

MEMORANDUM

Date: September 11, 2018
To: Bentley Regehr, Wendy Sugimura
From: Bruce Aylward (AMP Insights) and Iain Fisher (Panorama Environmental)
Subject: Mono County Water Transaction Scenario – CEQA Project Description and Conceptual Program Design

THE PURPOSE OF THIS MEMO

CEQA requires the project description to contain sufficient technical economic and environmental information to allow evaluation and review of the environmental impacts (CCR Sec.15124(c)). Location, timing, extent, and intensity of impacts must be assessed. Therefore, planning for policies and programs, such as a water rights transfer program require some quantification of the policy objectives, such that the effects of the policy can be analyzed relative to existing conditions.

Since there are currently no water transfer programs operating in Mono County, the project description must, by necessity, develop a conceptual program. By definition, the recipient of any future water rights under such a program would be Walker Basin Restoration Program (WBRP) being operated by the Walker Basin Conservancy (WBC).

Therefore, to the extent that information is known, the following memo sets out the context, objectives, and budget under which the WBRP is operating. These constraints are then used to estimate a plausible upper bound to the likely quantity of water rights and by extension the likely volume of water that could be transferred to the WBRP for use downstream of the County. It should be emphasized that this scenario is no indication of intention by the WBRP but is simply a planning tool to enable analysis of impacts resulting from an identified scenario. In this scenario the case is made that any acquisition of water rights will be limited by the budget and the timescales.

The following estimate is concerned with transfer of water rights either in fee or under lease from current holders. No assessment of the uses downstream of the water right is made. More detailed analysis of the consumptive or non-consumptive uses downstream of the water rights are not assessed in this memo. Analysis of uses may form part of the CEQA analysis, to the extent that physical changes arise as a consequence of the program.

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PROJECT AREA (FROM MONO COUNTY REPORT)

The Walker River Basin drains from the Sierra Nevada range in California south of Lake Tahoe to the terminal Walker Lake in the Great Basin area of Nevada. The East and West Walker Rivers and their tributaries are the headwaters of the Basin in northern Mono County, CA (Figure 1-1). The West Walker River flows northeast from the Sierras through the Antelope Valley and past the Topaz Lake reservoir, and into Nevada. The East Walker River flows from its headwaters northeast through Bridgeport Valley and into Bridgeport Reservoir. The outflow from Bridgeport Reservoir passes through a small canyon and into Nevada. The two forks join to form the Walker River just before the town of Yerington, in Lyon County, Nevada.

The area of interest for this project includes all irrigated areas within the California portion of the Walker Lake Basin. This is not only the Bridgeport and Antelope Valley floors, but also surrounding meadows such as Little Antelope Valley, Huntoon Valley, Sinnamon Meadows, and Upper and Lower Summers Meadows. Antelope and Bridgeport Valleys are two meadow valleys that occur in California along the western and eastern forks of the Walker River. These areas, as well as smaller surrounding meadows, have rich soils and ample water provided from the high mountains to the east, and have supported agricultural production for over 150 years. The climate in Antelope and Bridgeport valleys is humid continental, in that most of the precipitation occurs during long cold winters. Temperatures are moderate: commonly in the 60-70 °F range in the summer, and in the 20-30 °F range in the winter. Located in the rain shadow of the Sierra Nevada crest, both Antelope and Bridgeport Valleys receive the overwhelming majority of their water as runoff that descends from the adjacent mountains. Annual precipitation within the valleys themselves ranges from 8 to 12 inches, while precipitation in the headwater reaches of Bridgeport and Antelope Valleys range from 35 to 40 inches. Brief summer monsoon rainstorms can occur, but the majority (roughly 75%) of precipitation falls from October through April. Snowmelt in the upper watershed and associated run off remain high from May through July, depending on the water-year. Because both valleys are in the rain shadow of the Sierra Nevada, direct precipitation is a far less critical hydrologic input than surface flows from upstream and subsurface groundwater inputs. The bottoms of both valleys can be considered impermeable (Carroll and Pohl 2013) so that subsurface recharge comes from the valley sides, and primarily from the western slopes. Elevations of the contributing areas range from 10,007 feet for Antelope Valley; elevations for the valley itself range from 5,000 to 5,800 feet. Bridgeport Valley is a little higher, at 6,450 to 6,750 feet, and with a contributing area that reaches 12,303 feet along the Sierra Crest.

