Combined Sewer Overflow (CSO) Long Term Control Plan

Public Meeting No. 2
Supplemental CSO Team Meeting No. 10

City of Elizabeth and
Joint Meeting of Essex & Union Counties (JMEUC)

August 26, 2020 – 6:30 pm
Virtual Meeting
Zoom Instructions

• Attendees are muted by default at start of meeting
• Feedback from the community is an essential part of the LTCP process!
• Please feel free to ask questions or provide input at any time during the meeting
• Polling will be used throughout the meeting to ask for input (responses are anonymous)

Click “Raise hand” icon if you would like to be unmuted for discussion
If joining by phone, dial *9 to raise hand

Ask questions through the Q&A box
Agenda

1. Introduction
2. Background on combined sewer overflows
3. Regulatory requirements
4. Public participation process
5. Water quality considerations
6. Recommended CSO control plan
7. Costs and implementation schedule
8. Next steps and discussion
Polling Questions
City of Elizabeth has a sanitary and stormwater collection system called a “Combined Sewer System.”

Overflows from combined sewers (CSOs) are sources of water pollution when it rains.

New Jersey Department of Environmental Protection (NJDEP) has issued permits requiring that this pollution be addressed.


Due to scale and costs of combined sewer overflow control programs, public participation and input is key factor.
What is a Combined Sewer Overflow (CSO)?

- First type of sewers built, stormwater and sewage in one pipe
- Combined sewer overflow provides hydraulic relief during wet weather
Elizabeth Combined Sewer System

- **29 outfalls**
  - Pipe size up to 120" by 120"
  - Receiving waters:
    - Elizabeth River (21 outfalls)
    - Arthur Kill (4 outfalls)
    - Newark Bay & ditches (4 outfalls)
- 166 miles of sewers
- CSO area: 5.5 square miles
- Treatment at JMEUC Plant
JMEUC Wastewater Conveyance and Treatment Facilities

- 11 member communities, 4 customer communities
- Total Service Area = 65 square miles
- Gravity sewers ranging from 10-inches in diameter to the twin 67 x 68-inch rectangular sewers at the WWTF
- WWTF capacity:
  - Design flow = 85 mgd
  - Maximum capacity varies with tidal conditions: up to 225 mgd
Combined Sewer Overflow
Existing Conditions Typical Year Performance

2004
NJDEP approved Typical Hydrologic Year

48.4”
Total rainfall depth in 2004 Typical Year

866
Million gallons per year
Total combined sewer overflow volume system-wide

190
Million gallon per day
Maximum peak overflow rate from an outfall

73
Storm events in 2004 Typical Year with greater than 0.1” of rainfall

54
Total number of overflow events system-wide

145
Million gallons
Total overflow volume system-wide for largest storm event

< 12
Hours
Average overflow event duration
Regulatory Requirements

What is a Long Term Control Plan (LTCP)?

- Required under NJPDES permits issued by NJDEP for compliance with the Clean Water Act
- Comprehensive plan of water quality-based control measures that are:
  - Technically feasible
  - Location and waterbody specific
  - Consistent with National CSO Control Policy
- Regional coordination: JMEUC has sewage treatment plant, Elizabeth has combined sewer system
- Given scale of the combined sewer systems, control projects are typically extensive and costly

Many programs around the US are mandated under consent decrees, but New Jersey permits provide some flexibility in developing LTCPs
Public Outreach To-Date

- **Supplemental CSO Team Meetings**
  - Meeting quarterly since June 2017
  - Representatives from community, environmental, business, government, academia invited
  - Project progress updates
  - Feedback through interactive surveys and Q&A
  - Members include:

[Logos of various organizations]
Project Schedule

Phase 1.
- Supplemental CSO Team Meeting #1 – June 9 2017
- Supplemental CSO Team Meeting #2 – October 11 2017
- Supplemental CSO Team Meeting #3 – January 29 2018
- Supplemental CSO Team Meeting #4 – June 5 2018

