THE
RE-EVALUATION OF
PHASE III
NBC CSO PROGRAM
WHAT IS A COMBINED SEWER OVERFLOW (CSO)?
By Federal Law, CSO’s must be addressed to meet Water Quality standards. Bacteria is the pollutant of primary concern.

1992 – Consent Agreement signed with Rhode Island Department of Environment Management (RIDEM) establishing the schedule for planning, design and construction of CSO Facilities.

1994 – Conceptual Design Report (CDR) approved by RIDEM
- Estimated Cost = $478M
- Rate Increase = $125 → $425/year
- Construction = 9 Years
CDR Recommended Alternative
BACKGROUND

- 1994 – NBC begins preliminary design of approved CDR facilities

- 1994 – EPA revises CSO policy to provide more flexibility

- 1996 – NBC decides to reevaluate approved program due to:
  - New CSO policy
  - Cost
  - Technical Concerns

- 1996 – 1998 - Reevaluation conducted with input from Stakeholders group
1998 – Conceptual Design Report Amendment (CDRA) approved by RIDEM for Alternative 17
- Estimated Cost = $390M
- Rate Increase = $165 → $300/year
- Construction = 17 Years
**CSO PROGRAM GOALS**

- 98% Reduction in annual CSO volume (2.2 Billion Gallons)
- 80% Reduction in shellfish bed closures
- Designed to capture 3 month storm (1.6” of rain in 6 hours)
- 3 Phases
  - I – Completion 2008
  - II – Completion 2014
  - III – Completion 2021
Three Phases of NBC’s CSO Abatement Program
COMBINED SEWER OVERFLOW VOLUMES
HOW THE CSO TUNNEL WORKS

EXISTING SEWER SYSTEM CURRENTLY OVERFLOWS INTO RIVERS AND BAY DURING WET WEATHER

DIVERSION STRUCTURE (APPROX. 22' L x 12' W) INTERCEPTS EXISTING CSO OVERFLOW

GATE & SCREENING STRUCTURE (APPROX. 25' L x 20' W) CONTROLS FLOW INTO TUNNEL

RECYCLING PIPE DE-AERATED AIR IS DRAWN BACK INTO DROP SHAFT

NEAR SURFACE FACILITIES WITHIN 20' OF GROUND SURFACE

SOIL/ROCK INTERFACE - DEPTH VARIES BETWEEN 40' AND 160'

VENTILATION SHAFT (2'-3.5' DIA.) ENABLES DE-AERATED AIR TO LEAVE CHAMBER

CONNECTING ADIT (APPROX. 72' DIA; LENGTH VARIES)

MAIN SPIKE TUNNEL (APPROX. 35' DIA; 16,000'-LONG 62 MG STORAGE) CONVEYS FLOW TO PUMPING FACILITIES

DE-AERATION CHAMBER REMOVES ENTrainED AIR FROM FLOWS

COMBINED SEWAGE OVERFLOW-DIVERSION AND STORAGE
COMPLETED TUNNEL
SUMMARY - CSO PROJECT COSTS BY PHASE

IN MILLIONS

PHASE I (ACTUAL) $390
PHASE II (PROJECTED) $375
PHASE III (ESTIMATED) $605
TOTAL PHASE I, II & III (ESTIMATED) $1,193

CDRA
CDRA

USER FEES

Providence Median Household Income: $38,243

Central Falls Median Household Income: $29,268

Fiscal Year


* Data based on U.S. Census Bureau, American Community Survey, 5-Year Estimate, 2008-2012
1. Develop a sewer hydraulic model for the Bucklin Point Service Area

2. Evaluate changes in water quality since completion of Phase I and expected water quality upon completion of Phases II and III
COMBINED SEWER OVERFLOW VOLUMES
Pre-Phase I
2004 – October 2008

Post-Phase I
October 2008 – September 2013
CURRENT EPA APPROACH ON MEETING WATER QUALITY STANDARDS

• Integrated Planning Framework
  • WWTF’s
  • CSO’s
  • Sewer Infrastructure
  • Stormwater
• Do What You Can Afford Now
• Long Term Approach
3. Evaluate the recommended abatement method for each overflow and answer the following:
   • Is it the most cost effective method?
   • Are there any green infrastructure alternatives?
4. Develop a Cost Estimate for Phase III & determine the following:
   • Impact on sewer rates
   • Affordability based on EPA criteria
RE-EVALUATION TASKS

5. Map the Project Area

6. Conduct a soil/rock boring program as needed

7. Meet with the Stakeholders to discuss results and receive feedback