

**NORTHERN NEVADA WATER PLANNING COMMISSION
("NNWPC")
AGENDA**

Wednesday, September 2, 2015

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. Supporting material provided to the Commission for the items on the agenda is available to members of the public at the NNWPC offices, 1001 E. Ninth St., Reno, NV, from June Davis, Administrative Secretary, (775) 954-4665, and on the NNWPC website at <http://www.nnwpc.us>
5. 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.
6. 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.), Truckee Meadows Water Authority (1355 Capital Blvd.), Washoe County Administration Building (1001 E. Ninth Street), Second Judicial District Court/Courthouse (75 Court Street), Washoe County Central Library (301 South Center St.), Washoe County Community Services Department (1001 E. Ninth St.) Galena Market (19990 Thomas Creek Rd.), Galena High School (3600 Butch Cassidy Way), South Valleys Library (15650A Wedge Parkway), the NNWPC website: <http://www.nnwpc.us> and the State of Nevada Website: <https://notice.nv.gov>

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 5, 2015, meeting. **(For Possible Action)**
5. Report on the Central Truckee Meadows Remediation District ("CTMRD") - Chris Benedict, Ph.D., CTMRD Water Resources Program Manager. *
6. Presentation of comments received on the "Wastewater, Storm Water, Water Quality" chapter for the 2016 Regional Water Management Plan ("RWMP") update; discussion and possible direction to staff – Jim Smitherman, NNWPC Water Resources Program Manager **(For Possible Action)**
7. Presentation of staff comments on the "Issues and Action Plan" chapter for the 2016 RWMP update; discussion and possible direction to staff – Chris Wessel, Water Management Planner **(For Possible Action)**

8. Discussion and possible direction to staff regarding any chapters of the RWMP previously reviewed by the NNWPC in relation to the 2016 RWMP update – Jim Smitherman. **(For Possible Action)**
9. Program Manager’s Report – Jim Smitherman. *
 - a. Report on the Status of Projects and Work Plan Supported by the Regional Water Management Fund (“RWMF”);
 - b. Financial Report on the RWMF; and,
 - c. Report on the Truckee Meadows Regional Planning Agency's parcel-based population and employment modeling project.
10. Discussion regarding possible agenda items for the October 7, 2015 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. **(For Possible Action)**

*Indicates a non-action item

DRAFT - MINUTES
NORTHERN NEVADA WATER PLANNING COMMISSION

Wednesday, August 5, 2015

The regular meeting of the Northern Nevada Water Planning Commission ("NNWPC") was held in the Reno City Council Chambers, One East First Street, Reno, Nevada and conducted the following business:

The meeting was called to order by Chairman Enloe at 1:30 p.m.

1. Roll Call and Determination of Presence of a Quorum

Voting Members Present: John Enloe, Darrin Price, George Ball, Michael DeMartini, Michael Drinkwater (arrived at 1:33 p.m.), John Flansberg, Mickey Hazelwood, Danielle Henderson, John Martini, David Solaro, and Brian Wadsworth.

Voting Members Absent: John Erwin.

Non-Voting Members Present: My-Linh Nguyen, and Thomas Pyeatte.

Non-Voting Members Absent: Chris Anderson, Harry Fahnestock, and Cindy Turiczek.

Staff Members Present: Jim Smitherman; Chris Wessel; June Davis; and John Rhodes, Legal Counsel.

2. Public Comment

None

3. Approval of the Agenda (For Possible Action)

Chairman Enloe requested that Agenda Item 6 be heard prior to Agenda Item 5.

(Commissioner Drinkwater present at 1:33 p.m.)

COMMISSIONER BALL MADE A MOTION TO APPROVE THE AGENDA AS AMENDED, SECONDED BY COMMISSIONER PRICE. THE MOTION CARRIED UNANIMOUSLY WITH ELEVEN (11) MEMBERS PRESENT.

4. Approval of the Minutes from the June 3, 2015, Meeting (For Possible Action)

COMMISSIONER BALL MADE A MOTION TO APPROVE THE JUNE 3, 2015, MINUTES, SECONDED BY COMMISSIONER MARTINI. THE MOTION CARRIED UNANIMOUSLY WITH ELEVEN (11) MEMBERS PRESENT.

6. Report on LimnoTech, Inc. review of the Pyramid Lake Paiute Tribe's ("PLPT") proposed changes to the PLPT Water Quality Control Plan and any possible effects to the Nevada Water Quality Standards ("WQS") or Total Maximum Daily Loads ("TMDL") for the Truckee River, and possible recommendation to the Western Regional Water Commission ("WRWC") to send a comment letter to the PLPT, and possible direction to staff – Kerri Lanza, P.E., City of Reno. (For Possible Action)

Kerri Lanza, City of Reno, introduced Laura Weintraub with LimnoTech, who attended the meeting through a phone conference to present the results of their review with a PowerPoint via a Web-Ex Internet connection.

Ms. Weintraub presented the report on the LimnoTech review of the proposed changes to the PLPT Water Quality Control Plan. The presentation included information on the following topics: TMDL Background; Current Truckee River TMDL Loads (1994); 2008 TMDL Working Group Findings; Current Numeric Nutrient Criteria; Final Results Total Phosphorus; Summary

of Technical Findings Related to Phosphorus; Examination of Nevada Division of Environmental Protection (“NDEP”) vs. PLPT Existing Phosphorus WQS; Proposed PLPT WQS Changes and Implications; Estimate of Total Phosphorus TMDL With No Change to NDEP Phosphorus WQS; and Potential Paths Forward.

Ms. Lanza stated that the public comment period for the PLPT Water Quality Control Plan will end on August 21, 2015. Ms. Lanza stated that a draft letter was prepared with comments regarding the draft PLPT Water Quality Control Plan and is included for possible recommendation to the WRWC.

Commissioner Flansberg expressed concern regarding supporting a standard without scientific support behind it. Commissioner Flansberg expressed concern that there is no credit for all of the work and effort that was put into the river restoration downstream and how that work has improved the river.

Commissioner Price requested clarification of the comment in the draft letter regarding an agreement and asked what the impacts [of the new standards] would be. Ms. Lanza stated that 2007 agreement had a clause regarding the Tribe agreeing not to do anything to its WQS that could jeopardize the plant operations.

Commissioner Drinkwater stated that clause says the Tribe agrees not to adopt standards that would substantially negate the value of the WQS agreement. The numbers used in the presentation regarding the possible reduction in the waste load allocation for the Truckee Meadows Water Reclamation Facility (“TMWRF”) cannot be met. Having to redirect all of our efforts to address a phosphorous standard is contrary to the intent of the WQS agreement.

Chairman Enloe asked if this was evaluated under a Truckee River Operating Agreement (“TROA”) or non-TROA based flow regime. Ms. Weintraub explained that the model runs used were based on the future TROA - no action.

Chairman Enloe asked what differences there would be assuming TROA was implemented. Ms. Weintraub stated she believed that it would provide for more water in the lower portions of the river, and stated that NDEP recommended using a more conservative approach using the future “no action run” rather than assuming that TROA would be implemented.

Chairman Enloe asked about the timing if the PLPT moved ahead with adoption of this WQS. Ms. Lanza stated that if their adoption was eminent, they would be working with the State immediately to talk about whether or not they are going to pursue a TMDL on their own or rely upon the third parties to provide the science that they have been working on.

Commissioner Wadsworth reviewed the timeline for the process and stated that if everything were to move forward as is, it would be final around October or November.

Commissioner DeMartini asked about what would happen with a dissolved oxygen violation. Commissioner Wadsworth stated that is one of the questions they are looking at for the future to determine the threshold before there is a deterioration in aquatic life.

There was discussion regarding whether it would be more appropriate for each entity represented on the NNWPC to write their own comment letters to the PLPT specific to their entity regarding the proposed changes to the PLPT Water Quality Control Plan.

COMMISSIONER DRINKWATER MADE A MOTION TO ACCEPT THE REPORT, SECONDED BY COMMISSIONER MARTINI.

John Rhodes, Legal Counsel, stated that the WRWC will see this report, including the draft comment letter to the PLPT, at their next meeting.

Commissioner Price stated that the majority of the letter was requests for verification of data and that it is valid to ask those questions.

Commissioner Wadsworth stated that he will abstain from voting on this item. Commissioner Wadsworth also stated that it was not his or the Tribe's intention to impede upon any process or negate any of the work that has gone into this.

THE MOTION CARRIED WITH TEN (10) IN FAVOR AND ONE (1) ABSTENTION BY COMMISSIONER WADSWORTH.

Mr. Smitherman stated that he will summarize today's discussion on this item in his staff report that will be presented to the WRWC.

5. **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; discussion and possible recommendation to the WRWC 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 – Frank McDonough, PhD, DRI. (For Possible Action)**

Frank McDonough, DRI, presented the report on Cloud Seeding Operations.

[Commissioner Solaro absent at 2:47 p.m.]

Chairman Enloe asked if the Truckee Meadows Water Authority ("TMWA") approved DRI's funding request earlier this year. Mr. McDonough replied he believes that is correct.

Commissioner Flansberg asked about what progress has been made in the effort to find other partners to contribute funding. Mr. McDonough stated that they have not made progress getting in front of the right people. [Washoe County Commissioner] Vaughn Hartung is trying to set up meetings with ski resorts in an effort to get them to participate in funding. Mr. McDonough stated that there is some work being done outside of TMWA and WRWC funding but there are no other partners at this time.

COMMISSIONER PRICE MADE A MOTION TO SUPPORT THE REQUEST WITH THE REQUIREMENT THAT DRI MUST PURSUE OTHER PARTNERS, SECONDED BY COMMISSIONER DeMARTINI. THE MOTION CARRIED UNANIMOUSLY WITH TEN (10) MEMBERS PRESENT.

