
PREPARE
60
SECURING UTAH'S
ECONOMIC FUTURE
STATEWIDE
WATER
INFRASTRUCTURE
PLAN
2nd Edition

PREPARE 60

SECURING UTAH'S ECONOMIC FUTURE

STATEWIDE WATER INFRASTRUCTURE PLAN

2nd Edition

PREPARED BY:
Bear River Water Conservancy District
Cache Water District
Central Iron County Water Conservancy District
Central Utah Water Conservancy District
Jordan Valley Water Conservancy District
Utah Division of Water Resources
Washington County Water Conservancy District
Weber Basin Water Conservancy District

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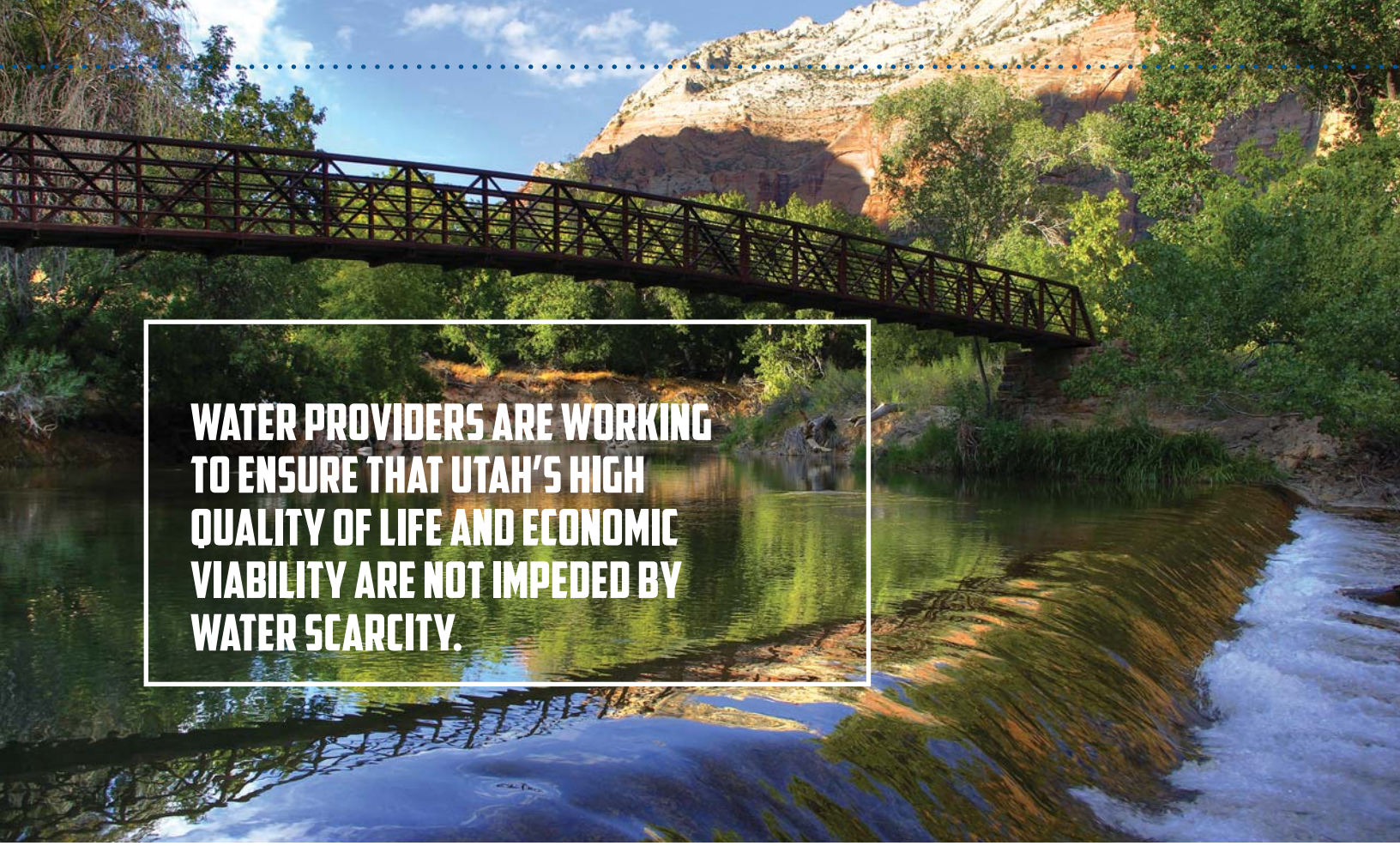


OVERVIEW

The Statewide Water Infrastructure Plan (SWIP) is an overview of the projected water supply needs, conservation efforts, and infrastructure investments necessary to serve Utah's rapidly growing population and economy. The SWIP considers the needs of cities, counties, districts and state for municipal and industrial water exclusively.

The SWIP is organized geographically by Utah's major river basins. Projected population growth, water demand, conservation and infrastructure costs are reported for each basin based on current estimates.

The contributing agencies intend for this to be a dynamic document that is updated periodically as new data is available. The 2020 version is the 2nd printed iteration.

HISTORY

In early 2013, state executive leadership met with the water managers from the four large water conservancy districts[1] to discuss planning for the six million people projected to live in Utah by 2060. Leadership wanted to make sure that Utah's high quality of life and economic viability were not impeded by water scarcity. Hundreds of hours of research were dedicated to preparing the first plan, which was presented to Governor Gary Herbert in October 2013. The SWIP has become a resource for all those tasked with planning and budgeting resources to meet anticipated water demands.

1) Utah's four large water conservancy districts deliver water to approximately 90 percent of Utah's population. The districts include Central Utah, Jordan Valley, Washington County, and Weber Basin.

ORIGIN OF DATA

A technical work group was created to prepare cost estimates for anticipated projects and conservation efforts. This group consisted of representatives from regional water supply agencies and Utah Division of Water Resources (DWRe). The American Council of Engineering Companies (ACEC) provided an independent review of the methods used by the technical group to develop the cost estimates. ACEC concurred with the methods used. Unless otherwise footnoted, data was compiled using the following methods:

• Repair and replacement costs were calculated using the extensive master plans of the contributing water conservancy districts and, when available, master plan documents of other water providers. If master plans weren't available, an annual repair or replacement cost was calculated using the book value of water system infrastructure reported in an agency's financial statements published on the Utah State Auditor's website.

