

FACT SHEET

Population Projection Methodology



This fact sheet summarizes methodologies that will be implemented during the SWSI Update to project population growth to the year 2050 for each planning scenario

Population projections, by basin and for the state as a whole, are the primary driver in the municipal and industrial demand projections being developed for the SWSI Update. In this Update, population projections will be developed for each of the planning scenarios described in Colorado’s Water Plan. The projections will then be used to estimate municipal and industrial demands for each planning scenario and will also influence agricultural water demands as the urban footprint is anticipated to expand onto lands currently used for agricultural purposes.

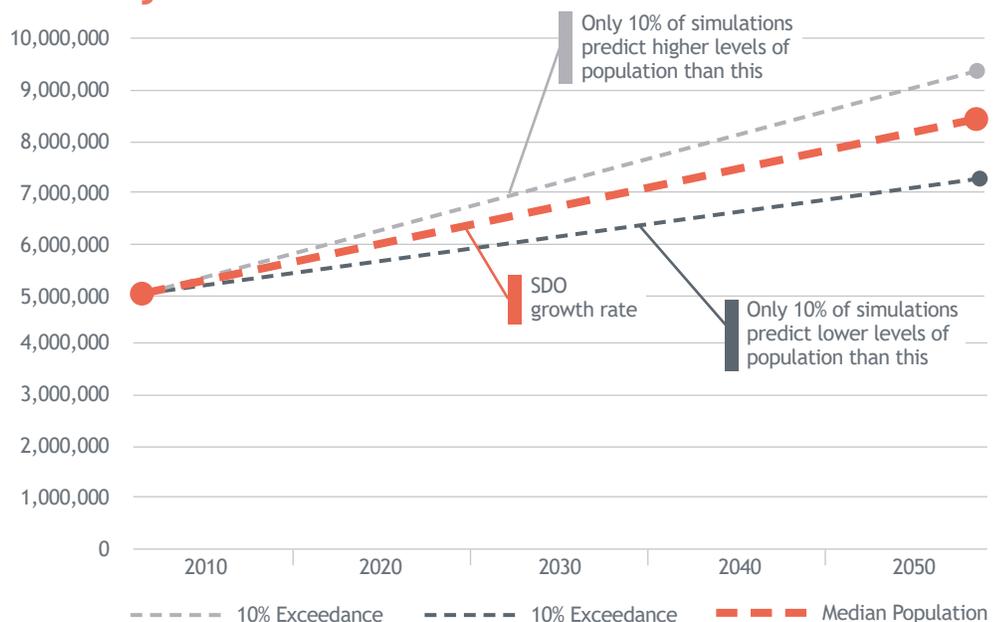
Projections of future population have been a key component of past SWSI iterations. Prior population projections conducted by the Colorado State Demography Office (SDO) covered the period 2005 to 2035. In past SWSI iterations, a complex process was used to extend the population projections to the year 2050. The process included developing economic forecasts for the state and each county, estimating future labor demands, comparing future labor demands to labor supply, and estimating net in-migration to balance labor markets throughout the state. In addition, high and low growth scenarios were developed.

The SWSI Update will include two primary enhancements to the population projection methodology:

1. Adoption of new SDO population projections, which are now available through 2050
2. Taking a simpler approach for developing high and low population projections for various planning scenarios

Statewide Population Projection

High and low rates of population growth will be projected using statistical methods that consider the SDO growth rate through 2050 and historical growth rates from 1940 to 2010. Thousands of simulations of future growth based on these parameters will be conducted. The estimate of high population growth will be based on the level at which only 10 percent of the simulations predict higher growth. Similarly, low population growth will be based on the level at which only 10 percent of the simulations predict lower growth.



Application to Basins and Counties

The same methodology used for statewide population projections can be readily applied to generate potential ranges of variance in the future population projections for each of the basins and counties, with a couple of caveats and refinements.

- The smaller geographic areas represented by river basins have larger variation in their historical population growth rates than the state as a whole. With this variation, the sum of basin populations for the high projection could exceed the high population estimate for the state as a whole. Correspondingly, the sum of low projections for the basins could be less than the low projection for the state. To mitigate this issue, basin high and low projections will be adjusted proportionally to match overall, statewide high and low projections.
- County-based forecasts are susceptible to the same issue. High and low projections for counties will be conducted by apportioning the basin-wide high and low projections to each county based on its portion of the median, SDO projection for the basin.

Population Projections for Planning Scenarios

In Colorado's Water Plan, each of the five planning scenarios includes distinctive assumptions regarding future demographic growth. Five population projections will be developed for the SWSI Update, with each of them reflecting the assumptions of the planning scenarios. Below is a description of how the population projections will vary by each scenario.

Planning Scenario	Excerpts from scenario description in Colorado's Water Plan	Recommended implementation
A Business as Usual	"Recent trends continue into the future. Few unanticipated events occur. The economy goes through regular cycles, but grows over time. By 2050, Colorado's population is close to 9 million people. Single family homes dominate, but there is a slow increase of denser developments in large urban areas."	Use the current SDO state and county projections for 2050.
B Weak Economy	"The world's economy struggles, and the state's economy is slow to improve. Population growth is lower than currently projected, slowing the conversion of agricultural land to housing... Many sectors of the state's economy, including most water users and water-dependent businesses, begin to struggle financially."	Use the statistically-derived low growth projections .
C Cooperative Growth	"...Population growth is consistent with current forecasts. Mass transportation planning concentrates more development in urban centers and mountain resort communities, thereby slowing the loss of agricultural land and reducing the strain on natural resources compared to traditional development."	Constrain overall growth to statewide SDO projections. Increase projected growth in mountain resort communities by 20% , increase projected growth in urban centers by 10% . Adjust other areas to maintain overall state totals from SDO projections.
D Adaptive Innovation	"A much warmer climate causes major environmental problems globally and locally... The relatively cooler weather in Colorado (due to its higher elevation) and the high-tech job market cause population to grow faster than currently projected... More compact urban development occurs through innovations in mass transit."	Use statistically-derived high growth projections . Use unconstrained high growth forecast for urban center counties and reduce forecast as needed in other areas to balance to state totals.
E Hot Growth	"A vibrant economy fuels population growth and development throughout the state... A much warmer global climate brings more people to Colorado with its relatively cooler climate. Families prefer low-density housing and many seek rural properties, ranchettes, and mountain living. Agricultural and other open lands are rapidly developed... Communities struggle unilaterally to provide services needed to accommodate the rapid business and population growth."	Use statistically-derived high growth projections , which project disproportionate population increases in the state's more rural areas .

FOR MORE INFORMATION

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<http://cwcb.state.co.us/water-management/water-supply-planning/Pages/SWSIUpdate.aspx>



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