

NORTHERN NEVADA WATER PLANNING COMMISSION (“NNWPC”) AGENDA

Wednesday, October 3, 2012
1:30 p.m.

Washoe County Commission Chambers
1001 East Ninth Street
Reno, Nevada

Notes:

1. Items on this agenda on which action may be taken are followed by the term "for possible action". Non-action items are followed by an asterisk (*).
2. Public comment is limited to three minutes per speaker and is allowed during the public comment periods, and before action is taken on any action item. Comments are to be directed to the Commission as a whole. Persons may not allocate unused time to other speakers. The public may sign-up to speak during the public comment period or on a specific agenda item by completing a "Request to Speak" card and submitting it to the clerk.
3. Items on this agenda may be taken out of order, combined with other agenda items for consideration, removed from the agenda, or delayed for discussion at any time. Arrive at the meeting at the posted time to hear item(s) of interest.
4. In accordance with NRS 241.020, this agenda closes three working days prior to the meeting. We are pleased to make reasonable accommodations for persons who are disabled and wish to attend meetings. If you require special arrangements for the meeting, please call 954-4665 no later than 24 hours prior to the meeting.
5. In accordance with NRS 241.020, this agenda has been posted at the following locations: Reno City Hall (1 East First Street), Sparks City Hall (431 Prater Way), Sparks Justice Court (630 Greenbrae Dr), Sun Valley GID (5000 Sun Valley Blvd.), TMWA (1355 Capital Blvd.), Washoe County Administration Building (1001 E. 9th Street), Washoe County Clerk's Office (Court and Virginia Streets), Washoe County Central Library (301 South Center St.), Washoe County Department of Water Resources (4930 Energy Way), Galena Market (19990 Thomas Creek Rd.), Galena High School (3600 Butch Cassidy Way), South Valleys Library (15650A Wedge Parkway), and the NNWPC website: <http://www.nnwpc.us>

1. Roll Call and determination of presence of a quorum. *
2. Public Comments. * (Three-minute time limit per person.)
3. Approval of agenda. **(for possible action)**
4. Approval of the minutes from the August 1, 2012, meeting. **(for possible action)**
5. Update by the Desert Research Institute (“DRI”) on its Cloud Seeding Operations for the Truckee River and Lake Tahoe Basins for the past water year, and status of its Cloud Seeding Coalition efforts; discussion and possible recommendation to the Western Regional Water Commission (“WRWC”) for funding in an amount not to exceed \$100,000 from the Regional Water Management Fund to support similar Cloud Seeding Operations for the upcoming water year, Arlen Huggins, DRI. **(for possible action)**
6. Report on the Septic Systems Alternative Study relative to regional groundwater quality and quantity issues, including nitrate concentrations related to septic tanks, Chris Wessel, NNWPC Water Management Planner. *

7. Update on the Truckee Meadows Regional Planning Agency's ("TMRPA") parcel-based population and employment modeling program, and possible direction to staff, Jim Smitherman, NNWPC Water Resources Program Manager. *
8. Report on legislative activities, including Bill Draft Requests for the 2013 session of the Nevada Legislature that may affect the WRWC / NWPC, John Rhodes, NNWPC Legal Counsel. *
9. Program Manager's Report, Jim Smitherman. *
 - a. Status Report of Projects and Work Plan Supported by the Regional Water Management Fund
 - b. Financial Report on the Regional Water Management Fund
 - c. Informational report from the NNWPC representative on the Truckee Meadows Water Authority Standing Advisory Committee ("TMWA SAC")
10. Discussion regarding possible agenda items for the November 7, 2012, NNWPC meeting, and other future meetings, and possible direction to staff, Jim Smitherman. **(for possible action)**
11. Commission comments. *
12. Staff comments. *
13. Public Comments. * (Three-minute time limit per person.)
14. Adjournment.

*Indicates a non-action item

**NORTHERN NEVADA WATER PLANNING COMMISSION
MINUTES**

Wednesday, August 1, 2012

The regular meeting of the Northern Nevada Water Planning Commission (“NNWPC”) was held on Wednesday, August 1, 2012 in the Washoe County Commission Chambers, 1001 East Ninth Street, Reno, Nevada.

- 1. Roll Call and determination of presence of a quorum** – Chairman Hazelwood called the meeting to order at 1:30 p.m. There was a quorum present.

Voting Members Present:

Mickey Hazelwood, Chairman
John Buzzone, Vice Chairman
George W. Ball, Jr.
John Erwin
John Flansberg
John Jackson
Darrin Price
Jerry Schumacher
Stan Shumaker

Voting Members Absent:

Michael DeMartini
Neil Krutz

Non-Voting Members Present:

Harry Fahnestock

Non-Voting Members Absent:

John Bird
David Boland
Kelvin Hickenbottom
My-Linh Nguyen
Edmund Quaglieri

Staff Members Present:

Jim Smitherman
Chris Wessel
June Davis
John Rhodes, Legal Counsel (arrived at 1:37 p.m.)

2. Public Comments.

Chairman Hazelwood called for public comments and hearing none, closed the public comment period.

3. Approval of the agenda.

Commissioner Flansberg made a motion to approve the August 1 meeting agenda as posted. Commissioner Ball seconded the motion, which carried unanimously.

4. Approval of minutes from the June 6, 2012 meeting.

Commissioner Flansberg made a motion to approve the minutes as submitted. Commissioner Shumaker seconded the motion, which carried unanimously.

