Capital Improvements Plan (CIP)
Wastewater Treatment and Collection

Capital Improvements Advisory Committee
September 19, 2018
Impact Fee Calculation

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?
Impact Fee Components

Water Supply

Water Delivery
System Development

Water Delivery
Flow

Wastewater Collection

Wastewater Treatment
Wastewater Treatment Value

Existing value of treatment facilities is $467,385,565
- Valuation method is Original Cost (OC)
- Value is not depreciated
- Value excludes contributed assets

Value of treatment CIP projects is $205,866,624
- Value is in 2018 dollars
- Value does not include financing costs
Allocation of Wastewater Treatment Value to Impact Fee

Allocation is based on average daily flow (ADF)

- **1 WW EDU = 200 gpd**
- **ADF = No. of EDUs * 200 gpd**
- **Study Period Demand = 2028 ADF – 2018 ADF**
Allocation of Wastewater Treatment Value to Impact Fee

Medio Creek Service Area Study Period Requirement

- 2018 $ADF = 50,039 \text{ EDUs} \times 200 \text{ gpd} = 10.0 \text{ mgd}$
- 2028 $ADF = 65,207 \text{ EDUs} \times 200 \text{ gpd} = 13.0 \text{ mgd}$
- $Study\ Period\ Demand = 13.0 \text{ mgd} - 10.0 \text{ mgd} = 3.0 \text{ mgd}$
Allocation of Wastewater Treatment Value to Impact Fee

Impact fee eligible allocation for Medio Creek Service Area equity is 19.0%

- 2018 Capacity = 16.0 mgd
- Existing Available Capacity = 2018 Capacity – 2018 ADF
- Existing Available Capacity = 16.0 mgd – 10.0 mgd = 6.0 mgd
- Is existing available capacity greater than study period demand? Yes
  - 6.0 mgd > 3.0 mgd
- Allocation = \( \frac{\text{Study Period Demand}}{\text{2018 Capacity}} \)
- Allocation = \( \frac{3.0 \text{ mgd}}{16.0 \text{ mgd}} = 19.0\% \)

Impact fee eligible allocation for Medio Creek Service Area CIP is 19.0%

- Future CIP Cost = $21,066,640
- Eligibility of CIP is determined for each project based on portion of project that will be used by study period growth
- Eligible CIP Cost = $3,994,235 or 19.0\%
Allocation of Wastewater Treatment Value to Impact Fee

Leon Creek / Dos Rios Service Area Study Period Requirement

- 2018 ADF = 670,330 EDUs * 200 gpd = 134.1 mgd
- 2028 ADF = 787,002 EDUs * 200 gpd = 157.4 mgd
- Study Period Demand = 157.4 mgd − 134.1 mgd = 23.3 mgd
Allocation of Wastewater Treatment Value to Impact Fee

Impact fee eligible allocation for Leon Creek / Dos Rios Service Area equity is 13.7%

- 2018 Capacity = 171.0 mgd
- Existing Available Capacity = 2018 Capacity − 2018 ADF
- Existing Available Capacity = 171.0 mgd − 134.1 mgd = 36.9 mgd
- Is existing available capacity greater than study period demand? Yes
  - 36.9 mgd > 23.3 mgd
  - Allocation = \( \frac{\text{Study Period Demand}}{2018 \text{ Capacity}} \)
  - Allocation = \( \frac{23.3 \text{ mgd}}{171.0 \text{ mgd}} = 13.7\% \)

Impact fee eligible allocation for Leon Creek / Dos Rios Service Area CIP is 9.5%

