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RHODE ISLAND

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CSO Program Stakeholder Workgroup: Meeting #6A System Behaviors and Control Technologies

Newport Police Station – Assembly Room

March 8, 2012



Welcome & Introductions

- City Representatives
 - Julia Forgue – Director of Utilities
- CH2M HILL
 - Peter von Zweck – Project Manager
 - Becky Weig – Public Involvement
 - Jen Reiners – Water Resources Engineer
- Stakeholder Workgroup Participants

Objective for This Meeting

The objective for this meeting is to review behaviors inherent to Newport's collection system and to discuss control technologies that are aligned to meeting the stakeholder's priorities.

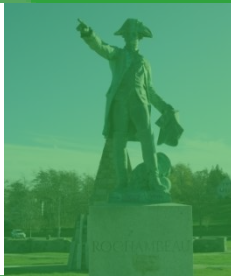
Meeting Agenda

- Overview of the CSO Program Schedule
- Approval of Previous Minutes
- Parking Lot Follow-up Items
- Middletown
- Navy
- Key Meeting Topics
 - Results of Stakeholder Prioritization of Evaluation Criteria
 - System Behaviors & Control Technologies
 - Infiltration/Inflow
 - Conveyance
 - CSO Controls
- Future Meetings, Wrap-up, Comments



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OVERVIEW OF THE STAKEHOLDER WORKGROUP

Schedule of CSO 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)																●								
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.

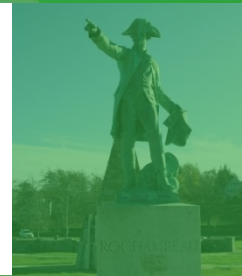
CSO Program Stakeholder Workgroup Mission Statement

- To review proposed plans and projects for the CSO 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 CSO Program plans and project information with each stakeholder's organization to aid the City in its efforts to communicate CSO Program information.
- To support the CSO Program's public education efforts through participation in CSO Program public education activities.



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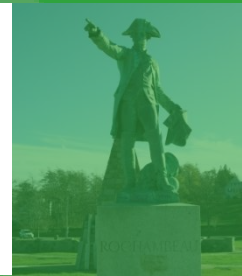


PREVIOUS MEETING'S MINUTES



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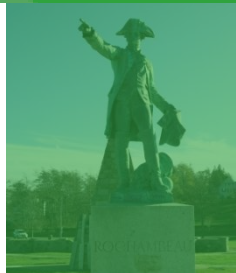


**PARKING LOT FOLLOW-UP
ITEMS - NONE THIS MEETING**



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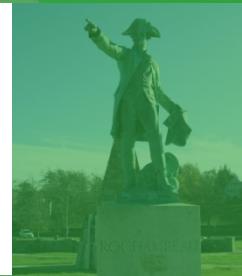


TOWN OF MIDDLETOWN



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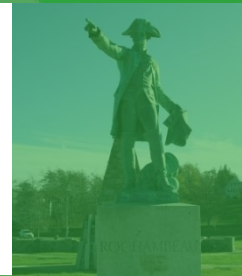


