

FACT SHEET

Municipal and Self-Supplied Industrial Demand Methodology



This fact sheet summarizes methodologies used to estimate municipal and self-supplied industrial demands in the SWSI Update

Overview of Municipal Demand Methodology

Municipal demands for the SWSI Update will be calculated using methodologies similar to SWSI 2010 but will utilize planning scenarios and will use enhanced input data. Enhanced inputs include data from HB10-1051 water use and conservation data reporting, Water Efficiency Plans, and Basin Implementation Plans.

The basic equation for estimating municipal demand considers population and per-capita water use (described as gallons per capita per day or gpcd).

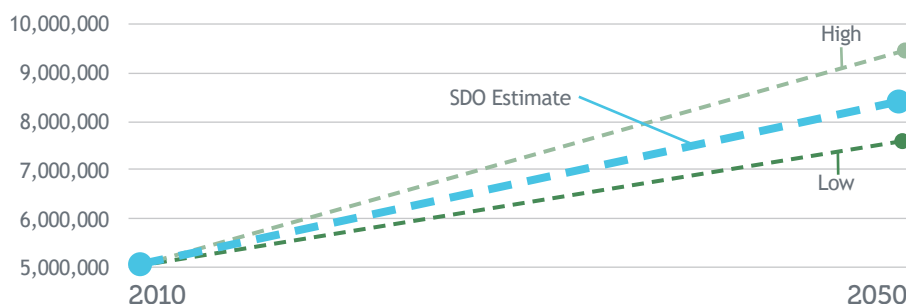
$$\text{Demand} = \text{Population} * \text{gpcd}$$

For the SWSI Update, five scenario-specific, county-level population estimates for 2050 will be developed along with scenario-specific per-capita water use rates.

Municipal Demand Adjustments Under Planning Scenarios

Baseline estimates of 2050 population will be based on Colorado State Demography Office economic modeling. Additional adjustments accounting for statistical and geographic variability will be made per scenario-specific considerations.

Projected Population Growth Through 2050



Future per-capita water use rates will be adjusted to reflect conditions described in each scenario and will consider economic conditions, climate, regulations and technology, and social values. Initial adjustments to future gpcd rates are shown in the table below.

Rate Adjustment Driver	Business as usual	Weak Economy	Cooperative Growth	Adaptive Innovation	Hot Growth
Population	SDO	Low	SDO, adjusted	High, adjusted	High
Climate Conditions	Current	Current	In-between	Hot and dry	Hot and dry
Initial adjustments to future gpcd rates based on drivers such as water efficiency adoption rates, future residential indoor gpcd, outdoor use, non-residential indoor use, and non-revenue water.	+ o -	+ o -	+ o -	+ o -	+ o -

Summary of municipal demand calculation process for each planning scenario



Quantify future population and urban growth



Apply climate impacts to outdoor water use



Adjust future gpcd rates and delivery loss assumptions



Calculate future municipal water demands

Self-Supplied Industrial Demands

Self-supplied industrial (SSI) demands will be estimated for each planning scenario based on general guidance in Colorado’s Water Plan. SSI demand values used in SWSI 2010 will be updated when possible and adjusted based on each planning scenario as described in the table below:

	Business as usual	Weak Economy	Cooperative Growth	Adaptive Innovation	Hot Growth
Large Industry, Snowmaking, Thermoelectric, and Energy Demands					

The adjustments to municipal gpcd rates and self-supplied industrial water demands may be adjusted to maintain the overall ranking of M&SSI water demands described in the planning scenarios.

A Business as Usual	B Weak Economy	C Cooperative Growth	D Adaptive Innovation	E Hot Growth
Water Supply: 3 water drops	Water Supply: 3 water drops	Water Supply: 2 water drops	Water Supply: 1 water drop	Water Supply: 1 water drop
Climate Status: 3 thermometers	Climate Status: 3 thermometers	Climate Status: 3 thermometers	Climate Status: 4 thermometers	Climate Status: 4 thermometers
Social Values: 3 trees	Social Values: 3 trees	Social Values: 4 trees	Social Values: 5 trees	Social Values: 1 tree
Agri. Needs: 2 tractors	Agri. Needs: 4 tractors	Agri. Needs: 4 tractors	Agri. Needs: 4 tractors	Agri. Needs: 4 tractors
M&I Needs: 3 glasses	M&I Needs: 1 glass	M&I Needs: 2 glasses	M&I Needs: 3 glasses	M&I Needs: 4 glasses

OUTPUT: Future M&SSI demands will be estimated for each of the five planning scenarios. The demand projections for each scenario will represent average annual demands in the year 2050. A monthly distribution will be used to prepare data for the hydrologic gap analysis and to provide an estimate of return flows under each planning scenario. The demand data will account for delivery losses (consistent with the approach to agricultural diversion demands) and will represent demands for water “at the river”.

The data will be input into CDSS surface water allocation models or other analysis tools to estimate future M&SSI hydrologic gaps for each planning scenario. Note that proposed IPPs described in Basin Implementation Plans will NOT be included in the surface water allocation models. Instead, it is anticipated that more detailed modeling analyses of IPPs may occur in forthcoming Basin Implementation Plan updates.

FOR MORE INFORMATION

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



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