• New supply and infrastructure project costs are shown as a range and were developed using master plans, impact fee reports, and engineering estimates. Costs for projects beyond an agency's current planning horizon were calculated on a cost-per-acre-foot (AF) basis using a low and high range estimate.

• "Water Conserved" is the projected volume of water saved annually by reductions in per capita water use through conservation efforts. Anticipated efforts and associated costs are summarized in each basin's water plan available on pages 6-16 of this report.

• Conservation expenses are split into two categories: costs paid by water suppliers and other agencies, and costs paid by the community, including businesses and homeowners.

• Population projections were extrapolated to river basin level, using the University of Utah's Kem C. Gardner Policy Institute 2017 estimates.

• Historic water use data was provided by individual water suppliers in annual reports submitted to Utah Division of Water Rights.

• Projected municipal and industrial water demand is based on minimum requirements to meet anticipated needs based on population projections, water use, and conservation goals, and does not include non-revenue water[1] or planning reserves.

1) Non-revenue water includes supply used for maintenance, fire flows, system loss, etc.

THE FOLLOWING ORGANIZATIONS TOOK THE LEAD ON COLLECTING THIS DATA FOR EACH RIVER BASIN:

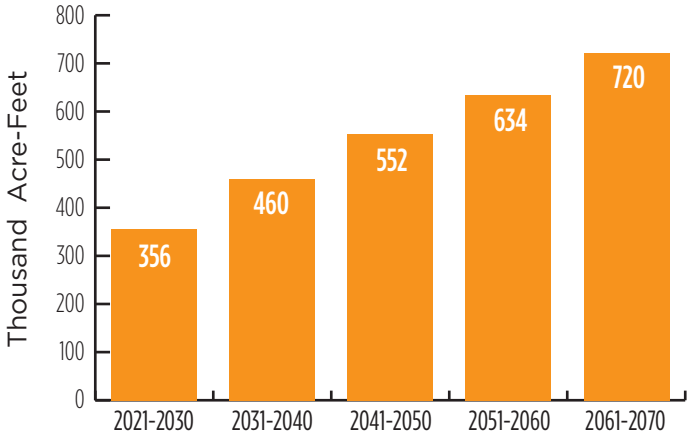
Bear River Basin	Bear River Water Conservancy District and Cache Water District
Cedar/Beaver Basin	Central Iron County Water Conservancy District
Jordan River Basin	Jordan Valley Water Conservancy District
Kanab Creek/Virgin River Basin	Washington County Water Conservancy District
Sevier River Basin	Central Utah Water Conservancy District
Southeast Colorado River Basin	Utah Division of Water Resources (DWRe)
Uinta Basin	Duchesne County Water Conservancy District, Uintah Water Conservancy District, and Central Utah Water Conservancy District
Utah Lake Basin	Central Utah Water Conservancy District
Weber River Basin	Weber Basin Water Conservancy District
West Colorado River Basin	DWRe
West Desert Basin	DWRe

WATER CONSERVATION

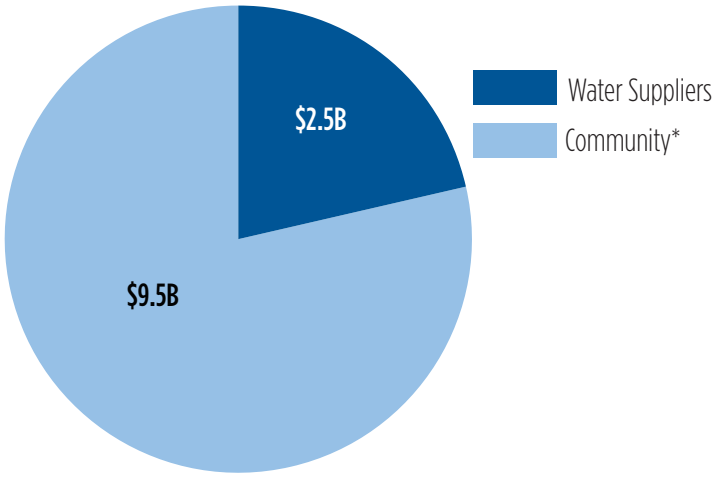
The state's four large water conservancy districts are the leaders in water conservation efforts. Collectively, they have invested hundreds of millions of dollars in recent water saving programs and projects. The result? **A nearly 20% reduction in the state's per capita water use between 2000 and 2018 despite an almost 50% increase in population.**

District leaders assert conservation efforts are as important as any major water supply project.

PROJECTED WATER CONSERVED BY DECADE (CUMULATIVE)



ESTIMATED WATER CONSERVATION COSTS THROUGH 2070



*Community investment includes costs to home and business owners for water conservation efforts, such as landscape/irrigation alterations or indoor plumbing changes.

WATER CONSERVATION is needed in Utah to ensure the resilience of water supplies against future drought, climate change, and population growth. Implementing effective conservation initiatives can be costly and often require the public to change habits and accept alternate styles of landscaping and construction.

STATEWIDE WATER INFRASTRUCTURE PLAN

To prepare for substantial population and economic growth, Utah and its municipal water providers will need to spend an estimated $38 billion on repair & replacement, conservation, and new supply projects.

ACTIONS NEEDED

Looking to the future requires more than just projections. Each river basin in Utah will need to take action in the following areas:

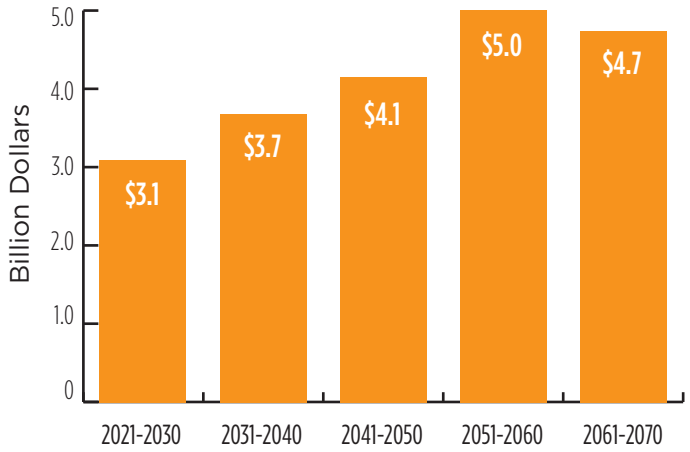
- Water conservation
- Repair and replacement of aging infrastructure
- Watershed protection
- Conversion of agricultural water as land is developed
- Water reuse projects
- Development of new infrastructure and water supplies, both local and regional

ESTIMATED STATEWIDE INFRASTRUCTURE COSTS

Below is a summary of anticipated costs. Detailed cost breakdowns for each basin are available on pages 6-16 of this report.