7. **Discussion and possible approval of a proposal and funding request not to exceed \$23,500 from the RWMF for a technical workshop concerning a study further exploring the ozone-biological activated carbon advanced oxidation process for effluent treatment; and, if approved, authorize the Water Resources Program Manager to execute a contract with the WaterReuse Research Foundation for that purpose – Jim Smitherman, NNWPC Water Resources Program Manager. (For Possible Action)**

Mr. Smitherman reviewed information regarding this request for funding a technical workshop.

Commissioner Price asked about the possibility of using another venue to save money on the proposed expenditure of \$10,000 for a venue. John Buzzone, Stantec, explained that the reasoning for the cost of the venue was to address the challenge of coordinating transportation and keeping the attendees together.

[Commissioner Wadsworth absent at 3:06 p.m.]

CHAIRMAN ENLOE MADE A MOTION TO APPROVE \$23,500 FROM THE RWMF FOR A TECHNICAL WORKSHOP, WITH THE CAVEAT THAT STANTEC LOOK AT THE VENUE ISSUE TO SEE IF ANY MONEY CAN BE SAVED, SECONDED BY COMMISSIONER PRICE. THE MOTION CARRIED UNANIMOUSLY WITH NINE (9) MEMBERS PRESENT.

8. Presentation of staff comments on the “Wastewater and Watershed-Based Water Quality Planning” chapter for the 2016 Regional Water Management Plan (“RWMP”) update; discussion and possible direction to staff – Jim Smitherman. (For Possible Action)

[Commissioner Price absent at 3:08 p.m.]

Jim Smitherman reviewed preliminary staff comments on this chapter included in the staff report.

[Commissioner Wadsworth present at 3:11 p.m.]

Commissioner Drinkwater requested that staff include some language explaining that there are other limiting factors which may make the flow irrelevant.

No action was taken.

9. Presentation of comments received on the “Water Resources” chapter for the 2016 RWMP update; discussion and possible direction to staff – Chris Wessel, NNWPC Water Management Planner. (For Possible Action)

Chris Wessel stated that there are no comments to review at this time. Most of the comments on this chapter will come from TMWA’s Water Resource Plan.

No action was taken.

10. Discussion and possible direction to staff regarding any chapters of the RWMP previously reviewed by the NNWPC in relation to the 2016 RWMP update – Jim Smitherman. (For Possible Action)

No action was taken.

11. Program Manager’s Report – Jim Smitherman.

- a. Report on the status of projects and work plan supported by the RWMF;
- b. Financial report on the RWMF; and,
- c. Report on the Truckee Meadows Regional Planning Agency’s parcel-based population and employment modeling project.

Mr. Smitherman reported that the standard items are included in the Program Manager’s Report.

Mr. Smitherman reported that he and the Truckee Meadows Regional Planning Agency's staff are working with the Effluent Working Group to get one set of wastewater flow projections that works best for the RWMP.

12. Discussion regarding possible agenda items for the September 2, 2015, NNWPC meeting, and other future meetings; and possible direction to staff – Jim Smitherman. (For Possible Action)

Mr. Smitherman stated the potential future agenda items will include:

- A presentation from the Central Truckee Meadows Remediation District on their Capital Improvement Program;
- A presentation from DRI on the linear optimization programming for effluent management; and,
- RWMP chapters for review; and any other standing items.

Commissioner Flansberg suggested a presentation on the effluent management plan for the possible interconnection to Huffaker Reservoir.

No action was taken.

13. Commission Comments

Commissioner Wadsworth stated that he will not be present for the September 2, 2015, meeting.

Commissioner Drinkwater requested that all supporting materials be distributed to NNWPC members prior to the day of the meeting in order to have time to review the materials.

14. Staff Comments

None

15. Public Comment

None

16. Adjournment (For Possible Action)

The meeting was adjourned at 3:19 p.m.

Respectfully submitted by Christine Birmingham.

Approved by:

John Enloe, Chairman

APPROVED BY COMMISSION IN SESSION ON _____, 2015.

Northern Nevada Water Planning Commission

STAFF REPORT

DATE: August 27, 2015

TO: Chairman and Members, Northern Nevada Water Planning Commission

FROM: Jim Smitherman, Water Resources Program Manager

SUBJECT: Report on the Central Truckee Meadows Remediation District (“CTMRD”) – Chris Benedict, Ph.D., CTMRD

Chris Benedict from the CTMRD will provide a verbal report on the CTMRD as requested by the NNWPC.

JS:jd

Northern Nevada Water Planning Commission

STAFF REPORT

DATE: August 27, 2015

TO: Chairman and Members, Northern Nevada Water Planning Commission (“NNWPC”)

FROM: Jim Smitherman, NNWPC Water Resources Program Manager

SUBJECT: Presentation of comments received on the “Wastewater, Storm Water, Water Quality” chapter for the 2016 Regional Water Management Plan (“RWMP”) update; discussion and possible direction to staff

SUMMARY

The following review notes are the result of a preliminary staff review of the existing chapter, the current discharge and storm water permits, and discussions with program staff. Coordination with the City of Reno, the City of Sparks and Washoe County is ongoing and expected to yield information on which to base revisions to the chapter.

A list of sections and subsections including notes on anticipated revisions appears below:

Introductory Sections: Update all sections with current information.

- 4.1 Wastewater Service Providers:** Review with service providers, no major changes anticipated. Table 4-1, delete three small facilities no longer in use, and add discharge permit information.
- 4.2 Water Reclamation Facilities:** Add discussion of TMWRF Joint Coordinating Committee to section 4.2.1. Also add to this section discussion concerning influent strength, treatment processes and treatment capacity. Consider discussion of collection system (interceptors and mains).
- 4.3 Regional Wastewater Facility Planning:** Review with service providers, significant updates are anticipated. Emphasize indirect potable reuse (“IPR”) and de-emphasize residential irrigation reuse. Discuss plans to export reclaimed water outside the TMSA.
 - 4.3.1 North Valleys Planning:** No major changes anticipated. Discuss here (or elsewhere) the 2015 WateReuse Research Foundation MF-O3-BAC treatment study.
 - 4.3.2 Interconnection of Reno-Stead Water Reclamation Facility to Spanish Springs Valley:** No major changes anticipated.
 - 4.3.3 Interconnection of Truckee Meadows Water Reclamation Facility to South Truckee Meadows Water Reclamation Facility:** Significant planning is ongoing, update using most current information.
 - 4.3.4 Decommissioning of the Gold Ranch Wastewater Treatment Facility:** Delete section.
- 4.4 Wastewater Planning for Other Areas:** Review and update subsections as necessary, no major changes anticipated.
 - 4.4.1 Lower Truckee River**
 - 4.4.2 Warm Springs**
 - 4.4.3 Washoe Valley**
 - 4.4.4 Spanish Springs**

4.4.5 Lemmon Valley and Golden Valley

4.5 Septic Systems: Review and update as necessary, no major changes anticipated.

4.6 Watershed Management Programs to Protect the Availability and Quality of Water Resources: Review and update subsections as necessary.

4.6.1 Regulatory Considerations: Some significant changes anticipated. The discussion on TMDL review and revision should be expanded to include the State's water quality standards review and the third party recommendations based on LimnoTech's ("LTI") modeling work.

4.6.2 Truckee River Modeling for Water Quality: Significant changes anticipated. LTI's extensive water quality modeling work and compilation of a technical rationale document for review of the State nutrient water quality standards should be discussed.

4.6.3 Coordination with the PLPT's Water Quality and Quantity Goals: Significant changes anticipated considering PLPT's triennial review of water quality standards and proposed change to the Truckee River phosphorus standard. The possible effects of the proposed change on the State's phosphorus criteria, TMWRF and the planning area should be discussed.

4.6.4 Truckee Meadows Regional Storm Water Quality Management Program: Review with program staff, consider efforts to implement the 2010 permit, including update of storm water management program and the various elements, such as source identification, characterization, public outreach/education, maintenance activities, post-construction program, illicit discharge detection, industrial facility monitoring and control, construction site BMPs, construction site inspection, storm water monitoring, record keeping and reporting. Include available information on 2015 permit renewal and storm water waste load allocation. Update chapter sections as necessary.

4.6.5 Truckee River Coordinated Monitoring Program: No major changes anticipated.

4.6.6 Truckee River Information Gateway: No major changes anticipated.

4.6.7 Truckee River Water Quality Monitoring Data: Update using current information.

4.6.8 River and Stream Restoration: Update using current information.

4.6.9 Watershed Management and Protection in the Truckee Meadows: No major changes anticipated.

4.6.10 Watershed Management and Protection Projects: No major changes anticipated.

4.6.11 Other Programs: No major changes anticipated.

4.6.12 Public Outreach Programs: No major changes anticipated..

RECOMMENDATION

Staff recommends that the NNWPC accept the review notes on the Wastewater and Watershed-Based Water Quality Planning chapter of the 2011 RWMP, with or without changes, and provide direction to staff as appropriate concerning this chapter as part of the development of the 2016 RWMP update.

JS:jd

Northern Nevada Water Planning Commission

STAFF REPORT

DATE: August 27, 2015

TO: Chairman and Members, Northern Nevada Water Planning Commission (“NNWPC”)

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

SUBJECT: Presentation of staff comments on the “Issues and Action Plan” chapter for the 2016 Regional Water Management Plan (“RWMP”) update; discussion and possible direction to staff.

SUMMARY

Staff has reviewed Chapter 9 (Issues and Action Plan) of the 2011 RWMP, and has determined that while some elements remain valid and will be adequate for incorporation into the 2016 plan with minor updates, other portions of the chapter will likely require significant revisions. One of the most significant changes identified by staff will involve revising the discussion of Washoe County Department of Water Resources (“WCDWR”) and the South Truckee Meadows General Improvement District (“STMGID”) systems, which are now part of the Truckee Meadows Water Authority (“TMWA”) system following the consolidation / merger effective December 3, 2014. While some revisions will require coordination with local and state agencies, the majority of the elements which require input will be dependent on the update of the TMWA Water Resource Plan (“WRP”).

The following is a brief overview of sections within Chapter 3 that staff has identified for updating.