- System Characterization Report
- Baseline Compliance Monitoring Program Report
- Consideration of Sensitive Areas Report
- Public Participation Process Report
  Submitted on July 1 2018

Phase 2.
- Supplemental CSO Team Meeting #5 – October 26 2018
- Supplemental CSO Team Meeting #6 – January 30 2019
- Supplemental CSO Team Meeting #7 – April 11 2019
- Supplemental CSO Team Meeting #8 – June 7 2019

- Development and Evaluation of Alternatives Report
  Submitted on July 1 2019

Phase 3.
- City Council Meeting – November 6 2019
- Public Meeting #1 – January 23 2020
  Public Meeting #2 – August 26 2020

- Selection and Implementation of Alternatives
- Final LTCP – Due on October 1 2020

August 26, 2020

Public Meeting No. 2 / Supplemental CSO Team Meeting No. 10
Public Outreach To-Date

Outreach, education and feedback:

• Presented at Future City Environmental and Estuary Days (over 200 students each event)
  • Two presentations provided for remote event on May 1: CSO Basics & CSO Solutions
  • Included survey questions - over 450 responses received
• Hosted “Connecting with Stakeholders on Water Infrastructure” regional workshop
• Hosted “Climate-Ready Combined Sewer Overflow Solutions Forum” in January, organized by New Jersey Future
• Hosted NJDEP Public Participation Workshop
• Collaborated with Hudson River Foundation and EPA on CREAT water utility climate change risk assessment tool case study

1. What should be the primary consideration in selecting a CSO control solution?

- A. Water quality improvements: 207
- B. Cost: 97
- C. Reduced flooding: 76
- D. More green community spaces: 73
### Water Quality Compliance Requirements

**Primary CSO goals: pathogens and CSO volume reduction**

<table>
<thead>
<tr>
<th>Receiving Water</th>
<th># of Outfalls</th>
<th>Meets WQ Requirements? (based on model)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Baseline Condition</td>
</tr>
<tr>
<td>Upper Elizabeth River</td>
<td>10</td>
<td>✗</td>
</tr>
<tr>
<td>Lower Elizabeth River</td>
<td>11</td>
<td>✓</td>
</tr>
<tr>
<td>Arthur Kill</td>
<td>4</td>
<td>✓</td>
</tr>
<tr>
<td>Newark Bay and ditches</td>
<td>4</td>
<td>✓</td>
</tr>
</tbody>
</table>

Baseline Condition

With 100% CSO Control
Consideration of Sensitive Areas

No primary contact recreation observed or reported within the study area and no sensitive areas related to primary contact recreation identified.

No Outstanding Natural Resource Waters, National Marine Sanctuaries, public drinking water intakes, or shellfish beds in the study area.

Newark Bay and Arthur Kill considered potential habitat for Atlantic sturgeon and Shortnose sturgeon. However, species is currently stabilizing and sufficiently protected.

No outfall discharge area considered to be more critical or of greater concern than others.
Control Approach Selection

Presumption Approach Targeting 85 Percent Capture

<table>
<thead>
<tr>
<th>Presumption Approach (performance based)</th>
<th>Demonstration Approach (water quality based)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• No more than 4 to 6 overflows per year, or</td>
<td></td>
</tr>
<tr>
<td>• No less than 85 percent capture of wet weather volume annually</td>
<td></td>
</tr>
<tr>
<td><strong>SELECTED</strong> as best balance between water quality benefit and program affordability</td>
<td></td>
</tr>
<tr>
<td>• Use receiving water model to identify control level needed to meet WQ-based requirements</td>
<td></td>
</tr>
</tbody>
</table>
Alternatives Evaluation

Control Programs Evaluated

1. Pump Station and Treatment Plant Expansion
2. Complete Sewer Separation
3. Satellite Storage Facilities
4. Tunnel Storage and Secondary Controls
5. Satellite CSO Treatment Facilities
6. Green Infrastructure
7. Infiltration / Inflow Reduction

