Southern Maine Water Supply Resiliency

Saco River Water Treatment Facility Planning Decisions

71st NECPUC Annual Symposium

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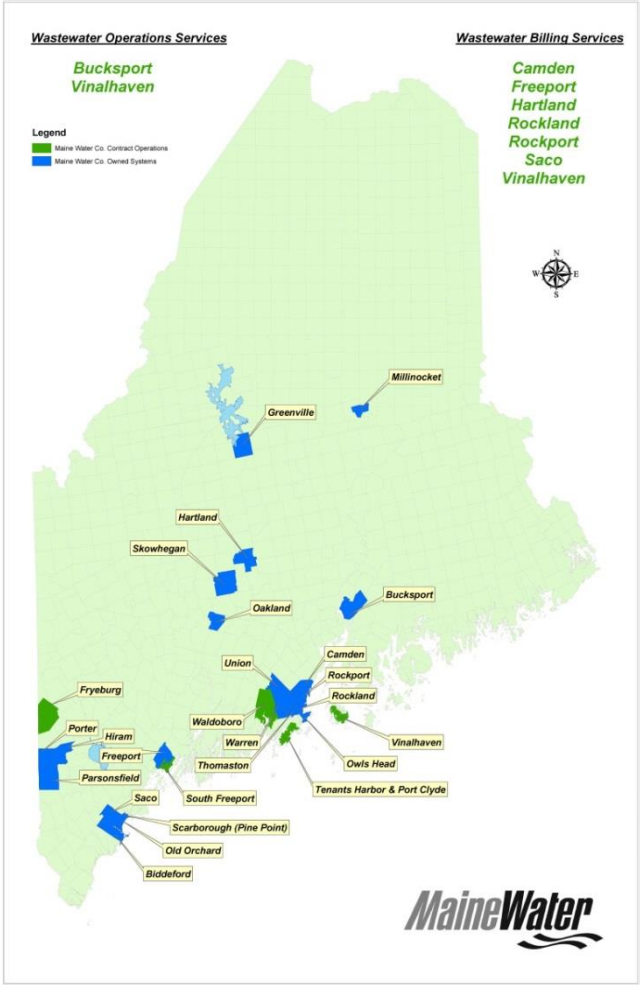
Background Info

Maine Water Company

- 32,000 water customers in 21 municipalities
- Acquired the Biddeford Saco Water Company 2012
- Service started in 1884, serves Biddeford, Saco, Old Orchard Beach and Pine Point area of Scarborough
  - 16,000 connections, Population 40,000 +



Background Info

Southern Maine Regional Water Council

- 7 utility members from Portland to Kittery, serving over 30% of Maine's population
- October 2008 Regional Water System Master Plan Study
  http://smrwc.org/pdfs/WaterMasterPlan.pdf
- 2016 Update on Hydraulics, Water Quality and Local Issues

SMRWC
Southern Maine Regional Water Council

Background Info – Water Source

Saco River Facts

- 1700 square mile watershed in Maine and New Hampshire
- >2 billion gpd average flow
- Along with Sebago Lake, "the only sources identified as having sufficient quality and quantity to meet the projected needs of the southern Maine region"
- Enhanced protection from Saco River Corridor Commission
- 14 Dams (2 in NH, 12 in ME) control flow. Most licensed through FERC and owned by Brookfield Renewable Energy

Background Info – Treatment Assets

- Major Rebuild in 1936
- 12 MGD Max Day Capacity
- 5 MGD Avg Day Production
- Operates in full SDWA compliance
- Flooded in 1935, 1936, 1953, 1955, 1987

"The location of the facility within the floodplain is a serious threat to its long-term viability on the current site."

Existing Water Treatment Facility

* 2013 Comprehensive System Facility Plan outlines South Street Water Treatment Facility condition:
  * Out of compliance with EPA Risk Management Program
  * Employee Health and Safety hazards
  * Lack of process control
  * Structural stability concerns in some areas
  * Investment recommendations:
    * $800K Immediate
    * $6.3 M Short Term (24-36 month)
    * $1.9 M Mid Term (3-7 year)
    * $12.9 M Long Term (7+ year)
  * $21.9 M in Treatment Facility Rehabilitation

Lifecycle Cost Analysis

Item	Net Present Value	
	Existing Facility	New Facility
Capital Investment	**$21,875,000**	**$26,000,000**
Financing Costs	**$760,179**	**$418,065**
Lifecycle Operations and Maintenance Total	**$12,101,193**	**$8,276,344**
Staffing	$6,601,066	*$4,125,666*
Electrical	$2,302,379	*$1,841,903*
Heating	$255,820	*$255,820*
Chemicals	$1,662,829	*$1,413,405*
Remaining Operations & Maintenance	$1,279,099	*$639,550*
Total LCC	**$34,740,000**	**$34,695,000**

Item	Assumption
Planning Horizon	50 years
Discount Rate	10%
Inflation	2.4%
Capital Loan Interest Rate – Present	2%
Capital Loan Interest Rate – Future	4%
Capital Loan Term	30 years

Decision: Rehab or Replace?

* Operational Risks
  * Compliance, including construction phase
  * Climate Ready Resiliency, especially flood exposure
  * Timing (not if, but when?)
* Customer Rate Impacts
  * Capital cost, Operating costs
* Regional Service
  * Design capacity/Expansion potential to maintain future service options

Resiliency and Reliability

* Judgement: What additional expertise should be incorporated into the project planning?
  * Proactive decision making is an added challenge
  * 30-50 year projections include significant assumptions
  * Independent engineering review?
* What's the public willingness to pay to mitigate obvious exposures? What's an acceptable level of risk?
  * EPA's CREAT model (Climate Resilience Evaluation and Assessment Tool) suggests the consequence of a significant flood event ranges from $3.5 - $6.7 million

Regulatory Questions

* How should the regulatory review address the "need" for a new generational facility?
  * Local input?
  * Evidence of triggering events?
* What strategies or tools could be used to mitigate the rate implications of a major addition to rate base?
  * Cost of service adjustments
  * Low income assistance programs