- 9.1 *Municipal Water Resources:*** The TMWA WRP will likely address and make significant revisions to issues and actions identified in sections *9.1.1 Central Truckee Meadows, 9.1.2 South Truckee Meadows, 9.1.3 Stead / Lemmon Valley, 9.1.5 Spanish Springs, 9.1.6 Lower Truckee River, and 9.1.7 Groundwater Resource Development and Impact to Domestic Wells.* Section *9.1.4 Cold Springs* will not likely have significant revisions.
- 9.2 *Water Conservation:*** Some updates and changes to the conservation plan should be expected; however, significant revisions to this section are not anticipated.
- 9.3 *Wastewater Management:*** Updates to specific issues, alternatives and proposed actions will be necessary for sections: *9.3.1 Central Truckee Meadows, 9.3.2 South Truckee Meadows, 9.3.3 Stead / Lemmon Valley, and 9.3.5 Lower Truckee River.* Minor changes are anticipated for sections: *9.3.4 Cold Springs, and 9.3.6 Septic Systems and Water Quality.*
- 9.4 *Truckee Meadows NPDES Storm Water Discharge Permit:*** Some updates will be necessary regarding the current status of the Municipal Storm Water Discharge Permit and proposed actions.
- 9.5 *Integrated Use of Water Rights:*** Staff anticipates TMWA will likely update the alternatives and proposed action elements within the section.

- 9.6 *Water Resources and Land Use Planning:*** Staff does not anticipate any significant changes to this section.
- 9.7 *Local Government Drainage Program:*** Staff does not anticipate any significant changes to this section.
- 9.8 *Regional Flood Plain Management and Flood Control:*** This section will likely require significant updating to reflect the current status of the flood project.
- 9.9 *Groundwater Quality Protection and Remediation:*** Staff anticipates some updates to section 9.9.1 *Groundwater Remediation* to reflect the current status of proposed action items. No changes are anticipated for section 9.9.2 *Groundwater Protection*.

RECOMMENDATION

Staff recommends that the NNWPC accept the review notes on Chapter 9 of the 2011 RWMP, with or without changes, and provide direction to staff as appropriate concerning this chapter as part of the development of the 2016 RWMP update.

CW:jd

Attachments: 2011 RWMP Chapter 9 with review annotations

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Chapter 9 – Issues and Action Plan

Purpose and Scope

The following sections develop summaries of regional water management issues that are introduced and discussed in preceding chapters. Summaries briefly discuss work that has been performed in response to the issues, identify alternatives if developed, and identify work needed to respond to remaining and newly identified issues. Proposed Action Items shown in Table 9-1 are recommendations for future work intended to guide the focus and activities of the Western Regional Water Commission (“WRWC”) and the Northern Nevada Water Planning Commission (“NNWPC”) for the next five years.

Introduction

Planning is an ongoing, iterative and evolutionary process that must adapt to changing conditions in the Planning Area. Uncertainty associated with changes that may occur over the next five years with factors such as the economy, funding sources for major infrastructure, population growth trends, the legal and regulatory environment, and climate projections, affect the recommendations for future work and the priority of those recommendations significantly. In addition, unforeseen developments may require entirely new future-work recommendations.

The following issue summaries are organized by category and as appropriate, geographic area, within a category. Key points are identified and briefly discussed under “Specific Issues and Linkages”. “Alternatives Evaluated to Address the Issues” summarizes work that has been performed in response to the issues. “Proposed Action Items” identify follow up activities proposed for the WRWC, NNWPC or other appropriate entities. Proposed Action Items under each of the numbered issue categories have unique identification numbers for reference in Table 9-1 and Table 9-2 (pages 9-36 and 9-38, respectively). Table 9-2 compiles Proposed Action Items related to all issues identified in this chapter. It also identifies a lead agency, coordinating agencies and whether the WRWC or NNWPC have a role in addressing the item. The table also indicates whether the item is currently being addressed by ongoing work, or expected to be addressed within the five-year *Regional Water Plan* update timeframe. The identification of lead and coordinating agencies is not intended to create a particular financial obligation on the part of any entity.

Table 9-1 includes only items for which the WRWC or NNWPC have a role and are to be addressed in the next five years. As stated above, this table is intended to provide guidance to the NNWPC and WRWC for work in the coming five years and form the basis for annual work plans. The NNWPC acknowledges that new information may result in the need to add or change the emphasis of Proposed Action Items, or eliminate them altogether, as may be appropriate from time to time.

9.1 *Municipal Water Resources*

9.1.1 Central Truckee Meadows

Specific Issues and Linkages

Truckee Meadows Water Authority (“TMWA”) developed and adopted its *2005-2025 Water Resource Plan* (“*2025 Water Resource Plan*”) in March 2003. In December 2009, TMWA’s *2030 Water Resource Plan* (“*2030 Water Resource Plan*”) was adopted following plan review, update, and/or modification of its water resource planning and management strategies due to a number of key events that have occurred or been completed since adoption of the *TMWA 2025 Water Resource Plan*, which include:

- Legislative directives modified regional water resource planning for the Truckee Meadows and led to the creation of the WRWC, which needs TMWA’s latest water resource strategies adopted and available to be incorporated into the *Regional Water Plan*, which is due January 1, 2011;
- Economic changes of the past few years at the national, state and local level have affected the growth activity and patterns for the Truckee Meadows resulting in a need to examine current population trends and their potential impact on water demands and resource requirements;
- The five Mandatory Signatory Parties (TMWA, Pyramid Lake Paiute Tribe [“PLPT”], California, Nevada, and the United States) and seven other parties signed the *Truckee River Operating Agreement* (“*TROA*”) on September 6, 2008; and
- Retrofit of more than 98 percent of the original 44,651 flat-rate water services that were required to be retrofit with water meters as part of the 1989 Negotiated River Settlement.

Linkages: Water rights balance with *TROA* implementation and wastewater effluent reuse.

Alternatives Evaluated to Address the Issues

On December 16, 2009, TMWA’s Board of Directors adopted the *2030 Water Resources Plan*. Issues addressed by the Plan include: Consolidation of TMWA and Washoe County Department of Water Resources (“WCDWR”) Water Operations, *TROA*, Sustainability of Source Water Supplies Related to Climate Change, Sustainability of Source Water Supplies Related to Drought, Sustainability of Source Water Supplies Related to Source Water Contamination, Water Rights Availability, Current Water Resources, Yield of Conjunctive Management of Water Resources, Population Projection, Water Demand Forecast, Water Production Facilities, Water Demand Management, and Future Water Resources.

The adopted TMWA *2030 Water Resource Plan* presents Key Findings and Recommendations associated with the issues identified above. These Key Findings and Recommendations are not reiterated within this Plan; however, several of the significant recommendations are summarized below. (Note: for further detail on these recommendations, the reader is referred to TMWA’s *2030 Water Resource Plan*, see Appendix B.)

Consolidation of TMWA and WCDWR Water Operations: The TMWA Board continues to participate in the process to fully evaluate and develop agreements leading to the consolidation of WCDWR’s water utility operations into TMWA.

Sustainability of Source Water Supplies Related to Climate Change: The TMWA Board: 1) Find that artificial restrictions on the management or implementation of water resources due to climate change are not warranted at this time; and 2) Continue to monitor and test for changes in climate in future planning efforts.

Sustainability of Source Water Supplies Related to Drought: The TMWA Board continues to use for planning purposes the worst drought cycle of hydrologic record for the Truckee River.

Sustainability of Source Water Supplies Related to Source Water Contamination: The TMWA Board continue to: 1) Implement its source water protection strategies in cooperation with local entities; 2) Maintain, as a minimum, the ability to meet daily indoor water use with its wells, and for river outages lasting up to seven days during a peak summer; and 3) Maintain the ability to meet average daily water using its wells, treated water storage, and enhanced conservation measures.

Water Rights Availability: The TMWA Board accept for planning purposes that the estimated number of mainstem Truckee River water resources is sufficient to support both TROA implementation and increased future development needs within TWMA's service areas.

Yield of Conjunctive Management of Water Resources: The TMWA Board: 1) Until TROA is implemented, recognize that although demands could expand through the continued conversion of irrigation water rights to municipal to 113,000 acre feet ("af") annually using an 8-year drought period use but manage demands to 110,000 af based on a 9-year drought period; and 2) Continue review of the performance of this standard based on factors such as demand growth, conservation improvements, hydrologic cycles, climate changes, etc. and update the Board should conditions change.

Water Demand Management: The TMWA Board: 1) Accept and adopt the Water Conservation Plan outlined in the *2030 Water Resource Plan*; 2) Recommend that the WRWC adopt for planning purposes the Drought Situation supply response classification system; 3) Submit the updated plan to the State of Nevada Division of Water Resources in fulfillment of Nevada Revised Statute ("NRS") 540.131-540.151; and 4) Direct staff to modify TMWA's Rule 2 to reflect changes in Assigned-Day Watering once implemented.

Future Water Resources: The TMWA Board continue to: 1) Support the efforts to implement TROA; and 2) Investigate, evaluate, and negotiate, where appropriate, other potential water supply projects consistent with and/or in addition to TROA.

In addition to the above recommendations adopted into TMWA's *2030 Water Resource Plan*, the following steps have addressed issues identified in the *2004-2025 Regional Water Plan*:

- ~~Arsenic Compliance — TMWA has successfully implemented its Arsenic Mitigation plans. Washoe County is in compliance with additional implementation underway for the South Truckee Meadows groundwater supplies.~~
- ~~Longley Lane Water Treatment Plant ("WTP") — WCDWR began operating a newly constructed surface water / groundwater treatment plant in 2007. The plant's operation eliminated the need for continuation of wholesale water service from TMWA, provides perchloroethylene ("PCE") and arsenic treatment on two wells, and increased system reliability.~~

- ~~Verdi— Facility planning and water resource planning to serve anticipated growth in the Boemtown/Verdi area have been completed by TMWA.~~

Proposed Action Items

9.1.1.A Negotiated Settlement (TROA) –The signatory parties are in the process of completing the necessary steps to implement TROA.

