'State of the Water'

PAWSD Analysis of Secure Water Supplies for Archuleta County

Raw water storage

Raw Water Storage		
Reservoir Name	Volume(acre feet)	
	Spill way	Usable
Hatcher	1,735	880
Stevens	1,775	1,730
Lake Pagosa	1,276	920
Village	700	228
Lake Forest	465	300
Snowball	14	12
*Pinon	198	162
TOTAL:		4,070

Note: *PAWSD does not use water from Pinon, the golf course and several condominium villages use the raw water from Pinon for landscape irrigation.

**Both Martinez and Dry Gulch are not constructed nor are there any plans developed for the construction of either of these two reservoirs.

PAWSD Diversion Rights

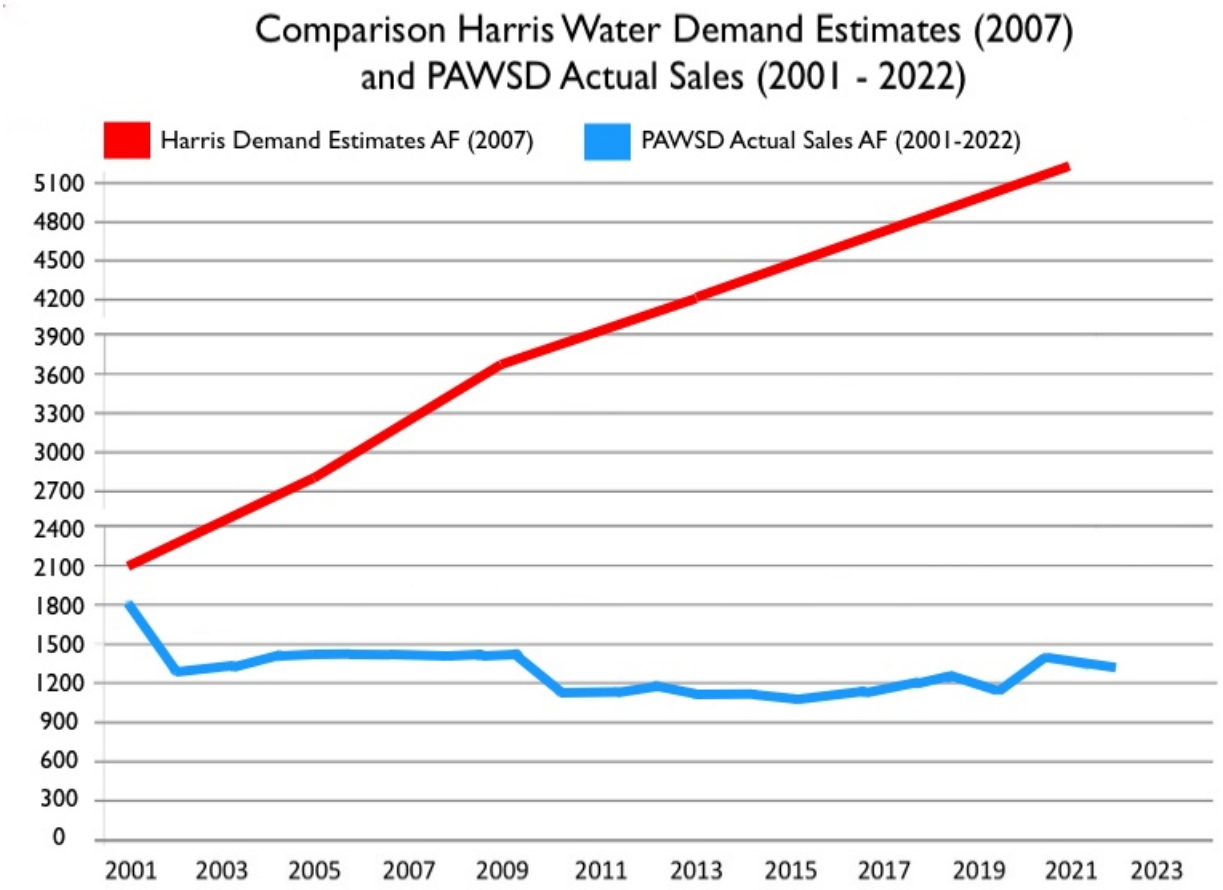
Water Access (Rights)				Acre-Ft/Year
Four Mile Diversion	12.8	cfs	Absolute	9,639.0
	20.0	cfs	Conditional	15,061.0
San Juan Diversion	8.0	cfs	Absolute	6,024.4
	16.0	cfs	Conditional	12,048.8
West Fork Diversion	5.0	cfs	Absolute	3,765.2
TOTAL	62.7	cfs	TOTAL	46,537.4
TOTAL ABSOLUTE	25.8	cfs	TOTAL ABSOLUTE	19,428.6

