

**CARSON WATER SUBCONSERVANCY DISTRICT  
FINANCE COMMITTEE**

**NOTICE OF PUBLIC MEETING**

**DATE:** March 5, 2018  
**TIME:** 8:30 A.M.  
**LOCATION:** Carson Water Subconservancy District  
Conference Room  
777 E. William St., #110  
Carson City, NV 89703

AGENDA

**Please Note:** Reasonable efforts will be made to assist and accommodate individuals with disabilities who wish to attend the meeting. Please contact Toni Leffler at (775)887-7450 (<mailto:toni@cwsd.org>), at least a week in advance so that arrangements can be made.

1. Call to Order
2. Roll Call
3. Public Comment (Discussion Only) - Action may not be taken on any matter brought up under public comment until scheduled on an agenda for action at a later meeting.
4. Discussion for possible action regarding approval of the minutes from the Finance Committee meeting on August 23, 2017.
5. Discussion regarding the tentative General Fund FY 2017-18 budget and presentations for proposed projects; the tentative Acquisition/Construction Fund budget; and tentative Floodplain Management Fund FY 2018-19 budget.
6. Discussion for possible action regarding recommendations for the tentative General Fund, Acquisition/Construction Fund, and Floodplain Management Fund FY 2018-19 budgets.
7. Public Comment (Discussion Only) - Action may not be taken on any matter brought up under public comment until scheduled on an agenda for action at a later meeting.
8. Adjournment

Supporting material for this meeting may be requested from Toni Leffler at 775-887-7450 (<mailto:toni@cwsd.org>) and is available at the CWSD offices at 777 E. William St., #110A, Carson City, NV 89701 and on the CWSD website at [www.cwsd.org](http://www.cwsd.org).

In accordance with NRS 241.020, this notice and agenda has been posted at the following locations

- |  |  |
|--|--|
| -Dayton Utilities Complex<br>34 Lakes Blvd<br>Dayton, NV                   | -Minden Inn Office Complex<br>1594 Esmeralda Avenue<br>Minden, NV                            |
| -Lyon County Administrative Building<br>27 S. Main St.<br>Yerington, NV    | -Churchill County Administrative Complex<br>155 N Taylor St.<br>Fallon, NV                   |
| -Carson City Hall<br>201 N. Carson St.<br>Carson City, NV                  | -Carson Water Subconservancy District Office<br>777 E. William St., #110A<br>Carson City, NV |
| -Alpine County Administrative Building<br>99 Water St.<br>Markleeville, CA | -CWSD website:<br><a href="http://www.cwsd.org">http://www.cwsd.org</a>                      |
|  | -State public meetings website:<br><a href="http://notice.nv.gov">http://notice.nv.gov</a>   |

AFFIDAVIT OF POSTING

The undersigned affirms that on or before 9:00 A.M. on February 27, 2018, he/she posted a copy of the Notice of Public Meeting and Agenda for the March 5, 2018, meeting of the Carson Water Subconservancy District Finance Committee in accordance with NRS 241.020; said agenda was posted at the following location:

\_\_\_\_\_  
SIGNATURE

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date & Time of Posting: \_\_\_\_\_

**CARSON WATER SUBCONSERVANCY DISTRICT AND  
CARSON RIVER/ALPINE COUNTY WATER SUBCONSERVANCY  
JOINT POWERS AUTHORITY BOARD  
FINANCE COMMITTEE MEETING  
August 23, 2017, 9:00 A.M.**

***DRAFT Meeting Minutes***

The meeting of the Carson Water Subconservancy District (CWSD) Finance Committee was called to order at 9:00 a.m. by Director Schank. The meeting was held in the Conference Room of the Carson Water Subconservancy District, 777 E. William St., #110, Carson City, Nevada. Roll call was taken.

Directors Present:

Steve Thaler, Douglas County  
Ernie Schank, Churchill County

Directors Not Present:

Brad Bonkowski, Carson City  
Ken Gray, Lyon County

Staff Present:

Edwin James, General Manager  
Toni Leffler, Secretary

Others Present:

Don Jardine, Alpine County

**Item #3 - Public comment.** None

**Item #4 – For Discussion and Possible Action: Approval of the minutes from the Finance Committee meeting on February 28, 2017.** *Director Schank made the motion to approve the minutes of the Finance Committee meeting on February 28, 2017, as handed out. Since Director Schank was the only Director currently present who was present at the February 28 meeting, the motion was not seconded but was approved.*

**RECESS TO CONVENE AS  
THE CARSON RIVER/ALPINE COUNTY WATER SUBCONSERVANCY  
JOINT POWERS AUTHORITY BOARD**

**Item #5 – Roll call for the Carson River/Alpine County Water Subconservancy Joint Powers Authority (JPA) Board.** The JPA Board was convened and roll call was taken, with a quorum.

Directors Present:

Don Jardine, Alpine County  
Steve Thaler, Douglas County  
Ernie Schank, Churchill County

Directors Not Present:

Brad Bonkowski, Carson City  
Ken Gray, Lyon County

CWSD Finance Committee  
August 23, 2017, *DRAFT* Meeting Minutes

**Item #6 – Discussion Only: Public comment.** None

**Item #7 – For Discussion and Possible Action: Review of the proposed draft five-year budget for future planning purposes.** Mr. James reminded the committee that at the Strategic Planning Session on 5/17/17, the Board was asked to prioritize CWSD activities and staff was tasked with creating a proposed five-year budget following the Board's priorities. Mr. James went over draft budgets with and without grant funding.

With grants, income is estimated at a 2.5% increase per year. Director Schank asked about an estimate of Storey County ad valorem if they join CWSD. Mr. James estimated that it would be less than \$100,000, but no funding from Storey County is included in the budget calculations.

Mr. James explained that income from lease of Mud Lake and Lost Lakes water is hit or miss depending on need and water demands, but perhaps in the future other entities besides Carson City will want to use the water. He noted that interest rates going up so our income from investments is expected to be more. The analysis reflected only the net grant income from grants which covers staff time. The Alpine County Mesa Groundwater Study will phase out over the next two years. We anticipate FEMA MAS and Watershed Literacy grants to continue over the next five years. Weed grants will likely continue.

In this five-year draft budget for the General Fund with grants, there is an estimated 3% increase in income in FY 2018-19, a 2.9% increase in FY 2019-20, a 2.8% increase in FY 2020-21, a 2.8% increase in FY 2021-22, and a 2.9% increase in FY 2022-23.

Administrative Expenditures: For budgeting purposes Mr. James estimated a 4% increase in salaries and wages and a 5.6% increase in benefits. General administration includes accounting, office rent, copiers, conferences, etc.

Projects Expenses: The budget for outside professional services is increased from \$10,000 to \$20,000/yr. Lost Lakes and Mud Lake costs are increased by 5%. Integrated watershed planning under Brenda's purview is a Board priority so \$5,000/yr. has been added to future budgets. Watershed Tour, Sierra Nevada Journeys which is community outreach, and noxious weed control is expected to be the same over the five years. USGS programs, including all the stream gages contracts and water quality and groundwater collection data, are expected to have a 5% increase/yr. over the five years.

County and River Project Expenses: The budget for Carson River Work Days, River Wranglers' program for outreach and education, stays the same throughout the five years, as does grants to the Alpine Watershed Group. The budget for Carson River restoration projects will remain at \$240,000 for the next two years, then increase to \$250,000 for the last three years. Douglas County and Carson City Regional Pipeline payments are fixed amounts at \$125,000/yr. each. Churchill County water quality and groundwater level measurements will continue but CWSD may want to drop the Dixie Valley study as reflected by a reduction in the budget for the last four years.

CWSD Finance Committee  
August 23, 2017, *DRAFT* Meeting Minutes

As shown in the draft General Fund budget with grants, there is a 1.7% increase in expenses for FY 2018-19, a 0.6% increase for FY 2019-20, a 2.3% increase for FY 2020-21, a 2.3% increase for FY 2021-22, and a 2.3% increase for FY 2022-23. Preliminary Planning is essentially reserve funds.

Transfer from General Fund to Floodplain Management Fund is a stated Board priority, so funds are allocated each year. These funds will replenish the Floodplain Management Fund account. No funds are proposed to be transferred to the Acquisition/Construction Fund.

Director Schank suggested having a workshop with the Naval Air Station-Fallon and Fish and Wildlife to discuss storage options, including the possibility of raising Lahontan Dam. Mr. James mentioned that one of the top priorities of the Board was to evaluate potential storage.

In the five-year budget without grants the first three columns are the same as with grants because our current grant funding is through 2020. From 2020-21 on, income would drop, as would some of the expenses. Most notably salaries/wages and employee benefits expenses would decrease. This is based on the assumption that without grant funding CWSD's work load would decrease and thus the number of employees would decrease. Other outreach programs would be reduced or eliminated.

Director Schank noted that in 2020, if Storey County joined CWSD, the additional \$100,000 in ad valorem taxes would change the picture too. Setting budget priorities could impact projects to fund and make anticipation of what we can and cannot do more realistic. The five-year budget allocation is a streamline view of the percentage of funding going to each category. It firms up funding for streambank rehabilitation/stabilization.

Mr. James went over the current salary allocations on a pie chart based on FY 2016-17. CWSD general administration was 36.7%, regional watershed programs were 23.6%, floodplain management was 20.4%, water quality and quantity was 10.1%, streambank stabilization was 5.1%, and invasive species was 4.1%. Director Schank requested a projected five-year pie chart. Mr. James noted that a pie chart without grant funding would also change staff time. Much of our staff time is used as match to grants.

Director Schank asked how much grants would change without Alpine County. Mr. James responded that the NDEP grants are for Nevada only. Being a bi-state and multi-county organization adds points for federal grants. CWSD provides services for Alpine County and/or started programs that are now taken over by Alpine Watershed Group.

Mr. James asked whether the Finance Committee felt that his explanation of the five-year budget is adequate for the Board. He would like to take it to the Board in October. Director Schank suggested ranking the categories (highest to lowest).

In a discussion about river restoration projects it was noted that the worst erosion this year was because banks got so saturated that they just sluffed off creating vertical banks. Director Schank asked with the early rains and flows in January, did we see a lot of erosion during first two storms or later? Mr. James responded that it started in October with a record year of rain saturating the ground. The flood events in January and February impacted some areas but the high spring runoff had a larger impact on stream banks.

CWSD Finance Committee  
August 23, 2017, *DRAFT* Meeting Minutes

*Director Thaler made the motion that the Carson River/Alpine County Subconservancy District Joint Powers Authority recommend board approval of the draft five year-budget as outlined and presented. Director Jardine seconded the motion which was unanimously approved by the Joint Powers Authority Board.*

**ADJOURN TO RECONVENE AS  
THE CARSON WATER SUBCONSERVANCY DISTRICT BOARD OF DIRECTORS**

**Item #9 – For Discussion and Possible Action: Review of the proposed draft five-year budget for future planning purposes.**

*Director Thaler made the motion that the CWSD Finance Committee recommend to the CWSD Board acceptance of the Joint Powers Authority recommendation regarding the draft five-year budget. The motion was seconded by Director Schank and unanimously approved by the CWSD Finance Committee.*

**Item #10 – Discussion Only: Public Comment.** None.

*There being no further business to come before the Finance Committee, Director Thaler made a motion to adjourn and the meeting was adjourned at 9:47 p.m.*

Respectfully submitted,

Toni Leffler  
Secretary

## CARSON WATER SUBCONSERVANCY DISTRICT

TO: FINANCE COMMITTEE

FROM: EDWIN D. JAMES

DATE: MARCH 5, 2018

Attached are the proposed tentative budgets for FY 2018-19 for the General Fund, Acquisition/Construction Fund, and Floodplain Fund, and the time schedule for the Finance Committee meeting. On the tentative budgets there are three columns. The left column shows the proposed budget for FY 2018-19, the center column shows the adopted budget for FY 2017-18, and the right column shows the projected actual income and expenses for FY 2017-18.

Copies of the project proposals were handed out at the February Board meeting. The number at the top of each proposal correlates with the number in parenthesis on the schedule and indicates the order in which they will be heard.

Currently, \$141,000 needs to be cut out of the proposed General Fund budget. Originally the shortfall was \$216,000, but Lyon County withdrew their grant request of \$75,000 and asked that Dayton Valley Conservation District receive its full grant request. Many of the line item expenditures are tied to a grant or are being used as match to other grants. Staff has gone through each line item and has identified which expenditures have already been committed. All the line items shown in red have not been committed and could be reduced.

Staff is proposing that \$50,000 be transferred from the General Fund to the Floodplain Management Fund to begin replenishing this fund account.

## FINANCE COMMITTEE

March 5, 2018

### Approximate Time Schedule

- 8:30 a.m.** Budget Overview
- 8:40 a.m.** Income Sources (CWSD staff)
- 8:55 a.m.** Administrative budget for FY 2018-19 (CWSD staff)
- 9:05 a.m.** Multi-Year, On-going Projects, or Grant (CWSD staff)
- 7114 -00 Professional Outside Services
  - 7117 & 7118 Lost and Mud Lake Expenses
  - 7120-00 Integrated Watershed Projects
    - 07 Watershed Tour
    - 25 Watershed Coordination Program (Grant)
  - 7404-00 Noxious Weeds Control
  - NV Dept. of Ag Weed Grant
  - 7427-00 FEMA Floodplain Mapping Program MAS # 7 (Grant)
  - 7432-00 FEMA Floodplain Mapping Program MAS # 8 (Grant)
  - 7429-00 Watershed Literacy Implementation #2 (Grant)
  - 7433-00 Watershed literacy Phase 3 (Grant)
  - 7600-09Alpine County- CASGEM & Mesa Study (Grant)
  - 7610-10 Regional Pipeline Payment to Douglas County
  - 7620-11 Regional Pipeline Payment to Carson City
  - 7640-16 Dixie Valley WTR Level (1)
  - 7500-00 USGS Stream Gage Contract (2)
  - 7508-00 USGS Do. Co. GW Collection Data (3)
  - 7526-00 USGS Eagle/Dayton/Churchill Basins (4)
- 9:30 a.m.** Carson River Projects
- River Wranglers - Carson River Work Days (5)
  - Alpine County Watershed Group - (6)
  - Carson Valley Conservation District/ Bioengineering (7)
  - Carson Valley Conservation District/ Cradlebaugh Bank Stabilization (8)
  - Dayton Valley Conservation District River Project (9)
  - Lahontan Conservation District (10)
- 10:30 to 10:45 am** Break
- 10:45 am** USGS and County Projects
- Churchill County Lahontan Valley Water Level (11)
  - USGS Water Level & Quality – Churchill County (12)
  - Carson City Reclaimed Water Project (13)
  - USGS Arsenic Study in Carson Valley (14)
  - USGS Monitoring Hg, Ar, Ld & Sediment in Carson River (15)
- 11:30 a.m.** New Projects
- Sierra Nevada Journeys (16)
  - American Rivers (17)
  - Upstream Storage Evaluation (18)
  - Lyon County Cardelli Ditch (Withdrawn)

- 12:00 p.m.** Acquisition/Construction Budget for FY 2018-2019  
Floodplain Management Budget for FY 2018-2019
- 12:10 p.m.** Lunch
- 12:30 p.m.** Review Budgets and Make Recommendations to the Board



## CARSON WATER SUBCONSERVANCY DISTRICT General Fund

	Proposed	Revised	Projected	Notes
	Tentative Budget	Final Budget	Actual Budget	
	Jul '18 - Jun '19	Jul '17 - Jun '18	Jul '17 - Jun '18	
<b>Income</b>				
5008-00 - Alpine County	9,800.00	9,500.00	9,500.00	Based on 3.2 % increase
5009-00 - Churchill County Ad Valorem	209,100.00	202,623.80	202,623.80	Based on 3.2 % increase
5010-00 - Lyon County Ad Valorem	164,400.00	159,278.00	159,278.00	Based on 3.2 % increase
5011-00 - Douglas County Ad Valorem	526,200.00	509,928.53	509,928.53	Based on 3.2 % increase
5012-00 - Carson City Ad Valorem	405,200.00	392,614.77	392,614.77	Based on 3.2 % increase
5022-00 - Mud Lake Water Lease	55,000.00	52,500.00	52,500.00	
5023-00 - Lost Lake Water Lease	0.00	2,000.00	0.00	
5031-00 - Interest Income - St Pool Reg	9,500.00	4,000.00	6,200.00	Interest rate of 1.4 %
5045-00 - Interest Income - BOA Savings	6.00	20.00	6.00	
5050-00 - Watershed Coordinator	0.00	20,930.00	12,822.33	Grant
5050-00 - Watershed Coordinator (new 2018)	105,450.00	24,810.00	57,390.00	Grant
5050-07 -CRC Donation	0.00	0.00	0.00	
5060-00 - Misc. Income / Watershed Tour	6,000.00	5,900.00	0.00	
5063-01 - NDEP Grant-Watershed Education	0.00	10,400.00	5,566.00	Grant
5067-01 - NDEP Grant-Watershed Education (New)	0.00	49,550.00	50,000.00	Grant
5082-00 - CASGEM	300.00	1,450.00	300.00	Grant
5087-00 - Alpine Co Mesa GW Study	300.00	1,400.00	300.00	Grant
5093-00 - FEMA - MAS # 6	0.00	3,542.00	10,920.00	Grant
5097-00 - FEMA - MAS # 7	80,146.00	384,900.00	326,020.00	Grant
5097-00 - FEMA - MAS # 8	248,893.00	0.00	148,784.00	Grant
5097-00 - FEMA - MAS # 9	0.00	0.00	0.00	Grant
5097-00 - NDEP 208 LID Project	22,150.00	0.00	17,850.00	Grant
5095-00 - Watershed Literacy Implementation II	1,962.08	31,136.00	29,128.00	Grant
5097-00 - Watershed Literacy Implementation III	25,883.00	66,790.00	50,095.00	Grant
Dept of Ag Weed Grant	12,548.00	0.00	15,541.00	Grant
5097-00 - BLM Weed Grant	1,339.00	31,360.00	33,368.00	Grant
Total Incc 5096-00 - NFWF Weed Grant	0.00	18,900.00	34,256.00	Grant
	1,884,177.08	1,983,533.10	2,124,991.43	
<b>Expense</b>				
ADMINISTRATIVE EXPENSES:				Notes
7015-00 - Salaries & Wages	385,000.00	375,000.00	375,000.00	
7020-00 - Employee Benefits	145,500.00	149,000.00	131,000.00	
7021-00 - Workers Comp Ins.	1,100.00	1,500.00	1,000.00	
7101-00 - Director's Fees	14,500.00	13,500.00	14,000.00	
7102-00 - Insurance	6,000.00	6,500.00	5,570.00	
7103-00 - Office Supplies	2,500.00	3,000.00	2,000.00	
7104-00 - Postage	850.00	800.00	850.00	
7105-00 - Rent	26,555.00	25,780.00	25,780.00	
7106-00 - Telephone	3,800.00	4,000.00	3,700.00	
7107-00 - Travel-transport/meals/lodging	14,000.00	16,000.00	13,500.00	
7108-00 - Dues & Publications	1,100.00	1,200.00	1,100.00	
7109-00 - Miscellaneous Expense	1,000.00	1,500.00	1,000.00	
7110-00 - Seminars & Education	3,000.00	3,000.00	3,000.00	
7111-00 - Office Equipment	3,000.00	3,000.00	3,000.00	
7112-00 - Bank Charges	100.00	200.00	50.00	
7115-00 - Accounting	16,000.00	16,000.00	9,500.00	
7116-00 - Legal	40,700.00	40,700.00	40,700.00	
Subtotal-Administrative Expenses	664,705.00	660,680.00	630,750.00	

**CARSON WATER SUBCONSERVANCY DISTRICT  
General Fund**

Multi Year and On-Going Projects	Proposed	Revised	Projected	Notes
	Tentative	Final	Actual	
	Budget	Budget	Budget	
PROJECTS:	Jul '18 - Jun '19	Jul '17 - Jun '18	Jul '17 - Jun '18	
7114-00 - Professional Outside Services	20,000.00	10,000.00	10,000.00	
7117-00 - Lost Lakes Expenses	11,500.00	11,000.00	11,000.00	
7118-00 - Mud Lake O & M	1,000.00	1,000.00	1,000.00	
7120-00 - Integrated Watershed Plan				
7120-07 - Watershed Tour	6,000.00	6,000.00	100.00	
7120-25 - Watershed Coordinator Expenses 15-17	0.00	8,444.00	1,147.13	Grant
7120-25 - Watershed Coord Expenses 17-18	3,571.00	2,000.00	6,450.00	Grant
7125-00 - Environ. Education Coord Program 15-17	0.00	8,360.00	4,936.00	Grant
7125-00 - Environ. Educ. Coord. Program 17-18	0.00	46,430.00	46,479.00	Grant
7215-00 - Sierra NV Journeys - Family Night	New Grant	3,000.00	3,000.00	
7404-00 - Noxious Weeds Control	75,000.00	75,000.00	75,000.00	
7427-00 - FEMA MAS #6	0.00	1,920.00	10,418.00	Grant
7429-00 - Watershed Literacy Implementation #2	1,466.59	30,251.00	25,099.00	Grant
7430-00 - NFWF Weed Grant	0.00	14,400.00	32,125.00	Grant
7431-00 - BLM Weed Grant	0.00	29,090.00	29,088.00	Grant
Dept of Ag Weed Grant	11,500.00	0.00	11,500.00	Grant
7432-00 - FEMA MAS #7	70,693.00	356,809.00	303,133.00	Grant
7432-00 - FEMA MAS #8	226,162.00	0.00	129,467.00	Grant
7432-00 - FEMA MAS #9	0.00	0.00	0.00	Grant
74??-00 - Watershed Literacy # 3	22,913.00	61,290.00	47,155.00	Grant
208 Planning	14,000.00	0.00	18,000.00	Grant
7500-00 - USGS Stream Gage Contracts	78,405.00	75,530.00	78,405.00	
7508-00 - USGS Do. Co. GW Collection Data	16,890.00	14,440.00	16,620.00	
7524-01 - USGS GW level & WQ Churchill Co.	New Grant	0.00	0.00	
7526-01 - USGS GW Study Eagle, Dayton & Churchill	27,680.00	19,195.00	27,680.00	
Subtotal Multi Year & On-going Projects	586,780.59	774,159.00	887,802.13	

Counties and River Projects				Notes
7332-00 - Carson River Work Days	New Grant	26,000.00	26,000.00	
7337-00 - Carson River Restoration				
7337-17 - CVCD Clearing & Snagging	New Grant	105,000.00	107,456.69	possible carryover
7337-23 - Carson City - Golden Eagle	0.00	60,000.00	60,000.00	
7337-31 - Dayton Valley Conservation	New Grant	176,500.00	167,070.32	possible carryover
7337-32 - DVCD Storey Co. Weed Abatement	0.00	2,000.00	2,000.00	
7337-04 - LCD Clearing & Sand Bar Removal	New Grant	30,000.00	30,000.00	
7600-05 - Alpine Co. Watershed Group.	New Grant	20,000.00	20,000.00	
7600-09 - CASGEM	10.00	10.00	10.00	
7600-10 - Mesa GW Measurement Project	10.00	10.00	10.00	
7610-10 - Douglas Co Regional Pipeline	125,000.00	125,000.00	125,000.00	
7620-11 - Regional Pipeline Payment to Carson City	125,000.00	125,000.00	125,000.00	
7630-10 - Lyon Co. Dayton Stream Gage	0.00	9,300.00	5,375.00	
7640-09 - Lahontan Valley WTR Level Program	0.00	30,700.00	15,500.00	
7640-16 - Dixie Valley WTR Lvl measurement	24,400.00	23,600.00	20,000.00	
Subtotal Carson River Projects	274,420.00	733,120.00	703,422.01	

\*+\* Request to carry over funds

## CARSON WATER SUBCONSERVANCY DISTRICT General Fund

	Proposed Tentative Budget	Revised Final Budget	Projected Actual Budget	Notes
	Jul '18 - Jun '19	Jul '17 - Jun '18	Jul '17 - Jun '18	
<b>New Projects</b>				
Upstream Storage Evaluation	50,000.00			
Alpine Watershed Group	25,000.00			
River Wranglers	26,000.00			
Sierra NV Journeys	3,800.00			
CVCD Bioengineering	50,000.00			
CVCD Cradlebaugh Bank Stabilization	100,000.00			
Carson City Public Works	50,000.00			
DVCD Post-flood repairs	75,000.00			
LCD Clearing and Snagging	20,000.00			
Lyon County Cardelli Ditch	Withdrew the application - net savings of \$75,000			
Lahontan Valley Water Level	18,000.00			
American Rivers	10,000.00			
USGS AR Collection	28,055.00			
USGS Monitoring Hg,Ar, LD & Sediment	53,218.00			
USGS Water-level & Quality Churchill Co	24,000.00			
<b>Total Expenses for New Projects</b>	<b>533,073.00</b>			
<b>Total Expenditures</b>	<b>2,058,978.59</b>	<b>2,167,959.00</b>	<b>2,221,974.14</b>	
<b>Net Income</b>	<b>-174,801.51</b>	<b>-184,425.90</b>	<b>-96,982.71</b>	
<b>Other Expense: Beginning Equity</b>	<b>581,759.29</b>	<b>724,374.58</b>	<b>678,742.00 *</b>	
	<b>581,759.29</b>	<b>724,374.58</b>	<b>678,742.00</b>	
* Based on the 2016-17 Audit				
8008-00 - Preliminary Planning	405,000.00	405,000.00	0.00	
Total Oth Transfer from Gen. Fd. to Floodplain Fd.	50,000.00	0.00	0.00	
Net Balan Transfer from Gen. Fd. to Acqu./Const. Fd.	0.00	0.00	0.00	
Other Expense	455,000.00	405,000.00	0.00	
Net Other Income Balance	126,759.29	319,374.58	678,742.00	
<b>ENDING BALANCE</b>	<b>-48,042.22</b>	<b>134,948.68</b>	<b>581,759.29</b>	

