

NORTHERN NEVADA WATER PLANNING COMMISSION AGENDA

Wednesday, April 3, 2013

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 (1675 East Prater Way), Sun Valley GID (5000 Sun Valley Blvd.), TMWA (1355 Capital Blvd.), Washoe County Administration Building (1001 E. 9th Street), Second Judicial District Court/Courthouse (75 Court Street), 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 March 6, 2013, meeting. **(For Possible Action)**
5. Selection of Chairman and Vice-Chairman for the term April 2013 to April 2014, and possible direction to staff. **(For Possible Action)**
6. Report on the study of Strategies for Management of High-Density Septic System Developments in Washoe County, and possible direction to staff - Chris Wessel, Northern Nevada Water Planning Commission ("NNWPC") Water Management Planner. **(For Possible Action)**
7. Report on the Bureau of Reclamation's Newlands Project Planning Study Draft Report – Harvey Edwards, Civil Engineer, United States Bureau of Reclamation. *

8. Report on the South Truckee Meadows General Improvement District (“STMGID”), issues arising from the pending consolidation of Washoe County's water utility with the Truckee Meadows Water Authority (“TMWA”), and possible consolidation of STMGID with TMWA - Jerry Schumacher, STMGID *
9. Report on legislative activities, including Bill Draft Requests and Bills pending in the 2013 session of the Nevada Legislature that may affect or are of interest to the Western Regional Water Commission / NNWPC - John Rhodes, NNWPC Legal Counsel. *
10. Report on the Truckee Meadows Regional Planning Agency (“TMRPA”) parcel-based population and employment modeling project and revised scope of work; and possible direction to staff - Jim Smitherman. **(for possible action)**
11. 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”)
 - d. List of agreements to be executed for continuation of services in Fiscal Year 2013 - 2014
12. Discussion regarding possible agenda items for the May 1, 2013, NNWPC meeting, and other future meetings, and possible direction to staff - Jim Smitherman. **(For Possible Action)**
13. Commission comments. *
14. Staff comments. *
15. Public Comments. * (Three-minute time limit per person.)
16. Adjournment.

*Indicates a non-action item

**NORTHERN NEVADA WATER PLANNING COMMISSION
MINUTES**

Wednesday, March 6, 2013

The regular meeting of the Northern Nevada Water Planning Commission (“NNWPC”) was held on Wednesday, March 6, 2013 in the Washoe County Commissioner Chambers, 1001 East Ninth Street, Reno, Nevada.

1. Roll Call and determination of presence of a quorum – In Chairman Hazelwood’s absence, Vice-Chairman Buzzzone called the meeting to order at 1:30 p.m. There was a quorum present.

Voting Members Present:

John Buzzzone, Vice Chairman
Michael DeMartini
Michael Drinkwater
John Erwin
John Flansberg
John Jackson
Neil Krutz (arrived at 1:40 p.m.)
Darrin Price
Jerry Schumacher

Voting Members Absent:

George W. Ball, Jr.
Mickey Hazelwood, Chairman

Non-Voting Members Present:

David Boland

Non-Voting Members Absent:

John Bird
Harry Fahnestock
Kelvin Hickenbottom
My-Linh Nguyen
Edmund Quaglieri

Staff Members Present:

Jim Smitherman
Chris Wessel
June Davis
John Rhodes, Legal Counsel

2. Public Comments.

Acting Chairman Buzzzone called for public comments.

Ginger Pierce from the “Pleasant Valley Area” stated she had four questions:

- Who is in charge of groundwater recharge?
- What review process is in place for groundwater recharge?
- Is there an analysis of impact on known recharge and what is being done?
- Since Mike Widmer retired last year, who has been keeping track of the rise and fall of the water levels in the private wells in the South Valleys area?

Acting Chairman Buzzzone stated that the Commission would take Ms. Pierce’s comments under advisement; however, no response can be made under this agenda item. He called for further public comments and hearing none, closed the public comment period.

3. Approval of the agenda.

Commissioner Erwin made a motion to approve the March 6, 2013 meeting agenda as posted. Commissioner Buzzone seconded the motion, which carried unanimously.

4. Approval of minutes from the February 6, 2013 meeting.

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

5. Report on the Truckee Meadows Water Authority (TMWA) 2011 and 2012 Water Usage Review Program; discussion and possible recommendation to the WRWC regarding a scope of work and funding request in the amount of \$131,116 from the RWMF for the 2013 and 2014 Water Usage Review Program, and possible direction to staff – Andy Gebhardt, TMWA.

Acting Chairman Buzzone invited Andy Gebhardt, TMWA, to present this item. Mr. Gebhardt thanked the Commission for prior funding and stated that this request is to continue to fund the program. He reported that the program helps customers to know and understand their water use.

Mr. Gebhardt stated that a brief background of the Water Usage Review Program was provided in the agenda packet and offered to provide a presentation if desired or answer questions.

Commissioner DeMartini asked how the requested funding amounts compare with previous years. Mr. Gebhardt stated that approximately \$63,000 was funded for each of the past two years.

Commissioner Price asked what follow up is done with the customer following the initial contact to ensure success. Mr. Gebhardt stated that customer bills decrease, which is the primary driver of the program. He reported that customers contact TMWA when their water bill is high and TMWA staff works with them to find the cause. He added that TMWA does not pro-actively follow up with customers. Commissioner Price asked if the customer bills are tracked to ensure they are decreasing. Mr. Gebhardt stated they are not; however, the water use inherently decreases if a leak is identified. He clarified that leaks or meter problems are tracked internally.

