Water and Wastewater Infrastructure CIP

December 8, 2010

Impact Fee Study 2011 – 2020

Kathleen M. Price, P.E.
Manager of Master Planning
Capital Improvement Plan Overview

• Impact Fee Total CIP Cost
• Water Infrastructure Plan – CIP
• Wastewater Infrastructure Plan – CIP
# Existing and New Capacity

<table>
<thead>
<tr>
<th>Service Area</th>
<th>Value of Existing Capacity</th>
<th>Value of New CIP Capacity</th>
<th>Total Value of Existing and New CIP Capacity</th>
<th>Total Value of Eligible Study Period Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Delivery</td>
<td>$940,709,726</td>
<td>$304,099,731</td>
<td>$1,244,809,457</td>
<td>$171,365,717</td>
</tr>
<tr>
<td>Water Supply</td>
<td>575,247,480</td>
<td>139,655,073</td>
<td>714,902,553</td>
<td>139,655,073</td>
</tr>
<tr>
<td>Wastewater</td>
<td>876,059,608</td>
<td>804,062,645</td>
<td>1,680,122,253</td>
<td>259,988,679</td>
</tr>
<tr>
<td>Total</td>
<td>$2,392,016,814</td>
<td>$1,247,817,449</td>
<td>$3,639,834,263</td>
<td>$571,009,469</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eligible Existing Value</th>
<th>Financing Costs (Eligible Existing)</th>
<th>Eligible CIP Value</th>
<th>Total Value of Eligible Capacity for 2011-2020 Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>$146,081,961</td>
<td>$66,862,063</td>
<td>$358,065,445</td>
<td>$571,009,469</td>
</tr>
</tbody>
</table>

**Notes:**
- Values exclude all mains <12” for water and <10” for sewer, & other infrastructure contributed by developers & grants.
- Water Supply existing value not included in eligible study period value.
## New CIP Project Count

<table>
<thead>
<tr>
<th>Fee Type</th>
<th>Service Area</th>
<th>Project Count</th>
<th>Fee Type</th>
<th>Service Area</th>
<th>Project Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Supply</td>
<td>All</td>
<td>4</td>
<td>Collection</td>
<td>Upper</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4</td>
<td></td>
<td>Middle</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Upper/Lower</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Upper Medina</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lower Medina</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Medio Creek</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>65</td>
</tr>
<tr>
<td>Flow</td>
<td>All</td>
<td>179</td>
<td>Treatment</td>
<td>Dos Rios/Leon Creek</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>179</td>
<td>Total</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sys Dev</td>
<td>High</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Shared</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>74</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Grand Total: 323**

December 8, 2010

Water and Wastewater Infrastructure CIP
Water Infrastructure Plan

- Water Infrastructure Plan (WIP) - 60 years with updates about every 5 years

- Last WIP update was in 2008

- Current WIP recommends $415M of Infrastructure
  - Tanks, Wells, Pumps & Pipes Required to meet customer demand through 2027
Water Infrastructure Plan Overview

• Population Projections - LUAP
• Demand (historical consumption and pumpage)
• Design Criteria for Sizing Infrastructure
  – Wells – meet maximum day
  – Pumps – meet maximum hour
  – Tanks – meet maximum hour for elevated
  – Pipes – meet maximum hour
• Hydraulic Model – Tool for Simulating the Water System
• TCEQ Sizing Requirements
Water Infrastructure Plan Overview

TCEQ Minimum Design Criteria

• Ground Storage
  – Minimum = 100 gallons/connection or the difference between Total and Elevated, whichever is less

• Elevated Storage
  – Minimum = 100 gallons/connection

• Wells
  – Minimum = 0.6 gpm/connection

• High Service Pumps
  – Minimum = 2.0 gpm/connection or the ability to meet max hour demand, whichever is less
Production Pump Stations

Legend

- ▲ 21 Primary Pump Stations
- ▲ 21 Secondary Pump Stations
- ▲ 28 Booster Pump Stations
Impact Fee CIP Water Infrastructure

Total Cost $304,099,731

- 9 Wells (44.5 mgd) - $41,202,000
- 37 pumps (136.9 mgd) - $24,379,000
- 2 ground tanks (12.5 mgd) - $7,060,890
- 12 elevated (24.5 mgd) - $60,955,500
- 40.8 miles of transmission mains from 16” to 48” - $57,460,829
- 126.4 miles of distribution mains from 12” to 48” - $113,041,512

Impact Fee Eligible Cost $79,130,182
Wastewater Infrastructure Plan Overview

• Wastewater Infrastructure Plan (WWIP)
  – 1998 – Skeleton Version (about 17% of system)
• Update each sewershed every 5 years
  – 5 sewersheds
    • Eastern – 2006
    • Leon, Far West and South – 2008
    • Central – 2009
    • All sewershed – Risk Based Study - 2010
• Current growth related WWIP recommends $881M of infrastructure through year 2027
  – Pipes
  – Lift Stations
Wastewater Infrastructure Plan Overview