Private land in the area of interest is almost exclusively used for agriculture, most of it irrigated. In Antelope Valley the majority of the ground is cattle pasture, with alfalfa as the second most common land use. There are also hay and row crops. Little Antelope Valley is currently grazing pasture. Bridgeport Valley and surrounding meadows are exclusively used as pasture. Surface water rights on the California side of the Walker Basin are shown in Table 1 below. These rights cover over 41,000 acres in Mono County. The exact extent of irrigated land is probably somewhat lower than this figure

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Table 1. Walker Basin Surface Water Irrigation Water Rights with Place of Use in Mono County

Location	Decreed Water Rights		Storage Rights
	Acres	Rate (cfs)	Acre-feet
West Walker			
Antelope Valley	16,067	251	
Above Antelope Valley	2,075	33	>1,550
East Walker			
Bridgeport Valley	23,669	376	
Above Bridgeport Valley			6,410
Totals	41,811	660	>7,960

In addition to agriculture, recreational tourism is of great importance to the area. Tourists visiting sites in the Sierra Nevada, as well as areas of historical interest, often stay in the area. Both the East Walker and West Walker rivers are considered world-class trout streams, with miles of the West Walker designated as a Wild and Scenic River.

THE WALKER BASIN RESTORATION PROGRAM

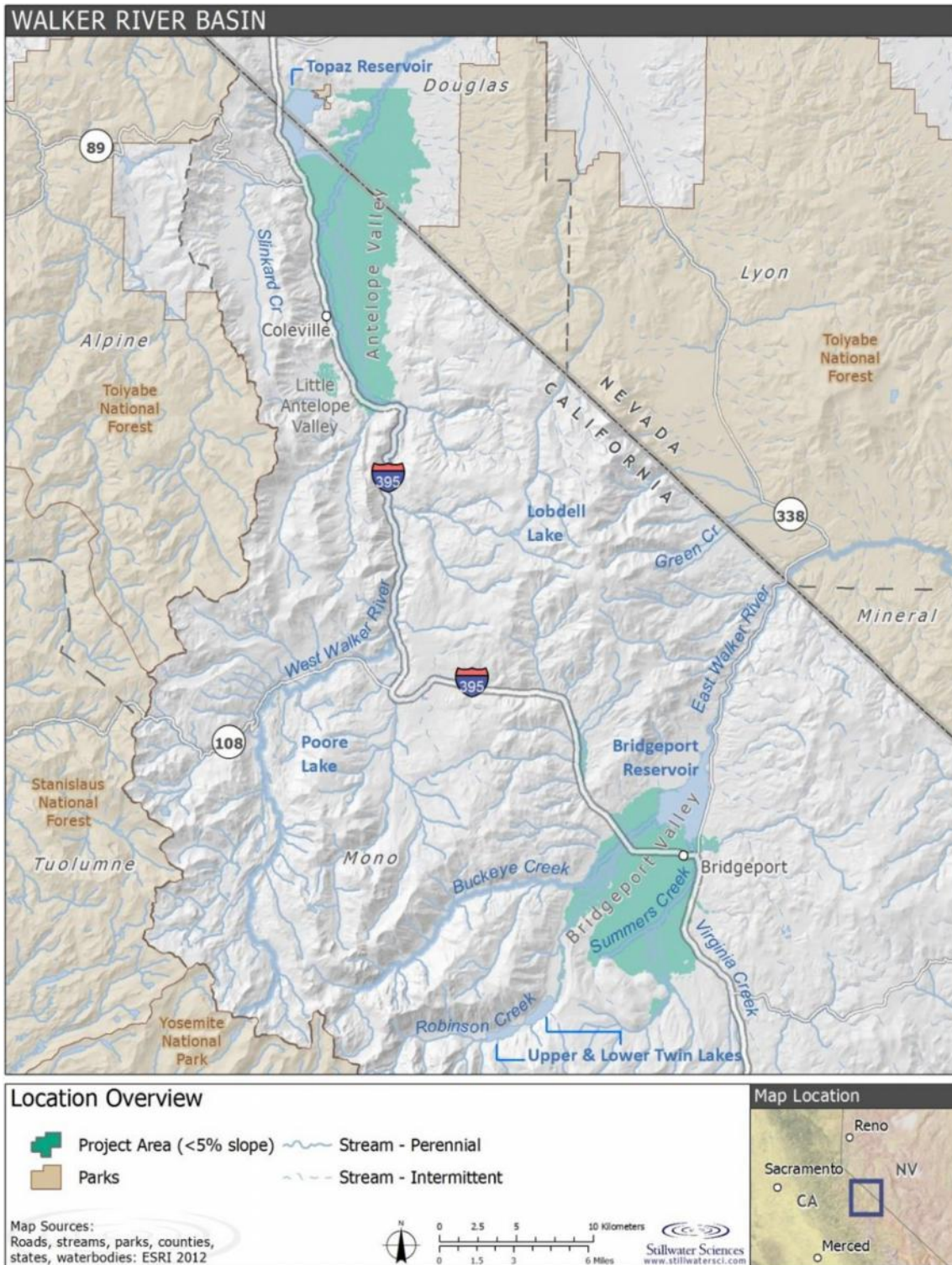
Under Public Law 111-85, the Walker Basin Restoration Program (WBRP) is charged with restoring and maintaining Walker Lake, as well as protecting agricultural, environmental, and habitat interests consistent with that primary purpose. The WBRP includes priority initiatives in the area of water acquisitions from willing sellers, demonstration water leasing, conservation and stewardship, research and