Overview of the CSO Stakeholder Workgroup Process & Meetings

PREPARED FOR: Newport City Council

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DATE: October 31, 2012

The following provides a summary of the 12 meetings of the CSO Stakeholder Workgroup. For each meeting, the following information is presented:

- Meeting # & Meeting Topic(s)
- Meeting Date
- Meeting Objective(s)
- Key Outcomes

Meeting #1 – Chartering the Workgroup, Overview of the Wastewater System, Overview of the CSO Program & Supplemental Environmental Projects (SEPs)

Meeting Date:	February 3, 2011
Meeting Topic(s):	• Chartering the Workgroup • Overview of the Wastewater System • Overview of the CSO Program • Supplemental Environmental Projects (SEPs)
Meeting Objective(s):	To charter the workgroup and to provide an overview of the wastewater system and the CSO Program so that workgroup members will have sufficient information in order to participate fully in later meetings.
Key Outcomes:	• Chartering was completed, agreement with the Stakeholder Workgroup Mission Statement was achieved, boundary conditions for participation, and workgroup operating guidelines were set. • It was agreed that a "parking lot" would be used to address questions that were off meeting topic or for which answers required further research. • Workgroup members were provided a brief history of the current CSO system as well as a snapshot of current CSO system status. • CSO Program goals and the strategy for developing the system master plan was presented. • There was enough interest from workgroup members to schedule 2 dates and times for tours of the wastewater and CSO system to provide participants with a better understanding going forward in the program.

Meeting #2 – Metering and Infiltration/Inflow (I/I) Investigations

Meeting Date:	April 20, 2011
Meeting Topic(s):	• Metering • Infiltration/Inflow Investigations
Meeting Objective(s):	To develop a collective understanding of the collection system and how it behaves through metering data and I/I Investigation results.
Key Outcomes:	• 7 "Parking Lot" questions from the first meeting were answered covering the following topics: – Collection system flows – EPA's affordability elements – I/I disconnection program methods – Program costs – Wholesale customers to the City's system – CSO performance • Information on the metering program, and how the data from it will be used to make future decisions, such as prioritizing areas for I/I investigations and calibrating the hydraulic model, was presented. • Information on the I/I investigation program and preliminary results showing that private sources of I/I are the largest contributors of wet weather flow to the system was presented. In addition to identification of private sources as the largest contributor, it was also presented that downspouts and sumps pumps connected to the sanitary sewer system are the largest portions of the private I/I contribution.

Meeting #3 – GIS, WPCP Optimization Study and CMOM

Meeting Date:	July 14, 2011
Meeting Topic(s):	• Geographic Information System (GIS) • Water Pollution Control Plant (WPCP) Optimization Study • Capacity, Management, Operation & Maintenance (CMOM)
Meeting Objective(s):	To develop a collective understanding of the collection system and WPCP and how these assets and their performance impact CSOs.
Key Outcomes:	• 5 "Parking Lot" questions from the second meeting were answered covering the following topics: – CSO volumes & frequencies – Costs to address private I/I defects – Private versus public I/I defect disconnections – Private property disconnection options for poor draining soils – Additional technical follow-up if requested • Stakeholders were shown how the City uses its GIS as a tool for better decision making. • Stakeholders were presented the results of the WPCP optimization study which showed that interim flow increases were not feasible and that the WPCP needs upgrades to the headworks and disinfection processes in order to increase wet weather flows to the WPCP. • Stakeholders were presented the results of the CMOM self-assessment as well as the status of the corrective actions being taken as part of the CMOM Corrective Action Plan.

Meeting #4 – Harbor Water Quality and CSO Volumes & Frequencies

Meeting Date:	September 8, 2011
Meeting Topic(s):	• Harbor Water Quality • CSO Volumes & Frequencies
Meeting Objective(s):	To develop a collective understanding of Newport Harbor water quality and CSO volumes and frequencies.
Key Outcomes:	• 4 "Parking Lot" questions from the third meeting were answered covering the following topics: – Catch basins connected to the sanitary system – WPCP storage options – WPCP headworks – CSO metrics • Stakeholders were presented the results of approximately 3 years of weekly water quality sampling performed by the City in Newport Harbor. Results showed that the Harbor meets water quality standards, and that the few exceedences detected were not always associated with CSO events. • Stakeholders were presented the results of CSO volumes and frequencies for the past 10 years at each the Wellington and Washington CSO treatment facilities. • Stakeholders were presented the results of approximately 5 years of CSO effluent monitoring for fecal coliform at each the Wellington and Washington CSO treatment facilities.

Meeting #5 – Affordability and Rates

Meeting Date:	November 10, 2011
Meeting Topic(s):	• Affordability & Rates
Meeting Objective(s):	To develop a collective understanding of how EPA defines affordability for wastewater rates and Newport's remaining affordability threshold for CSO Program projects given EPA's guidelines.
Key Outcomes:	• 3 "Parking Lot" questions from the fourth meeting were answered covering the following topics: – Example CSO storage facility sizes and footprints. – CSO event water quality sampling results. – Updated finance and debt table. • Stakeholders were presented with how the EPA Guidelines on Affordability define a community's fiscal strength and financial capability. • Stakeholders were presented with the data sources and the results of the updated affordability analysis which identified how much sewer rates could go up for the typical residential household and still be within the "affordability threshold". • Stakeholders were shown how having this information in advance of developing the CSO program will allow the City to design a program that would remain affordable for rate payers.

Meeting #6 – Alternatives Evaluation Process & Identifying Stakeholder Priorities

Meeting Date:	February 9, 2012
Meeting Topic(s):	• Alternatives Evaluation Process • Identifying Stakeholder Priorities
Meeting Objective(s):	The objective of this meeting is to collect initial input toward prioritizing the criteria that will be used for evaluating proposed solutions.
Key Outcomes:	• 2 "Parking Lot" questions from the fifth meeting were answered covering the following topics: – Catch basin inspection program – On-going collection system and WPCP improvements • The stakeholders were presented with an overview of the decision framework from the consent decree that defined the evaluation process the City is required to follow for the CSO program. • The stakeholders discussed how each of the four priority criteria categories affected selection of control alternatives. • Following the discussion, stakeholders completed a survey identifying their priority criteria across four evaluation categories: – Regulatory Requirements – Water Quality Benefits – Social/Community Impacts – Rates & Affordability

Meeting #6A – System Behaviors & Control Technologies

Meeting Date:	March 8, 2012
Meeting Topic(s):	• Results of Stakeholder Prioritization of Evaluation Criteria • System Behaviors & Control Technologies
Meeting Objective(s):	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.
Key Outcomes:	• The results of the stakeholder survey identifying their priority criteria were presented and discussed. The results indicated that the top 4 criteria of the workgroup were: – Meeting Clean Water Act Requirements – Maintaining Affordable Rates – Reducing Beach Closures – Meeting Water Quality Standards • Following discussion of the results, the stakeholders were given an opportunity to retake the survey to update their priorities. • The stakeholders were shown model results for the evaluation of collection system capacity assessment control options (as defined by the consent decree), which are: – I/I reduction – Optimizing system performance (replacing undersized sewers, adding weirs, changing pump operations, repairing WPCP to meet design capacity) • Model results showed that CSOs could not be eliminated through I/I and system performance optimization only, therefore, other control technologies could be evaluated as part of a System Master Plan (SMP).

Meeting #6B – Collection System Capacity Assessment Results & Introduction to System Master Plan Control Options

Meeting Date:	May 3, 2012
Meeting Topic(s):	• Results of Stakeholder Prioritization of Evaluation Criteria – Round 2 • Collection System Capacity Assessment Results for Larger Storms • Potential SMP Control Technologies
Meeting Objective(s):	The objective for this meeting is to review level of control and preliminary findings from the CSCA and to discuss potential SMP control technologies that are aligned to meeting the stakeholder's priorities.
Key Outcomes:	• The results of the stakeholder survey identifying their priority criteria were presented and discussed. The results indicated that the top 4 criteria of the workgroup were: – Meeting Clean Water Act Requirements – Maintaining Affordable Rates – Meeting Water Quality Standards – Compliance with Implementation Schedule in Consent Decree & Supporting Designated Uses in Newport Harbor (tie) • The stakeholders were given background information about the development and calibration of the hydraulic model so that they could understand how it was used as a tool to evaluate control options. • The stakeholders were shown model results for the evaluation of collection system capacity assessment control options for larger storms (up to a 10-year storm). • Model results showed that CSOs could not be eliminated through I/I and system performance optimization only, therefore, other control technologies could be evaluated as part of a System Master Plan (SMP). • Stakeholders were given an overview of SMP control technology options including: – WPCP upgrades – Chemically Enhanced Primary Treatment (CEPT) at the WPCP – Off-line storage facilities – In-line storage facilities – New conveyance facilities – Green technologies – CSO treatment facility upgrades • Following the overview of SMP control technologies, the stakeholders were given the opportunity to suggest locations for possible control technologies by writing suggestions onto maps of the collection system.

Meeting #7 – System Master Plan Control Options

Meeting Date:	August 9, 2012
Meeting Topic(s):	• 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
Meeting Objective(s):	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.
Key Outcomes:	• 2 "Parking Lot" questions from the fifth meeting were answered covering the following topics: – Water quality conditions upstream of Newport Harbor – Catch basin inspection program • The stakeholders were shown how a preliminary screening of over 50 possible control technologies identified 15 technologies most likely to achieve stakeholder priorities identified during the previous surveys. • Stakeholders were presented planning level cost estimates for the top 15 control technologies. • Stakeholders were presented CSO volume reductions and water quality benefits for selected scenarios (i.e. combinations of control options). • There were many questions about the CSO scenario evaluations, and it was decided to have an additional meeting to capture the workgroup's questions.

Meeting #7A – System Master Plan Control Options (continued)

Meeting Date:	August 14, 2012
Meeting Topic(s):	• Stakeholder comments on SMP control options • Review of regulatory framework
Meeting Objective(s):	To collect comments from stakeholders on SMP control options presented at Meeting #7.
Key Outcomes:	• Collected 27 comments from stakeholders about SMP control options. • Presented stakeholders with an overview of the regulatory framework for evaluating system improvements to provide a collective understanding for making future recommendations.

Meeting #8 – System Master Plan Control Options (continued)

Meeting Date:	September 6, 2012
Meeting Topic(s):	• SMP scenario discussion and results • Discussion of top rated scenario • Development of top rated scenario for SMP
Meeting Objective(s):	The objective for this meeting is to collect comments from stakeholders on a preferred SMP scenario and any alterations to the scenario for draft SMP development.
Key Outcomes:	• The results of a stakeholder survey distributed between Meeting #7 and Meeting #8 were presented. The results showed that the top selected scenario was the conveyance upgrade scenario, which includes conveyance improvements, WPCP upgrades, and I/I reduction. • During discussion, the stakeholders determined that they would also like to see the annual simulation results and the rate impacts for the storage scenario in addition to the conveyance upgrade scenario. • The stakeholders provided modifications to the scenarios that they would like to see included in the final evaluations.

Meeting #9 – System Master Plan Control Options (continued)

Meeting Date:	October 4, 2012
Meeting Topic(s):	• SMP Control Scenarios • Scenario descriptions • Benefits/Costs • Implementation schedule/affordability
Meeting Objective(s):	The objective for this meeting is to discuss how comments from the stakeholders group affected the performance, costs, implementation schedule, and affordability of the previously selected control scenarios.
Key Outcomes:	• The results of the annual simulations and design-storm evaluations for three scenarios: inflow elimination (per EPA request), conveyance upgrade, and storage were presented to the stakeholders and showed that all three scenarios could eliminate CSOs for the 10-year storm and for the annual simulation. • An updated affordability threshold analysis was presented. • The proposed implementation schedules to maintain affordable rates for each of the scenarios was presented. • The recommended scenario at the end of the meeting was the conveyance upgrade scenario (Scenario C1A) and was accepted by the workgroup participants. The fact sheet for Scenario C1A is included on the following page. • Feedback was provided by the workgroup participants that the stakeholder process had been effective in determining a recommended scenario.

Background Information on Newport Combined Sewer System and Combined Sewer Overflow (CSO) Program for Stakeholder Workgroup Meeting #1

TO: Newport CSO Program Stakeholder Workgroup

COPIES: Julia Forgue/City of Newport
Ken Mason/City of Newport
Jim Lauzon/United Water

FROM: Becky Weig/CH2M HILL

DATE: February 1, 2011

Introduction

The purpose of this document is to provide the members of the Combined Sewer Overflow (CSO) Stakeholder Workgroup with basic background information about the City of Newport's (the City's) combined sewer system and its ongoing Combined Sewer Overflow CSO Program in advance of the first CSO Stakeholder Workgroup meeting schedule for February 3, 2011. It is recommended that the CSO Stakeholder Workgroup members review the included information prior to the meeting, if possible, to familiarize themselves with the City's system and the CSO Program in order to facilitate discussions at the meeting.

Members of the CSO Stakeholder Workgroup may be unfamiliar with many of the terms and acronyms associated with CSO systems. For this reason, we have included a list of terms and acronyms in Attachment 1 to this memorandum. In addition, at the first CSO Stakeholder Workgroup meeting, each participant will be given a notebook to keep materials distributed and a copy of Attachment 1 will be included in this notebook for reference.

Throughout this memorandum as well as at CSO Stakeholder Workgroup meetings, we will be discussing the City's combined sewer system. A *combined sewer system* is a collection system designed or intended to convey wastewater and storm water in a single pipe to the Water Pollution Control Facility (WPCF) or other authorized discharge point. A *separate sewer system* is a two-pipe collection system, where one pipe network is designed or intended to convey wastewater to the WPCF and there is a second pipe network to convey storm water from storm drainage conduits directly to receiving waterbodies.

Background Information on the City's CSO System

The City's wastewater collection system consists of approximately ninety (90) miles of gravity sewers and force mains. An additional nine (9) miles of privately owned and operated force mains, primarily located in the Newport Neck area, are also connected to the City's collection system. The City also receives wastewater flow from the Town of Middletown through two (2) force mains and flow from Naval Station Newport through three (3) force mains. Of these five (5) force main connections, four (4)

discharge directly at the WPCF and one (1), Middletown's Wave Ave. Pump Station, discharges into the City's collection system. The City's collection system consists of gravity sewers and force mains ranging in diameter from 6 to 84 inches. In addition there are fourteen (14) pump stations, two (2) CSO treatment facilities, one (1) CSO storage conduit, three (3) permitted CSO outfalls and one (1) wastewater treatment facility.

An 11"X17" figure of the City's system will be distributed at the first CSO Stakeholder Workgroup meeting on February 3, 2011.
It should be noted that while the City has three (3) permitted CSO outfalls, the Long Wharf CSO outfall has been plugged and is no longer in use.

History of the CSO System

Table 1 below shows key milestones and upgrades to the City's CSO system.

TABLE 1
History of the Newport CSO System

Year(s)	Activities
1800s – 1970s	Operates as a completely combined system
1970s	Implemented a sewer separation program
1978	Wellington Ave. CSO Treatment Facility constructed
1991	Washington St. CSO Treatment Facility constructed
1994	EPA CSO Policy Issued
1999	City signs a consent agreement with RIDEM
1999 - 2008	City working under RIDEM direction on CSO Program
2008	EPA supersedes RIDEM consent agreement negotiations with Request for Information (RFI)
2009 – 2011	City enters and maintains ongoing negotiations on a CSO Corrective Action Plan (CAP) with EPA & RIDEM
2010	City begins implementing activities from draft CAP

Overview of the CSO Program

As shown in Table 1 above, the City has been working on reducing the number and volume of CSOs since the 1970s. The purpose of this section will be to present an overview of the CSO Program that the City has been implementing since 2009. In addition to the information provided in this document, the City has posted a significant amount of information about its wastewater system and CSO Program on the Department of Utilities page on the City's web-site at the following link:
http://www.cityofnewport.com/departments/utilities/pollution_control/home.cfm

The information included on this site includes, but is not limited to the following:

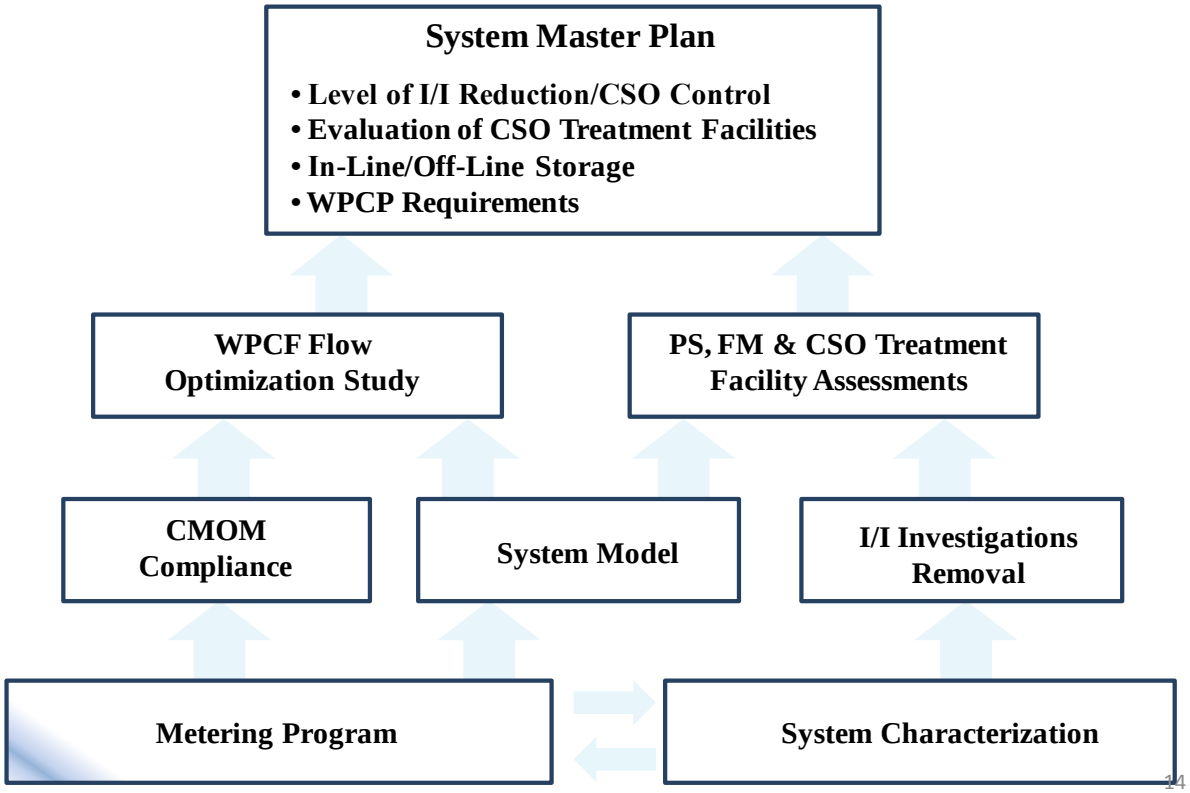
- Previously completed CSO Control Plan Reports

- CSO Information
- CSO Program Newsletters
- Harbor Monitoring Program, including water quality monitoring results
- On-going Smoke Testing & Building Inspection Programs

It is recommended that the CSO Stakeholder Workgroup members visit this site when they have time to become more familiar with the City's wastewater system and the CSO Program.

In the fall of 2009, the City issued a Request for Proposal (RFP) for a CSO Program Manager to assist with CSO related activities. The purpose of the CSO Program is to utilize information generated from studies of the CSO system to develop a System Master Plan (SMP) that will recommend improvements to the system that will reduce CSOs for the least cost. Figure 1 below shows how current CSO Program activities will feed into the SMP.

FIGURE 1
Development of a System Master Plan



Results of Recent CSO Program Activities

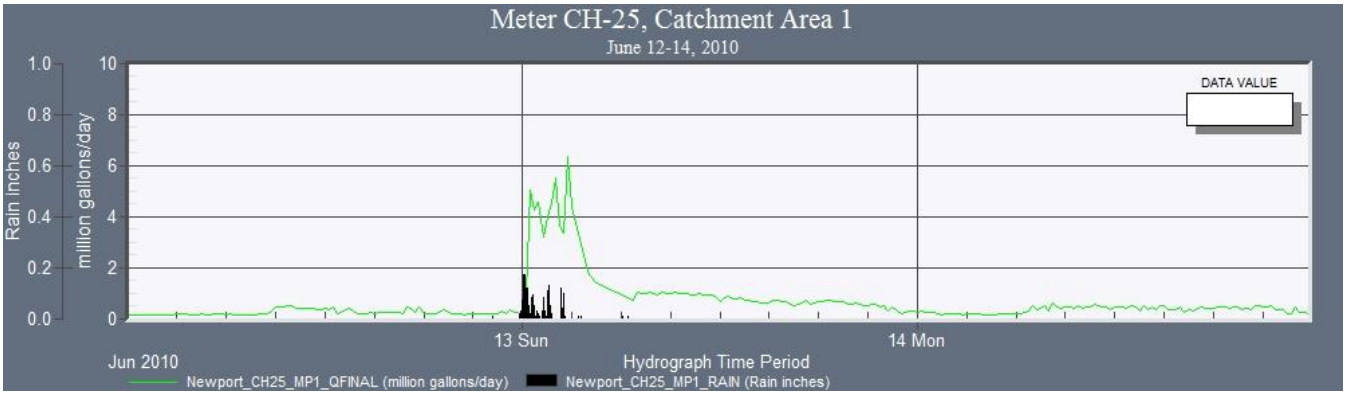
The following sections present the results of the CSO Program activities completed in 2010.

Metering

In March and April 2010, the City installed 30 flow meters in the collection system to monitor flows. The purpose of the metering was to support system modeling and to identify which areas of the system are the "wettest", or those are that allow the greatest Infiltration/Inflow (I/I) into the system. *Infiltration* is defined as the water that enters the collection system indirectly (including sewer service connections) from the ground through such means as, but not limited to, defective pipes, pipe joints, connections or manholes. *Inflow* is defined as all water that enters the collection system directly (including sewer service connections) from sources such as, but not limited to, roof leaders, cellar drains, yard drains, sump pumps, area drains, foundation drains, drains from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, catch basins, storm waters, surface runoff, street wash waters, or drainage. *Infiltration/Inflow (I/I)* is defined as the total quantity of water from both Infiltration and Inflow without distinguishing the source.

In a combined sewer system, stormwater from precipitation events enters the City's collection system and can exceed the system's collection capacity, therefore leading to overflows from the Wellington Ave. CSO Facility and the Washington St. CSO Facility to Newport Harbor. The "wettest" areas or catchments are those that show the greatest increases in flow during precipitation events. Figure 2 below shows the metering results from a June 2010 precipitation event at meter CH-25, which is in Catchment Area 1 and has been identified as the "wettest" location in the collection system. As the figure shows, total flow in the collection system at this location increases greatly with the precipitation event.

FIGURE 2
Flow Metering Results at Meter CH-25 from June 2010 Precipitation Event



Based upon the analyses of the June precipitation event, as well as others since, the City's Catchment Areas have been ranked from "wettest" to "least wet" as shown in Table 2.

TABLE 2
Catchment "Wetness" Ranking Based Upon Collection System Metering

Basin Priority	Catchment Area	Major Area
1	1	Wellington
2	11	Washington
3	4	Washington
4	8	WPCF
5	6	Wellington
6	2	Wellington
7	7	Wellington
8	11	Washington
9	13	Long Wharf
10	12	Washington
11	8	WPCF
12	3	Wellington
13	11	Washington
14	10	Washington
15	10	Washington
16	4	Wellington
17	12	Washington
18	4	Wellington
19	7	Wellington

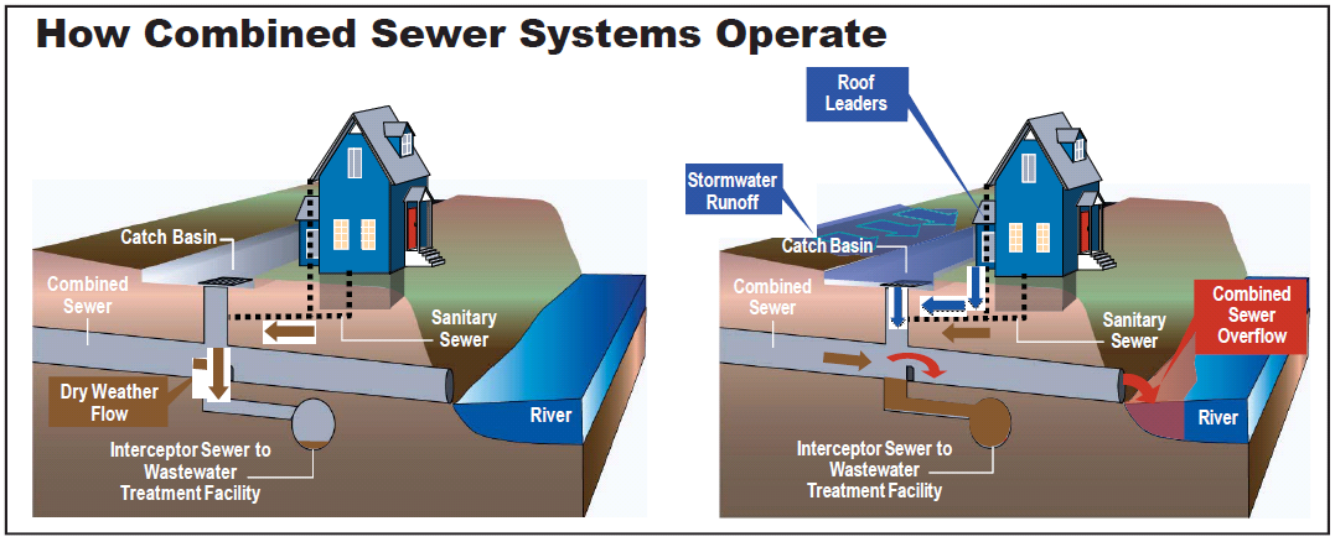
CCTV and Pipe Condition

In an effort to identify those pipes that are in the worst condition and most likely to fail or allow I/I into the system, the City has been conducting closed circuit television (CCTV) inspections of the collection system. Through September 2010, 158,116 linear feet of pipe has been inspected. Of the pipes inspected, 15,354 linear feet have been recommended for repair and/or rehabilitation and the City is currently in the process of procuring services for the design of these repairs.

I/I Investigations

When investigating and removing I/I from the collection system, the City looks for both public and private sources of I/I. Public sources of I/I would be those that enter the system through publically owned assets such as catch basins, manholes, and sewer lines. Private sources of I/I would be those that enter the system through privately owned assets such as service laterals, roof leaders, cellar drains, yard drains, sump pumps, area drains, and foundation drains. Figure 3 shows how I/I can enter the collection system from public and private sources.

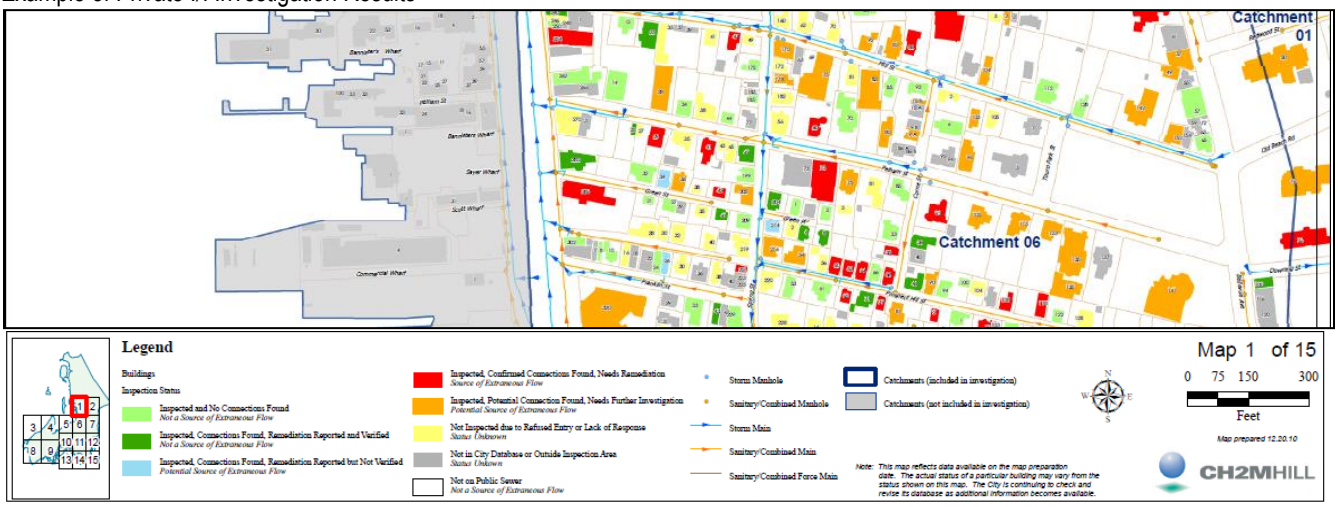
FIGURE 3
How I/I Enters a Collection System



Based upon the results of the metering, the City began a field inspection program in 2010 to identify and remove sources of I/I in the wettest catchments. For private sources of I/I, 2,159 building inspections have been attempted, 692 first-time building inspections completed and 110 disconnections of sources of I/I from private properties have been verified. For public sources of I/I, 100,672 linear feet of pipe have been smoke tested and 403 manholes have been inspected. (All results are through January 15, 2011.) The data collected through these studies is being stored in a database that the City will use to prioritize future improvement projects.

Based upon previous studies, the City completed private I/I investigations via building inspections prior to 2010. The results of these investigations were submitted to the Environmental Protection Agency (EPA) and the Rhode Island Department of Environmental Management (RIDEM) in December 2010. Figure 4 below shows an example of the type of information submitted to the EPA.

FIGURE 4
Example of Private I/I Investigation Results



Deliverables Submitted to EPA

In addition to the activities described above, the City has submitted the following deliverables to the EPA and RIDEM:

- Inventory & CMOM (see definition of CMOM in Attachment 1) Self-Assessment
- CMOM Corrective Action Plan
- Pump Station & Force Main Evaluation
- WPCF Flow Optimization Study & CEPT Scope of Work
- Wellington Ave. CSO & Washington St. CSO Influent & Effluent Monitoring Plan
- Evaluation of Wellington Ave. CSO Facility, Washington St. CSO Facility & Narragansett Ave. Storage Conduit
- Initial Wellington Ave. CSO Extraneous Flow Remedial Plan
- Wellington Ave. Outfall Private Extraneous Flow Investigations

Construction Activities

While there is still much about the CSO system to be studied in order to develop the SMP, the City has completed and initiated a number of construction activities for those projects that were identified during previous studies to help reduce overflows. The following is a list of completed and active construction projects:

- Railroad Interceptor Rehabilitation – completed
- Long Wharf Force Main Emergency Repair – completed
- 2007-2008 Catch Basin Separation Improvements – completed
- 2008 Sanitary Sewer Manhole Rehabilitation Project (repair of 146 defective manholes in the Wellington area) - completed
- 2010 Catch Basin CA-6 Disconnection - completed
- Wellington Ave. Interceptor Replacement - completed
- High priority sewer replacement project construction – substantially complete
- Thames St. Interceptor rehabilitation – in progress

Attachment 1 – Key Terms & Acronyms

Key Terms

Capacity, Management, Operations & Maintenance (CMOM) - an EPA program to establish a process and framework that allows collection system owners and operators to optimize the performance of their system

Combined Sewer System - a collection system designed or intended to convey wastewater and storm water in a single pipe to the Water Pollution Control Facility (WPCF) or other authorized discharge point*Combined Sewer Overflow* – the discharge of wastewater and stormwater from a combined sewer system directly to a receiving waterbody during wet weather

Infiltration - the water that enters the collection system indirectly (including sewer service connections) from the ground through such means as, but not limited to, defective pipes, pipe joints, connections or manholes.

Inflow - all water that enters the collection system directly (including sewer service connections) from sources such as, but not limited to, roof leaders, cellar drains, yard drains, sump pumps, area drains, foundation drains, drains from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, catch basins, storm waters, surface runoff, street wash waters, or drainage

Infiltration/Inflow (I/I) - the total quantity of water from both Infiltration and Inflow without distinguishing the source

Separate Collection System - a two-pipe collection system, where one pipe network is designed or intended to convey wastewater to the WPCF and there is a second pipe network to convey stormwater from storm drainage conduits directly to receiving waterbodiesKey Acronyms

- CCTV – Closed Circuit Television
- CMOM – Capacity, Management, Operations & Maintenance
- CSO – Combined Sewer Overflow
- EPA – Environmental Protection Agency
- FM – Force Main
- GIS – Geographic Information System
- I/I – Infiltration & Inflow
- LTCP – Long Term Control Plan
- O&M – Operations & Maintenance
- PS – Pump Station
- RIDEM – Rhode Island Department of Environmental Management

- SEP – Supplemental Environmental Project
- SMP – System Master Plan
- WPCF – Water Pollution Control Facility

Key Terms & Acronyms

Updated March 7, 2012

Key Terms

Capacity, Management, Operations & Maintenance (CMOM) - an EPA program to establish a process and framework that allows collection system owners and operators to optimize the performance of their system

Chemically Enhanced Primary Treatment (CEPT) – Adding additional chemicals to primary treatment to achieve additional settling

Combined Sewer System - a collection system designed or intended to convey wastewater and storm water in a single pipe to the Water Pollution Control Plant (WPCP) or other authorized discharge point

Combined Sewer Overflow – the discharge of wastewater and stormwater from a combined sewer system directly to a receiving waterbody during wet weather

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Separate Collection System - a two-pipe collection system, where one pipe network is designed or intended to convey wastewater to the WPCF and there is a second pipe network to convey stormwater from storm drainage conduits directly to receiving waterbodies Key

Acronyms

- BOD – Biochemical Oxygen Demand
- CAP – Corrective Action Plan
- CB – Catch Basin
- CEPT – Chemically Enhanced Primary Treatment
- CCTV – Closed Circuit Television
- CFU – Colony Forming Units

- CIP – Capital Improvement Plan
- CMOM – Capacity, Management, Operations & Maintenance
- CSCA – Collection System Capacity Assessment
- CSO – Combined Sewer Overflow
- CWA – Clean Water Act
- DWF – Dry Weather Flow
- EPA – Environmental Protection Agency
- FM – Force Main
- FY – Fiscal Year
- GIS – Geographic Information System
- I/I – Infiltration & Inflow
- LTCP – Long Term Control Plan
- MG – Million Gallons
- MGD – Million Gallons Per Day
- MHI – Median Household Income
- MPN – Most Probably Number
- NPDES – National Pollutant Discharge Elimination System
- O&M – Operations & Maintenance
- PS – Pump Station
- QA/QC – Quality Assurance/Quality Control
- RDII – Rainfall Derived Inflow & Infiltration
- RIDEM – Rhode Island Department of Environmental Management
- R&R – Repair & Replace
- SEP – Supplemental Environmental Project
- SMP – System Master Plan
- SS – Settleable Solids
- SSES – Sewer System Evaluation Survey
- SSO – Sanitary Sewer Overflow
- TKN – Total Kjeldahl Nitrogen
- TMDL – Total Maximum Daily Load
- TSS – Total Suspended Solids
- WPCP – Water Pollution Control Plant

Agenda for 1st City of Newport Combined Sewer Overflow (CSO) Program Stakeholder Workgroup Meeting (#10-039)

MEETING DATE: February 3, 2011

MEETING TIME: 3:00 PM

VENUE: Newport City Hall - Council Chambers - 2nd Floor

1. Welcome & Introductions of City Staff & CSO Program Team
2. Introduction of Stakeholder Workgroup Members
3. Overview of CSO System
4. Supplemental Environmental Projects (SEPs)
5. Overview of the CSO Program
6. CSO Stakeholder Advisory Workgroup Chartering
7. Wrap-up & Questions

Welcome & Introductions

- City Representatives
  - Julia Forgue – Director of Utilities
  - Joe Nicholson – City Solicitor
- CH2M HILL
  - Peter von Zweck
  - Becky Weig
- Stakeholder Workgroup Participants

2

Agenda

- Introductions – Julia Forgue
- Key Terms & Acronyms – Julia Forgue
- Chartering the Workgroup – Becky Weig
- Overview of the City's Wastewater System –Peter von Zweck
- Overview of the CSO Program – Peter von Zweck
- Supplemental Environmental Projects (SEPs) – Becky Weig
- Future Meetings, Wrap-up & Questions

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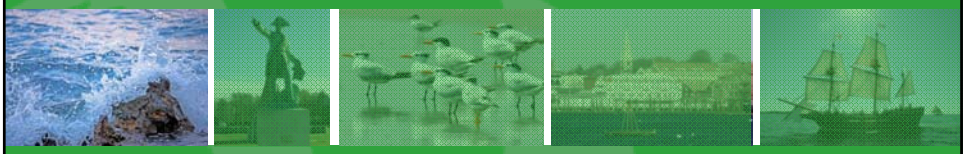

KEY TERMS & ACRONYMS

4

Key Terms

- *Combined Sewer System* – a collection system designed or intended to convey wastewater and storm water in a single pipe to the Water Pollution Control Facility (WPCF) or other authorized discharge point
- *Combined Sewer Overflow* – the discharge of wastewater and stormwater from a combined sewer system directly to a receiving waterbody during wet weather

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Acronyms

- CCTV – Closed Circuit Television
- CMOM – Capacity, Management, Operations & Maintenance
- CSO – Combined Sewer Overflow
- EPA – Environmental Protection Agency
- FM – Force Main
- GIS – Geographic Information System
- I/I – Infiltration & Inflow
- LTCP – Long Term Control Plan
- O&M – Operations & Maintenance
- PS – Pump Station
- RIDEM – Rhode Island Department of Environmental Management
- SEP – Supplemental Environmental Project
- SMP – System Master Plan
- WPCF – Water Pollution Control Facility

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STAKEHOLDER WORKGROUP CHARTERING

7

Chartering Elements

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- Mission
- Workgroup Membership
- Boundary Conditions
- Operating Guidelines

8

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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CSO Program Stakeholder Workgroup Membership

CSO Program Workgroup Membership		
Ad-Hoc Committee Representative	Alliance for a Livable Newport	Beach Commission
City Council Liaison	City Planning Department	City Department of Public Services
EPA	Town of Middletown	Naval Station Newport
Newport County Chamber of Commerce	Newport County Convention & Visitor's Bureau (NCCVB)	Newport Harbor Master
Residents-at-Large (4)	RIDEM	Roger Williams University – School of Engineering
Save the Bay		

Each organization has one representative and one alternate
Residents-at-Large – 4 participants

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Boundary Conditions

Boundary Conditions – limits of the Workgroup's activities

- The Workgroup may:
  - Ask questions about Program approach
  - Provide their perspective on Program approach & decision making
  - Review Program plans and projects & make recommendations
  - Disseminate Program information to their organizations
  - Propose Workgroup agenda topics
- The Workgroup may not:
  - Set City policies
  - Commit City funds

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Operating Guidelines – How the Workgroup Will Function

- Communications
  - E-mail notifications – please use: newportcsoprogram@CityofNewport.com
  - Meetings
- Meeting logistics – Will be discussed during Wrap-up
- Meeting structure
  - Planned agendas - distributed prior to meeting
  - Meeting minutes – to be approved at subsequent meeting
  - Parking lot – location for unanswered questions/off-topic issues

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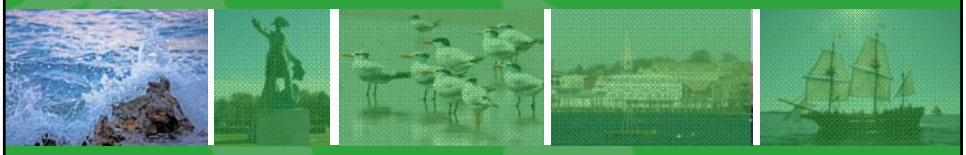

OVERVIEW OF THE WASTEWATER SYSTEM

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History of the City's Collection System

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Year(s)	Activities
1800s – 1970s	Operates as a completely combined system
1970s	Implemented a sewer separation program
1978	Wellington Ave. CSO Treatment Facility constructed
1991	Washington St. CSO Treatment Facility constructed
1994	EPA CSO Policy Issued
1999	City signs a consent agreement with RIDEM
1999 - 2008	City working under RIDEM direction on CSO Program
2008	EPA supersedes RIDEM consent agreement negotiations with Request for Information (RFI)
2009 – 2011	City enters and maintains ongoing negotiations on a CSO Corrective Action Plan (CAP) with EPA & RIDEM
2010	City begins implementing activities from draft CAP

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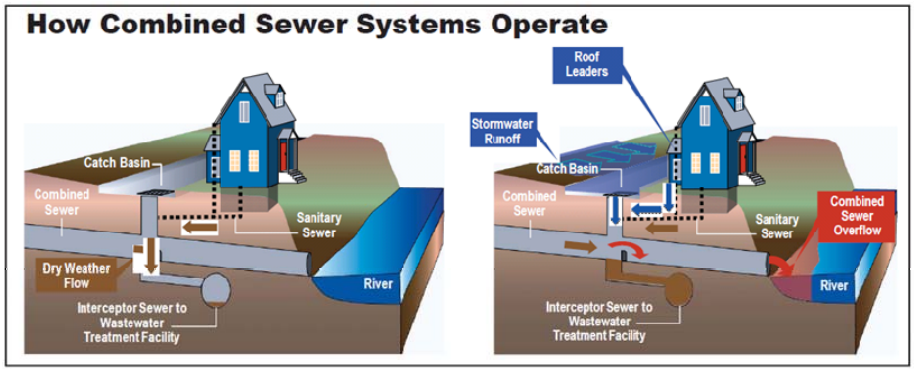
How a Combined Sewer System Operates

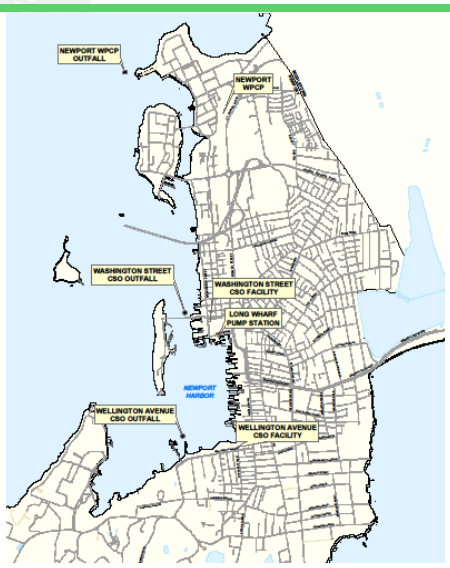


Dry Weather Conditions

Wet Weather Conditions

15

Overview of Current Wastewater System



Wastewater Infrastructure:

- 1 WPCF
- 3 permitted CSOs:
  - Wellington Ave. CSO
  - Washington St. CSO
  - Long Wharf CSO (plugged)

CSO Statistics for 2001 - 2010		
	Wellington Ave. CSO	Washington St. CSO
CSO Events/Yr (average)	19	12
Median Volume CSO (MG)	0.38	1.35
Maximum Volume CSO (MG)	24.4	64.4

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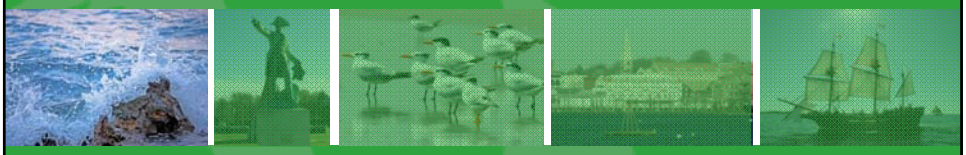

OVERVIEW OF THE CSO PROGRAM

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CSO Program Goals

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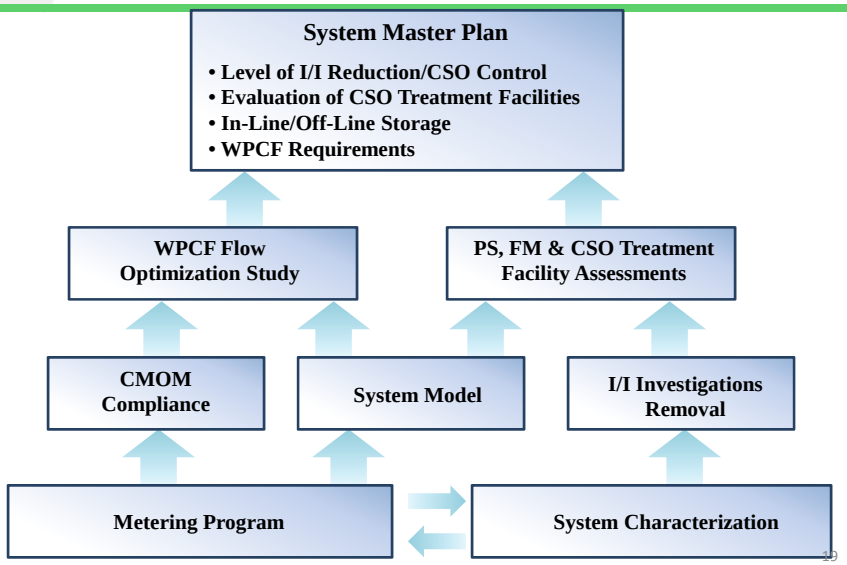
Continue to identify & implement the most cost-effective solution for reducing the number of CSOs to a level protective of Newport Harbor and acceptable to the community and regulatory agencies.

18

CSO Program Implementation Approach



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Completed & On-going Activities

- Metering
- CCTV & pipe condition
- Private I/I disconnections
- Field work to identify additional sources of I/I
- Previously completed capital improvements

More information about these activities is available in the Background Information on Newport Combined Sewer System and CSO Program memo.

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Key Upcoming CSO Program Activities

- Request for Proposals (RFPs)
  - Sewer Repair & Replacement Design
  - Beach Pump Station Evaluation
  - Bliss Mine Force Main Evaluation
- Hydraulic Model Calibration Report (April 2011)
- Extraneous Flow Characterization Report
  - Wellington (July 2011)
  - Washington (September 2011)
- Collection System Capacity Assessment (January 2012)
- System Master Plan (November 2012)

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Tying All CSO Program Activities into a System Master Plan

Elements of a System Master Plan

- Which projects will be built
- Cost & Affordability Analysis
  - Using EPA Guidelines & not subjective
- Schedule for projects to be implemented
- Benefits of projects
  - Flow removed from the system
  - Projected reduction in # of overflows

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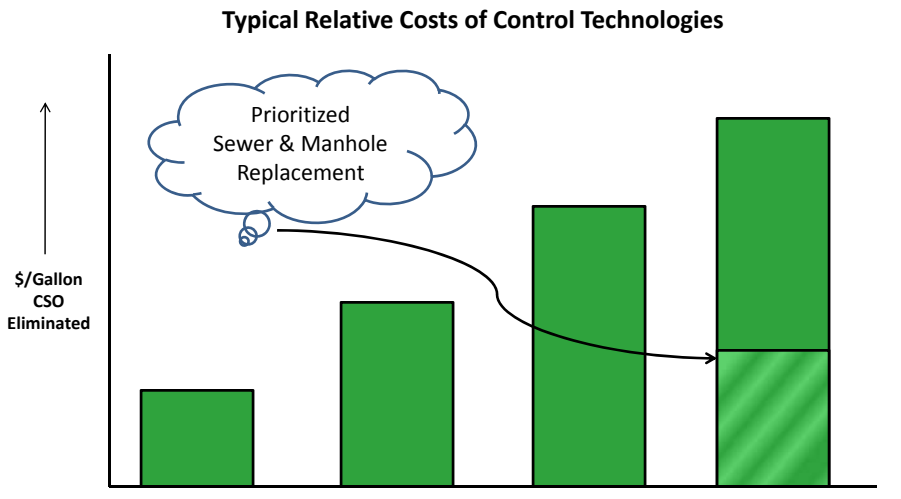
System Master Plan Allows Newport to Maximize Its Investment



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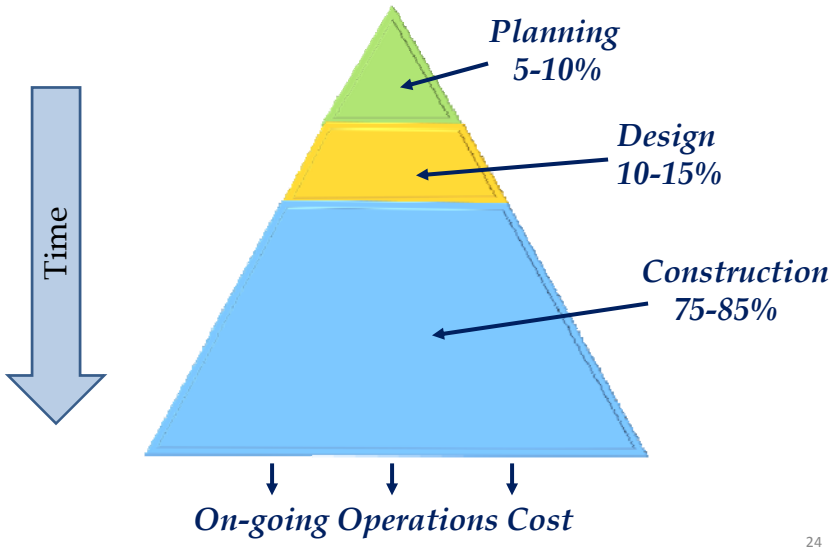
Typical Program Cost Allocation



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How the CSO Program Affects Rates

- CSO Program work is paid through an enterprise account that consists of:
  - Sewer fees
  - CSO fixed fee
- Only those connected to the sewer system pay these fees (no tax $)
  - Approximately 9,000 sewer accounts
- The Navy & Middletown are wholesale customers for treatment and pay their share of:
  - Operations & Maintenance
  - Capital investment for infrastructure that serves them

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Strategy to Develop System Master Plan

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

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SUPPLEMENTAL ENVIRONMENTAL PROJECTS (SEPs)

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What are SEPs?

- 1998 EPA Supplemental Environmental Projects Policy:
  - SEPs are: "…**environmentally beneficial projects** which a defendant/respondent agrees to undertake **in settlement of enforcement action,** but which the defendant/respondent is **not otherwise legally required to perform.**"
  - a penalty mitigation to further EPA's goals to protect and enhance public health & the environment
    - i.e. do a project rather than pay a penalty

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Potential SEPs for the City of Newport

- Potential SEPs:
  - Pump Out Station @ Anne St. pier
  - Porous Pavement
  - Rain Barrel Program

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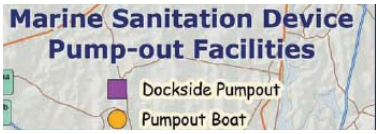
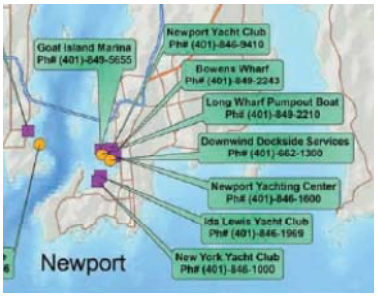
Existing Pump Out Facilities in Newport Harbor

Benefits of a Pump Out Station:

- Would be 1st public pump out station in Newport Harbor
- Increase likelihood of compliance with Rhode Island's "No Discharge Area"
- Keep contaminants out of Newport Harbor:
  - o Microorganisms – pathogens & bacteria
  - o Nutrients
  - o Toxic chemicals
- Encourage more boat traffic & visitors to the Anne St. Pier area





Source: RIDEM
http://www.dem.ri.gov/programs/benviron/water/shellfsh/pump/index.htm

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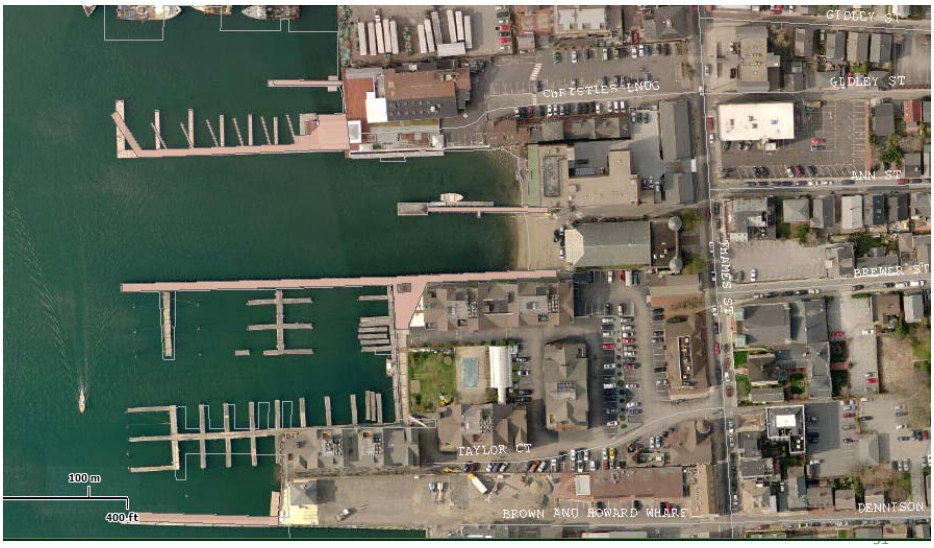
Pump Out Station @ Anne St. Pier



Porous Pavement 101

- What is it?
  - Pavement in which fine particles are kept to a minimum or in which the amount of impervious pavement is minimized
- Why?
  - This allows rainfall to drain through the pavement rather than running off
- Where does the rainfall go?
  - A "bed" beneath the pavement receives rainfall directly on the pavement as well as runoff from other areas

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Example of Porous Pavement

Environmental Benefits of Porous Pavement

- Reduces the amount of impervious surface on a site
- Reduces the discharge of pollutants and improves water quality
- Storage Bed limits the peak discharge and reduces stress on existing conventional sewers

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Where is Porous Pavement Being Used?

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Porous Pavement @ Easton's Beach Parking Lot

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Porous Pavement @ Mary St. Parking Lot

Rain Barrel Program

- Benefits of a Rain Barrel Program:
  - Captures storm flow to reduce run-off & improve groundwater recharge
  - Would encourage water conservation – water can be used for lawn & garden watering during dry conditions
  - Barrels would be provided at no cost
  - Would work well with current extraneous flow program

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SEP Discussion

- Comments on proposed potential SEPs
- Other possible SEPs
- City will be preparing preliminary cost estimates to present potential SEPs to EPA

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FUTURE MEETINGS, WRAP-UP & QUESTIONS

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Future Meetings

- Future Meeting Dates
  - Frequency
  - Standing Date (Ex. - 1st Thursday)
- Future Meeting Times
  - Trying to maximize participation

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Potential Future Workgroup Agenda Topics

- Harbor Water Quality
- Water Pollution Control Facility
- System Metering & Field Investigations
- Public Communications
- System Master Plan elements

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Potential Tour of CSO System

- Purpose: bring all workgroup members to a minimum level of understanding about the CSO system
- Poll level of interest

Wellington Ave. CSO Facility

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QUESTIONS?

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Newport CSO Stakeholder Workgroup: Meeting #1 Summary

Approved at April 20, 2011 CSO Stakeholder Workgroup Meeting.

ATTENDEES: See Attachment 1

DATE & PLACE: February 3, 2011 @ 3:00 PM; City Hall Council Chamber, 43 Broadway Newport, RI

Welcome & Introductions

Julia Forgue introduced City and United Water staff as well as the CH2M HILL consultant team members. Each workgroup member introduced themselves.

Update on Consent Decree Negotiations

Joe Nicholson, City Solicitor, provided an update on the status of the CSO Consent Decree (CD) negotiations with the Environmental Protection Agency (EPA). The litigation is still pending and EPA and the City of Newport are working cooperatively, they hope to come to a conclusion in the form of a long document. The draft CD mentions the CSO Stakeholder Workgroup.

Questions & Answers

Q: What is the time frame for the final consent order?
A: The City, CH2M HILL and City Solicitor have been working together with EPA and Rhode Island Department of Environmental Management (RIDEM) and they hope to finalize a draft of the CD within a month and a half to two months.

Q: Have you negotiated the financial angle of the consent order?
A: It is still being discussed. There is a civil penalty component (fine) in the CD. There are also stipulated penalties if certain deadlines aren't met.

Stakeholder Workgroup Chartering

Becky Weig facilitated a chartering session to establish how the Workgroup would operate. This included the Workgroup's mission statement, membership, boundary conditions and operating guidelines.

Questions & Answers

Q: How should document review comments be submitted to the City, via e-mail?
A: The CSO project email address (newportcsoprogram@cityofnewport.com) should be used for questions and submitting comments about the project. Other issues will be discussed at the Stakeholder Workgroup meetings.

Overview of the Wastewater System and the CSO Program

Peter von Zweck presented an overview of the City of Newport's wastewater system and the CSO program. The overview included:

- History of the City's collection system
- How a combine sewer system operates
- Overview of the current wastewater system
- CSO program goals
- CSO program implementation approach
- Completed and on-going activities
- Key upcoming activities
- CSO System Master Plan
- How the CSO program affects rates

Questions & Answers

Q: Is the median volume shown on Slide 16 overall or just for CSO events?
A: The median volume shown is just for CSO events and is not related to regular dry weather flow.

Q: When was the Long Wharf CSO plugged?
A: About 3 years ago, there hadn't been an overflow there for an extended period of time.

Q: How long is it from when the sewage enters the collection system to when it reaches the treatment plant?
A: Approximately one day, but there is no exact answer for that right now. We will know better when the model calibration is completed.

Q: What is the possibility that system users would or could cut back their water usage when it is raining? Would this help reduce overflows?
A: This question can't be answered right now. More tools and data are needed to answer that specifically, but the rainfall has the largest affect on the system, not the everyday dry weather water use.

Q: What are the elements of the affordability analysis?
A: There has already been one affordability analysis, which was submitted in March of 2009 for the Wellington area. The question was added to the parking lot and more detail about the affordability analysis will be covered at the next meeting.

Q: Are there any incentives for the citizens of Newport to be proactive to remove illegal connections (sump pumps, roof drains, etc.) from the sewer?
A: There is an ordinance that prohibits these connections. The City is currently doing house to house inspections and some people don't even realize they have these connections. An incentive program is a cost that the City would have to fund, so it would have to be evaluated to determine if it makes sense financially.

Q: What is the quality control aspect of the CSO program? Is it third party or part of the contract? What's the cost of the quality control? What is the breakout percentage of quality control for planning, design, and construction?
A: The consultant, CH2M Hill is making sure we have all the right issues on the table. The costs could be 10-20% of the construction project. The engineers are responsible for the designs. Construction inspection can be done by the designer or a third party, but using the designer eliminates risk.

Q: How do you determine the portion of the capital investments attributed to the Navy and Middletown? When does their contract come up?
A: There are long-term contracts in place for the Navy and Middletown, the exact dates and details of this contract can be presented at a later meeting. The Navy has three connections to the Water Pollution Control Plant (WPCP) and two other connections to the system. Middletown has two connections to the system. Both pay a proportional share for the use of the treatment facilities.

Q: How many CSO events could you avoid if you cut off the Navy and Middletown connections? What are the CSOs costing us compared to how much they are contributing?
A: The contracts are long-term contracts and have been set up so that everyone pays their equitable share. This is also why the Navy and Middletown are participating in the Stakeholder Workgroup.

Q: How is the performance of the ongoing CSO program or the upcoming activities being measured?
A: Reduction in overflow is a good measure in the quality improvements. This will be addressed in further detail at a later time because benchmarks are needed to track progress.

Supplemental Environmental Projects (SEPs)

Becky Weig presented an overview of the SEPs the City is considering as part of the CSO program. These included:

- A pump out station at Ann St. Pier,
- Porous pavement pilot projects at 2 locations, Easton's Beach parking lot and the Mary St. parking lot, and
- A rain barrel program.

The Workgroup was asked to provide comments on the proposed SEPs and to suggest other potential SEPs.

Comments on Proposed SEPs

- Will there be some discussion on the geology of Newport? Soils are poor, might be helpful to discuss the quality of soils in Newport when considering porous pavement. There would need to be pre-design discussions and investigations.
- Environmentally how does porous pavement compare with asphalt? Is it environmentally friendly? The answer to this isn't exactly known at the moment. However, RIDEM does

encourage porous pavement as it allows the rainwater to infiltrate into the ground rather than runoff.
- The Pell Elementary School is using green construction methods. Have they been given this information regarding porous pavement? Julia Forgue has provided them with the information.

Other Proposed Potential SEPs

- A pump-out station at Fort Adams.
- Porous pavement at the Pell School.
- Use marsh restoration, shellfish restoration, eel grass, swales, or habitat restoration along with porous pavement at Easton's Beach as a demonstration project.
- An oil-water separators pilot project. This is not very effective for runoff on roadways.
- City street porous pavement demonstration, with porous sidewalks.
- Rain gardens as part of the current project on Broadway, such as at the corner of Marlborough and Broadway.
- A grey water or reuse system for residences as a demonstration project.

Next Meeting

The next meeting was set for April 7th at 3pm in the Council Chambers.

The Workgroup discussed future agenda topics. Suggestions were:
- Answers to parking lot questions.
- Overview of the metering program.

In the interim, Workgroup members interested in learning more about the CSO program can find data as well as minutes and agendas on the City's web-site.

Workgroup members were polled about interest in a tour of the WPCP and the CSO Facilities. Many members were interested and the City agreed to set up dates for the tours before the next Workgroup meeting.

Parking Lot:

The following questions were placed in the Parking Lot to be addressed at a subsequent meeting:

- How long does flow stay in the system before reaching WPCF?
- Can conservation of water during rain events affect overflows? Is there time to get the message out?
- What are the elements of the affordability analysis?
- Can the City provide incentives for residents to disconnect private I/I?
- What percentage of total program cost goes to QA/QC for each element (Planning, Design, and Construction?)
- Can the Workgroup learn more about the contracts for wholesale customers?
- How is CSO program performance measured? Are there benchmarks?

Attachment 1 – CSO Stakeholder Workgroup Meeting #1

MEETING DATE:	Thursday, February 3rd , 2011 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
Workgroup Members		
Justin McLaughlin	City Council	Yes
Ray Smedberg	Ad Hoc Committee	No
David McLaughlin (Alternate)	Ad Hoc Committee	Yes
John McCain	ALN	Yes
Roger Wells (Alternate)	ALN	Yes
Charles Wright	Beach Commission	No
Kathleen Shinners (Alternate)	Beach Commission	Yes
Bill Riccio	Dept. Public Services	No
Eric Earls (Alternate)	Dept. Public Services	No
Paige Bronk	Dept. Planning	Yes
Bill Hanley (Alternate)	Dept. Planning	No
Tim Mills	Harbor Master	No
Mary E. Devers-Putnam	EPA	No
James Carlson	NSN	No
William Monaco (Alternate)	NSN	Yes
Jody Sullivan	Newport County Chamber	No
Ed Lopes (Alternate)	Newport County Chamber	No
Evan Smith	NCCVB	No
Cathy Morrison (Alternate)	NCCVB	No
Shawn Brown	Middletown	No
Tom O'Loughlin (Alternate)	Middletown	Yes
Eric Beck	RIDEM	No
Angelo Liberti (Alternate)	RIDEM	Yes
Jim Brunnhoeffer	RWU	Yes
B. Gokhan Celik (Alternate)	RWU	No
John Torgan	Save the Bay	Yes
Wendy Waller (Alternate)	Save the Bay	No

MEETING DATE:	Thursday, February 3rd , 2011 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
Tom Cornell	Resident	Yes
Stuart K. Mills, Jr.	Resident	No
Roger Slocum	Resident	Yes
Ted Wrobel	Resident	Yes
Other Attendees		
Julia Forgue	City of Newport	Yes
Ken Mason	City of Newport	Yes
Peter von Zweck	CH2M HILL	Yes
Becky Weig	CH2M HILL	Yes
Jim Lauzon	United Water	Yes
Frank Marinaccio	Dept. Public Services	Yes
Antone Viveiros	Middletown Council	Yes
Joe Nicholson	City Solicitor	Yes
Kathleen Papp	Newport County Chamber	Yes

CSO Stakeholder Workgroup Meeting #2 Agenda (#10-039)

MEETING DATE: April 7, 2011

MEETING TIME: 3:00 PM

VENUE: City of Newport Council Chambers, City Hall

1. Approval of previous meeting's minutes
2. Follow-up on Parking Lot items
3. Overview of the CSO Program schedule
4. Key Meeting Topic(s)
    a. Metering Program – What have we learned from metering the sanitary sewer system for the last year?
    b. Infiltration /Inflow Investigations & Removal
5. Next meeting information

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CSO Program Stakeholder Workgroup: Meeting #2

Newport City Hall – Council Chambers
April 20, 2011

CH2MHILL

1

Welcome & Introductions

- City Representatives
  - Julia Forgue – Director of Utilities
- CH2M HILL
  - Peter von Zweck – Project Manager
  - Becky Weig – Public Involvement
  - Bill McMillin – Metering Program
  - Katie Chamberlain – Field Investigations
- Stakeholder Workgroup Participants

2

Agenda

- Approval of Previous Minutes
- Overview of the CSO Program Schedule
- Parking Lot Follow-up Items
- Key Meeting Topics
  - Metering
  - Infiltration/Inflow Investigations
- Future Meetings, Wrap-up & Questions

3

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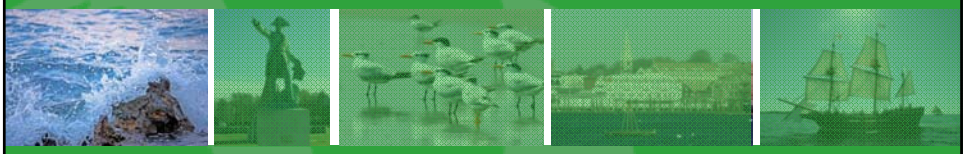
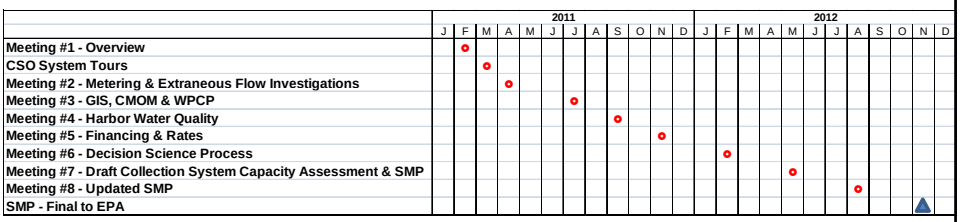


OVERVIEW OF THE STAKEHOLDER WORKGROUP

4

Schedule of CSO Stakeholder Workgroup Meetings



- Schedule developed to meet 2 key objectives:
  - Develop a collective understanding of the CSO Program (Meeting #s 1 – 4 & CSO System Tours)
  - Allow sufficient time for discussion and inclusion of Workgroup comments into the SMP (Meeting #s 5-8)

5

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.

6

Purpose of the Stakeholder Workgroup

Boundary Conditions – limits of the Workgroup's activities

- The Workgroup may:
  - Ask questions about Program approach
  - Provide their perspective on Program approach & decision making
  - Review Program plans and projects & make recommendations
  - Disseminate Program information to their organizations
  - Propose Workgroup agenda topics
- The Workgroup may not:
  - Set City policies
  - Commit City funds

7

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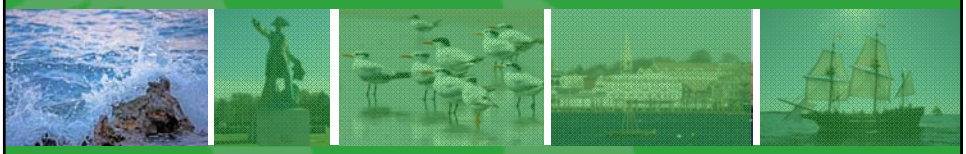


PARKING LOT FOLLOW-UP ITEMS

8

Parking Lot Questions #1&2

- How long does flow stay in the system before reaching WPCP?

Example Location from Upstream in Catchment 2		
Range of System Velocities (ft/s)	Total length (ft)	Time (Hr)
2.5	24000	2.67
5	24000	1.33
8	24000	0.83

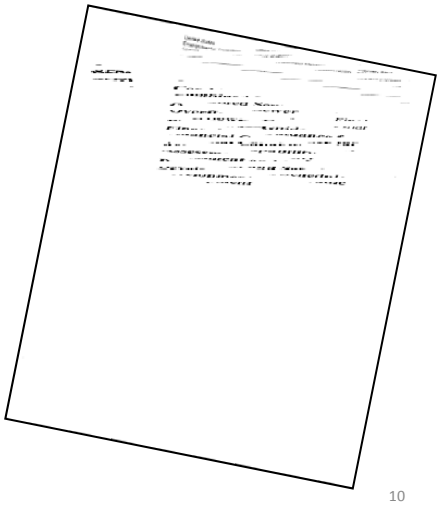
Results were confirmed by using hydraulic model for June 12-13, 2010 event. Lag time between input to Catchment 2 & WPCP was 1.5 Hr.

- Can conservation of water during rain events affect overflows?
  - Not in a significant way
  - Inflows during wet weather are 5 to 20 times larger than dry weather flows

9

Parking Lot Question #3

- Q: What are the elements of the affordability analysis?
  - Wastewater costs per household (all Clean Water Act requirements – capital and O&M)
  - Capital cost amortization period
  - Borrowing interest rate & inflation rate
  - City bond rating
  - Net debt as a percent of full market property value
  - Unemployment rate
  - Median household income
  - Property tax revenue collection rate
  - Outside state & federal financial support (historic)



10

Parking Lot Question #4

Q: Can the City provide incentives for residents to disconnect private I/I?

- There is an ordinance in place that prohibits connections
- Funding for an incentive program through sewer rates can be evaluated as part of SMP development
- Public education and outreach efforts to promote disconnection of private I/I sources to be discussed later in meeting

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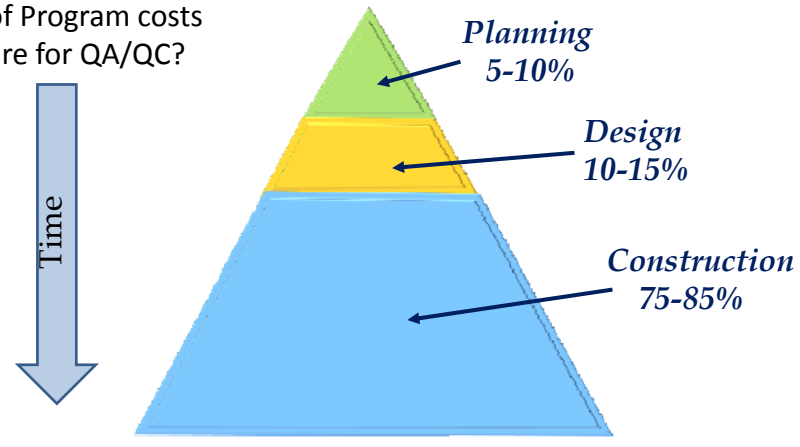
Parking Lot Question #5

Q: What percentage of Program costs are for QA/QC?



QA/QC ~ 10-15 % of total Program Costs

12

Parking Lot Question #6

Q: Can the Workgroup learn more about the contracts for wholesale customers?

- WPCP DWF capacity is 10.7 MGD
- All customers pay equitable share of costs based on allocations of flows…

User	Allocation	Dry Weather Flow Allocation (MGD)
City of Newport	53.3%	5.7
Navy	27.1%	2.9
Middletown	19.6%	2.1

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Parking Lot Question #7

Q: How is CSO program performance measured? Are there benchmarks?

- CSO Program benchmarks are set by:
  - Clean Water Act – receiving water bodies must meet water quality standards for their designated uses
    - Example: Fishable & swimmable
  - National CSO Control Policy
    - Presumptive Approach – allows annual average of 4 or more CSO events/yr – or – 85% capture by volume – to eliminate impairments
    - Demonstrative Approach – prove that water quality standards and designated uses will be met

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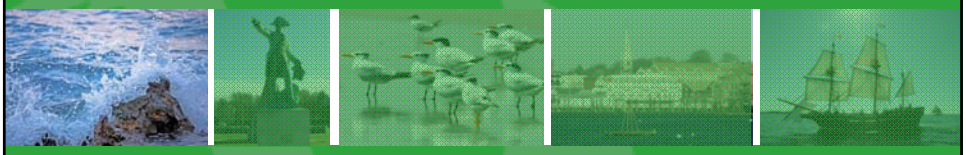

KEY MEETING TOPICS

METERING
I/I INVESTIGATIONS

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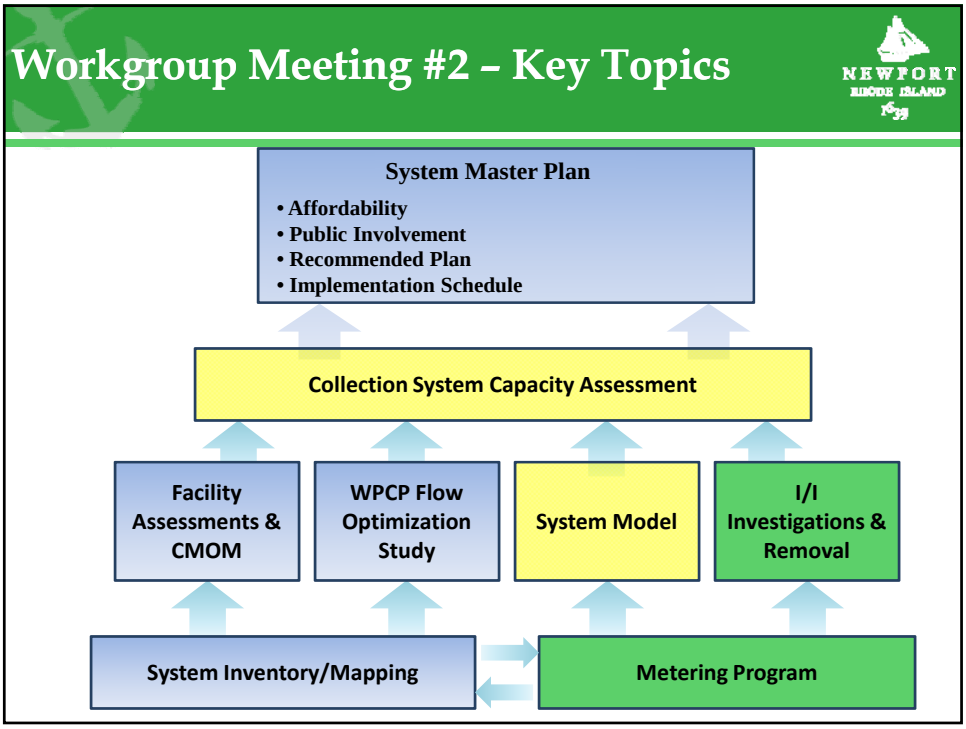
Workgroup Meeting #2 – Key Topics



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METERING

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Metering Program

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- Elements of the metering program described today:
  - Purpose
  - Scope
  - Details
  - Using the data
  - Next steps

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Purpose of the Metering Program

- Provide flow data in sanitary and combined sewers for:
  - Characterization
  - Hydraulic Modeling
  - Evaluation
  - Future Planning



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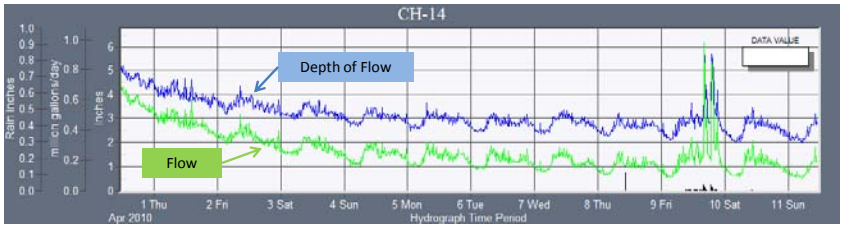
Purpose of the Metering Program

- Characterize conditions in the system during dry and wet weather
  - Monitor areas not previously monitored
  - Monitor private areas
  - Identify significant users
  - Understand how the entire system works
- Support hydraulic modeling
  - Hydraulics and flow for:
    - Dry weather - sanitary
    - Wet Weather – rain
  - Used to:
    - Build out the model
    - Verify that the model reasonably calculates observations



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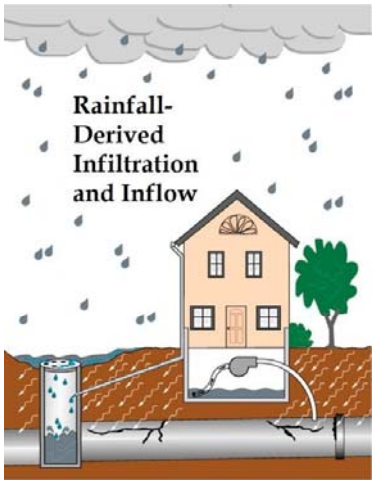
Purpose of the Metering Program

- Evaluations:
  - Periodic data review
    - Identify and correct metering problems
    - Direct meter relocations
    - Identify special studies
  - Rainfall-Derived Infiltration and Inflow (RDII) analyses
    - Identify extraneous flow
    - Direct extraneous flow investigations
- Future Planning
  - System master planning



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Scope of the Metering Program

- Install Meters (April 2010)
- Monitor for 12 months
  - Through April 15, 2011
- Perform Quality Control
- Manage Data
  - Real time
  - Monthly
- Data Analyses
  - RDII* analyses
  - Relocate meters
  - Guide field investigations
- Reporting

Meter CH-02 on Wellington Avenue
Post-Wellington Interceptor Replacement

*RDII – Rainfall-Derived Infiltration and Inflow

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Details of the Metering Program

- 35 Metering Locations
  - Velocity & depth of flow
  - Groundwater levels
  - 3 Rain gages
- Special - Salinity:
  - Monitoring in sewers at select locations
  - For infiltration into water table from harbor waters
- Other data compilation
  - Regional rainfall
  - System data for WPCP, pump stations, and Navy

Rain gage at Long Wharf Pump Station

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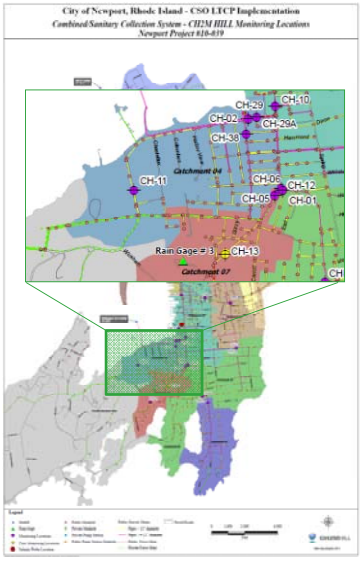
Details of the Metering Program - Locations

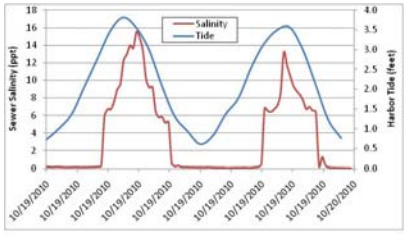
- Location selection criteria:
  - Previous locations for data continuity
  - Private Areas
  - Completed sewer projects
  - New areas not previously monitored
    - Washington
    - Direct to WPCP
  - Controls:
    - CSO Treatment Facilities
    - Narragansett storage conduit
    - Diversions
- Rainfall coverage

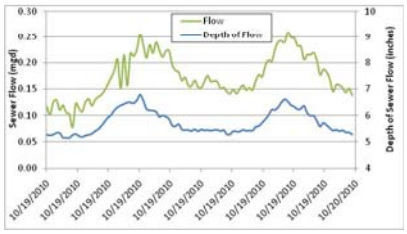


Details of the Metering Program
Tidal Effects on I/I Flows

- Previous studies indicated tidal impacts may be significant
- Pathways:
  - Not through CSO outfalls or open pipes
  - Infiltration from water table in low-lying areas
- Data indicates:
  - Presence confirmed
  - Flow is insignificant and not a cause of CSOs

CH-18
Washington Street at Gladys Carr Bolhouse Rd.





