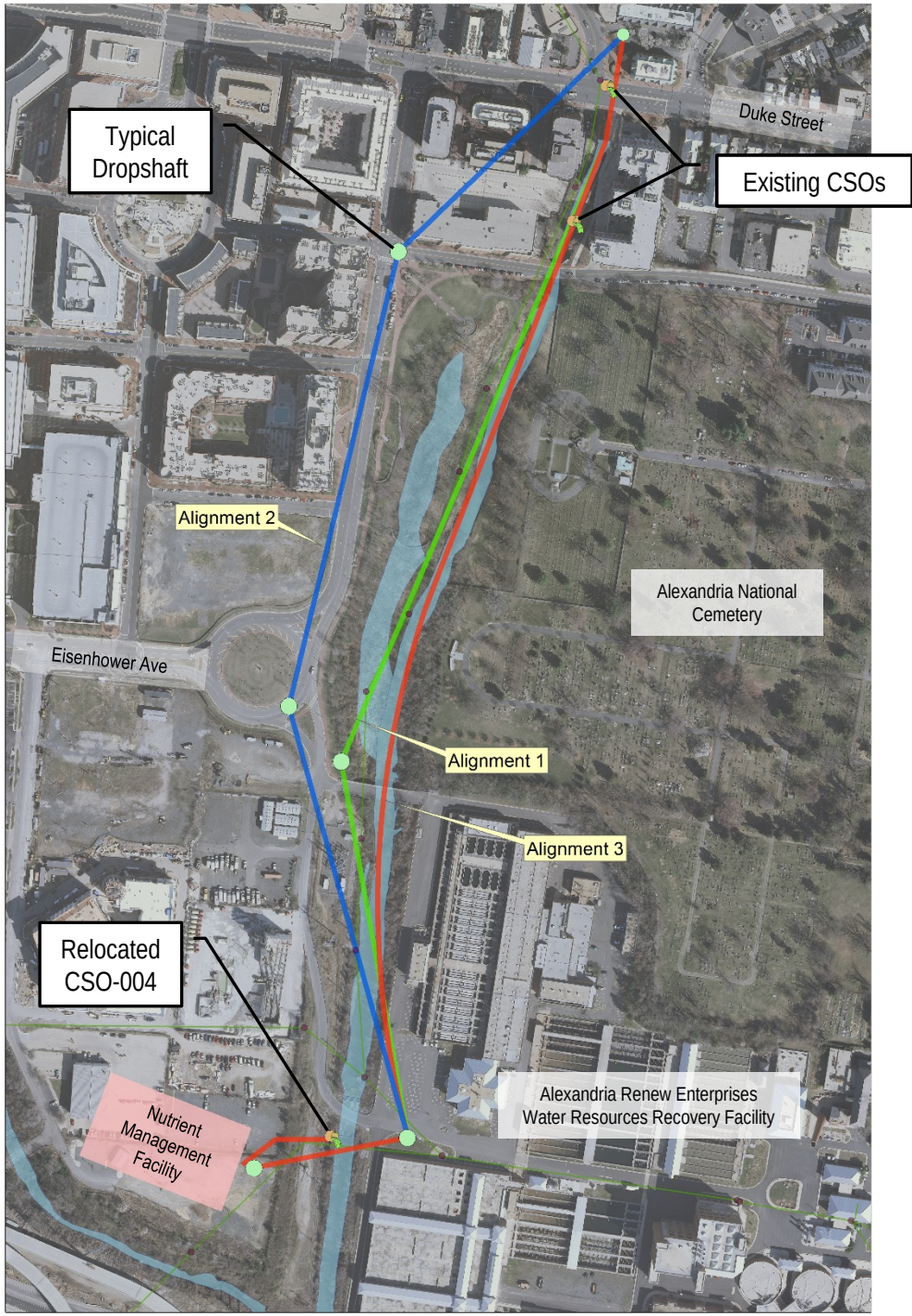
* **10-foot diameter tunnel for Hooffs Run and 3-million gallon tank for Royal Street**
  - More than the minimum required (8-foot tunnel and 2-million gallon tank)
  - Less than 4 overflows per year during a typical (average) rainfall year
  - Helps to mitigate future regulatory uncertainty
  - Helps to mitigate climate change
  - General support among the majority of the members of the Combined Sewer System Stakeholder Group

