

BEAUMONT CHERRY VALLEY WATER DISTRICT

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June 29, 2009

MEMORANDUM

TO: Tony Lara
Interim General Manager

FROM: J. Reichenberger
District Engineer

SUBJECT: BCVWD Water Supply Current and Projected After 2014

This year we have added three new Board members and I thought it may be appropriate to bring all of the Board up to date on the current water supply conditions for the BCVWD and to bring them up to speed on the Beaumont Basin Adjudication and its implications relative to water supply.

In the analysis presented herein, I am making the assumption that there is **no further growth (development) in the District's service area**. In other words, we are only serving the existing ratepayers.

Background on the Adjudication

The Beaumont Basin Adjudication is a relatively complex document as are virtually all Adjudications. Adjudications come about as a result of a series of negotiations; the Beaumont Basin Adjudication was no different. The Beaumont Basin was Adjudicated in February 2004 through a stipulated judgment, i.e., all parties agreed to the terms before they went into court. The court merely memorialized the terms. To change any of the Adjudication will require going back into court. The summary presented below is “just that,” – a brief summary of the important aspects. Board members are encouraged to read the entire document if they haven't already done so. The principal concept in an adjudication is the dividing up of water rights and establishment of a “safe yield” operation of the Basin of the long term.

Implementing the Adjudication required a “physical solution” since it is not reasonable to cut off existing water users without giving them an alternative or supplemental supply. In the case of the Beaumont Basin, there was need to buy time until the San Geronio Pass Water Agency (Pass Agency) could complete the East Branch Extension Phase I (EBX I or EBX) and provide imported water to make up for the for the reduction in pumping. The Basin Adjudication provided for a 10-year period beginning in 2004 to put the Beaumont Basin in a “Safe Yield” operating mode, i.e., end the overdraft and provide the pumpers to develop alternative water supplies, import water etc. Beginning in 2014 the Basin will be in a Safe Yield basis; any pumper must replace any water which is pumped from the Beaumont Basin in excess of his/her right or allocation. If the pumper cannot or is not able to replace the water, the Beaumont Basin Watermaster will assess

the pumper in an amount sufficient to purchase the replacement water. The Beaumont Basin Watermaster is the court-appointed administrator and “accountant” of the Adjudication.

Within the Beaumont Basin there are two types of pumpers:

- **Overliers** – These are pumpers, individuals and companies like Sunny Cal Egg Ranch, golf courses like Oak Valley and PGA, and others that pump water and use it directly on their own land. These individuals typically have the “highest” right.
- **Appropriators** – such as BCVWD, City of Banning, Yucaipa Valley WD, and South Mesa Mutual Water Company. These agencies pump water and sell it to consumers. They use the water on lands they do not own. These are traditionally secondary to the overlies.

In order to come to a settlement, the Appropriators agreed to give all of the estimated safe yield (estimated to be 8,650 Acre-ft/year based on studies) to the Overliers. The Appropriators, thus, have no share of the safe yield. It should be pointed out that the safe yield in any groundwater basin is not a “static” or never changing amount. Over time there could be changes in “return flows,” captured and percolated natural runoff from changes in development, and more information and data on how the basin responds. As a result, the safe yield will be periodically re-evaluated. In the case of the Beaumont Basin in 8 to 10 years the safe yield will be re-evaluated based on the data collected. Any increase in the safe yield will go to the appropriators based on the established percentages in the Adjudication.

Allocating all of the initial estimated safe yield to the Overliers is not as bad as it sounds. The Adjudication provides for the following:

- If the Overliers do not use all of their adjudicated right, the unused portion is allocated to the Appropriators according to an agreed-upon formula. The 5-year running annual average is used for this purpose. BCVWD is entitled to 42.51% of the unused pumping right. This has started to “kick in” in 2009. The first transfer was approximately 4500 acre-ft, of which BCVWD got 42.51% or just over 1500 acre-ft.
- If the Overliers develop their property and the water demand for that development is supplied by an Appropriator, the Overlier must allocate an amount of water equal to the supplied demand back to the Appropriator. This comes from the Overlier’s right. For example, suppose an Overlier has an Adjudicated pumping right of 300 acre-ft/yr and the Overlier develops his/her property for housing that has an annual water demand of 100 acre-ft/yr. If the BCVWD serves that development, Watermaster must be notified and Watermaster will allocate 100 acre-ft/yr from the Overlier’s pumping right to the District. The Overlier gets to keep the unneeded 200 acre-ft/yr of pumping right but must use it on his/her land. It cannot be leased or sold. (Only the Appropriators can lease, sell, or transfer their water, e.g., South Mesa Mutual Water Company to BCVWD. So in the above-described case, when an Overlier develops, he/she already “brings water” and there is no net water impact on the District. If, on the other hand the Overlier has only a 50 acre-ft/yr pumping right and needs 100 acre-ft/yr for the development, all of the Overlier’s pumping right is transferred to the District, but

the District will need to “come up with the other 50 acre-ft/yr.” In this case there is a “water impact.”

- If an Appropriator supplies recycled water to an Overlier, e.g., a golf course, then Watermaster transfers the right to pump an equal amount of water to the Appropriator from the Overlier’s pumping right. So, for example, if BCVWD were to supply 1000 acre-ft/yr of recycled water to the PGA Golf Course, Watermaster would transfer 1000 acre-ft/yr from the PGA Golf Course Overlier Account to the District. The District could then pump this equivalent of groundwater for water supply to potable water users.
- Watermaster has allocated a total of 200,000 acre-ft of water volume in the Beaumont Basin for storage. The Parties to the Adjudication can request a “storage account” which gives the Party the right to store water in the Basin up to the limits of the storage account. A total of 157,000 acre-ft of storage has already been allocated by Watermaster; BCVWD has a 70,000 acre-ft storage account. This provides the Party with an opportunity to store water from wet years to use in dry years. Watermaster keeps an accounting of the water in storage.

The Adjudication involved giving all of the “safe yield” to the Overliers which meant the Appropriators (like the District) would be precluded from pumping any water unless it were totally replenished with imported water or other sources. At the time of the Adjudication there was no source of imported water, so the parties agreed to a temporary, physical solution.

The physical solution involved a 10-year long “mining of water” from the Basin called “temporary surplus” in the Adjudication. This accomplished several important things:

- Provided water to the appropriators to meet the demands during the initial 10-year period until imported water can be delivered and stored
- Lowered the Basin water level to allow the Basin to function better as a storage reservoir – store water which is brought in during wet years and supply this stored water during dry years. Unless the Basin water levels were lowered the water which was stored in the Basin during wet years would flow out of the Basin and be lost.
- Created a 200,000 acre-ft storage volume for conjunctive use and Party storage accounts.

The temporary surplus provides a total of 160,000 acre-ft water which could be pumped at the rate of 16,000 acre-ft/yr for 10 years (2004 -2014). This temporary surplus ends in 2014 at which time the Appropriators will have to replace all water pumped from Beaumont Basin Groundwater, acre-ft for acre-ft. After 2014, any Beaumont Basin groundwater pumped by an Appropriator in excess of the amount of water in their storage account (taking into account all transferred water), will need to be replenished with imported water or other water, e.g., recycled water, captured storm water from paved areas in new developments etc. This must be done on an acre-ft for acre-ft basis. **This is very important and it is important the Board fully understands the implication of this.**

As stated above, in the event the Appropriator does not replace the water as required, Watermaster will invoice the Appropriator in an amount sufficient to purchase the replenishment water. This will have ratepayer implications.

BCVWD Plans at the Time of the Adjudication

When the Adjudication was initially implemented, the District planned to purchase significant amounts of imported water from the Pass Agency and store it in the District's Beaumont Basin storage account so that when 2014 came, there would be ample water in storage to minimize the "shock." According to the 2005 Urban Water Management Plan Update, BCVWD had planned to purchase over 52,000 acre-ft of imported water between 2006 and 2014. . To date, the District has been able to purchase only about 10,000 acre-ft or so.

