



Wastewater Regionalization Evaluation

Somerset, MA

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Presentation Overview

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Scope and Objectives

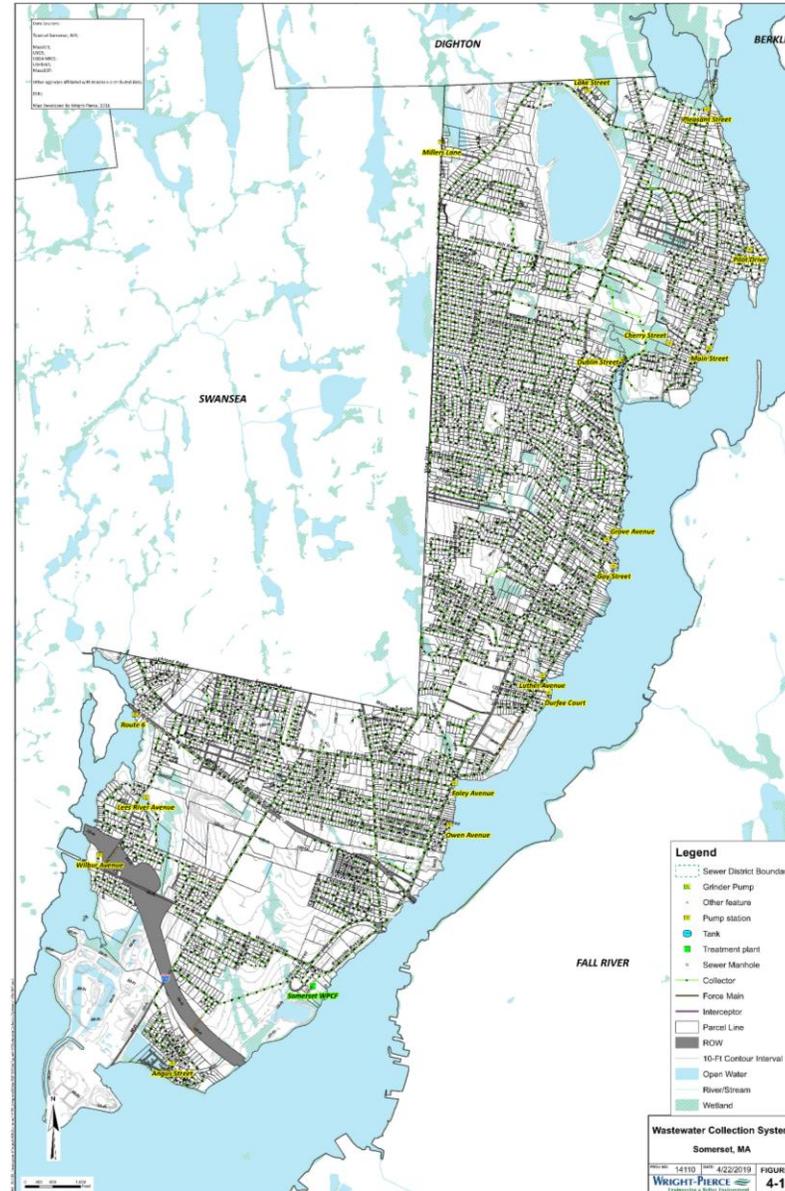


- Determine if Fall River has capacity and interest to receive wastewater flow from Somerset
- Evaluate how to collect and transport Somerset's wastewater to the Fall River WWTP
- Identify existing infrastructure for Somerset and what must remain
- Evaluate permitting requirements, both regulatory and environmental
- Identify capital and operation and maintenance costs for project
- Consider the overall feasibility of regionalization

Project History

- **2018 – Integrated Water Resource Management Plan (IWRMP)**
 - Includes a Comprehensive Wastewater Management Plan (CWMP)
- **2021 – Value Engineering Study, Solids Handling at Somerset WPCF**
- **2024 – NPDES permit received for WPCF (and Collection System)**
 - Effluent Limit for Total Nitrogen (TN)
 - 6-Year compliance schedule
- **2024/2025 – Regionalization Evaluation**
 - Review IWRMP/CWMP Recommendations
 - Optimization of Existing WPCF for TN Removal
 - Finalize recommended TN upgrade

