Statewide Water Infrastructure Plan
Statewide Water Infrastructure Plan

Prepared by:
Utah Division of Water Resources
Central Utah Water Conservancy District
Jordan Valley Water Conservancy District
Washington County Water Conservancy District
Weber Basin Water Conservancy District
Bear River Water Conservancy District
Bear River Association of Governments
Cache County Water Department

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Explanation of the Document

In 2013, Governor Herbert met with water managers to discuss logistics of supplying water to the six million people who are projected to live in Utah by 2060. The Governor was interested in quantifying the state’s future water needs and infrastructure requirements so as to not have economic viability impeded by water scarcity. He requested a "road map" of Utah’s municipal water supply and infrastructure needs in order to properly plan a path on which the water needs of our increasing population will be met. After hundreds of hours of research, the Utah Division of Water Resources and the major Water Conservancy Districts compiled this Statewide Water Infrastructure Plan. The first iteration of the document was delivered to Governor Herbert in October 2013.

This effort is considering only municipal and industrial water needs for Utah. It includes estimated infrastructure needs projections for all levels of agencies, including those of cities, counties, districts, and the state. Other water-related needs such as storm and waste water infrastructure and agricultural demands are not quantified in this analysis.

The contributing agencies intend for this to be a dynamic document that is updated periodically as new data is available. Planning, budget, and audit information initially gathered will change, and updated versions will follow.

In order to keep the information as succinct as possible, the document geographically separates the state into major river basins and offers information on one page per basin. Projected values for population, water conservation, per capita use, annual water demand, new supply infrastructure costs, and repair and replacement costs are included for each basin.
Origin of Data

A technical work group was assembled to prepare cost estimates for future water supply projects and repair/replacement projects for each river basin. The Utah Division of Water Resources (DWRe) prepared population projections for each of the river basin planning areas based on data from the Governor’s Office of Management and Budget – 2012 Baseline Report. DWRe also prepared water consumption rate (gallons per capita per day) projections for each river basin assuming that conservation goals will be achieved. The entities that developed the cost estimates for the respective river basins are listed below:

<table>
<thead>
<tr>
<th>River Basin</th>
<th>Entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bear River Basin</td>
<td>Bear River Water Conservancy District, Bear River Association of Governments, and Cache County Water Department</td>
</tr>
<tr>
<td>Cedar/Beaver Basin</td>
<td>DWRe</td>
</tr>
<tr>
<td>Jordan River Basin</td>
<td>Jordan Valley Water Conservancy District</td>
</tr>
<tr>
<td>Kanab Creek/Virgin River Basin</td>
<td>Washington County Water Conservancy District</td>
</tr>
<tr>
<td>Sevier River Basin</td>
<td>Central Utah Water Conservancy District</td>
</tr>
<tr>
<td>Southeast Colorado River Basin</td>
<td>DWRe</td>
</tr>
<tr>
<td>Uintah Basin</td>
<td>Duchesne County Water Conservancy District, Uintah County Water Conservancy District, and Central Utah Water Conservancy District</td>
</tr>
<tr>
<td>Utah Lake Basin</td>
<td>Central Utah Water Conservancy District</td>
</tr>
<tr>
<td>Weber River Basin</td>
<td>Weber Basin Water Conservancy District</td>
</tr>
<tr>
<td>West Colorado River Basin</td>
<td>DWRe</td>
</tr>
<tr>
<td>West Desert Basin</td>
<td>DWRe</td>
</tr>
</tbody>
</table>

DWRe had previously compiled a list of future water supply, waste water, and storm water projects referred to as the “$20 Billion list.” Projects identified on the list were submitted in response to survey requests over the last several years by Division of Water Quality, Division of Drinking Water, and DWRe. The surveys were voluntary, and many water supply agencies did not submit any response to the survey so the “$20 Billion list” served only as one of several sources of information. The availability of reliable data upon which to base the cost estimates varied for each river basin, so it was not possible for the technical group to use a completely uniform method for every river basin. A general summary of the methods used is described in the paragraphs below, and the individual river basin summary sheets also contain some additional explanatory notes.

With respect to repair and replacement project costs, representatives of the technical group contacted some of the major water suppliers in their respective river basins to request any master plan information that could be used to develop the estimates. In some cases, master plan information that was available was extrapolated to estimate the needs of the entire river basin. In other cases, information on the financial “book value” of water system infrastructure was gleaned from city and water district comprehensive financial reports published on the Utah State Auditor’s website. A percentage of the book value (usually 2%-4%) was calculated to represent the annual repair and replacement cost that would be needed to keep the infrastructure in functional condition.

With respect to new water supply project costs, previously-developed estimates for large projects with a defined scope and yield were used for the applicable river basins. However, large new supply projects that have defined scopes and target yields made up only a portion of the gap between the new demands and available supplies. Cost estimates for other, yet to be defined new water supply projects were generally based on an approximate cost of $10,000/acre-foot for new supply development projects or by extrapolating limited master plan information.

