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# CSO Program Stakeholder Workgroup: Meeting #7 System Master Plan Control Options

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City Hall – Council Chambers  
August 9, 2012



# Welcome & Introductions

- City Representatives
  - Julia Forgue – Director of Utilities
- CH2M HILL
  - Mike Domenica – Program Manager
  - Peter von Zweck – Project Manager
  - Dingfang Liu – Senior Technologist
  - Ben Minnix – Engineering Intern
- Stakeholder Workgroup Participants

# Objective for This Meeting

*The objective for this meeting is to collect comments from stakeholders on how each control technology meets the City's objectives so that a draft SMP can be prepared.*

*The draft SMP will be presented for final comment on September 6, 2012 prior to a presentation to City Council.*

# CSO Program Goals

*Continue to identify & implement the most cost-effective solution for reducing the number of CSOs to a level protective of Newport Harbor and acceptable to the community and regulatory agencies.*

# Strategy to Achieve the Goals of the CSO Program

1. Comply with EPA and RIDEM negotiated CAP requirements
2. Achieve reasonable application of water quality standards
  - Protect King Park Beach
  - Determine the best use of the Washington St. CSO Facility
3. Maximize use of existing facilities
4. Prioritize capital repair & replacement projects
  - Invest in sewerage system for next generations
5. Control Operations & Maintenance (O&M) requirements - (minimize need for new capital facilities)
6. Identify a program & an implementation schedule that is affordable to Newport customers

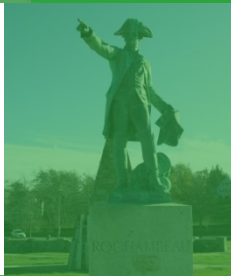
# Meeting Agenda

- Overview of the Program Schedule
- Approval of Previous Minutes
- Parking Lot Follow-up Items
- Key Meeting Topics
  - Preliminary Screening of SMP Control Technologies
  - Overview of Control Technologies
  - Costs and Benefits of Control Alternatives
  - Affordability Assessment
  - Discussion & Comments related to the Draft SMP
- Future Meetings, Wrap-up, Comments



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# OVERVIEW OF THE STAKEHOLDER WORKGROUP

# Schedule of Stakeholder Meetings



	2011												2012											
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Meeting #1 - Overview		●																						
CSO System Tours			●																					
Meeting #2 - Metering & Extraneous Flow Investigations				●																				
Meeting #3 - GIS, CMOM & WPCP							●																	
Meeting #4 - Harbor Water Quality								●																
Meeting #5 - Financing & Rates										●														
Meeting #6 - Alternatives Evaluation Process														●										
Meeting #6a - Alternatives Evaluation Process Cont.															●									
Meeting #6b - Alternatives Evaluation Process Cont. (if needed)																		●						
City meeting with EPA & RIDEM (July 16, 2012)																			●					
Meeting #7 - Draft Collection System Capacity Assessment & SMP																				●				
Meeting #8 - Updated SMP																					●			
SMP - Final to EPA																							★	

We are here

The first 5 meetings focused on existing conditions in the collection system, the harbor and rates.

The last 5 meetings focus on future conditions including: evaluation criteria, technologies, expected benefits, costs and implementation schedules.



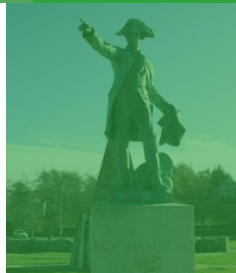
# Stakeholder Workgroup Mission Statement

- To review proposed plans and projects for the Program and provide recommendations to the City about the potential benefits and impacts of proposed plans and projects to all users of the system.
- To share Program plans and project information with each stakeholder's organization to aid the City in its efforts to communicate Program information.
- To support the Program's public education efforts through participation in public education activities.



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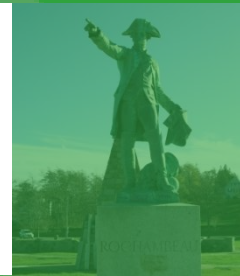


# PREVIOUS MEETING'S MINUTES



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# PARKING LOT FOLLOW-UP ITEMS

# Parking Lot Question #1

How do sources from upstream in the Bay affect water quality in Newport Harbor?

- Response by Angelo Liberti - RIDEM

# Parking Lot Question #2

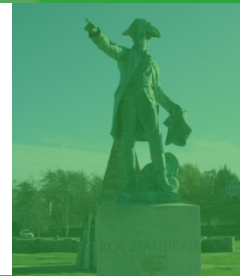
## Can you provide an update on the status of the catch basin disconnection process?

- As of June 30<sup>th</sup> the City completed physical inspections for 91% of its catch basins
- 57 catch basins have been identified as connected to the sanitary sewer system
- Inspections of privately owned and RIDOT catch basins continues as access is granted
- The City has prepared an RFP for drawings and specifications required to remove the catch basins identified to-date
  - Design is scheduled for FY2013
  - Construction will be completed in phases



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# PRELIMINARY SCREENING OF CONTROL TECHNOLOGIES

# Purpose of Preliminary Screening of Control Technologies

## Purpose

- To identify the control technologies and project sites that will best achieve stakeholder priorities & program goals
- Technologies and project sites identified by the screening are then studied in more detail
  - Conceptual designs
  - Hydraulic modeling to evaluate performance
  - Estimates for construction, operating costs

# Methodology for Preliminary Screening of Control Technologies

## Methodology

Set priorities for evaluation criteria (Meetings 6 and 6a)

1. Comply with Clean Water Act
2. Keep Rates at or under affordability limits
3. Meet WQ standards in harbor
4. Support designated uses in harbor

Identify candidate technologies and project sites (Meeting 6b)

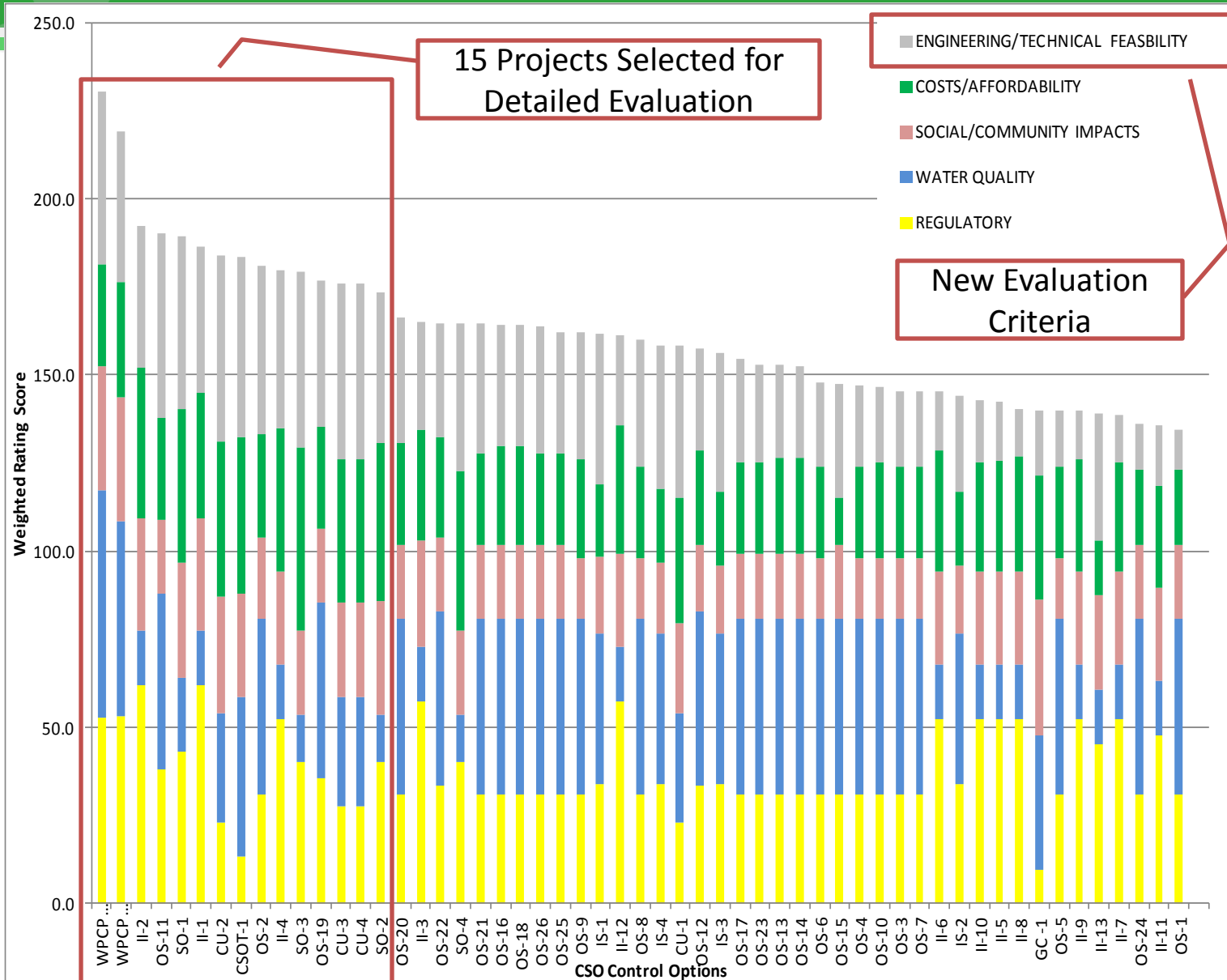
- 8 technology groups
- 55 candidate projects