9.1.1.B Drought Standard – The NNWPC continues to recommend the use of the 9-Year Drought Cycle, and revise it if necessary during the next update of this Plan.

9.1.1.C Water Supply Development – TMWA ~~and Washoe County~~ will continue to pursue water supply projects that are economically feasible and that can be implemented to ensure water supplies are available, as future demands require.

9.1.1.D Participate in Bureau of Reclamation (“BOR”) climate change study for the Truckee River watershed ~~was completed [date], and ...expected to commence in 2014.~~

9.1.1.E Participate in the Desert Research Institute (“DRI”) cloud seeding program for the Lake Tahoe basin and the Truckee River basin, and coordinate with DRI’s efforts to continue the cloud seeding program statewide.

9.1.1.F Adopt TMWA’s 2030 Water Resource Plan into the 2011 Regional Water Plan.

Relevant Planning Documents

Truckee Meadows Water Authority, 2009, 2010-2030 Water Resource Plan

Truckee River Operating Agreement, 2008, www.usbr.gov/mp/troa/final/troa_final_09-08_full.pdf

Truckee Meadows Water Authority, 2003, 2005–2025 Water Resource Plan

9.1.2 South Truckee Meadows

Specific Issues and Linkages

In 2002, Washoe County through the Regional Water Planning Commission (“RWPC”), WCDWR and South Truckee Meadows General Improvement District (“STMGID”), completed an update to the water facility plans for the South Truckee Meadows. The *South Truckee Meadows Facility Plan* (ECO:LOGIC, 2002) provides a comprehensive water supply plan for build-out of the planning area, which encompasses an area stretching from just north of Double Diamond Ranch south to Pleasant Valley, east to the Virginia Foothills and west to Galena Forest.

The major goals of the Facility Plan were to:

- Utilize the creek resources to their highest and best beneficial uses, and balance beneficial municipal and industrial (“M&I”) uses with in-stream flow requirements for recharge, wildlife, riparian habitat, aesthetics and quality of life
- Ensure that recommended plans for water supplies and facilities conform to regional wastewater disposal / water quality requirements at the South Truckee Meadows Water Reclamation Facility (“STMWRF”) and Truckee Meadows Water Reclamation Facility (“TMWRF”)

- Allow development to proceed in a phased approach, keeping upfront capital costs low and total water service costs competitive, and provide reliable and economical utility service to the South Truckee Meadows
- Promote system integration, conjunctive use and expand reclaimed wastewater service to maximize the efficient use of water resources and facilities

Water supply needs also included consideration of existing and future domestic wells in the planning area. As presented in Section 6.3, Water Balance Model, the available groundwater resource is not over-utilized; however, relatively shallow domestic wells that penetrate the upper portion of the aquifer will continue to be affected by water level declines as a result of the combined pumping of both municipal and domestic wells.

Since completion of the 2002 *South Truckee Meadows Facility Plan*, a number of changes in the basic planning data made an update to the water facility plan necessary. Changes included modifications to planned land uses and planning area, unit demands, growth rate and changes in the location of available water resources. The draft *South Truckee Meadows Water Facility Plan Update* (ECO:LOGIC, 2009):

- Revises projected water demands based on the current planning area, existing and planned land uses and accepted unit demands.
- Updates the recommended water supply scenario presented in the 2002 *South Truckee Meadows Facility Plan* based on revised demands, new facility and water supply information, phasing plans and updated groundwater pumping projections.
- Incorporates groundwater modeling analyses to evaluate potential impacts to groundwater levels given new pumping scenarios and evaluates potential mitigation measures to groundwater drawdown if required.
- Updates the South Truckee Meadows and Hidden Valley water distribution system hydraulic models with current demand projections and water supply sources.
- Provides planning level opinions of probable cost for recommended facilities with project considerations and cost projections consistent with the requirements of NRS 278B.

Alternatives Evaluated to Address the Issues

Several water supply components are available in the South Truckee Meadows, including:

- WCDWR surface water supply from the Truckee River, groundwater and reclaimed water.
- Conversion of local tributary water rights (Thomas, Whites, Galena and Steamboat Creeks) from agricultural irrigation to municipal use as part of the proposed creek water exchange program to expand water service as creek water rights and connection fees are accumulated. Creek water would flow to the Truckee River “in exchange for” Truckee River water diversions to the Longley Lane WTP and TMWA’s surface water treatment facilities. The Truckee River resources will be delivered to the South Truckee Meadows area through existing distribution facilities.
- TMWA wholesale Truckee River water to the contract maximum of 5,400 gallons per minute (“gpm”) as per the existing agreement.
- Phased lower 8.5 million gallons per day (“MGD”) water treatment plant, identified in the draft 2009 *South Truckee Meadows Water Facility Plan update* for construction in 2029.
- Increase in TMWA wholesale water in approximately 2019.

The draft 2009 *South Truckee Meadows Water Facility Plan Update* addresses the natural variability of surface water and the impacts to groundwater supplies as a result of municipal well demands, domestic well demands, and local drought conditions. The plan also identifies and recognizes the needs of over 1,700 domestic well owners who share the local groundwater resource.

Proposed Action Items

9.1.2.A Continue development of the tributary creek water exchange program.

9.1.2.B Continue development of a plan to mitigate future groundwater level declines and potential impacts to domestic wells.

Relevant Planning Documents

ECO:LOGIC, 2009, *Draft South Truckee Meadows Water Facility Plan Update*, prepared for Washoe County Department of Water Resources.

ECO:LOGIC, 2002, *South Truckee Meadows Facility Plan*, prepared for the Regional Water Planning Commission, Washoe County Department of Water Resources, and South Truckee Meadows General Improvement District.

9.1.3 Stead / Lemmon Valley

Specific Issues and Linkages

The WCDWR 2009-2028 *Draft North Valleys Water Facility Plan* (ECO:LOGIC, 2009) identifies the water resources necessary to serve the WCDWR's service areas. These supplies are fully developed (local groundwater, imported Truckee River water, and imported Fish Springs Ranch groundwater); however, the infrastructure necessary to distribute these water supplies is underdeveloped. The significant effort for the Lemmon Valley area over the coming 20-year planning horizon is to develop the infrastructure necessary to distribute the water supplies to planned growth areas.

Alternatives Evaluated to Address the Issues

The WCDWR 2009-2028 *Draft North Valleys Water Facility Plan* evaluated different distribution infrastructure development alternatives and identified the preferred backbone water distribution infrastructure needed to serve the future growth areas. The opinion of probable cost for the needed distribution infrastructure is \$13.5 million. Since the cost of the infrastructure will substantially be borne by developers as development projects are brought forward, these improvements will occur some time in the future.

Proposed Action Items

9.1.3.A WCDWR and TMWA should develop a facility and financing plan for the required distribution system infrastructure in Lemmon Valley, including improvements necessary to integrate and utilize the Fish Springs water supplies for existing and future customers.

Relevant Planning Documents

ECO:LOGIC, 2009, *2009-2028 Draft North Valleys Water Facility Plan*, prepared for WCDWR.

9.1.4 Cold Springs

Specific Issues and Linkages

The demand for potable water supplies in Cold Springs will be met in the future using a combination of local groundwater resources, augmented with imported water supplies, such as the Fish Springs and Intermountain water importation projects. The 2030-2035 Regional Water Balance identifies a water supply imbalance that will need to be addressed over the long term. In particular, the combined demand from domestic wells and permitted municipal groundwater pumping exceeds the perennial yield of the Cold Springs basin. This is an issue that affects both existing and future water users and exists under both current and projected 2030-2035 conditions.

Plans for proposed water facilities are not integrated with the existing Utilities Inc. water system. Potential infrastructure savings could be realized with a conjunctive use operation of the two water systems.

Wastewater and storm water linkages:

- Nitrate contamination of groundwater has been observed in areas with high densities of septic tanks. The *1995-2015 Regional Water Plan* expressed concern over continued installation of septic tanks in this hydrographic basin.
- Importation of a new water supply into the Cold Springs hydrographic basin would result in the generation of additional effluent and storm water run-off volume in this closed basin.

Alternatives Evaluated to Address the Issues

- New development in Cold Springs is designed to minimize water consumption in order to extend the available water resources as far as possible
- A Cold Springs developer has consulted with WCDWR hydrology staff to determine the sustainable yield of the existing and proposed Utilities Inc. production wells
- The potential future water demands associated with development in Cold Springs were included in the *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan* (ECO:LOGIC, 2007), and the 2030 Regional Water Balance presented in Section 6.3.

Water resource management options are available to help mitigate the potential negative impacts due to the long-term imbalance. For instance:

- A portion of the supply from the Fish Springs Water Importation Project could be used to augment the available water resources.
- Conversion of domestic wells to the municipal water system, (municipal water systems are able to utilize and manage the groundwater resources more efficiently).

- Expanded groundwater recharge utilizing available water resources from basins with surplus water.
- Consider integrating plans for proposed facilities with the existing Utilities Inc. water system. Potential infrastructure savings could be realized with a conjunctive use operation of the two water systems.
- Consider expanded uses of reclaimed water, such as front and back yard residential landscape irrigation or groundwater recharge to offset future potable water demands.

Subsequent Activities and Additional Work Needed

9.1.4.A A facility plan needs to be completed for the build-out of approved land uses in the Cold Springs portion of the TMSA, including conjunctive use and system integration options with Utilities Inc.

9.1.4.B A comprehensive water resource plan needs to be prepared for Cold Springs and portions of the Long Valley hydrographic basin to estimate the perennial yield for the Water Baseline Table and the 2030 Regional Water Balance.

Relevant Planning Documents

ECO:LOGIC, 2007, *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan*, prepared for the City of Reno, Washoe County and RWPC.

ECO:LOGIC, 2005, *Fish Springs Ranch Facility Plan*

ECO:LOGIC, 2002, *North Valleys Water Supply Comparison*, prepared for the RWPC

JBR Environmental Consultants and Montgomery Watson, 1997, *Water Supply Alternatives Evaluation for the North Valleys*, prepared for the Washoe County Department of Comprehensive Planning.

