

**Central Yavapai Highlands Water Resources Management Study - Phase I
Demand Analysis**

Draft

A	B	C	D (C-B)	E	F	G	H (E+F+G)	I (E/B)	J	K	L (C*K)	M	N	O (L+M+N)	P (J-O)
Water Planning Area ¹	2006 Population ²	2050 Population ²	Pop. Change	2006 Mun/Dom Demand ³ (AF/yr)	2006 Com/Ind Demand ³ (AF/yr)	2006 AG Demand ³ (AF/yr)	Total 2006 Demand	2006 ⁴ GPPD	Estimated Available Water Supply ⁵ (AF/yr)	2050 ⁶ GPPD	2050 Mun/Dom Demand ⁶ (AF/yr)	2050 Com/Ind Demand ⁷ (AF/yr)	2050 AG Demand ⁸ (AF/yr)	Total 2050 Demand	2050 Water Supply +/- (AF/yr)
Camp Verde	12,497	23,277	10,780	1701	783	9,320	11,804	122	11,804	112	2,920	783	6,213	9,917	1,887
Dewey Humboldt	4,134	6,943	2,809	629	16	569	1,214	136	1,214	120	933	700	37	1,670	-456
Clarkdale	3,999	22,460	18,461	481	0	31	512	107	512	75	1,887	300	31	2,218	-1,706
Cottonwood	20,400	77,630	57,230	3,399	1,753	1,137	6,289	149	6,289	125	10,870	1,753	758	13,381	-7,092
Jerome	510	800	290	282	0	0	282	494	282	255	229	53	0	282	0
Prescott Valley	41,610	146,000	104,390	6,221	545	55	6,821	133	6,821	121	19,790	900	0	20,690	-13,869
Chino Valley	12,690	63,690	51,000	1,325	522	1,691	3,538	93	2,755	75	5,351	4,192	158	9,701	-6,946
Prescott	49,072	100,000	50,928	10,531	1	375	10,907	192	10,907	125	14,003	3,224	375	17,602	-6,695
Sedona	11,080	16,300	5,220	3,801	33	278	4,112	306	4,112	300	5,478	33	185	5,696	-1,584
Paulden CDP	5,342	14,099	8,757	921	7	1,346	2,274	154	2,274	120	1,895	7	962	2,864	-590
Big Park CDP	7,731	8,810	1,079	1,363	1,151	0	2,514	157	2,514	198	1,954	1,151	0	3,105	-591
Cornville CDP	4,075	7,448	3,373	959	0	2,823	3,782	210	3,782	185	1,544	0	1,882	3,426	356
Lake Montezuma CDP	4,237	8,308	4,071	674	709	537	1,920	142	1,920	120	1,117	709	358	2,184	-264
Ctn-Verde Village CDP	3,373	11,706	8,333	119	0	1,124	1,243	31	1,243	125	1,639	0	749	2,388	-1,145
Williamson CDP	5,228	11,845	6,617	1,491	0	0	1,491	255	1,491	221	2,932	0	0	2,932	-1,441
Verde CCD	1,644	4,377	2,733	542	690	1,322	2,554	294	2,554	235	1,152	690	881	2,724	-170
Prescott CCD	11,012	29,312	18,300	1,349	0	4,936	6,285	109	6,285	135	4,433	8	2,556	6,997	-712
Mingus Mtn CCD	1,700	4,525	2,825	484	728	487	1,699	254	1,699	215	1,090	728	325	2,143	-444
Humboldt CCD	230	612	382	54	0	759	813	210	813	170	117	0	506	623	190
Ashfork CCD	471	36,250	35,779	36	0	2,796	2,832	68	2,832	134	5,441	0	1,398	6,839	-4,007
Total	201,035	594,392	393,357	36,362	6,938	29,586	72,886		72,103		84,775	15,231	17,375	117,381	-45,279

1. See Demand Analysis and Data Sources Documentation for discussion of WPA boundaries. Note: Many municipal boundaries vary from the WPA boundaries.
2. See Population Comparisons for 2006 and 2050 population assumptions.
3. See CYHWRMS - Water Planning Area - Water Use and Available Supply Summary Table for all 2006 Demand Estimates. (Note: Mun/Dom demands include Com/Ind demands delivered by water providers. Column F - Com/Ind demands are individually served through private wells.
4. 2006 Gallons Per Person per Day is calculated by dividing the 2006 Mun/Dom demand by the 2006 population (conversion formula: AF/person * 325,851gal/AF / 365day/year = gal/person/day (GPPD)).
5. This data represents the "Status Quo method" - See CYHWRMS - Water Planning Area - Water Use and Available Supply Summary Table for supporting data per Water Planning Area.
6. 2050 GPPD was provided for each Water Planning Area. The value is multiplied by the 2050 population to calculate 2050 Municipal/Domestic Demand (conversion formula: person * gal/person/day / 325,851gal/AF * 365day/year = AF/year)
7. 2050 Commercial/Industrial Demands are held in Status Quo for 2050 for WPAs outside of the PrAMA (except Clarkdale and Jerome who provided their own estimate and 240 AF was added to the Verde CCD for new GC on reservation). WPAs in the PrAMA include existing uses plus additional (currently unused) groundwater rights (Type I and Type II) and withdrawal permits (59s).
8. Outside the PrAMA 2050 Agricultural Groundwater Demand is assumed to be a percentage (67% - Verde Valley Sub-Basin, 50% - Big Chino Sub-Basin) of the 2006 Agricultural Demand (except Clarkdale and Jerome who provided their own estimate). In the PrAMA Agricultural Surface Water Demand (Granite Dells Ranch - Prescott) is assumed to remain constant and 2050 uses of groundwater were determined by ADWR based on extinguishment of rights.