- Future CIP Cost = $184,799,984
- Eligibility of CIP is determined for each project based on portion of project that will be used by study period growth
- Eligible CIP Cost = $17,502,298 or 9.5%
<table>
<thead>
<tr>
<th>Service Area</th>
<th>Equity Value</th>
<th>Equity Eligible %</th>
<th>CIP Value</th>
<th>CIP Eligible %</th>
<th>Eligible Cost*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medio Creek</td>
<td>$39,990,209</td>
<td>19.0%</td>
<td>$21,066,640</td>
<td>19.0%</td>
<td>$11,576,379</td>
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<td>Leon Creek / Dos Rios</td>
<td>427,395,356</td>
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<td>184,799,984</td>
<td>9.5%</td>
<td>75,824,018</td>
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<td>TOTAL</td>
<td>$467,385,565</td>
<td>14.1%</td>
<td>$205,866,624</td>
<td>10.4%</td>
<td>$87,400,397</td>
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</tbody>
</table>

* Costs shown do not include financing charges.
Impact Fee Components

- Water Supply
- Water Delivery
  - System Development
- Water Delivery
  - Flow
- Wastewater Collection
- Wastewater Treatment
Wastewater Collection Value

Existing value of collection system is $707,190,405
- Valuation method is Original Cost (OC)
- Value is not depreciated
- Value excludes contributed assets

Value of collection system CIP projects is $907,457,962
- Value is in 2018 dollars
- Value does not include financing costs
Allocation of Wastewater Collection Value to Impact Fee

Allocation is based on wet weather peak flow (WWPF)

- $1 \text{ WW EDU} = 650 \text{ gpd}$
- $PWWF = \text{No. of EDUs} \times 650 \text{ gpd}$
- $\text{Study Period Demand} = 2028 PWWF - 2018 PWWF$
Allocation of Wastewater Collection Value to Impact Fee

Medio Creek Service Area Study Period Requirement

- 2018 \( PWWF = 50,039 \text{ EDUs} \times 650 \text{ gpd} = 32.5 \text{ mgd} \)
- 2028 \( PWWF = 65,207 \text{ EDUs} \times 650 \text{ gpd} = 42.4 \text{ mgd} \)
- Study Period Demand = 42.4 mgd – 32.5 mgd = 9.9 mgd
Allocation of Wastewater Collection Value to Impact Fee

Impact fee eligible allocation for Medio Creek Service Area equity is 18.2%

- **2018 Capacity** = 83,487 EDUs or 54.3 mgd
- **Existing Available Capacity** = 2018 Capacity – 2018 PWWF
- **Existing Available Capacity** = 54.3 mgd – 32.5 mgd = 21.8 mgd
- Is existing available capacity greater than study period demand? **Yes**
  - 21.8 mgd > 9.9 mgd
- **Allocation** = \( \frac{9.9 \text{ mgd}}{2018 \text{ Capacity}} \) = 18.2%

Impact fee eligible allocation for Medio Creek Service Area CIP is 14.9%

- **Future CIP Cost** = $13,690,000
- Eligibility of CIP is determined for each project based on modeled demands
- **Eligible CIP Cost** = $2,034,242 or 14.9%
Allocation of Wastewater Collection Value to Impact Fee

Upper Medina Service Area Study Period Requirement

- 2018 $PWWF = 18,534 \text{ EDUs} \times 650 \text{ gpd} = 12.0 \text{ mgd}$
- 2028 $PWWF = 30,201 \text{ EDUs} \times 650 \text{ gpd} = 19.6 \text{ mgd}$
- Study Period Demand = 19.6 mgd – 12.0 mgd = 7.6 mgd
Allocation of Wastewater Collection Value to Impact Fee

Impact fee eligible allocation for Upper Medina Service Area equity is 16.2%

- 2018 Capacity = 46.8 mgd
- Existing Available Capacity = 2018 Capacity – 2018 PWWF
- Existing Available Capacity = 46.8 mgd – 12.0 mgd = 34.8 mgd
- Is existing available capacity greater than study period demand? Yes
  - 34.8 mgd > 7.6 mgd
- Allocation = \( \frac{\text{Study Period Demand}}{\text{2018 Capacity}} \)
- Allocation = \( \frac{7.6 \text{ mgd}}{46.8 \text{ mgd}} = 16.2\% \)