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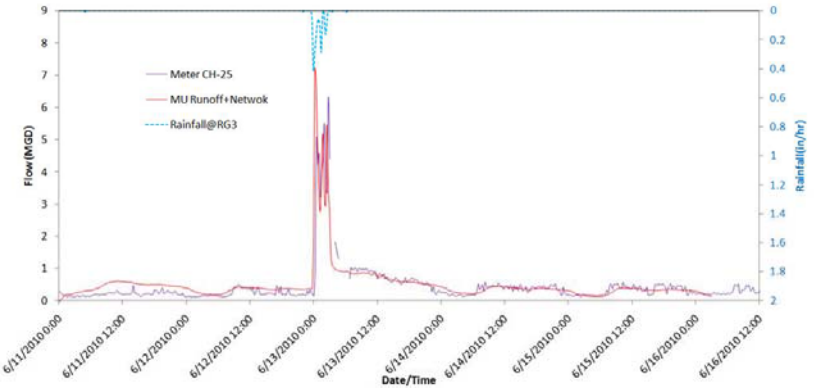
Using the Data
System Response to Wet Weather

- Meter CH-25 at Narragansett Avenue
  - Area east of Bellevue, from Narragansett to north of Memorial
- Sewer flow responds quickly to wet weather



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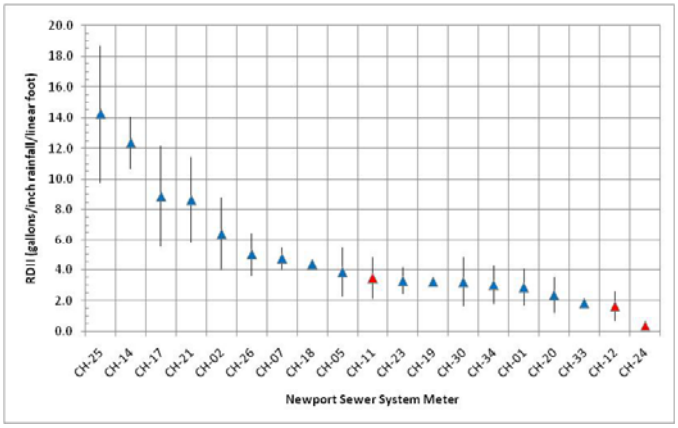
Using the Data To Prioritize Field Investigations

- June meter data was used to preliminarily calculate I/I, rank and prioritize areas, and direct initial I/I field investigations



RDII analyses were performed on three rain events in June 2010

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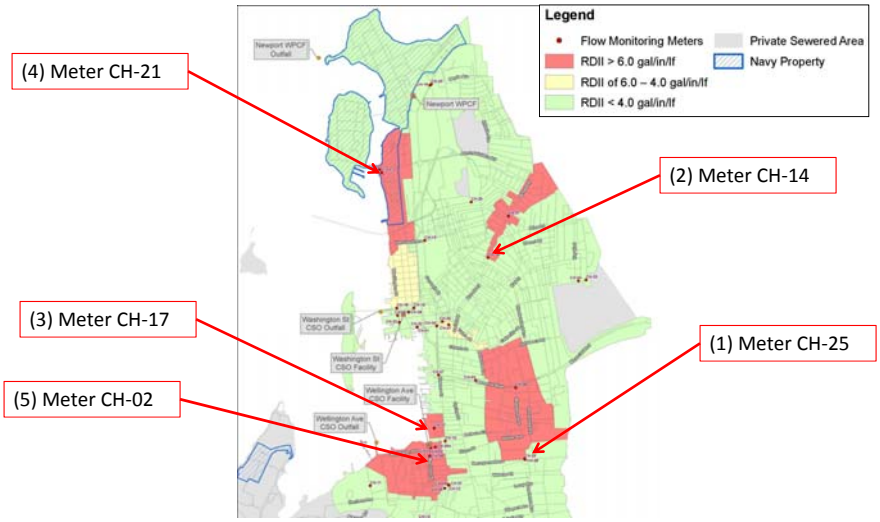
Using the Data Prioritized Areas for I/I Investigations

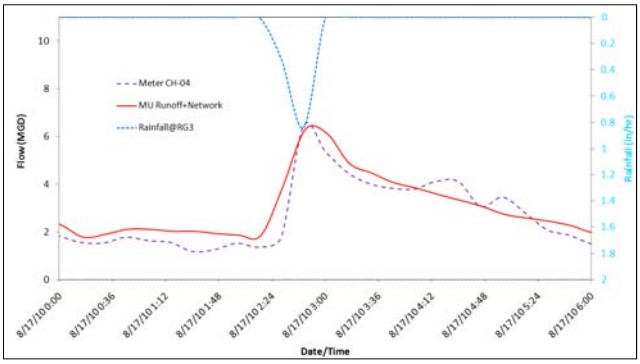


28

Meter ranks in parentheses are based on preliminary June 2010 data analysis

Using the Data Input
Meter data is used for Modeling

- Flow data from meter CH-04 on Thames Street near Touro Street is being used to verify that model calculations are accurate in the system



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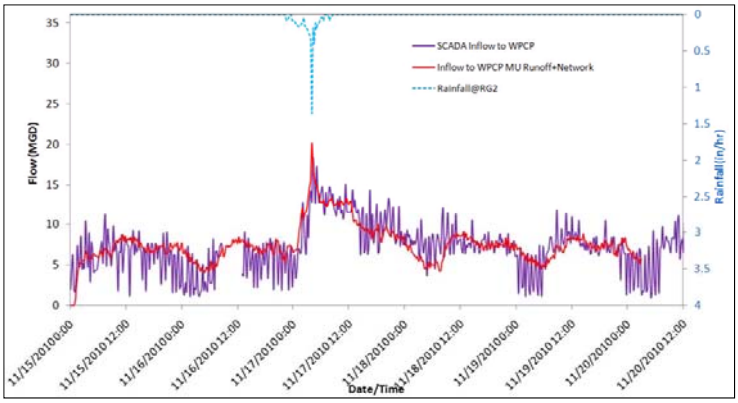
Data Input for Hydraulic Model Calibration - WPCP

- Flow data recorded at the WPCP is being used to verify that model calculations are accurate for the WPCP



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Metering Next Steps

- Meter removal & demobilization
  - Starting April 15th
- Continue to meter selected locations
  - Measure benefits of recently completed projects
  - Collect additional data for model refinement
- Complete QA/QC
- Additional data analysis

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I/I INVESTIGATIONS

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Infiltration & Inflow Investigations

- Purpose of I/I Investigations
- Types of Defects
- Types of Investigations
- Previous Investigations & Follow-up
- Development of Current Investigation Program
- I/I Investigation Progress
- Next Steps
- Public Education and Outreach Options

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Purpose of I/I Investigations

- Sources of I/I are identified through field investigations
  - Public
  - Private
- Corrective actions are then recommended for eliminating the defects

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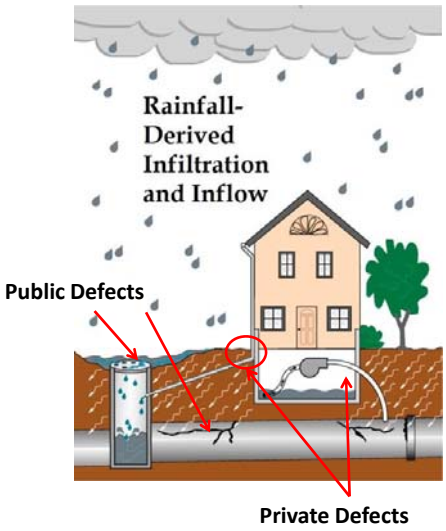
Types of Defects: Public & Private



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

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Types of I/I Investigations

- Smoke testing
- Manhole inspections
- Catch basin inspections
- CCTV
- Building inspections
  - Dye testing

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Typical I/I Investigation Findings


Roof leader

Vented manhole cover


Driveway drain


Service lateral defects


Stairwell drain


Curb inlet


Sump pump

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Previous I/I Investigations

- Focused on Wellington catchments
  - Smoke testing
  - Manhole inspections
  - Flow isolation investigations
  - Dye flood tests
  - CCTV
  - Building inspections
- Data has been integrated into a database

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Previous Investigations Follow-up

- Building inspection follow-up activities
  - Letters sent to properties with previously identified sources of I/I
  - Follow-up visits were conducted to verify disconnections
  - Attempted to inspect properties that were previously not inspected

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Current I/I Investigations Differ Between Areas

- Wellington Area
  - Focused on catchments with highest estimated I/I
  - Completed manhole inspections & building inspections not previously done
  - Verified disconnections from previous work
  - Re-smoke tested limited areas still showing high rates of I/I
  - Catch basin inspections
- Washington Area
  - Focused on catchments with highest estimated I/I
  - Started with faster & "bigger bang" inspections
    - Smoke testing
  - Followed up with manhole and catch basin inspections
  - Began building inspection program
  - Looking for both public and private defects

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Current I/I Investigations Progress to Date

Catchment	Building Inspections	Disconnection Verifications	Smoke Testing	Manhole Inspections	Catch Basin Inspections
1	O	O	C	C	C
3	Starting in May				
4					
6	O	O	C	C	
10				C	
11	O		C	C	O
13	O		C	C	

O = Ongoing
C = Completed

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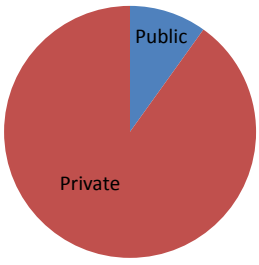
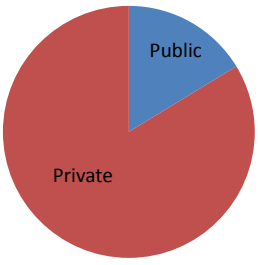
Preliminary Results of Current I/I Investigations

Catchment 1 (Wellington Area)
Public & Private I/I Flow Contributions



Catchment 11 (Washington Area)
Public & Private I/I Flow Contributions



Preliminary findings show that the majority of I/I flow is from private defects

I/I flows are estimated based on the types and numbers of defects found.
These are preliminary findings that will change as the program progresses.

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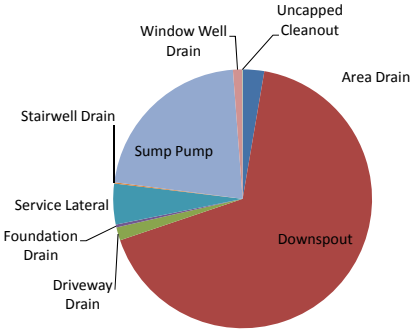
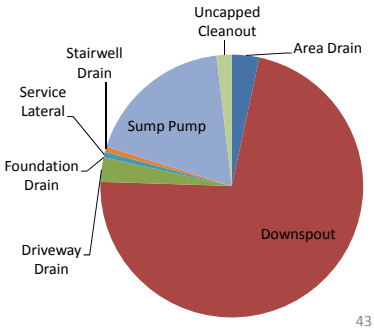
Preliminary Results of Private I/I Flow Contributions

Catchment 1 (Wellington Area)



Catchment 11 (Washington Area)



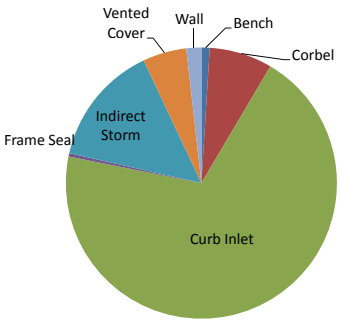
43

Preliminary findings show that the majority of private I/I flow is from roof leaders

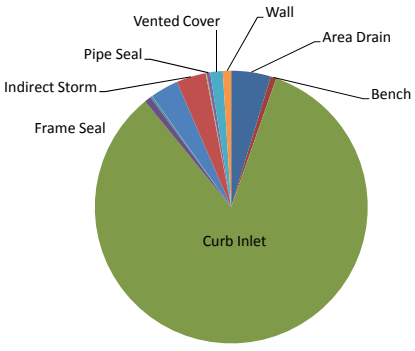
I/I flows are estimated based on the types and numbers of defects found.
These are preliminary findings that will change as the program progresses.

Preliminary Results of Public I/I Flow Contributions

Catchment 1 (Wellington Area)



Catchment 11 (Washington Area)



Preliminary findings show that the majority of public I/I flow is from curb inlets

I/I flows are estimated based on the types and numbers of defects found.
These are preliminary findings that will change as the program progresses.

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I/I Investigations Next Steps

- I/I Investigations are an iterative process
  - Investigate
  - Analyze & evaluate data
  - Remediate & reprioritize additional investigations
  - Reinvestigate
- Continue to collect data
  - Building inspection program will be an ongoing process
  - Continue through this summer with smoke testing, manhole and catch basin inspections
- Will report field investigation results to EPA:
  - Wellington – July 2011
  - Washington – September 2011

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I/I Public Education & Outreach Options

- Purpose:
  - Increase success rates on building inspections and disconnections
  - Promote disconnections in catchments not yet inspected
- Options:
  - Newspaper insert
  - Bill stuffers
  - Website - City E-mail
  - Neighborhood associations presentations
  - Others?

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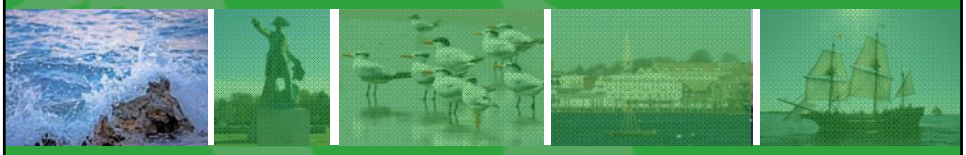

FUTURE MEETINGS, WRAP-UP & QUESTIONS

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Future Meetings

- Next Meeting
  - July 7, 2011
  - 3:00 PM
  - Council Chambers
  - Agenda Topics:
    - GIS
    - CMOM
    - WPCP

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QUESTIONS?

Newport CSO Stakeholder Workgroup: Meeting #2

ATTENDEES: See Attachment 1

DATE & PLACE: April 20, 2011 @ 3:00 PM; City Hall Council Chamber, 43 Broadway Newport, RI

Welcome & Introductions

Julia Forgue introduced City staff as well as the CH2M HILL consultant team members. As there were a number of new workgroup members in attendance, each workgroup member introduced themselves.

Overview of Agenda

Becky Weig of CH2M HILL provided an overview of the agenda and asked if there were any questions before moving forward. A summary of the agenda follows:

1. Approval of previous meeting's minutes.
2. Follow-up on Parking Lot items
3. Overview of the CSO Program schedule
4. Key Meeting Topic(s)
    a. Metering Program
    b. Infiltration /Inflow Investigations & Removal
5. Next meeting information

Questions & Answers:

Q: Are there any updates on the CSO litigation?
A: The litigation is still pending and in negotiation, no updates are available.

Previous Meeting's Minutes

The minutes of the first meeting were approved.

Update on Parking Lot from Previous Meeting

Updates and answers to the seven parking lot items from the previous meeting were presented.

The seven parking lot questions were:

1. How long does flow stay in the system before reaching WPCF?
2. Can conservation of water during rain events affect overflows? Is there time to get the message out?

   Results of some system flow data analysis were presented showing that the system response to rainfall does not allow sufficient time to implement water conservation during rain events.

3. What are the elements of the affordability analysis?

   The list of elements from the EPA's *Combined Sewer Overflows – Guidance for Financial Capability Assessment and Schedule Development* was presented.

4. Can the City provide incentives for residents to disconnect private I/I?

   It was presented that there is an ordinance prohibiting these connections, but if there were to be an incentive program it would need to be funded through sewer rates and this option can be evaluated as part of the System Master Plan (SMP).

5. What percentage of total program cost goes to QA/QC for each element (Planning, Design, and Construction?)

   A graphic showing typical Program cost breakdown, including QA/QC costs on the range of 10-15% of total program costs was presented.

6. Can the Workgroup learn more about the contracts for wholesale customers?

   The dry weather flow allocations for each wholesale customer as well as the City of Newport were presented.

7. How is CSO program performance measured? Are there benchmarks?

   The benchmarks set by the National CSO Control Policy were presented.

Questions & Answers:

Q: What are the number of CSO events over time? Have they decreased?

A: The number and volume of CSO events for the past 10 years is posted on the City's website. Tracking over time requires looking at a number of factors, such as rainfall frequencies, volumes and if storage facilities are completely empty from previous events. This item will be added to the Parking Lot for additional discussion at a future meeting.

Metering Program

Bill McMillin presented an overview of the metering program. Key topics presented included:

- Elements of the metering program
- Purpose of the metering program
  - Characterization
  - Support modeling

    - Support future planning
- Scope and details of the metering program
- Uses of the data and preliminary results
- Metering next steps

Questions & Answers:

Q: Does the City still do spot inspections for those who have an industrial discharge licenses?
A: Yes, the City does have an industrial pretreatment program, and this is one of the main sources to identify the significant users.

Q: Is CH-14 a place?
A: CH-14 is the number of the meter, the plot shows exactly the measurements at that particular time and location where the meter is.

Q: Is salinity testing part of the metering program?
A: We added it into the program, and more information will be given in the next few slides.

Q: What is the percentage of infiltration through sewer manholes during rainfall events?
A: This will be discussed in the next agenda item on Infiltration/Inflow Investigations.

Q: Is it reasonable to expect there are meters that monitor particular users?
A: Yes, and actually there are 3 meters that are monitoring flow from Middletown and we have been doing this during the past year. Meters can be left in the system afterwards depends on what the city wants to do.

Q: Do you have a sense of how well the measurements obtained match the model?
A: Actually, we'd rather the model match the data. The model is still being calibrated, and sometimes we have to change the calculation of the data such that the model itself represents how the system reacts in reality. Bill McMillin explained how this was applicable with the unique shape of the Thames St. Interceptor as an example.

Q: Do you plan on re-installing the meters after the construction project/replacement on Thames St is done?
A: Yes, a slide with a photo of the post-replacement meter in the Wellington Avenue Interceptor was shown as an example.

Q: In the system, where is the salinity testing conducted?
A: There is no testing conducted in the system, but it is tested for at the treatment plant.

Q: What rainfall data is used for Newport?
A: The rainfall gauges available are located in Newport Airport, Kingston and Providence. Newport Airport tells us rainfall over Middletown.

Q: If a public rainfall gauge is to be selected, will the one in Newport Airport be the choice?
A: Based on locality, it is much closer than Providence. As a matter of timing, volume of rainfall may match up pretty good, but for hourly or 15-min rainfall, there may have more variations involved (e.g. intensity).

Q: Are the system defects letting sanitary sewage out of the pipes?

A: This is unlikely as these pipes are not under pressure, like water distribution pipes.

Q: Does CH-25 include flow from Middletown?
A: No, flow from Middletown connects to the sewer system near Thames & America's Cup.

Q: Do you have a sense on areas with highest infiltration/inflow flow on the map?
A: The areas that are highlighted in red represent these areas.

Q: On the Hydraulic Model, do you make assumptions on long term cycles/winters, temperature and frozen precipitation?
A: We look at what a typical year usually is. We have historical rainfall from Kingston that goes back to the 1940s and rainfall at Kingston goes back to the 1800s.

Q: Do we look at the water content of the biggest snowfall vs. water content of the biggest rainfall?
A: 12 inches of snow is approximately 1inch of rainfall, the storm in June 2010 was around 2 inches of rainfall which is equivalent to about 2 feet of snow, but the state of the ground needs to be taken into account as well as whether the snow melts right away.

Infiltration / Inflow Investigation & Removal:

Katie Chamberlain presented an overview of the I/I field investigations program. Key topics presented included:

- Purpose of the I/I investigations
- Types of system defects – public and private
- Types of I/I investigations
- Typical I/I investigation findings
- Overview of previous I/I investigations and on-going follow-up from that work
- The different types of I/I investigations between the Wellington CSO and Washington CSO catchment areas
- Progress of current I/I investigations
- Preliminary results of I/I investigations
- Next steps for the I/I investigation program

The Workgroup was asked what types of public outreach and education materials would be useful to improve understanding, inspection rates and disconnection rates for the field investigations program. Suggestions were to be sure to show the magnitude of the problem. Some members responded that the recent direct mailings had been very effective as well as possibly bill stuffers.

Questions & Answers:

Q: During inspections, what if people only unplugged the sump pump connection and leave the possibility to connect it back to the sewer (through covers on pipes)? Are there any ordinances if they get caught for the second time?
A: Inspection crews have come across "disconnections" like this. What we can do for now is to advise the residents that this is not acceptable. Residents who are not responsive will

get a second certified mail letter asking them to fully disconnect, and if they still do not comply and disconnect the defects, the City will send them to the municipal court.

Q: Regarding the Results shown on slide 43, are these measurements instances or flows?
A: These flows are calculated. The number of defects in the buildings are counted along with their tributary area to calculate flow for a set rain event; therefore these numbers show the flow contributions of a particular kind of defect under the same rain event.

Q: What is a dye test?
A: It is a method to confirm whether potential defects are connected to the sewer; it involves putting dye into the defect and see where it shows on the street – sanitary sewer or storm sewer.

Parking Lot:

The following questions were placed in the Parking Lot to be addressed at a subsequent meeting:

- What are the number of CSO events over time?
- What is the cost to fix the private defects versus public benefits?
- What is the point of insisting on private defect disconnection if the stormwater is then routed to a public connection? What is the public policy about these disconnection requirements?
- What can private property owners do if the area is poor draining soil or there are not adequate catch basins?
- Can the City provide follow-up to technical agenda items as more information is obtained?

Next Meeting

The next meeting was set for July 14th at 3pm in the Council Chambers.

Attachment 1 - CSO Stakeholder Workgroup Meeting #2 Attendees

MEETING DATE:	Wednesday, April 20 , 2011 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	Affiliation	In Attendance
Workgroup Members		
Justin McLaughlin	City Council	**YES**
Ray Smedberg	Ad Hoc Committee	**YES**
David McLaughlin (Alternate)	Ad Hoc Committee	**NO**
John McCain	ALN	**YES**
Roger Wells (Alternate)	ALN	**NO**
Tina Dolen	Aquidneck Island Planning Commission	**YES**
Chris Witt (Alternate)	Aquidneck Island Planning Commission	**NO**
Charles Wright	Beach Commission	**NO**
Kathleen Shinners (Alternate)	Beach Commission	**NO**
Bill Riccio	Dept. Public Services	**NO**
Eric Earls (Alternate)	Dept. Public Services	**NO**
Paige Bronk	Dept. Planning	**YES**
Bill Hanley (Alternate)	Dept. Planning	**NO**
Tim Mills	Harbor Master	**NO**
Mary E. Dever-Putnam	EPA	**YES**
James Carlson	NSN	**YES**
William Monaco (Alternate)	NSN	**NO**
Jody Sullivan	Newport County Chamber	**YES**
Ed Lopes (Alternate)	Newport County Chamber	**NO**
Evan Smith	NCCVB	**NO**
Cathy Morrison (Alternate)	NCCVB	**NO**
Shawn Brown	Middletown	**NO**
Tom O'Loughlin (Alternate)	Middletown	**YES**
Eric Beck	RIDEM	**NO**
Angelo Liberti (Alternate)	RIDEM	**NO**
Jim Brunnhoeffer	RWU	**YES**
B. Gokhan Celik (Alternate)	RWU	**NO**

MEETING DATE:	Wednesday, April 20 , 2011 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
John Torgan	Save the Bay	**YES**
Wendy Waller (Alternate)	Save the Bay	**NO**
Tom Cornell	Resident	**YES**
Stuart K. Mills, Jr.	Resident	**NO**
Roger Slocum	Resident	**YES**
Ted Wrobel	Resident	**YES**
Other Attendees		
Julia Forgue	City of Newport	**YES**
Ken Mason	City of Newport	**NO**
Peter von Zweck	CH2M HILL	**YES**
Becky Weig	CH2M HILL	**YES**
Jim Lauzon	United Water	**YES**
Katie Chamberlain	CH2M HILL	**YES**
Bill McMillin	CH2M HILL	**YES**

CSO Stakeholder Workgroup Meeting #3 Agenda (#10-039)

MEETING DATE: July 14, 2011

MEETING TIME: 3:00 PM

VENUE: City of Newport Council Chambers, City Hall

1. Approval of previous meeting's minutes
2. Follow-up on Parking Lot items
3. Key Meeting Topic(s)
    a. GIS
    b. WPCP Optimization Study
    c. CMOM
4. Next meeting information

Welcome & Introductions

NEWPORT RHODE ISLAND 1639

- City Representatives
  - Julia Forgue – Director of Utilities
- CH2M HILL
  - Mike Domenica – Program Manager
  - Peter von Zweck – Project Manager
  - Becky Weig – Public Involvement
  - Kris Andersen - GIS
  - Dimitri Katehis – WPCP Optimization Study
  - Tom Simbro – CMOM
- Stakeholder Workgroup Participants

2

Agenda

- Approval of Previous Minutes
- Overview of the CSO Program Schedule
- Parking Lot Follow-up Items
- Key Meeting Topics
  - GIS
  - WPCP Optimization Study
  - CMOM
- Future Meetings, Wrap-up & Questions

3

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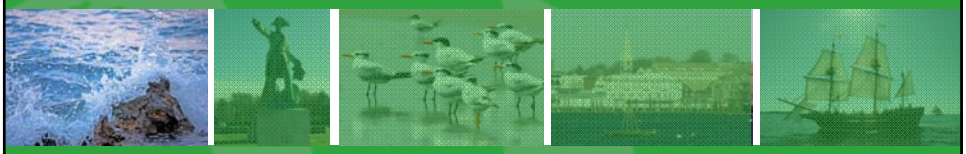
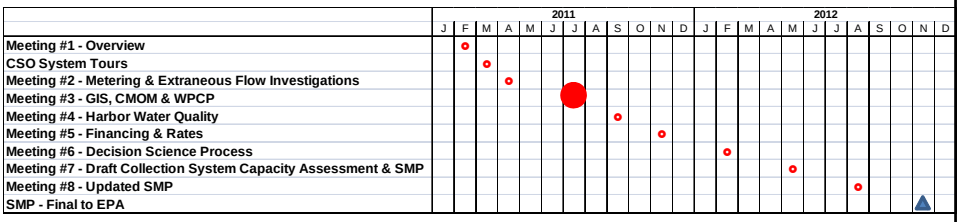


OVERVIEW OF THE STAKEHOLDER WORKGROUP

4

Schedule of CSO Stakeholder Workgroup Meetings



- Schedule developed to meet 2 key objectives:
  - Develop a collective understanding of the CSO Program (Meeting #s 1 – 4 & CSO System Tours)
  - Allow sufficient time for discussion and inclusion of Workgroup comments into the SMP (Meeting #s 5-8)

5

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.

6

Purpose of the Stakeholder Workgroup

Boundary Conditions – limits of the Workgroup's activities

- The Workgroup may:
  - Ask questions about Program approach
  - Provide their perspective on Program approach & decision making
  - Review Program plans and projects & make recommendations
  - Disseminate Program information to their organizations
  - Propose Workgroup agenda topics
- The Workgroup may not:
  - Set City policies
  - Commit City funds

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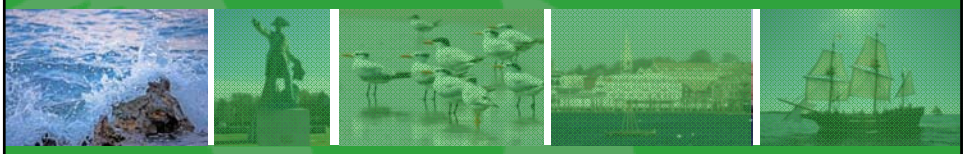

APPROVAL OF PREVIOUS MEETING'S MINUTES

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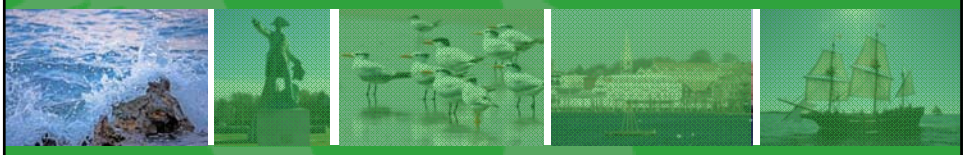

PARKING LOT FOLLOW-UP ITEMS

9

Parking Lot Question #1

- What are the number of CSO events over time?
  - There are a number of variables to take into account when evaluating CSO events over time:
    - The number, duration and intensity of precipitation events
    - Time of year affects amount of runoff
      - Frozen ground or snow pack – more runoff
      - Dry ground – more infiltration
    - Is a precipitation event defined as a single event or two separate events
    - Was the collection system back to normal operating conditions from previous precipitation events
  - There will be a more exhaustive review of this data in September

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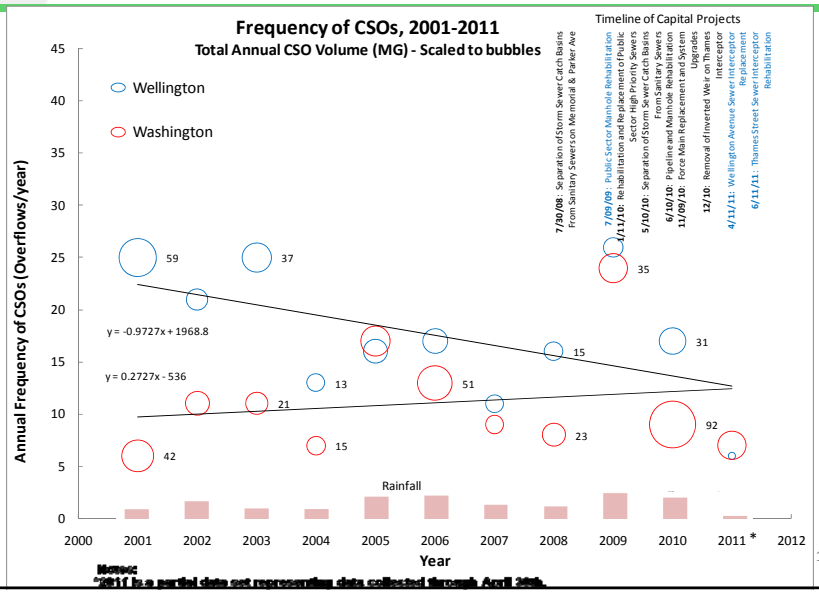
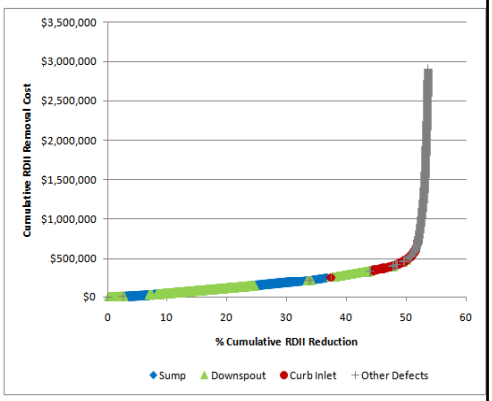
CSO Volumes & Frequencies



11

Parking Lot Question #2

- What is the cost to fix the private defects versus the public benefits?
  - Fixing defects is required by the City's Sewer Service System Ordinance (Chapter 13.08.120 – Use of public sewers.)
  - There will be an associated cost whether repaired or not:
    - Repaired – property owner
    - Unrepaired – all rate payers
  - Wide range of costs will be evaluated in SMP

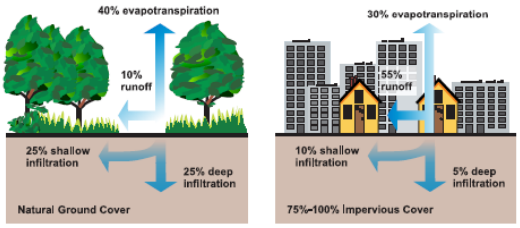


Results for Wellington Catchment

12

Parking Lot Question #3

- What is the point of insisting on private defect disconnection if the stormwater is then routed to a public connection? What is the public policy about these disconnection requirements?
  - Ideally disconnections would be discharged to lawns and gardens to facilitate recharge
    - Especially good for downspouts



Pre-development and post-development hydrology (USDA).

EPA, 2009.

13

Parking Lot Question #4

- What can private property owners do if the area is poor draining soil or there are not adequate catch basins?
  - Would be reviewed on a case by case basis, but this is not typical
  - Rain barrels for downspouts
  - Rain garden
  - Contact the City about catch basins
  - Previous downspout disconnections has not caused flooding issues

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Parking Lot Question #5

- Can the City provide follow-up to technical agenda items as more information is obtained?
  - Technical topics can be returned to when there is new information
    - Revisited at a meeting
    - New reports made available for review
  - Stakeholders should suggest topics they would like receive follow-up information
  - All technical topics will be part of the SMP which the workgroup will have an opportunity to review

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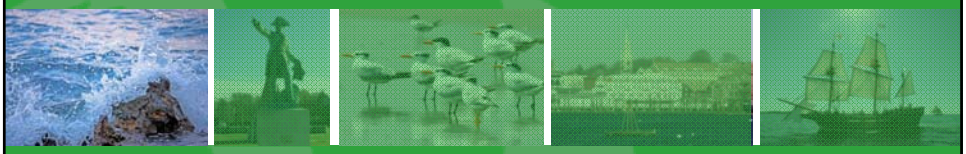

KEY MEETING TOPICS

GIS
WPCP OPTIMIZATION STUDY
CMOM

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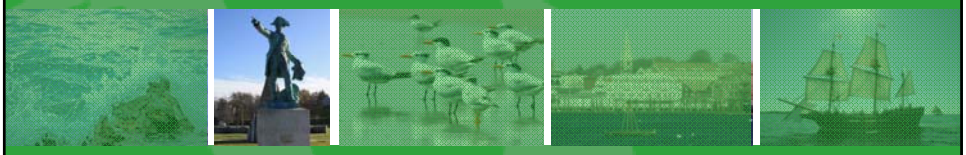

GIS

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What is GIS?

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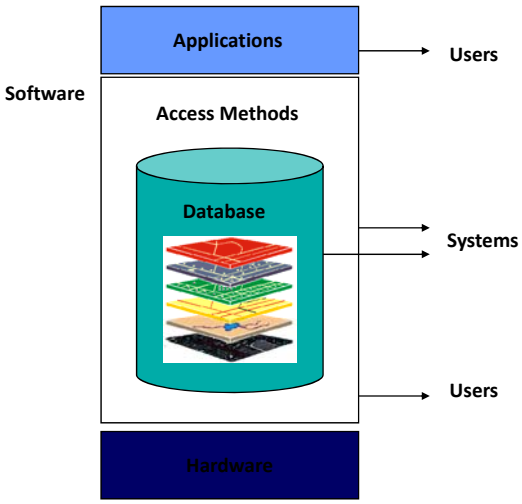
- A geographic information system (GIS) integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.



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What are the benefits of GIS for utilities?

- A GIS helps you answer questions and solve problems by looking at your data in a way that is quickly understood and easily shared.
- 75% of data used by utilities can be shown on a map.
- Easy reporting (EPA, RIDEM, Local Agencies)
- Integration with intermunicipal agencies.

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EPA CAP requirements

Infrastructure
Separate Portion of the Collection System (including inter-municipal connections);
Combined Portion of the Collection System;
Municipal separate storm sewer system (including inter-municipal and private connections where available);
Thematic representation of sewer material, size, and age;
Sewer flow direction and flow type (e.g., pressure, vacuum, gravity);
Select rim and invert elevations (for comparison with water table and vertical separation between systems);
Aerial delineations of major separate storm sewer catchment areas, sanitary sewersheds, combined sewersheds, and areas served by on-site subsurface disposal systems;
Common/twin-invert manholes or structures (i.e., structures serving or housing both separate storm and sanitary sewers);
Sanitary and storm sewer alignments served by known or suspected under drain systems;
Sewer alignments with common trench construction and major crossings representing high potential for communication during high groundwater conditions;
Pump stations (public and private), and other key sewer appurtenances;
Sewersheds or sewer alignments experiencing inadequate level of service (with indication of reason(s));
Location(s) of known sanitary sewer overflows ("SSOs") (with indication of cause(s)); and
Location of all catch basins and their respective discharge locations

Base Map
Street names
Private property delineations
Water Resources and Topographic Features
Water bodies and watercourses identified by name;
Seasonal high water table elevations or sanitary sewer alignments impacted by groundwater; and
Topography.
Prior Extraneous Flow Investigations, Remediation, and Capital Projects
Alignments, dates, and thematic representation of work completed (with legend) of past extraneous flow investigations (e.g., flow isolation, dye testing, CCTV, etc.);
Locations of suspected, confirmed, and corrected illicit discharges (with dates and flow estimates) to the Separate Portion of the Collection System;
Recent and planned sewer infrastructure cleaning and repair projects;
Alignments and dates of past and planned Infiltration/Inflow ("I/I") investigations and sanitary sewer remediation work;
Planned Collection System and storm sewer system capital projects; and
Proposed phasing of future extraneous flow reduction measures.

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History of Collection System GIS in Newport

- GIS Originally Constructed
  - Part of service agreement for contract operations awarded in 2000 and GIS work started in 2002-2003
- Methodology for building GIS
  - GPS survey to identify location of point features
    - Catch Basins
    - Manholes
    - Outfalls
  - Wall maps used to create connectivity.
- GIS has been handed down contractor to contractor

History of Collection System GIS in Newport

- The Good
  - Efficient data collection.
  - Large volume of available data
  - Quality data available from the State.
- Needs Improvement
  - Data gaps
  - Spatial accuracy
  - QA/QC

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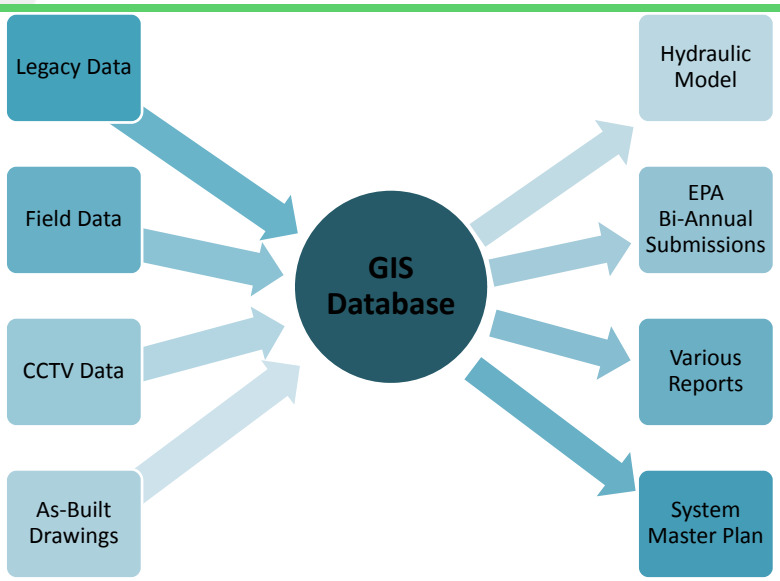
The Path Forward



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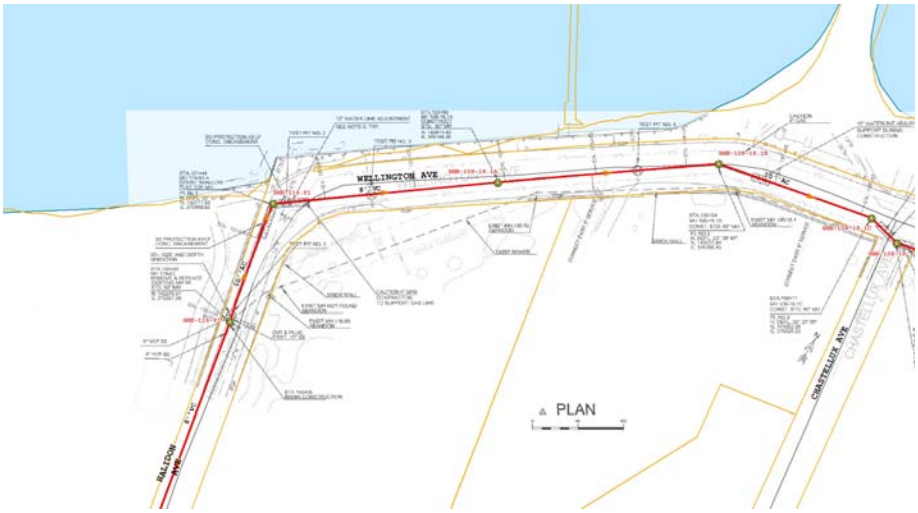
Corrections – Record Drawings



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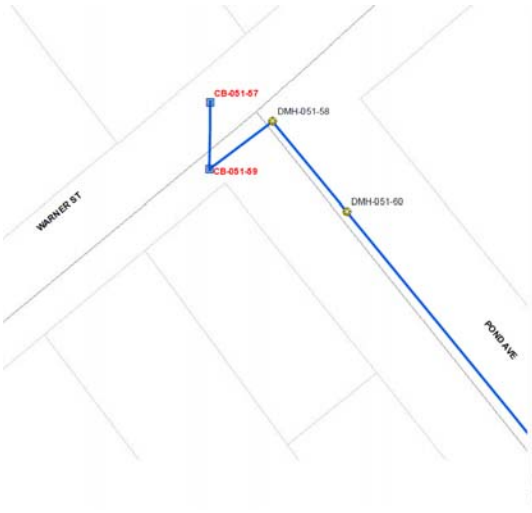
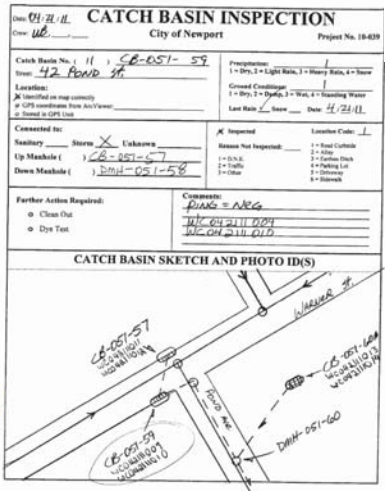
Corrections – Field Work (Storm)





CATCH BASIN INSPECTION
City of Newport

CATCH BASIN SKETCH AND PHOTO ID(S)

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Corrections – Field Work (Sanitary)

MANHOLE INSPECTION
City of Newport, RI

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Corrections – CCTV

Pipe Condition Scores from CCTV Inspections

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Products Created - Maps

- Sanitary and Combined Sewer System Base Map
- Sanitary and Combined Sewer System and Subcatchments Map
- Sewer System and Subcatchments Map
- Sanitary and Combined Sewer System Infrastructure Map
- Sanitary and Combined Sewer System Pipe Age Map
- Sanitary and Combined Sewer System Condition and Performance Map
- Storm Water System Base Map
- Storm Water System and Subcatchments Map
- Private Extraneous Flow Investigation Map
- Topographic – Shaded Relief Map

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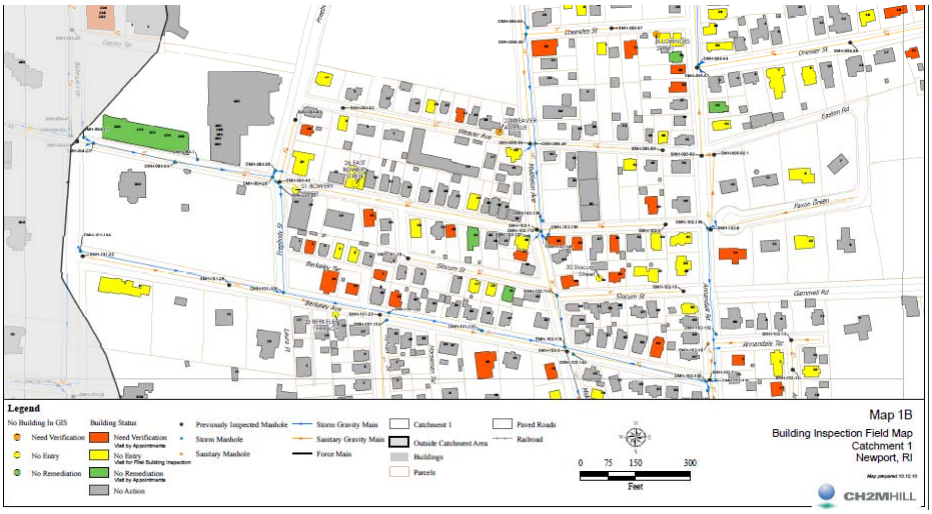
Map Products



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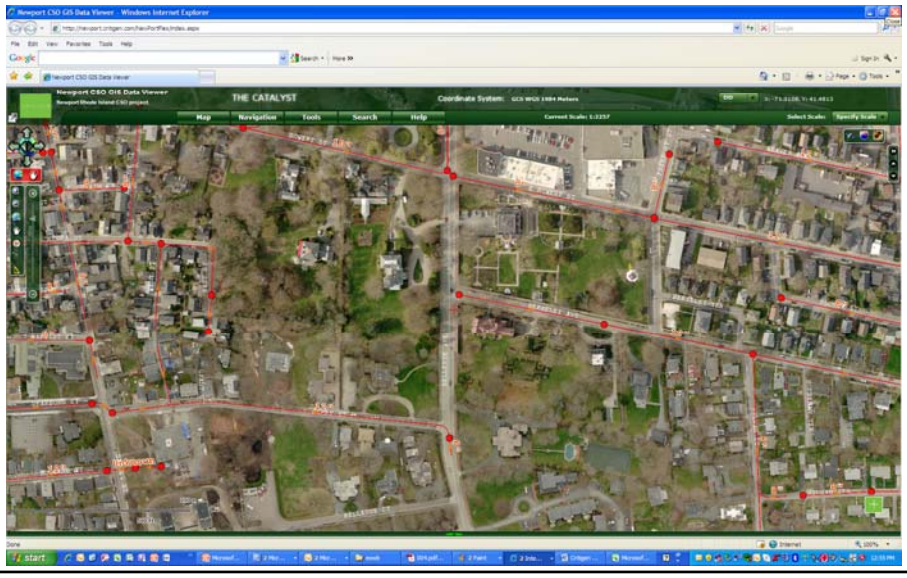
Products Created - Online GIS Viewer



Benefits of GIS to the City

- Support field program
- Support modeling
- CIP prioritization

Next Steps

- Continue to add data from field program
- Incorporation of CCTV data
- Creation of an as-built document library
- Continue to add as-built documents
- Semi-annual updates to EPA/RIDEM
- GIS Implementation Plan

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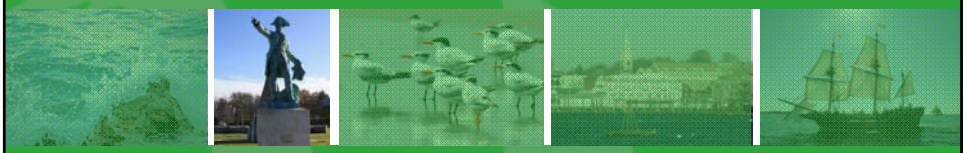

WATER POLLUTION CONTROL PLANT OPTIMIZATION STUDY

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Purpose of the WPCP Optimization Study

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- Determine if more flow can be directed to the plant during wet weather
  - Increase daily average flow from 10.7 MGD to 15.7 MGD on a per month basis
  - Maintain compliance with all other conditions of permit
- Evaluate if short-term measures can rapidly reduce CSO volumes and frequencies
- Long term improvements will be included in System Master Plan (SMP)

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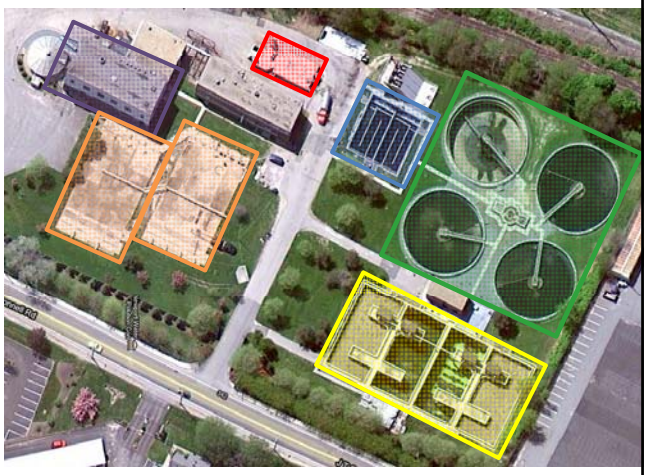
Newport WPCP Schematic

Treatment Steps
- Preliminary
- Primary
- Activated Sludge
- Secondary Clarifiers
- Disinfection
- Solids Handling

City operated from construction through 2001

Contract ops began Feb 2001 by Earth Tech

Operated by United Water November 2008 - present



Approach to Optimization Study

- Performed an analysis of historical flows and plant performance relative to existing permit
- Performed an analysis of the hydraulic capacity of each unit process at the WPCP
- Performed an analysis of the effectiveness of each unit process at the WPCP
- Completed field tests to evaluate the feasibility of using chemically enhanced primary treatment (CEPT)
  - CEPT – adding additional chemicals (i.e. ferric chloride or alum) to the primary clarifiers get more solids settling

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WPCP Permit Limits

Discharge Limitations – Per Month					
Effluent Characteristic	**Daily Avg.**	**Maximum Day**	**Average Month**	**Average Week**	**Maximum Day (concentration)**
Flow	10.7 mgd	19.7 mgd			
BOD_5	2,677 lb/d	4,462 lb/d	30 mg/L	45 mg/L	50 mg/L
BOD_5 - % Removal	85%				
TSS	2,677 lb/d	4,462 lb/d	30 mg/L	45 mg/L	50 mg/L
TSS - % Removal	85%				
Oil & Grease	Monitor				--- mg/L
Fecal Coliform			200 MPN/100 ml	400 MPN/100 ml	400 MPN/100 ml
Total Residual Chlorine			590 ug/l		860 ug/L
pH			6.0 SU Minimum		9.0 SU Maximum
Settleable Solids	Monitor			--- ml/l	
TKN(May1-October 31st)	Monitor				--- mg/L
Nitrate(May 1 – October 31st)	Monitor				--- mg/L
Nitrite (May 1- October 31st)	Monitor				--- mg/L

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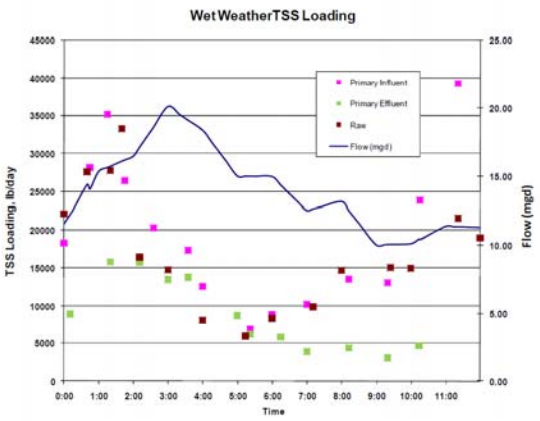
Findings of the WPCP Optimization Study

- Permit challenges
  - Flow limit of 10.7 MGD on monthly average basis
  - Permit limits require 85% removal of Total Suspended Solids (TSS)
    - Not Viable for Secondary Treatment Processes When Influent TSS is Less Than ~100 mg/L

Newport WPCP Historical Flow Data 2008-2009			
	Million Gallons per Day (MGD)		
	Daily Avg.	Max. Month Daily Avg.	Max. Day
Plant Effluent Flow	10.36	15.29	20.82
Permit Limits	10.7	10.7	19.7

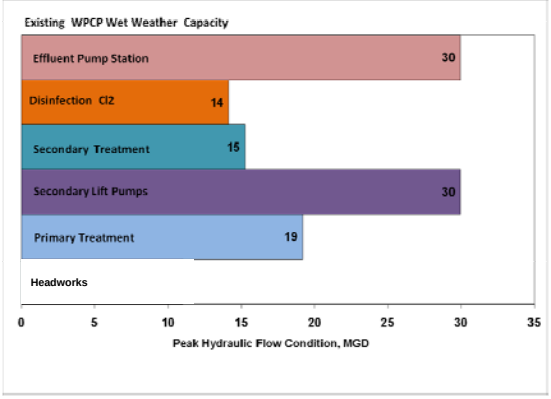
Wet Weather Flows Are A Challenge

- High Flows Elevate Organic Loadings
  - First Flush
  - Extended Dilution
- Preliminary and Primary Treatment Challenged
- Spillover Effects to Activated Sludge



Findings of the WPCP Optimization Study

- Plant can not take additional flow during wet weather in its current condition:
  - Limited solids handling & grit removal at headworks
  - Increased downtime of primary clarifiers
  - Reduction in secondary treatment capacity
  - Limited capacity at disinfection facility
  - Limited capacity for solids processing



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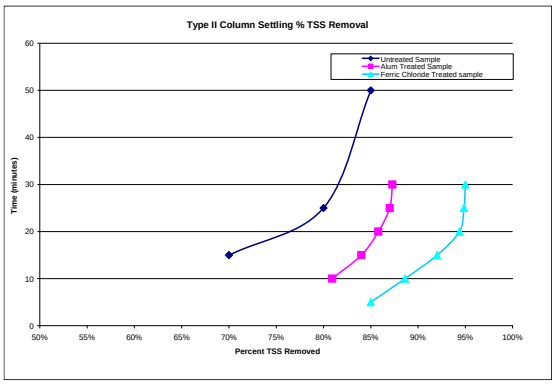
Findings of the WPCP Optimization Study

- The purpose of the CEPT evaluation was to:
  - Estimate potential performance of the existing primary clarifiers with CEPT
  - Estimate the optimal coagulant dosage under wet weather conditions
  - Assess the CEPT process ability to increase the monthly average treatment plant capacity up to or in excess of 15.7 MGD



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Conclusions from the WPCP Optimization Study

Study concluded that no interim flow increases were feasible.

Discharge Limitations – Per Month					
Effluent Characteristic	**Daily Avg.**	**Maximum Day**	**Average Month**	**Average Week**	**Maximum Day (concentration)**
Flow	10.7 mgd	19.7 mgd			
BOD_5	2,677 lb/d	4,462 lb/d	30 mg/L	45 mg/L	50 mg/L
BOD_5 - % Removal	85%				
TSS	2,677 lb/d	4,462 lb/d	30 mg/L	45 mg/L	50 mg/L
TSS - % Removal	85%				
Oil & Grease	Monitor				--- mg/L
Fecal Coliform			200 MPN/100 ml	400 MPN/100 ml	400 MPN/100 ml
Total Residual Chlorine			590 ug/l		860 ug/L
pH			6.0 SU Minimum		9.0 SU Maximum
Settleable Solids	Monitor			--- ml/l	
TKN(May1-October 31st)	Monitor				--- mg/L
Nitrate(May 1 – October 31st)	Monitor				--- mg/L
Nitrite (May 1- October 31st)	Monitor				--- mg/L

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Recommendations from the WPCP Optimization Study

- Complete interim repairs and replacements to enhance reliability of existing treatment processes:
  - Installation of chemical induction mixers in the chlorine tanks to improve mixing and bacteria kill
  - Retrofitting of the primary effluent lift screw pumps with submersible pumps
  - Rehabilitation of the secondary clarifiers
  - Rehabilitation of primary clarifiers
  - Various improvements and replacement of solids handling equipment

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Recommendations from the WPCP Optimization Study

- Complete needed upgrades for:
  - Headworks
  - Disinfection
  - Preliminary design & engineering studies in CIP
- Negotiate a waiver for 85% TSS removal during wet weather
- Increased wet weather flow could be accepted after these short-term upgrades are implemented

WPCP upgrades to be evaluated as Part of System Master Plan (SMP)

- Larger scale plant capacity upgrades
- Hydraulic capacity of the collection system to deliver flow to the plant
- Possible implementation of CEPT to increase WPCP capacity

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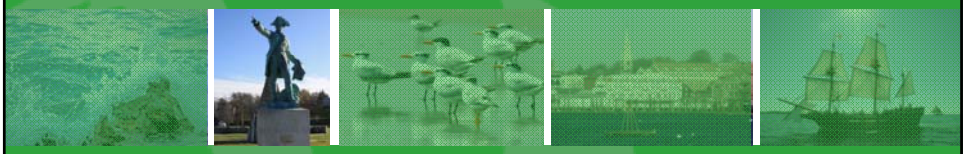

CMOM

CAPACITY, MANAGEMENT, OPERATION & MAINTENANCE

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What is CMOM?

- On January 4, 2001, the EPA signed a Notice of Proposed Rulemaking which clarified the prohibition of sanitary sewer overflows (SSOs) and the NPDES permitting for collection systems.
- EPA definition of CMOM:
  - CAPACITY – Ensuring that collection systems maintain adequate capacity
  - MANAGEMENT – Properly managing all parts of the collection system
  - OPERATION AND MAINTENANCE – Using best management practices for maintaining collection system infrastructure including keeping accurate record keeping and recording

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CMOM Program Requirements

- General EPA standards for CMOM programs require collection system owners to:
  - Properly manage, operate and maintain all components of the collection system
  - Provide adequate capacity to convey base and peak flows
  - Take feasible steps to stop and mitigate the impact of Sanitary Sewer Overflows (SSOs)
  - Provide notification to parties with potential for exposure to an overflow

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Definition of a Sanitary Sewer Overflow (SSO)

- **Sanitary Sewer Overflow** – An untreated discharge of wastewater from a sanitary sewer system when the flow capacity is exceeded during a heavy precipitation event. Sanitary sewer systems carry only domestic and industrial wastewater and not stormwater.

- **Combined Sewer Overflow** – the discharge of wastewater and stormwater from a combined sewer system directly to a receiving waterbody during wet weather

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What are the benefits of CMOM?

- The CMOM Program was originally developed to establish a process and framework that allow owners and operators to:
  - Understand the components that make up the collection system
  - Identify goals and objectives to better manage, operate, and maintain collection systems
  - Investigate capacity constrained areas of the collection system
  - Proactively prevent sanitary sewer overflows (SSOs)
  - Prepare for and respond to emergency events
  - Provide the necessary program structure to allow goals to be met

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Summary of CMOM Report

- A *CMOM Program self-assessment checklist* was prepared in accordance with EPA guidelines as described in Item 1 of the EPA Corrective Action Plan and submitted in August 2010
- The CMOM Checklist included a complete collection system characterization along with an assessment of the capacity of critical elements of the collection system
- Based on the results of the *CMOM Self-Assessment Checklist*, a *CMOM Corrective Action Plan (CAP)* was prepared in order to summarize and correct any identified deficiencies in the *CMOM Self-assessment checklist*.

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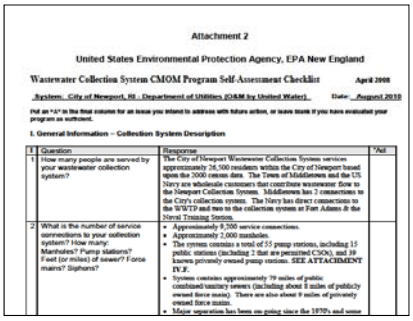
Summary of CMOM Report

- Wright-Pierce was retained by United Water, the City's wastewater system contract operators, to complete a *CMOM self-assessment checklist* and associated *Corrective Action Plan (CAP)*

1.CMOM Checklist Identified System Deficiencies → 2. Development of Corrective Action Plan



Attachment 2

United States Environmental Protection Agency, EPA New England

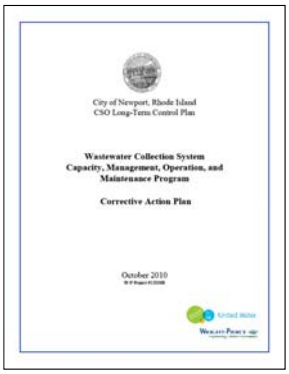
Wastewater Collection System CMOM Program Self-Assessment Checklist April 2008

System: City of Newport, RI - Department of Utilities (O&M by United Water) Date: August 2010

Put an "A" in the final column for an issue you intend to address with future action, or leave blank if you have evaluated your program as sufficient.

I. General Information – Collection System Description

I	Question	Response	*Ad
1	How many people are served by your wastewater collection system?	The City of Newport Wastewater Collection System services approximately 26,500 residents within the City of Newport based upon the 2000 census data. The Town of Middletown and the US Navy are wholesale customers that contribute wastewater flow to the Newport Collection System. Middletown has 2 connections to the City's collection system. The Navy has direct connections to the WWTP and two to the collection system at Fort Adams & the Naval Training Station.	
2	What is the number of service connections to your collection system? How many Manholes? Pump stations? Feet (or miles) of sewer? Force mains? Siphons?	• Approximately 8,500 service connections. • Approximately 2,000 manholes. • The system contains a total of 15 pump stations, including 15 public stations (including 2 that are permitted CSOs), and 39 known privately owned pump stations. SEE ATTACHMENT IV.F. • System contains approximately 79 miles of public combined/sanitary sewers (including about 8 miles of publicly owned force main). There are also about 9 miles of privately owned force mains. • Major separation has been on-going since the 1970's and some	



City of Newport, Rhode Island
CSO Long-Term Control Plan

Wastewater Collection System Capacity, Management, Operation, and Maintenance Program

Corrective Action Plan

October 2010

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CMOM CAP

- The purpose of the CMOM CAP is to correct any identified deficiencies from the CMOM Self-Assessment Checklist and included:
  - a list of any deficiencies identified by the CMOM Checklist
  - a list of causes and contributing factors that lead to the unauthorized discharges identified in CMOM Checklist
  - a description of the specific short- and long-term actions that the City is taking, or is planning to take
  - a schedule for the implementation of the corrective actions identified in the CMOM CAP Implementation Schedule

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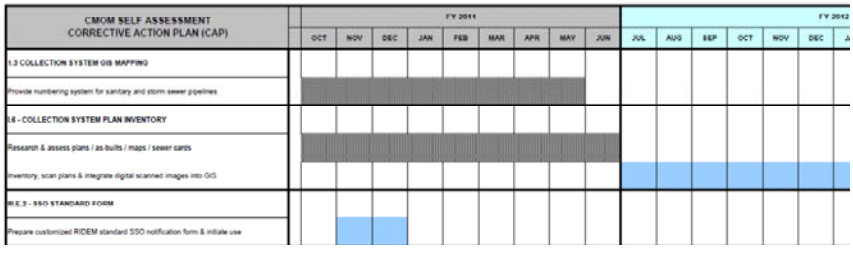
CMOM CAP Implementation Schedule

- A schedule for the implementation of the corrective actions identified in the CMOM CAP was developed:

Figure 1.
Newport, RI CSO Long-Term Control Plan
CMOM CORRECTIVE ACTION PLAN
IMPLEMENTATION SCHEDULE



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Status of CAP Progress

- The following items were identified as deficiency action items in the CMOM CAP and have been corrected or are in the process of being addressed and/or completed:

Action Item	Status
I.5 - Numbering System/Index for sanitary and storm pipelines in GIS system	On-going
I.6 - Inventory of collection system as-built plans and integrate into GIS system	On-going
III.E.2 - Incorporate the use of RIDEM state standard form for the reporting & notification of an SSO event	Completed
III.F.1U - Update Sewer Use Ordinance (if necessary)	Action Item w/ undefined scope/schedule at this time
III.F.6 - Integrate Flow Meter Data from Naval Station Newport into the City's SCADA system	On-going
III.F.7 - Continue efforts to collect private sewer system operational data	On-going
IV.A.5 – Re-prioritize collection system improvements based upon on-going GIS mapping updates	On-going

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Status of CAP Progress (cont'd)

Action Item	Status
IV.B.3 – Develop an air-relief valve inspection and standard operating procedure for force mains	On-going
IV.D.1 – Develop an Emergency Response Plan	On-going
IV.E.4 – Continue collection system hydraulic modeling	On-going
V.A.7 – Formalize a Root Prevention Program	On-going
V.B.1 – Identify manholes in easements, right-of-ways, or paved over	On-going
V.B.2 – Raise manhole frames & covers located in easements, right-of-ways, or paved over	Action item with undefined scope a schedule at this time (contingent on findings/results of V.B.1 above)
V.C.3 – Formalize a supply inventory tracking system	On-going
VI.B.1 – Refine documentation procedures for manhole assessment and inspection	On-going

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FUTURE MEETINGS, WRAP-UP & QUESTIONS

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Future Meetings

- Next Meeting
  - September 8, 2011
  - 3:00 PM
  - Council Chambers
  - Agenda Topics:
    - Frequencies and volumes of overflows
      - Historical data
      - Trends
    - Harbor Water Quality
      - Historical data
      - Water Quality Standards
      - Examples of how other communities have dealt with water quality drivers & different designated uses

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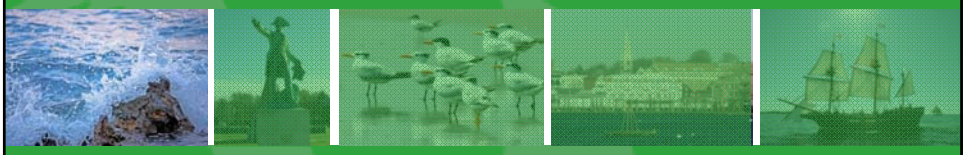

QUESTIONS?

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Newport Combined Sewer Overflow (CSO) Stakeholder Workgroup: Meeting #3

ATTENDEES: See Attachment 1

DATE & PLACE: July 14, 2011 @ 3:00 PM; City Hall Council Chamber, 43 Broadway Newport, RI

Welcome & Introductions

Julia Forgue introduced City staff as well as the CH2M HILL consultant team members. As there were a number of new workgroup members in attendance, each workgroup member introduced themselves.

Overview of Agenda

Becky Weig of CH2M HILL provided an overview of the agenda and asked if there were any questions before moving forward. A summary of the agenda follows:

1. Approval of previous meeting's minutes.
2. Follow-up on Parking Lot items
3. Overview of the CSO Program schedule
4. Key Meeting Topic(s)
    a. Geographic Information System (GIS)
    b. Water Pollution Control Plant (WPCP) Optimization Study
    c. Capacity, Management, Operations and Maintenance (CMOM)
5. Next meeting information

Previous Meeting's Minutes

The minutes of the second meeting were approved.

Update on Parking Lot from Previous Meeting

Updates and answers to the five parking lot items from the previous meeting were presented.

The five parking lot questions were:

1. What are the number of CSO events over time?

   There are a number of variables to take into account when evaluating CSO events over time such as, the number, duration and intensity of precipitation events, the time of year which affects the amount of runoff, whether there was frozen ground or snow pack which would lead to more runoff or if there is dry ground which would lead to more infiltration. Other important factors are whether the precipitation event is defined as a single event or two separate events and whether the collection system back to normal operating conditions from previous precipitation events. A graph showing the volumes and frequencies of CSOs since 2001 was presented.

2. What is the cost to fix the private defects versus the public benefits?

   A graphic was presented showing that there are a wide range of costs depending on the type of defect and its location.

3. What is the point of insisting on private defect disconnection if the stormwater is then routed to a public connection? What is the public policy about these disconnection requirements?

   Ideally disconnections would be discharged to lawns and gardens to facilitate recharge. This is especially good for downspouts which is a major issue in Newport. There is a City ordinance (Chapter 13.08.120 – Use of public sewers) which prohibits these connections to the sanitary sewer.

4. What can private property owners do if the area is poor draining soil or there are not adequate catch basins?

   This would be reviewed on a case by case basis, but this is not typical. Previous downspout disconnections have not caused flooding issues in the City. Other options presented were:
   a. Rain barrels for downspouts
   b. Rain garden
   c. Contact the City about catch basins

5. Can the City provide follow-up to technical agenda items as more information is obtained?

   Yes. As more information is available technical topics can be revisited. All technical topics will be covered in the System Master Plan, which will be reviewed by the Stakeholder Workgroup in 2012.

GIS

Kris Andersen presented an overview of the City's GIS. Key topics presented included:

- What is GIS
- Benefits of GIS for utilities
- EPA Corrective Action Plan (CAP) requirements for GIS

- History of the City of Newport GIS for the collection system
- The path forward for the GIS
- Examples of how the GIS is updated
- Examples of map products created and the first GIS submittal to EPA.
- Benefits of the GIS to the City

Questions & Answers:

Q: What percentage of connected catch basins are identified in the GIS?
A: Don't have exact percentages, therefore this will be added to the parking lot for the next meeting.

Q: Could the Web Viewer be made available at the library?
A: Due to security, the Web Viewer cannot be made public, but anyone interested in seeing the GIS in more detail can contact the Department of Utilities.

WPCP Optimization Study

Dimitri Katehis presented an overview of the WPCP optimization study. Copies of the report were provided to stakeholder workgroup members prior to the meeting. Key topics presented included:

- WPCP overview
- Approach to the optimization study, including the possibility of implementing Chemically Enhanced Primary Treatment (CEPT)
- Findings of the study. Key findings were:
  - There are challenges to increasing flow to the plant, especially the 85% total suspended solids (TSS) removal due to the first flush of solids and then dilution effects during wet weather.
  - At this time, increases of flow to the WPCP are not feasible with only minor adjustments, but could be feasible with larger improvements to the WPCP.
  - These improvements will be evaluated as part of the SMP, but the City is budgeting for improvements to the headworks and disinfection systems.

Questions & Answers:

Q: Why is there no wet weather capacity rating on the headworks?
A: Headworks does not have a rated wet weather capacity because it works well during regular dry weather conditions, but does not protect the primary treatment process during wet weather.

Q: Is CEPT a long-term rather than short-term option?
A: It could be, but the solids handling system would need to be upgraded before implementing.

Q: Do metal salts become an issue with CEPT?
A: (answered by RIDEM) No, they do not impact the receiving waters.

Q: Is there a minimum daily flow that needs to be maintained at the WPCP?
A: There is no need for a minimum flow, but the City tries to operate the WPCP to minimize peaks.

Q: Is a potential option for sending more flow to the WPCP a waiver of the 85% TSS removal requirement during wet weather?
A: There is a basis for these types of waivers in other communities.

Q: Is there a preliminary estimate for the cost to repair the headworks?
A: This will be evaluated with the SMP.

Q: Are WPCP repairs budgeted?
A: Yes, many are budgeted under the United Water contract.

CMOM:

Tom Simbro of Wright-Pierce presented an overview of the City's CMOM program. Copies of the City's CMOM self-assessment checklist and CMOM CAP were provided to stakeholder workgroup members prior to the meeting. Key topics presented included:

- EPA history of CMOM
- Definition of an SSO
- Overview of the City's CMOM report
- Overview of CMOM CAP implementation progress

Questions & Answers:

Q: Does CMOM require ongoing reporting?
A: Yes, there are required annual reports.

Other Items:

Joe Nicholson, the City Solicitor, gave an update on the status of the CSO consent agreement, and made copies of the agreement available to the stakeholders.

Parking Lot:

The following questions were placed in the Parking Lot to be addressed at a subsequent meeting:

- What percentage of interconnections between the storm and sanitary system are identified in the GIS?
- Are there storage options at the WPCP?
- Are there options for reducing the number of problem items entering the headworks?

Next Meeting

The next meeting was set for September 8th at 3pm in the Council Chambers.

Attachment 1 - CSO Stakeholder Workgroup Meeting #3 Attendees

MEETING DATE:	Thursday July 14th, 2011 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
Workgroup Members		
Justin McLaughlin	City Council	**YES**
Ray Smedberg	Ad Hoc Committee	**YES**
David McLaughlin (Alternate)	Ad Hoc Committee	**NO**
John McCain	ALN	**YES**
Roger Wells (Alternate)	ALN	**NO**
Tina Dolen	Aquidneck Island Planning Commission	**NO**
Chris Witt (Alternate)	Aquidneck Island Planning Commission	**NO**
Charles Wright	Beach Commission	**NO**
Kathleen Shinners (Alternate)	Beach Commission	**NO**
Bill Riccio	Dept. Public Services	**NO**
Eric Earls (Alternate)	Dept. Public Services	**NO**
Paige Bronk	Dept. Planning	**YES**
Bill Hanley (Alternate)	Dept. Planning	**NO**
Tim Mills	Harbor Master	**NO**
Mary E. Dever-Putnam	EPA	**NO**
James Carlson	NSN	**YES**
William Monaco (Alternate)	NSN	**NO**
Jody Sullivan	Newport County Chamber	**NO**
Ed Lopes (Alternate)	Newport County Chamber	**NO**
Evan Smith	NCCVB	**NO**
Cathy Morrison (Alternate)	NCCVB	**NO**
Shawn Brown	Middletown	**NO**
Tom O'Loughlin (Alternate)	Middletown	**NO**
Eric Beck	RIDEM	**NO**
Angelo Liberti (Alternate)	RIDEM	**Bill Patenaude (fill-in)**
Jim Brunnhoeffer	RWU	**YES**
B. Gokhan Celik (Alternate)	RWU	**NO**

MEETING DATE:	Thursday July 14th, 2011 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
John Torgan	Save the Bay	**YES**
Wendy Waller (Alternate)	Save the Bay	**NO**
Tom Cornell	Resident	**NO**
Stuart K. Mills, Jr.	Resident	**YES**
Roger Slocum	Resident	**NO**
Ted Wrobel	Resident	**YES**
Other Attendees		
Julia Forgue	City of Newport	**YES**
Ken Mason	City of Newport	**NO**
Peter von Zweck	CH2M HILL	**YES**
Becky Weig	CH2M HILL	**YES**
Jim Lauzon	United Water	**YES**
Kris Andersen	Critigen	**YES**
Dimitri Katehis	CH2M HILL	**YES**
Tom Simbro	Wright-Pierce	**YES**

CSO Stakeholder Workgroup Meeting #4 Agenda (#10-039)

MEETING DATE: September 8, 2011

MEETING TIME: 3:00 PM

VENUE: City of Newport Council Chambers, City Hall

1. Approval of previous meeting's minutes
2. Follow-up on Parking Lot items
3. Key Meeting Topic(s)
    a. Newport Harbor Water Quality
    b. CSO Treatment Facility Performance
4. Next meeting information

Welcome & Introductions

- City Representatives
  - Julia Forgue – Director of Utilities
- CH2M HILL
  - Peter von Zweck – Project Manager
  - Becky Weig – Public Involvement
  - Bill McMillin – Water Quality
- Stakeholder Workgroup Participants

2

Agenda

- Overview of the CSO Program Schedule
- Approval of Previous Minutes
- Parking Lot Follow-up Items
- Key Meeting Topics
  - Harbor Water Quality
  - CSO Volumes & Frequencies
- Future Meetings, Wrap-up & Questions

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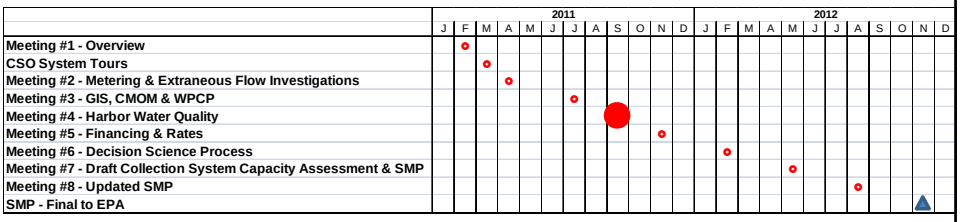
OVERVIEW OF THE STAKEHOLDER WORKGROUP

4

Schedule of CSO Stakeholder Workgroup Meetings



- Schedule developed to meet 2 key objectives:
  - Develop a collective understanding of the CSO Program (Meeting #s 1 – 4 & CSO System Tours)
  - Allow sufficient time for discussion and inclusion of Workgroup comments into the SMP (Meeting #s 5-8)

5

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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Purpose of the Stakeholder Workgroup

Boundary Conditions – limits of the Workgroup's activities

- The Workgroup may:
  - Ask questions about Program approach
  - Provide their perspective on Program approach & decision making
  - Review Program plans and projects & make recommendations
  - Disseminate Program information to their organizations
  - Propose Workgroup agenda topics
- The Workgroup may not:
  - Set City policies
  - Commit City funds

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PREVIOUS MEETING'S MINUTES

8

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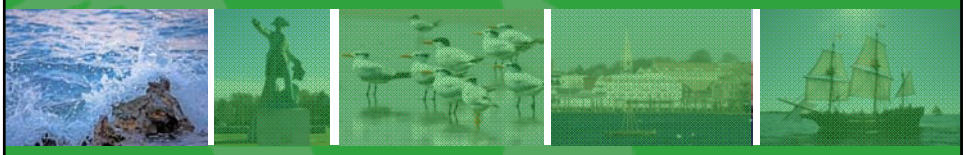

PARKING LOT FOLLOW-UP ITEMS

9

Parking Lot Question #1

- What percentage of interconnections between storm/sanitary systems are identified in GIS?
  - The GIS contains data for 2,892 catch basins
  - Field work (smoke tests and physical inspections) are being performed in catchments found to have the largest volumes of wet weather flows
    - Catchments where smoke tests have been performed - 9 of 13
  - Catch basin inspection statistics
    - Completed catch basin inspections - 947
      - CBs connected to the sanitary system – 43 (5%)
      - CBs connected to the storm system – 904 (95%)
    - CBs not verified – 1,945 (~ 67%)

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Parking Lot Question #2

- Are there storage options at the WPCP?
  - Nothing easy with current footprint
  - Will be evaluated in System Master Plan

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Parking Lot Question #3

- Are there options for reducing the amount of problem items entering the headworks?
  - Nothing that could eliminate the need to implement improvements
    - Public education could help, but would be limited by time and effectiveness
  - Headworks is too critical to treatment process train to not have it operating to remove problem items (rags, sticks, etc.)

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Parking Lot Question #4

- What are the performance benchmarks/metrics for a CSO control program?
- *The evaluation of CSO control alternatives can be a complex process:*
  - *No one methodology is appropriate for all CSO control programs.*
  - *Certain general considerations apply to most evaluation approaches.*
- *Evaluations focus on cost, performance, and non-monetary factors*
- *The challenge:*
  - *Assessing the relative importance of cost, performance, and non-monetary factors in selecting a preferred alternative.*

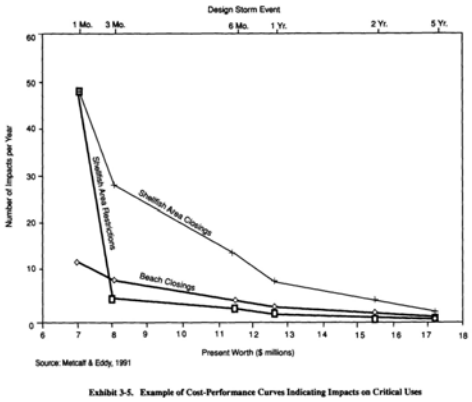

Exhibit 3-5. Example of Cost-Performance Curves Indicating Impacts on Critical Uses

Source: Combined Sewer Overflows-Guidance for Long-Term Control Plan. U.S. Environmental Protection Agency, Office of Water, Washington, DC. EPA 832-B-95-002. September 1995

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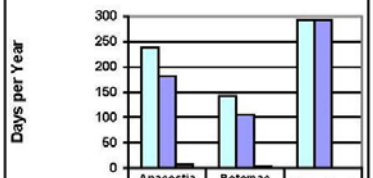
Parking Lot Question #4 (cont.)

