

Using New Jersey's State Revolving Fund to Reduce Combined Sewage Flooding in Camden City

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Outline

- Challenges Facing Clean Water Utilities
- Use of State Revolving Fund (SRF) to Meet Challenges
- Camden's Combined Sewage Flooding Problems
- Use of SRF to Meet Combined Sewage Flooding Challenge
- Camden's multi-pronged combined sewage overflow flooding prevention program



Twin Challenges Facing Clean Water Utilities

- Main Purpose – Provide clean, safe water to protect the environment and the public health
- But must also do so while minimizing the cost to ratepayers

Thus, utilities must always strike the proper balance between optimizing performance and minimizing cost.



Proposed Solutions

1) Increase Operational Efficiency

- the public utility must adopt the private sector focus on efficiency and optimization and harness it to the public good
- implementation of an Environmental Management System (EMS) is an excellent tool to optimize efficiency toward achieving core missions



Proposed Solutions *(cont'd)*

2) Asset Management

- timely replacement of capital facilities can significantly improve environmental performance while also reducing annual O&M costs
- utilizing the low interest loans offered by State Revolving Funds (SRF's) significantly lowers the annual debt service burden



Camden County Municipal Utilities Authority (CCMUA)

- Services 500,000 customers in Southern New Jersey
- Design Flow: 80 MGD
- Average Flow: 58 MGD
- Secondary, pure oxygen activated sludge treatment
- Discharges to Delaware River



Sustaining Infrastructure, Environment and Rates Through the SRF (New Jersey Environmental Infrastructure Trust)

- CCMUA replaced and upgraded all of the major process units of its treatment plant through the SRF
- Replacing under performing process units results in improved operational performance and reduced O & M costs
- Rate increases avoided by
 - Choosing projects for which operating cost savings exceed marginal debt service
 - Benefitting from lower cost state revolving funds which significantly reduce debt service requirements



Environmental Benefits Realized Through Use of SRF (New Jersey Infrastructure Trust)

- Effluent Quality Improved by 40-50%
 - 22ppm TSS in 1999 to 4ppm in 2015
 - 25ppm BOD in 1999 to 1ppm in 2015 Sludge Removed Improved by 45%
 - 11,000 dry tons removed in 1999 to 16,000 dry tons in 2015
- Odor Violations down from 16 in 1997/98 to 5 from April 1998 to December 2015



Economic Benefits Realized Through Use of SRF (New Jersey Infrastructure Trust)

- O&M costs reduced by 25% (inflation adjusted)
- Staffing requirements reduced by 40% (from 230 to 130) due to automation
- User Fee held for 17 years, from 1996-2013
- Today's user fee only 5% higher than in 1996 (\$352/yr vs. \$337/yr) in nominal dollars and 30% **lower** in real, inflation-adjusted dollars

Achieving operational efficiency & using the SRF for capital improvements resulted in both improved environmental performance and cost savings to ratepayers



Localized Flooding in Camden from a 1 inch rain event





City of Camden
Camden County Municipal Utilities Authority
Cooper's Ferry Development Association
New Jersey Department of Environmental Protection
Rutgers Cooperative Extension
NJ Tree Foundation



Camden's Five-Pronged Plan to Reduce Flooding By Restoring Sewer System Capacity

- **Green Infrastructure-** *capturing stormwater reduces the volume of flow in the sewer system*
- **Water Conservation-** *Using less water also reduces the volume of flow in the sewer system*
- **Infiltration/Inflow Removal-** *Eliminating extraneous rainwater and groundwater reduces the volume of flow in the sewer system*
- **Optimization of Combined Sewer System Operations-** *maximize sewer storage capacity*
- **Capital Upgrades**



Camden City Green & Grey Infrastructure Program- Phase I

- Creation of Phoenix Park- conversion of an abandoned factory into a riverfront park for an environmental justice community
- Daylighting of Baldwins Run, an abandoned stream paved over in the 1920's
- Combined Sewer Separation in Von Neida Park, the worst area for combined sewage flooding and public health impact
- 18 rain gardens planted throughout Camden
- Replacement of Camden's worst combined sewer lines