Infrastructure Sizing – Impact on Overflows

* **For An Average Rainfall Year:**
  - **CSO-003/004 (Hooffs Run) Storage Tunnel**
    - Reduce number of overflows by 96%
    - Reduce volume of overflows by 96%
    - Capture rate of 99% of combined sewage during wet weather
  - **CSO-002 (Hunting Creek) Storage Tank**
    - Reduce number of overflows by 96%
    - Reduce volume of overflows by 91%
    - Capture rate of 96% of combined sewage during wet weather

CSO-003/004 Tunnel Alignments

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



CSO-002 Storage Tank Alternatives

3MG storage shown; all alternatives under consideration

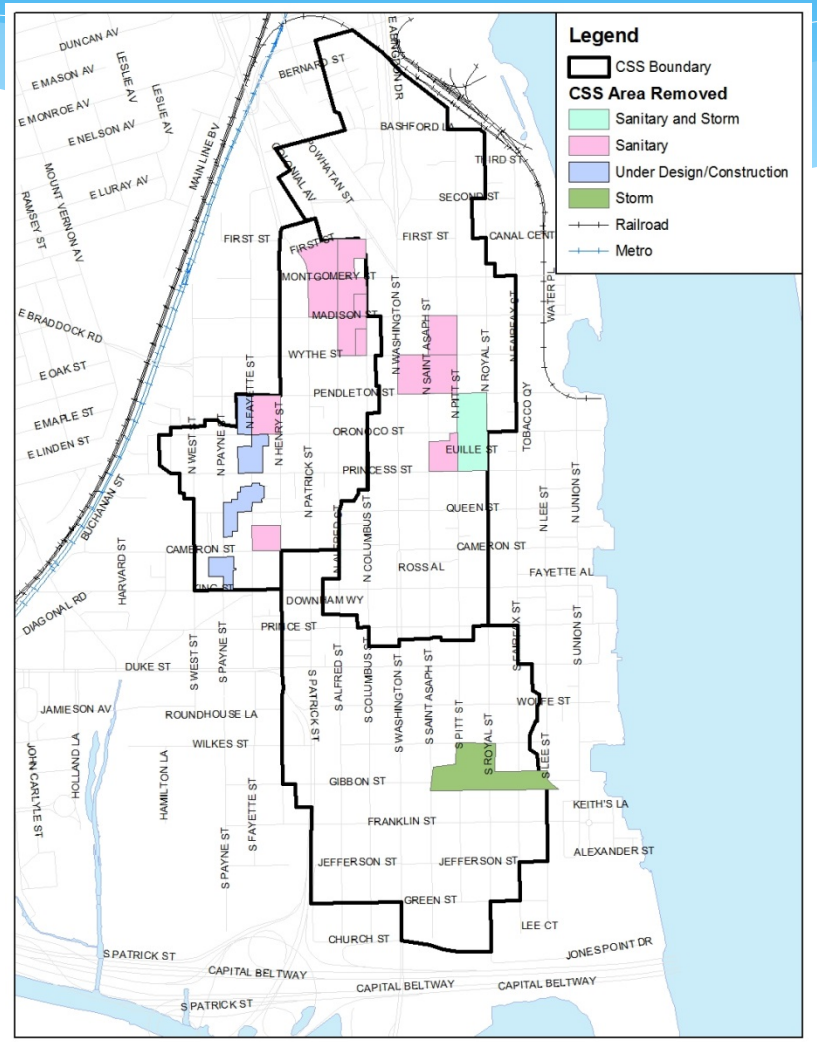
Complementary Strategy: Green Infrastructure Recommendation

* Implement citywide, not just combined sewer area
* **$1-2 million** for implementation of project in next permit cycle (2018-2023) in Capital Improvement Program
* 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