- What are the performance benchmarks/metrics for a CSO control program?
  1. Regulatory compliance
     a. Permits
     b. Federal CSO Control Policy
     c. Consent agreements
  2. Other metrics that have been used in other programs:
     a. Reduction in water quality exceedances
     b. Percent compliance
     c. Number of overflows per year
     d. $/gallon CSO removed

Figure 5
Number of Days Fecal Coliforms Exceeding 200/100 ml



	Anacostia River (Navy Yard)	Potomac River (at Memorial	Rock Creek (at Zoo)
No Phase I Controls	239	142	294
Recommended Plan - All Loads	182	106	294
Recommended Plan-CSO's Only	7	4	1

DCWASA LTCP for Washington, DC

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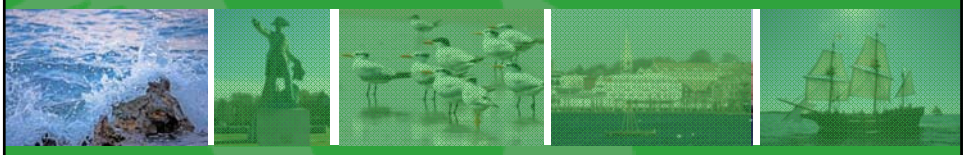

KEY MEETING TOPICS

HARBOR WATER QUALITY
CSO VOLUME & FREQUENCIES

15

Topics to Cover

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- Newport Harbor water quality goals
- CSO impacts on Newport Harbor water quality
- Newport Harbor water quality conditions
- How Water Quality Factors in to Long-Term Control Planning

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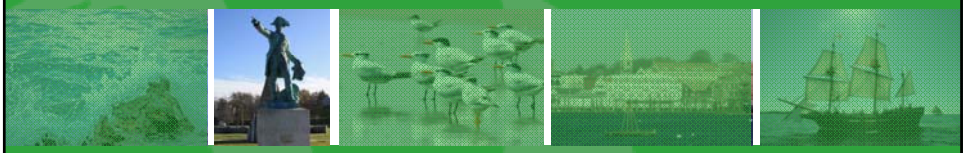

WATER QUALITY STANDARDS AND GOALS FOR NEWPORT HARBOR

17

Newport Harbor Water Quality Goals

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- Support Attainment of State Water Quality Standards
- Comply with EPA CSO Policy

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Rhode Island Water Quality Standards

- Water Use Designations
- Water Body Classifications
- Water Quality Criteria
- State 305(b) Assessments
- State 303(d) Reports of Impaired Waters

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Newport Harbor Waterbody Map

Rhode Island Waterbodies and Classifications

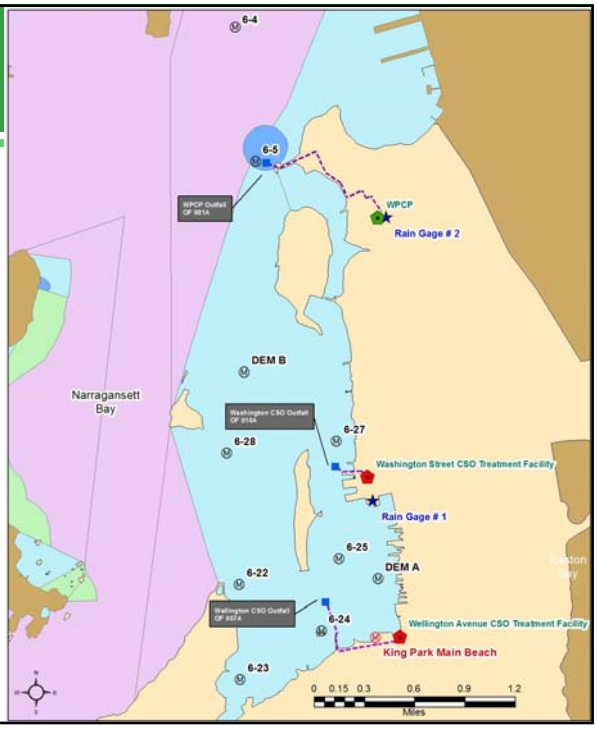
- SA
- SA(b)
- SB
- SB1

Features:

Newport Harbor Sampling Stations
Newport CSO Facilities
Newport WPCP
Newport Sewer Metering Rain Gages

Sensitive Areas:

King Park Main Beach
Shellfishing Sites



RI Designated Uses

- "Designated uses“
  - Those uses specified in water quality standards for each waterbody or segment whether or not they are being attained.
  - In no case shall assimilation or transport of pollutants be considered a designated use.
- Water Use Classifications:*
  - SA = Shellfish harvesting
  - SB = Primary and secondary contact recreation
  - SB1 = SB but may be impacted due to pathogens from approved wastewater discharges

*Underlined apply to Newport Harbor/Coddington Cove

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Saline Water Quality Criteria

- Recreation Use Indicators:*
  - Fecal Coliform
    - Shellfishing Criteria:
      Geometric mean <14 MPN/100 mL
      <10% of the samples > 49 MPN/100 mL
    - Primary Contact Recreational/Swimming Criteria
      Geometric mean <50 MPN/100 mL
      <10% of the samples > 400 MPN/100 mL, applied only when adequate enterococci data are not available.
  - Enterococci
    - Primary Contact/Swimming
      - Geometric Mean Density < 35 colonies/100 mL
      - **Single Sample Maximum < 104 CFU/100 mL (this is the standard used to determine beach closings)**

*Chapter 42-35 pursuant to Chapters 46-12 and 42-17.1 of the Rhode Island General Laws of 1956, as amended.

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Designated Uses & Current Water Quality Status for Newport Harbor

- Section 305(b) of the Clean Water Act requires water quality assessments
- Section 303(d) requires listing impaired waters and calculating Total Maximum Daily Loads (TMDLs) to remove impairments
- TMDLs implemented via NPDES permitting

Newport Harbor & Coddington Cove Designated Uses & Status [1]

Use Description	Use Status
Fish and Wildlife Habitat	Not Supporting (Coddington Cove sediments)[2]
Fish Consumption	Fully Supporting
Primary Contact Recreation	Fully Supporting
Secondary Contact Recreation	Fully Supporting
Shellfish Controlled Relay and Depuration	Fully Supporting

[1] Rhode Island July 2011 List of Impaired Waters
[2] Hazardous waste site remediation underway.

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VOLUMES & FREQUENCIES OF WET WEATHER DISCHARGES

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CSO Effects on Newport Harbor Water Quality Introduction

- CSO Discharge and Effluent Monitoring
- CSO Effluent Water Quality Characteristics
- CSO Discharge Frequency
- CSO Discharges and Water Quality

25

Newport CSO Control Program - History

- Untreated CSOs until late 1970s
- Planning and construction of Wellington Ave. CSO Treatment Facility in 1978
- Planning and construction of Washington St. CSO Treatment Facility in 1991
- Sewer separation in most of City in 1970s/80s
- Continued sewer separation in Wellington sewershed in 2000-2011
- Current system performance
  - No untreated CSOs
  - No chronic SSOs in collection system

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Both Newport CSOs are Treated

Washington Street CSO Treatment Facility

- Constructed in 1991
- Treatment:
  - Screening
  - Storage (1,000,000 Gallons)
  - Solids Settling and removal
  - Disinfection

Wellington Avenue CSO Treatment Facility

- Constructed in 1978 as microstrainer facility, converted to fine screens for improved solids removal in 2003
- Treatment:
  - Screening
  - Storage (77,000 gallons)
  - Solids trap and removal
  - Disinfection

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CSO Discharge Monitoring

- All CSO discharge volumes are recorded for both CSO treatment facilities – reported on City web site
- CSO discharge monitoring is performed according to permit requirements:
  - on 2 events per month
  - discharge event must be 15 minutes or longer
  - Influent and effluent at Washington St. CSO Treatment Facility
  - Effluent only at Wellington Ave. CSO Treatment Facility
- The following is measured:
  - Biochemical Oxygen Demand (BOD)
  - Total Suspended Solids (TSS)
  - Settleable Solids (SS)
  - Fecal Coliform
  - Residual Chlorine

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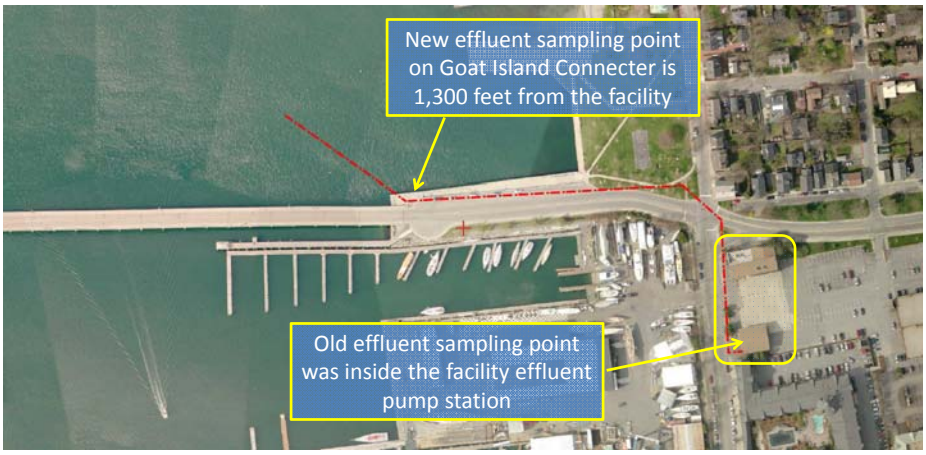
Washington Street CSO Treatment Facility - Performance

29

* Through July 2011.

\+ March 29, 2010 - 64.4 million gallons in one event.

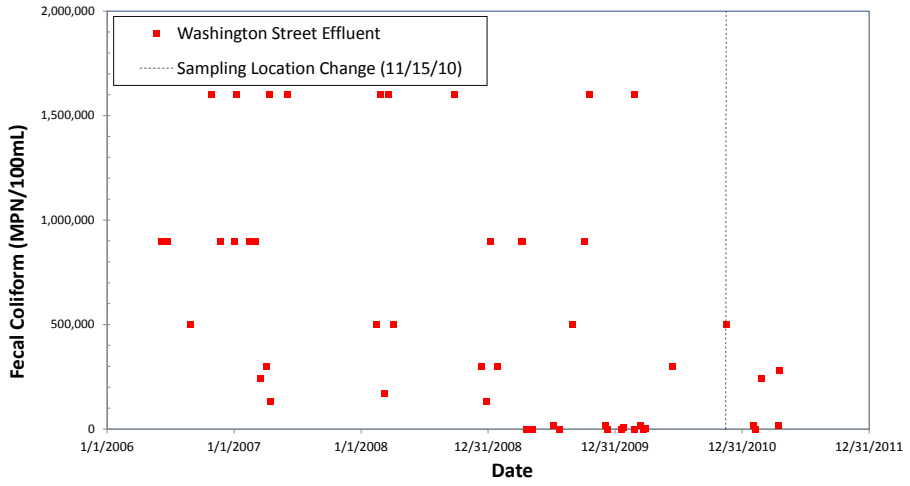
Washington Street CSO Treatment Facility – Effluent Sampling



Effluent sampling point changed in November 2010

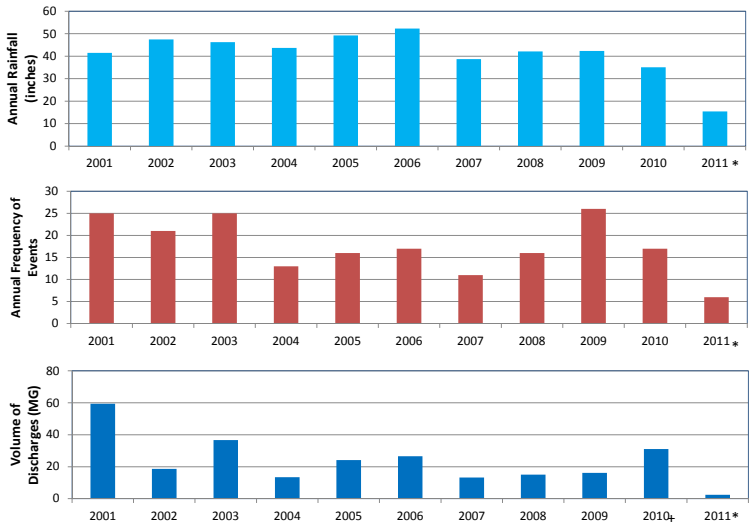
30

Washington Discharge Quality



31

Wellington Avenue CSO Treatment Facility - Performance

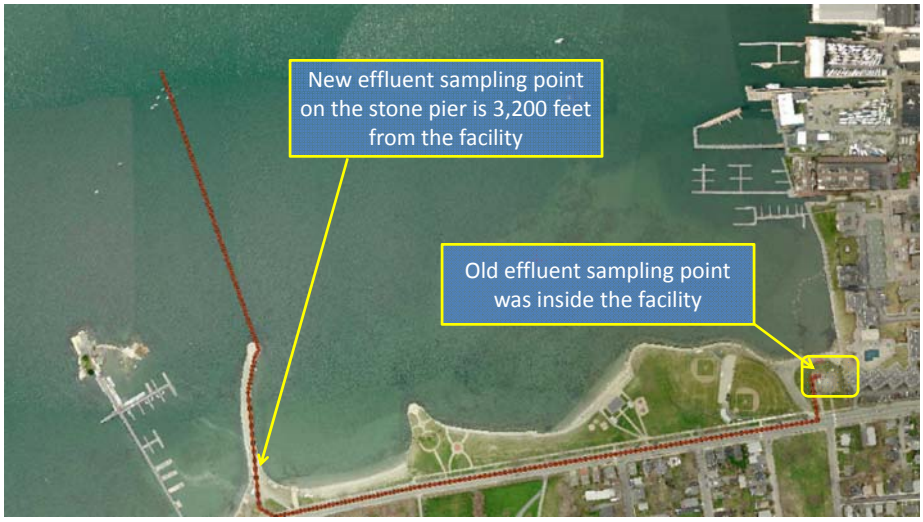


32

* Through July 2011.

+March 29, 2010 – 14.3 million gallons in one event.

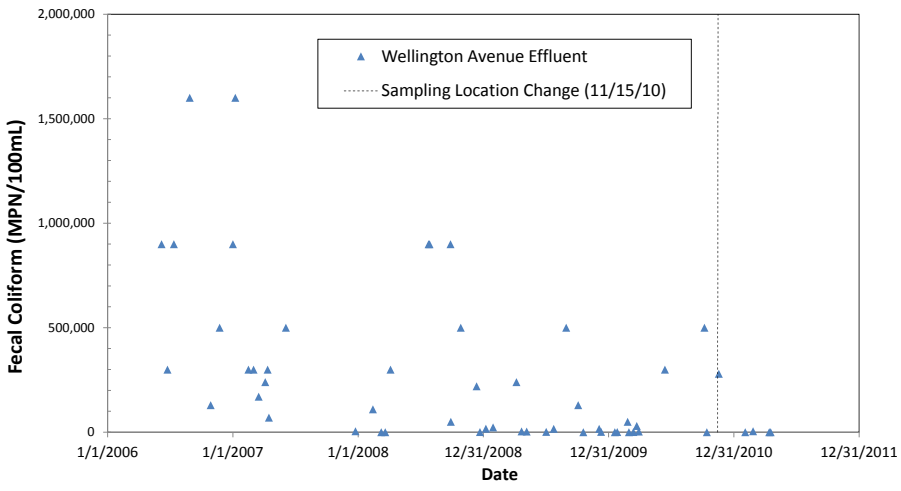
Wellington Avenue CSO Treatment Facility – Effluent Sampling



Effluent sampling point changed in November 2010

33

Wellington Discharge Quality



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OBSERVED WATER QUALITY IN NEWPORT HARBOR

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Newport Harbor Water Quality Conditions Introduction

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- Water quality monitoring programs
- Bacteria conditions

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Water Quality Monitoring Programs

- Who is Monitoring Water Quality?
  - City of Newport, since 2008 in conjunction with RIDEM, for the CSO Program
    - Weekly
    - During CSO discharge and 6 hours later – attempted 2x/yr
  - Rhode Island Department of Health Beach Program
    - At designated beaches from Memorial Day to Labor Day
    - 7-8 times per month at King Park Main Beach
  - Clean Ocean Access
    - Beaches & known swimming areas (some not designated)

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What is Monitored by the City of Newport?

- Water Temperature, pH, and salinity
- Fecal Coliform and Enterococci
- Biochemical Oxygen Demand
- Total Suspended Solids
- Total Kjeldahl Nitrogen (TKN)
  - organic nitrogen and ammonia

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Newport Harbor Waterbody Map

Rhode Island Waterbodies and Classifications

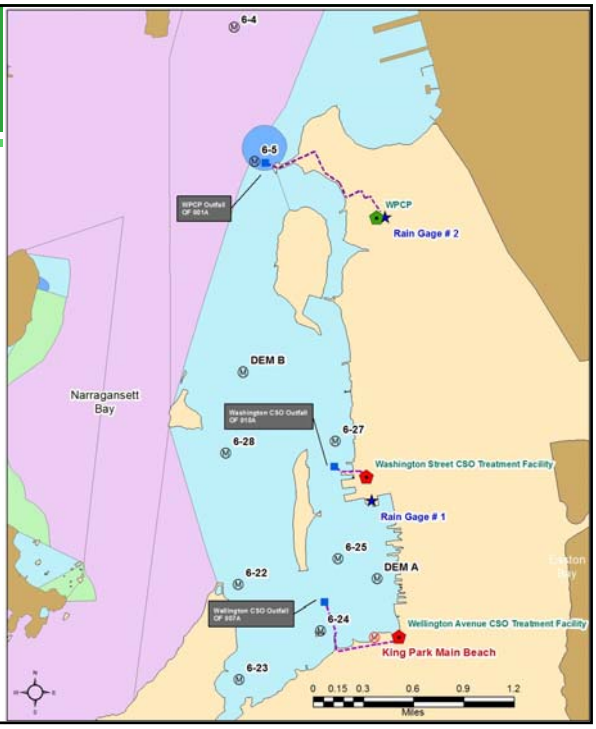
- SA
- SA(b)
- SB
- SB1

Features:

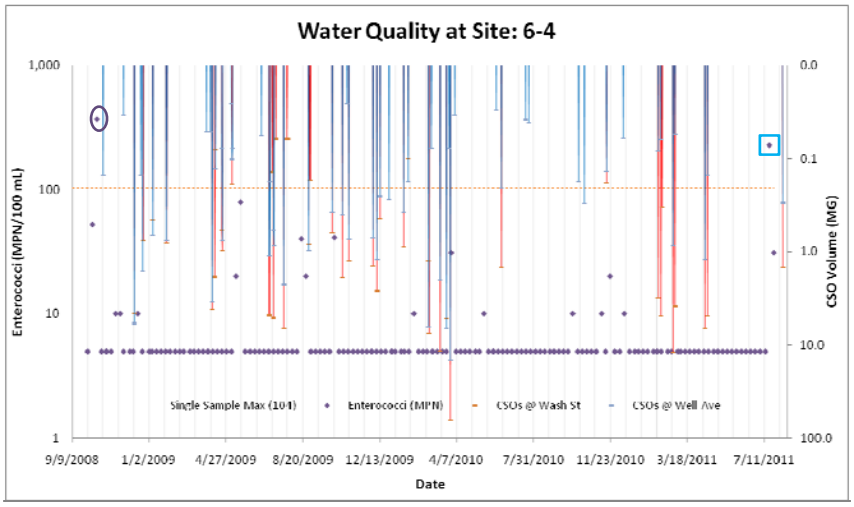
Newport Harbor Sampling Stations
Newport CSO Facilities
Newport WPCP
Newport Sewer Metering Rain Gages

Sensitive Areas:

King Park Main Beach
Shellfishing Sites



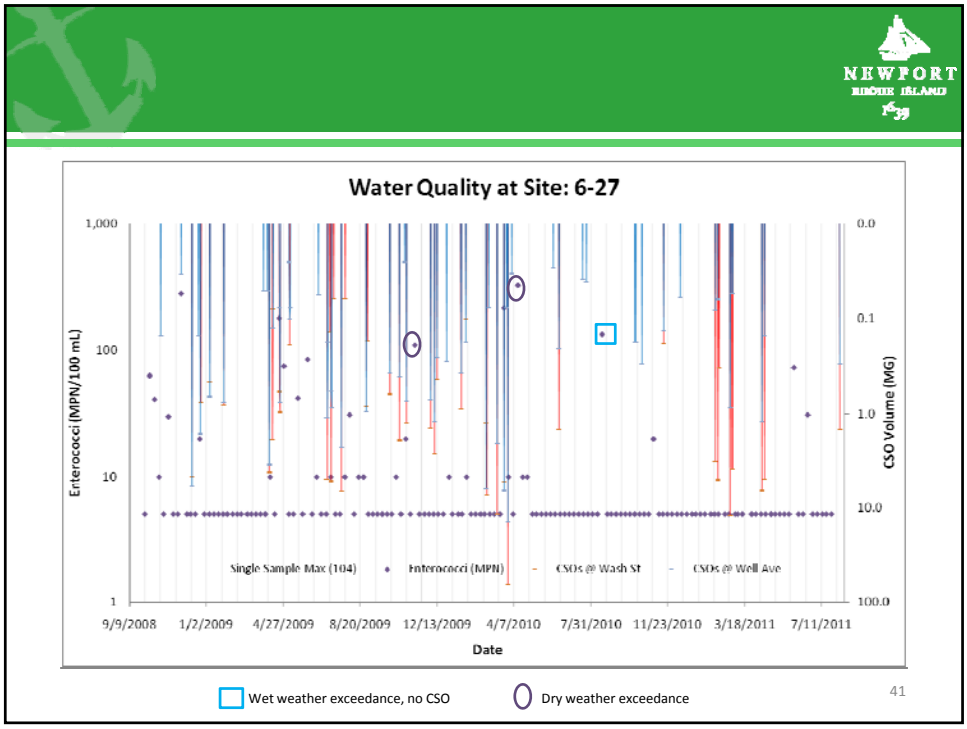
NEWPORT RHODE ISLAND



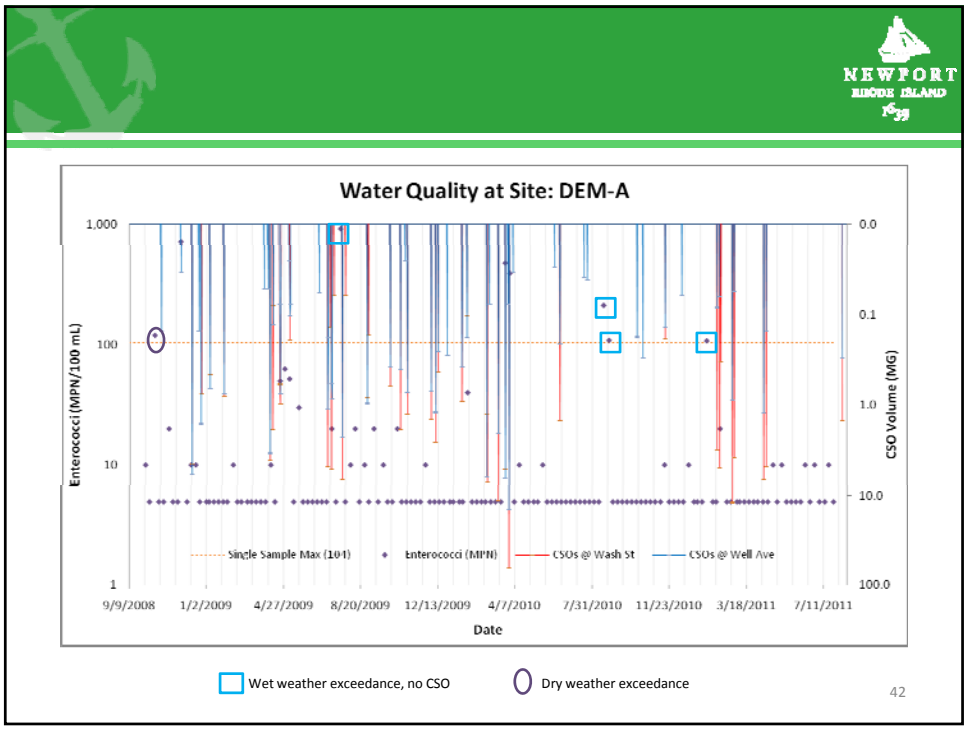
Wet weather exceedance, no CSO

Dry weather exceedance

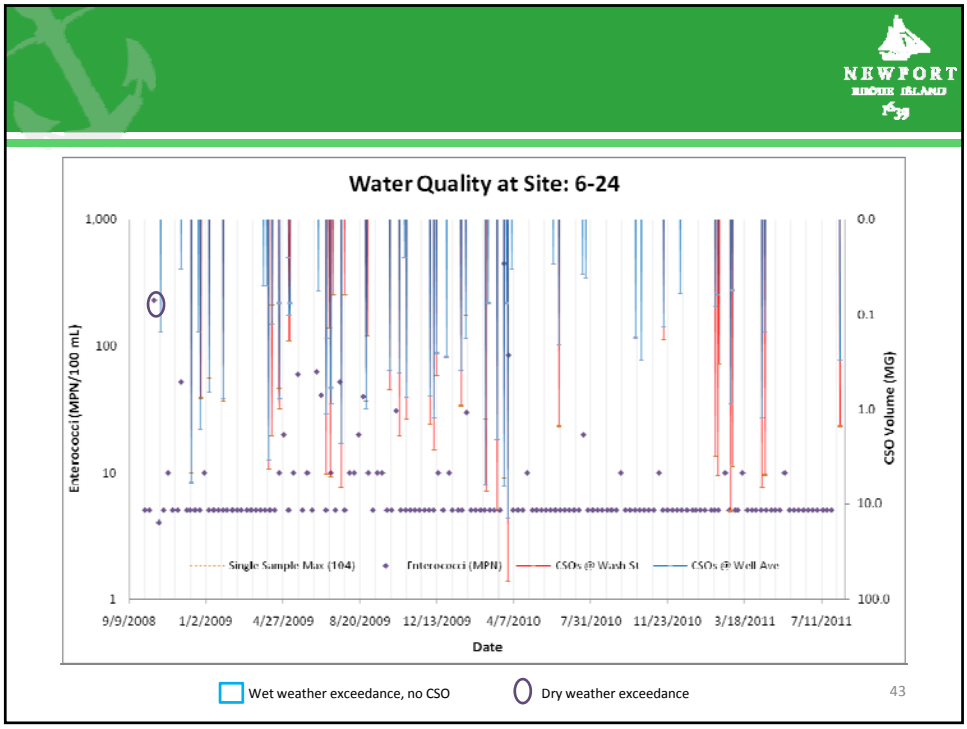
40

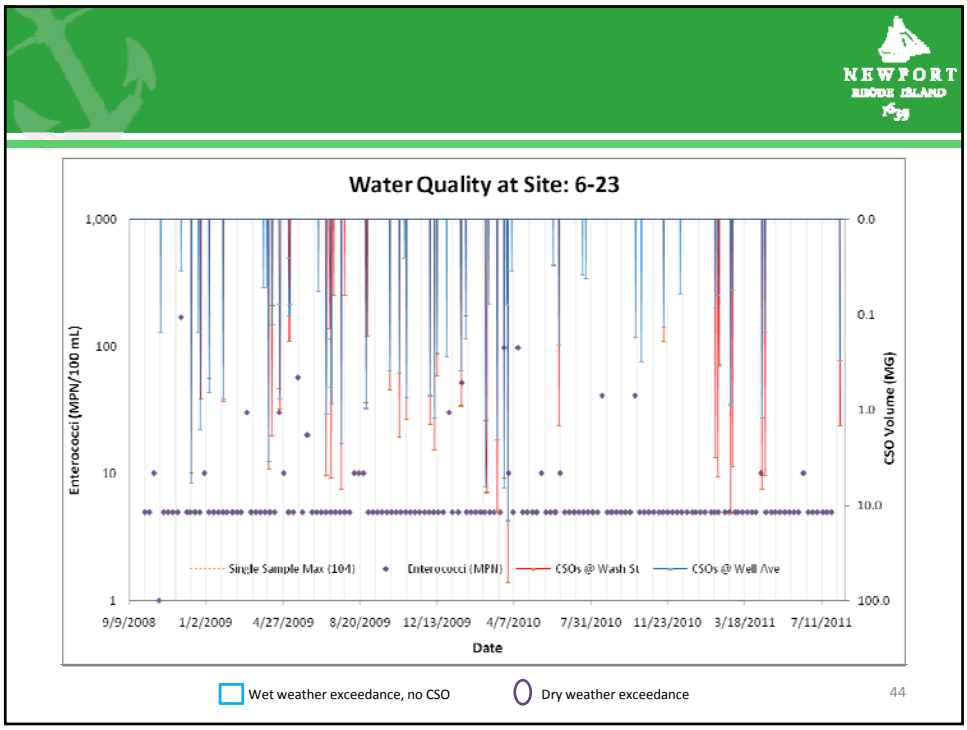

Water Quality at Site: 6-27
Enterococci (MPN/100 mL)
CSO Volume (MG)
1,000
100
10
1
0.0
0.1
1.0
10.0
100.0
Single Sample Max (104)
Enterococci (MPN)
CSOs @ Wash St
CSOs @ Well Ave
9/9/2008
1/2/2009
4/27/2009
8/20/2009
12/13/2009
4/7/2010
7/31/2010
11/23/2010
3/18/2011
7/11/2011
Date
Wet weather exceedance, no CSO
Dry weather exceedance

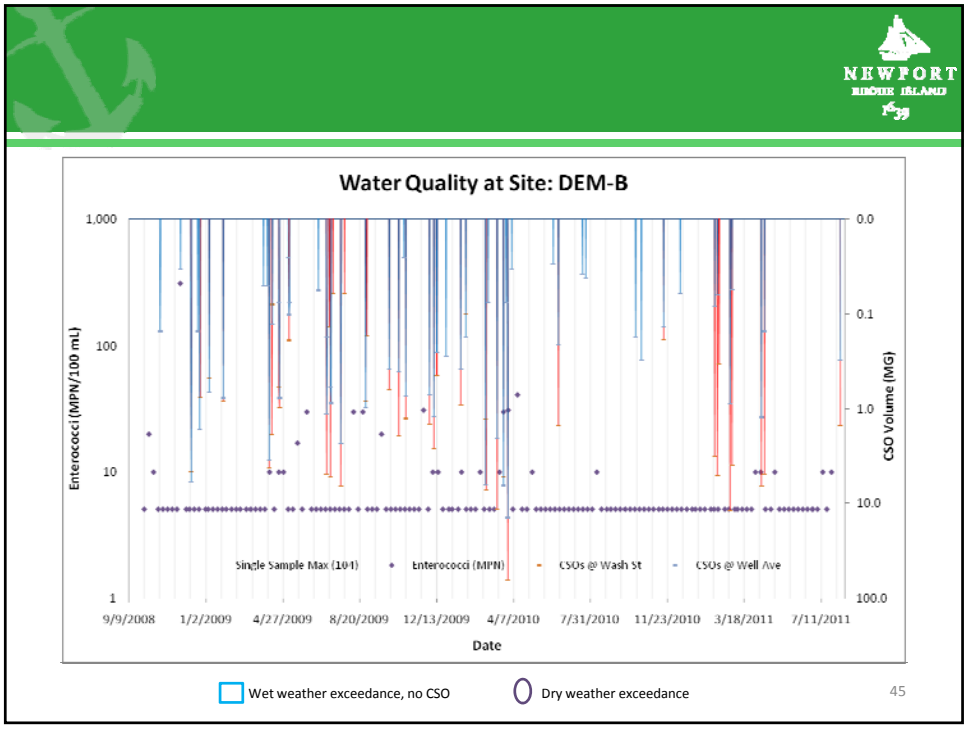
41

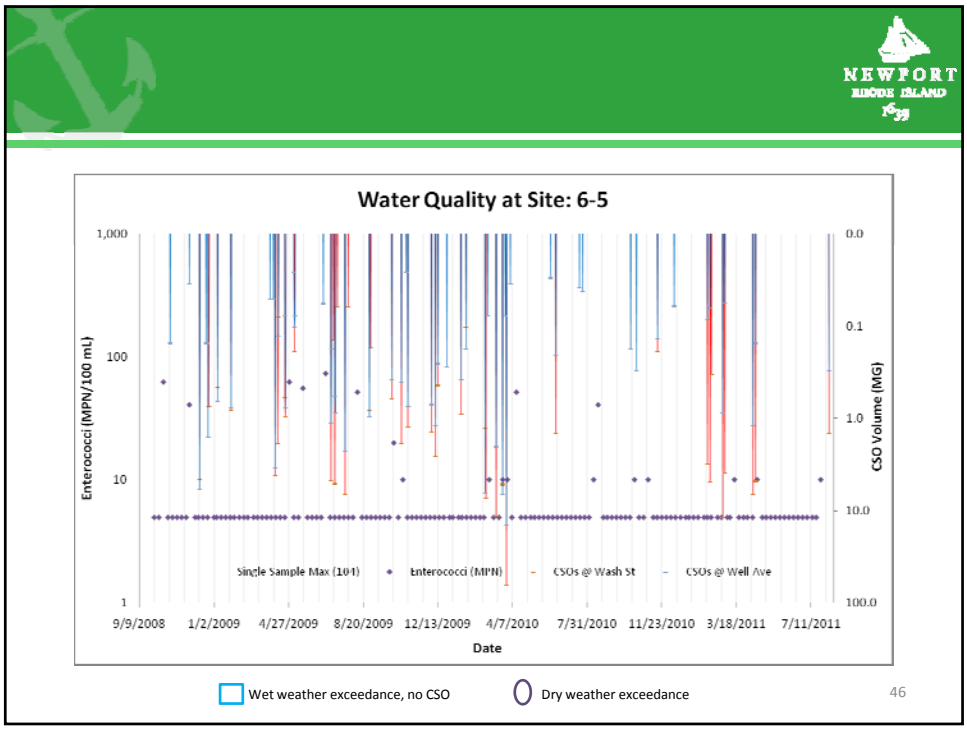

Water Quality at Site: DEM-A
Enterococci (MPN/100 mL)
CSO Volume (MG)
1,000
100
10
1
0.0
0.1
1.0
10.0
100.0
Single Sample Max (104)
Enterococci (MPN)
CSOs @ Wash St
CSOs @ Well Ave
9/9/2008
1/2/2009
4/27/2009
8/20/2009
12/13/2009
4/7/2010
7/31/2010
11/23/2010
3/18/2011
7/11/2011
Date
Wet weather exceedance, no CSO
Dry weather exceedance

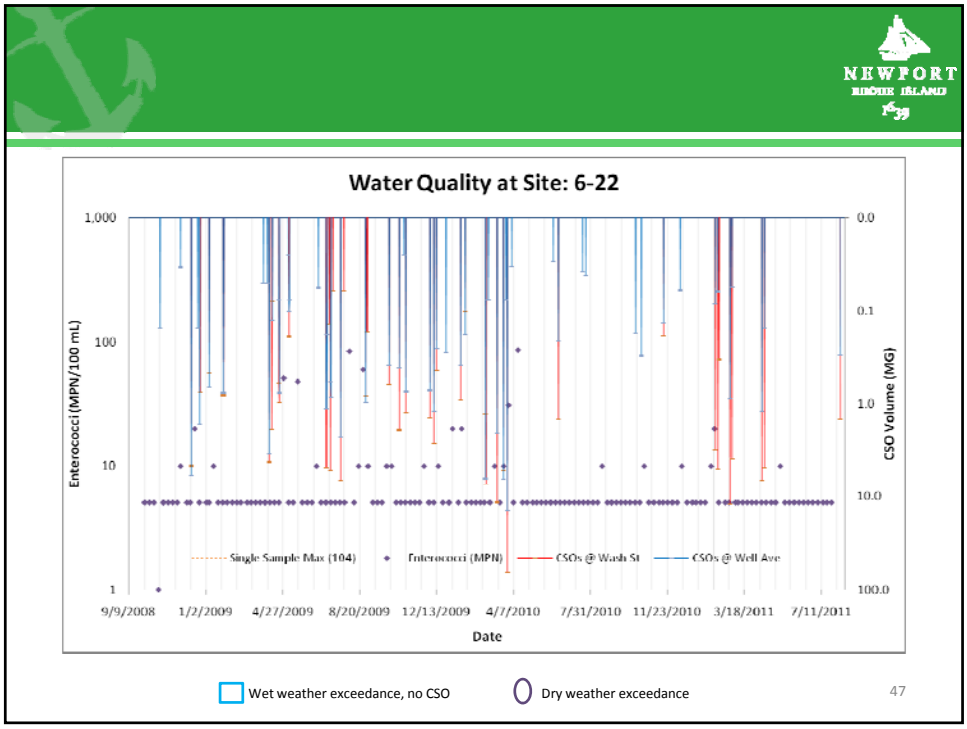
42


Water Quality at Site: 6-24
Enterococci (MPN/100 mL)
CSO Volume (MG)
1,000
100
10
1
0.0
0.1
1.0
10.0
100.0
9/9/2008
1/2/2009
4/27/2009
8/20/2009
12/13/2009
4/7/2010
7/31/2010
11/23/2010
3/18/2011
7/11/2011
Date
Single Sample Max (104)
Enterococci (MPN)
CSOs @ Wash St
CSOs @ Well Ave
Wet weather exceedance, no CSO
Dry weather exceedance
43


Water Quality at Site: 6-23
Enterococci (MPN/100 mL)
CSO Volume (MG)
1,000
100
10
1
0.0
0.1
1.0
10.0
100.0
9/9/2008
1/2/2009
4/27/2009
8/20/2009
12/13/2009
4/7/2010
7/31/2010
11/23/2010
3/18/2011
7/11/2011
Date
Single Sample Max (104)
Enterococci (MPN)
CSOs @ Wash St
CSOs @ Well Ave
Wet weather exceedance, no CSO
Dry weather exceedance
44

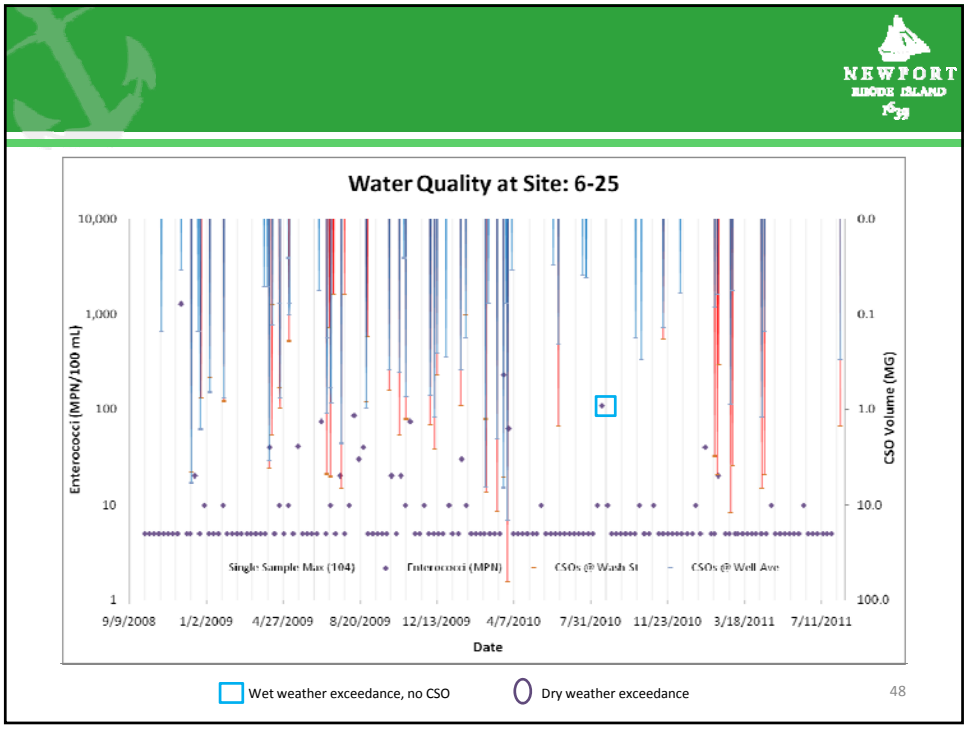

Water Quality at Site: DEM-B
Enterococci (MPN/100 mL)
CSO Volume (MG)
1,000
100
10
1
0.0
0.1
1.0
10.0
100.0
Single Sample Max (104)
Enterococci (MPN)
CSOs @ Wash St
CSOs @ Well Ave
9/9/2008
1/2/2009
4/27/2009
8/20/2009
12/13/2009
4/7/2010
7/31/2010
11/23/2010
3/18/2011
7/11/2011
Date
Wet weather exceedance, no CSO
Dry weather exceedance
45


Water Quality at Site: 6-5
Enterococci (MPN/100 mL)
CSO Volume (MG)
1,000
100
10
1
0.0
0.1
1.0
10.0
100.0
Single Sample Max (104)
Enterococci (MPN)
CSOs @ Wash St
CSOs @ Well Ave
9/9/2008
1/2/2009
4/27/2009
8/20/2009
12/13/2009
4/7/2010
7/31/2010
11/23/2010
3/18/2011
7/11/2011
Date
Wet weather exceedance, no CSO
Dry weather exceedance
46



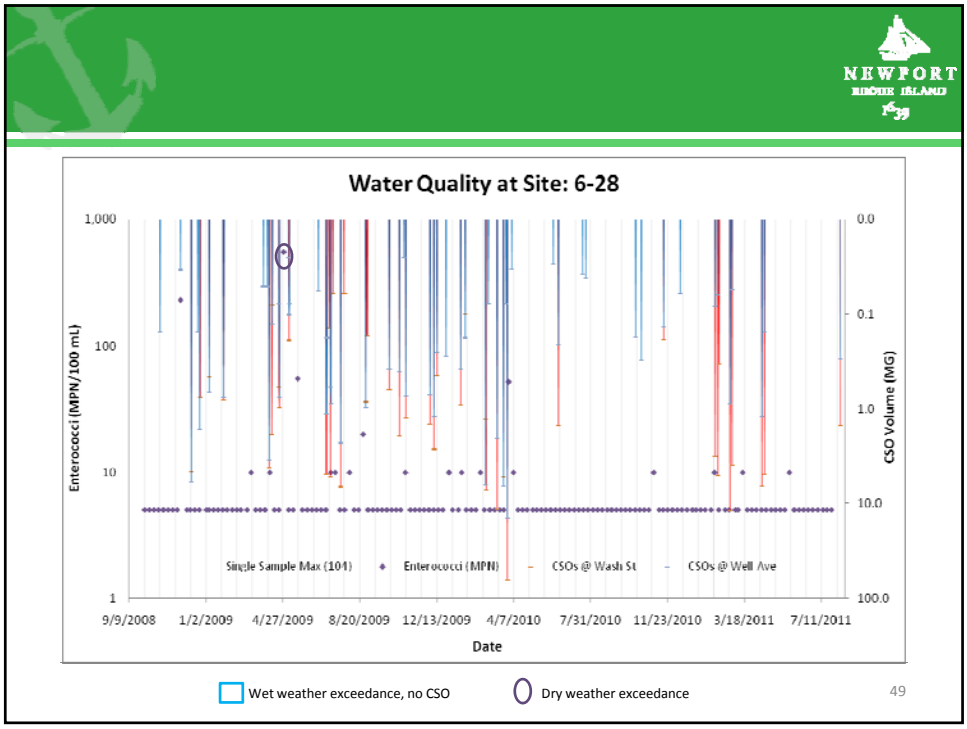
Wet weather exceedance, no CSO Dry weather exceedance

47



Wet weather exceedance, no CSO Dry weather exceedance

48



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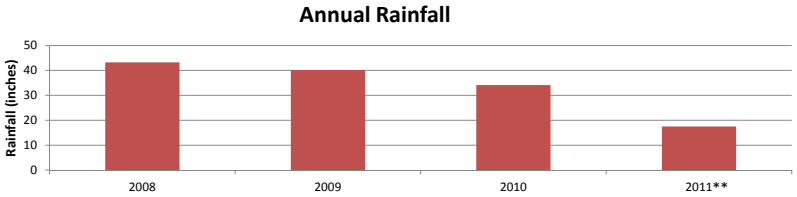
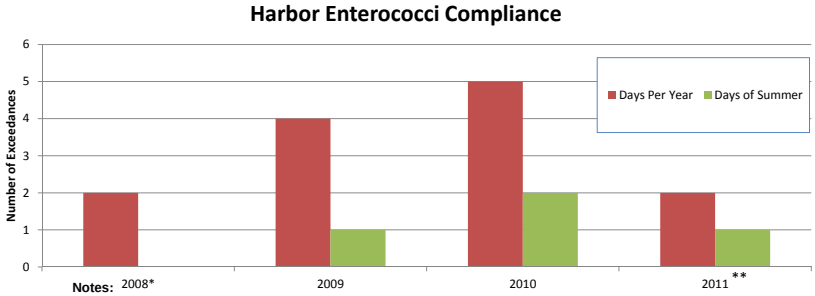
Harbor Water Quality Summary





Notes:
* 2008 is a partial data set beginning October 2008
** 2011 is a partial data set representing data collected through July 19th.

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Harbor Water Quality Following Wet Weather

- From October 2008 through July 2011 there have been:
  - 148 sampling days
  - 1,480 samples collected
- From October 2008 through July 2011 Enterococci exceedances have been detected when:
  - CSOs have not occurred in preceding 2 days
  - Rain has not occurred in preceding 2 days

Year	Total Days Exceeding Enterococci+	CSO Occurred Within 2 Days	Rain Event, but No CSO	No Rainfall on or Day Before
2008*	2	1	0	1
2009	4	1	1	2
2010	5	2	2	1
2011*	2	0	2	0

*2008 & 2011 are partial years.

+ Enterococci was not exceeded at all 10 locations. For 7 of 13 days, Enterococci was exceeded at only 1 station.

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Newport Harbor Exceedances

Rhode Island Waterbodies and Classifications

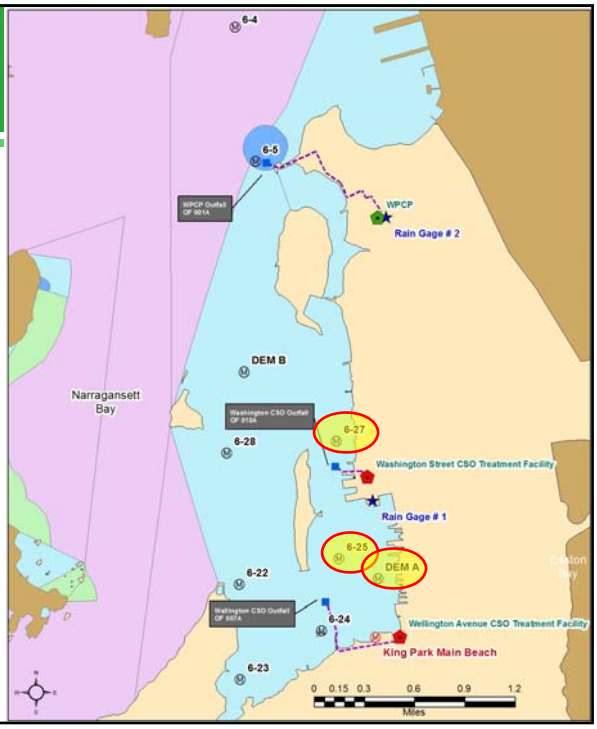
- SA
- SA(b)
- SB
- SB1

Features:

Newport Harbor Sampling Stations
Newport CSO Facilities
Newport WPCP
Newport Sewer Metering Rain Gages

Exceedances on March 23, 2010
At: 6-25, 6-27, DEM-A
Rain? 2.78 inches
CSO Discharges? Yes

Exceedances on August 17, 2010
At: 6-25, 6-27, DEM-A
Rain? 0.23 inches (two days)
CSO Discharges? No



Newport Harbor Exceedances

Rhode Island Waterbodies and Classifications

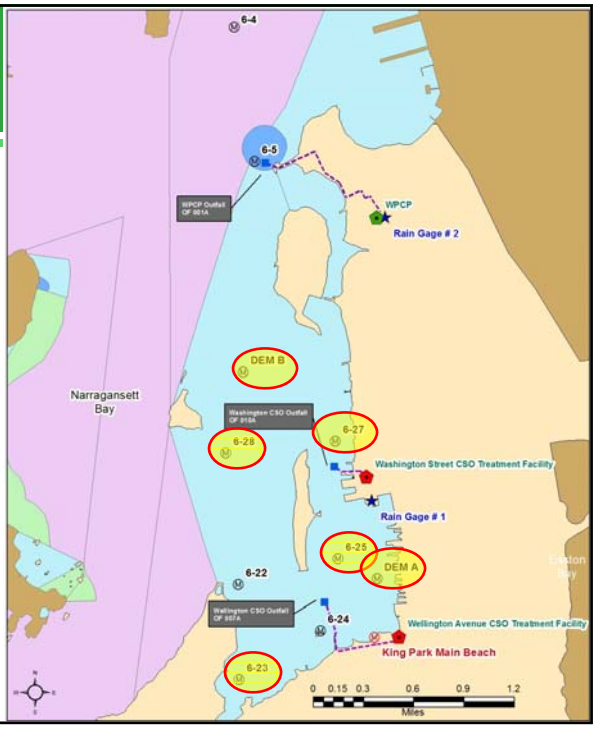
- SA
- SA(b)
- SB
- SB1

Features:

Newport Harbor Sampling Stations
Newport CSO Facilities
Newport WPCP
Newport Sewer Metering Rain Gages

Exceedances on November 25, 2008

At: 6-23, 6-25, 6-27, 6-28, DEM-A, DEM-B
Rain? 0.61 inches (two days)
CSO Discharges? Wellington only



Newport Harbor Exceedances

Rhode Island Waterbodies and Classifications

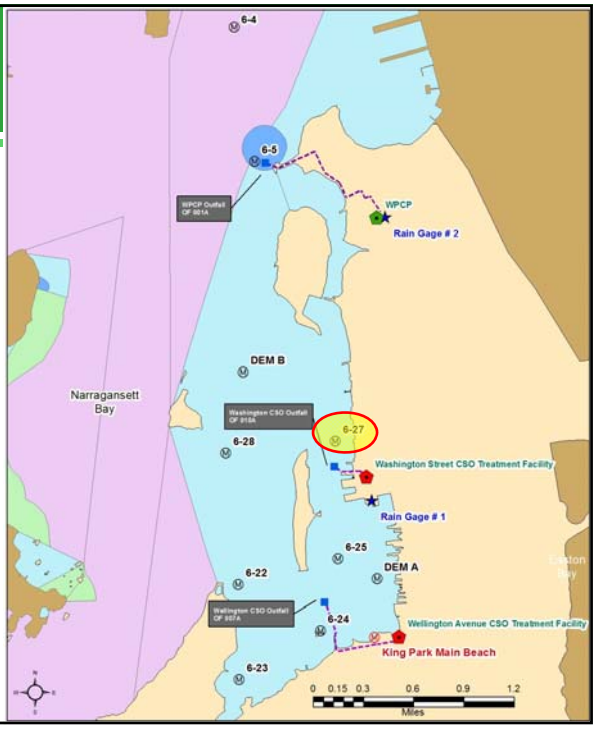
- SA
- SA(b)
- SB
- SB1

Features:

Newport Harbor Sampling Stations
Newport CSO Facilities
Newport WPCP
Newport Sewer Metering Rain Gages

Exceedance on April 13, 2010

At: 6-27
Rain? No
CSO Discharges? No



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HOW WATER QUALITY AFFECTS CSO PLANNING

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Summary of Current Status

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- No untreated discharges of raw sewage to Newport Harbor by the City of Newport
- Treated wet weather discharges occur only at 2 RIDEM-permitted CSO treatment facilities
- The designated uses for the Harbor are SB and SB1 fishable/swimmable
- State of Rhode Island reports that designated uses are "fully supported"[1] with the exception of a non-related contaminated sediments issue

[1] State of Rhode Island, 2010 303(d) List, List of Impaired Waters, Final July 2011

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How Does Water Quality Data Influence Decision Making?

- Next steps:
  1. Collection System Capacity Assessment
     - Identify portions of the collection system subject to capacity related surcharges or overflows
     - Evaluate effects of public and private infiltration/inflow removal programs
     - Identify structural measures required to prevent surcharges and overflows
     - Evaluate the City's ability to eliminate the Wellington and Washington outfalls

     If the outfalls will not be eliminated….

  2. System Master Plan (SMP)
     - Identify additional measures to eliminate outfalls
       - WPCP upgrades – including CEPT
       - Off-line and In-line Storage
       - Tunnels
     - Schedule for Implementation – Based on Affordability
     - Compliant with EPA CSO Guidance documents

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WATER QUALITY – DISCUSSION, COMMENTS & QUESTIONS

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FUTURE MEETINGS, WRAP-UP & QUESTIONS

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Future Meetings

- Next Meeting
  - November 10, 2011
  - 3:00 PM
  - Council Chambers
  - Agenda Topics:
    - Financing & Rates
      - Current rates
      - Historic Affordability Analysis
      - Current Affordability Analysis

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QUESTIONS?

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Discussion of Stormwater

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Newport Combined Sewer Overflow (CSO) Stakeholder Workgroup: Meeting #4

ATTENDEES: See Attachment 1

DATE & PLACE: September 8, 2011 @ 3:00 PM; City Hall Council Chamber, 43 Broadway Newport, RI

Welcome & Introductions

Julia Forgue introduced City staff as well as the CH2M HILL consultant team members. As there were a number of new workgroup members in attendance, each workgroup member introduced themselves.

Overview of Agenda

Becky Weig of CH2M HILL provided an overview of the agenda and asked if there were any questions before moving forward. A summary of the agenda follows:

1. Overview of the CSO Program schedule
2. Approval of previous meeting's minutes
3. Follow-up on Parking Lot items
4. Key Meeting Topic(s)
    a. Harbor Water Quality
    b. CSO Volumes & Frequencies
5. Next meeting information

Overview of CSO Program Schedule

Becky Weig provided an overview of the CSO Program schedule and also reminded workgroup members that it is important that they share the information from the Stakeholder Workgoup back with their respective organizations.

Previous Meeting's Minutes

The minutes of the third meeting were amended to include more specific information about wet weather capacity at the Water Pollution Control Plant (WPCP) and approved as amended.

Update on Parking Lot from Previous Meeting

Updates and answers to the four parking lot items from the previous meeting were presented.

The four parking lot questions were:

1. What percentage of interconnections between storm/sanitary systems are identified in GIS?

   Approximately 33% of the catch basins have been verified as either connected to the storm or sanitary system. The remaining 67% of the catch basins are unverified. Of the 33% of catch basins that are verified, 5% are connected to the sanitary sewer system and 95% are connected to the storm drainage system.

2. Are there storage options at the WPCP?

   There are no easy storage options with the current WPCP footprint, but this will be evaluated as part of the System Master Plan (SMP). A question was asked to put storage volumes into some type of scale perspective for the workgroup members. An example was provided of the storage at the Washington Street CSO Treatment Facility that was part of the Stakeholder Workgroup tour in March 2011. The tank at the Washington Street CSO Treatment Facility provides 1,000,000 gallons of storage.

3. Are there options for reducing the amount of problem items entering the headworks?

   A public education campaign could help reduce the amount of problem items entering the headworks, but because this is such a critical step in the treatment process, it will be important to implement improvements.

4. What are the performance benchmarks/metrics for a CSO control program?

   Example performance metrics are described by the EPA in its *Combined Sewer Overflows-Guidance for Long-Term Control Plan*. U.S. Environmental Protection Agency, Office of Water, Washington, DC. EPA 832-B-95-002. September 1995. Key language from EPA's guidance:

   - *The evaluation of CSO control alternatives can be a complex process:*
     - *No one methodology is appropriate for all CSO control programs.*
     - *Certain general considerations apply to most evaluation approaches.*
   - *Evaluations focus on cost, performance, and non-monetary factors*
   - *The challenge:*
     - *Assessing the relative importance of cost, performance, and non-monetary factors in selecting a preferred alternative.*

   Key benchmarks/metrics are:

   1. Regulatory compliance
      a. Permits
      b. Federal CSO Control Policy
      c. Consent agreements
   2. Other benchmarks/metrics that have been used in other programs:
      a. Reduction in water quality exceedances
      b. Percent compliance with water quality standards
      c. Number of overflows per year
      d. $/gallon CSO removed

Harbor Water Quality & CSO Volumes and Frequencies

Bill McMillin of CH2M HILL presented an overview of the City's harbor water quality monitoring program and the results from almost three years of monitoring. Key topics presented included:

- Newport Harbor water quality goals including water quality standards, water use designations, waterbody classifications, water quality criteria, State 305(b) assessments, and State 303(d) Report of Impaired Waters
- Newport CSO Treatment Facilities, effluent monitoring, and the annual frequency and volumes of discharges
- Newport Harbor water quality conditions compared to water quality standards.
    - The primary water quality indicator for assessing Newport Harbor water quality conditions in relation to CSOs is bacteria, measured by either fecal coliform or enterococci.
    - The City's enterococci data was presented compared to standards
- How Water Quality Factors in to Long-Term CSO Control Planning

Questions & Answers:

Q: Is the area near Goat Island designated as "sensitive" with the proximity to the Washington Street CSO Treatment Facility outfall?
A: No, that area of the Harbor is designated as Class SB (Primary and secondary contact recreation) like the rest of Newport Harbor. Angelo Liberti of RIDEM clarified that an SB1 ("SB but may be impacted due to pathogens from approved wastewater discharges" in State code) designation is established at WPCP outfalls as a warning to people not to swim right at the outfall as a matter of safety. The SB1 designation applies around the City's WPCP outfall.

Q: Is Clean Ocean Access data included in RIDEM's evaluation of water quality?
A: Angelo Liberti of RIDEM stated that the state's shellfish harvesting data was used in recent assessments. The City provides all of its harbor water quality monitoring data to RIDEM.

Q: Do volumes of overflows vary?
A: Yes, depending upon the characteristics of the storm (intensity, duration) and the antecedent conditions (dry, wet, snow pack, etc.)

Q: Are the CSO Treatment Facilities limited to 2 overflow events per month?
A: No, but the City is only required to sample 2 events per month if they happen. There are not always 2 events per month.

Q: How does the City's rainfall data compare to the data at Newport Airport?
A: Some results are similar and some vary. This data is still being analyzed. It is important to note that the rainfall data posted on the City's website with CSO volumes is recorded at the City's WPCP and may cover multiple days if the event lasted multiple days.

Q: It appears that a comparison of the water quality results from the Wellington Ave. CSO Treatment Facility discharge and the Washington St. CSO Treatment Facility discharge that a longer outfall pipe correlates to better performance; is this true?
A: Yes, a longer outfall pipe allows for more mixing and contact time with the chlorine, thereby resulting in a greater bacterial kill. However, it should be noted that the effluent monitoring locations are not at the end of either outfall pipes, and water quality conditions are most likely even better than shown.

Q: Can the City reduce the amount of chlorine used at Wellington Ave. CSO Treatment Facility now that a more representative sampling location is in use and the results show that the bacteria kill is good?
A: This City is working on optimizing this process.

Q: On the table on slide #51, it would be helpful to include the number of days in which samples were collected within 2 days of a CSO event. Could that be added?
A: This was added to the Parking Lot to be addressed at a future meeting.

Q: Could the enterococci exceedances be residual from CSO events more than 24-48 hours previous?
A: The Harbor is well flushed by the tide, so it is not likely to be residual. There are other sources such as untreated stormwater, boats, and wildlife.

Q: What does "no untreated CSOs mean"? What level of treatment is provided at each facility?
A: The Washington St. CSO Treatment Facility has screening, settling and disinfection. The Wellington Ave. CSO Treatment Facility has screening and disinfection.

Parking Lot:

The following questions were placed in the Parking Lot to be addressed at a subsequent meeting:

- Can the City provide examples of size and footprint for CSO storage?
- Can the number of days sampled within 2 days of a CSO event be added to the table on slide #51?
- Can the City provide an update to the finance/debt table presented in March 2010?

Next Meeting

The next meeting was set for November 10th at 3pm in the Council Chambers.

CSO Stakeholder Workgroup Meeting #4 Attendees

MEETING DATE:	Thursday September 8, 2011 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
Workgroup Members		
Justin McLaughlin	City Council	
Ray Smedberg	Ad Hoc Committee	
David McLaughlin (Alternate)	Ad Hoc Committee	
John McCain	ALN	
Roger Wells (Alternate)	ALN	
Tina Dolen	Aquidneck Island Planning Commission	
Chris Witt (Alternate)	Aquidneck Island Planning Commission	
Charles Wright	Beach Commission	
Kathleen Shinners (Alternate)	Beach Commission	
Bill Riccio	Dept. Public Services	
Eric Earls (Alternate)	Dept. Public Services	
Paige Bronk	Dept. Planning	✓
Bill Hanley (Alternate)	Dept. Planning	
Tim Mills	Harbor Master	
Mary E. Dever-Putnam	EPA	
James Carlson	NSN	
William Monaco (Alternate)	NSN	
Jody Sullivan	Newport County Chamber	
Ed Lopes (Alternate)	Newport County Chamber	
Evan Smith	NCCVB	
Cathy Morrison (Alternate)	NCCVB	
Shawn Brown	Middletown	
Tom O'Loughlin (Alternate)	Middletown	✓
Eric Beck	RIDEM	
Angelo Liberti (Alternate)	RIDEM	✓
Jim Brunnhoeffer	RWU	
B. Gokhan Celik (Alternate)	RWU	

MEETING DATE:	Thursday September 8, 2011 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
John Torgan	Save the Bay	✓
Wendy Waller (Alternate)	Save the Bay	
Tom Cornell	Resident	✓
Stuart K. Mills, Jr.	Resident	
Roger Slocum	Resident	✓
Ted Wrobel	Resident	
Other Attendees		
Julia Forgue	City of Newport	✓
Ken Mason	City of Newport	
Peter von Zweck	CH2M HILL	✓
Becky Weig	CH2M HILL	✓
Jim Lauzon	United Water	✓
Bill McMillin	CH2M HILL	

MEETING AGENDA

CSO Stakeholder Workgroup Meeting #5 Agenda (#10-039)

MEETING DATE: November 10, 2011

MEETING TIME: 3:00 PM

VENUE: City of Newport Council Chambers, City Hall

1. Welcome & Introductions
2. Overview of the Agenda
3. Review of the Workgroup guidelines and schedule
4. Approval of previous meeting's minutes
5. Follow-up on Parking Lot items
6. Key Meeting Topic – Affordability & Rates
7. Next meeting information

Welcome & Introductions

- City Representatives
  - Julia Forgue – Director of Utilities
- CH2M HILL
  - Mike Domenica – Program Manager
  - Peter von Zweck – Project Manager
  - Becky Weig – Public Involvement
- Stakeholder Workgroup Participants

2

Agenda

- Overview of the CSO Program Schedule
- Approval of Previous Minutes
- Parking Lot Follow-up Items
- Key Meeting Topic
  - Affordability & Rates
- Future Meetings, Wrap-up & Questions

3

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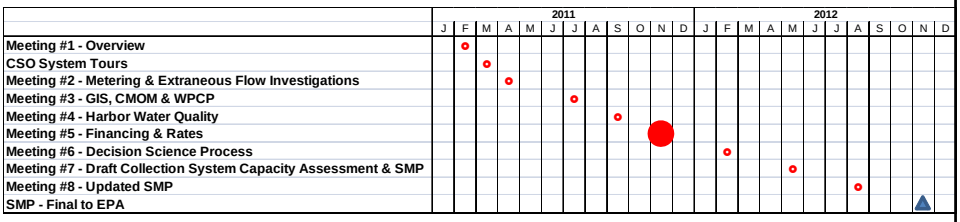
OVERVIEW OF THE STAKEHOLDER WORKGROUP

4

Schedule of CSO Stakeholder Workgroup Meetings



- Schedule developed to meet 2 key objectives:
  - Develop a collective understanding of the CSO Program (Meeting #s 1 – 5 & CSO System Tours)
  - Allow sufficient time for discussion and inclusion of Workgroup comments into the SMP (Meeting #s 6-8)

5

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.

6

Purpose of the Stakeholder Workgroup

Boundary Conditions – limits of the Workgroup's activities

- The Workgroup may:
  - Ask questions about Program approach
  - Provide their perspective on Program approach & decision making
  - Review Program plans and projects & make recommendations
  - Disseminate Program information to their organizations
  - Propose Workgroup agenda topics
- The Workgroup may not:
  - Set City policies
  - Commit City funds

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PREVIOUS MEETING'S MINUTES

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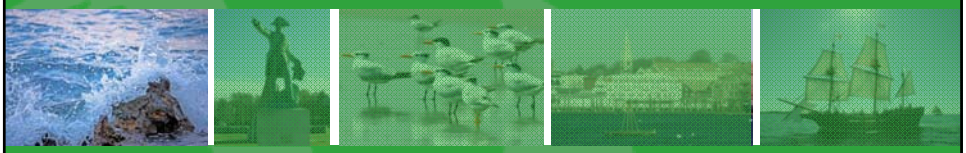

PARKING LOT FOLLOW-UP ITEMS

9

Parking Lot Question #1

- Provide examples of size & footprint for different storage options.
  - Washington St. CSO Treatment Facility Storage
    - 1,000,000 gallons
    - 120 x 85 feet
  - Narragansett Avenue Relief and Detention Sewer
    - 550,000 gallons
    - 1,900-foot long, 84-inch storage pipe

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Washington St. CSO Treatment Facility Storage Location

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Washington St. CSO Storage Facility

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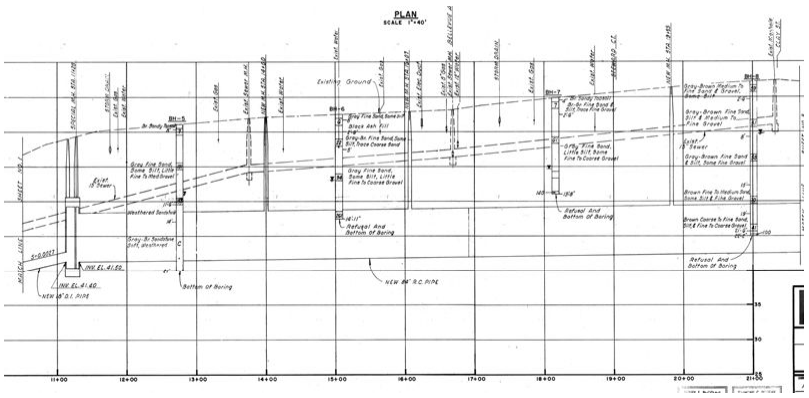
Narragansett Avenue Relief and Detention Sewer



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Bangor, Maine

- Davis Brook Storage Facility
  - 1,200,000 gallons
  - 2,400 X 8 X 9 feet
  - $1.3 million (1998)
- Kenduskeag East Storage Facility
  - 1,200,000 gallons
  - 360 x 50 feet
  - $2.4 million (2000)
- Barkersville Storage Facility
  - 1,400,000 gallons
  - 1,600 x 10 X 12 feet
  - $2.0 million (2002)

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Parking Lot Question #2

- Update table to show the number of days sampled within 2 days of a CSO event.

Year	Total Days Sampled	# Samples within 2 Days of CSO	Total Days Exceeding Enterococci+	CSO Occurred Within 2 Days	Rain Event, but No CSO	No Rainfall on or Day Before
2008*	13	2 (33% of CSO events)	2	1	0	1
2009	53	10 (38% of CSO events)	4	1	1	2
2010	52	8 (42% of CSO events)	5	2	2	1
2011*	30	2 (25% of CSO events)	2	0	2	0

*2008 & 2011 are partial years.
+ Enterococci was not exceeded at all 10 locations. For 7 of 13 days, Enterococci was exceeded at only 1 station.

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Parking Lot Question #2

- 2 CSO events are sampled per outfall each year
  - 2 at Wellington
  - 2 at Washington
- Samples are collected at stations nearest the outfalls

Year	Samples During CSO Event	Enterococci Exceedances	Samples 6 Hr. After CSO Event	Enterococci Exceedances	Months Sampled
2009	4	3	4	0	July & October
2010	4	1	4	0	March, April & November
2011	4	4	4	3	August & September

Parking Lot Question #3

- Can the finance and debt table presented in March 2010 be updated?

Financed Project	Principal	Interest	Total
2002 - $13MM Revenue Bonds	$ 8,160,509	$ 967,710	$ 9,128,219
2009 - Long Wharf Force Main Repair	$ 14,852,481	$ 6,015,954	$ 20,868,435
2009 - Railroad Interceptor & UV System	$ 2,729,266	$ 950,965	$ 3,680,231
2009 - Catch Basin Separation & High Priority Sewer Repairs	$ 2,430,027	$ 846,702	$ 3,276,729
2010 – Thames & Wellington Interceptors	$ 7,549,024	$ 2,944,397	$ 10,493,421
TOTAL	**$ 35,721,307**	**$ 11,725,728**	**$ 47,447,035**

* Data current as of September 30, 2011.

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KEY MEETING TOPICS

AFFORDABILITY & RATES

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Topics to Cover

- Introduction & Previous Work
- Updated Affordability Analysis
- Rate Impacts/Structure
- Designing an Affordable Program

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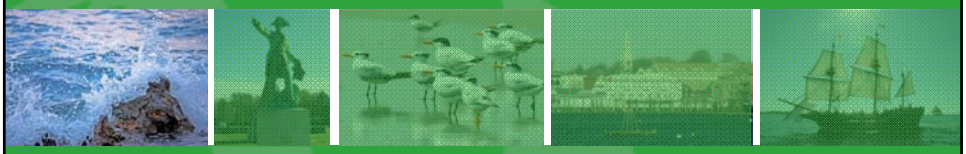

INTRODUCTION TO AFFORDABILITY

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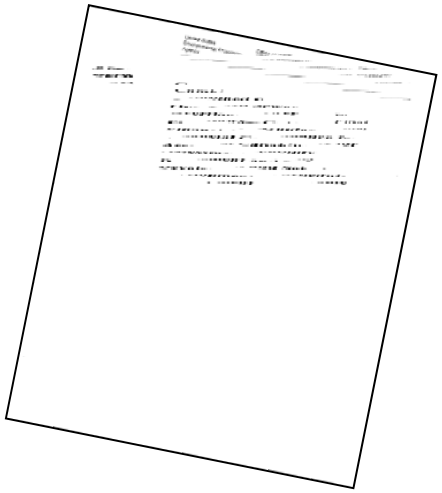
Why Affordability & Why Now?

- 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



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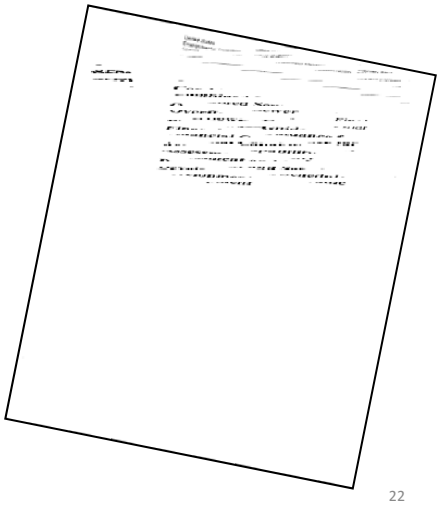
EPA Guidelines on Affordability

- Elements of the affordability analysis?
  - Wastewater costs per household (all Clean Water Act requirements – capital and O&M)
  - Capital cost amortization period
  - Borrowing interest rate & inflation rate
  - City bond rating
  - Net debt as a percent of full market property value
  - Unemployment rate
  - Median household income
  - Property tax revenue collection rate
  - Outside state & federal financial support (historic)



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Limitations to Affordability Analysis

- EPA does take affordability into account
- The EPA guidance has a prescriptive process that excludes some elements that could significantly affect a community's financial capability
  - Revenue-supported debt excluded
  - Some indicators only considered in relation to national averages
- EPA's methodology provides only a "snapshot" in time – does not account for changing economic conditions

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Building a Rates-Based CSO Program

1. Financial Capability Analysis – What is the maximum "affordable" sewer rate (Defined by EPA)
2. Determining what portion of the Water Pollution Control Division budget (determined by "affordable" rate) is available for CSO control
3. Use the results to plan the type and implementation schedule of CSO controls to stay within budget

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"Financial Indicators Score" is Based on Community's Overall Fiscal Strength

Indicator	Strong	Mid-Range	Weak
Bond Rating	AAA-A (S&P) Aaa-A (Moody's)	BBB (S&P) Baa (Moody's)	BB-D (S&P) Ba-C (Moody's)
Overall Net Debt as a Percent of Full Market Property Value	Below 2%	2% - 5%	Above 5%
Unemployment Rate	More than 1 Percentage Point Below the National Average	± Percentage Point of National Average	More than 1 Percentage Point Above the National Average
Median Household Income	More than 25% Above Adjusted National MHI	± 25% of Adjusted National MHI	More than 25% Below Adjusted National MHI
Property Tax Revenues as a Percent of Full Property Value	Below 2%	2% - 4%	Above 4%
Property Tax Collection Rate	Above 98%	94% - 98%	Below 94%
EPA Scoring	**3**	**2**	**1**

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The Financial Capability Matrix Identifies What is a "High Burden"

	Residential Indicator (Cost Per Household as a Percent of Median Household Income)		
Permittee's Financial Capability Indicators Score	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

EPA expects communities to pay to the upper limit of medium burden.

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2009 Evaluation on Affordability

- Most data from 2005-2008
- This evaluation was never commented on by RIDEM

Indicator	Strong	Mid-Range	Weak	Newport Value	Benchmark	Score
Bond Rating	Aaa-A (Moody's) AAA-A (S&P)	Baa (Moody's) BBB (S&P)	Ba-C (Moody's) BB-D (S&P)	Aa3 (Moody's) A+ (S&P)	Strong	3
Net Debt	Below 2%	2% to 5%	Above 5%	0.49%	Strong	3
Unemployment Rate	>1% below National Average	±1% of the National Average	>1% above National Average	3.6% Above	Weak	1
Median Household Income	>25% Above Adjusted National MHI	±25% of Adjusted National MHI	>25% Below Adjusted National MHI	23%	Mid-Range	2
Property Tax Revenues as a % of Full Market Property Value	Below 2%	2% to 4%	Above 4%	0.9%	Strong	3
Property Tax Revenue Collection Rate	Above 98%	94% - 98%	Below 94%	98%	Mid-Range	2
					Average	2.33

Concluded that proposed CSO control alternatives for the Wellington catchment area would result in a High Burden – rates > 2.0% of MHI.

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UPDATED AFFORDABILITY ANALYSIS

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Sources of Data for Updated Affordability Analysis

Financial Indicator	Data Year	Data Source
Bond Rating	2011	Adopted 2011-2012 Budget
Overall Net Debt as a Percent of Full Market Property Value	2011	Adopted 2011-2012 Budget
Unemployment Rate	2011	Adopted 2011-2012 Budget
Median Household Income	2009	2010 US Census
Property Tax Revenues as a Percent of Full Property Value	2011	Adopted 2011-2012 Budget
Property Tax Collection Rate	2010	2010 City of Newport Comprehensive Annual Financial Report

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Updated Financial Indicators Score

Calculation of Newport's Financial Indicators Score

Indicator	Strong	Mid-Range	Weak	Newport Value	Benchmark	Score
Bond Rating	AAA-A (S&P) Aaa-A (Moody's)	BBB (S&P) Baa (Moody's)	BB-D (S&P) Ba-C (Moody's)	AA - S&P	Strong	3
Overall Net Debt as a Percent of Full Market Property Value	Below 2%	2% - 5%	Above 5%	0.84%	Strong	3
Unemployment Rate ★	More than 1 Percentage Point Below the National Average	1 Percentage point or less above or below the National Average	More than 1 Percentage Point Above the National Average	1% above the National Average (10.1% for Newport vs. 9.1% National Average)	Mid-Range	2
Median Household Income	More than 25% Above Adjusted National MHI	± 25% of Adjusted National MHI	More than 25% Below Adjusted National MHI	1.11	Mid-Range	2
Property Tax Revenues as a Percent of Full Property Value	Below 2%	2% - 4%	Above 4%	1.07%	Strong	3
Property Tax Collection Rate	Above 98%	94% - 98%	Below 94%	97.37%	Mid-Range	2
					MID-RANGE	2.50

★Only indicator to change from 2009 analysis.

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Financial Burden Newport Can Afford per EPA

- 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

	Residential Indicator (Cost Per Household as a Percent of Median Household Income)		
Permittee's Financial Capability Indicators Score	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

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How Will Affordability Analysis Affect Rates?

Calculation of Maximum Newport Sewer Bill Based on Affordability Guidance		
Median Household Income (MHI)	$55,916	
2% of MHI	$1,118	High burden will be 2% of MHI if Newport is classified as mid-range on Financial Capability.
Current Sewer Bill for Typical Residential Customer*	$868	Includes $192 CSO fixed fee plus $676 annual sewer charge.
Remainder Available Within "Affordability Threshold"	$250	For all Clean Water Act Programs (including CSO, wastewater treatment, stormwater, asset management, etc.)

* Based upon FY 2012 charges of $11.27/1,000 gallons and typical usage of 15,000 gallons per quarter. CSO fixed fee based upon a <1" water meter.
- Middletown & Navy pay per wholesale contracts.

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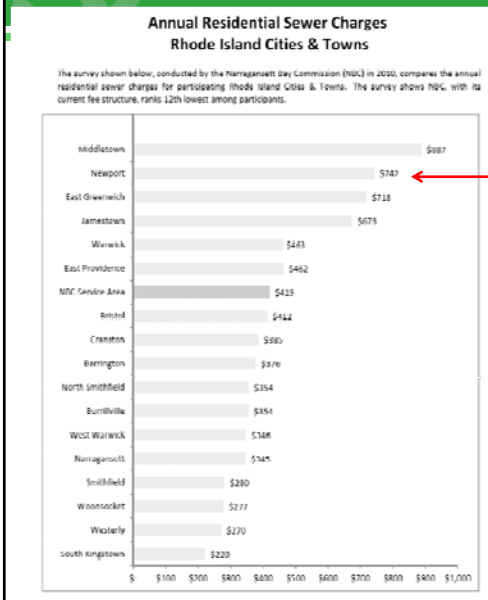
Wastewater Rates in RI



Does not include CSO fixed fee of $104 for 2010.

