Capital Improvements Plan (CIP) – Water Delivery / Flow

Capital Improvements Advisory Committee
August 22, 2018
Consultant Introduction

Carollo Engineers, Inc.

• ENR Top Design Firm (1st for firms specializing solely in water)
• 85 years of experience in water

Jennifer Ivey, P.E.

• Licensed Professional Engineer in TX
• Leads Carollo’s Financial Management Group
• Leads SDC Subcommittee for AWWA Rates & Charges Committee
• Reviewer for latest editions of AWWA M1 and WEF MOP27
• Completed last 2 Impact Fee Updates for SAWS
• 20 years of experience
Impact Fee Components

Water Supply

Water Delivery
System Development

Water Delivery
Flow

Wastewater Collection

Wastewater Treatment
Impact Fee Calculation

\[
\text{Calculated Impact Fee} = \frac{\text{Cost of Eligible CIP}}{\text{Added EDUs}}
\]

- LUAP provides number of added EDUs
- CIP provides cost of eligible capital improvements
  - Extensions and expansions
  - Pipeline upsizing
- Study period for LUAP and CIP is 10 years
  - How many EDUs are expected to be added in 10-year study period?
  - What is the cost of the capacity that is required to serve these added EDUs?

Today's focus
Water Delivery / Flow Equity Value

Existing distribution system value is $707,256,404

- Valuation method is Original Cost (OC)
- Value is not depreciated
- Value excludes contributed assets and water mains less than or equal to 8”
Allocation of Water Delivery / Flow Equity to Impact Fee

Allocation is based on maximum hour demand (MHD):

- 2018 population is 1,851,348; 2028 population is 2,190,178
- *Average Day Demand (ADD)* = \( \frac{290 \text{ gpd per EDU}}{2.39 \text{ persons per EDU}} \)
- ADD = 121 *gallons per capita per day (gpcd)*
- Maximum hour peaking factor (MHPF) is 3.31 (*Water Infrastructure Plan*)
- \( MHD = ADD \times MHPF \times \text{Population} \)
- 2018 \( MHD = 121 \text{ gpcd} \times 3.31 \times 1,851,348 = 741.5 \text{ mgd} \)
- 2028 \( MHD = 121 \text{ gpcd} \times 3.31 \times 2,190,178 = 877.2 \text{ mgd} \)
_allocation of Water Delivery / Flow Equity to Impact Fee

Water distribution system is assumed to be maintained at 90% capacity

• 2018 MHD = 741.5 mgd
• 2018 Capacity = \(\frac{741.5 \text{ mgd}}{90\%}\) = 823.9 mgd

Unused portion of Water Delivery / Flow assets is allocated to impact fee calculation

• Allocation = \(\frac{2018 \text{ Capacity} - 2018 \text{ MHD}}{2018 \text{ Capacity}}\)
• Allocation = \(\frac{823.9 \text{ mgd} - 741.5 \text{ mgd}}{823.9 \text{ mgd}}\) = 10%
Water distribution system is assumed to be maintained at 90% capacity

- 2018 Capacity = 823.9 mgd
- 2028 MHD = 877.2 mgd
- 2028 Capacity = $\frac{877.2 \text{ mgd}}{90\%} = 974.7 \text{ mgd}$

Capacity required to serve 2028 MHD:

- $Allocation = \frac{2028 \text{ MHD} - 2018 \text{ Capacity}}{2028 \text{ Capacity} - 2018 \text{ Capacity}}$
- $Allocation = \frac{877.2 \text{ mgd} - 823.9 \text{ mgd}}{974.7 \text{ mgd} - 823.9 \text{ mgd}} = 35\%$
## Water Delivery / Flow CIP – Eligible Value

<table>
<thead>
<tr>
<th>Description</th>
<th>Total Cost</th>
<th>Eligible %</th>
<th>Eligible Cost*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Assets</td>
<td>$707,256,404</td>
<td>10%</td>
<td>$70,725,640</td>
</tr>
<tr>
<td>CIP Projects</td>
<td>$249,928,263</td>
<td>35%</td>
<td>$88,376,044</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$957,184,667</strong></td>
<td><strong>16.6%</strong></td>
<td><strong>$159,101,684</strong></td>
</tr>
</tbody>
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* Costs shown do not include financing charges.