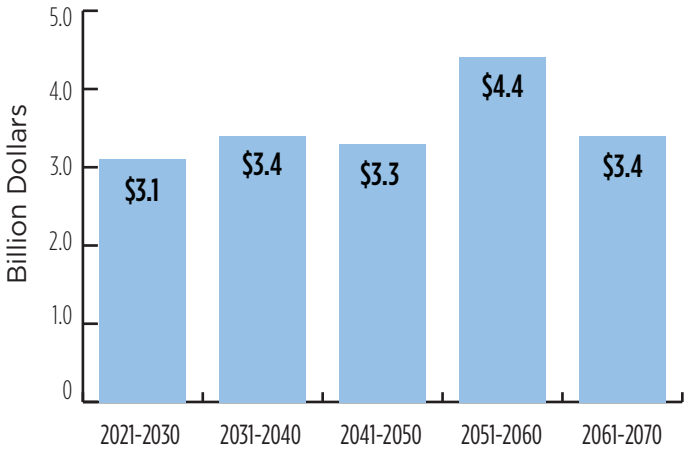
REPAIR & REPLACEMENT OF AGING INFRASTRUCTURE

$20.6 BILLION



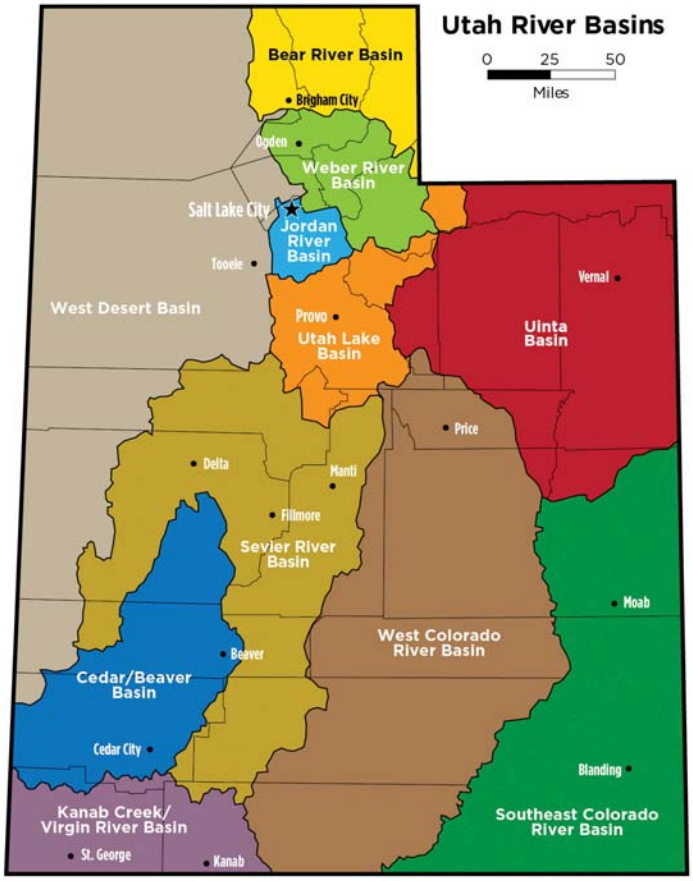
NEW INFRASTRUCTURE, WATER SUPPLIES, and WATER SUPPLIER CONSERVATION COSTS

$17.6 BILLION



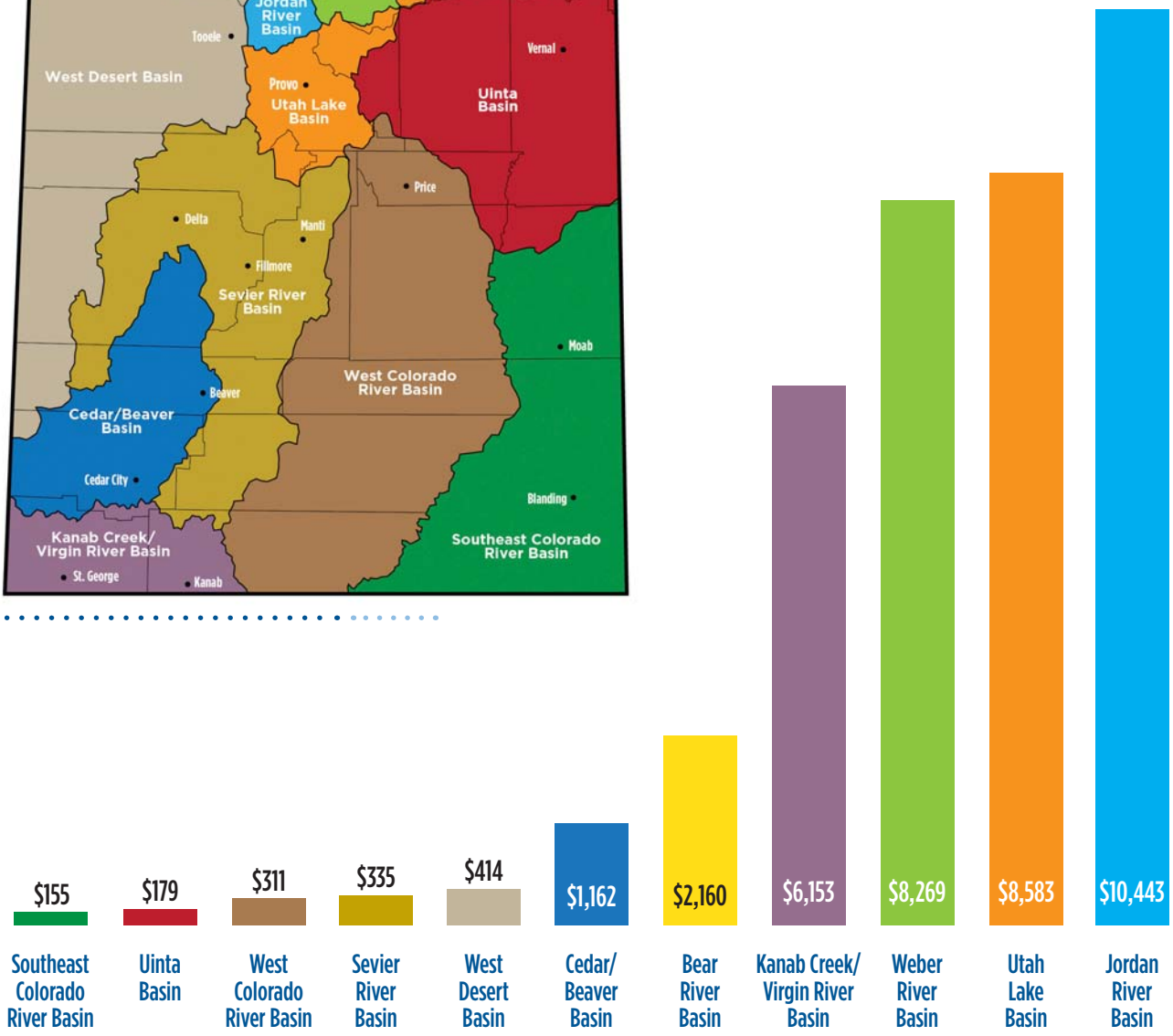
Statewide cost projections by decade in billions of dollars, not including **$9.5 billion** in conservation costs paid by businesses and homeowners.