5. Report on the Washoe County Community Services Department, Rosemary Menard, Acting Director.

Chairman Hazelwood invited Rosemary Menard to present this item. Ms. Menard stated that the Community Services Department (CSD)'s goals are to make the community safer, more economically viable, environmentally sustainable, and to support a great quality of life for Washoe County residents. She provided a PowerPoint presentation showing the actual employees doing their jobs, such as road maintenance, snow removal, water planning, emergency response, building inspections, and many other duties.

Ms. Menard reported that the CSD is responsible for mandated, as well as non-mandated services. Parks and recreational events, as well as vehicles and maintenance are covered by the CSD. She reported that the County has seen a 45% reduction in staff over the last 5 years. She reviewed some of the increased duties and responsibilities for full-time employees. She summarized that big changes have occurred, which resulted in the formation of the CSD. She added that an organizational leadership team was formed, which includes leaders from each of the five departments that were combined.

Ms. Menard stated that the CSD was formed in January 2012 and other community's organizational structures were reviewed for ideas. She added that a new organizational model was formed and presented to the Board of County Commissioners. She explained that the model includes planning/development, operations and engineering/capital projects with an internal financial and administration team.

Chairman Hazelwood thanked Ms. Menard for her report.

6. Report on the Truckee River Flood Management Project, Jay Aldean, P.E., Executive Director, Truckee River Flood Management Authority (TRFMA).*

Jay Aldean, Executive Director of the TRFMA provided a PowerPoint presentation update of the Flood Project (copy of presentation on file). The highlights of the presentation included:

- Four Critical Processes
 - Rate Process
 - Public Outreach Effort
 - Engineering & Environmental Impact Statement development for a Revised Locally Preferred Plan (LPP)
 - Project Authorization Process - the Corps (U.S. Army Corps of Engineers)
- Based on Corps recommendations and local costs, the project to move forward will be the 100 year – Revised LPP. Mr. Aldean reported that the objectives of the project are as follows:
 - Provide 100-year Protection
 - Benefit/Cost ratio > 1 (by Corps' Method)
 - Affordable
 - Meets Local Flood Protection Goals
 - Could be Built either by:
 - Corps
 - Locals
- Paths to Construction would be:
 - Congress Authorizes Revised LPP
 - Move Forward on Corps Path
- Congress Authorizes the 50-year Plan
 - Decide to Continue with Corps, or
 - Decide to Build Project Locally
- Current Funding Sources

- Supported by the 1/8-cent sales tax
- Funds dedicated to the Completion of the Following Projects:
 - Regional Public Safety Training Center
 - Emergency Operations Center
 - Truckee River Flood Project – (In progress)
- Rate Making Process
 - Complete Local Rate Plan & Study
 - Public Input Process for Rates
 - FMA Board of Directors Approval of Rates
 - Judicial Review & Confirmation

Mr. Aldean added that the Tracy Restoration Project is moving forward. He commended The Nature Conservancy and NV Energy for their assistance in the project.

Mr. Aldean summarized that TRFMA staff is in the process of developing an approximate \$550 million plan. The plan will be studied to determine the rate amount needed. He reported that a couple of weeks ago, the Corps began working on the revised LPP. A determination will be made as to whether or not to continue working with the Corps in moving forward. He added that the Corps recently appointed their best staff to work on the Flood Project.

Mr. Aldean welcomed questions or comments.

Mr. Smitherman asked for clarification that flood rates will be needed whether or not the Corps is involved in the project. Mr. Aldean stated that is correct. Mr. Smitherman asked if TRFMA staff has developed a boundary of benefit areas, on which to base rates. Mr. Aldean stated that it would depend on which project is built; one would be a direct benefit area; and one a regional benefit area. He added that the proposed rate would most likely be paid by all Washoe County residents (including Incline Village) that are tributary to the Truckee River; the North Valleys would not pay because they are not tributary to the river.

Commissioner Erwin mentioned that maps are available of the employment area densities, which could be used in determining the benefit areas. Mr. Aldean stated that in general terms, the direct benefit area would be based on the area of homes or businesses that flooded in the 1997 flood that would no longer flood based on construction of the Flood Project.

Commissioner Shumaker asked if the Corps were to proceed on its own for the next 18 months if it would result in 50-year flood protection (even for a facility such as the airport). Mr. Aldean stated that is correct. He added that the Corps has granted waivers in the past, such as an urban area waiver, which allows for less than 100-year protection. Mr. Aldean added that based on the need for more than 50-year protection, the revised LPP was developed. He stated that the Corps is not negotiating; however, Senator Reid has been very helpful in trying to keep the project moving forward.

Chairman Hazelwood thanked Mr. Aldean for his update.

7. Report on the Truckee Meadows Regional Planning Agency's ("TMRPA") parcel-based population and employment modeling program, and possible direction to staff, Jim Smitherman, NNWPC staff, Kim Robinson, TMRPA Interim Director, Sienna Reid, TMRPA Senior Planner, Jeremy Smith, TMRPA GIS Planning Analyst II. (for possible action)

Mr. Smitherman reported that he has been working with TMRPA staff for about a year on the modeling program. He stated that although he has provided updates to the NNWPC, it is time to hear an update

from TMRPA staff. He stated that work is still needed on the wastewater related, collection system capacity and treatment and disposal maps. He explained that additional work with the service providers is needed. He turned the presentation over to Jeremy Smith.

Mr. Smith reported that he is the geographic information system (GIS) Planning Analyst for TMRPA. He reported that his main focus has been the population and employment projections for the Regional Transportation Commission to use in their update to the Regional Transportation Plan. He referred to a PowerPoint presentation (copy on file). He reported that staff spent considerable time negotiating three sets of zoning ordinances, descriptions per jurisdiction, and other categories.