BCVWD also envisioned using recycled water in 2006 and also the amount set aside to remain in Cooper's Creek was 300 acre-ft/yr. This would have yielded over 1000 acre-ft in 2006 and 2500 acre-ft/yr today. Over the period from 2006 to 2014, we could have stored or used 20,000 acre-ft of water. In summary we could have had as much as 72,000 acre-ft of water in storage by 2014. (The 2005 UWPM envisioned about 61,000 acre-ft in storage by 2014 even considering a strong growth rate. Unfortunately, the District has not been able to get the recycled water system implemented for a wide variety of reasons. The District Engineer hopes the Board will see this as an important element in the District's portfolio, and move forward with this project quickly.)

But things changed:

- The U. S. Fish and Wildlife Service and the State Department of Fish and Game required 1.8 mgd (2000 acre-ft/yr) to remain in Cooper's Creek to maintain habitat for threatened and endangered species. This was negotiated as part of the environmental review process for the recycled water project. As a result only about 700 acre-ft/yr are available – not the 2500 acre-ft/yr anticipated in the UWMP. (Note that the City and BCVWD have retained the right to revisit this with Fish and Wildlife and provide data and evidence to show that the amount that needs to remain in Cooper's Creek can be reduced.)
- No sooner than the District began taking imported water from the Pass Agency that a drought was occurring up north and several court decisions were issued limiting the export of water from the Delta. As a result the District was not able to get all of the water it had planned on.

The District has done some things to offset this shortage. The District, with Board approval, has purchased water from South Mesa Mutual Water Company (South Mesa). This water is from South Mesa's temporary storage account. South Mesa does not anticipate needing it, so they have agreed to sell it to the District. Watermaster transfers this water (about 1500 acre-ft/yr) into the District's storage account. However, this ability to get water from South Mesa will also end in 2014.

Current Situation

The District's current, and only, sources of water are Edgar Canyon extractions, Beaumont Basin extractions, imported water recharged into the Beaumont Basin and transfers from South Mesa Mutual Water Company. At the present time, the District is able to pump (without replenishment) 42.51% of the temporary surplus; this amounts to 6802 acre-ft/yr. The District can do this until 2014. Then this "goes away."

As of July 1, 2008, Watermaster reported the District had 5620 acre-ft in storage in the Beaumont Basin. This is up 1120 acre-ft from the previous year.

During 2008, the District pumped a total of 13,556 acre-ft for District use. This does not include the water pumped for Banning which was deducted from the District’s total pumping and doesn’t count “against” the District. Watermaster transfers that pumping directly to Banning. Table 1 presents the current supply condition based on the current demand of 13, 600 acre-ft. This is reasonable since there has been little growth in the District in 2009 so far.

Table 1
Current (2009) Water Demand and Supply Conditions (acre-ft/yr)

Water Demand for BCVWD	13,600
Water Sources	
Edgar Canyon (25 year ave pumping)	2296
Beaumont Basin (Temporary Surplus)	6802*
State Water Project (Estimated)	3248
Transfer from South Mesa	1500
Distribution of Unused Overlier Pumping	1520
Total Supply to BCVWD	15,366
Net to Storage	1766
BCVWD Water in Storage	7386

* Not available after 2014

Table 1, shows that there is a surplus of supply over demand now and through 2013; but this only occurs as a result of the availability of State Project Water. The difference, 1766 acre-ft/yr will accumulate in the District’s storage account. By 2014, on this basis the District should have about 14,000 acre-ft in storage, i.e., about 1 year of supply. Figure 1 shows what happens between now and 2016 assuming no change in demand.

Condition in 2014 When Temporary Surplus Ends

The situation that the District will face in 2014 when the Temporary Surplus ends is shown in Table 2 and graphically in Figure 1. Again this assumes no growth in demand between now and 2014. In Figure 1, we are assuming there is some recycled water available (785 acre-ft/yr) in 2012. This will help, but not completely eliminate the deficit the District will face in 2014.

Table 2 clearly shows a shortfall of over 5,700 acre-ft/yr. This could come from storage the District had built up over time. As stated above, optimistically BCVWD could have up to 14,000 acre-ft in storage by 2014. With this much water in storage, the District could “survive” for 2 years without “Watermaster replacement water assessments” were invoiced. This would have a significant impact on the District’s water rates.

Another way of looking at it is the District will need 9000 acre-ft/yr of imported water in 2014 to meet its demand (3248 + 5751 = 8999 acre-ft/yr). This will have to be purchased from the Pass Agency – assuming it is available and at a significant price.

