Water Resources
Staffing Resiliency Plan
Overview
Water Resources, by the Numbers

- 1 water plant and finished water pump house
- 2 pump houses (finished water and reservoir)
- 110 miles of water mains
- 2 Reservoirs (7MG storage)
- 2 Water Towers (UVM 500,000 gallons; Redstone 150,000 gallons)
- 10,000+ water meters
- 900 fire hydrants

- 3 Wastewater Treatment Plants
- 49 miles of sanitary sewer
- 45 miles of combined sanitary / storm sewer
- 37 miles of storm sewer
- 25 pump stations
- 102 storm water outfalls
- 3200 catch basins
- 2 post-closure landfills
- 1 methane powered generating station

43 Full-time water resources professionals
FY18 Water Resources Work

New Hydrant in Maple Street Water Capital Reinvestment Project

Water Plant Back-Up Blower for Filtration Backwashing System

Main Plant Sludge Transfer Pump Replacement

Triple Leaf Gate Valve

Stormwater Outfall Capital Planning

King Street Infiltration System

Sludge Tanker

SEWER RELINING
Water Distribution Reinvestment

- Bond – 88% YES  🌟
- $2M Series 2018A

<table>
<thead>
<tr>
<th>Street</th>
<th>Rehab Work</th>
<th># of miles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flynn Avenue - North Main (Pine to Shelburne)</td>
<td>Relining</td>
<td>1.31</td>
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<tr>
<td>Flynn Avenue - South Main (Pine to Shelburne)</td>
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<td></td>
</tr>
<tr>
<td>Flynn Avenue - Pine to 255 Flynn Ave</td>
<td></td>
<td></td>
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<tr>
<td>Charlotte Street</td>
<td></td>
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</tr>
<tr>
<td>Hillcrest Drive</td>
<td>Replace</td>
<td>0.54</td>
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<tr>
<td>Allen Street</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maple Street (S. Willard to S. Prospect)</td>
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<td></td>
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<tr>
<td>Church Street (Maple to Adams)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethan Allen Parkway (N. Ave to Lopes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birch Court</td>
<td></td>
<td></td>
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<tr>
<td>Cayuga Court Services</td>
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</tbody>
</table>

- $2M Series 2018B
  - Additional 1.7 miles

Findings:
- Break Rates Have Increased 27% in the Past 6 Years
- 82% of Cast Iron Pipes are Over 50 Years Old and are Experiencing a 46% Increase in Break Rates
- 75% of Burlington’s Pipes are Cast Iron!

3-1-2018

Water Main Break Rates In the USA and Canada: A Comprehensive Study

Steven Folkman
University of Wyoming
Key Drivers (expense side) cont’d.

- Continued focus on capital improvements

Water Resources Annual Capital Budget (FY13 - FY19)

- Stormwater PayGo
- Wastewater PayGo
- Water PayGo
- Water Bond Funded Capital
$30 M OF CLEAN WATER PROJECTS

- November 6, 2018 Bond Vote - 92% Approved
- Desig consultant procurement and CWSRF Loan Acquisition underway and due for completion ~ May 2018
  - SCADA/PLC (Fall 2019)
  - Disinfection System (Winter 19/20)
  - Pump Stations (2020)
  - SW Outfalls (design underway)
- Awarded $1M in CSO Green Infrastructure Retrofit Grants
Efficiencies/Continuous Improvement

- Enhanced GIS/field data collection, move towards asset management
- Risk based capital planning
- Water meter reading improvements
- Re-organization of Wastewater work group structure
- Staff development opportunities
- Advancing on-call contracts for excavation services (emergency and routine)
- Contracting with an asset management firm for rehabilitation and long-term maintenance of elevated water storage tanks
RISKS

• Playing catch up on system(s) wide Infrastructure Deficits
• Backlog of preventative maintenance (valves, hydrants) and “housekeeping” maintenance
• Need to update/strengthen operational SOPs
• Need to strengthen compliance/enforcement programs
• New/changing environmental regulations
• Public/Private projects requiring detailed review and coordinated investments
• Decreasing water/wastewater usage per capita while costs increase
• Retirements, Recruitment and Retention cycles
  • Meter billing error discoveries (November 2017)
  • Wastewater Incidents (Summer 2018)

3/15/19: Water line break complicated by failed stormwater line
Risk Management

• Failure is not an option

• Assess overall organization in forward looking manner vs. piece meal approach - determine how to resource:
  – historical/backlog needs
  – current/immediate pressures
  – near term future needs

• Third Party input, fresh eyes
Strategies to Reduce Risks

• Focus staff on preventative maintenance (PM) not capital work

• Strengthen meter to bill systems

• Renew infrastructure by delivering on greatly expanded capital program

• Develop and/or formalize ordinance compliance programs, e.g.
  – high strength industrial waste
  – cross connection/backflow prevention