*Central Utah Water Conservancy District has recently developed the first phase of a major new regional water supply project. The total cost of that project including acquisition of water rights, groundwater development, and surface water treatment features is approximately $10,000/acre-foot.
Statewide Water Infrastructure Plan

To prepare for substantial population growth, several state and municipal water entities prepared a 50-year (2010-2060) plan for all municipal and industrial water in Utah.

The statewide plan, organized by river basin (at left), lists projected per capita water use, conservation achievements and new water development projects for each decade.

Actions needed for each basin include:

• Water conservation
• Repair and replacement of aging infrastructure
• Agricultural water transfers and water reuse
• Development of new infrastructure and water supplies, both local and regional

Estimated Statewide Costs:

$33 Billion

$18 Billion - Repair and replacement of aging infrastructure

$15 Billion - New infrastructure and supplies
Cost Summary

Below is a summary of anticipated costs, by river basin, for this report. The remainder of this report provides detailed cost breakdowns for each river basin.
### Bear River Basin Water Plan

<table>
<thead>
<tr>
<th>Decade</th>
<th>Population (ending)</th>
<th>Conservation Goal</th>
<th>Per Capita Use (GPCD)</th>
<th>M&amp;I Water Use (AF/yr)</th>
<th>Additional Water Demand (AF/yr)</th>
<th>Projected Water Project Costs (millions)</th>
<th>Actions Needed (by)</th>
</tr>
</thead>
</table>
| 2011-2020  | 188,330             | 18%               | 55 | 168 | 242 | 10,000 | 35,000 | 51,000 | 1,000 | $85.1 | $96.8 | • Repair and Replacement (cities, counties)  
• Growth-Related Infrastructure (cities)  
• Groundwater Development/Aquifer Storage and Recovery  
• Water Rights, Stock Acquisitions & Agricultural Water Conversion  
• Conservation & Watershed Protection (cities)  
• New reservoir (ACME Water Company)  
• Mantua Reservoir Capacity Study (Brigham City)  
• Perry City Water System  
• Water System Expansion (South Willard) |
| 2021-2030  | 222,380             | 25%               | 53 | 154 | 222 | 15,000 | 38,000 | 55,000 | 4,000 | $138.8 | $50.8 | • Repair and Replacement (cities, counties)  
• Growth-Related Infrastructure (cities)  
• Groundwater Development/Aquifer Storage and Recovery  
• Water Rights, Stock Acquisitions & Agricultural Water Conversion  
• Water Rights, Stock Acquisitions & Agricultural Water Conversion  
• Conservation & Watershed Protection (cities)  
• Bear River Project-Preconstruction & Option Preservation  
• Collinston Project Phases 1-4 (BRWCD)  
• Marble Hills Pipeline (BRWCD)  
• RDA Project Water Supply Pipeline Phases 1-2 (BRWCD)  
• Harper Ward, S. Willard and Bothwell System Improvement (BRWCD) |
| 2031-2040  | 256,370             | 25%               | 53 | 154 | 222 | 15,000 | 44,000 | 63,000 | 8,000 | $145.6 | $89.3 | • Repair and Replacement (cities, counties)  
• Growth-Related Infrastructure (cities)  
• Groundwater Development/Aquifer Storage and Recovery  
• Water Rights, Stock Acquisitions & Agricultural Water Conversion  
• Conservation & Watershed Protection (cities)  
• Conservation & Watershed Protection (cities)  
• Bear River Project  |
| 2041-2050  | 298,410             | 25%               | 53 | 154 | 222 | 18,000 | 51,000 | 74,000 | 11,000 | $81.3 | $83.8 | • Repair and Replacement (cities, counties)  
• Growth-Related Infrastructure (cities)  
• Groundwater Development/Aquifer Storage and Recovery  
• Water Rights, Stock Acquisitions & Agricultural Water Conversion  
• Conservation & Watershed Protection (cities)  
• Conservation & Watershed Protection (cities)  
• Bear River Project  |
| 2051-2060  | 346,660             | 25%               | 53 | 154 | 222 | 20,000 | 60,000 | 86,000 | 12,000 | $83.4 | $97.7 | • Repair and Replacement (cities, counties)  
• Growth-Related Infrastructure (cities)  
• Groundwater Development/Aquifer Storage and Recovery  
• Water Rights, Stock Acquisitions & Agricultural Water Conversion  
• Conservation & Watershed Protection (cities)  
• Conservation & Watershed Protection (cities)  
• Bear River Project  |

**Notes:**
1) Population ending data from Governor’s Office of Management and Budget  
2) Percentage reduction from 2000 per capita use, at end of decade, per state goal of 25% by 2025  
3) Gallons per capita per day calculated by DWRe; first number is residential indoor use; second number is residential indoor and outdoor use for secondary; third number is residential indoor and outdoor plus commercial, industrial, and institutional (C&I)  
4) The aggregate water supply needed in addition to previous decade to meet demands of the decade for the basin as a whole; conditions may exist where shortages in one area of the basin cannot be met by the surpluses in another  
5) Box Elder County costs were derived from financial statements available through the Utah State Auditor’s website and growth projections from the Utah Governor’s Office of Management and Budget. Projected water project costs for Cache and Rich counties were based on averaged per capita figures derived from existing community data in each county; respectively  
6) In 2021 dollars  
7) 2000 is the baseline year; 2000 and 2010 data are current approximations for those decades; 2011-2060 data is projected
## Cedar/Beaver Basin Water Plan

