

Wyandotte Creek Subbasin Water Budget Overview

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

Water Budget Components

Water budgets are under development for the Wyandotte Creek 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), for the groundwater system, and for the basin as a whole (Figure 1).

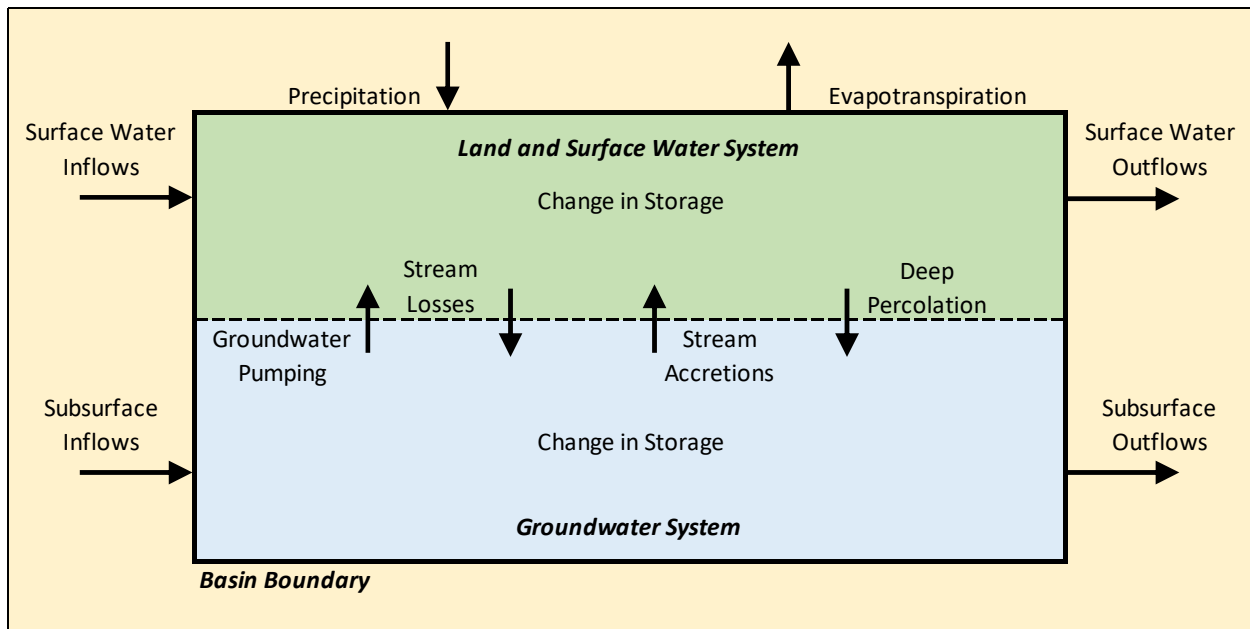


Figure 1. Primary Water Budget Components.

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 (Butte, North Yuba, Sutter, and Vina) and from the foothill area.
- 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 (Butte, North Yuba, Sutter, and Vina) and to the foothill area.

- 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.

Draft Water Budget Results

Draft water budget results for the Wyandotte Creek Subbasin are provided on the following page. These results are subject to change.

Wyandotte Creek Subbasin

Note: TAF/yr = thousand acre-feet per year

Land and Surface Water System

Water Budget Scenario	Inflows (TAF/yr)				Outflows (TAF/yr)				Change in Storage (TAF/yr)
	Surface Water In	Groundwater Pumping	Stream Accretions	Precipitation	Evapotranspiration	Deep Percolation	Stream Losses	Surface Water Out	
Historical	1,067	47	36	131	87	71	10	1113	0
Current	924	43	32	136	83	70	10	973	0
Future, No Climate Change	924	45	29	136	82	67	10	976	0
Future, 2030 Central Tendency	986	47	29	142	84	70	11	1039	0
Future, 2070 Central Tendency	1,036	49	27	145	87	71	12	1087	0

Groundwater System

Water Budget Scenario	Inflows (TAF/yr)			Outflows (TAF/yr)			Change in Storage (TAF/yr)
	Deep Percolation	Stream Losses	Subsurface In	Groundwater Pumping	Stream Accretions	Subsurface Out	
Historical	71	10	25	47	36	26	-3
Current	70	10	22	43	32	26	0
Future, No Climate Change	67	10	22	45	29	25	0
Future, 2030 Climate Change	70	11	22	47	29	27	0
Future, 2070 Climate Change	71	12	22	49	27	29	0

Entire Basin

Water Budget Scenario	Inflows (TAF/yr)			Outflows (TAF/yr)			Change in Storage (TAF/yr)
	Surface Water In	Precipitation	Subsurface In	Surface Water Out	Evapotranspiration	Subsurface Out	
Historical	1,067	131	25	1113	87	26	-3
Current	924	136	22	973	83	26	0
Future, No Climate Change	924	136	22	976	82	25	0
Future, 2030 Climate Change	986	142	22	1039	84	27	0
Future, 2070 Climate Change	1,036	145	22	1087	87	29	0