**CARSON WATER SUBCONSERVANCY DISTRICT  
ACQUISITION/CONSTRUCTION FUND  
2018-19 Tentative Budget**

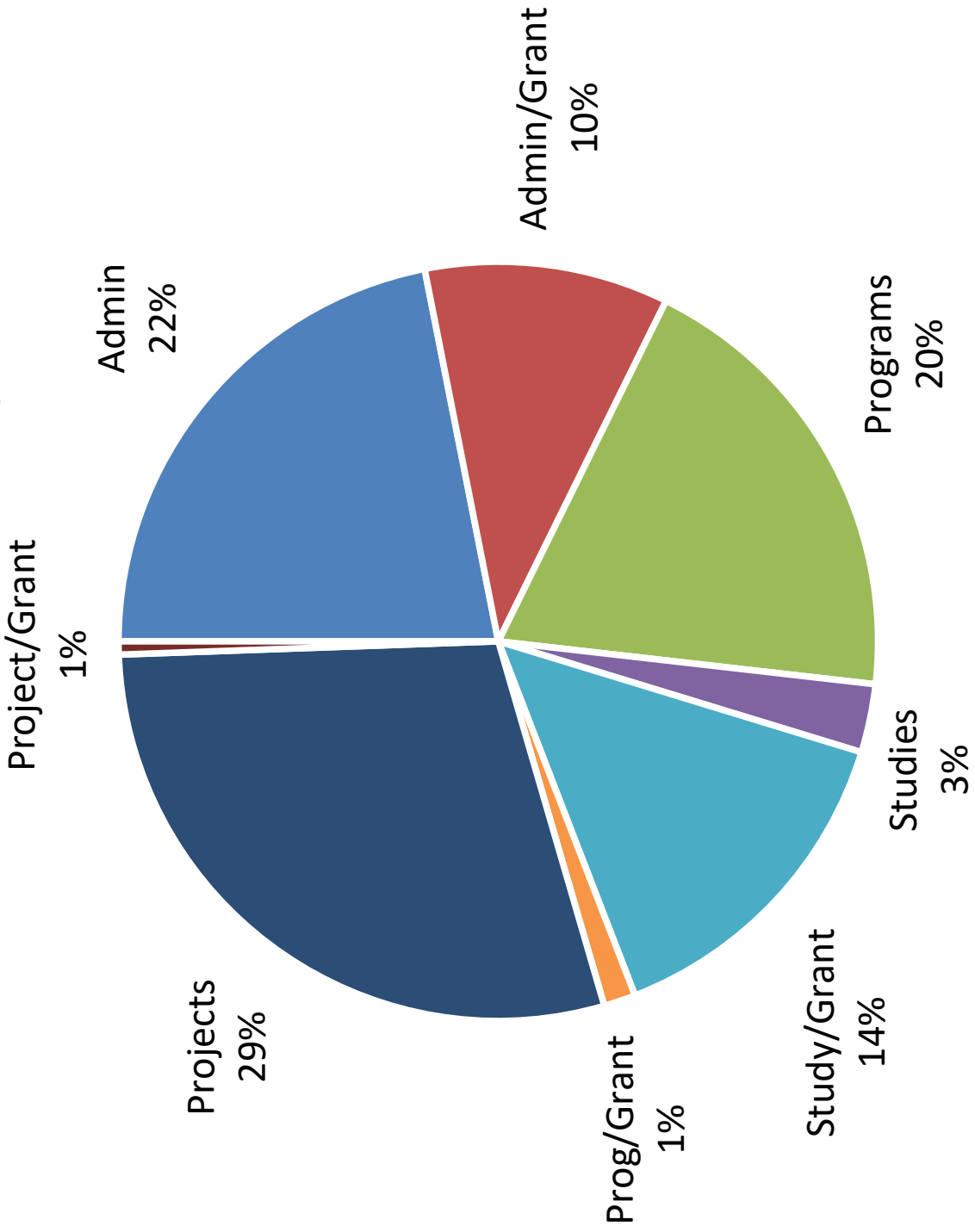
<b>ACQUISITION/CONSTRUCTION FUND</b>	Proposed Final Budget	Approved Final Budget	Projected Actual Budget
	<b>Jul '18 - Jun '19</b>	<b>Jul '17 - Jun '18</b>	<b>Jul '17 - Jun '18</b>
<b>Ordinary Income/Expense</b>			
<b>Income</b>			
5032-01 · Interest Inc - Inv. Pool	9,660.00	5,850.00	8,312.00
<b>Total Income</b>	<u>9,660.00</u>	<u>5,850.00</u>	<u>8,312.00</u>
<b>Expense</b>			
Upsizing the Lyon County to Stagecoach pipeline	250,000.00	0.00	0.00
Construction Projects	425,000.00	660,000.00	0.00
<b>Total Expense</b>	<u>675,000.00</u>	<u>660,000.00</u>	<u>0.00</u>
<b>Net Ordinary Income</b>	-665,340.00	-654,150.00	8,312.00
<b>Other Income/Expense</b>			
<b>Other Income</b>			
8000-01 · Beginning Equity	<u>698,161.00</u>	<u>689,849.00</u>	<u>689,849.00</u> *
8001-01 · Transfer In-General Fund	0.00	0.00	0.00
<b>Total Other Income</b>	<u>698,161.00</u>	<u>689,849.00</u>	<u>689,849.00</u>
* Based on 2016-17 Audit			
<b>Ending Equity</b>	<u><u>32,821.00</u></u>	<u><u>35,699.00</u></u>	<u><u>698,161.00</u></u>

**CARSON WATER SUBCONSERVANCY DISTRICT  
FLOODPLAIN MANAGEMENT FUND  
FY 2018-19 Tentative Budget**

<b>FLOODPLAIN MANAGEMENT FUND</b>	Proposed	Adopted	Projected	Notes
	Final	Final	Actual	
	Budget	Budget	Budget	
	<u>Jul '18 - Jun '19</u>	<u>Jul '17 - Jun '18</u>	<u>Jul '17 - Jun '18</u>	
<b>Ordinary Income/Expense</b>				
<b>Income</b>				
5032-01 · Interest Inc - Inv. Pool	5,350.00	1,000.00	2,730.00	
5033-03 · Interest Inc - Mutual Of Omaha CD	0.00	1,330.00	1,320.00	
<b>Total Income</b>	<u>5,350.00</u>	<u>2,330.00</u>	<u>4,050.00</u>	
<b>Expense</b>				
7203-03 Floodplain Planning	190,000.00	210,000.00	0.00	
CVCD & DVCD Working on Flood Repairs and permits	100,000.00	0.00	30,000.00	
Churchill County Floodplain Evaluation	50,000.00	0.00	0.00	
7206-03 Flood Project along SR 88 in Minden	40,000.00	40,000.00	0.00	
Flood damage Repairs	0.00	102,000.00	0.00	
<b>Total Expense</b>	<u>380,000.00</u>	<u>352,000.00</u>	<u>30,000.00</u>	
<b>Net Ordinary Income</b>	-374,650.00	-349,670.00	-25,950.00	
<b>Other Income/Expense</b>				
<b>Other Income</b>				
8000-01 · Beginning Equity	356,124.00	382,074.00	382,074.00 *	
8001-01 · Transfer In-General Fund	50,000.00	0.00	0.00	
<b>Total Other Income</b>	<u>406,124.00</u>	<u>382,074.00</u>	<u>382,074.00</u>	
<b>Ending Equity</b>	<u>31,474.00</u>	<u>32,404.00</u>	<u>356,124.00</u>	

\* Based on the 2016-17 Audit

# 2018-19 General Budget



**CARSON WATER SUBCONSERVANCY DISTRICT  
REQUEST FOR FUNDING**

**APPLICANT:** Churchill County, c/o Eleanor Lockwood, County Manager  
 Name  
155 N. Taylor St., Ste 153  
 Address  
Fallon Churchill NV 89406  
 City County State Zip Code  
countymanager@churchillcounty.org (775) 423-5136  
 Email Telephone #

**APPLICANT'S AGENT (if different from Applicant):**  
Chris Mahannah, P.E. Mahannah & Associates, LLC  
 Name  
P.O. Box 2494  
 Address  
Reno Washoe NV 89505  
 City County State Zip Code  
chris@mah2o.com (775) 323-1804  
 Email Telephone #

**PROJECT NAME:** Dixie Valley Water Level Measurement & Precipitation Gage Monitoring Program

**PROJECT LOCATION/ADDRESS:** Dixie Valley – Churchill County

**PROJECT DESCRIPTION:** Briefly describe the project. Provide maps, drawings, photographs or other information. Additional sheets may be attached.

**See attached Exhibit A & copy of Bureau of Reclamation Dixie Valley Plan of Study, dated May 2009**

**PROJECT GOALS AND BENEFITS:** Briefly describe the project goals and benefits to be realized if the project is implemented. Additional sheets may be attached.

**See attached Exhibit A & copy of Bureau of Reclamation Dixie Valley Plan of Study, dated May 2009**

TOTAL ESTIMATED PROJECT COST (3 years): \$91,000.00  
AMOUNT REQUESTED FROM CWSD (3 years): \$70,000

**SOURCE OF OTHER FUNDS:** List all other sources of funds to be used to match funds requested from CWSD. List the provider of the matching funds and the amount requested from each provider.

Dr. Justin Huntington with the DRI is currently investigating other funding or grant sources which may be leveraged to assist with project funding.

Churchill County will provide matching funds over the 3 year period in the amount of: \$21,000

ESTIMATED DATE PROJECT TO BEGIN: 7/1/16


ESTIMATED TIME TO COMPLETE PROJECT: 6/30/19  
(If completion date is greater than a year, please indicate how much funding is needed in each fiscal year.)  
FY16/17: \$31,000; FY17/18: \$28,000; FY18/19: \$32,000

**PERMIT REQUIREMENTS:** If your project requires a permit, license and/or approval from a governmental agency to proceed, please provide the current status of each requirement. If approval has not been requested or is in progress, please provide the estimated date on which approval can be expected. Additional sheets may be attached.

N/A

**OTHER INFORMATION:** Provide any other information that may be important to the approval of this application.

See attached Exhibit A & copy of Bureau of Reclamation Dixie Valley Plan of Study, dated May 2009

SIGNED:   
NAME: Eleanor Lockwood  
TITLE: County Manager  
DATE: \_\_\_\_\_

**THE CARSON WATER SUBCONSERVANCY DISTRICT RESERVES THE RIGHT TO DENY ANY AND/OR ALL APPLICATIONS FOR FUNDING.**



<i>Surface-Water Monitoring Program</i>			
Contribution Breakdown By Period	CWSD	USGS	Yearly Total
<b>CWSD FY 2018</b>			
July 1, 2017 – June 30, 2018	78,405	46,075	124,480
<b>CWSD FY 2019</b>			
July 1, 2018 – June 30, 2019	<u>78,405</u>	<u>46,075</u>	<u>124,480</u>
<b>Total Program Funding</b>	<b>\$156,810</b>	<b>\$ 92,150</b>	<b>\$248,960</b>

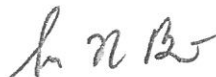
The water monitoring program in the Carson River Basin consists of the operation and maintenance (O&M) of nine continuous streamflow gages. Funding for O&M of data-collection sites includes the following tasks:

1. Operation and maintenance of the streamflow gaging stations.
2. Streamflow measurements on a 6-week schedule or as conditions warrant. Additional streamflow measurements on a 3-week schedule at West Fork Carson River at Woodfords and Carson River near Carson City during the summer when flows are lower than other periods of the year.
3. Evaluation and analysis of stage data.
4. Input of stage and measurement data to the National Water Information System (NWIS) database.
5. Development of stage/discharge relationships (ratings).
6. Computation of continuous streamflow, quality assurance, and final approval.
7. Publication of the approved data. Data will be reviewed, compiled, and disseminated throughout the year and annually as water year summaries on the USGS NWIS (National Water Information System) web interface. Real time (updated every hour) provisional data from the five streamflow gaging stations will continue to be provided through NWIS web.

If you approve of this work and the funding required, please sign the attached JFA and return it to Helen Houston at NVFinance@usgs.gov so we may provide your agency with uninterrupted, continuous data. Funds are not required at this time. A signed agreement is not a bill, only an agreement to pay for the work that will be done.

If you have questions, please refer to the contact list on Enclosure 2.

Sincerely,



Steven N. Berris, Acting Director  
USGS, Nevada Water Science Center

Enclosures

cc: S. N. Berris, M. Gipson, USGS, NVWSC

Enclosure 1

FY2018-2019 Carson Water Subconservancy District/U.S. Geological Survey Cooperative Water-Resources Monitoring Program

Station Number	Location	FY2018 (July 1, 2017 - June 30, 2018)				FY2019 (July 1, 2018 - June 30, 2019)				Total JFA	
		CWSD	USGS <sup>1</sup>	Total FY14	Total FY15	CWSD	USGS <sup>1</sup>	Total FY15	CWSD	USGS <sup>1</sup>	Total JFA
10308200	East Fork Carson River below Markleeville Creek nr Markleeville, Ca (Daily streamflow & DCP) <sup>2</sup>	5,890	3,460	9,350	5,890	3,460	9,350	11,780	6,920	18,700	
10310000	West Fork Carson River at Woodfords, CA (Daily Streamflow & DCP) <sup>2</sup> Additional measurements during summer at West Fork Carson - Woodfords and Carson River nr Carson City (12 additional discharge measurements )	7,460	4,380	11,840	7,460	4,380	11,840	14,920	8,760	23,680	
10310400 <sup>3</sup>	Carson River near Genoa, NV (Daily Streamflow)	9,700	5,700	15,400	9,700	5,700	15,400	19,400	11,400	30,800	
10310400	Daggett Creek near Genoa, NV (Daily Streamflow)	9,700	5,700	15,400	9,700	5,700	15,400	19,400	11,400	30,800	
10310500	Clear Creek nr Carson City, NV(Daily Streamflow and DCP)	11,770	6,920	18,690	11,770	6,920	18,690	23,540	13,840	37,380	
10311000	Carson River at Carson City, NV (Daily Streamflow) <sup>2,4</sup>	3,960	2,330	6,290	3,960	2,330	6,290	7,920	4,660	12,580	
10311000	Carson River at Deer Run Road, NV (Daily streamflow and DCP)	11,770	6,920	18,690	11,770	6,920	18,690	23,540	13,840	37,380	
10311700	Carson River at Dayton, NV (DCP, daily streamflow December through March)	3,925	2,305	6,230	3,925	2,305	6,230	7,850	4,610	12,460	
10312000	Carson River at Fort Churchill, NV (Daily Streamflow & DCP) <sup>3</sup>	5,890	3,460	9,350	5,890	3,460	9,350	11,780	6,920	18,700	
10348460	Franktown Creek nr Carson City, NV (Daily Streamflow and DCP, May - Oct.)	5,890	3,460	9,350	5,890	3,460	9,350	11,780	6,920	18,700	
<b>Total</b>		<b>78,405</b>	<b>46,075</b>	<b>124,480</b>	<b>78,405</b>	<b>46,075</b>	<b>124,480</b>	<b>156,810</b>	<b>92,150</b>	<b>248,960</b>	

<sup>1</sup>Bureau of Reclamation provides a portion of the funding.

<sup>2</sup>Carson-Truckee Water Conservancy District provides a portion of the funding.

<sup>3</sup>Nevada Department of Environmental Protection provides a portion of the funding.

<sup>4</sup>USGS Federal Priority Streamgage Program (FPS) provides a portion of the funding. DCP: Data Collection Platform



# United States Department of the Interior

U.S. GEOLOGICAL SURVEY

PACIFIC REGION  
NEVADA WATER SCIENCE CENTER  
2730 N. Deer Run Road  
Carson City, Nevada 89701  
Phone: 775-887-7600; Fax: 775-887-7629  
Website: <http://www.usgs.gov/>

May11, 2017

Edwin James  
Carson Water Subconservancy District  
777 East William Street, Suite 110-A  
Carson City, NV 89701

Dear Mr. James:

This letter is in regards to the on-going cooperative monitoring program between the Carson Water Subconservancy District (CWSD) and the U.S. Geological Survey (USGS) for the groundwater and water-quality monitoring program activities in Douglas and Lyon Counties, Nevada for the time period of July 1, 2017 through June 30, 2019 (CWSD fiscal years 2018-19).

Beginning on July 1, 2017 of this agreement, Federal Matching Funds (FMF) allocated by the Nevada Water Science Center will decrease due to a scarcity of available funds. NVWSC strives to apportion our matching funds in an equitable manner that is mutually beneficial to both our customers and our science. Competition for FMF has increased while our Federal appropriation of these funds has decreased. For this reason, the USGS matching funds portion of this agreement reflects a 15 percent reduction from the previous agreement. The NVWSC will implement a 9 percent increase in customer contributions for this agreement based on cost evaluations using current allocations of FMF.

Cost for operation and maintenance (O&M) of program activities in CWSD FY18-19 is \$53,190. Pending availability of Federal Matching Funds, the USGS will provide \$19,680 towards this program; cost to CWSD for this program will increase from our prior agreement at \$31,000 to \$33,510. The table below reflects total costs for this program. See a detailed task and cost breakdown at Enclosure 1.

<i>Groundwater and Water-Quality Monitoring Program</i>			
Contribution Breakdown By Period	CWSD	USGS	Yearly Total
<b>CWSD FY 2016</b>			
July 1, 2015 - June 30, 2016 <i>17 16</i>	16,620	9,760	26,380
<b>CWSD FY 2017</b>			
July 1, 2016 - June 30, 2017 <i>18 17</i>	<u>16,890</u>	<u>9,920</u>	<u>26,810</u>
<b>Total Program Funding</b>	<b>\$33,510</b>	<b>\$19,680</b>	<b>\$53,190</b>

Enclosure 1

FY2018-2019 Carson Water Subconservancy District/U.S. Geological Survey Cooperative Water-Resources  
Groundwater and Water-Quality Monitoring Program

<i>Funding Summary</i>			
July 1, 2017 – June 30, 2018			
Task	CWSD	USGS	Total Task Funding
Groundwater levels (20 wells quarterly)	4,360	2,560	6,920
Groundwater levels <sup>1</sup> (10 wells annually)	270	160	430
Water-quality sampling <sup>2</sup> (sample six wells annually and 5 wells two times per year)	8,720	5,120	13,840
Program support (supplies and materials, data entry and quality assurance, landowner communications, and monitoring network evaluation/review)	3,270	1,920	5,190
<b>CWSD FY18 Total</b>	<b>16,620</b>	<b>9,760</b>	<b>26,380</b>
July 1, 2018 – June 30, 2019			
Task	CWSD	USGS	Total Task Funding
Groundwater levels (20 wells quarterly)	4,360	2,560	6,920
Groundwater levels <sup>1</sup> (10 wells annually)	540	320	860
Water-quality sampling <sup>2</sup> (sample six wells annually and 5 wells two times per year)	8,720	5,120	13,840
Program support (supplies and materials, data entry and quality assurance, landowner communications, and monitoring network evaluation/review)	3,270	1,920	5,190
<b>CWSD FY19 Total</b>	<b>16,890</b>	<b>9,920</b>	<b>26,810</b>
<b>Agency Total Funding</b>	<b>33,510</b>	<b>19,680</b>	<b>53,190</b>

<sup>1</sup>Annual groundwater level measurements at ten wells in the Silver Springs and Fish Springs areas.

<sup>2</sup>Water-quality constituents and indicators include field values, major ions, trace elements, low-level nutrients, and physical properties.

**CARSON WATER SUBCONSERVANCY DISTRICT  
REQUEST FOR FUNDING**

**APPLICANT:** Name: David Smith - U.S. Geological Survey Hydrologist  
Address: 2730 North Deer Run Road  
City: Carson City County: Carson State: NV Zip: 89701  
Email: dwsmith@usgs.gov Telephone #: 775-887-7616

**APPLICANT'S AGENT (If different from Applicant):**

\_\_\_\_\_  
Name  
\_\_\_\_\_  
Address  
\_\_\_\_\_  
City County State Zip Code  
\_\_\_\_\_  
Email Telephone #

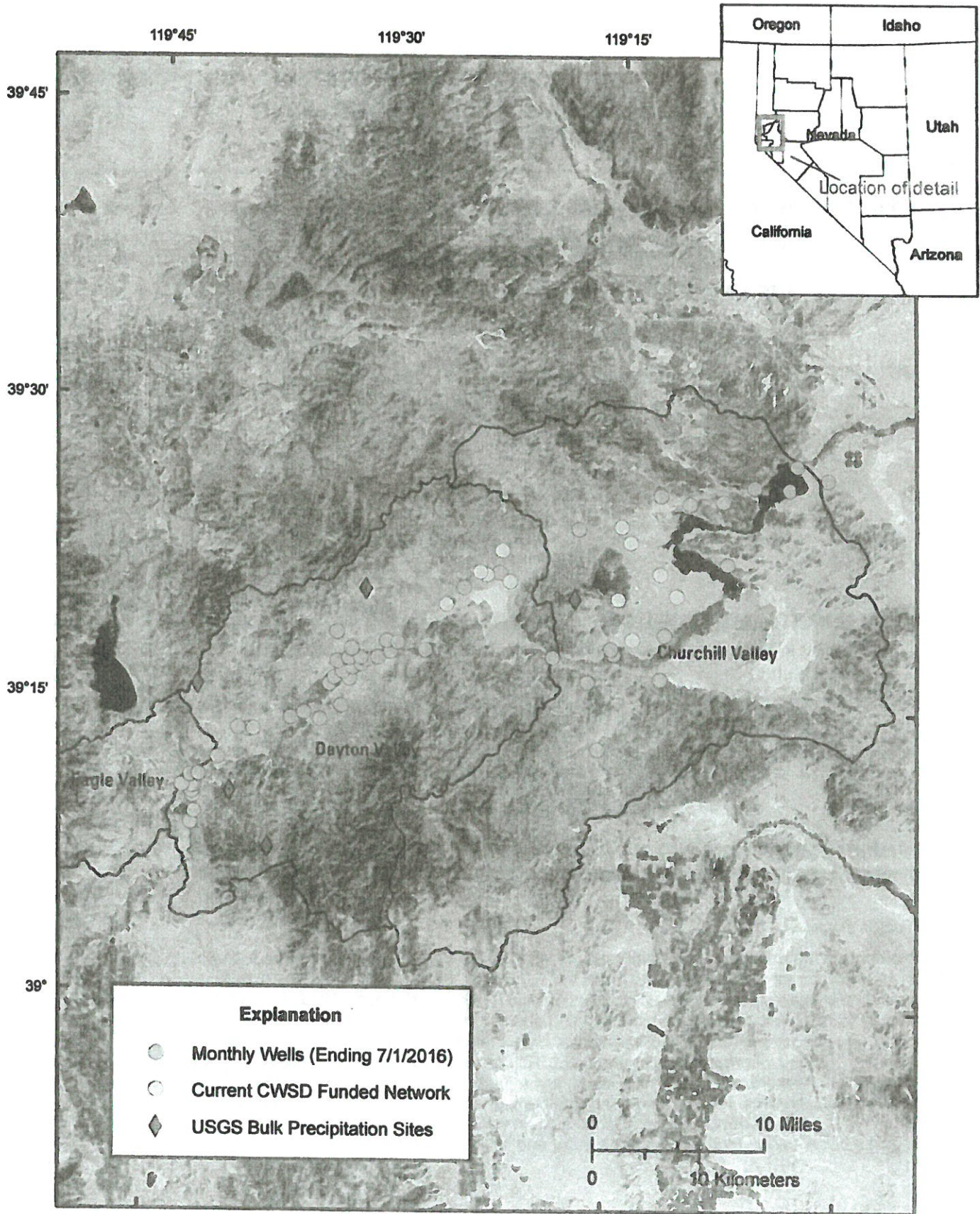
**PROJECT NAME:** Middle Carson River Groundwater Monitoring

**PROJECT LOCATION/ADDRESS:** **Carson City, Mound House, Dayton, Carson Plains,  
Stagecoach and Silver Springs**  
**Eagle Valley, Dayton Valley, and Churchill Valley**

**PROJECT DESCRIPTION:** Briefly describe the project. Provide maps, drawings, photographs or other information. Additional sheets may be attached.

*Problem Statement*

Residents in the middle Carson River area, which includes Eagle, Dayton and Churchill Valleys, depend on groundwater for domestic supply. Since the 1970's the U.S. Geological Survey (USGS) has monitored groundwater levels and water quality in these basins (Glancy and Katzer, 1976; Arteaga and Durbin, 1979; Berger, 1987; Harrill and Preissler, 1994; Jeton and Maurer, 2007, Maurer and others, 2009). Currently, monitoring objectives are to collect water-level measurements at spatial locations required to reliably calibrate a groundwater-model in development. This project also includes the monitoring of quarterly bulk-precipitation measurements for model inputs and annual groundwater quality in areas where there is high-density septic systems. Prior to model development, groundwater-levels were lacking in areas close to the Carson River, thus current monitoring is focused on wells near the river, and at high (monthly) frequencies to gain a better understanding of surface water and groundwater interactions.