<table>
<thead>
<tr>
<th>Decade</th>
<th>Population (ending)</th>
<th>Conservation Goal</th>
<th>Per Capita Use (GPCD)</th>
<th>M&amp;I Water Use (AF/yr)</th>
<th>Additional Water Demand (AF/yr)</th>
<th>Projected Water Project Costs (millions $)</th>
<th>Actions Needed (by)</th>
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<tr>
<td>2000’</td>
<td>26,540</td>
<td>0%</td>
<td>71</td>
<td>283</td>
<td>404</td>
<td>2,000</td>
<td>8,000</td>
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<tr>
<td>2001-2010</td>
<td>50,130</td>
<td>29%</td>
<td>58</td>
<td>200</td>
<td>285</td>
<td>3,000</td>
<td>11,000</td>
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<tr>
<td>2011-2020</td>
<td>61,914</td>
<td>31%</td>
<td>55</td>
<td>197</td>
<td>274</td>
<td>4,000</td>
<td>14,000</td>
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<tr>
<td>2021-2030</td>
<td>77,746</td>
<td>32%</td>
<td>53</td>
<td>194</td>
<td>276</td>
<td>5,000</td>
<td>17,000</td>
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<tr>
<td>2031-2040</td>
<td>94,261</td>
<td>33%</td>
<td>53</td>
<td>190</td>
<td>265</td>
<td>6,000</td>
<td>20,000</td>
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<tr>
<td>2041-2050</td>
<td>113,959</td>
<td>34%</td>
<td>53</td>
<td>187</td>
<td>266</td>
<td>7,000</td>
<td>24,000</td>
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</tr>
<tr>
<td>2051-2060</td>
<td>137,721</td>
<td>35%</td>
<td>53</td>
<td>184</td>
<td>260</td>
<td>8,000</td>
<td>28,000</td>
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</tr>
</tbody>
</table>

### Notes:

1) Population ending data from Governor’s Office of Management and Budget
2) Percentage reduction from 2000 per capita use, at end of decade, per state goal of 25% by 2025
3) Gallons per capita per day calculated by DWRe; first number is residential indoor use; second number is residential indoor and outdoor use (inc secondary); third number is residential indoor and outdoor plus commercial, industrial, and institutional (C&I)
4) The aggregate water supply needed in addition to previous decade to meet demands of the decade for the basin as a whole; conditions may exist where shortages in one area of the basin cannot be met by the surpluses in another basin
5) From list compiled by UDWR, State Auditor reports, 2011-2020 are numbers based on city/county data; funding increased by same percentage as population growth after 2020
6) In 2013 dollars
7) 2000 is the baseline year; 2001 and 2010 data are current approximations for those decades; 2011-2060 data is projected

### Budget:

| 24,000 | $611.7 | $83.6 |

| Cedar City Water System Master Plan

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#### West Desert Basin

- Bear River Basin
- Weber River Basin
- Jordan River Basin
- Utah Lake Basin
- Uintah Basin
- East Colorado River Basin
- Southeast Colorado River Basin
- Cedar/Beaver Basin
- Sevier River Basin
- Kanab Creek/Virgin River Basin
- Salt Lake City
- Brigham City
- Ogden
- Provo
- Price
- Vernal
- Moab
- St. George
- Kanab
- Blanding
- Utah River Basins

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#### Map of Utah River Basins
## Jordan River Basin Water Plan

<table>
<thead>
<tr>
<th>Decade</th>
<th>Population (ending)</th>
<th>Conservation Goal</th>
<th>Per Capita Use (GPCD)</th>
<th>M&amp;I Water Use (AF/yr)</th>
<th>Additional Water Demand (AF/yr)</th>
<th>Projected Water Project Costs (millions $)</th>
<th>Actions Needed (by)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000'</td>
<td>879,850</td>
<td>0%</td>
<td>70</td>
<td>183</td>
<td>264</td>
<td>69,000</td>
<td>180,000</td>
</tr>
<tr>
<td>2001-2010</td>
<td>1,031,130</td>
<td>18%</td>
<td>62</td>
<td>150</td>
<td>216</td>
<td>72,000</td>
<td>173,000</td>
</tr>
<tr>
<td>2011-2020</td>
<td>1,182,809</td>
<td>23%</td>
<td>56</td>
<td>142</td>
<td>203</td>
<td>74,000</td>
<td>188,000</td>
</tr>
<tr>
<td>2021-2030</td>
<td>1,343,329</td>
<td>25%</td>
<td>53</td>
<td>138</td>
<td>197</td>
<td>80,000</td>
<td>208,000</td>
</tr>
<tr>
<td>2031-2040</td>
<td>1,511,049</td>
<td>25%</td>
<td>53</td>
<td>138</td>
<td>197</td>
<td>90,000</td>
<td>234,000</td>
</tr>
<tr>
<td>2041-2050</td>
<td>1,663,245</td>
<td>25%</td>
<td>53</td>
<td>138</td>
<td>197</td>
<td>99,000</td>
<td>257,000</td>
</tr>
<tr>
<td>2051-2060</td>
<td>1,817,143</td>
<td>25%</td>
<td>53</td>
<td>138</td>
<td>197</td>
<td>108,000</td>
<td>281,000</td>
</tr>
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<td></td>
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</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$2,892.0</strong></td>
<td><strong>$5,792.5</strong></td>
</tr>
</tbody>
</table>

