City of Bellevue
Utilities Department
ESC 2019-2020 Budget & Rates Recommendation
Environmental Services Commission
November 1, 2018
Purpose of Tonight’s Meeting

➢ ESC 2019-2020 budget and rates recommendation to City Council

Next Steps:

November 13
• Utilities Department briefs City Council on proposed budget and rates
• Chair Strom presents ESC budget and rates recommendation to Council

December 3
• Anticipated budget and rates adoption
Proposed 2019-2020 Utilities Operating Budget
$316.3M

- **30%** Renewing & Replacing Infrastructure
- **18%** Maintaining and Operating the Utility
- **15%** Taxes / Support Services
- **37%** Purchased Water Wastewater Treatment

Excludes operating reserves
Proposed 2019-2025 Utilities CIP Budget – $225.0M

- Aging Infrastructure $173.5M (77%)
- Capacity for Growth $10.3M (5%)
- Environmental Preservation $18.5M (8%)
- Service Enhancement $22.7M (10%)
# 2019-2020 Proposed Utility Rates

<table>
<thead>
<tr>
<th>Category</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesale</td>
<td>1.4%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Local</td>
<td>2.3%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Total</td>
<td>3.7%</td>
<td>5.0%</td>
</tr>
<tr>
<td><strong>Sewer</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesale</td>
<td>1.8%</td>
<td>-</td>
</tr>
<tr>
<td>Local</td>
<td>2.1%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Total</td>
<td>3.9%</td>
<td>2.3%</td>
</tr>
<tr>
<td><strong>Storm</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesale</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Local</td>
<td>5.4%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Total</td>
<td>5.4%</td>
<td>5.4%</td>
</tr>
<tr>
<td><strong>Combined</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wholesale</td>
<td>1.4%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Local</td>
<td>2.6%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Total</td>
<td>4.0%</td>
<td>3.8%</td>
</tr>
</tbody>
</table>
Competitive Utility Rates with our Neighbors – 2018 Combined Water, Sewer & Storm Monthly Bill (Proposed 2019 Bill for Bellevue Only)

<table>
<thead>
<tr>
<th>Residential</th>
<th>Multi-Family</th>
<th>Commercial</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td>City</td>
<td>City</td>
</tr>
<tr>
<td>Seattle</td>
<td>$234.30</td>
<td>$23,360</td>
</tr>
<tr>
<td>Mercer Island</td>
<td>$181.69</td>
<td>$20,949</td>
</tr>
<tr>
<td>Bellevue 2019</td>
<td>$176.40</td>
<td>$19,339</td>
</tr>
<tr>
<td>Bellevue 2018</td>
<td>$169.55</td>
<td>$17,928</td>
</tr>
<tr>
<td>Kirkland</td>
<td>$167.22</td>
<td>$15,575</td>
</tr>
<tr>
<td>Issaquah</td>
<td>$138.43</td>
<td>$14,247</td>
</tr>
<tr>
<td>Renton</td>
<td>$131.22</td>
<td></td>
</tr>
<tr>
<td>Redmond</td>
<td>$113.44</td>
<td></td>
</tr>
</tbody>
</table>

- Residential: $234.30 (Seattle), $181.69 (Mercer Island), $176.40 (Bellevue 2019), $169.55 (Bellevue 2018), $167.22 (Kirkland), $138.43 (Issaquah), $131.22 (Renton), $113.44 (Redmond)
- Multi-Family: $2,755 (Seattle), $2,357 (Mercer Island), $2,209 (Kirkland), $2,136 (Issaquah), $2,046 (Bellevue 2019), $2,037 (Redmond), $1,965 (Bellevue 2018), $1,577 (Renton)
- Commercial: $23,360 (Seattle), $20,949 (Mercer Island), $19,339 (Kirkland), $17,928 (Issaquah), $15,575 (Redmond), $14,247 (Renton)
ESC Recommendation
Water Distribution System
Seismic Vulnerability Assessment

Doug Lane, P.E.
Bellevue Utilities Department
Agenda

- Project Scope
- Guiding Principles

Feedback Requested:
- Scope questions
- Feedback on Guiding Principles
Schedule

2Q 2018
• Kick-off

ESC
4Q 2018
• Impacts Analysis Complete

ESC
2Q 2019
• Post-Event Levels of Service

ESC
3Q 2019
• Identify Improvements

ESC
4Q 2019
• Final Report

Current Status
Project Scope Summary

- Level of Service Development
- Geotechnical Data Refinement
- Vulnerability Evaluation
- Consequence of Failure
- Service Restoration Timelines
- Develop recommendations to meet levels of service
Level of Service Development

Post Earthquake Level of Service Goal Considerations

- Emergency response and priority services
- Regional factors and other impacts
- Community priorities
- Affordability, prioritization, implementation
- Utility benchmarking and trends
- Other....
# Level of Service Development

