
Using Green Energy & Green Infrastructure to Reduce Vulnerability to Climate Change in Order to Protect Our Community and Our Waterways

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February 2, 2018





“The greater good of the world is largely due to the unhistoric acts of the faithful men and women who may rest in unvisited tombs.”

~George Eliot



April 2017

American Society of Civil Engineers
Gives the Nation's Water Infrastructure a
“D+” Grade



Climate History – Hurricane Sandy

October 2012



Flooding in NJ shore towns- Hurricane Sandy



Conclusion-

The Nation's water infrastructure is inadequate to meet the requirements of how the climate is now; climate change will only widen that gap.



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



The Clean Water Utility of the Past

- Permit compliance is the ceiling of aspirations
- Minimal interaction with Community and Regulatory Agencies



The Clean Water Utility of the Future

- Permit compliance is the floor
- The Utility of the Future is a proactive environmental and community service partner
 - 1) Effluent optimization
 - 2) Community Service
 - 3) Cost efficiency
 - 4) Reducing carbon footprint/Green energy
 - 5) Green Infrastructure
 - 6) Water Reuse



CCMUA Climate Change Vulnerabilities

- Loss of Power
- Rise in Delaware River elevation
 - wastewater treatment plant more prone to flooding and corresponding equipment damage
 - combined sewer system will see higher tides and corresponding increase of flooding of homes, streets & parks



Resiliency Measures Already Implemented- Energy Conservation & Green Energy

- Energy Audit
- Energy conservation measures
- Solar panels
- Digestion/Combined heat and power
- Sewage heat recovery





CCMUA's Energy Resiliency Goal- Implement Sustainability Loop

- Receive 4MW of green energy from nearby trash to steam incinerator
- Send 1MGD of plant effluent to incinerator for cooling water

Planned Outcome

CCMUA will be entirely independent of the grid, with reduced vulnerability to power outages, reduced carbon footprint...and lower electricity costs as well by 2020



Resiliency Measures Already Implemented- Green & Grey Infrastructure

- Water Conservation Ordinance adopted
- Optimization of operations & maintenance of sewer system
- Grey Infrastructure upgrades
 - pipe replacements
 - pipes lined
 - infiltration/inflow removal
 - combined sewer separation
- Green Infrastructure
 - rain gardens
 - rain barrels
 - stream daylighting
 - depaving projects



Waterfront South Rain Gardens

Green Infrastructure on Brownfield Sites- *Before & After...*



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



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



Phoenix Park Project- *Before...*



Phoenix Park Project- *After...*



CCMUA's Flooding Reduction Goal- Accelerate Long Term CSO Control Plan

- Ensure that Camden City's CSO system is cleaned out and functioning at full volumetric capacity
- Upgrade Camden City's CSO system to increase conveyance capacity
- Expand CCMUA's wastewater treatment plant to receive 20-40% more flow during rain events

Planned outcome

Eliminate flooding in Camden City for at least the one-year storm by 2020



Conclusions

- Few clean water utilities are adequately prepared for the climate as it is now, as shown by storms like Hurricane Sandy in 2012
- Such storms can lead to catastrophic failures that have significant adverse public health, environmental and economic impact
- Climate change is projected to make the challenge even more difficult to meet



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- The Clean Water Utilities of the Future have the opportunity, and the obligation, to do our part to help save the planet and improve the quality of life for our neighbors by providing environmental and community service leadership.



Thanks for Listening!

If you would like more information, please contact:

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