1) Population ending data from Governor’s Office of Management and Budget
2) Percentage reduction from 2000 per capita use, at end of decade, per state goal of 25% by 2025
3) Gallons per capita per day calculated by DWRe; first number is residential indoor use; second number is residential indoor and outdoor use (inc secondary); third number is residential indoor and outdoor plus commercial, industrial, and institutional (C&I)
4) The aggregate water supply needed in addition to previous decade to meet demands of the decade for the basin as a whole; conditions may exist where shortages in one area of the basin cannot be met by the surpluses in another basin
5) Estimated from a several sources including Capital Plans of JWVCD, MWDSLS, SLC, water infrastructure asset value noted in Financial Reports submitted to the State Auditor, and DWRe Bear River estimates. Costs include conservation capital projects through 2025, after which the conservation goal is assumed to be achieved. Ongoing conservation O&M costs (and all other O&M costs) are excluded from cost estimates.
6) In 2013 dollars
7) 2000 is the baseline year; 2000 and 2010 data are current approximations for those decades; 2011-2060 data is projected
## Kanab Creek/Virgin River Basin Water Plan

<table>
<thead>
<tr>
<th>Decade</th>
<th>Population (ending)</th>
<th>Conservation Goal</th>
<th>Per Capita Use (GPCD)</th>
<th>M&amp;I Water Use (AF/yr)</th>
<th>Additional Water Demand (AF/yr)</th>
<th>Projected Water Project Costs (millions)</th>
<th>Actions Needed (by)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000’</td>
<td>85,540</td>
<td>0%</td>
<td>73</td>
<td>219</td>
<td>449</td>
<td>7,000</td>
<td>21,000</td>
</tr>
<tr>
<td>2001-2010</td>
<td>146,060</td>
<td>26%</td>
<td>63</td>
<td>161</td>
<td>330</td>
<td>10,000</td>
<td>26,000</td>
</tr>
<tr>
<td>2011-2020</td>
<td>206,208</td>
<td>28%</td>
<td>58</td>
<td>157</td>
<td>320</td>
<td>13,000</td>
<td>36,000</td>
</tr>
<tr>
<td>2021-2030</td>
<td>292,284</td>
<td>30%</td>
<td>55</td>
<td>153</td>
<td>312</td>
<td>18,000</td>
<td>50,000</td>
</tr>
<tr>
<td>2031-2040</td>
<td>386,220</td>
<td>32%</td>
<td>55</td>
<td>150</td>
<td>305</td>
<td>24,000</td>
<td>65,000</td>
</tr>
<tr>
<td>2041-2050</td>
<td>490,223</td>
<td>33%</td>
<td>55</td>
<td>146</td>
<td>299</td>
<td>30,000</td>
<td>80,000</td>
</tr>
<tr>
<td>2051-2060</td>
<td>603,176</td>
<td>35%</td>
<td>55</td>
<td>142</td>
<td>292</td>
<td>37,000</td>
<td>96,000</td>
</tr>
</tbody>
</table>

1) Population ending data from Governor’s Office of Management and Budget
2) Percentage reduction from 2000 per capita use, at end of decade, per state goal of 25% by 2025
3) Gallons per capita per day calculated by DWRe; first number is residential indoor use; second number is residential indoor and outdoor use (inc secondary); third number is residential indoor and outdoor plus commercial, industrial, and institutional (CI&I)
4) The aggregate water supply needed in addition to previous decade to meet demands of the decade for the basin as a whole; conditions may exist where shortages in one area of the basin cannot be met by the surpluses in another
5) Capital costs are projected using average unit costs of cities and districts. Transmission and storage is estimated at $1,500 per ERU; treatment plant at $2.6 per gpd; source development at $10,700 per AF/yr; and conservation at $4,600 per AF. The total community cost of conservation is estimated using data from a 2010 Maddaus study. Repair and replacement costs are based on 2% of current asset value (auditor reports) and anticipated capital projects of cities and districts. Assets with an expected life greater than 50 yrs are excluded from repair and replacement.
6) In 2003 dollars
7) 2000 is the baseline year; 2000 and 2010 data are current approximations for those decades; 2011-2060 data is projected
## Sevier River Basin Water Plan