Future Water Demand: Accurate estimates vs. Inaccurate estimates

Engineering estimates of likely future water demand, provided to PAWSD for planning purposes, has too often been grossly unrealistic. For example, the 2007 estimate of future water demand, provided by Harris Engineering to justify the Dry Gulch purchase, was built upon a linear projection of "EU growth" without taking into account that 40% of the new

homes being built were second-homes, and without any reference to the actual (flat) water demand due to community water conservation efforts.

To compare the 2007 Harris estimate with actual PAWSD water sales:



The recent Wilson Water Group study made similarly poor estimates of municipal demand growth, due in part to their estimate of 5% population growth, when in fact recent growth has been less than 1.5%.

Future needs

Physical things like reservoirs, treatment plants, pump stations, and storage tanks are becoming very expensive to construct and maintain, but can be constructed in smaller sizes such as one million gallons, as needed. Oversizing these types of assets is detrimental to the quality of water, so they must be sized approriately.

When building reservoirs, sizing is equally important. Oversized reservoirs without ongoing water circulation and proper oxygenation can become clogged with algae and

vegetation and lose their value as a drinking water source. Additionally, an oversized reservoir may lose massive amounts of water due to evaporation and seepage.

Reservoir planning must also take into consideration pumping costs, if the reservoir is located at a lower elevation than its water users. Gravity fed delivery is always much cheaper to operate.

Ongoing capital improvement

Major projects that have kept our communities water infrastructure in pace with its needs.

- Hatcher WTP Expansion 1982 (from 0.07 MGD to 1 MGD)
- Stevens WTP Expansion Circa 1984 (0.5 MGD)
- Hatcher WTP Expansion II Circa 2006 (from 1 to 2 MGD)
- San Juan Pipeline and WTP Circa 2008 (new 3 MGD)
- Emergency Response Plan for entire district (2022)
- Hatcher WTP Expansion/Upgrade III Circa 2010 (2 MGD with room for additional membranes to expand to 4 MGD.)
- Mission Booster Pump Station allowing potable water to be pumped directly to the one million gallon Hatcher storage tank, in the event of an Hatcher reservoir issue or a dam failure.
- Stevens Reservoir Enlargement 2011 (from 790 acre feet to 1,775 acre-feet.)
- Lake Forest Pumping Station 2013 (allowing the use of water stored in upstream reservoirs)
- Snowball WTP Replacement/Expansion 2025, from 1.5 MGD to 3.5 MGD.
- Two pipelines connecting District 1 (uptown) to District 2 (downtown) 2015. These improvements allow either Snowball or Hatcher to serve the entire PAWSD district, should a wildfire affect one or the other of the PAWSD watersheds.

Emergency Planning

PAWSD's existing 2008 Emergency Plan provides guidance for emergencies in the event of many types of disasters such as wildfires, dam failures, contamination events, tank or treatment failures and the like. It identifies resources, contact information, and procedures to follow in the event of these types of emergencies.

Future Expansion

Potential Stevens Reservoir Pump and Pipeline are currently in planning stages. This improvement will finally allow Stevens Reservoir water to be pumped to Hatcher Reservoir — PAWSD's most efficient treatment facility capable of serving 100% of PAWSD customers.