Combined Sewer Overflow - Long Term Control Plan Update

DELCORA

Public Participation Meeting No. 4

LTCPU Development and Evaluation of Alternatives for CSO Controls

September 26, 2018

Aston Township Administration Building

5021 Pennell Road, Aston, PA 19014

General Information

- DELCORA is the Delaware County Regional Water Quality Control Authority, established in 1971, responsible for collecting, conveying and treating wastewater in the greater Philadelphia Area including 42 Municipalities in Delaware and Chester County.

DELCORA Mission

"Provide environmentally responsible and cost effective wastewater management services to the citizens, businesses, and industries of Southeastern Pennsylvania"

Why Are We Here?

- In April 1999, DELCORA adopted their Long Term Control Plan (LTCP) to comply with the Clean Water Act requirements for the Combined Sewer Overflow (CSO) control policy.
- In 2009, the Department of Environmental Protection (DEP) and Environmental Protection Agency (EPA) determined that DELCORA's LTCP was no longer in compliance with increased regulations of the Clean Water Act. In response, DELCORA began working with DEP and EPA to update the LTCP.
- In 2014, DEP and EPA determined that DELCORA's revised LTCP required further evaluation and development.
- In 2015 DELCORA signed with EPA the Long Term Control Plan Consent Decree.

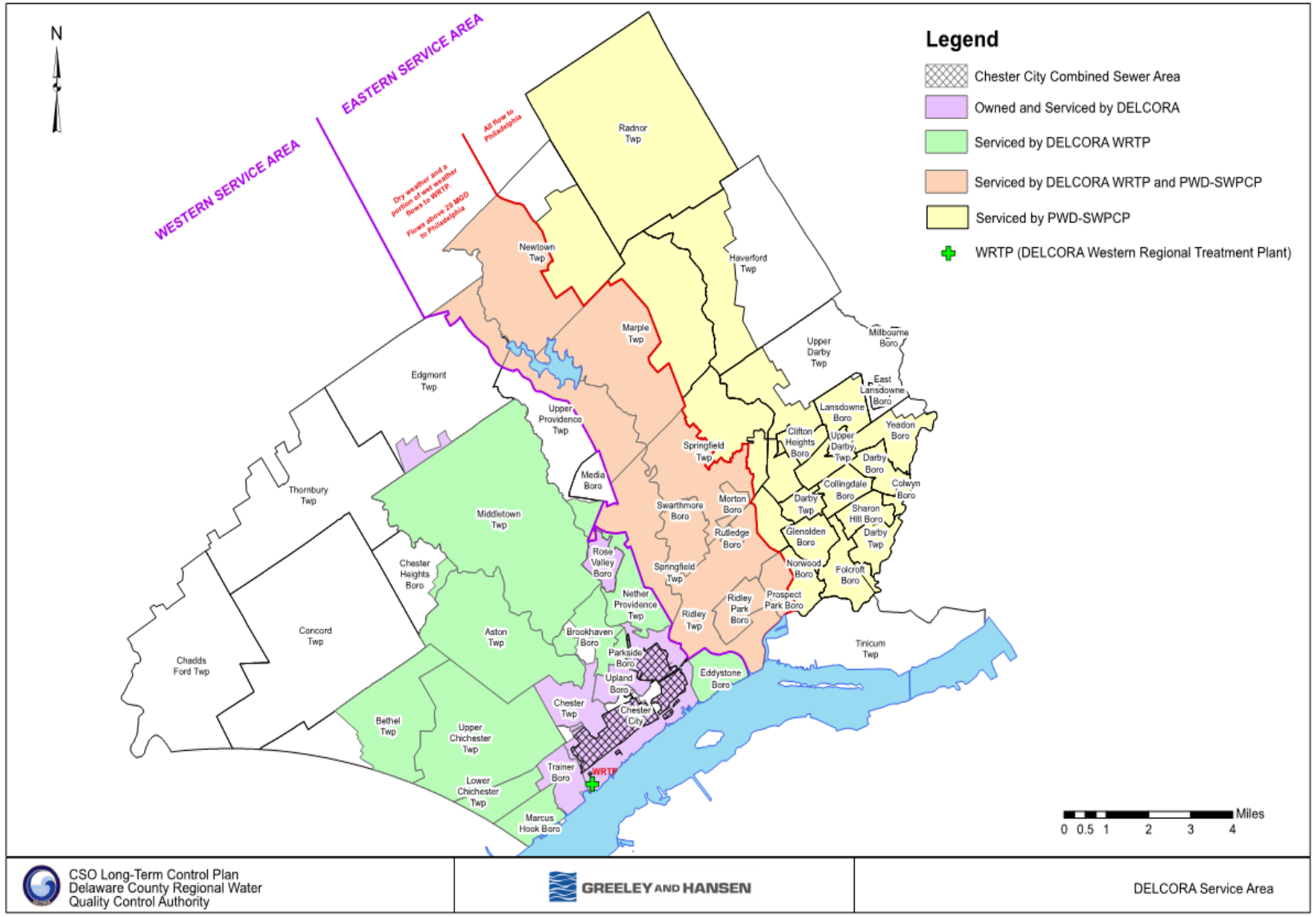
Public Participation Plan Goals

- DELCORA's Goals and Objectives for the Public Participation Program are to:
  - Inform and Solicit Input to Updated LTCP from Stakeholders, including Public, Customer Communities and Regulatory Agencies
  - Educate the Public
  - Address Public Questions/Comments