Hydrography modified from 1:24,000-scale U.S. Geological Survey (USGS) National Hydrography Dataset, 2014. Drainage basin boundaries from 1:24,000-scale Watershed Boundary Dataset, 2013. Universal Transverse Mercator, Zone 11N, North American Datum of 1983.

Groundwater monitoring in the Eagle, Dayton, and Churchill Valleys is scheduled to end in of June, 2016, leaving a potential gap in data collection. However, the frequency and spatial distribution of current monitoring wells does not include many subdivisions that rely on groundwater from domestic wells as the only drinking water source. In subdivisions, groundwater-levels and long-term trend analysis may be helpful in future water-resource management decisions. For example, residents in the Mark Twain Estates have recently cited declining groundwater levels as a cause for deepening wells and concern over long-term water supply (Woodmansee, 2015). The current monitoring network (figure 1) spatially is about 1 mile away from the Mark Twain Estates, missing the potential declining water-table. New monitoring wells have been added in the Mark Twain Estates area, however more are needed to gain an understanding of groundwater-levels and pumping trends in the subdivision area.

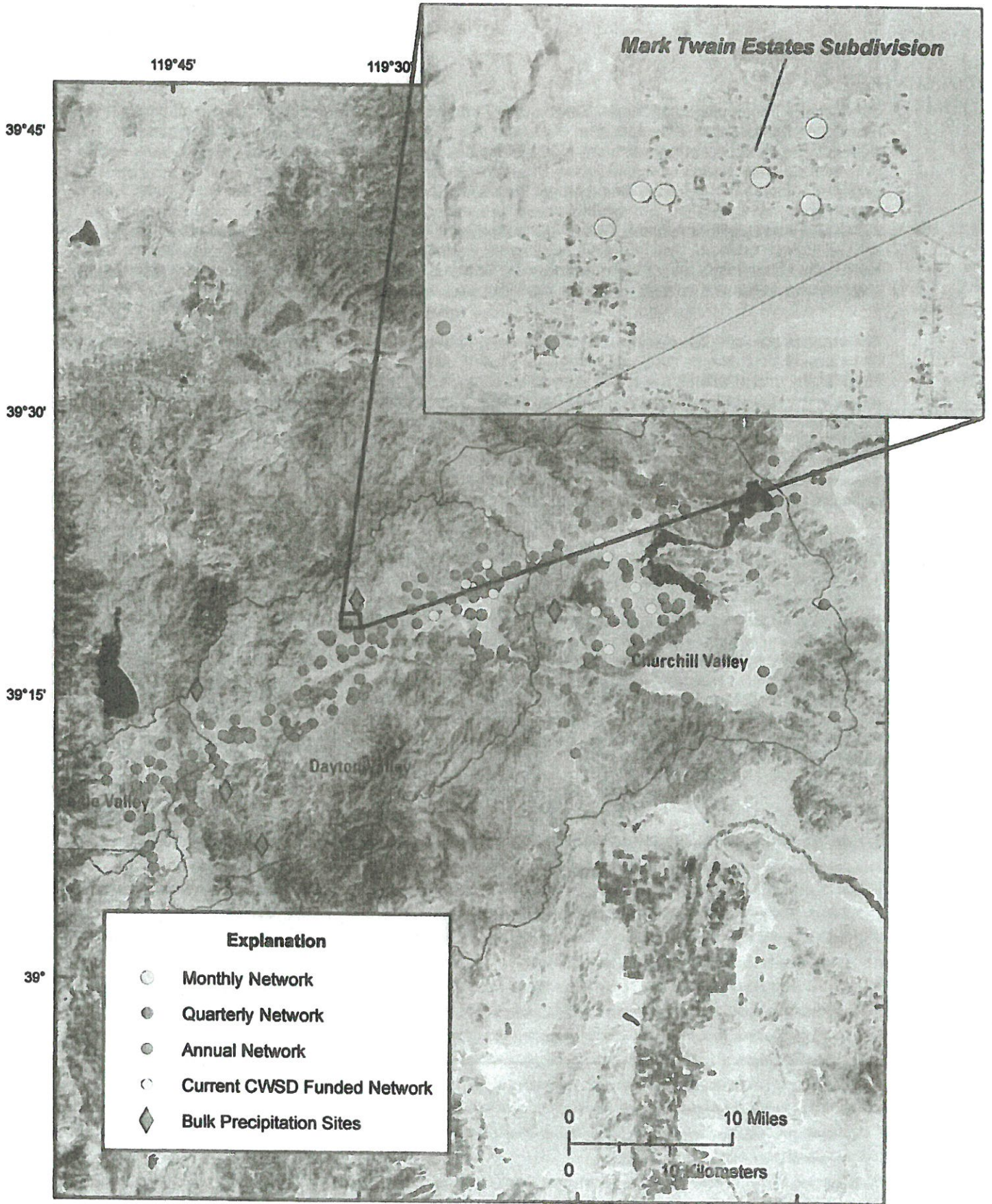
We propose adjusting the objectives of the current groundwater monitoring network in the middle Carson River area to (1) increase the spatial density of groundwater-level monitoring along the middle Carson River basin, in particular in areas with high densities of domestic wells, (2) measure monthly groundwater-levels in the Mark Twain Estates, with the installation of a pressure transducer to collect continuous groundwater-levels data (fig. 2), (3) collect an annual water-quality sample from the Mark Twain Community Center, a well with nitrate levels exceeding the U.S. Environmental Protection Agency's limit of 10 parts per million, (4) continue measurement of quarterly bulk precipitation throughout the middle Carson River area for future model use and scenario development, and (5) enter water-levels currently collected by local municipalities Dayton and Silver Springs Utilities into the NWIS database.

#### *Approach*

The redesigned network will be monitored at a monthly (6-8 wells in Mark Twain Estates Subdivision), quarterly (44 wells), and annual (154 wells) frequency throughout Eagle, Dayton, and Churchill Valleys (fig. 2). Additionally, one water-level recorder will be deployed in the Mark Twain Estates Subdivision for continuous water-level collection. Annual water-quality samples will be collected from the Mark Twain Community center and the addition of a onetime sample analyzed for waste-water indicators. Bulk precipitation gauges will be measured at a quarterly frequency. Data collection is planned to begin in the Nevada State fiscal year 2017 (October 1, 2016), and continue for a period of at least three years (table 1). No formal USGS reports are currently planned with this monitoring effort. All data collected will be quality assured using standard USGS methods and made available online to the public through NWISWeb. Groundwater-level data will be available online within 2 weeks after the completion of well runs.

#### *References*

- Artega, F.E., and Durbin, T.J., 1979, Development of a relation for steady-state pumping rate for Eagle Valley ground-water basin, Nevada: U.S. Geological Survey Open-File Report 79-261, 44 p.
- Berger, D.L., 1987, Ground-water levels in water years 1984-86 and estimated ground-water pumpage in water years 1984-85, Carson Valley, Douglas County, Nevada: U.S. Geological Survey Open-File Report 86-539, 16 p.
- Giancy, P.A., and Katzer, T.L., 1976, Water-Resources Appraisal of the Carson River basin, Western Nevada: Nevada Division of Water Resources, Reconnaissance Report 59, 126 p.
- Harrill, J.R., and Preissler, A.M., 1994, Ground-water flow and simulated effects of development in Stagecoach Valley, a small, partly drained basin in Lyon and Storey Counties, western Nevada: U.S. Geological Survey Professional Paper 1409-H, 74 p.
- Jeton, A.E., and Maurer, D.K., 2007, Precipitation and streamflow simulations of the Carson Range and Pine Nut Mountains, and updated estimates of ground-water inflow and the ground-water budget for basin-fill aquifers of Carson Valley, Douglas County, and Alpine County, California: U.S. Geological Survey Scientific Investigations Report 2007-5205, 56 p.
- Maurer, D.K., Paul, A.P., Berger, D.L., and Mayers, C.J., 2009, Analysis of streamflow trends, ground-water and surface-water interactions, and water quality in the upper Carson River basin, Nevada and California: U.S. Geological Survey Scientific Investigations Report 2008-5238, 192 p.
- Woodmansee, K, 2015, "Study Sought to Find Causes of Water Woes In Mark Twain Estates." Virginia City News [Virginia City] 20 Nov. 2015, Vol. 7 No. 47 ed.



Hydrography modified from 1:24,000-scale U.S. Geological Survey (USGS) National Hydrography Dataset, 2014. Universal Transverse Mercator, Zone 11N, North American Datum of 1983.



**PROJECT GOALS AND BENEFITS:** The proposed study is aligned with the USGS science strategy goal of informing the public and decision makers about the status of freshwater resources across America, and is consistent with the goal of the USGS Strategic Plan of providing water-resource managers with accurate, reliable, and impartial scientific information. The data will provide an increased understanding of groundwater levels in Eagle, Dayton, and Churchill Valleys and provide water managers with information on how water resources may be affected by increased development.

Project benefits include:

1. Groundwater level observations in approximately 208 wells. Additional monitoring wells will be included near areas of proposed expansion with the USA Parkway Highway, near Silver Springs, and near the Iron Mountain Subdivision near Stagecoach, NV.
2. Monthly groundwater-level monitoring of the Mark Twain Estates and a continuous water-level data recorder at one well to assist managers in determining water-table declines.
3. The continued collection of bulk precipitation on McClellan Peak, Brunswick Canyon, Churchill Butte, and in the Virginia Range, for future use in potential groundwater model scenario development (figure 2).
4. Entry of Dayton and Silver Springs Utilities groundwater levels into the USGS online database.
5. The annual monitoring of water-quality from the Mark Twain Community Center well and analysis for waste-water compounds.
6. Publish and maintain data online for public use in the USGS National Water Inventory System database.

**Table 1. Project Timeline**

[Quarters represent NV State Fiscal Quarters, State fiscal year is July 1 to June 30. The monthly run will be collected each month of the fiscal year.]

NV State Fiscal Year	FY2017				FY2018				FY2019				FY2020
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Monthly Well Run	X	X	X	X	X	X	X	X	X	X	X	X	X
Quarterly Precip	X	X	X	X	X	X	X	X	X	X	X	X	X
Quarterly Well Run	X	X	X	X	X	X	X	X	X	X	X	X	X
Annual Well Run	X				X				X				X
Data processing/Review	X			X				X				X	X

**TOTAL ESTIMATED PROJECT COST: \$135,470**

**AMOUNT REQUESTED FROM CWSD: \$67,735**

**SOURCE OF OTHER FUNDS:**

Pending the availability of federal matching funds, it is anticipated that funds provided by the Carson Water Subconservancy District will be matched by the USGS. This proposal will be presented at a Carson Water Purveyors meeting, with the intention of gaining support from Storey County for monitoring in the Mark Twain Estate Subdivision.

**ESTIMATED DATE PROJECT TO BEGIN:** October 1<sup>st</sup>, 2016

**ESTIMATED TIME TO COMPLETE PROJECT:** 3 years, ending September 29<sup>th</sup>, 2019  
(If completion date is greater than a year, please indicate how much funding is needed in each fiscal year.)


**Table 2. Funding Distributed per Fiscal Year**  
[Fiscal Year (FY) represents the Nevada State fiscal years from July 1 to June 30.]

	FY16	FY17	FY18	FY19	Total
USGS CWP Funds	\$16,000	\$19,195	\$19,640	\$12,900	\$67,735
Request from CWSD	\$16,000	\$19,195	\$19,640	\$12,900	\$67,735
<b>Total</b>	<b>\$32,000</b>	<b>\$38,390</b>	<b>\$39,280</b>	<b>\$25,800</b>	<b>\$135,470</b>

**PERMIT REQUIREMENTS:** If your project requires a permit, license and/or approval from a governmental agency to proceed, please provide the current status of each requirement. If approval has not been requested or is in progress, please provide the estimated date on which approval can be expected. Additional sheets may be attached.

No permits are anticipated to complete the project. However, owner information and verbal permission to measure groundwater wells will be collected.

**OTHER INFORMATION:** Provide any other information that may be important to the approval of this application.

SIGNED:   
NAME: David Smith  
TITLE: USGS Hydrologist  
DATE: 2/9/16

**THE CARSON WATER SUBCONSERVANCY DISTRICT RESERVES THE RIGHT TO DENY ANY AND/OR ALL APPLICATIONS FOR FUNDING.**

# CARSON WATER SUBCONSERVANCY DISTRICT REQUEST FOR FUNDING

**APPLICANT:** River Wranglers  
 Name  
PO Box 1612  
 Address  
Dayton Lyon NV 89403  
 City County State Zip Code

**APPLICANT'S AGENT:**

Linda Conlin, Executive Director  
 Name  
PO Box 1612  
 Address  
Dayton Lyon NV 89403  
 City County State Zip Code

**PROJECT NAME:** Conserve Carson River Work Days and Vegetation Management

**PROJECT LOCATION:** The Carson River watershed including but not limited to Douglas, Carson, Lyon, Storey and Churchill counties in Nevada and Alpine County,

**PROJECT DESCRIPTION:** Briefly describe the project. Provide maps, drawings, photographs or other information. Additional sheets may be attached.

River Wranglers continues to expand Conserve Carson River Work Days throughout the watershed. In 2017 there were 14 elementary schools (48 classes) and 8 high schools (19 classes) involved in work days throughout the watershed, 1,037 students, an increase of 19% from the year before. With the addition of an AmeriCorps volunteer 20 hours per week, we're able to increase our outreach and educate more Carson River watershed youth. Students were involved in conservation and vegetation management projects along the Carson River or one of its tributaries: planting willow poles, willow bundles, wrapping trees to protect them from beaver damage, scattering native seed mixes and more. Along the Carson River, from the Nevada State line in Douglas County to the Carson Sink, we connected elementary and high school students to the Carson River.

The current grant allocates \$6,000 per county for Conserve Carson River Workdays events and vegetation projects. These projects typically involve local conservation district employees to supervise and prep for construction projects along the Carson River and/or tributaries. In addition, state, federal, and county partners work on these projects. These projects utilize local labor crews and conservation crews to cut and plant willows for workdays and habitat restoration, weed control, seeding and projects to reduce potential flood hazards in the river and tributaries. The remaining \$2000 covers administration costs and travel related to the grant.

**PROJECT BENEFITS:** Briefly describe the benefits to be realized if the project is implemented. Additional sheets may be attached.

The benefits of Conserve Carson River Workdays are numerous. The events link all of the communities in the watershed and provide hands-on conservation activities for volunteers. Participants understand they are part of a larger, watershed wide community and that efforts made at one location benefit that community as well as communities downstream.

We focus on stabilizing river banks, providing habitat for nesting birds and bats, and protecting the cottonwood gallery forest (one of the largest and most beautiful in our state). River Wranglers organizes Conserve Carson River Work Days and arranges for elementary and high school students to work on the riverbanks with the conservation district employees. This educational day, focusing on projects and watershed education, has a ripple effect as it educates the teachers, their students and students' families. As a result, Carson River issues often become a part of dinner time conversation.

In summary, this grant proposal meets several criteria for funding established by the CWSD; it provides regional benefit and improves water quality by preventing stream bank erosion. The vegetation projects also reduce flooding. By involving the public in the projects, we increase their understanding of watersheds, nonpoint source pollution and current water issues. The Conserve Carson River Work Days and Vegetation Management grant is consistent with the Stewardship Plan for the Carson River.

**AL ESTIMATED PROJECT COST:**

**AMOUNT REQUESTED FROM CWSD:** \$26,000.00

**SOURCE OF OTHER FUNDS:** List all other sources of funds to be used to match funds requested from CWSD.

List the provider of the matching funds and the amount requested from each provider. Funds requested from the Carson Water Subconservancy District are used as a cash match for a 319h grant with Nevada Division of Environmental Protection. This grant covers the cost of salary and mileage.

**ESTIMATED DATE PROJECT TO BEGIN:** July 1, 2018

**ESTIMATED TIME TO COMPLETE PROJECT:** June 30, 2019

**REQUIRED APPROVALS:** List all permits, licenses and approvals, if any that are required to complete the project. Provide the current status of each approval required. If approval has not been requested or is in progress, provide the estimated date on which approval can be expected. Additional sheets may be attached.

**OTHER INFORMATION:** Provide any other information that may be important to the approval of this application.

**SIGNED:**

Linda d. Conlin

**NAME:** Linda d. Conlin

**TITLE:** Executive Director, River Wranglers

**DATE:** January 30, 2018

**THE CARSON WATER SUBCONSERVANCY DISTRICT RESERVES THE RIGHT TO DENY ANY AND/OR ALL APPLICATIONS FOR FUNDING.**

**CARSON WATER SUBCONSERVANCY DISTRICT  
REQUEST FOR FUNDING**

---

**APPLICANT:** Alpine Watershed Group      Contact: Sarah Green  
Name

P.O. Box 296  
Address

Markleeville      Alpine      CA      96120  
City                      County                      State                      Zip Code

awg.sarah@gmail.com                      530-694-2327  
Email    Phone #

**PROJECT NAME:** Upper Carson River Watershed Programs

**PROJECT LOCATION/ADDRESS:** Service area - Alpine County  
AWG office – 50 Diamond Valley Road in Woodfords

**PROJECT DESCRIPTION:** Briefly describe the project. Provide maps, drawings, photographs or other information. Additional sheets may be attached.

The Alpine Watershed Group (AWG) is seeking funds for the fiscal year 2017-18 from the Carson Water Subconservancy District for the coordination of its Upper Carson River Watershed programs. For over ten years, AWG has implemented a comprehensive community-based watershed program in Alpine County. AWG’s mission is to preserve and enhance the natural system functions of Alpine County’s watersheds for future generations. In order to further the stewardship of our county’s natural resources, our organization has developed diverse partnerships around watershed issues. We also organize volunteers and inspire community participation to address water quality monitoring and restoration needs.

AWG’s staff work to: 1) involve local citizens in watershed stewardship, 2) plan and implement watershed monitoring and restoration activities, 3) recruit diverse stakeholders and strengthen community partnerships, and 4) support local watershed education and community outreach.

**PROJECT GOALS AND BENEFITS:** Briefly describe the goals and benefits to be realized if the project is implemented. Additional sheets may be attached.

One primary project over the next year involves collaboration with CWSD and other partners to ensure that the Carson River Watershed Adaptive Stewardship Plan is adopted by California. The State of Nevada approved the document as a 9-Element Watershed Plan. On the California side, Lahontan Regional Water Board has approved it. However, final approval by California EPA is still needed in order for any California projects to be eligible for federal 319 funding. AWG will help further the update of the Stewardship Plan by ensuring all projects and planning efforts are included and by coordinating the plan acceptance process. Depending on funding available, AWG will facilitate partner communication, conduct local stakeholder outreach, help supply needed information such as monitoring data and completed watershed projects, and provide input on

feasible management measures. This process will assist in the long term development of a TMDL-alternative plan (West Fork Carson only) under the USEPA Vision program, an effort which is a huge priority to the Lahontan Regional Water Board.

AWG is undertaking a new monitoring project this year which may serve as a pilot for the watershed: testing treated effluent water for contaminants of emerging concern such as pharmaceuticals and pesticides. AWG has also been expanding youth education programs with the Washoe Tribe and at Diamond Valley School.

The Alpine Watershed Group's ongoing role is to monitor water quality, conduct needed restoration projects and engage community participation in order to maintain healthy watershed systems. Our organization promotes public awareness of watershed health and community involvement in stream and landscape restoration. AWG has been instrumental in serving as a network for watershed planning and communication in Alpine County since 1999. AWG staff and board members have been actively engaged in the county's ongoing efforts involving watershed and natural resource management.

The Alpine Watershed Group has three primary organizational goals. Within each of these goals, we have made tremendous progress since our inception and CWSD funding will help ensure progress in the 2017-18 fiscal year.

***Goal #1: Assess and restore the natural systems*** – This goal involves identifying impacts to watershed systems and addressing these degradations with monitoring and restoration practices. AWG has programs that cover a variety of water quality aspects including basic water chemistry (temperature, pH, turbidity and dissolved oxygen), bacteria sampling, stream discharge monitoring and bioassessment surveys. Twenty-eight volunteers served approximately 303 hours monitoring at fourteen stream locations.

As one of our new monitoring programs, AWG has recently been contracted by Alpine County to conduct additional water monitoring of STPUD wastewater. Water will be tested for Contaminants of Emerging Concern (CECs) including Pharmaceutical and Personal Care Products (PPCPs). AWG is currently updating their QAPP (Quality Assurance Project Plan) to include standard operating procedures (SOP) for collecting water samples for PPCPs. Although the County contract covers some AWG staff time and sample analysis by an accredited lab, additional funding is needed to sufficiently manage the program.

In 2017, a total of 150 volunteers participated in 40 different restoration and monitoring activities during 2017, contributing approximately 780 volunteer hours in these activities. The 18<sup>th</sup> Annual Markleeville Creek Day was held on September 9, 2017. A total of 68 volunteers participated in 8 restoration projects. Just a few of the on-the-ground volunteer restoration accomplishments throughout the Carson River watershed include: 600 feet of stream bank protected, 500 native plants established and 150 pounds of native seed dispersed, 150 pounds of invasive weeds and 150 pounds of trash removed from our creeks and riparian areas. AWG held its second Earth Day event at Grover Hot Springs State Park on Saturday, April 22, 2017. Sixty-one volunteers attended and helped remove 150 pounds of invasive weeds and 100 pounds of trash from 104 acres of land including the meadow and campground area; 120 native plants and grasses planted at and around the native plant demonstration garden.

Every year, AWG is taking on more large-scale restoration projects in the Upper Carson River watershed. Here is a summary of each of those efforts:

**Hope Valley Aquatic Habitat Restoration Planning** 11/2016 – 6/2018

This project continues restoration planning in Hope Valley by addressing a section of the West Carson just downstream of Highway 88 on CDFW land (upstream of the 2015 restoration project). This project proposes to stabilize over 800 feet of eroding banks and improve aquatic habitat along nearly 0.5 miles of river.

*Update: Planning started summer 2017; implementation funding being pursued.*

**Markleeville Creek Restoration** 2005 – Current

The purpose is to re-establish the natural form and function of Markleeville Creek through the site of the former U.S. Forest Service Guard Station. The project will re-create the streamside habitat by removing the floodwall and re-vegetating the floodplain. It will also provide various community benefits including utility improvements and public access for recreation.

*Update: Planning completed; implementation funding being pursued for Phase 1 sewer replacement.*

**Grover Meadow Restoration & ADA Access Project** 1/2016 – 12/2019

The purpose of the Grover Hot Springs Meadow Restoration Project is to reduce user impacts throughout the meadow and to rehabilitate the existing impacted areas. By decommissioning user-created trails and stabilizing banks along Hot Springs Creek, the project will reestablish the continuity of flow through the meadow. The project will also develop interpretive signage along an elevated ADA trail in order to educate visitors about the local ecology and sensitivity of the wetland area.

*Update: Pre-construction weed management started in 2017; project implementation in 2018-19.*

**Markleevillage Fuels Reduction** 8/2016 – 1/1/2020

This project ensures community wildfire protection by continuing the implementation of the Markleevillage Fuels Reduction Project on U.S. Forest Service land. Treatment involves using mechanical mastication to reduce fuel loads around rural, residential areas near Markleeville. The 234 acres that will be treated are located in Pleasant Valley and Thornburg Canyon and are part of a larger 1,200-acre Forest Service plan.

*Update: Fuels work completed November 2017; education/ outreach continues until June 2018.*

**Faith and Forestdale Project** – American Rivers lead, 6/2017 – 1/1/2020

The overarching goal of this project is to improve hydrologic and ecosystem processes in these two meadows located in the headwaters of the West Carson River Watershed. Currently in the planning stage, American Rivers will continue to assess the 890 projected degraded acres and prepare the restoration project. AWG's involvement includes outreach, education, and monitoring of the sites.

*Update: Project kickoff in fall 2017; planning begins in 2018.*

**Goal #2: Increase community awareness and participation for watershed stewardship** –

AWG strives to educate community members, visitors, and water users about the values of our natural resources. We reach out in a variety of ways - from tabling at local and regional events to providing educational presentations to community groups. Our organization is also active in

engaging youth in the study of earth sciences and providing hands-on opportunities to participate in restoration projects. Community education is critical in providing for the long term protection of our watersheds.

The 3<sup>rd</sup> Annual Alpine Aspen Festival was held on October 7-8, 2017. In partnership with the Friends of Hope Valley, AWG offered 38 activities and 18 educational booths. A total of 329 participants registered for activities and more than 1,000 people attended the event overall. Over 50 volunteers assisted with the event, representing more than 30 organizations, businesses, agencies, and individuals.

AWG staff have developed a new Watershed Education Program to spark youth interest in the sciences, develop an understanding about their connections to the natural world, and foster a respect for nature. This year, AWG has integrated watershed education into the Diamond Valley School's Advanced Learning Program, an after school program that meets once a month and is open to all students. Each month, AWG's Education and Outreach Coordinator is presenting natural resource science topics through engaging educational presentations, hands-on learning activities, field trips, and more. Our youth education program utilizes the Project WET, Project WILD, Project Aquatic WILD and Project Learning Tree programs to develop most of the educational activities provided. The Education and Outreach Coordinator tailors these lesson plans specifically towards the desired grade level, subject area, activity topic and/or time required to complete the lesson. We also offer field lessons which involve students in water quality testing, willow plantings, and trash cleanups.

