



COLORADO
Colorado Water
Conservation Board
Department of Natural Resources



Statewide Water Supply Initiative Update Technical Memorandum

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Section 1: Background

Population projections, by basin and for the state as a whole, are the primary driver in the municipal and industrial demand projections which will be developed by Element Water. During SWSI Task Order 3, BBC implemented the methodology recommended in the Recommended Methodology for Developing SWSI Population Scenarios technical memorandum, to develop population projections for the five SWSI planning scenarios. In May 2018, the projections were updated to incorporate the November 2017 projections from the Colorado State Demography Office.

Section 2: Illustration of Range of Population Growth Projections for Selected Basins

The following charts illustrate the SDO projections and the statistically-derived high growth projections and low growth projections for three basins. One of the basins (the Arkansas Basin) is an example of an area which has historically experienced comparatively low variability in terms of its growth trajectory. The second example is the Colorado River Basin, which has historically experienced medium variability in terms of its growth trajectory. The final example is the Gunnison Basin, which has historically experienced high variability in its growth trajectory. The high growth and low growth projections shown in these figures reflect the unconstrained statistical projections for each basin, prior to adjustments to make the sum of the basin projections match the overall state high growth and low growth projections and to reflect specific assumptions incorporated in the SWSI scenarios.

Figure 1. Arkansas Basin SDO and Statistically-derived Low and High Growth Projections
(Example of basin with low historical growth variability)