NAVAL STATION NEWPORT



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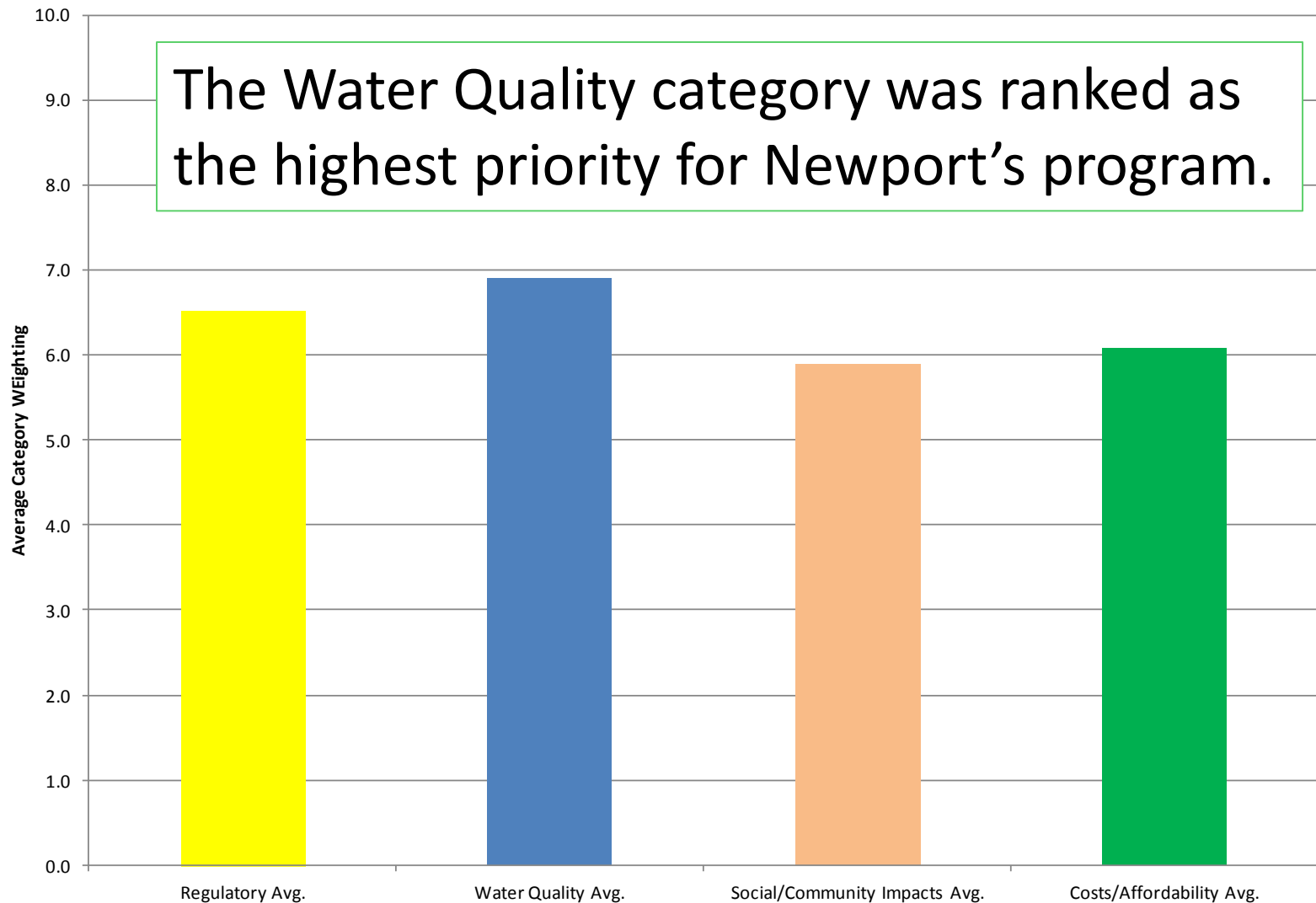


RESULTS OF STAKEHOLDER PRIORITIZATION OF EVALUATION CRITERIA

Results from the Stakeholder's Initial Prioritization of Evaluation Criteria



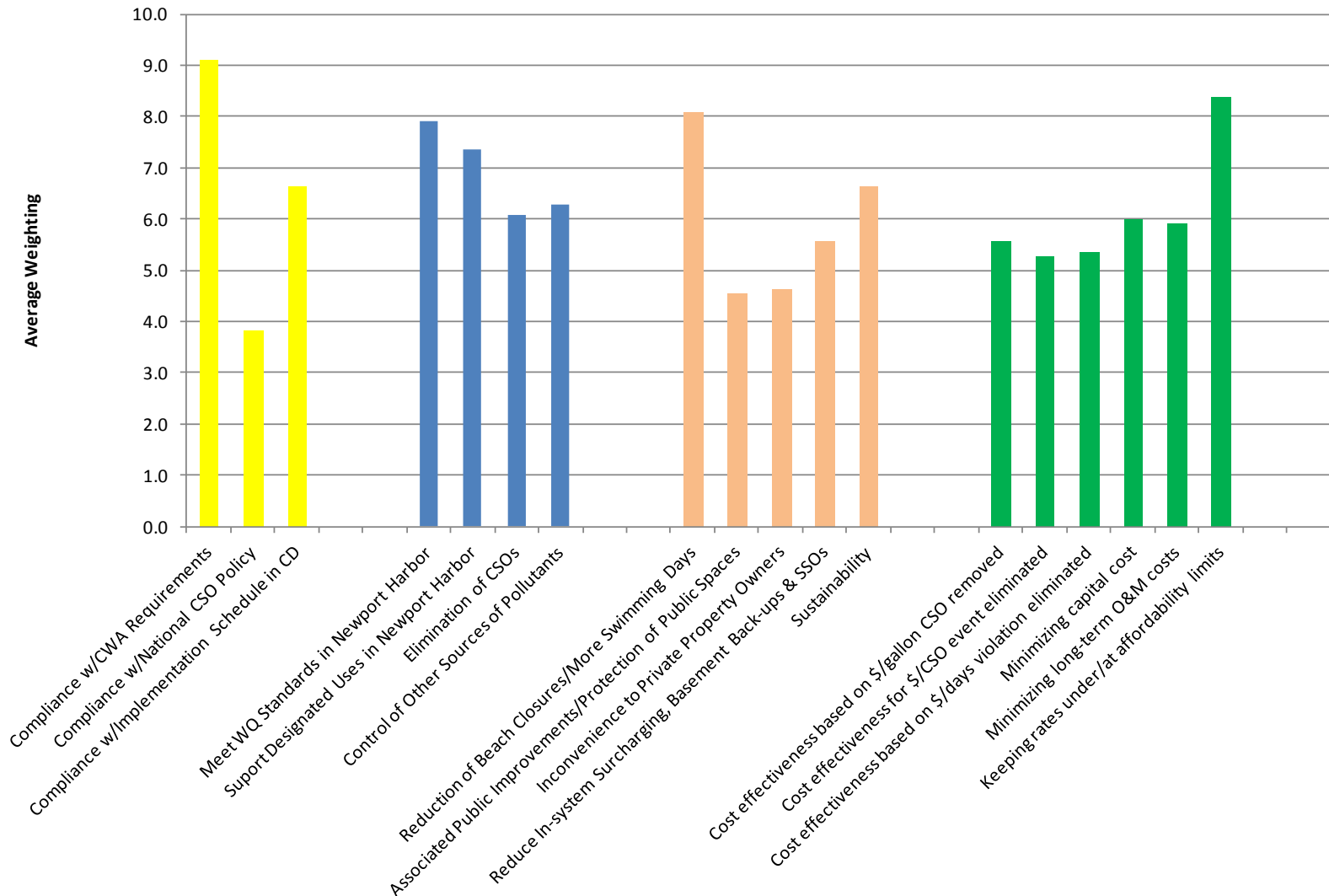
CSO Factors Prioritization - Summary Results