AWG staff have also begun to work more closely with the Woodfords Washoe community and the Washoe Environmental Protection Department to develop youth educational opportunities. AWG is hoping to contribute to the after school tutoring program either in the next few months or this summer. Partners are also discussing the possibility of offering three-day summer camp for tribal youth.

***Goal #3: Build the capacity of the Alpine Watershed Group*** – The Alpine Watershed Group continues to strengthen and expand its capacity to serve Alpine County's watershed stewardship needs. An important part of this capacity involves AWG's partnerships with natural resource agencies and community organizations. Since AWG's inception our staff has maintained collaborations with regional land managers, local resource specialists and diverse community organizations in order to identify watershed needs and develop a community response.

AWG has support from 54 different natural resource agencies, community organizations and local businesses. AWG's active partners which are involved in project planning include Alpine County, Alpine Fire Safe Council, American Rivers, Bureau of Land Management, California Department of Fish and Wildlife, California State Parks, Friends of Hope Valley, Lahontan Regional Water Quality Control Board, Markleeville Public Utility District, Nevada Department of Environmental Protection, River Wranglers, U.S. Forest Service (Carson Ranger District), Washoe Environmental Protection Department, and the Washoe Tribe Community Council.

**TOTAL ESTIMATED PROJECT COST:**     \$150,000    

**AMOUNT REQUESTED FROM CWSD:**     \$25,000



**SOURCE OF OTHER FUNDS:** List all other sources of funds to be used to match funds requested from CWSD. List the provider of the matching funds and the amount requested from each provider.

The committed and projected matching funds are as follows:

Bureau of Reclamation WaterSMART grant – requested	\$40,000
USFS Citizen Science grant – requested	\$15,000
State Water Resources Control Board – committed	\$30,000
Department of Water Resources – committed	\$20,000
Trout Unlimited – committed	\$7,000
American Rivers – committed	\$5,000
California State Parks Foundation – committed	\$5,000
Aspen Festival 2013 Sponsorships – projected	\$3,000
Alpine County Chamber of Commerce - projected	\$1,000
Individual donations – projected	\$2,000

**ESTIMATED DATE PROJECT TO BEGIN:** July 1, 2018

**ESTIMATED TIME TO COMPLETE PROJECT:** June 30, 2019

**REQUIRED PERMITS/ APPROVALS:** If your project requires a permit, license and/or approval from a governmental agency to proceed, please provide the current status of each requirement. If approval has not been requested or is in progress, please provide the estimated date on which approval can be expected. Additional sheets may be attached.

This item is schedule for approval by the Alpine County Board of Supervisors on February 6.

**OTHER INFORMATION:** Provide any other information that may be important to the approval of this application.

The Alpine Watershed Group’s water monitoring and restoration programs directly benefit the headwaters of the Carson River. AWG strives to enhance the health of our water resources, the availability of wildlife habitat and the quality of recreational opportunities, including fishing, boating, swimming and scenic benefits. The organization’s outreach efforts educate the community about watershed processes by engaging individuals in hands-on learning and stewardship activities focusing on stream functions, wildlife habitat and riparian corridors.

**SIGNED:** 

**PRINT NAME:** Sarah Green

**TITLE:** Executive Director

**DATE:** 1/25/18

THE CWSD RESERVES THE RIGHT TO DENY ANY AND/OR ALL APPLICATIONS FOR FUNDING.



# Alpine Watershed Group

*Protecting the Headwaters of the California Alps*

## 18<sup>th</sup> Annual Markleeville Creek Day | Saturday, September 9, 2017



**Native Plantings**  
Grover Hot Springs State Park  
*150 pounds of native seed spread*



**Protective Tree Wrapping**  
East Fork Carson River  
*50 native trees protected from beaver*



**Trout Habitat Enhancement**  
Bear Valley  
*Bridge built to prevent trail erosion*



**Invasive Species Removal**  
Grover Hot Springs State Park  
*Sweet Clover and Bermuda Grass removed from meadow*



**Stream Bank Stabilization**  
Hope Valley  
*1000 sq. feet of stream bank stabilized  
20 willow stakes planted*



**Downtown Clean Up**  
Markleeville  
*24 storm drains marked  
Weed removal from community parks*



**Park Renovations**  
Heritage Park  
*6 picnic tables stained  
Downtown trail rehabilitated*



**Great Sierra River Clean-up**  
Alpine County  
*27 pounds of litter removed from our creeks and streams*



**Hope Valley Willow Staking**  
Hope Valley  
*375 willow stakes planted  
300 feet of stream bank stabilized*

# Alpine Aspen Festival 2017

## *Photo Summary*





# Alpine Watershed Group

*Protecting the Headwaters of the California Alps*

## 12<sup>th</sup> Annual Carson River Snapshot Day

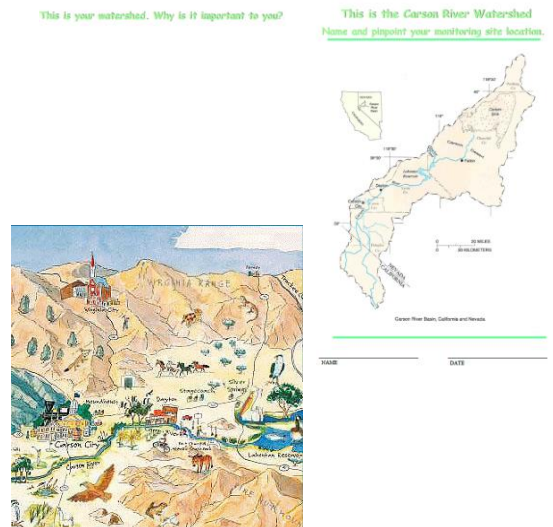
Friday, October 20, 2017  
Alpine County headwaters

### 18 Douglas High students at Pickett's Junction, West Fork Carson River



*Conducted field tests for dissolved oxygen, conductivity, pH and temperature; collected grab samples for laboratory analysis of nutrients, turbidity and bacteria; completed a habitat assessment of the site.*

### 7 Caron Valley F.A.I.T.H. Homeschool Group students at Hangman's Bridge, East Fork Carson River



*Conducted field tests for and collected grab samples as in Hope Valley; completed a habitat assessment of the site; engaged in educational activity drawing awareness to source water.*

---

**CARSON WATER SUBCONSERVANCY DISTRICT  
REQUEST FOR FUNDING**

---

**APPLICANT:** Carson Valley Conservation District  
Name  
1702 County Road Suite A  
Address  
Gardnerville                      Douglas                      Nevada                      89423  
City                                      County                                      State                                      Zip Code  
richard.wilkinson@nv.nacdnet.net                      (775)782-3661  
Email                                      Telephone #

**APPLICANT'S AGENT (if different from Applicant):**  
Mike Hayes  
Name  
1702 County Road Suite A  
Address  
Minden                                      Douglas                                      Nevada                                      89423  
City                                      County                                      State                                      Zip Code  
mike.hayes@nv.nacdnet.net                                      (775)782-3661 Extension 3820  
Email                                      Telephone #

**PROJECT NAME:**                      Carson River Bioengineering, Maintenance and Debris Removal

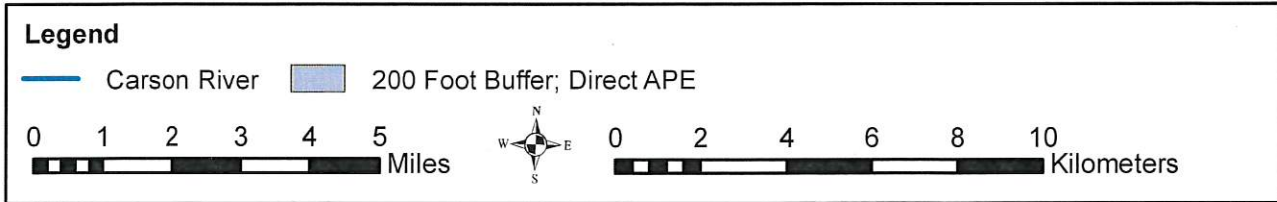
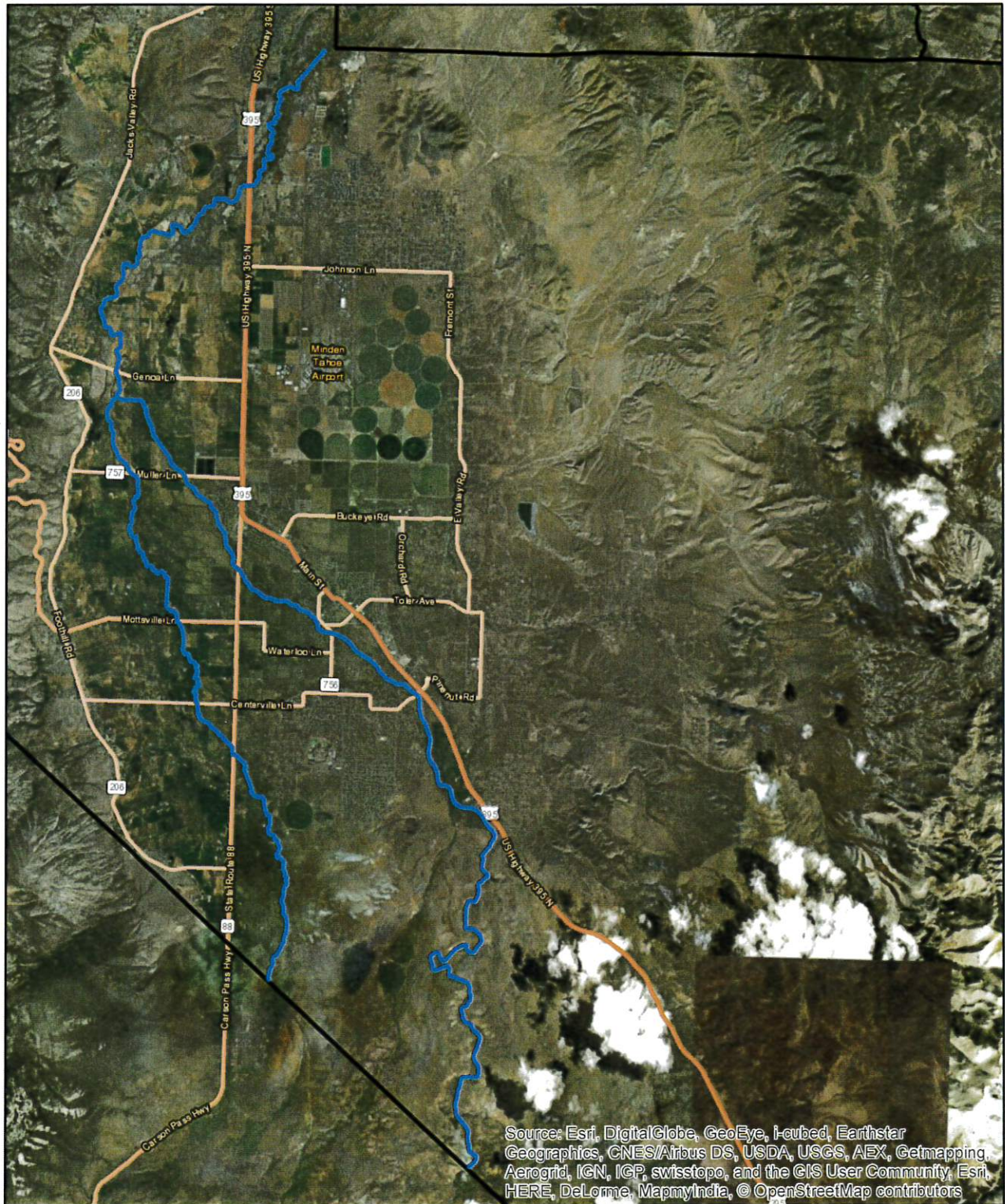
**PROJECT LOCATION/ADDRESS:**                      Carson River from the Powerdam to the Cradlebaugh Bridge to include the East and West Forks and Sloughs (Surface Water Conveyance System)

**PROJECT DESCRIPTION:** Briefly describe the project. Provide maps, drawings, photographs or other information. Additional sheets may be attached.

The Carson Valley Conservation District will try to stabilize vertical cutbanks as needed throughout the Carson Valley. These cutbanks have migrated faster than usual because of the two flooding incidents that we experienced in 2017. The goal would be to use bio-engineering techniques to stabilize the soil, improve water quality and re-establish desirable vegetation. The district would like to continue our work on channel maintenance and woody debris removal throughout the Carson River. The district would like to partner with CWSD, CTWCD, NDWR and Douglas County to complete this river work by the summer of 2020.

---

Please see attached Location Map  
Please see attached pictures



Proposed Bioengineering, river channel maintenance and debris removal



Burning flood debris and slash materials near Lutheran Bridge.



Crew installing a vertical willow mattress at the Kermin track

**PROJECT GOALS AND BENEFITS:** Briefly describe the project goals and benefits to be realized if the project is implemented. Additional sheets may be attached.

The project will help minimize erosion, improve water quality, re-establish desirable vegetation improve river function within the project reach. The project will help trap sediment and provide for natural recruitment of vegetation along the riverbank. The willow plantings will help hold the soil and provide a head start on the re-establishment of vegetation of the riverbank. The removal of large woody debris will allow for improved conveyance of river flows and reduce the negative impacts to infrastructure downstream.

**TOTAL ESTIMATED PROJECT COST:** \$185,000.00  
**AMOUNT REQUESTED FROM CWSD:** \$50,000.00

**SOURCE OF OTHER FUNDS:** List all other sources of funds to be used to match funds requested from CWSD. List the provider of the matching funds and the amount requested from each provider.

**PROJECT PARTNERS:**

<u>Carson Truckee Water Conservancy District</u>	<u>\$25,000.00 Pending</u>
<u>Carson Water Subconservancy District</u>	<u>\$50,000.00 Pending</u>
<u>Douglas County</u>	<u>\$75,000.00 Pending</u>
<u>Nevada Department of Wildlife</u>	<u>\$10,000.00 Approved</u>
<u>CVCD Landowners (In-kind) Supplies</u>	<u>\$25,000.00 Approved</u>

**Totals: \$185,000.00**

**ESTIMATED DATE PROJECT TO BEGIN:** Construction to begin in the late summer or early fall of 2018


**ESTIMATED TIME TO COMPLETE PROJECT:** Final reporting will be by the early spring of 2020

(If completion date is greater than a year, please indicate how much funding is needed in each fiscal year)

**PERMIT REQUIREMENTS:** If your project requires a permit, license and/or approval from a governmental agency to proceed, please provide the current status of each requirement. If approval has not been requested or is in progress, please provide the estimated date on which approval can be expected. Additional sheets may be attached.

No permits will need to be applied for since we will be doing all of our work by hand without the need of any large equipment.

**OTHER INFORMATION:** Provide any other information that may be important to the approval of this application.

**SIGNED:**   
**NAME:** Mike Hayes  
**TITLE:** Coordinator  
**DATE:** 02-01-18



---

**CARSON WATER SUBCONSERVANCY DISTRICT  
REQUEST FOR FUNDING**

---

**APPLICANT:** Carson Valley Conservation District  
Name  
1702 County Road Suite A  
Address  
Gardnerville                      Douglas                      Nevada                      89423  
City                                      County                                      State                                      Zip Code  
richard.wilkinson@nv.nacdnet.net      (775)782-3661  
Email                                      Telephone #

**APPLICANT'S AGENT (if different from Applicant):**  
Richard Wilkinson  
Name  
1702 County Road Suite A  
Address  
Minden                                      Douglas                                      Nevada                                      89423  
City                                      County                                      State                                      Zip Code  
richard.wilkinson@nv.nacdnet.net      (775)782-3661 Extension 3830  
Email                                      Telephone #

**PROJECT NAME:** Cradlebaugh Bank Stabilization Phase 1

**PROJECT LOCATION/ADDRESS:**      Latitude: 39° 2'52.53"N  
Longitude: 119°46'40.72"W

**PROJECT DESCRIPTION:** Briefly describe the project. Provide maps, drawings, photographs or other information. Additional sheets may be attached.

**PROJECT DESCRIPTION:** Briefly describe the project. Provide maps, drawings, photographs or other information. Additional sheets may be attached.

The Carson Valley Conservation District will try to stabilize a vertical cutbank that is approximately 550' long and 15 feet high. This cutbank has migrated approximately 35 feet to the southeast since 1994. The goal would be to use a combination of traditional rip-rap and bio-engineering techniques to stabilize the soil, improve water quality and re-establish desirable vegetation. The district considers this project a high priority since this was identified in the 2012 Carson River Stewardship Plan. The district would like to partner with CWSD, CTWCD, NDOW, USFWS and NDEP to complete this river restoration project by the spring of 2019.

- Generate right of entry for landowner access
- Complete formal survey of site
- Develop engineered and stamped plan set
- Apply for permits
- Install rock key trench
- Place vertical willow bundles, willow mattress, COIR fabric and plants
- Place rock rip-rap along toe of bank
- Re-seed disturbed areas

Please see attached location map  
 Please see attached conceptual design  
 Please see attached pictures  
 Please see draft engineering estimates

**PROJECT GOALS AND BENEFITS:** Briefly describe the project goals and benefits to be realized if the project is implemented. Additional sheets may be attached.

The project will help minimize erosion, improve water quality, re-establish desirable vegetation improve river function within the project reach. The project will help trap sediment and provide for natural recruitment of vegetation along the riverbank. The willow plantings will help hold the soil and provide a head start on the re-establishment of vegetation of the riverbank.

**TOTAL ESTIMATED PROJECT COST:** \$311,350.00  
**AMOUNT REQUESTED FROM CWSD:** \$100,000.00

**SOURCE OF OTHER FUNDS:** List all other sources of funds to be used to match funds requested from CWSD. List the provider of the matching funds and the amount requested from each provider.

**PROJECT PARTNERS:**

<u>Carson Truckee Water Conservancy District</u>	<u>\$25,000.00 Pending</u>
<u>Carson Water Subconservancy District</u>	<u>\$100,000.00 Pending</u>
<u>Nevada Department of Environmental Protection</u>	<u>\$87,500.00 Approved</u>
<u>United States Fish and Wildlife Service</u>	<u>\$25,000.00 Pending</u>
<u>Nevada Department of Wildlife</u>	<u>\$15,000.00 Approved</u>
<u>CVCD Landowners (In-kind) Supplies</u>	<u>\$58,850.00 Approved</u>
<b><u>Totals: \$311,350.00</u></b>	

**ESTIMATED DATE PROJECT TO BEGIN:** Construction to begin in the late summer or early fall of 2018





**ESTIMATED TIME TO COMPLETE PROJECT:** Final reporting will be by the early spring of 2019

(If completion date is greater than a year, please indicate how much funding is needed in each fiscal year)  
**PERMIT REQUIREMENTS:** If your project requires a permit, license and/or approval from a governmental agency to proceed, please provide the current status of each requirement. If approval has not been requested or is in progress, please provide the estimated date on which approval can be expected.  
 Additional sheets may be attached.

# Cradlebaugh Bank Stabilization

2017 Image

## Legend

-  Cradlebaugh Bank Stabilization 07-2017
-  Douglas County
-  Douglas County
-  Path Measure

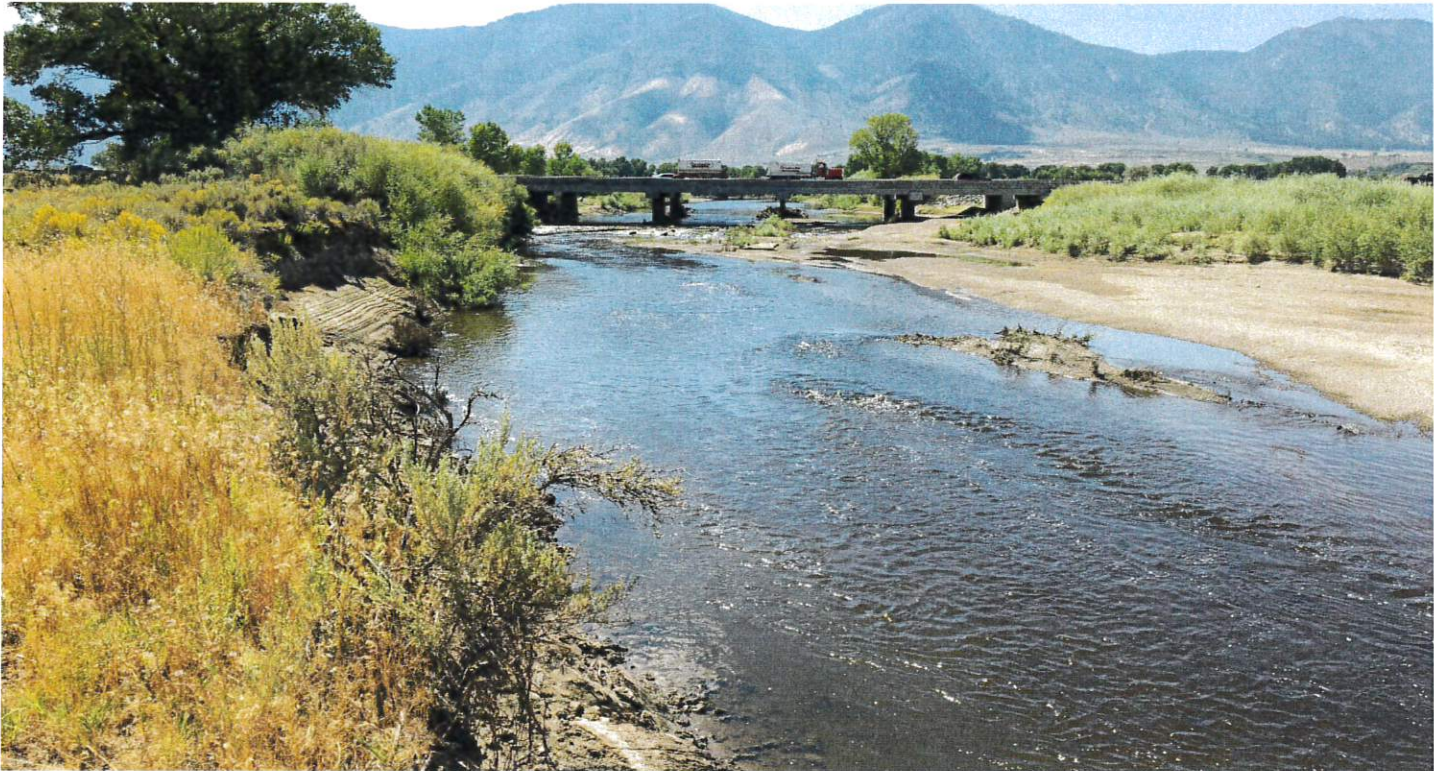




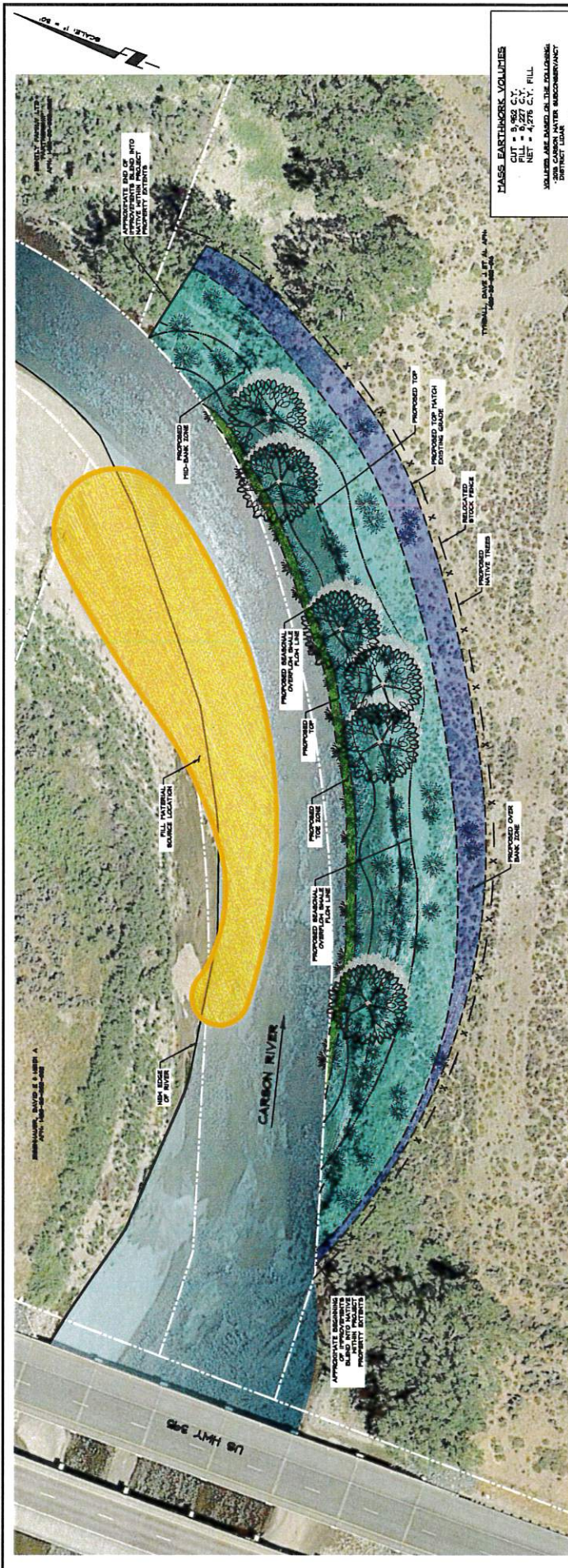
Standing midstream looking downstream average bank height 15 feet