Somerset Sewer System – Collection and Pump Stations



Somerset Sewer System – WPCF



Somerset WPCF Upgrades - IWRMP Recommendations & Cost Estimate

- Single Phase WPCF Upgrade
- Original cost estimate - \$57 million
- Adjusted for present costs - \$75 million
- Scope:
 - General Site
 - Preliminary Treatment
 - Flow Equalization
 - Primary Treatment
 - Secondary Treatment
 - Solids Processing
 - Composting and Administrative Area
 - Odor Control

CONCEPTUAL COST ESTIMATE

ITEM	ESTIMATED COST
Civil	\$1,694,000
Architectural	\$2,573,000
Structural	\$2,282,000
Process Equipment & Piping	\$12,139,000
HVAC/Plumbing	\$1,621,000
Instrumentation	\$1,809,000
Electrical	\$4,653,000
Contractor Mobilization (5%)	\$1,339,000
Itemized Construction Subtotal	\$28,110,000
Contractor Overhead and Profit (20%)	\$3,666,000
Contractor Mark-up on Subcontractor Work	\$733,000
Bonds and Insurances and Unit Price Items (4%)	\$1,212,000
Construction Cost Subtotal	\$33,721,000
Design Contingency (20%)	\$6,744,000
Inflation to Mid-point of Construction (12%)	\$4,061,000
Total Estimated Construction Cost	\$44,526,000
Construction Phase Contingency (5%)	\$2,230,000
Engineering Services – Design & Construction Administration (20%)	\$8,905,000
Materials Testing (1%)	\$445,000
Asbestos and Lead Paint Abatement	\$10,000
Town Legal/Administration Fees (2%)	\$891,000
Financing (1%)	\$570,000
Total Project Cost	\$57,577,000

Regionalization

What is Regionalization?

- **Community with sewer collection system conveys wastewater to another community**

Why Regionalize?

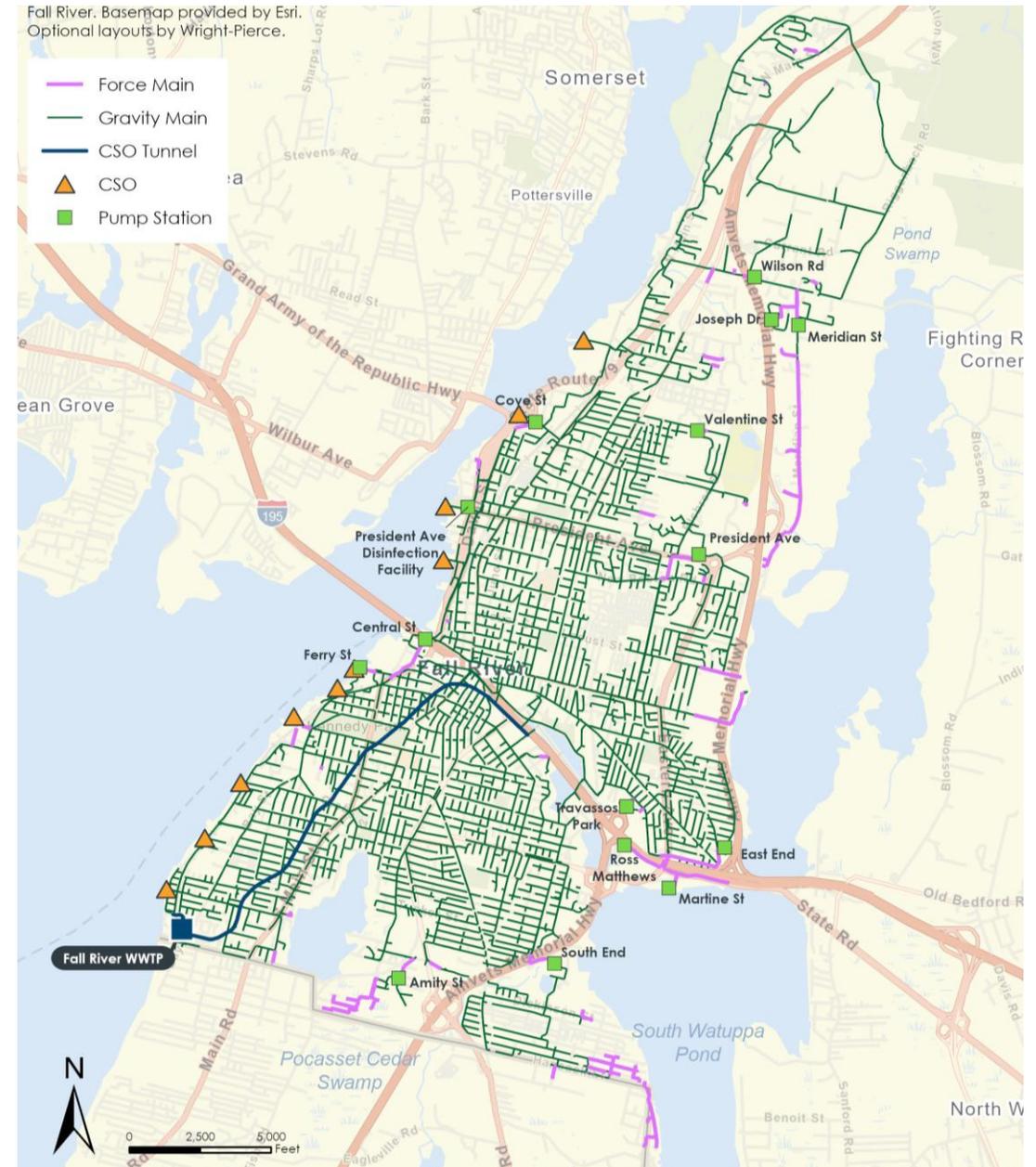
- **Somerset Facing Large Capital Upgrade at WPCF**
- **No longer own/operate a wastewater treatment facility**