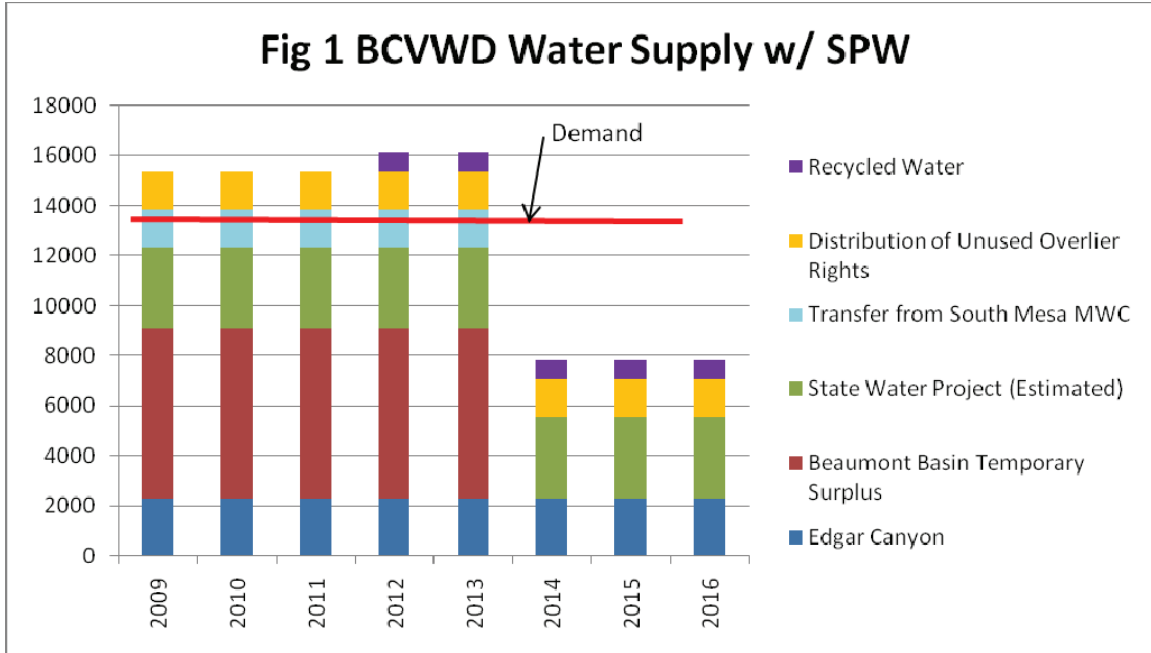
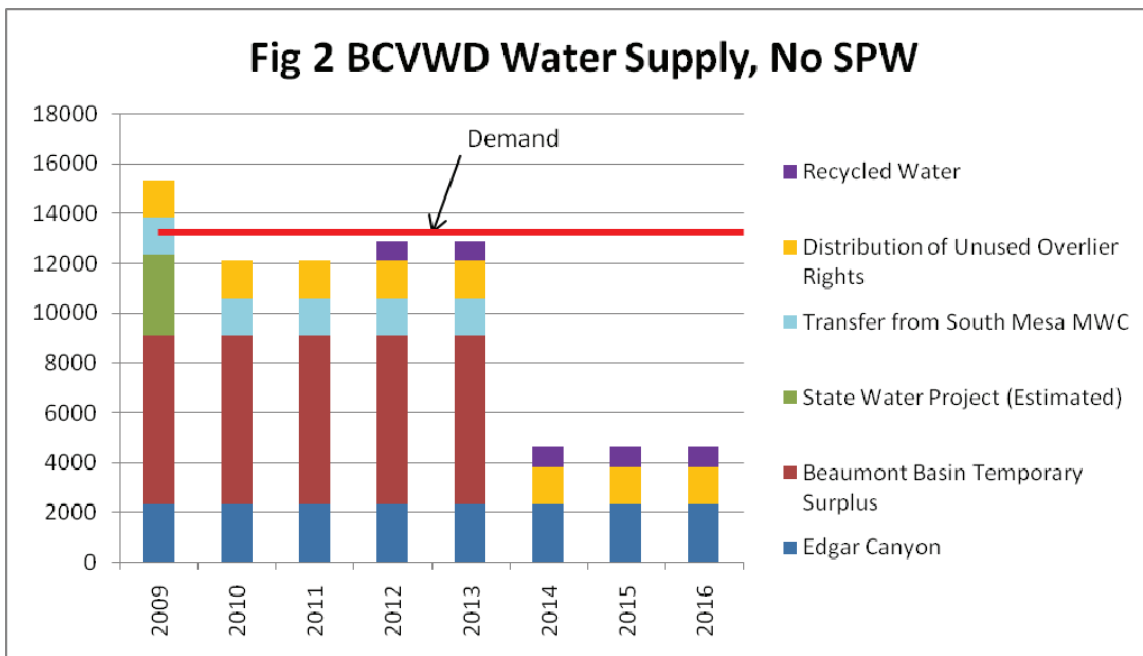