• Work to make sure staffing is efficiently programmed for safety and productivity

• Where possible, staff should spend majority of time in “zone of genius”

• Ensure organization has sufficient time and staff resources allocated for SOP, work flow and policy development and maintenance (learning organization)

• Develop more robust leadership team to allow Assistant Director to focus on vision, strategy and tactics and more complex technical projects that may have a generational impact.
Human Capital Reinvestment

• Restructure meter functions
  – Create two field crew “work groups” – Metering and Distribution
  – Dedicate 3 water field crew staff to metering vs. 2 FTEs
  – Join to “Customer Care/Billing Team” to improve communication and joint accountability

• Add **Customer Care Lead**
  – to allow for enrichment of Utility Billing Administrator position
    → Customer Care and Finance Manager
    • Increase financial management horsepower
    • Focus on revenue assurance processes
  – Provide administrative support to compliance programs
  – Further improve customer care
  – Provide career ladder
Human Capital Reinvestment

- Create Policy and Programs Team (with a Policy and Program Manager)
  - **Water Resources Programs Manager**
    - Coordinate with AD and then lead policy, program, process development for all WR
  - Stormwater Coordinator
  - **Water Resource Technician** (Environmental Compliance and engineering support)

- Engineering
  - Immediately add another **staff engineer** to support existing needs and W/WW/SW capital investments, as well as technical support needed for programmatic development
  - Monitor need for Water Resources Engineering technician
  - Monitor need for limited service project accounting/project management position in FY20 (if reimburseable through SRF)

- Wastewater
  - Add **Wastewater Operator in Training** to create “feeder” position to upcoming WW retirements
Opportunities for Continued Optimization

• Asset Management/Work order software
• Interactive Voice Response telephone
• Working with Water Operators on schedule changes to potentially have more staff on during the day vs. night
• Real-time meter data
• Cross-training between East, North and Pump Station staff
## Details: Timing and Cost Impacts

<table>
<thead>
<tr>
<th>Phase</th>
<th>CC approval Date Target</th>
<th>Staffing Action</th>
<th>Position</th>
<th>Wage Cost Impact to FY20 Annual Budget (at FY20 wages)</th>
<th>Estimated Total Benes Impact to FY20 Budget</th>
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<tr>
<td>I</td>
<td>4/15/2019</td>
<td>Add</td>
<td>Water Resources Policy and Program Manager</td>
<td>$78,972.00</td>
<td>$36,528.28</td>
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<td>Reclass ↓</td>
<td>Stormwater Manager → Stormwater Coordinator</td>
<td>$(3,700.00)</td>
<td>$(690.05)</td>
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<td>Reclass ↑</td>
<td>Assistant Director → Division Director</td>
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<td>Reclass ↑</td>
<td>Utility Billing Manager → Customer Care and Finance Manager</td>
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<td>$932.50</td>
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<td>Re-org</td>
<td>Move 3 Metering positions to report to Customer Care and Finance Manager</td>
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<td>Add</td>
<td>Customer Care Associate II</td>
<td>$55,437.00</td>
<td>$32,139.00</td>
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<td>Limited Serv. to Regular</td>
<td>Water Resources Engineer</td>
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<td>Add</td>
<td>Water Resources Engineer</td>
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<td>II</td>
<td>Late June 2019</td>
<td>Add</td>
<td>Water Resources Technician</td>
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<td>$25,610.29</td>
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<td>Add</td>
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<td>$23,909.22</td>
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<td>Totals</td>
<td>$323,707.00</td>
<td>$163,261.88</td>
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<td>Minus FY19 $85,000 Staffing Placeholder</td>
<td>$(85,000)</td>
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<td>Total of all FY19/FY20 Staff Impacts</td>
<td>$401,968.88</td>
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<tr>
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<td>% increase/total WR FY19 expense budget</td>
<td>2.4%</td>
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</table>
Rate Impacts

• FY19 budget season forecast of FY20 rate impacts (without staff impacts)
  → 4.7% overall Water Resources Rate Impact
• Current FY20 rate impact projection
  – Including all currently known cost drivers: staffing improvements, utility costs, existing staff cost increases, debt service etc.
  – 4.5% overall impact
    • ~$3.04 increase/month in typical residential customer bill
    • Note: does not yet include potential rate impacts of repayments due to overbilled customers
Timeline

• 3/20 DPW Commission
• 3/21 TEUC
• April – Raftelis report finalized
• 4/8 Council work-session on Organizational Assessment
• 4/15 BOF and Council approval – Phase I recommendations
• June FY’20 budget approval
• July – Phase II recommendations