Commissioner Price asked how TMWA would fund the project if not by the Western Regional Water Commission (“WRWC”), i.e., would customers be charged. Mr. Gebhardt stated that is a possibility.

Commissioner Drinkwater asked if there is a threshold that must be met in order to receive an audit based on an average bill. Mr. Gebhardt stated that if a customer requests an audit, TMWA visits the customer and provides tips to save water.

Commissioner Price made a motion to recommend that the WRWC approve funding in the amount of \$65,558 for 2013 and \$65,558 for 2014. Commissioner Erwin seconded the motion, which carried unanimously. Commissioners thanked Mr. Gebhardt and TWMA for the great work.

6. Review draft tentative budget for fiscal year 2013 – 2014 and possible recommendation to the WRWC to approve budget, and possible direction to staff, Jim Smitherman, NNWPC Water Resources Program Manager. (for possible action)

Mr. Smitherman reported that staff developed a draft tentative budget for fiscal year 2013-2014 for review and possible recommendation to the WRWC. He stated that the budget sheets format follow those presented in the past. He reported that the beginning cash balance of \$3.8 million was taken from the end of the fiscal year 2012-2013 budget.

Mr. Smitherman stated that the fiscal year 2013-2014 draft tentative budget projects \$1,468,352 in revenue, \$3,675,932 in expenses, and an ending cash balance of approximately \$1,800,000. Budget expenses include a maximum of \$3,092,000 for WRWC work plan activities, \$480,932 for three full time staff and legal services, and various routine operating expenses in the amount of \$103,000.

Mr. Smitherman reported that the revenue from the 1.5% water surcharge has remained about the same as the past year, which is approximately \$1.3 million. He added that for this fiscal year we will probably spend approximately what we brought in.

Commissioner Price asked when the last time was that money was contributed to the reserve account or that the budget was balanced. Mr. Smitherman stated that in 2008 when the NNWPC began, there was a cash balance. He clarified that the allocated funds have not been spent for the past few years so the money was moved to cash reserves.

Mr. Smitherman mentioned that a few years ago, many commissions were worried that the legislature would take money not spent or encumbered. Commissioner Price stated that it never materialized and asked if a new policy is needed related to a mandatory reserve that must be maintained. Mr. Smitherman stated he believes that is a governance issue, not a staff decision.

Commissioner Price stated that he has a hard time approving a budget that is upside down where the expenditures triple the revenues, knowing that the cash budget could be spent fast.

Mr. Rhodes clarified that recently a Nevada Supreme Court case determined that the legislature could not sweep local funds to make up their shortfalls. He added that the funds set aside for water rights purchase are not required, but permissible.

Commissioner Price referred to the \$337,500 budgeted for each of four quarters and asked if we have an estimate for the entire purchase. Mr. Smitherman stated he did not have an estimate; however, the amount is probably in the tens of millions. He added that he has heard that the amount available from the WRWC would be used to cover filing fees, applications, etc. Commissioner Price asked about the timeframe for the purchase and whether it would be an annual expense.

Commissioner Erwin explained that the purchase is dependent on the date the Truckee River Operating Agreement ("TROA") goes into effect. He added that it (TROA effective date) is currently pending decisions from the Ninth Circuit Court and the Orr Ditch Court, as well as rulings from the State Engineer. He reported that last December there was a court order from California State Water Resources Board approving applications to move rights between the reservoirs and change the licensing. The decision was appealed by Truckee Carson Irrigation District ("TCID"), which was set aside. He summarized that TROA implementation is pending two big decisions and once those are satisfied, there could be other appeals. He stated that the process would probably take at least three to five years so we have ample time to satisfy the 6,700 acre-feet (af) of water rights requirement. He added that his understanding is that 3,300 af under the right-of-ways for Reno, Sparks and Washoe County have been identified, leaving a need for approximately 3,400 af. He stated that water right demands have significantly decreased and he heard recently of a purchase for \$2,500 per af.

Commissioner Erwin stated that potentially the reserve of \$1,350,000 could be doubled to \$2.7 million. He added that it is a good time to enter into agreements with the local jurisdictions in acquiring some of the water rights.

Commissioner Price stated he could not agree more with Commissioner Erwin's comments. He agreed that based on the low price of water rights, it is a good time to take action. He suggested that staff might remind all of the jurisdictions represented on the NNWPC that the timing is good.

Commissioner Erwin stated that the rules are that the entities would hold the water rights for the benefit of wildlife purposes, instream flows or other water quality benefits.

Commissioner Erwin made a motion that the NNWPC reviewed the draft tentative budget for fiscal year 2013-2014 and, found it acceptable with the exceptions of increasing the amount for 6,700 af of water rights to \$2.7 million and decreasing the cash reserves by \$1,350,000, leaving a cash reserve of approximately \$400,000 and recommends that the WRWC approve the budget as amended. Commissioner Price seconded the motion, which carried unanimously.

7. Report on the South Truckee Meadows General Improvement District ("STMGID"), issues arising from the pending consolidation of Washoe County's water utility with the Truckee Meadows Water Authority ("TMWA"), and possible consolidation of STMGID with TMWA, Jerry Schumacher, STMGID

Commissioner Schumacher, STMGID Board of Trustees, provided a report on the status of STMGID's consolidation with TMWA. He stated that not much has changed since his report in February. He added that discussions among attorneys are ongoing.