Range of alternatives, different levels of control and combinations
## Cost Summary: Comparison of Preliminary Alternatives

### Total Present Worth ($ millions)

<table>
<thead>
<tr>
<th>Control Program</th>
<th>By Overflows per Year</th>
<th>Upgrade to Force Main Capacity</th>
<th>Upgrade to Interceptor Capacity</th>
<th>By % Impervious Area Managed</th>
<th>50% I/I volume reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>4</td>
<td>8</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Complete Sewer Separation</td>
<td>$1,400</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Satellite CSO Treatment Facilities</td>
<td>$963</td>
<td>$896</td>
<td>$801</td>
<td>$801</td>
<td>$559</td>
</tr>
<tr>
<td>Satellite Storage Facilities</td>
<td>$1,310</td>
<td>$710</td>
<td>$541</td>
<td>$490</td>
<td>$332</td>
</tr>
<tr>
<td>Tunnel Storage and Secondary Controls</td>
<td>$963</td>
<td>$731</td>
<td>$613</td>
<td>$558</td>
<td>$489</td>
</tr>
<tr>
<td>Additional Conveyance and Treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: GSI, additional conveyance, and I/I reduction are all partial solutions.
Recommended Plan

Selection Process

- Community Input
- Siting
- Technical feasibility
- Water Quality Objectives
- Effectiveness in meeting CSO control goals
- Short-Listed Alternatives from DEAR report
- Cost (tax burden to City)
Recommended CSO Control Plan: Major Components

- Targeting 85% capture for Elizabeth system, achieves higher capture for entire system
- Applies a broad range of CSO control technologies
- Focus on increased conveyance and treatment

<table>
<thead>
<tr>
<th>Storage</th>
<th>Conveyance</th>
<th>Treatment</th>
<th>Sewer Separation</th>
<th>Green Infrastructure</th>
</tr>
</thead>
</table>
| • Completion of approved projects (Trumbull St, Progress St, etc.) | • Upgrade Trenton Ave PS capacity up to 75 MGD  
  • Siphon and regulator upgrades  
  • Westerly Interceptor upgrades  
  • New 110 MGD relief PS and force main | • New CSO Treatment Facility at JMEUC plant site | • Basins 012 and 037 to eliminate CSO outfalls | • Pilot program (not accounted for in % capture calcs, will provide additional CSO reduction) |
Locations of Recommended CSO Control Improvements

- Basin 037 Sewer Separation
- New CSO Treatment Train @ JMEUC
- Atlantic Street CSO Storage Project
- R001 Regulator Modification
- Dowd Ave. Siphon Improvement
- R002 Regulator Modification
- Trumbull Street Stormwater Control Project
- South Street Stormwater Control Project
- Upgrade TAPS up to 75 MGD
- New 110 MGD Relief PS
- R035 Regulator Modification
- Lincoln Ave Stormwater Drainage Improvements Project
- Park Ave Stormwater Control Project
- Basin 012 Sewer Separation
- Siphon and Regulator Mods, Westerly Interceptor Upgrades
- New 110 MGD Relief PS
- R035 Regulator Modification
CSO Outfall Overflow Volumes – Existing vs. Proposed

- Approx. 545 MG reduction
- Note: Some outfalls have very large reductions, other less so
- Number of overflows remaining system-wide reduced, but not extensively
- Meets requirement to capture at least 85% CSO volume

<table>
<thead>
<tr>
<th></th>
<th>Overflow Volume (MG)</th>
<th>Elizabeth System – Percent Capture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>866</td>
<td>58.3%</td>
</tr>
<tr>
<td>Future</td>
<td>322</td>
<td>85.1%</td>
</tr>
</tbody>
</table>

![Overflow Volume Graph]

