REGIONAL WATER SYSTEM & FLOOD COMMITTEE
OF THE CARSON WATER SUBCONSERVANCY DISTRICT

NOTICE OF PUBLIC MEETING

DATE: April 3, 2019
TIME: 10 A.M.
LOCATION: Carson Water Subconservancy District Conference Room
777 E. William St., #110
Carson City, NV 89701

Please Note: A quorum of the CWSD Board of Directors will not be present at this committee meeting. Any action on the part of the committee is for recommendation to the full CWSD Board of Directors for ultimate action. Reasonable efforts will be made to assist and accommodate individuals with disabilities who wish to attend the meeting. Please contact Catrina Schambra at (775) 887-7450 (mailto:catrina@cwsd.org), at least three (3) days in advance so that arrangements can be made.

AGENDA

1) Call to order of the Carson Water Subconservancy District's (CWSD) Regional Water System & Flood Committee

2) Roll Call

3) Discussion Only: Public comment - 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) For Possible Action: Approval of the Regional Water System & Flood Committee Minutes from August 13, 2018.

5) For Possible Action: Review and select engineering firm to conduct the Carson River Water Marketing Study.

6) For Possible Action: Discuss proposed Lost Lake Agreement with Carson City.

7) For Possible Discussion: Review the 2013 Regional Water System Report future infrastructure concepts.

8) Discussion Only: Public comment - Action may not be taken on any matter brought up under public comment until scheduled on an agenda for action at a later meeting.

9) For Possible Action: Adjournment.

Supporting material for this meeting may be requested from Catrina Schambra at 775-887-7450 (mailto:catrina@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.

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

-Dayton Utilities Complex
34 Lakes Blvd
Dayton, NV

-Minden Inn Office Complex
1594 Esmeralda Avenue
Minden, NV

-Lyon County Administrative Building
27 S. Main St.
Yerington, NV

-Churchill County Administrative Complex
155 N Taylor St.
Fallon, NV

-Carson City Hall
201 N. Carson St.
Carson City, NV

-Alpine County Administrative Building
99 Water St.
Markleeville, CA

-Carson Water Subconservancy District Office
777 E. William St., #110A
Carson City, NV

-CWSD website:
http://www.cwsd.org

-State public meetings website:
http://notice.nv.gov

AFFIDAVIT OF POSTING

The undersigned affirms that on or before 9:00 A.M. on March 28, 2019, he/she posted a copy of the Notice of Public Meeting and Agenda for the April 3, 2019, meeting of the Administrative Committee of the Carson Water Subconservancy District in accordance with NRS 241.020; said agenda was posted at the following location:

_____.

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SIGNATURE

Name: _____

Title: _____

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CARSON WATER SUBCONSERVANCY DISTRICT
REGIONAL WATER SYSTEM AND FLOOD COMMITTEE

TO: REGIONAL WATER SYSTEM AND FLOOD COMMITTEE

FROM: EDWIN D. JAMES

DATE: APRIL 3, 2019

SUBJECT: Agenda Item Background Information

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Item # 5 – For Possible Action - Review and select engineering firm to conduct the Carson River Water Marketing Study.

The committee will be asked to discuss the two proposals received for the Carson River Water Marketing study and make a recommendation to CWSD Board on which firm should be selected to conduct the study.

Item # 6 – For Possible Action - Discuss proposed Lost Lake Agreement with Carson City.

Carson City is possibly interested in lease the Lost Lake water next year. In the past the lease agreements have been structured the same as the Mud Lake agreement. The problem is it costs CWSD to submit the paper work to the DWR for the temporary permit and then Carson City may not need the water. Staff would like to propose an alternative agreement which is beneficial to both CWSD and Carson City.

Item # 7 – For Possible Discussion - Review the 2013 Regional Water System Report future infrastructure concepts.

One of the outcomes of the 2019 strategic planning session was a request to review and update the regional water system needs. Staff does not anticipate starting this process for several months but would like to review Chapter 7 of the Regional Water Systems Plan with the committee members since many of the members were not with CWSD when this report was prepared (see attachment).