Commissioner Price asked about the timeframe. Commissioner Schumacher reported that the projected timeline is for the consolidation to be in place by July 1, 2014. Commissioner Price asked when STMGID's contract with Washoe County ends. Commissioner Schumacher stated it ends June 30, 2014.

Commissioner Erwin asked how the new Board is doing. Commissioner Schumacher stated so far, so good; however, there has not been a lot of action discussed.

Mr. Smitherman asked how involved Washoe County staff is in the process. He stated that he heard that the Board hired private counsel. Commissioner Schumacher stated that Washoe County Department of Water Resources (DWR) staff is primarily involved in operations and maintenance (O&M). He stated that Dwayne Smith is involved in setting up agenda items, requests for annexation, etc.

Acting Chairman Buzzone thanked Commissioner Schumacher for his update.

8. Report on legislative activities, including Bill Draft Requests for the 2013 session of the Nevada Legislature that may affect the WRWC / NNWPC, John Rhodes, NNWPC Legal Counsel.

John Rhodes, Legal Counsel, reported that the previous day there was joint meeting of the Senate Committee and Assembly Committees on Natural Resources, Agricultural and Mining. He invited Mr. Smitherman to provide an update from the meeting.

Mr. Smitherman reported that the Northern Nevada Water contingent followed the State Engineer and Pat Mulroy from Southern Nevada Water Authority. He stated that TMWA provided a brief presentation and then he provided an update on the WRWC activities for the past year. He clarified that Mike Carrigan began the presentations for TMWA and the WRWC. He stated that Rosemary Menard spoke about the water resources operations and briefly on the consolidation of the County departments. He reported that Steve Cohen, STMGID; Darrin Price, Sun Valley GID; and Sandra Ainsworth, Sun Valley GID presented updates.

Mr. Smitherman stated that those at the dais thinned through the afternoon; however, the Northern Nevada contingent remained. He added that he received one question from the chairman about the

WRWC; if the Legislative Oversight Committee ("LOC") sunsets per the law, would the WRWC continue to do its work. Mr. Smitherman assured him that they would.

Mr. Rhodes referred to the staff report, which lists Bill Draft Requests ("BDRs") and Bills pending in the 2013 Nevada Legislature, as of February 28, 2013, that may affect or are of interest to the WRWC and NNWPC.

Mr. Rhodes explained that some language is available for the BDRs at this time. Pending Bills are noted with an Assembly ("AB") or Senate ("SB") designation, and the complete language of each Bill is available by clicking on the corresponding link contained in the electronic version of this report. WRWC staff and the WRWC Legislative Subcommittee will track these BDRs and Bills, recommend positions to be taken, and provide periodic updates to the WRWC/NNWPC.

Mr. Rhodes reported that with brief BDR language, the intent of the Bills will not be known until they are actually submitted. He noted that the LOC is due to expire July 1, 2013; however, BDR 17-144 requests extending the lifetime of the LOC indefinitely, as well as providing the LOC jurisdiction over all statewide water issues. He reported that he provided a link to the report.

Mr. Rhodes stated that the WRWC Legislative Subcommittee has held one meeting jointly with the TMWA Legislative Subcommittee on February 15, 2013. He reported that the Subcommittee took positions on the Bills that had available language. He clarified that at this time, there are no real controversial Bills so the direction to staff is to watch the Bills and stay neutral. He added that an exception is related to a Public Records Bill (SB 184), which the Subcommittee does not support as written because it would amend the law to require governments to respond to written *or oral* requests (currently written only). Members believe that oral requests could be lost in the process and not receive a response. The Subcommittee will follow the Bill at this time.

Commissioner Price asked about the National Association of Counties (NACO) sponsored SB2, which refers to governing powers of local government. Mr. Rhodes stated that he did not bring the language; however, under existing state law, all power not specifically granted to local governments is reserved to the State. This bill would broaden the power of local governments to perform additional acts and duties. He offered to provide an update at the next meeting.

9. Report on the Truckee Meadows Regional Planning Agency ("TMRPA") parcel-based population and employment modeling project; and possible direction to staff, Jim Smitherman, NNWPC Water Resources Program Manager. (for possible action)

Mr. Smitherman reported that since his last update, TMRPA and NNWPC staff are in the process of reviewing the proposed scope of work revisions to incorporate the time extension approved by the WRWC in January. He stated that he has a draft that he will provide at the next NNWPC meeting. He summarized that the scope would basically extend the timeline and group some of the tasks and phases. He offered to speak with Mr. Rhodes about whether the scope needs to be amended into the contract.

Mr. Smitherman reported that TMRPA has been engaged in the ongoing Industrial Lands Needs Analysis in collaboration with the WRWC, Regional Transportation Commission, and the Economic Development Authority of Western Nevada ("EDAWN"). The project focuses on the current supply of industrial land, the needs of industries targeted by EDAWN, and the demand for future industrial land in relation to infrastructure, services and resource requirements.

Mr. Smitherman reported that TMRPA staff has created a preliminary dataset depicting the current supply of industrial lands in the region and is gathering feedback from stakeholders. On February 25, 2013,

TMRPA held an “Infrastructure Subcommittee” meeting to gain a better understanding of water and wastewater backbone infrastructure. He added that a lot of good input was received.