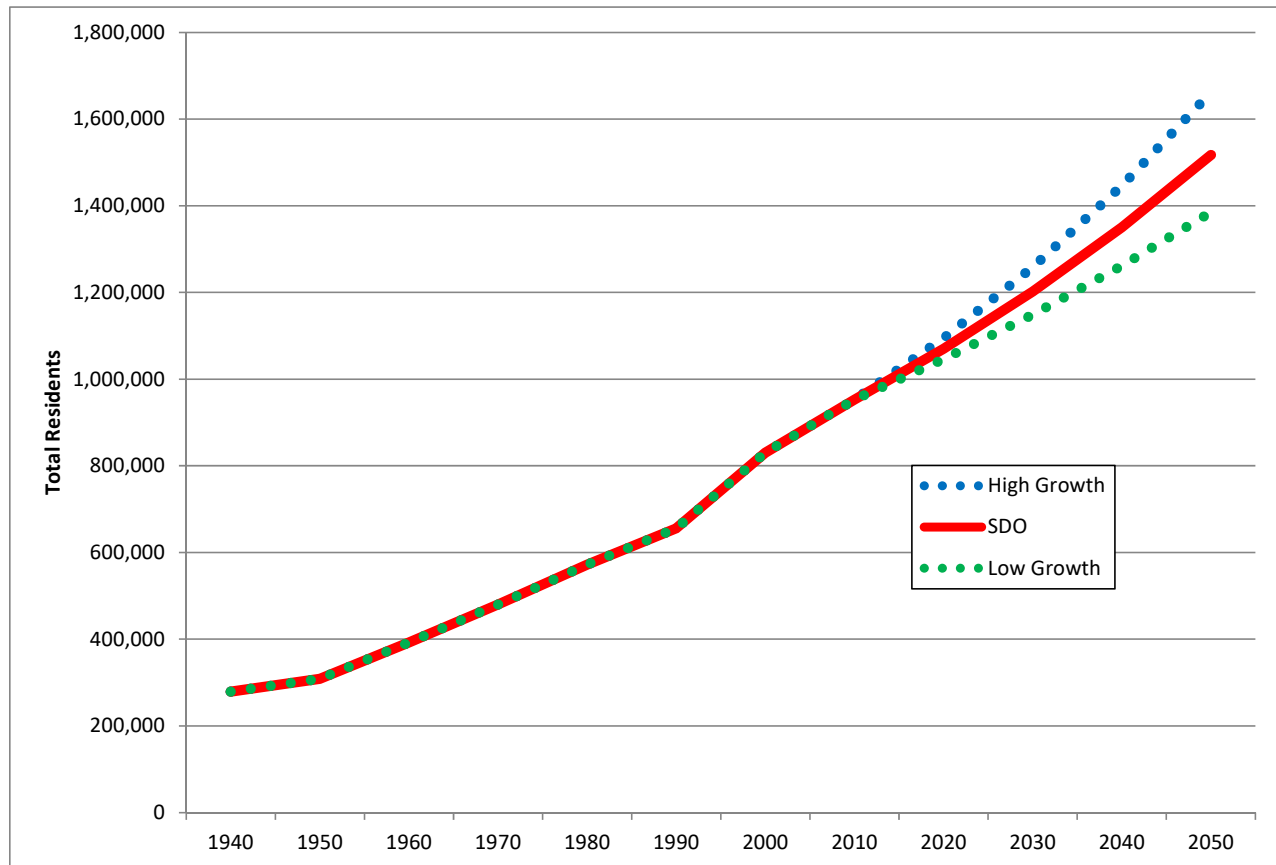


Figure 2. Colorado Basin SDO and Statistically-derived Low and High Growth Projections