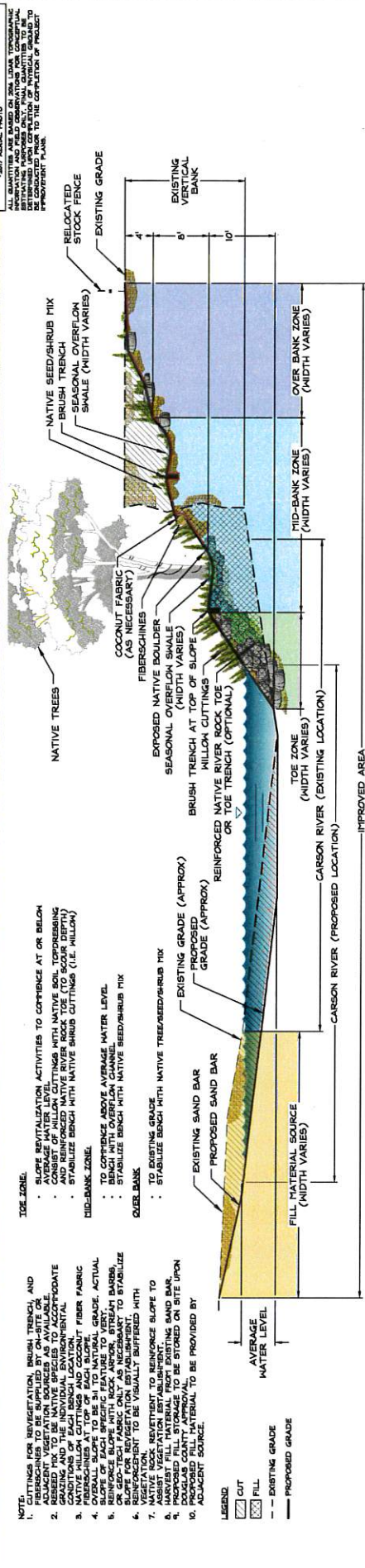
Standing downstream looking upstream



Standing midstream looking upstream



**MASS EARTHWORK VOLUMES**  
 CUT = 8,860 C.Y.  
 FILL = 9,227 C.Y.  
 NET = 4,276 C.Y. FILL  
 VOLUMES ARE BASED ON THE FOLLOWING:  
 - 2017 AERIAL PHOTO  
 - 2% SLOPE



- TOE ZONE**
- SLOPE REVITALIZATION ACTIVITIES TO OCCUR AT OR BELOW EXISTING GRADE
  - CONSIST OF HILLCUTTINGS WITH NATIVE SOIL TOPDRESSING AND REINFORCED NATIVE RIVER ROCK TOE (TO SOUL DEPTH)
  - STABILIZE BENCH WITH NATIVE SHRUB CUTTINGS (I.E. MILLOW)
- MID-BANK ZONE**
- TO CORRECT ABOVE AVERAGE WATER LEVEL
  - STABILIZE BENCH WITH NATIVE TREE/SEED/SHRUB MIX
- OVER BANK**
- TO EXISTING GRADE
  - STABILIZE BENCH WITH NATIVE TREE/SEED/SHRUB MIX

- NOTES**
1. CUTTINGS FOR VEGETATION, BRUSH TRENCH, AND FIBERSCHINES TO BE SUPPLIED BY ON-SITE OR NEARBY SOURCE. ALL MATERIALS TO BE STORED ON SITE UPON DOUGLAS COUNTY APPROVAL.
  2. REINFORCED MIX TO BE NATIVE SPECIES TO ACCOMMODATE GRASSING AND THE INDIVIDUAL ENVIRONMENTAL CHARACTERISTICS OF THE SITE.
  3. NATIVE MILLOW CUTTINGS AND COCONUT FIBER FABRIC TO BE SUPPLIED BY A LOCAL SOURCE.
  4. OVERALL SLOPE TO BE 3% TO NATURAL GRADE. ACTUAL SLOPE OF EACH SPECIFIC FEATURE TO VARY.
  5. COCONUT FIBER FABRIC TO BE VISUALLY BUFFERED WITH VEGETATION.
  6. REINFORCED MIX TO BE VISUALLY BUFFERED WITH VEGETATION.
  7. VEGETATION REINFORCEMENT TO BE PROVIDED BY ASSISTED VEGETATION ESTABLISHMENT.
  8. EXPOSED NATIVE BOULDER TO BE STORED ON SITE UPON DOUGLAS COUNTY APPROVAL.
  9. EXPOSED NATIVE BOULDER TO BE STORED ON SITE UPON DOUGLAS COUNTY APPROVAL.
  10. ADJACENT SOURCE.

**LEGEND**

- [Symbol] CUT
- [Symbol] FILL
- EXISTING GRADE
- PROPOSED GRADE

PRELIMINARY For Review Only		DRAWN: JACB CHECKED: JACB DATE: 01/26/18 (P. 1 SHEETS)	
R   O   Anderson 1400 N. HAYDEN AVE. DENVER, CO 80202 TEL: 303.733.1100 WWW.ROANDERSON.COM		CONCEPTUAL SITE PLAN	
2017 CRADELAUGH BANK STABILIZATION PROJECT CARSON VALLEY CONSERVATION DISTRICT		SCALE: 1" = 50'	
SHEET: 1		DATE: 01/26/18 (P. 1 SHEETS)	

**Carson Valley Conservation District**  
**2018 Cradelbaugh Bridge Banks Stabilization Project**  
**Preliminary Estimate of Probable Project Costs for Grant Funding Only**  
**01.31.18**

**Construction and Bioengineering**

No.	Description	Quantity	Unit Price	Total	
1	Mobilization, Bonding, Insurance, SWPPP and De-Mobilization	1	\$ 15,000.00 /LS	\$ 15,000.00	Contractor
2	Diversion and De-Watering	1	\$ 10,000.00 /LS	\$ 10,000.00	Contractor
3	Site Clearing, Preparation and Dust Control	1	\$ 10,000.00 /LS	\$ 10,000.00	Contractor
4	Demolition and Temporary Erosion Control	1	\$ 5,000.00 /LS	\$ 5,000.00	Contractor
5	Mass On-Site Earthwork	3,000	\$ 5.00 /CY	\$ 15,000.00	Contractor
6	Mine and Place Un-Specified Fill	3,200	\$ 10.00 /CY	\$ 32,000.00	Contractor
7	Select Rock Rip-Rap Slope Protection	1,000	\$ 60.00 /CY	\$ 60,000.00	Contractor
8	Rock Refusal Trench	348	\$ 65.00 /CY	\$ 22,620.00	Contractor
9	Vegetation Mitigation	5,500	\$ 10.00 EA	\$ 55,000.00	CVCD/Crew
9	Bioengineering	1	\$ 25,000.00 /LS	\$ 25,000.00	CVCD/Crew
10	Pasture Fence (5 Strand)	550	\$ 7.00 /LF	\$ 3,850.00	Landowner
<b>Subtotal</b>				<b>\$ 253,470.00</b>	

**Engineering, Project Management and Design Fees**

No.	Description	Quantity	Unit Price	Total	
11	Engineering - Design/Layout/Construction Staking/As-Builts	1	\$ 15,000.00 /LS	\$ 15,000.00	Professional Services
12	Engineering - Geotechnical	1	\$ 7,500.00 /LS	\$ 7,500.00	Professional Services
13	Engineering Bid Document Preparation	1	\$ 5,000.00 /LS	\$ 5,000.00	CVCD
14	Environmental/Cultural/Historical	1	\$ 5,000.00 /LS	\$ 5,000.00	Consultant
15	Permitting	1	\$ 5,000.00 /LS	\$ 5,000.00	CVCD
16	Project Management/Bidding and Contracts/Administration	1	\$ 10,000.00 /LS	\$ 10,000.00	CVCD
<b>Subtotal</b>				<b>\$ 47,500.00</b>	

**Total \$ 300,970.00**

**Contingencies (10%) \$ 30,097.00**

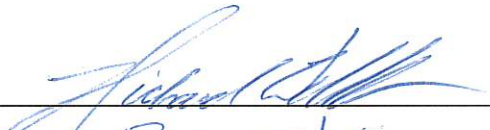
**Engineer's Preliminary Estimate of Probable Project Costs \$ 331,067.00**

United States Army Corp. of Engineers  
Nevada Department of Environmental Protection  
Nevada Division of State Lands  
State Historic Preservation Office  
CVCD Landowner Access

Nationwide Permit  
Working Waterways Permit  
Right of Entry Permit  
Archeological Section 106  
Right of Entry Permit

All of these permits will start once the district receives adequate funding for the bank stabilization project. Since the CVCD only operates on soft funds we cannot justify starting the permit request process until we know that we have the project work funded.

**OTHER INFORMATION:** Provide any other information that may be important to the approval of this application.

SIGNED:   
NAME: Richard Wilkins  
TITLE: Grant Manager  
DATE: 02-01-18

**THE CARSON WATER SUBCONSERVANCY DISTRICT RESERVES THE RIGHT TO DENY ANY AND/OR ALL APPLICATIONS FOR FUNDING.**



---

**CARSON WATER SUBCONSERVANCY DISTRICT  
REQUEST FOR FUNDING**

---

**APPLICANT:** Dayton Valley Conservation District  
Name  
34 Lakes Blvd/PO Box 1807  
Address  
Dayton Lyon NV 89403  
City County State Zip Code  
rholley.dvcd@yahoo.com 775-246-1999  
Email Telephone #

**APPLICANT'S AGENT (if different from Applicant):**  
Robert Holley, District Manager  
Name  
34 Lakes Blvd/PO Box 1807  
Address  
Dayton Lyon NV 89403  
City County State Zip Code  
rholley.dvcd@yahoo.com 775-246-1999  
Email Telephone #

**PROJECT NAME:** Post-flood repairs MCR 002, 030, 046, 111C, and 010C

**PROJECT LOCATION/ADDRESS:** Middle Carson River, Dayton Valley - Empey (Casey) Ranch, Barnes, Morse, Lehman, and DEG properties, respectively.

**PROJECT DESCRIPTION:**

Three bank stabilization projects sustained significant damage during the 2017 floods and subsequent spring runoff. Additional damage was incurred during the brief period of high flow in mid-late November, 2017. This project provides for critical repair of these bank stabilization projects. Rip-rap will be replaced on MCR 002 (Empey/Casey) and 030 (Barnes), including the streambed stabilization trenches, with bio-engineering incorporated on the banks. MCR 046 is a bioengineering project that will receive rip-rap reinforcement in the affected area, with incorporation of bioengineering features. Some channeling work will be done in the project areas to re-establish the low water channel at the proper location, reducing pressure on damaged areas.

**PROJECT GOALS AND BENEFITS:**

The primary goal of the work is to curtail further erosion of affected areas, restoring the damaged projects' effectiveness in reducing bank erosion and head-cutting of the river bed, thereby improving water quality and clarity by reducing instream sediment. Additionally, the restoration of the low-flow channel will help prevent excessive future flooding to a nearby home, and to adjacent private properties/irrigation ditches and infrastructure.

**TOTAL ESTIMATED PROJECT COST:** \$261,000  
**AMOUNT REQUESTED FROM CWSD:** \$75,000

**SOURCE OF OTHER FUNDS:** NDEP 313(h), Lyon County (pending approval), CWSD (carryover)

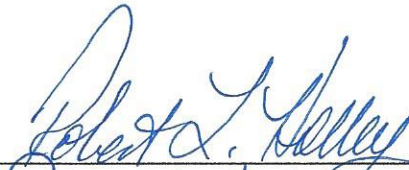
**ESTIMATED DATE PROJECT TO BEGIN:** July, 2018

**ESTIMATED TIME TO COMPLETE PROJECT:** October, 2018  
(If completion date is greater than a year, please indicate how much funding is needed in each fiscal year.)

**PERMIT REQUIREMENTS:** If your project requires a permit, license and/or approval from a governmental agency to proceed, please provide the current status of each requirement. If approval has not been requested or is in progress, please provide the estimated date on which approval can be expected. Additional sheets may be attached.

NDEP 401 Certification, (anticipated spring, 2018)  
NDEP Working in Waterways (current), and Temporary Permit to Discharge (anticipated spring, 2018)  
State Lands Right of Entry (anticipated spring, 2018)  
US Army Nationwide (anticipated spring/summer, 2018)

**OTHER INFORMATION:** Provide any other information that may be important to the approval of this application.

**SIGNED:**   
**NAME:** Robert L. Holley  
**TITLE:** District Manager, DVCD  
**DATE:** January 31, 2018

**THE CARSON WATER SUBCONSERVANCY DISTRICT RESERVES THE RIGHT TO DENY ANY AND/OR ALL APPLICATIONS FOR FUNDING.**

---

**CARSON WATER SUBCONSERVANCY DISTRICT  
REQUEST FOR FUNDING**

---

**APPLICANT:** Lahontan Conservation District  
Name  
111 Sheckler Road  
Address  
Fallon Churchill Nevada 89406  
City County State Zip Code  
[Christy.sullivan@nv.nacdnet.net](mailto:Christy.sullivan@nv.nacdnet.net) (775) 423-5124 ext. 101  
Email Telephone #

**APPLICANT'S AGENT (if different from Applicant):**  
Bill Washburn – Chairman  
Name  
111 Sheckler Road  
Address  
Fallon Churchill Nevada 89406  
City County State Zip Code  
 (775) 427-4728  
Email Telephone #

**PROJECT NAME:** Lower Carson River Clearing and Snagging

**PROJECT LOCATION/ADDRESS :** Lower Carson River below Diversion Dam/ Pioneer Way

**PROJECT DESCRIPTION:** Briefly describe the project. Provide maps, drawings, photographs or other information. Additional sheets may be attached.

- Continue with a long-term monitoring program on the lower Carson River.
- Remove dead vegetation and debris restricting channel capacity.
- Beaver and beaver dam removal to improve water flow in the channel
- Work with other agencies to remove islands and stabilize the river banks along the Carson River

**PROJECT GOALS AND BENEFITS:** Briefly describe the project goals and benefits to be realized if the project is implemented. Additional sheets may be attached.

Having a steady stream flow will reduce any erosion and will help reduce the change of the water system caused by obstruction in the river. It will reduce the potential of flood, improve channel capacity, provide safety to the community in the flood zone, and improve the functionality and management of the lower Carson River.

**TOTAL ESTIMATED PROJECT COST: \$40,000.00**  
**AMOUNT REQUESTED FROM CWSD: \$20,000.00**

**SOURCE OF OTHER FUNDS:** List all other sources of funds to be used to match funds requested from CWSD. List the provider of the matching funds and the amount requested from each provider.

<u>Grant Funding:</u>	
Churchill County Grant Funding	\$ 5,000.00
<u>In-Kind Match:</u>	
Lahontan Conservation District Administration & Equipment	\$ 6,400.00
Landowners Equipment and Labor	<u>\$ 8,600.00</u>
Total:	\$20,000.00

**ESTIMATED DATE PROJECT TO BEGIN: July 1, 2018**

**ESTIMATED TIME TO COMPLETE PROJECT: June 30, 2019**  
(If completion date is greater than a year, please indicate how much funding is needed in each fiscal year.)

**PERMIT REQUIREMENTS:** If your project requires a permit, license and/or approval from a governmental agency to proceed, please provide the current status of each requirement. If approval has not been requested or is in progress, please provide the estimated date on which approval can be expected. Additional sheets may be attached.

Permit with the Nevada Division of Environmental Protection Bureau of Water Pollution Control

- Site ID/Invoice number: GMNT-40165
- Permit Type: Routine Maintenance Activities (Rolling Stock)
- Valid from May 2, 2017 to June 30, 2018 (Renewal for permit in May 2018)

**OTHER INFORMATION:** Provide any other information that may be important to the approval of this application.

The Lahontan Conservation district has continued with channel clearing, snagging and debris removal projects along the Carson River. The Lahontan Conservation Districts hired the Nevada Division of Forestry prison crews and Churchill County Mosquito and Weed Abatement. to remove dead and fallen trees, remove beaver dams, and burn slash piles to improve river flow, along the lower Carson River.

Clearing and Snagging will minimize flooding risk along the Carson River, particularly to residential and commercial development. Reduce flood damage risk to water and sewage infrastructures installed in Churchill County. Improve the administration and management of the river and maintain a clean river channel will improve water quality and aid the overall Stewardship plan for the Carson River

SIGNED: Christy Sullivan  
NAME: Christy Sullivan  
TITLE: District Clerk  
DATE: 1-31-18

**THE CARSON WATER SUBCONSERVANCY DISTRICT RESERVES THE RIGHT TO DENY ANY AND/OR ALL APPLICATIONS FOR FUNDING.**

Clearing and Snagging will minimize flooding risk along the Carson River, particularly to residential and commercial development. Reduce flood damage risk to water and sewage infrastructures installed in Churchill County. Improve the administration and management of the river and maintain a clean river channel will improve water quality and aid the overall Stewardship plan for the Carson River.

## Copy of Copy of Pioneer Way

Untitled layer

-  Pioneer Way
-  River
-  River
-  River
-  River
-  River
-  River
-  River
-  Diversion Dam

Untitled layer



---

**CARSON WATER SUBCONSERVANCY DISTRICT  
REQUEST FOR FUNDING**

---

**APPLICANT:** Churchill County, c/o Eleanor Lockwood, County Manager  
Name  
155 N. Taylor St., Ste 153  
Address  
Fallon Churchill NV 89406  
City County State Zip Code  
countymanager@churchillcounty.org (775) 423-5136  
Email Telephone #

**APPLICANT'S AGENT (if different from Applicant):**  
Chris Mahannah, P.E., Mahannah & Associates, LLC  
Name  
P.O. Box 2494  
Address  
Reno Washoe NV 89505  
City County State Zip Code  
chris@mah2o.com (775) 323-1804  
Email Telephone #

**PROJECT NAME:** Lahontan Valley Water Level Measurement Program

**PROJECT LOCATION/ADDRESS:** Lahontan Valley – Churchill County  
\_\_\_\_\_

**PROJECT DESCRIPTION:** Briefly describe the project. Provide maps, drawings, photographs or other information. Additional sheets may be attached.

**See attached Exhibit 'A' and copy of Power Point dated 2/1/18, which was presented to Churchill County Commissioners.**

**PROJECT GOALS AND BENEFITS:** Briefly describe the project goals and benefits to be realized if the project is implemented. Additional sheets may be attached.

**See attached Exhibit 'A' and copy of Power Point dated 2/1/18, which was presented to Churchill County Commissioners.**

**TOTAL ESTIMATED PROJECT COST:**           \$66,000.00            
**AMOUNT REQUESTED FROM CWSD:**           \$56,000.00          

**SOURCE OF OTHER FUNDS:** List all other sources of funds to be used to match funds requested from CWSD. List the provider of the matching funds and the amount requested from each provider.

**Churchill County: In-Kind contribution up to \$10,000 over project term.**

**ESTIMATED DATE PROJECT TO BEGIN:**           7/1/18          

**ESTIMATED TIME TO COMPLETE PROJECT:**           6/30/21          

(If completion date is greater than a year, please indicate how much funding is needed in each fiscal year.) FY18/19: \$18,000; FY19/20: \$18,000; FY20/21: \$20,000

**PERMIT REQUIREMENTS:** If your project requires a permit, license and/or approval from a governmental agency to proceed, please provide the current status of each requirement. If approval has not been requested or is in progress, please provide the estimated date on which approval can be expected. Additional sheets may be attached.

N/A

**OTHER INFORMATION:** Provide any other information that may be important to the approval of this application.

**See attached Exhibit 'A' and copy of Power Point dated 2/1/18, which was presented to Churchill County Commissioners.**

**SIGNED:**           Eleanor Lockwood            
**NAME:**           Eleanor Lockwood            
**TITLE:**           County Manager            
**DATE:**           2-1-2018          

**THE CARSON WATER SUBCONSERVANCY DISTRICT RESERVES THE RIGHT TO DENY ANY AND/OR ALL APPLICATIONS FOR FUNDING.**

## Exhibit A

### Introduction:

The Lahontan Valley aquifers consist of four aquifers as defined by the USGS: shallow, intermediate, deep and basalt aquifers. The shallow aquifer extends from 0-50', intermediate from 50-500/1000', deep greater than 500-1000' and the volcanic basalt aquifer in the central portion of the valley. There are approximately 5,000 domestic wells which tap the shallow aquifer and most quasi-municipal or public water supply wells in the unincorporated portion of the County tap the intermediate aquifer. The City of Fallon, Fallon Naval Air Station and Fallon Paiute-Shoshone Tribe have wells completed in the Basalt aquifer. The deep aquifer is saline and is generally considered non-potable. The State Engineer requires any new permitted wells be completed in the intermediate aquifer and sealed in the top 100'.

The natural recharge in to the Carson Desert Hydrographic basin #101 has been estimated by the USGS at 1,300 afa from precipitation and 1,200 afa inflow from other basins for a total estimate of natural recharge of 2,500 afa. The committed underground water rights and domestic well use exceeds 21,000 afa, therefore the basin is over-appropriated without considering recharge from the Newlands Irrigation project. For this reason the State Engineer issued Order# 1116 in 1995 limiting any new underground appropriations to 4,000 gallons per day (4.48 afa) or less. There are significant losses from unlined canals/laterals and on-farm losses to deep percolation which recharge the shallow aquifer. The shallow aquifer recharges the intermediate aquifer in the western portion of the basin which is hydraulically connected to the Basalt aquifer in the central portion of the valley.

The USGS has conducted two water level studies (WRIR 93-4118 & SIR 2004-5246) which focused on water level measurements primarily in the shallow aquifer and associated changes related to lands withdrawn from irrigation due to USFWS water right purchases and transfers to the Stillwater Wetlands. Some of the wells monitored in these studies are currently being monitored by the USGS and are shown on the map included in the attached Power Point presentation given to the Churchill County Commissioners on 2/1/18. The USGS provides quarterly letter updates to Churchill County summarizing the measurements. Churchill County & CWSD entered into Interlocal Contract #2011-6 in July, 2011 to coordinate with the USGS and add wells to monitor Intermediate aquifer well water levels in the NW portion of the Valley where quasi-municipal growth has and will continue to occur. Given that all new permitted wells must be completed in the intermediate aquifer, basin over-appropriation, limited availability to appropriate new groundwater (Order# 1116), potential additional domestic wells in due to parcel splits, Churchill County and the State Engineer feel there is a need for an ongoing water level measurement program. Funding under #2011-6 was provided through 6/30/15, and then extended one additional year utilizing remaining funds. An additional three-year contract for water level monitoring was funded under #2015-8 which ends 6/30/18. It was anticipated in the original contract that this would be an ongoing effort, therefore funding is being sought to continue three more fiscal years, through FY20/21.



**Project Description /Benefits:**

The existing project entailed a detailed review of the USGS reports and water level measurements to identify potential gaps in aerial and vertical (shallow vs. intermediate aquifers) extent to determine where additional water level measurement would be useful. This resulted in approximately 28 wells completed predominately in the Intermediate aquifer being selected for water level measurement. These wells have been measured monthly since ~January 2012 and preliminary results were presented to the Churchill County BOCC and CWSD on 4/23/14 and updated again in a presentation to the Churchill County BOCC on 2/1/18 which is attached. In May, 2014 approximately 7 more Intermediate aquifer wells were added to the program to fill in identified gaps in the NW portion of the valley. All wells have been surveyed with the County's survey grade Leica GPS unit to obtain accurate coordinates and well-head elevations such that vertical and horizontal gradients can be determined. The County's water level monitoring program which focuses primarily on the Intermediate aquifer compliments the USGS program which focuses mainly on the Shallow and Basalt Aquifers.

In the April 2014 presentation, no significant water level declines were being observed to date in the Intermediate aquifer excepting some localized decline and subsequent recovery of wells located adjacent to the Truckee Canal west of Hazen as a result of the canal being dry and refilling. Intermediate aquifer wells generally showed full recovery during winter months when pumping stresses were at a minimum whereas Shallow aquifer wells showed the just the opposite with full recovery during mid-summer when unlined irrigation laterals and canals were charged and recharging the shallow aquifer. Vertical gradient measurements showed downward gradients and recharge from the Shallow to Intermediate aquifer. Additionally there was a correlation between stage of the Carson River and adjacent Shallow aquifer wells.

The Carson Division frequently experiences shortages in surface water deliveries which are summarized since 2012 in the following table, followed by a record flood and water spreading year in 2017.