Perform a qualitative assessment of control options (new today)

- Incorporated ratings for engineering/technical criteria
- Scored candidate projects 0 to 10



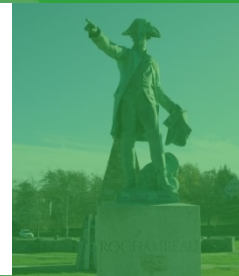
# Results of Preliminary Screening





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# OVERVIEW OF SELECTED CONTROL TECHNOLOGIES

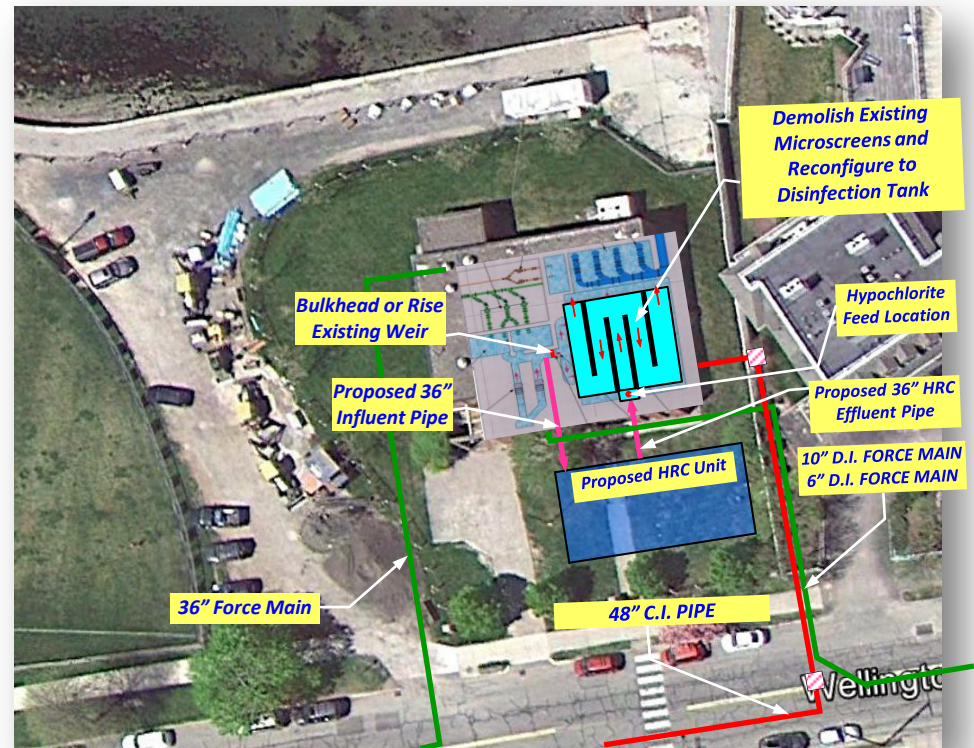
# Control Technologies Evaluated for the SMP

- Upgraded CSO Treatment
- Capacity Upgrades
- Infiltration/Inflow Reduction
- Off-line Storage
- System Optimization
- WPCP Improvements
- Green Controls
- In-line Storage

# CSOT-1.1: HRT at Wellington

## Key Attributes:

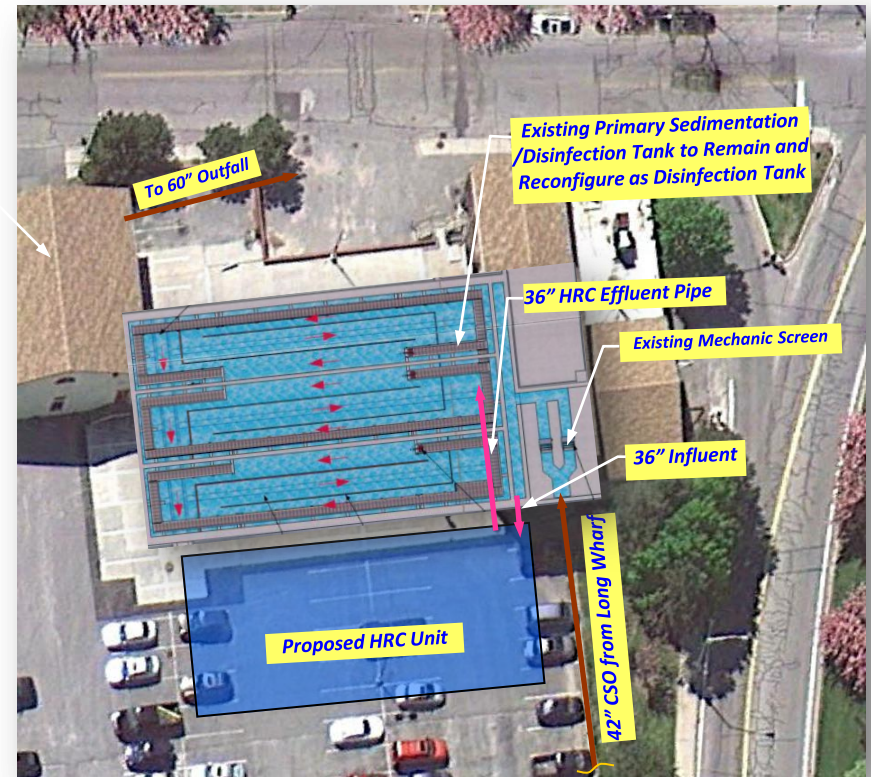
- Demo existing microscreens for new disinfection tank
- Add High-Rate Clarification (HRC) unit
- Raise/Bulkhead existing weir between sanitary and storm pump wet wells



# CSOT-1.2: HRT at Washington

## Key Attributes:

- Reconfigure existing tank for disinfection
- Add HRC unit
- Raise/Bulkhead existing weir between influent wet well and primary sedimentation tank



# Capacity Upgrades to Conveyance System

- CU-2: Catchment 10 Reroute (new pump station)
- CU-3: Additional Pumping at Long Wharf PS (increase pumping capacity)
- CU-4: Additional Pumping at Wellington Ave PS (increase pumping capacity)

# CU-2: Pump Station for Catchment 10



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## Key Attributes:

- Flows from Van Zandt Ave sent to new PS, then to Long Wharf FM
- Existing 18" pipe could remain as wet weather flow overflow for emergency relief
- Estimated capacity needed: 3.5 mgd



# Infiltration/Inflow Reduction

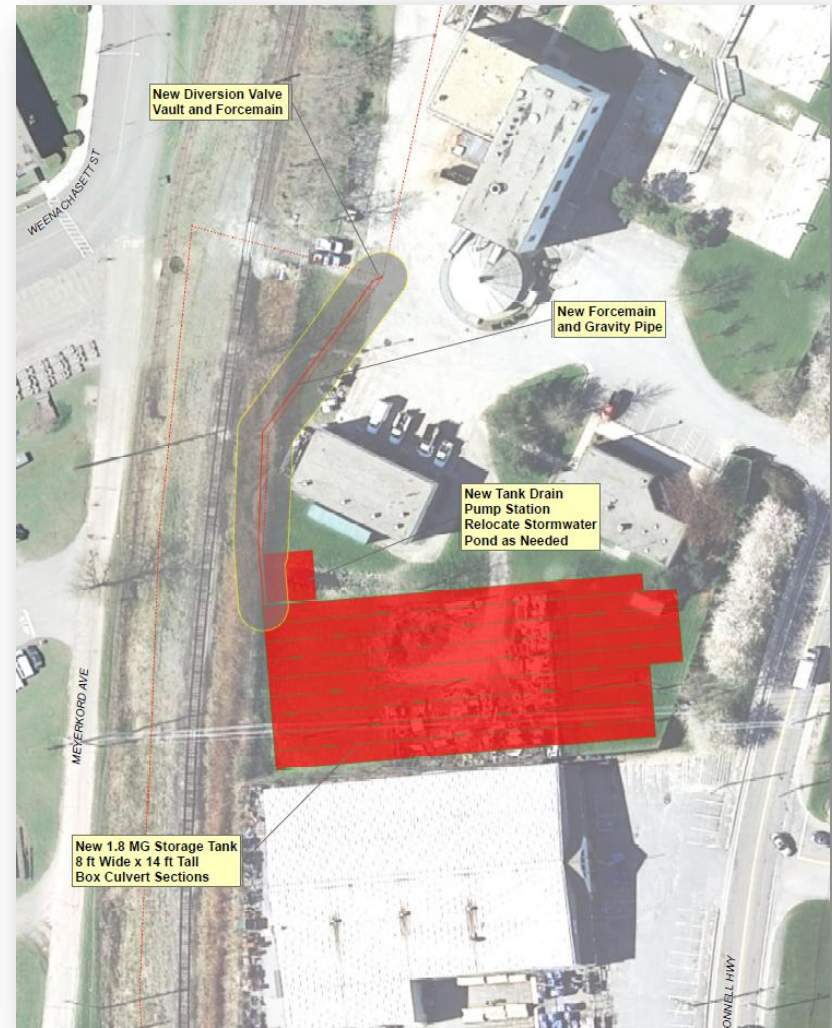
- II-1: Catch Basin Disconnections
  - (57 – starting FY 2013)
- II-2: Manhole Cover Replacements
  - (37 –completed FY 2012)
- II-4: Downspout Disconnections
  - (currently estimate ~6,100 downspouts are connected to the sanitary sewer system – future projects)