TOTAL INVESTMENT NEEDED in Millions of Dollars



Totals include:

- Water Conservation (supplier costs)
- Supply & Infrastructure
- Repair & Replacement

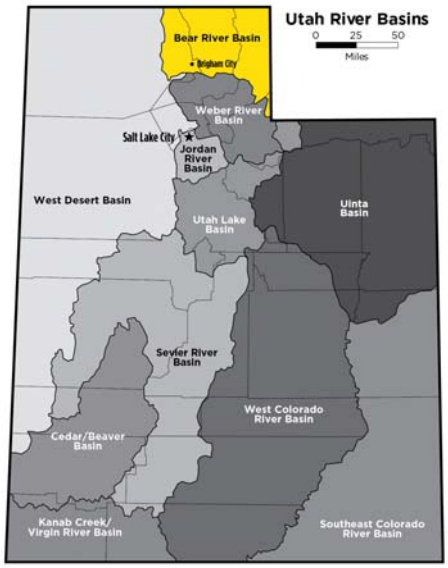


Securing current and future generations' water supply =

$38 BILLION

(not including an additional $9.5B in community conservation costs)

BEAR RIVER BASIN WATER PLAN



Decade	Population (ending)	M&I Water Demand[1] (AF/yr)	Water Conserved (AF/yr)	Project Costs (millions)		Water Conservation Costs[3] (millions)
				New Supply & Infrastructure[2]	Repair & Replacement	
2000	126,420	34,694	-			
2015	164,690	33,206	11,991			
2018	174,279	41,386	6,442			
2021-2030	222,437	49,583	11,461	$83.4 - $95.9	$124.1	$133.0
2031-2040	255,191	54,312	15,722	$105.1 - $122.4	$152.5	$133.0
2041-2050	281,627	57,414	19,874	$121.3 - $140.5	$162.1	$133.0
2051-2060	306,751	59,787	24,396	$112.5 - $482.3	$171.6	$133.0
2061-2070	324,342	61,036	27,975	$102.5 - $460.1	$146.9	$133.0
			TOTAL	$524.8 - $1,301.2	$757.2	$665.0

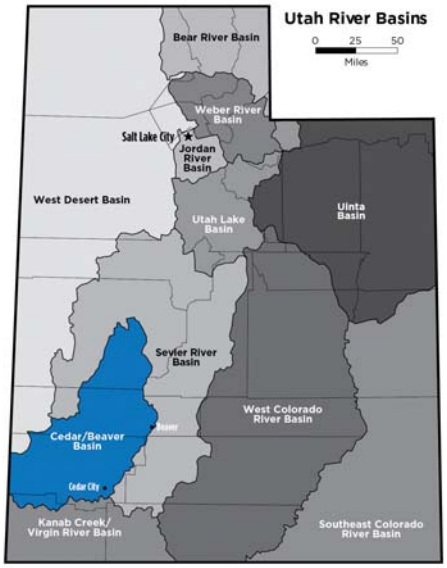
Basin Summary

Minimum additional water development needed[4]: 19,650 AF
Total investment needed: $1.9 billion to $2.7 billion

50-year population increase: 86%
50-year water demand increase: 47%

All data in these tables are projected. See "Origin of Data" section for how data was calculated in sections not specifically footnoted. All costs are 2020 dollars.
1) Calculated using Utah Division of Water Rights Water Use Data Reports and assuming a further 20% reduction in per capita water usage from 2020.
2) Determined using CCWD and BRWCD master plans. High end of range includes development of the Bear River Project.
3) Calculated using costs from Utah's Regional M&I Water Conservation Goals (DWRe, 2019). Assumes that 15% of total conservation programs and 40% landscape conversion costs will be paid by the state, district, municipalities, and other water suppliers.
4) Derived by difference between 2018 and 2070.

CEDAR/BEAVER BASIN WATER PLAN



Decade	Population (ending)	M&I Water Demand[1] (AF/yr)	Water Conserved (AF/yr)	Project Costs (millions)		Water Conservation Costs[3] (millions)
				New Supply & Infrastructure[2]	Repair & Replacement	
2000	44,832	20,288	-			
2015	54,050	15,862	8,597			
2018	56,881	17,713	8,028			
2021-2030	77,732	20,113	15,063	$18.1 - $25.1	$32.3	$61.9
2031-2040	86,336	20,889	18,181	$226.1 - $337.6	$39.3	$72.7
2041-2050	93,776	22,269	20,168	$18.3 - $26.1	$75.7	$84.8
2051-2060	102,115	23,906	22,305	$171.2 - $210.4	$86.2	$99.1
2061-2070	111,736	25,658	24,907	$25.0 - $35.8	$99.0	$113.0
			TOTAL	$458.7 - $635.0	$332.5	$431.5

