CONSERVATION LIMITS RATE INCREASES FOR COLORADO UTILITY

DEMAND REDUCTIONS OVER 30 YEARS HAVE DRAMATICALLY REDUCED CAPITAL COSTS

Stu Feinglas, Senior Analyst, City of Westminster
WESTMINSTER, COLORADO

- Located between Boulder and Denver
- Municipal water and wastewater
- 134,000
- 32,600 accounts
- Water use
  - 75% residential
  - 25% commercial
- Buildout within a working generation
WHY ARE MY RATES GOING UP AGAIN WHEN I KEEP CONSERVING WATER?

- Water and wastewater rates have increased faster than the Consumer Price Index (CPI) over the past 15 years.
- Long term conservation coupled with short term drought response has reduced demands.
- Some utilities have experienced revenue shortfalls.
- Customers are confused.
Long-term trends in consumer prices (CPI) for utilities

Exhibit 1. Long-term trends in the Consumer Price Index (CPI) for utilities (1913-2012). The index is set to 100 for 1982-1984 except for telephone and wireless services, where the index is set to 100 for 1997. Date () indicates start of series.
A BRIEF HISTORY OF DEMAND FORECASTING IN SEATTLE
To examine the impact of conservation on rates Westminster looked at marginal costs due to the buildout requirements by removing conservation from the equation.

**Conclusion:** Reduced water use in Westminster since 1980 has resulted in significant savings in both water resource and infrastructure costs, saving residents and businesses 105% in tap fees and 111% in rates compared to what they would have been without conservation.
Reclaimed system not included
  ▶ Potable water use was increased
Sewer Savings not included

Rate structure changes
  ▶ Inclined blocks and seasonal
Rebate programs
  ▶ HE fixtures and appliances
Changes to plumbing codes
Landscape regulations and Xeriscape
Education
Attitude
As a result of conservation, Westminster’s citywide per capita water use has been reduced 28% since 1980.

Since 1980 (37 years) rates have increased while water use has gone down per SFD home

- Annual water cost increase per home =
  - 22% 1980 to 2012 in 2012 dollars
  - .7% increase per year

Staff researched the effect on rates and tap fees (since 1980) had no conservation measures been implemented.
1980 VS. 2017
<table>
<thead>
<tr>
<th>Single Family Water Bills 1980 vs. 2017</th>
<th>Amount</th>
<th>37 Year Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980 Annual Water Bill</td>
<td>$120.00</td>
<td></td>
</tr>
<tr>
<td>2017 Annual Average water Bill</td>
<td>$515.00</td>
<td></td>
</tr>
<tr>
<td>1980 Annual Water Bill Adjusted to 2017 (CPI)</td>
<td>$380.00</td>
<td>5.85% (Total 216%)</td>
</tr>
<tr>
<td>1980-2017 Annual Unrelated to CPI</td>
<td>$135.00</td>
<td>$3.65</td>
</tr>
<tr>
<td>Unrelated to CPI Monthly</td>
<td>$11.25</td>
<td>$0.30</td>
</tr>
</tbody>
</table>
Per Capita Water Use (Gallons per Day) Since 1980
CONSERVATIVE SCENARIO ASSUMPTIONS

Increased regional water demands would have placed stress on limited supply of South Platte basin water, which would have resulted in:

- Higher water resource costs
- Higher rates
- Limited economic growth
Projected Buildout Water Demand

- Current Water Resources: 34,000 Acre Feet
- Additional Water Resources: 9,437 Acre Feet (28% of the total demand)

Legend:
- Blue: Current Water Resources
- Orange: Additional Water Resources
Total peak day = 111 MGD

Cost: 57 MGD * $4.4M/MGD = $250.8M
Cost: 3.8 MGD * $8,000,000/MGD = $30.4M
FINANCING INFRASTRUCTURE PROJECTS

- 20-30 year terms for projects with adequate lifespans
- 3.5% to 5% interest
- Rates pay for debt
  - Debt issuers want payments tied to more secure revenues
  - Increases rates
- Growth pays for growth vs. Generational equity
Water and Sewer Rates Comparison
2018 vs Non-Conserving

<table>
<thead>
<tr>
<th>Rates Comparison</th>
<th>2017 Actual</th>
<th>Non-Conserving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>$556</td>
<td>$1,461</td>
</tr>
<tr>
<td>Sewer</td>
<td>$336</td>
<td>$425</td>
</tr>
<tr>
<td>Combined</td>
<td>$892</td>
<td>$1,886</td>
</tr>
</tbody>
</table>

111% increase in Non-Conserving rates compared to 2017 Actual.
Single Family Water and Sewer Tap Fees Comparison
2018 vs Non-Conserving

<table>
<thead>
<tr>
<th>Year</th>
<th>Water</th>
<th>Sewer</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017 Actual</td>
<td>$24,952</td>
<td>$5,976</td>
<td>$30,928</td>
</tr>
<tr>
<td>Non-Conserving</td>
<td>$55,866</td>
<td>$7,465</td>
<td>$63,331</td>
</tr>
</tbody>
</table>

105% increase

2017 Actual vs Non-Conserving

$24,952 vs $55,866
$5,976 vs $7,465
$30,928 vs $63,331
CONSERVATION

- Rebate programs 2003-2012
  - Toilets – Clothes Washers – Urinals
- Landscape Regulations -2004
  - Limited turf areas
  - Irrigation audit
  - Weather based controllers
  - Soil amendment inspection
  - Funded staff
- Conservation based tap fees
- Linking water supply with Comprehensive Plan
- WaterSense Fixtures (Colorado State Regulation)
### Rates Over Time