# OS-2: Storage at WPCP

## Key Attributes:

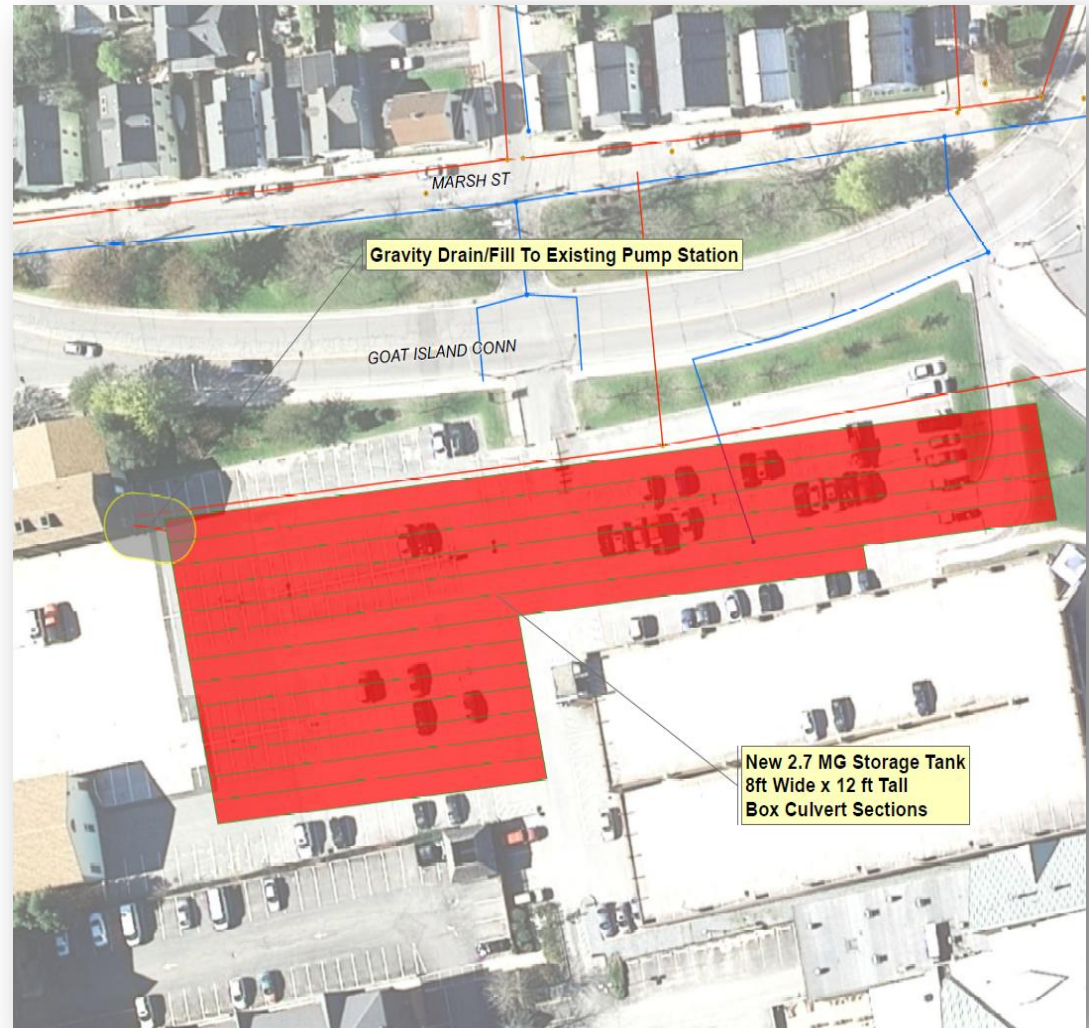
- Maximum Storage Volume: ~1.8 MG
- Located on the south portion of WPCP site
- Can accept flows exceeding WPCP's wet weather capacity
- Allows for flexible operation at WPCP



# OS-11: Storage at Washington CSO Facility

## Key Attributes:

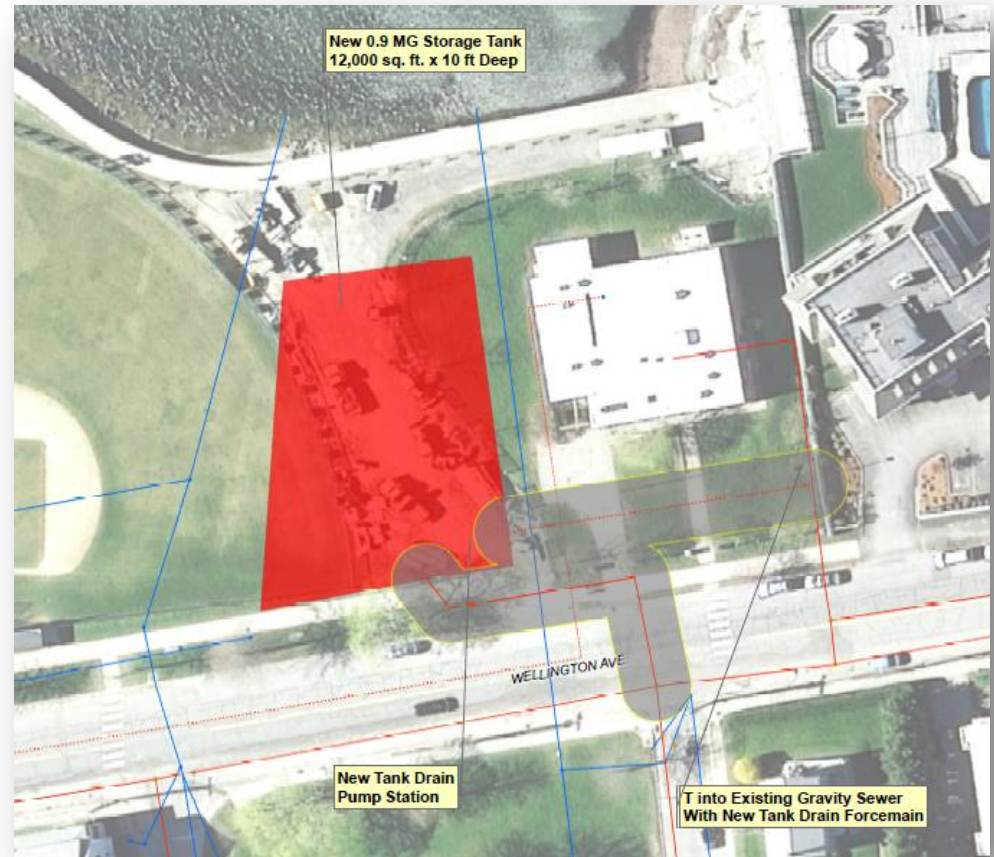
- Storage Volume
  - Existing ~1 MG
  - New ~2.7 MG
- Located adjacent to CSO Facility
- Storage for peak wet weather flows



# OS-19: Storage at King Park

## Key Attributes:

- Maximum Storage Volume: ~0.9 MG
- Located adjacent to the Wellington CSO Facility
- Accepts wet weather overflows from Wellington



# System Optimization

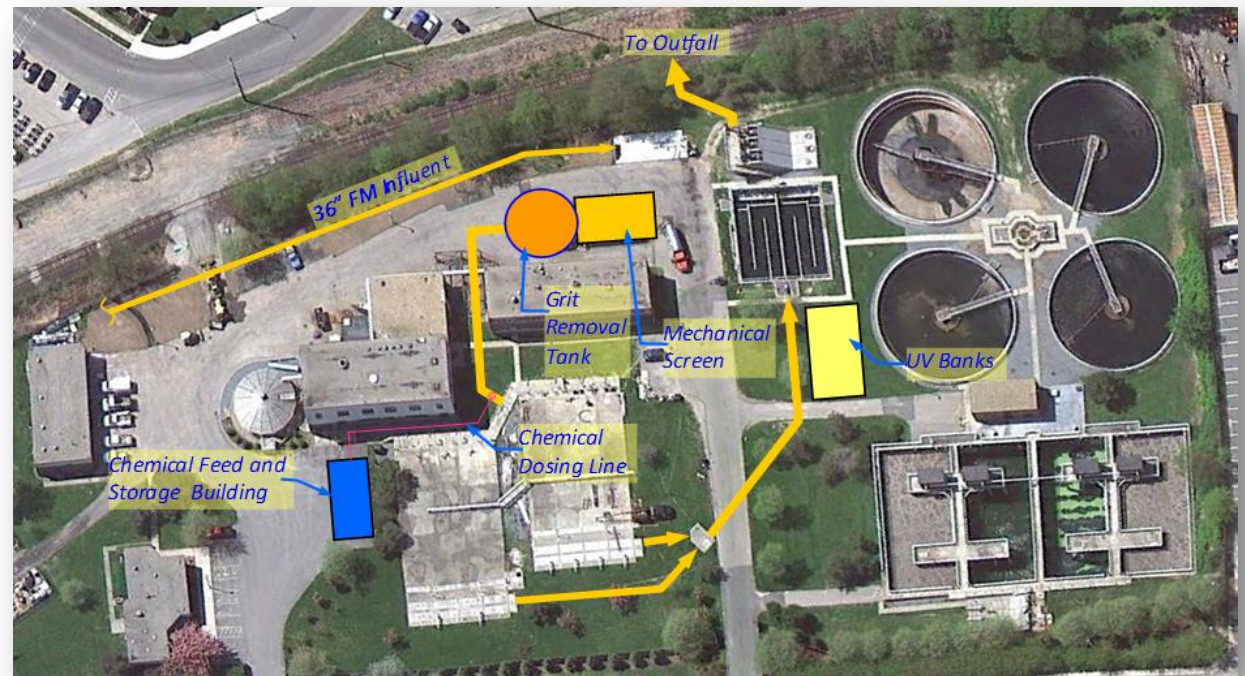
- SO-1: WPCP Flow Optimization
- SO-2: Increased Pumping Capacity/ Better Use of System Capacity
  - Using standby pumps at Wellington Ave PS and Long Wharf PS
- SO-3: Weirs (increasing weir height)
  - Weir from Thames St to Wellington Ave CSO Facility
  - Five weirs on the twin 54” pipes from Thames Interceptor to Long Wharf Pump Station