- Source: 2010 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

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Example Program Costs for Other CSO Communities

Community	Population	CSO Program Costs*
South Portland, ME	22,300	$39,300,000
Newport, RI	24,672	????
Bangor, ME	35,473	$45,000,000
Fall River, MA	92,000	$185,000,000
Onondaga County, NY	150,000	$580,000,000
Narragansett Bay Commission**	360,000	$858,000,000
Hartford, CT	400,000	$2,100,000,000

**CSO Program Costs accounts for amount spent and projected amount necessary to complete CSO program.*
***NBC population is the total users in service area. Program cost is the summation of three phases.*

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DESIGNING AN AFFORDABLE PROGRAM

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Sources of Revenue for Water Pollution Control Division

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2011-2012 Budget *City of Newport, Rhode Island*

CITY OF NEWPORT, RHODE ISLAND
2011-2012 WATER POLLUTION CONTROL FUND BUDGET
SUMMARY

	REVENUES	2009-10 ACTUAL	2010-11 BUDGET	2010-11 PROJECTED	2011-12 ADOPTED
45701	Investment Interest Income	$ 4,026	$ 4,000	$ 3,272	$ 3,000
45854	Sewage Treat. Middletown	977,528	717,038	711,310	711,300
45855	Sewer Assessment Fee	3,860	5,000	10,000	5,000
45856	Sewer Treat., Water Utility	387,413	662,350	595,296	676,200
45857	Sewer Treatment, U.S.N.	601,565	569,495	486,980	615,600
47150	Middletown and Navy share of debt	-	542,207	542,207	327,999
47145	City forgiveness of debt	454,485	-	-	-
45879	Pretreatment Fees	99,620	111,954	109,000	109,000
45892	ICI Reimbursements	101,474	120,011	120,011	120,011
47103	Disposal Permits	232,181	302,071	337,498	286,000
47111	Sewer Use Charge	4,404,902	7,133,000	7,133,000	8,225,000
47115	Miscellaneous	16,301	15,000	6,248	15,000
47120	Sewer - Penalty	26,181	30,000	28,000	28,000
	Revenue From Operations	**7,309,536**	**10,212,126**	**10,082,802**	**11,122,110**
TOTAL UNRESTRICTED REVENUES		**7,309,536**	**10,212,126**	**10,082,802**	**11,122,110**
RESTRICTED REVENUES AND OTHER SOURCES OF FUNDS					
45862	CSO Fixed Fee	1,100,029	2,074,176	2,074,176	2,077,420
	Middletown & Navy Share of CSO Capital				91,100
45863	CSO - Penalty	-	7,500	7,000	7,000
46005	Bond Proceeds	-	12,600,000	9,183,000	-
	Grant Proceeds			3,096,000	
	Use of CSO Restricted Cash	-	24,116		456,079
46002	Transfer from Other Funds	500,000	1,500,000	1,500,000	-
	Total Restricted Revenues and Other Sources of Funds	**1,600,029**	**16,205,792**	**15,860,176**	**2,631,599**
TOTAL REVENUES & OTHER SOURCES OF FUNDS		**$ 8,909,565**	**$ 26,417,918**	**$ 25,942,978**	**$ 13,753,709**

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Categories of Expenditures for Water Pollution Control Division

CITY OF NEWPORT, RHODE ISLAND
2011-2012 WATER POLLUTION CONTROL FUND BUDGET
SUMMARY

	2009-10 ACTUAL	2010-11 BUDGET	2010-11 PROJECTED	2011-12 ADOPTED
EXPENDITURES				
Salaries	$ 178,525	$ 124,902	$ 126,578	$ 130,634
Fringe Benefits	89,061	96,999	90,904	99,274
Purchased Services	3,815,977	3,947,919	3,973,764	4,553,068
Utilities	604,144	585,383	642,266	665,000
Internal Services	684,525	732,684	732,684	724,683
Other Charges	8,720	27,500	27,500	25,900
Interest Expense	567,363	1,144,413	1,157,609	1,091,317
Depreciation	2,033,547	2,053,383	2,273,822	2,273,822
Operating Expenditures	**7,981,862**	**8,713,383**	**9,026,327**	**9,563,698**
OTHER CASH OUTLAYS				
Capital Outlay From Unrestricted Revenues	-	1,917,772	1,772,772	3,425,000
Capital Outlay From CSO Fixed Fees	-	3,094,160	3,094,160	1,900,000
Increase in CSO Restricted Cash			264,917	
Capital Outlay From Revenue Bonds	-	12,600,000	12,279,000	-
Principal Debt Repayment	-	2,075,567	1,549,589	1,138,833
Other Cash Outlays	**-**	**19,687,499**	**18,960,438**	**6,463,833**
TOTAL EXPENDITURES & CASH OUTLAYS	**$ 7,981,862**	**$ 28,400,882**	**$ 27,986,765**	**$ 16,027,531**

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Growing Need to Repair and/or Replace Underground Assets

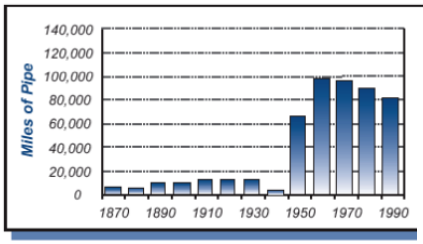


Figure 2–6: Histogram of Miles of Sanitary Sewer Pipe Installed per Decade

Source: The Clean Water and Drinking Water Infrastructure Gap Analysis, EPA, 2002

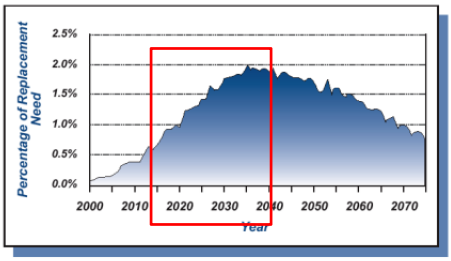
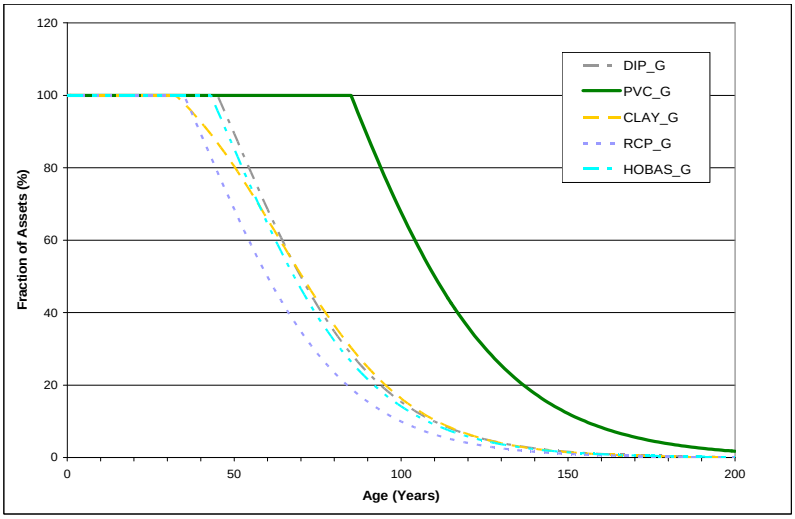


Figure 2–11: Projected Annual Replacement Needs for Transmission Lines and Distribution Mains, 2000–2075

Wastewater Conduit Deterioration

Medium Survival Function Curves for Different Material Pipes – Gravity Sewer



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CH2M HILL, 2010

Historical Trends for Key Indicators

- While EPA analysis provides a "snapshot" in time, recent historical trends for key indicators may be more indicative of Newport's overall affordability:
  - Median Household Income
  - Unemployment Rate
  - Property Tax Collection Rate

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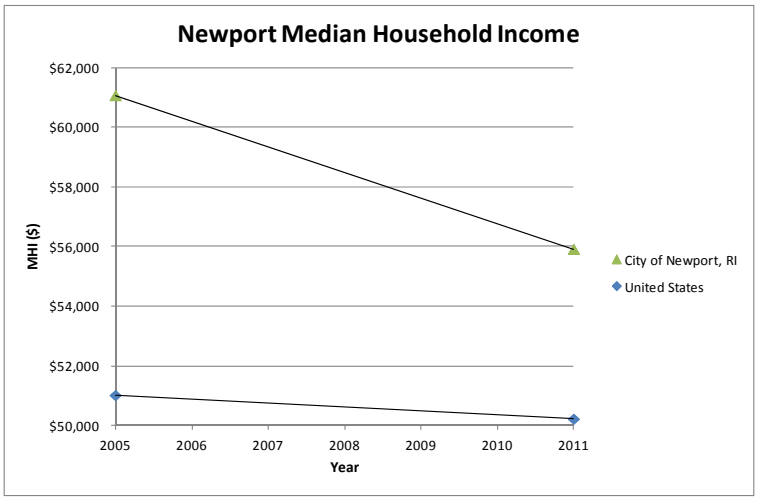
Median Household Income



Data Source:
U.S. Census

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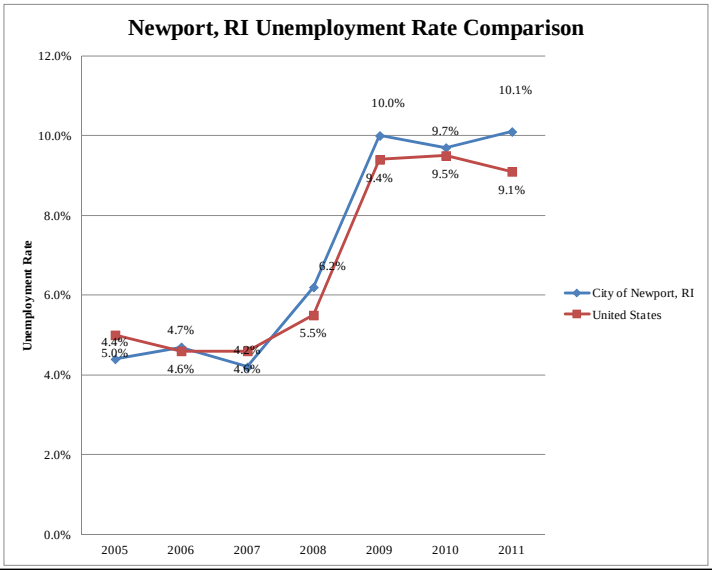
Unemployment Rates



Data Source:
City of Newport
Adopted Budgets:
FY 2007 – 2008, Page 5
FY 2008 – 2009, Page 5
FY 2009 – 2010, Page 5
FY 2010 – 2011, Page 5
FY 2011 – 2012, Page 5

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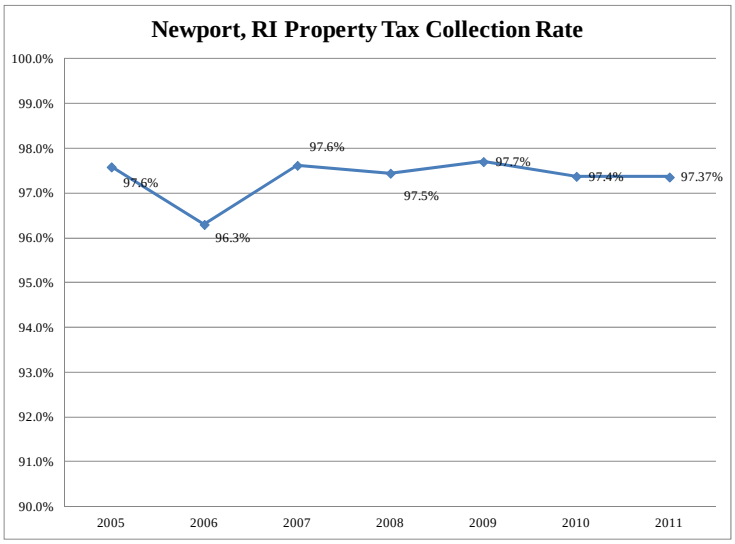
Property Tax Collection Rate



Data Source:
City of Newport
Adopted Budgets:
FY 2007 – 2008, Page 5
FY 2008 – 2009, Page 5
FY 2009 – 2010, Page 5
FY 2010 – 2011, Page 5
FY 2011 – 2012, Page 5

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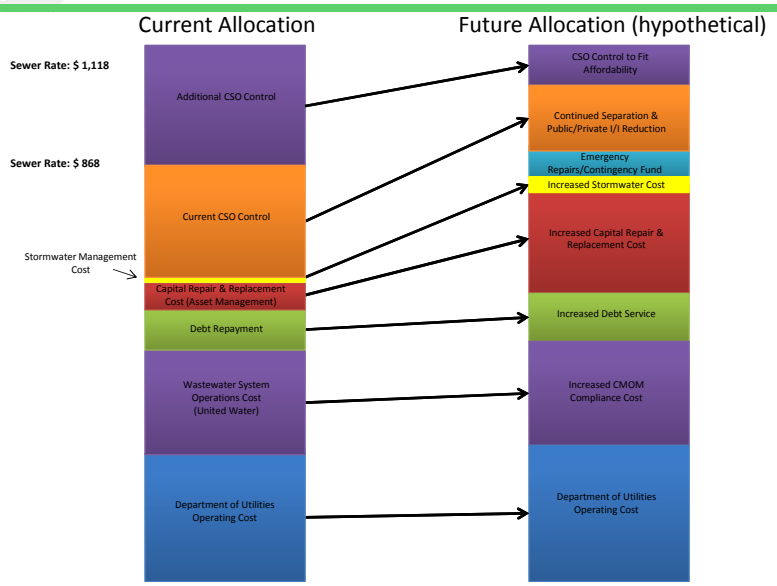
Other Factors Affecting Affordable Rates

- Forthcoming Stormwater Requirements
- Increased CMOM Requirements
- Emergency Repairs/Contingency Fund
- Stricter RIPDES Discharge Requirements
- Water System Debt
- Affordability at Lower Income Brackets

44

How Sewer Rate is Divided Across All Water Pollution Control Division Services



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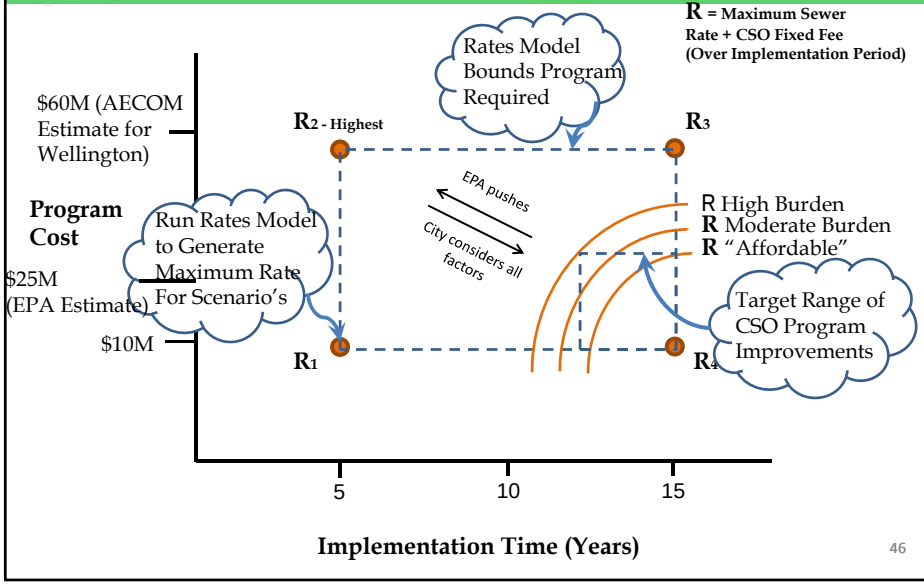
Defining an Affordable Program



46

Affordability - Discussion

Historical changes in sewer rates:

Fiscal year		2005	2006	2007	2008	2009	2010	2011	2012
Sewer Rate	Per 1,000 gal	$5.17	$5.17	$5.17	$6.00	$6.18	$6.80	$10.19	$11.27
CSO Fixed Fee	<1"	$0.00	$0.00	$0.00	$98.00	$101.00	$104	$190	$192

- General questions to begin thinking about, we will be asking these and others as we go forward:
  - Is an additional $250/year in sewer rate charges affordable? acceptable? for how long?
  - What benefits would be expected for the additional sewer rate charge?

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Next Steps in Rates & Affordability

- During the next several months, more detailed follow-up financial and rate analyses will be conducted to evaluate projected sewer bills for program options
  - CSO program options
  - Scheduling/phasing options
  - Financing options
    - Conduit loans via Clean Water Finance Agency @ market rate
    - State Revolving Fund loans @ subsidized rate – depends upon funds from Federal government and needs of other RI communities
  - More refined projections that take into consideration customer usage, wholesale customer, and other factors

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AFFORDABILITY & RATES– DISCUSSION, COMMENTS & QUESTIONS

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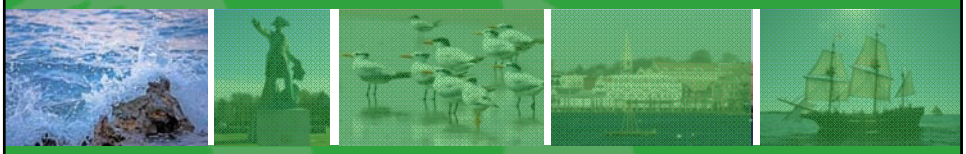

FUTURE MEETINGS, WRAP-UP & QUESTIONS

50

Future Meetings

- Next Meeting
  - February 9, 2012
  - 3:00 PM
  - Council Chambers
  - Agenda Topics:
    - Decision Science Process
    - Stakeholders will be broken up into small groups to identify priorities for:
      - Financing & affordability
      - Water quality
      - CSO control alternatives

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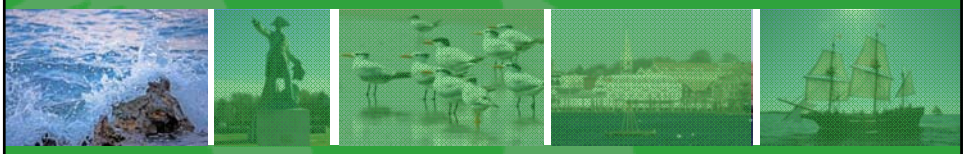

QUESTIONS?

52

Other Sources of Revenue Beyond City of Newport Rates

- Navy & Middletown pay a proportional amount for those parts of the system that they utilize

	Wellington CSO Treatment Facility	Long Wharf Pump Station	Washington CSO Treatment Facility	Collection System	WPCP
City of Newport	√	√	√	√	√
Middletown		√	√		√
Navy					√

The Navy pays a very small percentage of the Wellington CSO Facility, Washington CSO Facility and Long Wharf Pump Station due to flows from Ft. Adams.

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Newport Combined Sewer Overflow (CSO) Stakeholder Workgroup: Meeting #5

ATTENDEES: See Attachment 1

DATE & PLACE: November 10, 2011 @ 3:00 PM; City Hall Council Chamber, 43 Broadway Newport, RI

Welcome & Introductions

Julia Forgue introduced City staff as well as the CH2M HILL consultant team members.

Overview of Agenda

Becky Weig of CH2M HILL provided an overview of the agenda and asked if there were any questions before moving forward. A summary of the agenda follows:

1. Overview of the CSO Program schedule
2. Approval of previous meeting's minutes
3. Follow-up on Parking Lot items
4. Key Meeting Topic – Affordability & Rates
5. Next meeting information

Overview of CSO Program Schedule

Becky Weig provided an overview of the CSO Program schedule, CSO Program Mission Statement, and the boundary conditions for the Stakeholder Workgroup.

Previous Meeting's Minutes

The minutes of the fourth meeting were approved.

Update on Parking Lot from Previous Meeting

Updates and answers to the three parking lot items from the previous meeting were presented.

The three parking lot questions were:

1. Can examples of size and footprint for different storage options be presented?

   The sizes and the footprints along with photographs of Newport's two storage facilities, Washington St. CSO Facility storage tank and Narragansett Storage Conduit, were presented. Examples of three storage facilities in Bangor, ME, a CSO community similar in size to Newport, were also presented.

2. Can the Newport Harbor water quality results table be updated to show the number of days in which samples were collected within 2 days of a CSO event?

   The table was updated to show the information and presented at the meeting. The table in included in these minutes as Exhibit 1.

EXHIBIT 1
Newport Harbor Water Quality Sampling Results

Year	Total Days Sampled	# Samples within 2 Days of CSO	Total Days Exceeding Enterococci+	CSO Occurred Within 2 Days	Rain Event, but No CSO	No Rainfall on or Day Before
2008*	13	2 (33% of CSO events)	2	1	0	1
2009	53	10 (38% of CSO events)	4	1	1	2
2010	52	8 (42% of CSO events)	5	2	2	1
2011*	30	2 (25% of CSO events)	2	0	2	0

**2008 & 2011 are partial years.*
+ Enterococci was not exceeded at all 10 locations. For 7 of 13 days, Enterococci was exceeded at only 1 station.

In addition, results for the 2 CSO events that are sampled per outfall each year were presented and are included in these minutes as Exhibit 2.

EXHIBIT 2
Newport Harbor Water Quality Results for Sampling during 2 CSO Events per Outfall per Year

Year	Samples During CSO Event	Enterococci Exceedances	Samples 6 Hr. After CSO Event	Enterococci Exceedances	Months Sampled
2009	4	3	4	0	July & October
2010	4	1	4	0	March, April & November
2011	4	4	4	3	August & September

3. Can the finance and debt table presented in March 2010 be updated?

   The updated table was presented and is included in these minutes as Exhibit 3.

EXHIBIT 3
Updated Finance and Debt Table

Financed Project	Principal	Interest	Total
2002 - $13MM Revenue Bonds	$ 8,160,509	$ 967,710	$ 9,128,219
2009 - Long Wharf Force Main Repair	$ 14,852,481	$ 6,015,954	$ 20,868,435
2009 - Railroad Interceptor & UV System	$ 2,729,266	$ 950,965	$ 3,680,231
2009 - Catch Basin Separation & High Priority Sewer Repairs	$ 2,430,027	$ 846,702	$ 3,276,729
2010 – Thames & Wellington Interceptors	$ 7,549,024	$ 2,944,397	$ 10,493,421
TOTAL	**$ 35,721,307**	**$ 11,725,728**	**$ 47,447,035**

** Data current as of September 30, 2011.*

Affordability & Rates

Mike Domenica of CH2M HILL presented an overview of the City's analysis on affordability, its impact on rates and how to design an affordable CSO program. Key topics presented included:

- Why evaluate affordability before the CSO System Master Plan (SMP) is developed?
    - It is important to set the budget of what the City can afford and the design the program implementation elements and schedule within an affordable budget.
- The EPA guidelines on affordability as well as the limitations of the guidelines were presented.
- The updated affordability analysis for Newport, following the EPA's guidelines, was presented. Based upon the updated Financial Indicators Score, the analysis determined that the maximum sewer bill for the typical user (15,000 gallons/quarter) would be $1,118 per year. The annual charge for a typical user is currently $868 per year; therefore the analysis shows that the maximum increase to the typical user could be $250/year.
- Mike Domenica showed how an affordable program can be developed to fit within the affordable rate. Key items to be accounted for are:
    - Growing need to repair and replace deteriorating underground assets
    - Forthcoming stormwater requirements
    - Increased CMOM requirements
    - Emergency repairs/contingency fund
    -

Questions & Answers:

Q: If there was a separate stormwater utility what would happen to the affordable rate number?

A: It wouldn't change because stormwater requirements are part of the Clean Water Act (CWA) and all CWA requirements are included in the affordable rate.

Q: If billing is based on water usage, how many special groups get special rates?
A: There is only one retail rate for water and wastewater. Some people have irrigation accounts that bill for water only.

Q: Is the age of underground assets, and the increasing need for repair and replacement the reason why so many wastewater programs are underfunded?
A: Yes, for decades wastewater programs have not needed to invest in underground infrastructure and have not included it in their budget planning. This need now must become part of a utility's long term asset management plan.

Parking Lot:

The following questions were placed in the Parking Lot to be addressed at a subsequent meeting:

- Can an update on verified catch basins be presented?
- Can updates on improvements to the wastewater system be provided?

Next Meeting

The next meeting was set for February 9, 2012 at 3pm in the Council Chambers.

CSO Stakeholder Workgroup Meeting #5 Attendees

MEETING DATE:	Thursday November 10, 2011 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
Workgroup Members		
Justin McLaughlin	City Council	
Ray Smedberg	Ad Hoc Committee	
David McLaughlin (Alternate)	Ad Hoc Committee	
John McCain	ALN	
Roger Wells (Alternate)	ALN	
Tina Dolen	Aquidneck Island Planning Commission	
Chris Witt (Alternate)	Aquidneck Island Planning Commission	
Charles Wright	Beach Commission	
Kathleen Shinners (Alternate)	Beach Commission	
Bill Riccio	Dept. Public Services	
Eric Earls (Alternate)	Dept. Public Services	
Paige Bronk	Dept. Planning	
Bill Hanley (Alternate)	Dept. Planning	
Tim Mills	Harbor Master	
Mary E. Dever-Putnam	EPA	
James Carlson	NSN	
William Monaco (Alternate)	NSN	
Jody Sullivan	Newport County Chamber	
Ed Lopes (Alternate)	Newport County Chamber	
Evan Smith	NCCVB	
Cathy Morrison (Alternate)	NCCVB	
Shawn Brown	Middletown	
Tom O'Loughlin (Alternate)	Middletown	
Eric Beck	RIDEM	
Angelo Liberti (Alternate)	RIDEM	
Jim Brunnhoeffer	RWU	
B. Gokhan Celik (Alternate)	RWU	

MEETING DATE:	Thursday November 10, 2011 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
John Torgan	Save the Bay (LAST)	
Wendy Waller (Alternate)	Save the Bay	
Tom Cornell	Resident	
Stuart K. Mills, Jr.	Resident	
Roger Slocum	Resident	
Ted Wrobel	Resident	
Other Attendees		
Julia Forgue	City of Newport	
Ken Mason	City of Newport	
Peter von Zweck	CH2M HILL	
Becky Weig	CH2M HILL	
Jim Lauzon	United Water	

MEETING AGENDA

CSO Stakeholder Workgroup Meeting #6 Agenda (#10-039)

MEETING DATE: February 9, 2012

MEETING TIME: 3:00 PM

VENUE: City of Newport Council Chambers, City Hall

1. Welcome & Introductions
2. Overview of the Agenda
3. Review of the Workgroup guidelines and schedule
4. Approval of previous meeting's minutes
5. Follow-up on Parking Lot items
6. Key Meeting Topic – Alternatives Evaluation Process
7. Next meeting information

Welcome & Introductions

- City Representatives
  - Julia Forgue – Director of Utilities
- CH2M HILL
  - Mike Domenica – Program Manager
  - Peter von Zweck – Project Manager
  - Becky Weig – Public Involvement
- Stakeholder Workgroup Participants

2

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.

3

Proposed Schedule CSO Stakeholder Meetings

4

Proposed Meeting Agenda

- Overview of the CSO Program Schedule
- Approval of Previous Minutes
- Parking Lot Follow-up Items
- Key Meeting Topics
  - Alternatives Evaluation Process
  - Exercise on Identifying Priorities
- Questions
- Future Meetings

5

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PREVIOUS MEETING'S MINUTES

6

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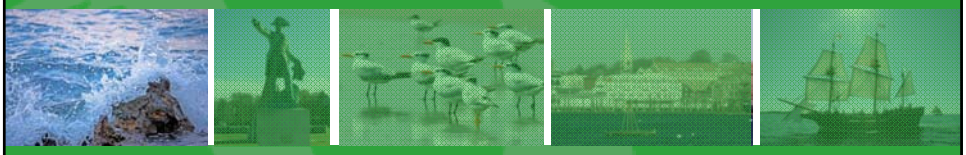

PARKING LOT FOLLOW-UP ITEMS

7

Parking Lot Question #1

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Is there an update on the number of verified catch basins?

Summary of Catch Basin Inspections Status			
Category	**February 2011**	**May 2011**	**February 2012**
City of Newport			
Connected to Sanitary Sewers		27	36
Connected to Storm Drains		911	1,622
Not yet confirmed	2,895	1,957	735
Subtotal	2,895	2,895	2,393
Owned by others			
Connected to Sanitary Sewers			2
Connected to Storm Drains			115
Not yet confirmed			272
Subtotal			389
Total	2,895	2,895	2,782

[1] Counts are based on the inventory in the GIS – which changes as inspections are performed.

8

Parking Lot Question #2

Can an update on system improvements (WPCP, I/I removal, etc.) be provided?

- A large number of improvements were made at the WPCP and in the collection system during 2011.
- The Department of Utilities has plans to design and/or start additional improvements in 2012.
- See handout for a concise summary of completed and proposed improvements.

9

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KEY MEETING TOPIC

ALTERNATIVES EVALUATION PROCESS

10

Objectives for this Meeting

The objective of this meeting is to collect your initial input toward prioritizing the criteria that will be used for evaluating proposed solutions.

11

Group Exercise
Weighting of Evaluation Criteria

Objective of Exercise

- Rank the relative importance of evaluation criteria

Perspective

- Evaluate importance for the constituents you represent

Rules for Weighting

- Score each evaluation criteria using a scale of 0 to 10
- 10 -> highest importance
- 0 -> not at all important

12

Agenda Topics for Alternatives Evaluation Process

- Overview of Regulatory Framework
  - Required Documents
  - Sequence / timing of documents
- Factors Affecting Selection of Recommended System Improvements
  - Regulatory
  - WQ Benefits
  - Social Impacts
  - Costs and Affordability
- Exercise on Preferences for Evaluation Criteria

13

Regulatory Documents that Outline CSO Planning Requirements and Strategies

Clean Water Act

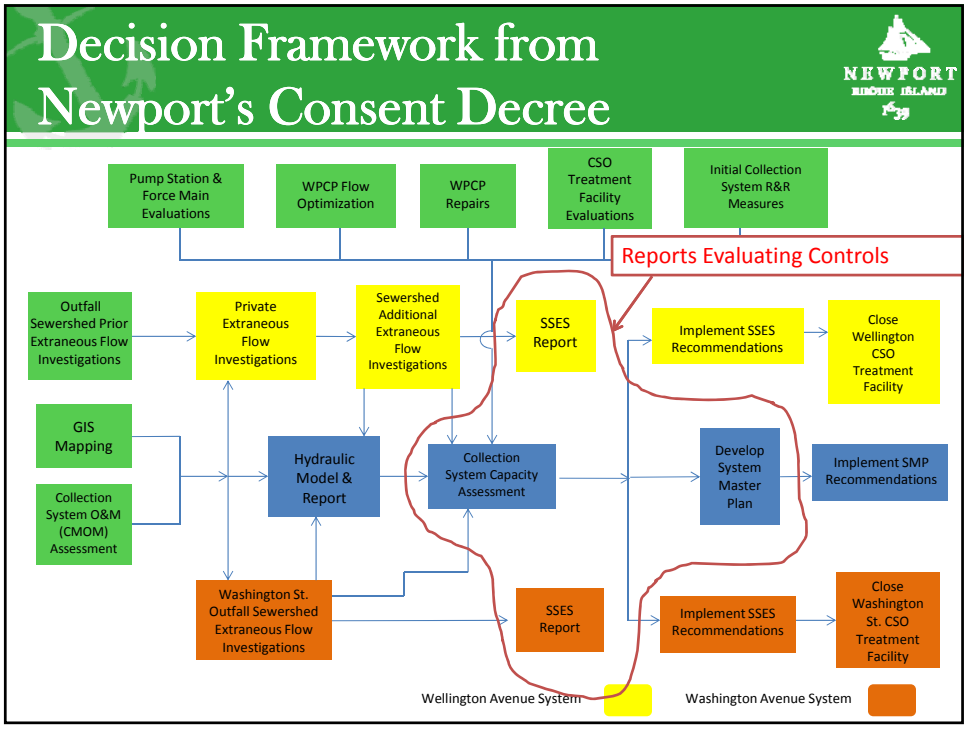
- Meet water quality standards
- Support designated uses

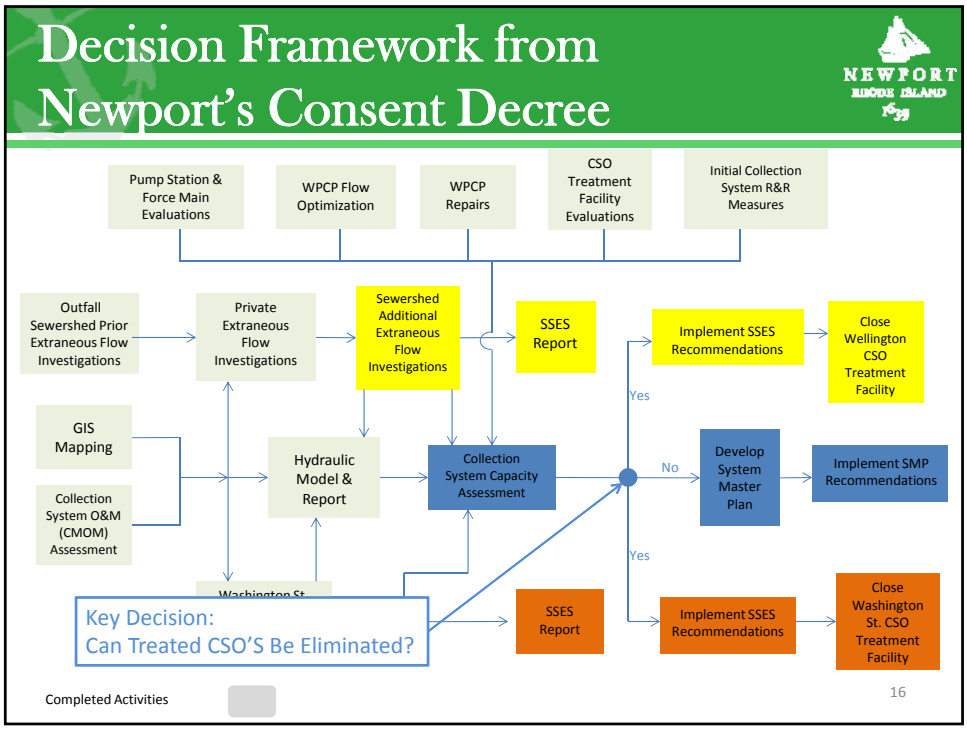
EPA CSO Policy

- Eliminate or relocate CSO discharges to "sensitive use" waters
- "Equivalent primary treatment" is allowable for CSO discharges
- Maximizing flow to the WPCP is a required

Consent Decree

- Dictates the deliverables and schedule of activities for the City of Newport to meet its regulatory requirements


Decision Framework from Newport's Consent Decree
NEWPORT RHODE ISLAND
Pump Station & Force Main Evaluations
WPCP Flow Optimization
WPCP Repairs
CSO Treatment Facility Evaluations
Initial Collection System R&R Measures
Reports Evaluating Controls
Outfall Sewershed Prior Extraneous Flow Investigations
Private Extraneous Flow Investigations
Sewershed Additional Extraneous Flow Investigations
SSES Report
Implement SSES Recommendations
Close Wellington CSO Treatment Facility
GIS Mapping
Collection System O&M (CMOM) Assessment
Hydraulic Model & Report
Collection System Capacity Assessment
Develop System Master Plan
Implement SMP Recommendations
Washington St. Outfall Sewershed Extraneous Flow Investigations
SSES Report
Implement SSES Recommendations
Close Washington St. CSO Treatment Facility
Wellington Avenue System
Washington Avenue System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Private Extraneous Flow Investigations
Sewershed Additional Extraneous Flow Investigations
SSES Report
Implement SSES Recommendations
Close Wellington CSO Treatment Facility
Yes
GIS Mapping
Collection System O&M (CMOM) Assessment
Hydraulic Model & Report
Collection System Capacity Assessment
No
Develop System Master Plan
Implement SMP Recommendations
Yes
Key Decision:
Can Treated CSO'S Be Eliminated?
SSES Report
Implement SSES Recommendations
Close Washington St. CSO Treatment Facility
Completed Activities
16

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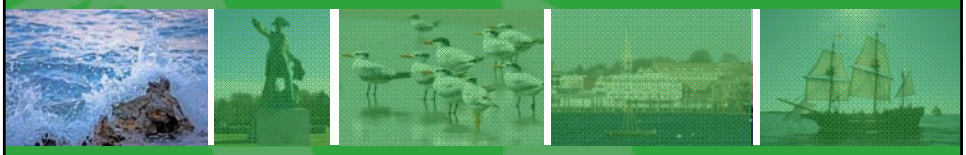

FACTORS AFFECTING SELECTION OF CONTROL ALTERNATIVES

17

CSO Program Goals

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Continue to identify and 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.

From Presentation to Newport City Council
by CH2M HILL on March 2011

18

Factors Affecting Selection of Recommended Controls

- Regulatory Requirements
- Water Quality Benefits
- Social/Community Impacts
- Costs and Affordability

- Exercise on Weighting of Priorities

19

Regulatory Issues Affecting Controls

Newport's system has historically been treated by EPA and RIDEM as a "combined" system

- Newport's pipes were designed to carry storm water during wet weather
- Newport has storm drains connected to pipes designed to carry wet weather flows
- Newport has permits for 2 wet weather treatment facilities
- WPCPs serving combined sewer systems may receive a waiver from 85% removal provisions in NPDES permits

Key Issues for Separate Sewer Systems

- Wet weather discharges, treated or untreated, from separate sanitary sewer systems are illegal
- All flows from separate sanitary sewer systems must receive full secondary treatment (CSO treatment facilities are not allowed)

Water Quality Role in CSO Planning

- Permittees should develop Long-Term Control Plans (LTCP) ….. to meet the water quality-based requirements of the Clean Water Act [1]
- Permittees should give priority to environmentally sensitive areas. [1]
- Sensitive areas include:
  - National Marine Sanctuaries
  - Waters with threatened or endangered species or their designated critical habitat
  - Primary contact recreation waters, such as bathing beaches
  - Public drinking water intakes or their designated protection areas
  - Shellfish beds

[1] EPA CSO Guidance for Long-Term Control Plans

Newport's Harbor Water Quality Monitoring Data

Year	Total Samples Collected	Total Enterococci Exceedances+	Enterococci Exceedances Associated w/ Rainfall (but No CSO Event)	Enterococci Exceedances within 2 days of a CSO Event	Enterococci Exceedances Preceded by at least 24 hrs of Dry Weather
2008*	130	9	0	6	3
2009	530	4	1	1	2
2010	520	10	4	5	1
2011*	300	2	2	0	0
Total	1480	25	7	12	6

*2008 & 2011 are partial years.

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Summary of Newport's Water Quality Issues

- No raw sewage is discharged by City of Newport
- Wet weather discharges occur only at 2 RIDEM permitted treatment facilities
- The designated uses for the Harbor are SB and SB1 fishable/swimmable
- Analysis of water samples collected in the harbor shows that uses are not impaired due to CSOs
- State of Rhode Island reports that designated uses are "fully supported" [1] with the exception of non-related contaminated sediments issue

[1] State of Rhode Island, 2010 303(d) List, List of Impaired Waters, Final July 2011

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Social/Community Impacts

- Reduction of Beach Closures/More Swimming Days
- Associated Public Improvements
- Protection of Public Spaces
- Inconvenience to Private Property Owners
- Reduce In-system Surcharging
- Basement Back-ups & SSOs
- Sustainability

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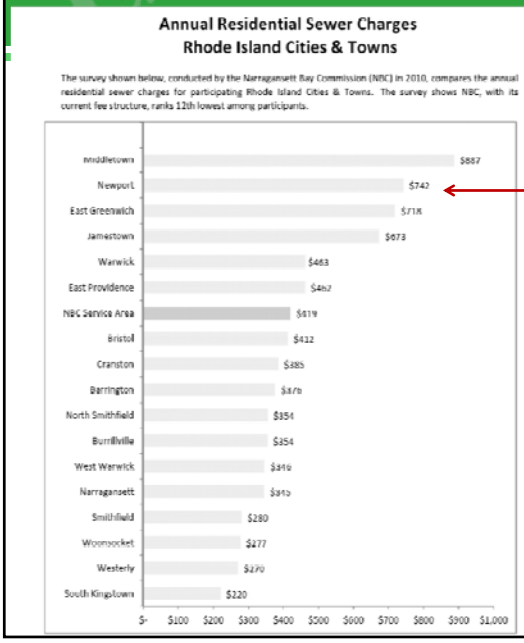
What Financial Burden Can Newport Afford per EPA?

- 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

	Residential Indicator (Cost Per Household as a Percent of Median Household Income)		
Permittee's Financial Capability Indicators Score	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

25

Wastewater Rates in Rhode Island



Does not include CSO fixed fee of $104 for 2010.

Source: 2010 Narragansett Bay Commission Residential Sewer User Survey

In this survey all Annual Residential Sewer Charges are based on standard consumption rate

Newport & NBC are the only CSO communities

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DISCUSSION

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NEXT MEETING

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Next Meeting

Topic: System Behaviors and Control Technologies
- Infiltration / Inflow
- Conveyance
- CSO controls

Date: March 8, 2012 ← Date for new meeting

Time: 3:00 PM

Location: Council Chambers

NOTE: If necessary we will schedule a meeting in April.

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Overview of System Behaviors and Control Technologies

Infiltration and Inflow
- Total system inflow by Source
- Relative Contribution of Public and Private Sources
- Variations in Inflow by Location
- Candidate technologies for I/I reduction

Conveyance Characteristics
- Overview of current characteristics
- Candidate technologies for improving performance

CSO Control Projects
- WPCP upgrade
- Storage
- Other

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Objective for the March Meeting

The objective of the March meeting is to discuss critical system behavior and technologies best equipped to meet Newport's prioritized evaluation criteria.

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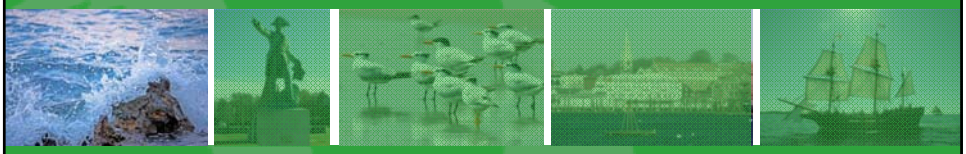

RESULTS FROM PRIORITIZATION EXERCISE

32

Newport Combined Sewer Overflow (CSO) Stakeholder Workgroup: Meeting #6

ATTENDEES: See Attachment 1

DATE & PLACE: February 9, 2012 @ 3:00 PM; City Hall Council Chamber, 43 Broadway Newport, RI

Welcome & Introductions

Julia Forgue introduced City staff as well as the CH2M HILL consultant team members.

Overview of CSO Program Schedule

Julia Forgue provided an overview of the, CSO Program Mission Statement and CSO Program schedule.

Overview of Agenda

Julia Forgue provided an overview of the agenda and asked if there were any questions before moving forward. A summary of the agenda follows:

1. Overview of the CSO Program schedule
2. Approval of previous meeting's minutes
3. Follow-up on Parking Lot items
4. Key Meeting Topics
    a. Alternatives Evaluation Process
    b. Exercise on Identifying Priorities
5. Questions
6. Next meeting information

Previous Meeting's Minutes

The minutes of the fourth meeting were approved.

Update on Parking Lot from Previous Meeting

Updates and answers to the two parking lot items from the previous meeting were presented.

The two parking lot questions were:

1. Is there an update on the number of verified catch basins?

    The number of verified catch basins has increased significantly over the last year as show in Exhibit 1 below which was presented at the meeting.

EXHIBIT 1
Summary of Catch Basin Inspection Status

Summary of Catch Basin Inspections Status			
Category	**February 2011**	**May 2011**	**February 2012**
City of Newport			
Connected to Sanitary Sewers		27	36
Connected to Storm Drains		911	1,622
Not yet confirmed	2,895	1,957	735
Subtotal	2,895	2,895	2,393
Owned by others			
Connected to Sanitary Sewers			2
Connected to Storm Drains			115
Not yet confirmed			272
Subtotal			389
Total	2,895	2,895	2,782

[1] Counts are based on the inventory in the GIS – which changes as inspections are performed.

Q: What are the criteria to identify if it is cost effective to disconnect these catch basins?
A: The City has money earmarked in the FY 2013 budget to disconnect these catch basins.

Q: Is disconnecting these catch basins a priority over repairs to the headworks at the WPCP?
A: No, these should be disconnected, but the headworks is also an asset management project that needs to be completed.

Q: How long will it take to complete the remaining catch basin inspections?
A: If the weather holds, they should be done in about 3-4 months.

2. Can an update on system improvements (WPCP, I/I removal, etc.) be provided?

A large number of improvements were made at the WPCP and in the collection system during 2011 and the Department of Utilities has plans to design and/or start additional improvements in 2012. A handout listing projects completed in FY 2011 and those planned for FY 2012 & 2013 was provided to the stakeholders and is included in Attachment 2.

Q: What is the extent of I/I from downspouts and sump pumps?
A: The I/I from downspouts and sump pumps is quite large, more than from public sources.

Q: What is the status of improvements to the headworks? There was a recommendation to consider vortex technology.

A: There have been no violations at the WPCP because of the headworks, therefore the City is waiting until the design criteria are defined in the System Master Plan. The headworks design is programmed in the City's CIP to start in FY 2013.

Alternatives Evaluation Process

Peter von Zweck of CH2M HILL presented an overview of the criteria that will be used for evaluating proposed solutions. Key topics presented included:

- Objectives for the meeting: to collect initial input toward prioritizing the criteria that will be used for evaluating proposed solutions.
- A handout for a group exercise was given to each of the stakeholders to take notes during the discussion and the exercise was completed at the end of the technical presentation. A copy of the handout is included as Attachment 3.
- Factors affecting selection of recommended system improvements:
    - Regulatory
    - Water quality benefits
    - Social impacts
    - Costs and affordability
- Key regulatory documents:
    - Clean Water Act
    - EPA CSO Policy
    - Consent Decree
- A key regulatory decision point is determining in the Collection System Capacity Assessment if CSOs can be eliminated through I/I reduction and current system storage (i.e. no additional storage or upgrades at the WPCP). We will be at this decision point in the next couple of months.
- Water Quality
    - Need to meet the water quality-based requirements of the Clean Water Act and protect sensitive areas
    - The City's Harbor water quality monitoring data was presented and is shown in Exhibit 2.
- Social/Community impacts
    - Reduction of beach closures/more swimming days
    - Associated public improvements
    - Protection of public spaces
    - Inconvenience to private property owners
    - Reduce in-system surcharging
    - Basement back-ups & SSOs
    - Sustainability
- Costs and affordability
    - Newport is classified as Mid-range financial capability, which would limit rates to 2% of annual median household income.

EXHIBIT 2
Newport Harbor Monitoring Results

Year	Total Samples Collected	Total Enterococci Exceedances+	Enterococci Exceedances Associated w/ Rainfall (but No CSO Event)	Enterococci Exceedances within 2 days of a CSO Event	Enterococci Exceedances Preceded by at least 24 hrs of Dry Weather
2008*	130	9	0	6	3
2009	530	4	1	1	2
2010	520	10	4	5	1
2011*	300	2	2	0	0
Total	1480	25	7	12	6

*2008 & 2011 are partial years.

Questions & Answers:

Q: Are there sensitive waters in the project area?
A: King Park Beach is a sensitive waters area, but the Wellington CSO Outfall has already been moved away from this area.

Q: Has Providence eliminated CSOs?
A: (Response from RIDEM) No. Narragansett Bay Commission has a 3-phase approach and is currently building Phase 2. When Phase 3 is completed, they will still be allowed up to 4 overflows per year. Boston is the only community that has been declared "done" in dealing with CSOs.

Q: Does EPA help CSO communities share information?
A: (Response from RIDEM) While CSO communities may look the same, but there are significant differences in the details. The City is doing the right thing by getting a good understanding of the collection system prior to planning.

Q: What if the City can't keep up with the deterioration of the system within affordability limits?

A: The City will continue with asset management but the SMP will identify more CSO elimination projects and the timing will be determined based upon affordability.

Q: Is the Consent Decree based on the Clean Water Act?
A: Yes, but the implementation schedule is the key as a longer schedule will have less financial impact.

Q: Can other dischargers to Newport Harbor/Narragansett Bay impact the water quality results?
A: (Response from RIDEM) For enterococci the results are localized.

Q: What could be sources of pollutants other than CSOs?

A: Stormwater and boats. (Response from RIDEM) If there is going to be more stormwater because of I/I reduction, we can't ignore that stormwater also has bacteria.

Q: Has the City's stormwater been sampled?

A: Not directly.

Q: What is the status of closures at King Park Beach?

A: Since reopening it was closed once which was unrelated to CSOs. All closure information can be found on the Department of Health web-site.

Q: Some streets in Newport flood. If there is more I/I removal, would more catch basins need to be put in?

A: Disconnection may have associated new stormwater infrastructure costs that need to be accounted for.

Q: What is the possibility of folding the program costs into the tax base rather than rates?

A: If this was implemented, capital projects would not be able to use revenue bonds and would have to go to general obligation bonds. This option can be evaluated.

Parking Lot:

- There were no questions placed in the Parking Lot.

Next Meeting

The next meeting was set for March 8, 2012 at 3pm at the Newport Police Station Assembly Room. The topic of the next meeting will be system behaviors and control technologies.

CSO Stakeholder Workgroup Meeting #6 Attendees

MEETING DATE:	Thursday February 9, 2012 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
Workgroup Members		
Justin McLaughlin	City Council	
Ray Smedberg	Ad Hoc Committee	
David McLaughlin (Alternate)	Ad Hoc Committee	
John McCain	ALN	
Roger Wells (Alternate)	ALN	
Tina Dolen	Aquidneck Island Planning Commission	
Chris Witt (Alternate)	Aquidneck Island Planning Commission	
Charles Wright	Beach Commission	
Kathleen Shinners (Alternate)	Beach Commission	
Bill Riccio	Dept. Public Services	
Eric Earls (Alternate)	Dept. Public Services	
Paige Bronk	Dept. Planning	
Bill Hanley (Alternate)	Dept. Planning	
Tim Mills	Harbor Master	
Mary E. Dever-Putnam	EPA	
James Carlson	NSN	
William Monaco (Alternate)	NSN	
Jody Sullivan	Newport County Chamber	
Ed Lopes (Alternate)	Newport County Chamber	
Evan Smith	NCCVB	
Cathy Morrison (Alternate)	NCCVB	
Shawn Brown	Middletown	
Tom O'Loughlin (Alternate)	Middletown	
Eric Beck	RIDEM	
Angelo Liberti (Alternate)	RIDEM	
Jim Brunnhoeffer	RWU	
B. Gokhan Celik (Alternate)	RWU	

MEETING DATE:	Thursday February 9, 2012 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
Topher ~~John Forgan~~ HAMBLETT	Save the Bay	TH
Wendy Waller (Alternate)	Save the Bay	
Tom Cornell	Resident	TC
Stuart K. Mills, Jr.	Resident	
Roger Slocum	Resident	~~RS~~
Ted Wrobel	Resident	
Other Attendees		
Julia Forgue	City of Newport	✓
Ken Mason	City of Newport	KEM
Mike Domenica	CH2M HILL	✓
Peter von Zweck	CH2M HILL	PVZ
Becky Weig	CH2M HILL	RJW
Jim Lauzon	United Water	

Attachment 2

Recent & Upcoming City of Newport Collection System and Wastewater Treatment Improvements

Collection System and Wastewater Treatment Improvements Completed in FY 2011

Project Type	Projects
I/I Reduction	• Verified private defect (roof leader and sump pump) disconnections
Infrastructure Renewal (Asset Management)	• Collection System – Completed replacement of Wellington Ave. Interceptor • Collection System – Completed rehabilitation of Thames St. Interceptor • Collection System – Completed high priority sewer replacement (based on revised plan) • Collection System – Cleaned and CCTV'd Narragansett Ave. Storage Conduit • Collection System - Replacement of sanitary sewer and storm drains - Sherman St. • CSO Treatment Facilities – Completed sedimentation basin modifications at Washington St. • FM – Completed condition assessment of Bliss Mine FM and replaced air relief valve ; FM determined to not be in need of any repairs • PS – Repaired main breaker at Long Wharf PS • PS - Repaired the roof at Wellington Ave. PS • PS – Replaced pump at Coddington Wharf PS • PS – Repaired building and rehabilitated grit chamber at Long Wharf PS • PS - Condition assessment at Beach PS • WPCP – Installed chemical induction mixers in chlorine contact tanks • WPCP – Rehabilitated 2 primary clarifiers • WPCP – Rehabilitated 1 final clarifier • WPCP – Installed solids metering equipment • WPCP – Returned 4 grit chambers to operational condition • WPCP – Returned 5 chlorine feed pumps to operational condition • WPCP – Returned 4 secondary clarifiers to operational condition • WPCP – Retrofitted 2 primary effluent pumps • WPCP – Installed new gear drive for 3rd effluent lift pump • WPCP – Completed improvements to belt filter press, conveyor and gravity thickener
New Facilities	• No new collection system or wastewater treatment facilities were constructed in 2011.

Collection System and Wastewater Treatment Improvements Planned for Fiscal Years 2012 & 2013

I/I Reduction	• Design & construction for disconnection of 36 catch basins identified as connected to the sanitary sewer system • Replace 30 vented manhole covers (out for bid) • Continued enforcement of Sewer Use Ordinance for disconnection of downspouts and sump pumps • Installation of tide gates to storm drainage system at Marsh St. (complete) • Installation of tide gates to storm drainage system on Bridge St.
Infrastructure Renewal (Asset Management)	• Collection System – Construction of collection system repairs (Carroll Ave. & Old Fort Rd. area) • Collection System - Raise paved over manholes • PS – Electrical upgrades at the Ruggles Ave. PS • PS – Construct new Beach PS • WPCP – Retrofit 3rd primary effluent pump • WPCP –Headworks Improvements & Upgrades
New Facilities	• No new collection system or wastewater treatment facilities are planned for construction in FYs 2012 & 2013.

Additional projects will be identified as part of System Master Plan which will be submitted to EPA in November 2012.

Attachment 3

Prioritization of Evaluation Criteria Affecting Recommended Controls

Please weight the below criteria 0-10, with 10 being of highest importance and 0 being of no importance.

Factors	Weight
Regulatory	
- Compliance with Clean Water Act requirements	
- Compliance with National CSO Policy	
- Compliance with implementation schedule set forth in CD	
Water Quality	
- Meet WQ standards in Newport Harbor	
- Support designated uses in Newport Harbor	
- Elimination of CSOs	
- Control of other sources of pollutants	
Social/Community Impacts	
- Reduction of beach closures/more swimming days	
- Associated public improvements (beautification, etc. from green controls) – or protection of existing public space?	
- Inconvenience to private property owners	
- Reduce in-system surcharging, basement backups & SSOs	
- Sustainability	

Costs/Affordability	
- Cost effectiveness based on $/gallon CSO removed	
- Cost effectiveness for $/CSO event eliminated	
- Cost effectiveness based on $/days violation eliminated	
- Minimizing capital cost	
- Minimizing long-term O&M costs	
- Keeping rates under/at affordability limits	

MEETING AGENDA

CSO Stakeholder Workgroup Meeting #6A Agenda (#10-039)

MEETING DATE: March 8, 2012

MEETING TIME: 3:00 PM

VENUE: City of Newport Council Chambers, City Hall

1. Welcome & Introductions
2. Overview of the Agenda
3. Review of the Workgroup guidelines and schedule
4. Approval of previous meeting's minutes
5. Follow-up on Parking Lot items
6. Update on Middletown program
7. Update on Navy program
8. Key Meeting Topic – System Behaviors & Control Technologies
    a. I/I
    b. Conveyance
    c. CSO Controls
9. Next meeting information

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

Newport Police Station – Assembly Room

March 8, 2012

1

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

2

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.

3

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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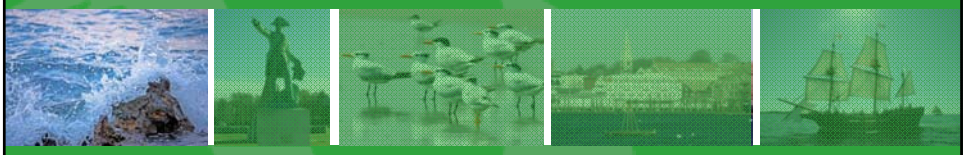

OVERVIEW OF THE STAKEHOLDER WORKGROUP

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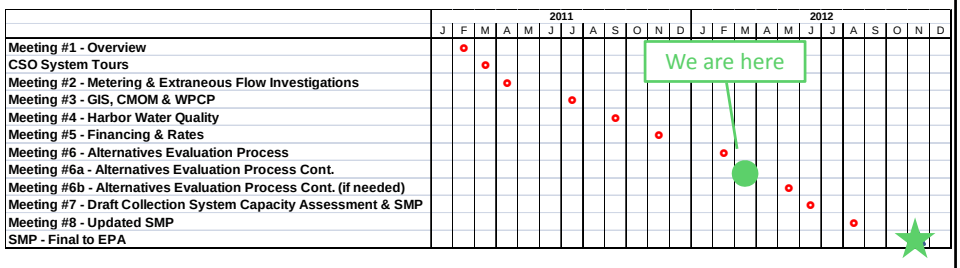
Schedule of CSO Stakeholder Meetings



- 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.

6

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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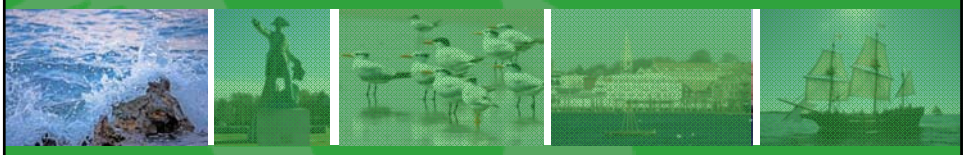

PARKING LOT FOLLOW-UP ITEMS – NONE THIS MEETING

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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

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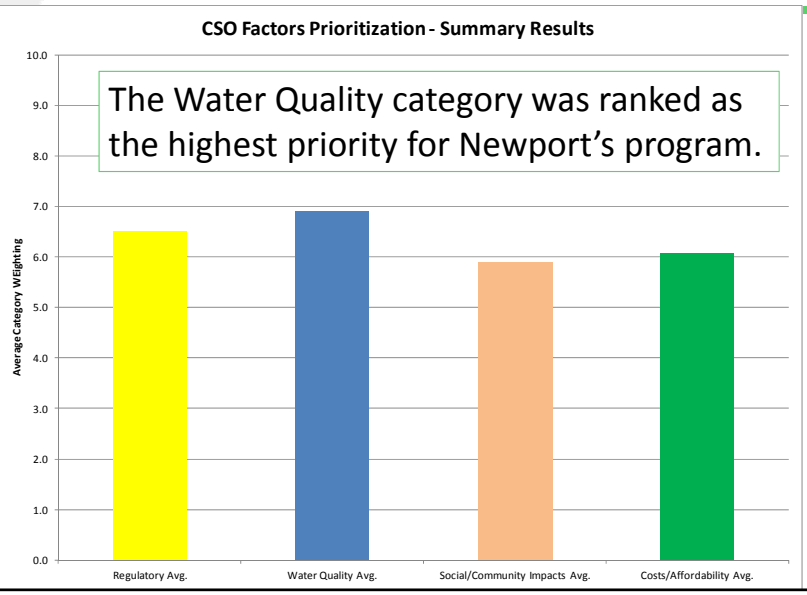
Results from the Stakeholder's Initial Prioritization of Evaluation Criteria



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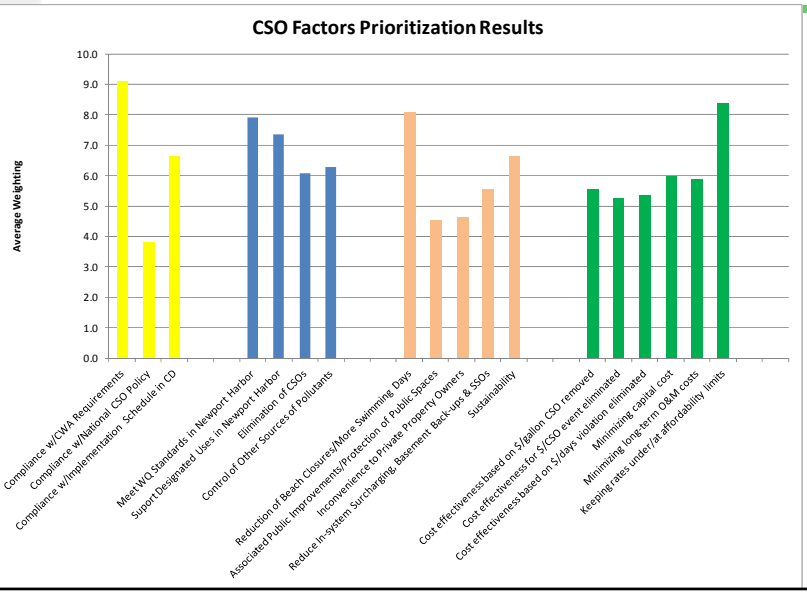
Results from the Stakeholder's Initial Prioritization of Evaluation Criteria



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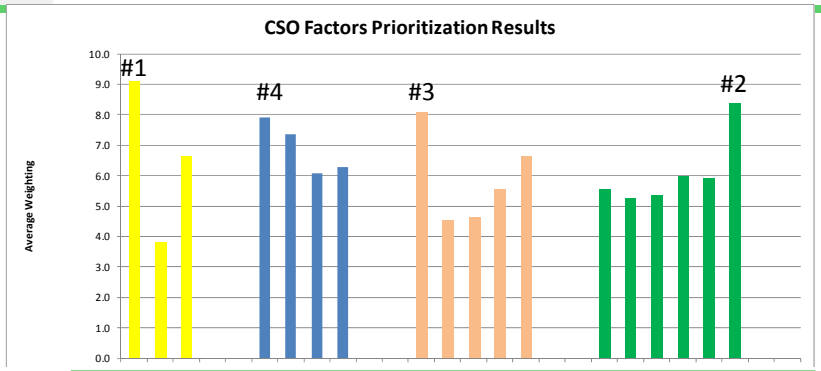
Results from the Stakeholder's Initial Prioritization of Evaluation Criteria



The top 4 criteria:

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

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Stakeholder Discussion Priorities and Effects on Planning

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SYSTEM BEHAVIORS AND CONTROL TECHNOLOGIES

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Overview of System Behaviors and Control Technologies

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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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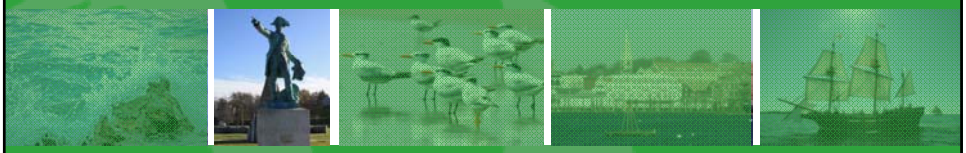

INFILTRATION & INFLOW

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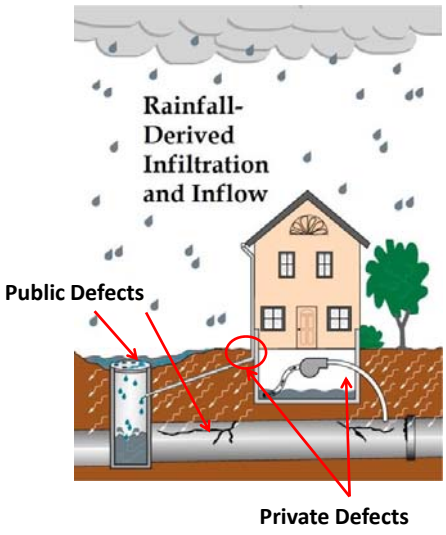
Control Technologies for Infiltration/Inflow Reduction



- Examples of private sources
  - Roof leader
  - Sump pump

  Disconnect
  - Area/driveway drain
  - Cracked service lateral
  - Uncapped cleanout
- Examples of public sources
  - Catch basins
  - Area drain

  Disconnect
  - Manhole defects (seals, cracks, cover holes)
  - Sewer line defects (cracks)

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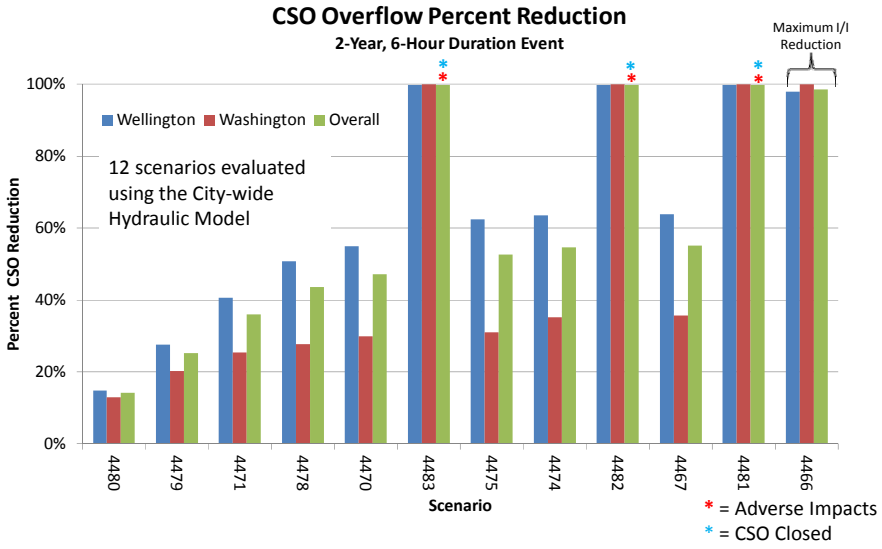
Model Results for Removing Catchbasins, Downspouts and Sump Pumps



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

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- ……
- ……

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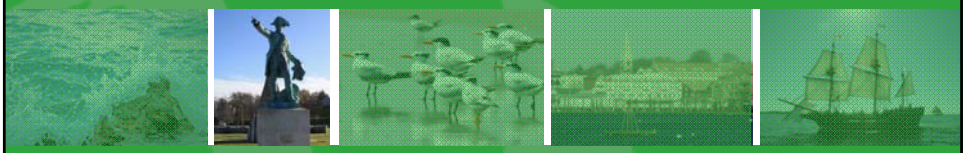

CONVEYANCE AND PLANT

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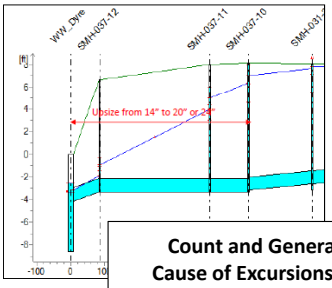
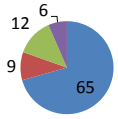
Conveyance Characteristics of the Collection System

- 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

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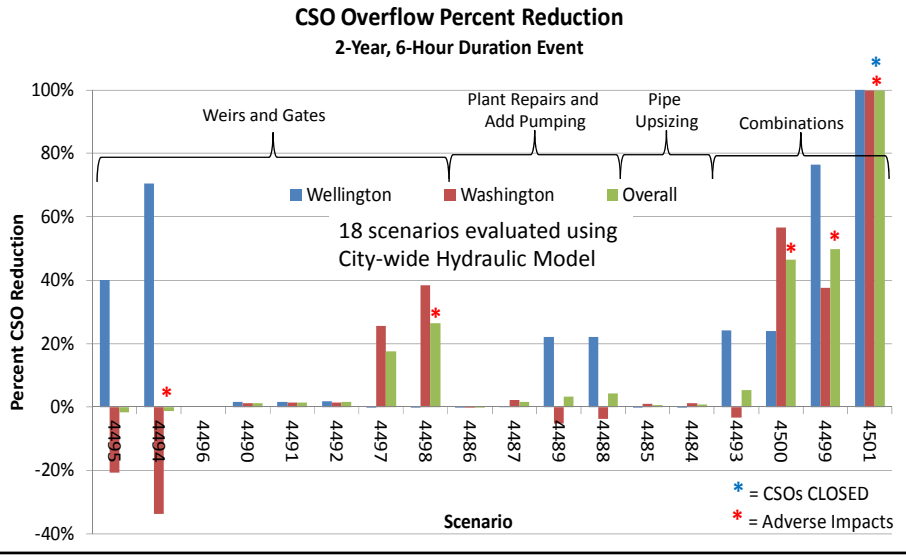
Model Results for Conveyance and Plant Optimization



Stakeholder Discussion
Conveyance and Plant Optimization

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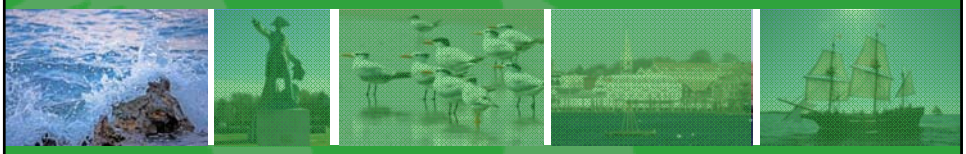

COMBINING TECHNOLOGIES TO MEET CSCA REQUIREMENTS

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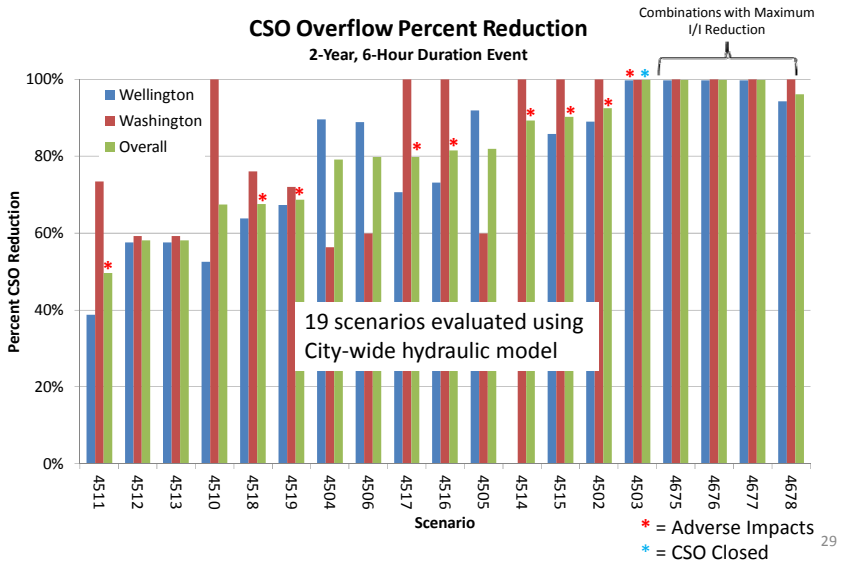
Model Results of Combinations of Control Technologies



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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

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Regulatory Framework for Evaluating System Improvements

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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…….

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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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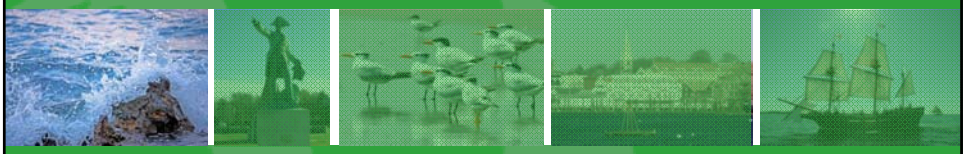

DISCUSSION

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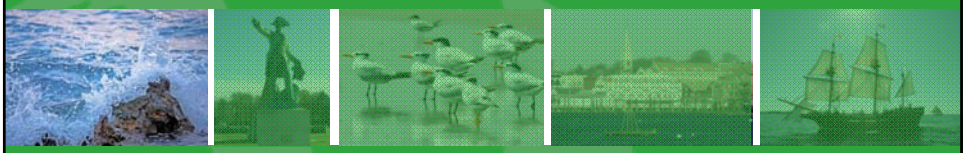

NEXT MEETING

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Next Meeting

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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

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FINAL - Newport Combined Sewer Overflow (CSO) Stakeholder Workgroup: Meeting #6A

ATTENDEES: See Attachment 1

DATE & PLACE: March 8, 2012 @ 3:00 PM; Newport Police Station Assembly Room, 120 Broadway Newport, RI

Welcome & Introductions

Julia Forgue introduced City staff as well as the CH2M HILL consultant team members.

Overview of Agenda

Julia Forgue provided an overview of the agenda and asked if there were any questions before moving forward. A summary of the agenda follows:

1. Overview of the CSO Program schedule
2. Approval of previous meeting's minutes
3. Follow-up on Parking Lot items
4. Middletown
5. Naval Station Newport
6. Key Meeting Topics
    a. Results of Stakeholder Prioritization Criteria
    b. System Behaviors & Control Technologies
        i. Infiltration/Inflow
        ii. Conveyance
        iii. CSO Controls
7. Next meeting information

Overview of CSO Program Schedule

Becky Weig provided an overview of the, CSO Program Mission Statement and CSO Program schedule.

Previous Meeting's Minutes

The minutes of Meeting #6 were approved.

Update on Parking Lot from Previous Meeting

There were no Parking Lot items from the previous meeting.

Naval Station Newport

Jim Carlson from Naval Station Newport (the Station) and a member of the CSO Stakeholder Workgroup presented an update on the Station's sanitary sewer program.

The Station completed a lot of sanitary sewer work in the mid-1990s to separate stormwater from the sanitary sewer system. This reduced flow by about one-third to approximately 1.2 MGD.

The Station completed a sewer system assessment last spring and did identify some stormwater connections to the sanitary sewer system. They have scheduled these to be disconnected in 2014. In addition the Station will be completing manhole rehabilitation work over the next few summers.

The Station cleans and performs CCTV inspections of the sanitary sewer system on a 5-year cycle.

The Station also has plans to improve the metering at smaller lift stations.

Questions & Answers:
Q: Does the Station have any storage?
A: No.

Q: Is the Station seeing an increase in flows from additional schools being hosted at the site?
A: No. With the reduction of housing and demolition of older buildings on the station, the flows have been about the same. In addition to the demolition of older buildings, the Station has implemented a significant amount of water conservation.

Q: What is the Station's flow allotment per the contract?
A: 2.5 MGD.

Q: Does metering show an impact from rain events on the Station's system?
A: Yes. It depends on the storm event.

Middletown

Tom O'Loughlin, DPW Director for the Town of Middletown (the Town) and member of the CSO Stakeholder workgroup, presented an update on the Town of Middletown's sanitary sewer program.

The Sewer System Evaluation Study was completed in 2003. From the Study it was determined that the prioritized projects and areas were Bailey Brook Interceptor, lining rehabilitation of approximately 700 sanitary manholes, sliplining of sanitary sewers in the Coddington Manor, Chase Estates, Birchwood Manor and Evergreen Park areas.

The Town has completed all of the recommendations from the 2003 Sewer System Evaluation Study except the Forest Ave. project which will be going out to bid in about 2 months.

The Town has made its SSO Alternatives and Stormwater Alternatives reports available to the stakeholder workgroup. In these reports it states that the Town is going to continue to investigate and remove sources of I/I. For I/I investigation and removal the Town plans to perform CCTV of the sewer lines and private laterals in order to identify priority areas for repair and rehabilitation.

For stormwater, the Town has started work on the Esplanade project to relocate a stormwater outfall off shore. The Town is studying the feasibility of creating a stormwater utility.

Questions & Answers:

Q: In the SSO Alternatives Report the peak infiltration seems to be from some key subareas, is this true?
A: Yes, these are the target subareas on the priority list. There are a lot of clay pipes in these areas and no stormwater infrastructure. All of the properties in these areas have been inspected and sump pumps disconnected, but the areas need to be reinspected. If funding is available the Town may do some private lateral repairs.

Q: SSOs at Wave Ave. Pump Station have been significantly reduced since 2010. What has changed? Is it reduced I/I or is more flow being pushed to Newport?
A: Flow from the Wave Ave. Pump Station to Newport is the same. There is a design restriction on the pump station so there could be no increase in pumping to Newport. The reduction in SSOs is due to reduced I/I.

Q: Does Newport have data for flows from Wave Ave. Pump Station?
A: Yes, Newport has had access to the SCADA data for the pump station for 3 years.

Q: How are Middletown flows impacting Newport? How will Newport account for Middletown's planned I/I reduction?
A: This will be covered during the key topics of today's meeting. According to DEM it is hard to estimate the amount of I/I reduction that will be achieved.

Key Meeting Topics

Results of Stakeholder Prioritization of Criteria

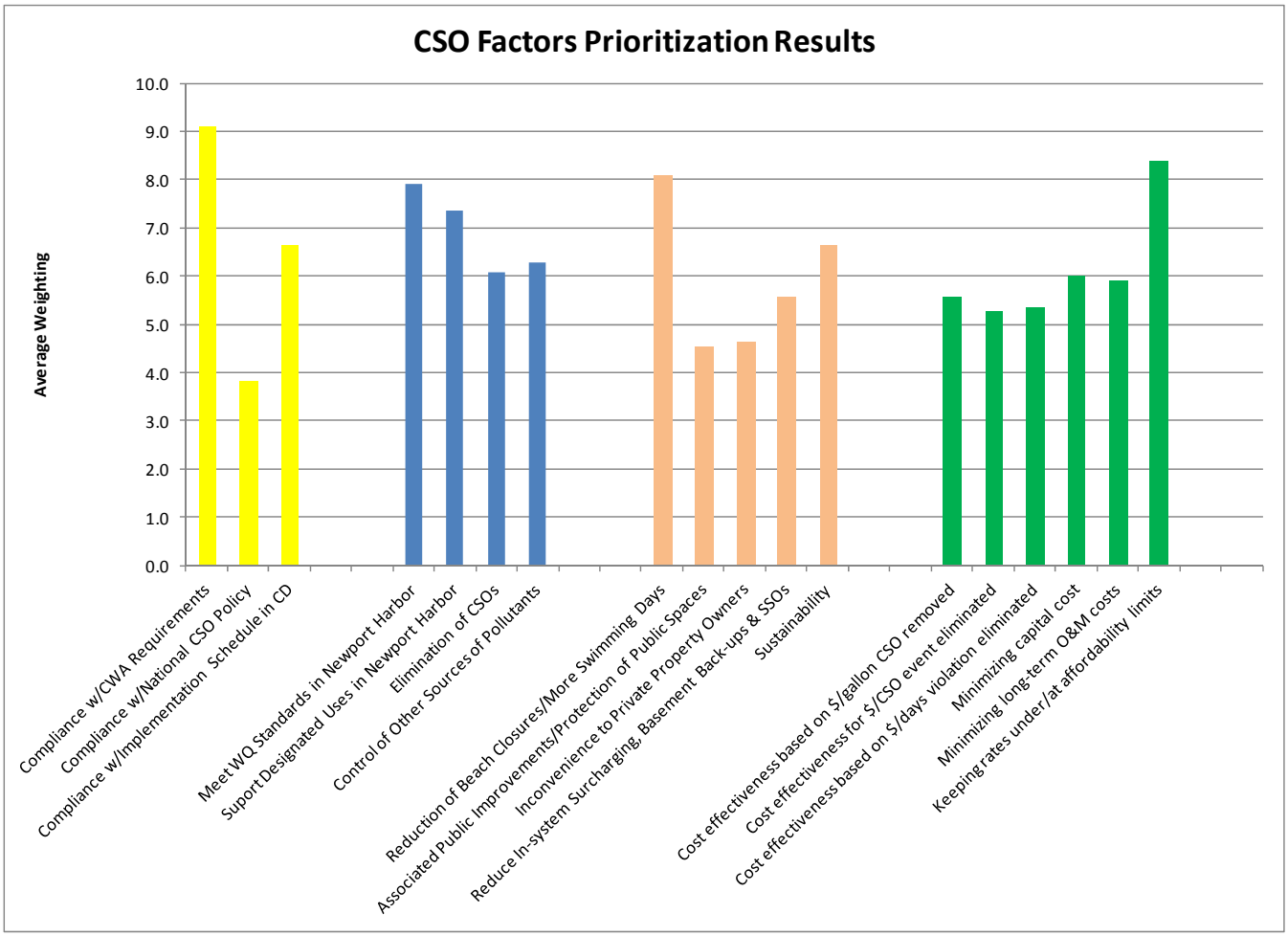
Becky Weig presented the results of the stakeholder prioritization exercise from the previous meeting. The full results are presented in Exhibit 1. In summary the 4 highest ranked categories were:

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

The participants then discussed the results and why these criteria were their priorities. Key issues from the discussion were:

- For maintaining affordable rates, the connection between the total program cost and the implementation schedule will need to be explained.
- For reducing beach closures, key items that will be important in determining the importance of this criteria will be what does it cost to keep the beach open, how many days per year are estimate for closure, and other swimming areas that aren't designated beaches should also be considered.
- For maintaining water quality standards, it was ranked high because of the impact on tourism and public confidence on the use of the Harbor.
- For compliance with the Clean Water Act, it will be difficult to measure against, but the CD and implementation schedule should lay out the steps to achieve compliance.

EXHIBIT 1
Results of Stakeholder Prioritization of Criteria



Collection System Capacity Assessment – System Behaviors and Control Technologies

Peter von Zweck and Jen Reiners presented the preliminary findings of the Collection System Capacity Assessment (CSCA) which included the system behaviors and the control technologies that could be considered at this phase of the program:

- I/I Reduction
  - Control Technologies
  - Model Results
- Conveyance System and Plant Improvements
  - Overview of current characteristics
  - Control technologies for optimization of the existing system
  - Model results for conveyance and plant optimization

All of the preliminary results presented were for a 2-year, 6-hour storm. For I/I reduction alone, there were 12 scenarios evaluated using the hydraulic model and the preliminary results presented showed that I/I reduction alone, even at the maximum reduction, would not result in the elimination of CSOs. For conveyance and plant optimization, there were 18 scenarios evaluated using the hydraulic model

and the preliminary results presented showed that conveyance and plant optimization alone would not results in the elimination of CSOs. For combinations of I/I reduction and conveyance and plant optimization, 19 scenarios were evaluated using the hydraulic model and the preliminary results showed that there were a few combinations that included maximum I/I reduction in conjunction with conveyance and plant optimization may result in CSO elimination for a 2-year, 6-hour storm, but it was noted that the maximum level of I/I reduction may not be realistically fesible.

Questions & Answers:
Q: How much more capacity would be needed at the WPCP with reasonable I/I reduction?
A: That is something that will be covered at the next meeting.

Q: Is the goal to reduce CSO at both Wellington and Washington, or just one?
A: Both.

Q: Did the analysis provide any interesting or unexpected findings?
A: Two findings were interesting or unexpected:
- The amount of I/I attributed to private infrastructure was much more than seen in other CSO communities.
- The significance of changing the weirs on Thames St. was greater than expected.

Q: In the System Master Plan (SMP) is blended flow at the WPCP an option?
A: From the regulatory front this is an emerging area for RIDEM, but they would prefer to see full secondary treatment.

Parking Lot:

- There were no questions placed in the Parking Lot.

Next Meeting

The next meeting was set for May 3, 2012 at 3pm at Newport City Hall Council Chambers. The topic of the next meeting will be system behaviors and control technologies.