Impact fee eligible allocation for Upper Medina Service Area CIP is 12.2%

- Future CIP Cost = $2,565,000
- Eligibility of CIP is determined for each project based on modeled demands
- Eligible CIP Cost = $313,345 or 12.2\%
Allocation of Wastewater Collection Value to Impact Fee

- **2018 PWWF = 25,516 EDUs * 650 gpd = 16.6 mgd**
- **2028 PWWF = 41,593 EDUs * 650 gpd = 27.0 mgd**
- **Study Period Demand = 27.0 mgd − 16.6 mgd = 10.4 mgd**

* Number of EDUs includes Upper Medina service area EDUs because they flow through the Lower Medina service area.
Allocation of Wastewater Collection Value to Impact Fee

Impact fee eligible allocation for Lower Medina Service Area equity is 15.0%

- 2018 Capacity = 69.5 mgd
- Existing Available Capacity = 2018 Capacity – 2018 PWWF
- Existing Available Capacity = 69.5 mgd – 16.6 mgd = 52.9 mgd
- Is existing available capacity greater than study period demand? Yes
  - 52.9 mgd > 10.4 mgd
- Allocation = \( \frac{\text{Study Period Demand}}{2018 \text{ Capacity}} \)
- Allocation = \( \frac{10.4 \text{ mgd}}{69.5 \text{ mgd}} = 15.0\% \)

Impact fee eligible allocation for Lower Medina Service Area CIP is 0%

- Future CIP Cost = $0
- Eligibility of CIP is determined for each project based on modeled demands
- Eligible CIP Cost = $0 or 0\%
Allocation of Wastewater Collection Value to Impact Fee

Upper Collection Service Area Study Period Requirement

- 2018 $PWWF = 175,165 \text{ EDUs} \times 650 \text{ gpd} = 113.9 \text{ mgd}$
- 2028 $PWWF = 214,554 \text{ EDUs} \times 650 \text{ gpd} = 139.5 \text{ mgd}$
- Study Period Demand = 139.5 mgd − 113.9 mgd = 25.6 mgd
Impact fee eligible allocation for Upper Collection Service Area equity is 17.0%

- 2018 Capacity = 150.9 mgd
- Existing Available Capacity = 2018 Capacity – 2018 PWWF
- Existing Available Capacity = 150.9 mgd – 113.9 mgd = 37.0 mgd
- Is existing available capacity greater than study period demand? Yes
  - 37.0 mgd > 25.6 mgd
  - Allocation = \( \frac{\text{Study Period Demand}}{2018 \text{ Capacity}} \)
  - Allocation = \( \frac{25.6 \text{ mgd}}{150.9 \text{ mgd}} = 17.0\% \)

Impact fee eligible allocation for Upper Collection Service Area CIP is 6.9%

- Future CIP Cost = $53,628,280
- Eligibility of CIP is determined for each project based on modeled demands
- Eligible CIP Cost = $3,684,315 or 6.9%
Allocation of Wastewater Collection Value to Impact Fee

Middle Collection Service Area Study Period Requirement

• 2018 PWWF = 419,123 EDUs * 650 gpd = \(272.4 \text{ mgd}\)
• 2028 PWWF = 480,281 EDUs * 650 gpd = \(312.2 \text{ mgd}\)
• Study Period Demand = 312.2 mgd − 272.4 mgd = \(39.8 \text{ mgd}\)

* Number of EDUs includes Upper Collection service area EDUs because they flow through the Middle Collection service area.
Allocation of Wastewater Collection Value to Impact Fee

Impact fee eligible allocation for Middle Collection Service Area equity is 11.4%

- 2018 Capacity = 348.5 mgd
- Existing Available Capacity = 2018 Capacity − 2018 PWWF
- Existing Available Capacity = 348.5 mgd − 272.4 mgd = 76.1 mgd
- Is existing available capacity greater than study period demand? Yes
  - 76.1 mgd > 39.8 mgd
- Allocation = \( \frac{\text{Study Period Demand}}{\text{2018 Capacity}} \)
- Allocation = \( \frac{39.8 \text{ mgd}}{348.5 \text{ mgd}} = 11.4\% \)