# WPCP-1: WPCP Upgrade and Expansion

- Key Attributes:
  - Building on projects already in the CIP
    - Headworks, solids handling and disinfection
  - Increase plant capacity
    - Average day flow from 10.7 to 14.4 mgd
    - Wet weather capacity from 19.7 to 30 mgd
  - Primary clarifier improvements add reliability and allow for sustained wet weather treatment
  - Improvements to the aeration tank and final clarifier allow the plant to achieve maximum capacity

# WPCP-2: Chemically Enhanced Primary Treatment (CEPT)

- Key attributes:
  - Upgrade mechanical screens and grit chambers
  - Install chemical storage/feed system
  - Install UV disinfection



- Increases TSS and BOD removal rates

# DISCUSSION

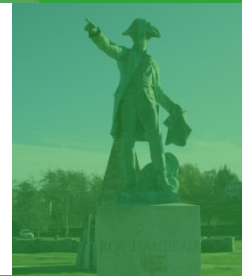
Questions on..

- Initial screening process or results
- 15 shortlisted control options



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# COSTS FOR SELECTED CONTROL ALTERNATIVES



# Concepts for Evaluating Costs for Control Alternatives

- Economics are an important component evaluating the short and long-term impacts of control alternatives.
- Life cycle costs provide a consistent basis for comparing alternatives by accounting for differences in capital costs, O&M costs, and expected service life.
  - Capital Costs -> Design, Construction, Legal, Land, Administration, Contingencies...
  - O&M Costs -> Parts, labor, power, chemicals...
  - Service Life -> Varies by component...

# Key Assumptions for Economic Evaluations of Control Alternatives

## Capital Costs

- Components of Costs
  - Construction -> Unit prices
  - Engineering -> 15%
  - Construction Mgmt -> 10%
  - Contingency -> 30%
- Unit prices for Components
  - City of Newport
  - New England
  - CH2M HILL database for U.S.
- Followed AACE guidelines
  - Class 4 -> Concept Level Accuracy -> - 15 to +30%
  - Class 5 -> Planning Level Accuracy -> -30 to +50%

## Annual O&M Costs

- Labor
  - Local Operations
  - Industry standard values
- Electric rate -> \$0.12/kw-hr
- Demand Charge -> \$7/kw
- Pump Efficiency -> 95%
- Parts -> Varies by component

## Life Cycle Costs

- Life expectancy
  - Sewers -> 70 years
  - Structures -> 50 years
  - Equipment -> 20 years
- Planning Period -> 25 years
- Discount Rate -> 2%
- Inflation -> 0%

# Example Cost Estimate for OS-2 Offline Storage at the WPCP

## Example List of Work Activities

Description	Takeoff Quantity
<b>WPCP STORAGE</b>	
<u>Site/Civil</u>	
<u>Site Preparation</u>	
<u>Site Preparation</u>	
<u>Site Preparation, Clearing and Grubbing</u>	
Selective clearing, brush, medium clearing, with dozer, ball and chain, excludes removal offsite	0.54 acre
Topsoil stripping and stockpiling, 600' haul, topsoil, clay, medium hard, ideal conditions, 300 H.P. dozer	438.89 cy
Load & place Topsoil from stockpiling, 600' haul, topsoil, clay, medium hard, ideal conditions, 300 H.P. dozer	438.89 cy
<u>31-15-01-00 Site Preparation, Clearing and Grubbing</u>	<u>0.52 AC</u>
<u>TBK-201 Site Preparation</u>	<u>0.52 AC</u>
<u>Site Erosion Control</u>	
<u>Site Preparation, Erosion Controls / Pre-construction</u>	
Silt Fence, Heavy-Duty, Subcontracted	1,500.00 lf
Erosion control, hay bales, staked, Subcontracted, Install and Remove	4.00 ea
Temp Seed	6,000.00 sf
Permanent Seeding	23,700.00 sf
Temp Mulching	666.00 sy
Inlet Protection, Subcontracted	5.00 ea
Stabilized Construction Entrance, Clean Rock, 1-1/2" thru 3"	99.56 tn
Filter Fabric under Stabilized Construction Entrance	188.67 sy
Maintenance, erosion control during construction	1.00 ls
Remove erosion control	1.00 ls
<u>31-15-04-00 Site Preparation, Erosion Controls / Pre-construction</u>	<u>0.52 AC</u>
<u>TBK-202 Site Erosion Control</u>	<u>0.52 AC</u>
<u>Site Grading</u>	
<u>Earthworks, Sitework, Site Grading</u>	
Rough Site Grading, Large Crew	433.00 sy
Final Site Grading, machine	10 sy

3 pages long

## Example List of Cost Categories

Description	Amount	Totals	Hours	Rate
Labor	4,362,372		643,045.225 I	
Material	10,497,139			
Subcontract	3,838,193			
Equipment	3,398,435		88,051.700 I	
Other	285,000			
<b>Total Before Markups</b>	<b>22,381,139</b>	<b>22,381,139</b>		
Project Staff & Home Office OH	1,790,491			8.000 %
<b>Total Overhead</b>	<b>1,790,491</b>	<b>24,171,630</b>		
General Conditions	1,692,014			7.000 %
<b>Total General Conditions</b>	<b>1,692,014</b>	<b>25,863,644</b>		
Material Sales & Use Tax - %				
Construction Equip Tax - %				
<b>Total Taxes</b>		<b>25,863,644</b>		
Profit on Previous Subtotal	2,069,092			8.000 %
<b>Total Profit</b>	<b>2,069,092</b>	<b>27,932,736</b>		
Contractor MU on OFCI Equip				
<b>Total MU on OFCI Equip</b>		<b>27,932,736</b>		
Mobilization/Demobilization	1,119,698			3.000 %
Blder's Risk & Gen Liab Ins -%	373,233			1.000 %
Payment & Performance Bonds	432,950			1.160 %
<b>Total Bonds and Insurances</b>	<b>1,925,881</b>	<b>29,858,617</b>		
Contingency - %	7,464,654			25.000 %
<b>Total Contingency</b>	<b>7,464,654</b>	<b>37,323,271</b>		
Escalation on Estimate Total				
<b>Total Escalation</b>		<b>37,323,271</b>		
Mech Owner-Provided Equip				
Elec Owner-Provided Equip				
<b>Total Owner-Provided Equipment</b>		<b>37,323,271</b>		
<b>Construction Total</b>		<b>37,323,271</b>		

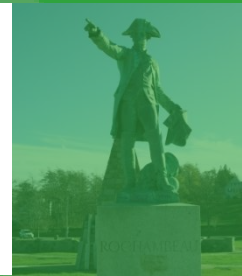
# Summary of Planning Level Cost Estimates for Control Options

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equipment	Structures	Piping	Total Annual Cost
WPCP-1.1	WPCP Upgrade & Expansion, Option 1 (primary clarifiers)	\$ 7,661,875	\$ -	\$ 2,298,563	\$ 3,830,938	\$ 1,532,375	\$ 303,410
WPCP-1.2	WPCP Upgrade & Expansion, Option 2 (aeration tank and final clarifiers)	\$ 8,328,125	\$ -	\$ 1,665,625	\$ 4,164,063	\$ 2,498,438	\$ 301,062
WPCP-2	CEPT	\$ 12,842,213	\$ 577,000	\$ 2,568,443	\$ 6,421,106	\$ 3,852,664	\$ 1,041,246
OS-11	Washington CSO Facility Storage (3 MG)	\$ 21,566,675	\$ 26,000	\$ 2,156,668	\$ 16,175,006	\$ 3,235,001	\$ 758,728
SO-1	WPCP Flow Optimization	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
CU-2	Catchment 10 Reroute (new 3.5 mgd PS)	\$ 4,788,063	\$ 68,000	\$ 957,613	\$ 2,394,031	\$ 1,436,419	\$ 241,088
CSOT-1.1	Enhanced CSO Treatment (Wellington)	\$ 23,562,500	\$ 160,000	\$ 4,712,500	\$ 11,781,250	\$ 7,068,750	\$ 1,011,784
CSOT-1.2	Enhanced CSO Treatment (Washington)	\$ 38,430,113	\$ 160,000	\$ 7,686,023	\$ 19,215,056	\$ 11,529,034	\$ 1,549,249
OS-2	WPCP Storage (2MG)	\$ 16,666,650	\$ 24,000	\$ 1,666,665	\$ 12,499,988	\$ 2,499,998	\$ 590,249
II-4	Downspout Disconnection	\$ 25,821,413	\$ -	\$ -	\$ -	\$ -	\$ -
SO-3	Weirs	\$ 188,500	\$ -	\$ -	\$ 188,500	\$ -	\$ 5,994
OS-19	King Park, Wellington Ave by CSO Facility, Storage (0.9 MG)	\$ 17,628,813	\$ 27,000	\$ 1,762,881	\$ 13,221,609	\$ 2,644,322	\$ 625,939
CU-3	Additional Pumping Long Wharf (Bigger pumps - 3, 14 mgd pumps)	\$ 2,310,955	\$ 20,000	\$ 462,191	\$ 1,155,477	\$ 693,286	\$ 103,541
CU-4	Additional Pumping at Wellington (Bigger pumps, 3, 3 mgd pumps)	\$ 861,198	\$ 15,000	\$ 172,240	\$ 430,599	\$ 258,359	\$ 46,132
SO-2	Increased Pumping Capacity/Better Use of System Capacity	\$ -	\$ 21,900	\$ -	\$ -	\$ -	\$ 21,900



