

# The Utility of the Future

New Challenges, and New Opportunities, to Improve our  
Environment and our Quality of Life

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# Outline for The Utility of the Future

- New challenges facing water and wastewater utilities
- Corresponding opportunities to improve our environment and our quality of life
- Camden County (NJ) MUA Case Study
- The importance of sustaining successes
- The Industry of the Future



# Increasing Challenges for Water Utilities

- Environmental

- Increasing population + finite resources → increasing environmental pressure (“shrinking planet effect”)
- Increasing environmental pressures → more stringent environmental regulations

- Economic

- Aging infrastructure + increased economic pressures → larger gap between needs and resources

- Demographic

- Aging workforce → potential loss of institutional knowledge



# Thus, Utility Managers must:

- Improve environmental performance
- Replace aging capital
- Arrange for succession planning
- Without raising rates!



# *Opportunity!*

- Opportunity is the flip side of challenge
- “It is not only what the world holds out for you, but also what you bring to it”
- Water treatment utilities have a tremendous opportunity to make a positive difference for our environment and our quality of life



# Opportunities for the Utility of the Future

- Optimize Water Quality
- Improve Air Emissions/Minimize Odors
- Conserve Water (Green Infrastructure and Infiltration/Inflow Reduction)
- Reduce Energy Consumption/Green Energy
- Implement Cost Efficiencies/Reduce Ratepayer Burden



# Camden County Municipal Utilities Authorities (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





# Camden County MUA's Main Goals

- Water Quality Optimization
- Odor Control Optimization
- Water conservation/green infrastructure/Infiltration/Inflow reduction
- Energy minimization/utilization of green energy alternatives
- Cost Minimization
- Community Service



# Camden County MUA's Approach

- Implemented an Environmental Management System internally to (1) identify agency's most important objectives, and (2) direct internal resources to meeting those objectives
- Initiatives chosen on a Triple Bottom Line basis – economic, environmental, and social benefit
- Engaged external environmental stakeholders, neighboring community, and ratepayers



# Strategies to Meet Sustainability Objectives

## A. Water Quality

- Change institutional culture to require “supercompliance”
- Upgrade plant process units to improve performance



# Strategies to Meet Sustainability Objectives

## B. Odor Control

- Change institutional culture; implement “zero tolerance”
- Install new odor control equipment
- Replace sludge hauling with enclosed sludge drying



# Strategies to Meet Sustainability Objectives

## C. Water Conservation

- Infiltration/Inflow removal
- Green infrastructure (rain gardens planted throughout combined sewer overflow communities)
- Potable water conservation initiatives



# Strategies to Meet Sustainability Objectives

## D. Energy Minimization

- Reduce energy consumption
- Implement on-site green energy alternatives (solar panels, digestion, etc.)
- Procure off-site green energy sources



# Strategies to Meet Sustainability Objectives

## E) Cost minimization/Reduce ratepayer burden

- Continually seek cost saving opportunities through Environmental Management System (EMS)
- Seek grants wherever possible
- Utilize low interest State Revolving Fund (SRF) loans
- Select projects where annual debt service is less than or equal to annual O&M cost savings from new equipment
- Reduce O&M costs through automation & attrition
- Charge connection fees to reduce rate burden to current customers
- Offer Host Community Benefit to Camden as part of environmental justice program



# Strategies To Meet Sustainability Objectives

## F) Community Services

- Pass ordinance reducing truck traffic
- Convert brownfield sites into green space/create new parks
- Create rain gardens to beautify neighborhood and reduce flooding
- Serve as an “outpost of government” for community, facilitating access to other government services



# Results... So Far

- Water Quality – Solids removed increased by 40%; TSS down from 25 ppm to 5 ppm
- Odor Control – Odor violations reduced from one per month to 5 violations in the last 10 years
- Water conservation – 20 rain gardens planted; 2 million gallons of stormwater renewed; Infiltration/Inflow reductions initiated in 15 towns; water conservation ordinances passed



# Results... So Far (continued)

- Energy Minimization – Energy efficient aeration equipment and motors installed; 2 MW solar panel system installed; green energy RFP issued in 2012
- Cost Minimization – All 5 main plant process units upgraded; staff down from 230 employees to 130; annual rates lower today (\$324 per household) than in 1996 (\$337) – a 43% reduction in real, inflation-adjusted, costs to ratepayers
- Community Service – 3 new parks created, 20 new rain gardens created



# Keys to Sustaining Successes

- Environmental Management Systems – drives for continual improvement
- Asset Management – minimize operating costs
- Utilization of State Revolving Fund – minimize debt service
- Succession Planning/ Capture of Institutional Knowledge
- Environmental Education – educating legislators and ratepayers of the present, and the future
- Optimization of the workplace – training, and providing opportunities, to maximize employee engagement and productivity



# The Industry of the Future

- The non-competitive nature of the water and wastewater industry increases opportunities for knowledge sharing and collaboration
- Basic similarities among water and wastewater treatment systems make it highly likely that similar problems and opportunities have already been faced...and successfully met by colleagues in the industry
- The Industry of the future should facilitate the dissemination of successful practices throughout the water treatment industry as quickly and widely as possible



# Conclusions

- Water treatment utilities face ever-increasing challenges, but also have greater opportunities to improve our environment and our quality of life
- Many utilities are already making use of new technologies, and implementing new practices, in order to improve environmental performance and reduce ratepayer burdens



# Conclusions

- The Utility Of The Future will take advantage of as many of these opportunities as possible and seek to continually improve performance on a triple bottom line basis (economic, environmental, and social)
- The Industry Of The Future will work to disseminate best practices and new opportunities across the water treatment industry as quickly and widely as possible



# Thanks for Listening!

If you would like more information,  
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