evaluation, and implementation support. The program is managed by the National Fish and Wildlife Foundation (NFWF), a federally chartered non-profit organization established in 1984 to further the conservation and management of the nation's fish, wildlife, plant and habitat resources for present and future generations. WBRP funds are provided to NFWF under a grant agreement with the Bureau of Reclamation (Reclamation) and its Desert Terminal Lakes (DTL) program.

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Figure 1. Mono County and the Walker River Basin



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Walker Lake is a natural desert lake in Nevada at the terminus of the Walker River stream system that originates in the Sierra Nevada of California. Historically, the lake was an oasis of freshwater and home to many freshwater species, most notable the now-threatened Lahontan Cutthroat Trout (LCT). The lake also was an important stopover for common loons and other migratory waterfowl. Over the last century, as irrigation diversions and storage were developed upstream of the lake, freshwater inflows to the lake have been insufficient to maintain lake levels. The drop in lake elevation and decline in lake volume has led to increased total dissolved solids (salinity or TDS) levels and the loss of freshwater habitat and species. The WBRP aims to lower TDS by adding freshwater to the lake through water rights transactions with willing sellers, thereby reversing the ecological decline of Walker Lake.

WBRP's restoration goal is to increase natural flows in the Walker River to restore and maintain Walker Lake to a long-term TDS average between 10,000 mg/L and 12,000 mg/L (WBC n.d.). According to The Nature Conservancy this is the range where indicator species will once again be abundant in Walker Lake.