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# BENEFITS OF SELECTED CONTROL OPTIONS

# Overview of Approach to Evaluations



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1. Identified improvements to be used as a baseline for alternative analyses
2. Formulated combinations of control technologies
  - Baseline
  - 12 Scenarios
3. Utilized calibrated model to evaluate the benefits
  - Evaluated them using a 2-year, 6-hour storm
  - Evaluated selected scenarios for a 5-year and 10-year storms
4. Computed benefits for each alternative
  - Volume reduction
  - Pollutant loads

# List of Projects Included in the Baseline

- Projects that have been identified in the City's CIP or recommended for future improvements to maintain current system operation
  - II-2: Vented Manhole Cover Replacements (FY 2012)
  - II-1: Catch Basin Disconnections (starting FY 2013)
  - Improvements to WPCP (headworks, solids processing, disinfection)
  - Improvements to the Wellington Ave CSO Facility Sanitary Pump Station (per 2010 evaluation)
  - Improvements to Ruggles and Beach Station PSs
  - Pipe capacity and rehabilitation projects

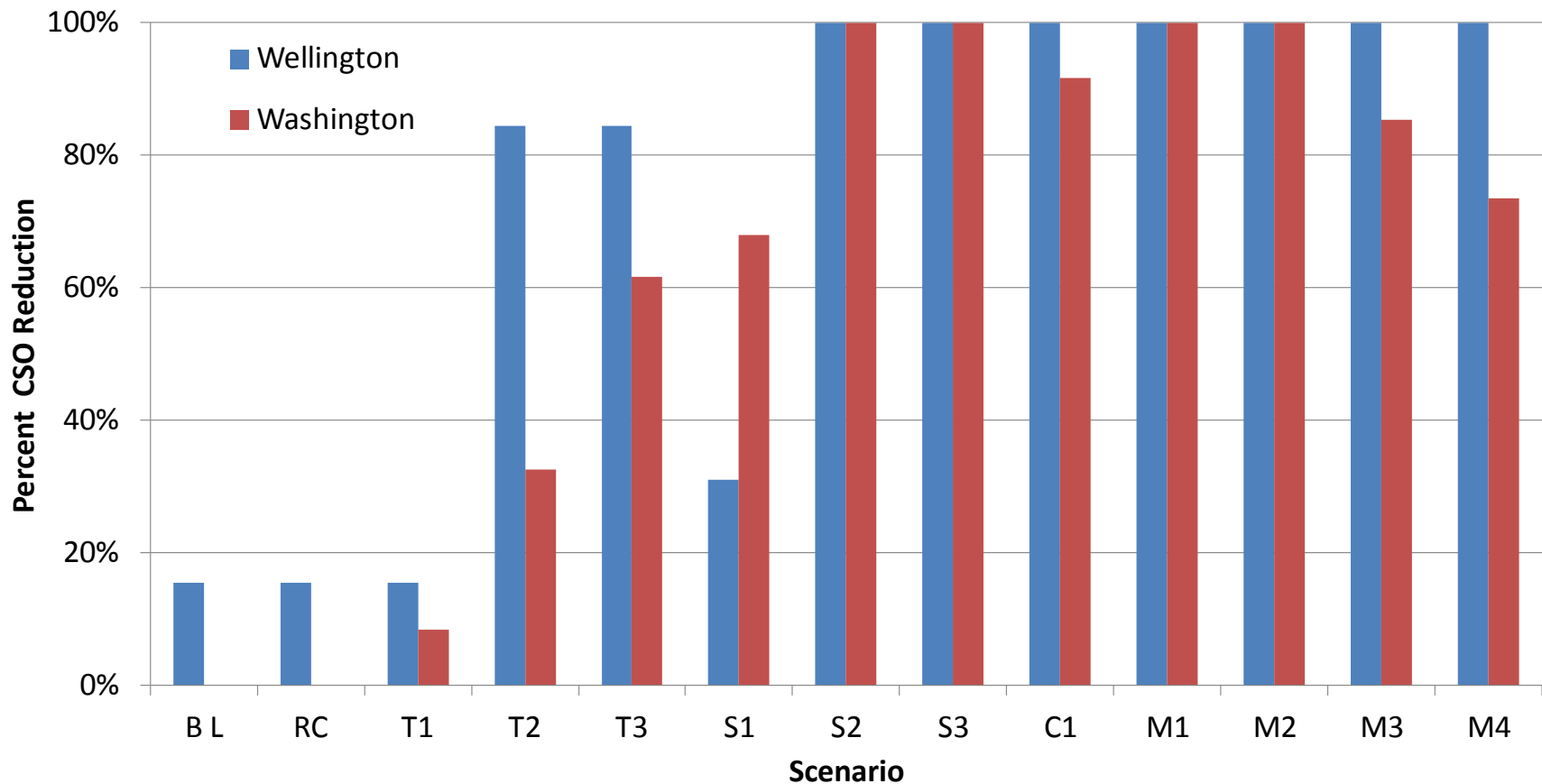
# Summary of Alternatives Evaluated for the SMP

Control Technology	Scenario												
	BL	RC	T1	T2	T3	S1	S2	S3	C1	M1	M2	M3	M4
Recently Completed or Planned CIP Projects	●	●	●	●	●	●	●	●	●	●	●	●	●
WPCP-1 WPCP Upgrade & Expansion			●	●	●	●	●	●	●	●	●	●	●
WPCP-2 CEPT			●	●	●							●	●
OS-11 (Washington CSO Facility)						●	●	●		●	●		
SO-1 WPCP Flow Optimization			●	●	●		●	●	●	●		●	●
CU-2 (Catchment 10 Reroute)					●				●	●	●	●	●
CSOT-1 Enhanced CSO Treatment		●	●	●	●								●
OS-2 (WPCP)						●	●					●	
II-4 Downspout Disconnection									●	●	●	●	●
SO-3 Weirs				●	●		●	●	●	●	●	●	●
OS-19 (King Park, Wellington Ave by CSO Facility)						●	●	●			●		
SO-2 Increased Pumping Capacity/Better Use of System Capacity			●	●	●		●	●	●	●	●	●	●