CSO Stakeholder Workgroup Meeting #6A Attendees

MEETING DATE:	Thursday March 8, 2012 @ 3:00 PM	
LOCATION:	Police Station Assembly Room – Newport, RI	
Name	**Affiliation**	**In Attendance**
Workgroup Members		
Justin McLaughlin	City Council	
Ray Smedberg	Ad Hoc Committee	
David McLaughlin (Alternate)	Ad Hoc Committee	
John McCain	ALN	
Roger Wells (Alternate)	ALN	
Tina Dolen	Aquidneck Island Planning Commission	
Chris Witt (Alternate)	Aquidneck Island Planning Commission	
Charles Wright	Beach Commission	
Kathleen Shinners (Alternate)	Beach Commission	
Bill Riccio	Dept. Public Services	
Eric Earls (Alternate)	Dept. Public Services	
Paige Bronk	Dept. Planning	
Bill Hanley (Alternate)	Dept. Planning	
Tim Mills	Harbor Master	
Mary E. Dever-Putnam	EPA	
James Carlson	NSN	
William Monaco (Alternate)	NSN	
Jody Sullivan	Newport County Chamber	
Ed Lopes (Alternate)	Newport County Chamber	
Evan Smith	NCCVB	
Cathy Morrison (Alternate)	NCCVB	
Shawn Brown	Middletown	
Tom O'Loughlin (Alternate)	Middletown	
Eric Beck	RIDEM	
Joseph Haberek for Angelo Liberti (Alternate)	RIDEM	
Jim Brunnhoeffer	RWU	
B. Gokhan Celik (Alternate)	RWU	

MEETING DATE:	Thursday March 8, 2012 @ 3:00 PM	
LOCATION:	Police Station Assembly Room – Newport, RI	
Name	**Affiliation**	**In Attendance**
~~John Forgan~~ DAVID PRESCOTT	Save the Bay	DRP
Wendy Waller (Alternate)	Save the Bay	
Tom Cornell	Resident	TC
Stuart K. Mills, Jr.	Resident	
Roger Slocum	Resident	
Ted Wrobel	Resident	
Other Attendees		
Julia Forgue	City of Newport	
Ken Mason	City of Newport	KM
Mike Domenica	CH2M HILL	
Peter von Zweck	CH2M HILL	PVZ
Becky Weig	CH2M HILL	BKW
Jim Lauzon	United Water	
Roger Wells	ALN	RW

MEETING AGENDA

CSO Stakeholder Workgroup Meeting #6B Agenda (#10-039)

MEETING DATE: May 3, 2012

MEETING TIME: 3:00 PM

VENUE: City of Newport Council Chambers, City Hall

1. Welcome & Introductions
2. Overview of the Agenda
3. Review of the Workgroup guidelines and schedule
4. Approval of previous meeting's minutes
5. Follow-up on Parking Lot items
6. Key Meeting Topics
    a. Collection System Capacity Assessment Results
    b. System Behaviors & SMP Control Technologies
7. Next meeting information

Welcome & Introductions

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

2

Objective for This Meeting

The objective for this meeting is to review level of control and preliminary findings from the CSCA and to discuss potential SMP control technologies that are aligned to meeting the stakeholder's priorities.

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Meeting Agenda

- Overview of the CSO Program Schedule
- Approval of Previous Minutes
- Parking Lot Follow-up Items
- Key Meeting Topics
  - Results of Stakeholder Prioritization of Evaluation Criteria – Round 2
  - Collection System Capacity Assessment Findings – Larger Storms
  - Potential SMP Control Technologies
- Future Meetings, Wrap-up, Comments

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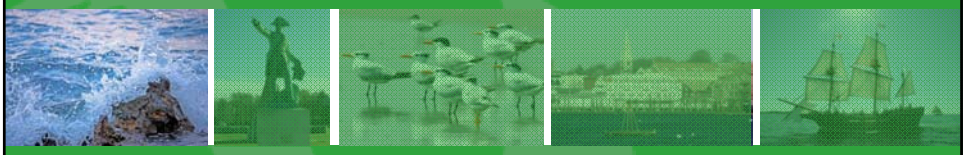

OVERVIEW OF THE STAKEHOLDER WORKGROUP

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Schedule of CSO Stakeholder Meetings

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	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.

6

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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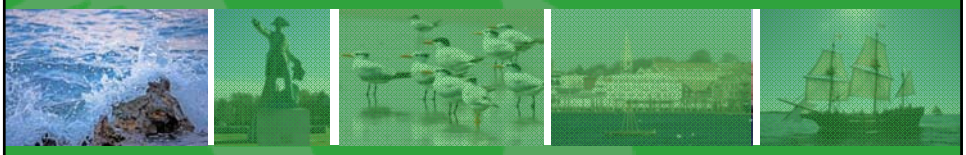

PARKING LOT FOLLOW-UP ITEMS – NONE THIS MEETING

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RESULTS OF STAKEHOLDER PRIORITIZATION OF EVALUATION CRITERIA – ROUND 2

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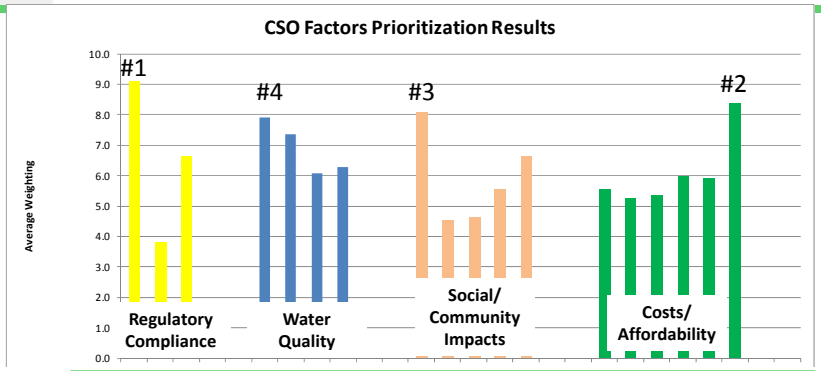
Results from the Stakeholder's Initial Prioritization of Evaluation Criteria



The top 4 criteria:

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

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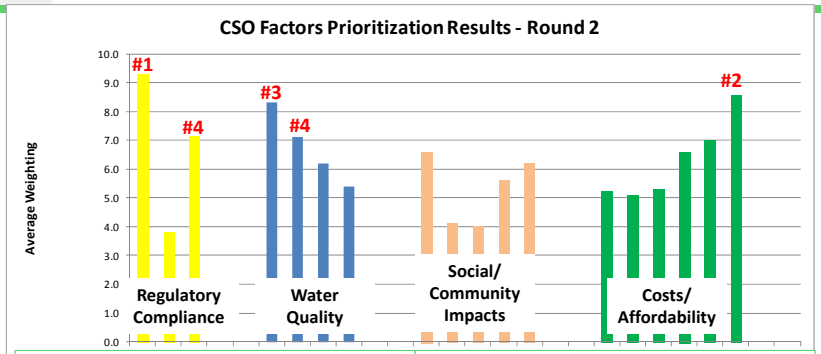
Results from the Stakeholder's 2nd Prioritization of Evaluation Criteria



1st Evaluation, the top 4 criteria:

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

2nd Evaluation, the top 4 criteria:

1. Meeting CWA requirements
2. Maintaining affordable rates
3. Meeting WQ standards
4. Compliance w/Implementation Schedule & Supporting Designated Uses in Newport Harbor

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SYSTEM BEHAVIORS AND CONTROL TECHNOLOGIES – COLLECTION SYSTEM CAPACITY ASSESSMENT

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Overview of System Behaviors and Control Technologies

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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 applies if wet weather discharges cannot be eliminated cost effectively with CSCA technologies

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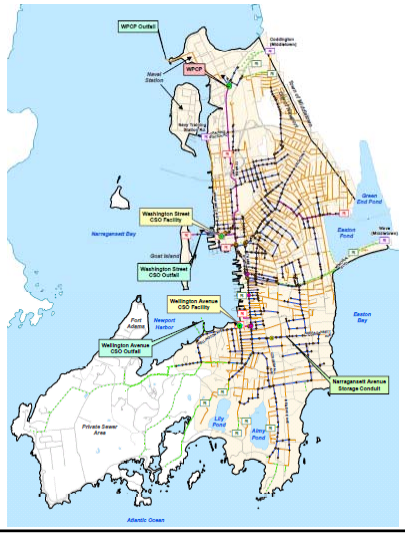
Hydraulic Model Background

The hydraulic model is the key tool being used to analyze CSCA and SMP control technologies.

- Hydraulic model basic information
  - Mike Urban – model software
  - Includes all combined & sanitary sewer pipes of 12" or greater and key smaller diameter pipes
  - Simulates all flow contributed by City of Newport, Town of Middletown, Navy & Private Sewer Area where they enter the system
  - Includes all public Force Mains
  - Includes all regulator structures (i.e. weirs)
  - Includes both CSO Treatment Facilities & WPCP



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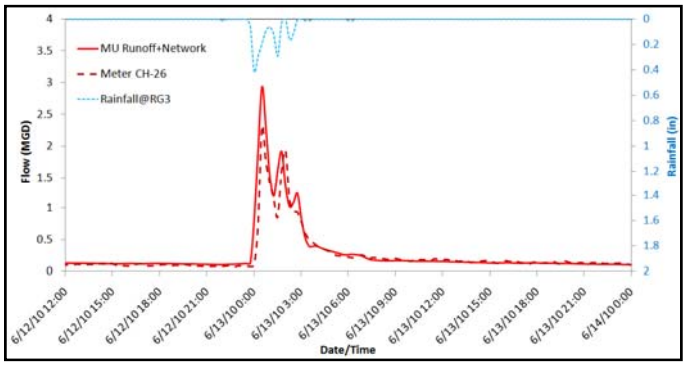
Hydraulic Model - Calibration

Calibration of a hydraulic model is important to ensure that the model accurately represents the collection system behaviors.

- Newport's model was first calibrated in April 2010
  - Calibrated to 3 events from 2010
  - Verified to 1 event from 2010
- Prior to starting the CSCA, the model was updated and recalibrated in 2011 to account for recent system improvements



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Collection System Improvements Included in Hydraulic Model

- The September 2011 hydraulic model updates & calibration incorporated key system improvements into the model:
  - 2007 Catch Basin Separation
  - 2009 Long Wharf FM Emergency Repair
  - 2010 Railroad Interceptor Repairs
  - 2010 Area 6 Catch Basin Separation
  - 2010 Phase 1 High Priority Sewer Repairs
  - 2011 Wellington Ave. Interceptor Replacement
  - 2011 Thames St. Interceptor Rehabilitation – Interceptor lining was not complete, but key hydraulic adjustments, such as removal of weirs and sediment were completed prior to calibration storm event
  - Any disconnects prior to April 2011

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Overview of CSCA Findings Presented at Meeting #6A

- Findings were for a 2-yr, 6-hr duration storm
- Model results indicated that no single control technology achieved CSO elimination
- Model results indicated that a combination of control technologies do not achieve CSO elimination without going to extreme levels of I/I reduction
- Discussion at meeting #6A indicated that elimination for a 2-yr, 6-hr storm would not qualify as “elimination”

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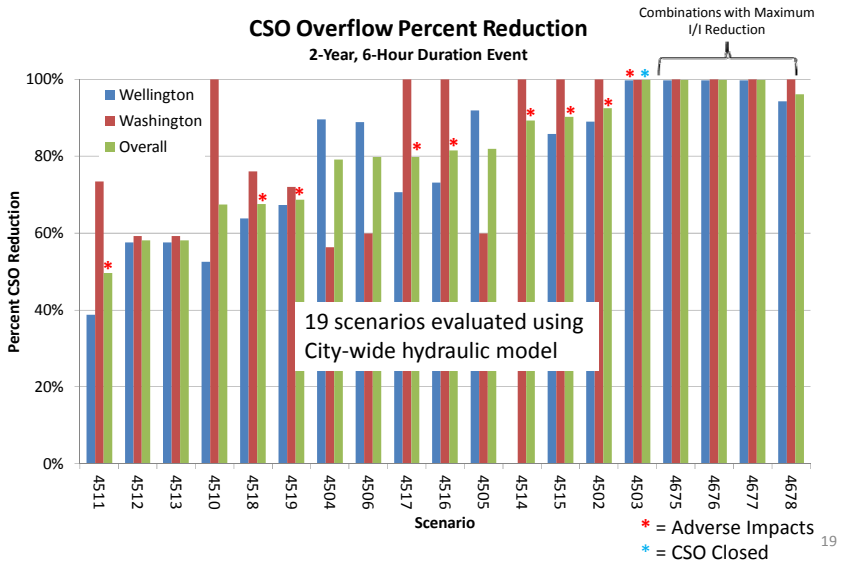
Model Results of Combinations of Control Technologies



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Methodology to Calculate Estimated City-wide I/I Reductions

Scenario	Methodology
Conservative – 36% I/I reduction city-wide	• Based on field investigations of connections and defects • City-wide counts were projected based on quantities of inspections completed to date • Removal of all catch-basins • Removal of 92% of downspouts & 33% sump pumps
Planning – 46% I/I reduction city-wide	• Based on field investigations of connections and defects • City-wide counts were projected based on quantities of inspections completed to date • Removal of all catch-basins, downspouts & sump pumps
Maximum – 65% I/I reduction city-wide	• Based on 1-yr of flow measurements at 35 meter locations • Average RDII rates over 29 events vary from 2 – 22 gal/in/lf among metersheds • Changed model parameters to RDII rates of 2-6 gal/in/lf for all metersheds • Required reductions ranging from 10 – 80% by metershed

Field Investigation Data - Citywide

Type	Count of Existing Connections	Percent of Existing Verified	Count of Projected Connections	Total Potential Connections (Existing +Projected)
Catch Basins	33	57%	17	50
Downspouts	3,241	41%	2,960	6,201
Sump Pumps	945	41%	1,425	2,370

Note: Based on field inspections completed through January 2012

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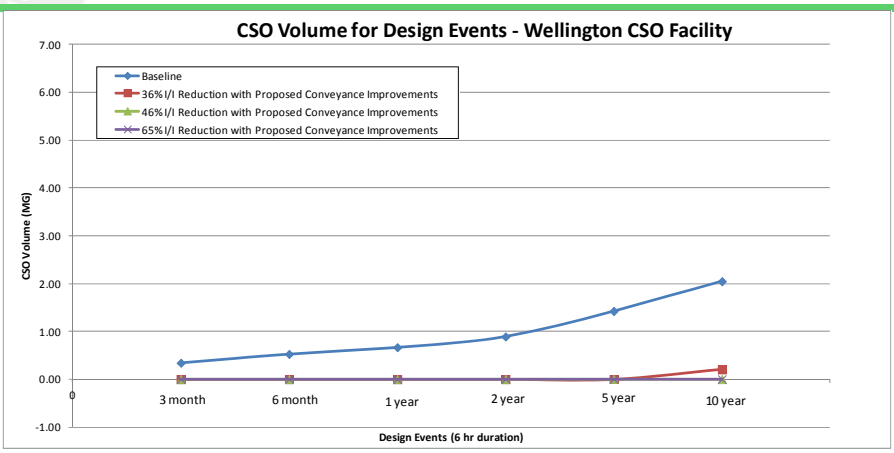
Model Results for Wellington Area



Proposed Conveyance Improvements include:

- Pipe upsizing for locations with identified capacity issues or that cause system bottlenecks
- Increasing the weir heights for the 5 weirs on the parallel (twin) 54" pipes and the weir on the pipe that connects Thames Street to the Wellington CSO Facility
- Increasing pumping at the Wellington CSO Facility and the Long Wharf Pump Station by operating the standby pumps during peak flow periods.

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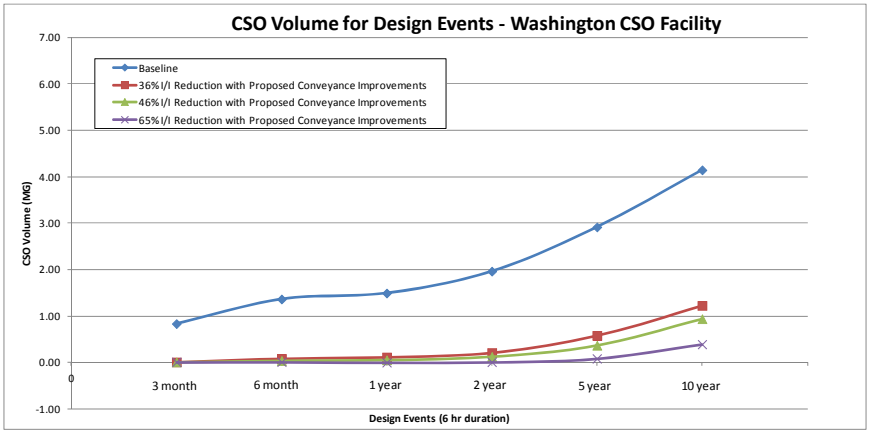
Model Results for Washington Area



Proposed Conveyance Improvements include:

- Pipe upsizing for locations with identified capacity issues or that cause system bottlenecks
- Increasing the weir heights for the 5 weirs on the parallel (twin) 54" pipes and the weir on the pipe that connects Thames Street to the Wellington CSO Facility
- Increasing pumping at the Wellington CSO Facility and the Long Wharf Pump Station by operating the standby pumps during peak flow periods.

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DISCUSSION

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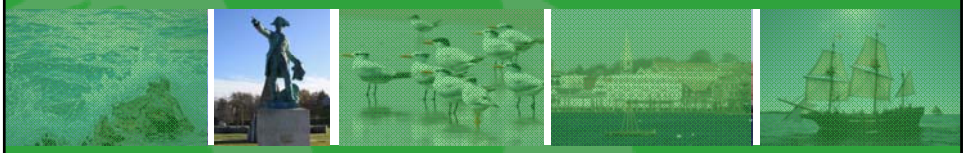

SMP CSO CONTROL TECHNOLOGIES

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Regulatory Framework for Evaluating System Improvements

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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…….

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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

CEPT

CEPT – adding additional chemicals (i.e. ferric chloride or alum) to the primary clarifiers get more solids settling

- Benefits
  - Allows more flow through the WPCP with existing footprint – no capital investment
- Drawbacks
  - Greater O&M costs
  - Larger volume of solids for disposal
  - Would need to negotiate a waiver for 85% TSS removal during wet weather

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WPCP Flow Upgrades

- Benefits:
  - Would allow more flow through WPCP, thereby reducing CSOs

- Drawbacks:
  - Limited footprint
  - Limited conveyance to WPCP of Long Wharf FM could require upsizing or parallel FM
  - Large capital investment

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Storage: Off-line Facilities

Offline storage takes combined flow to a storage facility that is not a part of the dry weather flow conveyance system.

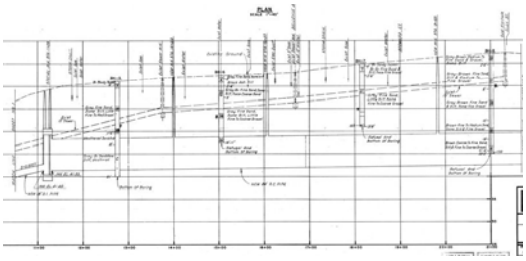
- Benefits
  - Multiple locations are viable options allowing maximization of CSO reduction
  - Can be low capital cost
  - Gives the City operational flexibility

- Drawbacks
  - Additional facilities requiring O&M

Storage: In-Line Conduits

In-line storage holds combined flow in a storage facility that is a part of the dry weather flow conveyance system.

- Benefits
  - Can be low capital cost
  - Within an existing utility corridor minimizing disruption/need for new land
  - Provides operational flexibility
- Drawbacks
  - Additional facilities requiring O&M



Existing Narragansett Storage Conduit Schematic

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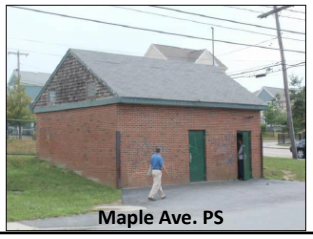
New Conveyance Facilities

New conveyance facilities could consist of new pipes or pump stations.

- Benefits
  - Can improve system operations
- Drawbacks
  - Additional facilities requiring O&M



Maple Ave. PS

Green Technologies

Green technologies may include porous pavement, green roofs, rain gardens.

- Benefits
  - Low capital cost
  - Increases natural groundwater recharge
  - Offers some level of stormwater treatment
  - Can be visually attractive

- Drawbacks
  - Need a large number to achieve significant CSO reduction
  - Require additional O&M costs
  - Newport specific limitations with soils and ledge

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CSO Treatment Facility Upgrades

CSO treatment facility upgrades may include improved or additional CSO treatment.

- Benefits
  - Better CSO effluent quality
- Drawbacks
  - Additional facilities requiring O&M

Wellington Ave. CSO Treatment Facility

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Review Potential CSO Controls

- 15-minute break
- Review maps at each station
- Suggest additional CSO controls
- Report back after break

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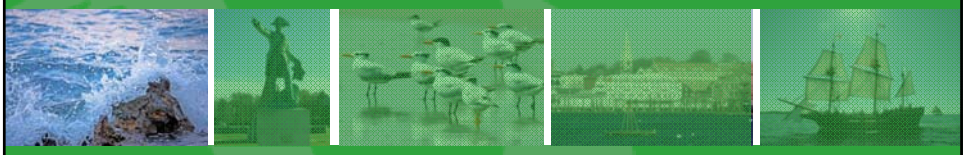

NEXT MEETING

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Next Meeting

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Topics: 1) Model Results for SMP Control Technologies
2) Draft SMP Recommendations

Date: July 12, 2012

Time: 3:00 PM

Location: Council Chambers

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DISCUSSION

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FINAL - Newport Combined Sewer Overflow (CSO) Stakeholder Workgroup: Meeting #6B

ATTENDEES: See Attachment 1

DATE & PLACE: May 3, 2012; City Hall , Council Chambers

Welcome & Introductions

Julia Forgue introduced City staff as well as the CH2M HILL consultant team members.

Overview of Agenda

Julia Forgue provided an overview of the agenda and asked if there were any questions before moving forward. The objective for this meeting is to review level of control and preliminary findings from the CSCA and to discuss potential SMP control technologies that are aligned to meeting the stakeholder's priorities. A summary of the agenda follows:

1. Overview of the CSO Program schedule
2. Approval of previous meeting's minutes
3. Follow-up on Parking Lot items
4. Key Meeting Topics
    a. Results of Stakeholder Prioritization of Evaluation Criteria – Round 2
    b. Collection System Capacity Assessment Findings – Larger Storms
    c. Potential SMP Control Technologies
5. Next meeting information

Overview of CSO Program Schedule

Becky Weig provided an overview of the CSO Program Mission Statement and CSO Program schedule.

Previous Meeting's Minutes

The minutes of Meeting #6A were approved with the following edits under Next Meeting: the date and location were changed from March 8, 2012 at 3pm at the Newport Police Station Assembly Room to May 3, 2012 at 3pm at the City Hall Council Chambers.

Update on Parking Lot from Previous Meeting

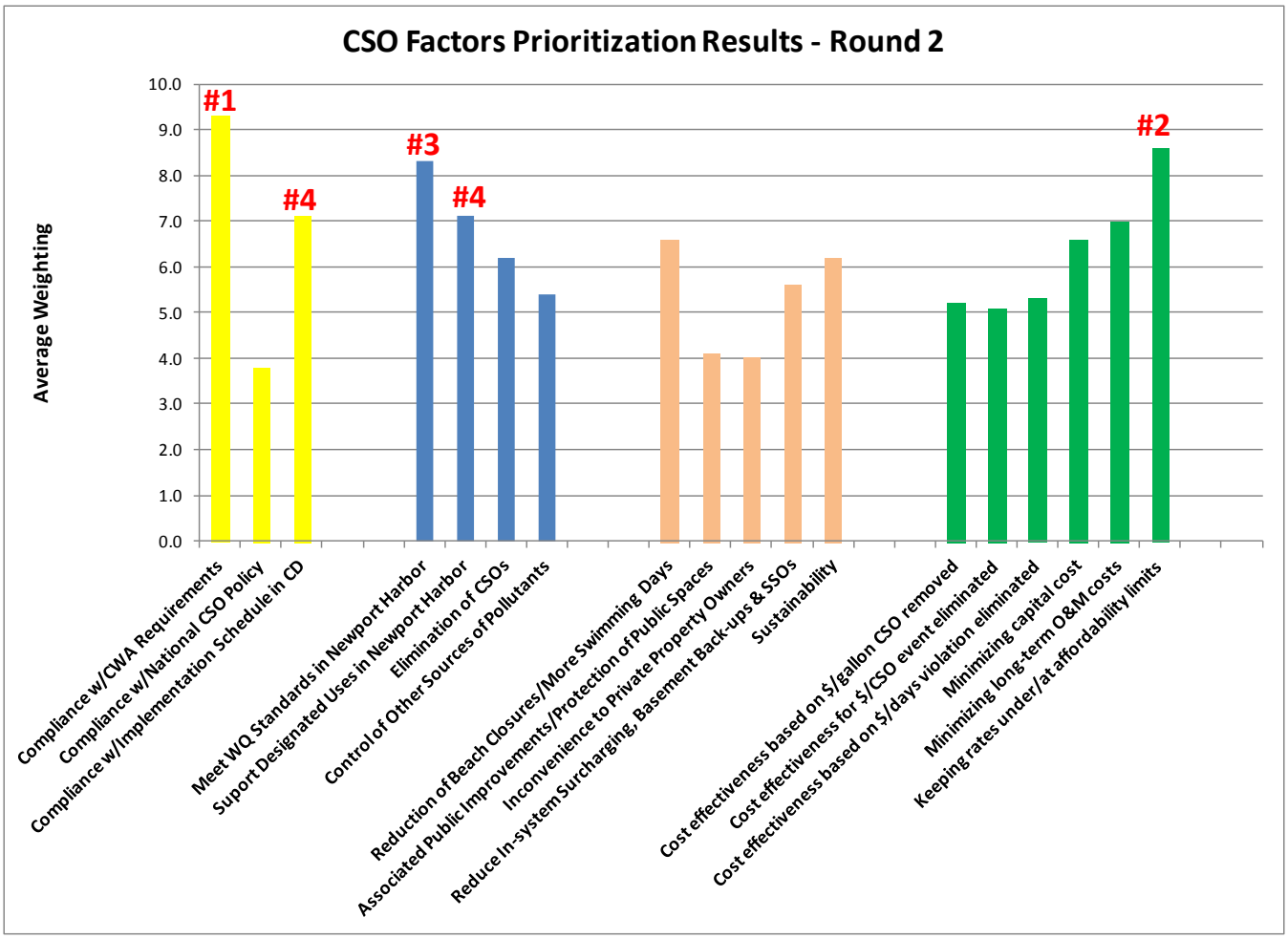
There were no Parking Lot items from the previous meeting.

Results of Stakeholder Prioritization of Evaluation Criteria - Round 2

Becky Weig presented the results of the stakeholder prioritization exercise from the previous meeting. The full results are presented in Exhibit 1. In summary the 4 highest ranked categories from the first and second rounds were:

1st Evaluation	2nd Evaluation
1. Meeting CWA requirements	1. Meeting CWA requirements
2. Maintaining affordable rates	2. Maintaining affordable rates
3. Reducing beach closures	3. Meeting WQ standards
4. Meeting WQ standards	4. Compliance with implementation schedule Supporting designated uses in Newport Harbor

EXHIBIT 1
Results of 2nd Stakeholder Prioritization of Criteria



Key Meeting Topics

System Behaviors & Control Technologies – Collection System Capacity Assessment

Peter von Zweck provided an introduction to Collection System Capacity Assessment (CSCA). Jen Reiners gave an overview of the hydraulic model used to analyze CSCA and SMP control technologies. Mike Urban is the modeling software used. The model simulates all flow contributed by the City of Newport, the Town of Middletown, and the Navy and Private Sewer Area. Prior to starting the CSCA, the model was recalibrated in 2011 to account for recent system improvements. Types of improvements to the system since the previous calibration (2010) were discussed.

Jen Reiners presented an overview of the results presented at the previous meeting as well as the results for a range of storms from 3-month to 10-year. The results showed that even for extremely high levels of infiltration/inflow (I/I) reduction that CSO elimination could not be achieved for the large storms. The results also did not include what happens during storms in series. Mike Domenica provided an overview of the differences between combined and separate sewer systems. RIDEM stated that the end goal is to eliminate overflows whether the system is combined or separated.

Key discussion issues were:

- As part of the overall solution discussion, what will happen with the additional stormwater should be included.
- It was suggested that the City could start providing incentives to disconnect private sources of I/I such as putting in PVC connections to the stormwater system that properties could connect to when disconnecting sources of I/I from the sanitary sewer system.

Questions & Answers

Q: What is lf?
A: Linear feet.

Q: How are catch basins removed from the sanitary sewer system?
A: The connection from the sanitary sewer system is removed and rerouted to the storm water system.

Q: What is the estimate for the completion of catch basin disconnection?
A: Question added to the parking lot to be addressed in Fall 2012 after project has been awarded.

Q: How much upsizing for eliminating bottlenecks was included?
A: There was only upsizing for a small percentage of the collection system.

Q: Has a level of control to determine elimination been defined?
A: No storm event can be defined as no overflows would be legal unless the system is designated as a combined system.

SMP CSO Control Technologies

Becky Weig presented the benefits and drawbacks to different types of SMP CSO control technologies including:

- WPCP improvements

  - Chemically Enhanced Primary Treatment (CEPT)
  - Improvements to increase design flows
- Storage
  - Off-line tanks
  - In-line conduits
- New conveyance facilities
  - Pump stations
- Green technologies
- CSO treatment facilities
  - Component upgrades

Following the overview of technologies, the stakeholders were given the opportunity to look at maps of potential control alternatives and locations for each of the technologies and to add suggestions to the maps for consideration during SMP evaluation.

Questions & Answers:

Q: Why would a waiver of the 85% removal requirements for total suspended solids (TSS) in the NPDES permit be needed during wet weather to implement CEPT?

A: When the stormwater enters the combined sewer system, it dilutes the solids concentration making it impossible to meet the 85% removal, but solids concentrations are so low as to not be an impairment in the discharge. This was described in more detail at the meeting about the WPCP.

Other Items

At the end of the meeting one of the stakeholders, John McCain, presented an analysis of historical rainfall and CSO data. The handout is included as Attachment 2.

Parking Lot

- Information from RIDEM on impact of upstream water quality impacts to Newport Harbor were discussed including coinciding events.
- Provide preliminary information on catch basin disconnect engineering in Fall 2012.

Next Meeting Information

The next meeting was tentatively set for July 12, 2012 at 3pm at the Council Chambers. The topics of the next meeting are model results for the SMP control technologies and draft SMP recommendations.

Initial Screening of CSO Control Options

PREPARED FOR: Newport CSO Stakeholder Workgroup
PREPARED BY: CH2M HILL
DATE: August 1, 2012

This memorandum documents the process used for the initial screening of options for controlling discharges from Newport's CSO treatment facilities. The objective of the screening was to assess a wide variety of technologies and potential projects sites, and to eliminate those controls that are not cost effective, technically feasible, acceptable to the community, or ineffective for achieving regulatory compliance or water quality improvements.

The screening was performed in 3 steps:

1. Confirm Priorities for the Evaluation of Options
2. Identify Candidate Technologies and Project Sites
3. Qualitative Assessment of Control Options

Details on each step and the results of the screening are summarized below.

PRIORITIZATION OF EVALUATION CRITERIA

The first step in the screening process was to identify priorities for the program and the evaluation of control options. This was accomplished using input from the stakeholder workgroup. Members of the workgroup were asked to identify their priorities for evaluation criteria. The criteria were grouped into 4 general categories.

- Regulatory Compliance
- Water Quality
- Social/Community Impacts, and
- Costs/Affordability.

Stakeholders scored a total of 18 criteria using a scale of 0-10, with 0 being of least importance and 10 being of greatest importance. The workgroup was provided 2 opportunities to complete the scoring, with the second being performed after in-depth discussion of the results of the first set of results.

Brief descriptions of the evaluation criteria are provided below. Summaries of the evaluation criteria and the priorities established by the stakeholder workgroup are shown numerically in Table 1 and graphically in Exhibit 1.

REGULATORY COMPLIANCE

Compliance with CWA Requirements. The effectiveness of the CSO control option to help the City comply with Clean Water Act requirements.

Compliance with National CSO Policy. The effectiveness of the CSO control option to help the City meet the objectives described by the EPA's CSO Control Policy:

- Clear levels of control to meet health and environmental objectives
- Flexibility to consider the site-specific nature of CSOs and find the most cost-effective way to control them
- Phased implementation of CSO controls to accommodate a community's financial capability

- Review and revision of water quality standards during the development of CSO control plans to reflect the site-specific wet weather impacts of CSOs

Compliance with Implementation Schedule in CD. The effectiveness of the CSO control option to help the City meet the implementation schedule set forth in the consent decree.

WATER QUALITY

Meet Water Quality Standards in Newport Harbor. The likelihood the CSO control option will contribute to the achievement of water quality standards in Newport Harbor.

Support Designated Uses in Newport Harbor. The likelihood the CSO control option will contribute to the achievement of designated uses for Newport Harbor; Newport Harbor is designated for primary and secondary contact recreation.

Elimination of CSOs. The likelihood that the CSO control option will effectively eliminate Combined Sewer Overflows.

Control of Other Sources of Pollutants. The effectiveness of the CSO control option to control other sources of pollutants to Newport Harbor.

SOCIAL/COMMUNITY IMPACTS

Reduction of Beach Closures/More Swimming Days. The likelihood the CSO control option will result in more swimming days or less beach closures at King Park Beach.

Associated Public Improvements/Protection of Public Spaces. The likelihood the CSO control option is to result in positive associated public improvements and the protection of open space.

Inconvenience to Private Property Owners. The level to which the CSO control option may inconvenience private property owners through the need to disconnect private sources of I/I such as roof leaders, sump pumps, etc.

Reduce In-system Surcharging, Basement Back-ups &SSOs. The level to which the CSO control option will result in reduction of in-system surcharging, basement backups, and SSOs.

Sustainability. The ability of the CSO control option to endure human use in regards to social, economic, and environmental needs and be able to handle potential changes in its relative environment.

COSTS/AFFORDIBILITY

Cost Effectiveness Based on $/Gallon CSO Removed. The cost effectiveness of the CSO control in terms of $/gallon CSO removed.

Cost Effectiveness for $/CSO Event Eliminated. The cost effectiveness of the CSO control in terms of $/CSO event eliminated.

Cost Effectiveness Based on $/Days Violation Eliminated. The cost effectiveness of the CSO control in terms of $/days of water quality violations eliminated.

Minimizing Capital Costs. The ability of the CSO control option to minimize capital costs. Capital Costs include construction, site work, land, and engineering costs.

Minimizing Long-Term O&M Costs. The ability of the CSO control option to minimize long-term O&M costs.

Keeping Rates Under/At Affordability Limits. The ability of the CSO control option to allow the City to keep rates at or under affordability limits.

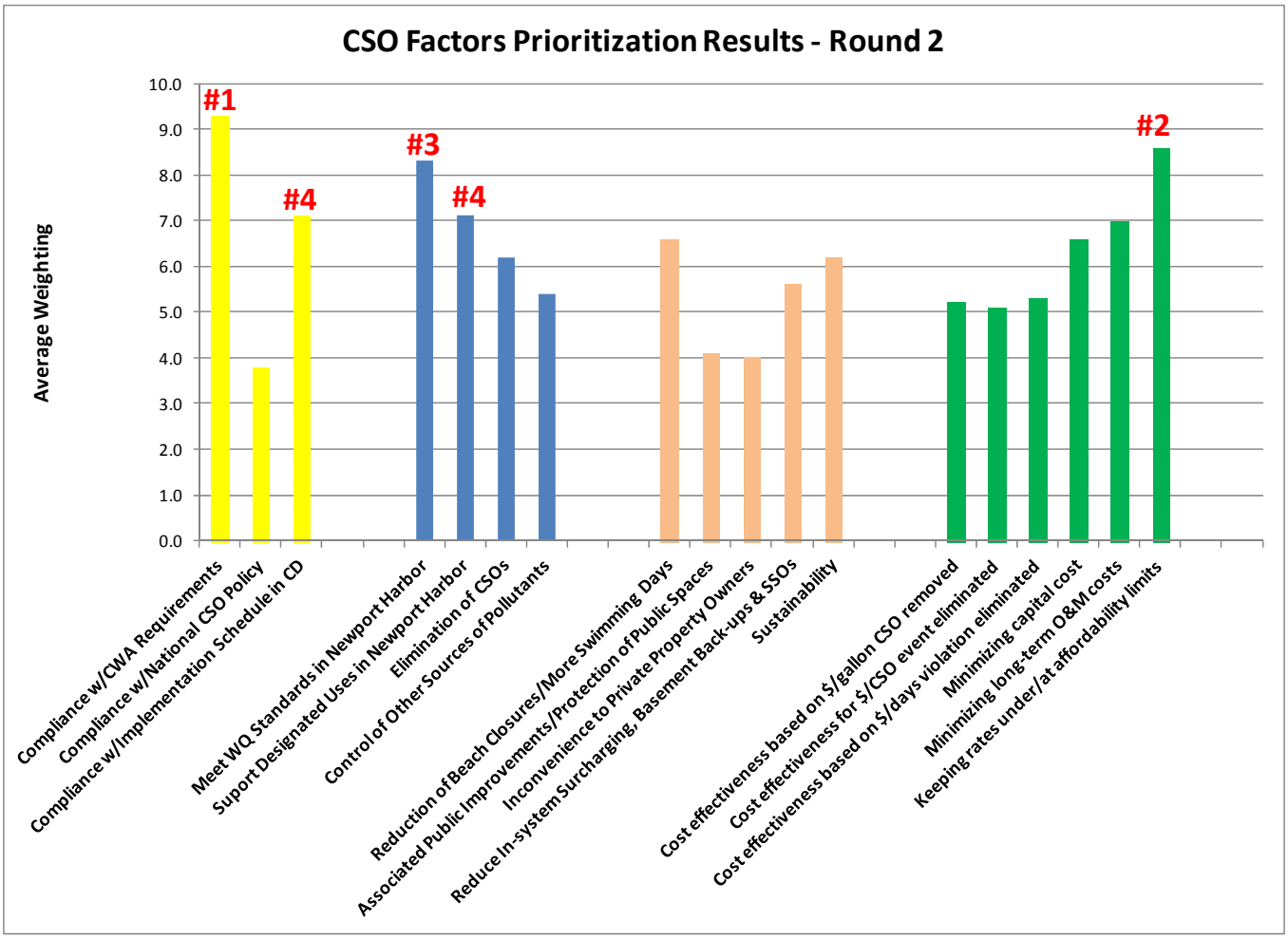
TABLE 1
Results of Prioritization for Evaluation Criteria

Evaluation Criteria	Priority
REGULATORY COMPLIANCE	
Compliance w/CWA Requirements	9.3
Compliance w/National CSO Policy	3.8
Compliance w/Implementation Schedule in CD	7.1
Regulatory Avg.	**6.7**
WATER QUALITY	
Meet WQ Standards in Newport Harbor	8.3
Support Designated Uses in Newport Harbor	7.1
Elimination of CSOs	6.2
Control of Other Sources of Pollutants	5.4
Water Quality Avg.	**6.8**
SOCIAL/COMMUNITY IMPACTS	
Reduction of Beach Closures/More Swimming Days	6.6
Associated Public Improvements/Protection of Public Spaces	4.1
Inconvenience to Private Property Owners	4.0
Reduce In-system Surcharging, Basement Back-ups & SSOs	5.6
Sustainability	6.2
Social/Community Impacts Avg.	**5.3**
COSTS/AFFORDABILITY	
Cost effectiveness based on $/gallon CSO removed	5.2
Cost effectiveness for $/CSO event eliminated	5.1
Cost effectiveness based on $/days violation eliminated	5.3
Minimizing capital cost	6.6
Minimizing long-term O&M costs	7.0
Keeping rates under/at affordability limits	8.6
Costs/Affordability Avg.	**6.3**
TECHNICAL FEASIBILITY[1]	
Availability of Flow	10.0
Constructability	8.0
Operational Complexity and Maintenance Requirements	8.0
Construction Impacts	4.0
Flexibility	5.0
Technical Feasibility Avg.	**7.0**

[1] Scores for technical feasibility were incorporated by CH2M HILL separate from the stakeholder review.

EXHIBIT 1

Results of Prioritization for Evaluation Criteria



IDENTIFICATION OF TECHNOLOGIES AND PROJECT SITES

The second step of the initial screening identified a broad range of control technologies and potential project sites (control options). This was done through a collaborative effort with the stakeholder workgroup and the City. These candidate projects were organized into 8 categories.

1. CSO Treatment
2. Capacity Upgrades
3. Green Infrastructure Controls
4. Infiltration/Inflow Reduction
5. In-line Storage
6. Off-line Storage
7. System Optimization
8. WPCP Upgrades

In most cases, several candidate projects were identified for each technology category. For example, 26 sites were identified as candidates for Off-line Storage, and 4 locations were identified as candidates for System

Optimization. Attachment 1 shows the locations of the 55 control options considered during the screening process.

QUALITATIVE ASSESSMENT OF CONTROL OPTIONS

A fifth category of evaluation criteria was added to address any potential technical issues and include criteria specific to engineering feasibility and construction. CH2M HILL developed the priorities for these criteria using the same scale of 0-10 as was used by the stakeholders. Definitions for these categories are provided below. The priorities for these criteria are shown in Table 1.

ENGINEERING/TECHNICAL FEASIBILITY

Availability of Combined Flow. The availability of combined flow at the location of the CSO control option to have an effect on CSO reduction.

Constructability. The ease of construction of the CSO control option based on, type of technology, siting, permitting and public acceptance.

Operation Complexity and Maintenance. The level of O&M requirements and costs of the CSO control option.

Construction Impacts. The relative impacts to the public, businesses and the environment from construction of the CSO control option.

Flexibility. The ability for the CSO control option to allow adjustments to in system operations in the event of future changes to system flows.

In order to determine which CSO control options are most likely to achieve program goals, each control option was rated from 0-10 for its ability to address the priorities set by the stakeholders and the technical criteria established by CH2M HILL. For example, a 0 would be assigned to a CSO control option that is least favorable to achieve the prioritization factor or technical factor. A 10 would be assigned to a CSO control option that is most favorable to achieve the prioritization factor or technical factor. A more detailed description of the qualitative rating system is provided in Table 2.

TABLE 2
Descriptions of Qualitative Rating System

Rating	General Description
Excellent (10)	Most favorable – indicating the highest possible rating, compared to all other available alternatives. For example, an excellent rating for reliability would indicate that the technology is nearly fail-safe.
Very Good (7-9)	Favorable – indicating a better than average rating, compared to all other available alternatives; but not the best possible. For example, a very good rating for reliability would indicate that the technology is more reliable than most, but is not among the best.
Good (4-6)	Moderate or average – indicating a mid-range rating compared to all other available alternatives. For example, a good rating for reliability would indicate that reliability should not be a major concern. However, infrequent system breakdowns can be expected to occur.
Poor (1-3)	Unfavorable – indicating a worse than average rating, compared to other available alternatives; but not the worst possible. For example, a poor rating for reliability would indicate that the technology is less reliable than most, but is not among the least reliable.
Adverse (0)	Most unfavorable – indicating the lowest possible rating compared to all other available alternatives. For example, an adverse rating for reliability would indicate the technology may likely have excessive down time, and would often be unavailable when needed.

A final score for each CSO control option was generated by multiplying the priority for each evaluation criteria by the qualitative rating. Because some categories had more evaluation criteria than others, the score for each

category was summed and then divided by the number of evaluation criteria in that category. Finally, the total score for each category was summed to determine the total score for each CSO control option.

The list of control options evaluated in the initial screening is presented in Table 3. The results of the initial screening are presented graphically in Exhibit 2. The highest rated options were those at the Water Pollution Control Plant (WPCP), followed by a combination of I/I reduction, off-line storage, system optimization, and capacity upgrade options.

Based on the scores developed for each control option, the top 15 CSO control options were identified for the next phase of more detailed evaluations. This will include development of conceptual design sketches, cost estimates, and evaluation using the project's hydraulic model. Results of those evaluations will be shared at the next stakeholders meeting.

TABLE 3
Results for Initial Screening of CSO Control Options

CSO Control Option	Score
CSO Treatment Options	
CSOT-1 Enhanced CSO Treatment	183.7
Capacity Upgrades	
CU-1 (Upsize of Force Main)	158.4
CU-2 (Catchment 10 Reroute)	183.9
CU-3 (Additional Pumping at Long Warf)	175.8
CU-4 (Additional Pumping at Wellington)	175.8
Green Controls	
GC -1 Green Controls	140.1
Infiltration/Inflow Reduction Options [a]	
II -12 Capping Uncapped Cleanout	161.1
II-1 Catch Basin Disconnections	186.6
II-10 Leaking Service Lateral Repair	142.8
II-11 Sump Pump Disconnection	135.9
II-13 Pipe Replacement	139.2
II-2 Manhole Cover Replacements	192.3
II-3 Manhole Rehab & Replacement	165.1
II-4 Downspout Disconnection	179.8
II-5 Driveway Drain Disconnection	142.6
II-6 Area Drain Disconnection	145.4
II-7 Foundation Drain Disconnection	138.8
II-8 Stairwell Drain Disconnection	140.5
II-9 Window Well Drain Disconnection	139.9
In-Line Storage Options	
IS-1 (Along Railroad Row)	161.7
IS-2 (Memorial Blvd., West of Bellevue Ave)	143.9
IS-3 (Narragansett Ave Storage Conduit Expansion)	156.3
IS-4 (Ruggles Ave)	158.5
Off-line Storage Options	
OS-1 (Middletown)	134.5
OS-10 (North of Easton Pond, J Paul Braga Jr. Memorial Field)	146.6
OS-11 (Washington CSO Facility)	190.2

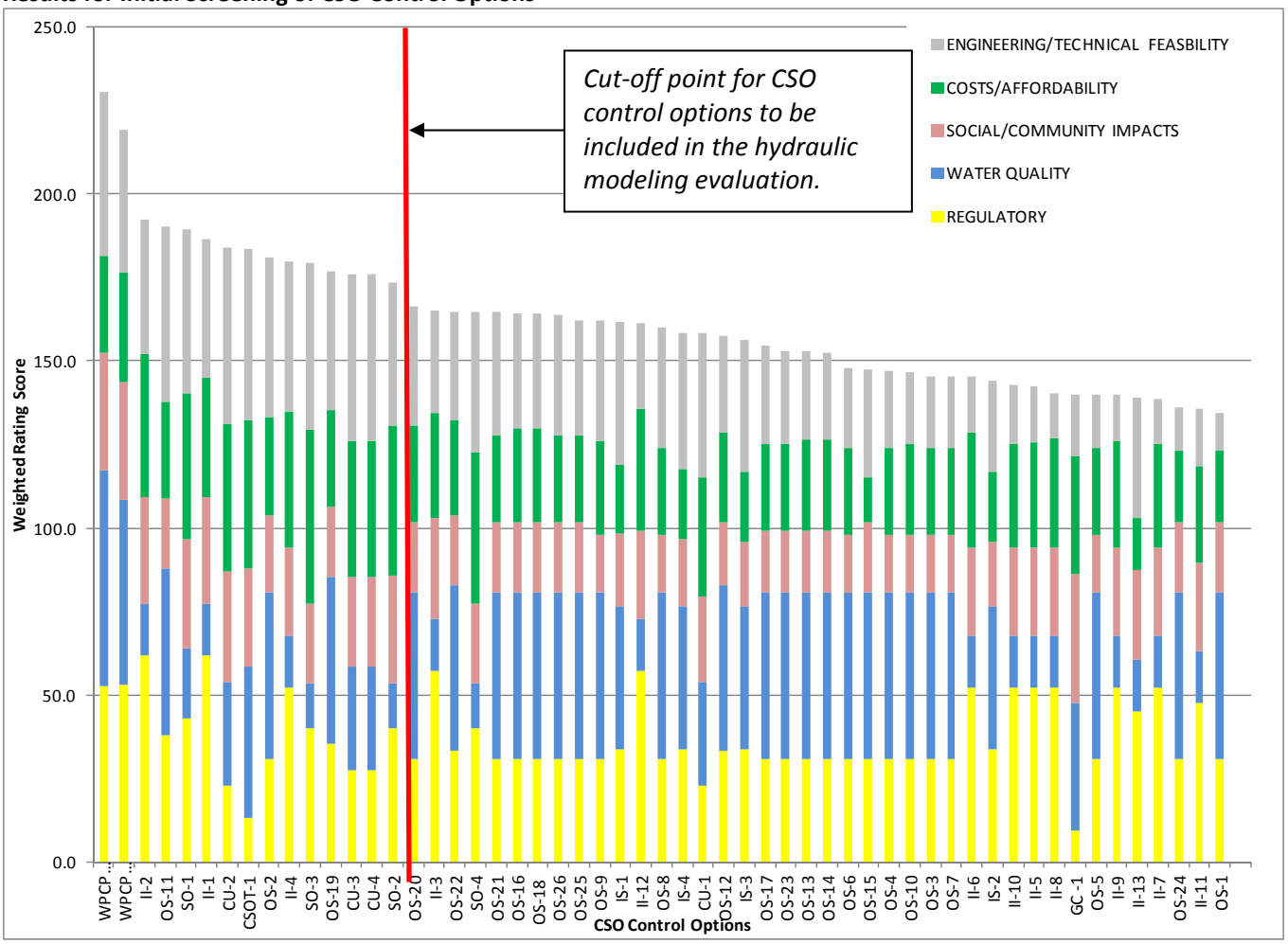
CSO Control Option	Score
OS-12 (Mary St. Parking Lot)	157.3
OS-13 (Queen Anne Square)	152.9
OS-14 (America's Cup Ave by Long Wharf)	152.3
OS-15 (Harbor from Wellington CSO Facility to Long Warf)	147.6
OS-16 (Aquidneck Park, Bowery St.)	164.0
OS-17 (Bellevue Ave)	154.6
OS-18 (Freebody Park, Middleton Ave)	164.0
OS-19 (King Park, Wellington Ave by CSO Facility)	176.7
OS-2 (WPCP)	181.1
OS-20 (South Side of Wellington Ave Along Clinton St.)	166.3
OS-21 (Intersection of Narragansett Ave and Amandale Rd.	164.4
OS-22 (Morton Park, Spring St.)	164.6
OS-23 (Broadway by Gould St.)	153.0
OS-24 (Wave Ave - Middletown)	136.1
OS-25 (Lawrence Ave)	162.2
OS-26 (Old Fort Rd.)	163.8
OS-3 (J.T. Connell Rd. and Maple Ave)	145.5
OS-4 (Hillside Ave)	147.1
OS-5 (Connell Hwy Rotary)	139.9
OS-6 (Along Rt. 138, Between Halsey St. and Malbone Rd.)	147.9
OS-7 (Riggs Rd. Along Waterfront)	145.5
OS-8 (Intersection of Rt. 238 and Rt. 138A)	159.9
OS-9 (Van Zandt Ave/Field)	161.9
System Optimization Options	
SO-1 WPCP Flow Optimization	189.2
SO-2 Increased Pumping Capacity/Better Use of System Capacity	173.6
SO-3 Weirs	179.5
SO-4 Gates	164.5
WPCP Options	
WPCP-1 WPCP Upgrade & Expansion	230.3
WPCP-2 CEPT	219.0

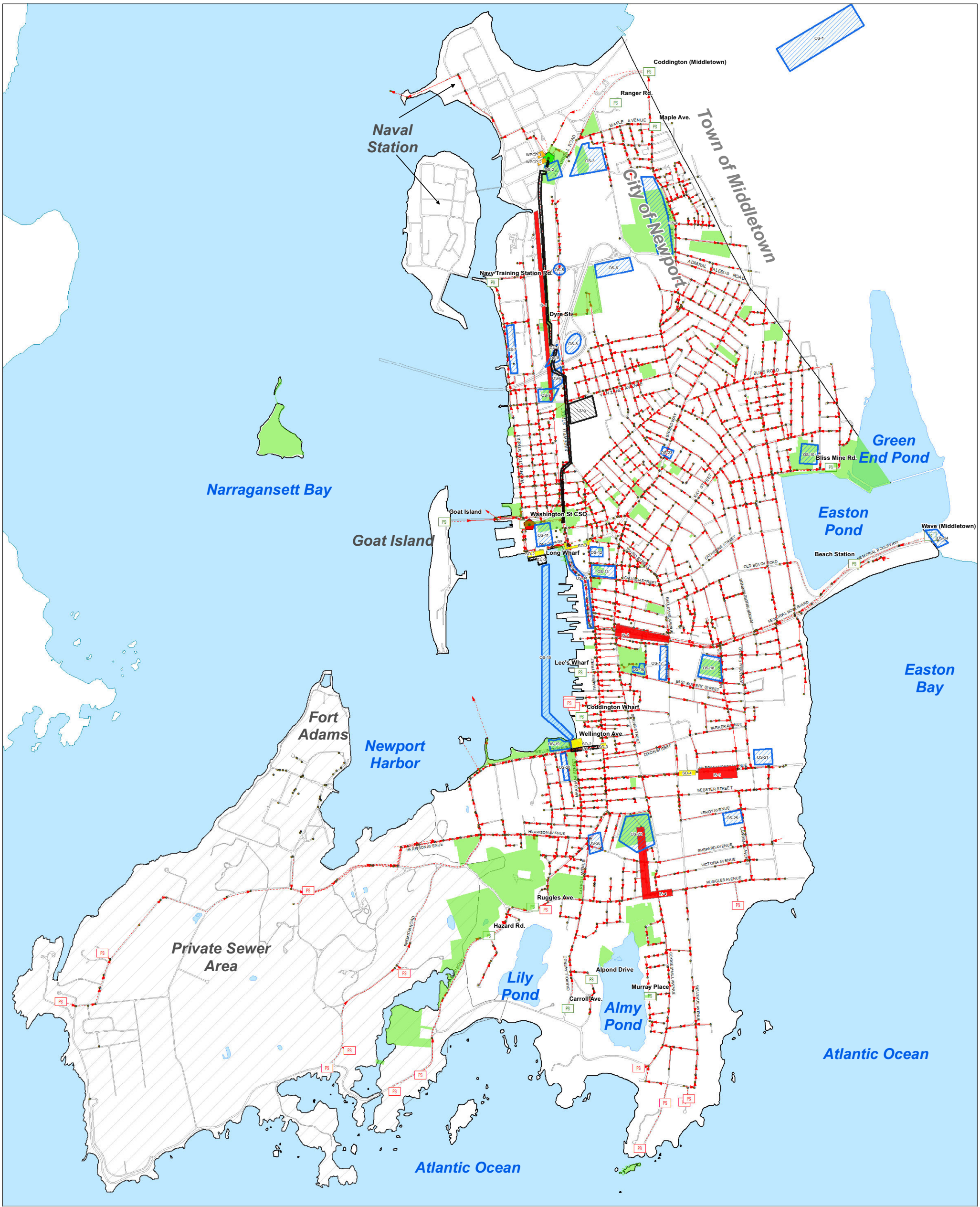
Indicates a CSO control option to be included in the hydraulic modeling evaluation (Top 15 scores)

a) The Infiltration/Inflow Reduction Options are Citywide in both public and private locations which are not shown in Exhibit 2.

EXHIBIT 2

Results for Initial Screening of CSO Control Options





Prepared July 2012

Legend

- CSO Facility
- WPCP
- Public Pump Station
- Private Pump Station
- Sanitary Gravity Main
- Sanitary Pressurized Main
- Sanitary Manhole

CSO Control Options

- Capacity Upgrades
- In-Line Storage
- Off-Line Storage
- System Optimization Options
- WPCP Options
- Green Options

- Paved Roads
- Waterbodies
- Private Sewer Areas
- Newport Boundary

This map contains data from historical plans provided by the City of Newport, field observations and data collection, and recent aerial mapping and is subject to revision as more detailed information becomes available.

N W E S

0 4,000

Feet

SCALE 1" = 680'

ATTACHMENT 1
CANDIDATE PROJECTS for INITIAL SCREENING
NEWPORT, RHODE ISLAND

CH2MHILL

MEETING AGENDA

CSO Stakeholder Workgroup Meeting #7 Agenda (#10-039)

MEETING DATE: August 9, 2012

MEETING TIME: 3:00 PM

VENUE: City of Newport Council Chambers, City Hall

1. Welcome & Introductions
2. Overview of the Agenda
3. Review of the Workgroup guidelines and schedule
4. Approval of previous meeting's minutes
5. Follow-up on Parking Lot items
6. Key Meeting Topics
    a. SMP Control Technologies – Preliminary Screening
    b. SMP Control Technologies - Hydraulic Modeling Results
    c. Comments & Input for Draft SMP
7. Next meeting information

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

2

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.

3

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.

- From Presentation to Newport City Council by CH2M HILL on March 2011

4

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

5

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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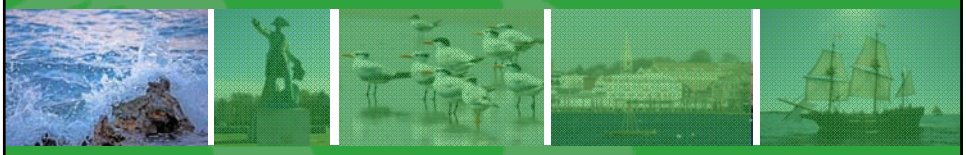
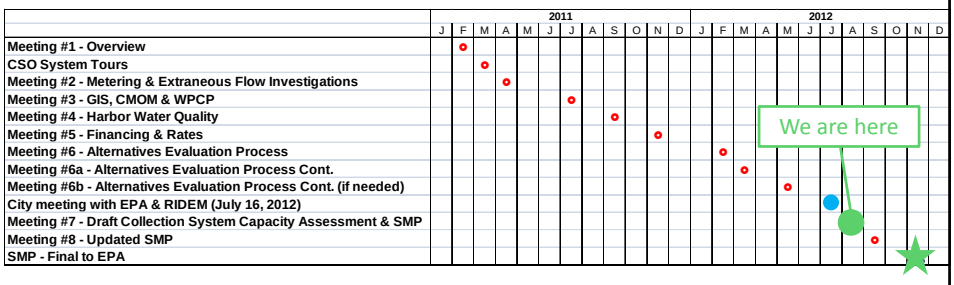


OVERVIEW OF THE STAKEHOLDER WORKGROUP

7

Schedule of Stakeholder Meetings



- 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.

8

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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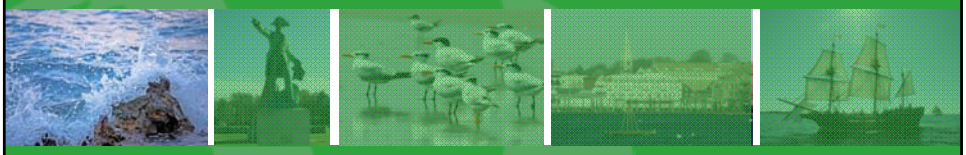

PARKING LOT FOLLOW-UP ITEMS

11

Parking Lot Question #1

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

- Response by Angelo Liberti - RIDEM

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Parking Lot Question #2

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

- As of June 30th 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

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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

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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

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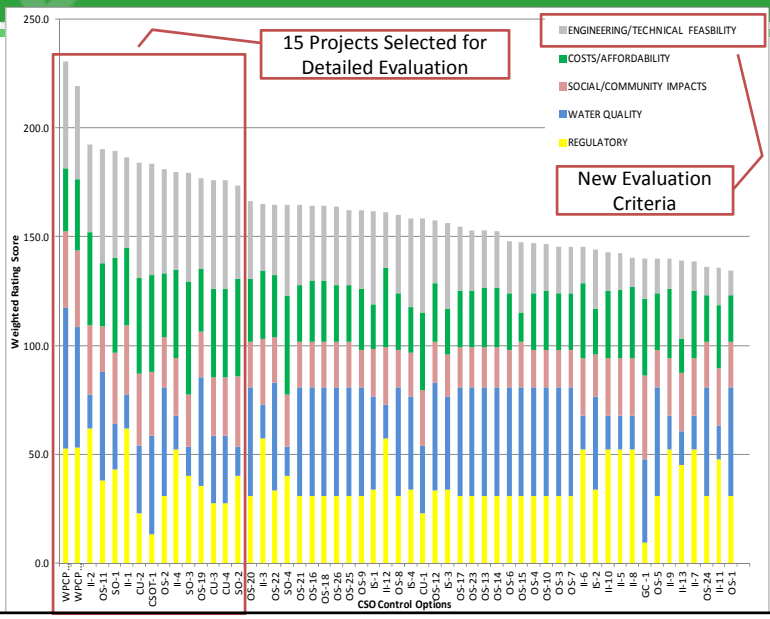
Results of Preliminary Screening



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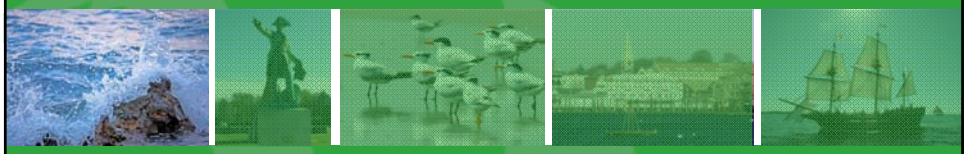

OVERVIEW OF SELECTED CONTROL TECHNOLOGIES

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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

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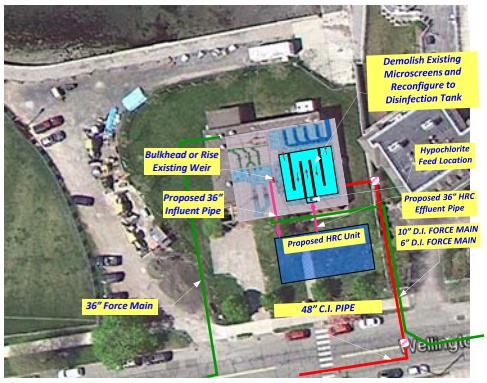
CSOT-1.1: HRT at Wellington

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



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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

21

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)

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CU-2: Pump Station for Catchment 10

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

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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)

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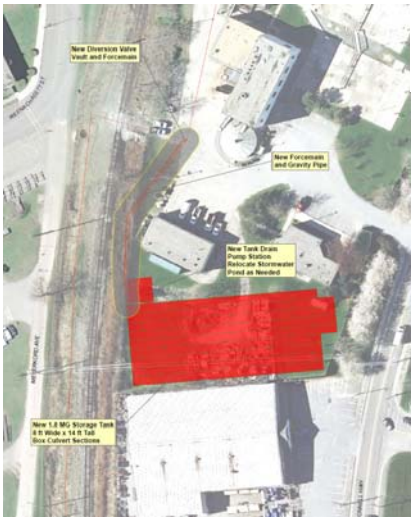
OS-2: Storage at WPCP

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



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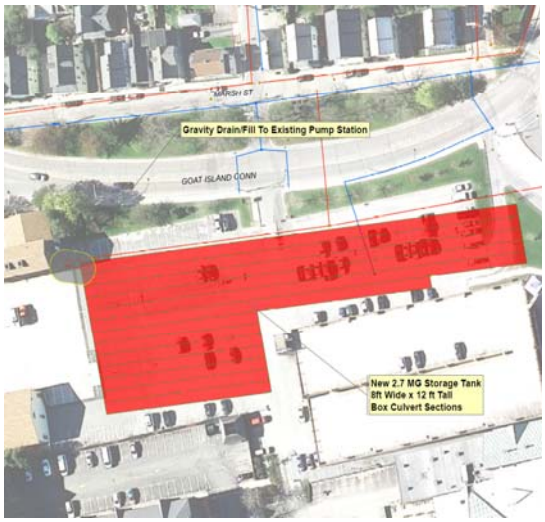
OS-11: Storage at Washington CSO Facility

Key Attributes:

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

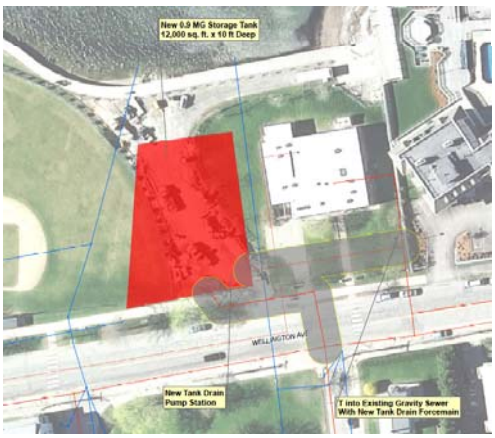


26

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



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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

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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

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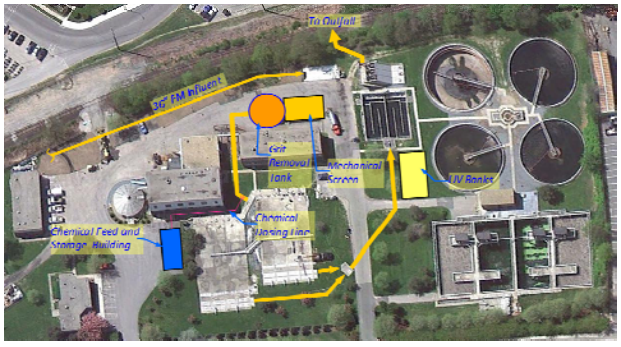
WPCP-2: Chemically Enhanced Primary Treatment (CEPT)

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



  - Increases TSS and BOD removal rates

30

DISCUSSION

Questions on..

- Initial screening process or results
- 15 shortlisted control options

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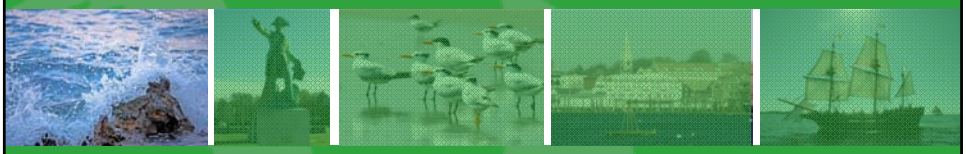

COSTS FOR SELECTED CONTROL ALTERNATIVES

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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…

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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%

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

Example List of Work Activities

Description	Takeoff Quantity
WPCP STORAGE	
Site/Civil	
Site Preparation	
Site Preparation	
Site Preparation, Clearing and Grubbing	
Selective clearing, brush, medium clearing, with dozer, ball and chain, excludes removal offsite	0.84 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
31-15-01-00 Site Preparation, Clearing and Grubbing	0.52 AC
TBK 201 Site Preparation	**0.52 AC**
Site Erosion Control	
Site Preparation, Erosion Controls / Pre-construction	
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	186.67 sy
Maintenance, erosion control during construction	1.00 ls
Remove erosion control	1.00 ls
31-15-04-00 Site Preparation, Erosion Controls / Pre-construction	0.52 AC
TBK-202 Site Erosion Control	**0.52 AC**
Site Grading	
Earthworks, Sitework, Site Grading	
Rough Grading, Large Crew	433.00 sy
Fine grade, machine	0 sy

3 pages long

Example List of Cost Categories

Description	Amount	Totals	Hours	Rate
Labor	4,362,372		643,045.225 l	
Material	10,497,139			
Subcontract	3,838,193			
Equipment	3,396,435		66,051.700 l	
Other	286,000			
Total Before Markups	22,381,139	22,381,139		
Project Staff & Home Office OH	1,790,491			8.000 %
Total Overhead	1,790,491	24,171,630		
General Conditions	1,692,014			7.000 %
Total General Conditions	1,692,014	25,863,644		
Material Sales & Use Tax - %				
Construction Equip Tax - %				
Total Taxes		25,863,644		
Profit on Previous Subtotal	2,069,092			8.000 %
Total Profit	2,069,092	27,932,736		
Contractor MU on OFCI Equip				
Total MU on OFCI Equip		27,932,736		
Mobilization/Demobilization	1,119,698			3.000 %
Bldr's Risk & Gen Liab Ins -%	373,233			1.000 %
Payment & Performance Bonds	432,950			1.160 %
Total Bonds and Insurances	1,925,881	29,858,617		
Contingency - %	7,464,654			25.000 %
Total Contingency	7,464,654	37,323,271		
Escalation on Estimate Total				
Total Escalation		37,323,271		
Mech Owner-Provided Equip				
Elec Owner-Provided Equip				
Total Owner-Provided Equipment		37,323,271		
Construction Total		37,323,271		

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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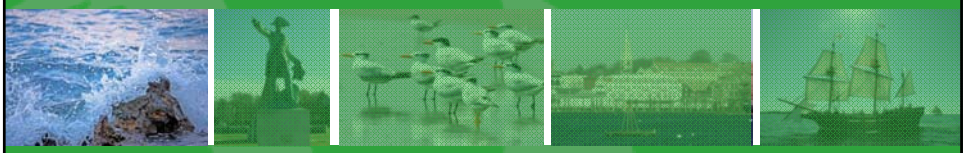

BENEFITS OF SELECTED CONTROL OPTIONS

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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

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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

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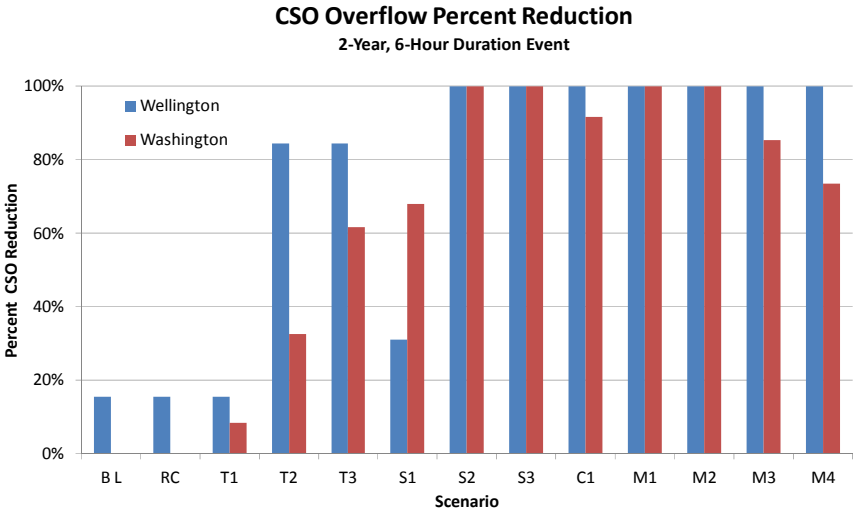
Summary of Alternatives Evaluated for the SMP

	Scenario												
Control Technology	**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



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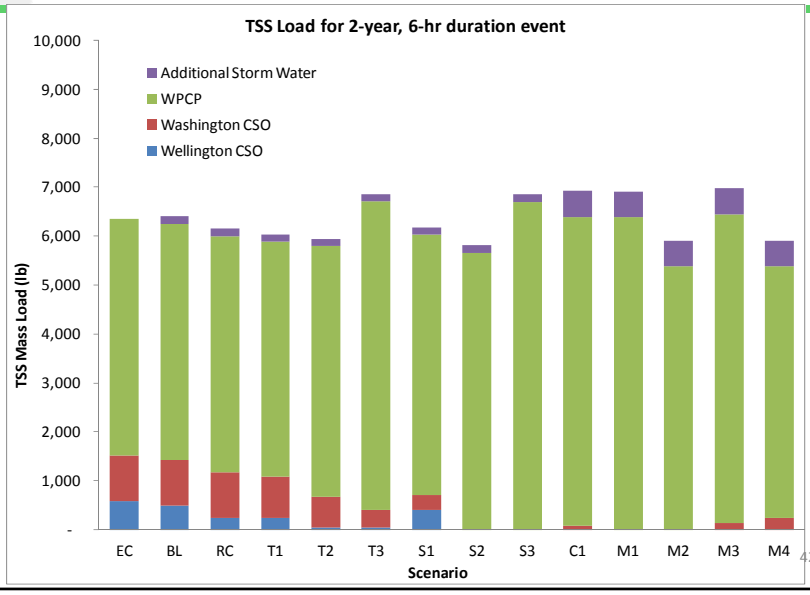
Water Quality Benefits for Selected Combinations – TSS Loads



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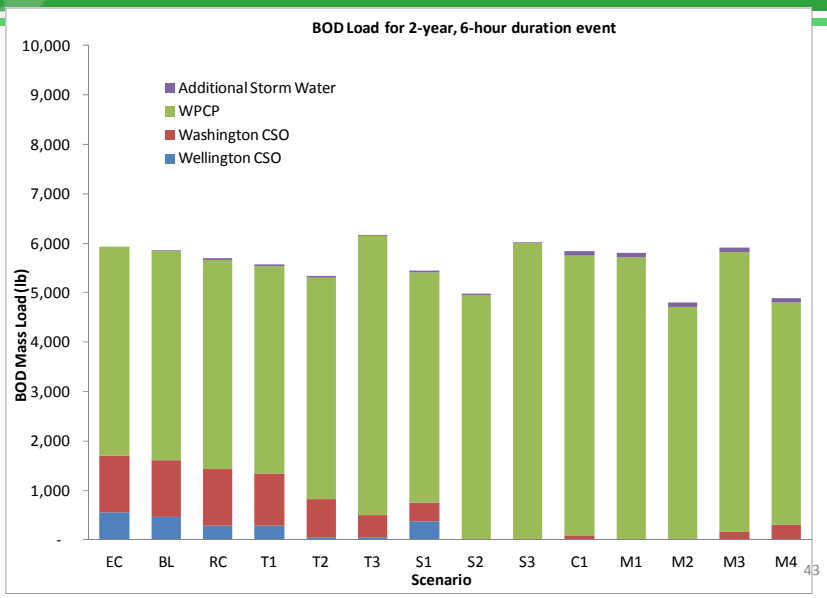
Water Quality Benefits for Selected Combinations – BOD Loads



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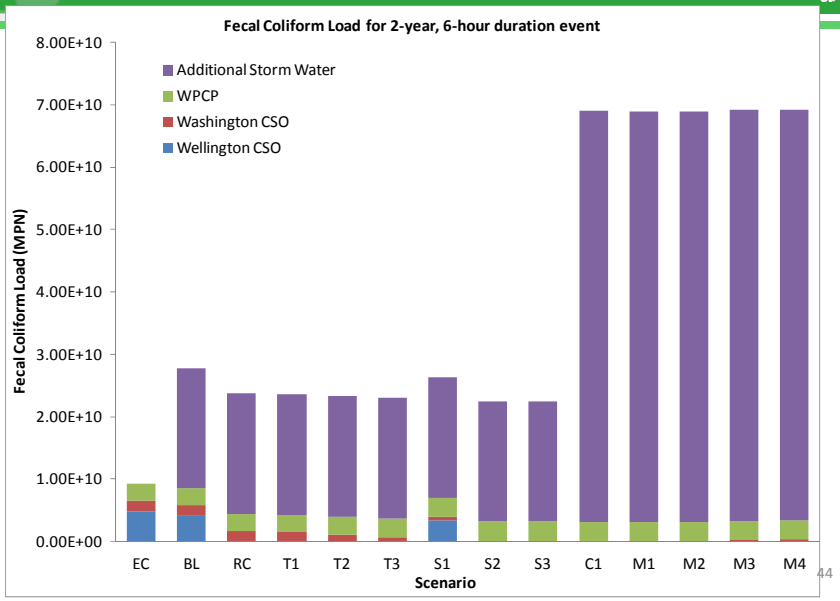
Water Quality Benefits for Selected Combinations – Fecal Coliform Loads



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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

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DISCUSSION

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

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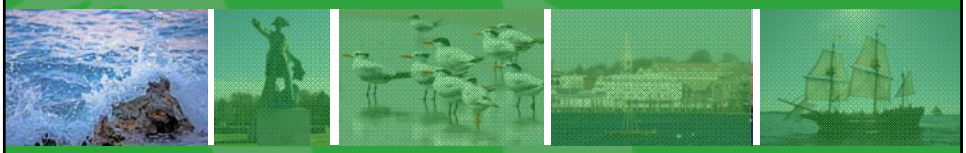

AFFORDABILITY ANALYSIS

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Why Affordability & Why Now?

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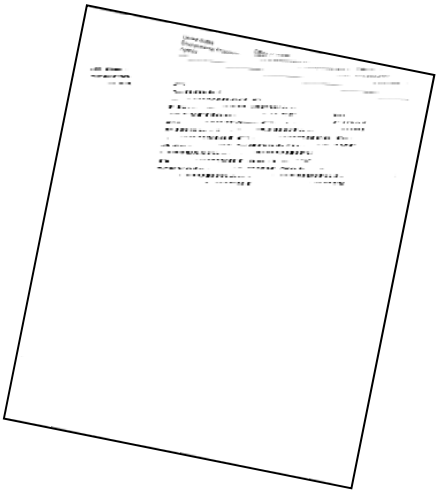
- Set budget before shopping…..
  - Set budget of what the City can "afford"
  - Design program implementation elements & schedule within affordable budget
- EPA **guidance** documents frame the consideration of affordability
- City must build its own case



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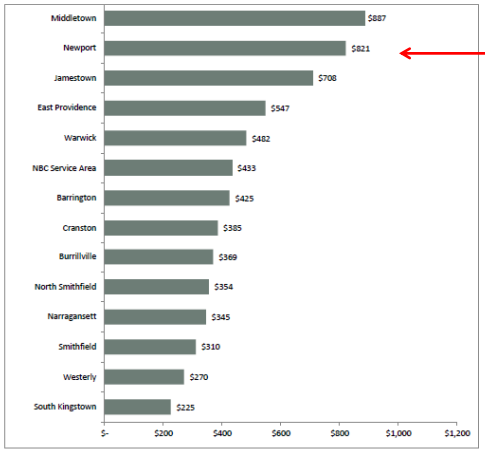
Wastewater Rates in RI

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

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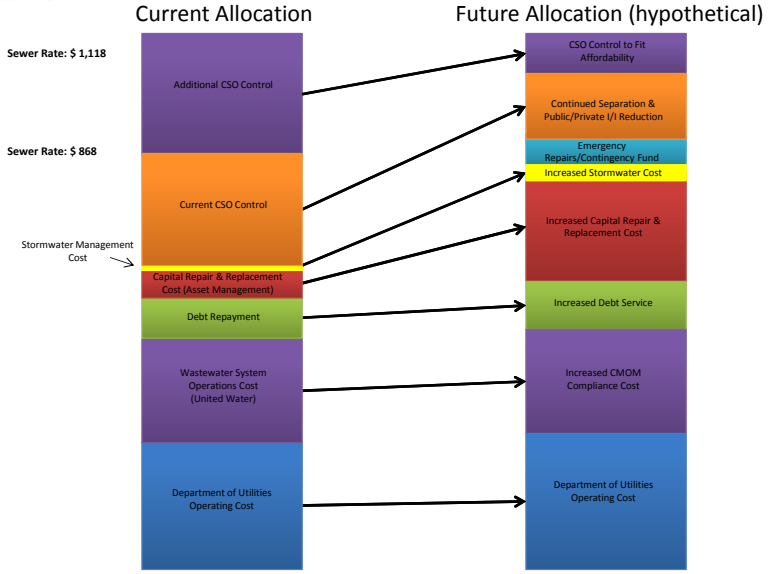
Relation of Rates to Services



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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

	Residential Indicator (Cost Per Household as a Percent of Median Household Income)		
Permittee's Financial Capability Indicators Score	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

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Key Assumptions for Affordability Analysis

Inflation Rate	3%

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

Growth for Median Household Income (MHI)	2.00%

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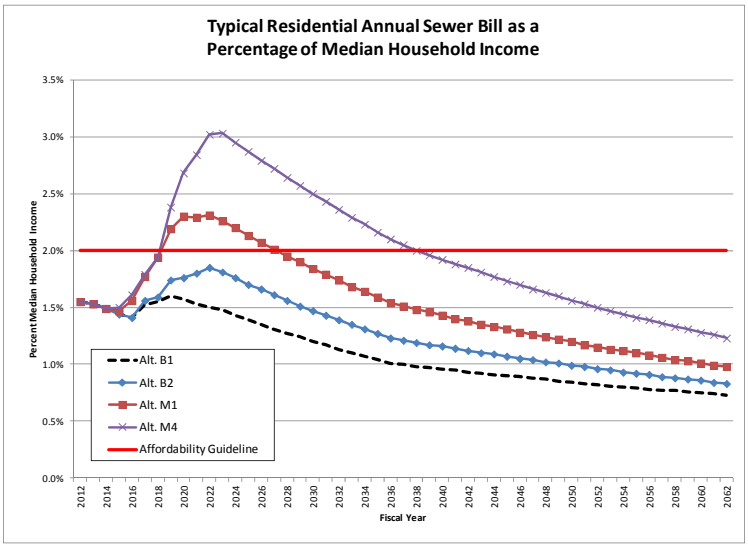
Alternative Summary



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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

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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									
Total Score									

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

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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

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Evaluation Criteria (cont.)