CARSON WATER SUBCONSERVANCY DISTRICT

REGIONAL WATER SYSTEM & FLOOD COMMITTEE
August 13, 2018, 9:00 A.M.

***DRAFT* Meeting Minutes**

Directors Present:
Brad Bonkowski, Carson City
Ken Gray, Lyon County
Austin Osborne, Storey County
Ernie Schank, Churchill County (by teleconference)

Directors Not Present:
Barry Penzel, Douglas County
Fred Stodieck, Douglas County Ag

Staff Present:
Ed James, General Manager
Patrick King, Legal Counsel
Toni Leffler, Administrative Assistant

Others Present:
Jason Wierzbicki, Storey County

Committee Member Bonkowski called the meeting of the Carson Water Subconservancy District's Regional Water System and Flood Committee to order at 9:00 a.m. in the Conference Room of Carson Water Subconservancy, 777 East William Street, Suite 110, Carson City, Nevada. A quorum of the Regional Water System and Flood Committee was present in person or by telephone.

Item #3 – Discussion Only: Public Comment - None

Item #4 - For Possible Action: Approval of the Regional Water System and Flood Committee Minutes from August 29, 2017. *Committee Member Osborne made the motion to approve the Regional Water System and Flood Committee Minutes from August 29, 2017. The motion was seconded by Committee Member Schank and unanimously approved by the Regional Water System and Flood Committee.*

Committee Member Gray arrived at 9:10 a.m.

Item #5 - For Possible Recommendation: Discuss CWSD's position on the use of the Public Trust Doctrine to be applied to water rights already adjudicated and settled under the Doctrine of Prior Appropriation and to submit an Amicus Brief to the Court. Mr. James explained that he received a letter from Gordon DePaoli representing the Walker River Irrigation District. Mineral County and environmental groups have asked for a court order that a minimum amount of 127,000

acre/feet of water per year be reserved to go to Walker Lake. In dry years there isn't even that much water coming into Walker Lake.

An example of the use of the public trust doctrine is the Mono Lake ruling that there was a public trust benefit to Mono Lake and Los Angeles had to reduce its water use. In the Mono Lake case, Los Angeles had another source of water supply, so the ruling was in favor of Mono Lake.

The amicus brief is a legal document which is beyond staff's knowledge to create, so Mr. James recommended that Mr. King be authorized to draft an amicus brief on CWSD's behalf.

Mr. King explained that in ancient times, the government owned the natural resources being held in trust for the public. The doctrine has been expanded to apply to all natural resources, whether government or privately owned. Does the public trust doctrine trump private ownership rights?

Mr. Gray asked if this would be considered a "taking." Mr. James responded that in the Mono Lake ruling it was not considered a taking. The court indicated that it is not a taking of property but only providing limitations on when the water can be used.

Mr. Gray asked whether the government would compensate the water right owners for the use of their water. It was noted that there were bigger issues involved. In this case, the water users on the Walker River have no alternative water source other than the Walker River. The farmer would not be able to farm and would lose his livelihood, not just water. Also, the communities of Smith Valley and Mason Valley would have no municipal water.

Mr. James pointed out that the biggest concern is that if the public trust doctrine was used on the Walker River, it opens up the possibility that the same argument could be used on the Carson River.

Mr. Schank suggested that because of the ramifications to all water systems Mr. King should look at the Supreme Court decision on Nevada v. United States in 1983. Mr. Schank also mentioned that the courts ruled that the "winter" doctrine does not apply to the Pyramid Lake Paiute Tribe. The U.S. claimed they own the water, but the Supreme Court ruled that the U.S. might have a lien on the water, but the ownership is with the person who purchased the water right. Mr. Schank plans to go with the Truckee Carson Irrigation District's (TCID) General Manager, Rusty Jardine, to a meeting with the Nevada Attorney General if it can be arranged.