Scope of Meeting

- This Public Meeting (9/26/18) is to:
  - Overview DELCORA Service Area
  - Summarize Work of LTCP Addressing Wet Weather Issues Up to this Point
  - Describe CSO Control Alternatives Evaluation
  - Describe Next Steps Towards Development of Long Term Control Plan Update (LTCPU)
  - Questions and Comments

DELCORA Service Area

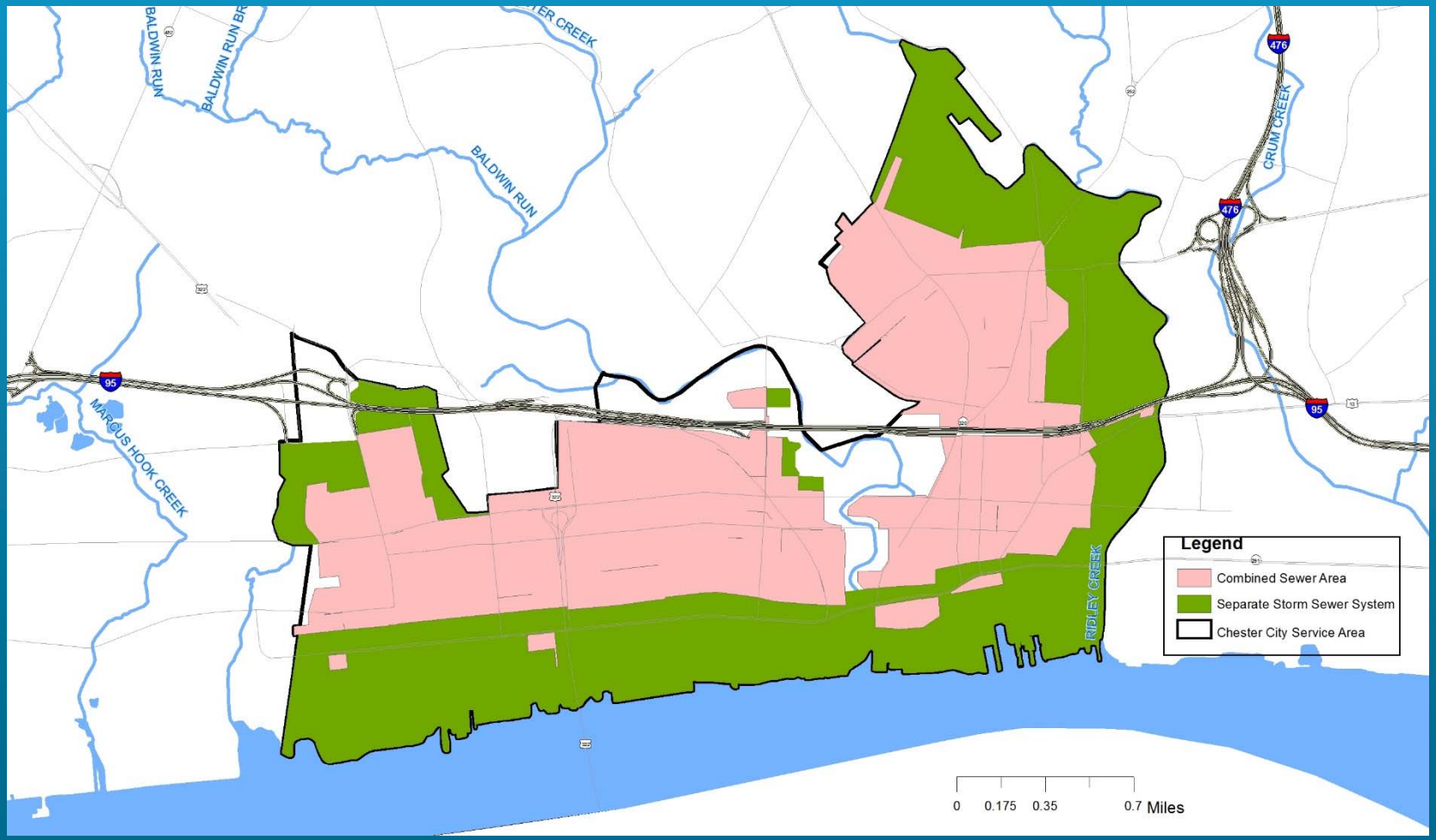


CSO Long-Term Control Plan
Delaware County Regional Water Quality Control Authority

