



Turning a Negative into a “Positive” – Negotiating a Consent Decree to Develop a Reasonable Endpoint

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City of Haverhill's Story

January 19, 2017



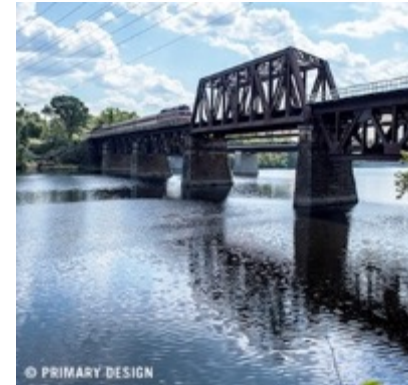
**CDM
Smith.**

Agenda

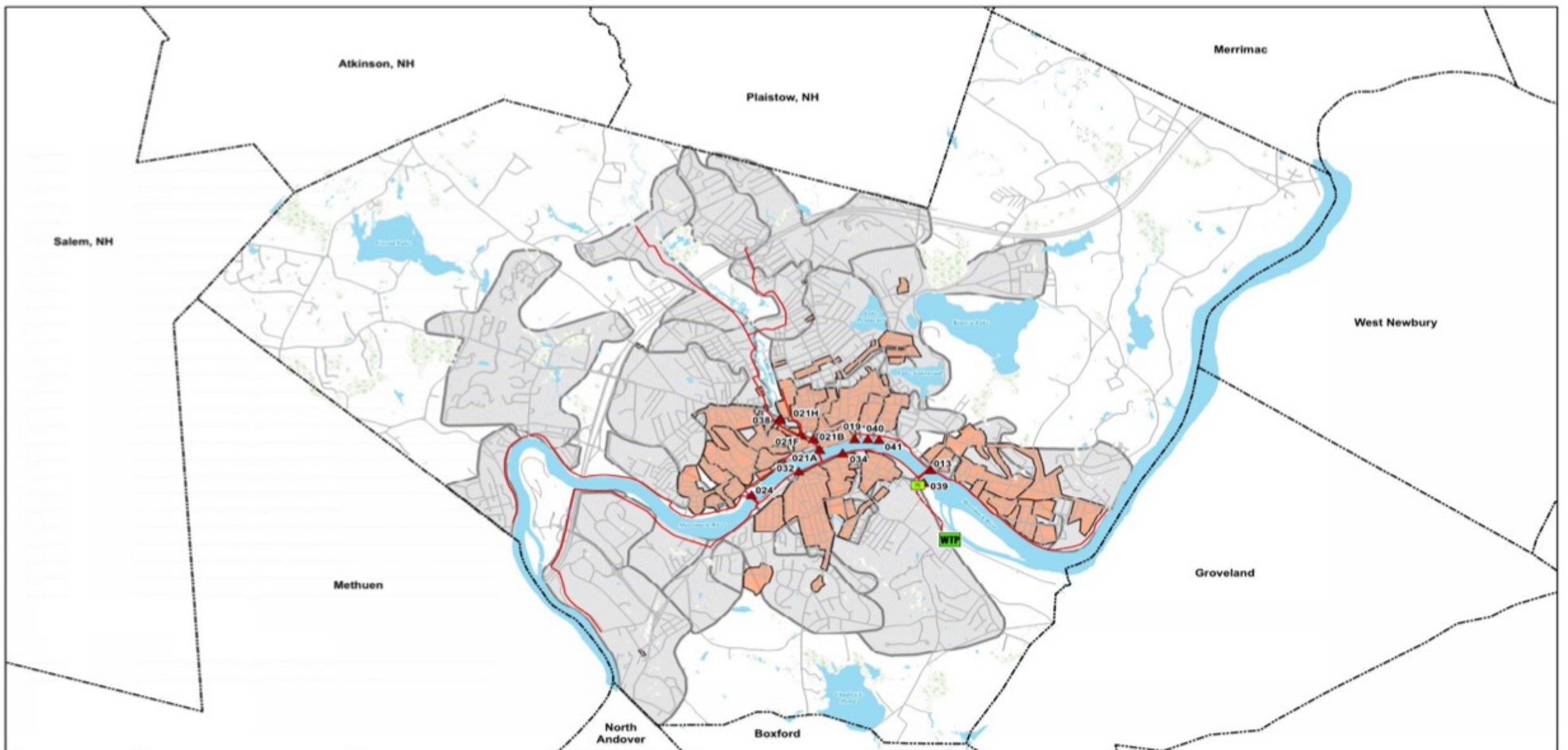
- A little about Haverhill
- Compliance history
- EPA directive
- Negotiations
- Progress thus far
- Financial impacts
- Conclusions