<table>
<thead>
<tr>
<th>Decade (ending)</th>
<th>Population (ending)</th>
<th>Conservation Goal</th>
<th>Per Capita Use (GPCD)</th>
<th>M&amp;I Water Use (AF/yr)</th>
<th>Additional Water Demand (AF/yr)</th>
<th>Projected Water Project Costs (millions $)</th>
<th>Actions Needed (by)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>47,820</td>
<td>0%</td>
<td>72</td>
<td>258</td>
<td>392</td>
<td>4,000</td>
<td>14,000</td>
</tr>
<tr>
<td>2000-2010</td>
<td>57,790</td>
<td>25%</td>
<td>62</td>
<td>193</td>
<td>294</td>
<td>4,000</td>
<td>12,000</td>
</tr>
</tbody>
</table>
| 2001-2010       | 63,738              | 25%              | 57 | 193 | 280 | 4,000 | 14,000 | 20,000 | 1,000 | $85.0 | $52.8 | • Repair and Replacement (cities)  
• Growth-Related Infrastructure (cities)  
• Conservation & Watershed Protection (cities)  
• Water Rights, Stock Acquisitions & Agricultural Water Conversion (cities) |
| 2011-2020       | 70,263              | 25%              | 54 | 194 | 292 | 4,000 | 15,000 | 23,000 | 3,000 | $123.7 | $77.5 | • Repair and Replacement (cities)  
• Growth-Related Infrastructure (cities)  
• Conservation & Watershed Protection (cities)  
• Water Rights, Stock Acquisitions & Agricultural Water Conversion (cities) |
| 2021-2030       | 75,406              | 25%              | 54 | 194 | 284 | 5,000 | 16,000 | 24,000 | 1,000 | $110.6 | $99.7 | • Repair and Replacement (cities)  
• Growth-Related Infrastructure (cities)  
• Conservation & Watershed Protection (cities)  
• Water Rights, Stock Acquisitions & Agricultural Water Conversion (cities) |
| 2031-2040       | 81,177              | 25%              | 54 | 194 | 286 | 5,000 | 18,000 | 26,000 | 2,000 | $128.3 | $125.3 | • Repair and Replacement (cities)  
• Growth-Related Infrastructure (cities)  
• Conservation & Watershed Protection (cities)  
• Water Rights, Stock Acquisitions & Agricultural Water Conversion (cities) |
| 2041-2050       | 84,193              | 25%              | 54 | 194 | 284 | 6,000 | 20,000 | 29,000 | 3,000 | $151.4 | $155.6 | • Repair and Replacement (cities)  
• Growth-Related Infrastructure (cities)  
• Conservation & Watershed Protection (cities)  
• Water Rights, Stock Acquisitions & Agricultural Water Conversion (cities) |

### Notes
- **Population ending data from Governor’s Office of Management and Budget**
- **Conservation Goal**
  - 0% indicates no reduction from 2000 per capita use, at end of decade, per state goal of 25% by 2025
  - Goal is residential indoor use; second number is residential indoor and outdoor use, and third number is residential indoor and outdoor plus commercial, industrial, and institutional (C&I)
  - Aggregate water supply needed in addition to previous decade to meet demands of the decade for the basin as a whole; conditions may exist where shortages in one area of the basin cannot be met by the surpluses in another
- **Per Capita Use (GPCD)** calculated by DWRe; first number is residential indoor use; second number is residential indoor and outdoor use (inc secondary); third number is residential indoor and outdoor plus commercial, industrial, and institutional (C&I)
- **M&I Water Use (AF/yr)** calculated by DWRe; first number is residential indoor use; second number is residential indoor and outdoor use, and third number is residential indoor and outdoor plus commercial, industrial, and institutional (C&I)
- **Additional Water Demand (AF/yr)** calculated by DWRe; first number is residential indoor use; second number is residential indoor and outdoor use, and third number is residential indoor and outdoor plus commercial, industrial, and institutional (C&I)
- **Projected Water Project Costs (millions $)**
  - 2011-2020 are numbers based on city/county data; funding increased by same percentage as population growth after 2020 and funding increased by $10,000 per AF after 2020, based on costs associated with building CWP
  - In 2010 dollars
- **2000 is the baseline year; 2000 and 2010 data are current approximations for those decades; 2011-2060 data is projected**
## Southeast Colorado River Basin Water Plan

<table>
<thead>
<tr>
<th>Decade</th>
<th>Population (ending)</th>
<th>Conservation Goal</th>
<th>Per Capita Use (GPCD)</th>
<th>M&amp;I Water Use (AF/yr)</th>
<th>Additional Water Demand (AF/yr)</th>
<th>Projected Water Project Costs (millions $)</th>
<th>Supply &amp; Infrastructure</th>
<th>Repair &amp; Replacement</th>
<th>Actions Needed (by)</th>
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</thead>
<tbody>
<tr>
<td>2000'</td>
<td>16,470</td>
<td>0%</td>
<td>72 [188</td>
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<td>6,000</td>
<td>—</td>
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</tr>
<tr>
<td>2001-2010</td>
<td>17,710</td>
<td>0%</td>
<td>62 [204</td>
<td>353]</td>
<td>1,000</td>
<td>4,000</td>
<td>7,000</td>
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<td>—</td>
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<tr>
<td>2011-2020</td>
<td>19,435</td>
<td>14%</td>
<td>56 [162</td>
<td>276]</td>
<td>1,000</td>
<td>4,000</td>
<td>6,000</td>
<td>—</td>
<td>$7.0</td>
</tr>
<tr>
<td>2021-2030</td>
<td>20,575</td>
<td>25%</td>
<td>54 [141</td>
<td>217]</td>
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<td>3,000</td>
<td>5,000</td>
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<td>2031-2040</td>
<td>21,509</td>
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<td>54 [141</td>
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<td>3,000</td>
<td>5,000</td>
<td>—</td>
<td>$1.1</td>
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<tr>
<td>2041-2050</td>
<td>22,971</td>
<td>25%</td>
<td>54 [141</td>
<td>233]</td>
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<td>$10.1</td>
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<tr>
<td>2051-2060</td>
<td>25,349</td>
<td>25%</td>
<td>54 [141</td>
<td>211]</td>
<td>2,000</td>
<td>4,000</td>
<td>6,000</td>
<td>—</td>
<td>$1.0</td>
</tr>
</tbody>
</table>