**CARSON DIVISION ALLOCATIONS**

<b>YEAR</b>	<b>ALLOCATION</b>	<b>CUTOFF DATE</b>
2012	90%	2-Nov
2013	75%	7-Sep
2014	45%	29-Jul
2015	21%	3-Jul
2016	75%	20-Sep
2017	100%	NONE

Because of the ongoing drought from 2012 – 2016 most of the Intermediate aquifer wells experienced a 1-2 foot/year decline in seasonal high and low water levels. Some localized declines of 2-3 feet/year have been observed near areas of heavy pumping near the Sand Creek municipal and golf course wells. The most heavily pumped area around the Wildgoose farm for irrigation have only shown ~ 0.5 feet/year decline and this is most likely due to recharge from the adjacent V-Line and Carson river. With increased deliveries in 2016 and record flooding and water spreading during 2017, seasonal high water levels have returned to above 2012 levels in most Intermediate aquifer wells. With shortened irrigation seasons, one large farmer has acquired supplemental groundwater rights to continue irrigation after surface water deliveries have been shut off. If additional farmers adopt this practice and the State Engineer grants supplemental groundwater pumping during drought, this could cause further water level declines during shortage years.

This project is technically and environmentally sound and will assist the water users/managers and public in understanding water issues and the status of their aquifers. It will help identify potential areas where discharge exceeds recharge and aquifer storage change. If areas are identified where there are continued steady water level declines, it could improve and/or trigger additional administration and management in those areas. Since the current and near term quasi-municipal supply is almost entirely dependent upon ground water development in the intermediate aquifer and the majority of the recharge is associated with Newlands Project losses which are dynamic due to water right transfers and canal lining it is recommended to pursue this monitoring program and adaptive resource management. Part of the justification for the State Engineer issuing Order# 1116 was: 'the present recharge experienced from surface water irrigation and delivery systems is declining due to more efficient irrigation practices and improvements in the delivery system'. See Chapter 9 of Churchill County Water Resource Plan Update, April 2007 for further discussion on this issue.

The project has regional benefits due to the fact that the majority of the surface supply for the Newlands project and hence recharge come from the Carson River which are augmented by the Truckee River. The Churchill County Water Resource Plan Update has identified the local intermediate aquifer as the near term quasi-municipal supply and the length of time it can sustain development is contingent upon recharge from the surface water system and downward gradients from the Shallow aquifer to the Intermediate aquifer in the western portion of the basin. Due to the relative slow movement of groundwater, impacts to the Intermediate aquifer due to reductions in recharge from the Shallow aquifer were thought to take years or decades to fully manifest, however recovery of water levels in 2016 – 2017 seem to contradict this, however ongoing monitoring is important to further understand the rate of decline in water levels during drought years and subsequent recovery during wetter years. At such time that the intermediate aquifer can no longer support the demand, other resources will need to be developed which are identified in Chapter 12 of the Updated Water Resource Plan. Some of these alternatives such as Dixie Valley importation may be regional in nature and others involve conjunctive use and artificial recharge of surface waters. This program will provide an early warning as to when some of these other regional type alternatives will need to

be pursued.

The ongoing funding request is for an additional three-year term through FY20/21, however it is anticipated for this program to be successful as a long-term management tool, it be continued as an ongoing effort. Ongoing summary presentations like the attached presented to the Churchill County BOCC on 2/1/18 will be provided, including a map of wells monitored in the Churchill and USGS networks, key hydrographs and discussion of the data or any trends observed.

# Lahontan Valley Water Level Monitoring Program

## Churchill County Commission Meeting

1 February 2018

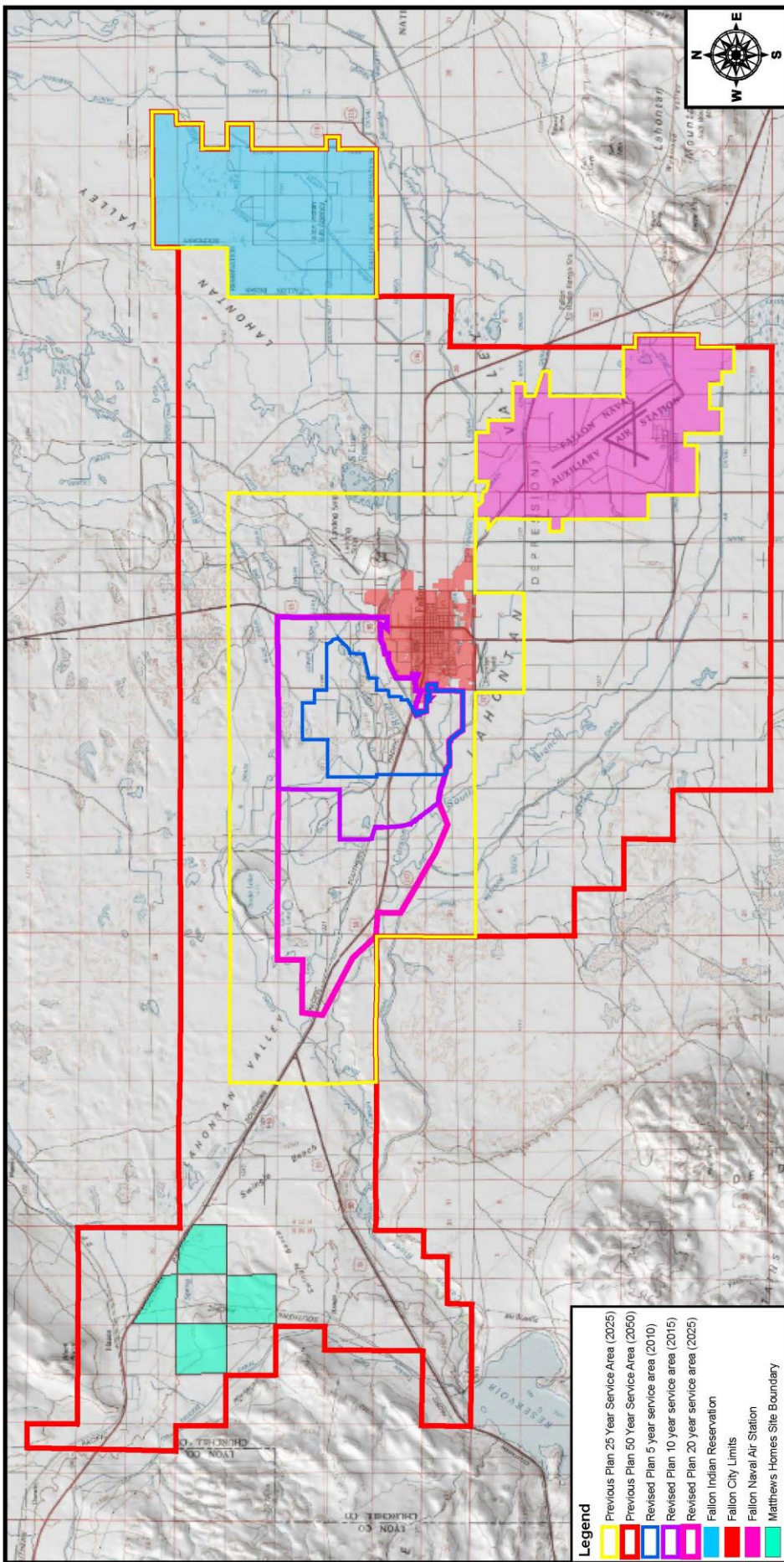
**MAHANNAH & ASSOCIATES, LLC**

# Inter-local Contract CWSD – Churchill Co.

## Primary Focus:

Intermediate Aquifer in areas of anticipated growth in the NW portion of valley

- Monthly water level measurements
- MP elevation survey
- Establish vertical gradients between shallow & intermediate aquifer
- Evaluate trends
- Trigger for added administration /management
- Monitor for long term trends / gradient changes
- Prior CWSD Contracts: 2011-6: \$70K; 2015-8: \$60K



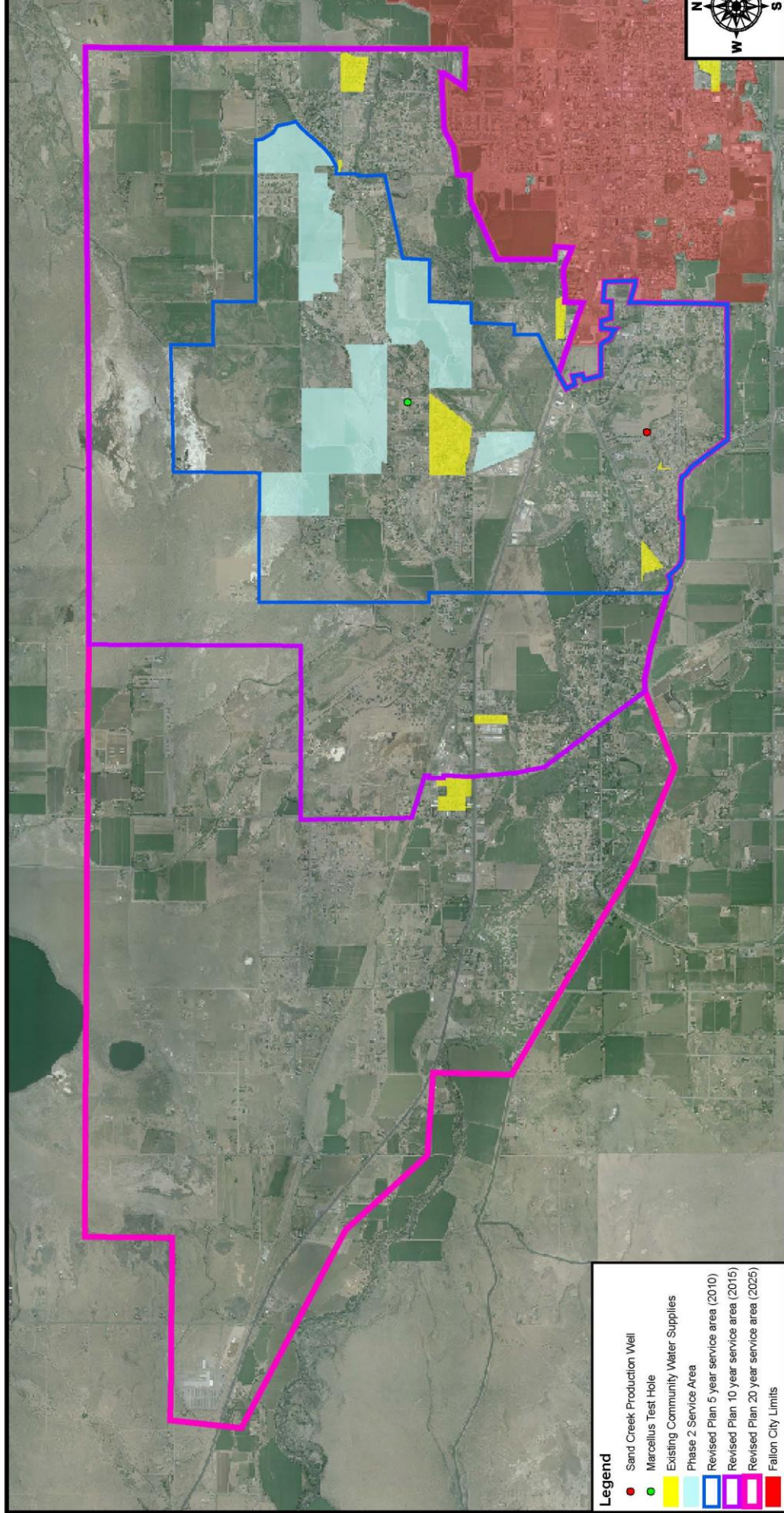
0 1 2 4 6 Miles

SCALE : 1:125,000

File Name: Political map  
 Job No.: 06-670  
 Date: 8/16/06

Mahamah & Associates  
 PO Box 2494 Reno NV 89505  
 (775) 323-1804

Map 1. Political Entities & Proposed Service Areas



- Legend**
- Sand Creek Production Well
  - Marcellus Test Hole
  - Existing Community Water Supplies
  - Phase 2 Service Area
  - Revised Plan 5 year service area (2010)
  - Revised Plan 10 year service area (2015)
  - Revised Plan 20 year service area (2025)
  - Fallon City Limits



Aerial Photo Base: Churchill County June 4, 2005

SCALE : 1:36,000



## Map 2. Proposed 5, 10 & 20 Year Service Areas

Mahannah & Associates  
 PO Box 2494 Reno NV 89505  
 (775) 323-1804

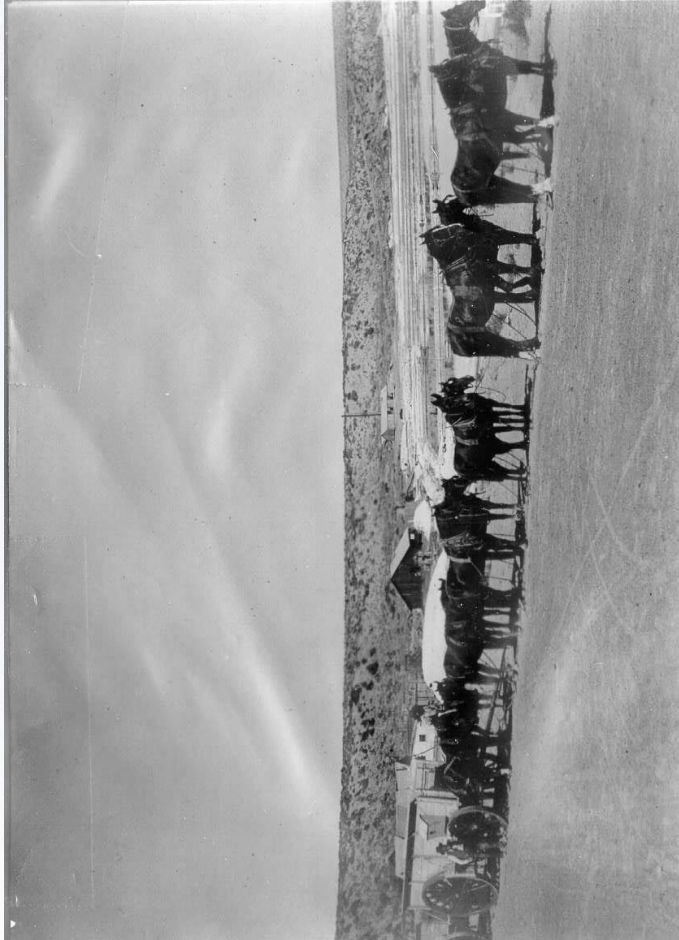
File Name: Service area  
 Job No.: 06-67D  
 Date: 8/16/06

# Groundwater Budget:

- Inflow – Outflow = ▲ Storage
- Recharge – Discharge = ▲ Storage
- Recharge:
  - Natural Precipitation: 1,300 afa
  - Newlands Project Infiltration (Canals, Drains & On-farm)
  - Secondary Recharge (Septics, Lawn Watering, etc)
  - Inter-basin Flow: 1,200 afa
- Discharge:
  - Evapotranspiration- ET (Natural, Crop, Lawn, Wetlands)
  - Net Consumptive Pumping; ~21,000 afa of permits issued



# Project Effects on Recharge Soda Lake:



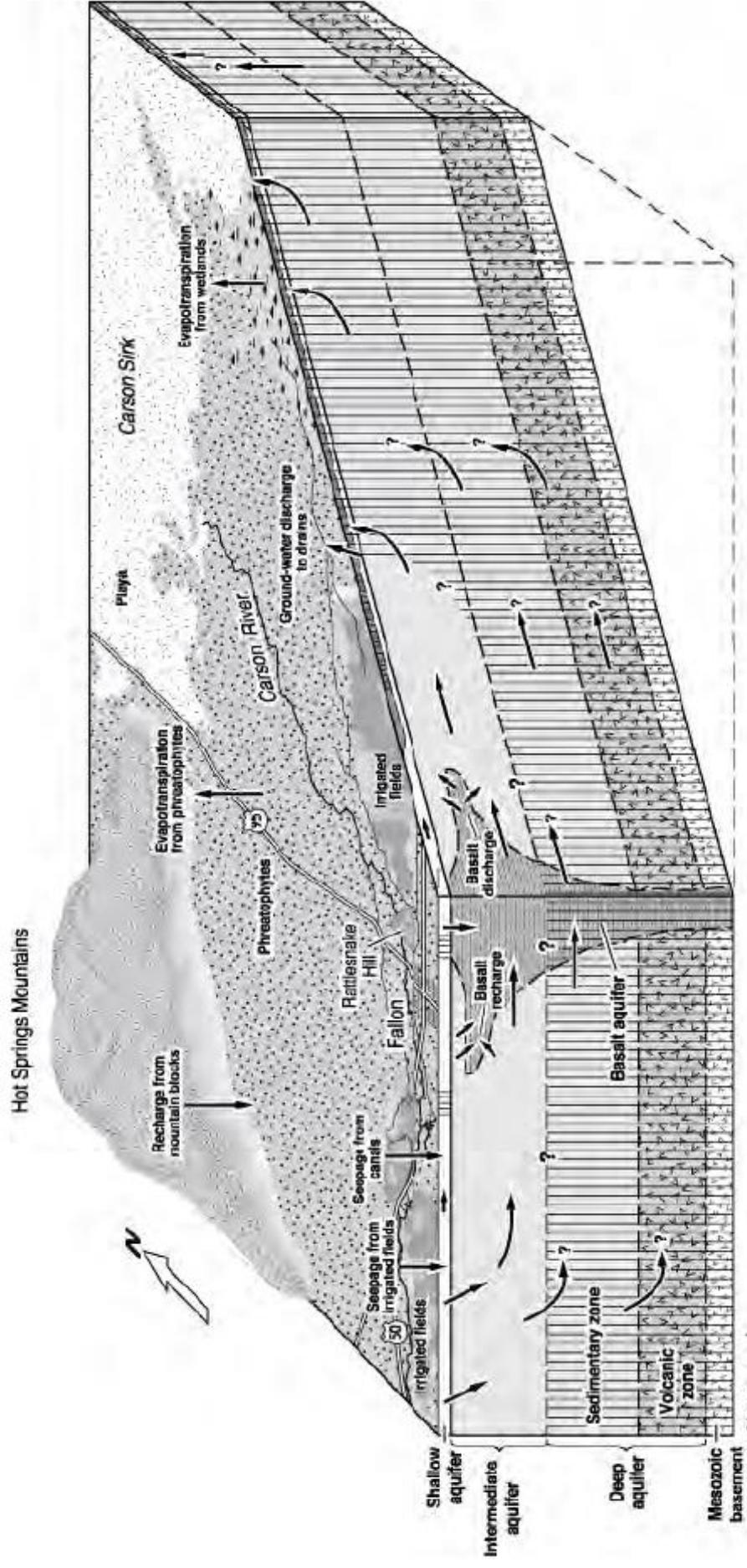
1800's



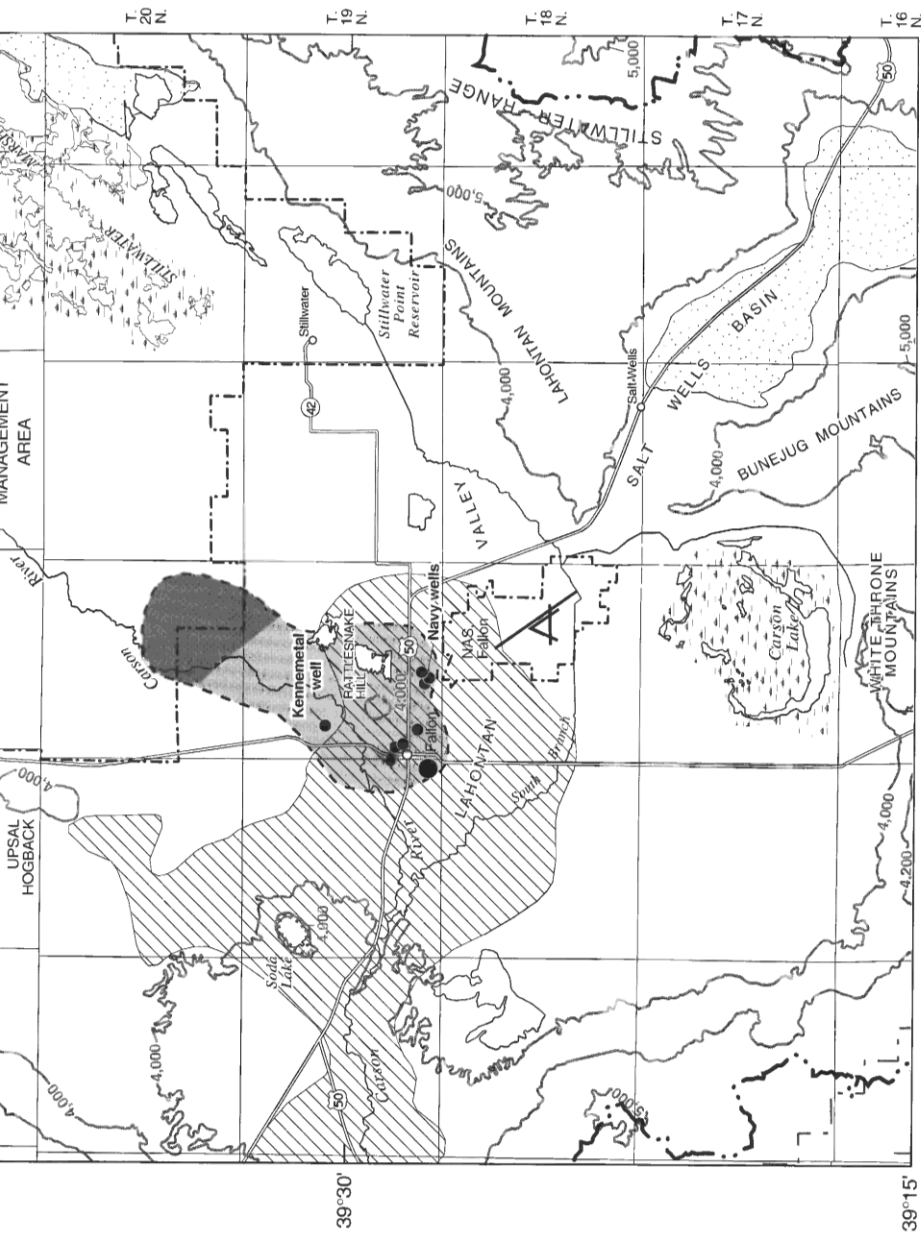
2009

▲ Water Level or Storage >50 feet

USGS: Shallow Aquifer Recharge from Project: ~50,000 – 100,000 afa  
 Intermediate Aquifer Recharge from Shallow: ~32,000 afa  
 Natural Recharge from Precipitation: ~1,300 afa  
 Inter-Basin Flow: ~1,200 afa



From Majur and Welch, 2001



Roads and hydrology from U.S. Geological Survey digital data, 1:100,000, 1979-80. Hypsography and water bodies from U.S. Geological Survey digital data, 1:250,000, 1971 Universal Transverse Mercator Projection, Zone 11

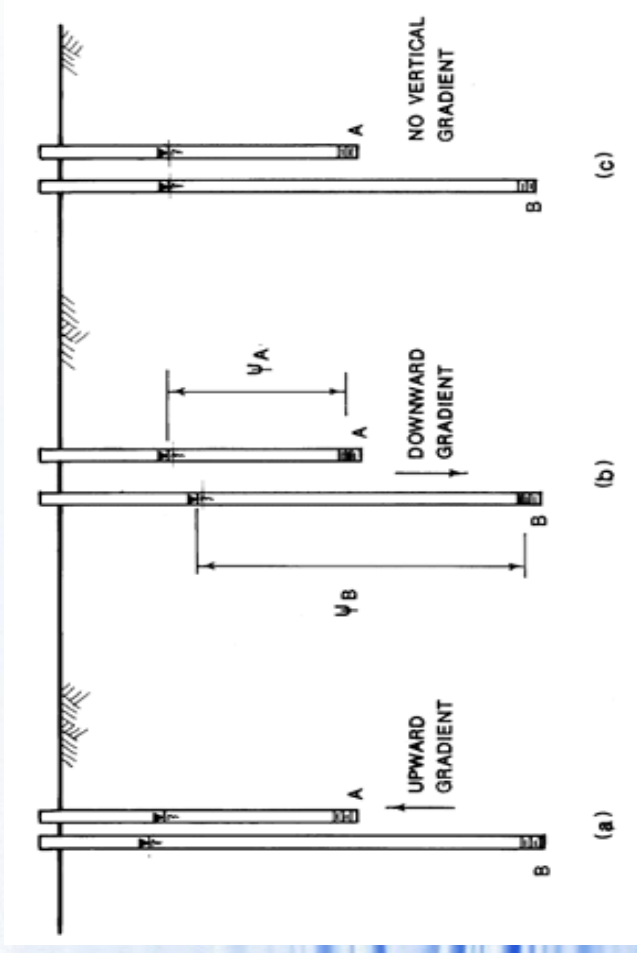
R. 27 E. R. 28 E. R. 29 E. R. 30 E. R. 31 E. R. 32 E.  
 0 0 5 5 10 MILES  
 0 0 5 5 10 KILOMETERS