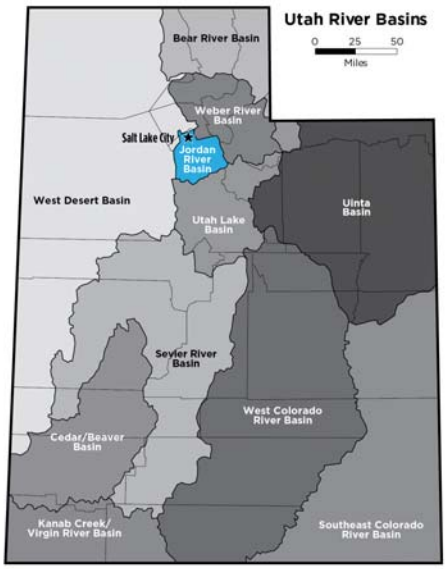
Basin Summary

Minimum additional water development needed[4]: 7,945 AF
Total investment needed: $1.2 billion - $1.4 billion

50-year population increase: 96%
50-year water demand increase: 45%

All data in these tables are projected. See "Origin of Data" section for how data was calculated in sections not specifically footnoted. All costs are 2020 dollars.
1) Based on estimates from Utah's Regional M&I Water Conservation Goals (November 2019).
2) Master-planned large capital projects with Level 4 cost estimates.
3) Calculated using costs from Utah's Regional M&I Water Conservation Goals (DWRe, 2019). Assumes that 15% of total conservation programs and 40% landscape conversion costs will be paid by the state, district, municipalities, and other water suppliers.
4) Derived by difference between 2018 and 2070.

JORDAN RIVER BASIN WATER PLAN



Decade	Population (ending)	M&I Water Demand[1] (AF/yr)	Water Conserved (AF/yr)	Project Costs (millions)		Water Conservation Costs[3] (millions)
				New Supply & Infrastructure[2]	Repair & Replacement	
2000	879,850	260,000	-			
2015	1,116,060	257,271	72,509			
2018	1,244,913	274,020	85,059			
2021-2030	1,306,414	273,650	99,693	$515.3 - $772.9	$707.9	$468.2
2031-2040	1,414,842	282,099	113,956	$442.4 - $663.6	$1,023.6	$456.5
2041-2050	1,531,282	298,455	120,817	$575.5 - $863.2	$1,216.1	$219.6
2051-2060	1,648,280	315,719	126,356	$752.6 - $1,128.9	$1,778.3	$177.3
2061-2070	1,727,383	327,001	130,226	$475.8 - $713.7	$1,273.9	$123.8
			TOTAL	$2,761.6 - $4,142.3	$5,999.8	$1,445.4

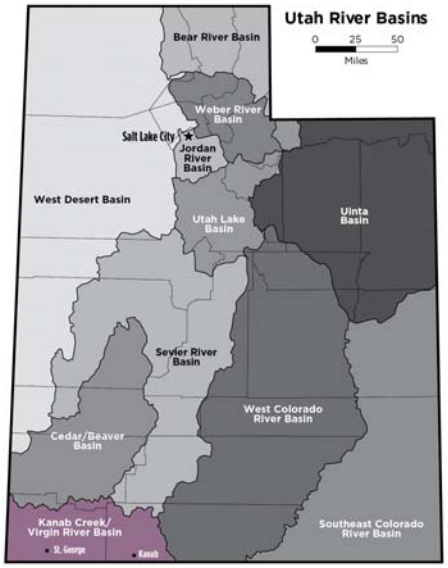
Basin Summary

Minimum additional water development needed[4]: 52,981 AF
Total investment needed: $10.2 billion - $11.6 billion

50-year population increase: 39%
50-year water demand increase: 19%

All data in these tables are projected. See "Origin of Data" section for how data was calculated in sections not specifically footnoted. All costs are 2020 dollars.
1) Future M&I Water Demand projections informed by the GPCD goals and projections published in the DWRe "Utah's Regional M&I Water Conservation Goals" (Nov. 2019).
2) If community level master plans were unavailable, assume costs are proportional to population growth for communities which do have master planning documents.
3) Total conservation cost estimate based on data in Table 5-1 in Utah's Regional M&I Water Conservation Goals report (DWRe, 2019). Assume 60% of the reduction in GPCD results from water efficiency improvements in new construction ($30,000/AF). Assume 15% of the reduction results from retrofit of existing landscapes @ $76,000/AF, 10% reduction results from installing meters on secondary connections @ 5,000/AF, and 10% reduction results from replacement of old indoor plumbing fixtures, etc. @ $10,000/AF and 5% reduction results from public outreach, education to water existing landscapes more efficiently without changing landscape. The weighted average total cost of conservation is $32,000/AF.
4) Derived by difference between 2018 and 2070.

KANAB CREEK/VIRGIN RIVER BASIN WATER PLAN

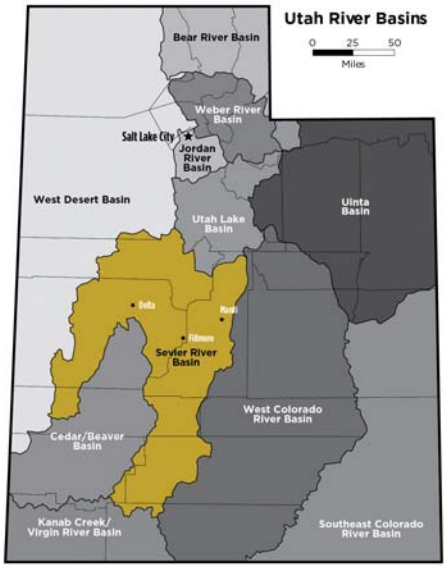


Decade	Population[1] (ending)	M&I Water Demand[2] (AF/yr)	Water Conserved (AF/yr)	Project Costs (millions)		Water Conservation Costs[3] (millions)
				New Supply & Infrastructure	Repair & Replacement	
2000	85,540	43,022	-			
2015	158,537	53,453	26,282			
2018	177,674	60,104	29,256			
2021-2030	256,273	81,184	47,707	$480.0 - $720.0	$138.6	$136.4
2031-2040	325,474	97,616	66,079	$511.3 - $766.9	$263.5	$136.1
2041-2050	395,673	112,352	86,649	$519.7 - $779.5	$391.1	$180.9
2051-2060	472,780	127,100	110,683	$570.5 - $855.8	$527.8	$216.4
2061-2070	554,130	141,038	137,659	$601.9 - $902.8	$674.9	$261.7
			TOTAL	$2,683.4 - $4,025.0	$1,995.9	$931.5