Results from the Stakeholder's Initial Prioritization of Evaluation Criteria



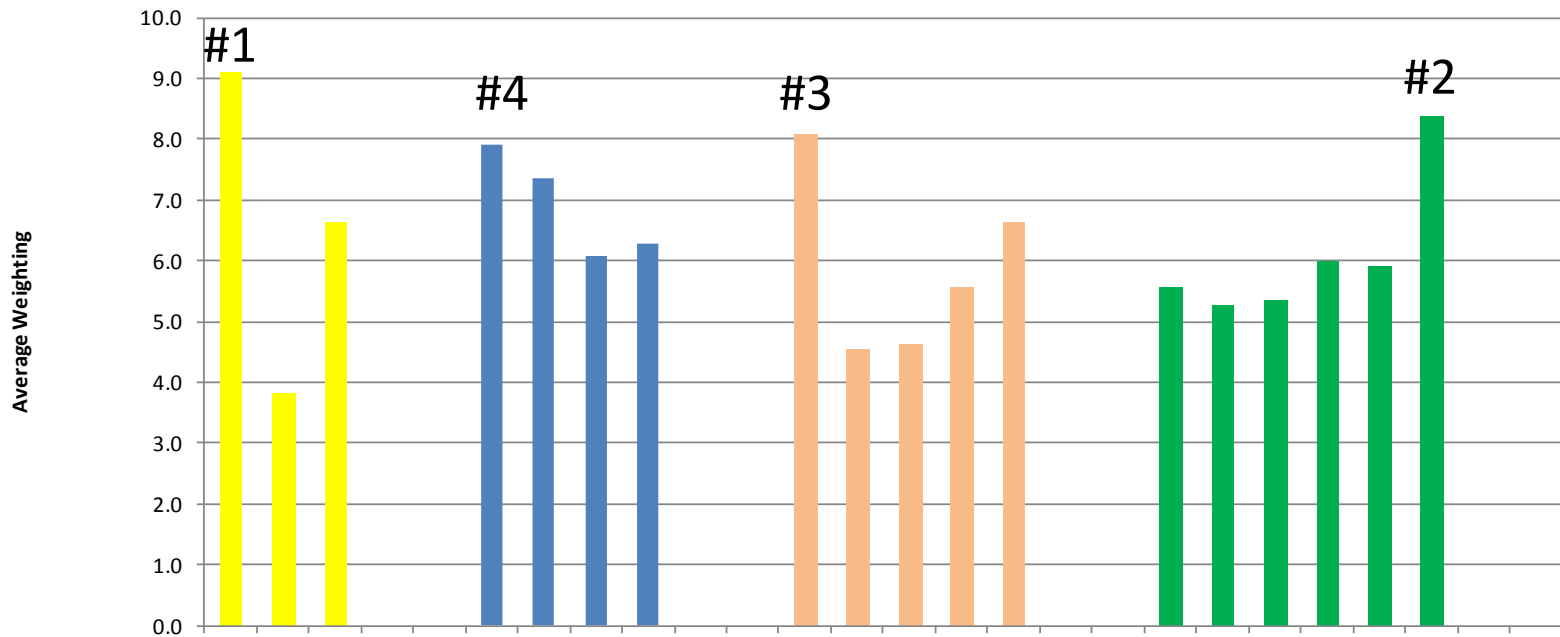
CSO Factors Prioritization Results



Results from the Stakeholder's Initial Prioritization of Evaluation Criteria



CSO Factors Prioritization Results



The top 4 criteria:

1. Meeting CWA requirements
2. Maintaining affordable rates
3. Reducing beach closures
4. Meeting WQ standards

Stakeholder Discussion

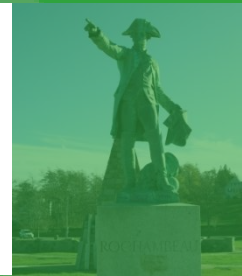
Priorities and Effects on Planning

Evaluation Criteria	Potential Effect on System Planning
#1 Meet CWA Requirements	<ul style="list-style-type: none"> • Legal obligation • Focus on designated uses • Requires a Use Attainability Analysis if not met • ...
#2 Maintain Affordable Rates	<ul style="list-style-type: none"> • Maintaining rates is more important than total cost • Implement the “right” solution even if it costs alot • Extend the implementation period if needed • ...
#3 Reduce Beach Closures at King Park Beach	<ul style="list-style-type: none"> • Closing CSOs may have little effect on this criteria (?) • Separating sewers could have an adverse effect • Storm water control should be considered • ...
#4 Meet Water Quality Standards	<ul style="list-style-type: none"> • More than 98% of samples collected already meet standards • Elimination of CSOs is only part of the problem • ...



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SYSTEM BEHAVIORS AND CONTROL TECHNOLOGIES

Overview of System Behaviors and Control Technologies

Step 1 – Collection System Capacity Assessment (CSCA) Report

Infiltration/Inflow Reduction

- Control technologies for I/I reduction
- Model results for I/I reduction

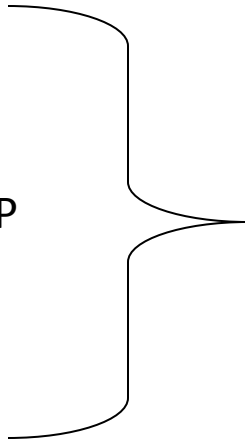
Conveyance System and Plant Improvements

- Overview of current characteristics
- Control technologies for optimization of the existing system
- Model results for conveyance and plant optimization

Step 2 – System Master Plan (SMP)

CSO Control Projects

- New conveyance facilities
- Improvements to existing CSO treatment
- Increasing the design capacity of the WPCP
- In-line and/or Offline Storage
- Green technologies

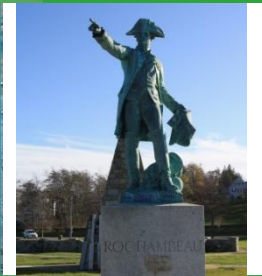


The SMP only applies if wet weather discharges cannot be eliminated with CSCA technologies



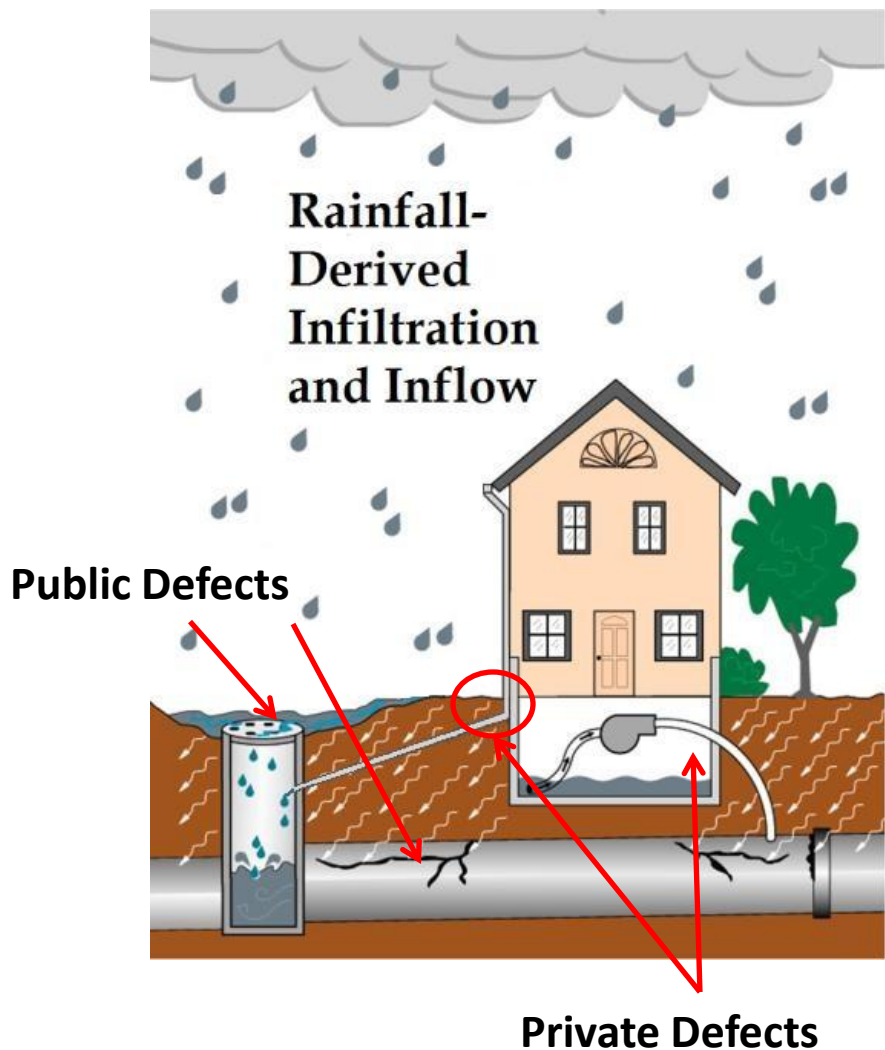
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INFILTRATION & INFLOW