- Upper Elizabeth River
- Lower Elizabeth River
- Arthur Kill & Newark Bay
Recommended CSO Control Plan

Recently completed by the City:
- Progress Street Stormwater Control Project
- Trumbull Street Stormwater Control Project
- South Street Flood Control Project

Currently in progress:
- South Second Street Stormwater Control
- Atlantic Street CSO Storage Facility
- Lincoln Avenue Stormwater Drainage Improvements
- Park Avenue Stormwater Control
Sending more flow to the treatment plant is the main strategy for CSO reduction

Phase 1 Trenton Avenue Pump Station
- Increase peak flow from 36 mgd to 55 mgd to maximize capacity of existing facility
- Installation of level sensors in North Trunk Sewer Barrel linked to TAPS pump controls with monitoring at JMEUC WWTF;

Phase 2 Trenton Avenue Pump Station
- Pump station upgrades to maximize flow through existing force main
- Increase peak flow from Phase 1 level up to 75 mgd
- Install inter-connection between North and South Interceptor Barrels to balance flows and hydraulic grade lines between the two barrels, to maximize flow to plant
• New additional 110 MGD relief Pump Station at Trenton Avenue (total up to 185 MGD capacity)

• New force main to convey increased flow from pump station and interceptor upgrades to JMEUC treatment plant

• Easterly Interceptor upgrades (siphon and regulators)

• Westerly Interceptor upgrades (siphons, regulators, sewer upsizing)
New CSO Treatment Train at JMEUC WWTF Site

Two treatment alternatives evaluated:

1. Fine Screens with chlorine contact basin for disinfection.

2. Vortex Separators with chlorine contact within the vortex units (no separate basin required).
   - Both options include coarse screens ahead of primary solids removal, use sodium hypochlorite for disinfection and sodium bisulfate for dechlorination, and discharge effluent by blending with the normal WWTF effluent.
   - Both options provide sufficient pollutant removal for blended effluent to meet effluent quality requirements in NJPDES permit.

Proposed Selection: Fine Screens (Option 1) – provides sufficient wet weather treatment to meet WWTF effluent quality requirements at lower cost.

- Proven technology with full-scale applications in service well over 10 years in Detroit
- Selected treatment approach to be re-evaluated later in implementation schedule to consider any new or emerging technology and other information available at that time.

<table>
<thead>
<tr>
<th>Treatment Alternative</th>
<th>Capital Cost ($M)</th>
<th>Present Worth Cost ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
<td>21</td>
<td>27</td>
</tr>
<tr>
<td>Option 2</td>
<td>29</td>
<td>34</td>
</tr>
</tbody>
</table>
Recommended CSO Control Plan

- Storage
- Conveyance
- Treatment
- Sewer Separation
- Green Infrastructure

General Site Layout for New CSO Treatment Train at JMEUC WWTF
Recommended CSO Control Plan

Basin 012
- Eliminate CSO outfall by redirecting flows from storm inlets to an existing separate storm sewer outfall, and abandon an existing 8” sanitary sewer.

Basin 037
- Eliminate CSO outfall by constructing 3,200 feet of new 12-inch and 15-inch sanitary sewers, parallel the existing combined sewers.

Green Infrastructure Pilot Project

- Select 10 rain garden testing sites
- Monitor pilot sites for performance
- Report after first five years on construction, aesthetics, public education, performance, permitting requirements, and installation and maintenance costs.
- City to determine suitability for scaling up program with more green infrastructure.
- Note: Green infrastructure is not quantified in CSO LTCP volume reduction targets – however if pilot program is successful, it can be scaled up and incorporated into LTCP update
Benefits of Recommended Plan

**Environmental**
- Reduced CSO volume to receiving waterbodies, improved water quality

**Community**
- Community spaces and aesthetic benefits of green infrastructure

**Reduced Localized Street Flooding**
- Stormwater control projects

**Technical Resilience**
- Increased conveyance and treatment capacity in system
- Partial sewer separation
### Recommended CSO Control Program Costs (DRAFT)