Basin Summary	
Minimum additional water development needed[4]: 80,934 AF	50-year population increase: 212%
Total investment needed: $5.6 billion - $7.0 billion	50-year water demand increase: 135%

All data in these tables are projected. See "Origin of Data" section for how data was calculated in sections not specifically footnoted. All costs are 2020 dollars.
1) Utah's Long-term Demographic and Economic Projections (Kem C. Gardner Policy Institute, 2017) & American Factfinder (United States Census, 2018).
2) Utah Department of Water Resources Open Water Data; 25% conservation projected by 2070.
3) Conservation cost estimate based on data in Utah's Regional Water M&I Water Conservation Goals report (DWRe, 2019) & Conservation Technical Analysis Memorandum (Maddaus Water Management, 2015). Nearly 2/3rd projected conservation is anticipated to result from implementation of robust conservation plan and 1/3rd from decreased utilization of turf in new residential development. The estimated weighted average cost for all conservation efforts is approximately $23,800 per AF.
4) Derived by difference between 2018 and 2070.

SEVIER RIVER BASIN WATER PLAN

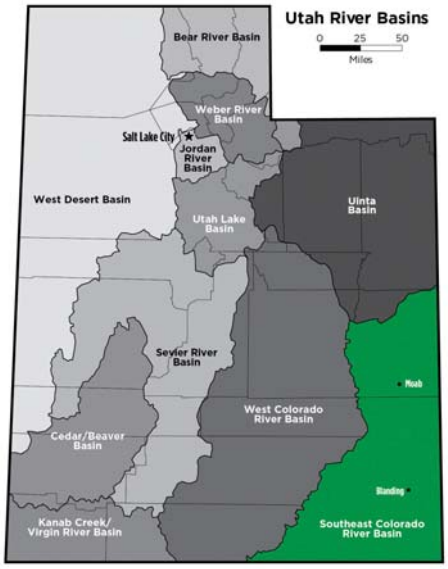


Decade	Population (ending)	M&I Water Demand (AF/yr)	Water Conserved (AF/yr)	Project Costs (millions)		Water Conservation Costs[2] (millions)
2000	47,820	20,998	-			
2015	66,928	29,838	-			
2018	69,911	32,264	-	New Supply & Infrastructure[1]	Repair & Replacement	
2021-2030	81,610	34,098	1,737	$4.9 - $8.1	$39.0	$230.1
2031-2040	89,775	34,794	4,626	$4.1 - $6.9	$39.0	$200.6
2041-2050	95,475	36,041	5,882	$7.8 - $12.9	$39.0	$87.8
2051-2060	103,385	38,679	6,717	$15.6 - $26.0	$39.0	$63.4
2061-2070	112,024	41,409	7,780	$16.9 - $28.1	$39.0	$70.2
			TOTAL	$49.3 - $82.0	$195.0	$652.1

Basin Summary	
Minimum additional water development needed[3]: 11,378 AF	50-year population increase: 60%
Total investment needed: $896 million - $929 million	50-year water demand increase: 28%

All data in these tables are projected. See "Origin of Data" section for how data was calculated in sections not specifically footnoted. All costs are 2020 dollars.
1) Low-range costs assume that development primarily occurs on currently irrigated land and that the water is converted from agriculture to M&I use at the same location. High-range costs assume more development on historically unirrigated land. This would necessitate greater costs to acquire and import a water supply.
2) Conservation cost estimated using an annualized conversion rate and cost data from Utah's Regional M&I Water Conservation Goals, pg. 44 for outdoor waterwise landscaping (DWRe, 2019). Total conservation of 17% assumed through 2070. Total conservation volumes were calculated based on GPCD estimates and then split between retrofit of existing landscapes and the initial landscaping for new development. Retrofit/Initial Landscaping split was based on ratio of population increase within a time period with a baseline population.
3) Derived by difference between 2018 and 2070.

SOUTHEAST COLORADO RIVER BASIN WATER PLAN



Decade	Population (ending)	M&I Water Demand (AF/yr)	Water Conserved (AF/yr)	Project Costs (millions)		Water Conservation Costs [2] (millions)
				New Supply & Infrastructure [1]	Repair & Replacement	
2000	16,470	5,996	-			
2015	16,855	5,424	712			
2018	18,299	6,395	266			
2021-2030	21,274	6,127	1,618	$3.0 - $3.5	$20.5	$18.4
2031-2040	23,828	6,614	2,060	$0.7 - $6.8	$19.7	$20.0
2041-2050	26,024	7,201	2,273	$0.1 - $0.8	$19.3	$21.5
2051-2060	28,350	7,821	2,500	$0.2 - $6.3	$19.2	$23.0
2061-2070	30,652	8,430	2,729	$0.0 - $0.6	$19.1	$24.5
			TOTAL	$4.0 - $18.0	$97.8	$107.4

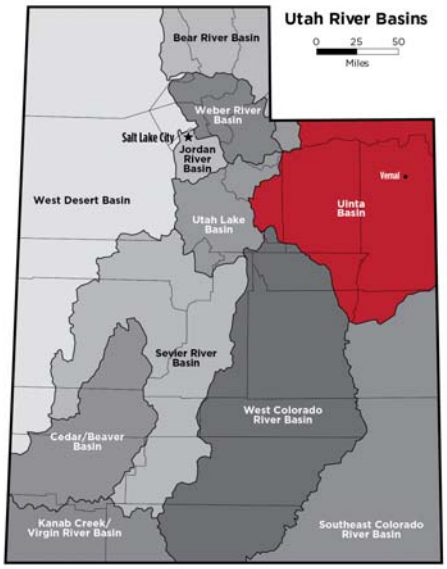
Basin Summary

Minimum additional water development needed [3]: 2,035 AF
Total investment needed: $209 million - $223 million

50-year population increase: 68%
50-year water demand increase: 32%

All data in these tables are projected. See "Origin of Data" section for how data was calculated in sections not specifically footnoted. All costs are 2020 dollars.
1) Cost ranges are based on M&I projects that have been funded by the Board of Water Resources.
2) Cost data from Utah's Regional M&I Water Conservation Goals (DWRe, 2019). 30% of total existing homes in 2015 will upgrade fixtures through 2070; 100% of new homes will include waterwise fixtures. 20% of homes will upgrade sprinkler controllers. 1% of existing homes will convert to waterwise landscaping. Annualized cost used with an assumed 1/4-acre lot size.
3) Derived by difference between 2018 and 2070.