Control Technologies for Infiltration/Inflow Reduction

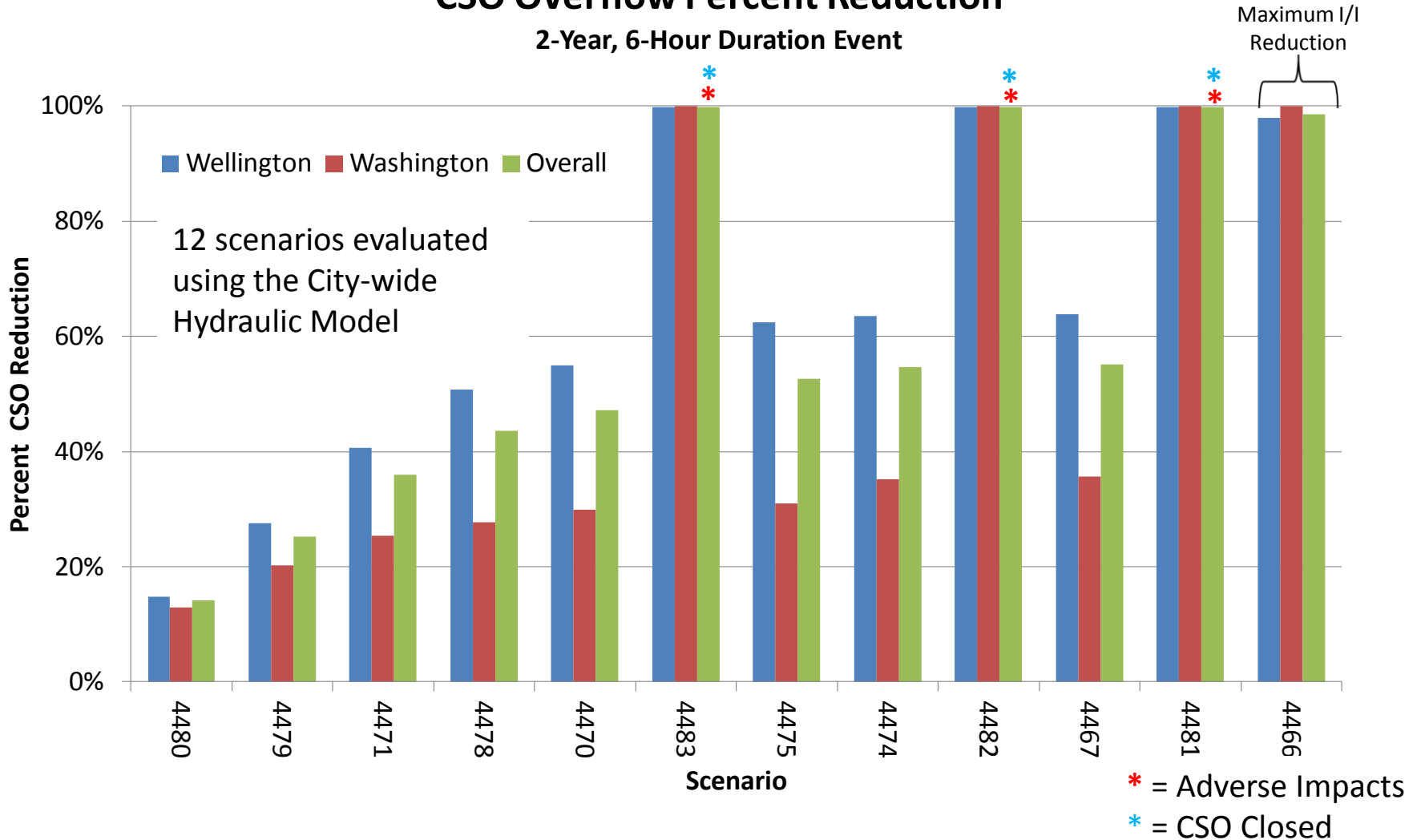


- Examples of private sources
 - Roof leader **Disconnect**
 - Sump pump **Disconnect**
 - Area/driveway drain
 - Cracked service lateral
 - Uncapped cleanout
- Examples of public sources
 - Catch basins **Disconnect**
 - Area drain **Disconnect**
 - Manhole defects (seals, cracks, cover holes)
 - Sewer line defects (cracks)