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Capital Cost (2020 $ in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Second Street Stormwater Control</td>
<td>$2.81</td>
</tr>
<tr>
<td>Lincoln Avenue Stormwater Drainage Improvements</td>
<td>$2.82</td>
</tr>
<tr>
<td>Trenton Avenue Pump Station - Phase 1 Upgrade</td>
<td>$0.610</td>
</tr>
<tr>
<td>Basin 012 Sewer Separation</td>
<td>$0.270</td>
</tr>
<tr>
<td>Atlantic Street CSO Storage Facility</td>
<td>$8.21</td>
</tr>
<tr>
<td>Park Avenue Stormwater Control</td>
<td>$8.58</td>
</tr>
<tr>
<td>Green Infrastructure Pilot Program</td>
<td>$1.28</td>
</tr>
<tr>
<td>Trenton Avenue Pump Station - Phase 2 Upgrade</td>
<td>$9.25</td>
</tr>
<tr>
<td>Basin 037 Sewer Separation</td>
<td>$4.59</td>
</tr>
<tr>
<td>Easterly Interceptor Upgrade</td>
<td>$2.53</td>
</tr>
<tr>
<td>New Wet Weather Pump Station Force Main to JMEUC</td>
<td>$11.9</td>
</tr>
<tr>
<td>New 110 MGD Wet Weather Pump Station</td>
<td>$41.4</td>
</tr>
<tr>
<td>New CSO WWTF</td>
<td>$20.9</td>
</tr>
<tr>
<td>Bridge Street Siphon Upgrade</td>
<td>$2.63</td>
</tr>
<tr>
<td>Palmer Street Branch Interceptor Upgrade</td>
<td>$4.28</td>
</tr>
<tr>
<td>Palmer Street Siphon Upgrade</td>
<td>$2.53</td>
</tr>
<tr>
<td>Lower Westerly Interceptor Improvements</td>
<td>$36.2</td>
</tr>
<tr>
<td>Pearl Street Branch Interceptor Upgrade</td>
<td>$5.48</td>
</tr>
<tr>
<td>Regulator Modifications (027/028 and 040)</td>
<td>$1.00</td>
</tr>
<tr>
<td>Upper Westerly Interceptor Improvements</td>
<td>$21.5</td>
</tr>
<tr>
<td>Morris Avenue Siphon Upgrade</td>
<td>$2.14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$191</strong></td>
</tr>
</tbody>
</table>

- Costs include planning, design, construction, admin and 25% contingency.
Long Term Control Plan Affordability

Regulatory Compliance Funded through Residential Sewer Bills

- EPA affordability criteria based on the community’s:
  - Total Sewer System Spending
    - Sanitary, combined, and stormwater
    - Current and proposed
  - Residential Share (Average Cost per Household)
  - Median Household Income
  - EPA High Financial Burden Criteria = 2% of Median Household Income
Financial Assumptions

Overall financial assumptions/considerations:

• Existing operating expenses increase at 3.5% per year, new O&M increases at 2.75%
• Existing debt service escalation rate of 1.5%
• Construction cost inflation rate of 3.0%
• Annual income growth rate of 1.5%
• Also consider other factors affecting affordability e.g. poverty rate, burden on lower income households

Financing through low-interest State loans for wastewater projects

• Loan term of 20 years
• 25% at market rate and 75% at 0% rate

CSO LTCP total costs exceed the high financial burden threshold of 2% of MHI, therefore a longer implementation schedule of 40 years is proposed.
## Project Implementation Schedule (DRAFT)