Table 2
Year 2014 Water Demand and Supply Conditions (acre-ft/yr)

Water Demand for BCVWD	13,600
Water Sources	
Edgar Canyon (25 year ave pumping)	2296
Beaumont Basin (Temporary Surplus)	0
State Water Project (Estimated)	3248
Transfer from South Mesa	0
Distribution of Unused Overlier Pumping	1520
Recycled Water	785
Total Supply to BCVWD	7849
Net to Storage	(5751)

Condition with No State Project Water (SPW)

Figure 2 shows the situation with no State Project Water beyond this year. Figure 2 shows that the supply does equal the demand. Under this condition the District would have a depleted storage account in even in 2014.



Condition with Reduced State Project Water (SPW)

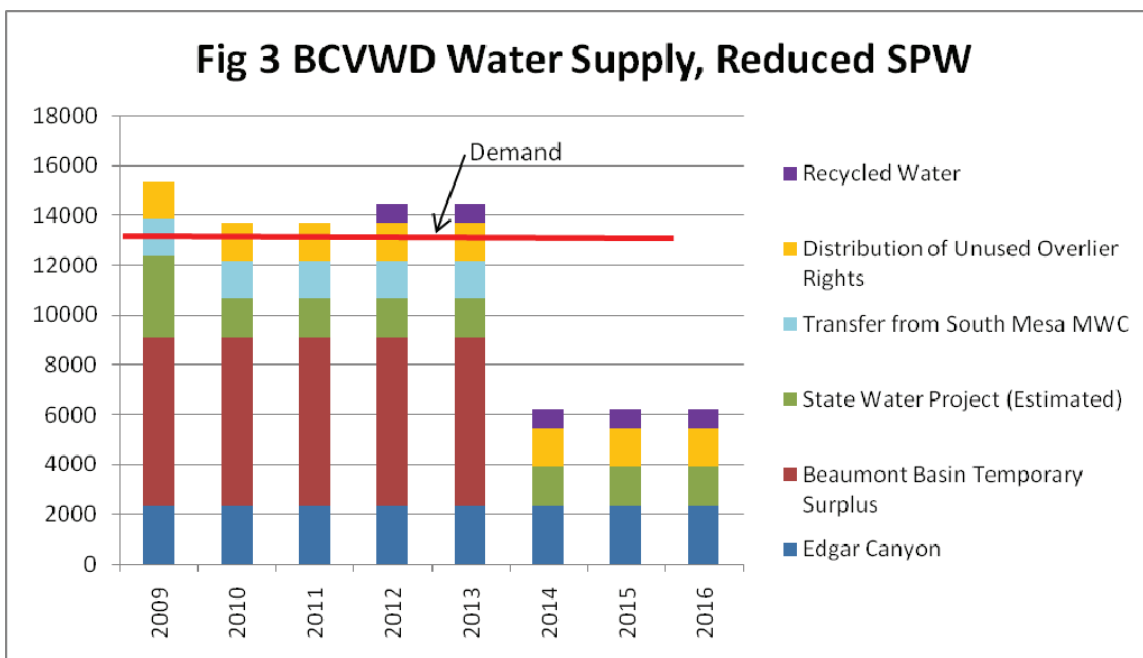


Figure 3 shows what happens if the State Project Water allocation were reduced to 1600 acre-ft/yr, i.e., about half of what the District is getting currently. This is probably a realistic situation and shows that the District is able to meet its demands between now and 2013 and have a little left over to store. Calculations indicated that with the current volume in storage, plus the accumulation in storage that would occur from now to 2013, the District could meet its 2014 demand with the shortfall coming from storage. But in 2015 and thereafter, there will be a problem. There will be no water left in storage. The District will have to find about 7000 acre-ft of water from someplace!