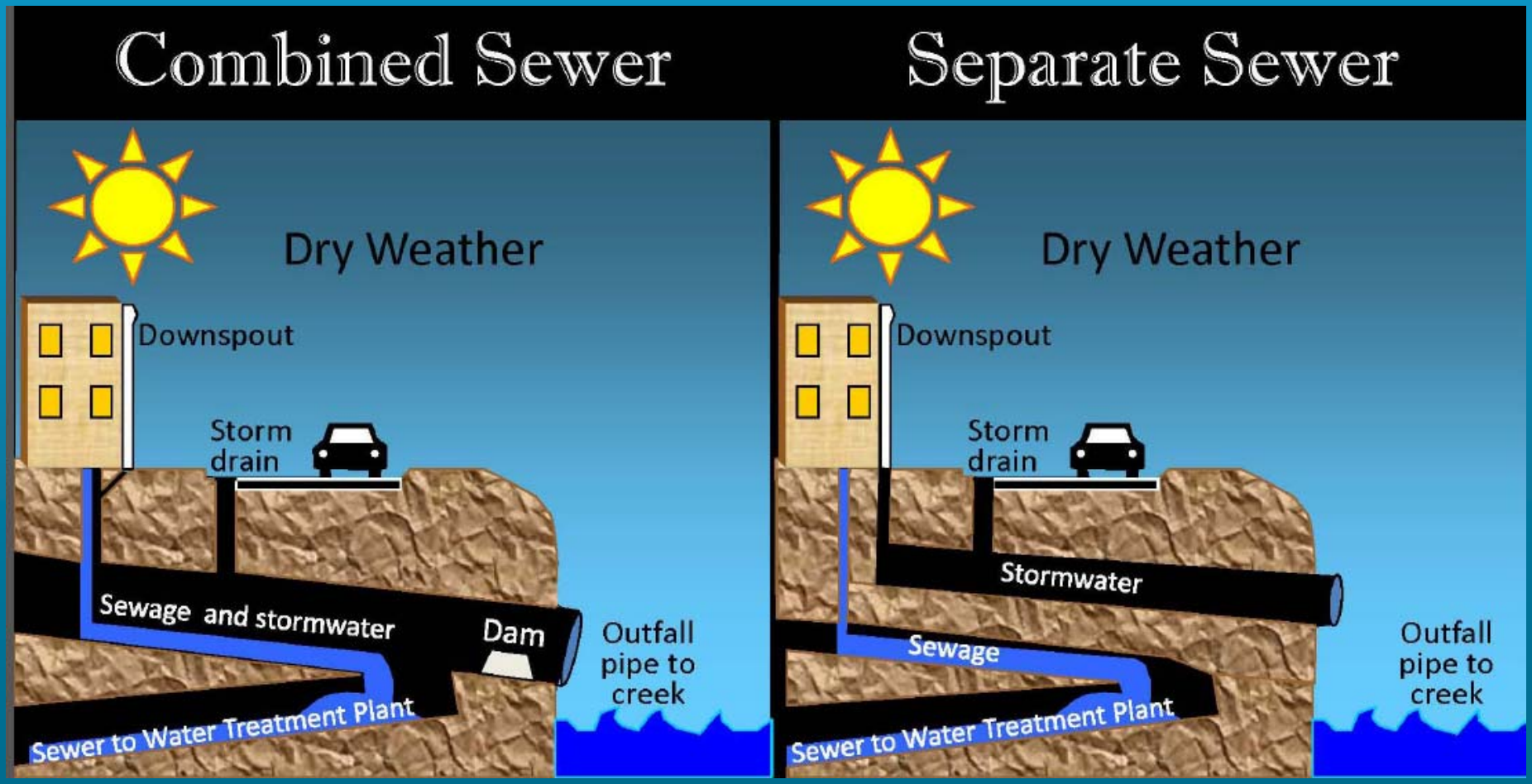
GREELEY AND HANSEN

DELCORA Service Area

Chester City Service Area

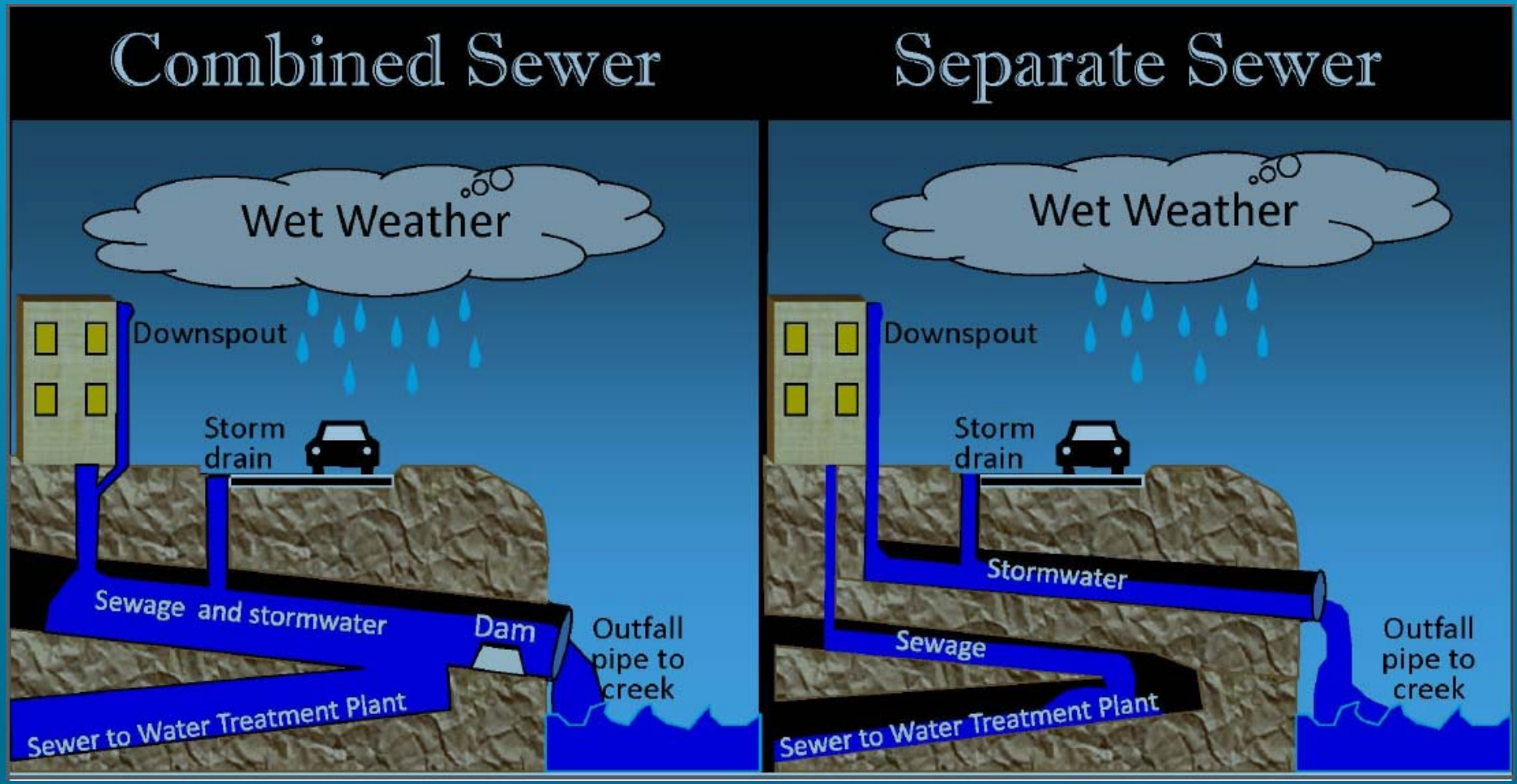


Combined Sewer System vs. Separated Sewer System



Source: City of Alexandria,
https://www.alexandriava.gov/uploadedFiles/tes/oeq/CSSPermitInfoMeetingandPublicHearingPresentation08052013.pdf

Combined Sewer System vs. Separated Sewer System



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LTCPU 42-Month Program Schedule

Consent Decree Date of Lodging
August 17, 2015

Consent Decree LTCP Completion
Feb. 17, 2019

Since the lodging of the Consent Decree in August of 2015, DELCORA has met important milestones in the program:

2016

- Selected a plan to decrease CSOs and evaluated the financial ability of the community to pay for it.
- Identified the bacteria responsible for the pollution, and high-priority areas for CSO reduction.

2017

- An evaluation of historical rainfall on the existing sewer system was conducted. This would help identify the impacts of new technologies.

2018

- Pump Station “PS-6” completed and held last public meeting.

2019

- Submit final reports to the EPA.

Early Action Items

- A new pump station near the DELCORA treatment plant was required to be placed in operation by Dec 2018.
  - New Pump Station PS-6 was placed in operation on September 5th, 2018

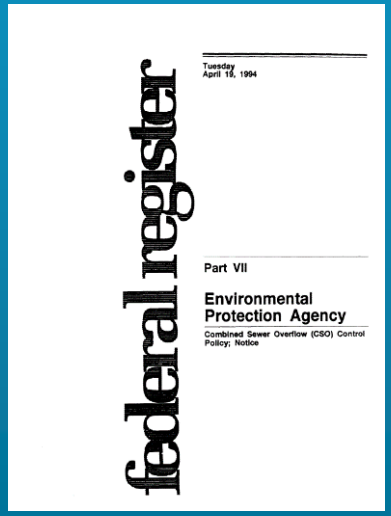
- Over $150M has been spent on system improvement projects since the original LTCP in 1999.

Improvement Costs to Date

- From 1999-2018 DELCORA spent in excess of $150 Million on overall system improvements and contributions to the City of Chester that resulted in decreased volume of overflows, reduced debris in overflows, provided remote monitoring of the system, and improved routine maintenance.
  - Partially separating flow to a CSO regulator
  - Purchasing property for further plant expansion
  - Replacement of older CSO regulator models
  - Research, repair, & replacement for leaking pipes
  - Annual informational flyers mailed to customers

National CSO Policy Requirements

- National CSO Policy pertaining to the Alternatives Analysis provides guidance to develop the LTCPU:
  - To meet one of the following (Presumption Approach):
    - No more than an average of 4 overflows a year
    - *Elimination or capture for treatment of at least 85% of combined sewage volume during wet weather events*
    - Elimination or removal of pollutants identified causing water quality impairment during wet weather events



LTCPU Alternatives Analysis

- Review Regulatory Requirements
- Describe, screen and compare technologies that can be used to achieve the most economically feasible approach to reducing CSOs that meets water quality standards
- Specific technologies must be considered