9.1.5 Spanish Springs

Specific Issues and Linkages

Spanish Springs Valley includes water service areas within the jurisdictions of Sparks and Washoe County. The portion of the valley within the Sparks Sphere of Influence is served by TMWA from a combination of Truckee River water, Truckee Meadows groundwater and Spanish Springs groundwater pumped from TMWA wells. This portion of the hydrographic basin is managed in conjunction with TMWA's overall resource management plan. ~~WGDWR provides water~~ Water service to ~~its service areas in the~~ unincorporated areas of the valley is provided using local groundwater ~~recently~~ augmented with imported ~~TMWA~~ water from the Truckee Meadows basin.

Issues identified in the *1995-2015 Regional Water Plan* (RWPC, 1997), the *2004-2025 Regional Water Plan* (RWPC, 2005), the *Spanish Springs Valley Groundwater Budget Analysis* (ECO:LOGIC, 2004), and the *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan* (ECO:LOGIC, 2007) are related to future water demands as a result of growth in the unincorporated area, water quality impacts due to existing growth and diminishing groundwater recharge:

- Allocation of groundwater resources in Spanish Springs has resulted in a situation where water rights and cumulative groundwater pumping by all entities exceeds the perennial yield of groundwater resources.
- Land use changes from irrigated agriculture to residential, commercial and industrial uses result in reduction of recharge occurring from surface water irrigation via the Orr Ditch, potentially exacerbating groundwater deficits.

In addition, based on the [2030-2035](#) Regional Water Balance presented in Section 6.2, a water supply imbalance will need to be addressed over the long-term.

Linkages: Nitrate contamination of groundwater because of septic tank density.

Alternatives Evaluated to Address the Issues

A number of actions have been taken to manage water resources for long-term sustainability in the Spanish Springs Valley. Most recently, WCDWR began implementation of a strategy developed in a series of reports and plans from 2004 to 2007 to address water rights and groundwater pumping imbalances by decreasing reliance on groundwater and using more water resources imported from the Truckee Meadows basin. Washoe County holds 3,378 af of permitted groundwater rights and is working to voluntarily limit its pumping to approximately 1,800 acre feet annually (“afa”). The sources of water required to satisfy the demands of approved development in the Spanish Springs Valley have been identified and secured through a wholesale agreement between Washoe County and TMWA. Coordination of stakeholders within the basin is key to the success of a long-term groundwater management strategy.

- In 1996, WCDWR adopted policies requiring the dedication of water rights when new parcels are created via the parcel map process in an effort to better balance water rights and water resources and enable future mitigation of possible water level declines.
- In 1997, the United States Geological Survey (“USGS”) developed a groundwater model of the Spanish Springs hydrographic basin detailing the sources and quantity of the groundwater resource.
- In 2002, WCDWR developed a multi-faceted plan for the management of nitrates in the aquifer, including conversion of septic tanks to the sewer system as funding becomes available.
- In 2003, the RWPC developed water policies seeking to ensure that new commitments against the groundwater resource do not exceed the sustainable yield.
- WCDWR prepared the 2004 *Spanish Springs Water Facility Plan*, a comprehensive plan that identifies the water resources and infrastructure required to serve build-out of approved land uses in the unincorporated area.
- The RWPC sponsored preparation of the 2004 *Orr Ditch Recharge Study* that includes long-term water balance and management strategies for the Spanish Springs hydrographic basin.
- In 2006, WCDWR entered into a wholesale agreement for importation of 3,000 afa of TMWA resources to serve future growth in the unincorporated area.
- In 2006, Sparks extended TMWRF reclaimed water infrastructure far into the valley, enabling the use of reclaimed water to offset demands on the municipal water system.

- In 2007, WCDWR completed Phase 1A of the Spanish Springs Phased Sewer Project, which converted 211 residential units and an elementary school from septic systems to community sewer for protection of groundwater quality.
- TMWA and WCDWR completed construction of interties at Canoe Hill, Campello and Lazy Five Parkway and WCDWR has implemented conjunctive use of groundwater and imported water by way of these interties.
- In 2009, WCDWR integrated the Desert Springs, Spring Creek and Spring Creek East water systems into a single system for operational flexibility and reliability.
- In 2010, based on permits issued by Nevada Division of Environmental Protection (“NDEP”) and State Engineer, TMWA recharged 268 af in its Hawkins Court Well located in the southeast corner of the basin.

Subsequent Activities and Additional Work Needed

9.1.5.A Develop a long-term groundwater management strategy. Stakeholders include WCDWR, TMWA, the Sky Ranch Water Company, City of Sparks, domestic well owners, the Red Hawk Golf Course, Granite, Sha-Neva and Donovan quarry owners and other water rights owners.

9.1.5.B Monitor groundwater pumping and aquifer water levels to avoid long-term over-pumping.

9.1.5.C Continue implementing phased conversion of areas with high densities of septic tanks to community sewer system as funding is made available.

Relevant Planning Documents

AMEC, 2000, *Sparks Effluent Pipeline Extension*, prepared for City of Sparks.

ECO:LOGIC, 2007, *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan*, prepared for the City of Reno, Washoe County and RWPC.

ECO:LOGIC, 2007, *Spanish Springs Water Facility Plan Update*, prepared for WCDWR.

ECO:LOGIC, 2004, *Orr Ditch Recharge Study*, prepared for RWPC.

ECO:LOGIC, 2004, *Spanish Springs Water Facility Plan*, prepared for WCDWR.

RWPC, 2005, *2004-2025 Washoe County Comprehensive Regional Water Management Plan*.

RWPC, 1997, *1995-2015 Washoe County Comprehensive Regional Water Management Plan*.

Truckee Meadows Water Authority, 2010, *Report on Aquifer Storage and Recovery, Spanish Springs Valley Hydrographic Basin, Jan 1 through June 30, 2010*.

Truckee Meadows Water Authority, 2003, *2005–2025 Water Resource Plan*.

US Geological Survey, 1997, *Hydrogeology and Simulated Effects of Urban Development on Water Resources of Spanish Springs Valley, Washoe County, West-Central Nevada*, Water Resources Investigations Report 96-4297.

Washoe County Department of Water Resources, 2002, *Spanish Springs Valley Nitrate Occurrence Facility Plan*, prepared for the Nevada Division of Environmental Protection.

9.1.6 Lower Truckee River

Specific Issues and Linkages

Industrially zoned lands are concentrated in the Mustang and Patrick / Tracy areas. Existing wells are low volume producers, although there are well locations that show promise. Planning evaluations concluded that the use of existing wells has a lower overall cost than importation of water from Sparks, even with expected treatment requirements to meet drinking water standards. Currently, the development of a technology park is being proposed that contemplates the use of 4,000 afa of TMWRF reclaimed water via a new pipeline. The reclaimed water would be used for cooling a generation complex to supply dedicated power to a data center technology campus. Initial water service would be provided by wells using 1,125 af of permitted groundwater rights.

Linkages: Joint water supply planning and facility sharing with Storey County may reduce overall costs and infrastructure requirements.

Alternatives Evaluated to Address the Issues

Facility planning identified proposed industrial development along the lower Truckee River, which will require the construction of water supply and distribution facilities. Key issues include:

- Cost and phasing of facilities and water rights.
- Mustang Area Water: Provide water supply improvements (existing wells) and distribution facilities to serve 20 parcels with 261 developable acres.
- Tracy Area Water: Provide water supply improvements and distribution facilities serving three pressure zones, serving 10 parcels covering 891 developable acres.

Proposed Action Items

9.1.6.A Update the Water and Wastewater Facility Plans for East Truckee Corridor that includes analysis of the current development proposals and approved development potential within the Truckee Meadows Service Areas boundary.

9.1.6.B Coordination with Storey County regarding existing commitments and future potential demands for the entire Tracy Segment hydrographic basin.

9.1.6.C Development of a position statement regarding construction of surface water treatment facilities in the Lower Truckee River.

Relevant Planning Documents

AGRA Infrastructure, 2000, *Water and Wastewater Facility Plans on Industrial Zoned Lands Along the Lower Truckee River within Washoe County*, prepared for RWPC.

Stantec Consultants, 2008, *City of Sparks TMSA/FSA Conceptual Facility Master Plan*

9.1.7 Groundwater Resource Development and Impact to Domestic Wells

Specific Issues and Linkages

- A number of domestic wells have failed in two locations within the planning area because of declining water table elevations: Heppner Subdivision in north Lemmon Valley and the Mt. Rose Fan / Callahan Ranch area of the southwest Truckee Meadows. In a third location, Golden Valley, domestic wells have experienced water level declines in addition to septic system related water quality deterioration.
- Several factors can affect domestic wells including drought conditions and the natural variability of annual aquifer recharge, domestic well density, hydrogeologic conditions such as fractured rock aquifers having poor yields, inadequate aquifer penetration at initial construction, age and condition of the domestic well, and municipal groundwater pumping.
- Converting properties with domestic wells to municipal water supply is costly.
- Uncertainty and disagreement commonly exist regarding responsibility for resolving water supply issues in areas where municipal production wells co-exist with domestic wells.
- State water law recognizes the importance of domestic wells as appurtenances to private homes and creates a “protectible interest” to protect their water supply from unreasonable adverse effects caused by municipal, quasi-municipal or industrial uses which cannot be reasonably mitigated (NRS 533.024.2(b)).
- State water law allows the State Engineer to prohibit the drilling of domestic wells in areas where water can be furnished by an entity such as a water district or a municipality presently engaged in furnishing water to the inhabitants thereof (NRS 434.120.3(d)).

