Aurora, CO: A Case Study in Land Use Planning, Water Efficiency and Collaboration

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Outline

• History of collaboration
• Water use reduction
• Other benefits realized
History

2003: Significant Landscape Code changes
2007: Water Conservation Management Plan
2009: City of Aurora Comprehensive Plan
2011: Land Use Assessment Model (LUAM)
2014: Integrated Water Master Plan (IWMP)
2015: Water Conservation Management Plan
2015: Population and Employment Allocation Tool (PEAT)
2015: Z-zone Tap Fee Structure and Incentives
2016: Evaluation of new Landscape Code changes
2003 Landscape Code Changes

- Response to 2002 drought
- Pre-2003 code did not address water concerns
- 2003 code limited turf and promoted xeriscape
  - 40-50% turf maximum in front yards
  - 45% turf maximum in back yards
Pre-2003 Lots...
Post-2003 Lots…
Water Consumption Since Drought

Average Annual Gallons per Capita per Day (gpcd)

100 120 140 160 180 200 220 240 260 280 300 320 340 360


GPCD

Population

Aurora Population

100,000 120,000 140,000 160,000 180,000 200,000 220,000 240,000 260,000 280,000 300,000 320,000 340,000 360,000
Z-zone Tap Fee (Irrigation)

- Z-Zone Tap Fee (Irrigation Meters)
  - 3 year establishment period
  - Water allocations based on landscape

<table>
<thead>
<tr>
<th>Revised 2014 Tap Fees</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>High-Water Use (HWU)</td>
<td>$2.75/sf</td>
</tr>
<tr>
<td>Low-Water Use (LWU)</td>
<td>$1.47/sf</td>
</tr>
<tr>
<td>No Water Use (Z-Zone)</td>
<td>$0.00/sf</td>
</tr>
</tbody>
</table>

No supplemental water
**Predicted Water Savings**

<table>
<thead>
<tr>
<th>Zone</th>
<th>Pre-Z-Zone Option</th>
<th>Post-Z-Zone Option</th>
<th>Post-Z-Zone SF</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Water</td>
<td>47%</td>
<td>17.5%</td>
<td>415,305</td>
</tr>
<tr>
<td>Low Water</td>
<td>47%</td>
<td>40.1%</td>
<td>953,744</td>
</tr>
<tr>
<td>No Water</td>
<td>6%</td>
<td>42.4%</td>
<td>1,009,164</td>
</tr>
</tbody>
</table>

Potential Savings = 9,430,638 gallons/year

7 out of 8 developments have opted for Z-zone
Incentives (residential)

• Front Yard xeriscape tap fee credit
  – 100% xeriscape in front yard
  – $1,000 credit

• Estate Lot Variance
  – ¾ acre minimum “developed”
  – Tap fee based on water need and landscape
  – Recovery fee component
It’s already being practiced
Proposed Changes

1. **Reduction of turf requirements**
   1. Disallow turf in streetscapes (arterial, common areas)
   2. Change turf limitations in residential development

2. **Simpler xeriscape requirements**
   1. Turf and xeric options have same standards
   3. Streetscapes considered part of front lawn
   4. Plant quantity requirement standardized
Turf Option Changes

Current
• Turf:
  – Small: 40% - 50%
  – Standard: 30% - 40%
  – Large: 25% - 40%
  – Estate: 25% - 40%
• Shrubs:
  – Small – 8
  – Standard – 16
  – Large – 26
  – Estate – 36
• No hardscape required

Proposed
• Turf:
  – Min: 400 SF
  – Max: 40% or 1,000 SF (all sizes)
• Shrubs:
  – 0.025 / SF
  – SF = (Landscaped Area – Turf Area)
• Hardscape required (to match xeric requirements)
## Water Savings with Turf Adjustments

### Residential Water Savings Potential 2016 - 2020

<table>
<thead>
<tr>
<th>Turf SF</th>
<th>% Turf Reduction</th>
<th>H2O Savings (AF)</th>
<th>% Water Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential FY*:</td>
<td>2,043,208</td>
<td>43%</td>
<td>60</td>
</tr>
</tbody>
</table>

### Non-Residential Water Savings Potential 2016 - 2020

| Arterials**: | 721,057 | 100% | 89 | 45% |

* Front yard turf option: Minimum = 400 square feet, Maximum = 40% of front yard area or 1,000 square feet, whichever comes first
** Streetscapes that are along arterials and commonly owned and maintained by any non-single family residential customers
Standard Lot – Current Turf Requirements
Standard Lot – New Turf Requirements
Away from…
And towards...
Realized Benefits

- Water consumption reduction
- Open collaborative environment
- Streamlined processes
- Easier for developers
  - Pre-application option
  - Fewer misinformed approvals
  - Incentives to reduce costs
  - Promotes smart, more sustainable development
Questions?

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