Where?

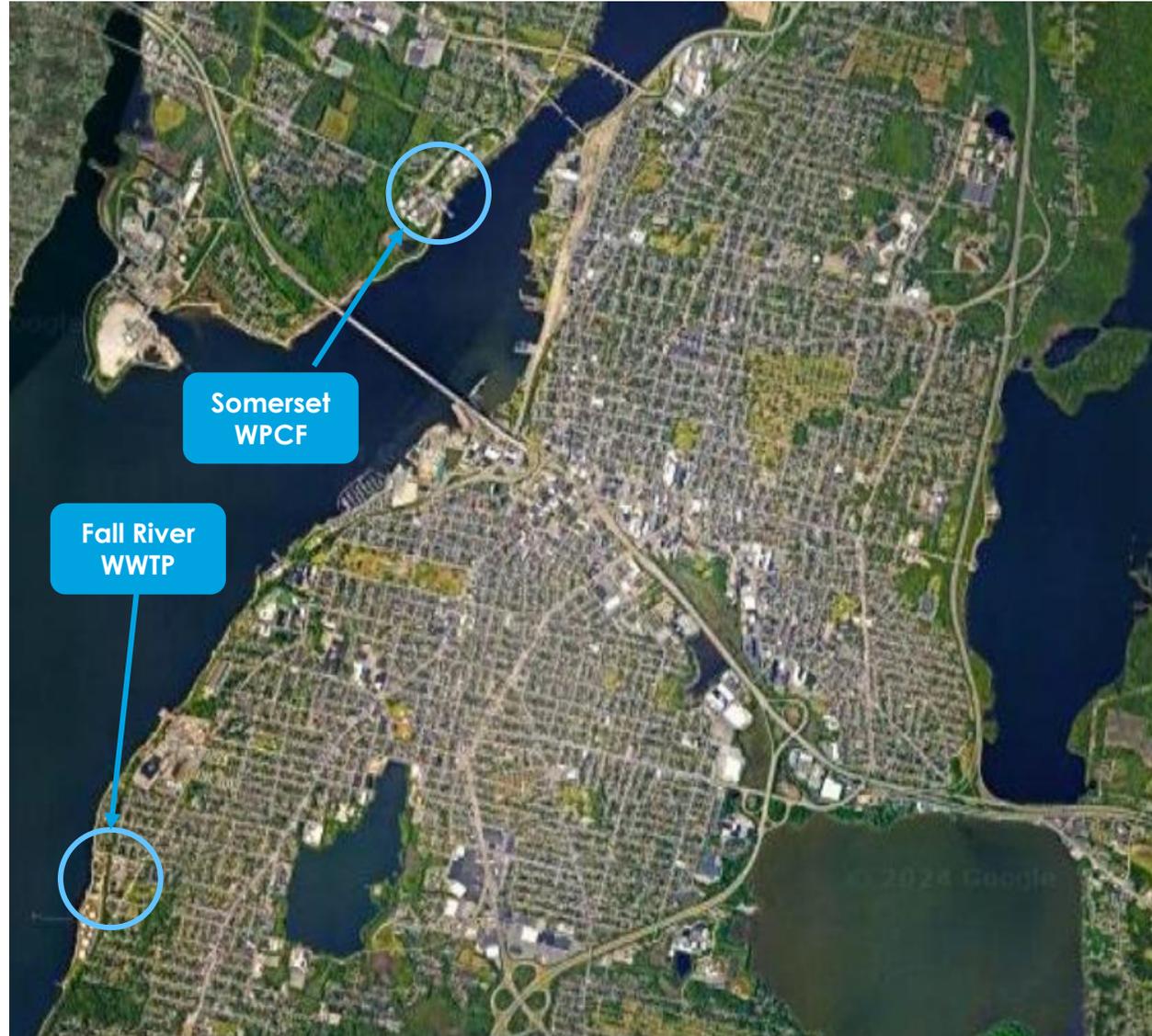
- **Swansea and Dighton not viable**
- **Fall River is reasonably close and has a large system/facility and existing regional agreements in place with other communities**