Linkages: Conjunctive use of surface water and groundwater resources in South Truckee Meadows

Alternatives Evaluated to Address the Issues

- A WCDWR program to model groundwater basins supports decision making for groundwater system operations and helps evaluate possible impacts of alternate long-term operating scenarios.
- The Golden Valley Recharge Project enhances water resources available to domestic wells.
- South Truckee Meadows Facility Plan for conjunctive use of surface and groundwater resources includes a limitation on overall groundwater pumping from municipal wells that considers impacts to domestic wells.
- WCDWR and STMGID are providing opportunities for domestic well owners to connect to existing municipal water systems in the South Truckee Meadows.
- WCDWR is using federal grant funds to offer significantly reduced connection fees to Heppner Subdivision domestic well owners wishing to connect to the existing municipal water system.
- The Washoe County Groundwater Task Force was formed in November 2001 and a Final Report was completed in June 2003.

- The Washoe County Well Mitigation Hearing Board (“WMHB”), active from 2004 through 2008, reviewed 40 domestic well mitigation applications.
- WCDWR is developing a new programmatic approach that aims to treat all affected properties equitably, eliminate the burden on property owners of developing and presenting a claim to the WMHB, and reduce the wait-time and internal costs of providing mitigation.
- WCDWR is developing a legislatively-authorized financing program to assist property owners needing to connect to County water systems, primarily in Heppner and Callahan Ranch, but who are unable to afford up-front costs.

Proposed Action Items

9.1.7.A WCDWR is expected to complete the reassessment of its well mitigation approach and finalize the programmatic mitigation program.

Relevant Planning Documents

ECO:LOGIC, 2002, *South Truckee Meadows Facility Plan*, prepared for the RWPC, Washoe County Department of Water Resources, and South Truckee Meadows General Improvement District.

RWPC Groundwater Task Force, 2003, *Final Report to the RWPC by the Groundwater Task Force*.

9.2 Water Conservation

Specific Issues and Linkages

Chapter 7 describes the benefits of water conservation and characterizes the status of water conservation efforts to date. There are some unique issues regarding water conservation in TMWA’s system that affect the use of conserved water; see *TMWA 2030 Water Resource Plan*. A summary of conservation issues in Chapter 7 includes the following:

- Under existing regulatory and legal constraints, water that is not diverted from the Truckee River as a result of conservation is left in the river, stored upstream in reservoirs for use during droughts or for fish and wildlife purposes, or used to recharge groundwater. This conserved water is not available to supply additional growth.
- The *1995-2015 Regional Water Plan* developed a “Base Case” conservation plan that included a suite of seven conservation measures to be implemented in the five-year timeframe following plan adoption. Conservation measures proposed included new building practices, showerhead retrofit, toilet retrofit, landscape efficiency conservation, good earth-keeping, increasing block water rates, and water meter retrofit. Although potable water demand projections used as the basis for the Base Case conservation have been revised using recent data, amendments to the *Regional Water Plan* in 2005 and 2009 state that the pursuit of Base Case conservation is desirable and beneficial to the planning area. In addition to monitoring water conservation progress, the *Regional Water Plan* will continue to evaluate whether existing conservation programs are effective and practicable, and whether programs should be added or deleted.
- In 2004, TMWA’s Technical Advisory Committee (“TAC”) formed a Landscape Subcommittee to address increasing customer complaints about landscape standards

approved by the local governments and the lack of consistent enforcement of the water conservation elements of the ordinances. The subcommittee, comprised of three voting members representing Reno, Sparks and Washoe County, developed findings and recommendations regarding landscape ordinances (see Appendix H). RWPC staff participated in the development of the recommendations. TMWA and RWPC staff presented the final report to the Reno City Council, Sparks City Council and Washoe County Board of Commissioners at a joint meeting in 2005. At that meeting, the governing boards directed their respective staffs to prepare code amendments to address the findings and recommendations. The RWPC considered enforcement of the entities' landscaping ordinances to be a major objective and included this in the 2009 amendment to the *Regional Water Plan*. The RWPC also recommended working with the local entities and water purveyors on updating their landscaping ordinances, encouraging them to incorporate water efficiency design features for commercial and residential landscapes.

Action Taken / Alternatives Evaluated to Address the Issues

Conservation measures that have been implemented include:

- Conservation ordinances have been adopted by all three local governments.
- Evapotranspiration (“ET”) weather station and irrigation controller studies have been completed.
- TMWA and WCDWR have implemented inverted block rate structures.
- TMWA connections are over 96 percent metered.
- The toilet retrofit program has been completed.
- TMWA has implemented a multi-faceted public awareness and education program, including water use review, landscape efficiency and assigned day watering.
- TMWA has been granted authority to enforce water-wasting regulations.
- Local governments have adopted new building codes.
- Various public education and professional development programs have been implemented, such as the Certified Landscape Technician Exam and Washoe Evapotranspiration Website.
- Expansion of the reclaimed water system to offset demands on potable water supplies.
- TMWA has implemented a three-day-a-week watering schedule.

Although Base Case conservation measures have been effectively implemented, Chapter 7 includes an extensive listing of additional conservation measures that could also be implemented for additional water savings.

The 2009 amendment to the *Regional Water Plan* recommends continuing to work with the local governmental entities and water purveyors on updating their landscape codes, and encouraging them to incorporate water efficiency design features for commercial and residential landscapes.

Subsequent Activities and Additional Work Needed

9.2.A Continued implementation of conservation measures to achieve Base Case conservation.

Relevant Planning Documents

Carlos, W. J., Miller, W., Devitt, D. A., Fernandez, G., 2004, *Evapotranspiration Satellite Irrigation Controller Study*

RWPC, 1997, *1995 – 2015 Washoe County Comprehensive Regional Water Management Plan*

TMWA, 2009, *2030 Water Resources Plan*

Volt VIEWtech, 2003, *Ultra Low Flush Toilet Rebate Program Final Report*. Prepared for the RWPC

9.3 Wastewater Management

9.3.1 Central Truckee Meadows

Specific Issues and Linkages

TMWRF provides centralized wastewater treatment for most of the community, including development in the central Truckee Meadows and portions of adjoining basins. To meet National Pollutant Discharge Elimination System (“NPDES”) permit requirements for discharge to the Truckee River, TMWRF must achieve balance between treatment process improvements, reclaimed water needs and water rights requirements, Truckee River water quality, and various other inter-related, regional water management objectives.

TMWRF has a permitted capacity of 44 MGD, a design capacity of 40 MGD, and currently operates at about 28 MGD. The actual maximum-month-flow design capacity of 40 MGD is due to increased biological oxygen demand (“BOD”) wastewater strength resulting from indoor water conservation (low flow fixtures and water meters) and inflow and infiltration (“I&I”) reduction. Despite the decrease from 44 to 40 MGD, the revised flow capacity accommodates 110 percent of the Phase III expansion design population (approximately 433,000 vs. 398,000) because the actual flow per residential unit is less than historical flow rates.

During the irrigation season, typically April through September, approximately 4,000 af of TMWRF reclaimed water is pumped to reuse sites in Reno and Sparks. TMWRF also serves as a regional biosolids facility, treating waste activated sludge from both the Reno-Stead Water Reclamation Facility (“RSWRF”) and STMWRF. TMWRF has an estimated replacement value of at least \$500 million.

Following is a concise listing of the key issues concerning TMWRF. Chapters 4 and 6 include more extensive discussions of these issues. Chapter 4 also includes further information on watershed management programs aimed at protecting water quality.

- Options to achieve state water quality standards (“WQS”) in the Truckee River include Total Maximum Daily Load (“TMDL”) review and revision, coordination with PLPT *Water Quality Control Plan* criteria, facility modifications at TMWRF, implementation of pollutant trading projects and implementation of lower Truckee River restoration projects. Further analyses could lead to a more complete understanding of the river system and possibilities for increased flexibility in TMWRF discharge permit conditions.
- Constraints on discharge to the Truckee River due to NPDES discharge permit requirements related to TMDLs for the Truckee River.

- Truckee River water rights dedications to meet return flow requirements may be needed for the possible future expansion of reclaimed water use, such as irrigation, year round industrial use of reclaimed water, groundwater recharge and/or indirect potable reuse. Water rights dedications are also necessary to maintain Truckee River in-stream flows and improve water quality, and for many other purposes. Section 9.5 addresses the integrated use of water rights.
- Based on: a) 2030 flow projections identified in the Regional Water Balance presented in Chapter 6, b) approximately 33,600 af is discharged annually to the river and, c) 4,000 af of reclaimed water is used for irrigation, roughly 7,700 af of additional disposal capacity will be required.

Alternatives Evaluated to Address the Issues

Phase III expansion of TMWRF was completed in 2007. The goal of the project was to replace older equipment, upgrade treatment processes, and increase the permitted capacity of TMWRF to 46.5 MGD.

Downstream river restoration work will help restore the river ecosystem, flood plain, increase the nutrient assimilative capacity of the river and improve water quality.

The completion of the Lawton/Verdi Sewer Interceptor will provide the opportunity to reduce pollutant loads to the Truckee River in the Verdi area (Truckee Canyon hydrographic basin). To date, two out of three small wastewater treatment plants, Boomtown and Verdi Meadows, have been decommissioned and connected to the interceptor. The Interceptor will allow for the future decommissioning of the Gold Ranch wastewater treatment plant; as well as removal of numerous individual septic systems.

Plans for wastewater infrastructure improvements to provide for the future needs of the Planning Area's service providers were completed in late 2007 and early 2008: the *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan* (ECO:LOGIC, 2007) and the *City of Sparks Conceptual Facility Master Plan* (Stantec, 2008). These facility plans are the most current regional planning-level compilations available.

In September 2008, the PLPT adopted a Water Quality Control Plan ("WQCP"), which addresses issues such as beneficial uses, anti-degradation, water quality criteria, scientific justification, and implementation plans. The WQCP includes narrative and numeric WQS for Pyramid Lake, the lower Truckee River and all surface waters within the PLPT Reservation.

Reno, Sparks, Washoe County and TMWA have initiated a Third Party effort to review and revise the Truckee River total nitrogen and total phosphorus (collectively "nutrients") TMDLs. NDEP and the Environmental Protection Agency ("EPA") have agreed that a review of the 1994 TMDLs is appropriate to determine whether the assumptions made during 1994 are valid, and to identify new scientific and technical information and/or changes in conditions and river operations that may warrant a different approach to addressing nutrient issues in the watershed. Review of total nitrogen ("TN") and total phosphorus ("TP") WQS will be included in the effort. It is understood that NDEP may adopt, modify or reject a Third Party TMDL, and that EPA approval is also necessary. EPA may disapprove if it finds the TMDL review process did not follow the Clean Water Act ("CWA"), federal regulations, or minimum required public process.