Mr. Smith provided an overview of the work that has been done. He stated that the (20-year) Washoe County Consensus Forecast was used to bracket staff's projections. Some of the highlights of the presentation include:

- Population in 2032 is projected at 560,000 people in Washoe County, an increase of approximately 135,000
- In 2032, jobs are projected at 361,000, an increase of approximately 88,000
- TMRPA staff used spatially-enabled suitability factors to determine where the employment would likely occur, based on distance to major roads, school desirability, whether or not parcels are vacant or built, water and wastewater, and many other factors.
- The suitability factors were weighted by the jurisdictions, and used to predict what will be built out annually at the parcel level. That information is then used to aggregate to the traffic analysis zone (TAZ), which is input into the transportation demand model.

Mr. Smith summarized that the model results are looking good and staff continues to make improvements. He added that staff is working with Mr. Smitherman on the water and wastewater suitability factors, which will be very useful in scenario planning. Mr. Smith turned over the discussion to Sienna Reid, Senior Planner.

Ms. Reid stated that staff is working on an industrial land needs analysis. She stated that the goal is to have long-range land use planning, transportation planning and water resource planning in conjunction with the economic development efforts. She added that the plan is to first analyze the current supply for existing industrial buildings and vacant industrial lands, followed by determination of the physical and resource needs. Lastly, staff will assess the current supply and determine whether it is sufficient to meet the projected future demand. At that point, infrastructure and water resource impacts will be analyzed based on any increase in demand. She stated that ultimately, the industrial land use analysis results will be incorporated back into the population and employment model.

Ms. Reid summarized that in the end the model will be better and will benefit transportation, land use and water resource planning. She added that it would also provide guidance around future policy changes. She invited questions.

Commissioner Flansberg asked if stormwater impacts are being considered in relation to flooding and other water quality issues. Ms. Reid stated that TMRPA staff is working closely with Mr. Smitherman on preparation of a request for qualifications (RFQ) for a firm to assist on water resource components, such as stormwater, effluent use, and others.

Commissioner Shumaker asked if consideration is being given to the Flood Project and its effects (based on whether or not it is built). He mentioned that for instance, North Valleys might be attractive for industrial development. Ms. Reid stated that staff does plan to examine that issue and added that TMRPA

has GIS layers of the 1997 flood and the 100-year floodplain. She added that staff would rely on the selected consultant to advise on different scenarios. She stated that the model does include development-constrained areas as a suitability factor. Mr. Smith agreed and added that the GIS flood layers are considered as a suitability factor on the employment side.

Commissioner Erwin asked if there are currently any binding constraints to meet the projected populations. Mr. Smith stated there are not from the land use perspective based on current zoning.

Chairman Hazelwood and members thanked TMRPA staff for the update.

8. Report on the June 28, 2012 meeting of the Legislative Committee to Oversee the Western Regional Water Commission, Jim Smitherman, NNWPC Water Resources Program Manager.

Mr. Smitherman reported that the Legislative Committee to Oversee the Western Regional Water Commission (WRWC) met on June 28, 2012 in their final meeting of the 2011-2012 interim. The Committee heard status reports on the following:

- Consolidation of Washoe County's Water Utility with TMWA
 - Washoe County Groundwater Management Issues and Mt. Rose-Galena Fan Domestic Well Mitigation Program
 - Truckee River Water Supply
 - Truckee River Flood Management Authority's Five-Year Plan and Timeline
- The final agenda item was to discuss a Possible Bill Draft to Continue the Legislative Committee to Oversee the WRWC (LOC)

Mr. Smitherman stated that the Committee unanimously approved a motion to direct staff to prepare a Bill Draft Request (BDR) to extend the life of the Committee, to expand its purview to cover the entire state of Nevada to study water issues. The BDR is number BDR-144. He offered to continue to provide updates as appropriate.

Commissioner Ball asked if the requested BDR makes the LOC responsible for what is already being done by the State of Nevada's Department of Conservation and Natural Resources. Mr. Smitherman stated that comment was raised at the meeting; however, no one was present from the Division of Water Resources. He added that he assumes that issue will be addressed when the BDR surfaces during the session.

Commissioner Schumacher referred to the consolidation item and asked if there was any indication of the timeframe. Mr. Smitherman stated that some things still need to occur but it seemed that the timeframe of roughly a year would be the earliest.

9. Report on the July 10, 2012, meeting of the South Truckee Meadows General Improvement District ("STMGID") Board of Trustees, Jim Smitherman.

Mr. Smitherman reported that the NNWPC asked for an update on STMGID relating to the possible consolidation/merger into the County or not going in that direction. He stated that he monitored the July 10, 2012 STMGID Board of Trustees (BOT) meeting and summarized the agenda items. He reported that the STMGID Local Managing Board (LMB) is examining the feasibility of becoming a stand-alone water utility. At the meeting, the BOT granted authority to hire legal and professional services necessary to develop a feasibility plan, which is to be presented to the BOT in November 2012. He stated that Commissioner Schumacher is the Vice-Chairman of the STMGID LMB and turned the discussion over to him.

Commissioner Schumacher stated that prior to the July STMGID meeting, a meeting was held on June 26, 2012 to begin the discussion of dissolving the STMGID and merging into DWR/TMWA. He stated that hundreds of people attended and expressed their desire to not merge. He reported that since that time, consulting professionals have been brought onboard to assist with engineering, finance, mitigation and other issues. He stated that Gray and Associates was hired as the Project Manager, which is coordinating with others to complete the feasibility report by November 13, 2012.

Commissioner Schumacher offered to provide an update to the NNWPC at the December meeting.