UINTA BASIN WATER PLAN



Decade	Population (ending)	M&I Water Demand (AF/yr)	Water Conserved (AF/yr)	Project Costs (millions)		Water Conservation Costs[2] (millions)
				New Supply & Infrastructure[1]	Repair & Replacement	
2000	35,780	12,986	-			
2015	59,329	17,943	3,589			
2018	61,190	22,276	-			
2021-2030	70,707	23,285	2,376	$0.9 - $1.4	$22.5	$134.7
2031-2040	77,615	23,735	4,434	$2.5 - $4.2	$22.5	$111.7
2041-2050	84,505	23,948	6,721	$1.4 - $2.3	$22.5	$124.0
2051-2060	89,982	24,190	8,467	$1.8 - $3.1	$22.5	$93.0
2061-2070	95,318	25,411	9,182	$7.1 - $11.8	$22.5	$29.8
			TOTAL	$13.7 - $22.8	$112.5	$493.2

Basin Summary	
Minimum additional water development needed[3]: 3,135 AF	50-year population increase: 56%
Total investment needed: $620 million - $629 million	50-year water demand increase: 14%

All data in these tables are projected. See "Origin of Data" section for how data was calculated in sections not specifically footnoted. All costs are 2020 dollars.
1) Low-range costs assume that development primarily occurs on currently irrigated land and that the water is converted from agriculture to M&I use at the same location. High-range costs assume more development on historically unirrigated land. This would necessitate greater costs to acquire and import a water supply.
2) Conservation cost estimated using an annualized conversion rate and cost data from Utah's Regional M&I Water Conservation Goals, pg. 44 for outdoor waterwise landscaping (DWRe, 2019). Total conservation of 17% assumed through 2070. Total conservation volumes were calculated based on GPCD estimates and then split between retrofit of existing landscapes and the initial landscaping for new development. Retrofit/Initial Landscaping split was based on ratio of population increase within a time period with a baseline population.
3) Derived by difference between 2018 and 2070.

UTAH LAKE BASIN WATER PLAN

Decade	Population (ending)	M&I Water Demand (AF/yr)	Water Conserved (AF/yr)	Project Costs (millions)		Water Conservation Costs[2] (millions)
2000	354,000	109,046	-			
2015	625,378	158,316	34,325			
2018	688,541	165,822	46,276	New Supply & Infrastructure[1]	Repair & Replacement	
2021-2030	927,931	201,647	84,193	$213.5 - $346.9	$1,084.2	$1,194.6
2031-2040	1,161,437	240,681	117,088	$307.9 - $500.4	$1,084.2	$944.0
2041-2050	1,391,312	274,291	154,288	$268.2 - $435.9	$1,084.2	$1,140.5
2051-2060	1,609,993	313,796	182,146	$319.4 - $519.1	$1,084.2	$735.8
2061-2070	1,843,549	355,187	212,699	$335.8 - $545.7	$1,084.2	$784.8
			TOTAL	$1,444.8 - $2,348.0	$5,421.0	$4,799.7

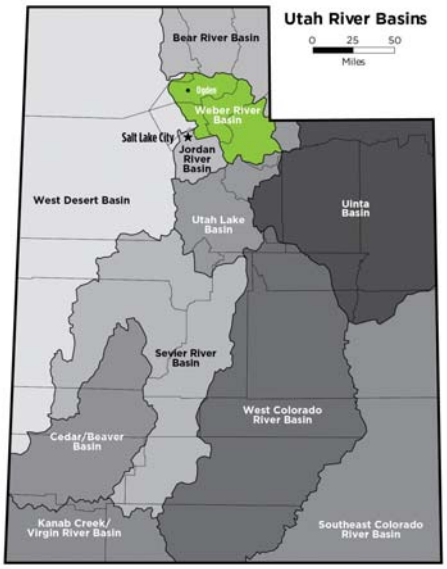
Basin Summary

Minimum additional water development needed[3]: 189,365 AF
Total investment needed: $11.7 billion - $12.6 billion

50-year population increase: 168%
50-year water demand increase: 114%

All data in these tables are projected. See "Origin of Data" section for how data was calculated in sections not specifically footnoted. All costs are 2020 dollars.
1) Low-range costs assume that development primarily occurs on currently irrigated land and that the water is converted from agriculture to M&I use at the same location. High-range costs assume more development on historically unirrigated land. This would necessitate greater costs to acquire and import a water supply.
2) Conservation cost estimated using an annualized conversion rate and cost data from Utah's Regional M&I Water Conservation Goals, pg. 44 for outdoor waterwise landscaping (DWRe, 2019). Total conservation of 17% assumed through 2070. Total conservation volumes were calculated based on GPCD estimates and then split between retrofit of existing landscapes and the initial landscaping for new development. Retrofit/Initial Landscaping split was based on ratio of population increase within a time period with a baseline population.
3) Derived by difference between 2018 and 2070.

WEBER RIVER BASIN WATER PLAN



Decade	Population (ending)	M&I Water Demand[1] (AF/yr)	Water Conserved (AF/yr)	Project Costs (millions)		Water Conservation Costs[3] (millions)
2000	387,100	131,383	-			
2015	623,960	174,731	37,043			
2018	663,268	187,225	37,891	New Supply & Infrastructure[2]	Repair & Replacement	
2021-2030	766,607	182,047	78,143	$358.4 - $585.0	$840.8	$370.7
2031-2040	848,616	189,164	98,859	$245.6 - $394.0	$966.0	$403.3
2041-2050	920,575	197,986	114,461	$311.4 - $452.8	$1,072.0	$414.7
2051-2060	981,761	205,646	127,567	$440.6 - $638.8	$1,201.3	$276.5
2061-2070	1,042,280	212,486	141,268	$103.9 - $215.8	$1,309.6	$276.5
			TOTAL	$1,459.9 - $2,286.4	$5,389.7	$1,741.7