**EXPLANATION**

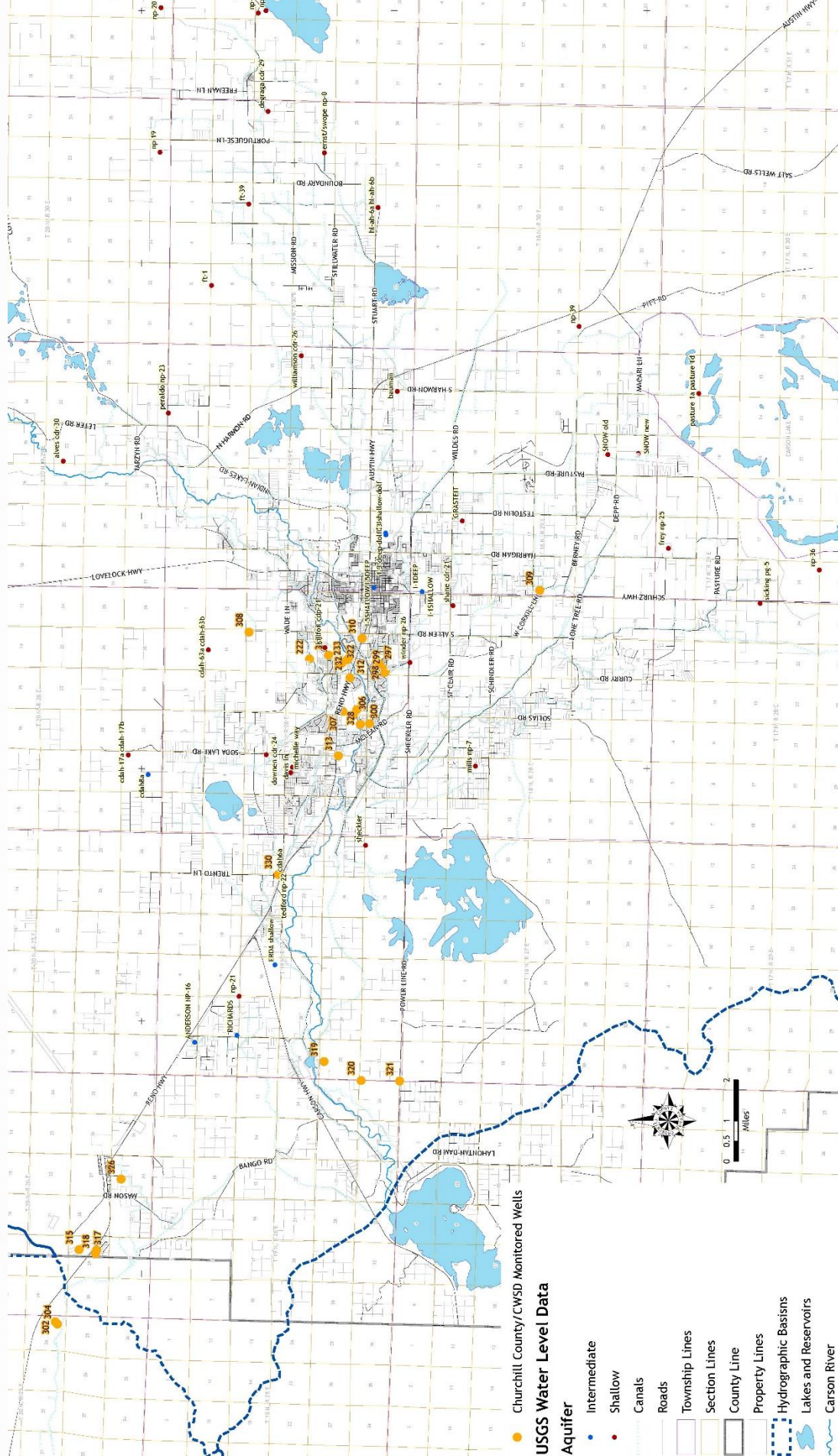
- Discharging playa — From Glancy and Katzer (1975, plate 1)
- Downward vertical gradient from shallow aquifer to intermediate aquifers in late 1970's; beneath valley floor outside this area, vertical gradient was upward from intermediate aquifer to shallow aquifer in late 1970's and 1992 — Modified from Glancy (1986, fig. 26)
- Downward vertical gradient from shallow and intermediate aquifers to basalt aquifer in late 1970's — From Glancy (1986, fig. 10)
- Upward vertical gradient from basalt aquifer to shallow and intermediate aquifers in the late 1970's — From Glancy (1986, fig. 10)
- Hydrographic area boundary — From Rush (1968)
- Topographic contour — Shows altitude of land surface. Contour interval, 1,000 feet, with supplemental contour at 4,200 feet. Datum is sea level
- Extent of basalt aquifer at depth of 600 feet — From Glancy (1986, fig. 2)
- Well in basalt aquifer where water-level fluctuations have been measured from 1971 to 1992 (see fig. 13)
- Well where withdrawals are made from the basalt aquifer for municipal and industrial use

**Figure 12.** Areal extent of basalt aquifer and directions of vertical gradient among shallow, intermediate, and basalt aquifers.

# Vertical Gradients



# USGS & Churchill Co/CWSD Water Level Monitoring Network



Churchill County/CWSD Monitored Wells

### USGS Water Level Data

#### Aquifer

- Intermediate
- Shallow

Canals

Roads

Township Lines

Section Lines

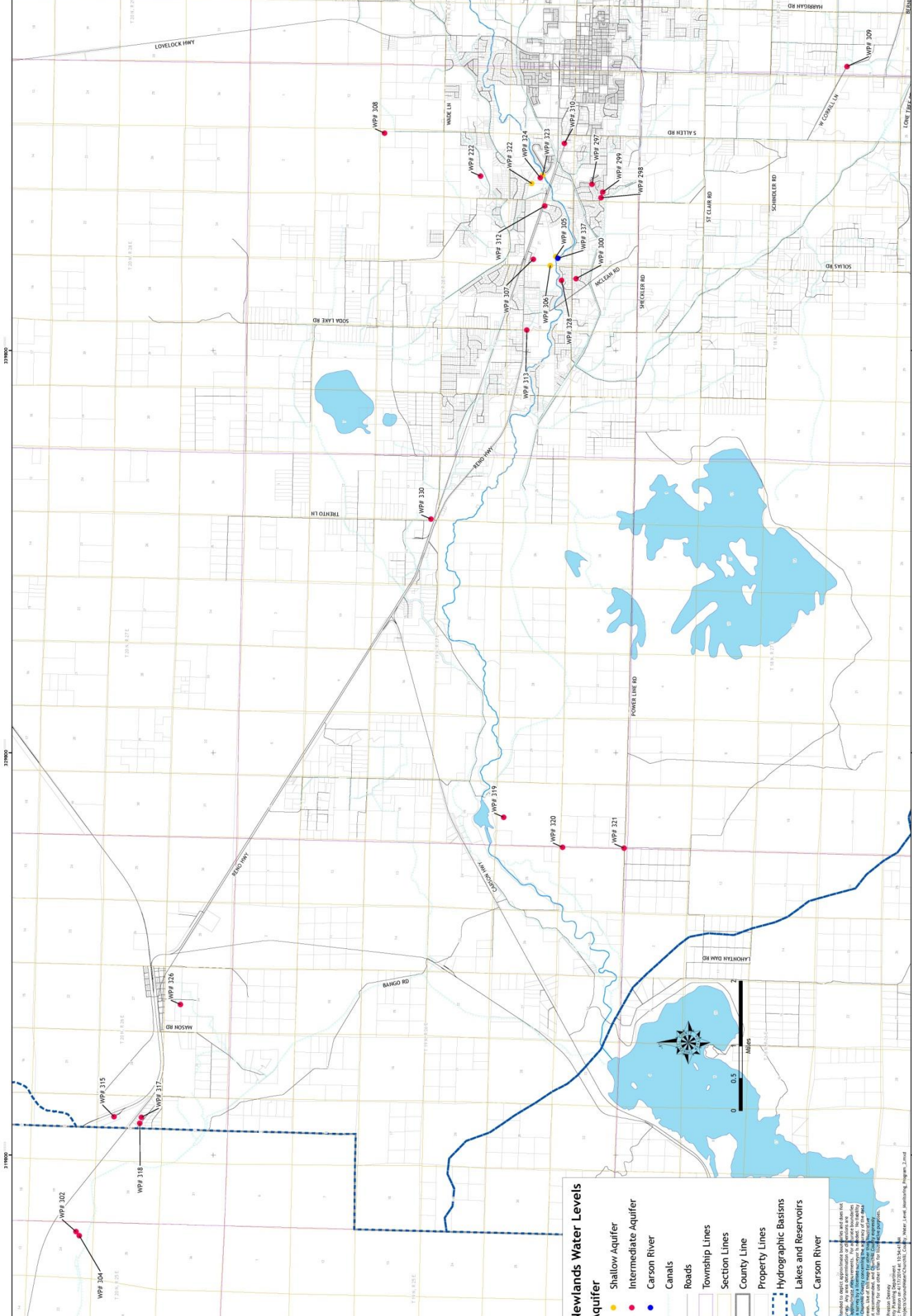
County Line

Property Lines

Hydrographic Basins

Lakes and Reservoirs

Carson River



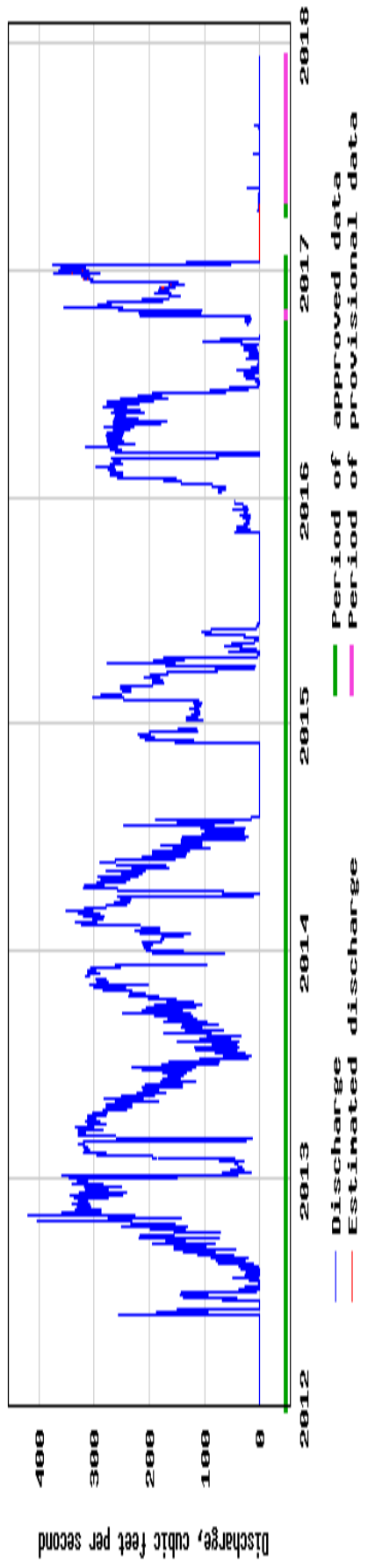
### Newlands Water Levels

- Shallow Aquifer
- Intermediate Aquifer
- Carson River
- Canals
- Roads
- Township Lines
- Section Lines
- County Line
- Property Lines
- Hydrographic Basins
- Lakes and Reservoirs
- Carson River

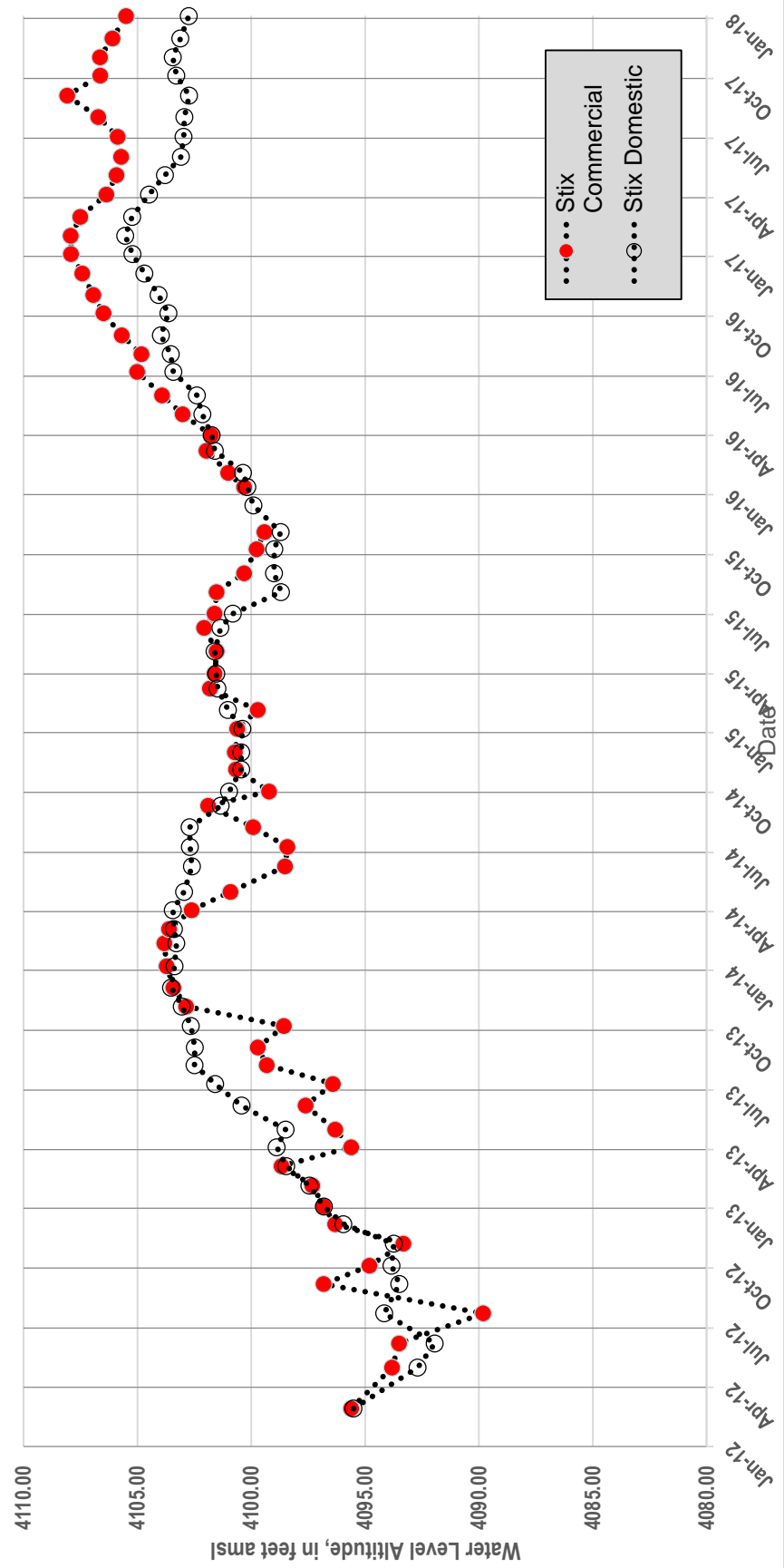
This map was prepared by the California Department of Water Resources, Office of Water Level, Monitoring, Program, 2, and is intended for informational purposes only. It is not intended to be used as a legal document. The accuracy of the information shown on this map is not guaranteed. The user assumes all liability for use of this map.

# Excel Database

Site_ID	Well_Nan_App	Basin	Twn	Rng	Sec	Lat_DD_NAD83	Lon_DD_NAD83	Loc_Accur	Elev	lev_Source
222	Sage Sprir 76541	101	19N	28E	23	39.49569093	118.81270581	12	3979.40	G
297	Sand Cree 72404	101	19N	28E	35	39.47074869	118.81437890	12	3978.83	G
298	Pine Grov 67051	101	19N	28E	35	39.46866429	118.81824314	12	3980.52	G
299	Pine Grov 67052	101	19N	28E	35	39.46830308	118.81659478	12	3978.58	G
300	L. Goetsch Domestic	101				39.47386177	118.84173443	12	3986.59	G
330	NDOT Trento	101				39.50524513	118.91207125	12	4019.27	G
302	Stix Comn 52428	076	20N	25E	24	39.58112408	119.12037544	12	4170.81	G
304	Stix Domestic	076	20N	25E	24	39.58037397	119.12153262	12	4174.69	G
305	Frey House	101				39.47849921	118.83554057	12	3982.50	G
306	Frey Corral	101				39.47969391	118.83811909	12	3982.60	G
307	Frey Comi 66558	101	19N	28E	27	39.48352913	118.83639863	12	3985.79	G
308	Moody W 74923	101	19N	28E	14	39.51742183	118.80081374	12	3977.80	G
309	E. Corkill F 64636	101	18N	29E	19	39.41415529	118.77893198	12	3955.08	G
310	Century 2 61334	101	19N	28E	26	39.47708567	118.80271573	12	3973.54	G
312	East of Frontier Liquor	101				39.48118258	118.82096160	12	3979.79	G
313	Soda Lake 64635	101	19N	28E	28	39.48466440	118.85686710	12	4002.20	G
315	Rail Park 76522	101	20N	26E	29	39.57324417	119.08682977	12	4058.97	G
317	Vista Equi 76477	101	20N	26E	29	39.56709941	119.08686419	12	4078.32	G
318	BLT Concri 74507	101	20N	26E	29	39.56743429	119.08856208	12	4079.07	G
319	Wildgoose RSR MW1	101	19N	27E	30	39.48750114	118.99775524	12	4068.79	G
320	Wildgoose RSR MW4	101	19N	26E	36	39.47417144	119.00602982	12	4124.87	G
321	Wildgoose RSR MW7	101	19N	26E	36	39.46041400	119.00589779	12	4140.29	G
322	Golf Course MW nea	101				39.48422638	118.81451955	12	3982.09	G
323	Golf Course MW nea	101				39.48180659	118.81209608	12	3974.78	G
324	Golf Cour 55797	101				39.48237133	118.81278598	12	3975.16	G
326	Arnaud Domestic	101				39.55892496	119.05396181	12	4017.69	G