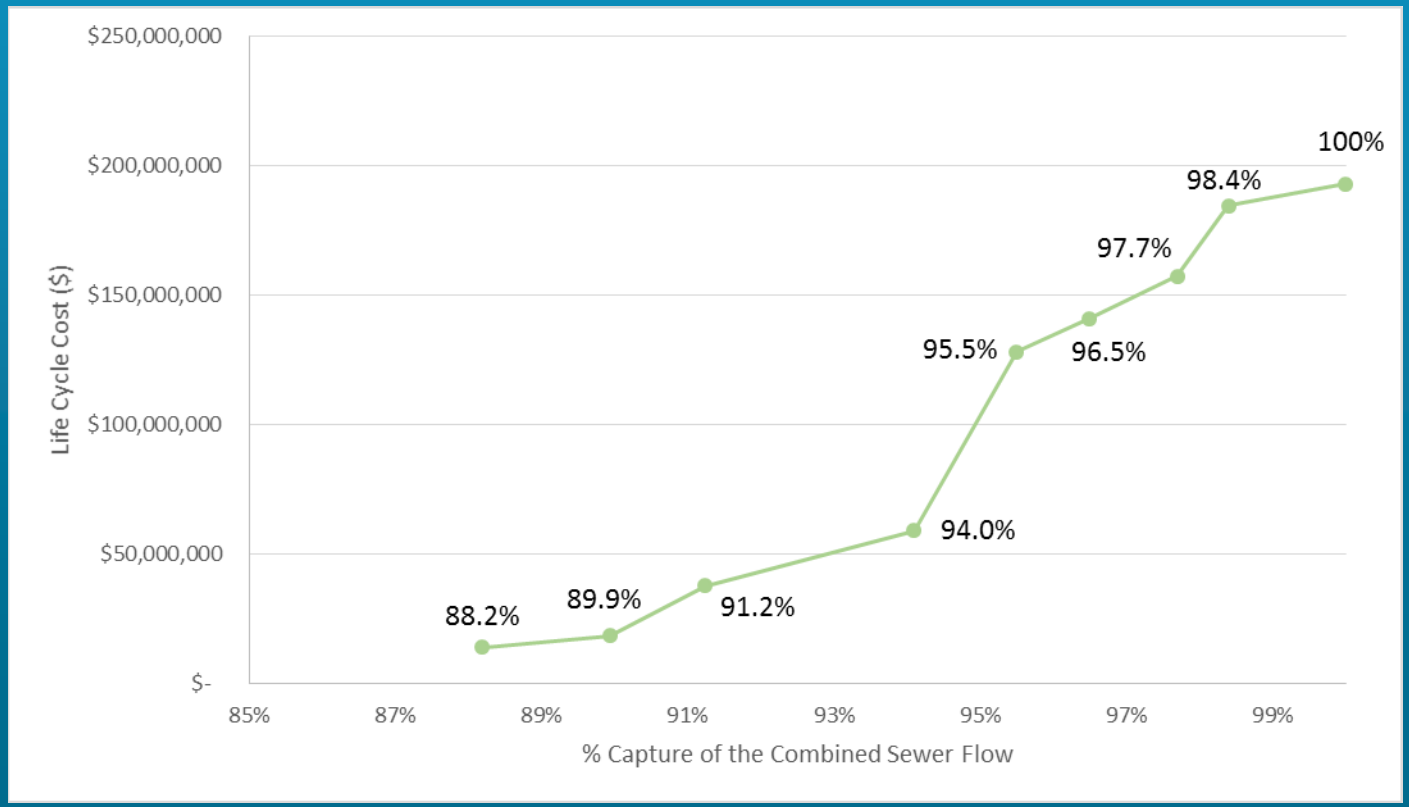
LTCPU Alternatives Analysis

- Elimination or capture of 85% of wet weather flows entering the collection system on a system wide, typical year basis.
  - This level of control is presumed to meet WQS (subject to verification monitoring post-construction).
- Looked at 15 combinations of technologies to reduce CSOs (includes required technologies as per consent order)
- The costs associated for completing all projects in an alternative, as well as their upkeep and operation for 20 years was estimated – this is called the Life Cycle Cost

“Knee-of-the-Curve” Analysis

Capture % vs Cost

Knee-of-the Curve Graph for Selected Alternatives



Selected CSO Control Technologies

- DELCORA's recommended plan has 3 parts based on the Knee-of-the-Curve Analysis:
  - **88% - Regulator Control Improvements** - Regulator Modifications alone will provide enough CSO control to meet 85% wet weather capture.
  - **94% - Targeted Overflow Reduction** - Further CSO control technologies can target the most frequent CSO areas, but is dependent on financing and plant expansion. Address continued minimization of excessive I/I in areas upstream of the CSO system.
  - **Adaptive Management** - Adapting future projects based on the performance of the completed control technologies.

Components of the Selected Alternative

- The alternative providing over 90% capture costs $59.3M ($101M inclusive of 20 year life cycle costs) with:
  - Regulator Modifications
  - Rehabilitation & extension of the West End Interceptor
  - Building a parallel Delaware River Interceptor
  - Partially separating combined sewers north of Veterans Memorial Park
  - Green Stormwater Infrastructure in high frequency CSO areas
- This alternative provides the most affordable and cost-effective CSO control benefits.
- The boat ramp along the Delaware River is a public access point and the wet weather discharge from the adjacent outfall is addressed in this alternative.

Selected CSO Control Technologies

Regulator Control Improvements	Life Cycle Costs (Millions $)
Regulator Modifications Estimate	$ 14.2
Targeted Overflow Reduction	
Parallel Delaware River Interceptor	$ 3.6
WE Interceptor Rehab & Extension	$ 2.5
CSO-5 Partial Sewer Separation	$ 4.5
CSO 18 & 19 Green Infrastructure	$ 11.8
Arboretum Tank	$ 10.0
Monitoring and Modeling	$ 5.0
Public Outreach	$ 3.0
Plant Expansion/Upgrade	$ 28.8
Real-Time Control	$ 2.9
Adaptive Management	
Adaptive Management Estimate	$ 10.0
Program Operation Costs	$ 5.0
Total	$ 101.3

Implementation of the LTCPU

- Regulator Control Improvements are ongoing.
- Targeted Overflow Reduction projects can be fully implemented within the next 10 years, but depend on:
  - If excessive upstream flow into leaking pipes can be affordably addressed.
  - Eastern Service Area costs do not upset Chester's financial capability.
  - Recommended DELCORA treatment plant expansion approval by the PADEP and USEPA.