Mr. King noted that a ruling in favor of the public trust doctrine opens the opportunity to fight all previous decrees. The Ninth Circuit Court asked the question of whether the Supreme Court wishes to hear the case, which it does.

Mr. Bonkowski asked how much the annual average flow is into the Walker Lake. Mr. James responded that he is analyzing that and will have the number at the Board meeting. Regarding the argument that those who would lose the use of the Walker River water could use groundwater, the

State Engineer has determined that the groundwater is over-allocated. There are no other alternatives sources for water to Walker Lake.

Mr. Schank noted that on the Truckee River there are other ramifications, including the potential that the doctrine to Lake Tahoe could be affected and water might not be released into the Truckee River.

Mr. King explained that the rule on filing an amicus brief is that it must be by a governmental agency. CWSD wants to look at the bigger picture to determine what argument is most important for the court to think about. Mr. Schank commented that the overarching issue is the financial stability of northern Nevada. He suggested looking into the water right settlement in the Truckee River Operation Agreement (TROA) to see if there is anything in that document to preclude Mineral County's effort.

Mr. King will give an estimate of his time and the cost of creating the amicus brief which is beyond the scope of normal legal services which are included in his monthly retainer.

Mr. Gray asked whether the full court or a three-person panel of the Ninth Circuit Court remanded this case to the Supreme Court. After some conversation about this, Mr. Bonkowski noted that since this was the second hearing of this case, it was probably the full court.

Committee Member Schank made the motion that the Regional Water System and Flood Committee recommend to the Board that CWSD direct Patrick King to draft an amicus brief in opposition to the use of the Public Trust Doctrine to be applied to water rights already adjudicated and settled under the Doctrine of Prior Appropriation and that CWSD seek each county's support. The motion was seconded by Committee Member Gray and unanimously approved by the JPA Board members of the Regional Water System and Flood Committee.

Item #6 –Discussion Only: Public Comment.

Item #7 – Adjournment. There being no further business to come before the Regional Water System and Flood Committee, Director Schank made the motion to adjourn, and the meeting adjourned at 9:45 a.m.

Respectfully submitted,

Toni Leffler
Secretary

Chapter 7 – Regional Water Systems and Interties

Within the six Counties of the Carson River Watershed (Alpine, Douglas, Carson, Lyon, Storey, and Churchill), there are twice as many water systems and each has their own unique water issues. With low population and remote location, Alpine County is essentially a stand-alone area that is not included in this portion of the report. The primary areas of interest are:

- Douglas County – focused on the Carson Valley area
- Carson City
- Lyon County – focused on Dayton, Stagecoach and Silver Springs and the proposed Highlands development above Silver Springs
- Storey County – Virginia City and Gold Hill
- Churchill County – focused on the City of Fallon and surrounding Churchill County, NAS, and private water systems.

As a general rule of thumb, the aquifer recharge and availability of groundwater sources decreases as you move downstream through the counties.

Over the past 3-4 years Carson City, Minden, Indian Hills GID, and Douglas County have partnered in developing and constructing a regional pipeline system that allows for Minden to deliver water into Carson City. This linkage has long been envisioned but until recently was not viable for a variety of reasons.

Part of the difficulty with a plan of this nature is dealing with the unknowns of population growth, development, and timing. As an example, we can project for a 7,000 unit development in the Storey County Highlands but we don't know if it will take 10 years or 40 years to come to fruition. This raises the question as to whether near term water facilities should be sized to account for such a development or wait for that development to occur or reach a certain size before taking it seriously. Another way to approach things could be the build it and they will come attitude. If we create a transmission system to delivery water to areas for future development that will most likely help generate the development itself as the unknown of water service is taken out of the equation for future developers. We have endeavored to plan for a conservative estimate of usage growth out 20 to 30 years based on growth rates but have also included the development of the Highlands as part of the total usage as this has a large bearing of the overall demand near the terminus of the regional system.