10. Program Manager's Report, Jim Smitherman.

a. Status Report of Projects and Work Plan Supported by the Regional Water Management Fund

b. Financial Report on the Regional Water Management Fund

Mr. Smitherman reported that the items included in the agenda packet are provided as informational items. He invited any questions or comments, of which there were none.

11. Discussion regarding possible agenda items for the September 5, 2012, NNWPC meeting, and other future meetings, and possible direction to staff, Jim Smitherman.

Mr. Smitherman reported that there are a number of upcoming agenda items; however, none will be ready for presentation in September. He stated that if desired by the NNWPC, the meeting could be cancelled. Commissioner Price mentioned that the meeting would occur the same week as Labor Day so there could be quorum issues.

Commissioner Erwin made a motion to cancel the September NNWPC meeting. Commissioner Flansberg seconded the motion, which carried unanimously.

12. Commission Comments.

Commissioner Shumaker mentioned that Mahmood Azad recently passed away. He stated that Mr. Azad was an individual that contributed a lot to the community and always brought science to the questions of environmental protection or water quality issues. He summarized that Mr. Azad's legacy was to address the issues with facts and science.

13. Staff Comments.

None

14. Public Comments.

Chairman Hazelwood called for public comments and hearing none, closed the public comment period.

15. Adjournment.

With no further business, the meeting was adjourned at 2:50 p.m.

Respectfully submitted by,

Niki Linn, Recording Secretary

Approved by Commission in session on _____ 2012.

Mickey Hazelwood, Chairman

Northern Nevada Water Planning Commission

STAFF REPORT

DATE: September 24, 2012

TO: Chairman and Members, Northern Nevada Water Planning Commission

FROM: Jim Smitherman, Water Resources Program Manager

SUBJECT: Report by the Desert Research Institute ("DRI") on its Cloud Seeding Operations for the Truckee River and Lake Tahoe Basins for the past water year, and status of its Cloud Seeding Coalition efforts; discussion and possible recommendation to the Western Regional Water Commission for funding in an amount not to exceed \$100,000 from the Regional Water Management Fund ("RWMF") to support similar Cloud Seeding Operations for the upcoming water year

SUMMARY

Beginning in 2009, the RWMF has helped pay for cloud seeding operations conducted by DRI during water years 2009-2010, 2010-2011 and 2011-2012. DRI is again seeking funds from the RWMF to continue cloud seeding operations for the Truckee River and Lake Tahoe Basins during water year 2012-2013. DRI staff has provided a Proposal and Scope of Work (attached), and will provide a presentation about the program.

The cloud seeding budget for the 2012-2013 water year is \$275,000. The WRWC budget for FY 2012-2013 includes \$100,000 for the cloud seeding program. Earlier this year, the Truckee Meadows Water Authority ("TMWA") awarded \$175,000 to DRI for the proposed project, having been made aware of the WRWC budget amount.

BACKGROUND

Wintertime cloud seeding is focused on enhancing snowfall in mountainous regions to increase the snowpack, resulting in more spring runoff and water supplies in the surrounding areas. The DRI cloud seeding program has been in operation for more than 25 years. DRI estimates that, for the Truckee River Basin, cloud-seeding has boosted water in the snowpack by an average of 18,000 acre-feet a year over the last 10 years.

DRI funding cuts four years ago threatened to eliminate its cloud seeding operations such that outside financing was necessary to continue the program. In response, DRI applied to the Truckee River Fund ("TRF") in 2009 to support the operation of five cloud-seeding generators in the Sierra Nevada Mountain Range. DRI received approval for partial funding from the TRF and the RWMF for the 2009-2010 water year. DRI applied for and received funding from the TRF and the RWMF the next two years.

DRI has convened a cloud seeding program advisory board for the purpose of developing long-term funding alternatives involving entities that benefit from the program.

PREVIOUS ACTION

On December 7, 2011, the NNWPC approved a recommendation to the WRWC for an amount not to exceed \$100,000 from the RWMF for the 2012 cloud seeding program.

FISCAL IMPACT

The fiscal impact to the RWMF, should this item be approved, will be \$100,000. Budget authority is located in Fund Group 766, Fund 7066, Account Number 710100, Professional Services, Cost Object WP310100.

RECOMMENDATION

Staff recommends that the NNWPC consider the proposal from DRI and provide a recommendation to the WRWC regarding the 2013 funding request and/or future activity concerning the cloud seeding program.

JS:jd

Attachment: Proposal and Scope of Work



Proposal and Scope of Work

Cloud Seeding Project for the Tahoe and Truckee Basins for WY2013

Submitted to

**Mr. Jim Smitherman
Water Resources Program Manager
Western Regional Water Commission
4930 Energy Way
Reno, NV 89502**

By

**Desert Research Institute
2215 Raggio Parkway
Reno, NV 89511**

**Project Contact: Dr. Mark Green
Research Professor
775-674-7118
Mark.Green@dri.edu**

Introduction

The goal of this project is to enhance snowfall from winter storms and to increase the snowpack of the Tahoe and Truckee Basins through the application of wintertime cloud seeding technology. Cloud seeding will be conducted from 5-ground based generators for the winter 2012-2013 period at a cost of \$275,000. The cost will be shared by the Truckee Meadows Water Authority (\$175,000) and the Western Regional Water Commission (\$100,000). The enhanced snowfall from cloud seeding is expected to enhance the water supply of the Truckee River System. In spite of a well below normal snowpack for the 2012 water year the Lake Tahoe Water Level of 6226.4' on September 1, 2012 was above normal due to well above normal snowpack during WY2011. A continuation of the cloud seeding effort will help maintain ample water storage for the entire Truckee River system, a situation that is of benefit now and in the future when snowfall is again below normal. Results from carefully conducted experiments in the Sierra Nevada and other mountainous regions in the western U. S. have shown that snowfall can be increased by 5-15% annually in the specific basins targeted by cloud seeding operations. Past environmental assessments have all indicated that no negative impacts to watersheds are produced by cloud seeding operations.