Other Complementary Strategies

* Targeted Sewer Separation
  - Condition of redevelopment
  - Example: ABC/Giant project
    - Onsite sanitary separation
    - Offsite sanitary separation of 173-room hotel

* Other Potential Opportunities
  - Private property incentives



Proposed Framework for CSO-001

* **CSO-001 Phase I**
  - **Enhanced sewer separation and green infrastructure opportunities**
    - Coordinate with North Old Town Small Area Plan implementation

* **CSO-001 Phase II**
  - Assess following CSO-001 Phase I and CSO-002/003/004 Projects
  - Implement a plan consistent with the current regulatory requirements (potentially a store and treat strategy)

Long Term Control Plan Update Framework

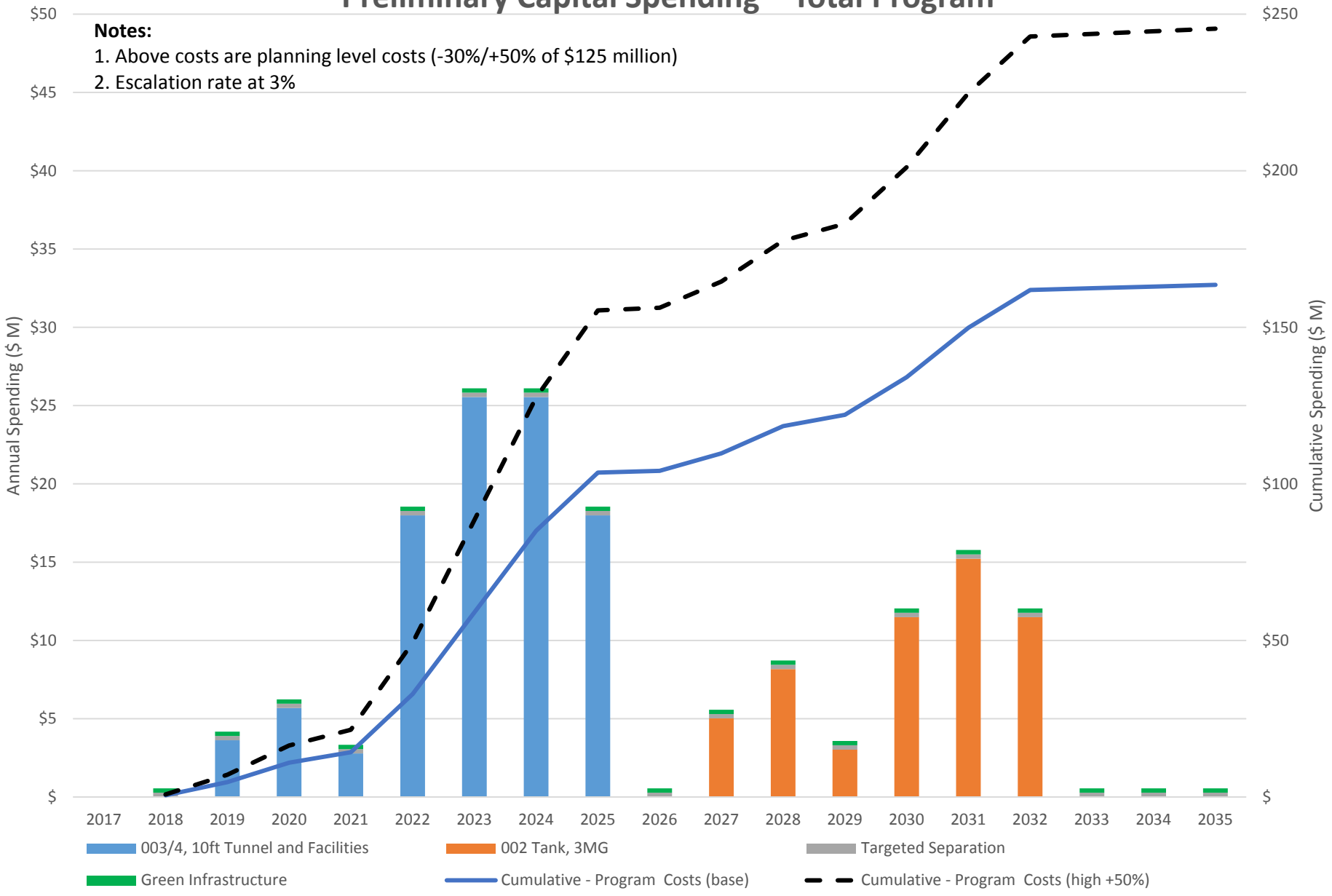
- CSO 003/004 tunnel to be implemented first (approximate timeframe 2019-2025)
- CSO 002 tank to be implemented following completion of CSO 003/004 tunnel (2027-2032)
- Green infrastructure and targeted sewer separation between 2016-2035