1) Population ending data from Governor’s Office of Management and Budget
2) Percentage reduction from 2000 per capita use, at end of decade, per state goal of 25% by 2025
3) Gallons per capita per day calculated by DWRe; first number is residential indoor use; second number is residential indoor and outdoor use (inc secondary); third number is residential indoor and outdoor plus commercial, industrial, and institutional (CI&I)
4) The aggregate water supply needed in addition to previous decade to meet demands of the decade for the basin as a whole; conditions may exist where shortages in one area of the basin cannot be met by the surpluses in another
5) From list compiled by DWRe, State Auditor reports. 2011-2020 are numbers based on city/county data; funding increased by same percentage as population growth after 2020. Entities within the basin had no conservation costs data available and/or budgeted.
6) In 2013 dollars
7) 2000 is the baseline year; 2000 and 2010 data are current approximations for those decades; 2011-2060 data is projected
## Uintah Basin Water Plan

<table>
<thead>
<tr>
<th>Decade</th>
<th>Population (ending)</th>
<th>Conservation Goal</th>
<th>Per Capita Use (GPCD)</th>
<th>M&amp;I Water Use (AF/yr)</th>
<th>Additional Water Demand (AF/yr)</th>
<th>Projected Water Project Costs (millions $)</th>
<th>Actions Needed (by)</th>
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<tbody>
<tr>
<td>2000</td>
<td>35,780</td>
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<td>2001-2010</td>
<td>49,890</td>
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<td>61</td>
<td>187</td>
<td>304</td>
<td>3,000</td>
<td>10,000</td>
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<tr>
<td>2011-2020</td>
<td>60,332</td>
<td>19%</td>
<td>56</td>
<td>162</td>
<td>252</td>
<td>4,000</td>
<td>11,000</td>
</tr>
<tr>
<td>2021-2030</td>
<td>64,178</td>
<td>25%</td>
<td>53</td>
<td>149</td>
<td>236</td>
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<td>2031-2040</td>
<td>66,571</td>
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<td>53</td>
<td>149</td>
<td>241</td>
<td>4,000</td>
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<tr>
<td>2041-2050</td>
<td>71,498</td>
<td>25%</td>
<td>53</td>
<td>149</td>
<td>237</td>
<td>4,000</td>
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<tr>
<td>2051-2060</td>
<td>77,417</td>
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<td>53</td>
<td>149</td>
<td>242</td>
<td>5,000</td>
<td>13,000</td>
</tr>
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</table>

### Notes:
1) Population ending data from Governor’s Office of Management and Budget
2) Percentage reduction from 2000 per capita use, at end of decade, per state goal of 25% by 2025
3) Gallons per capita per day calculated by DWRe; first number is residential indoor use; second number is residential indoor and outdoor use (inc secondary); third number is residential indoor and outdoor plus commercial, industrial, and institutional (C&I)
4) The aggregate water supply needed in addition to previous decade to meet demands of the decade for the basin as a whole; conditions may exist where shortages in one area of the basin cannot be met by the surpluses in another
5) From list compiled by DWRe and State Auditor reports. 2011-2020 are numbers based on city/county data; funding increased by same percentage as population growth after 2020 and funding increased by $10,000 per AF after 2020, based on costs associated with building CWP
6) In 2013 dollars
7) 2000 is the baseline year; 2000 and 2010 data are current approximations for those decades; 2011-2060 data is projected
<table>
<thead>
<tr>
<th>Decade (ending)</th>
<th>Population (ending)</th>
<th>Conservation Goal</th>
<th>Per Capita Use (GPCD)</th>
<th>M&amp;I Water Use (AF/yr)</th>
<th>Additional Water Demand (AF/yr)</th>
<th>Projected Water Project Costs (millions)</th>
<th>Actions Needed (by)</th>
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</thead>
<tbody>
<tr>
<td>2000’</td>
<td>354,000</td>
<td>0%</td>
<td>68</td>
<td>185</td>
<td>275</td>
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<tr>
<td></td>
<td></td>
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<td>27,000</td>
<td>73,000</td>
<td>109,000</td>
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<tr>
<td>2001-2010</td>
<td>544,910</td>
<td>20%</td>
<td>56</td>
<td>148</td>
<td>220</td>
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<td></td>
<td></td>
<td></td>
<td>34,000</td>
<td>90,000</td>
<td>134,000</td>
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<tr>
<td>2011-2020</td>
<td>707,784</td>
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<td>53</td>
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<td></td>
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<td>42,000</td>
<td>113,000</td>
<td>166,000</td>
<td>31,700</td>
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<td>2021-2030</td>
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<td>25%</td>
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<td>51,000</td>
<td>138,000</td>
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<tr>
<td>2031-2040</td>
<td>1,087,931</td>
<td>25%</td>
<td>51</td>
<td>139</td>
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<td></td>
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<td>62,000</td>
<td>169,000</td>
<td>251,000</td>
<td>47,000</td>
<td>$383.8</td>
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<tr>
<td>2041-2050</td>
<td>1,303,253</td>
<td>25%</td>
<td>51</td>
<td>139</td>
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<td>74,000</td>
<td>203,000</td>
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<td>2051-2060</td>
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<td>25%</td>
<td>51</td>
<td>139</td>
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<td>86,000</td>
<td>235,000</td>
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</tbody>
</table>