The primary measureable outcome of the project will be an estimate of the enhancement in snow water computed for each seeded storm period, and for the entire winter season, based on the hours of seeding, the amount of seeding material released, the expected increase in precipitation rate, and the average areal coverage of the fallout from each seeding site. Historical research results from ground-based cloud seeding projects have documented the hourly increases in precipitation rate due to seeding to be in the range of a few hundredths to greater than 2 mm per hour. As a conservative estimate of the effect for the Tahoe-Truckee project a value of 0.25 mm per hour will be used in the enhancement estimates. Prior estimates from the DRI state program yielded snow water increases ranging from 8,000 to 30,000 acre-feet, an annual average of about 14,642 acre-feet over the past 15 seasons. The TRF-sponsored project in WY2011 resulted in an estimated snow water increase of 21,600 acre-feet, about 147% of the past 15 year annual average.

Project location

The WY2012 proposal focuses on a cloud seeding effort for the Tahoe Basin and the Truckee River Basin where DRI conducted seeding for the state of Nevada for more than 25 years. Figure 1 shows the location of the project. The red-shaded region approximately encloses the cloud seeding target area for the two basins. The DRI ground-based cloud seeding generator (CSG) sites used in WY2012 are shown as yellow squares. Trace chemical analyses of snow samples from the northern Carson Range in 2004 and 2005 showed that 34-52% of the samples contained enhanced concentrations of silver (Huggins et al, 2006), indicative of snow frequently being created by cloud seeding with AgI.

Project description

Although the project is being funded by two separate sponsors the work in each phase is the

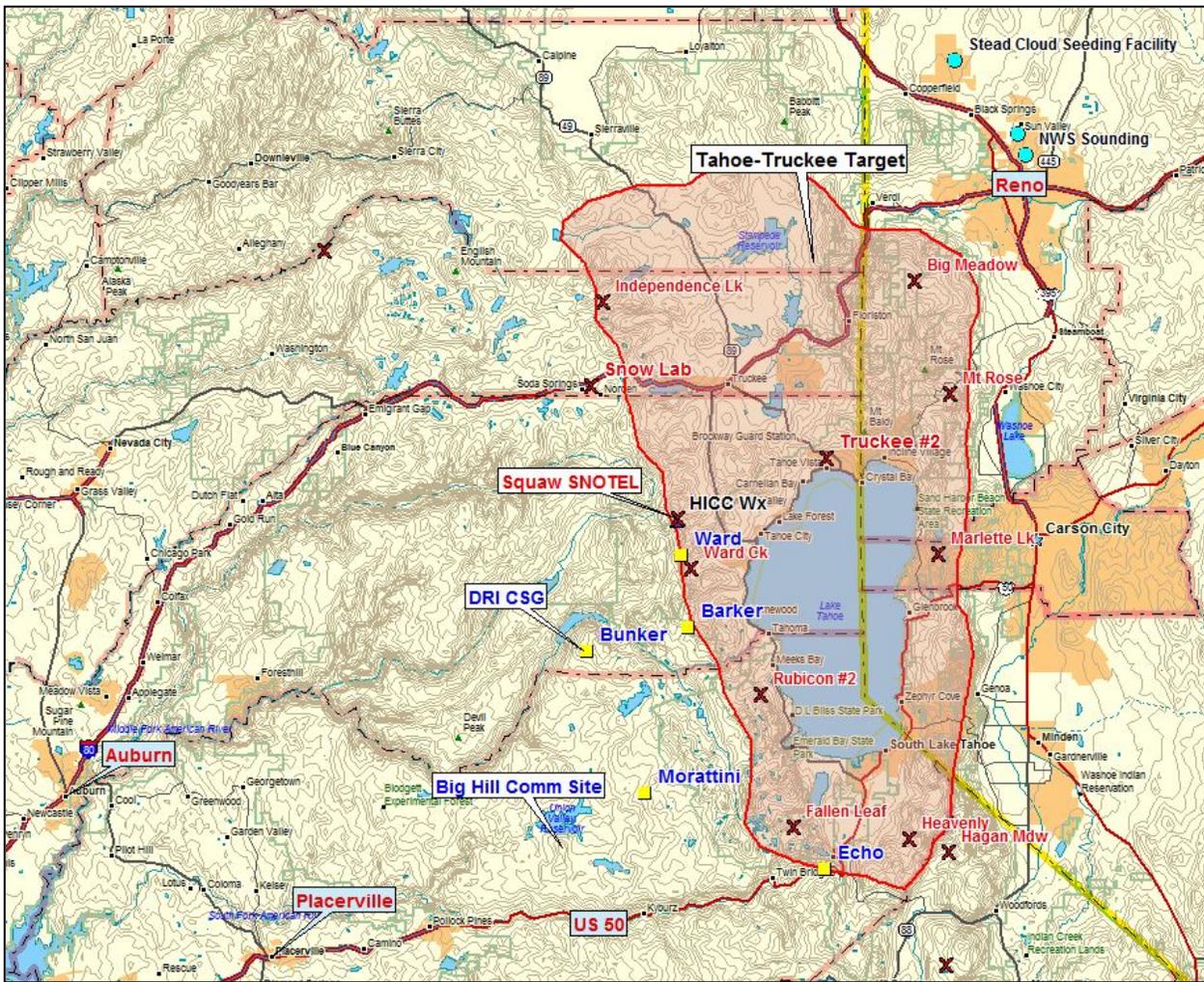


Figure 1. Map showing the Tahoe-Truckee cloud seeding target area (red shading) and instrument sites in and around the target area. NRCS SNOTEL sites, which measure precipitation and snow water equivalent (SWE) are indicated by red Xs. Ground seeding sites are shown as yellow squares. Reno facilities are shown in the upper right as cyan-colored circles.

same. The project budget indicates how the funding will be partitioned between the Truckee Meadows Water Authority (TMWA) and the Western Regional Water Commission (WRWC).