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

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Evaluation Criteria (cont.)

Engineering/Flexibility

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

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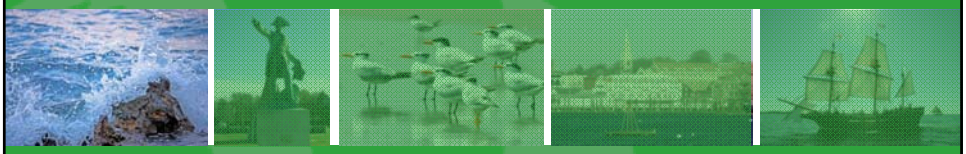

NEXT MEETING

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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

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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

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Water Quality Benefits for Selected Combinations – Reduction in Volume

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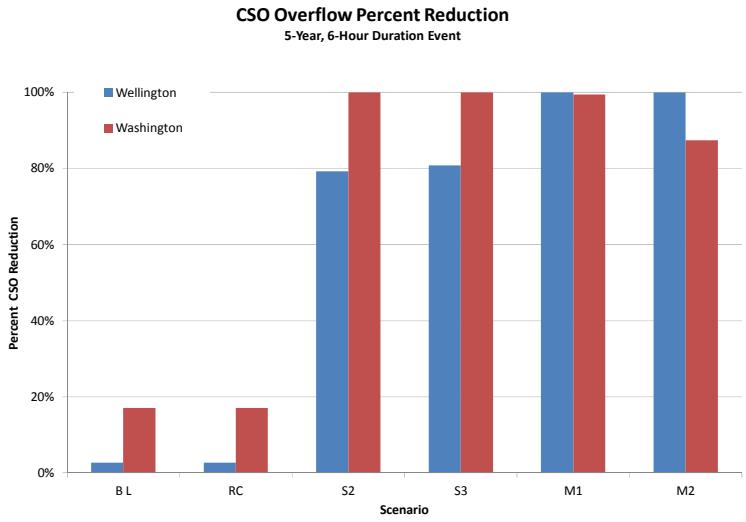

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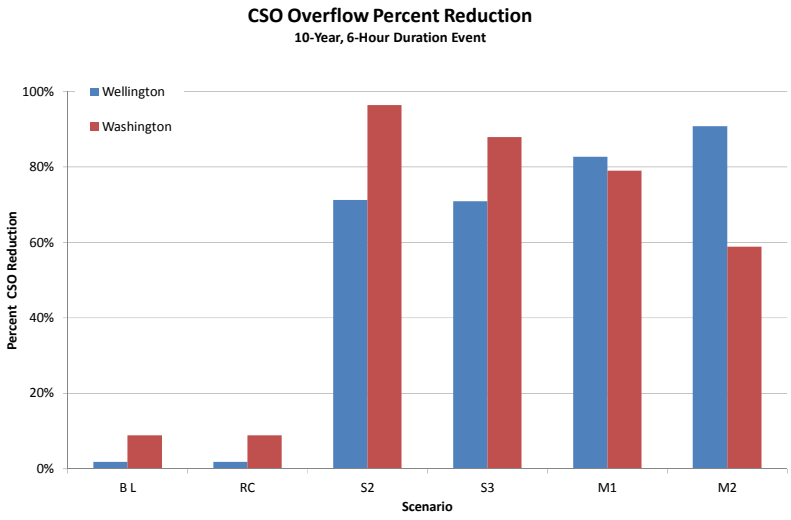
Water Quality Benefits for Selected Combinations – Reduction in Volume



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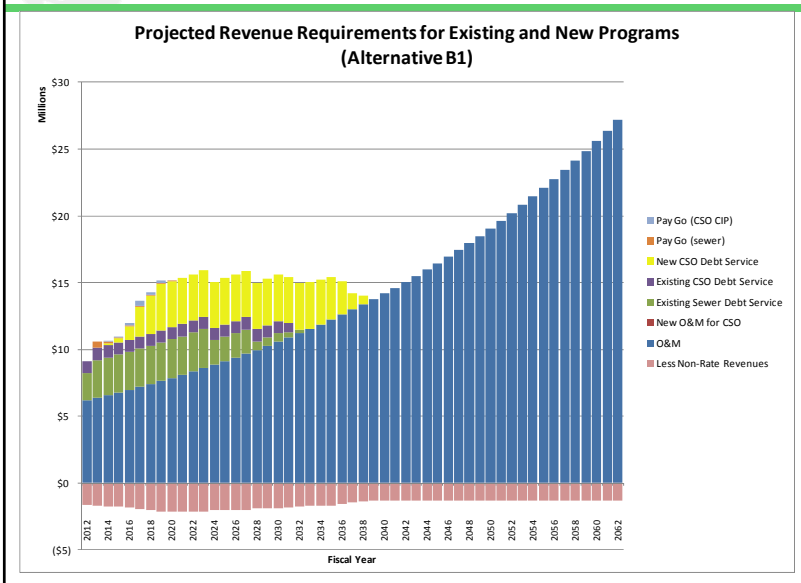
Alternative BL



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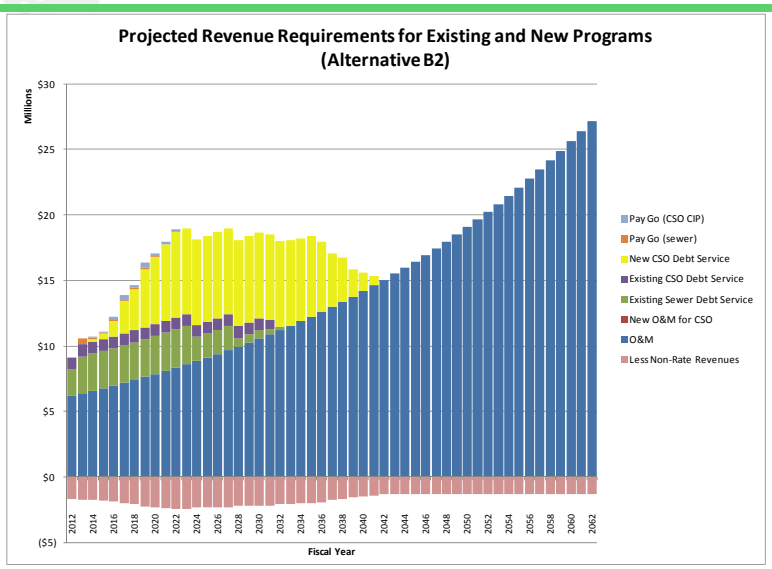
Alternative RC



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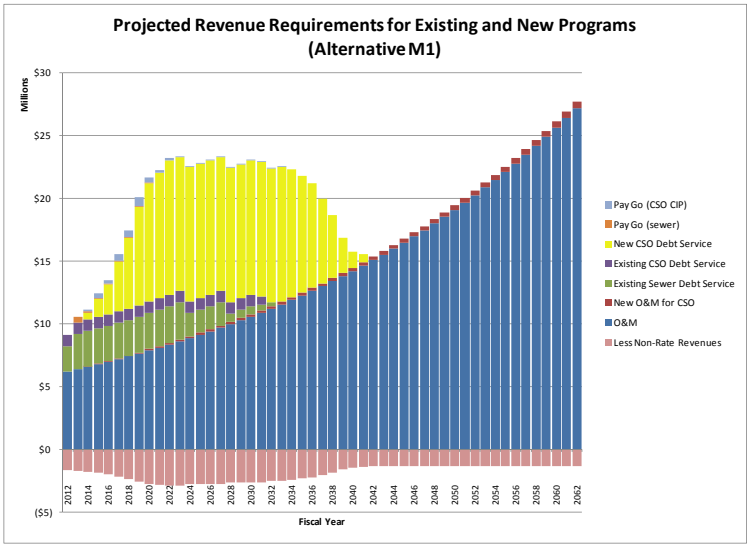
Alternative M1



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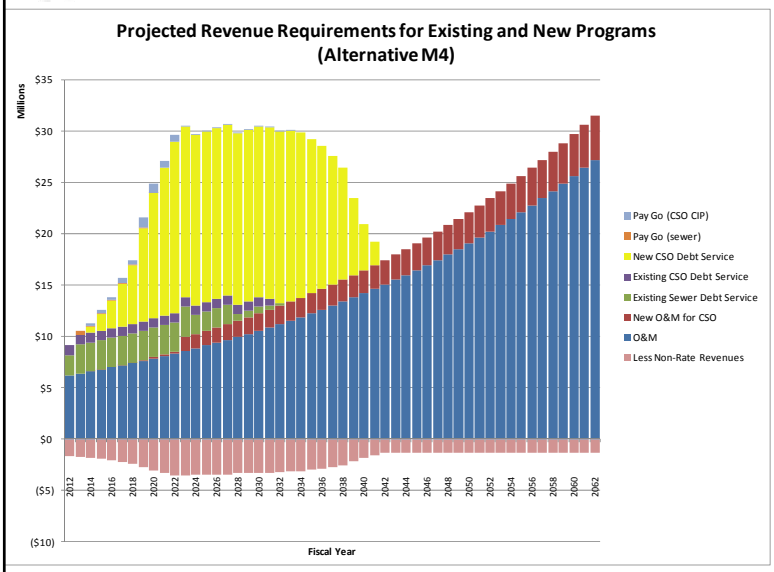
Alternative M4



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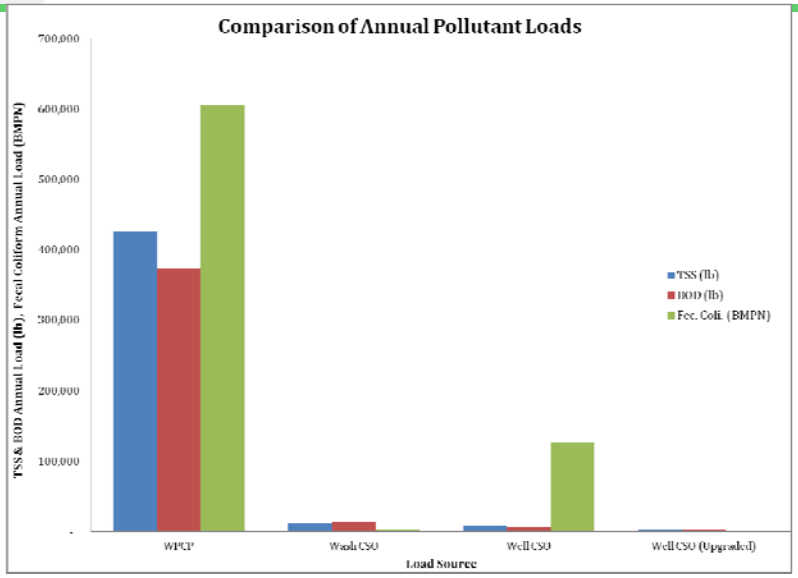
Comparison of Annual Pollutant Loads – TSS, BOD, Fecal Coliform



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Newport Combined Sewer Overflow (CSO) Stakeholder Workgroup: Meeting #7

ATTENDEES: See Attachment 1

DATE & PLACE: August 9, 2012; City Hall, Council Chambers

Welcome & Introductions

Julia Forgue introduced City staff as well as the CH2M HILL consultant team members.

Overview of Agenda

Julia Forgue provided an overview of the agenda and asked if there were any questions before moving forward. 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 System Master Plan (SMP) can be prepared. A summary of the agenda follows:

1. Review of the Workgroup guidelines and schedule
2. Approval of previous meeting's minutes
3. Follow-up on Parking Lot items
4. Key Meeting Topics
    a. SMP Control Technologies – Preliminary Screening
    b. SMP Control Technologies – Hydraulic Modeling Results
    c. Comments & Input for Draft SMP
5. Next meeting information

Overview of CSO Program Schedule

Julia Forgue provided an overview of the CSO program schedule and review of the Stakeholder Workgroup Mission Statement.

Previous Meeting's Minutes

The minutes of Meeting #6B were approved.

Update on Parking Lot from Previous Meeting

Questions & Answers:

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

   A response was provided by Angelo Liberti of RIDEM in a memorandum sent to the CSO Stakeholder Workgroup members prior to the meeting.

2. Can an update on the status of the catch basin disconnection process be provided?

As of June 30th the City has 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

Q: Which catch basins are worth disconnecting and which ones are not worth disconnecting based on inspections?
A: An engineering company will be hired through a Request for Proposal (RFP) to determine the workload and numbers.

Q: Are private catch basins included in the listed number of about 3,000?
A: Yes. There are currently 3,077 known catch basins city-wide; 2,505 of the 3,077 are owned by the City. The number of catch basins has increased throughout the inspection program.

Key Meeting Topics

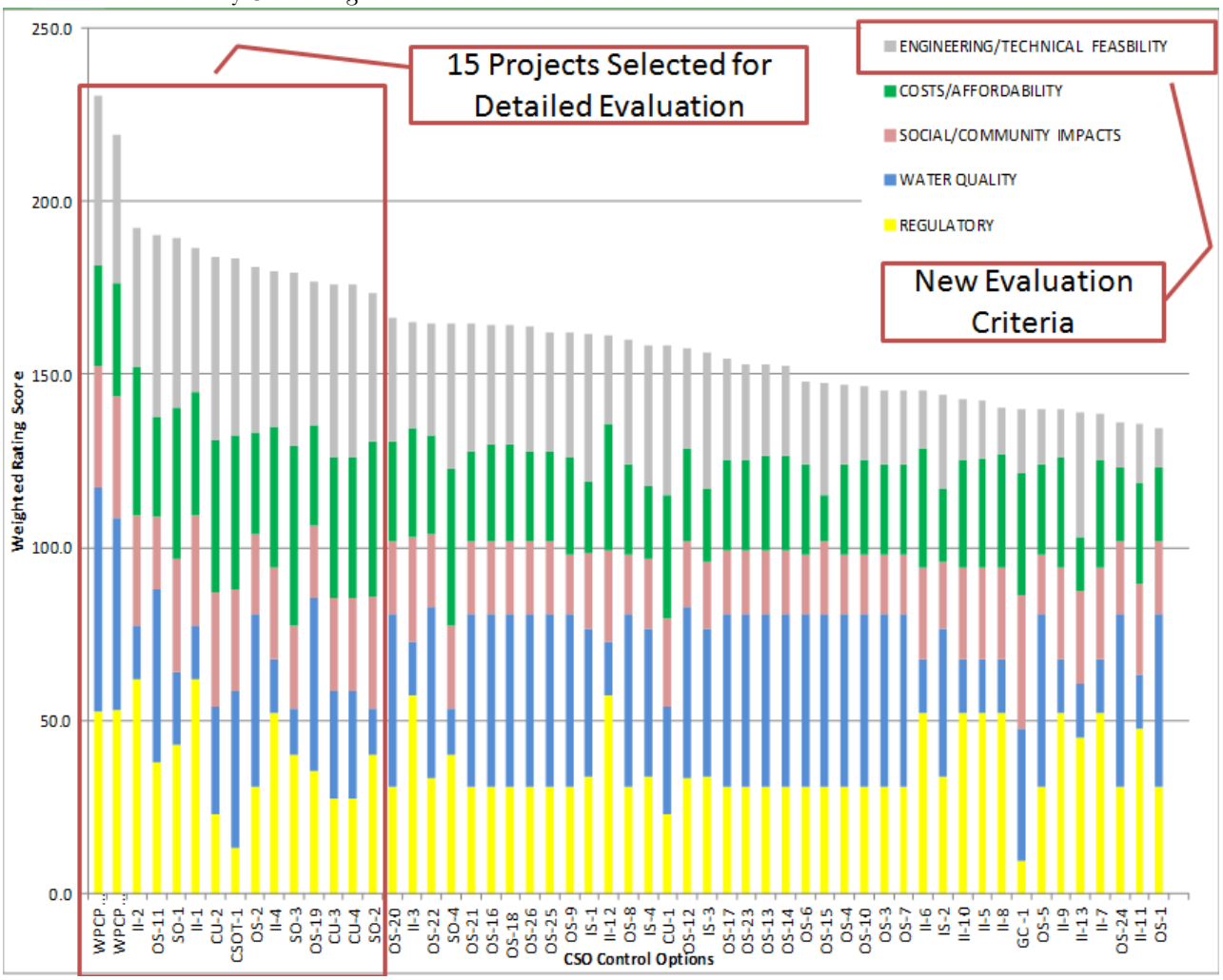
SMP Control Technologies – Preliminary Screening

Peter von Zweck restated the purpose of the preliminary screening: to identify the control technologies and project sites that will best achieve stakeholder priorities and program goals. The control technologies and project sites are then studied by conceptual designs, hydraulic modeling, and cost estimates. Peter von Zweck reviewed the methodology for preliminary screening, including performance of a qualitative assessment of control options. The rating system of assessment was discussed. The results of preliminary screening were discussed and are presented in Exhibit 1. In summary, the top 15 projects selected for detailed evaluation were identified.

Questions & Answers:
Q: What type of criteria did CH2M HILL use to determine the top 15 selections?
A: The criteria used were engineering and technical feasibility and those developed by stakeholders at previous meetings. Availability of flow was a large factor in determining technical feasibility.

Q: Where is pipe replacement ranked in the preliminary screening?
A: Pipe replacement is not directly shown in the top 15 selections because it is already built into the baseline of projects.

Exhibit 1
Results of Preliminary Screening



Overview of Selected Control Technologies

Peter von Zweck gave an overview of the top 15 control technologies selected. Key attributes for each were identified.

Costs for Selected Control Alternatives

Peter von Zweck discussed capital costs, operation & maintenance (O&M) costs, and service life of the control alternatives. A brief introduction of cost estimates was given to develop an understanding of total costs for selected control alternatives. The estimated capital, change in annual O&M, and total annual costs for the top 15 selected control alternatives were given.

Questions & Answers:

Q: Can we use Chemically Enhanced Primary Treatment (CEPT) only when we need to in order to reduce cost?

A: CEPT is typically designed in this way; however storage of chemicals is costly.

Q: How is downspout disconnection so expensive?
A: The estimates turned out to be approximately $4,000 per property. Disconnections could have nearly zero cost, while other disconnection costs could be very high. . For example, the 'cut and splash' technology is inexpensive, while new plumbing or piping has many costs associated with it.

Q: Is there any cost impact of new equipment, i.e. generators?
A: These assumptions were made and included in individual cost estimates.

SMP Control Technologies – Hydraulic Modeling Results

CSO Control Alternative Scenarios

Peter von Zweck discussed the formulated combinations of control technologies (scenarios). A collection of alternatives were established as the Baseline (BL) for all 12 scenarios. A calibrated hydraulic model evaluated the benefits of each scenario. A summary table of the Alternatives Evaluated for the SMP, Exhibit 2, was explained. Water quality benefits from hydraulic modeling of a 2-year, 6 hour duration storm were discussed. The capital, change in annual O&M, and total annual costs were identified for each scenario listed.

Questions & Answers:
Q: Are the charts shown in the slides based on dry weather or wet weather data?
A: Wet weather.

Q: What was the concentration used for creating the Fecal Coliform Loads chart?
A: 1500mg/L

Q: Is Baseline cost included in each scenario?
A: Yes

Exhibit 2
Summary of Alternatives Evaluated for SMP

	Scenario												
Control Technology	**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			●	●	●		●	●	●	●	●	●	●

CSO Control Alternative Scenarios Affordability

Mike Domenica discussed the City's budget for the CSO program. The City's budget was compared to other local towns/cities. The goal of determining with stakeholders the final selection of a CSO control alternative was defined. Four scenarios were highlighted for comparison of increased residential annual sewer bill.

Questions & Answers:
Q: Why is Newport so different in comparison to other cities regarding affordability and budget?
A: Not all compared cities have a combined sewer system. Some cities have many more or less system users. Some cities use different portions of their tax money for system upgrades and operation.

Q: Why does the hydraulic modeling use storm years instead of regular storm events?
A: EPA initially declared Newport as a Separated Sewer System. EPA has now declared Newport to in fact be a Combined Sewer System.

Parking Lot

- Can a dry weather graphic for water quality benefits be presented?
- Can hydraulic modeling graphics for 5 and 10-year storms be presented?

Next Meeting

The next meeting was set for August 14, 2012 at 3:00 pm at City Hall, Council Chambers. This meeting will be a continuation of Meeting #7.

CSO Stakeholder Workgroup Meeting #7 Attendees

MEETING DATE:	Thursday August 9, 2012 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
Workgroup Members		
Justin McLaughlin	City Council	
Ray Smedberg	Ad Hoc Committee	
David McLaughlin (Alternate)	Ad Hoc Committee	
John McCain	ALN	
Roger Wells (Alternate)	ALN	
Tina Dolen	Aquidneck Island Planning Commission	
Chris Witt (Alternate)	Aquidneck Island Planning Commission	
Charles Wright	Beach Commission	
Kathleen Shinners (Alternate)	Beach Commission	
Bill Riccio	Dept. Public Services	
Eric Earls (Alternate)	Dept. Public Services	
Paige Bronk	Dept. Planning	
Bill Hanley (Alternate)	Dept. Planning	
Tim Mills	Harbor Master	
Mary E. Dever-Putnam	EPA	
James Carlson	NSN	
William Monaco (Alternate)	NSN	
Jody Sullivan	Newport County Chamber	
Ed Lopes (Alternate)	Newport County Chamber	
Evan Smith	NCCVB	
Cathy Morrison (Alternate)	NCCVB	
Shawn Brown	Middletown	
Tom O'Loughlin (Alternate)	Middletown	
Joe Haberek ~~Eric Beck~~	RIDEM	
Angelo Liberti (Alternate)	RIDEM	
Jim Brunnhoeffer	RWU	
B. Gokhan Celik (Alternate)	RWU	

MEETING DATE:	Thursday August 9, 2012 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
D PRESCOTT ~~John Torgan~~	Save the Bay	DRP
Wendy Waller (Alternate)	Save the Bay	
Tom Cornell	Resident	TC
Stuart K. Mills, Jr.	Resident	
Roger Slocum	Resident	
Ted Wrobel	Resident	
Other Attendees		
Julia Forgue	City of Newport	
Ken Mason	City of Newport	
Mike Domenica	CH2M HILL	
Peter von Zweck	CH2M HILL	
Becky Weig	CH2M HILL	
Jim Lauzon	United Water	
Jim		

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CSO Program Stakeholder Workgroup: Meeting #7a
System Master Plan Control Options (continued)

City Hall – Council Chambers

August 14, 2012

CH2MHILL

1

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STAKEHOLDER COMMENTS AND QUESTIONS

2

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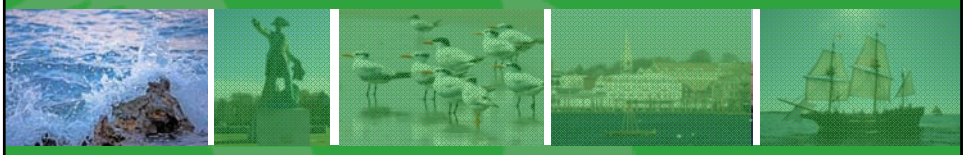

REGULATORY FRAMEWORK

3

Regulatory Documents that Outline CSO Planning Requirements and Strategies

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From Stakeholders Meeting #6
February 9, 2012

Clean Water Act

- Meet water quality standards
- Support designated uses

EPA CSO Policy

- Eliminate or relocate CSO discharges to "sensitive use" waters
- "Equivalent primary treatment" is allowable for CSO discharges
- Maximizing flow to the WPCP is a required

Consent Decree

- Dictates the deliverables and schedule of activities for the City of Newport to meet its regulatory requirements

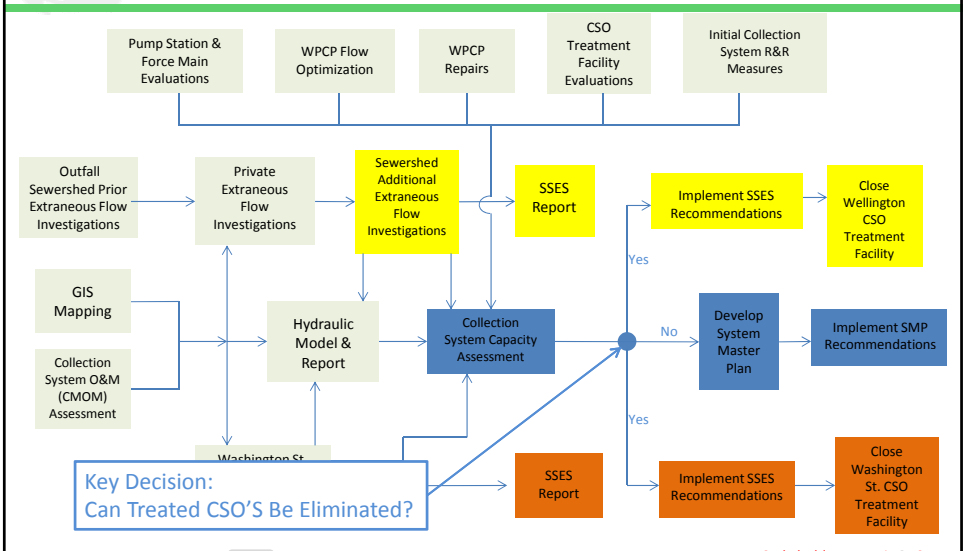
Regulatory Framework for Evaluating System Improvements

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…….

From Stakeholders Meeting #6b
May 3, 2012

Decision Framework from Newport's Consent Decree



From Stakeholders Meeting #6
February 9, 2012

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 applies if wet weather discharges cannot be eliminated cost effectively with CSCA technologies

From Stakeholders Meeting #6b
May 3, 2012

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EVALUATION OF SCENARIOS

8

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.

From Presentation to Newport City Council by CH2M HILL on March 2011

9

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

From Presentation to Newport City Council by CH2M HILL on March 2011

10

Summary of Alternatives Evaluated for the SMP

Revised August 14, 2012

NEWPORT RHODE ISLAND 1639

	Scenario													
Control Technology	**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 (Wellington)		●	●	●	●									
CSOT-2 Enhanced CSO Treatment (Washington)			●	●	●								●	
OS-2 (WPCP)						●	●					●		
I-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			●	●	●		●	●	●	●	●	●	●	

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NEXT MEETING

12

Summary of Selected Alternatives

Evaluation Criteria	Weight	SCENARIO							
		BL		?		?		?	
		Rating	Score	Rating	Score	Rating	Score	Rating	Score
Cost/ Affordability									
Water Quality Benefits									
Social Impacts									
Regulatory Compliance									
Engineering/ Flexibility									
Total Score									

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

13

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

14

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

15

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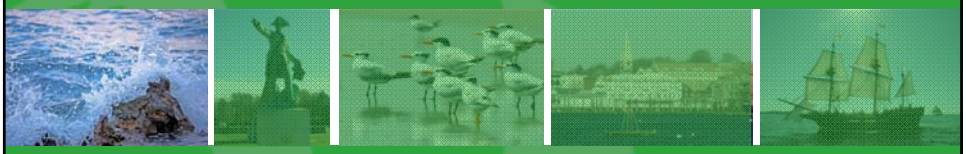


DISCUSSION

16

Newport Combined Sewer Overflow (CSO) Stakeholder Workgroup: Meeting #7a

ATTENDEES: See Attachment 1

DATE & PLACE: August 14, 2012; City Hall, Council Chambers

Welcome & Introductions

Julia Forgue introduced City staff as well as the CH2M HILL consultant team members.

Overview of Agenda

Julia Forgue provided an overview of the agenda and asked if there were any questions before moving forward. 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 System Master Plan (SMP) can be prepared. A summary of the agenda follows:

1. Introductions & Comments on Previous Meeting
2. Review Regulatory Framework
3. Overview of the Agenda (Continuation of Meeting #7)
4. Key Meeting Topics
    a. SMP Control Technologies – Preliminary Screening
    b. Comments & Input for Draft SMP
5. Next meeting information

Comments on Previous Meeting

Each stakeholder was asked to provide comments and feedback on their primary concerns before moving forward with the System Master Plan development. The comments provided were:

- Subtract dry weather pollutant load at WPCP from the loading figures presented at meeting #7
- Share data on larger storm events than the data presented at meeting #7
- Provide information about CSO reduction per scenario
- What does designation as combined system by EPA mean for the City & development of the SMP
- What overflows can be approved per CD?
- Have the CSO program goals changed?
- Lacking information to decide how to attack the problem
- Explain building blocks and effectiveness, and how scenarios were developed.
- What can we do for money left under affordability?
- Provide a matrix of reduction vs. cost
- Where are we in terms of storm event $/activity?
- The SMP should incorporate storm water pollutant issues

- Get storm water in SMP – Water quality impact/beach closures/SSOs
- Baseline projects – system maintenance and operations need to be included and factored into spending
- Don't agree with the change in focus – "cleaner" CSO's vs. CSO reduction
- The city is responsible for reducing CSO's, but doesn't have to spend large amounts of money if it won't achieve the target
- Build flexibility into the program to allow for reassessments and changes of direction
- Establish better ways to track benefits/different types of storm events
- For costs get the biggest bang for the buck. What is the minimum to spend and be in compliance? What are threshold numbers and the criteria?
- What is the Cost/Sewer Bill/yr for each scenario?
- Will the scenario achieve regulatory compliance?
- In the SMP, make no commitments for more than 8-10 years
- Show that the existing system is optimized before new construction is initiated
- What have other CSO communities done to achieve success regarding performance of technologies?
- Where does storm water go with I/I reduction?
- Bring sea level rise with regards to life expectancy of scenario options in the planning
- Provide a summary of scenarios – cost, strategy of scenario combination, and likelihood to eliminate CSOs

Review of Regulatory Framework

Peter von Zweck provided a review of the regulatory framework that outlines the CSO planning requirements and strategies. The presentation included the key documents, the decision framework from the consent decree and the steps to achieve compliance per the consent decree.

Questions & Answers:
Q: Does elimination of CSOs mean zero overflows regardless of the size of the storm?
A: Yes. The regulatory agencies do not approve any size storms to allow for overflows. The RIDEM representation did state that while the regulatory agencies can not approve any overflows regardless of the size of the storm, that they do take into consideration the size of the storm before issuing and violations or penalties as it is understood that communities can only design systems to handle limited size events.

Key Meeting Topics

SMP Control Technologies – Evaluation of Scenarios

Peter von Zweck presented a summary on the evaluation of scenarios which included:

- Reviewing the CSO Program Goals,
- The strategy to achieve the goals of the CSO Program, and
- A summary of the alternatives that have been evaluated for the SMP.

Members of the stakeholder workgroup provided the following comments:

- In the strategy to achieve the goals of the program, strategy #6 – identify a program & and implementation schedule that is affordable to Newport customer, is really the critical item that matters the most
- The workgroup members would like to see the SMP incorporate a 20-year program that is funded on a 5-year schedule, with check-points every 5 years to review progress and revise the path forward.
- The stakeholders would like to work together to build an SMP scenario at the next meeting. It was agreed that CH2M HILL would prepare brief summaries of each of the scenarios evaluated to date to be sent out for stakeholder review prior to the next meeting.

Next Meeting

The next meeting was set for September 6, 2012 at 3:00 pm at City Hall, Council Chambers.

Attachment 1

CSO Stakeholder Workgroup Meeting #7 Attendees

MEETING DATE:	Thursday August 9, 2012 @ 3:00 PM TUESDAY 8/14/12
LOCATION:	City Hall Council Chambers – Newport, RI 14 Aug 12

Name	Affiliation	In Attendance
Workgroup Members		
Justin McLaughlin	City Council	
Ray Smedberg	Ad Hoc Committee	
David McLaughlin (Alternate)	Ad Hoc Committee	
John McCain	ALN	
Roger Wells (Alternate)	ALN	
Tina Dolen	Aquidneck Island Planning Commission	
Chris Witt (Alternate)	Aquidneck Island Planning Commission	
Charles Wright	Beach Commission	
Kathleen Shinners (Alternate)	Beach Commission	KhS
Bill Riccio	Dept. Public Services	
Eric Earls (Alternate)	Dept. Public Services	
Paige Bronk	Dept. Planning	
Bill Hanley (Alternate)	Dept. Planning	
Tim Mills	Harbor Master	
Mary E. Dever-Putnam	EPA	
James Carlson	NSN	
William Monaco (Alternate)	NSN	
Jody Sullivan	Newport County Chamber	
Ed Lopes (Alternate)	Newport County Chamber	
Evan Smith	NCCVB	
Cathy Morrison (Alternate)	NCCVB	
Shawn Brown	Middletown	
Tom O'Loughlin (Alternate)	Middletown	
~~Eric Beck~~ Sue Haberek	RIDEM	
Angelo Liberti (Alternate)	RIDEM	
Jim Brunnhoeffer	RWU	
B. Gokhan Celik (Alternate)	RWU	

MEETING DATE:	Thursday August 9, 2012 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
~~John Torgan~~ DAVID PRESCOTT	Save the Bay	DRP DRP
Wendy Waller (Alternate)	Save the Bay	
Tom Cornell	Resident	TC TC
Stuart K. Mills, Jr.	Resident	
Roger Slocum	Resident	R Slocum R Slocum
Ted Wrobel	Resident	H Tek
Other Attendees		
Julia Forgue	City of Newport	✓ ✓
Ken Mason	City of Newport	KEM ✓
Mike Domenica	CH2M HILL	✓
Peter von Zweck	CH2M HILL	✓
Becky Weig	CH2M HILL	✓
Jim Lauzon	United Water	
Jim		

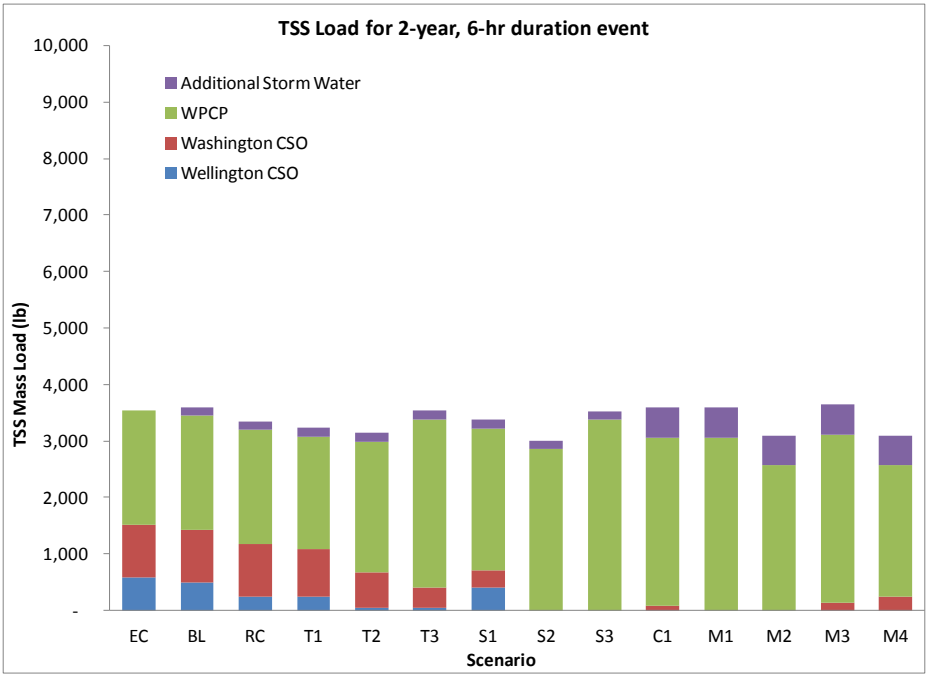
Newport CSO Stakeholder Workgroup

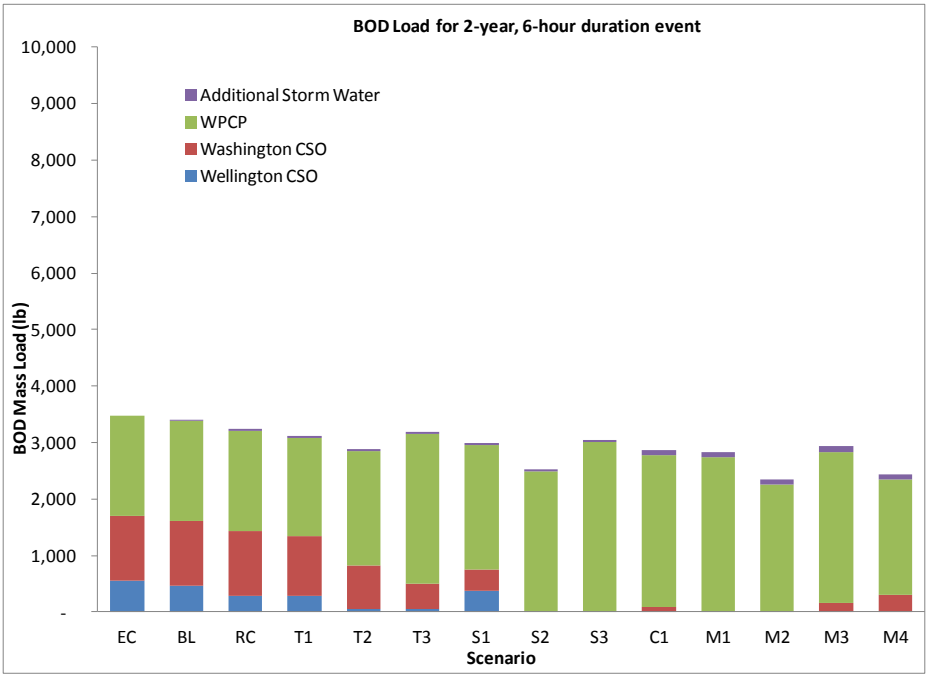
Comments from the August 14th Meeting with Responses

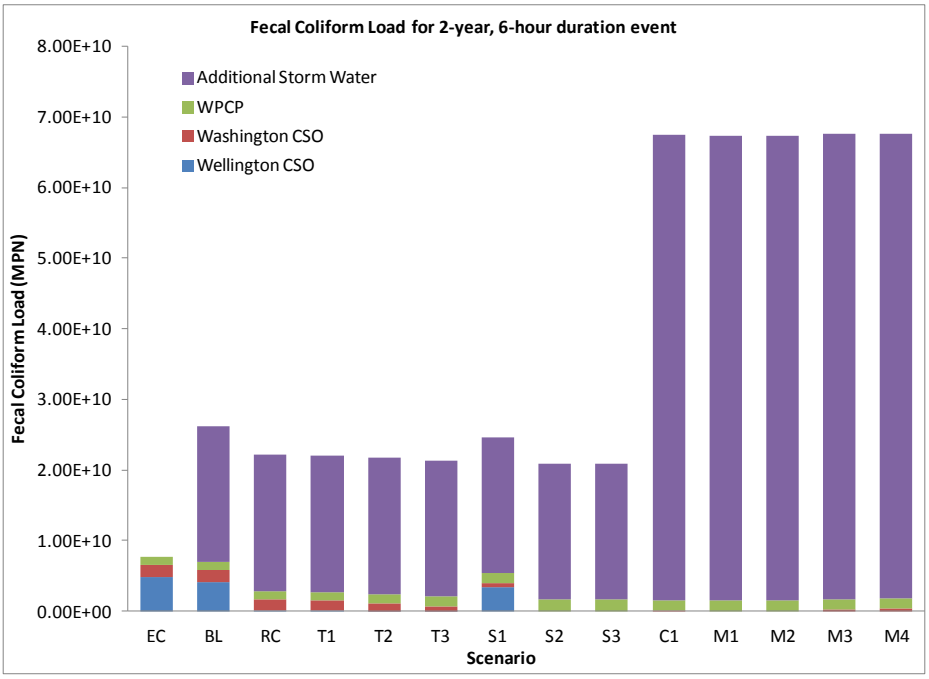
The requests, comments and questions collected during the August 14th Stakeholder Workgroup are summarized below. A response has been provided for each of the 27 items. Each response is based on the best available source of information and engineering evaluations completed to-date. In cases where a complete response is not provided – or is subject to an engineering evaluation not yet completed – a note on the expected resolution is noted.

Request #1: Subtract dry weather loads at the WPCP from the pollutant graphics.

Response: *Updated graphs are provided below.*







Request #2: Please share data on each scenario's performance for reducing discharge volumes for larger storm events.

Response: *A summary of discharge volumes at the two CSO treatment facilities for "larger" storm events is provided below. This same information is provided in the fact sheets for each scenario.*

Scenario	2-year		5-year		10-year	
	Wellington	*Washington*	*Wellington*	*Washington*	*Wellington*	*Washington*
EC	1.29	4.30	1.83	6.50	2.72	7.81
BL	1.09	4.30	1.78	5.39	2.67	7.12
PC[1]	1.09	4.30	1.78	5.39	2.67	7.12
T1	1.09	3.94	1.78	5.30	2.68	6.89
T2	0.20	2.90	0.59	5.04	1.27	6.74
T3	0.20	1.65	0.58	2.44	1.29	3.76
S1	0.89	1.38	1.29	3.16	2.05	3.73
S2	0.00	0.00	0.38	0.00	0.78	0.28
S3	0.00	0.00	0.35	0.00	0.79	0.94
C1	0.00	0.36	0.00	1.15	0.49	2.76
M1	0.00	0.00	0.00	0.04	0.47	1.64
M2	0.00	0.00	0.00	0.82	0.25	3.21
M3	0.00	0.63	0.00	1.13	0.48	1.18
M4	0.00	1.14	0.00	3.41	0.49	4.28

[1] Revised scenario name from RC to Permit Compliance (PC) to better reflect its objective.

Request #3: Please provide information on CSO event reduction for each scenario.

Response: *The approach to system planning includes evaluation of the system's performance for average annual conditions before and after controls are implemented. This will be addressed in two steps. A "screening level" assessment of overflow frequencies is provided below. These estimates are based on a review and an extrapolation of model results for design events – compared with storms for an "average year". After a control scenario is selected for the SMP, the citywide hydraulic model will be used to calculate the number, volume, duration and peak discharge rates for comparison with the project's baseline.*

Scenario	Estimated Annual Number of Discharge Events[1]	
	Wellington	*Washington*
EC	12	20
BL	12	20
PC	12	20
T1	12	18
T2	5	11
T3	5	6
S1	11	5
S2	3	1
S3	3	1
C1	1	3
M1	1	1
M2	1	3
M3	1	4
M4	1	5

[1] Estimated from model runs completed to-date.

Request #4: Provide information on Newport's designation as combined system.

Response: *The majority of Newport's collection system was originally designed to transport both sanitary and storm water runoff. Although the City has been active toward constructing a separate drainage system, recent field work has confirmed that a large number of wet weather connections remain throughout the city. This information was summarized in 2 reports submitted to the EPA in 2011. One report was prepared for the Wellington Service Area and the other was for the Washington Service Area. Based on a review of these reports, the EPA acknowledged that portions of the collection system remain combined. EPA's finding expands the framework of regulatory requirements for this project to include the National CSO Policy and also limits the extent of Newport's obligations to "affordable" limits. A copy of the EPA's letter on this topic was distributed at the August 14th Stakeholder's Meeting.*

Request #5: What overflows can be approved per Consent Decree?

Response: *The Consent Decree describes the process for evaluating CSO controls but does not describe the extent to which overflows must be controlled. The EPA's CSO Policy provides more specific guidance on acceptable levels of control. This includes a "demonstrative" and a "presumptive" approach. In situations when elimination is determined to be infeasible or unaffordable, most programs choose to follow the presumptive approach. An excerpt from the policy describing control requirements is provided below:*

The USEPA's CSO Control Policy, contained in 40 CFR Part 122, defines its "Presumption" Approach as a program that meets any of the following:

i. No more than an average of four overflow events per year, provided that the permitting authority may allow up to two additional overflow events per year. For the purpose of this criterion, an overflow event is one or more overflows from a CSS as the result of a precipitation event that does not receive the minimum treatment specified below; or

ii. The elimination or the capture for treatment of no less than 85% by volume of the combined sewage collected in the CSS during precipitation events on a system-wide annual average basis; or

Request #6: Have the CSO program goals changed?

Response: *The programs goals have not changed. Although the framework of regulatory requirements has expanded as a result of the recently completed field investigations and engineering studies, the program continues to follow the planning process described in the Consent Decree. The summary statement used for the program is provided below:*

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.

Request #7: The Stakeholders are lacking information to decide how to attack problem.

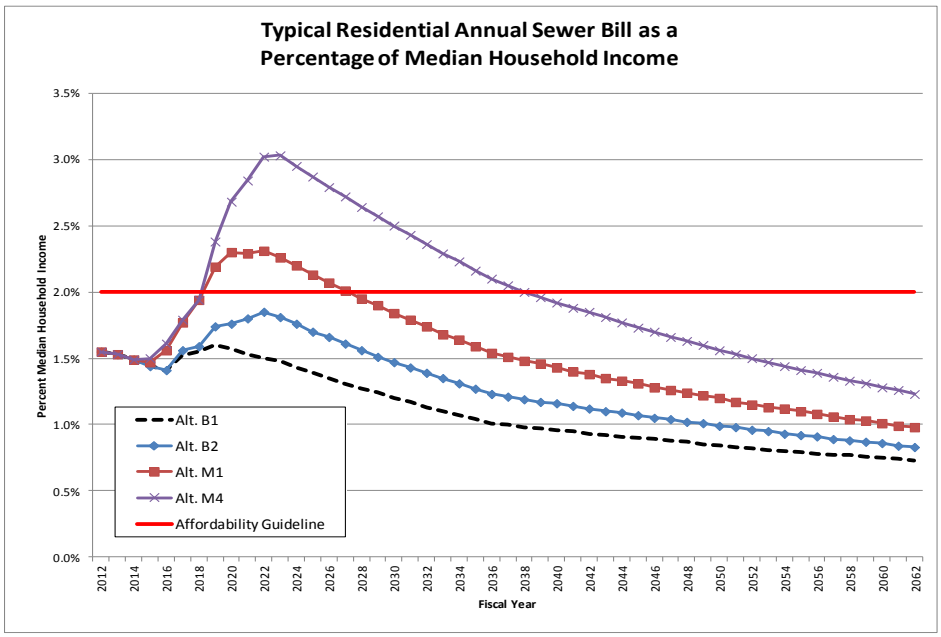
Response: *Fact sheets summarizing the components, costs, system benefits, and discharge characteristics have been provided since the August 14th meeting.*

Request #8: Explain building blocks and effectiveness, and how scenarios were developed.

Response: *The fact sheets include an explanation of the objectives of each scenario and logic used to select its component projects.*

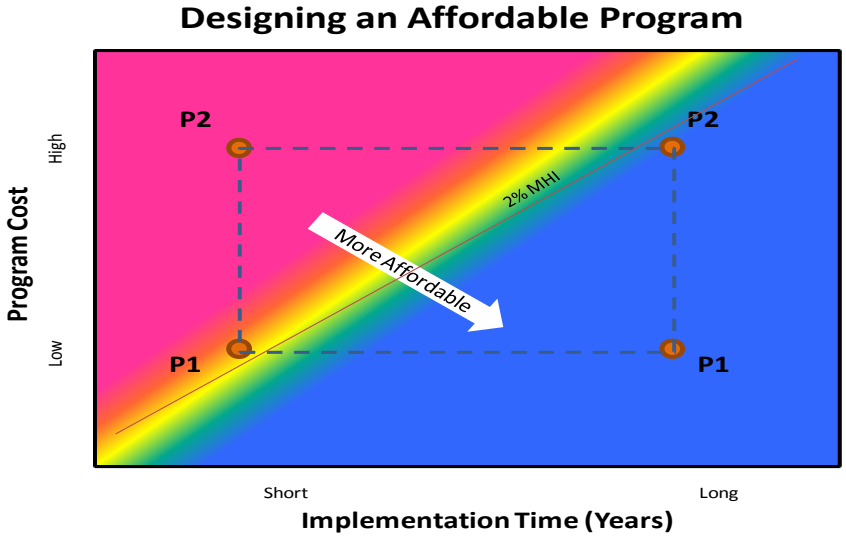
Request #9: What can we do for money left under affordability?

Response: *The concept of identifying a program that is affordable is complex. It is influenced by current obligations, identification of controls that meet program objectives, and planning implementation to maintain rates within the City's limits of affordability. The following data were presented During the August 9th Stakeholders Workgroup meeting.*



These data demonstrate the potential impacts of 4 scenarios relative to Median Household Income. The scenarios bracket the range of alternatives studied to-date from least expensive – to most expensive. The analysis is also based on the assumption that all of the controls will be implemented by 2018 (the date referenced in the Consent Decree). The graphic shows that implementation of the more expensive scenarios at the schedule referenced in the Consent Decree may cause rates to significantly exceed the 2% of MHI index typically used to limit "affordability".

Designing an affordable program is a key strategy of the program. As illustrated in the following graphic, the affordability of low and high cost programs can vary significantly when implementation periods are considered.



Request #10: Please provide a matrix of CSO reduction vs. cost.

Response: Fact sheets summarizing the components, costs, system benefits, discharge characteristics and cost per CSO reduction have been provided since the August 14th meeting.

Request #11: Where are we in terms of storm event $/activity?

Response: Fact sheets summarizing the components, costs, system benefits, discharge characteristics and potential impacts have been provided since the August 14th meeting.

Request #12: The program should address storm water pollutant issues.

Response: Although storm water pollution may contribute to impairments to the harbor and beaches, the focus of the current program is to identify controls appropriate for its two CSO treatment facilities. The City is keeping stormwater in mind while developing the controls for the CSO program because stormwater requirements are covered from the same rates as CSO controls and will impact the affordability determinations.

Request #13: Please address impacts of storm water related to water quality and impacts to beach closures and CSOs.

Response: Data on water quality in the harbor were presented at Stakeholder Workgroup Meeting #4 in September 2011. Based on the data discussed at that meeting it was suggested that reducing CSO events in the harbor is not likely to have any impact on the frequency of beach closures.

Request #14 Baseline projects – system maintenance and operations need to be included and factored into spending.

Response: Costs associated with the City's operations and maintenance agreement – and costs associated with projects in its current CIP have been incorporated into the affordability analysis.

Request #15: Has there been a change in focus from CSO reduction to "cleaner" CSO's?

Response: The goals of the program remain as described in response #6. As described in Item #65 of the Consent Decree this includes an evaluation of a broad range of "additional measures" including I/I reduction, storage and high-rate treatment.

Request #16: Is the City responsible for reducing CSO's if it won't achieve the elimination or WQ targets?

Response: It is expected by the regulatory agencies that even if the City can't achieve the target of elimination, that efforts will be made to work towards that ultimate goal within the confines of affordability.

Request #17: Please include flexibility in the program – allowing for reassessments.

Response: Phasing and reassessment of CSO control measures is a standard practice. The benefits of phasing Newport's investments in CSO controls will be addressed in the SMP.

Request #18: Establish better ways to track benefits/different types of storm events.

Response: *The best way to evaluate the potential benefits of CSO control technologies or combination scenarios is through the use of the calibrated hydraulic model. As shown in the fact sheets summarizing the components, costs, system benefits, discharge characteristics and potential impacts that have been provided since the August 14th meeting the potential benefits for larger-sized storm events has been evaluated and presented for consideration.*

Request #19: Costs – biggest bang for the buck – what is the minimum to spend and be in compliance? What are threshold numbers and the criteria?

Response: *Fact sheets summarizing the components, costs, system benefits, and discharge characteristics have been provided since the August 14th meeting.*

Request #20: What is the $/Sewer Bill/yr for each scenario?

Response: *Information on rates for scenarios ranging from the least to the most expensive is provided in response #9. This data is presented with reference to MHI. The potential impact on an average annual utility bill is dependent on both the program costs and the implementation schedule for the recommended scenario.*

Request #21: Will these scenarios get the City to "regulatory compliance"?

Response: *As shown in the fact sheets, these scenarios will bring the City closer to CSO elimination, but do not guarantee that after implementation and evaluation of progress that the City will not need to make additional efforts towards elimination of CSOs. Much like the City's efforts in the 1970s and 1980s to separate sewers and build CSO treatment facilities were big steps towards compliance, over time they are being required to do more.*

Request #22: The program should not make a commitment for more than 8 to 10 years.

Response: *Based on evaluations completed to-date it appears likely that it will require more than 8-years to implement improvements that achieve a high level of control – while maintaining rates below recommended limits for affordability. Correspondingly, phasing and reassessment of CSO control measures will be addressed in the SMP.*

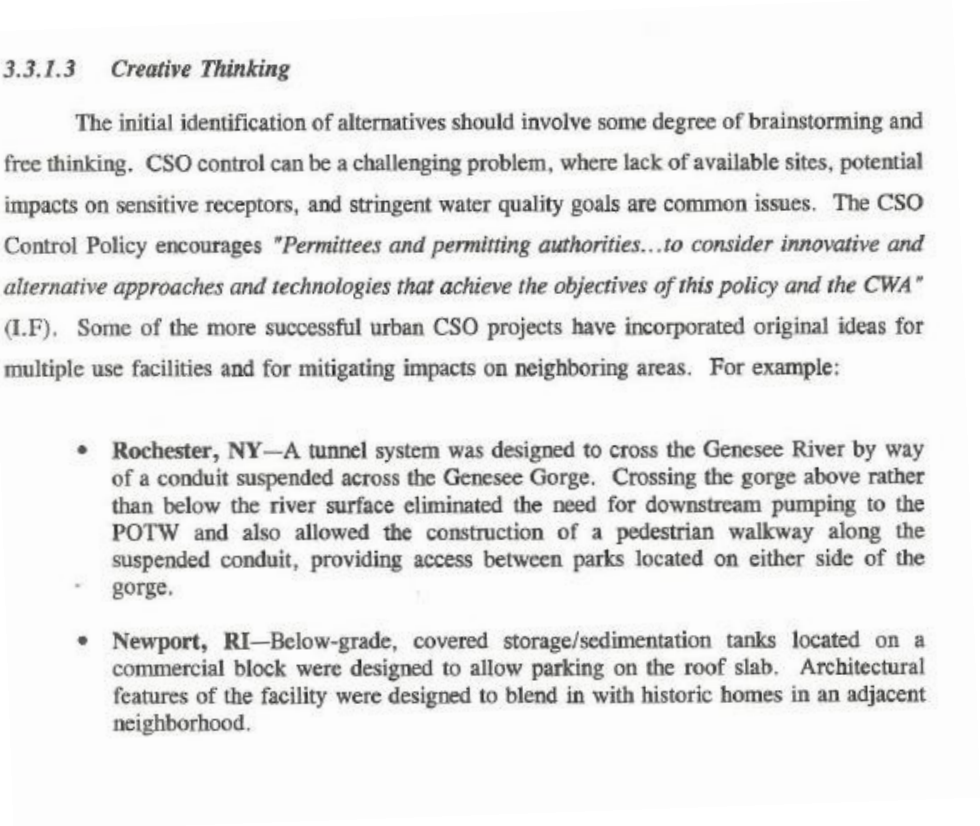
Request #23: Show that existing system is optimized before new construction.

Response: *Optimization of the system was been considered during the preliminary engineering and evaluation phase of the program. Prior to evaluating CSO controls the City completed assessments of the condition and operating protocols for its wastewater collection and treatment systems. The key documentation for these assessments includes the following:*

- *Inventory and CMOM Self Assessment (August 2010)*
- *Evaluation of WACSOTF, WSCOTF and NASC (August 2010)*
- *CMOM Corrective Action Plan (October 2010)*
- *WPCP Flow Optimization Study (March 2011)*

Request #24 What have other CSO communities done to achieve success regarding performance of technologies?

Response: *The process for evaluating CSO control options and the results in other communities vary significantly. The EPA's guidance document for developing long-term control plans (US EPA, September 1995) provides both guidance and examples of the planning process. This document also credits the City of Newport in Section 3.3.1.3 for "creative thinking".*



3.3.1.3 Creative Thinking

The initial identification of alternatives should involve some degree of brainstorming and free thinking. CSO control can be a challenging problem, where lack of available sites, potential impacts on sensitive receptors, and stringent water quality goals are common issues. The CSO Control Policy encourages *"Permittees and permitting authorities...to consider innovative and alternative approaches and technologies that achieve the objectives of this policy and the CWA"* (I.F). Some of the more successful urban CSO projects have incorporated original ideas for multiple use facilities and for mitigating impacts on neighboring areas. For example:

- **Rochester, NY**—A tunnel system was designed to cross the Genesee River by way of a conduit suspended across the Genesee Gorge. Crossing the gorge above rather than below the river surface eliminated the need for downstream pumping to the POTW and also allowed the construction of a pedestrian walkway along the suspended conduit, providing access between parks located on either side of the gorge.
- **Newport, RI**—Below-grade, covered storage/sedimentation tanks located on a commercial block were designed to allow parking on the roof slab. Architectural features of the facility were designed to blend in with historic homes in an adjacent neighborhood.

Many communities that have followed EPA's guidance have developed and obtained approvals for control plans founded on the same technologies that have been discussed at recent stakeholder meetings for Newport. Few (if any) have been successful in completely eliminating overflows on a community wide basis. Examples of recent plans in New England include:

- *Providence, Rhode Island – Phase 1 includes construction of a deep tunnel system to reduce overflows for a portion of its system to a long-term average of 4 per year. Currently engaged in the design/construction of conveyance controls as a part of Phase 2.*
- *Bangor, Maine – Developed and implemented a plan in the 1990s that included combinations of conveyance, high-rate treatment and storage following the presumptive approach. The program was selected by EPA as the Outstanding CSO Program in 1996. The City is currently working with EPA on an update to its plan designed to achieve higher levels of control.*
- *City of Boston, Massachusetts - Developed a LTCP using control technologies specific to receiving water uses. Included use of high-rate treatment facilities on the Charles River.*

Request #25: Where does storm water go with I/I reduction?

Response: *Storm water disconnected from the wastewater collection system may be redirected to the ground or directly to the storm drainage system. In the case of roof leaders it is expected that a portion of them may removed through "cut and splash" modifications. The specific extent of this approach would be determined by property owners as the modifications are implemented. It is also expected that some roof leader disconnections may require on-property drainage improvements that would indirectly route those flows through pipes or overland to the storm drainage system. For catch basins currently connected to the wastewater collection system, most modifications are expected to be performed by construction of new drains and/or laterals required to connect them to the storm drainage system.*

Additional detail on the implantation strategies required to meet the program's goals for I/I reduction are to be included in a Sewer System Evaluation Report submitted separately from the SMP. In accordance with the Consent Decree, this report is scheduled to be prepared after the SMP is approved by the appropriate regulatory agencies.

Request #26: Please describe how sea level rise (related to climate change) may affect the life expectancy of scenario options.

Response: *All discharges from Newport's wastewater collection and treatment systems are pumped into the harbor. This includes discharges from both of the CSO treatment facilities and the WPCP. The potential affect of sea level rise on the performance of these pumped discharges is considerably less than should be expected for systems that drain by gravity. However do to the close proximity of the CSO treatment facilities to the harbor, measures required to protect them from rising sea levels should be evaluated as a part of the design process.*

Request #27: Please provide a summary of the scenarios and their costs.

Response: *Fact sheets summarizing the components, costs, system benefits, and discharge characteristics have been provided since the August 14th meeting.*

MEETING AGENDA

CSO Stakeholder Workgroup Meeting #8 Agenda (#10-039)

MEETING DATE: September 6, 2012

MEETING TIME: 3:00 PM

VENUE: City of Newport Council Chambers, City Hall

1. Welcome & Introductions
2. Overview of the Agenda
3. Approval of previous meeting's minutes
4. Follow-up on Parking Lot items:
    a. Response to comments from meeting #7a
5. Facilitated session to develop preferred alternative
    a. Stakeholder rankings of 13 scenarios
        i. Stakeholder comments on how they determined priorities
        ii. Presentation of results
    b. Discussion of top scenarios
    c. Selection of SMP scenario
6. Next meeting information

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

2

Meeting Agenda

- Overview of the Program Schedule
- Approval of Previous Minutes
- Parking Lot Follow-up Items
- Key Meeting Topics
  - SMP scenario discussion & results
  - Discussion of top rated scenario(s)
  - Development of final scenario for draft SMP
- Future Meetings, Wrap-up, Comments

3

Objective for This Meeting

The objective for this meeting is to collect comments from stakeholders on a preferred SMP scenario and any alterations to the scenario for draft SMP development.

4

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.

- From Presentation to Newport City Council by CH2M HILL on March 2011

5

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

6

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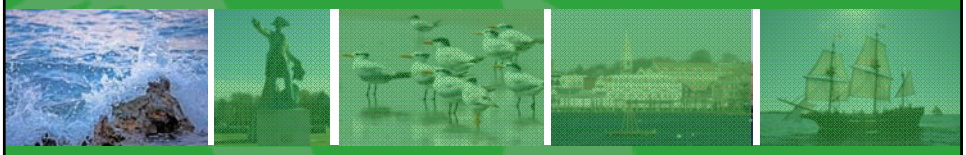
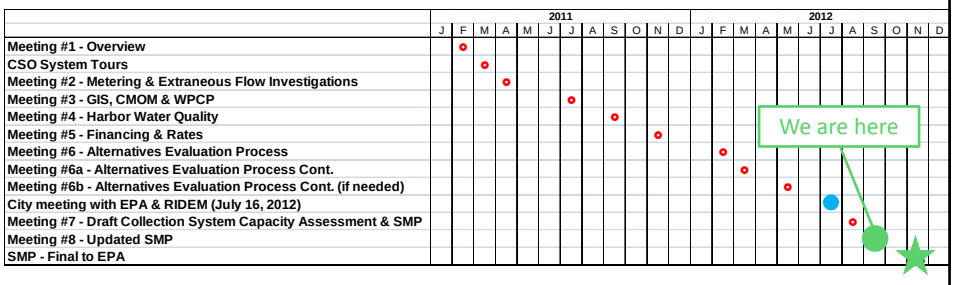


OVERVIEW OF THE STAKEHOLDER WORKGROUP

7

Schedule of Stakeholder Meetings



- 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.

8

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.

9

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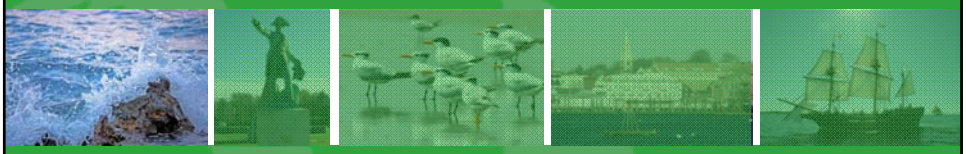

PREVIOUS MEETING'S MINUTES

10

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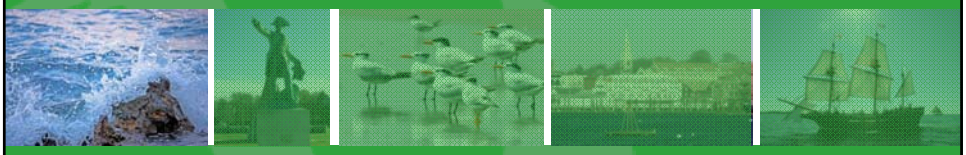

PARKING LOT FOLLOW-UP ITEMS

11

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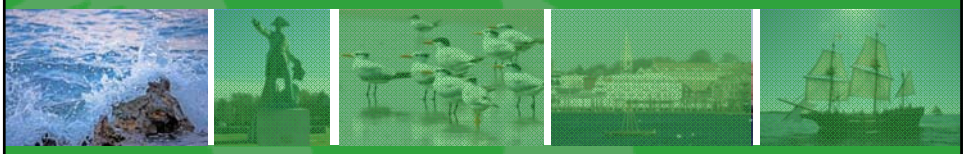


STAKEHOLDER SURVEY DISCUSSION & RESULTS

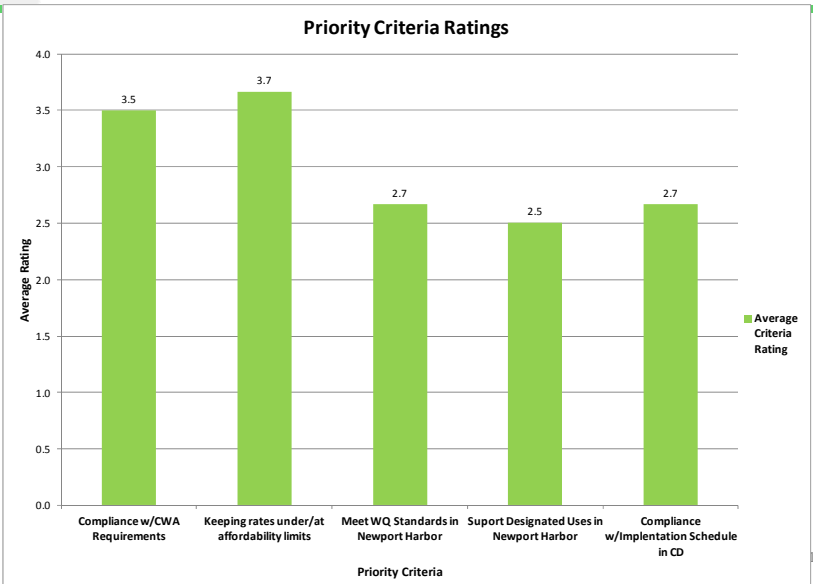
12

Discussion of Stakeholder Survey

- Purpose: To identify the SMP scenarios that stakeholders believe will best achieve stakeholder priorities & program goals
- Share with the group:
  - Highest rated priority criteria & why
  - Highest rated scenario & why

13

Results of Stakeholder Survey – Priority Criteria



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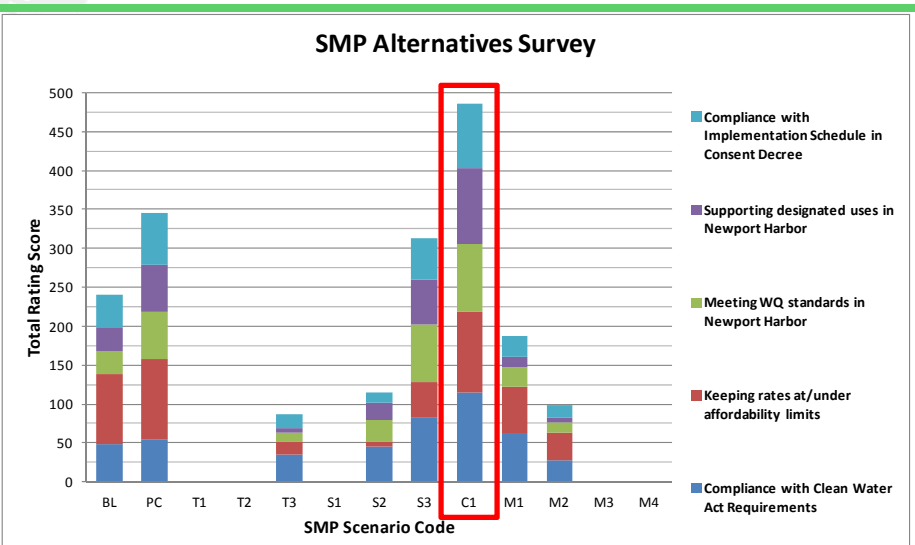
Results of Stakeholder Survey – SMP Scenarios



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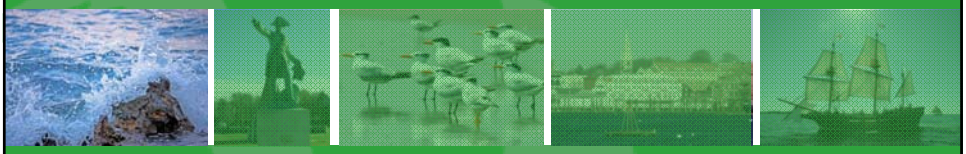


DISCUSSION OF TOP SMP SCENARIO & SELECTION FOR DRAFT SMP

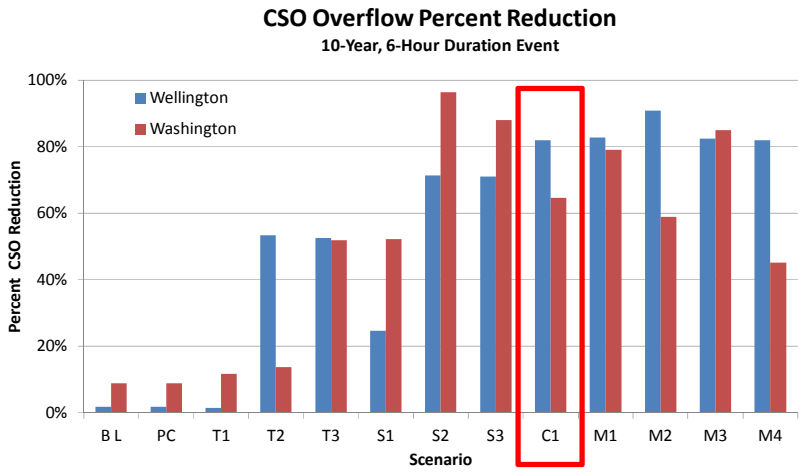
16

Top Rated SMP Scenario – C1

- Components:
  - Baseline projects
  - WPCP upgrades & expansion
  - Conveyance Improvements
  - I/I Reduction via Downspout Disconnections
- Advantages:
  - Improves and manages O&M costs
  - Almost achieves elimination at Wellington CSO Facility for 10-year storm
  - Good $/gallon CSO removed
- Disadvantages:
  - Requires high level of I/I removal on private property for downspout disconnection
  - Does not achieve CSO elimination at Washington for even 2-year storm

17

Water Quality Benefits for Scenarios– Reduction in Volume for 10yr, 6hr



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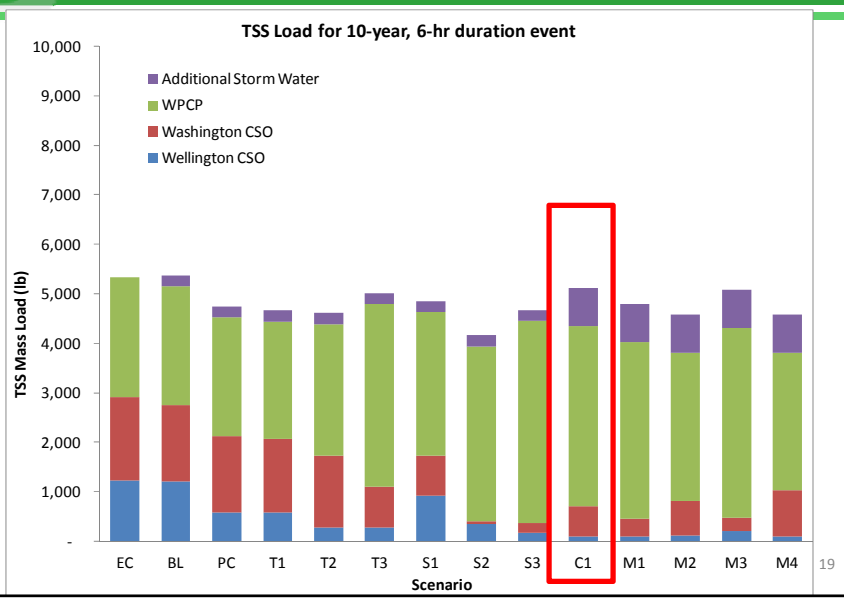
Water Quality Benefits for Scenarios– TSS Load for 10yr, 6hr



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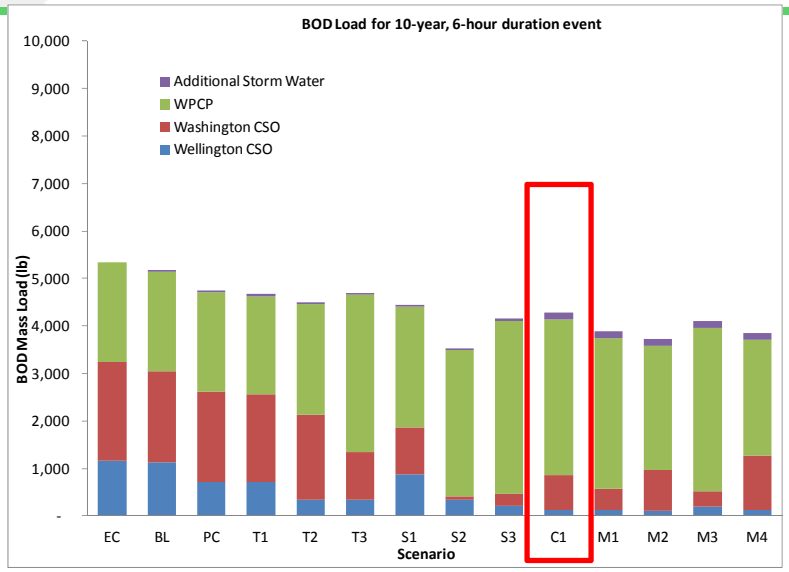
Water Quality Benefits for Scenarios– BOD Load for 10yr, 6hr



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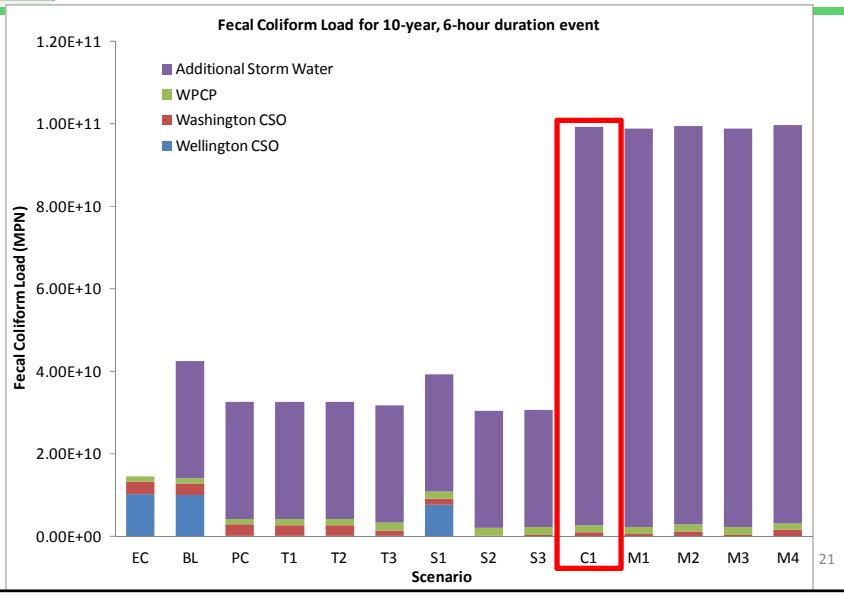
Water Quality Benefits for Scenarios– Fecal Coliform Load for 10yr, 6hr



21

Discussion of Top SMP Scenario & Selection for Draft SMP

- Share with the group:
  - What you like about the top scenario
  - If desired, what you would alter on the top scenario
- Following discussion, as a group, identify the preferred scenario (with alterations, if desired) to be evaluated for the draft SMP

22

Next Steps for the SMP

- Evaluate selected scenario
  - Mix of controls
  - Facility sizes
  - Run a typical year
  - Recalculate loads
- Prepare Implementation Plan
  - Strategies for implementation
  - Schedule for construction
  - Determine rate impacts

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NEXT MEETING

24

Next Meeting

Topic: System Master Plan Draft

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

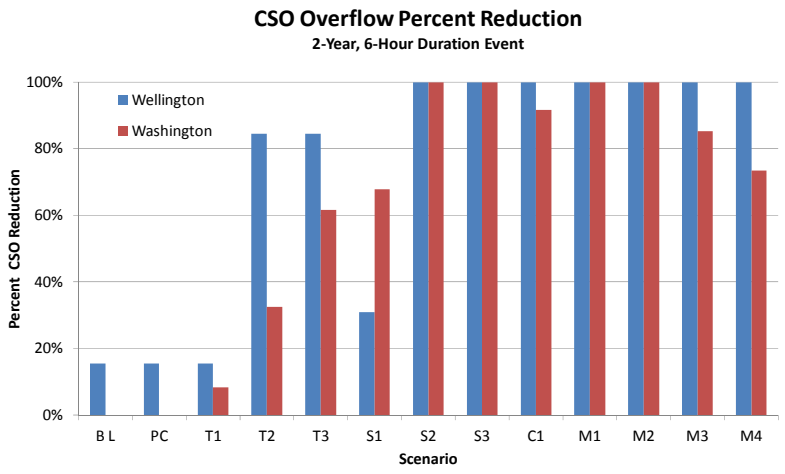
Date: September 27, 2012

Time: 3:00 PM

Location: Council Chambers

25

Water Quality Benefits for Scenarios– Reduction in Volume for 2yr , 6hr



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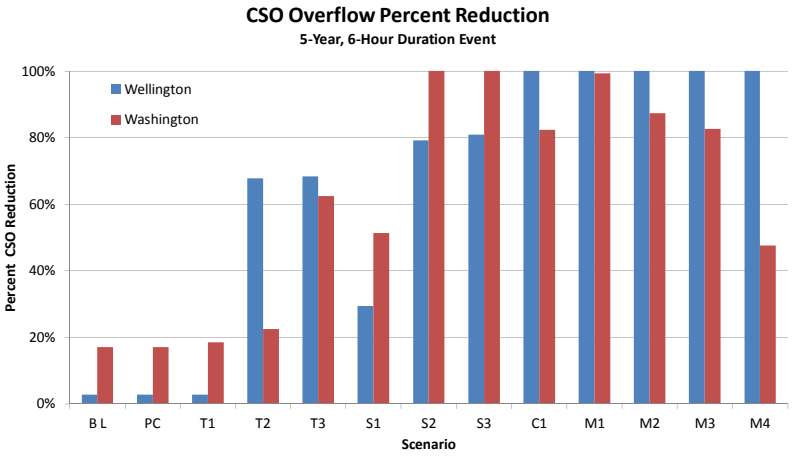
Water Quality Benefits for Scenarios– Reduction in Volume for 5yr, 6hr



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FINAL - Newport Combined Sewer Overflow (CSO) Stakeholder Workgroup: Meeting #8

ATTENDEES: See Attachment 1

DATE & PLACE: September 6, 2012; City Hall, Council Chambers

Welcome & Introductions

Julia Forgue introduced the CH2M HILL consultant team members and asked the stakeholders to state their names and organizations.

Overview of Agenda

Julia Forgue provided an overview of the agenda and asked if there were any questions before moving forward. The objective for this meeting is to collect comments from stakeholders on a preferred SMP scenario and any alterations to the scenario for draft SMP development. A summary of the agenda follows:

1. Welcome & Introductions
2. Overview of the Agenda
3. Approval of previous meeting's minutes
4. Follow-up on Parking Lot items:
    a. Response to comments from meeting #7a
5. Facilitated session to develop preferred alternative
    a. Stakeholder rankings of 13 scenarios
        i. Stakeholder comments on how they determined priorities
        ii. Presentation of results
    b. Discussion of top scenarios
    c. Selection of SMP scenario
6. Next meeting information

Overview of CSO Program Schedule

Julia Forgue provided an overview of the CSO program goals, the strategy to achieve the goals and the program schedule and review of the Stakeholder Workgroup Mission Statement.

Previous Meeting's Minutes

The minutes of Meetings #7 and #7a were approved.

Update on Parking Lot from Previous Meeting

At the previous meeting on August 14, 2012, the stakeholders provided 27 comments and questions. Responses to these comments and questions were prepared and provided to the stakeholders in advance of the meeting. A copy of the comments, questions, and responses is included in Attachment 2. There were no additional questions about the responses at the meeting.

There was a request at the August 14, 2012 meeting for fact sheets summarizing the information about each of the scenarios. These fact sheets were submitted to the stakeholders prior to the meeting along with a survey to identify preferred scenarios. The fact sheets and survey are included at Attachments 3 and 4.

Key Meeting Topics

Stakeholder Rankings

Each stakeholder identified their top rated priorities and SMP scenarios for the group. Comments provided during this discussion included:

- Compliance with the Clean Water Act (CWA) and affordability were the 2 highest priorities.
- Compliance with the schedule should not be the schedule in the consent decree, but the implementation schedule defined in the SMP to maintain affordability
- Adaptability and ability to phase the SMP are also top priorities.

Peter von Zweck presented the results of the stakeholder survey and the results are shown below in Figures 1 and 2. The top rated scenario from the stakeholder surveys was Conveyance 1 (C1). During discussion, the stakeholders also identified the Storage 3 (S3) Scenario as another top choice as they would like to see the results of the typical year modeling for both the I/I reduction scenario (C1) and the storage scenario (S3).