The State of Nevada WQS for TN and TP for the Truckee River should be reviewed under the provisions of the CWA. The TP WQS has been in place since 1984 and was based on non-site specific national standards. In contrast, the PLPT's orthophosphate criterion for the river within the PLPT Reservation is based on a current understanding of water quality objectives and the river system (see Section 4.6.3). Given the inconsistency between the state and PLPT criteria, the years of scientific monitoring and analysis of the Truckee River, and the continued refinement of the river water quality models, it is appropriate to evaluate alternatives to the current TP WQS. The total nitrogen WQS has also been in place for many years, but it was developed as a site specific standard. The state of the science relating nitrogen and phosphorus concentrations to dissolved oxygen has progressed significantly since the state criteria were developed and a review would be timely to assure that the TP criterion is appropriate for protecting the designated beneficial uses without being overly restrictive.

The WRWC has provided funding support since 2008 for technical and legal assistance for the Third Party TMDL and WQS review process.

Proposed Action Items

9.3.1.A Continue Third Party review of the 1994 nutrient TMDLs and applicable WQS in coordination with state and federal regulatory authorities, and the PLPT's water quality and quantity goals, to demonstrate that continued discharge to the Truckee River from TMWRF is an environmentally sound practice.

9.3.1.B Continue technical, modeling and legal work to support the TMDL and WQS review and discussions with NDEP and EPA.

9.3.1.C Continue working with the Third Parties to facilitate public outreach, in consultation with NDEP and EPA, and obtain input from affected stakeholders at key decision points in the TMDL and WQS review and revision process.

9.3.1.D Pursue connection of additional reclaimed water users to the existing systems in Sparks and Reno, consistent with regional water quality and water rights considerations, and continue investigating the feasibility of expanded uses of reclaimed water.

9.3.1.E Evaluate the merits of regional integrated solutions between TMWRF and STMWRF for the treatment and disposal of wastewater.

Relevant Planning Documents

Buzzzone and Svetich, October 9, 2009, Truckee River Total Maximum Daily Load, presentation to the WRWC.

ECO:LOGIC, 2007, *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan*, prepared for the City of Reno, Washoe County and RWPC.

Kennedy/Jenks Consultants and Stantec Consulting Engineers, 2005, *Spanish Springs Valley Water Reclamation Facility Plan*

Pyramid Lake Paiute Tribe, 2001, *Water Quality Control Plan*

Stantec, 2008, *City of Sparks Conceptual Facility Master Plan*, prepared for the City of Sparks and RWPC.

9.3.2 South Truckee Meadows

Specific Issues and Linkages

WCDWR operates the STMWRF, which provides service primarily for the Double Diamond and Damonte Ranch areas of Reno, and unincorporated Washoe County including the Virginia Foothills and Mt. Rose fan. STMWRF is one of the few water reclamation facilities in the United States relying exclusively on effluent reuse for disposal of the treated wastewater. Presently, sludge disposal is handled via pumping to TMWRF for treatment and disposal.

Alternatives Evaluated to Address the Issues

Plans for wastewater infrastructure improvements for the future needs of the Planning Area's service providers resulted in the *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan* (ECO:LOGIC, 2007) and the *City of Sparks Conceptual Facility Master Plan* (Stantec, 2008). These plans are the most current regional planning-level compilations available.

STMWRF is permitted to treat a maximum month average day flow of 4.1 MGD. To provide detailed information on upcoming capacity needs, WCDWR prepared a 2008 Draft Facility Plan Update for "fix and finish" and capacity improvements that will provide for a maximum month treatment process capacity of 6.0 MGD.

Huffaker Reservoir was constructed in 1988 and has a capacity of approximately 4,000 af. Seepage losses from the reservoir have placed additional demands on the reclaimed water resource, which historically has been augmented by the addition of water from Thomas and Whites Creeks. To conserve water and mitigate concerns regarding groundwater quality impacts from reservoir seepage, a partial lining of Huffaker Reservoir was completed in 2008. [A second phase of reservoir upgrade will be completed by the end of 2015 and will result in the lining of 54 percent of the reservoir.](#)

Based on the 2030 flow projections from the Regional Water Balance presented in Chapter 6, roughly 5,700 af of additional treatment and disposal capacity will be required when STMWRF is expanded to 6 MGD. However, expansion to 6 MGD is not anticipated to be needed within the next 5 to 10 years. Fix and finish improvements are proposed to maintain existing capacity and increase reliability, and consist primarily of control system, effluent pumping, electrical improvements, and upgrades to the headworks and effluent filtration equipment.

In regard to solids handling improvements, the recommendation from the *Draft Facility Plan Update, South Truckee Meadows Water Reclamation Facility 6-MGD Expansion Project* (CH2MHill / Stantec, 2008) is to continue sending sludge to TMWRF for as long as TMWRF has available capacity. Eventually, STMWRF sludge will be processed on site for beneficial use or disposal.

The use of creek water to supplement reclaimed water supplies will likely diminish to zero by 2015 as flows to the plant increase. Additional reuse sites or new reuse practices will need to be identified to use all of the reclaimed water that will be produced within the 20-year current planning horizon.

Proposed Action Items

9.3.2.A Actively pursue a new reclaimed water strategy to continually balance the increasing supply with available storage capacity and demand. Alternative reuse methods should be explored in detail, in coordination with NDEP, such as reclaimed water aquifer storage and recovery (“ASR”) and cooling water for energy generation facilities.

9.3.2.B In regard to the potential regional implications of reclaimed water ASR and indirect potable reuse, it is recommended that the Reno Stead ozone-biological activated carbon (“BAC”) pilot plant feasibility evaluation be continued at STMWRF to more fully optimize the technology.

9.3.2.C As discussed in Section 9.3.1, evaluate the merits of regional integrated solutions between TMWRF and STMWRF for the treatment and disposal of wastewater, including funding considerations.

Relevant Planning Documents

CH2MHill / Stantec, 2008, *Draft Facility Plan Update, South Truckee Meadows Water Reclamation Facility 6-MGD Expansion Project* .

ECO:LOGIC, 2007, *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan*.

Stantec Consultants, 2008, *City of Sparks TMSA/FSA Conceptual Facility Master Plan*.

9.3.3 Stead / Lemmon Valley

Specific Issues and Linkages

The RSWRF is located in Stead and is owned and operated by the City of Reno. RSWRF is permitted to treat a maximum month average day flow of 2.35 MGD. The plant effluent either discharges by gravity to Swan Creek, which drains to the Swan Lake wetlands, or it is reclaimed and pumped to several sites within the community for turf irrigation. Washoe County owns and operates the Lemmon Valley Water Reclamation Facility (“LVWRF”). It is a secondary treatment plant that has a permitted capacity of 0.3 MGD, with disposal by evaporation ponds.

Future water supplies will be provided by imported water, primarily from the Fish Springs Water Supply Project. As presented in the *North Valleys Effluent Disposal Options* report, (ECO:LOGIC, 2005) and the *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan* (ECO:LOGIC, 2007), indicate that other means of reuse or disposal of reclaimed water will be needed based on the long-term development potential of the area. As presented in Chapter 4, the North Valleys Initiative (“NVI”) evaluated the feasibility and merits of expanding reclaimed water uses in Stead and Lemmon Valley. The Cold Springs Water Reclamation Facility (“CSWRF”) was also included in the NVI evaluation, since it too is located within a closed basin and its disposal capacity will not be sufficient for the projected future flows.

Alternatives Evaluated to Address the Issues

The City of Reno completed the RSWRF Phase 2 expansion improvements, which increased treatment and disposal capacity to 2.35 MGD, with specific improvements sized to accommodate higher flows. Similar to STMWRF, sludge disposal is handled by pumping to

TMWRF for treatment and disposal. Eventually, RSWRF sludge will be processed on site for beneficial use or disposal.

Consistent with the recommendations from the *2004 – 2025 Regional Water Management Plan*, Reno and the RWPC investigated numerous “treatment and disposal alternatives for RSWRF that support an integrated plan for the region’s limited water resources, particularly water supply, effluent management and flood plain management strategies for this closed basin”. These alternative investigations included:

- A feasibility assessment of an effluent storage reservoir,
- An assessment of rapid infiltration basin (“RIB”) and vadose zone infiltration wells,
- A small scale pilot test of direct injection on three Washoe County test wells,
- Evaluation of disposal alternatives including White Lake, Long Valley Creek, and a pipeline connection to Spanish Springs,
- Expansion of the existing reclaimed water system to supply additional commercial irrigation needs.

The NVI team also investigated other options that would make better use of the reclaimed water resource, including an evaluation of the merits of a dual water system to provide irrigation water to residential customers, and an assessment of the feasibility of effluent ASR using a groundwater flow model to estimate the recharge storage capacity and identify potential impacts to nearby municipal wells.

To evaluate water quality issues associated with effluent ASR without using expensive reverse osmosis treatment, Reno developed an alternative treatment demonstration project using either sand filtration or membrane filtration, ozonation, and biologically activated carbon.

Based on the 2030 flow projections identified in the Regional Water Balance presented in Chapter 6, expansion of the current treatment capacity to 4.0 MGD is projected to be sufficient for up to 20 years, but new reuse or disposal options need to be developed.

Based on the evaluation of disposal alternatives, the potential for RIBs or vadose wells to dispose of significant quantities of effluent within the Stead / Lemmon Valley area is limited. A feasible 3,000 af effluent storage reservoir site was identified; however, its capacity is not sufficient to meet long term needs, and other non-irrigation season disposal options will be required.