City of Haverhill

- 62,000 people
- 36 square miles
- Urban and rural mix – septic on the outskirts of the city
- 18% combined sewer



“Old Mill City” on the Merrimack River

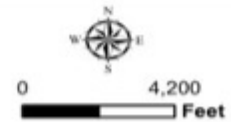


**CDM
Smith**

- ▲ CSO and NPDES #
- Town Line
- Sanitary Interceptor
- Roads

Legend

- Orange Box: Combined
- Grey Box: Separated
- Green Box with Wavy Lines: Wetland Areas
- Blue Box: Water Bodies



City of Haverhill, Massachusetts
Final CSO Long-Term Control Plan
January 2017

Sewer Area Classification
Figure 2-1



Wastewater

- **Treatment Plant**
 - 18 mgd average day flow
 - 60 mgd wet-weather peak flow
 - Built in late 1970's
- **Collection System**
 - 37 pumping stations
 - 187 miles of pipe
 - 6 to 66 inch pipe
 - 13 Combined sewer overflows/15 CSO regulators
 - 3 Merrimack river siphon crossings
 - Late 1800's
- 26 Staff
- \$9.4 million annual budget including stormwater



Stormwater

- 100 miles of pipe
- 9,000 catch basins
- 1,200 outfalls
- Detention basins, other structures, etc.
- Street sweeping and catch basin cleaning



Haverhill's challenges – NOW!

- Consent decree compliance
- Aging treatment plants (water and wastewater)
- Combined Sewer Overflows (CSO's)
- Aging Wastewater Collection System and Water Distribution System
- Stormwater Permit and infrastructure
- Increased O & M for everything
- Staffing
- Landfill closure
- Water Treatment



- *How do we get it all done?*
- *How do we pay for all this?*

Wastewater Compliance History

- **August 2002** Final Phase I LTCP
- **August 2002 to 2007** Phase I Implementation
- **September 15, 2008/February 9, 2009 Administrative Order**
 - Complete Phase II LTCP
 - Also covered Stormwater/CMOM
- **July 2011** Phase II LTCP
- **2013** Initial USEPA/MADEP comments on the Phase II Plan
- **2013** City increased plan in response to comments
- **February 2014** Department of Justice notification of pending Consent Decree
- Negotiations
- City signed in February 2016
- Effective date of November 2017

Consent Decree Requirements

- Planning
 - Flow metering (CSOs)
 - Treatment Plant – comprehensive evaluations, HFM, and O&M Manual
 - Collection System (CMOM, SSO's, etc.)
 - Combined Sewer Overflows (CSO's) Final Long Term Control Plan (LTCP)
 - MS4 Permit Compliance (Dry weather outfall inspections, IDDE, and testing/ordinances)
 - Staffing Assessment **\$13 million**
 - Administrative Requirements – GIS, reporting, etc. **ongoing**
- Supplemental Environmental Project (stream bank restoration)
- Construction - CSO
 - Plant improvements (sludge dewatering and odor improvements)
 - Collection system improvements

Consent Decree Deliverables and Status

- Planning requirements will result in submittals to EPA and DEP with capital improvements and schedules
 - Wastewater Treatment Plant
 - CSO
 - Collection System (CMOM/Asset Assessment)
 - Integrated Wastewater Division Capital Plan
- All due on January 31, 2017
- The capital improvements and schedules will become enforceable under the consent decree!!!
- Costs are “unknown” right now

What was the plan?

Submit plans and schedules as required by the consent decree that make sense for Haverhill while maintaining compliance with the consent decree and the myriad of regulations

- Look at everything and identify what needs to be done
- Develop criteria for prioritizing needs
- Develop CIP – balance needs and funds available
- Consider other DPW/City priorities

How was the work completed?