Fall River System

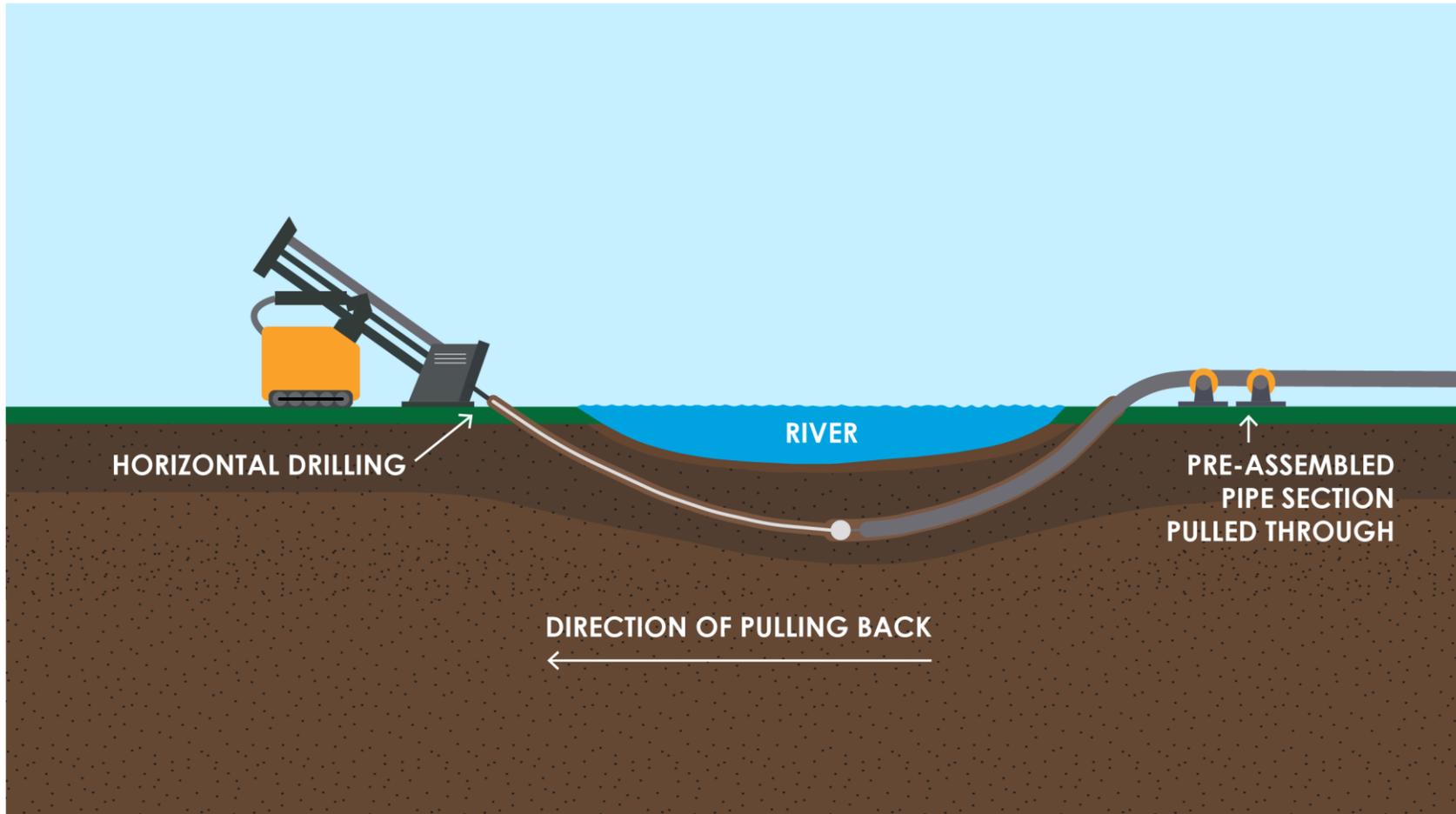
- Combined Collection System
- Combined Sewer Overflows (CSOs)
- WWTP
 - 30.9 mgd dry weather capacity
 - 106 mgd wet weather capacity
 - Provides secondary treatment up to 50 mgd