Commissioner Price asked if there is a timeframe associated with the water-related layers in the model. Mr. Smitherman stated that the timeframe for conclusion of the project is June 30, 2014. He mentioned that the Infrastructure Committee would probably meet as needed. Commissioner Price asked about the layer for infrastructure, water, wastewater, etc. Mr. Smitherman reiterated that good input was received on how to incorporate and gather data as it is available. He added that a model run has been done using the water and wastewater suitability factors on the employment side of the model.

Commissioner Drinkwater asked how wastewater treatment capacity is being modeled with respect to industrial lands, where flows are so variable. Mr. Smitherman stated that is a good question and probably beyond the model’s capabilities. He added that the model incorporates sewer connection fees to represent the cost of plant expansions and how far into the future they will serve growth. Commissioner Drinkwater cautioned that plant capacities must be viewed in terms of loading and flows and suggested incorporating this into the model if possible.

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**
- c. Water Management Fund Five-Year Cash Flow table**
- d. Informational report from the NNWPC representative on the Truckee Meadows Water Authority Standing Advisory Committee (“TMWA SAC”)**

Mr. Smitherman reported that the items included in the Program Manager’s Report are provided as informational items. Regarding item 10.d, Mr. Smitherman stated that Commissioner Ball attended the TMWA SAC meeting and offered to provide an update at the next meeting. He added that the Water Management Fund Five-Year Cash Flow table was included at the request of Commissioner Price at the last meeting.

He invited any questions or comments. Commissioner Erwin referred to the Certified Landscape Technician (CLT) program and asked if the training is underway. Jim Stanhouse, Nevada Landscape Association (NLA) reported that they are doing four training sessions this year and the testing will be in August.

11. Discussion regarding possible agenda items for the April 3, 2013 NNWPC meeting, and other future meetings, and possible direction to staff, Jim Smitherman.

Mr. Smitherman reported that there are upcoming agenda items, which include:

- Presentation of the final report on the Septic System study
- Revised scope of work for TMRPA
- Work Plan for the next fiscal year
- Recommendations for ongoing interlocal agreements (i.e. Storm Water, Water Quality Modeling, reimbursement of consolidation expenses) that will be presented to the WRWC along with the budget
- Standing Items
 - Legislative Update
 - Program Manager’s Report
 - Status update on STMGID merger

Acting Chairman Buzzone requested an agenda item for an update on the Bureau of Reclamation (“BOR”) project (the Truckee Canal study), as well as a status update on the total maximum daily load (“TMDL”) review (based on the Lahontan standards).

Mr. Smitherman added that election of officers would occur in April.

12. Commission Comments.

None

13. Staff Comments.

None

14. Public Comments.

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

15. Adjournment.

With no further business, the meeting was adjourned at 2:40 p.m.

Respectfully submitted by,

Niki Linn, Recording Secretary

Approved by Commission in session on _____ 2013.

Mickey Hazelwood, Chairman

Northern Nevada Water Planning Commission

STAFF REPORT

DATE: March 27, 2013
TO: Chairman and Members, Northern Nevada Water Planning Commission
FROM: Jim Smitherman, Water Resources Program Manager
SUBJECT: Selection of Chairman and Vice Chairman for the term April 2013 to April 2014, and possible direction to staff.

SUMMARY

Section 39 of the Western Regional Water Commission Act, Chapter 531, Statutes of Nevada 2007 (the "Act"), requires that the Northern Nevada Water Planning Commission ("NNWPC") "establish a schedule for the selection of its Chairman for a term of 1 year, in rotation, from among the members." The Act identifies the voting members of the NNWPC by title, position, or interest to be represented, and is silent concerning a vice chairman. However, the Act does not prohibit selection of a vice chairman, and, prior to adoption of the NNWPC Administrative Policies and Procedures on May 5, 2010, a vice chairman was selected by custom and practice to preside over meetings in the absence of the chairman. Section V of the NNWPC Administrative Policies and Procedures provides for the selection of a chairman and a vice chairman, for a term of one year, in rotation, from among the voting members, annually, at the first meeting in April.

PREVIOUS ACTION

One year term is April through March

- 2008 Member: SVGID General Manager, Chairman-Darrin Price
Vice Chairman-Wayne Seidel
- 2009 Member: Sparks Public Works Director, Chairman-Wayne Seidel
Vice Chairman-George Ball
- 2010 Member: TMWA, General Manager's designee, Chairman-John Erwin
Vice Chairman-Jerry Shumacher
- 2011 Member: Washoe County Conservation District, Chairman-George Ball
Vice Chairman-Neil Krutz
- 2012 Member: Public at Large, Chairman-Mickey Hazelwood
Vice Chairman-John Buzzone

FISCAL IMPACT

None

RECOMMENDATION

It is recommended that the NNWPC select a chairman and vice chairman for a 1-year term ending on March 31, 2014, in rotation, from among the members.

js

Northern Nevada Water Planning Commission

STAFF REPORT

DATE: March 28, 2013

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 study of Strategies for Management of High-Density Septic System Developments in Washoe County, and possible direction to staff

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 research and information was compiled by the team of AMEC/Lombardo & Associates and provided as five task reports. The information in the five task reports was summarized by staff in the attached executive summary.

Staff will present the outlines of the five task reports with a brief summary of key points. Staff anticipates that the final task reports will be available for review by April 30, 2013.

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

- Treatment Alternatives Evaluated
- Nitrate Removal Needed for Groundwater Protection
- Examination of Wastewater Treatment Plant Capacity
- Estimated Nitrate Removal Costs

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

RECOMMENDATION

Staff recommends that the NNWPC accept this Executive Summary of Strategies for Management of High-Density Septic System Developments in Washoe County, and provide direction to staff, as appropriate.

