Wastewater Equivalent Dwelling Unit (EDU)

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San Antonio Water System

Capital Improvements Advisory Committee
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Current

• EPA Consent Decree: Sewer Overflows

• Existing Wastewater EDU = 240 gpd average daily flow
Average Daily Flow vs. Peak Wet Weather

- Water Recycling Center (WRC)
  - Average Daily Flow
  - 240 gpd

- Collection System
  - Peak Wet Weather Flow (5-year, 6-Hour Storm)
  - 240 gpd * 2.5 Peaking Factor + 300 gal per acre
  - Inflow and Infiltration (I/I)
Wastewater EDU Calculation

Annual WRC Flow (5 year average)

EDU = \frac{\text{Annual EDUs (5 year average)} \times 365 \text{ days}}{\text{Annual WRC Flow (5 year average)}}
Wastewater Recycling Centers (WRC) Flow (MG)

- Three WRCs in SAWS System

<table>
<thead>
<tr>
<th>Year</th>
<th>Medio Creek</th>
<th>Leon Creek</th>
<th>Dos Rios</th>
<th>Total Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>2,730</td>
<td>13,752</td>
<td>28,641</td>
<td>45,123</td>
</tr>
<tr>
<td>2014</td>
<td>2,585</td>
<td>10,578</td>
<td>31,097</td>
<td>44,261</td>
</tr>
<tr>
<td>2015</td>
<td>2,524</td>
<td>12,790</td>
<td>34,250</td>
<td>49,565</td>
</tr>
<tr>
<td>2016</td>
<td>2,829</td>
<td>14,124</td>
<td>35,963</td>
<td>52,916</td>
</tr>
<tr>
<td>2017</td>
<td>2,349</td>
<td>12,964</td>
<td>34,478</td>
<td>49,790</td>
</tr>
<tr>
<td>Average</td>
<td>2,604</td>
<td>12,841</td>
<td>32,886</td>
<td>48,331</td>
</tr>
</tbody>
</table>
### New EDUs/Year Versus Cumulative EDUs

<table>
<thead>
<tr>
<th>Year</th>
<th>New EDUs/Year</th>
<th>Cumulative EDUs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>655,623</td>
<td>610,000</td>
</tr>
<tr>
<td>2014</td>
<td>660,000</td>
<td>620,000</td>
</tr>
<tr>
<td>2015</td>
<td>670,000</td>
<td>630,000</td>
</tr>
<tr>
<td>2016</td>
<td>680,000</td>
<td>640,000</td>
</tr>
<tr>
<td>2017</td>
<td>690,000</td>
<td>650,000</td>
</tr>
<tr>
<td>2018</td>
<td>700,000</td>
<td>660,000</td>
</tr>
<tr>
<td>2019</td>
<td>710,000</td>
<td>670,000</td>
</tr>
</tbody>
</table>

Average New EDUs/Year: **11,220**
Cumulative EDUs: **679,740**
EDU Calculation

\[
EDU = \frac{\text{Annual WRC Flow (5 year average)}}{\text{Annual EDUs (5 year average) } \times 365 \text{ days}}
\]

\[
= \frac{48,331 \text{ MG}}{679,740 \times 365 \text{ days}}
\]

\[
= 195 \text{ gpd average daily flow}
\]

Recommend EDU = 200 gpd average daily flow
Inflow/Infiltration (I/I) Into Wastewater System

- EPA Consent Decree
- Extensive Sewer Flow Monitoring
- Recalibration of Sewer Model
- Excessive Amounts of I/I into Sewer System from Stormwater
  - Average of Three Major Sewersheds
    - Total I/I / Serviced Acres
    - 173 MGD / 292,870 Acres = 591 Gals per Acre of I/I
    - Recommend 600 Gals per Acre of I/I*

*Typically Assumes 4 EDUs per Acre
SAWS Staff Recommendation

– Change SAWS Definition of Wastewater EDU
  • Current: 240 gpd average daily flow
  • Proposed: 200 gpd average daily flow

– Change Design Standard for I/I (stormwater)
  • Current: 300 gallons per acre
  • Proposed: 600 gallons per acre

– Impact of Change
  • 17% additional treatment capacity available
  • 4% additional collection system capacity available*

*Assumes 4 EDUs per Acre
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