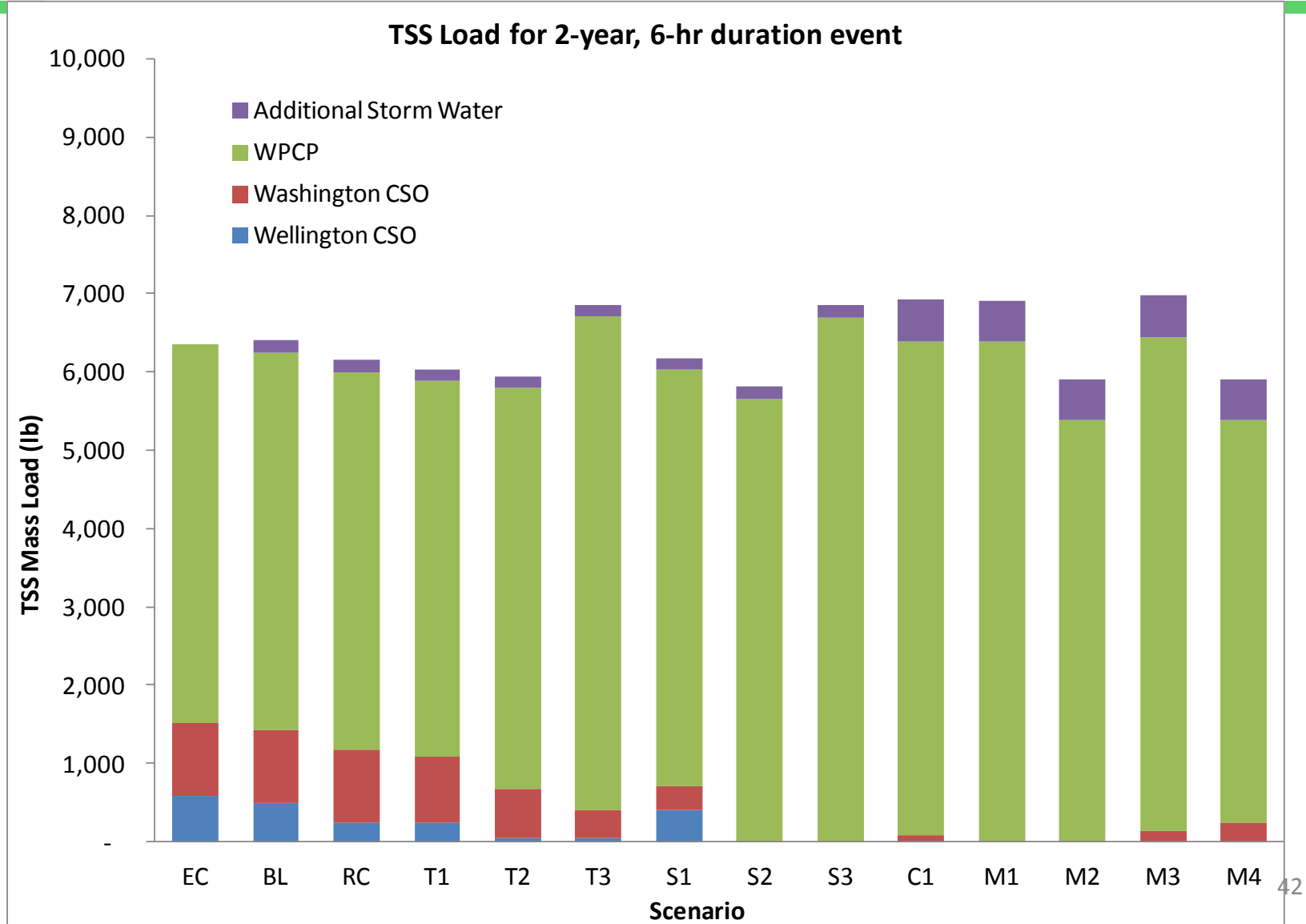


# Water Quality Benefits for Selected Combinations – Reduction in Volume

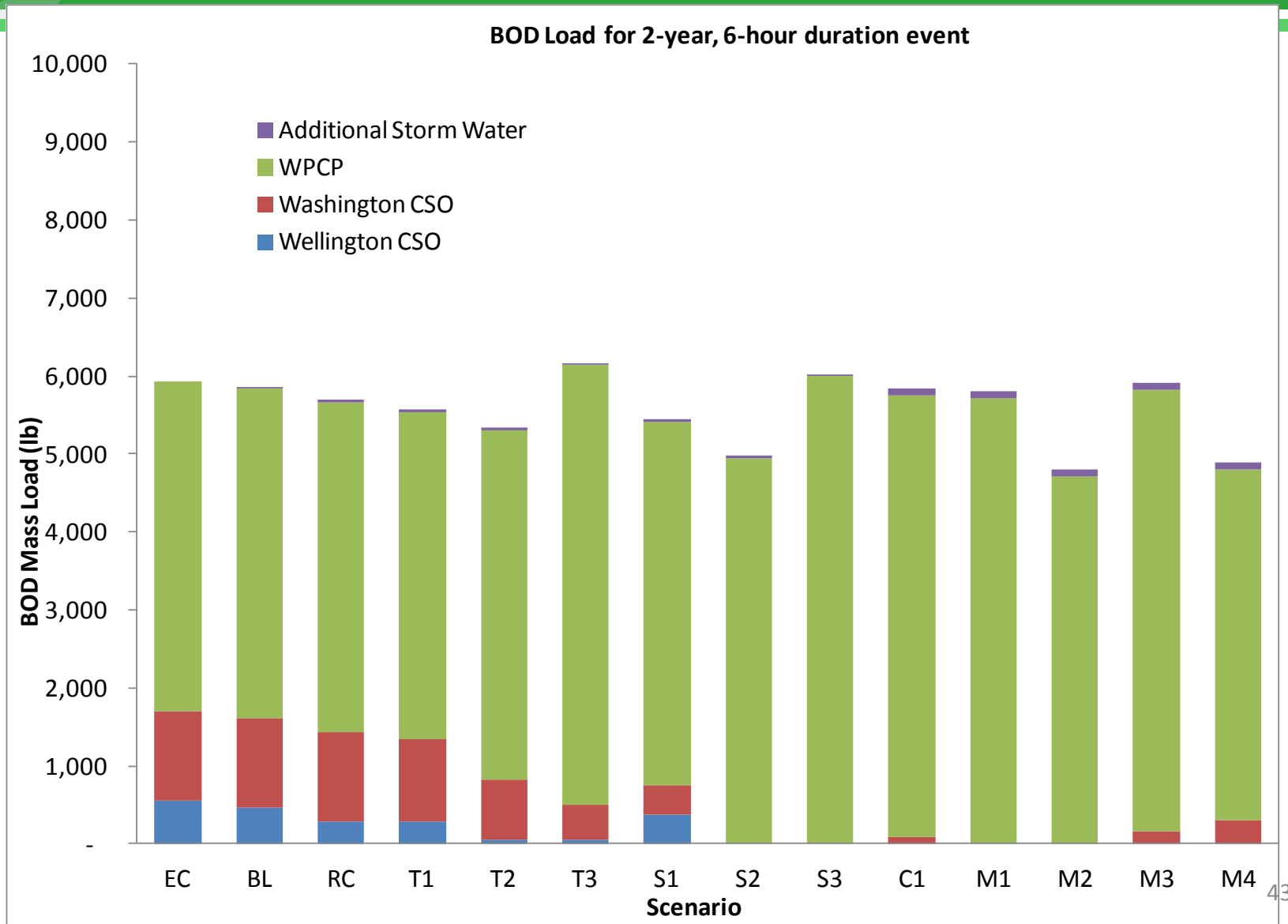
## CSO Overflow Percent Reduction 2-Year, 6-Hour Duration Event



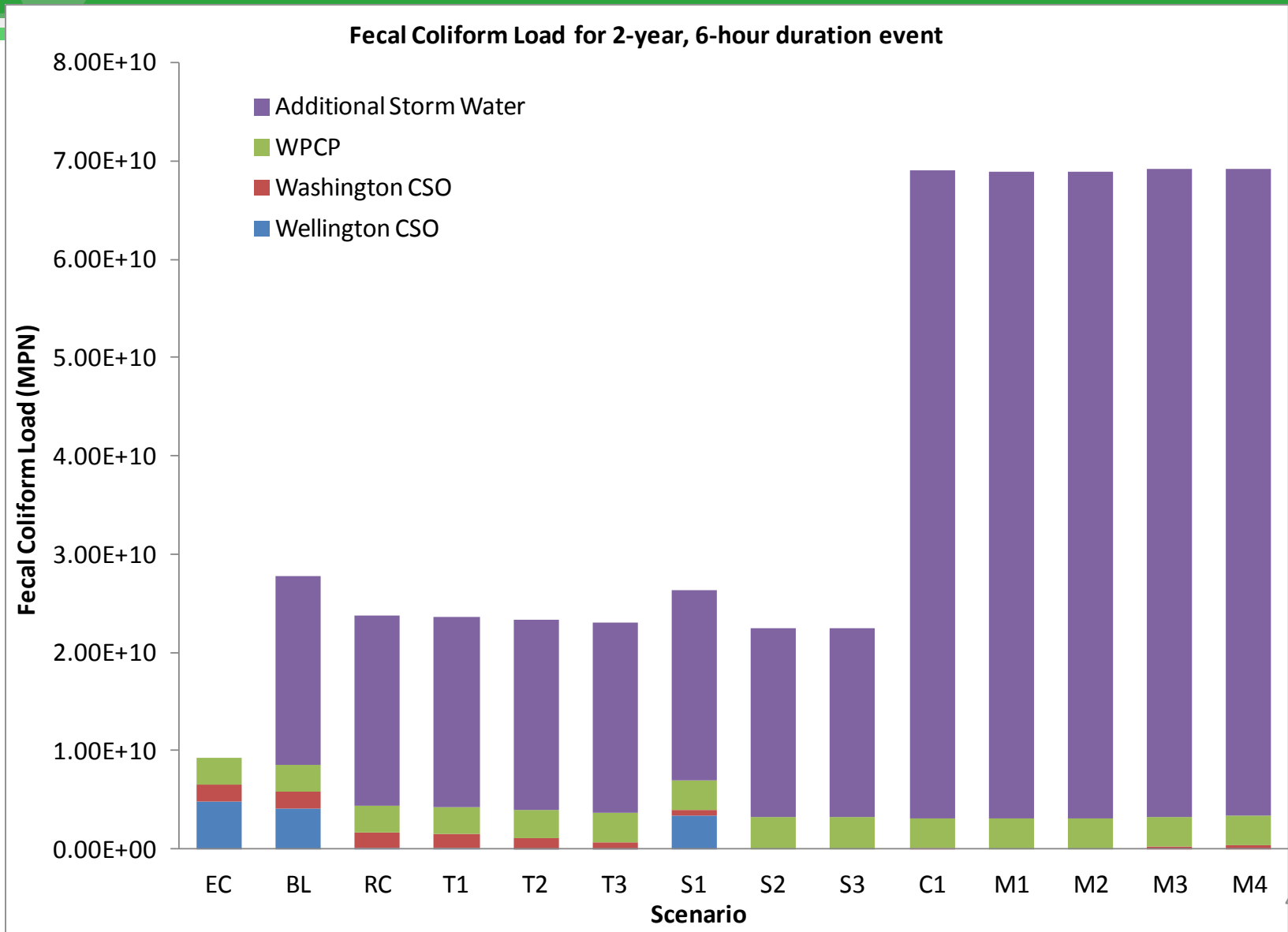
# Water Quality Benefits for Selected Combinations – TSS Loads