Total Cost- \$5.6 million

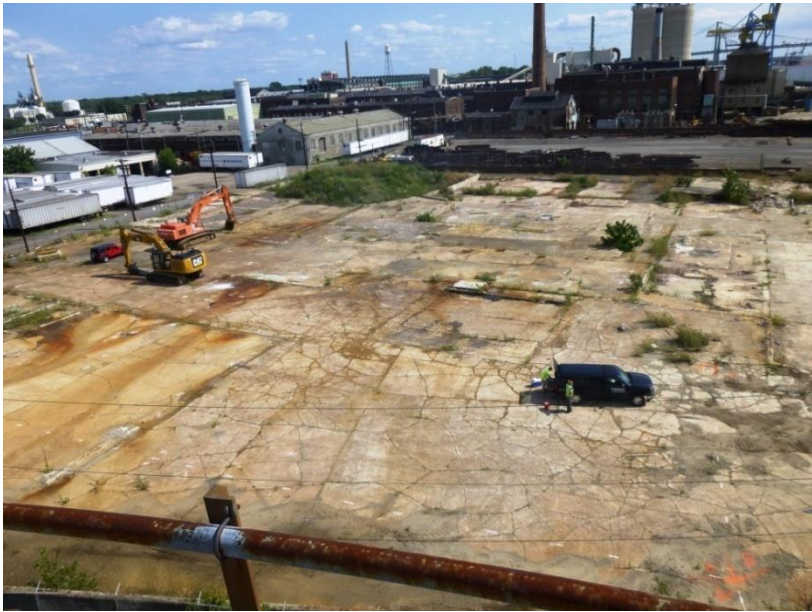


The NJDEP & NJ Infrastructure Trust to the Rescue ...*Again!*

- \$2M in principal forgiveness
- \$3.6M in low interest (<1%) loans... *and*
- Phase II funding for more green & grey infrastructure to be awarded in the Spring of 2016!



Phoenix Park Project- *Before...*



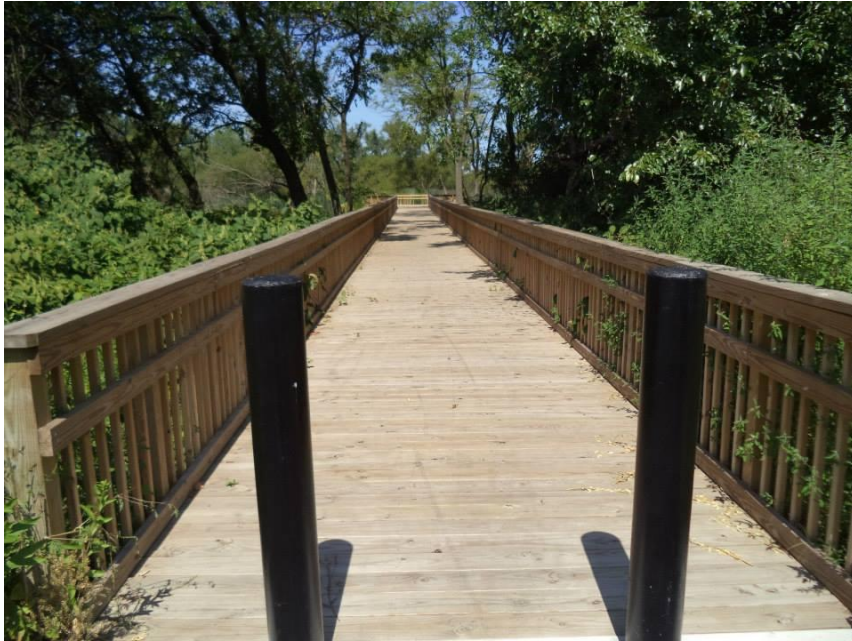
Phoenix Park Project- *After...*



Baldwin's Run Stream Daylighting Project- *Before....*



Baldwin's Run Stream Daylighting Project- *After...*

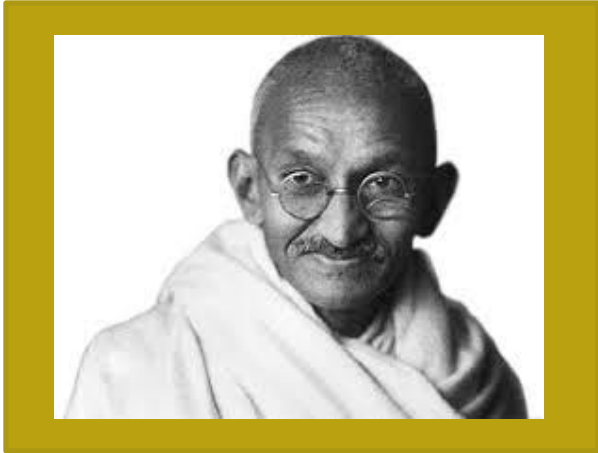


Results

- 100 million gallons of stormwater per year captured through new SRF-funded improvements
- New parks & rain gardens for Camden City
- Contaminated run off into the Delaware River eliminated
- Success of Phase I leads to approval for Phase 2



Conclusions



**“You must be the change
you wish to see in the world.”**
M. Gandhi

- Clean water utilities can, and should, use their resources to make a positive difference for the environment and their communities, and do our part to help save the planet
- SRF’s, especially when utilized in innovative, progressive, ways, are of invaluable assistance to clean water utilities’ efforts to help save the planet



Thanks for Listening!

If you would like more information, please contact:

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