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Previously Completed</th>
<th>Years 1-5</th>
<th>Years 6-10</th>
<th>Years 11-15</th>
<th>Years 16-20</th>
<th>Years 21-25</th>
<th>Years 26-30</th>
<th>Years 31-35</th>
<th>Years 35-40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Progress Street Stormwater Control Project</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trumbull Street Stormwater Control Project</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Street Flood Control Project</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Second Street Stormwater Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lincoln Avenue Stormwater Drainage Improvements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trenton Avenue Pump Station - Phase 1 Upgrade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basin 012 Sewer Separation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atlantic Street CSO Storage Facility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Park Avenue Stormwater Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green Infrastructure Pilot Program</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trenton Avenue Pump Station - Phase 2 Upgrade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basin 037 Sewer Separation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easterly Interceptor Upgrade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Wet Weather Pump Station Force Main to JMEUC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New 110 MGD Wet Weather Pump Station</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New CSO WWTF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bridge Street Siphon Upgrade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palmer Street Branch Interceptor Upgrade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palmer Street Siphon Upgrade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Westerly Interceptor Improvements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearl Street Branch Interceptor Upgrade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R0278/028 Regulator Modifications</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R040 Regulator Modifications</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Westerly Interceptor Improvements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morris Avenue Siphon Upgrade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Public Meeting No. 2 / Supplemental CSO Team Meeting No. 10  
August 26, 2020
Proposed LTCP Spending Plan

LTCP Capital Outlay Schedule

- Annual Capital Outlay
- Cumulative Outlay (2020 $ in millions)
- Total Cumulative Capital Outlay = $191 million
Average Residential Sewer Cost Impact

Projected Average Monthly Residential Sewer Bill

Future Values

Average annual sewer bill increases:
- Existing sewer system costs: ~ 2.9% per year for next 30 years
- With LTCP program costs: ~ 3.5% per year for next 30 years
Average Residential Sewer Cost Impact, Relative to Median Household Income

- EPA High Financial Burden Criteria = 2% of Median Household Income

![Graph showing annual residential sewer bill as % Median Household Income over time. There are two lines, one for the existing system and one for the system with LTCP. The graph shows the sewer bill cost as a percentage of household income, with key points noted at various time intervals.](image-url)
Impact on Lower Income Households

Sewer Bill with LTCP as % Househoud Income, Median vs 20th Percentile

- Median Household Income (2017 $) = $45,186
- 20th Percentile Household Income (2017 $) = $20,638
Adaptive Management

- Re-assess affordability throughout implementation schedule, based on emergent economic conditions beyond permittees’ control
- Include provisions to re-evaluate, revise and/or reschedule CSO controls as appropriate to reflect new technologies, new conditions and potential new funding sources
Financial Impacts of COVID-19 Pandemic on LTCP Program

- The COVID-19 pandemic will likely impact affordability and implementation schedule for CSO LTCP projects.
- Potentially reduced household incomes and sewer utility revenues.
- Preliminary FCA was based on 2019 financial info, which may no longer be accurate for the first 10 years of implementation.
CSO LTCP Schedule for Completion

**July 2020:**
Tentative selection of CSO control plan

**August 2020:**
Refine selected CSO control plan and regional coordination

**September 2020:**
Incorporate/address comments and finalize selected CSO control plan

**October 2020:**
Selection and Implementation Report due to NJDEP

- **Open Public Meeting**
- Early Sept: Review draft LTCP with NJDEP
- October 1st: Submit LTCP to NJDEP
Polling Questions
Next Steps

- Refine CSO program implementation schedule to address affordability challenges
- Over the next two weeks, receive feedback on the recommended CSO control program and input on community concerns/priorities
- Refine CSO program to consider any input received
Thank you!
Questions / Comments?

A copy of this presentation as well as previously presented LTCP information can be found at:
https://www.elizabethnj.org/182/CSO

If you have any further questions or would like to provide additional feedback, please contact:

Daniel Loomis, PE
City Engineer
Tel: 908-820-4271
Email: dloomis@elizabethnj.org

Anthony Gagliostro, PE
Mott MacDonald
Tel: 973-912-2442
Email: anthony.gagliostro@mottmac.com