# Water Quality Benefits for Selected Combinations – BOD Loads



# Water Quality Benefits for Selected Combinations – Fecal Coliform Loads



# Summary of Planning Level Cost Estimates for Scenarios

Scenario Code	Scenario	Total Capital Cost	Total Change in Annual O&M Cost	Total Annual Cost
BL	Baseline 1	\$32,850,148	\$ -	\$ -
RC	Regulatory Compliance	\$56,412,648	\$160,000	\$1,011,784
T1	Treatment 1	\$115,346,848	\$918,900	\$3,187,405
T2	Treatment 2	\$115,535,348	\$918,900	\$3,933,583
T3	Treatment 3	\$128,651,535	\$986,900	\$4,475,734
S1	Storage 1	\$88,712,285	\$77,000	\$1,974,916
S2	Storage 2	\$96,562,660	\$98,900	\$2,306,221
S3	Storage 3	\$88,224,135	\$74,900	\$2,017,033
C1	Conveyance	\$79,638,123	\$89,900	\$873,455
M1	Master Mix 1	\$101,204,798	\$115,900	\$1,632,183
M2	Master Mix 2	\$102,843,610	\$142,900	\$1,653,649
M3	Master Mix 3	\$109,146,985	\$690,900	\$2,504,950
M4	Master Mix 4	\$146,144,823	\$986,900	\$4,174,672

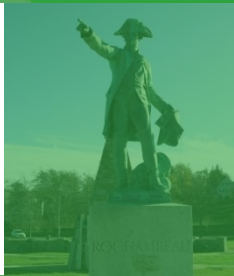
# DISCUSSION

- Scenarios
- Program costs
- Projected Water Quality impacts
- Performance relative to high priority criteria



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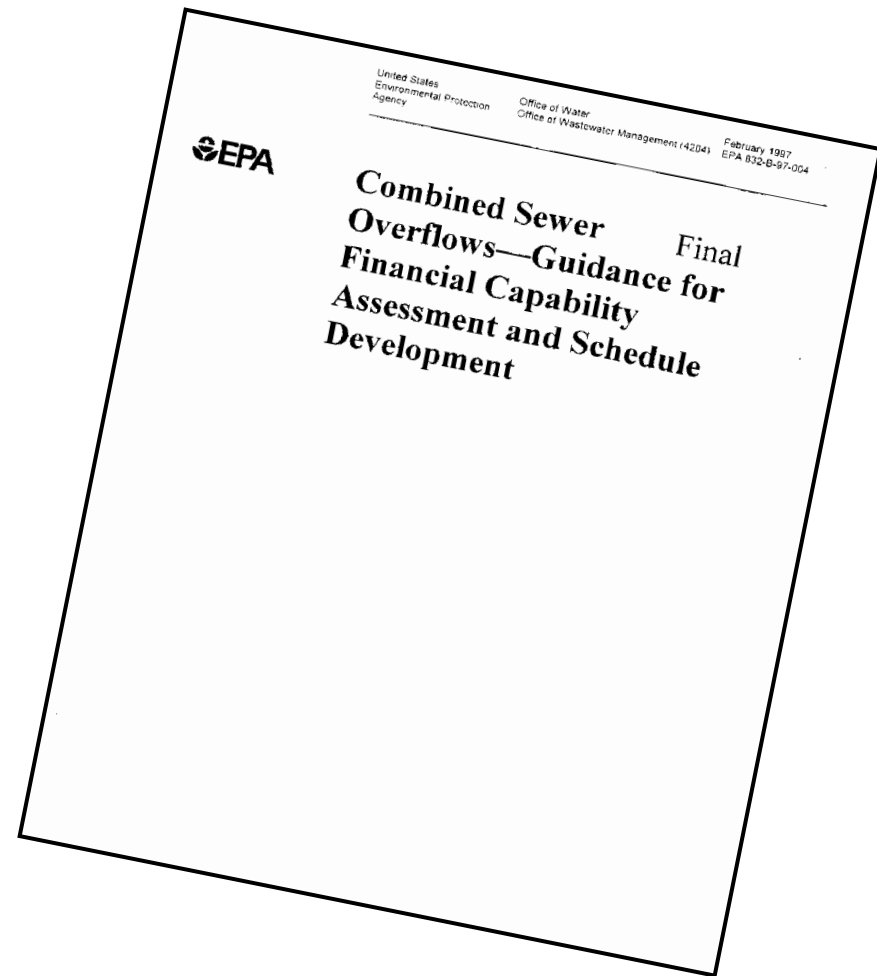
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# AFFORDABILITY ANALYSIS

# Why Affordability & Why Now?

- Set budget before shopping.....
  - Set budget of what the City can “afford”
  - Design program implementation elements & schedule within affordable budget
- EPA **guidance** documents frame the consideration of affordability
- City must build its own case

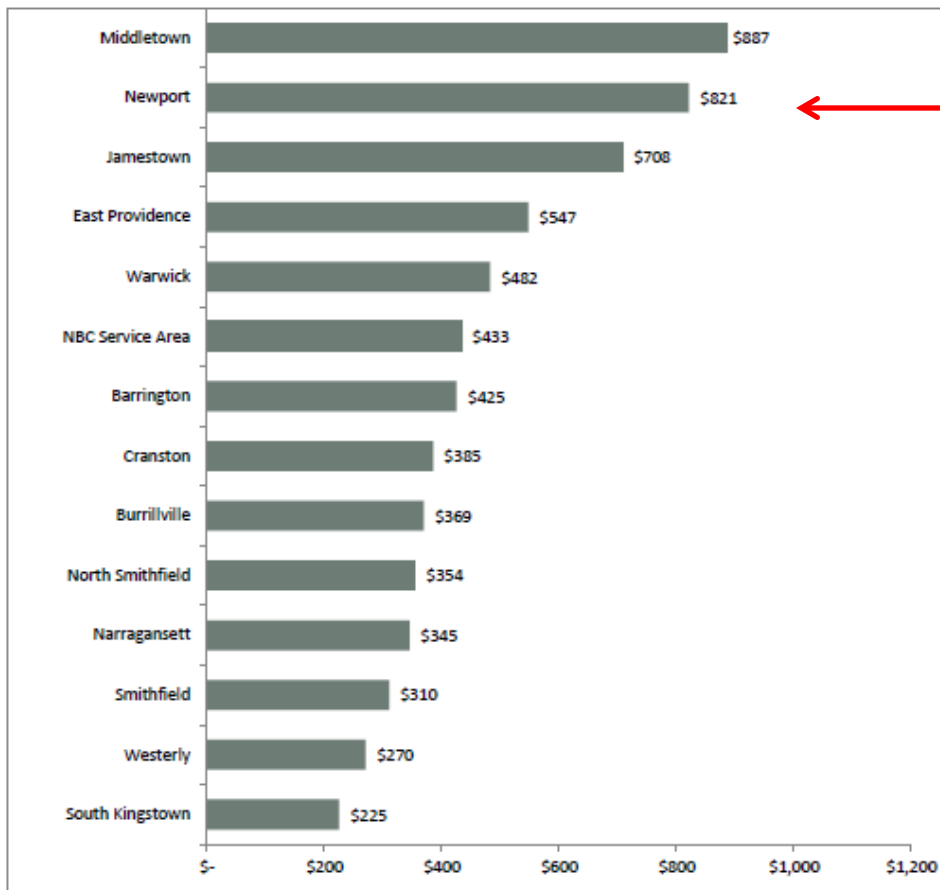




# Wastewater Rates in RI



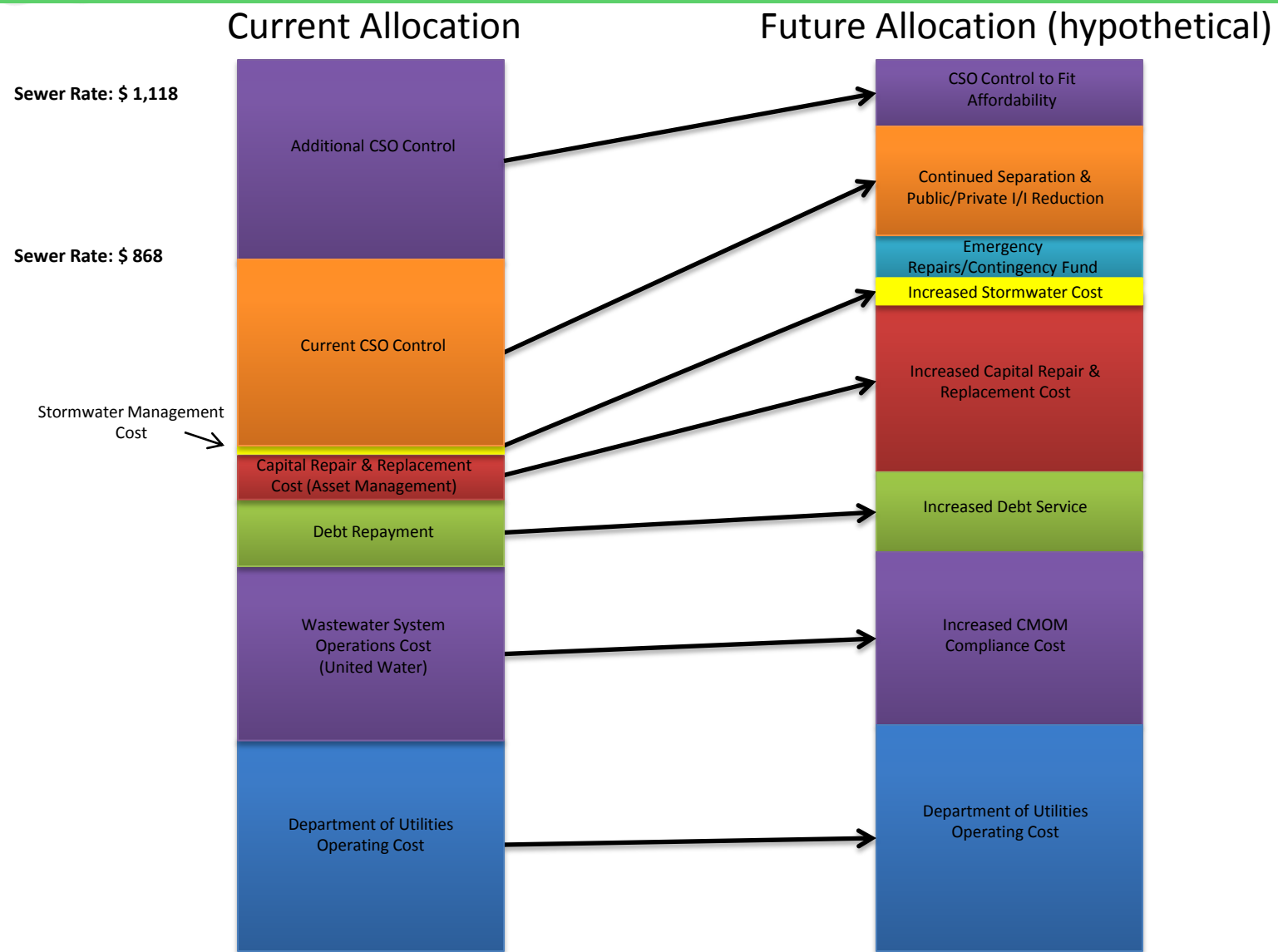
Annual Residential Sewer Charges For  
Participating Rhode Island Cities & Towns