Funding for the WBRP was first approved in 2006. A total of \$70 million was appropriated by Congress for acquisition of water and related interests from willing sellers, the creation of a research center, and conservation and stewardship activities in the Walker Basin (PL 109-103 Sec.208). The Nevada System of Higher Education (NSHE) implemented the program in the early years but did not close any property transactions. In 2009, further appropriations were made explicitly for the for the WBRP totaling \$66.2 million (PL 111-85 Sec.208). At this time NFWF took over management of the program from NSHE. These 2009 appropriations included funding for a number of activities, but of most relevance to this project:

- Funding for the Walker River Irrigation District to engage in a 3-year leasing demonstration program – a total of \$25 million
- Funding for NFWF to acquire water and related interests from willing sellers – initially \$25 million
- Funding for NFWF to engage in associated conservation and stewardship activities – a total of \$10 million

Later, additional funds were assigned to NFWF and the WBRP, from the \$175 million first appropriated in 2002 under the Desert Terminal Lakes Program (P.L. 107-171 Sec.2507). According to the WBRP's February 2015 projections the total program budget came to \$264 million, of which \$185 was for acquisitions from willing sellers (NFWF 2015). Remaining funds went to basin partners for research, science and program development, as well as conservation and stewardship activities.

According to NFWF's website, through 2016 the WBRP had spent \$76.7 million in acquisitions monies acquiring the following assets (NFWF n.d.)

- 98 cubic feet per second of natural flow decree water rights,
- 11,760 acre feet of storage water rights,

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- 13,380 acre feet of groundwater rights, and
- over 15,700 acres of land

THE PROJECT – CONCEPTUAL PROGRAM OBJECTIVES WITHIN THE COUNTY

Based on the information available, funds remaining for acquisitions under the WBRP as of 2018 include the following:

- \$25 million for the WRID leasing program
- \$108.3 million for water rights acquisition and stewardship

A report prepared for the WBRP examined the linkages between acquiring water rights and the achievement of TDS targets in Walker Lake (NFWF n.d.). The paper concludes that to meet the 10,000 TDS goal would require the acquisition of 34% of the water righted acreage in the Nevada portion of the Basin, which is equivalent to 20% of the total water righted acreage from across the whole basin. If, at the time the paper was, the opportunity to participate in the Program had been extended to California, and acquisitions had been equalized, then the model predicted that 17% of all California water righted acres may have been acquired. Since the most recent assessment in 2015, a large number of additional transactions have been carried out by the WBRP. It can, therefore, be expected that the proportion of lands in California that would potentially be acquired would be less than the predicted 17% of Californian water righted acreage.

In the following discussion an effort is made to specify a likely maximum bound for the purchase and leasing of water rights in Mono County for the purpose of evaluating alternatives under the California Environmental Quality Act.

In order to estimate a reasonable upper bound for the CEQA analysis it is necessary to project the amount of funding that WBC and WRID could deploy in the California side of the Basin. One way to do this is to apportion the funds available across the California and Nevada sides of the basin in proportion to total rights (Table 2). The California side of the basin makes up 32% of the acreage with water rights for irrigation. Rough estimates of Nevada water righted acres already acquired by NFWF were developed and subtracted to arrive at acres on each side of the border that could be acquired under the program.¹ This subtraction of rights leaves California with 35% of the remaining water righted acreage in the basin.

¹ The 98 cfs in decree acquisitions was divided by the maximum decree rate of 0.1016 cfs/acre and the result of 6,137 acres rounded down to 6,000; the 11,763 AF of storage was rounded to 10,000 to account for supplemental storage rights that accompany the decree acres and this figure was divided by 2 AFA as the maximum New Land water right duty to obtain 5,000 acres of New Land rights.