Preliminary Capital Costs

Project	Capital Cost[1]
CSO 003/004 Tunnel	$80-120 million
CSO 002 Tank	$35-53 million
Green Infrastructure	$5-7.5 million
Targeted Sewer Separation	$5-7.5 million
TOTAL	**$125 - 188 million**

[1]Capital Costs in 2015 dollars

City of Alexandria Long Term Control Plan Update
Preliminary Capital Spending – Total Program



Monthly Sewer Bill

Items	Value
AlexRenew Monthly Base Charge - Residential	$8.38
AlexRenew Monthly Base Charge – Commercial	Varies based on connection size
AlexRenew Flow Charge	$6.44/1,000 gallons
City of Alexandria Flow Charge	$1.25/1,000 gallons

	Additional Monthly Cost[1]	Total Monthly Bill[2]
Existing Sewer Bill	---	$48.48
Long Term Control Plan Update Implementation	$10-15	~$60

Notes:

1. Annual rate increases to be implemented over time and provided in the Sanitary Sewer Master Plan Update (2017-2018)
2. Based on usage of 5,000 gallons per month

City of Alexandria, Virginia

Public Participation and Input

For More Information and How to Provide Input

* Public Meeting – Thursday April 21, 2016 7:00PM, City Hall, 301 King Street, Conference Room 1101
* Planned City Council Public Hearing – Saturday May 14, 2016 9:30AM
* For more information and to provide feedback, please visit www.alexandriava.gov/sewers or provide comments in writing to:

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AlexEngage Feedback

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ALEX ENGAGE Listen, Learn, Join the Conversation

WHAT'S NEXT ALEXANDRIA

HOME | INFO | SIGN IN | HELP

Provide your feedback on the framework of the Long Term Control Plan Update for the City's Combined Sewer System

Introduction | Feedback | Your Response | Outcome

Introduction

Long Term Control Plan Update for the City's Combined Sewer System

In order to meet new regulatory requirements, the City is updating its Long Term Control Plan (January 1999) for the Combined Sewer System. The update must address the Hunting Creek Bacteria Total Maximum Daily Load, which calls for significant reduction in combined sewer overflows.

The Long Term Control Plan Update framework includes a proposed schedule to meet the required implementation deadline of 2035. Further information on the framework can be found here.

The total estimated capital cost for the Update is between $125-190 million, which will likely be funded through the sanitary sewer fees as part of the monthly sewer bill. Increases to the sanitary sewer rate will likely be needed to pay for the projects. These increases will happen gradually and it is anticipated that the average monthly sewer bill will increase between $10-15/month once all projects are completed.

What do you think?... read more

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Responses

6 responses -

Your Response

Provide Your Feedback

Deadline: 11:59 PM on May 31, 2016

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1) Do you agree with the selection of a store and treat strategy as the primary strategy, and green infrastructure and targeted sewer separation as complementary strategies?

- Yes
- No
- Don't know/No opinion
- Other

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Please provide any comments you have on the Long Term Control Plan Update framework.

2) Do you think the level of combined sewer control proposed is adequate given the cost to implement?

- Yes, this is the right amount
- No, additional money should be spend to decrease the number of overflows further
- No, the cost does not justify the benefits
- Don't know/no opinion
- Other

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Please provide any additional comments regarding the cost/benefits of the Long Term Control Plan Update.