Condition with Reduced State Project Water but with Conservation

In this scenario, it is assumed that the District will implement water conservation to the point where the demand is reduced 20 percent over the next 2 years. It is assumed the demand reduction is permanent. Table 3 summarizes the condition. In the year 2014, there is still a short fall of about 4700 acre-ft of supply.

Table 3
Year 2014 With Conservation (20%)
Water Demand and Supply Conditions (acre-ft/yr)

Water Demand for BCVWD	10,900
Water Sources	
Edgar Canyon (25 year ave pumping)	2296
Beaumont Basin (Temporary Surplus)	0
State Water Project (Estimated)	1600
Transfer from South Mesa	0
Distribution of Unused Overlier Pumping	1520
Recycled Water	785
Total Supply to BCVWD	6201
Net to Storage	(4699)

Figure 4 shows the situation from now to 2016 graphically. Under this scenario the District will be able to put significant amounts into storage, so that we will be able to meet demands past 2016 even though Figure 4 shows a major deficit between supply and demand in the 2014 – 2016 period.

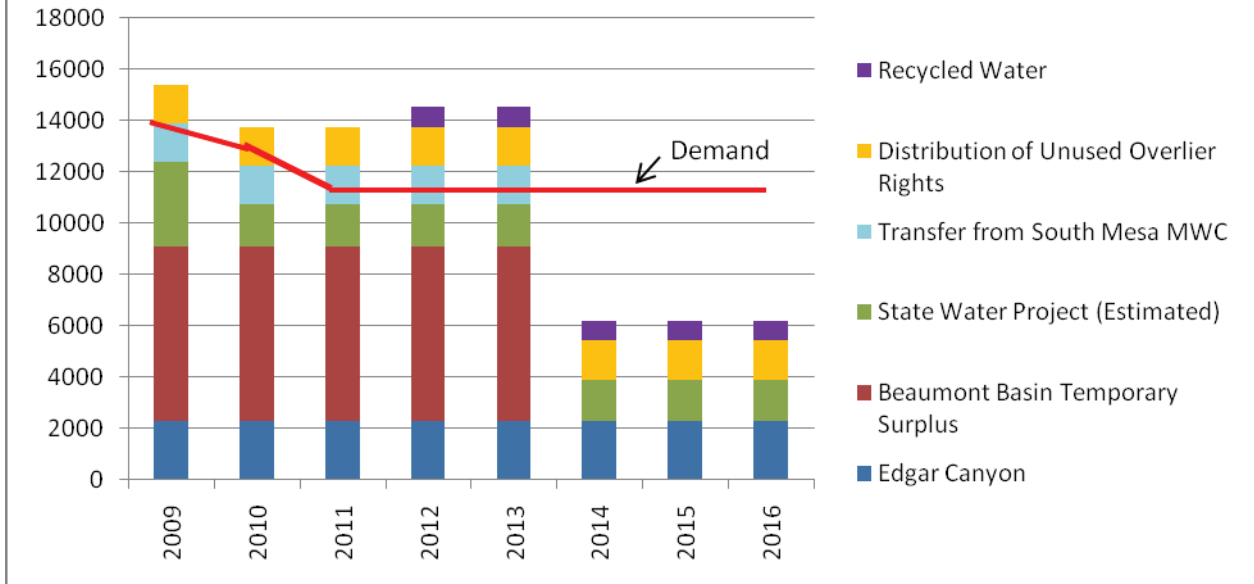
Summary of the Situation

The situation can be summarized quite simply. The District has enough water between now and 2014 to meet the demands assuming no growth. So there is enough water to meet the existing demand. However to do that, the District will need at least 1500 acre-ft/yr from South Mesa and 1600 acre-ft/yr from the Pass Agency. If there is no imported water, the District will have a water supply which is less than the demand.