Model Results for Removing Catchbasins, Downspouts and Sump Pumps

CSO Overflow Percent Reduction

2-Year, 6-Hour Duration Event



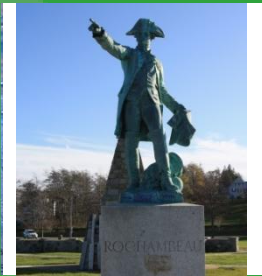
Stakeholder Discussion of Infiltration/Inflow System Characteristics, Reduction & Control Technologies

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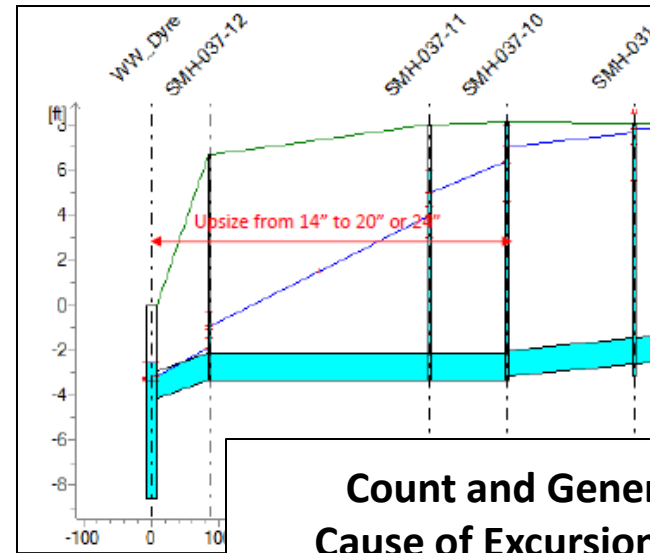
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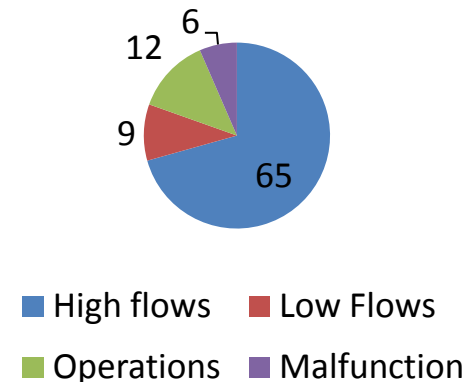
CONVEYANCE AND PLANT

Conveyance Characteristics of the Collection System

- The collection system was evaluated using a calibrated hydraulic model
- The system has few bottlenecks
 - Baffles have been removed
 - O&M records indicate few SSOs related to conveyance limitations
- The WPCP's RIPDES permit limits volume of wet weather flows
 - Average flow treated is 10.4 MGD
 - Permit limit for monthly flow is 10.7 MGD