- Staffing
 - Management
 - Technical
 - O&M
- Consultants and contractors
- Technology
 - Better information for decision making
 - More effective use of staff
 - Tools for staff (MaintStar CMMS)

Findings - Comprehensive WWTP Evaluation

- Building/Equipment and Process Assessment
- Issues
 - Aging equipment (some has been replaced in 2002 and 2016 WWTP Upgrades)
 - Good process
 - Odors (primarily addressed by new centrifuges and miscellaneous upgrades around plant; future program to look at larger/more expensive upgrades)
 - NPDES Exceedance
 - BOD, TSS, Bacteria (Enterococci)
 - Historic and old (past upsets and solids issues)
 - More recent data is a dramatic improvement
 - City is implementing enhancements to IPP and FOG
 - Need to focus on bacteria
 - Priorities
 - Aeration system needs upgrading to ensure adequate treatment
 - Enterococci

Findings – CMOM/Collection System Capital Renewal

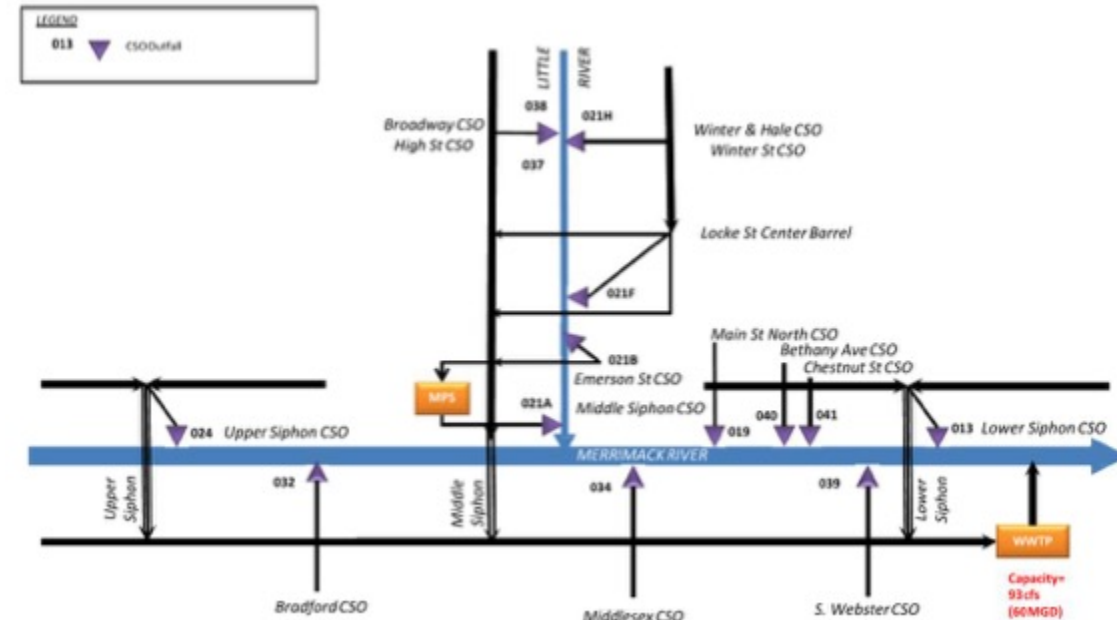
- CCTV and Assessment
 - 10 percent of system inspected by CCTV to assess rehabilitation needs and develop screening and sewer rehab program
 - Three discrete I/I programs that identified sewer rehab improvements
 - Recommendation to continue program of cleaning and inspection and complete identified pipe rehabilitation (subcontracted)
- SSOs – Average of 21 per year, mostly attributed to temporary sewer blockages/pump station maintenance
 - City enhanced reporting to meet EPA requirements
 - Will improve sewer cleaning/response (cameras to investigate)
- Increased attention to preventive maintenance at pump stations and collection system (replace as necessary)
- Formal staff training