(Example of basin with medium historical growth variability)

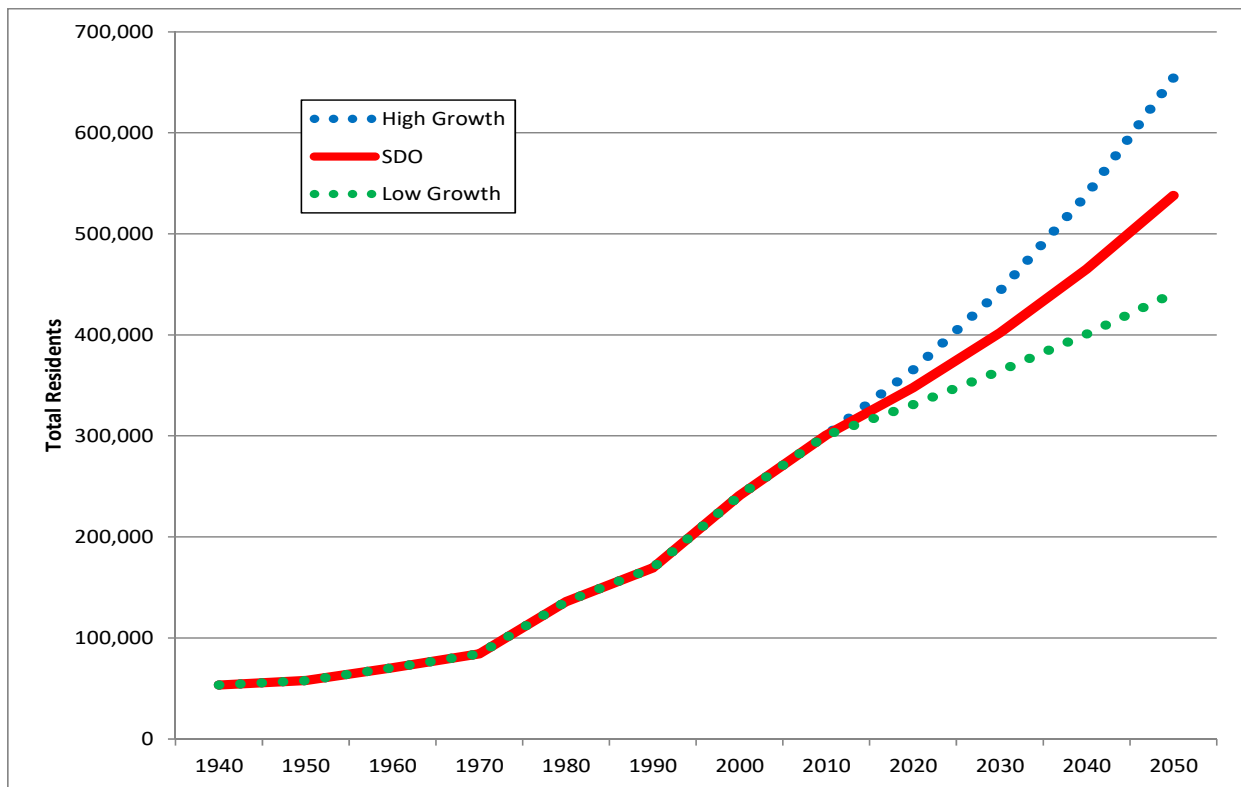
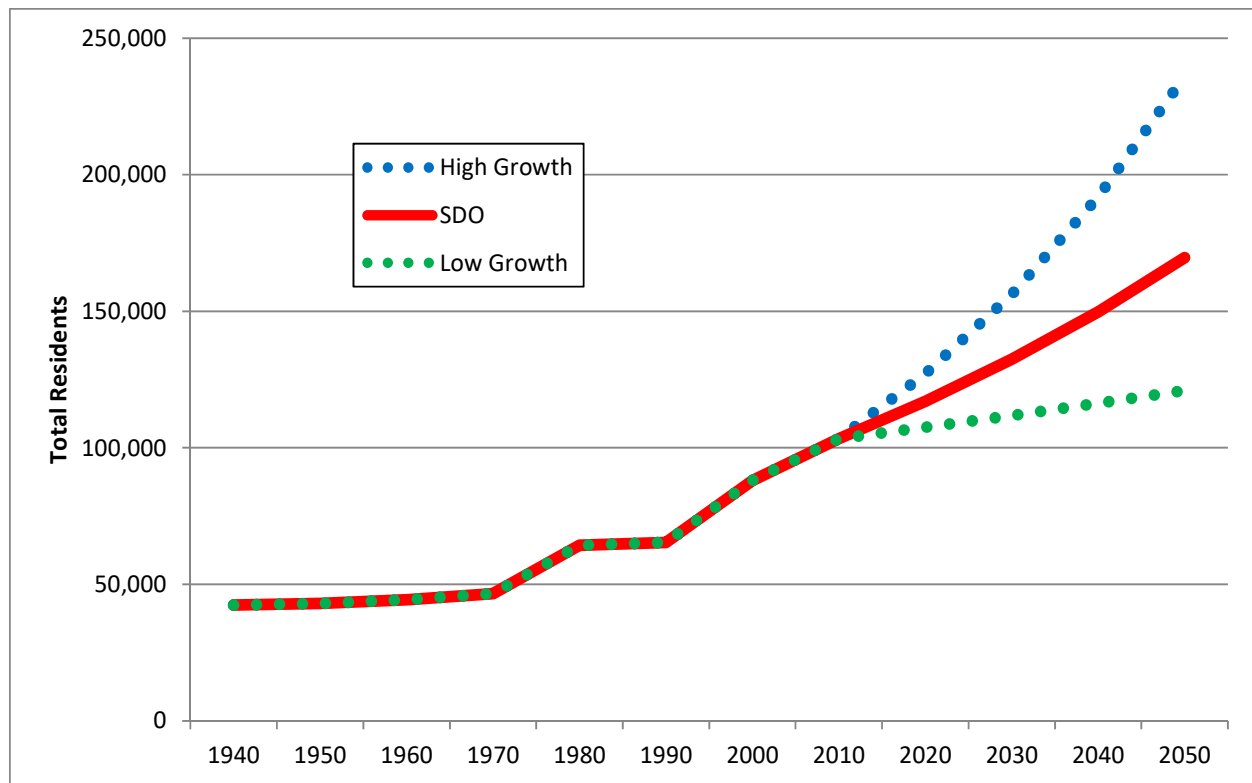