<table>
<thead>
<tr>
<th>System Function</th>
<th>Event Occurs</th>
<th>0-24 Hours</th>
<th>1-3 Days</th>
<th>3-7 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potable water available at supply source</td>
<td></td>
<td><img src="red.png" alt="Red" /></td>
<td><img src="yellow.png" alt="Yellow" /></td>
<td><img src="yellow.png" alt="Yellow" /></td>
</tr>
<tr>
<td>Main transmission facilities, pipes, pump stations, and reservoir operational</td>
<td><img src="blue.png" alt="Blue" /></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water supply to critical facilities available</td>
<td><img src="yellow.png" alt="Yellow" /></td>
<td><img src="blue.png" alt="Blue" /></td>
<td><img src="blue.png" alt="Blue" /></td>
<td><img src="blue.png" alt="Blue" /></td>
</tr>
<tr>
<td>Water for fire suppression at key supply points</td>
<td><img src="blue.png" alt="Blue" /></td>
<td><img src="blue.png" alt="Blue" /></td>
<td><img src="blue.png" alt="Blue" /></td>
<td><img src="blue.png" alt="Blue" /></td>
</tr>
<tr>
<td>Water for fire suppression at fire hydrants</td>
<td><img src="red.png" alt="Red" /></td>
<td><img src="red.png" alt="Red" /></td>
<td><img src="red.png" alt="Red" /></td>
<td><img src="red.png" alt="Red" /></td>
</tr>
<tr>
<td>Water available at community distribution centers/points</td>
<td><img src="yellow.png" alt="Yellow" /></td>
<td><img src="blue.png" alt="Blue" /></td>
<td><img src="blue.png" alt="Blue" /></td>
<td><img src="blue.png" alt="Blue" /></td>
</tr>
<tr>
<td>Distribution system operational</td>
<td><img src="red.png" alt="Red" /></td>
<td><img src="red.png" alt="Red" /></td>
<td><img src="red.png" alt="Red" /></td>
<td><img src="red.png" alt="Red" /></td>
</tr>
</tbody>
</table>

- **Desired time to restore component to 80-90% operational**: ![Red](red.png)
- **Desired time to restore component to 50-60% operational**: ![Yellow](yellow.png)
- **Desired time to restore component to 20-30% operational**: ![Blue](blue.png)
Geotechnical Data Refinement

Ground motions will be adjusted for near surface geology

No numerical modeling of site-specific geotechnical conditions
Vulnerability Evaluation

Probability of Failure of DI Pipe

- Total breaks and leaks
- Permanent Ground Deformation (inches)
- Probability of Pipe Failure

Legend:
- Blue line: Leaks and Breaks per 1,000ft
- Orange line: Probability of Failure of 100 ft pipeline
Vulnerability Evaluation

- 93% chance of "Minor" damage
- 52% chance of "Moderate" damage
- 20% chance of "Extensive" damage
- 9% chance for "Complete" damage

0.72g PGA
Consequence of Failure

• Systematically break every pipe
  – Establish criticality based on customer impacts

• Repeat for multi-break analysis
  – Better reflect regional event scenario
Service Restoration Timelines

- Experience with post disaster restoration
- Staff availability
- Equipment availability
- Repair parts
- Mutual aid
- Repair prioritization
- Emergency response planner input
- Emergency operations plans
- Institutional knowledge

Restoration Assumptions and Timing
Service Restoration Timelines

![Graph showing percent customers with water over days after seismic event. The graph indicates a steep rise in the percentage of customers with water within the first 21 days after a seismic event, followed by a slower rise to nearly 100% by the 70th day. The curve is labeled as 'Crustal Fault Event Pre-Mitigation Restoration Curve'.]
Service Restoration Timelines

- **Crustal Fault – Pre-mitigation**
- **Crustal Fault – Post-mitigation**

The graph shows the percentage of customers with water over time, with an increase in service restoration after seismic event mitigation.
Potential Recommendations

Capital
- Main replacements, restrained and earthquake resistant joint upgrades
- Facility upgrades and replacements
- Emergency water supply opportunities

Operational
- Instrumentation, telemetry, and controls adjustments
- Materials and spare parts inventories
- Staff training opportunities
- Staff response and travel time impacts
- Mutual aid, interlocal coordination
- Community Emergency Response Teams
Potential Recommendations

1) Does improved system meet Level of Service Goals
2) How much seismic risk is mitigated by proposed improvements?
Guiding Principles

• Establish overall purpose
• May affect scoring or prioritization of proposed improvements
• Demonstrate consistency with adopted policies
Guiding Principles

Feedback requested on proposed principles:

• Public Safety (N-2, N-3)
• Social Equity (CE-12, CF-20, HS-6)
• Economic Vitality (ED-1, ED-32, ED-33)
• Regional Preparedness (UT-20, UT-42, EN-11)
• Value (UT-10, AWWA J-100)
• Resilience (N-4, CF-8, CF-12, UT-2, UT-41, EN-7)
ESC in 2019

• Discuss results of customer impact analysis
• Discuss Level of Service
• Discuss improvements and potential costs

2020

• Council recommendation?
Questions?

Doug Lane: dlane@bellevuewa.gov