**1954-1992**
- Winter/Summer
- Summer Less Expensive

**1993-2005**
- 3 tiers
- 1st tier “Lifeline”

**2006-2018**
- System generally developed for buildout
- R & R and growth through tap fees

**Future**
- Additional Tiers
- Tap Fee surcharge
2017 Regional Single Family Annual Combined Bill with 2017-2018 Westminster Rate Increases

2017 Average Bill = $932

Annual Combined Single Family Costs

- Broomfield
- Arvada
- Denver
- Lone Tree
- Longmont
- Northglenn
- Westminster 2017
- Federal Heights
- Lafayette
- Thornton
- Boulder
- Westminster 2018
- Golden
- Fort Collins
- Aurora
- S. Adams Co. W&S
- Castle Rock
- East Cherry Creek
- Parker
- Crestview
- Erie

Wastewater
Water

$832
$892
RATE COMMUNICATIONS

- Started to feel rate increase stress in 2017-2018 cycle
  - 8% water 6% sewer
- Trying to get out ahead of the 2019-2020 cycle
  - Direct mailers
  - Quarterly articles
  - Focused on understanding our system
- Ongoing Value of Water campaign
- Include level of service discussions
- More to do
WATER AND WASTEWATER RATE STUDY

- Data based Utility
- Comprehensive infrastructure study
  - 10,000 staff hours initial site visits
  - 2,500 hours update 2017
- Detailed usage data

- Biggest Challenges
  - Infrastructure R&R driving future increases
  - Use reductions from rising rates
SUMMARY

- 1980 citywide water use = 28% higher than current use.
- Increased water use would have required:
  - Acquisition of additional water resources
  - Expansions of the water and wastewater treatment facilities
- Resulting in:
  - Increased rates
  - Increased tap fees
  - No additional revenue to the City

Reduced water use (conservation) has resulted in savings in both resource and infrastructure costs.

Each utility is unique; Your mileage may vary
THANK YOU.

QUESTIONS?

Stu Feinglas, Senior Analyst, City of Westminster
## IMPACTS TO CITY: INFRASTRUCTURE & WATER RESOURCES COSTS

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional WTF capacity</td>
<td>52 MGD total</td>
</tr>
<tr>
<td></td>
<td>$2,500,000/MG</td>
</tr>
<tr>
<td></td>
<td>$130,000,000</td>
</tr>
<tr>
<td>Additional WWTF capacity</td>
<td>4 MGD total</td>
</tr>
<tr>
<td></td>
<td>$5,000,000/MG</td>
</tr>
<tr>
<td></td>
<td>$20,000,000</td>
</tr>
<tr>
<td>Additional Water Resources</td>
<td>7,295 AF</td>
</tr>
<tr>
<td></td>
<td>$30,000</td>
</tr>
<tr>
<td></td>
<td>$218,850,000</td>
</tr>
<tr>
<td>Interest (on debt funding)</td>
<td>$223,106,000</td>
</tr>
<tr>
<td><strong>Total Costs</strong></td>
<td><strong>$591,956,000</strong></td>
</tr>
</tbody>
</table>
## IMPACTS TO CITY: OPERATING COSTS*

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional annual operating cost of WTF</td>
<td>21% increase</td>
</tr>
<tr>
<td></td>
<td>$480,400</td>
</tr>
<tr>
<td>Additional annual operating cost of BDCWWTF &amp; Metro</td>
<td>20% increase</td>
</tr>
<tr>
<td></td>
<td>$757,600</td>
</tr>
<tr>
<td>Total additional operating costs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$1,238,000</td>
</tr>
</tbody>
</table>

*No Additional Personnel*
## IMPACTS TO RESIDENTS AND BUSINESSES

### 2 SOURCES OF REVENUE/2 WAYS TO FUND ALL COSTS

<table>
<thead>
<tr>
<th>Revenue Source: Rates</th>
<th>Pays for: O&amp;M</th>
<th>R&amp;R</th>
<th>Debt Service</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Revenue Source: Tap Fees</th>
<th>Pays for: New Infrastructure</th>
<th>New Water Resources</th>
<th>R&amp;R</th>
</tr>
</thead>
</table>
**IMPACT TO RESIDENTS: SINGLE FAMILY RATES – ANNUAL BILL (WATER & SEWER)**

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>Additional Charge</th>
<th>Total Annual SF Water/Sewer Bill</th>
<th>% Increase to 2012 Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>$410</td>
<td>$561</td>
<td>$971</td>
<td>137%</td>
</tr>
<tr>
<td>Sewer</td>
<td>$245</td>
<td>$63</td>
<td>$308</td>
<td>26%</td>
</tr>
<tr>
<td>Total</td>
<td>$655</td>
<td>$624</td>
<td>$1,279</td>
<td>95%</td>
</tr>
</tbody>
</table>
## IMPACT TO RESIDENTS/BUSINESSES: SINGLE FAMILY TAP FEES

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>Additional Charge</th>
<th>Total Annual SF Tap Fee</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water</strong></td>
<td>$16,325</td>
<td>$16,086</td>
<td>$32,411</td>
<td>99%</td>
</tr>
<tr>
<td><strong>Sewer</strong></td>
<td>$4,904</td>
<td>$866</td>
<td>$5,770</td>
<td>18%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$21,229</td>
<td>$16,952</td>
<td>$38,181</td>
<td>80%</td>
</tr>
</tbody>
</table>
Each water system is unique. Results from Westminster may not apply.

Utilities can perform a similar analysis.

The $591 million dollar cost reveals the significant hardship associated with expanding supply and infrastructure today.

The cost highlights the inherent value in our current infrastructure.

The cheapest water (by far) is the water we already have and the best way to keep rates and tap fees low is to conserve the water we already have.