The project design and method of operation will be the same as those used for the project conducted in WY2012. Seeding will be conducted from a line of five ground-based CSGs positioned on, or a few miles upwind of, the main Sierra Nevada crest to the west of Lake Tahoe (Fig. 1). The generators have been positioned to take advantage of the generally southwest wind directions in winter storms in the Tahoe area, and are remotely activated by DRI staff when the proper weather and cloud conditions for seeding have been verified.

Ground-based cloud seeding is based on the following sequence of events. The seeding material is silver iodide (AgI). The seeding “generators” burn a solution containing AgI dissolved in acetone. The burning process produces a “smoke” of microscopic AgI particles (about 0.0001 mm is size) that are transported downwind and dispersed into clouds over the mountains. Vertical dispersion up to at least 2000 feet above the surface is produced by the

turbulence created by wind moving over the uneven terrain. In the presence of cloud droplets existing at temperatures below -5°C the silver iodide particles act as ice-forming nuclei and enhance the ice particle concentration in the natural clouds. Once initiated by silver iodide the ice particles grow in size and mass as they move downwind and begin falling to the surface when they have sufficient mass to overcome the upward motion in the clouds. In the time frame of 20 to 30 minutes snowfall within a seeding plume can reach the surface in and around the Tahoe Basin. This “chain-of-events” in the cloud seeding process has been verified by numerous detailed experiments conducted in the Sierra Nevada and other mountainous regions of the western U.S. (Huggins, 2009).

Modeling in support of cloud seeding operations

Output from high-resolution meteorological modeling will be used to generate forecast trajectories for silver iodide released at the generator locations. This will aid in determining whether conditions are suitable for seeding operations. By considering the transport conditions affecting each generator separately, it will help in deciding when to turn on or off individual generators. Precipitation start and stop times from modeling results can also help in determining the initial timeout setting for the generators. This is the time set for the generators to shut down in the absence of additional operator instructions and is useful for middle of the night operations and for periods, often during storms, when communications with the generators may be interrupted.

Phase 1 of the project will include preparation of the five seeding generators at the locations shown in Fig. 1. This will require several weeks. The Barker generator which is always removed in the spring will be reinstalled. Phase 1 also includes refilling the seeding solution tanks, refilling propane tanks, and testing all generator components and communications links. Generators will be filled with a minimum of 100 gallons of solution, which allows for about 250 hours of seeding per unit, or 1250 hours of seeding per season.

The meteorological forecasts and observations needed to conduct the project are available either through the DRI Western Regional Climate Center or through public web-based weather data links. These data links are combined in a special cloud seeding weather web page (<http://www.dri.edu/weather-information>) that will be revised as needed for the 2012-13 season. The DRI cloud seeding web page was redesigned in 2010 to focus on several Nevada projects including the Tahoe-Truckee project. Water year snow conditions and the progress of seeding operations for the Tahoe area can also be monitored throughout the winter at the following site: <http://www.dri.edu/current-operations>.

All operational guidelines, safety restrictions and suspension criteria for the project have previously been developed and can also be found on the DRI cloud seeding web site at: <http://cloudseeding.dri.edu/>. These guidelines specify the cloud conditions, wind and temperature conditions in which a seeding operation can be initiated, and also specify certain hazardous weather conditions (such as potential flooding situations) during which no seeding can be done.

Phase 2 of the project will involve the actual cloud seeding operations, beginning on or somewhat before 15 November 2012. In Phase 2 the project manager will begin monitoring the weather and making forecasts for seeding events to be expected within three to five days. A second DRI meteorologist will assist the project manager to ensure that 24/7 operations can be conducted. As a storm begins to affect the Tahoe region cloud and weather conditions will be monitored more frequently to determine when seeding criteria are satisfied. When one of the meteorologists determines that conditions for conducting a seeding operation are satisfied, seeding will commence using the remotely controlled CSG communication network. The Tahoe communication links are internet-based and a generator can be started from any computer with internet access. Seeding commences when all pre-established seeding criteria are met, and continues until conditions in the storm fail to meet the criteria. Based on prior experience in the Tahoe region, 15 to 30+ seeding events can be expected during the period from mid-November through mid-April, the 5-month period proposed for Phase 2 of this project. In WY2012 there were a total of 29 separate seeding events. The end date for Phase 2 could occur sooner if generators run out of solution or other expendable supplies. The DRI technical staff will monitor and maintain seeding generators throughout the operational period.