Count and Generalized Cause of Excursions at the Newport WPCP from 2007 to 2010



Control Technologies for Optimization of System Performance

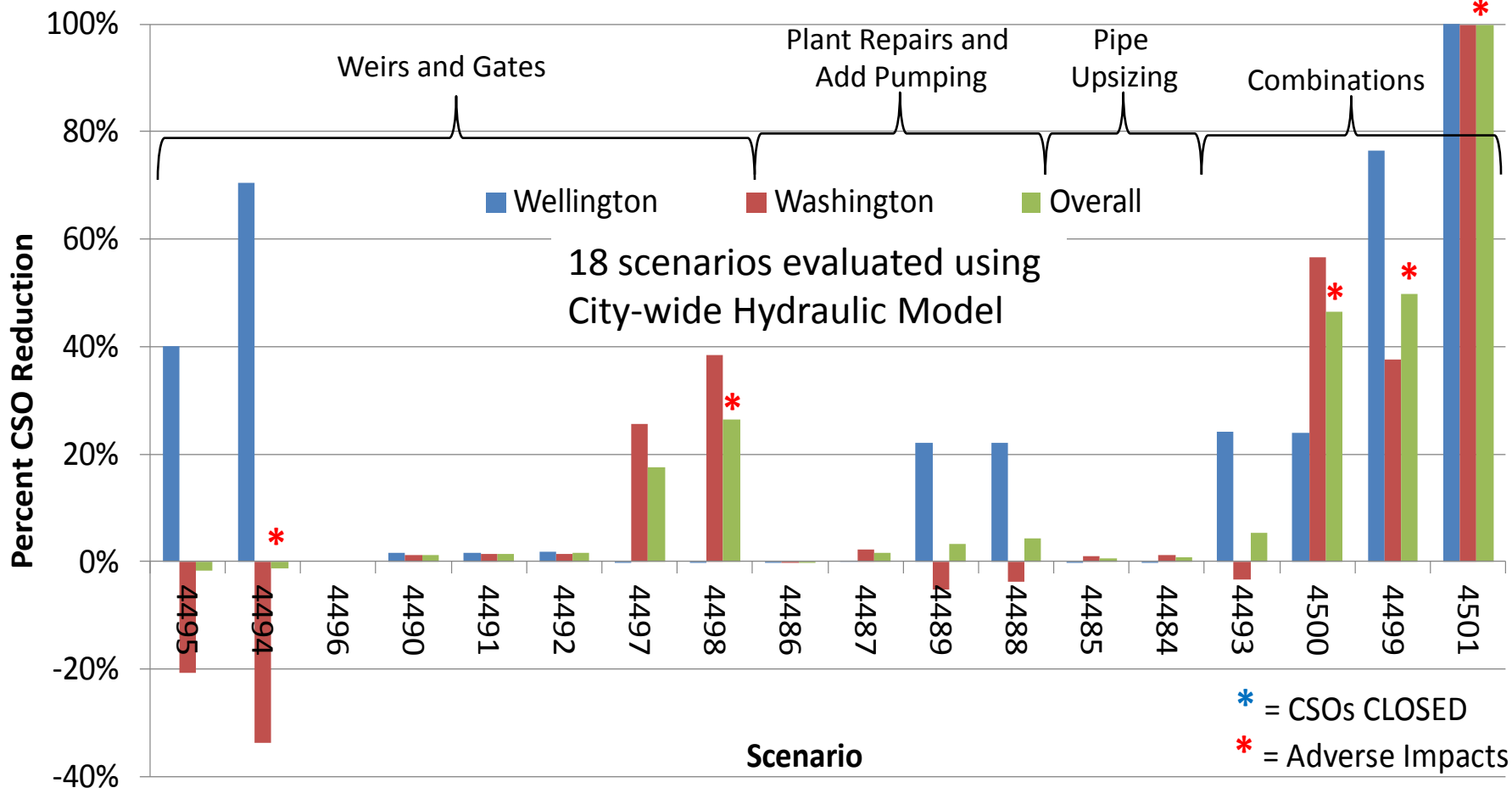
Actions to optimize system performance:

- Replace undersized sewers
- Modify and/or add weirs
- Change gate settings (Narragansett) or add new gates
- Change pump operations
 - Wellington
 - Long Wharf
- WPCP
 - Repairs & Replacements identified in Flow Optimization Study required to meet design capacity
 - Operating protocols



Model Results for Conveyance and Plant Optimization

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



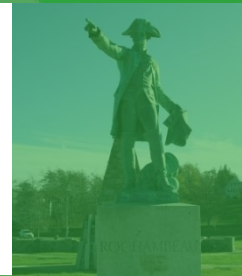
Stakeholder Discussion Conveyance and Plant Optimization

