



Chapter 4: Water Supply

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Chapter Highlights:

The District's sole source of water supply is Folsom Lake, which is fed from the North, Middle and South Forks of the American River. Surface water is diverted from Folsom Lake and treated at the District's Sidney N. Peterson Water Treatment Plant.

Because of the hard rock geologic conditions beneath the District's retail service area, groundwater pumping for municipal supply is not feasible and is not a viable supply source for the District.

For emergency supply purposes, the District maintains emergency interties with several neighboring agencies including:

- Citrus Heights Water District,
- City of Folsom,
- Fair Oaks Water District,
- Placer County Water Agency, and
- City of Roseville.

These interties are constructed for the mutual benefit of the agencies involved and are intended for use during short-term localized supply outages.



CHAPTER 4. WATER SUPPLY

Presented in this Chapter is a description of the District's existing water supply sources and emergency interties with adjacent agencies.

SURFACE WATER SUPPLY

The District's sole source of water supply is Folsom Reservoir, which is fed from the North, Middle and South Forks of the American River. The American River originates in the Sierra Nevada and has three forks that combine at Folsom Lake, the watershed's largest reservoir. The North Fork begins at Soda Springs and accounts for 20 percent of the river's flow; the Middle Fork, which begins in the mountains west of Squaw Valley, transitions into the North Fork at the Hwy 49 bridge, contributing 40 percent to the river; and the South Fork starts near Echo Summit and accounts for 40 percent of the flow. The annual precipitation within the watershed varies from 25 to 80 inches and the winter snow pack accounts for about 40 percent of the watershed's water supply.

The District is presently entitled to obtain up to 82,200 acre-feet annually (afa) of surface water from Folsom Lake. Thirty-three thousand (33,000) afa is based on pre-1914 water rights, 11,200 afa is from the District's Central Valley Project (CVP) contract, and 13,000 afa from Public Law (PL) 101-514 "Fazio Water". The remaining 25,000 afa, are contract options the District has with Placer County Water Agency (PCWA) for water stored in reservoirs above Folsom Lake. Historically, this water supply has been sufficient to meet the needs of the retail system and wholesale customers.

Raw water is moved either by gravity or by pumping from the United States Bureau of Reclamation (USBR) pumping plant located at the base of Folsom Dam. An 84-inch diameter pipeline from the USBR's facilities splits into a 72-inch diameter pipeline and then into a 54-inch diameter pipeline that conveys water to the District's WTP.

Folsom Lake water quality is considered to be excellent with low turbidity, cool temperatures, and low indications of pathogen presence. The District's WTP (described in Chapter 2) is designed to treat the surface water supply to meet all applicable drinking water quality requirements.

GROUNDWATER SUPPLY

The granite rock mass below the soil in much of the District's retail area is impermeable. The highly weathered decomposed granite under the soil, or in some cases at the surface, has very low permeability. Groundwater occurs only in small openings along fractures. The amount of groundwater within the fracture system in the retail area is very limited. As indicated in the 1993 Sacramento County report, groundwater pumping for municipal supply is not feasible in either the City of Folsom or the District's retail service area.

EMERGENCY SUPPLY CONNECTIONS

Although the District is capable of supplying all its water needs from the WTP, the District maintains intertie connections in the retail area with the following five neighboring water agencies:

- Placer County Water Agency
- City of Folsom
- City of Roseville
- Citrus Heights Water District
- Fair Oaks Water District

The District can feasibly transfer water between jurisdictions through four of these interties or access water to supplement its distribution system (see Table 4-1). Each of these facilities is designed for short-term demand shortage assistance (i.e., interruptions in supply from the WTP). In most cases, long-term supply shortages that would affect the District would also limit the availability of water from adjacent agencies. Since the hydraulic grade lines are very similar at the connection points between the District and Citrus Heights Water District, City of Folsom, and Fair Oaks Water District, these interties are considered predominantly one-way feeds from the District. It is difficult to quantify the reliable supply available from these interconnections, because they are pressure dependent.

To continue to improve water supply availability and reliability, the District is investigating additional interconnections with adjacent agencies. As part of these investigations, it is recommended that the District consider the installation of pumper connections (includes a hydrant on District's transmission main and a hydrant on the neighboring Agency's transmission system). This configuration could allow the District to pump into their system from a neighboring Agency's system. This would also allow the District to better quantify the reliable supply which could be delivered to the District. A description of the existing intertie characteristics between agencies is provided in Table 4-1. Figure 4-1 shows the locations of these viable emergency connections as described in Table 4-1. In addition, preliminary investigations have begun to explore the potential to use the CO-OP Transmission Pipeline to transport alternative supplies from water purveyors further to the west in Sacramento County.