The stakeholders were asked to identify any alterations to the two scenarios that they would like included in the final evaluation. The following modifications were identified:

- C1 – identify control options to achieve a 10-year level of control at the Wellington CSO treatment facility
- S3 – include the Catchment 10 (CU-2) control option and include some level of I/I reduction.

FIGURE 1
Stakeholder Priority Criteria Ratings

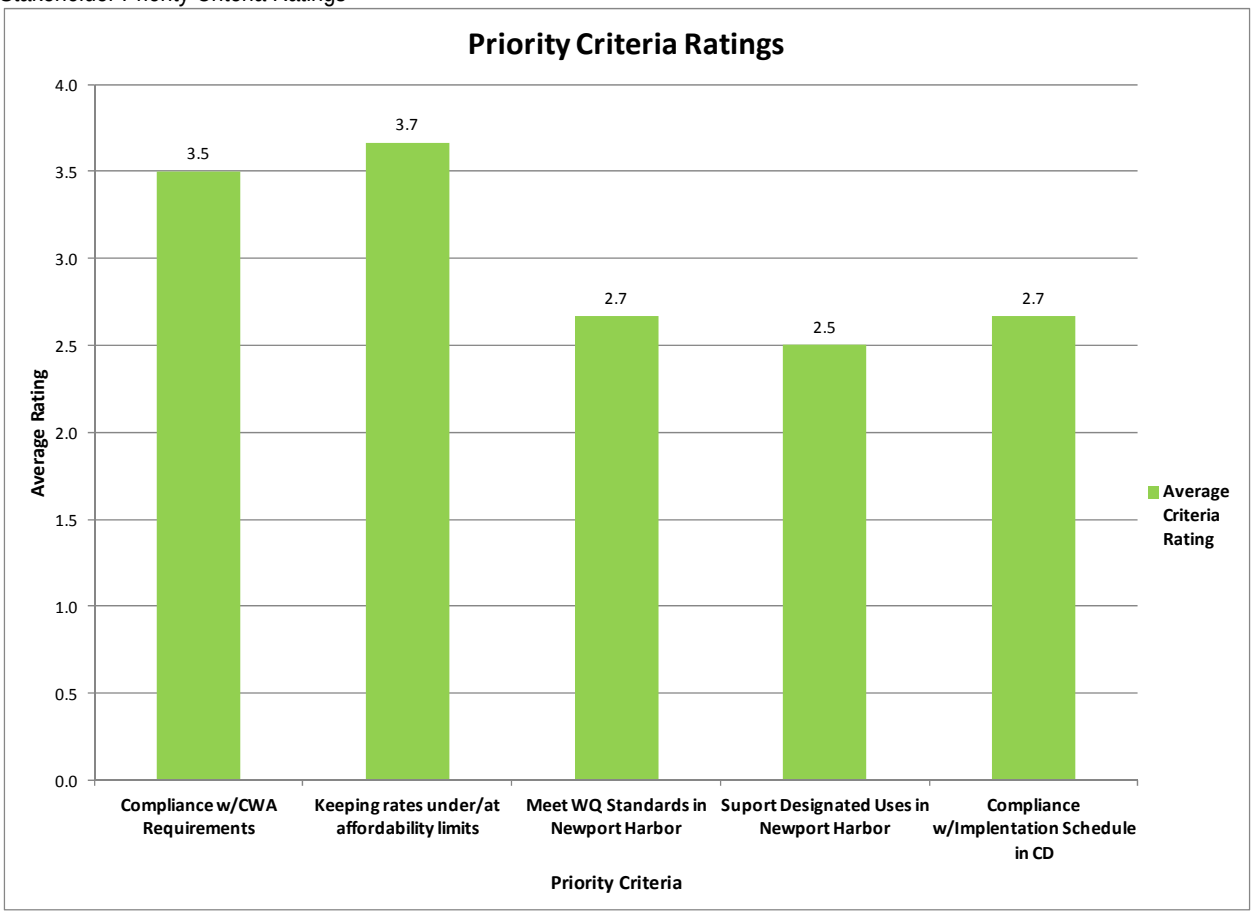
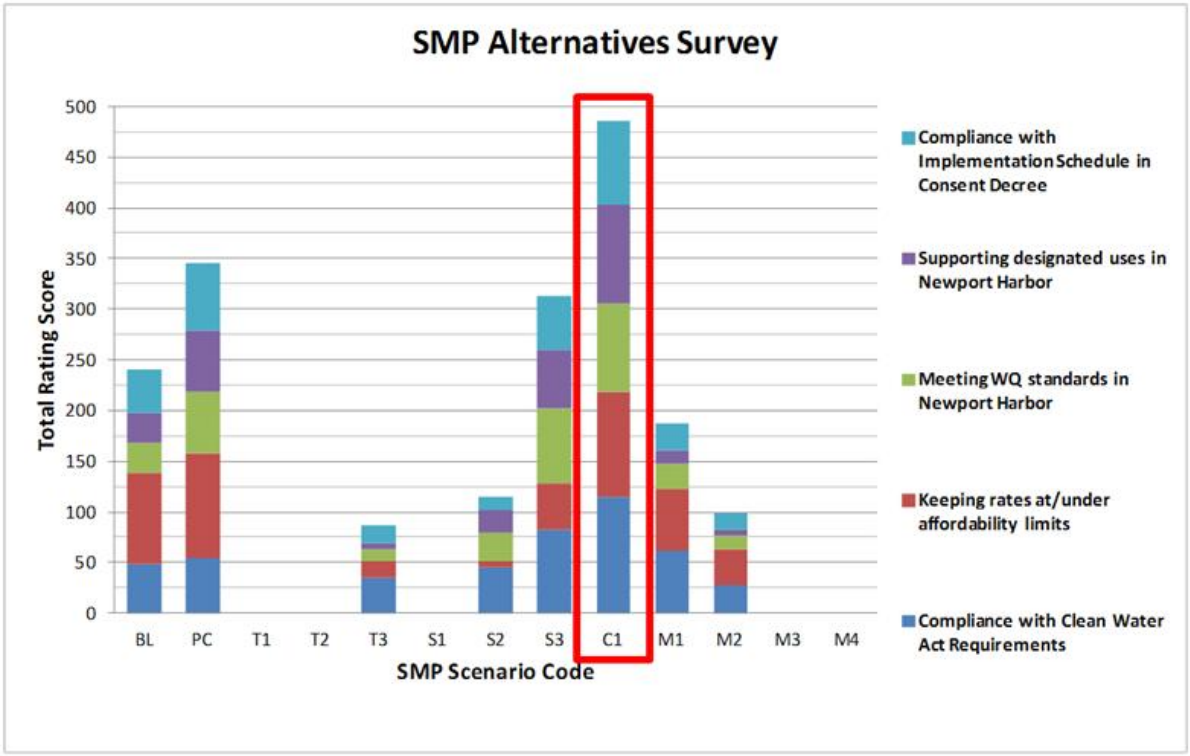


FIGURE 2
Stakeholder



Parking Lot

- Provide information about I/I reduction programs in other cities.
- Provide an update on CSO trends.

Next Meeting

The next meeting was set for October 4, 2012 at 3:00 pm at City Hall, Council Chambers.

Attachment 1

CSO Stakeholder Workgroup Meeting #8 Attendees

MEETING DATE:	Thursday September 6, 2012 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
Workgroup Members		
Justin McLaughlin	City Council	
Ray Smedberg	Ad Hoc Committee	
David McLaughlin (Alternate)	Ad Hoc Committee	
John McCain	ALN	
Roger Wells (Alternate)	ALN	
Tina Dolen	Aquidneck Island Planning Commission	
Chris Witt (Alternate)	Aquidneck Island Planning Commission	
Charles Wright	Beach Commission	
Kathleen Shinners (Alternate)	Beach Commission	
Bill Riccio	Dept. Public Services	
Eric Earls (Alternate)	Dept. Public Services	
Paige Bronk	Dept. Planning	
Bill Hanley (Alternate)	Dept. Planning	
Tim Mills	Harbor Master	
Mary E. Dever-Putnam	EPA	
James Carlson	NSN	
William Monaco (Alternate)	NSN	
Jody Sullivan	Newport County Chamber	
Ed Lopes (Alternate)	Newport County Chamber	
Evan Smith	NCCVB	
Cathy Morrison (Alternate)	NCCVB	
Shawn Brown	Middletown	
Tom O'Loughlin (Alternate)	Middletown	
Joe Haberek ~~Eric Beck~~	RIDEM	
Angelo Liberti (Alternate)	RIDEM	
Jim Brunnhoeffer	RWU	

MEETING DATE:	Thursday September 6, 2012 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
John Torgan	Save the Bay	
~~Wendy Waller (Alternate)~~ DAVID PRESCOTT	Save the Bay	DRP
Tom Cornell	Resident	TC
Stuart K. Mills, Jr.	Resident	
Roger Slocum	Resident	RS
Ted Wrobel	Resident	
Other Attendees		
Julia Forgue	City of Newport	
Ken Mason	City of Newport	
Mike Domenica	CH2M HILL	
Peter von Zweck	CH2M HILL	✓
Becky Weig	CH2M HILL	✓
Jim Lauzon	United Water	
Jen Reiners	CH2M Hill	✓

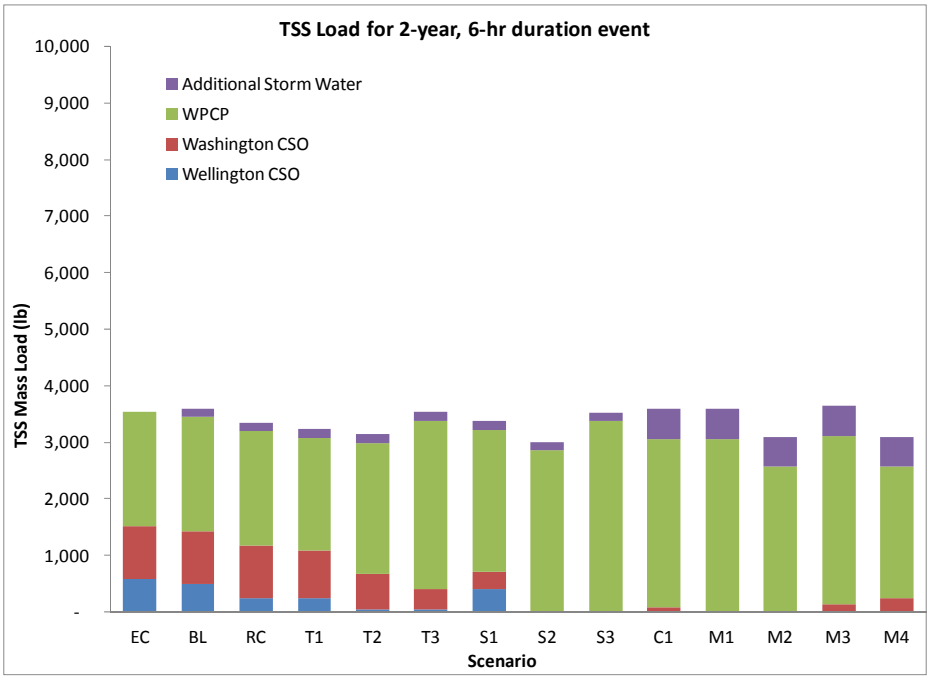
Attachment 2

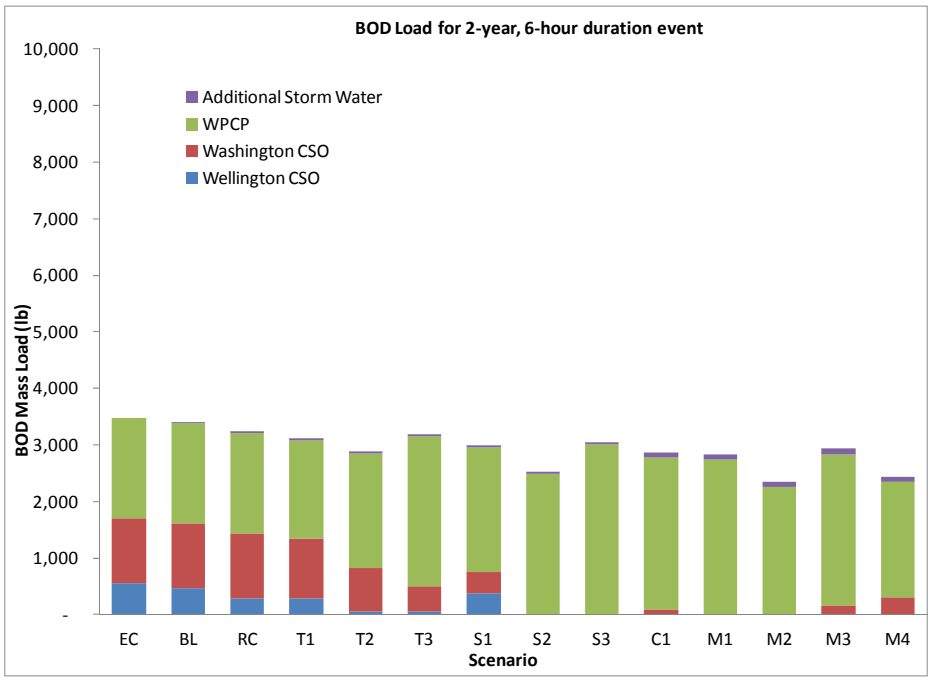
Comments from the August 14th Meeting with Responses

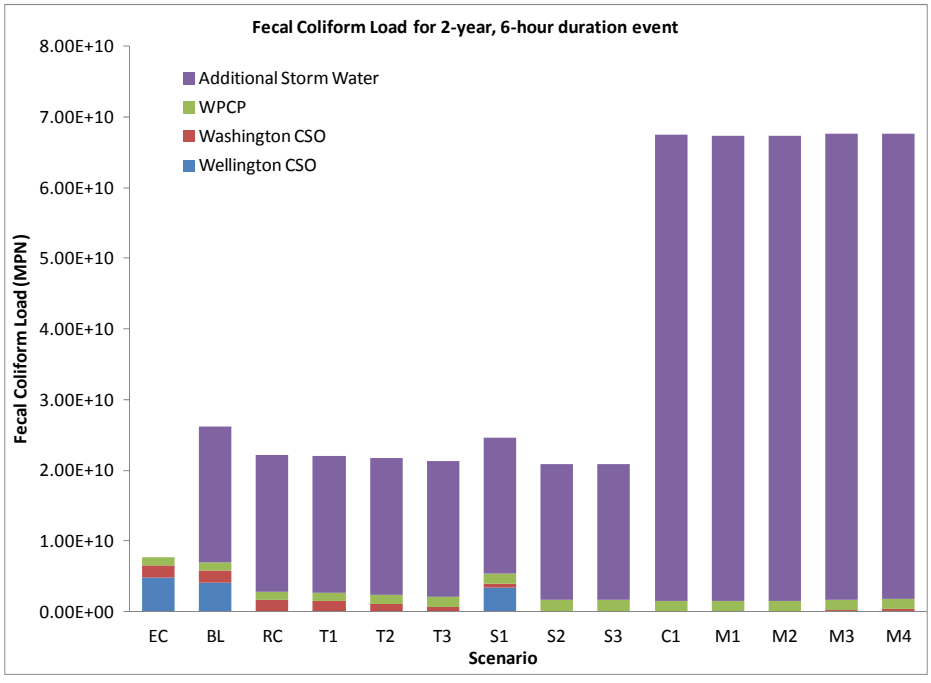
The requests, comments and questions collected during the August 14th Stakeholder Workgroup are summarized below. A response has been provided for each of the 27 items. Each response is based on the best available source of information and engineering evaluations completed to-date. In cases where a complete response is not provided – or is subject to an engineering evaluation not yet completed – a note on the expected resolution is noted.

Request #1: Subtract dry weather loads at the WPCP from the pollutant graphics.

Response: *Updated graphs are provided below.*







Request #2: Please share data on each scenario's performance for reducing discharge volumes for larger storm events.

Response: *A summary of discharge volumes at the two CSO treatment facilities for "larger" storm events is provided below. This same information is provided in the fact sheets for each scenario.*

Scenario	2-year		5-year		10-year	
	Wellington	*Washington*	*Wellington*	*Washington*	*Wellington*	*Washington*
EC	1.29	4.30	1.83	6.50	2.72	7.81
BL	1.09	4.30	1.78	5.39	2.67	7.12
PC[1]	1.09	4.30	1.78	5.39	2.67	7.12
T1	1.09	3.94	1.78	5.30	2.68	6.89
T2	0.20	2.90	0.59	5.04	1.27	6.74
T3	0.20	1.65	0.58	2.44	1.29	3.76
S1	0.89	1.38	1.29	3.16	2.05	3.73
S2	0.00	0.00	0.38	0.00	0.78	0.28
S3	0.00	0.00	0.35	0.00	0.79	0.94
C1	0.00	0.36	0.00	1.15	0.49	2.76
M1	0.00	0.00	0.00	0.04	0.47	1.64
M2	0.00	0.00	0.00	0.82	0.25	3.21
M3	0.00	0.63	0.00	1.13	0.48	1.18
M4	0.00	1.14	0.00	3.41	0.49	4.28

[1] Revised scenario name from RC to Permit Compliance (PC) to better reflect its objective.

Request #3: Please provide information on CSO event reduction for each scenario.

Response: *The approach to system planning includes evaluation of the system's performance for average annual conditions before and after controls are implemented. This will be addressed in two steps. A "screening level" assessment of overflow frequencies is provided below. These estimates are based on a review and an extrapolation of model results for design events – compared with storms for an "average year". After a control scenario is selected for the SMP, the citywide hydraulic model will be used to calculate the number, volume, duration and peak discharge rates for comparison with the project's baseline.*

Scenario	Estimated Annual Number of Discharge Events[1]	
	Wellington	*Washington*
EC	12	20
BL	12	20
PC	12	20
T1	12	18
T2	5	11
T3	5	6
S1	11	5
S2	3	1
S3	3	1
C1	1	3
M1	1	1
M2	1	3
M3	1	4
M4	1	5

[1] Estimated from model runs completed to-date.

Request #4: Provide information on Newport's designation as combined system.

Response: *The majority of Newport's collection system was originally designed to transport both sanitary and storm water runoff. Although the City has been active toward constructing a separate drainage system, recent field work has confirmed that a large number of wet weather connections remain throughout the city. This information was summarized in 2 reports submitted to the EPA in 2011. One report was prepared for the Wellington Service Area and the other was for the Washington Service Area. Based on a review of these reports, the EPA acknowledged that portions of the collection system remain combined. EPA's finding expands the framework of regulatory requirements for this project to include the National CSO Policy and also limits the extent of Newport's obligations to "affordable" limits. A copy of the EPA's letter on this topic was distributed at the August 14th Stakeholder's Meeting.*

Request #5: What overflows can be approved per Consent Decree?

Response: *The Consent Decree describes the process for evaluating CSO controls but does not describe the extent to which overflows must be controlled. The EPA's CSO Policy provides more specific guidance on acceptable levels of control. This includes a "demonstrative" and a "presumptive" approach. In situations when elimination is determined to be infeasible or unaffordable, most programs choose to follow the presumptive approach. An excerpt from the policy describing control requirements is provided below:*

The USEPA's CSO Control Policy, contained in 40 CFR Part 122, defines its "Presumption" Approach as a program that meets any of the following:

i. No more than an average of four overflow events per year, provided that the permitting authority may allow up to two additional overflow events per year. For the purpose of this criterion, an overflow event is one or more overflows from a CSS as the result of a precipitation event that does not receive the minimum treatment specified below; or

ii. The elimination or the capture for treatment of no less than 85% by volume of the combined sewage collected in the CSS during precipitation events on a system-wide annual average basis; or

Request #6: Have the CSO program goals changed?

Response: *The programs goals have not changed. Although the framework of regulatory requirements has expanded as a result of the recently completed field investigations and engineering studies, the program continues to follow the planning process described in the Consent Decree. The summary statement used for the program is provided below:*

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.

Request #7: The Stakeholders are lacking information to decide how to attack problem.

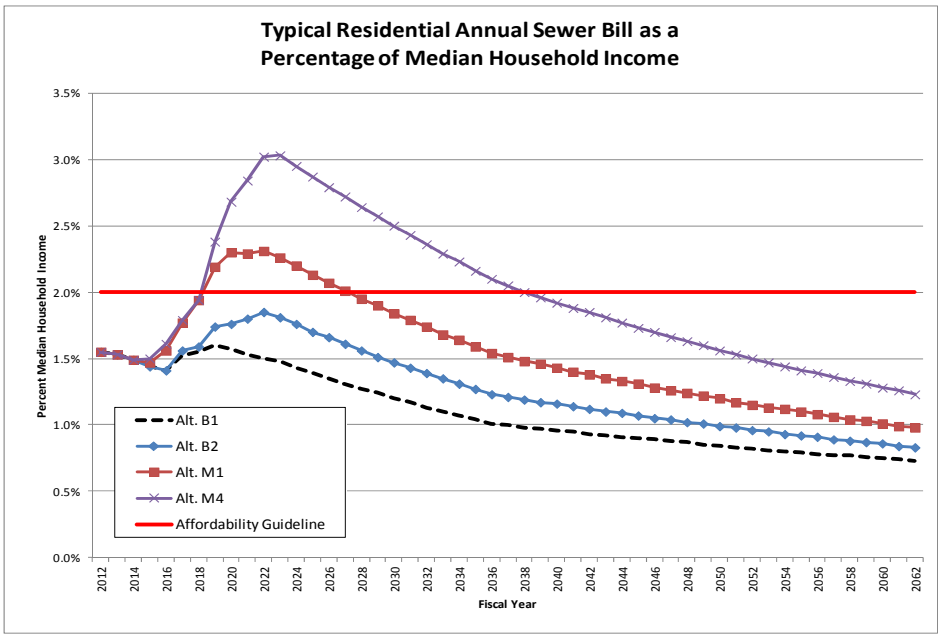
Response: *Fact sheets summarizing the components, costs, system benefits, and discharge characteristics have been provided since the August 14th meeting.*

Request #8: Explain building blocks and effectiveness, and how scenarios were developed.

Response: *The fact sheets include an explanation of the objectives of each scenario and logic used to select its component projects.*

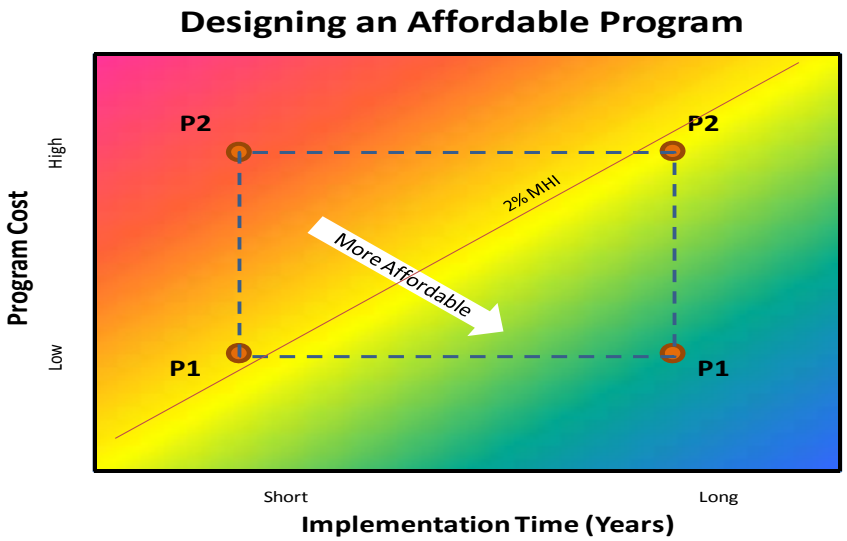
Request #9: What can we do for money left under affordability?

Response: *The concept of identifying a program that is affordable is complex. It is influenced by current obligations, identification of controls that meet program objectives, and planning implementation to maintain rates within the City's limits of affordability. The following data were presented During the August 9th Stakeholders Workgroup meeting.*



These data demonstrate the potential impacts of 4 scenarios relative to Median Household Income. The scenarios bracket the range of alternatives studied to-date from least expensive – to most expensive. The analysis is also based on the assumption that all of the controls will be implemented by 2018 (the date referenced in the Consent Decree). The graphic shows that implementation of the more expensive scenarios at the schedule referenced in the Consent Decree may cause rates to significantly exceed the 2% of MHI index typically used to limit "affordability".

Designing an affordable program is a key strategy of the program. As illustrated in the following graphic, the affordability of low and high cost programs can vary significantly when implementation periods are considered.



Request #10: Please provide a matrix of CSO reduction vs. cost.

Response: Fact sheets summarizing the components, costs, system benefits, discharge characteristics and cost per CSO reduction have been provided since the August 14th meeting.

Request #11: Where are we in terms of storm event $/activity?

Response: Fact sheets summarizing the components, costs, system benefits, discharge characteristics and potential impacts have been provided since the August 14th meeting.

Request #12: The program should address storm water pollutant issues.

Response: Although storm water pollution may contribute to impairments to the harbor and beaches, the focus of the current program is to identify controls appropriate for its two CSO treatment facilities. The City is keeping stormwater in mind while developing the controls for the CSO program because stormwater requirements are covered from the same rates as CSO controls and will impact the affordability determinations.

Request #13: Please address impacts of storm water related to water quality and impacts to beach closures and CSOs.

Response: Data on water quality in the harbor were presented at Stakeholder Workgroup Meeting #4 in September 2011. Based on the data discussed at that meeting it was suggested that reducing CSO events in the harbor is not likely to have any impact on the frequency of beach closures.

Request #14 Baseline projects – system maintenance and operations need to be included and factored into spending.

Response: Costs associated with the City's operations and maintenance agreement – and costs associated with projects in its current CIP have been incorporated into the affordability analysis.

Request #15: Has there been a change in focus from CSO reduction to "cleaner" CSO's?

Response: The goals of the program remain as described in response #6. As described in Item #65 of the Consent Decree this includes an evaluation of a broad range of "additional measures" including I/I reduction, storage and high-rate treatment.

Request #16: Is the City responsible for reducing CSO's if it won't achieve the elimination or WQ targets?

Response: It is expected by the regulatory agencies that even if the City can't achieve the target of elimination, that efforts will be made to work towards that ultimate goal within the confines of affordability.

Request #17: Please include flexibility in the program – allowing for reassessments.

Response: Phasing and reassessment of CSO control measures is a standard practice. The benefits of phasing Newport's investments in CSO controls will be addressed in the SMP.

Request #18: Establish better ways to track benefits/different types of storm events.

Response: The best way to evaluate the potential benefits of CSO control technologies or combination scenarios is through the use of the calibrated hydraulic model. As shown in the fact sheets summarizing the components, costs, system benefits, discharge characteristics and potential impacts that have been provided since the August 14th meeting the potential benefits for larger-sized storm events has been evaluated and presented for consideration.

Request #19: Costs – biggest bang for the buck – what is the minimum to spend and be in compliance? What are threshold numbers and the criteria?

Response: Fact sheets summarizing the components, costs, system benefits, and discharge characteristics have been provided since the August 14th meeting.

Request #20: What is the $/Sewer Bill/yr for each scenario?

Response: Information on rates for scenarios ranging from the least to the most expensive is provided in response #9. This data is presented with reference to MHI. The potential impact on an average annual utility bill is dependent on both the program costs and the implementation schedule for the recommended scenario.

Request #21: Will these scenarios get the City to "regulatory compliance"?

Response: As shown in the fact sheets, these scenarios will bring the City closer to CSO elimination, but do not guarantee that after implementation and evaluation of progress that the City will not need to make additional efforts towards elimination of CSOs. Much like the City's efforts in the 1970s and 1980s to separate sewers and build CSO treatment facilities were big steps towards compliance, over time they are being required to do more.

Request #22: The program should not make a commitment for more than 8 to 10 years.

Response: Based on evaluations completed to-date it appears likely that it will require more than 8-years to implement improvements that achieve a high level of control – while maintaining rates below recommended limits for affordability. Correspondingly, phasing and reassessment of CSO control measures will be addressed in the SMP.

Request #23: Show that existing system is optimized before new construction.

Response: Optimization of the system was been considered during the preliminary engineering and evaluation phase of the program. Prior to evaluating CSO controls the City completed assessments of the condition and operating protocols for its wastewater collection and treatment systems. The key documentation for these assessments includes the following:

- *Inventory and CMOM Self Assessment (August 2010)*
- *Evaluation of WACSOTF, WSCOTF and NASC (August 2010)*
- *CMOM Corrective Action Plan (October 2010)*
- *WPCP Flow Optimization Study (March 2011)*

Request #24 What have other CSO communities done to achieve success regarding performance of technologies?

Response: *The process for evaluating CSO control options and the results in other communities vary significantly. The EPA's guidance document for developing long-term control plans (US EPA, September 1995) provides both guidance and examples of the planning process. This document also credits the City of Newport in Section 3.3.1.3 for "creative thinking".*

3.3.1.3 Creative Thinking

The initial identification of alternatives should involve some degree of brainstorming and free thinking. CSO control can be a challenging problem, where lack of available sites, potential impacts on sensitive receptors, and stringent water quality goals are common issues. The CSO Control Policy encourages *"Permittees and permitting authorities...to consider innovative and alternative approaches and technologies that achieve the objectives of this policy and the CWA"* (I.F). Some of the more successful urban CSO projects have incorporated original ideas for multiple use facilities and for mitigating impacts on neighboring areas. For example:

- **Rochester, NY**--A tunnel system was designed to cross the Genesee River by way of a conduit suspended across the Genesee Gorge. Crossing the gorge above rather than below the river surface eliminated the need for downstream pumping to the POTW and also allowed the construction of a pedestrian walkway along the suspended conduit, providing access between parks located on either side of the gorge.

- **Newport, RI**--Below-grade, covered storage/sedimentation tanks located on a commercial block were designed to allow parking on the roof slab. Architectural features of the facility were designed to blend in with historic homes in an adjacent neighborhood.

Many communities that have followed EPA's guidance have developed and obtained approvals for control plans founded on the same technologies that have been discussed at recent stakeholder meetings for Newport. Few (if any) have been successful in completely eliminating overflows on a community wide basis. Examples of recent plans in New England include:

- *Providence, Rhode Island – Phase 1 includes construction of a deep tunnel system to reduce overflows for a portion of its system to a long-term average of 4 per year. Currently engaged in the design/construction of conveyance controls as a part of Phase 2.*
- *Bangor, Maine – Developed and implemented a plan in the 1990s that included combinations of conveyance, high-rate treatment and storage following the presumptive approach. The program was selected by EPA as the Outstanding CSO Program in 1996. The City is currently working with EPA on an update to its plan designed to achieve higher levels of control.*
- *City of Boston, Massachusetts - Developed a LTCP using control technologies specific to receiving water uses. Included use of high-rate treatment facilities on the Charles River.*

Request #25: Where does storm water go with I/I reduction?

Response: *Storm water disconnected from the wastewater collection system may be redirected to the ground or directly to the storm drainage system. In the case of roof leaders it is expected that a portion of them may removed through "cut and splash" modifications. The specific extent of this approach would be determined by property owners as the modifications are implemented. It is also expected that some roof leader disconnections may require on-property drainage improvements that would indirectly route those flows through pipes or overland to the storm drainage system. For catch basins currently connected to the wastewater collection system, most modifications are expected to be performed by construction of new drains and/or laterals required to connect them to the storm drainage system.*

Additional detail on the implantation strategies required to meet the program's goals for I/I reduction are to be included in a Sewer System Evaluation Report submitted separately from the SMP. In accordance with the Consent Decree, this report is scheduled to be prepared after the SMP is approved by the appropriate regulatory agencies.

Request #26: Please describe how sea level rise (related to climate change) may affect the life expectancy of scenario options.

Response: *All discharges from Newport's wastewater collection and treatment systems are pumped into the harbor. This includes discharges from both of the CSO treatment facilities and the WPCP. The potential affect of sea level rise on the performance of these pumped discharges is considerably less than should be expected for systems that drain by gravity. However do to the close proximity of the CSO treatment facilities to the harbor, measures required to protect them from rising sea levels should be evaluated as a part of the design process.*

Request #27: Please provide a summary of the scenarios and their costs.

Response: *Fact sheets summarizing the components, costs, system benefits, and discharge characteristics have been provided since the August 14th meeting.*

Attachment 3

City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
BL	Baseline

Description of Objectives and Control Logic

The Baseline scenario includes projects that have been identified in the City's existing CIP and other projects recommended to maintain or improve the levels of service provided by the current sanitary/combined sewer system. It provides a benchmark for comparison of all other improvement scenarios. Correspondingly all components of the baseline are included in all system improvement scenarios. Its components include a variety of infrastructure replacement, inflow reduction, conveyance, and wastewater treatment projects.

Project Locations

Components and Costs[1]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
	City of Newport CIP Projects FY2013-2017			
	Bridge Street Tide Gates	$ 85,000	$ -	$ 3,000
	Almy Pond - TMDL	$ 170,000	$ -	$ 9,000
	Sanitary Sewer Improvements	$ 11,000,000	$ -	$ 299,000
II-1	Catch Basin Disconnections	$ 2,000,000	$ (8,000)	$ (000)
	Beach PS Improvements	$ 305,000	$ -	$ 11,000
	Audit - UW Service Agreement	$ 100,000	$ -	$ 5,000
	CSO Program Management	$ 1,000,000	$ -	$ 51,000
WPCP-1.0	Headworks and Disinfection Improvements	$ 2,250,000	$ -	$ 89,000
WPCP-1.2	Final Clarifier Improvements	$ 1,500,000	$ -	$ 54,000
	Subtotal	$ 18,410,000	$ (8,000)	$ 521,000
	Recommended Projects FY2018 - ?			
WPCP-1.0	WPCP Improvements	$ 13,512,000	$ -	$ 535,000
	Wellington Pump Station Improvements	$ 2,886,000	$ -	$ 104,000
	Ruggles Pump Station Improvements	$ 206,000	$ -	$ 7,000
	Subtotal:	$ 16,604,000	$ -	$ 647,000
	Scenario Totals:	$ 35,014,000	$ (8,000)	$ 1,168,000

Narrative Summary of System Benefits

- ✓ Replacement of infrastructure that has reached the end of its useful life
- ✓ Inflow reduction at manholes and catch basins connected to the sanitary/combined sewer system
- ✓ Conveyance improvements to eliminate known bottlenecks
- ✓ Improvements to the WPCP's headworks, solids processing and disinfection facilities to improve its effective treatment capacity

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	1.09	4.30
5-year Storm	1.78	5.39
10-year Storm	2.67	7.12
Annual Events	12	20
Cost per MG CSO removed[2]		N/A
Cost per million MPN fecal coliform removed[2]		N/A

Water Quality Benefits

- ✓ Provides a baseline for the comparison of alternatives. Does not significantly improve the volume, frequency, or quality of discharges from the CSO treatment facilities.

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[2] Based on Equivalent Annual Costs and a 10-year storm event.

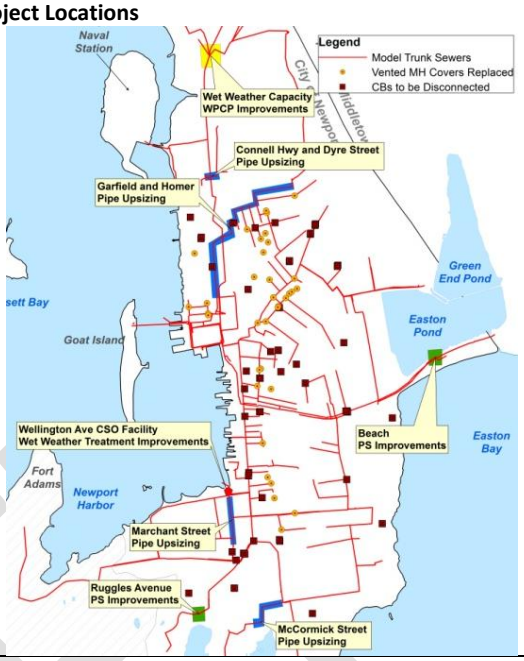
City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
PC	Permit Compliance

Description of Objectives and Control Logic

The Permit Compliance scenario includes all projects in the Baseline scenario, which are those that have been identified in the City's existing CIP and other projects recommended to maintain or improve the levels of service provided by the current sanitary/combined sewer system. In addition, treatment at the Wellington Avenue CSO (WACSO) Facility would be improved to meet the required primary effluent standard identified in the City's permit with RIDEM.

Project Locations



Components and Costs[1]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 35,014,000	$ (8,000)	$ 1,168,000
CSOT-1.1	Enhanced CSO Treatment (Wellington)	$ 23,563,000	$ 160,000	$ 1,012,000
	Scenario Totals:	$ 58,577,000	$ 152,000	$ 2,180,000

Narrative Summary of System Benefits

- ✓ Replacement of infrastructure that has reached the end of its useful life
- ✓ Inflow reduction at manholes and catch basins connected to the sanitary/combined sewer system
- ✓ Conveyance improvements to eliminate known bottlenecks
- ✓ Improvements to the WPCP's headworks, solids processing and disinfection facilities to improve its effective treatment capacity
- ✓ Improvements to the WACSO facility to improve treatment of CSO effluent

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	1.09	4.30
5-year Storm	1.78	5.39
10-year Storm	2.67	7.12
Annual Events[2]	12	20
Cost per gallon CSO removed[3]		N/A
Cost per million MPN fecal coliform removed[3]		$174

Water Quality Benefits

- ✓ Treatment at WACSO improves quality of discharges from the facility. Does not significantly improve the volume or frequency of discharges.

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[2] Results estimated based on scenario performance for design events evaluated.
[3] Based on Equivalent Annual Costs (w/o baseline) and a 10-year storm event.

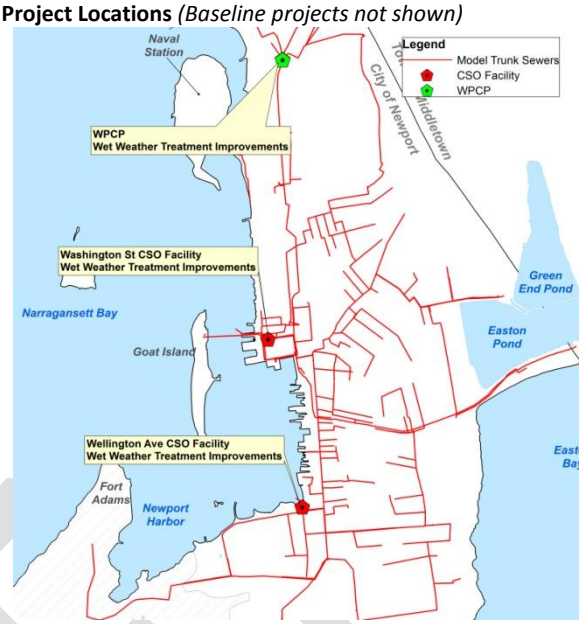
City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
T1	Treatment 1

Description of Objectives and Control Logic

The Treatment 1 scenario includes projects designed to improve the quality of discharges through use of enhanced treatment at the CSO facilities and WPCP. The volumes of discharges from the Wellington Avenue and Washington Street facilities are minimally reduced through WPCP improvements.

Project Locations *(Baseline projects not shown)*



Components and Costs[1]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 35,014,000	$ (8,000)	$ 1,168,000
WPCP-1.1	WPCP Upgrade & Expansion, Option 1 (primary clarifiers)	$ 7,662,000	$ -	$ 303,000
WPCP-2	CEPT	$ 12,842,000	$ 577,000	$ 213,000
SO-1	WPCP Flow Optimization	$ -	$ -	$ -
CSOT-1.1	Enhanced CSO Treatment (Wellington)	$ 23,563,000	$ 160,000	$ 1,012,000
CSOT-1.2	Enhanced CSO Treatment (Washington)	$ 38,430,000	$ 160,000	$ 1,549,000
SO-2	Increased Pumping Capacity/Better Use of System Capacity	$ -	$ 22,000	$ 22,000
	Scenario Totals:	$ 117,511,000	$ 911,000	$ 4,267,000

Narrative Summary of System Benefits

- ✓ Improvements to the effluent discharge quality at WACSO and WSCSO facilities
- ✓ Improvements to the wet weather capacity and treatment at the WPCP

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	1.09	3.94
5-year Storm	1.78	5.30
10-year Storm	2.68	6.89
Annual Events[2]	12	18
Cost per gallon CSO removed[3]		$3.23
Cost per million MPN fecal coliform removed[3]		$310

Water Quality Benefits

- ✓ Improved performance for wet weather treatment at the WPCP and the two CSO facilities.

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[2] Results estimated based on scenario performance for design events evaluated.
[3] Based on Equivalent Annual Costs (w/o baseline) and a 10-year storm event.

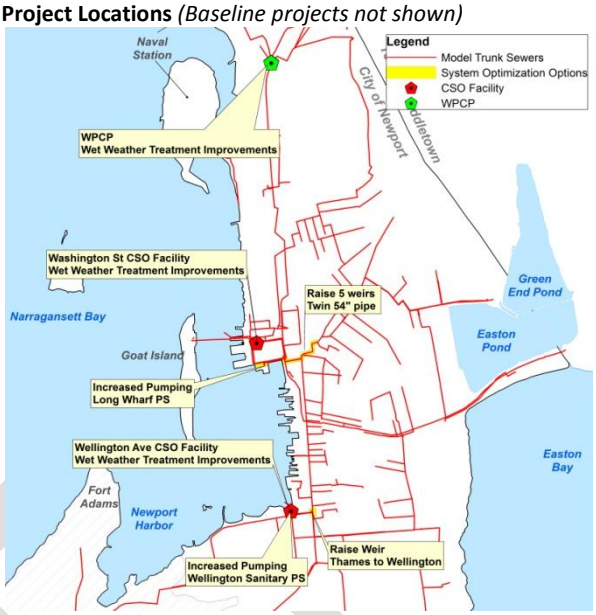
City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
T2	Treatment 2

Description of Objectives and Control Logic

The Treatment 2 scenario includes projects designed to improve the quality of discharges through use of enhanced treatment at the CSO facilities and WPCP. The volumes of discharges from the Wellington Avenue and Washington Street facilities are reduced through conveyance and WPCP improvements.

Project Locations *(Baseline projects not shown)*



Components and Costs[1]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 35,014,000	$ (8,000)	$ 1,168,000
WPCP-1.1	WPCP Upgrade & Expansion, Option 1 (primary clarifiers)	$ 7,662,000	$ -	$ 303,000
WPCP-2	CEPT	$ 12,842,000	$ 577,000	$ 1,041,000
SO-1	WPCP Flow Optimization	$ -	$ -	$ -
CSOT-1.1	Enhanced CSO Treatment (Wellington)	$ 23,563,000	$ 160,000	$ 1,012,000
CSOT-1.2	Enhanced CSO Treatment (Washington)	$ 38,430,000	$ 160,000	$ 1,549,000
SO-3	Weirs	$ 189,000	$ -	$ 6,000
SO-2	Increased Pumping Capacity/Better Use of System Capacity	$ -	$ 22,000	$ 22,000
	Scenario Totals:	$ 117,699,000	$ 911,000	$ 5,102,000

Narrative Summary of System Benefits

- ✓ Conveyance improvements to transport larger volumes of flow from Wellington and reduce volumes to Washington
- ✓ Improvements to the effluent discharge quality at WACSO and WSCSO facilities
- ✓ Improvements to the wet weather capacity and treatment at the WPCP

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	0.20	2.90
5-year Storm	0.59	5.04
10-year Storm	1.27	6.74
Annual Events[2]	5	11
Cost per gallon CSO removed[3]		$1.56
Cost per million MPN fecal coliform removed[3]		$393

Water Quality Benefits

- ✓ Improved performance for wet weather treatment at the WPCP and the two CSO facilities
- ✓ Reduced discharges from the CSO treatment facilities

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[2] Results estimated based on scenario performance for design events evaluated.
[3] Based on Equivalent Annual Costs (w/o baseline) and a 10-year storm event.

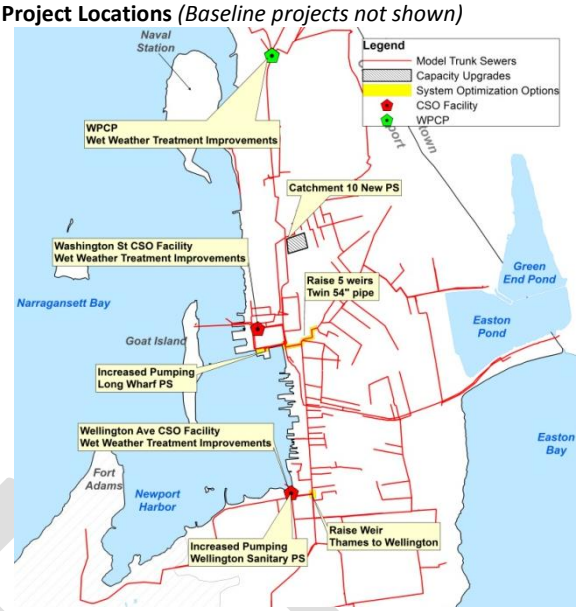
City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
T3	Treatment 3

Description of Objectives and Control Logic

The Treatment 3 scenario includes projects designed to improve the quality of discharges through use of enhanced treatment at the CSO facilities and WPCP. The volumes of discharges from the Wellington Avenue and Washington Street facilities are reduced through conveyance improvements, including a new pump station, and WPCP improvements.

Project Locations *(Baseline projects not shown)*



Components and Costs[1]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 35,014,000	$ (8,000)	$ 1,168,000
WPCP-1.1	WPCP Upgrade & Expansion, Option 1 (primary clarifiers)	$ 7,662,000	$ -	$ 303,000
WPCP-1.2	WPCP Upgrade & Expansion, Option 2 (aeration tank)	$ 5,891,000	$ -	$ 213,000
WPCP-2	CEPT	$ 12,842,000	$ 577,000	$ 1,041,000
SO-1	WPCP Flow Optimization	$ -	$ -	$ -
CU-2	Catchment 10 Reroute (new 3.5 mgd PS)	$ 4,788,000	$ 68,000	$ 241,000
CSOT-1.1	Enhanced CSO Treatment (Wellington)	$ 23,563,000	$ 160,000	$ 1,012,000
CSOT-1.2	Enhanced CSO Treatment (Washington)	$ 38,430,000	$ 160,000	$ 1,549,000
SO-3	Weirs	$ 189,000	$ -	$ 6,000
SO-2	Increased Pumping Capacity/Better Use of System Capacity	$ -	$ 22,000	$ 22,000
	Scenario Totals:	$ 128,378,000	$ 979,000	$ 5,556,000

Narrative Summary of System Benefits

- ✓ A new pump station to reduce flows to Long Wharf and Washington from Catchment 10
- ✓ Conveyance improvements to transport larger volumes of flow from Wellington and reduce volumes to Washington
- ✓ Improvements to the effluent discharge quality at WACSO and WSCSO facilities
- ✓ Improvements to the wet weather capacity and treatment at the WPCP

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	0.20	1.65
5-year Storm	0.58	2.44
10-year Storm	1.29	3.76
Annual Events[2]	5	6
Cost per gallon CSO removed[3]		$0.80
Cost per million MPN fecal coliform removed[3]		$403

Water Quality Benefits

- ✓ Improved performance for wet weather treatment at the WPCP and the two CSO facilities
- ✓ Reduced discharges from the CSO treatment facilities

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[2] Results estimated based on scenario performance for design events evaluated.
[3] Based on Equivalent Annual Costs (w/o baseline) and a 10-year storm event.

City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
S1	Storage 1

Description of Objectives and Control Logic

The Storage 1 scenario includes projects designed to reduce the frequency and volume of discharges from the CSO treatment facilities through use of off-line storage at the Wellington facility, Washington facility and the WPCP.

Project Locations *(Baseline projects not shown)*

Components and Costs[1]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 35,014,000	$ (8,000)	$ 1,168,000
OS-11	Washington CSO Facility Storage (3MG)	$ 21,567,000	$ 26,000	$ 759,000
OS-2	WPCP Storage (2MG)	$ 16,667,000	$ 24,000	$ 590,000
OS-19	King Park, Wellington Ave by CSO Facility, Storage (0.9MG)	$ 17,629,000	$ 27,000	$ 626,000
	Scenario Totals:	$ 90,876,000	$ 69,000	$ 3,143,000

Narrative Summary of System Benefits

- ✓ Off-line storage at the Wellington and Washington CSO facilities to capture wet weather flows
- ✓ Off-line storage at the WPCP to capture wet weather flows that exceed wet weather capacity

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	0.89	1.38
5-year Storm	1.29	3.16
10-year Storm	2.05	3.73
Annual Events[2]	11	5
Cost per gallon CSO removed[3]		$0.42
Cost per million MPN fecal coliform removed[3]		$590

Water Quality Benefits

- ✓ Reduced discharges from the CSO treatment facilities

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[2] Results estimated based on scenario performance for design events evaluated.
[3] Based on Equivalent Annual Costs (w/o baseline) and a 10-year storm event.

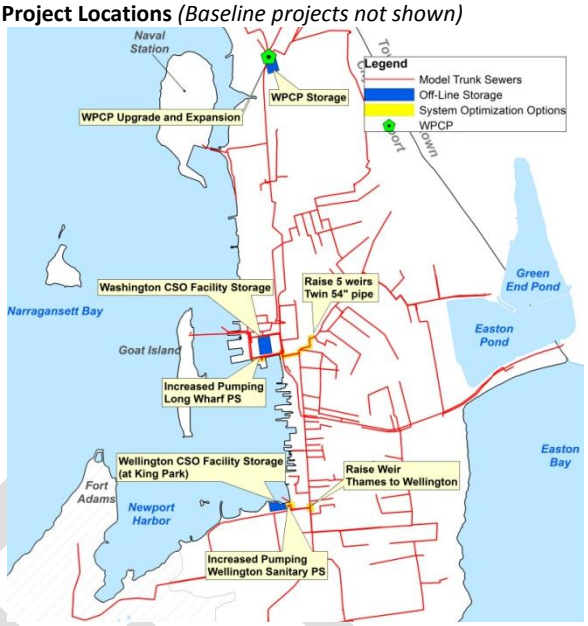
City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
S2	Storage 2

Description of Objectives and Control Logic

The Storage 2 scenario includes projects designed to reduce the frequency and volume of discharges from the CSO treatment facilities through a combination of conveyance improvements, WPCP improvements and off-line storage at the Washington facility, Wellington facility, and WPCP. The addition of conveyance improvements provides in-system storage which reduces the required storage for off-line facilities.

Project Locations *(Baseline projects not shown)*



Components and Costs[1]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 35,014,000	$ (8,000)	$ 1,168,000
WPCP-1.1	WPCP Upgrade & Expansion, Option 1 (primary clarifiers)	$ 7,662,000	$ -	$ 303,000
OS-11	Washington CSO Facility Storage (3MG)	$ 21,567,000	$ 26,000	$ 759,000
SO-1	WPCP Flow Optimization	$ -	$ -	$ -
OS-2	WPCP Storage (2MG)	$ 16,667,000	$ 24,000	$ 590,000
SO-3	Weirs	$ 189,000	$ -	$ 6,000
OS-19	King Park, Wellington Ave by CSO Facility, Storage (0.9MG)	$ 17,629,000	$ 27,000	$ 626,000
SO-2	Increased Pumping Capacity/Better Use of System Capacity	$ -	$ 22,000	$ 22,000
	Scenario Totals:	$ 98,727,000	$ 91,000	$ 3,474,000

Narrative Summary of System Benefits

- ✓ Conveyance improvements to transport larger volumes of flow from Wellington and reduce volumes to Washington
- ✓ Improvements to the wet weather capacity and treatment at the WPCP
- ✓ Off-line storage at the Wellington and Washington CSO facilities to capture wet weather flows
- ✓ Off-line storage at the WPCP to capture wet weather flows that exceed wet weather capacity

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	0.00	0.00
5-year Storm	0.38	0.00
10-year Storm	0.78	0.28
Annual Events[2]	3	1
Cost per gallon CSO removed[3]		$0.24
Cost per million MPN fecal coliform removed[3]		$253

Water Quality Benefits

- ✓ Potential to eliminate discharges from the CSO treatment facilities for up to a 2-year level of control (to 5-year level for Washington)
- ✓ Improved performance for wet weather treatment at the WPCP

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[2] Results estimated based on scenario performance for design events evaluated.
[3] Based on Equivalent Annual Costs (w/o baseline) and a 10-year storm event.

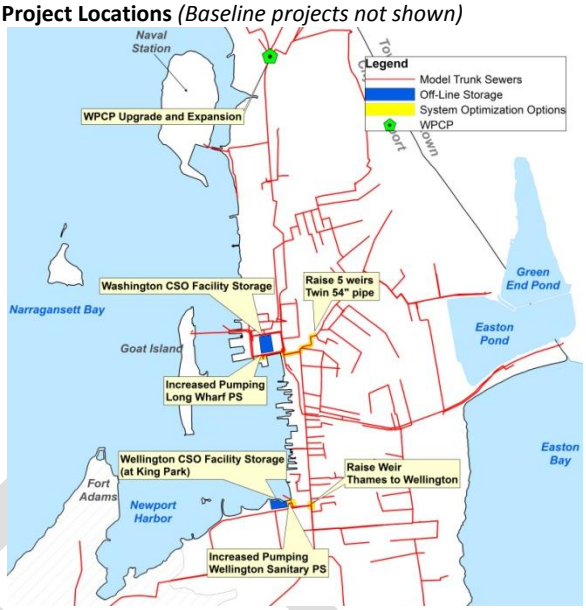
City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
S3	Storage 3

Description of Objectives and Control Logic

The Storage 3 scenario includes projects designed to reduce the frequency and volume of discharges from the CSO treatment facilities through a combination of conveyance improvements, WPCP improvements and off-line storage at the Washington and Wellington facilities. The conveyance and WPCP wet weather capacity improvements reduce the required storage for the off-line facilities.

Project Locations *(Baseline projects not shown)*



Components and Costs[1]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 35,014,000	$ (8,000)	$ 1,168,000
WPCP-1.1	WPCP Upgrade & Expansion, Option 1 (primary clarifiers)	$ 7,662,000	$ -	$ 303,000
WPCP-1.2	WPCP Upgrade & Expansion, Option 2 (aeration tank)	$ 5,891,000	$ -	$ 213,000
OS-11	Washington CSO Facility Storage (3MG)	$ 21,567,000	$ 26,000	$ 759,000
SO-1	WPCP Flow Optimization	$ -	$ -	$ -
SO-3	Weirs	$ 189,000	$ -	$ 6,000
OS-19	King Park, Wellington Ave by CSO Facility, Storage (0.9MG)	$ 17,629,000	$ 27,000	$ 626,000
SO-2	Increased Pumping Capacity/Better Use of System Capacity	$ -	$ 22,000	$ 22,000
	Scenario Totals:	$ 87,951,000	$ 67,000	$ 3,097,000

Narrative Summary of System Benefits

- ✓ Conveyance improvements to transport larger volumes of flow from Wellington and reduce volumes to Washington
- ✓ Improvements to the wet weather capacity and treatment at the WPCP
- ✓ Off-line storage at the Wellington and Washington CSO facilities to capture wet weather flows

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	0.00	0.00
5-year Storm	0.35	0.04
10-year Storm	0.79	0.94
Annual Events[2]	3	1
Cost per gallon CSO removed[3]		$0.22
Cost per million MPN fecal coliform removed[3]		$217

Water Quality Benefits

- ✓ Potential to eliminate discharges from the CSO treatment facilities for up to a 2-year level of control
- ✓ Improved performance for wet weather treatment at the WPCP

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[2] Results estimated based on scenario performance for design events evaluated.
[3] Based on Equivalent Annual Costs (w/o baseline) and a 10-year storm event.

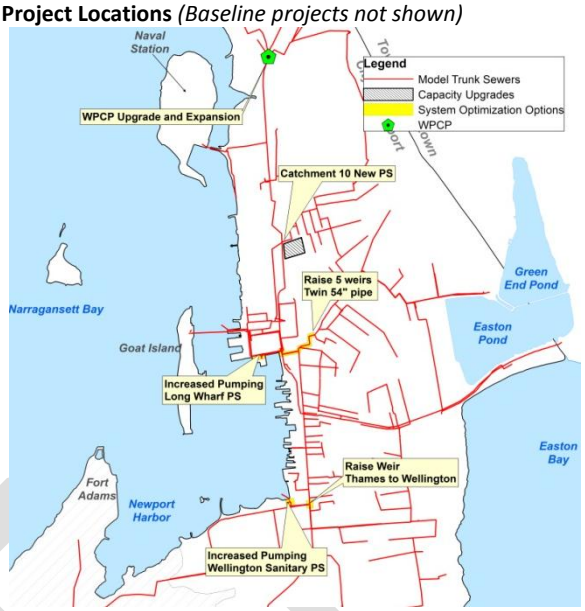
City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
C1	Conveyance 1

Description of Objectives and Control Logic

The Conveyance 1 scenario includes projects designed to reduce the volume and frequency of discharges from the CSO treatment facilities through use of a combination of inflow reduction, conveyance, and wastewater treatment projects. The volumes of discharges from the Wellington facility are reduced through the disconnection of downspouts and by improvements to the conveyance system. The volumes of discharges from the Washington facility are reduced through the disconnection of downspouts and by improvements to the conveyance system, including a new pump station.

Project Locations *(Baseline projects not shown)*



Components and Costs[1,2]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 35,014,000	$ (8,000)	$ 1,168,000
WPCP-1.1	WPCP Upgrade & Expansion, Option 1 (primary clarifiers)	$ 7,662,000	$ -	$ 303,000
WPCP-1.2	WPCP Upgrade & Expansion, Option 2 (aeration tank)	$ 5,891,000	$ -	$ 213,000
SO-1	WPCP Flow Optimization	$ -	$ -	$ -
CU-2	Catchment 10 Reroute (new 3.5 mgd PS)	$ 4,788,000	$ 68,000	$ 241,000
II-4	Downspout Disconnection	$ 25,821,000	$ (27,000)	$ 918,000
SO-3	Weirs	$ 189,000	$ -	$ 6,000
SO-2	Increased Pumping Capacity/Better Use of System Capacity	$ -	$ 22,000	$ 22,000
	Scenario Totals:	$ 79,365,000	$ 54,000	$ 2,871,000

[2] Downspout disconnection costs are included in the affordability calculations but do not affect user rates.

Narrative Summary of System Benefits

- ✓ Reduction of inflow from the largest known contributor to the system - downspouts
- ✓ Conveyance improvements to transport larger volumes of flow from Wellington
- ✓ A new pump station to reduce flows to Washington from Catchment 10
- ✓ Improvements to the wet weather capacity at the WPCP

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	0.00	0.36
5-year Storm	0.00	1.15
10-year Storm	0.49	2.76
Annual Events[3]	1	3
Cost per gallon CSO removed[4]		$0.23
Cost per million MPN fecal coliform removed[4]		-$29*

* Negative costs denote added bacteria to receiving waters

Water Quality Benefits

- ✓ Potential to eliminate discharges from the Wellington CSO treatment facilities for up to a 5-year level of control
- ✓ Improved performance for wet weather treatment at the WPCP

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[3] Results estimated based on scenario performance for design events evaluated.
[4] Based on Equivalent Annual Costs (w/o baseline) and a 10-year storm event.

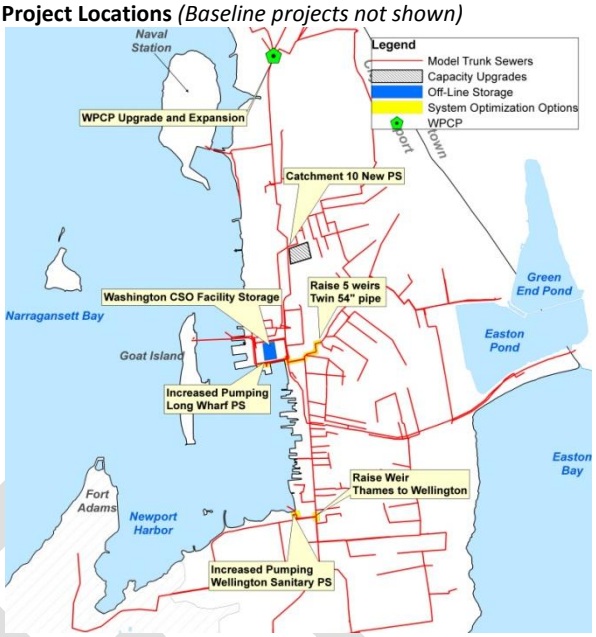
City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
M1	Master Mix 1

Description of Objectives and Control Logic

The Master Mix 1 scenario includes projects designed to reduce the volume and frequency of discharges from the CSO treatment facilities through use of a combination of inflow reduction, off-line storage, conveyance, and wastewater treatment projects. The volumes of discharges from the Wellington facility are reduced through the disconnection of downspouts and by improvements to the conveyance system. The volumes of discharges from the Washington facility are reduced through the disconnection of downspouts, offline storage, improvements to the conveyance system and improvements to the WPCP wet weather capacity.

Project Locations *(Baseline projects not shown)*



Components and Costs[1,2]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 35,014,000	$ (8,000)	$ 1,168,000
WPCP-1.1	WPCP Upgrade & Expansion, Option 1 (primary clarifiers)	$ 7,662,000	$ -	$ 303,000
WPCP-1.2	WPCP Upgrade & Expansion, Option 2 (aeration tank)	$ 5,891,000	$ -	$ 213,000
OS-11	Washington CSO Facility Storage (3MG)	$ 21,567,000	$ 26,000	$ 759,000
SO-1	WPCP Flow Optimization	$ -	$ -	$ -
CU-2	Catchment 10 Reroute (new 3.5 mgd PS)	$ 4,788,000	$ 68,000	$ 241,000
II-4	Downspout Disconnection	$ 25,821,000	$ (27,000)	$ 918,000
SO-3	Weirs	$ 189,000	$ -	$ 6,000
SO-2	Increased Pumping Capacity/Better Use of System Capacity	$ -	$ 22,000	$ 22,000
	Scenario Totals:	$ 100,931,000	$ 80,000	$ 3,630,000

[2] Downspout disconnection costs are included in the affordability calculations but do not affect user rates.

Narrative Summary of System Benefits

- ✓ Off-line storage at the Washington CSO facilities to capture wet weather flows
- ✓ Reduction of inflow from the largest known contributor to the system - downspouts
- ✓ Conveyance improvements to transport larger volumes of flow from Wellington
- ✓ A new pump station to reduce flows to Washington from Catchment 10
- ✓ Improvements to the wet weather capacity and treatment at the WPCP

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	0.00	0.00
5-year Storm	0.00	0.04
10-year Storm	0.47	1.64
Annual Events[3]	1	1
Cost per gallon CSO removed[4]		$0.29
Cost per million MPN fecal coliform removed[4]		-$42*

* Negative costs denote added bacteria to receiving waters

Water Quality Benefits

- ✓ Potential to eliminate discharges from the CSO treatment facilities for up to a 5-year level of control
- ✓ Improved performance for wet weather treatment at the WPCP

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[3] Results estimated based on scenario performance for design events evaluated.
[4] Based on Equivalent Annual Costs (w/o baseline) and a 10-year storm event.

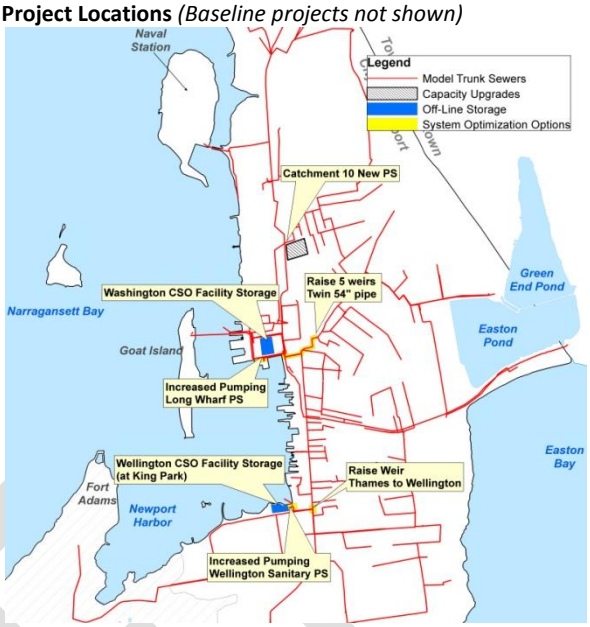
City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
M2	Master Mix 2

Description of Objectives and Control Logic

The Master Mix 2 scenario includes projects designed to reduce the volume and frequency of discharges from the CSO treatment facilities through use of a combination of inflow reduction, off-line storage, and conveyance projects. The volumes of discharges from the Wellington facility are reduced through the disconnection of downspouts and by improvements to the conveyance system. The volumes of discharges from the Washington facility are reduced through the disconnection of downspouts, offline storage and by improvements to the conveyance system.

Project Locations *(Baseline projects not shown)*



Components and Costs[1,2]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 35,014,000	$ (8,000)	$ 1,168,000
OS-11	Washington CSO Facility Storage (3MG)	$ 21,567,000	$ 26,000	$ 759,000
CU-2	Catchment 10 Reroute (new 3.5 mgd PS)	$ 4,788,000	$ 68,000	$ 241,000
II-4	Downspout Disconnection	$ 25,821,000	$ (27,000)	$ 918,000
SO-3	Weirs	$ 189,000	$ -	$ 6,000
OS-19	King Park, Wellington Ave by CSO Facility, Storage (0.9MG)	$ 17,629,000	$ 27,000	$ 626,000
SO-2	Increased Pumping Capacity/Better Use of System Capacity	$ -	$ 22,000	$ 22,000
	Scenario Totals:	$ 105,008,000	$ 107,000	$ 3,740,000

[2] Downspout disconnection costs are included in the affordability calculations but do not affect user rates.

Narrative Summary of System Benefits

- ✓ Reduction of inflow from the largest known contributor to the system - downspouts
- ✓ Conveyance improvements to transport larger volumes of flow from Wellington
- ✓ A new pump station to reduce flows to Washington from Catchment 10
- ✓ Off-line storage at the Wellington and Washington CSO facilities to capture wet weather flows

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	0.00	0.00
5-year Storm	0.00	0.82
10-year Storm	0.25	3.21
Annual Events[3]	1	3
Cost per gallon CSO removed[4]		$0.36
Cost per million MPN fecal coliform removed[4]		-$44*

* Negative costs denote added bacteria to receiving waters

Water Quality Benefits

- ✓ Potential to eliminate discharges from the CSO treatment facilities for up to a 2-year level of control (for Wellington up to a 5-year level)

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[3] Results estimated based on scenario performance for design events evaluated.
[4] Based on Equivalent Annual Costs (w/ baseline) and a 10-year storm event.

City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
M3	Master Mix 3

Description of Objectives and Control Logic

The Master Mix 3 scenario includes projects designed to reduce the volume and frequency of discharges from the CSO treatment facilities through use of a combination of inflow reduction, off-line storage, conveyance, and wastewater treatment projects. The volumes of discharges from the Wellington facility are reduced through the disconnection of downspouts and by improvements to the conveyance system. The volumes of discharges from the Washington facility are reduced through the disconnection of downspouts, offline storage at the WPCP, improvements to the conveyance system and improvements to the WPCP wet weather capacity.

Project Locations *(Baseline projects not shown)*

Components and Costs[1,2]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 35,014,000	$ (8,000)	$ 1,168,000
WPCP-1.1	WPCP Upgrade & Expansion, Option 1 (primary clarifiers)	$ 7,662,000	$ -	$ 303,000
WPCP-1.2	WPCP Upgrade & Expansion, Option 2 (aeration tank)	$ 5,891,000	$ -	$ 213,000
WPCP-2	CEPT	$ 12,842,000	$ 577,000	$ 1,041,000
SO-1	WPCP Flow Optimization	$ -	$ -	$ -
CU-2	Catchment 10 Reroute (new 3.5 mgd PS)	$ 4,788,000	$ 68,000	$ 241,000
OS-2	WPCP Storage (2MG)	$ 16,667,000	$ 24,000	$ 590,000
II-4	Downspout Disconnection	$ 25,821,000	$ (27,000)	$ 918,000
SO-3	Weirs	$ 189,000	$ -	$ 6,000
SO-2	Increased Pumping Capacity/Better Use of System Capacity	$ -	$ 22,000	$ 22,000
	Scenario Totals:	$ 108,874,000	$ 655,000	$ 4,503,000

[2] Downspout disconnection costs are included in the affordability calculations but do not affect user rates.

Narrative Summary of System Benefits

- ✓ Reduction of inflow from the largest known contributor to the system - downspouts
- ✓ Conveyance improvements to transport larger volumes of flow from Wellington
- ✓ A new pump station to reduce flows to Washington from Catchment 10
- ✓ Improvements to the wet weather capacity and treatment at the WPCP
- ✓ Off-line storage at the WPCP to capture wet weather flows that exceed wet weather capacity

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	0.00	0.63
5-year Storm	0.00	1.13
10-year Storm	0.47	1.64
Annual Events[3]	1	4
Cost per gallon CSO removed[4]		$0.38
Cost per million MPN fecal coliform removed[4]		-$57*

* Negative costs denote added bacteria to receiving waters

Water Quality Benefits

- ✓ Potential to eliminate discharges from the CSO treatment facilities for up to a 2-year level of control (for Wellington up to a 5-year level)
- ✓ Improved performance for wet weather treatment at the WPCP

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[3] Results estimated based on scenario performance for design events evaluated.
[4] Based on Equivalent Annual Costs (w/o baseline) and a 10-year storm event.

City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
M4	Master Mix 4

Description of Objectives and Control Logic

The Master Mix 4 scenario includes projects designed to reduce the volume and frequency of discharges from the CSO treatment facilities through use of a combination of inflow reduction, off-line storage, conveyance, and wastewater treatment projects. The volumes of discharges from the Wellington facility are reduced through the disconnection of downspouts and by improvements to the conveyance system. The volumes of discharges from the Washington facility are reduced through the disconnection of downspouts, offline storage and by improvements to the conveyance system. In addition, the quality of discharges is improved through enhanced treatment at the two CSO facilities and WPCP.

Project Locations *(Baseline projects not shown)*

Components and Costs[1,2]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 35,014,000	$ (8,000)	$ 1,168,000
WPCP-1.1	WPCP Upgrade & Expansion, Option 1 (primary clarifiers)	$ 7,662,000	$ -	$ 303,000
WPCP-2	CEPT	$ 12,842,000	$ 577,000	$ 1,041,000
SO-1	WPCP Flow Optimization	$ -	$ -	$ -
CU-2	Catchment 10 Reroute (new 3.5 mgd PS)	$ 4,788,000	$ 68,000	$ 241,000
CSOT-1.1	Enhanced CSO Treatment (Wellington)	$ 23,563,000	$ 160,000	$ 1,012,000
CSOT-1.2	Enhanced CSO Treatment (Washington)	$ 38,430,000	$ 160,000	$ 1,549,000
II-4	Downspout Disconnection	$ 25,821,000	$ (27,000)	$ 918,000
SO-3	Weirs	$ 189,000	$ -	$ 6,000
SO-2	Increased Pumping Capacity/Better Use of System Capacity	$ -	$ 22,000	$ 22,000
	Scenario Totals:	$ 148,309,000	$ 951,000	$ 6,261,000

[2] Downspout disconnection costs are included in the affordability calculations but do not affect user rates.

Narrative Summary of System Benefits

- ✓ Reduction of inflow from the largest known contributor to the system - downspouts
- ✓ Conveyance improvements to transport larger volumes of flow from Wellington
- ✓ A new pump station to reduce flows to Washington from Catchment 10
- ✓ Improvements to the wet weather capacity and treatment at the WPCP
- ✓ Improvements to the effluent discharge quality at WACSO and WSCSO facilities

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	0.00	1.14
5-year Storm	0.00	3.41
10-year Storm	0.49	4.28
Annual Events[3]	1	5
Cost per gallon CSO removed[4]		$0.88
Cost per million MPN fecal coliform removed[4]		-$89*

* Negative costs denote added bacteria to receiving waters

Water Quality Benefits

- ✓ Potential to eliminate discharges from the CSO treatment facilities for up to a 5-year level of control at Wellington
- ✓ Improved performance for wet weather treatment at the WPCP and the two CSO facilities

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[3] Results estimated based on scenario performance for design events evaluated.
[4] Based on Equivalent Annual Costs (w/o baseline) and a 10-year storm event.

Attachment 4

Newport CSO Stakeholder Workgroup – SMP Alternatives Survey

The purpose of the following survey is to evaluate the evolving priorities of the Stakeholder Workgroup and to identify the SMP scenario that will achieve these priorities. The survey will consist of the following 4 steps:

A. Re-rating of top 5 priority criteria.
B. Reviewing & selecting top 3 SMP scenarios
C. Rating top 3 scenarios against priority criteria.
D. Providing suggested improvements to top selected scenario.

Directions for Completing Survey

Please use the following directions to complete the survey.

Part A – Re-rating of Priority Criteria

Please complete this section of the survey first. In the first column are the top 5 priority criteria for the program as identified by the stakeholder workgroup during previous meetings. In the second column (shaded green), **please rate these 5 priority criteria from 1-5**, with 5 being your highest priority and 1 being your lowest priority. **No criteria should receive the same rating.**
For the affordability criteria, please keep in mind that just because a scenario has a greater capital or average annual cost does not mean that it will be unaffordable. This scenario will just require a longer schedule to implement using a phased approach in order to keep rates at affordable levels as discussed at meeting #7a.

Part B – Selecting Top 3 SMP Scenarios

Along with this survey, you have received a packet containing a fact sheet on each of the SMP scenarios as well as the baseline scenario. After reviewing the fact sheets, please place your top 3 scenarios in the boxes shaded orange for Part B of the survey. Please use the scenario codes provided on the fact sheets to identify your top 3 scenarios.
Upon reviewing the fact sheet you will see that we have provided a number of cost components for your review including capital cost, additional annual O&M cost, equivalent annual cost, and $/gallon CSO removed. Evaluating cost impacts can be very complicated and is not dependent upon one or even two metrics, therefore we have attempted to provide a range of cost impacts for your consideration.

Part C – Rating Top Scenarios Against Priority Criteria

Part C of the survey is shaded in blue. Please rate how well you believe each of the scenarios you have identified as your top 3 choices will achieve the priority criteria from 0 – 10 with 0 being adverse and 10 being excellent. Numbers may be used more than once. For more guidance on making these determinations, please see the definitions in Table 1 below.

Please realize that some of the priority criteria are in direct competition with each other. For example, compliance with the implementation schedule in the Consent decree would limit the ability to maintain rates at or under affordability limits. It is expected that the scenarios will receive varying ratings for the different priority criteria.

Table 1 – Part C Rating Guidance

Rating	General Description
Excellent (10)	**Most favorable – indicating the highest possible rating, compared to all other available alternatives. For example, an excellent rating for reliability would indicate that the technology is nearly fail-safe.**
Very Good (7-9)	**Favorable – indicating a better than average rating, compared to all other available alternatives; but not the best possible. For example, a very good rating for reliability would indicate that the technology is more reliable than most, but is not among the best.**
Good (4-6)	**Moderate or average – indicating a mid-range rating compared to all other available alternatives. For example, a good rating for reliability would indicate that reliability should not be a major concern. However, infrequent system breakdowns can be expected to occur.**
Poor (1-3)	**Unfavorable – indicating a worse than average rating, compared to other available alternatives; but not the worst possible. For example, a poor rating for reliability would indicate that the technology is less reliable than most, but is not among the least reliable.**
Adverse (0)	**Most unfavorable – indicating the lowest possible rating compared to all other available alternatives. For example, an adverse rating for reliability would indicate the technology may likely have excessive down time, and would often be unavailable when needed.**

Part D – Suggested Improvements to Top Rated Scenario

In Part D of the survey, please add any suggestions you may have that you believe would improve the scenario you rated as your top choice.

SMP Alternatives Survey

Please complete the survey below, only completing the shaded areas for Parts A, B & C as described above.

Part A – Priority Criteria *(Rate 1-5, with 1 being lowest priority & 5 being highest, using each number only once.)*		**Part B – Identifying Top 3 SMP Scenarios**		
		SMP Scenario #1 _____	SMP Scenario #2 _____	SMP Scenario #3 _____
		Part C – Rating Top 3 Scenarios Against Priority Criteria (Rate from 0 – 10, using Table 1 for guidance.)		
Compliance with Clean Water Act Requirements				
Keeping rates at/under affordability limits				
Meeting WQ standards in Newport Harbor				
Supporting designated uses in Newport Harbor				
Compliance with Implementation Schedule in Consent Decree				

Part D – Suggested Improvements to Top Rated Scenario

In the space below please provide any suggestions you have that you believe would improve upon your #1 rated scenario above.

MEETING AGENDA

CSO Stakeholder Workgroup Meeting #9 Agenda (#10-039)

MEETING DATE: October 4, 2012

MEETING TIME: 3:00 PM

VENUE: City of Newport Council Chambers, City Hall

1. Welcome & Introductions
2. Overview of the Agenda
3. Approval of previous meeting's minutes
4. Follow-up on Parking Lot items:
    a. Overview of other I/I removal programs
    b. Recent CSO performance
5. SMP options
    a. Scenario descriptions
    b. Cost/benefits
    c. Implementation schedule/Affordability
6. Discussion of results and recommended scenario for SMP

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
  - Keith Bishton – Rates & Affordability
- Stakeholder Workgroup Participants

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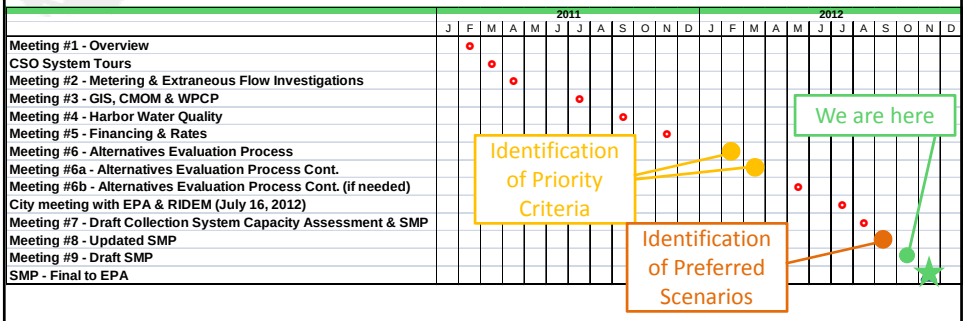
Schedule of Stakeholder Meetings



- The first 5 meetings focused on existing conditions in the collection system, the harbor and rates.
- The last 6 meetings focus on future conditions including: evaluation criteria, technologies, expected benefits, costs and implementation schedules.

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Objective for This Meeting

The objective for this meeting is to discuss how comments from the stakeholders group effected the performance, costs, implementation schedule, and affordability of the previously selected control scenarios.

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Meeting Agenda

- Overview of the Program Schedule
- Approval of Previous Minutes
- Parking Lot Follow-up Items
- SMP Control Scenarios
  - Scenario descriptions
  - Benefits/Costs
  - Implementation schedule/affordability
- Wrap-up & Comments

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PREVIOUS MEETING'S MINUTES

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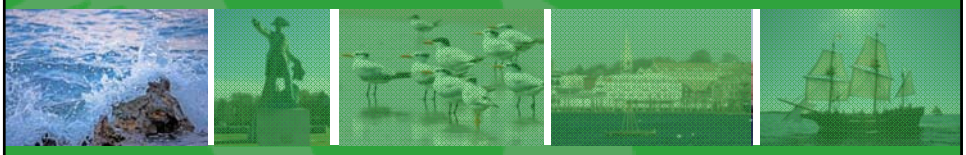

PARKING LOT FOLLOW-UP ITEMS

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BENEFITS AND COSTS OF CONTROL SCENARIOS

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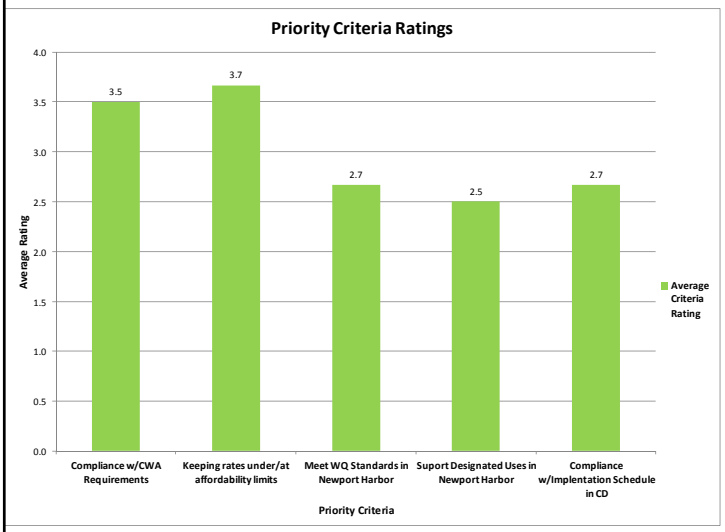
Review of Workgroup Identified Priorities



Other identified priorities:

- Flexibility
- Phased implementation approach

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Discussion of Scenarios Selected by EPA and the Stakeholder Group

BL – Baseline
- Includes projects in the City's existing CIP

E1 – Elimination –> Required by EPA
- Removal of all sources of inflow

Fact sheets were updated for 4 Scenarios….