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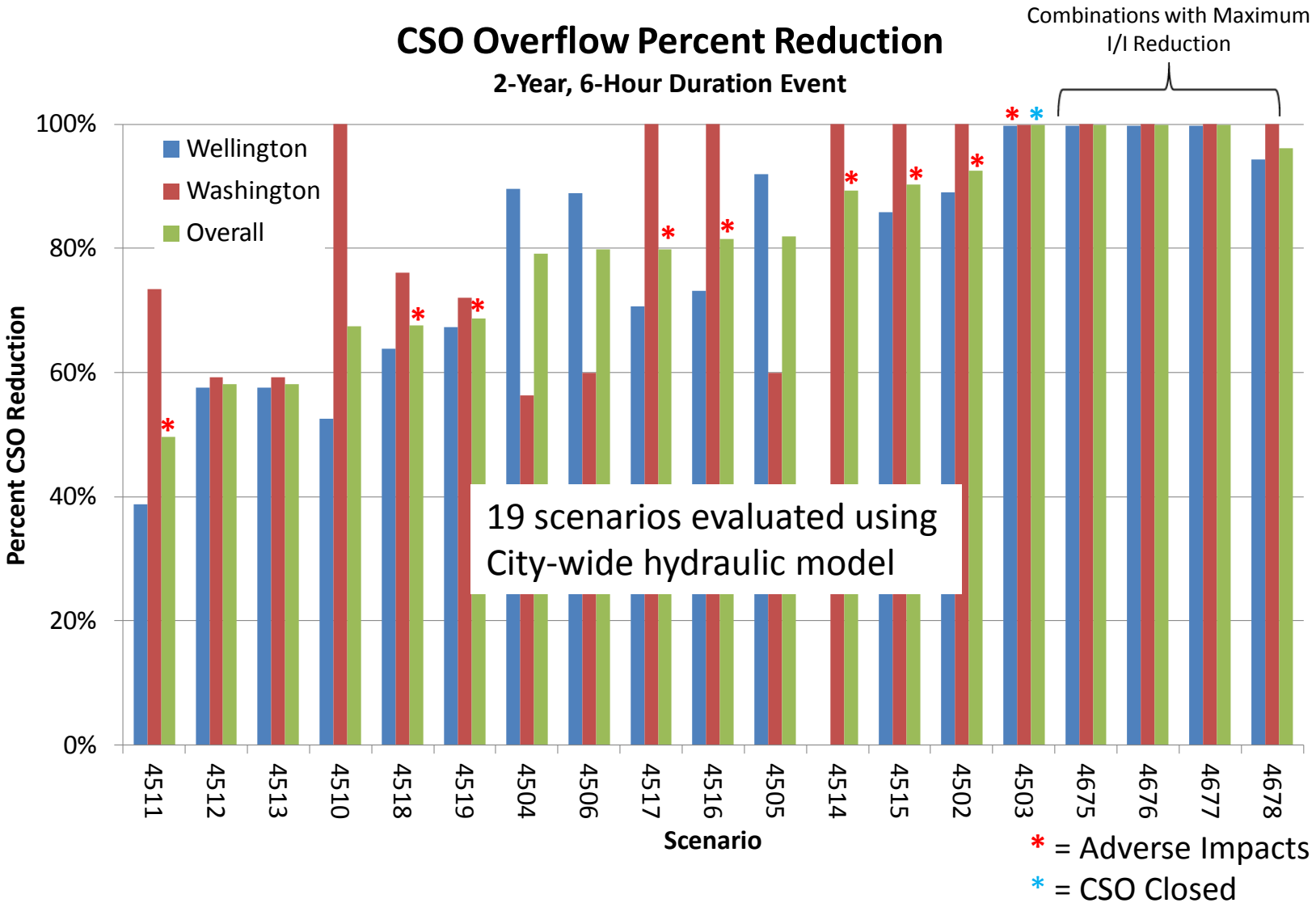
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COMBINING TECHNOLOGIES TO MEET CSCA REQUIREMENTS

Model Results of Combinations of Control Technologies

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



Stakeholder Discussion

Combining Control Technologies

- System performance for larger storms
- What qualifies as elimination?
- Performance relative to stakeholder's priorities

Regulations

Water Quality

Social Impacts

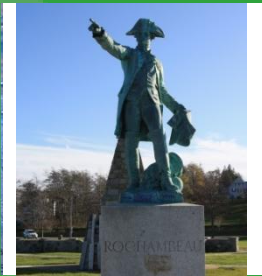
Cost

- Implementation Costs and Affordability
- Implementation schedule



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SMP CSO CONTROL TECHNOLOGIES

Regulatory Framework for Evaluating System Improvements

Consent Decree Item #65

If the City determines that its proposed Collection System replacement and rehabilitation measures, its public infiltration/inflow, private rainfall induces infiltration and inflow removal programs, and its WPCP flow optimization will not result in the elimination of overflows, including the Wellington Avenue and Washington Street Outfalls, then the Capacity Assessment shall include an identification and evaluation of additional measures.....

CSO Control Technologies

Designated for Evaluation in SMP

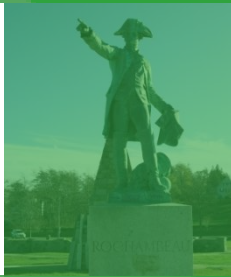
- WPCP Improvements
 - CEPT
 - Improvements to increase design flows
- Storage
 - Offline Tanks
 - In-line conduits
- New Conveyance Facilities
 - Pump Stations
- Green Technologies
- CSO Treatment Facilities
 - Component Upgrades





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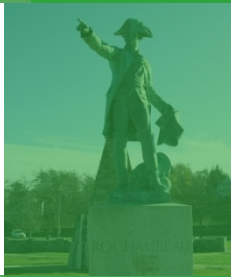


DISCUSSION



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NEXT MEETING

Next Meeting

Topics: Model Results for SMP Control Technologies
Performance for Newport's Evaluation Criteria

Regulatory

Water Quality

Social Impacts

Costs

Date: May 3, 2012

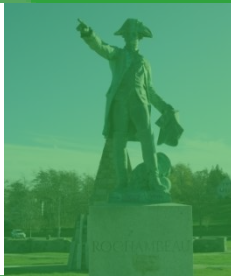
Time: 3:00 PM

Location: Council Chambers



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DISCUSSION