In looking at line sizing for potential regional interconnections, a maximum flow velocity criteria of 5 ft/s was utilized. The flow velocity is a critical component of water line sizing from the standpoint of power costs and system pressure. The higher the flow velocity the more pressure loss in a line. Conversely, the lower the flow velocity the lower the pressure loss in a line. Pressure loss is important from the standpoint of power costs for operating the system as well as the capital cost to install more booster pump stations to mitigate pressure losses. A flow velocity of 5 ft/s is a reasonable balance point above which friction losses may become unreasonable and impact the operation of the system over the long term. Table 7.1 lists the flow capacities of various pipe diameters with an assumed velocity of 5 ft/s along with an approximate pressure loss over a 1-mile stretch of the pipe. It is important to note that these flow capacities are based on perfect situations. In reality the available capacity or realistic capacity of the lines will be dictated by required and available system pressures between connection points, friction losses over long runs, and the cost benefit of a booster station versus a large line size to mitigate

head losses. As an example, it may be cheaper in the long run to upsize to a 30-inch main in lieu of a large booster station which will require large power costs over its lifespan as well as pump replacement costs 2 or 3 times before the 30-inch main would reach the end of its design life. There and many other factors need to be evaluated when determining the final design size, alignment, and the design of transmission components to ensure the most cost effective long-term alternative.

Table 7.1. Flow Capacity in Pipes at Velocity of 5 ft/s

Pipe Diameter (inches)	Flow Capacity (gpm)	Pressure Loss (psi), 1 mile of PVC pipe at 5 ft/s
12"	1,773	14.7
16"	3,142	10.4
18"	3,972	9.1
24"	7,050	6.5
30"	11,019	5
36"	15,863	4.1

Figures 7.1, 7.2, 7.3 were developed to illustrate the potential regional infrastructure for more detailed future consideration with projected growth and the associated water demands placed on the water purveyors in the area. Figure 7.1 focuses on the Carson Valley and Carson City area. Figure 7.2 focuses on the Lyon County and Silver Springs area. Figure 7.3 focuses on the Fallon area.

A brief summary of the information in Figures 7.1 – 7.3 is provided below. Further more detailed information can be found in Appendix E. Appendix E looks at potential infrastructure improvements that might be contemplated as part of further regional improvements to the Carson Valley and Carson City water systems. The sizes and alignments shown and discussed are preliminary in nature and a full engineering analysis and design would be required before any of these improvements could be constructed. Additionally, prior to any actual engineering design of these improvements the political agreements and/or funding for such projects would need to be developed and finalized.

A. CARSON VALLEY

Existing Regional Infrastructure:

1. Within the past 3-4 years Minden, Indian Hills GID, Carson City, and Douglas County have constructed in the neighborhood of $35-$40 Million in regional water infrastructure to produce, store, pump, and move water from the Minden area through Douglas County and into Carson City. The regional system is anticipated to be online with water deliveries to Carson City by early 2014. The following is a list of the projects completed by each entity in the past 3 years.

    a. Minden

        i. 2.5 MG Amber Way Tank

        ii. 30" Buckeye Main (Heybourne Road to Amber Way Tank)

iii. 24" Lucerne Main

iv. Buckeye Booster Station

v. Heybourne Booster Station (under construction)

b. Indian Hills GID

i. 18" IHGID Spur Line and Booster Station Upgrades

c. Douglas County

i. 1.5 MG Johnson Lane Tank

ii. 18" Johnson Lane Main

iii. Heybourne Road 30" Main (Johnson Lane to Carson City Booster Station)

iv. Carson City Booster Station (under construction)

Future Infrastructure: As growth continues in the Carson Valley area, additional regionalization of the water system will be an important consideration. The larger customer base helps mitigate costs for future treatment and allows for water to be managed on a broader regional basis. Thinking and planning for the long term of the entire regional water system allows for funds to be expended in more efficient ways than for independent systems to separately develop new facilities. Douglas County, Indian Hills, and Carson City found that their water needs could be met at less cost and more effectively by connection to a neighboring system. A list of the conceptual projects related to Figure 7.1, which shows the potential future intertie improvements to link the various Carson Valley water systems into one regional system, are provided in more detail in Appendix E. Carson Valley has a large percentage of the conceptual regional infrastructure laid out as part of the Manhard regional study, and other previous discussions between entities in the past.