### Stix Commercial and Domestic

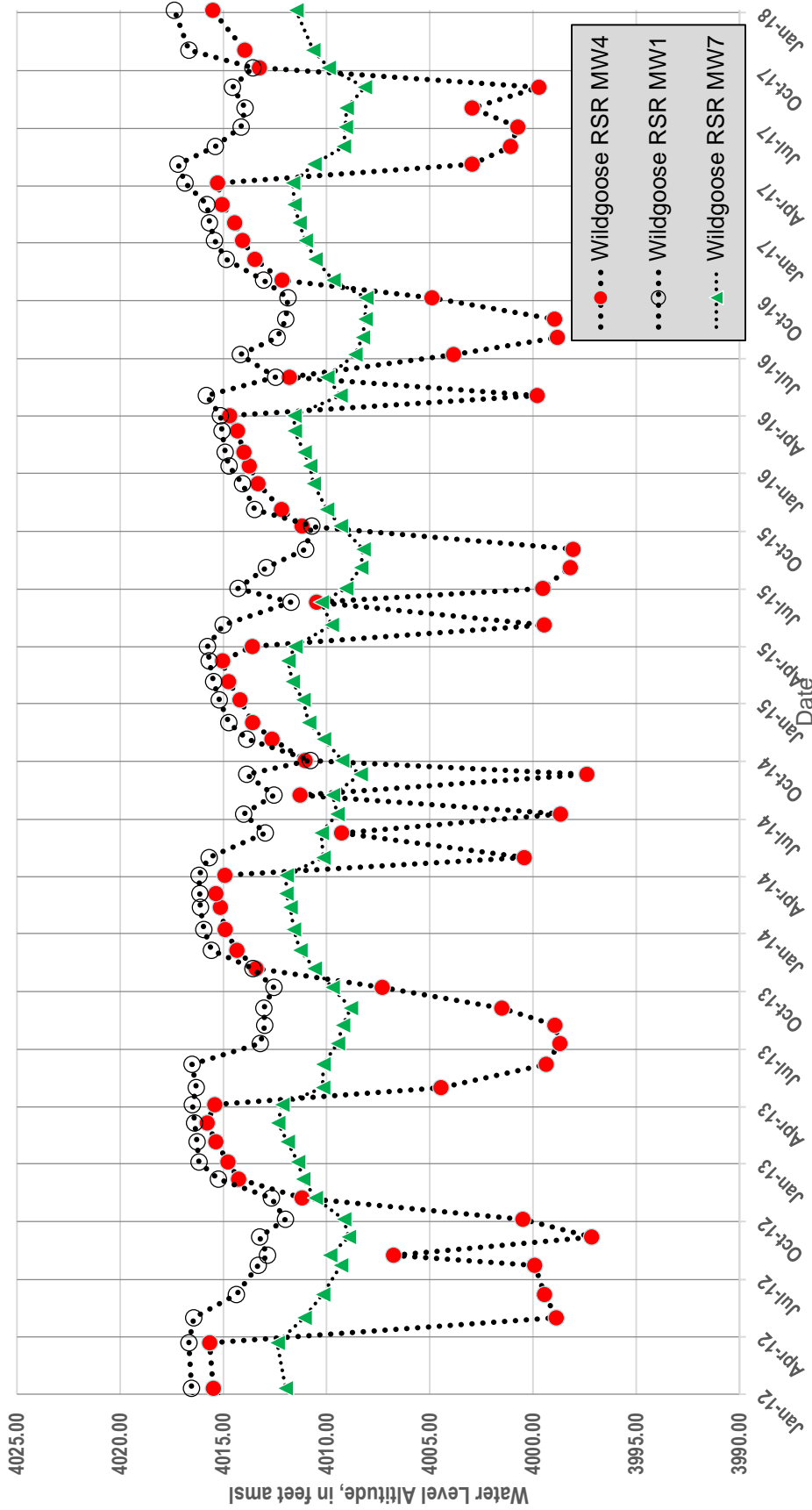




# Wildgoose Area Wells



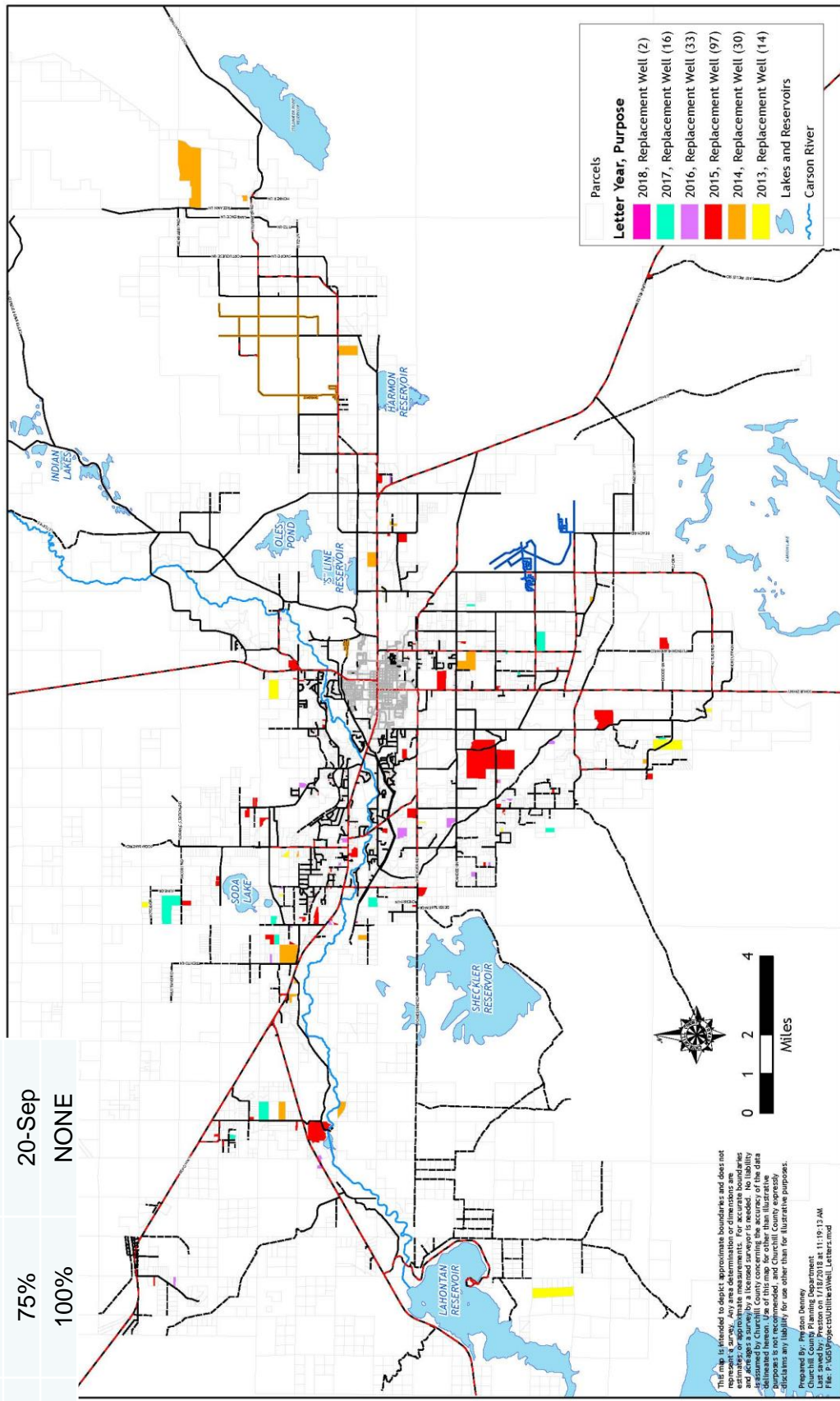
# Wildgoose RSR Monitor Wells



# CARSON DIVISION ALLOCATIONS

## Shallow Aquifer Well Replacements

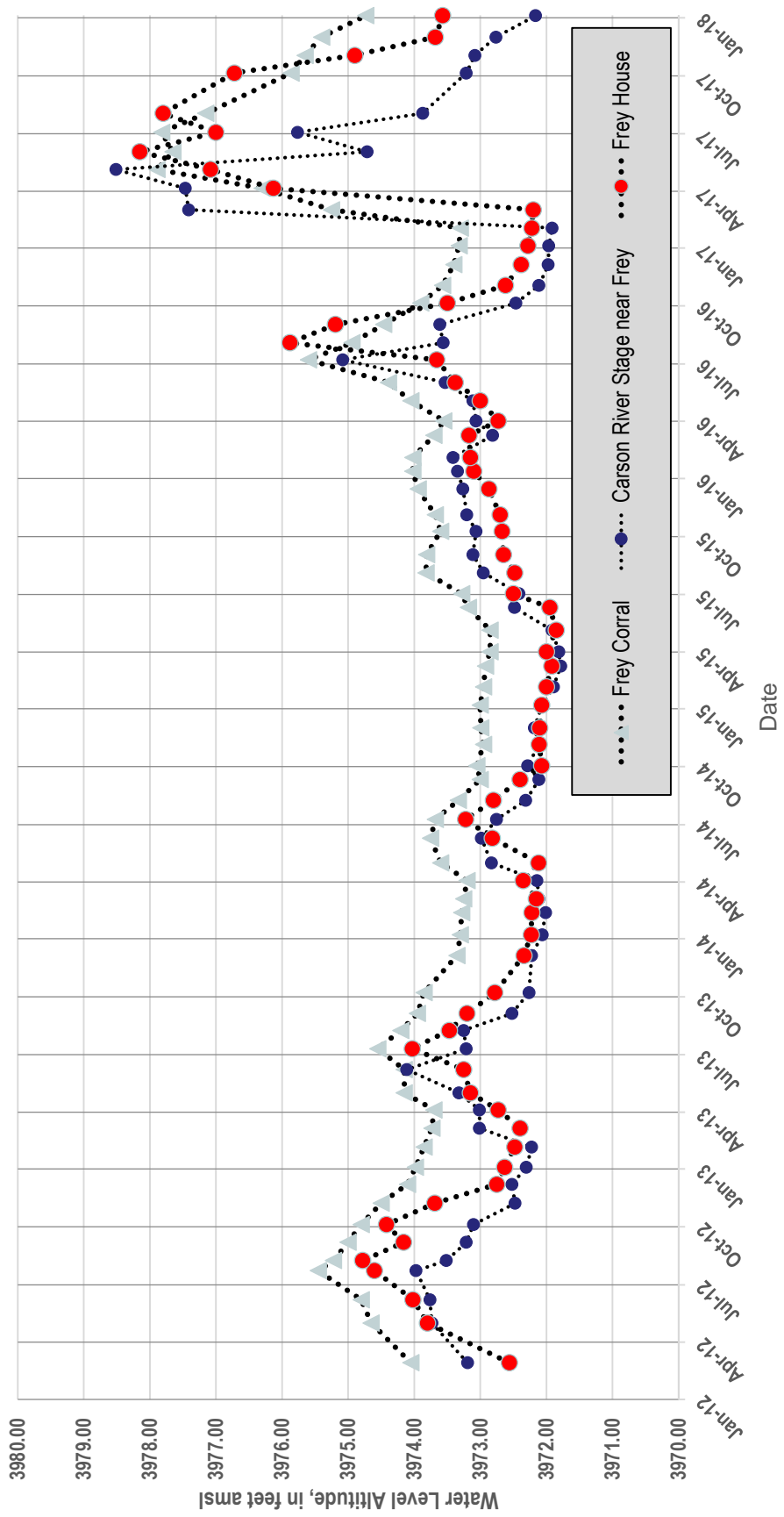
YEAR	ALLOCATION CUTOFF DATE
2012	90% 2-Nov
2013	75% 7-Sep
2014	45% 29-Jul
2015	21% 3-Jul
2016	75% 20-Sep
2017	100% NONE



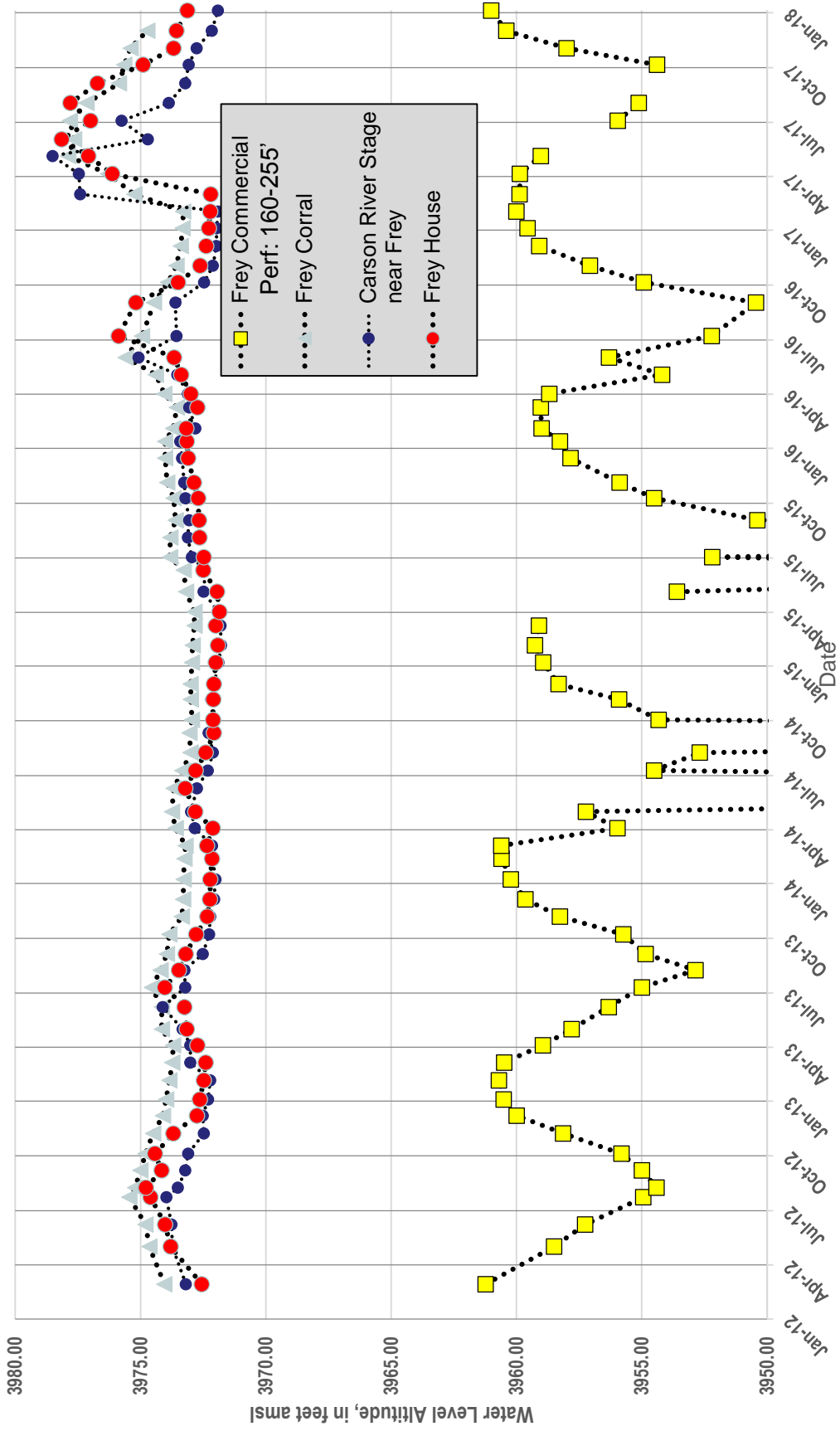
# FREY WELLS



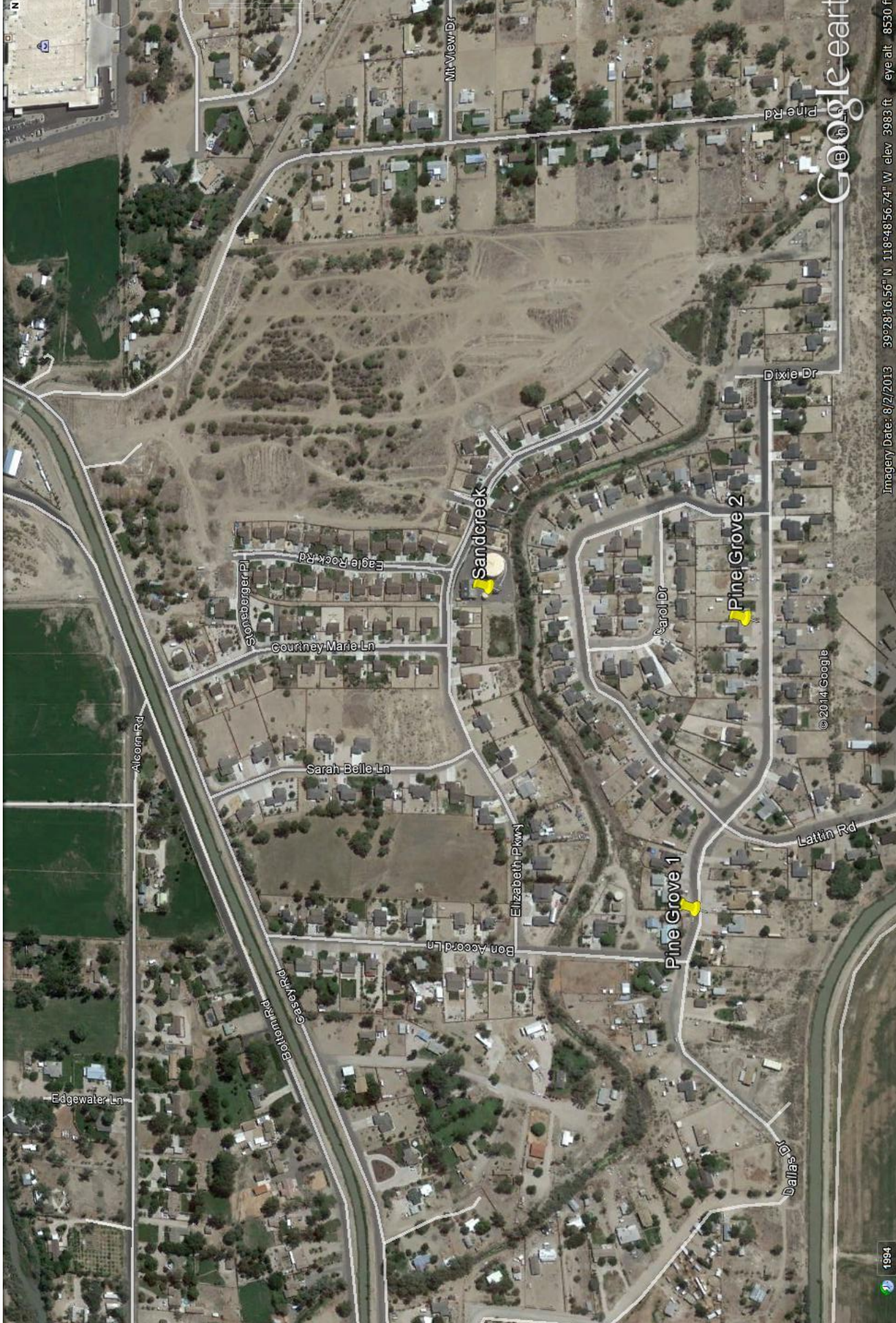
# Frey Area Wells and Carson River Stage



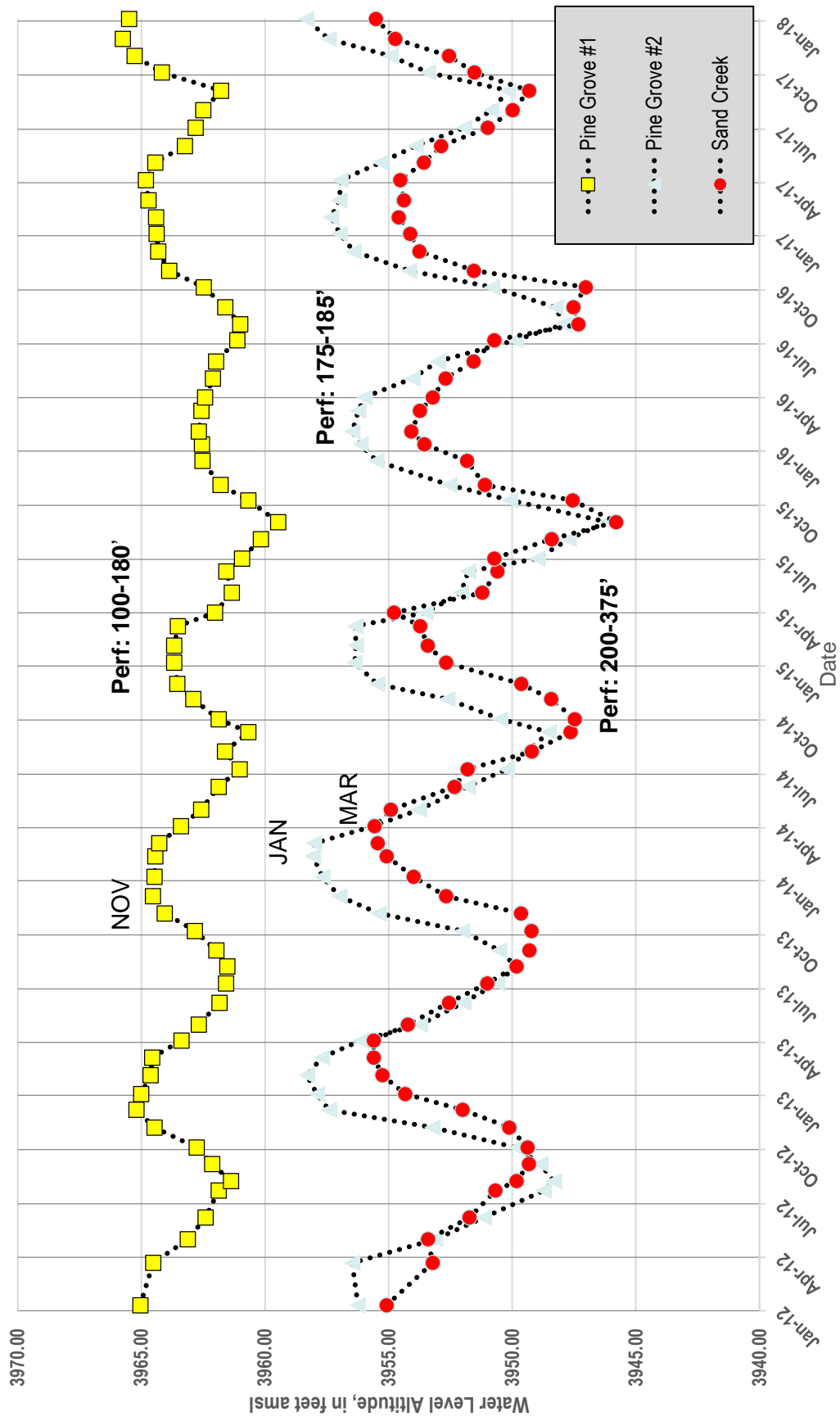
# Frey Area Wells and Carson River Stage



# SANDCREEK & PINE GROVE WELLS

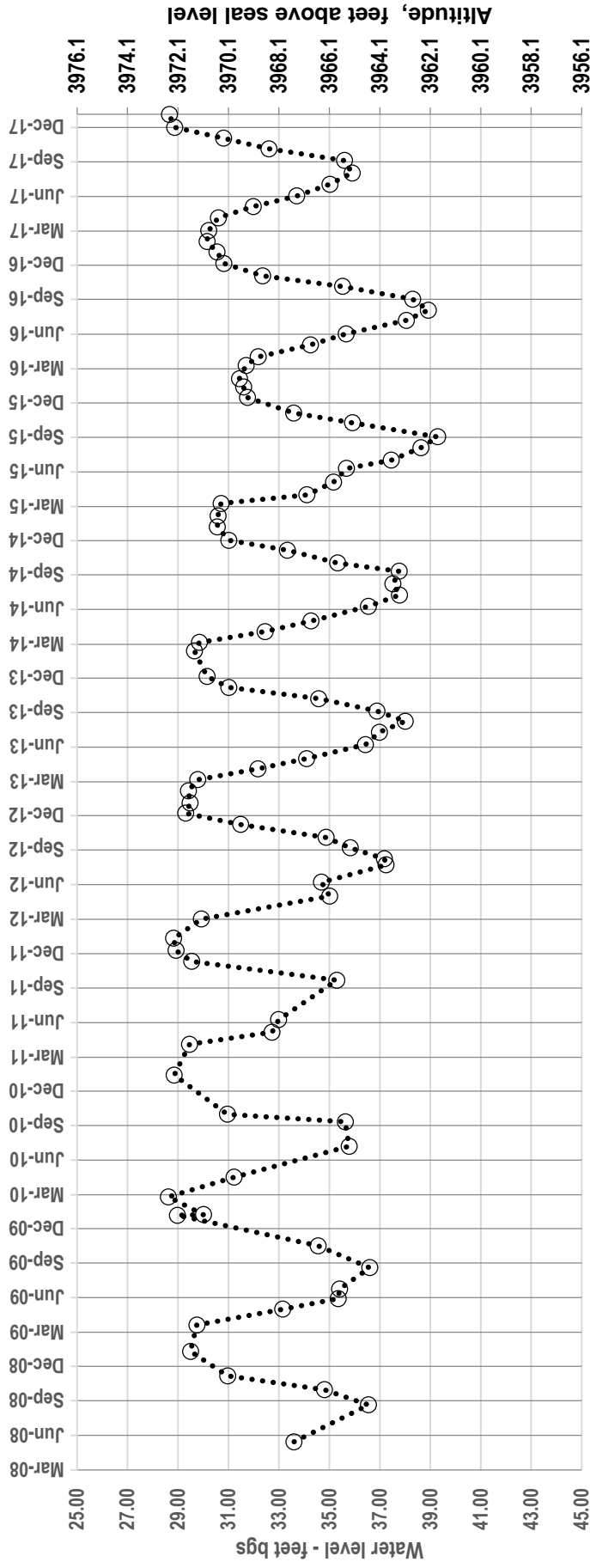


# Pine Grove Area

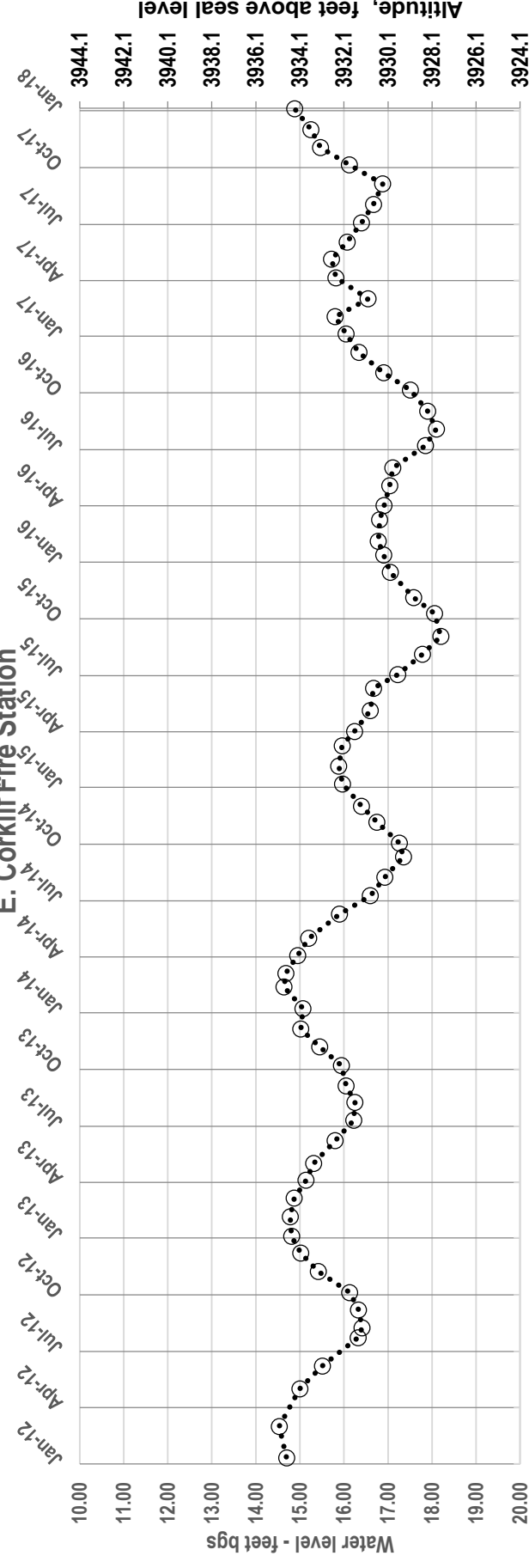




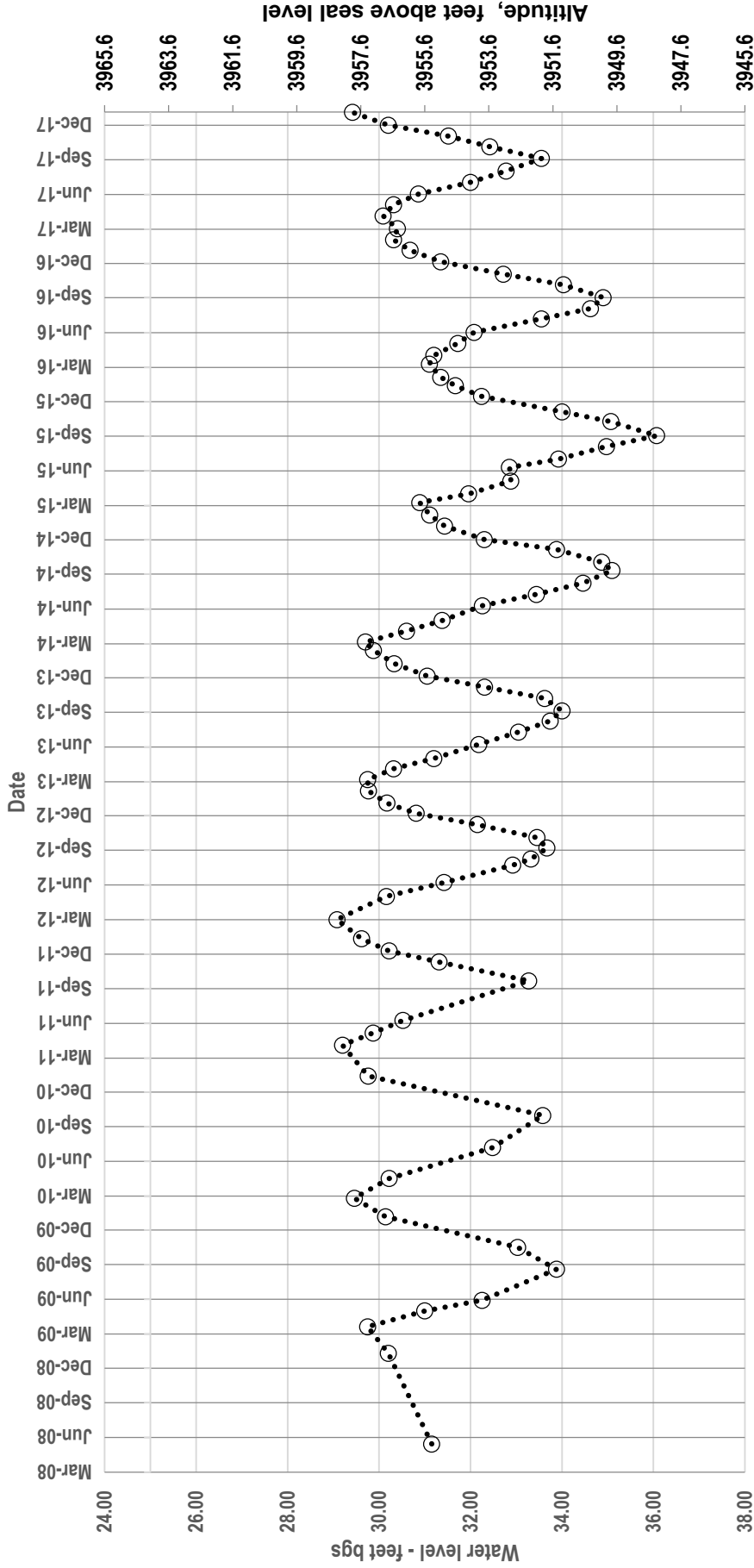
### Soda Lake Fire Station



### E. Corkill Fire Station



# Sage Spring Test



## Take Home ...

- Intermediate Aquifer declining trend of 1-2'/year has been reversed in 2016 - 2017
- Shallow Aquifer responds quickly & before Intermediate
  - Early warning
- Shallow: peaks in summer from irrigation deliveries
- Intermediate: peaks in winter – recovery from pumping & delayed recharge from Shallow
- Continued long term monitoring important:
  - Monitor wl & gradient trends
  - Useful for future water resource management / planning
- **FLOODS ARE GOOD FOR RECHARGE!**

Requesting \$56K from CWSD for 3 years  
Churchill Co In-Kind Contribution: \$10K

# Questions