Table 4-1. Emergency Interrites

Agency	Number of Interrites	Diameter, inches	Estimated Flow Based on Pipe Size, mgd	Intertie Description
Placer County Water Agency ^(a)	2	12	2.7	The first intertie is located near the intersection of Twin Rocks Road and Vogel Valley Road in the <u>Lower Granite Bay Pressure Zone</u> . It is a 12-inch diameter valve and the primary intent of this tie-in is for the District to supply PCWA customers. However, it can also be used to provide water back to the District during water transmission interruptions and to provide supplemental water to particular areas.
	16	4.7		The second intertie is a pressure reducing station (PRS), which the District constructed just a few years ago. This PRS connects PCWA's Los Lagos Pressure Zone to the Lower Granite Bay Pressure Zone along Boulder Road, southwest of the Los Lagos Tank.
City of Roseville ^(b)	2	10	2.9	The first intertie is a 10-inch diameter pressure reducing valve (PRV) located at the intersection of Cavit-Stallman Road and Sierra College Boulevard, in the Sierra Pressure Zone.
	12	4.0		The second intertie is a 12-inch diameter connection at Eureka Road and Sierra College Boulevard, in the Sierra Pressure Zone.
City of Folsom ^(c)	1	8	4.3	This intertie is an 8-inch diameter valve which is located off Avalanche Peak Way, west of Baldwin Dam Road, in the ARC-North Pressure Zone.
Citrus Heights Water District (CHWD) ^(d)	3	42	-- ^(e)	The second intertie consists of two connections at the intersection of Eden Oaks and Hazel Avenue, to the Gravity Zone.
	12	2.7		The third intertie is a 12-inch connection off the CHWD 42-inch diameter transmission main at Granite Avenue to the Gravity Zone.
Fair Oaks Water District (FOWD) ^(f)	3	40	-- ^(e)	The first intertie is north of the intersection of Pershing and Main Avenue on the FOWD 40-inch diameter main, to the Gravity Zone.
	12	--		The second intertie is south of the intersection of Twin Lakes Avenue and Main Avenue on the 12-inch diameter main, to the Gravity Zone.
CO-OP Transmission Main ^(g)	3	12	--	The first intertie is at the meter at Chestnut Street, to the Gravity Zone.
	7/2	-- ^(e)		The second intertie is at the meter west of Filbert Avenue on the 7/2-inch diameter CO-OP main, to the Gravity Zone.
	12	--		The third intertie is at the meter on the 12-inch diameter main at Main Avenue and Oak Avenue, to the Gravity Zone.

^(a) Estimated flow is based on maintaining a hydraulic grade line (HGL) on the Placer County Water Agency's side of the intertie of 444 feet at the first intertie, and 631 feet at the second intertie.

^(b) Estimated flow is based on maintaining an HGL on the City of Roseville's side of the intertie of 457 feet at the first intertie and 374 feet at the second intertie.

^(c) Estimated flow is based on available flow through an 8-inch diameter valve. No HGL is available at this time.

^(d) Since hydraulic grade lines between the District and adjacent agencies are very similar at these connection points, it is not possible to quantify the reliable supply available from these interconnections. The District is currently exploring and investigating these interconnections, and others, to improve water supply reliability.

^(e) Intertie is off of main transmission system, therefore it is not considered a viable emergency intertie.

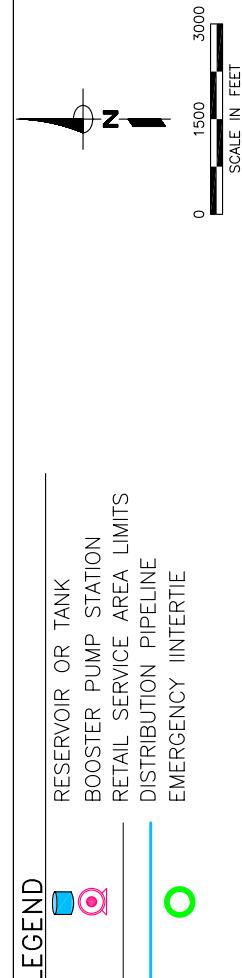
^(f) Because of the flat HGL between FOWD and the District's gravity zone, this was not considered a viable emergency intertie.

^(g) Because of the flat HGL between the CO-OP transmission main and the District's Gravity Zone, and since the CO-OP transmission is the Wholesale transmission source, this was not considered a viable emergency intertie.

**San Juan Water District
Retail Water Master Plan
Viable Emergency Intertie Locations**



Figure 4-1



LEGEND

- RESERVOIR OR TANK
- BOOSTER PUMP STATION
- RETAIL SERVICE AREA LIMITS
- DISTRIBUTION PIPELINE
- EMERGENCY INTETIE

NOTE:
INTERTIE CONNECTIONS ALONG THE CO-OP TRANSMISSION MAIN,
CONNECTIONS WITH THE FOWD AND THE 42-INCH CONNECTION
WITH CHWD ARE NOT SHOWN ON THIS FIGURE.
EACH OF THESE CONNECTIONS ARE NOT CONSIDERED VIABLE
EMERGENCY INTETIES (SEE TABLE 4-1).