Figure 3. Gunnison Basin SDO and Statistically-derived Low and High Growth Projections
(Example of basin with high historical growth variability)



Section 3: Projected Population by Basin and County for the SWSI Scenarios

As described in the Recommended Methodology for Developing SWSI Population Scenarios technical memorandum, population projections for the five SWSI planning scenarios were derived from the current SDO population projections and statistically-derived high growth projections and low growth projections for each basin.

The revised methodologies in this SWSI update for developing projected M&SSI water needs, and for hydrologic analysis, required further disaggregation of the basin population projections. GIS analysis was used to identify the portion of the South Platte Basin population that is located within the Republican River sub-basin. The population of the Yampa Basin was subdivided between the Yampa sub-basin and the White sub-basin for these purposes.

The following table presents the 2015 population estimates for each basin and county, and the projected 2050 population for each area under the five SWSI scenarios.

Table 1. Population Projections by Basin for the Five SWSI Scenarios

Basin Forecasts	2015 Population	Business as Usual	Weak Economy	Cooperative Growth	Adaptive Innovation	Hot Growth
Arkansas Basin	1,008,434	1,509,463	1,462,821	1,544,367	1,625,970	1,567,968
Colorado Basin	307,570	515,472	456,321	549,176	572,860	577,827
Gunnison Basin	103,121	162,632	123,070	158,587	195,998	204,931
Metro	2,768,126	4,061,899	3,817,099	3,921,976	4,161,584	4,317,749
North Platte Basin	1,353	1,279	1,055	1,210	1,364	1,457
Rio Grande Basin	45,975	55,104	42,270	52,141	62,972	67,252
South Platte Basin	1,061,754	1,892,367	1,616,081	1,962,391	2,330,861	2,189,906
Republican Basin	31,616	35,476	30,297	33,569	38,441	41,054
Remainder S. Platte	1,030,138	1,856,891	1,585,784	1,928,822	2,292,420	2,148,852
Southwest Basin	107,999	195,837	125,814	201,010	264,189	282,144
Yampa-White Basin	43,723	67,242	38,623	70,437	96,621	103,188
Yampa Basin	37,194	59,866	34,386	63,458	86,022	91,869
White Basin	6,529	7,376	4,237	6,979	10,599	11,319
Statewide Totals	5,448,055	8,461,296	7,683,154	8,461,296	9,312,421	9,312,421

Table 2. Population Projections by County for the Five SWSI Scenarios

Forecasts by County	2015 Population	Business as Usual	Weak Economy	Cooperative Growth	Adaptive Innovation	Hot Growth
<u>Arkansas Basin</u>						
Baca	3,594	2,949	2,858	2,790	2,868	3,063
Bent	5,847	6,607	6,403	6,252	6,426	6,863
Chaffee	18,603	27,145	26,306	25,686	26,403	28,197
Cheyenne	part 686	615	596	582	599	639
Crowley	5,569	7,754	7,514	7,337	7,542	8,055
Custer	4,457	5,934	5,751	5,615	5,772	6,164
El Paso	676,178	1,076,486	1,043,223	1,116,517	1,177,637	1,118,209
Elbert	part 7,634	20,526	19,891	19,422	19,964	21,321
Fremont	46,659	56,406	54,663	53,373	54,864	58,592
Huerfano	6,456	5,983	5,798	5,661	5,819	6,215
Kiowa	1,396	1,193	1,156	1,129	1,160	1,239
Lake	7,502	9,868	9,563	9,337	9,598	10,250
Las Animas	14,061	13,249	12,840	12,537	12,887	13,763
Lincoln	part 4,485	6,857	6,645	6,488	6,669	7,123
Otero	18,265	15,302	14,829	14,479	14,884	15,895
Prowers	11,905	11,441	11,087	10,826	11,128	11,884
Pueblo	163,196	224,184	217,257	230,283	245,249	232,873
Teller	part 11,941	16,964	16,440	16,052	16,501	17,622
<u>Colorado Basin</u>						
Eagle	53,320	94,459	83,620	102,687	99,147	105,885
Garfield	57,779	105,711	93,581	115,297	110,957	118,498
Grand	14,602	27,406	24,261	29,967	28,766	30,721
Mesa	part 134,096	212,859	188,433	220,735	255,228	238,608
Pitkin	17,845	23,209	20,546	24,282	24,361	26,017
Summit	29,928	51,828	45,881	56,208	54,400	58,097
<u>Gunnison Basin</u>						
Delta	29,973	42,126	31,878	39,861	49,704	53,082
Gunnison	16,097	22,728	17,199	24,054	26,817	28,639
Hinsdale	767	1,573	1,190	1,488	1,856	1,982
Mesa	part 14,927	23,695	17,931	24,572	32,067	29,858
Montrose	part 36,710	66,942	50,658	63,343	78,985	84,353
Ouray	4,647	5,568	4,214	5,269	6,570	7,016

Table 2. Population Projections by County for the Five SWSI Scenarios (continued)