How?



How?



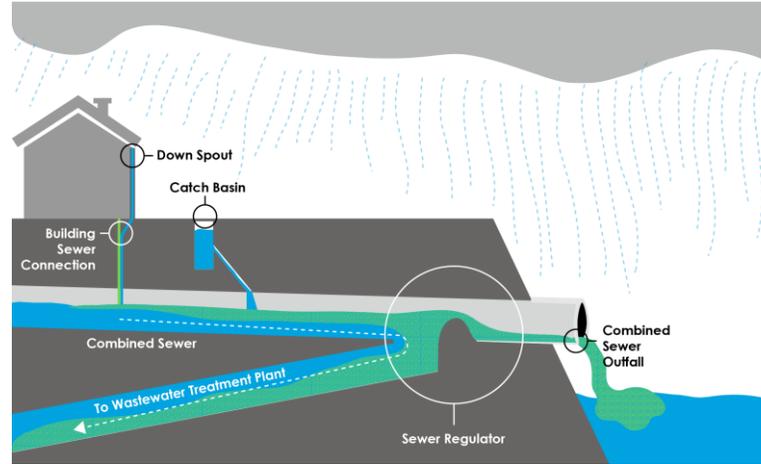
- Current Somerset WPCF would be converted to a pump station
- Taunton River separates the two communities
 - Bridge crossing not viable
 - Directional drill under Taunton river
- Dual force mains
- High Density Polyethylene (HDPE) Pipe