Does not include CSO fixed fee of \$192 for 2011.

- Source: 2011 Narragansett Bay Commission Residential Sewer User Survey
- In this survey all Annual Residential Sewer Charges are based on 97.6 HCF.
- Newport & NBC are the only CSO communities

# Relation of Rates to Services



# Financial Burden per EPA Affordability Guidelines

- Newport is classified as Mid-range financial capability
- A High Burden for Newport would be when a household with median income has to spend more than 2% of annual income on all Water Pollution Control costs

Permittee's Financial Capability Indicators Score	Residential Indicator (Cost Per Household as a Percent of Median Household Income)		
	Low (Below 1 %)	Medium (Between 1% and 2%)	High (Above 2.0%)
Weak( Below 1.5)	Medium Burden	High Burden	High Burden
Mid- Range (Between 1.5 and 2.5)	Low Burden	Medium Burden	High Burden
High (Above 2.5)	Low Burden	Low Burden	Medium Burden

# Key Assumptions for Affordability Analysis

Inflation Rate	3%
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## Debt Funding

Term	20
Interest Rate	4%
Cost of Issuance	2%
Bond Reserve	10%
Coverage Ratio	1.25

## Growth Rate for Number Accounts

Residential	1%
Commercial	0.50%

## Growth Rate for Sewer Flows

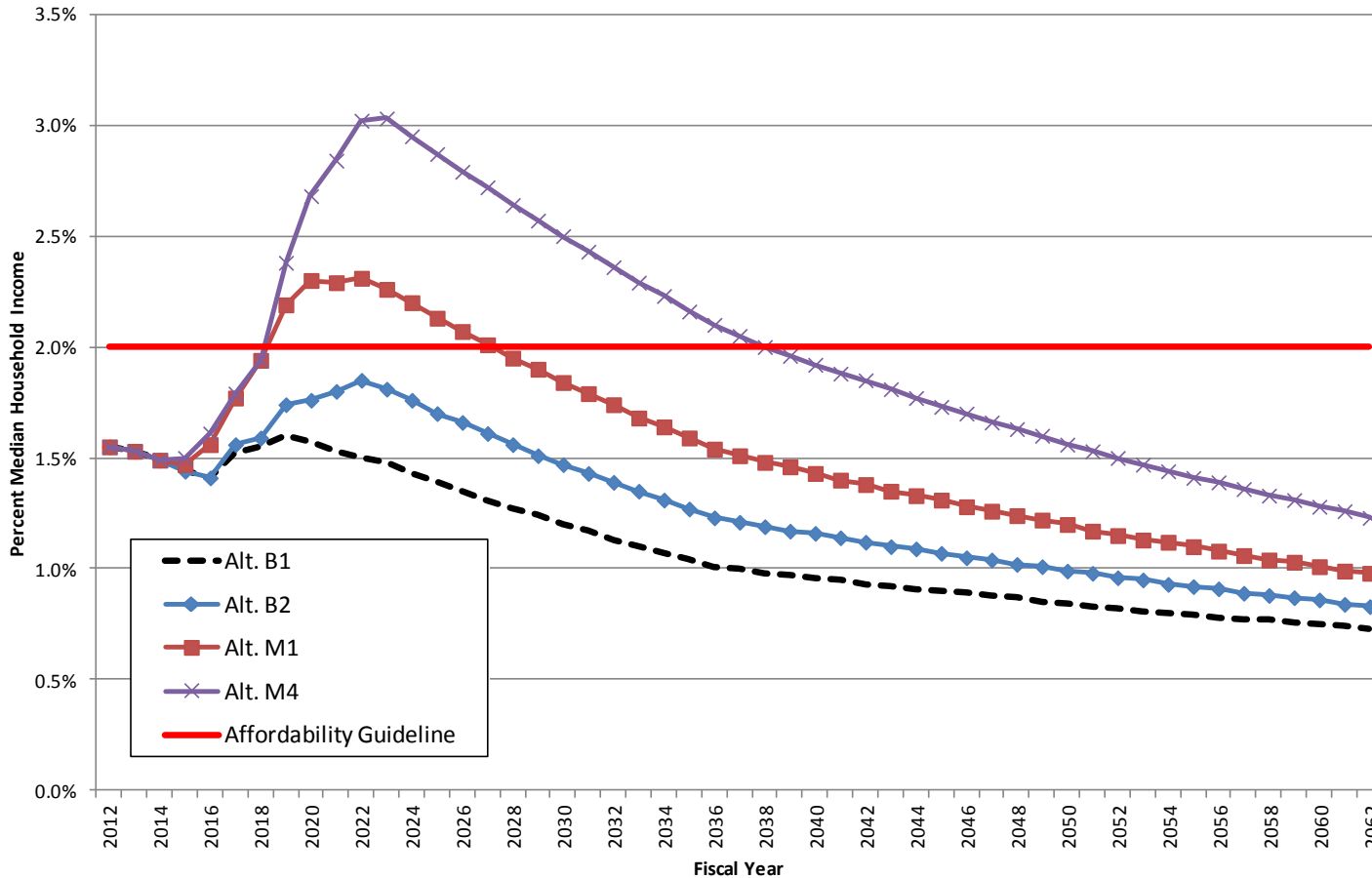
Residential	1%
Commercial	0.50%

Typical Residential Quarterly Sewer Flow (thousand gallons)	15
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Growth for Median Household Income (MHI)	2.00%
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# Alternative Summary

### Typical Residential Annual Sewer Bill as a Percentage of Median Household Income



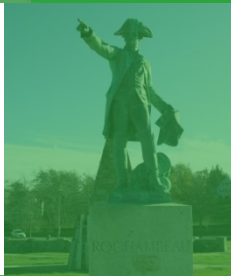
# DISCUSSION

- EPA process for defining affordability
- Projected costs for scenarios
  - Those that are affordable
  - Those that are not affordable
- Potential impacts on rates



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# STAKEHOLDER EVALUATION

# Summary of Selected Alternatives

Evaluation Criteria	Weight	SCENARIO							
		BL		RC		M1		M4	
		Rating	Score	Rating	Score	Rating	Score	Rating	Score
Cost/ Affordability									
Water Quality Benefits									
Social Impacts									
Regulatory Compliance									
Engineering/ Flexibility									
<b>Total Score</b>									

Evaluate criteria weight and rating from 0-10, with 10 being best meets priority criteria and 0 being least meets priority criteria.



# Evaluation Criteria

## *Cost/Affordability*

- Capital Cost
- Life-Cycle Cost
- Customer Rate
- Percent Mean Household Income

## *Water Quality Benefits*

- Decrease in days of beach closure
- Decrease in days of shell fishing closure
- Decrease in days of full-body contact

## *Community Impacts*

- Use of desirable sites
- Construction impacts
- Operational impacts

## *Regulatory Compliance*

- Decrease in excursion of water quality standards
- Compliance with Clean Water Act
- Compliance with CSO Policy

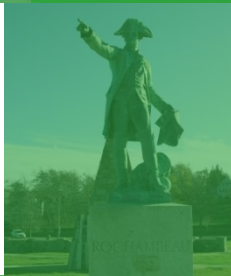
## *Engineering/Flexibility*

- Confidence that the projects will achieve targeted hydraulic outcome
- Ability to adapt plan for future conditions and improvements



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NEXT MEETING

# Next Steps for the SMP

- Refine alternatives
  - Mix of controls
  - Facility sizes
  - Run a typical year
  - Recalculate loads
- Prepare Implementation Plan
  - Strategies for implementation
  - Schedule for construction
  - Recalculate rate impacts

# Next Meeting

**Topic: System Master Plan Draft**

- Recommended Controls
- Program Costs
- Implementation Strategies
- Implementation Schedule

**Date: September 6, 2012**

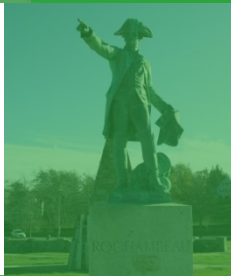
**Time: 3:00 PM**

**Location: Council Chambers**



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# DISCUSSION