Findings - Staffing Plan

- Available resources were compared to other similar plant staffing
- Staffing plan assessed using industry guidelines
- A staffing shortfall is noted and the impact of retirements on institutional knowledge
- Succession planning and training should be addressed
- Mix of outsourced activities and new hires to address organizational needs
- Temporary use of contracted staff to complete some maintenance issues and free up staff to concentrate on preventive maintenance
- Key new hires targeted with a slight re-organization of responsibilities with a focus on staffing for
 - Maintenance at the WWTP
 - Asset management, regulatory reporting, capital programs oversight

Findings – Final LTCP

- Haverhill Progress since 2002
 - Closed more than 13 outfalls
 - Increased WWTP wet weather capacity from 46 mgd to 60 mgd
 - Raised Weirs
 - Modified four regulators with new improvements in 2016 and will implement real-time control in 2017
 - Result - Reduced CSO discharges from 70 MG to 20 MG (March 2017)
- Final LTCP
 - Updated SWMM Model with permanent CSO gauge information
 - Updated areas with new stormwater outfall/piping system information
 - Modeled a range of CSO abatement design control levels
 - 3 Month Control Plan was selected as the control plan



Final LTCP Components

- Wet Weather System Controls Optimization
- Conveyance improvements (cleaning)
- Dry-weather connection pipe modifications
- Green Infrastructure demonstration program
- Locke Street Area Improvements
 - Sewer separation or storage facilities
- ~\$16 million
- Will result in reduction of CSOs to 11 MG and 4 times per year (1 CSO regulator out of 15; the result are less than 4 times per year)

Name	NPDES ID	Current (March 2017)		3-Month Control Plan	
		Volume (MG)	Events	Volume (MG)	Events
Upper Siphon CSOs					
Upper Siphon	024	0.9	4	0.7	2
Middle Siphon CSOs					
Winter Street	021G	0.3	1		
Winter & Hale	021H	0.9	9		
Locke Street Center Barrel	021F	8.0	22	4	4
Broadway (flood)	037				
High Street (flood)	038				
Emerson (flood)	021B				
Middle Siphon	021A	3.1	5	2	3
Lower Siphon CSOs					
Main St North	019	0	0		
Bethany Avenue	040	0.9	17	0.6	0.4
Chestnut Street	041	0.8	15	0.4	3
Lower Siphon	013	3	4	1.9	3
Bradford CSOs					
Bradford	032	0	0		
Middlesex Street	034	0.8	10	0.5	2
South Webster Street	039	0.9	34	0.5	0.8
	TOTAL	19.6		10.6	

Integrated Wastewater Division Capital Plan

- Phase I WWTF Improvements ~\$19 million
 - Secondary Treatment
 - Disinfection Investigations and Enhancements
 - CMOM Program Enhancements ~9 million
 - Pipe cleaning and inspections
 - Pump station renewals
 - System rehabilitation
 - CSO Control Program ~16 million
 - Stormwater Program ~5.5 million
 - SEP Program ~0.9 million
- Total of ~50 million

Other Regulatory Responsibilities

- Landfill to be closed
- \$8 million spent



- Downtown flood protection system (wall, pump station and Little River conduit) – FEMA
- \$5 million spent



Other Priorities - Drinking Water System

- Treatment Plant
 - 12 mgd
 - 12 pumping stations
 - Built in late 1970's
 - Storage Tanks
 - Surface water, Reservoir
- Distribution System
 - 300 miles of pipe
 - 1,636 Hydrants
 - Late 1800's
- \$8.1 million annual budget