With regard to Groundwater development, the Town of Minden and the Gardnerville Water Company are the favorable production centers for the Carson Valley for the following reasons:

- Currently do not require treatment (Both)
- Production capabilities being developed or in existence (Both)
- Increased pumping in these areas does not appear to significantly impact groundwater levels in these areas as evidenced by USGS groundwater modeling study. (Both)
- Minden and Gardnerville Water are already connected and further connections can be planned to improve the development of a centralized production area.
- Available water rights (Minden)

While these systems may be favorable for production, the Town of Minden and Gardnerville Water will have to individually determine how they view their place as it relates to water resources within the Carson River Watershed and the Carson Valley itself. The determination by the governing boards of each entity will help guide future decisions of the water purveyors in the Watershed.

Areas with water needs (have water but need to treat with expensive treatment, or increased pumping will continue to draw down water levels):

- Gardnerville Ranchos GID, Indian Hills GID, Fairgrounds/Sunrise Estates/Ruhenstroth, East Valley, North Valley

There is a concern of arsenic migration as the focus of pumping shifts to the Minden/Gardnerville area, and the potential to utilize the USGS groundwater model to study this is an idea. At this time, based on the water contours and direction of flow in the Carson Valley this does not appear to be an immediate concern. The arsenic appears to be more related to specific soil areas or particular aquifer strata. If funding were to become available for a monitoring well network to aid in calibrating the USGS groundwater model for an arsenic study it may be a worthwhile endeavor.

B. CARSON CITY

Carson City sits at the center of the Watershed in terms of water distribution. The water produced in the upper Watershed has to travel through Carson City via piping or the Carson River to the lower Watershed. Carson City is therefore a critical player in any regional water planning. Carson City has been developing regional infrastructure to improve its transmission and deliver system as well as reduce its dependence on poorly performing wells and wells that require expensive treatment. The inter-connection between Lyon County (Mound House) and Carson City was the first large-scale regional effort to provide support for neighboring water systems. Carson City will be obtaining water from the Minden area as of 2014 as part of a further regional effort with Minden, Douglas County, and Indian Hills GID.

Existing Regional Infrastructure:

- N/S 24" Main on Edmonds and Bigelow.
- E/W 24" Main (Saliman Road to River Wells)
- 16" Main and Water Tanks connecting Carson City with Lyon County Utilities/Mound House.

Future Infrastructure: Carson City related regional infrastructure is shown on Figure 7.1 with more detailed information provided in Appendix E. The focus for Carson City future regional infrastructure is transmission capacity within and through the City to provide for the future movement of water within the Watershed.

C. LYON COUNTY & STOREY COUNTY

(Moundhouse, Dayton, Stagecoach, Silver Springs, Virginia City, and Gold Hill)

Existing Regional Infrastructure: Some efforts at regional pipelines and interconnections have been made within the Lyon County Utilities system including the 16" main and associated infrastructure linking Carson City with Lyon County Utilities. However, the lack of a true regional plan for how water might be made available for development in areas served by Lyon County Utilities, Stagecoach, Silver Springs, and adjacent areas of Storey County has in some ways hampered the ability to size lines and locate them were needed for the long term overall use of the area. This preliminary study is the first basic step in identifying potential corridors and water sources; however, more in-depth analysis will be necessary to determine realistic future demands based on developable areas and what the existing aquifers in the Lyon County, Stagecoach, and Silver Springs can sustain. Knowing the true sustainable levels of pumping in these areas will begin to dictate the needs for importing water via pipeline or the river.

Future Infrastructure: Future infrastructure in the Lyon County/Storey County area is highly dependent on growth and development potential. The largest potential driving factors for a regional transmission main are the development of the Lyon County Highlands and Silver Springs with the USA Parkway Project. There is a lack of viable long-term groundwater production at this location in the Watershed for major development and water will need to be brought in via pipeline or some type of arrangement made for upstream surface water to be brought into the Lahontan area for use.