Fall River Connection Alternatives



1 - Central Street Pump Station

- Located on Central Street near Battleship Cove
- 12.5 mgd capacity



2 - CSO Tunnel – Columbia Street

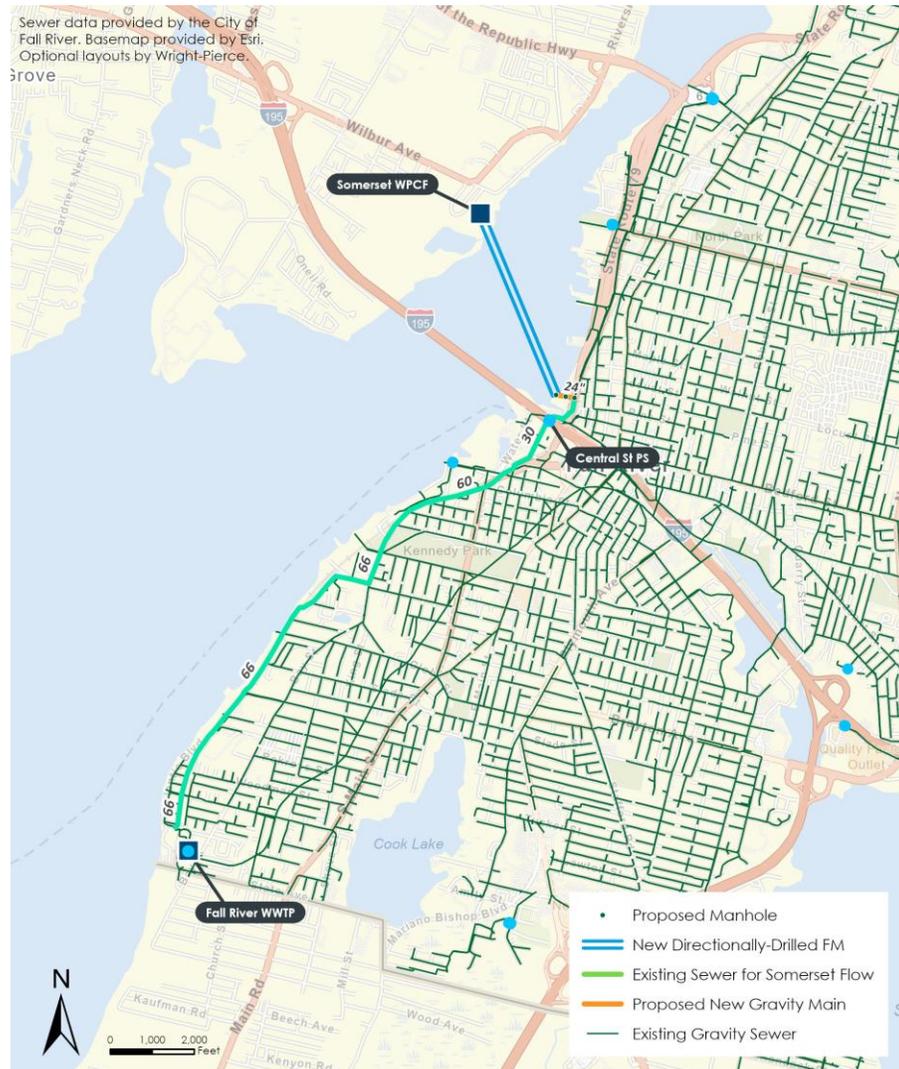
- Drop shaft into 3-mile CSO tunnel via Columbia Street
- Used for wet weather flow management
- 38-million-gallon capacity



3 - Fall River Wastewater WWTTP

- Located at 1979 Bay Street
- Treats wastewater for portions of Tiverton, Freetown, Westport and all of Fall River

Connection Option 1 – Central Street Pump Station



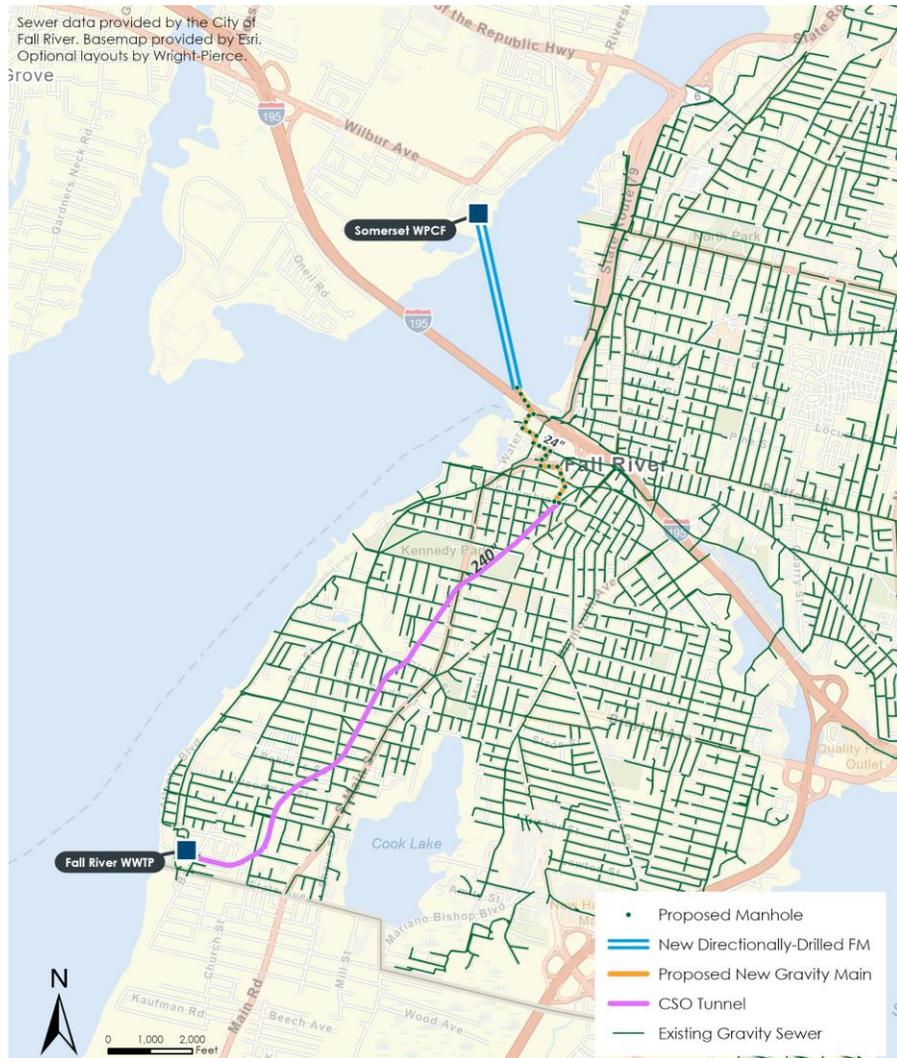
Pros:

- Closest and largest pump station to the Somerset WPCF
- Capacity for dry weather flows

Cons:

- No capacity during wet weather flows
- Upstream sewer piping undersized for wet weather flows
- Option not selected for further evaluation

Connection Option 2 – CSO Tunnel – Columbia Street



Pros:

- Adequate capacity for dry-weather flow

Cons:

- A new dedicated sewer line is needed for flow to reach tunnel
- Dedicated sewer line would cross several state routes, including I-195
- Disrupts residents and businesses
- Option not selected for further evaluation

Connection Option 3 – Fall River WWTP



Pros:

- Would not affect Fall River collection system
- Accommodate full range of flows
- Least disruption to Fall River residents

Cons:

- Located completely within river
 - Difficult installation/constructability
 - Difficult to Permit
- Selected option for further evaluation

Existing Somerset Infrastructure Considerations



Collection System

- **Must maintain current system**
- **Infiltration and inflow removal required (via sewer rehabilitation)**
- **Swansea connection to Somerset**

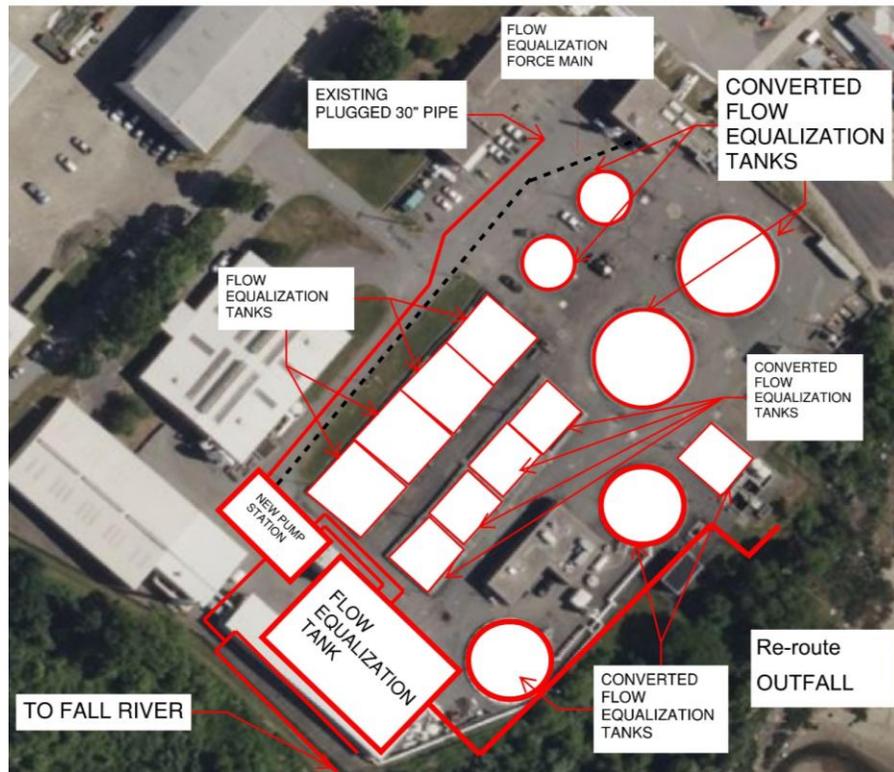
Pump Stations

- **Don't go away**
- **Older stations need upgrades**

WPCF

- **TN upgrade required by NPDES Permit**
 - **6-year compliance schedule for completion (2030)**