Within 1 to 2 years

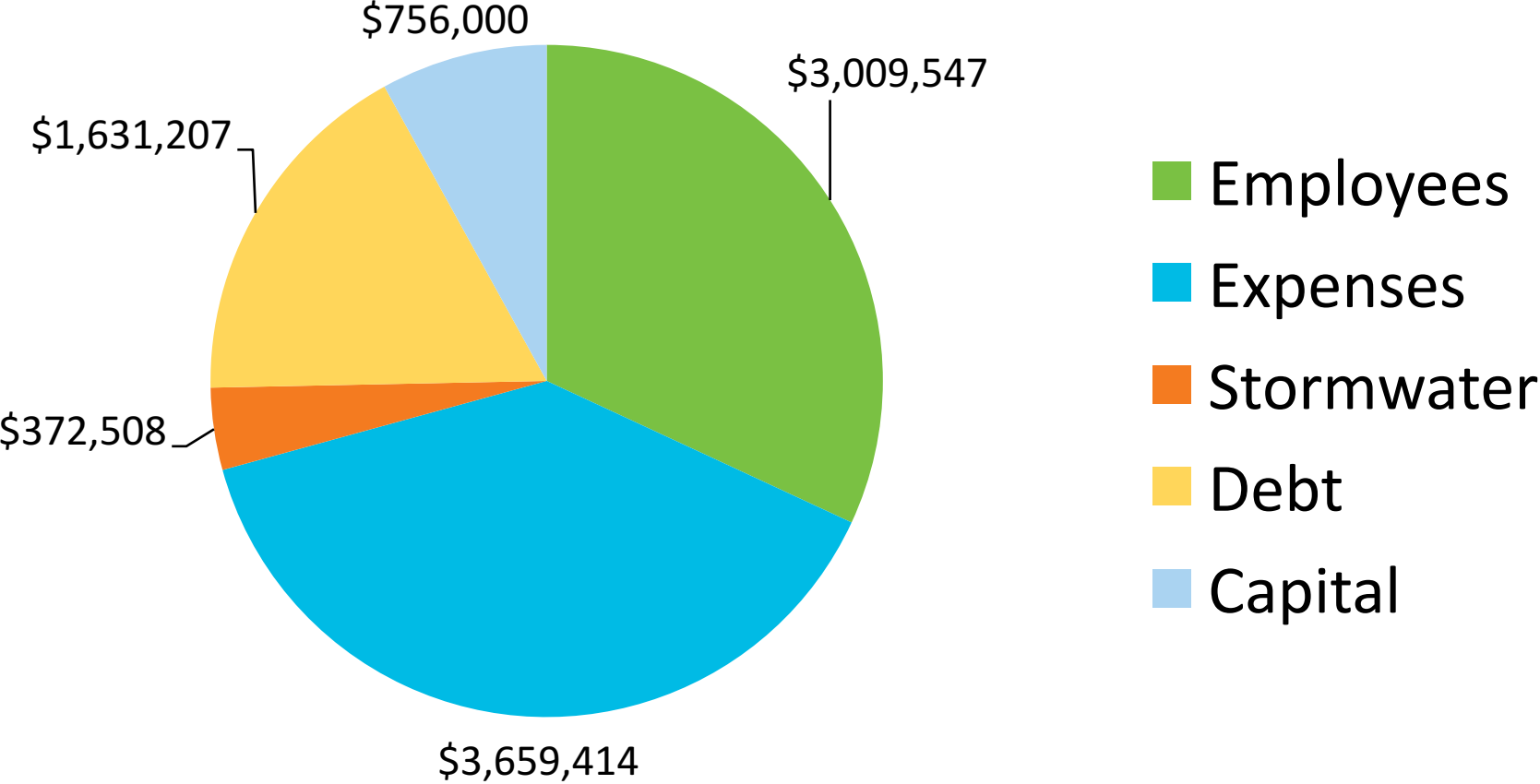
- Landfill \$13.4 million
- Water Treatment Plant \$35 million
- 20" & 36" Water Transmission Main \$ 5 million
- Stormwater Permit \$1.1 million/year

These costs do not include money already spent on CSO, stormwater, WWTP NPDES, landfill, etc.

Funding Sources?