- Population Projections - LUAP
- Flow (flow meter data)
- Design Criteria for Sizing Infrastructure
  - Pipes – peak wet weather conditions
  - Lift Stations – peak wet weather
- Hydraulic Model – Tool for Simulating the Wastewater System
- TCEQ Sizing Requirements
  - Peak weather flow of 675 gpd/edu
# Leon Creek Collection Example

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Service Area</th>
<th>Project Cost Estimate [$ 2010]</th>
<th>Allocated to Existing Customer Demand [%]</th>
<th>Allocated to Existing Customer Demand [$ 2010]</th>
</tr>
</thead>
<tbody>
<tr>
<td>W-31: I.H. 10 - La Cantera to Boerne Stage Road</td>
<td>Upper Collection</td>
<td>$17,050,860</td>
<td>12%</td>
<td>$2,075,458</td>
</tr>
<tr>
<td>W-44: Leon Creek - Prue Rd and La Cantera</td>
<td>Upper Collection</td>
<td>$26,774,030</td>
<td>24%</td>
<td>$6,311,605</td>
</tr>
<tr>
<td>W-9: Leon Creek - Ingram to Timberline</td>
<td>Upper (10%), Lower 90%</td>
<td>$33,723,620</td>
<td>26%</td>
<td>$8,801,966</td>
</tr>
<tr>
<td>W-1: Leon Creek - U.S. 90 to S.H. 151</td>
<td>Middle Collection</td>
<td>$28,829,010</td>
<td>32%</td>
<td>$9,148,054</td>
</tr>
<tr>
<td>W-6: Leon Creek - US 90 to New Laredo Hwy</td>
<td>Lower Collection</td>
<td>$38,361,930</td>
<td>36%</td>
<td>$13,706,761</td>
</tr>
<tr>
<td>W-39: Leon Creek - New Laredo Hwy and SH 16</td>
<td>Lower Collection</td>
<td>$12,531,390</td>
<td>36%</td>
<td>$4,514,336</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$157,270,840</strong></td>
<td><strong>33%</strong></td>
<td><strong>$51,218,424</strong></td>
<td></td>
</tr>
</tbody>
</table>

December 8, 2010

Water and Wastewater Infrastructure CIP
# Wastewater Infrastructure Plan

- Example Project in Leon Creek

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Service Area</th>
<th>Project Cost Estimate [$ 2010]</th>
<th>Allocated to Study Period Growth Demand [%]</th>
<th>Allocated to Study Period Growth Demand [$]</th>
</tr>
</thead>
<tbody>
<tr>
<td>W-31: I.H. 10 - La Cantera to Boerne Stage Road</td>
<td>Upper Collection</td>
<td>$17,050,860</td>
<td>42%</td>
<td>$7,212,502</td>
</tr>
<tr>
<td>W-44: Leon Creek - Prue Rd and La Cantera</td>
<td>Upper Collection</td>
<td>$26,774,030</td>
<td>26%</td>
<td>$6,902,532</td>
</tr>
<tr>
<td>W-9: Leon Creek - Ingram to Timberline</td>
<td>Upper (10%), Lower 90%</td>
<td>$33,723,620</td>
<td>23%</td>
<td>$7,923,311</td>
</tr>
<tr>
<td>W-1: Leon Creek - U.S. 90 to S.H. 151</td>
<td>Middle Collection</td>
<td>$28,829,010</td>
<td>20%</td>
<td>$5,745,097</td>
</tr>
<tr>
<td>W-6: Leon Creek - US 90 to New Laredo Hwy</td>
<td>Lower Collection</td>
<td>$38,361,930</td>
<td>17%</td>
<td>$6,344,070</td>
</tr>
<tr>
<td>W-39: Leon Creek - New Laredo Hwy and SH 16</td>
<td>Lower Collection</td>
<td>$12,531,390</td>
<td>16%</td>
<td>$1,993,315</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>$157,270,840</td>
<td>19%</td>
<td>$29,820,455</td>
</tr>
</tbody>
</table>

- Existing Customer Demand $51,218,424
- Post Study Period Growth Demand $76,231,961

December 8, 2010

Water and Wastewater Infrastructure CIP
Impact Fee CIP Wastewater Infrastructure

Total Cost
$744,396,935
- Collection Pipes (182 miles) $734,811,218
- 4 Lift Stations (17 mgd) $9,585,717

Impact Fee Eligible Cost $79,614,480

December 8, 2010
Capital Improvement Projects

Treatment

Total cost for projects built in the next 10 years is $338,685,832

- Leon Transfer - $13,597,395
- Treatment share of MRSO - $12,392,972
- Improvements to Dos Rios - $312,695,465

Impact fee eligible cost is $59,665,710
Capital Improvement Projects

Questions?
Water and Wastewater Infrastructure CIP

Impact Fee Study 2011 – 2020

Kathleen M. Price, P.E.
Manager of Master Planning

December 8, 2010