Utilizing rough estimates there has been discussion of 7,000 units plus commercial development in the Lyon County Highlands linked to Reno and Silver Springs via the planned USA Parkway. Water demands for such a development could approach 7,000 to 8,000 acre-ft annually. At an average annual demand of 7,000 AFA, this would equate to a max day demand of 13.25 mgd (9,200 gpm). At a velocity of 5 ft/s to minimize line losses a 30" pipeline would be needed to transmit a demand of 9,200 gpm to the Lyon County Highlands.

Figure 7.2 illustrates a number of conceptual projects and alignments for the transmission of water to Silver Springs and potentially beyond. As planning continues a multitude of alternatives for moving water within the Watershed will need to be evaluated.

Virginia City Area

Virginia City, Gold Hill, and Silver City's water source is the Marlette System comprised of piping and a siphon that crosses beneath Hwy 395 north of Carson City connecting the towns to Marlette Lake and Hobart Reservoir located between Carson City and Lake Tahoe. This delivery system was developed in the late nineteenth century and today, due to the age of the system, periodically fails and needs continuous attention. Storey County has no plans to abandon the Marlette Water System as their primary source of water or to construct a secondary line at this time. The development of a secondary means of water delivery may become necessary, and with a regional system these communities could be served water via Carson City and Mound House as shown in Figure 7.2. However, while the regional system may serve as a reserve source of water to these communities, primary consideration should be given on repairing and rehabilitating the historic Marlette System. Comstock Mining Inc. (which currently purchases large quantities of water from the Marlette System) and Storey County have engaged in planning discussions on the potential for the mining company to upgrade significant portions of the water system. The system upgrade would benefit both the mine and the communities served thereby.

Stagecoach/Silver Springs

The potential for development and growth is significant in their areas with large areas of land being privately owned (as opposed to Federally Managed property). The USA Parkway Project when completed will reduce the travel time from Silver Springs to Reno/Sparks by potentially half. As stated earlier a determination of the potential developable areas in Stagecoach and Silver Springs linked to the true sustainable pumping levels will need to be determined in order to properly size regional infrastructure.

D. CHURCHILL COUNTY

Existing Regional Infrastructure: While Churchill County and the City of Fallon operate water treatment and wastewater facilities, there is no existing regional infrastructure between Churchill County and the City of Fallon. However, the City of Fallon and the Naval Air Station (NAS) do have an intertie to accommodate NAS wastewater treatment needs.

Future Infrastructure: The development of regional infrastructure in the Churchill County area is most likely to be focused in the area surrounding the City of Fallon. The distance from Lahontan or other water systems to the City of Fallon makes an intertie between the Fallon area and the upper Carson River water systems a difficult proposition unless there were no other less expensive alternatives for additional water supply.

The primary focus of regionalization in the Fallon area should be the interconnection and incorporation of the multiple private and County maintained systems with the City of Fallon and Fallon Naval Air Station systems to create a true Fallon regional water system. While politically difficult, such a system would create a larger customer base that could spread the cost of treatment or other necessary improvements and reduce the impact of rate adjustments for all customers. With the limited information available from the City of Fallon, the Naval Air Station, and private systems a schematic of potential interconnections is unable to be produced at this time. However, it would be beneficial to conduct such an analysis should the political environment change and regionalization becomes more of a reality.

Recent information from USGS data has indicated that the groundwater levels in the Basalt aquifer, which Fallon, NAS, and the Fallon Paiute Shoshone Tribe rely on, have been dropping, potentially due to pumping exceeding the annual recharge to the Basalt aquifer. Water level monitoring in the surrounding Shallow and Intermediate alluvial aquifers, which Churchill County's system relies upon have not experienced any significant water level declines. If water levels continue to drop in the Basalt aquifer, an external source of water may be required for viable growth as well as to restore the aquifer to a more sustainable use/recharge balance.