| 214,000         | $2,434.2 | $5,195.8 |

1) Population ending data from Governor’s Office of Management and Budget
2) Percentage reduction from 2000 per capita use, at end of decade, per state goal of 25% by 2025
3) Gallons per capita per day calculated by DWRe; first number is residential indoor use; second number is residential indoor and outdoor use (inc secondary); third number is residential indoor and outdoor plus commercial, industrial, and institutional (C&I)
4) The aggregate water supply needed in addition to previous decade to meet demands of the decade for the basin as a whole; conditions may exist where shortages in one area of the basin cannot be met by the surpluses in another
5) From list compiled by DWRe, CUWCD Capital Plan, and State Auditor reports. 2011-2020 are numbers based on city/county data; funding increased by $30,000 per AF after 2020, based on costs associated with building CWP. When projects bring new supply to the system then that supply is subtracted from the “Additional Water Demand” column to get the amount multiplied by $30,000 per AF; i.e., in 2041 decade 80,000 AF is needed, but CWP adds 6,302 AF, leaving 73,688 AF. This is multiplied by $30,000 per AF to get $417 million.
6) In 2013 dollars
7) 2000 is the baseline year; 2000 and 2010 data are current approximations for those decades; 2011-2060 data is projected
## Weber River Basin Water Plan

<table>
<thead>
<tr>
<th>Decade</th>
<th>Population (ending)</th>
<th>Conservation Goal</th>
<th>Per Capita Use (GPCD)</th>
<th>M&amp;I Water Use (AF/yr)</th>
<th>Additional Water Demand (AF/yr)</th>
<th>Projected Water Project Costs (millions $)</th>
<th>Actions Needed (by)</th>
</tr>
</thead>
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<tr>
<td>2000'</td>
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<td>0%</td>
<td>68</td>
<td>231</td>
<td>330</td>
<td>29,000</td>
<td>100,000</td>
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<tr>
<td></td>
<td>2001-2010</td>
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<tr>
<td>2011-2020</td>
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<td>174</td>
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<tr>
<td>2021-2030</td>
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<td>51</td>
<td>173</td>
<td>247</td>
<td>43,000</td>
<td>147,000</td>
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<tr>
<td>2031-2040</td>
<td>858,305</td>
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<td>173</td>
<td>247</td>
<td>49,000</td>
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<tr>
<td>2041-2050</td>
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<td>173</td>
<td>247</td>
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<td>187,000</td>
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<td>2051-2060</td>
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<td>51</td>
<td>173</td>
<td>247</td>
<td>61,000</td>
<td>208,000</td>
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</tbody>
</table>

**Notes:**

1) Population ending data from Governor’s Office of Management and Budget
2) Percentage reduction from 2000 per capita use, at end of decade, per state goal of 25% by 2025
3) Gallons per capita per day calculated by DWRe; first number is residential indoor use; second number is residential indoor and outdoor use (incl secondary); third number is residential indoor and outdoor plus commercial, industrial, and institutional (C&I)
4) The aggregate water supply needed in addition to previous decade to meet demands of the decade for the basin as a whole; conditions may exist where shortages in one area of the basin cannot be met by the surpluses in another
5) From list compiled by DWRe, WCD Capital Plan, State Auditor reports, DWRe Bear River estimates. 2001-2010 are numbers based on city/county data; funding increased by same percentage as population growth after 2020. Bear River costs split evenly among 4 benefitting parties. Supply and Infrastructure= (Additive supply needed – known supply added to projects) × $10,000 + Known Project Costs + capital improvement plan + DWRe list Repair and Replacement (City capital assets divided by 25 years= projects from DWRe list) × population growth × capital improvement plan
6) In 2013 dollars
7) 2000 is the baseline year; 2000 and 2010 data are current approximations for those decades; 2011-2060 data is projected
### West Colorado River Basin Water Plan