CW:jd

Attachment

EXECUTIVE SUMMARY

STRATEGIES FOR MANAGEMENT OF HIGH-DENSITY SEPTIC SYSTEM DEVELOPMENTS IN WASHOE COUNTY

Prepared for:
Western Regional Water Commission
and
Northern Nevada Water Planning Commission

Project Team:

Chris Wessel - Water Management Planner (Western Regional Water Commission)
John Buzzone - Senior Engineer (Washoe County)
Andrew Hummel – Utility Manger (City of Sparks)
Glen Daily – Associate Engineer (City of Reno)
Christian Kropf – Senior Hydrogeologist (Washoe County)

March 2013

Research and information compiled by:

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Introduction

The Western Regional Water Commission (WRWC) initiated the *Strategies for Management of High-Density Septic System Developments in Washoe County* project to evaluate alternative methods to address the degradation of groundwater quality caused by septic system effluent discharge. This document contains a summary of the findings of this project. The various Project Reports listed at the end of this document are available from the Document Library at the WRWC website (www.WRWC.us).

Project Task Reports

The following tasks were indentified in the Lombardo Associates, Inc. (LAI) Scope of Work and prepared as part of this study on *Strategies for Management of High-Density Septic System Developments in Washoe County*:

- *Task 1 - Review of Existing and Projected Conditions*
- *Task 2 - Technical & Economic Evaluation of Nitrogen Removal Alternatives*
- *Task 3 - Financing Alternatives*
- *Task 4 - Institutional and Management Alternatives*
- *Task 5 - Case Studies*

The Task 1 report provides analysis and assessment of the existing and projected conditions. Task 2 presents a technical and economic evaluation of nitrate removal alternatives. Information gathered in Task 5 (Case Studies) shaped much of the approach and alternatives in the Task 2 report. Similarly, information gathered and the analysis documented in the Task 4 report (Institutional and Management Alternatives) was used in the final analysis described in the Task 2 report. The case studies (Task 5) shaped the assessment and feasibility of the alternatives analyzed.

Task 1 Report - Review of Existing and Projected Conditions

There are an estimated 16,840 Individual Sewage Disposal Systems (ISDS) in Washoe County, of which approximately 14,200 are in the Truckee Meadows Service Area (TMSA). The TMSA (as illustrated in Figure 1) is the area defined by Truckee Meadows Regional Planning as the geographic area within which municipal services are planned to serve Reno, Sparks and Washoe County. Systems within this area discharge treated effluent, which contains elevated levels of nitrate, into the soil where it is free to percolate into the groundwater. The United States Environmental Protection Agency (U.S. EPA) established a Maximum Contaminant Level (MCL) of nitrate nitrogen in drinking water of 10 milligrams per liter (mg/L). Drinking water with concentrations higher than the MCL may cause adverse health effects.

The *Phase I Prioritization of Study Areas & Assessment of Data Needs Report* ("Phase I Report", Kropf, 2007) identified 16 separate areas of concern based on nitrate levels in groundwater and the relative density of residential septic systems. The report also included a prioritized list of "Project Areas" that exhibit a high likelihood of septic systems degrading water quality (with respect to nitrate contamination). These 16 study areas and the data listed in the Phase I Report were used in this analysis and shown graphically in Figure 1.

Review of the Phase I Report and the map shown in Figure 1 showing the locations of the Project Areas suggests that a “one-size-fits-all” approach for managing ISDS nitrate degradation of groundwater quality may not be the most effective approach. As such, the WRWC commissioned Lombardo Associates, Inc. (LAI) and AMEC for this study to provide a summary and evaluation of potential:

- Nitrate removal technologies;
- Financing alternatives,
- Nitrate management strategies; and
- Summary of case studies describing how other communities have addressed similar nitrate issues.

The primary goal of this project was to identify nitrate reduction technologies that could be used to mitigate nitrate contamination of groundwaters due to high density ISDS. To accomplish this goal, several treatment technologies were identified and evaluated. Order of magnitude cost estimates were developed for each treatment option that was considered technically and economically feasible.