When 2014 arrives the District is in a very difficult position. Even if the Board does not allow another house to be built, the District will be at least 4700 to 9000 acre-ft short each year depending on the scenario. To meet its demand, the District will have to purchase this amount of imported water or find added local water sources and implement conservation. This will impact the water rates and all ratepayers.

So what will happen if the District overpumps and cannot meet its replenishment obligation? Watermaster will determine how much replacement water is needed and go out and find it and send the bill to the District.

Fig 4 BCVWD Water Supply, Reduced SPW & Conservation



What Can the District Do?

There are a number of steps the District can take to help alleviate or reduce the problem. However to implement these, the District, the City, the Pass Agency and the other local agencies will need complete cooperation. There is no particular order; all should be undertaken as quickly as possible. We do have a few years before 2014.

1. Build up a reserve fund to purchase as much imported water as is available. If there are any wet years in the future, the District must commit to taking as much “Article 21” water as possible. The problem with Article 21 water is that it is available only on very short notice and short duration. Fortunately the District has a place to percolate it – the groundwater recharge project has extremely high percolation rates. The problem is the State Water Project conveyance system in the Pass Area is undersized. It is limited to only half of the Pass Agency’s Table A amount. The Department of Water Resources has put out the EIR for the expansion of the East Branch (EBX II) to bring it to the full Table A, but groups have challenged the EIR. If they are successful, the EBX will be limited to the current 8650 acre-ft/yr and the ability to bring in Article 21 water to meet even the existing demand will be a challenge.
2. Work with the City to develop a landscape ordinance that limits turf, requires “smart ET controllers” and encourages xeriscape. Require the City to install smart ET controllers on all street medians, city parks, and city green belts. Work with the Park District and the School District to do the same.
3. Develop an offset program wherein new developers can convert existing irrigated turf areas to drought tolerant landscaping and artificial turf at their sole expense. Several agencies have such a program. None are local to Southern California currently.

4. Institute water efficiency and water conservation rate ordinances. Many agencies are implementing a tiered rate structure called “double-double.” After a certain baseline usage, the rate for the next increment is double that of the baseline rate. If the consumer goes over the second tier, the rate is again doubled for the next increment, etc. A rate structure like that, can result in a 20 percent savings in water. The state is requiring this 20 percent reduction in water use, so it is important the District get started. If the District can conserve 20%, Table 3 and Figure 4 summarize the supply situation. Note that even with 20 percent conservation, the District will need about 6200 acre-ft/yr of imported water to meet demand. This is 36% of the Pass Agency’s Table A amount. In some years, the Pass Agency might not be able to get even this much water from the State and there will be others (Banning, Yucaipa etc.) looking for a share of this.
5. Begin to develop additional local water. For example there could be 2000 to 3000 acre-ft/yr of groundwater available in the San Timoteo Basin. This is not subject to the Beaumont Basin Adjudication and could be put into the recycled system and distributed to golf courses.
6. Explore the feasibility of extracting nitrate-contaminated groundwater at the mouth of Edgar Canyon and putting it into the recycled water system. This could generate another 1000 acre-ft/yr or so.
7. Install a well in the Singleton Basin (not in the Beaumont Basin Adjudication). The Hannon (2650 Zone) Tank site envisioned a well on the southeast corner of the property. Studies in the 1980s indicated that yields of 250 to 500 gpm could be developed. This could generate about 700 or 800 acre-ft of water.
8. Work with City and perhaps others to develop a financing package to purchase more water and water rights. This could include participation in groundwater desalters and exchanging water with other agencies. But this will take money.
9. Consider working with Yucaipa Valley Water District to use some of their surplus recycled water to supplement BCVWD. Their recycled water could be introduced into the District’s system at I-10 and Cherry Valley Blvd. Watermaster’s Resources Optimization Plan, which is about to be completed, discusses this concept.
10. Fully implement the stormwater capture program in Edgar Canyon and Noble Creek (the final phases of the Groundwater Recharge and Capture Program). Consider capturing and percolating water from stormwater retention basins constructed with new developments and transferring this water to places where it will percolate, e.g., the District’s Groundwater Recharge Site. This could develop up to 4800 acre-ft/yr of new water supply.