LTCPU 20-Year Implementation Schedule & Milestones

Consent Decree Date of Lodging
August 17, 2015

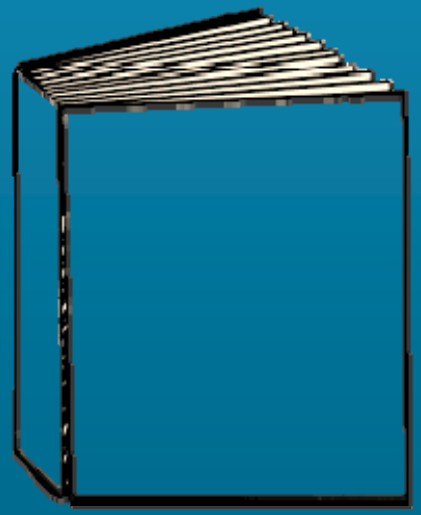
Consent Decree LTCP Completion
August 17, 2035

Milestones:

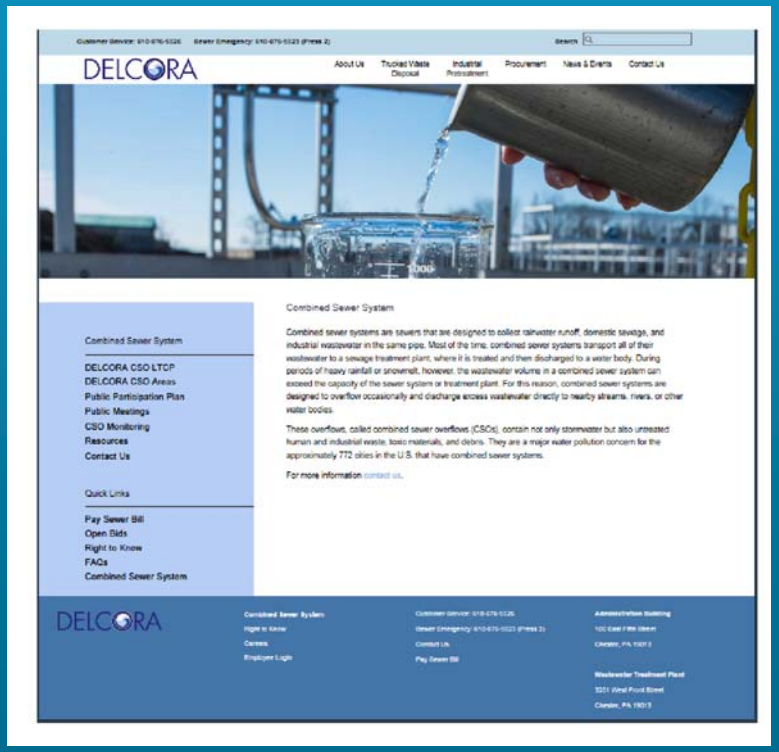
- Early Action Item, Completed PS-6 - September 2018
- Public Participation Meeting - September 26, 2018
- Updated LTCP Final Report & Update NMCs Plan - Feb. 17, 2019
- Regulator Control Improvements and Targeted Overflow Reduction Projects Complete – completed within10 years from regulatory approval
- All projects complete and fully operational; DELCORA is meeting all requirements of the Consent Decree - August 17, 2035

Literature and Documentation

- Literature and Documentation will be Made available by DELCORA at the following public locations and on the DELCORA Website:
  - **DELCORA Administration Building**
    100 East Fifth Street; Chester, PA 19013
  - **Lewis Crozer Library**
    620 Engle Street; Chester, PA 19013
  - **Marcus Hook Municipal Building**
    1015 Green Street; Marcus Hook, PA 19061
  - **Ridley Township Building**
    100 MacDade Blvd.; Folsom, PA 19033
  - **Upland Borough Office**
    224 Castle Avenue; Brookhaven, PA 19015
  - **Chester Township**
    1150 Engle Street; Chester, PA 19013



