Lower Santa Cruz River Basin Study

DRAFT Supply-Demand Scenario Assumptions

	Slow, Compact Growth		Medium, Official Growth		Rapid Outward Growth		
	B	**D**	**A**	**E**	**C**	**F**	**Comments**
Supply (Climate) Summary	**Best Case Climate**	**Worse Case Climate**	**Current Climate**	**Worse Case Climate**	**Best Case Climate**	**Worse Case Climate**	Best Case Climate: Lower emissions based on RCP 4.5 Worse Case Climate: Higher emissions based on RCP 8.5
Demand (Growth) Summary	**Slow Compact Growth**	**Slow Compact Growth**	**Official Projections**	**Official Projections**	**Rapid Outward Growth**	**Rapid Outward Growth**	Growth series from Arizona Department of Administration. Official growth pattern from PAG Land Use Model. Compact and outward growth patterns defined within CAP Service Area Model
Municipal Demand: AZ Dept. of Admin. Population Growth Rate	Low Series	Low Series	Medium Series	Medium Series	High Series	High Series	Arizona Department of Administration Population Series Projections https://population.az.gov/population-projections
Municipal Demand: Infill vs. Outward Growth	In-Fill/Redevelopment	In-Fill/Redevelopment	Baseline CAP-SAM assumption	Baseline CAP-SAM assumption	Outward	Outward	Assumes outward growth will be dependent on groundwater needing replenishment outside area of hydrologic impact; and in-fill growth will use renewable water sources served directly
Municipal Demand: Develop Ag Land or Undeveloped Land First	Low GPHUD development tends to replace high water use ag land.	Low GPHUD development tends to replace high water use ag land.	Baseline CAP-SAM assumption	Baseline CAP-SAM assumption	Higher GPHUD development occurs on undeveloped land before replacing agriculture	Higher GPHUD development occurs on undeveloped land before replacing agriculture	CAP-SAM allows adjustment of preference for new development on agricultural or undeveloped land; for Green Valley CAP-SAM will use current FICO build-out estimates
Municipal Demand: Gallons Per Household Unit Per Day (GPHUD)	Decline faster than expected	Decline faster than expected	Decline as expected	Decline as expected	No change in current GPHUD	No change in current GPHUD	Reflects current water conservation trends expressed in gallons per housing unit (GPHU) demand
Agricultural Demand: Consumptive Use (CU) Crop	Some ag areas convert to low CU crops	Some ag areas convert to low CU crops	Baseline CAP-SAM assumption	Baseline CAP-SAM assumption	Some ag areas convert to higher CU crops	Some ag areas convert to higher CU crops	Ag Sub-team reports that current level of farming will continue with acreage approximately constant unless replaced by development.
Agricultural Demand: New FICO Groundwater Savings Project in Green Valley	11,000 AF in 2019, 22,000 AF by 2030	11,000 AF in 2019, 22,000 AF by 2030	Baseline CAP-SAM assumption	Baseline CAP-SAM assumption	No savings	No savings	FICO GSF Phases I & II permitted for 11,000 AFY each; Interacts with urbanization of FICO land. (Urbanization of FICO land will displace Groundwater Savings Facility.) Tied to year of putting CAP agricultural pool water to use, provided it is available.
Industrial Demand: Manufacturing	Slow economic growth and/or greatly improved water use efficiency	Slow economic growth and/or greatly improved water use efficiency	Baseline CAP-SAM assumption	Baseline CAP-SAM assumption	Rapid economic growth that relies on groundwater, minimal improvements in efficiency	Rapid economic growth that relies on groundwater, minimal improvements in efficiency	Assumes outward growth will be dependent on groundwater replenished outside area of hydrologic impact; in-fill growth will use renewable water sources. Manufacturing assumed to grow in proportion to population in each service area.
Industrial Demand: Mining (Green Valley area)	No new mines	No new mines	Baseline CAP-SAM assumption	Baseline CAP-SAM assumption	New mine in 2025, Existing mines expand	New mine in 2025, Existing mines expand	***Proposed Assumption: Groundwater pumping for the Rosemont mine at the Sahuarita well fields will begin in 2025 under the high risk scenario.*** The high risk scenario also has a 30% increase in water use for mine expansion by 2060. Per the Rosemont mine FEIS, pumping will be 5,000 AFY for 20 years. All scenarios assume TON CAP water will continue to be leased to ASARCO. PERMIT IS 10,000 AF. This entitlement has a high priority and is last to be reduced during CAP shortages.
Replenishment of Mining Demand: Recharge at Project Renews site	Start Year 2020	Start Year 2020	Baseline CAP-SAM assumption	Baseline CAP-SAM assumption	Start Year 2025	Start Year 2025	*Proposed Assumption - Community Water of Green Valley's CAP allocation (2,858 AFY) will be recharged at Project Renews, but starting dates vary by scenario.*
Environment's Demand: Riparian Evapotranspiration	Changes with climate and availability of surface water and shallow groundwater	Changes with climate and availability of surface water and shallow groundwater	Baseline CAP-SAM assumption	Changes with climate and availability of surface water and shallow groundwater	Changes with climate and availability of surface water and shallow groundwater	Changes with climate and availability of surface water and shallow groundwater	8,000 AFY estimate from ADWR Tucson Active Management Area Model Report #24, page 14. Will be adjusted according to selected climate scenarios.