## Water Use 2013-2017

<table>
<thead>
<tr>
<th>Year</th>
<th>Residential Consumption</th>
<th>Commercial Consumption</th>
<th>Institutional Consumption</th>
<th>Non-Potable</th>
<th>EAWSD</th>
<th>Total Metered Gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>379,313,000</td>
<td>77,445,000</td>
<td>77,891,000</td>
<td>54,429,000</td>
<td>57,325,000</td>
<td>646,403,000</td>
</tr>
<tr>
<td>2014</td>
<td>372,250,000</td>
<td>83,552,000</td>
<td>80,827,000</td>
<td>56,090,000</td>
<td>52,986,000</td>
<td>645,705,000</td>
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<tr>
<td>2015</td>
<td>365,692,000</td>
<td>90,555,000</td>
<td>71,196,000</td>
<td>51,510,000</td>
<td>48,619,000</td>
<td>627,572,000</td>
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<tr>
<td>2016</td>
<td>373,016,000</td>
<td>85,234,000</td>
<td>69,504,000</td>
<td>44,761,000</td>
<td>48,608,000</td>
<td>621,123,000</td>
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<tr>
<td>2017</td>
<td>362,950,000</td>
<td>115,915,000</td>
<td>26,530,000</td>
<td>41,553,000</td>
<td>45,609,000</td>
<td>592,557,000</td>
</tr>
</tbody>
</table>
What is Driving the Trends in Water Use?

- Annual Rate Increases
  - New Rates In Effect 2012, 2017
- Annual Precipitation
- Conservation Efforts and Education
- Updates in Construction Standards & Water Efficient Fixtures
## Baseline Residential Data

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual Precip (in)*</th>
<th>Residential Consumption</th>
<th>Population**</th>
<th>Residential Usage (gal/days/pop**)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>10.18</td>
<td>379,313,000</td>
<td>9,021</td>
<td>115.2</td>
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<tr>
<td>2014</td>
<td>5.54</td>
<td>372,250,000</td>
<td>9,094</td>
<td>112.1</td>
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<tr>
<td>2015</td>
<td>9.42</td>
<td>365,692,000</td>
<td>9,195</td>
<td>109.0</td>
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<td>2016</td>
<td>9.17</td>
<td>373,016,000</td>
<td>9,343</td>
<td>109.7</td>
</tr>
<tr>
<td>2017</td>
<td>10.69</td>
<td>362,950,000</td>
<td>9,435</td>
<td>105.4</td>
</tr>
</tbody>
</table>

Consumption Data via Alamosa Finance Department
* - Precipitation via NOAA Annual Climate Summary
** - Population Data via Colorado State Demographer's Office
Rate Increases

Daily Per Capita Water Use vs. Rate Increase

- Residential Usage (gal/days/pop**)
  - Rate for First 8000 gallons
    - $1.00
    - $1.50
    - $2.00
    - $2.50
    - $3.00
    - $3.50
    - $4.00
    - $4.50

- Rate for 8,001-50,000 Gallons
  - $2.00
  - $2.50
  - $3.00
  - $3.50
  - $4.00

- Rate for 50,000-100,000 Gallons
  - $3.00
  - $3.50
  - $4.00
  - $4.50

- New Tier 42,000-50,000 Gallons

** - Population Data via Colorado State Demographer's Office
Precipitation

Daily Per Capita Water Use vs. Annual Precipitation

- Residential Usage (gal/days/pop**)
- Annual Precip (in)*

$r = -0.32219$

* - Precipitation via NOAA Annual Climate Summary

** - Population Data via Colorado State Demographer's Office
What About Institutions?

Average Annual Consumption Per Institution vs. Rates

- Average Annual Consumption Per Institution
- Rate for First 8,000 gallons: $1.00, $1.50, $2.00, $2.50, $3.00, $3.50, $4.00, $4.50, $5.00
- Rate for 8,001-50,000 Gallons: $1.00, $1.50, $2.00, $2.50, $3.00, $3.50, $4.00, $4.50, $5.00
- Rate for 50,000-100,000 Gallons: $1.00, $1.50, $2.00, $2.50, $3.00, $3.50, $4.00, $4.50, $5.00
- New Tier 42,000-50,000 Gallons


Gallons: 12,000,000, 13,000,000, 14,000,000, 15,000,000, 16,000,000, 17,000,000, 18,000,000, 19,000,000

Correlation coefficients:
- $r = -0.90287$
- $r = -0.83562$
- $r = -0.81676$
- $r = -0.81676$


What About Institutions?

Average Annual Consumption Per Institution vs. Annual Precipitation

Year
2013 2014 2015 2016 2017

Average Annual Consumption Per Institution

Annual Precip (in)*

r = -0.69421

* - Precipitation via NOAA Annual Climate Summary
Voluntary Conservation

[Graph showing water usage categories: Residential, Commercial, Institutional, EAWSD]
Voluntary Conservation

- Res. 9-2018 institutes voluntary watering restrictions (18 May)

- From May-July 2018 vs. May-July 2017
  - Rainfall 1.81” vs. 4.95”
  - Total water consumption up 5.6%
  - Institutional use up 14.6%
  - Commercial use up 2.3%
  - Residential use DOWN 31.3%
    - Some of this is due to the rate increase
    - Could change with next billing cycle
Conclusions

- Rate increase is a strong determiner of reduction of domestic water consumption  
  \((-0.92524 = \text{Very Strong Correlation})\)
- Annual precipitation not as much of a driving factor for domestic consumption as some may think \((r = -0.32219 = \text{Weak Correlation})\)
- Voluntary watering restrictions appear to be working to some degree
  - Unable to determine Correlation due to multiple factors: rate increase vs voluntary conservation, inadequate data, etc.
- Conservation efforts and education, updates in construction standards & water efficient fixtures also help, but difficult to quantify impact
- Results not necessarily the same for Commercial & Institutional consumptions