Forecasts by County	2015 Population	Business as Usual	Weak Economy	Cooperative Growth	Adaptive Innovation	Hot Growth
<u><i>Metro</i></u>						
Adams	489,923	890,148	836,501	842,289	886,001	946,216
Arapahoe	629,066	899,738	845,513	851,363	895,546	956,410
Broomfield	64,656	95,566	89,806	90,428	95,121	101,585
Denver	680,658	952,955	895,523	980,185	1,067,123	1,012,979
Douglas	322,198	482,824	453,725	456,865	480,575	513,236
Jefferson	564,619	694,943	653,061	657,579	691,705	738,716
Elbert	part 17,006	45,725	42,970	43,267	45,512	48,606
<u><i>North Platte</i></u>						
Jackson	1,353	1,279	1,055	1,210	1,364	1,457
<u><i>Rio Grande</i></u>						
Alamosa	15,968	22,934	17,593	21,701	26,209	27,990
Conejos	8,074	8,997	6,902	8,513	10,282	10,980
Costilla	3,572	3,934	3,018	3,722	4,496	4,801
Mineral	729	959	736	907	1,096	1,170
Rio Grande	11,413	11,612	8,907	10,988	13,270	14,172
Saguache	6,219	6,668	5,115	6,309	7,620	8,138
<u><i>South Platte</i></u>						
<u><i>Republican Basin</i></u>						
Cheyenne	part 1,144	1,026	876	970	1,111	1,187
Kit Carson	8,219	9,595	8,194	9,079	10,397	11,104
Lincoln	part 1,064	1,627	1,390	1,540	1,763	1,883
Logan	part 2,032	2,711	2,315	2,565	2,938	3,137
Phillips	4,307	4,372	3,734	4,137	4,737	5,059
Sedgwick	part 1,008	984	840	931	1,066	1,139
Washington	part 3,790	3,763	3,214	3,561	4,078	4,355
Yuma	10,052	11,398	9,734	10,785	12,351	13,190
<u><i>Remainder South Platte</i></u>						
Boulder	318,570	447,843	382,458	460,770	558,020	518,258
Clear Creek	9,392	12,448	10,631	11,779	13,488	14,405
Gilpin	5,824	6,626	5,659	6,270	7,180	7,668
Larimer	332,830	543,588	464,224	564,664	677,320	629,057
Logan	part 20,090	26,805	22,891	25,364	29,045	31,019
Morgan	28,230	42,734	36,495	40,436	46,306	49,453
Park	16,716	23,797	20,323	22,518	25,786	27,539
Sedgwick	part 1,381	1,348	1,151	1,275	1,461	1,560
Teller	part 11,490	16,323	13,939	15,445	17,687	18,889
Washington	part 1,044	1,037	885	981	1,123	1,200
Weld	284,571	734,343	627,129	779,320	915,004	849,804
<u><i>Southwest</i></u>						
Archuleta	12,417	26,571	17,070	25,142	35,845	38,281
Dolores	1,972	2,597	1,668	2,457	3,503	3,742
La Plata	54,857	94,002	60,391	101,831	126,811	135,430
Montezuma	26,129	47,158	30,296	44,623	63,617	67,941
Montrose	part 4,085	7,449	4,785	7,048	10,048	10,731
San Juan	696	767	493	726	1,035	1,105
San Miguel	7,843	17,293	11,110	19,183	23,329	24,914
<u><i>Yampa-White</i></u>						
<u><i>White Basin</i></u>						
Rio Blanco	6,529	7,376	4,237	6,979	10,599	11,319
<u><i>Yampa Basin</i></u>						
Moffat	12,884	13,868	7,966	13,122	19,927	21,281
Routt	24,310	45,998	26,420	50,336	66,095	70,587

Table 2. Population Projections by County for the Five SWSI Scenarios (continued)

Forecasts by County	2015 Population	Business as Usual	Weak Economy	Cooperative Growth	Adaptive Innovation	Hot Growth
<i>Multi-basin Counties (complete totals by county)</i>						
Cheyenne County	1,830	1,641	1,472	1,553	1,710	1,826
Elbert County	24,640	66,251	62,861	62,689	65,477	69,927
Lincoln County	5,549	8,484	8,035	8,028	8,432	9,006
Logan County	22,122	29,516	25,207	27,929	31,983	34,157
Mesa County	149,023	236,554	206,364	245,307	287,295	268,465
Montrose County	40,795	74,391	55,443	70,391	89,034	95,084
Sedgwick County	2,389	2,332	1,992	2,207	2,527	2,699
Teller County	23,431	33,287	30,380	31,497	34,187	36,511
Washington County	4,834	4,800	4,099	4,542	5,201	5,555