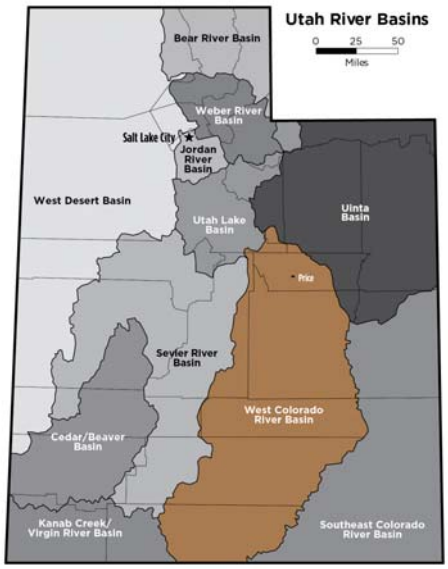
Basin Summary

Minimum additional water development needed[4]: 25,261 AF
Total investment needed: $8.6 billion to $9.4 billion

50-year population increase: 57%
50-year water demand increase: 13%

All data in these tables are projected. See "Origin of Data" section for how data was calculated in sections not specifically footnoted. All costs are 2020 dollars.
1) Weber Basin Water Conservancy District's Supply and Demand Study (2017). 2018 water demand data estimated using DWRe potable water data and estimated secondary usage data calculated by WBWCD.
2) Where city master plan data was unavailable, new supply costs were calculated using current costs, either of areas with higher levels of urban density or areas with undeveloped land, and Kem C. Gardner projections for population, household, and household size, to create a range of possible supply and infrastructure costs.
3) Calculated using costs from Utah's Regional M&I Water Conservation Goals (DWRe, 2019). Assumes that, without legislation, all secondary connections will be metered by 2050. Landscape conversion costs will be borne 40% by programs administered by the State, District, municipalities, and other water suppliers.
4) Derived by difference between 2018 and 2070.

WEST COLORADO RIVER BASIN WATER PLAN

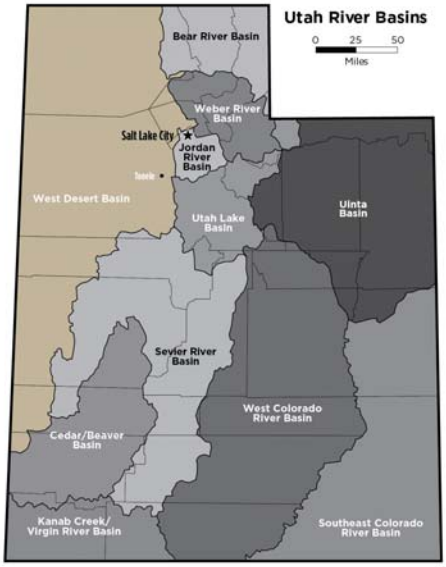


Decade	Population (ending)	M&I Water Demand (AF/yr)	Water Conserved (AF/yr)	Water Project Costs (millions)		Water Conservation Costs[2] (millions)
				New Supply & Infrastructure[1]	Repair & Replacement	
2000	36,520	15,995	-			
2015	34,889	14,968	-			
2018	34,966	14,100	1,214			
2021-2030	41,355	14,464	3,649	$20.2	$34.9	$36.1
2031-2040	45,054	14,850	4,883	$25.2 - $31.2	$32.1	$38.5
2041-2050	48,328	15,923	5,244	$2.5 - $8.5	$31.6	$40.6
2051-2060	51,842	17,074	5,631	$0.4 - $6.8	$31.6	$42.9
2061-2070	55,271	18,197	6,011	$0.2 - $6.7	$31.4	$45.2
			TOTAL	$48.5 - $73.4	$161.6	$203.3

Basin Summary	
Minimum additional water development needed[3]: 4,096 AF	50-year population increase: 58%
Total investment needed: $413 million - $438 million	50-year water demand increase: 29%

All data in these tables are projected. See "Origin of Data" section for how data was calculated in sections not specifically footnoted. All costs are 2020 dollars.
1) Cost ranges are based on M&I projects that have been funded by the Board of Water Resources.
2) Cost data from Utah's Regional M&I Water Conservation Goals (DWRe, 2019). 30% of total existing homes in 2015 will upgrade fixtures through 2070; 100% of new homes will include waterwise fixtures. 20% of homes will upgrade sprinkler controllers. 1% of existing homes will convert to waterwise landscaping. Annualized cost used with an assumed 1/4-acre lot size.
3) Derived by difference between 2018 and 2070.

WEST DESERT BASIN WATER PLAN



Decade	Population (ending)	M&I Water Demand (AF/yr)	Water Conserved (AF/yr)	Water Project Costs (millions)		Water Conservation Costs [2] (millions)
				New Supply & Infrastructure [1]	Repair & Replacement	
2000	29,440	9,992				
2015	60,753	15,295	5,324			
2018	62,384	17,190	3,983			
2021-2030	89,344	19,633	10,691	$2.7 - $21.0	$43.4	$74.9
2031-2040	105,665	21,872	13,991	$1.6 - $21.5	$35.8	$85.4
2041-2050	116,729	23,761	15,857	$0.7 - $16.3	$33.4	$92.4
2051-2060	126,079	25,230	17,561	$0.3 - $7.9	$32.7	$98.5
2061-2070	134,872	26,526	19,250	$0.4 - $13.0	$32.4	$104.2
			TOTAL	$5.7 - $79.7	$177.7	$455.4

Basin Summary	
Minimum additional water development needed [3]: 9,336 AF	50-year population increase: 116%
Total investment needed: $638 million - $713 million	50-year water demand increase: 54%

All data in these tables are projected. See "Origin of Data" section for how data was calculated in sections not specifically footnoted. All costs are 2020 dollars.
1) Cost ranges are based on M&I projects that have been funded by the Board of Water Resources.
2) Cost data from Utah's Regional M&I Water Conservation Goals (DWRe, 2019). 30% of total existing homes in 2015 will upgrade fixtures through 2070; 100% of new homes will include waterwise fixtures. 20% of homes will upgrade sprinkler controllers. 1% of existing homes will convert to waterwise landscaping. Annualized cost used with an assumed 1/4-acre lot size.
3) Derived by difference between 2018 and 2070.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