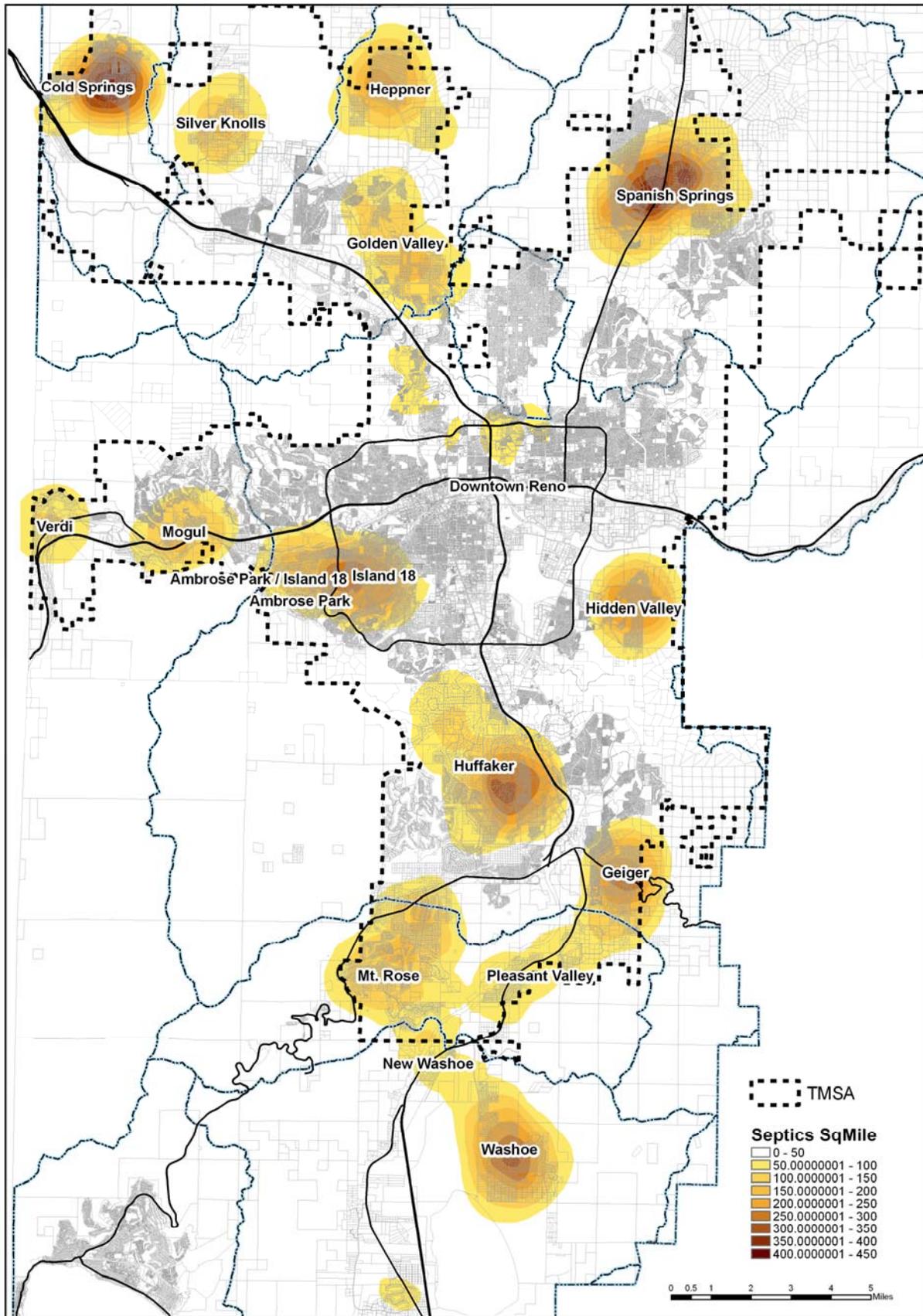


Figure 1 Septic System Densities and Study Areas

The intent of this project was not to recommend specific solutions, but to offer decision makers technical and financial information to facilitate future decision making. The challenges associated with implementing a particular technology or corrective measures for the areas discussed in this study are as much financial as they are technical. Any solution that is ultimately proposed will require the buy-in of decision makers and the public they represent. In this report, the causes and extent of the nitrate problem, the range of potential solutions and the order of magnitude costs are presented for future reference, comparative analysis and decision making purposes only.

Task 2 - Technical & Economic Evaluation of Nitrogen Removal Alternatives

Combined in this report is the analysis, findings and conclusions of the study. Results from Tasks 3, 4 and 5 contributed to the summary and analysis. A summary of the Task 2 report is provided below.

Treatment Alternatives Evaluated

The alternatives evaluated fall into the following categories:

- Individual, single family nitrogen removal systems
- Neighborhood / small community (cluster) wastewater collection, treatment and disposal / reuse systems
- Connection to existing, centralized treatment facility
- Connection to new, centralized treatment facility

Collection system options considered:

- Conventional gravity
- Septic tank effluent – gravity & pressure
- Grinder pump – low pressure
- Vacuum system

Wastewater treatment technologies considered:

- Fixed film systems
- Suspended growth – activated sludge (AS) systems
- Integrated fixed film and suspended growth systems (IFAS)
- Active or passive carbon feed (denitrification)

Nitrate Removal Required for Groundwater Protection

To compare alternatives to reduce nitrate loading from ISDS in the study areas, the level of necessary treatment (i.e., degree of nitrogen removal) was estimated using a simple, conservative mass balance approach. The estimated level of nitrate removal required was used to evaluate treatment process viability or the number of ISDS requiring removal (sewered with out-of-basin transfer). Table 1 summarizes the number and percent of existing properties (parcels with ISDS) that would need to achieve 100% nitrate removal to meet the water quality goals. These values were calculated assuming ISDS removes 25% of effluent nitrate and that

sewering removes 100%. The values shown in Table 1 assume that the target recharge nitrate concentration is 5-mg/L, a level considered protective of groundwater resources.