DELCORA Website



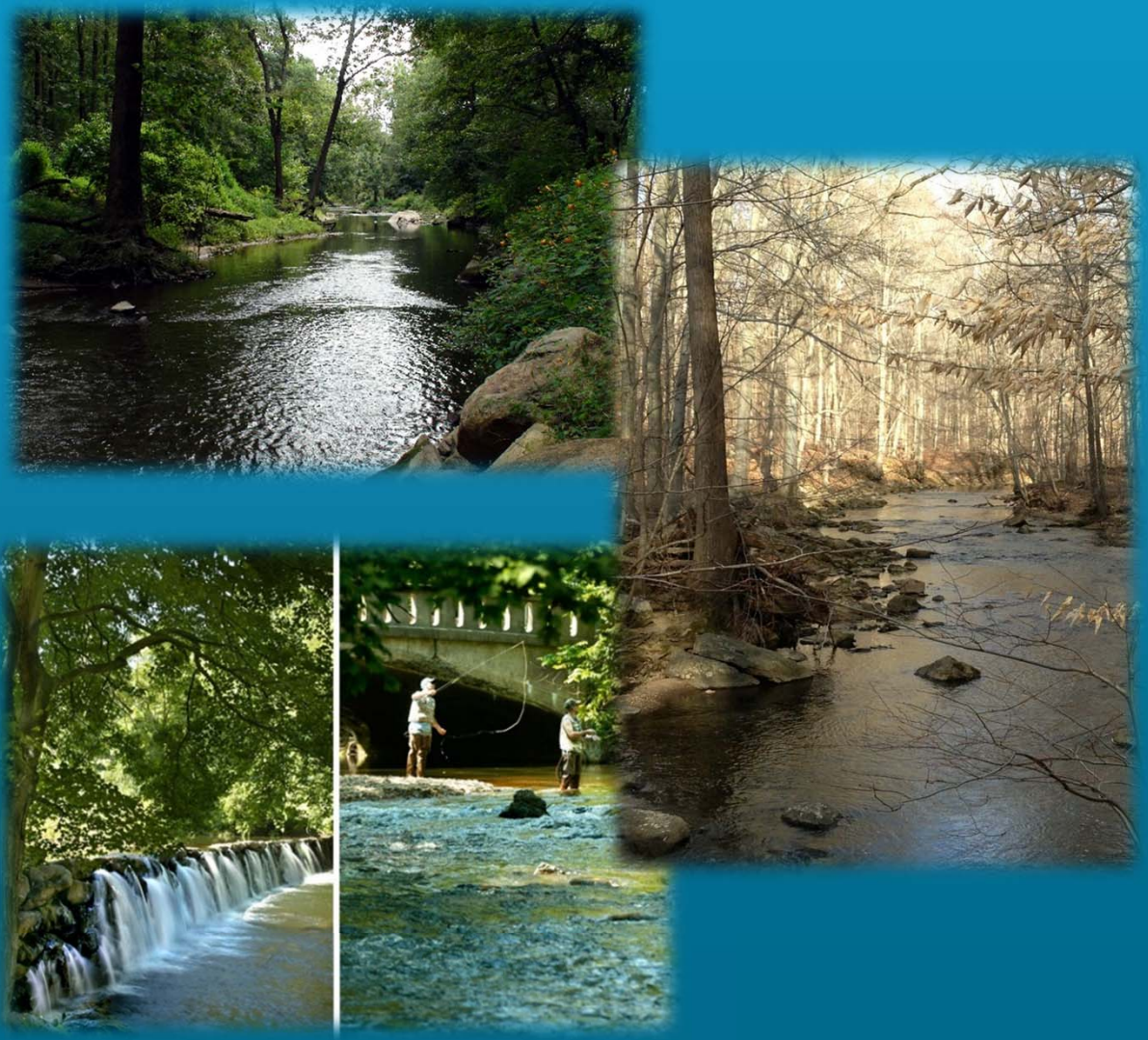
www.delcora.org

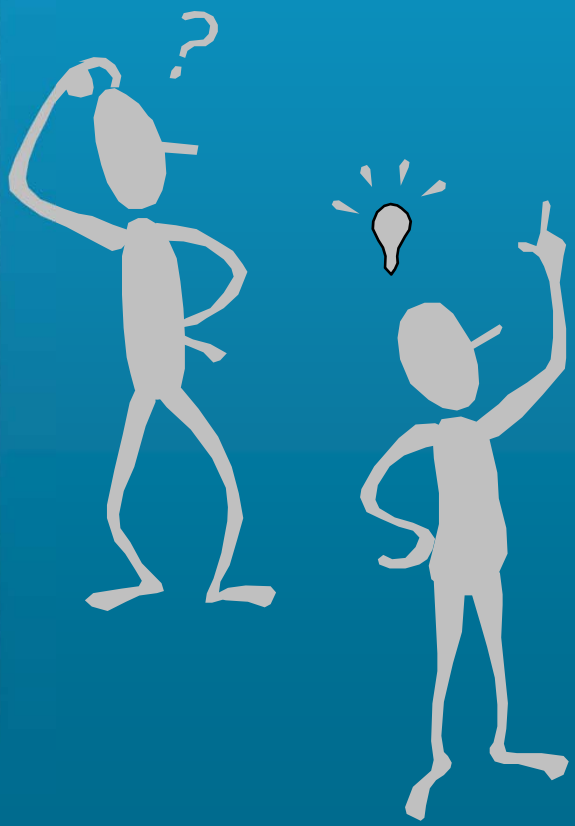
CONTACT DELCORA

- **Mail Address**
  - **DELCORA**
    100 East 5th Street
    Chester, PA 19013
- **Email: ltcpinfo@delcora.org**
- **On the WEB: www.delcora.org**
- **General Phone Number: 610-876-5523**
- **Newsletter**
- **Sign-Up Sheet**

-Thank You-

Discussion - Q&A

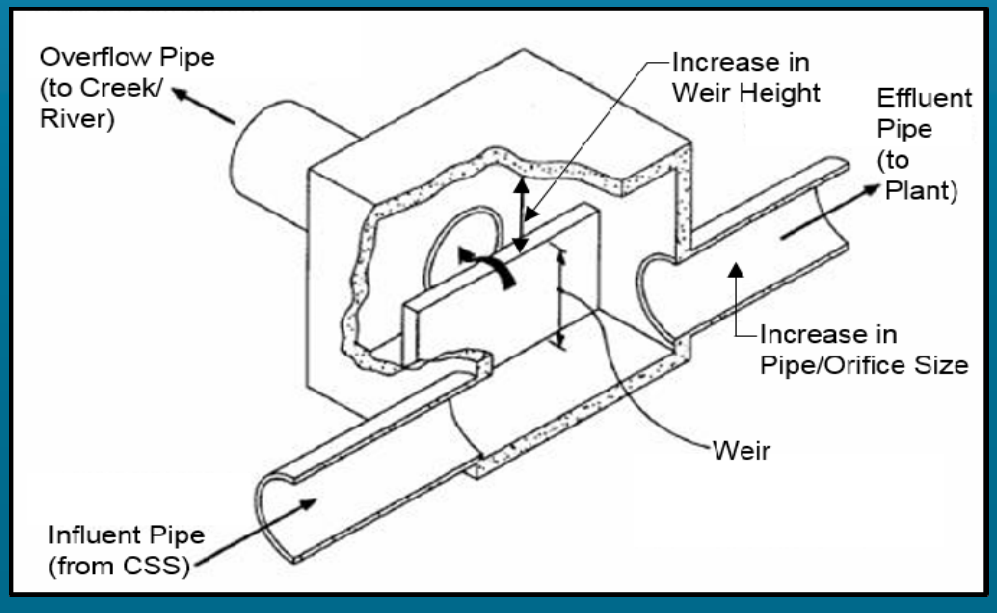




End of Presentation

Selected CSO Control Technologies

- Regulator Control Improvements
  - Regulator modifications in 19 locations to maximize flow to the treatment plan using existing infrastructure.
  - Can raise weir height or increase the size of outflow pipes, orifices, or gates.
  - Allows more flow to enter the collection system and prevents CSOs during smaller storms.