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Table 2. Walker Basin Water Rights

Type / Location of Water Rights	Water Righted Acres	Estimate of Acres Acquired by NFWF	Available Acres	Percent
Nevada				
Decree	55,857	6,000	49,857	41%
New Land	34,500	5,000	29,500	24%
Nevada Subtotal	90,357		79,357	65%
California				
West Walker	18,142		18,142	15%
East Walker	23,669		23,669	20%
Subtotals	41,834		41,811	35%
Totals All Rights	132,192	-	121,168	100%

The second step is to forecast the likely amount of funds remaining once CEQA has been completed and Mono County has adopted general plan updates. The process of carrying out the CEQA analysis is programmed through December of 2019. Thus, the earliest that Mono County would consider the CEQA results and potentially approve policies or regulations for these water transactions is 2020. The WBC is now acting on NFWF's behalf in carrying out the implementation of the WBRP in the basin. Given the lead time to undertake such complex property acquisitions it is unlikely that WBC could close any transactions in California until 2021. The legislation and the appropriation under which WBC is working sunset in 2024. It is therefore likely that WBC will need to complete any purchases by 2023, in order to leave time for follow on activities such as water right transfers, etc. In other words of the six years remaining (2018-2023) a potential California program would be in operation only for half of this period. In other words, it seems likely that there would be just \$54.2 million left for purchases and \$12.5 million for leases.

With respect to the leasing program, the legislation calls for a three-year program, however, it is not clear that WRID will be able to complete such a large leasing program in such a short time frame. However, with the Ninth Circuit Court ruling of early 2018, the program could well begin in short order. So, it seems appropriate to prorate the expenditure of funds over the remaining period as with the funds for purchasing water rights.

For the water rights purchase program, to date no acquisitions have taken place in California. In the absence of more detailed information, a reasonable allocation method is to assume a proportional allocation of the remaining funding to California transactions. The funding can be apportioned by the portion of water righted acres in California. Proportional allocation of funding would suggest \$18.95 million for purchases and \$4.0 million for leasing. These amounts can be converted into the maximum quantity of acres that might be purchased or leased. Given the seniority of California decree rights, appraisal of these rights would suggest a duty of

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approximately 3.2 AF/acre at \$1,800/AF based on the 2018 Walker Basin Program Appraisal (Warren 2016). For purchases, a maximum acreage purchased would be 3,290 acres or 7.9% of the water righted ground in Mono County (Table 3).

For the lease program, it is unknown what price WRID will pay farmers. Therefore, an effective \$/acre price is obtained by taking the per acreage value of an average California decree right at \$5,760 (3.2 AF/acre * \$1,800/AF) and multiplying it by a 5% Incremental Capitalization Ratio or ICR. The ICR is based on the ratio of values between purchase price and lease price for water rights across a range of locations. As the program has not leased water in the basin to date there is no ICR available for the basin. A review of ICRs in three western basins (in California and Washington) found ICRs ranging from 5.2% to 6.4% (Aylward et al. 2010, 28). A 5% ICR is used here to be conservative (thereby generating a lower price and a higher possible impact of the program on county lands). This yields a potential one-time lease of 12,500 acres or 30% of the Mono County water righted acreage. This acreage may be split over a number of years. So alternatively, over a three year leasing program, up to 10% of the water rights (or 4,166 acres) in Mono County would be leased (Table 3) in any given year.

Table 3. Calculation of Maximum Potential Impact on Mono County Water Rights Acreage

Items	Water Rights Purchase	Water Rights Leasing
Remaining as of 2018 (\$ million)	\$ 108.30	\$ 25.00
Remaining as of 2021 (\$ million)	\$ 54.15	\$ 12.50
Max Portion to California (at 35%)	\$ 18.95	\$ 4.00
Purchase Price per Wet Acre-Foot (\$/AF)	\$ 1,800	
Lease Price per Acre (\$/acre)		\$ 288
Wet Duty (AF/acre)	3.2	
Max Acre-Foot Purchased/Leased	10,528	
Max Acres Purchased/Leased	3,290	13,889
Portion of Total CA Acreage Water Rights	7.9%	33%

SUMMARY

In conclusion, as described in Table 3, available funding for water rights purchase could result in the purchase of up to 8% or 3,290 acres of the total water righted acreage in the California portion of the Walker Basin. Lease funding gives the option for the purchase of a further 12,500 acres of water righted land that can be used for a one time or multi-year lease.

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