Table 1 Number of Properties Requiring 100% Nitrate Removal to Maintain Groundwater Quality (5 mg/L Nitrate-Nitrogen)

Basin Name (number)	Project Area	2007 Report Priority Ranking	Number of ISDS		Properties Requiring 100% Removal ¹	
			Basin	Proj. Area	(%)	(#)
Truckee Meadows (87)	Ambrose	7	5,870	475	78%	372
	Island 18	12		907	82%	745
	Hidden Valley	8		780	81%	633
	Huffaker	9		1,764	77%	1,358
	Geiger	11		858	82%	705
Lemmon Valley (92A & 92B)	Silver Knolls	14	2,670	529	78%	413
	Hepner	4		954	80%	766
	Golden Valley	6		845	78%	658
Pleasant Valley (88)	Mt. Rose	5	1,665	1,026	78%	803
	Pleasant Valley	15		535	75%	399
Washoe Valley (89)	Washoe	3	1,852	1,296	80%	1,042
	New Washoe	16		197	75%	148
Truckee Canyon (91)	Mogul	13	1,020	544	79%	428
	Verdi	10		341	79%	271
Cold Springs (100)	Cold Springs	2	1,397	1,325	84%	1,112
Spanish Springs (85)	Spanish Springs	1	2,346	1,848	84%	1,546
Total			16,820	14,224	Avg=80%	11,397

¹ 100% Nitrogen removal achieved via sewerage and out-of-basin treatment / discharge or by using a higher percentage/number of nitrogen removal systems within the basin

Examination of Wastewater Treatment Plant Capacity

If ISDS are connected to a municipal sewer system and sent to the regional wastewater treatment facility (WWTF), excess capacity must either exist or be added to accommodate the flow increase. Assuming 230 gallons per day (gpd) per ISDS, the required capacity was estimated using the number of ISDS in the Project Areas within the projected service areas of each of the WWTFs (Table 2). As can be seen from the data presented in Table 2, additional capacity is required at the Lemmon Valley WWTP and likely at the Cold Springs WWTF to accommodate peak flows. The total wastewater flow from ISDS in the Project Areas is estimated to be around 3.27 million gallons per day (MGD).

Table 2 Study Area WWTFs with 2009 Average and Permitted Flow Rates

Facility Name	2009 Avg. Flow (MGD)	Permitted Flow (MGD)	Maximum Excess Capacity (MGD)	Estimated Req. Capacity for Local ISDS (MGD)
Truckee Meadows WRF	26.5	44	17.5	1.29
South Truckee Meadows WRF	2.65	4.1	1.45	1.14
Reno-Stead WRF	1.4	2.35	0.95	0.12
Lemmon Valley WWTP	0.2	0.3	0.1	0.41
Cold Springs WWTF	0.28	0.7	0.42	0.31
Total	31.03	51.45	20.42	3.27

Source WRWC, 2011

Estimated Nitrate Removal Costs

The following order of magnitude costs were estimated for each treatment option that is considered technically and economically feasible:

- Total capital costs (including design, construction, land acquisition, etc., as appropriate);
- Annual operating, maintenance, repair and replacement costs;
- Life cycle costs;
- Anticipated levels of nitrogen reduction; and
- Cost / pound of nitrate reduction/year.

Table 3 presents a summary of the estimated costs on a per Equivalent Dwelling Unit (EDU) basis for each nitrate removal technology evaluated. The highest cost alternative was connection to the existing sewer system with full street width repaving. The least expensive alternative identified was the collection of ISDS effluent (ISDSE) and connection to the existing sewer system with partial paving.

Summarized in Table 4 is the number of systems requiring 100% nitrate removal with out-of-basin discharge and 93% removal with in-basin discharge. Listed are the estimated costs associated with conventional sewer extensions (trench width paving, out-of-basin discharge) and ISDSE cluster systems (trench width paving and in-basin discharge). The cost estimates combined with the number of each type of system defines the relative scale of the anticipated capital improvement program required to achieve drinking water quality protection. Potential financing options and techniques are described in the Task 3 report.

Table 3 Summary of Alternative Nitrate Removal Costs per EDU

WW Mgmt. Option		% Nitrate Reduction	Capital Cost	Annual O&M Cost	Life Cycle Cost per EDU	Savings Compared to Conv. Sewering w/full Width Paving	
1	Onsite ¹	93%	\$22,000	\$540	\$31,283	20.8%	
2	Cluster ²	ISDSE Collection ³	93%	\$23,900	\$574	\$36,881	14.5%
		Conventional – Gravity Collection	93%	\$26,700	\$574	\$39,681	5.3%
		Conventional – Pressure Collection	93%	\$26,700	\$574	\$39,681	5.3%
3	Connection to Existing Centralized System ⁴	ISDSE Collection	100%	\$17,400	\$645	\$32,000	38.5%
		Conventional – Trench Width Paving	100%	\$21,400	\$600	\$35,000	24.4%
		Conventional – Full Width Paving	100%	\$28,300	\$600	\$41,900	0.0%

¹ Onsite system costs assume economies of scale are achieved

² Carbon Feed and Pretreatment system achieving 93% of nitrogen removal used for this analysis

³ No drain field attenuation is assumed to occur with wastewater treated to advanced tertiary standards

⁴ Sewer system costs are based upon only one engineer's estimate of sewer extensions costs in Spanish Springs. Lower density developments will have higher costs. Areas are assumed to be adjacent to existing sewer areas; therefore, no transmission cost was provided. If transmission piping is needed, costs for this option will increase.