<table>
<thead>
<tr>
<th>Decade</th>
<th>Population (ending)</th>
<th>Conservation Goal</th>
<th>Per Capita Use (GPCD)</th>
<th>M&amp;I Water Use (AF/yr)</th>
<th>Additional Water Demand (AF/yr)</th>
<th>Projected Water Project Costs (millions $)</th>
<th>Actions Needed (by)</th>
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<tr>
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</tr>
<tr>
<td>2000</td>
<td>36,520</td>
<td>0%</td>
<td>73</td>
<td>278</td>
<td>391</td>
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<td>11,000</td>
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<tr>
<td>2001-2010</td>
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<td>66</td>
<td>285</td>
<td>402</td>
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<tr>
<td>2011-2020</td>
<td>36,274</td>
<td>16%</td>
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<td>234</td>
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<tr>
<td>2021-2030</td>
<td>38,199</td>
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<td>280</td>
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<td>9,000</td>
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</tr>
<tr>
<td>2031-2040</td>
<td>40,054</td>
<td>25%</td>
<td>55</td>
<td>208</td>
<td>289</td>
<td>2,000</td>
<td>9,000</td>
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</tr>
<tr>
<td>2041-2050</td>
<td>41,626</td>
<td>25%</td>
<td>55</td>
<td>208</td>
<td>279</td>
<td>3,000</td>
<td>10,000</td>
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</tr>
<tr>
<td>2051-2060</td>
<td>43,764</td>
<td>25%</td>
<td>55</td>
<td>208</td>
<td>286</td>
<td>3,000</td>
<td>10,000</td>
</tr>
</tbody>
</table>

1) Population ending data from Governor’s Office of Management and Budget
2) Percentage reduction from 2000 per capita use, at end of decade, per state goal of 25% by 2025
3) Gallons per capita per day calculated by DWRe; first number is residential indoor use; second number is residential indoor and outdoor use (inc secondary); third number is residential indoor and outdoor plus commercial, industrial, and institutional (C&I)
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6) In 2013 dollars.
7) 2000 is the baseline year; 2000 and 2010 data are current approximations for those decades; 2011-2060 data is projected
### West Desert Basin Water Plan

#### Population Ending Data

<table>
<thead>
<tr>
<th>Decade (Ending)</th>
<th>Population</th>
<th>Conservation Goal</th>
<th>Per Capita Use (GPCD)</th>
<th>M&amp;I Water Use (AF/yr)</th>
<th>Additional Water Demand (AF/yr)</th>
<th>Projected Water Project Costs (Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000'</td>
<td>29,440</td>
<td>0%</td>
<td>73</td>
<td>160</td>
<td>303</td>
<td>2,000</td>
</tr>
<tr>
<td>2001-2010</td>
<td>56,410</td>
<td>6%</td>
<td>62</td>
<td>150</td>
<td>285</td>
<td>4,000</td>
</tr>
<tr>
<td>2011-2020</td>
<td>72,436</td>
<td>19%</td>
<td>57</td>
<td>130</td>
<td>246</td>
<td>5,000</td>
</tr>
<tr>
<td>2021-2030</td>
<td>96,247</td>
<td>25%</td>
<td>55</td>
<td>120</td>
<td>223</td>
<td>6,000</td>
</tr>
<tr>
<td>2031-2040</td>
<td>123,789</td>
<td>25%</td>
<td>55</td>
<td>120</td>
<td>223</td>
<td>8,000</td>
</tr>
<tr>
<td>2041-2050</td>
<td>152,097</td>
<td>25%</td>
<td>55</td>
<td>120</td>
<td>223</td>
<td>9,000</td>
</tr>
<tr>
<td>2051-2060</td>
<td>182,206</td>
<td>25%</td>
<td>55</td>
<td>120</td>
<td>223</td>
<td>11,000</td>
</tr>
</tbody>
</table>

#### Actions Needed (by)

- Repair and Replacement (cities, counties, districts)
- Growth-Related Infrastructure (cities)
- Water Rights, Stock Acquisitions & Agricultural Water Conversion (cities)
- Conservation & Watershed Protection (cities, DWRe)

#### Additional Information

1. Population ending data from Governor’s Office of Management and Budget
2. Percentage reduction from 2000 per capita use, at end of decade, per state goal of 25% by 2025
3. Gallons per capita per day calculated by DWRe; first number is residential indoor use; second number is residential indoor and outdoor use (inc. secondary); third number is residential indoor and outdoor plus commercial, industrial, and institutional (CI&I)
4. The aggregate water supply needed in addition to previous decade to meet demands of the decade for the basin as a whole; conditions may exist where shortages in one area of the basin cannot be met by the surpluses in another
5. From list compiled by DWRe, WCD Capital Plan, State Auditor reports. 2011-2020 are numbers based on city/county data; Entities within the basin had no conservation costs data available and/or budgeted.
6. In 2013 dollars
7. 2000 is the baseline year; 2000 and 2010 data are current approximations for those decades; 2011-2060 data is projected
Prepare60 is the center established by the four largest water conservancy districts to protect what we have, use it wisely and provide for the future.

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