Impact fee eligible allocation for Middle Collection Service Area CIP is 3.0%

- Future CIP Cost = $409,984,079
- Eligibility of CIP is determined for each project based on modeled demands
- Eligible CIP Cost = $12,244,952 or 3.0%
Allocation of Wastewater Collection Value to Impact Fee

Lower Collection Service Area Study Period Requirement

- 2018 $PWWF = 644,814 \text{ EDUs} \times 650 \text{ gpd} = 419.1 \text{ mgd}$
- 2028 $PWWF = 745,409 \text{ EDUs} \times 650 \text{ gpd} = 484.5 \text{ mgd}$
- Study Period Demand = 484.5 mgd − 419.1 mgd = 65.4 mgd

* Number of EDUs includes Upper Collection and Middle Collection service areas EDUs because they flow through the Lower Collection service area.
Allocation of Wastewater Collection Value to Impact Fee

Impact fee eligible allocation for Lower Collection Service Area equity is 11.9%

- 2018 Capacity = 547.8 mgd
- Existing Available Capacity = 2018 Capacity – 2018 PWWF
- Existing Available Capacity = 547.8 mgd – 419.1 mgd = 128.7 mgd
- Is existing available capacity greater than study period demand? Yes
  - 128.7 mgd > 65.4 mgd

Allocation = \( \frac{\text{Study Period Demand}}{\text{2018 Capacity}} \)

- Allocation = \( \frac{65.4 \text{ mgd}}{547.8 \text{ mgd}} = 11.9\% \)

Impact fee eligible allocation for Lower Collection Service Area CIP is 5.4%

- Future CIP Cost = $427,590,604
- Eligibility of CIP is determined for each project based on modeled demands
- Eligible CIP Cost = $23,136,264 or 5.4%
# Wastewater Collection CIP – Eligible Value

<table>
<thead>
<tr>
<th>Service Area</th>
<th>Equity Value</th>
<th>Equity Eligible %</th>
<th>CIP Value</th>
<th>CIP Eligible %</th>
<th>Eligible Cost*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medio Creek</td>
<td>$31,513,446</td>
<td>18.2%</td>
<td>$13,690,000</td>
<td>14.9%</td>
<td>$7,759,602</td>
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<tr>
<td>Upper Medina</td>
<td>27,177,209</td>
<td>16.2%</td>
<td>2,565,000</td>
<td>12.2%</td>
<td>4,717,206</td>
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<tr>
<td>Lower Medina</td>
<td>40,374,029</td>
<td>15.0%</td>
<td>0</td>
<td>0%</td>
<td>6,068,473</td>
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<tr>
<td><strong>Upper Collection</strong></td>
<td>87,631,849</td>
<td>17.0%</td>
<td>53,628,280</td>
<td>6.9%</td>
<td>18,552,207</td>
</tr>
<tr>
<td><strong>Middle Collection</strong></td>
<td>203,372,251</td>
<td>11.4%</td>
<td>409,984,079</td>
<td>3.0%</td>
<td>35,329,837</td>
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<tr>
<td><strong>Lower Collection</strong></td>
<td>318,121,621</td>
<td>11.9%</td>
<td>427,590,604</td>
<td>5.4%</td>
<td>61,107,160</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$707,190,405</strong></td>
<td><strong>13.0%</strong></td>
<td><strong>$907,457,962</strong></td>
<td><strong>4.6%</strong></td>
<td><strong>$133,534,485</strong></td>
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</table>

* Costs shown do not include financing charges.

** Lower Medina eligible cost is divided by sum of Upper Medina and Lower Medina EDUs to determine unit cost.

*** Middle Collection eligible cost is divided by sum of Upper Collection and Middle Collection EDUs to determine unit cost.

**** Lower Collection is divided by sum of Upper Collection, Middle Collection, and Lower Collection EDUs to determine unit cost.