Table 4 Capital Improvement Program for Required Nitrate Removal in Project Areas

Priority Level	Number of Properties Req. 100% Removal	Number of Properties Req. 93% Removal w/In-Basin Discharge	Total Capital Cost – 100% Removal w/Out-of-Basin Discharge ¹	Total Capital Cost 93% Removal w/In-Basin Discharge ²
Scenario 1 (Phase 1 Areas Only)	1,546	1,656	\$45,100,000	\$52,500,000
Scenario 2 (Phase 1 & 2 Areas)	5,926	6,349	\$150,900,000	\$179,400,000
Scenario 3 (Phase 1, 2 & 3 Areas)	10,836	11,610	\$269,500,000	\$321,500,000

¹ Please note for 100% nitrogen removal with out-of-basin discharge, costs are based on conventional sewer system with trench-width paving and out-of-basin discharge based upon only one engineer's estimate of sewer extension costs in Spanish Springs. Lower density developments will have higher costs. Areas are assumed to be adjacent to existing sewer areas; therefore, no transmission cost is provided. If transmission piping is needed, costs for this option will increase.

² Costs based on septic tank effluent collection cluster systems achieving 93% nitrogen removal discharging within the basin.

Task 3 – Financing Alternatives

The objective of this task was to evaluate financing options associated with the alternatives for management of groundwater quality impacted by high density ISDS development in the TMSA.

Alternatives identified and discussed in this report included:

- Practical grant and loan funding sources
- Affordability analysis
- Fee collection mechanisms
- The financial sustainability of a Responsible Management Entity (RME) that would manage On-site Wastewater Treatment and Disposal/Reuse Systems (OSTDS)

The results of this analysis were largely used in the analysis presented in the Task 2 report (and included in Table 4 above).

Summarized in Tables 5 and 6 are the results of the U.S. EPA Financial Capability-Affordability Analysis for the proposed septic nitrogen removal systems and proposed user charges for the In-Basin Discharge Option Capital Improvement Program (CIP) cost estimates. The affordability analysis indicates that financial affordability increases from a low to high burden as more phases are implemented. The analysis assumes, as a first approach, that all properties on septic systems or connected to a sewer system pay the same annual cost, whether or not they have a new wastewater system. There are numerous user charge approaches that are possible and will need to be publicly discussed to determine the appropriate user charge system for Washoe County.

Table 5 Financial Capability Score (As of Summer 2012)

Financial Capability Indicators	Rating	Score*
Bond Rating (S&P)	AA	3
Overall net debt (as % of full market value of taxable property)	2.33%	2
Unemployment as compared to National Average	11.4%	1
Mean Household Income as % of National Average	107%	2
Property Tax Revenues as % of Full Market Property Value	3.31%	2
Property Tax Revenue Collection Rate	99%	3
Average =		2.17

* 1 = Weak; 2 = Mid Range; 3 = Strong

Table 6 Projected Sustainable User Charge Estimates Based Upon In-Basin CIP

Estimated Cost and Relative Affordability	All Properties with Same O&M & CIP Charge ⁽¹⁾		
	Phase 1 – Priority Area 1 Only	Phase 2 – Priority Areas 1 & 2 Only	Phase 3 – Priority Areas 1, 2 & 3
Capital Improvement Program (CIP)	\$52,500,000	\$179,400,000	\$321,500,000
Number of Parcels with Nitrate Removal Systems in Basin Discharge	1,656	6,349	11,610
Percent of the Total	12%	45%	82%
Annual O&M	\$206	\$383	\$509
OSTDS ^[2] & ISDS Replacement Fund	\$58	\$108	\$164
CIP Debt Service ⁽¹⁾	\$180	\$617	\$1,105
Total Annual Cost	\$444	\$1,107	\$1,778
Total Monthly Cost	\$37	\$92	\$148
% of MHI – Washoe County	0.76%	1.90%	3.06%
User Charge Burden	Low	Medium	High

[1] Financing Rate of 4.00% and a Term of 30 years assumed

[2] OSTDS On-Site Treatment and Disposal System

[3] percent of median household income

Task 4 – Institutional and Management Alternatives

All remaining ISDS within the different study area basins in addition to any new on-site and cluster / neighborhood systems will need to be actively managed. For any future upgrades that involve connection to an existing WWTF, the owner of the WWTF and associated collection system would be the Responsible Management Entity (RME).

For on-site and cluster/neighborhood systems with advanced nitrogen removal, a RME should be established for their funding, implementation, operation and maintenance, and long-term sustainability. Potential RME candidates include:

- Existing agency such as the Central Truckee Meadows Remediation District (CTMRD) established via Section 318 of Nevada State Law
- Adopt Special Legislation to create a new agency to manage nitrogen pollution of the TMSA groundwater

Task 5 – Case Studies

The objective of this task was to review selected histories and examine common attributes and lessons learned from communities addressing similar septic system nitrate issues. Case studies were prepared for the following areas:

- Fairfax County, Virginia
- Suffolk County Long Island, New York
- La Pine, Oregon, Deschutes County
- Peña Blanca, New Mexico
- Phelps County, Missouri

After a review of each case history, the following common attributes were noted:

- Leadership and vision are needed for positive outcomes
- Strong resistance to financial costs was a common element
- Conventional solutions are usually proposed and often not affordable
- Conventional, high price solutions are defeated when votes for bond authorizations are required

Affordability and related financing issues were the dominant theme in the histories reviewed. Key lessons learned were:

- Proactive engagement of the broad stakeholder groups is critical
- Validate the science that is the basis for the corrective actions
- Identify low cost solutions and perform ongoing testing / evaluations
- Provide solutions for all stakeholders so that commonality of purpose is achieved
- Use Adaptive Management whereby the understanding of science and viability of lower cost options is continually re-evaluated and improved
- Look for opportune events to require upgrades

It is LAI's opinion that by implementing programs that incorporate the above lessons learned, community support will be engendered and the probability of success will be maximized.