C1A – Conveyance Upgrades –> C1 modified by Stakeholders
- Upgrade to pumps at Wellington
- Additional Inflow Reduction

S3A – Storage –> S3 Modified by Stakeholders
- WPCP Upgrade includes CEPT
- New Pump Station in Catchment 10
- Roof leader disconnection

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BL – Baseline

Overview & Objective of Scenario

- Replacement of infrastructure that has reached the end of its useful life
- Inflow reduction at manholes and catch basins connected to the sanitary/combined sewer system
- Conveyance improvements to eliminate known bottlenecks
- Improvements to the WPCP's headworks, solids processing and disinfection facilities to improve its effective treatment capacity

Changes Since Previous Meeting

- Updated WPCP capital costs

Key discussion points while reviewing updated fact sheets

- Projects required to maintain system at current level of service
- Significant capital requirements will affect implementation schedule for other scenarios

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E1 – Elimination

Overview & Objective of Scenario

- Removal of all private and public sources of inflow in the City of Newport, Middletown, and the Naval Station Newport
- Conveyance improvements to transport larger volumes of flow from Wellington and Long Wharf PS to the WPCP
- Includes associated improvements to storm drainage system

Changes Since Previous Meeting

- New scenario
- Required by EPA before approval of SMP

Key discussion points while reviewing updated fact sheets

- Requires elimination of all sources of inflow
- Includes inflow reductions by Middletown and Naval Station Newport
- Storm drainage system improvements

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C1A – Conveyance Upgrades

Overview & Objective of Scenario
- Reduction of inflow from the largest known contributor to the system - downspouts
- Conveyance improvements to transport larger volumes of flow from Wellington
- A new pump station to reduce flows to Washington from Catchment 10
- Improvements to the wet weather capacity at the WPCP

Changes Since Previous Meeting
- Upgrade pump size at Wellington PS
- Upgrade force main from Wellington PS to Thames St. interceptor

Key discussion points while reviewing updated fact sheets
- New CSO statistics

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S3A – Storage

Overview & Objective of Scenario
- Conveyance improvements to transport larger volumes of flow from Wellington and reduce volumes to Washington
- Improvements to the wet weather capacity and treatment at the WPCP
- Off-line storage at the Wellington and Washington CSO facilities to capture wet weather flows

Changes Since Previous Meeting
- WPCP Upgrade includes CEPT
- New Pump Station in Catchment 10
- Roof leader disconnection

Key discussion points while reviewing updated fact sheets
- New CSO statistics

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Approach to Hydraulic Evaluations

- Modified the selected scenarios to include improvements recommended by the stakeholders
- Adjusted component sizes and/or configurations to target elimination of a 10-year storm
- Evaluated each scenario for a typical year for number and volumes of CSO discharges
  - 1996 was selected as a typical year which is equal to the median total rainfall depth between 1948 and 2011
- Calculated costs per events and volumes removed for each scenario

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Summary of Discharge Volumes for Design Events

Scenario	2-Year Storm (MG)		5-Year Storm (MG)		10-Year Storm (MG)	
	Wellington	Washington	Wellington	Washington	Wellington	Washington
EC	1.24	4.22	1.83	5.87	2.72	7.53
BL	1.09	2.75	1.78	3.63	2.65	5.7
E1	0	0	0	0	0	0
C1A	0	0	0	0	0	0.19
S3A	0	0	0	0	0	0

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Summary of Performance for Average Annual Conditions

Scenario	Annual Volume (MG)		Annual Events	
	Wellington	Washington	Wellington	Washington
EC	11.03	43.01	12	18
BL	10.6	19	12	10
E1	0	0	0	0
C1A	0	0	0	0
S3A	0	0	0	0

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Summary of Program Costs

Scenario	Capital Cost	O&M Cost (per year)	Equivalent Annual Cost	Cost Per Gallon Removed	Cost Per Event Eliminated
BL	$31,487,000	($8,000)	$1,029,000	N/A	N/A
E1	$202,312,000	$447,000	$7,692,000	$0.26	$350,000
C1A	$91,666,000	$2,000	$3,251,000	$0.11	$148,000
S3A	$114,780,000	$531,000	$4,520,000	$0.15	$206,000

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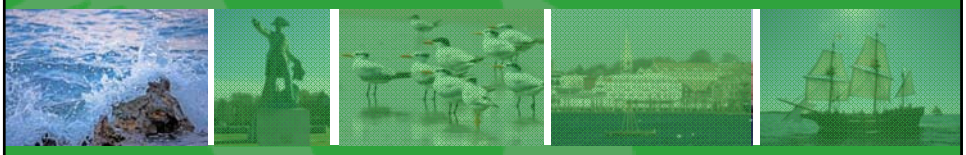

REVIEW & UPDATE ON AFFORDABILITY THRESHOLD

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Updated Affordability Threshold Analysis

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Parameter	Preliminary Value (November 2011)	Updated Value (October 2012)
Median Household Income (MHI)	$55,916	$55,916
CPI	216.687	230.379
Adjustment Factor		1.031
Adjusted MHI		$57,656
2% of Adjusted MHI	$1,118	$1,153
Average User Annual Sewer Charge	$676	$541
CSO Fixed Fee	$192	$192
Total Sewer Bill for Typical Residential Customer	$868	$733
Remainder Available Within "Affordability Threshold"	$250	$420

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Rate Threshold Assumptions

- Key assumptions about rate threshold for developing implementation schedule:
  - Cap rates at 1.95% of MHI to allow room for emergencies
  - Phase in rate increases from current 1.27% of MHI to 1.95% of MHI

Fiscal Year	Total Annual Bill	% chg.	Median Household Income	% chg.	Total Annual as % MHI
FY 2013	$733		$58,694		1.25%
FY 2014	$805	10%	$59,750	1.8%	1.35%
FY 2015	$879	9%	$60,826	1.8%	1.45%
FY 2016	$958	9%	$61,921	1.8%	1.55%
FY 2017	$1,038	8%	$63,035	1.8%	1.65%
FY 2018	$1,120	8%	$64,170	1.8%	1.75%
FY 2019	$1,212	8%	$65,325	1.8%	1.86%
FY 2020	$1,261	4%	$66,501	1.8%	1.90%
FY 2021	$1,317	4%	$67,698	1.8%	1.95%

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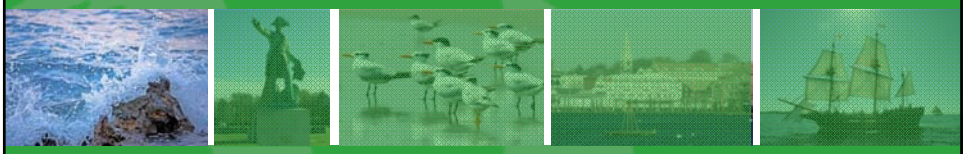

IMPLEMENTATION SCHEDULES AND AFFORDABILITY

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E1 – Inflow Elimination
Implementation Schedule

FY 2018 Program Assessment	FY 2023 Program Assessment	FY 2028 Program Assessment	FY 2033 Program Assessment	FY 2038 Program Assessment
FY 2014 – 2017	FY 2019 – 2022	FY 2024 – 2027	FY 2029 – 2032	FY 2034 – 2037	FY 2039 – 2042
• System Optimization • I/I Removal – Phase I • Stormwater Pipe Replacements	• I/I Removal – Phase II • Stormwater Pipe Replacements	• I/I Removal – Phase III • Stormwater Pipe Replacements	• I/I Removal – Phase IV • Stormwater Pipe Replacements	• I/I Removal – Phase V • Stormwater Pipe Replacements • WACSO Conversion to SW Treatment	• I/I Removal – Phase VI • Stormwater Pipe Replacements • WSCSO Conversion to SW Treatment

FY 2018 Assessment – I/I program effectiveness & system optimization impacts
FY 2023 Assessment – I/I effectiveness
FY 2028 Assessment – I/I effectiveness
FY 2033 Assessment – I/I effectiveness
FY 2038 Assessment – I/I effectiveness

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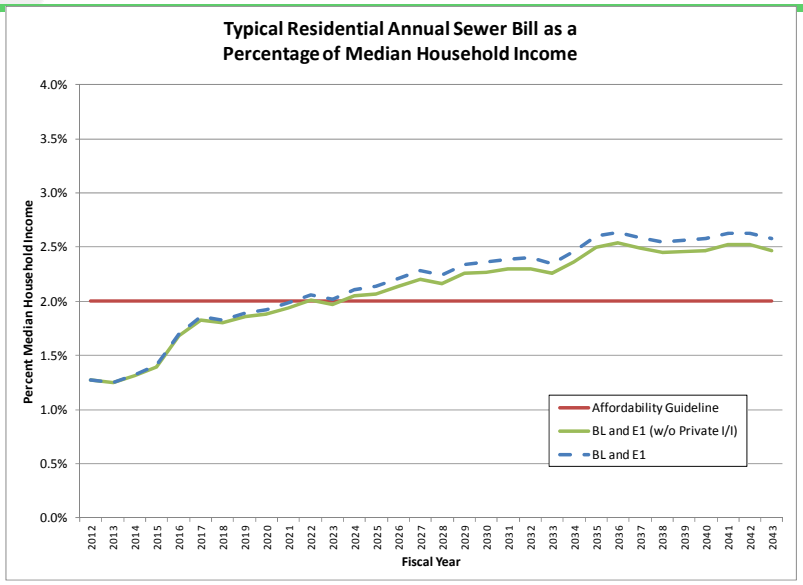
E1 – Inflow Elimination
Affordability



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C1A – Conveyance Upgrades
Implementation Schedule

FY 2018 Program Assessment

FY 2023 Program Assessment

FY 2028 Program Assessment

FY 2014 – 2017	FY 2019 – 2022	FY 2024 – 2027	FY 2029 – 2032
• WPCP Improvements • Wellington PS Upgrade • System Optimization • I/I Removal – Phase I	• WPCP Improvements completed • Catchment 10 Reroute • I/I Removal – Phase II	• I/I Removal – Phase III	• I/I Removal – Phase IV

FY 2018 Assessment – I/I effectiveness, system optimization impacts & conveyance upgrade impacts

FY 2023 Assessment – I/I effectiveness , WPCP upgrade impacts & conveyance upgrade impacts

FY 2028 Assessment – I/I effectiveness

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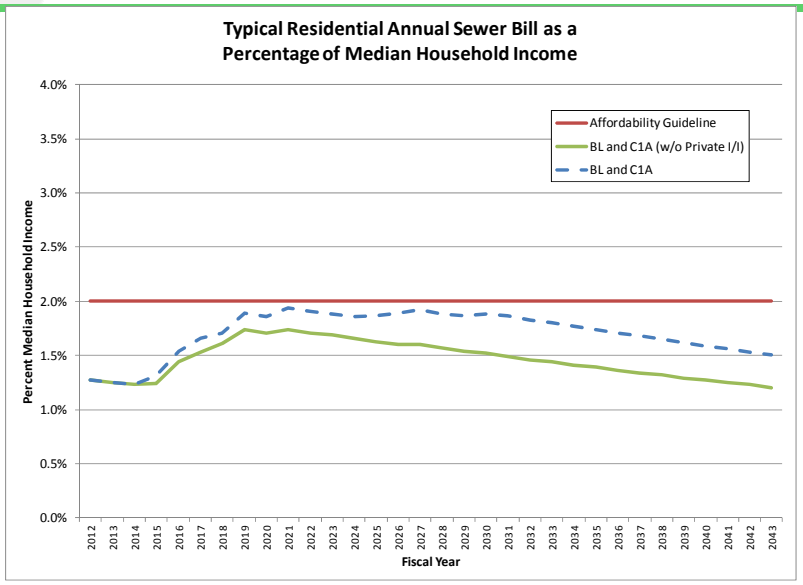
C1A – Conveyance Upgrades
Affordability



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S3A – Storage
Implementation Schedule

FY 2018 Program Assessment	FY 2023 Program Assessment	FY 2028 Program Assessment	FY 2033 Program Assessment	FY 2038 Program Assessment
FY 2014 – 2017	FY 2019 – 2022	FY 2024 – 2027	FY 2029 – 2032	FY 2034 – 2037
• WPCP Improvements • Wellington PS Improvements • System Optimization • I/I Removal – Phase I	• WPCP Improvements completed • I/I Removal – Phase II	• Catchment 10 Reroute • I/I Removal – Phase III	• I/I Removal – Phase IV	• Washington CSO Storage • Wellington / King Park CSO Storage

FY 2018 Assessment – I/I effectiveness & system optimization impacts
FY 2023 Assessment – I/I effectiveness & WPCP upgrade impacts
FY 2028 Assessment – I/I effectiveness & capacity upgrade impacts
FY 2033 Assessment – I/I effectiveness
FY 2038 Assessment – Washington CSO & Wellington/King Park CSO storage impacts

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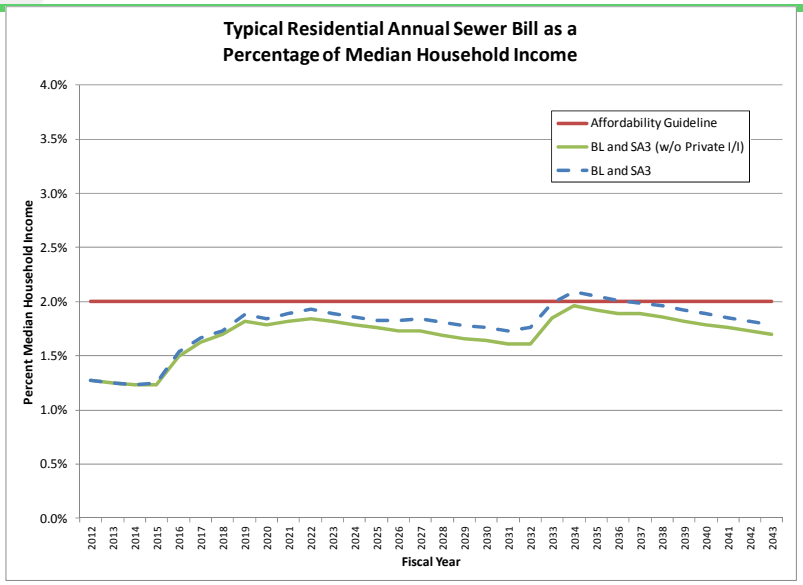
S3A – Storage
Affordability



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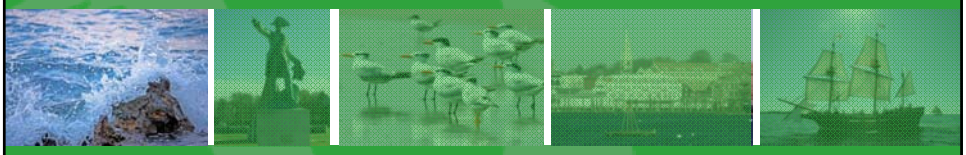

SMP SCENARIO SELECTION

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CSO Program Goals

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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.

- From Presentation to Newport City Council by CH2M HILL on March 2011

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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

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Recommended SMP Scenario
C1A – Conveyance Upgrades

- C1A Scenario best achieves the goals of the CSO Program:
  - Maximizes the use of existing facilities
  - Minimizes O&M costs
  - Program & implementation schedule are affordable & achievable in a reasonable timeframe
- C1A Scenario best achieves the goals of the Stakeholder Workgroup:
  - Maintains rates below 2% MHI
  - Meets the requirements of the CWA
  - Phased implementation approach provides flexibility for re-evaluation and change
- C1A Scenario best achieves the goals of EPA:
  - Focus on I/I reduction

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Next Steps for the SMP

- Prepare Draft SMP for City Review
  - Hydraulic analysis
  - Affordability analysis
  - Implementation schedule
  - Summary of stakeholder process
- Present SMP to City Council at Public Workshop
- Submit Final SMP to EPA by November 30, 2012

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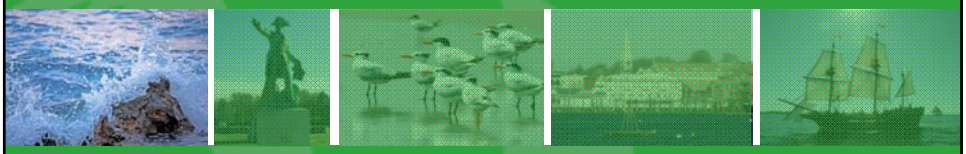

WRAP-UP & COMMENTS

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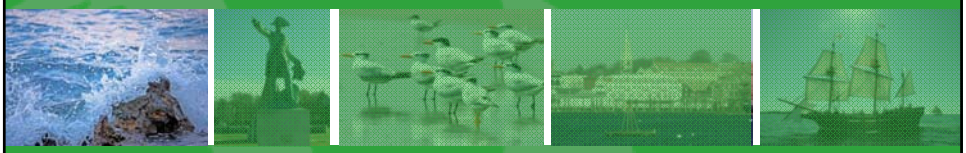

PARKING LOT FOLLOW-UP ITEMS

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Parking Lot Item #1

- Provide an overview of other I/I removal programs
  - Benefits provided
  - Costs
  - Implementation methods

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I/I Programs Reviewed in this Document

Some details…

- Portland, OR
- Hartford, CT
- Johnson County, KS
- Duluth, MN
- Knoxville, TN

Just the basics…

- Lowell, MA
- Newton, MA
- Burlington, MA
- Greenwich

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Downspout Disconnection Program
Portland, OR

Purpose: To reduce CSOs to the Columbia Slough and Willamette River.

Program type: Incentive based.

- Homeowner reimbursement of $53.00/downspout (typical)
- If City determines disconnections to be complex, larger reimbursements could be made
- Free disconnection services by City approved non-profit organizations

Benefit:

- Disconnected 56,000 downspouts
- Removed 1.2 billion gallons of water per year from combined sewers

Program Cost: Total costs not known

Implementation Schedule:

- Program began in 1995 and concluded in 2011

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Hartford Area Separation Projects
Hartford, CT

Purpose: Reduce CSOs in 3 catchment areas

Program type: Incentive based

Technical Approach:

- Program was managed and funded by Hartford MDC via rates – no homeowner costs
- Program required extensive outreach & homeowner satisfaction
- Program provided homeowners with property improvements along with stormwater disconnection.

Benefit:

- Disconnected downspouts from 277 homes – average of 5 downspouts per property
- Rain gardens were more cost effective than hard piping for 3 or more downspouts at one property

Cost: $20,000 - $27,000/property

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Johnson County Wastewater
Johnson County, KS

Technical Approach

- Program initiated to address widespread SSO events in the early 80's
- Passed a county ordinance making it illegal for residents to have connections from surface or ground water sources to the sanitary sewer system
- Within a year, most of the 55,000 property owners had readily complied with the request for access to their homes and buildings.
- Property owners were reimbursed for direct costs associated with removal of foundation drains, storm sump pumps or pits, area drains (driveway, patio, yard, window well, and basement entry), downspouts, and defective service line cleanouts. Maximum payments were published for each type of connection.
- JCW established informal fixed-price contracts with local contractors. These contracts were based on standard specifications and set costs for different types of disconnections.
- Property owners could either have JCW assign the contractor, or be provided with a list of pre-approved contractors and make their selection through a two-bid process
- The standard contracts worked extremely well and relieved a serious project backlog in the first year of the program, tripling the disconnection rate to 4,000 per year.

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Johnson County Wastewater
Johnson County, KS

Benefit
- Disconnected more than 15,600 unpermitted sources of storm water inflow on private property
- Reduced capacity-related SSOs by reducing wet-weather flow rates in the system by an average 280 mgd during the 10-year storm
- Reduction in the number of complaints for smaller storm events

Cost
- I/I reduction program cost a total of $60 million
  - private connection program was the least expensive at just under $10.3 million
  - $30 million for collection system improvements
  - $19.7 million for program-specific engineering and administrative expenses
- JCW was able to obtain $12 million in grant funds and $18 million in low-interest state revolving loans, but the private connection work was not eligible for public funds. JCW covered the costs with obligation bonds that are being paid for through a tax increase.

Incentive/Penalty
- Reimbursed property owners for disconnection up to a max payment for each type of connection
- No enforcement action taken unless homeowner refused to comply with the ordinance

Implementation Schedule
- Initiated surveys in 1985 and completed this phase of the I/I reduction program in 1994.

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City of Duluth Sump Program
Duluth, MN

Technical Approach
- Initiated I/I reduction programs as a result of an Administrative Action from the USEPA due to SSOs
- In 2000, initiated inspection/disconnection of foundation drains in homes
- Voluntary programs until 2004 when a new ordinance was adopted making participation in the program mandatory
- Collection system divided into 30 basins containing approximately 1000 homes each, inspections performed in targeted basins based on priority
- Inspections determine if home is a contributor or non-contributor of inflow from foundation drains. If a contributor then the homeowner must install a sump pump and house traps must be removed.
- Following inspection the home owner has 90 days to install the sump pump
- Ordinance requires point of sale inspection, disconnection of drains and removal of house trap
- All new homes are inspected to make sure there are no connections to the SS

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City of Duluth Sump Program
Duluth, MN

Benefit
- 5000+ homes inspected, 70 refused to be inspected (2005)
- Roof drain disconnection reduced peak flows by about 10% and the sump pump program reduced peak flows by about 75%
- Reduced capacity requirements for storage facilities

Cost
- Paid approximately $6 million in I/I reduction with about $1.5 million going to sump pump grants. City paid 100% for roof drain disconnections in downtown. (2005)
- Passed on as increased sewer rates; which increased by about 20%

Incentive/Penalty
- Grant money available up to a set amount of $2,150 for specified allowances
- Property owners making less than 50% of the median City income get 100% reimbursement
- If inspections are not allowed the City will issue administrative search warrants
- A $250 surcharge will be added to utility bill if disconnection not performed within 90 days

Implementation Schedule
- Inspection of foundation drains were initiated in 2000 and are ongoing for targeted basins

Lessons Learned
- City of Duluth found that the program had to have an enforcement component with teeth to be effective
- Up front outreach and education of City Council members to achieve buy-in for ordinances and administrative actions

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KUB Private Lateral Program
Knoxville Utilities Board

Technical Approach
- Consent Decree requires implementation of a program to reduce extraneous flows entering the wastewater collection system through defective residential private laterals and illicit connections.
- Defective laterals and illicit connections were identified during previous assessment and continue to be identified through the Continuing Sewer System Assessment Program.
- Prioritize areas where collection system improvements were underway. KUB replace lower laterals during such projects, property owner responsible for upper.
- Contracted with a third party (non-profit entity) to administer the PLP and provide financial assistance, which included a grant program for low to moderate income owners and also a interest free loan program. Financial assistance not just based on income.
- Implemented a 120 day enforcement deadline for property owners to perform repairs or replacement.
- Communication to property owners and public was essential

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KUB Private Lateral Program
Knoxville Utilities Board

Benefit
- Met conditions of the Consent Decree
- Identified 3,365 laterals needing repair/replacement, 3,230 were done
- Provided 981 grants and 36 loans (loans discontinued for low use)
- 59% reduction of wet weather overflows since implementation of 10 year program to improve collection system (not just the PLP)

Cost
- Provided $2+ million in grants

Incentive/Penalty
- 120 day enforcement deadline, at which time water service was shut off
- 241 water service disconnections were implemented, 139 reinstated.
- Disconnection was continued during sale of property
- 33 active properties still under enforcement

Implementation Schedule
- Consent Decree entered in February 2005, PLP program initiated later that year and completed in 2012.

Lessons Learned
- Customer hardship and dissatisfaction were expected so they implemented a public relations program from the start
- Using CCTV allowed pinpointing problems and could reduce repair costs for customers

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City of Lowell, MA
Regional Wastewater Utility

- Co-permittees with Dracut, Chelmsford, Tewksbury and Tyngsborough
- Permit issued in 2005 requiring the development of an I/I Control Plan that includes a program for disconnecting sump pumps and roof downspouts
- Dracut initiating a public awareness program that focuses on private property I/I

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City of Newton, MA

- MWRA Assessment driven
- Private Inflow Removal Program
- Focusing on two areas with wet weather overflows
- Performed inspections and smoke testing, identified 58 driveway drains and 136 sump pumps connected
- Notifying property owners
- 22 sump pumps disconnected

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City of Burlington, MA

- Mass DEP moratorium on sewer allocations
- Just began performing inspections this year
- Amnesty program that is cost free to property owner where developer performs work in order to receive allocation to connect

48

City of Greenwich, CT

- Under orders from US Dept of Justice and CT DEP
- Performing investigations in phases based on priority
- Notifies property owners if they have an illegal connection, a flexible connection or a suspected connection
- Notification includes packet that provides instructions on how the property owner can go about performing the disconnections
- Requires property owners to get permits for performing the work

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Parking Lot Item #2

- Provide an update on CSO system performance
  - Trends for system performance for 2001 - 2012

50

Improvements Implemented Between 2001 and 2011 Effecting CSOs

- Inflow Reduction Projects
  - Mainly focused on Wellington area
  - Public defect remediation – 41 catch basins separated
  - Private defect remediation – roof leader and sump pump disconnection
- Conveyance Projects
  - Thames Street Rehabilitation Project
  - Removed 35 utilities and 3 weirs that were obstructing flow
  - Relined the interceptor
  - Increase conveyance of flow from Wellington to Washington
- System Operations
  - Adjusted operations to limit flows to the WPCP to not exceed RIPDES permit flow limits

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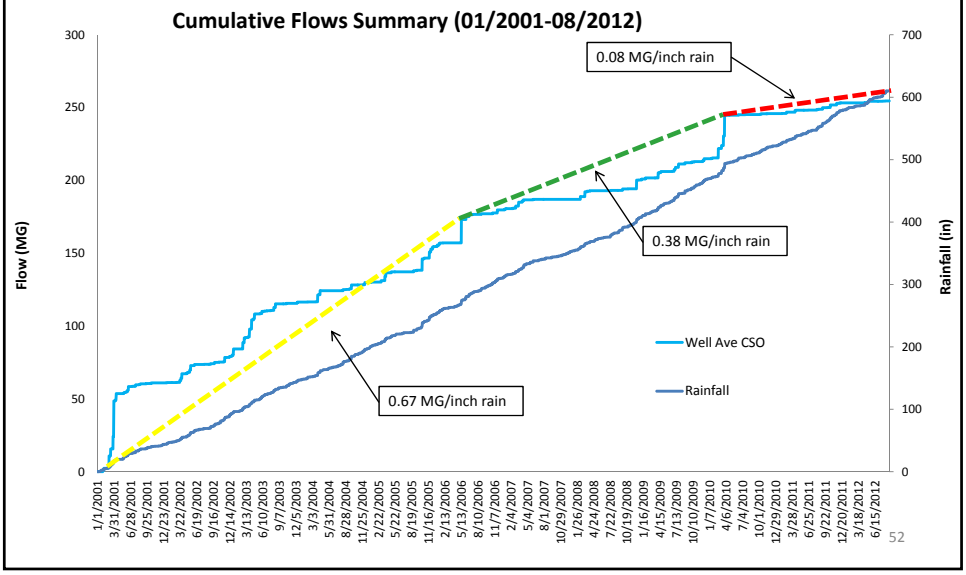
Wellington Avenue Treatment Facility Cumulative Flow vs. Rainfall



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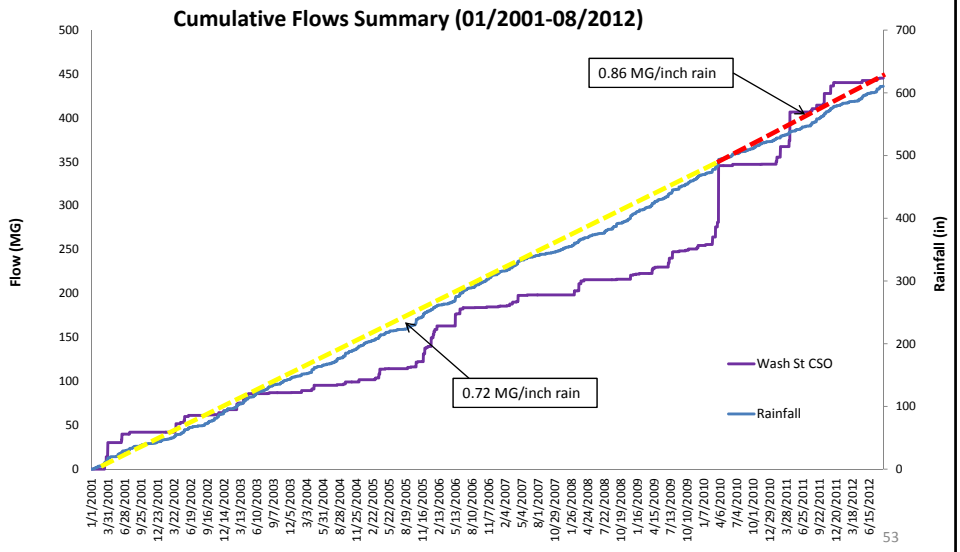
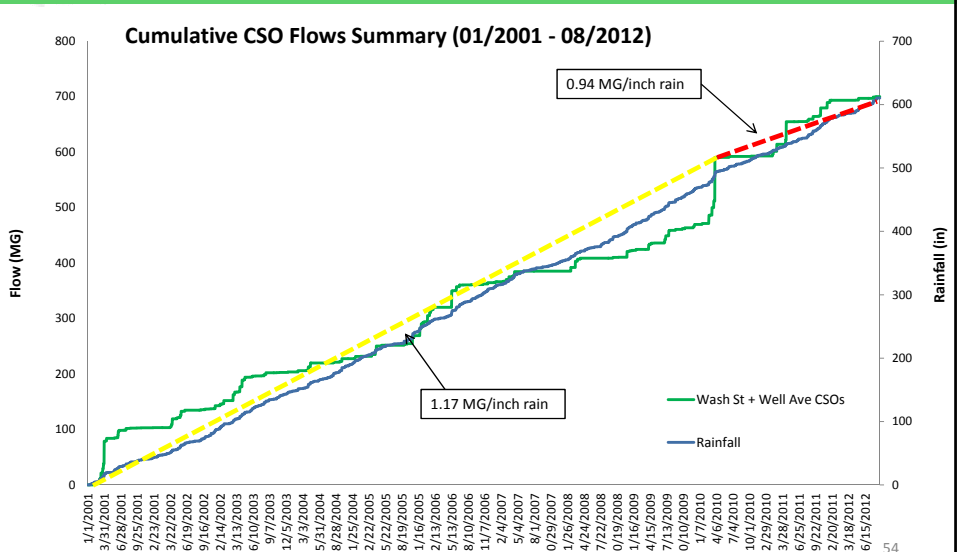
Washington Street Treatment Facility Cumulative Flow vs. Rainfall



Cumulative Flow vs. Rainfall



Recent CSO Performance Conclusions

- Trends in CSO Discharges
  - Wellington shows a significant decrease in CSO volumes
    - From 0.67 to 0.08 MG per inch of rain
  - Washington shows a small increase in CSO volumes
    - From 0.72 to 0.86 MG per inch of rain
  - Citywide CSOs volumes show a small decreased
    - From 1.17 to 0.94 MG per inch of rain
- Effects of Recent Improvement Projects
  - Recent projects have increased conveyance of flow from the Wellington to Washington CSO treatment facilities
- System Operations
  - The system has the capacity to convey more flow to the plant – but -
  - The plant's discharge permit limits flows that can be treated during wet weather

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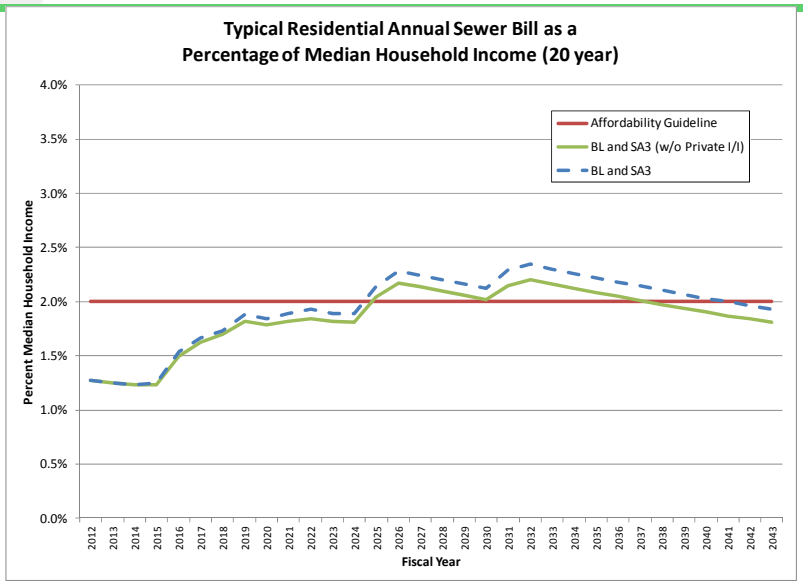
S3A – Storage
Affordability – 20-year implementation



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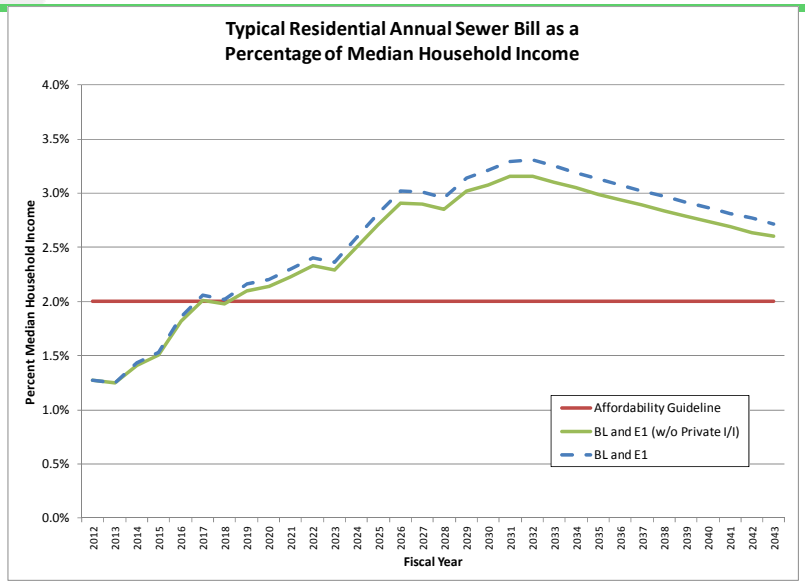
E1 – Inflow Elimination
Affordability – 20-year implementation



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DRAFT - Newport Combined Sewer Overflow (CSO) Stakeholder Workgroup: Meeting #9

ATTENDEES: See Attachment 1

DATE & PLACE: October 4, 2012; City Hall, Council Chambers

Welcome & Introductions

Julia Forgue introduced the CH2M HILL consultant team members and asked the stakeholders to state their names and organizations.

Overview of Agenda

Julia Forgue provided an overview of the agenda and asked if there were any questions before moving forward. The objective for this meeting is to discuss how comments from the stakeholder group affected the performance, costs, and affordability of the previously selected control scenarios. A summary of the agenda follows:

1. Welcome & Introductions
2. Overview of the Agenda
3. Overview of the CSO Program Schedule
4. Approval of previous meeting's minutes
5. Follow-up on Parking Lot items
6. SMP Control Scenarios
    a. Scenario descriptions
    b. Benefits/Costs
    c. Implementation schedule/affordability

Overview of CSO Program Schedule

Julia Forgue provided an overview of the CSO program goals, the strategy to achieve the goals and the program schedule and review of the Stakeholder Workgroup Mission Statement.

Previous Meeting's Minutes

The minutes of Meetings #8 were approved.

Update on Parking Lot from Previous Meeting

There were 2 items in the parking lot from Meeting #8:

1. A request for more information about I/I reduction programs in other communities.
2. An update on recent CSO performance.

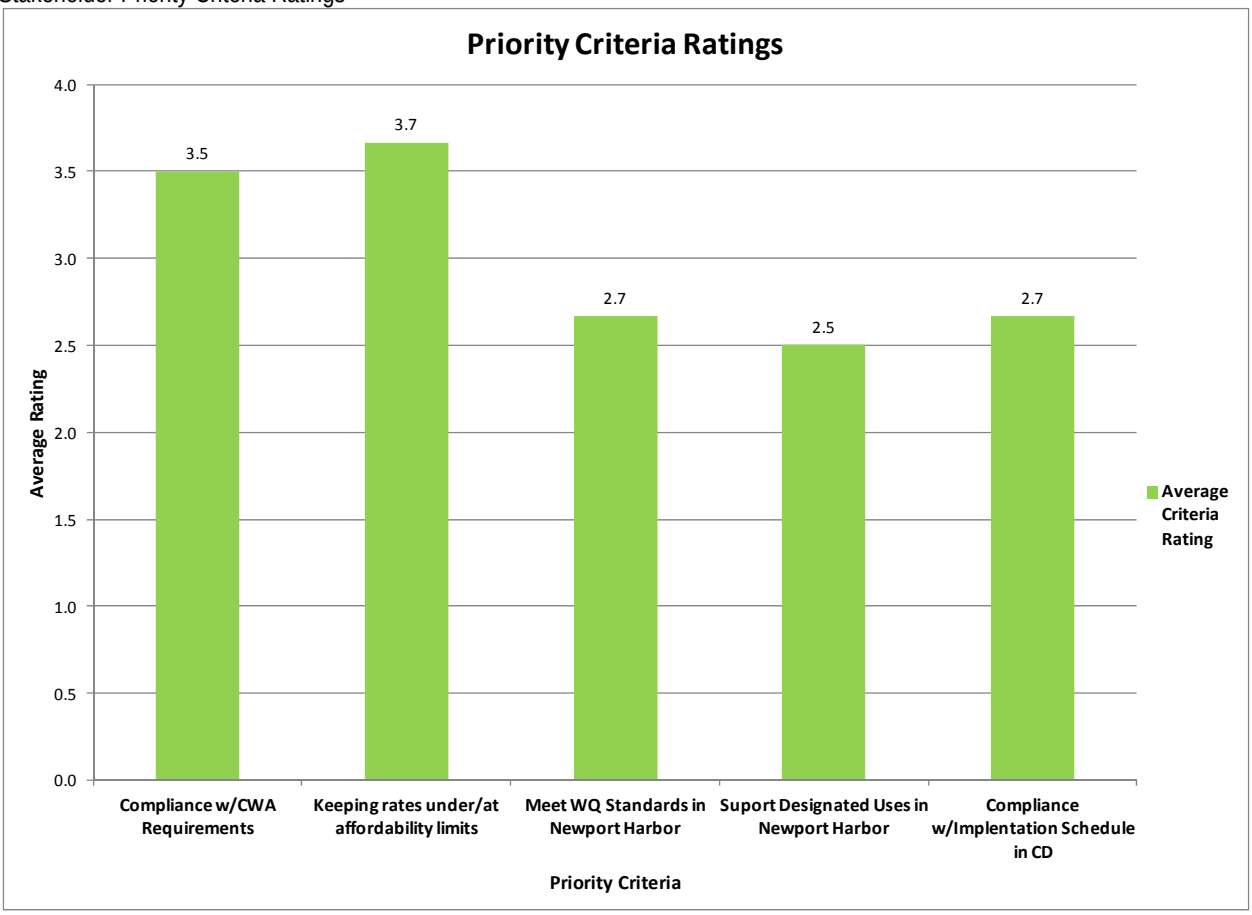
As there was much to cover during this meeting, this information was provided at the end of the slide handouts for stakeholders to review at their convenience.

Key Meeting Topics

Benefits and Costs of Control Scenarios

There was a review of the workgroup identified priorities as shown in Figure 1. In addition to these priorities, the stakeholders also identified that a flexible program with a phased implementation approach was a priority for the recommended SMP.

FIGURE 1
Stakeholder Priority Criteria Ratings



Peter von Zweck provided an overview of the four scenarios selected by the group and EPA for more detailed evaluation. These scenarios were:

- Baseline (BL)
- Elimination (E1) – required by EPA
- Conveyance Upgrades (C1A)
- Storage (S3A)

Details about each of the scenarios was provided on a set of updated fact sheets that were distributed at the meeting and are included here as Attachment 2.

In addition to the components making up each of the scenarios, the results of the hydraulic evaluations for and the program costs for each scenario were presented and are shown in Figures 2-4.

FIGURE 2
Summary of Discharge Volumes for Design Events

Scenario	2-Year Storm (MG)		5-Year Storm (MG)		10-Year Storm (MG)	
	Wellington	Washington	Wellington	Washington	Wellington	Washington
EC	1.24	4.22	1.83	5.87	2.72	7.53
BL	1.09	2.75	1.78	3.63	2.65	5.7
E1	0	0	0	0	0	0
C1A	0	0	0	0	0	0.19
S3A	0	0	0	0	0	0

FIGURE 3
Summary of Performance for Average Annual Conditions

Scenario	Annual Volume (MG)		Annual Events	
	Wellington	Washington	Wellington	Washington
EC	11.03	43.01	12	18
BL	10.6	19	12	10
E1	0	0	0	0
C1A	0	0	0	0
S3A	0	0	0	0

FIGURE 4
Summary of Program Costs

Scenario	Capital Cost	O&M Cost (per year)	Equivalent Annual Cost	Cost Per Gallon Removed	Cost Per Event Eliminated
BL	$31,487,000	($8,000)	$1,029,000	N/A	N/A
E1	$202,312,000	$447,000	$7,692,000	$0.26	$350,000
C1A	$91,666,000	$2,000	$3,251,000	$0.11	$148,000
S3A	$114,780,000	$531,000	$4,520,000	$0.15	$206,000

Questions and Answers

Q: Is the E1 scenario effectively complete separation.
A: Yes.

Q: Is 100% inflow removal achievable?
A: Not based on previous evaluations.

Q: For C1A will the homeowner need to invest in the improvements for their property?
A: Yes, if the program is set up for the homeowner to be responsible for the inflow disconnections.

Q: What will happen in the area that flood during wet weather with all of the additional inflow disconnections?
A: Those areas will need to be studied to determine if upgraded storm drainage systems are needed.

Q: Could loans be offered to homeowners to help pay for the cost of disconnections?
A: Yes, if that is a policy decision made by the City.

Q: Do the program costs include some cost to continually inspect disconnections to ensure that they remain disconnected?
A: Yes, the program costs do include some cost for oversight of the I/I disconnection program.

Review and Update on Affordability Threshold

Becky Weig presented an update on the affordability threshold analysis that had been previously presented in November 2011. The results are shown in Figure 5. Also presented were the key assumptions about the rate threshold which included capping the rates at 1.95% of median household income (MHI) to allow room for emergencies and to phase in rates from the current rate of 1.27% of MHI to 1.95% of MHI rather than have one or two large increases.

FIGURE 5
Updated Affordability Threshold Analysis

Parameter	Preliminary Value (November 2011)	Updated Value (October 2012)
Median Household Income (MHI)	$55,916	$55,916
CPI	216.687	230.379
Adjustment Factor		1.031
Adjusted MHI		$57,656
2% of Adjusted MHI	$1,118	$1,153
Average User Annual Sewer Charge	$676	$541
CSO Fixed Fee	$192	$192
Total Sewer Bill for Typical Residential Customer	$868	$733
Remainder Available Within "Affordability Threshold"	$250	$420

Implementation Schedules and Affordability

Becky Weig presented the proposed implementation schedules and impact on rates as a percentage of MHI for each of three scenarios: E1, C1A, and S3A. The results are shown in Figures 6 – 11.

FIGURE 6
Implementation Schedule for Scenario E1

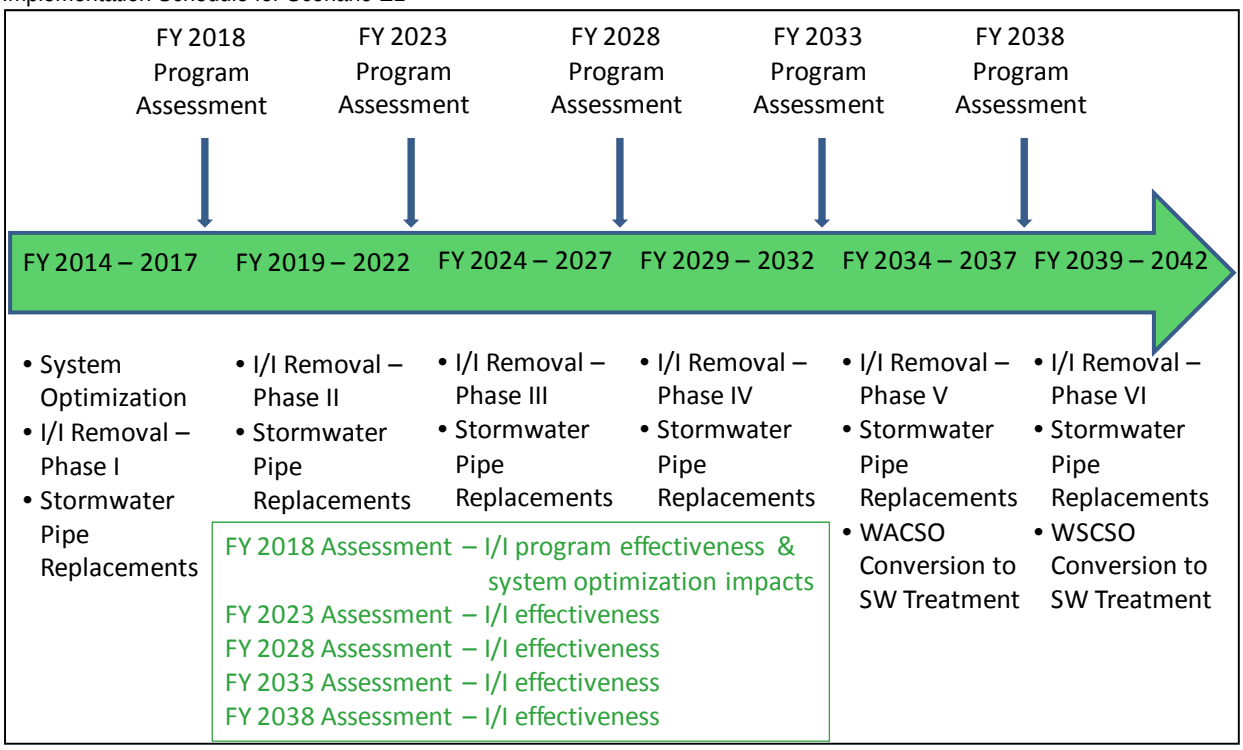


FIGURE 7
Rate Impacts as Percentage of MHI for Scenario E1

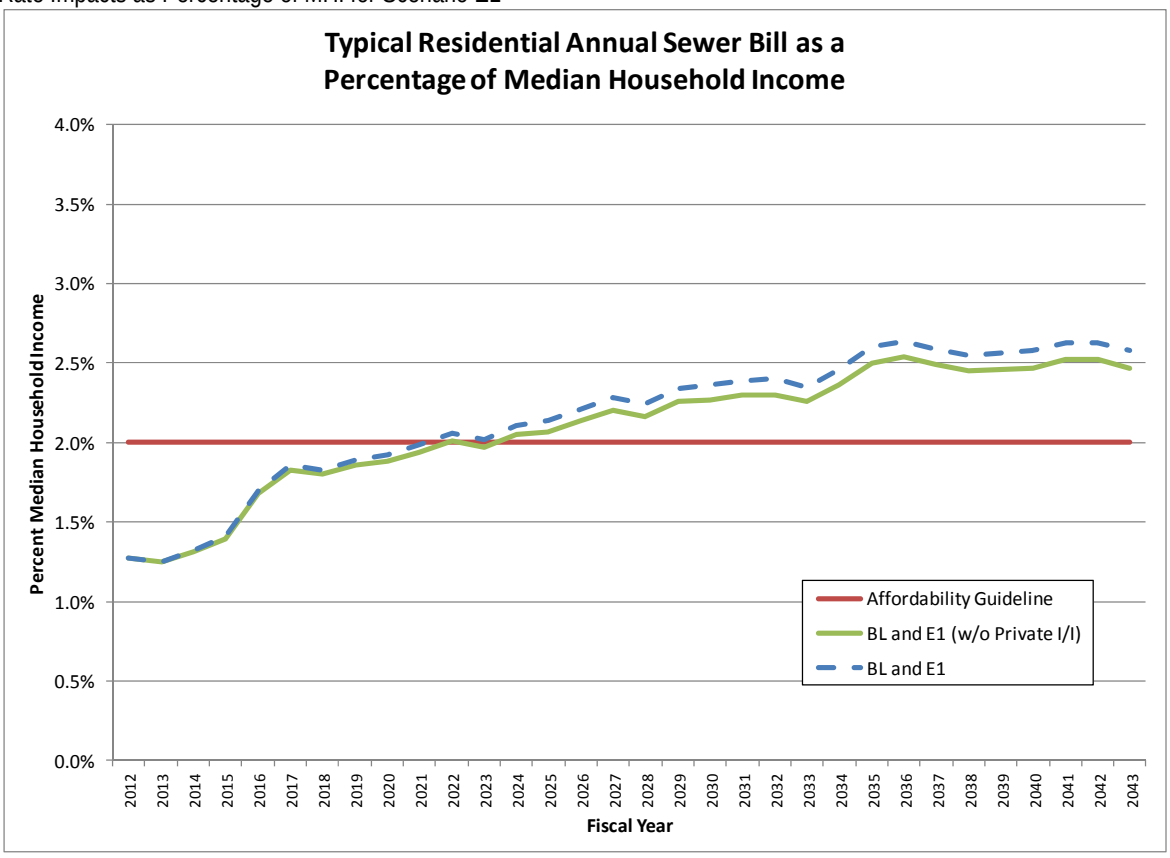


FIGURE 8
Implementation Schedule for Scenario C1A

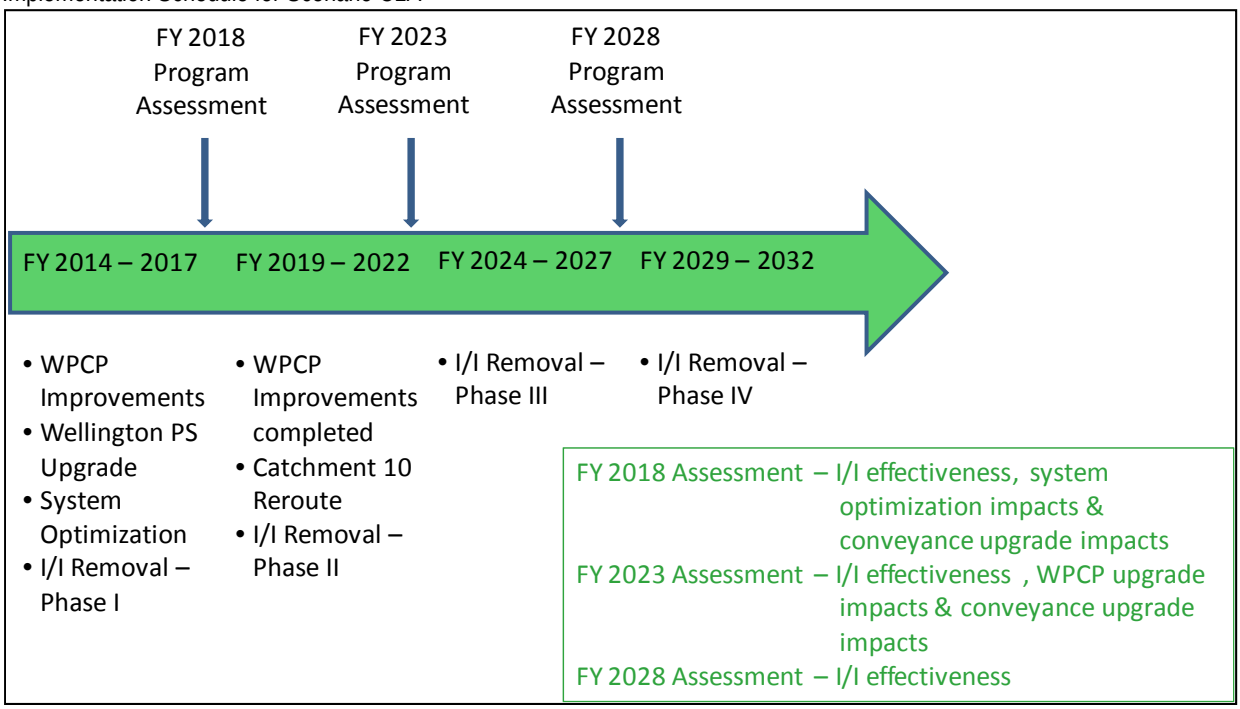


FIGURE 9
Rate Impacts as Percentage of MHI for Scenario C1A

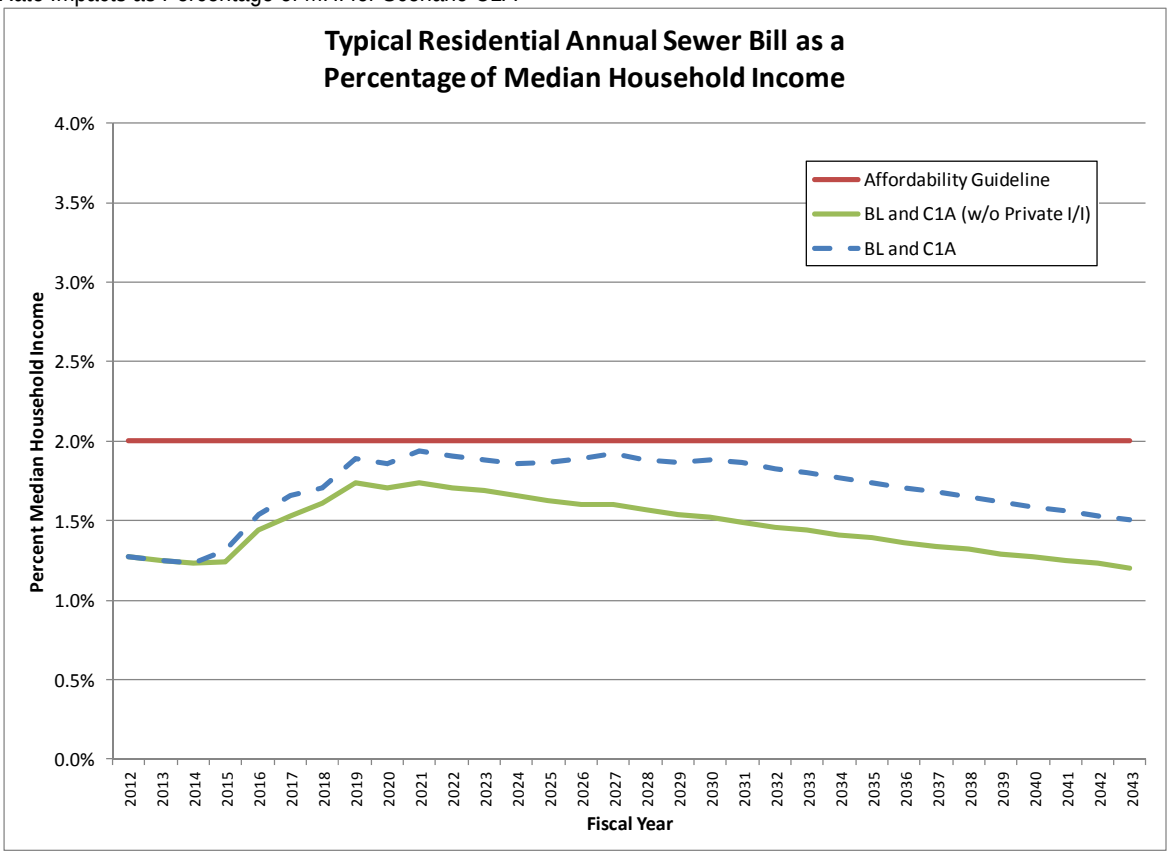


FIGURE 10
Implementation Schedule for Scenario S3A

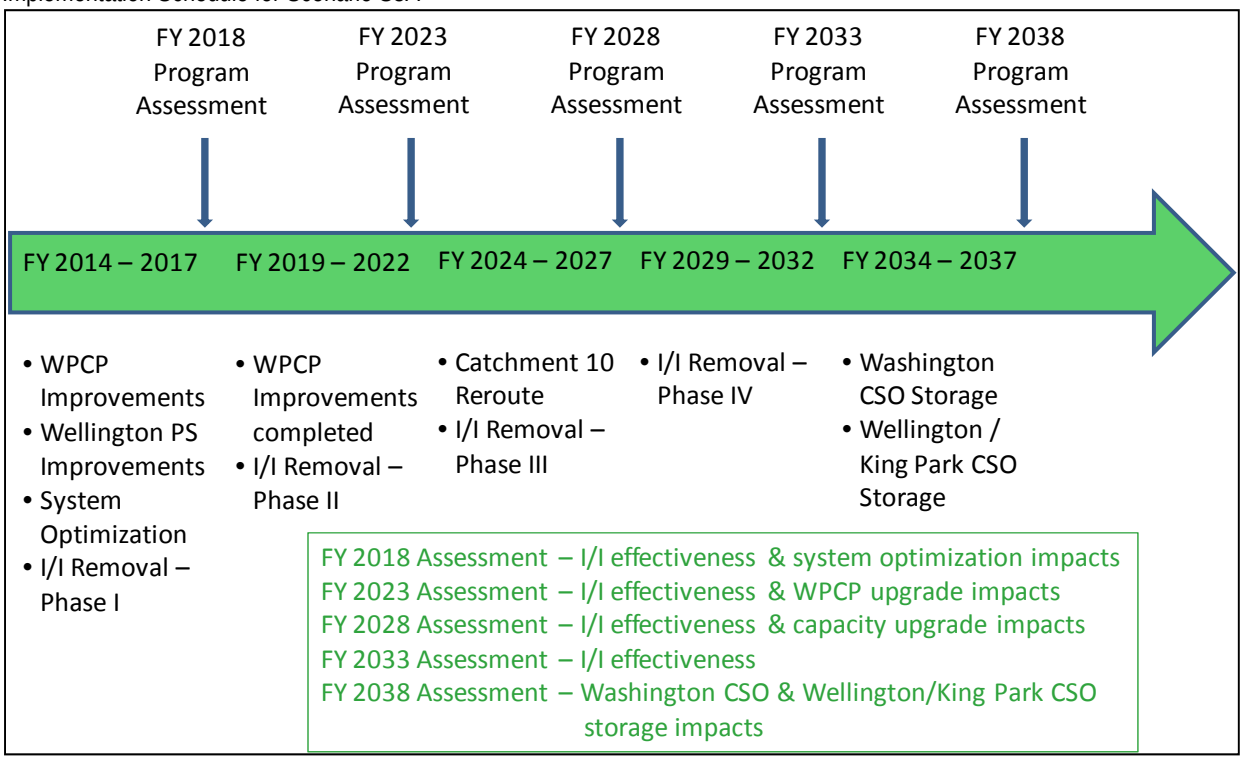
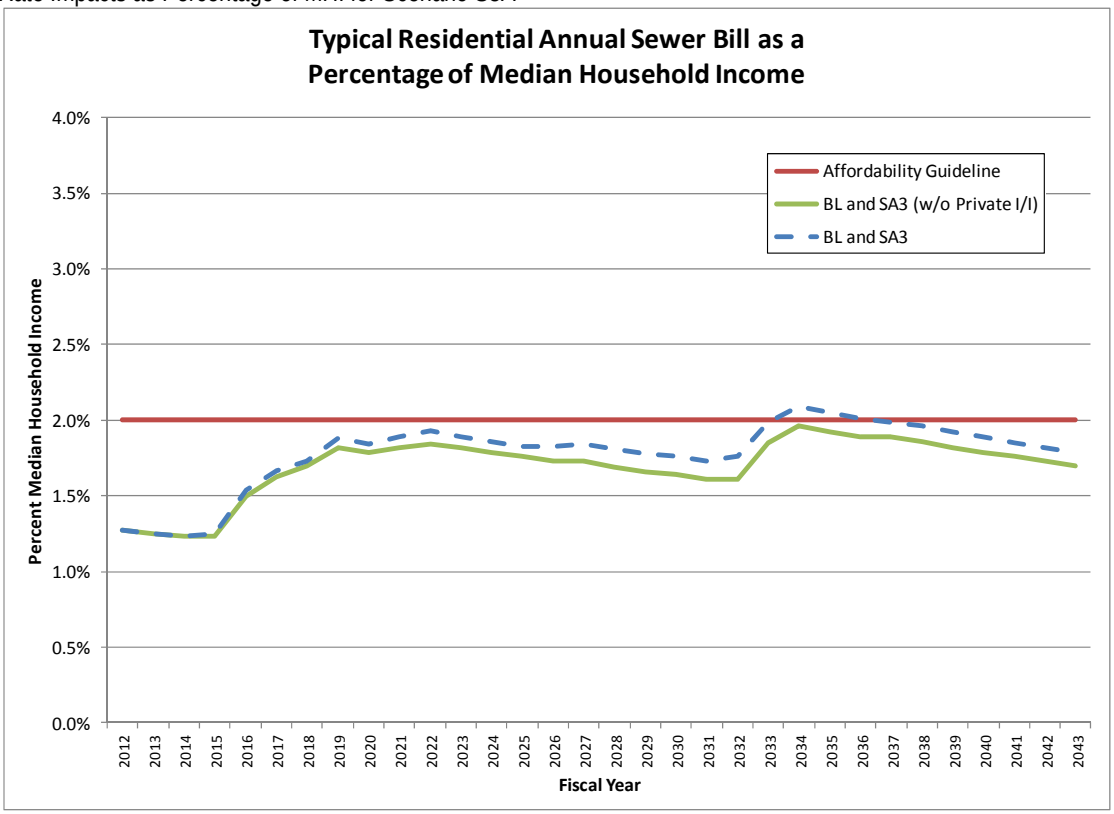


FIGURE 11
Rate Impacts as Percentage of MHI for Scenario S3A



Questions and Answers

Q: For Scenario S3A, why is it proposed to build the storage tanks so far out in the implementation schedule?
A: In order to maintain affordability, the storage tanks could not be built any sooner unless the WPCP upgrade was delayed, and since that provides more benefit to CSO reduction it was determined that the WPCP upgrade projects should be completed as early in the implementation schedule as affordable.

SMP Scenario Selection

Peter von Zweck presented that based upon the CSO Program goals and the strategy to achieve the goals defined at the beginning of the project, that the C1A Scenario was the recommended SMP scenario because:

- It best achieves the goals of the CSO Program,
- It best achieves the goals of the Stakeholder Workgroup, and
- It best achieves the goals of EPA.

Questions and Answers

Q: Is this proposed program sellable to City Council?
A: Yes, but it would be helpful if Stakeholder Workgroup participants would attend an upcoming City Council briefing to show their support based upon the public involvement process.

Parking Lot

- There was a request for an additional meeting to discuss funding options for the SMP.

Attachment 1

CSO Stakeholder Workgroup Meeting #9 Attendees

MEETING DATE:	Thursday October 4, 2012 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
Workgroup Members		
Justin McLaughlin	City Council	
Ray Smedberg	Ad Hoc Committee	
David McLaughlin (Alternate)	Ad Hoc Committee	
John McCain	ALN	
Roger Wells (Alternate)	ALN	
Tina Dolen	Aquidneck Island Planning Commission	
~~Chris Witt (~~Alternate)	Aquidneck Island Planning Commission	
Charles Wright	Beach Commission	
Kathleen Shinners (Alternate)	Beach Commission	
Bill Riccio	Dept. Public Services	
Eric Earls (Alternate)	Dept. Public Services	
Paige Bronk	Dept. Planning	
Bill Hanley (Alternate)	Dept. Planning	
Tim Mills	Harbor Master	
Mary E. Dever-Putnam	EPA	
James Carlson	NSN	
William Monaco (Alternate)	NSN	
Jody Sullivan	Newport County Chamber	
Ed Lopes (Alternate)	Newport County Chamber	
Evan Smith	NCCVB	
Cathy Morrison (Alternate)	NCCVB	
Shawn Brown	Middletown	
Tom O'Loughlin (Alternate)	Middletown	
~~Eric Beck~~ Joe Habeck	RIDEM	
Angelo Liberti (Alternate)	RIDEM	
Jim Brunnhoeffer	RWU	
B. Gokhan Celik (Alternate)	RWU	

JARED weaver

MEETING DATE:	Thursday October 4, 2012 @ 3:00 PM	
LOCATION:	City Hall Council Chambers – Newport, RI	
Name	**Affiliation**	**In Attendance**
DAVID ~~John Torgan~~	Save the Bay	DRP
Wendy Waller (Alternate)	Save the Bay	
Tom Cornell	Resident	
Stuart K. Mills, Jr.	Resident	
Roger Slocum	Resident	RS
Ted Wrobel	Resident	HFW
Other Attendees		
Julia Forgue	City of Newport	
Ken Mason	City of Newport	
Mike Domenica	CH2M HILL	
Peter von Zweck	CH2M HILL	
Becky Weig	CH2M HILL	RCW
Jim Lauzon	United Water	

Attachment 2

Updated fact sheets distributed at the meeting.

City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
BL	Baseline

Description of Objectives and Control Logic

The Baseline scenario includes projects that have been identified in the City's existing CIP and other projects recommended to maintain or improve the levels of service provided by the current sanitary/combined sewer system. It provides a benchmark for comparison of all other improvement scenarios. Correspondingly all components of the baseline are included in all system improvement scenarios. Its components include a variety of infrastructure replacement, inflow reduction, conveyance, and wastewater treatment projects.

Project Locations

Components and Costs[1]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
	City of Newport CIP Projects FY2013-2017			
	Bridge Street Tide Gates	$ 85,000	$ -	$ 3,000
	Almy Pond - TMDL	$ 170,000	$ -	$ 9,000
	Sanitary Sewer Improvements	$ 11,000,000	$ -	$ 299,000
II-1	Catch Basin Disconnections	$ 2,000,000	$ (8,000)	$ (0)
	Beach PS Improvements	$ 305,000	$ -	$ 11,000
	Audit - UW Service Agreement	$ 100,000	$ -	$ 5,000
	CSO Program Management	$ 1,000,000	$ -	$ 51,000
WPCP-1.1	Headworks and Disinfection Improvements	$ 2,250,000	$ -	$ 89,000
WPCP-1.1	Final Clarifier Improvements	$ 1,500,000	$ -	$ 54,000
	Subtotal	$ 18,410,000	$ (8,000)	$ 521,000
	Recommended Projects FY2018 - ?			
WPCP-1.1	WPCP Improvements (Headworks, Disinfection and Solids Handling)	$ 9,985,000	$ -	$ 395,000
	Wellington Pump Station Improvements	$ 2,886,000	$ -	$ 104,000
	Ruggles Pump Station Improvements	$ 206,000	$ -	$ 7,000
	Subtotal:	$ 13,077,000	$ -	$ 507,000
	Scenario Totals:	$ 31,487,000	$ (8,000)	$ 1,029,000

Narrative Summary of System Benefits

- ✓ Replacement of infrastructure that has reached the end of its useful life
- ✓ Inflow reduction at manholes and catch basins connected to the sanitary/combined sewer system
- ✓ Conveyance improvements to eliminate known bottlenecks
- ✓ Improvements to the WPCP's headworks, solids processing and disinfection facilities to improve its effective treatment capacity

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	1.09	2.75
5-year Storm	1.78	3.63
10-year Storm	2.65	5.7
Annual Events	12	20
Cost per gallon CSO removed[2]		N/A
Cost per event eliminated[2]		N/A

Water Quality Benefits

- ✓ Provides a baseline for the comparison of alternatives. Does not significantly improve the volume, frequency, or quality of discharges from the CSO treatment facilities.

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[2] Based on Equivalent Annual Costs and model results from a typical year simulation.

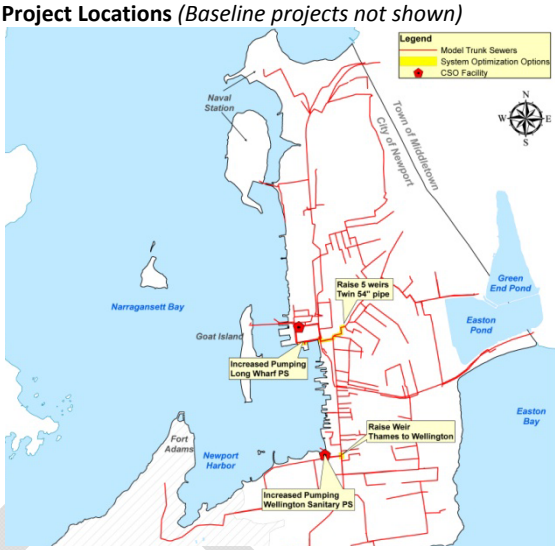
City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
E1	Elimination

Description of Objectives and Control Logic

The Elimination scenario is designed to eliminate CSOs through a combination of private and public inflow reduction and a limited number of conveyance improvements. This scenario includes removal of inflow from all directly connected public and private infrastructure in Newport, Middletown and the Naval Station Newport (NSN). Private sources to be removed include: roof leaders, sump pumps, driveway drains, foundation drains, area drains, stairwell drains, window well drains and uncapped cleanouts. Public sources to be removed include: catch basins, vented manholes, cover to rim defects, indirect storm connections. The conveyance improvements in this scenario include: increasing weir heights at 6 existing structures, and increased pumping from the Long Wharf and Wellington stations (running standby pumps).

Project Locations *(Baseline projects not shown)*



Components and Costs[1,2,3]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 31,487,000	$ (8,000)	$ 1,029,000
SO-3	Weirs	$ 189,000	$ -	$ 6,000
SO-2	Increased Pumping Capacity/Better Use of System Capacity	$ -	$ 22,000	$ 22,000
II-4	Downspout Disconnection	$ 13,630,000	$ (27,000)	$ 472,000
II-5	Inflow Reduction - Private Sources (Not Including Downspouts)	$ 59,145,000	$ (63,000)	$ 2,102,000
II-6	Inflow Reduction - Public Sources	$ 2,176,000	$ (3,000)	$ 77,000
SW-1	Stormwater Treatment - WSCSO Facility	$ 3,408,000	$ 98,000	$ 221,000
SW-2	Stormwater Treatment - WACSO Facility	$ 16,554,000	$ 428,000	$ 1,026,000
CU-6	Stormwater Pipe Replacement	$ 75,725,000	$ -	$ 2,737,000
II-8	Inflow Removal for Middletown			
II-9	Inflow Removal for the Naval Station Newport			
	Scenario Totals:	$ 202,312,000	$ 447,000	$ 7,692,000

[2] Downspout disconnection costs are not included in the affordability calculations.

[3] Naval Station Newport and Middletown costs not included. Costs will not be covered by the City of Newport.

Narrative Summary of System Benefits

- ✓ Removal of all private and public sources of inflow in the City of Newport, Middletown, and the Naval Station Newport
- ✓ Conveyance improvements to transport larger volumes of flow from Wellington and Long Wharf PS to the WPCP
- ✓ Improvements to storm drainage system, including stormwater treatment

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	0	0
5-year Storm	0	0
10-year Storm	0	0
Annual Events	0	0
Cost per gallon CSO removed[4]		$0.26
Cost per event eliminated[4]		$350,000

Water Quality Benefits

- ✓ Elimination of CSOs for up to a 10-year level of control
- ✓ Reduction of stormwater pollutants into Newport Harbor as a result of stormwater treatment

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.

[4] Based on Equivalent Annual Costs and model results from a typical year simulation.

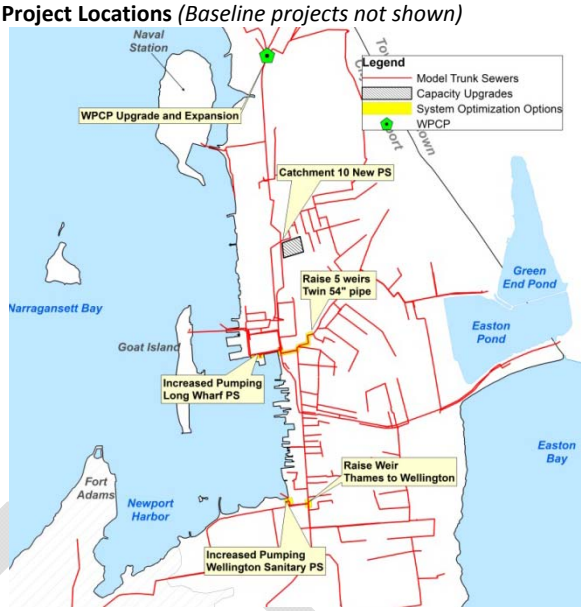
City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
C1A	Conveyance 1A

Description of Objectives and Control Logic

The Conveyance 1A scenario includes projects designed to reduce the volume and frequency of discharges from the CSO treatment facilities through use of a combination of inflow reduction, conveyance, and wastewater treatment projects. The volumes of discharges from the Wellington and Washington facilities are reduced through the disconnection of downspouts, disconnection of other private inflow sources. Conveyance and treatment improvements include two new pump stations and wet weather capacity improvements at the WPCP.

Project Locations *(Baseline projects not shown)*



Components and Costs[1,2]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 31,487,000	$ (8,000)	$ 1,029,000
WPCP-1.2	WPCP Upgrade & Expansion, Option 2 (primary clarifiers)	$ 6,130,000	$ -	$ 243,000
WPCP-1.3	WPCP Upgrade & Expansion, Option 3 (aeration tank & final clarifier)	$ 10,842,000	$ -	$ 392,000
SO-1	WPCP Flow Optimization	$ -	$ -	$ -
SO-3	Weirs	$ 189,000	$ -	$ 6,000
CU-2	Catchment 10 Reroute (new 3.5 mgd PS)	$ 4,788,000	$ 68,000	$ 241,000
CU-4	Additional Pumping at Wellington (Bigger pumps, 3, 2 mgd pumps)	$ 861,000	$ 15,000	$ 46,000
CU-5	Upsize Wellington Forcemain	$ 204,000	$ -	$ 7,000
II-4	Downspout Disconnection	$ 13,630,000	$ (27,000)	$ 472,000
II-7	Additional Inflow Removal (to Achieve 50% Inflow Removal)	$ 23,372,000	$ (46,000)	$ 809,000
CSOT-3	Modify Treatment with Dechlor at Washington	$ 164,000	$ 1,000	$ 7,000
	Scenario Totals:	$ 91,666,000	$ 2,000	$ 3,251,000

[2] Downspout disconnection costs are not included in the affordability calculations.

Narrative Summary of System Benefits

- ✓ 50% reduction of inflow by disconnecting private inflow sources
- ✓ Conveyance improvements to transport larger volumes of flow from Wellington
- ✓ A new pump station to reduce flows to Washington from Catchment 10
- ✓ Improvements to the wet weather capacity at the WPCP (requires permit change)

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	0.00	0.00
5-year Storm	0.00	0.00
10-year Storm	0.00	0.19
Annual Events	0	0
Cost per gallon CSO removed[3]		$0.11
Cost per event eliminated[3]		$148,000

Water Quality Benefits

- ✓ Elimination of CSOs from the Wellington CSO treatment facility for up to a 10-year level of control
- ✓ Improved performance for wet weather treatment at the WPCP and Washington CSO treatment facility

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[3] Based on Equivalent Annual Costs and model results from a typical year simulation.

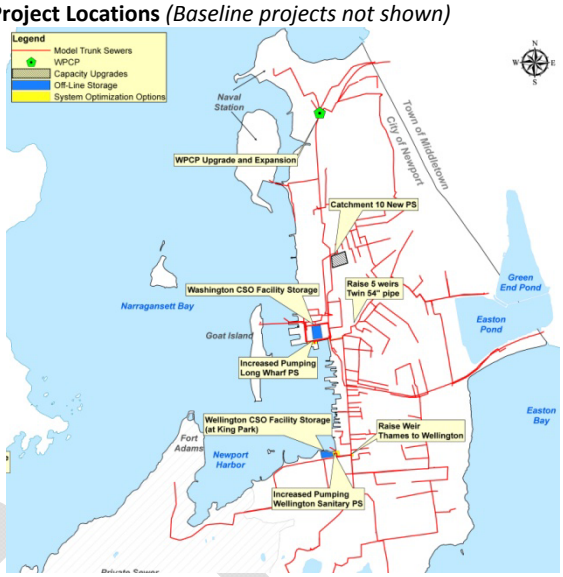
City of Newport CSO Program
Summary of System Master Plan Scenarios

Scenario Code	Scenario Title
S3A	Storage 3A

Description of Objectives and Control Logic

The Storage 3A scenario includes projects designed to reduce the frequency and volume of discharges from the CSO treatment facilities through a combination of inflow reduction, conveyance improvements, WPCP improvements and off-line storage at the Washington and Wellington facilities. The conveyance and WPCP wet weather capacity improvements reduce the required storage for the off-line facilities.

Project Locations *(Baseline projects not shown)*



Components and Costs[1,2]

Project Code	Name/Brief Description	Total Capital Cost	Change in Annual O&M Cost	Equivalent Annual Cost
BL	Baseline (includes all Baseline projects)	$ 31,487,000	$ (8,000)	$ 1,029,000
WPCP-1.2	WPCP Upgrade & Expansion, Option 2 (primary clarifiers)	$ 6,130,000	$ -	$ 243,000
WPCP-1.3	WPCP Upgrade & Expansion, Option 3 (aeration tank & final clarifier)	$ 10,842,000	$ -	$ 392,000
WPCP-1.4	WPCP Upgrade & Expansion, CEPT	$ 8,519,000	$ 424,000	$ 732,000
OS-11	Washington CSO Facility Storage (3MG)	$ 21,567,000	$ 26,000	$ 759,000
OS-19	King Park, Wellington Ave by CSO Facility, Storage (0.9MG)	$ 17,629,000	$ 27,000	$ 626,000
SO-1	WPCP Flow Optimization	$ -	$ -	$ -
SO-2	Increased Pumping Capacity/Better Use of System Capacity	$ -	$ 22,000	$ 22,000
SO-3	Weirs	$ 189,000	$ -	$ 6,000
CU-2	Catchment 10 Reroute (new 3.5 mgd PS)	$ 4,788,000	$ 68,000	$ 241,000
II-4	Downspout Disconnection	$ 13,630,000	$ (27,000)	$ 472,000
	Scenario Totals:	$ 114,780,000	$ 531,000	$ 4,520,000

[2] Downspout disconnection costs are not included in the affordability calculations.

Narrative Summary of System Benefits

- ✓ Reduction of inflow by disconnecting downspouts - the largest private source of inflow
- ✓ Conveyance improvements to transport larger volumes of flow from Wellington and reduce volumes to Washington
- ✓ Improvements to the wet weather capacity and treatment at the WPCP (requires permit change)
- ✓ Off-line storage at the Wellington and Washington CSO facilities to capture wet weather flows

Characteristics of CSO Discharges[1]

Discharge (MG)	Wellington	Washington
2-year Storm	0.00	0.00
5-year Storm	0.00	0.00
10-year Storm	0.00	0.00
Annual Events	0	0
Cost per gallon CSO removed[3]		$0.15
Cost per event eliminated[3]		$206,000

Water Quality Benefits

- ✓ Elimination of CSOs for up to a 10-year level of control
- ✓ Improved performance for wet weather treatment at the WPCP

[1] Data provided on costs and CSO volumes are planning level estimates and subject to change as scenarios are revised.
[3] Based on Equivalent Annual Costs and model results from a typical year simulation.