- Financial planning
- SRF
- User rates
- Retained earnings
- Grants

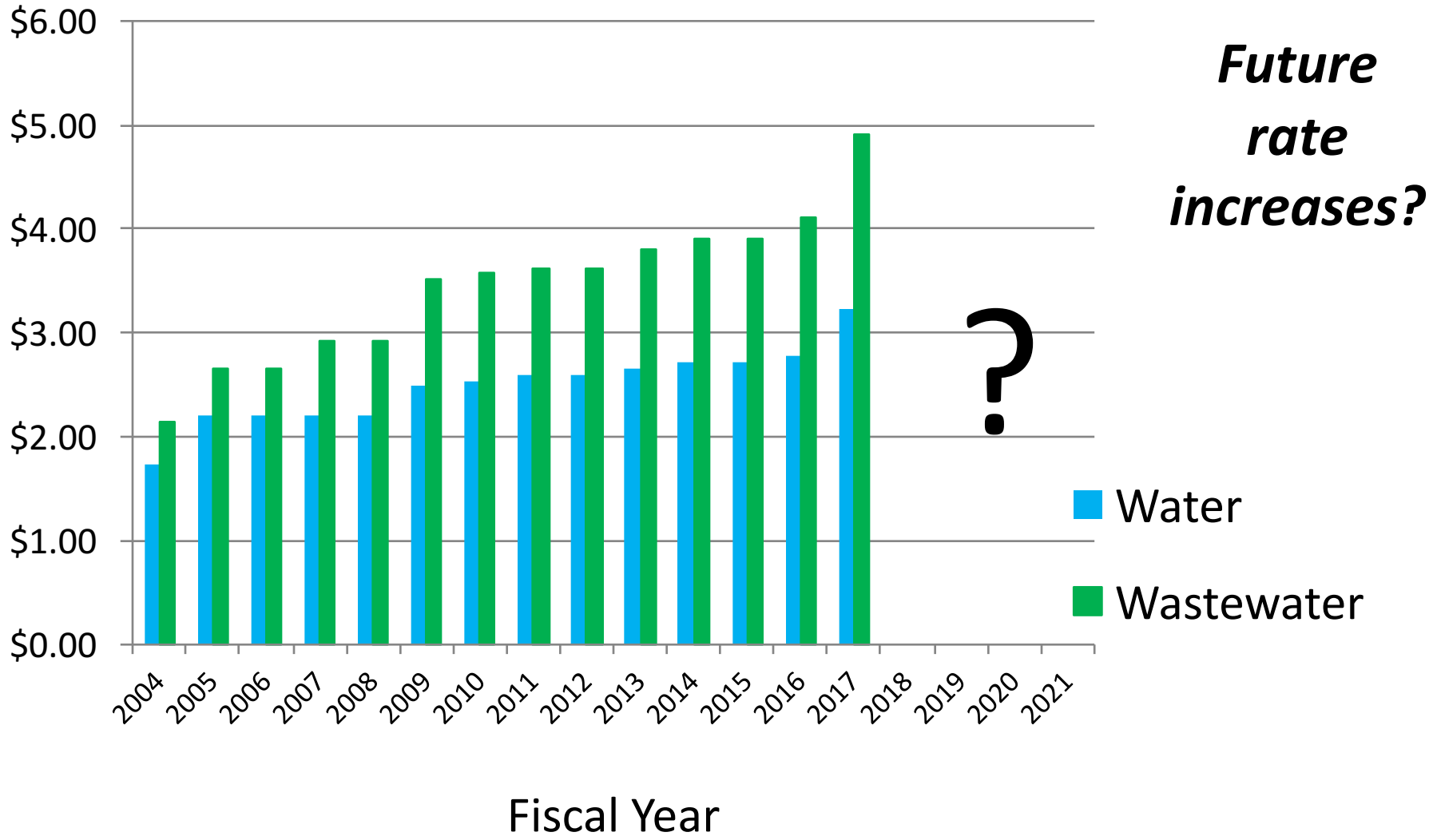
2016 Wastewater Budget



The ongoing WWTP and Phase II CSO work will add \$874,000 to the annual debt payment. The proposed Integrated Wastewater Division Plan will add even more.

Water and Wastewater Rates

2017 is the proposed rate



Conclusions

- Take a step back from the “allegations”
- Look proactively to identify issues and address problems
 - Once the issues were aired, we worked collaboratively with DOJ, US Attorneys, MA Attorneys, USEPA and MADEP
- Negotiated reasonable deliverables and schedules
 - Realigned report deliverables
 - Scrutinized scope to make sure that it wasn't overreaching
 - Prepared a delivery schedule to fit into city's funding protocols and time periods
- Engaged lawyers to help write the language/negotiate
- Integrated the Consent Decree efforts into a positive assessment of the city's assets for future planning

Thank you!



Questions?

Contact us!



Water
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