Note: All Water Planning Areas include demands for water providers and private water users - see Planning Area Water Use Summary Table.

Camp Verde - Stanley Bullard reported for the Camp Verde Water System and verified their 2006 pop. - 3622; 2050 population - 7243; 2006 Demand - 491 AF; and 2050 GPCD - 154. 2008 H3J Report estimates for total Camp Verde population and 2050 GPPD were used in this analysis. Includes Camp Verde Yavapai-Apache Nation population based on DES estimates (718-2006, 890-2050)

Dewey Humboldt - All assumptions are based on 2008 H3J Consulting Report.

Clarkdale - The Town of Clarkdale water service area is completely within the town limits, therefore, the Planning Area is the town boundary. 2006 Population numbers were obtained from the 2008 H3J Consulting Report and were verified per correspondence from Mayor Doug Von Gausig email dated October 3, 2008. 2050 GPPD and 2050 C/I & Ag demands were provided by Doug Von Gausig by email dated June 15, 2009. Includes Clarkdale Yavapai-Apache Nation population based in DES estimates (120-2006, 380-2050).

Cottonwood - The City of Cottonwood water department services areas outside of the city limits and, therefore, the planning area includes both the city and the unincorporated areas within the water service area. Demands shown on this table include those of the Cottonwood water services department and other public and private entities - see Water Planning Area - Water Use and Available Supply Summary Table. Population (11,201 Cottonwood + 8,199 Verde Villages) for the entire planning area were verified per correspondence from Assistant City Manager Robert Hardy email dated October 3, 2008. 2050 GPPD assumption is from 2008 H3J Consulting Report

Jerome - The Town of Jerome water service area extends outside of the town limits; therefore the Planning Area includes both the town and unincorporated areas. 2006 and 2050 Population, 2050 GPPD, and water usage numbers were provided per correspondence by Jane Moore.

Prescott Valley - The Town of Prescott Valley water department services areas outside of the town limits and, therefore, the planning area includes both the town and the unincorporated areas within the water service area. 2006 and 2050 Population, 2050 GPPD and water use numbers for the entire planning area were provided per correspondence from Water Resources Manager John Munderloh emails dated October 6, 2008 and November 10, 2008.

Chino Valley - The Town of Chino Valley WPA has a portion of City of Prescott's WPA extending into the area (in CVID area). Population and water use numbers were verified in a meeting on January 28, 2009. See meeting notes "Meeting_012809". 2050 GPPD assumption is from 2008 H3J Consulting Report.

Prescott - 2006 Population reported by Connie Tucker (COP) 2/18/09 and includes service area boundaries in Prescott, the surrounding unincorporated areas within the Prescott water service area, and Chino Valley. 2050 GPPD assumption is from 2008 H3J Consulting Report.

Sedona - 2050 Population and 2050 GPPD were provided by the city of Sedona at meeting on Jan. 8, 2010. Population estimates are from Table 1 and Table 14 of Status Report- City of Sedona Land Use and Population, July 1, 2009. 2050 Population represents residential build out. (Note: Populations include both Yavapai and Coconino Counties.) The city notes that due to high tourism based commercial uses as a proportion of the total water use the unit GPPD is higher than that of communities having more balanced residential/commercial use ratios. The City anticipates that a use situation similar to that prevailing in 2006 will prevail in 2050 with a slightly lower ratio of residential accounts to commercial accounts.

Paulden CDP - 2050 GPPD estimated to be 90% of 2006 GPPD per correspondence from John Rasmussen dated Nov. 2, 2009. All other assumptions are based on 2008 H3J Consulting Report.

Big Park CDP - All assumptions are based on 2008 H3J Consulting Report.

Cornville CDP - 2050 GPPD estimated to be 90% of 2006 GPPD per correspondence from John Rasmussen dated Nov. 2, 2009. All other assumptions are based on 2008 H3J Consulting Report.

Lake Montezuma CDP - 2050 GPPD estimated to be 90% of 2006 GPPD per correspondence from John Rasmussen dated Nov. 2, 2009. All other assumptions are based on 2008 H3J Consulting Report.

Ctn/Verde Villages - A portion of this unincorporated area is served by the Cottonwood water department. Therefore, based on correspondence with Cottonwood Assistant City Manager Robert Hardy email dated December 2, 2008 the population (8,199 served by city of Cottonwood) and water usage amount reported for the city of Cottonwood were subtracted from the numbers provided in the 2008 H3J Consulting Report. 2050 GPPD assumption is from 2008 H3J Consulting Report.

Williamson CDP - Population using DES data.

Prescott CCD - 2006 and 2050 populations includes Las Vegas Ranch. 2006 population estimated using Yavapai County parcel data. 2050 population calculated assuming an approximate 2.25% growth rate. 2050 GPPD estimated to be 90% of 2006 GPPD per correspondence from John Rasmussen dated Nov. 2, 2009.

Mingus Mountain and Humboldt CCDs - 2006 population estimated using Yavapai County parcel data. 2050 population calculated assuming an approximate 2.25% growth rate. 2050 GPPD estimated to be 90% of 2006 GPPD per correspondence from John Rasmussen dated Nov. 2, 2009.

Ashfork CCD - 2006 and 2050 populations include CVCF and Yavapai Ranches. 2006 population estimated using Yavapai County parcel data. 2050 population calculated assuming an approximate 2.25% growth rate plus projected population for the Ranches. 2050 GPPD estimated to be 90% of 2006 GPPD per correspondence from John Rasmussen dated Nov. 2, 2009. 2006 GPPD very low because much water supply is actually hauled instead of delivered.