Somerset WPCF Conversion



Convert WPCF to Pump Station

- New wet well and dry well with new pumps
- New building with mechanical screen
- Piping modifications

Flow Equalization Modifications

- Overflow to be directed through existing facility tankage by existing pumps
 - Flow by gravity to rest of facility
 - Block off outfall and direct to new EQ Tank
- Construct new flow equalization tank for additional storage

Regionalization Permitting



Watersheds for Somerset and Fall River

Local

- Intermunicipal Agreement
- Conservation Commissions
- Fall River Port Authority

State

- MEPA
- Coastal Zone Management
- Inter-basin Transfer Act
- MassDOT

Federal

- Somerset/Fall River NPDES Permit
- Army Corps of Engineers

Costs

Capital Costs

- All one-time costs needed for a project

O&M Costs

- Costs that are incurred annually to maintain operations
- Includes power, labor, spare parts, etc.

Life-Cycle

- Costs that refer to the total costs of a project over life span
- Evaluated for a 20-year life span
- Future capital cost based on 2% interest rate (State Revolving Fund Projects) & 4% Inflation
- O&M costs cost based on escalation at 4% inflation rate

Costs – Capital

Regionalization

- Interim (2030) WPCF TN and electrical upgrade
- Pump Station and Flow Equalization
- Fall River Connection Fee
- Fall River WWTP Upgrade
- New Collection System Piping

No Regionalization

- WPCF Upgrades (Phased Approach)
 - General site
 - Preliminary treatment
 - Flow equalization
 - Secondary treatment
 - Solids processing
 - Composting and administrative area
 - Composting
 - Electrical and instrumentation upgrades

Costs – O&M

Regionalization

- Existing Somerset pump stations and collection system
- New pump station
- Fall River WWTP annual costs
- Fall River user charge

No Regionalization

- WPCF
- Collection system and pump stations

Costs – Life Cycle

	Regionalization	No Regionalization
Current Capital Cost	\$154,000,000	\$75,000,000
Current O&M Costs	\$20,800,000	\$3,900,000
Life Cycle		
20-Year Capital Costs (2% interest and 4% inflation over 20 years)	\$281,000,000	\$129,000,000
20-Year O&M Costs (4% inflation over 20 years)	\$619,000,000	\$116,000,000
Total	\$900,000,000	\$245,000,000

Estimated Schedule to Regionalize

- **Permitting and legal items – approximately 3 years**
- **Design – approximately 2 years**
- **Approval of Design – approximately 2 years**
- **Construction - approximately 3 years**

WPCF Upgrade Schedule

- **Permit Required TN Upgrade – Completion by 2030**
- **Upgrade Split Into 2 Phases**
 - **Phase 1 – TN, Sludge Handling and Electrical by 2030**
 - **Phase 2 – Remaining Facility Upgrades, estimated 2035**
- **Phase 1 Addresses NPDES Requirements and Supporting Infrastructure**
- **Phase 2 Addresses Aging Equipment, Increasing Efficiency, Etc.**

Evaluation Summary

Where could Somerset Regionalize?

- **Fall River best option**
- **No existing wastewater connection**
- **Wet weather capacity issues**
- **Taunton River adds complexity for construction and permitting**

Existing Somerset Infrastructure

- **Collection system and pump stations don't go away**
- **WPCF TN upgrade needed in interim**
- **Flow equalization needed**

Evaluation Summary, Cont'd

Permitting

- Lengthy process
- MEPA and Inter-Basin Transfer are significant hurdles
- Construction in river may not be feasible

Costs

- Capital costs higher for regionalization
- Annual costs increase significantly
- Higher sewer fees for Somerset residents

THANK YOU
