

Vina Subbasin Water Budget Overview, 3/17/2020

Draft water budgets for the Vina Subbasin will be presented for discussion purposes. The water budget components and assumptions related to different water budget scenarios being developed for the Vina Subbasin Groundwater Sustainability Plan (GSP) are summarized below.

Water Budget Components

Water budgets are under development for the Vina Subbasin as required by the GSP Regulations (§354.18). Water budgets are required for the land and surface water system (land surface and surface water bodies), the groundwater system, and the basin as a whole (Figure 1).

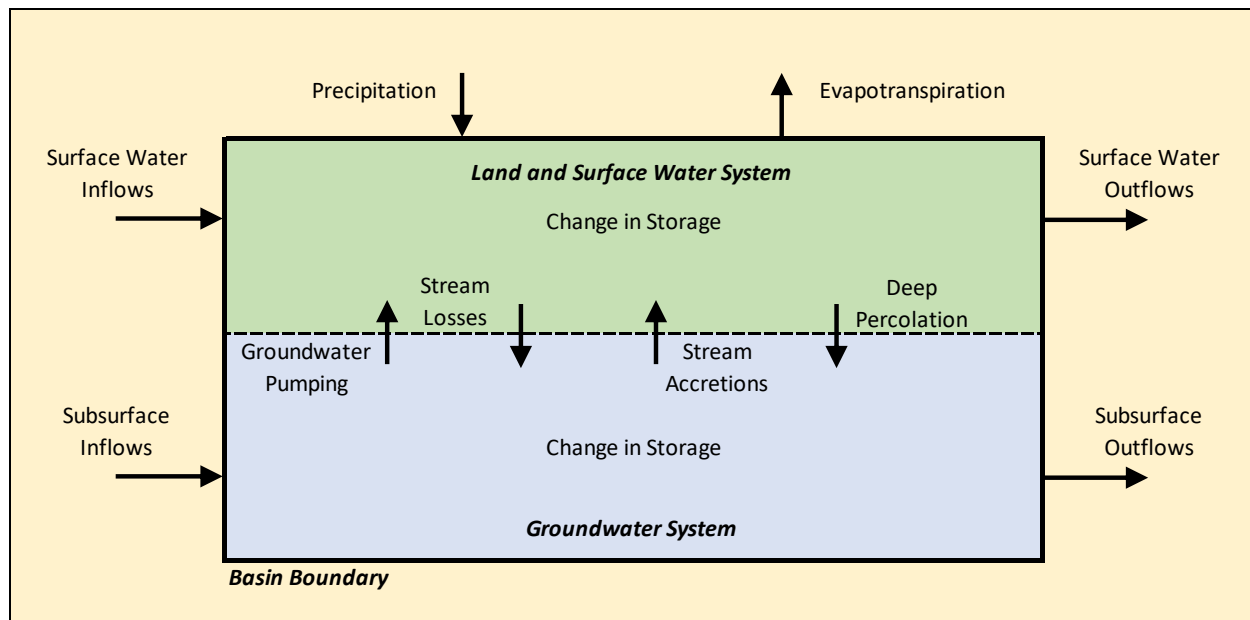


Figure 1. Primary Water Budget Components.

Primary water budget components include the following:

- Basin Inflows
 - Surface Water Inflows – Surface water flowing into the basin across the basin boundary, including streams, diversions, and drainage from upslope lands.
 - Precipitation Inflow – Precipitation falling within the basin as rainfall or snow.
 - Subsurface Inflow – Groundwater inflow from adjacent basins.
- Basin Outflows
 - Surface Water Outflows – Surface water flowing out of the basin, including stream outflows, diversions, and surface runoff to downstream basins.
 - Evapotranspiration – Consumptive use of water through the processes of evaporation and transpiration occurring within the basin.
 - Subsurface outflow – Groundwater outflow to adjacent basins.
- Surface Water – Groundwater Exchanges
 - Groundwater Pumping – Extraction of water from the groundwater system through pumping for use in the land and surface water system.

- Stream Accretions – Flow of groundwater to the land and surface water system (streams, lakes, etc.).
- Deep Percolation – Flow of infiltrated water from the root zone to the underlying groundwater system.
- Stream Losses – Flow of surface water to the groundwater system.
- Change in Storage – Change in the amount of water stored in the land and surface water system and in the groundwater system.

Water Budget Scenarios and Assumptions

The following assumptions have been developed to prepare draft water budget scenarios for the GSP:

Water Budget Scenario	Assumptions			
	Land Use	Urban Demands	Diversions	Hydrology
Historical	2000-2018	2000-2018	2000-2018	2000-2018
Current	2015-2016	2016-2018	2015-2016	1971-2018 ¹
Future, no Climate Change	2015-2016	2050 ²	2015-2016	1971-2018 ¹
Future, 2030 Climate Change	2015-2016	2050 ²	2015-2016	1971-2018 ³
Future, 2070 Climate Change	2015-2016	2050 ²	2015-2016	1971-2018 ⁴

1. WY2004 and WY2005 added at end of simulation to provide 50 years of hydrology.
2. Primarily based on CalWater 2050 preliminary draft projections for 2020 UWMP.
3. Historical hydrology modified based on DWR Central Tendency climate projections for 2030.
4. Historical hydrology modified based on DWR Central Tendency climate projections for 2070.