Annual Water Main Replacement Program

- 890 miles of water main
- Target replacement cycle – 100 yrs.
- 2021 funding level
  - $6,500,000
  - 150 year replacement cycle
  - Rates provided increase from $4.0M
Age of Mains

Pre - 1920
• 57.8 Miles

1960 - 1979
• 228.5 Miles
• Total on map: 414 miles

2000-2020
• 163 Miles
• Total on map: 833 miles
Break History in Topeka

<table>
<thead>
<tr>
<th>Year</th>
<th>Breaks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>792</td>
</tr>
<tr>
<td>2012</td>
<td>961</td>
</tr>
<tr>
<td>2013</td>
<td>622</td>
</tr>
<tr>
<td>2014</td>
<td>572</td>
</tr>
<tr>
<td>2015</td>
<td>447</td>
</tr>
<tr>
<td>2016</td>
<td>409</td>
</tr>
<tr>
<td>2017</td>
<td>444</td>
</tr>
<tr>
<td>2018</td>
<td>847</td>
</tr>
<tr>
<td>2019</td>
<td>388</td>
</tr>
<tr>
<td>2020</td>
<td>420</td>
</tr>
</tbody>
</table>

Total: 5,902  
Average: 590

- 66 Breaks per 100 miles of main
- National average is 14
Main Assessments - Analytics

Business Risk Exposure

Legend

BRE Rank

- 5 ($1.2K - $77.5K)
- 4 ($120.0 - $1.2K)
- 3 ($15.0 - $119.9)
- 2 ($1.8 - $15.0)
- 1 ($0.0 - $1.8)
Installation of centrifuges –

• mechanical and electrical controls needed to improve the process of removing and de-watering of solid matter, in the treatment of wastewater.

• 2019 – 2020

• CIB – $26,000,000
Installing all equipment needed to collect, scrub, compress and pump the methane gas to a third party pipeline.

- 2020-2021
- CIB - $26,000,000
Project in design to thicken sludge prior to moving on to dewatering centrifuges at the Oakland WWTP.

- Currently in design
- Construction 2022-2023
- CIB - $8,612,000
Rehab and replacement of gear boxes and mixing equipment for Oakland WWTP Plant Oxidation Ditch.

- Completed in 2019
- CIB - $6,237,350
UV Expansion (Completed)

Installation of an advanced ultraviolet light (UV) system for waste water disinfection

- Increased capacity from 37.5 MGD to 75 MGD
- Completed in 2020
- CIB- $5,486,362
Nutrient Removal Project (Approved)

- Rehabilitate and update treatment plant equipment and nutrient removal options
- Prompted by new NPDES Permit for NTWWTP
- Improvements will meet permit restrictions on phosphorus
- Slated for 2021
- CIB Amount - $6,363,627
Original plan was for consultant to investigate four pump stations
• Analyze existing equipment
• Recommend new technologies
• Provide a total cost of each option.

• **Initial project budget - $112,700** (will increase with modifications)

• Plan has been modified to include all pump station locations

• Analysis will now also include odor control measures
Rehabilitation of East Filters and Filter Building at water treatment plant.

- Replacing under drains
- Replacing all filter media
- New calcium thiosulfate (de-chlorination) system
- Rehab air scour
- 2019-2020
- CIB – $5,185,000
West Basin Rehab (approved)

- Complete rehab of 60+ year old basin
- Structural repairs
- Equipment replacement/upgrades
- Design slated for 2021
- Construction to begin in 2023
- CIB Amount - $16,049,000
Treatment Modifications Phase III

- Improve water treatment processes
- Reduce HAA
- Treats taste and odor
- Effective against cyanotoxins

- Slated for 2021-2023
- CIB - $20,700,000