Selected CSO Control Technologies

- Targeted Overflow Reduction:
  - A parallel conveyance pipe along Front St. from Hayes St. to Clayton St.
  - Restoration and extension of an existing line at Clayton and Front Streets.
  - Installation of new piping to separate the combined sewer area north of Veterans Memorial Park.

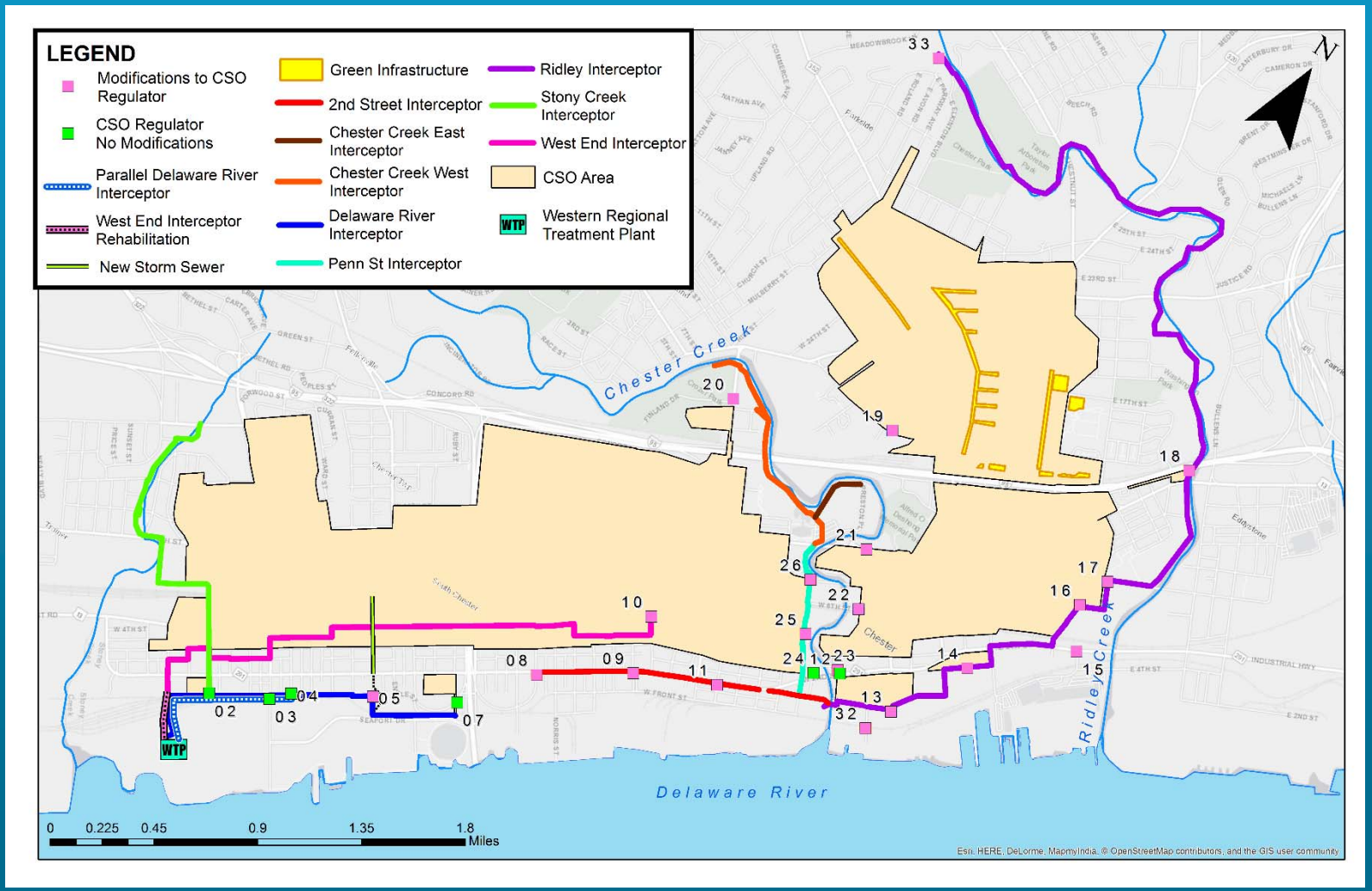
Selected CSO Control Technologies

- Targeted Overflow Reduction (con't):
  - Potential green infrastructure locations on Widener University's campus, on Edgemont Avenue north of I-95, on Crozier Street, and any other viable areas.
  - Installing a combined sewer storage tank near the Taylor Arboretum.
  - Public outreach to inform the general public of the status of the DELCORA system.

Selected CSO Control Technologies

- Targeted Overflow Reduction (con't):
  - Installation of real-time motor operated values and controls in the regulators and conveyance system to handle increased flows.
  - Treatment plant modifications to handle excess wet weather flow treatment.

Selected CSO Control Technologies



Selected CSO Control Technologies

- Adaptive Management
  - Conduct post-construction monitoring after CSO control technologies are implemented to determine if they are operating as intended.
  - Higher frequency overflows will be evaluated during monitoring for additional improvements, if necessary.
  - Financial capabilities for additional improvements will also be considered during the monitoring.