Phase 3 of the project will begin on about 1 May and includes the documentation of weather events to verify that seeding occurred during optimal time periods. Each period will be evaluated and a seedability factor will be applied to quantify the fraction of time when seeding was potentially effective. The estimates of snow water enhancement will be made and adjusted by the seedability factor. A report on project operations, including the measureable outcome, will be completed during Phase 3. In addition two to three case studies will be included to document the performance of the high-resolution meteorological model. Phase 3 also includes the removal of seeding units as dictated by some of the Forest Service special use permits. Removal of generators is only possible after snow has melted and the roads to the sites become useable. In some years this can be mid- to late July (as occurred in 2011). Phase 3 will be extended to 30 September 2013 to allow time for all generators to be checked for problems, and repaired as needed either in the field or at the Stead, Nevada Cloud Seeding Facility. Based on the amount of expendable supplies used during the season, a new order for cloud seeding chemicals will be placed to prepare for operations in WY2014.

Principals involved

The project will be managed by faculty in the Division of Atmospheric Sciences at DRI. Program continuity will be assured with the part-time support by Mr. Arlen Huggins, who is phasing in his retirement over the next year. Mr. Huggins has managed the Nevada Program for 13 years and has worked in the field of weather modification research and operations for more than 30 years. A transition team consisting of Dr. Mark Green and Dr. David Mitchell has been working with Mr. Huggins over the past year, assuming operational aspects of the program, and will continue to support the program during water year 2013 with guidance provided by Mr. Huggins. Dr. John Mejia will provide modeling support to aid in determining optimal seeding

times. Field operations and maintenance support will be provided by three technicians that are jointly supported by this and other DRI cloud seeding projects.

Schedule

Start Phase 1: 1 Oct 2012, or as soon as a contract with TMWA is signed. Delay could preclude some equipment installations due to early snowfall making roads impassable.

End Phase 1: 1-15 Nov 2012. All seeding generators are installed, tested and ready for use. Bad weather could produce delays, but testing and other work can be done if units have been installed. All web-based computer products are prepared for use in Phase 2.

Start Phase 2: 15 Nov 2012. Cloud seeding occurs as storm conditions dictate. Cloud seeding equipment is monitored and maintained as needed. A log of seeding operations is maintained and the weather data needed to assess operations are archived. The cloud seeding update page is revised on a weekly basis.

End Phase 2: 15 April 2013. This is the approximate end of the operational cloud seeding period.

Start Phase 3: 1 May 2013. Weather data are analyzed to assess the seeding operations. Estimates of water augmentation from seeding operations are made. A report on operations is completed by 10 July 2013.

End Phase 3: 30 Sept 2013. All seeding equipment has been checked and repaired as needed. The Final Report is submitted in the latter part of September 2013.

Budget discussion:

The budget for WY2013 is \$275,000. The details of the budget are presented in the spreadsheet on the following page. As indicated the costs for the WY2013 project are split between TMWA (\$175,000) and the Western Regional Water Commission (\$100,000).

Desert Research Institute							
Title: Cloud seeding project for Tahoe and Truckee Basins for WY2013							
Sponsors: Truckee Meadows Water Authority and Western Regional Water Commission							
		TWMA Budget		WRWC Budget		Total Project Budget	
		Rate	Units	Amount	Units	Amount	Amount
Labor							
	Huggins, A.	\$126.81	82	\$10,398	82.00	\$10,398	\$20,796
	Green, M.	\$189.94	106	\$20,134	184.00	\$34,949	\$55,083
	Mitchell, D.	\$154.25	70	\$10,798	120.00	\$18,510	\$29,308
	Mejia, J.	\$106.57	60	\$6,394	100.00	\$10,657	\$17,051
	Swafford, T.	\$108.54	315	\$34,189	100.00	\$10,854	\$45,043
	Dean, J.	\$83.89	350	\$29,363	100.00	\$8,389	\$37,752
	Orr, J.	\$53.49	350	\$18,721	100.00	\$5,349	\$24,070
Total Labor				\$129,997		\$99,106	\$229,103
Operating Costs							
	DRI 4x4 vehicle expenses (per day)	\$90	50	\$4,500		\$0	\$4,500
	Cloud Seeding Solution (100 gallons)	\$5,800	5	\$29,000		\$0	\$29,000
	Propane and nitrogen	\$940	5	\$4,700		\$0	\$4,700
	ATT - Verizon data lines	\$35	36	\$1,260		\$0	\$1,260
	Generator Parts	\$500	5	\$2,500		\$0	\$2,500
	Snowmobile expenses	\$300	2	\$600		\$0	\$600
	Shop equipment expenses	\$1,450	1	\$1,450		\$0	\$1,450
Total Operating Costs				\$44,010		\$0	\$44,010
Other Direct Costs							
	General supplies			\$800		\$500	\$1,300
	Copying/Communications			\$192		\$393	\$585
Total Other Direct Costs				\$992		\$893	\$1,885
TOTAL COST				\$174,999		\$99,999	\$274,998

Northern Nevada Water Planning Commission

STAFF REPORT

DATE: September 27, 2012

TO: Chairman and Members, Northern Nevada Water Planning Commission

FROM: Chris Wessel, Water Management Planner
Jim Smitherman, Water Resources Program Manager

SUBJECT: Report on the Septic Systems Alternative Study relative to regional groundwater quality and quantity issues, including nitrate concentrations related to septic tanks.

SUMMARY

The Northern Nevada Water Planning Commission (NNWPC) approved a study to evaluate strategies and alternatives for managing areas of historic high density septic system clusters which have been identified in Truckee Meadows area. The study is being conducted by the team of AMEC/Lombardo & Associates and culminates in a report consisting of five task reports and an executive summary. Staff will present the outlines of the five task reports with a brief summary of key points. Staff anticipates that the final draft will be available for review by early October, 2012.

BACKGROUND

The proposed project involves research to identify and summarize various ways in which communities elsewhere in the United States have developed management or mitigation solutions to septic system pollution of groundwater. At present, the only solution employed locally to solve septic system groundwater contamination problems has been conversion of septic systems to sanitary sewer, which, while effective, is extremely costly.

