SCENARIO PLANNING TO SUPPORT RESILIENCY

Colorado APA

September 10, 2021
Presented by Andrew Spurgin, AICP
EARLY GROWTH

- Post-war growth
- First water restrictions implemented
- Move to home rule

CONTROL YOUR DESTINY
“LONG, HOT SUMMER” OF 1962 & MUNICIPALIZATION OF UTILITY

- Water shortages require City to use different water source
- Water quality water leads to “Mothers’ March”
- Citizens Committee on Water formed

COMMUNITY AWARENESS
PLANNING FOR BUILD OUT
Land Use and Water Supply Plan Correlation

<table>
<thead>
<tr>
<th>Development Category</th>
<th>Water Use Acre Feet/Acre (Water Sense)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 residential units</td>
<td>3.02 1.52 1.04</td>
</tr>
<tr>
<td>40 residential units</td>
<td>2.32 1.29 1.02</td>
</tr>
<tr>
<td>36 residential units</td>
<td>2.62 1.39 1.02</td>
</tr>
<tr>
<td>32 residential units</td>
<td>2.31 1.29 1.02</td>
</tr>
<tr>
<td>Mixed Use Center</td>
<td>2.31 1.29 1.02</td>
</tr>
<tr>
<td>Industrial</td>
<td>2.31 1.29 1.02</td>
</tr>
<tr>
<td>TIMUNDO</td>
<td>1.71 1.28 1.02</td>
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<tr>
<td>Office/Research</td>
<td>1.21 1.29 1.02</td>
</tr>
<tr>
<td>Office/High Intensity</td>
<td>1.21 1.29 1.02</td>
</tr>
<tr>
<td>Service Commercial</td>
<td>1.21 1.29 1.02</td>
</tr>
<tr>
<td>Office/Research</td>
<td>1.21 1.29 1.02</td>
</tr>
<tr>
<td>Public Parks</td>
<td>1.21 1.29 1.02</td>
</tr>
<tr>
<td>8 residential units</td>
<td>1.21 1.29 1.02</td>
</tr>
<tr>
<td>Retail Commercial</td>
<td>1.21 1.29 1.02</td>
</tr>
<tr>
<td>Flex Industrial</td>
<td>1.21 1.29 1.02</td>
</tr>
<tr>
<td>Office</td>
<td>1.21 1.29 1.02</td>
</tr>
<tr>
<td>5 residential units</td>
<td>1.21 1.29 1.02</td>
</tr>
<tr>
<td>Public/Guest Public</td>
<td>1.21 1.29 1.02</td>
</tr>
<tr>
<td>3.5 residential units</td>
<td>1.21 1.29 1.02</td>
</tr>
<tr>
<td>2.5 residential units</td>
<td>1.21 1.29 1.02</td>
</tr>
<tr>
<td>1 residential unit</td>
<td>1.21 1.29 1.02</td>
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</tbody>
</table>

City Code 8-7-3(0)(2)
- STD/Mobile home: 1 SC
- SSD: 0.7 SC
- Multi-family: 0.5 SC
- Attached Senior Housing Unit: 0.35 SC

Legend:
- Indoor Water Use
- Outdoor Water Use
INTEGRATING WATER AND DEVELOPMENT IMPACTS

• Link parcels and water usage in GIS
• Correlation of tap sizes and fees with water usage
• Excel calculator replicated for other Building Division related tools – COORDINATION
DEVELOPMENT REVIEW

• Revised landscape and irrigation standards

• Additional resources for development
  • Landscape architect position
  • Inspector position

• Increased dialogue with City Council on the interrelatedness of the Comprehensive Plan and Water Supply Plan

TEAMWORK
POST-OCCUPANCY EFFICIENCY - CONSERVATION
2021 WATER SUPPLY PLAN

• New technology and methodologies that were not available in previous planning processes
  • Millions of model runs instead of just one

• Tree ring studies provide data on wet, dry, and average years all the way back into the 1500s

• Evaluated all water customer accounts
  • Land Use Type
  • Age of Construction
  • Indoor versus outdoor use
VARIABLES ASSESSED

Three Primary Variables Assessed:

• Development and Redevelopment
• Water Conservation
• Weather/Climate
# LAND USE SCENARIOS

<table>
<thead>
<tr>
<th>Scenario</th>
<th>% of City</th>
<th>Acres</th>
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</thead>
<tbody>
<tr>
<td>BAU</td>
<td>3%</td>
<td>630</td>
</tr>
<tr>
<td>Resource Aware</td>
<td>5%</td>
<td>1,100</td>
</tr>
<tr>
<td>Hot Growth</td>
<td>7%</td>
<td>1,400</td>
</tr>
<tr>
<td>Weak Economy</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
DOES DEVELOPMENT IMPACT WATER SUPPLY? Yes. Some.

- Westminster is largely built out
- Some remaining undeveloped land
- Some lands may be redeveloped at some point
- Most water demand comes from existing customers – not new customers
BASELINE SCENARIO RESULTS

- Land Use Develops Similar to Existing Comprehensive Plan
- Water Conservation Trends Continue at a Similar Rate to Historic
- Climate Change is assumed to have Minimal Impact to Water Supply and Demand in this scenario

Water Supply: 23,400 to 34,500 acre-feet

Water Demand: 16,000 to 23,000 acre-feet
VARIABILITY FROM BASELINE

Variability in water supply with wet or dry weather
Impacts of Land Use Decisions
Impacts of Conservation Trends
FINDINGS

1. Support of conservation practices is the single biggest thing the City can do to support resiliency against drought, climate change, and development trends.

2. Supporting infrastructure will ensure sufficient facilities are available to continue providing reliable water supply.

3. Drought response is important to protect the City from severe drought conditions.

4. Minor changes to land uses beyond the proposed 2040 Comprehensive Plan can be accommodated as long as conservation trends continue.

5. Major changes to proposed land uses can have a negative impact on resiliency and should be considered carefully.
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