This study has taken an in-depth look at the various issues relevant to alternatives for dealing with high density septic system impacts. The report is broken down into five task reports which cover *project background, technologies, financing, management* and *case studies*. The outlines for the five task reports as follows:

Task 1 - Report Study Area Background

- Summary of existing reports and problem definition

Task 2 Report - Nitrogen Removal Alternatives

- Overview of nitrogen removal alternatives
- Nitrogen Sources, Separation & Wastewater Treatment Techniques
- Overview of Individual Onsite Treatment and Dispersal Systems
- Cluster Wastewater Collection, Treatment and Dispersal Systems
- Connection to Existing Centralized Treatment Facility
- In-Situ Groundwater Treatment
- Ex-Situ Groundwater Treatment

Task 3 Report - Financing Alternatives

- Program Financing
- Fee collection mechanisms
- Pro forma & sustainability analysis
- Start – Up – Initial Capitalization Option

Task 4 Report – Institutional and Management Alternatives

- Responsibilities & service levels
- Local wastewater Management options
- Management model cost Analysis
- Evaluation of management options

Task 5 Report Case Studies

- Overview of Communities Addressing Septic Nitrogen
- Case study – Fairfax County, Virginia
- Case study – Suffolk County Long Island, New York
- Case study – La Pine, Oregon
- Case study – Peña Blanca, New Mexico
- Case study – Phelps County Missouri

CW:jd

Attachment

Northern Nevada Water Planning Commission

STAFF REPORT

DATE: September 25, 2012

TO: Chairman and Members, Northern Nevada Water Planning Commission

FROM: Jim Smitherman, Water Resources Program Manager

SUBJECT: Report on Truckee Meadows Regional Planning Agency's ("TMRPA") Parcel-based Population and Employment Modeling Program and possible direction to staff.

SUMMARY

On July 24, 2012, the NNWPC received a status report on TMRPA's Parcel-based Population and Employment Modeling program from TMRPA staff. The presentation included GIS map images of modeling results transferred from TMRPA to the Regional Transportation Commission (RTC) for regional transportation planning purposes and a description of an analysis of industrial land, which is presently underway.

The scope of work in the Interlocal Agreement between the RPGB and the Western Regional Water Commission ("WRWC") is divided into two phases, Phase One provided for development of core land use data sets and the completion of the population and employment model. These tasks are essentially finished, although some data sets need to be developed or refined before full implementation of Phase Two.

Next steps:

- Compile and evaluate available storm water drainage infrastructure GIS data.
- Refine water suitability factors, focusing on costs to address sewer collection system capacity needs and projected effluent disposal shortages.
- Develop an industrial land needs analysis focused on target industries identified in the Economic Development Authority of Western Nevada's Strategic Plan. Criteria pertinent to the WRWC's mission include infrastructure and water resource needs of the target industry sectors.
- Retain professional services for Phase Two regional scenario planning, including development of a regional scenario planning program and outreach to regional stakeholders to engage in the program. Phase Two is planned to commence in early 2013, after the industrial land analysis project is finished.

BACKGROUND

On March 11, 2011, the WRWC entered into an Interlocal Agreement with the Truckee Meadows Regional Planning Governing Board to help fund the development of regional data to enhance the ongoing TMRPA Population and Employment Modeling program. The

agreement commits up to \$486,000 from the Regional Water Management Fund (“RWMF”) and up to \$224,000 in in-kind services, (i.e. NNWPC staff time) over fiscal years 2010-11, 2011-12 and 2012-13. Billings to date total \$129,545, against the RWMF budget, leaving a \$356,454 balance.

JS:jd

Northern Nevada Water Planning Commission

DATE: September 25, 2012
TO: Chairman and Members, Northern Nevada Water Planning Commission
FROM: Jim Smitherman, Water Resources Program Manager
John Rhodes, Legal Counsel
SUBJECT: Report on legislative activities, including Bills Draft Requests for the 2013 session of the Nevada Legislature that may affect the Western Regional Water Commission (“WRWC”) / Northern Nevada Water Planning Commission (“NWPC”)

The following staff report lists Bill Draft Requests for the 2013 session of the Nevada Legislature, as of September 25, 2012, which may affect or are of interest to the WRWC and NNWPC.

Bills Introduced

49 Assemblyman Hickey

Revises provisions governing the applicability of the Open Meeting Law to the Legislature (3/26/12)

126 Assemblywoman Carlton

Revises provisions relating to wastewater (6/27/12)

17--144 Legislative committee to Oversee the Western Regional Water commission (SB 487,2007)

Provides for an ongoing study of water issues in Nevada (6/28/12)

159 Assemblyman Hansen

Requires contact information for members of state and local committees to be provided to the public upon request (7/25/12)

185 Assembly Atkinson

Revises provisions governing public records (8/17/12)

193 Assemblyman Kirner

Revises provisions governing the Public Employees' Retirement System (8/21/12)

402 Attorney General

Makes various changes to the Open Meeting Law (8/31/12)

439 Assemblywoman Carlton

Provides for the development of a statewide water plan (9/4/12)

442 Assembly Goicoechea

Makes appropriation to the Humboldt River Basin Water Authority for cloud seeding project (9/4/12)

445 Senator Parks

Revises provisions relating to ethics in government (9/4/12)

449 Senator Parks

Revises provisions relating to municipal utilities (9/4/12)

481 Senator Roberson

Provides for oversight and transparency of the Southern Nevada Water Authority (9/4/12)