Results from the effluent ASR groundwater modeling work indicate that recharged water is unlikely to negatively influence the nearest municipal well at injection rates up to 2 MGD. A recharge program would improve groundwater levels within the west and east Lemmon Valley basins, and would benefit both municipal and domestic well users by reducing drawdown and pumping costs. Current calculations indicate that total dissolved solids (“TDS”) from the recharged water would not likely reach the municipal supply wells for at least 60 years and the TDS would be substantially diluted as a result of advection and dispersion within the aquifer.

Compared to high energy reverse osmosis (“RO”) systems, Reno’s alternative treatment process was effective in providing multi-barrier treatment for all major categories of contaminants of concern. The process benefits include lower capital costs, lower operation and

maintenance costs and lower energy use compared to RO. Additionally, it eliminates treatment and disposal of process reject water, produced by RO.

Each of the treatment and disposal options is expensive; therefore, the region should make the investment that maximizes the benefits provided by the available water resources.

Proposed Action Items

9.3.3.A Continue to evaluate the merits of regional integrated solutions between RSWRF and CSWRF for the treatment and disposal of wastewater, including funding considerations.

9.3.3.B Continue to work with NDEP on proposed effluent ASR regulations, including additional groundwater modeling assessments of aquifer storage and recovery capacity for long-term viability, and establishing appropriate water quality standards for the protection of water resources, public health and the environment.

Relevant Planning Documents

ECO:LOGIC, August 2010, *Removing Refractory Organics from Wastewater Using MF-03-BAC Treatment (Draft)*.

ECO:LOGIC, July 2010, *North Valleys Initiative*, Prepared for Washoe County.

ECO:LOGIC, February 2010, *Treated Effluent Recharge Estimates, Lemmon, Cold Springs, Spanish Springs, Warm Springs and South Truckee Meadows Valleys*.

ECO:LOGIC, 2007, *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan*, ECO:LOGIC, Prepared for City of Reno and Washoe County.

ECO:LOGIC, 2006, *North Valleys Reservoir Site, Results of Geological and Geotechnical Evaluations*, prepared for City of Reno.

ECO:LOGIC, 2005, *City Of Reno, North Valleys Effluent Disposal, Stead Vadose Zone Injection Wells Construction and Testing*, prepared for City of Reno.

ECO:LOGIC, 2005, *North Valleys Effluent Disposal Options*, prepared for the City of Reno and the Regional Water Planning Commission

ECO:LOGIC, 2005, *Washoe County Site, Injection Test Results Summary*, prepared for Washoe County.

Stantec, 2007, *City of Sparks Conceptual Facility Master Plan*, Stantec, Prepared for City of Sparks.

WCDWR, December 2009, *Groundwater Flow and TDS Transport Modeling, Lemmon Valley, NV*.

9.3.4 Cold Springs

Specific Issues and Linkages

The CSWRF is owned and operated by the WCDWR, and is permitted to treat a peak month average day flow of 0.7 MGD. The CSWRF was included in the NVI evaluation, since it too is located within a closed basin and its disposal capacity will not be sufficient for the projected future flows. ECO:LOGIC (2007) determined that other means of disposal or reuse of reclaimed water will be needed based on the long-term development potential of the area.

Several integrated water and wastewater issues are only partially understood, including: long term water supply availability within the basin, taking into consideration demands from both municipal and domestic wells; capability to assess water quality considerations, including TDS, nitrate, fate of the effluent disposed by the RIBs, and the potential for reclaimed water ASR; aquifer storage capacity; and coordination with the White Lake 100-year flood level.

Alternatives Evaluated to Address the Issues

The CSWRF has recently been upgraded to a new 0.7 MGD facility. Secondary treated wastewater is denitrified and disposed of at 12 rapid infiltration basins with a capacity of up to 1.2 MGD.

Nancy Gomes Elementary school was connected to the municipal sewer system, together with about ten existing residences. About one or two existing homes currently on septic systems convert to the municipal sewer system each year.

Based on the 2030-2035 flow projections identified in the Regional Water Balance, treatment will need to be expanded to 1.2 MGD. Disposal capacity is projected to be sufficient for up to 20 years; however, plans for future disposal options will need to be developed. Reno and the RWPC investigated numerous treatment and disposal alternatives for RSWRF and CSWRF. In the Cold Springs area, these alternative investigations included:

- A feasibility assessment of an effluent storage reservoir.
- Evaluation of disposal to White Lake, which is feasible; but limited due to the reduction in flood storage capacity, and the potential mobilization of high TDS shallow groundwater. Increasing shallow groundwater levels adjacent to the playa could affect domestic wells and septic systems.
- Evaluation of disposal to Long Valley Creek, which flows into California. This is a “permissible” and technically feasible option, but it does not make efficient use of available water resources.

As discussed in the prior section, the NVI team also investigated options that would make better use of the reclaimed water resource, including:

- Evaluation of a dual water system to provide irrigation water to residential customers
- A feasibility assessment of reclaimed water aquifer storage and recovery

Proposed Action Items

9.3.4.A Continue to evaluate the merits of regional integrated solutions between CSWRF and RSWRF for the treatment and disposal of wastewater, including funding considerations.

9.3.4.B Update and refine the existing WCDWR groundwater model for Cold Springs to address interrelated groundwater, surface water and wastewater issues.

Relevant Planning Documents

ECO:LOGIC, 2007, *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan*, Prepared for City of Reno and Washoe County.

ECO:LOGIC, 2006, *White Lake Playa and Vicinity, Results of Geological and Hydrogeological Evaluations*, Prepared for Washoe County.

Stantec, 2007, *City of Sparks Conceptual Facility Master Plan*, Prepared for City of Sparks.

9.3.5 Lower Truckee River

Specific Issues and Linkages

Significant undeveloped, industrial zoned lands are located in the Mustang and Patrick / Tracy areas, including the 2,205 acres adjacent to Interstate 80 E being studied for the development of a technology park. The land owner and developer contemplate the use of 4,000 af annually of TMWRF reclaimed water to be utilized for water cooling an energy generation and data center complex. There is also significant development potential on the Storey County side of the river. This area includes existing industrial development such as Kal Kan and Kaiser Aluminum, and continued commercial and industrial development within the Tahoe Reno Industrial Center.

The long-term wastewater management approach for the Wadsworth area and Stampmill Estates subdivision may also require a separate planning effort. Currently, the PLPT facility provides secondary treatment and disposal through sedimentation and facultative lagoons for the town of Wadsworth. This facility is mentioned for regional information and coordination purposes only; it does not fall under the jurisdiction of the *Regional Water Plan*.

Septic systems will continue to be used in this area, and there is evidence of nitrate contamination to the groundwater, indicating the future need for municipal sewer service. Joint wastewater treatment and facility planning could be economically advantageous to both Washoe and Storey counties and should be considered in future work.

To comply with regional TMDLs and help protect water quality within the Truckee River, wastewater treatment facilities should be implemented that include biological nitrogen removal, with subsurface disposal and/or landscape irrigation.

Further planning and implementation of wastewater infrastructure in this area will be driven by parties interested in developing the land. Close coordination and cooperation between Sparks, Washoe County and Storey County is needed to ensure long-term water quality objectives for the river are maintained.

Alternatives Evaluated to Address the Issues

A large residential development has been proposed adjacent to Stampmill Estates, which would require a municipal water and sewer system. If this project develops in the future, Stampmill Estates should be included in plans for municipal sewer service.

Proposed Action Items

9.3.5.A As this area of Sparks and Storey County continues to grow, it will be important to monitor groundwater and surface water quality to check for non-point source pollutants entering the Truckee River.

9.3.5.B Revisit discussions among Washoe County, PLPT, and the City of Fernley to seek an area-wide water and wastewater strategy for lower Truckee River users.

Relevant Planning Documents

AGRA Infrastructure, 2000, *Water and Wastewater Facility Plans on Industrial Zoned Lands Along the Lower Truckee River within Washoe County*. Prepared for the RWPC.

Stantec, 2007, *City of Sparks Conceptual Facility Master Plan*, Stantec, Prepared for City of Sparks.

9.3.6 Septic Systems and Water Quality

Specific Issues and Linkages

The WCDWR has identified areas of water quality degradation as a result of septic system effluent, occurring predominantly in areas with high-density development. In addition to high densities, contributing factors to water quality degradation include shallow depths to ground water, permeable soil conditions, and proximity to sensitive receptors, such as water supply wells, creeks, rivers, and lakes. These conditions are present in Spanish Springs Valley, Golden Valley, Washoe Valley and Lemmon Valley. In Spanish Springs Valley, fifteen years of groundwater quality monitoring have shown increasing levels of nitrate contamination in municipal wells.

The management options for mitigation of nitrate contamination due to high densities of septic systems have been studied regionally. The results of these analyses have coalesced around four possible mitigation strategies:

- Conversion of septic systems to a municipal sewer system
- Conversion of septic systems to nitrate reducing septic systems
- Dilution of groundwater via artificial recharge with treated drinking water resources
- Pumping of high nitrate groundwater for non-potable uses to remove nitrates from the groundwater aquifer

Alternatives Evaluated to Address the Issues

The Washoe County District Health Department (“WCDHD”) has undertaken several measures to reduce future potential impacts from septic systems. Effective 2001, the minimum lot or parcel size for new subdivisions and second or subsequent parcel maps proposing to use septic disposal was established at five acres. Smaller lots may be considered if it can be shown that adequate measures have been taken to ensure that the smaller lot area will not have a greater impact to the groundwater quality than the five-acre lot size.

In some areas of Washoe County, the number of septic systems allowed has been limited based on an analysis of the potential impacts to water quality. One such area is Verdi, where the *Washoe County Comprehensive Plan* allows a maximum of 1,300 septic systems (Washoe County, 2002).

Adequate measures for mitigation of nitrate contamination due to high densities of septic systems might include the installation of nitrate reducing septic systems. The Oregon Department of Environmental Quality (2005) conducted a multi-year project to study the performance of 11 individual nitrate reducing systems installed at residences near La Pine, Oregon. The study found that, although several systems showed high levels of nitrogen reduction in test centers, they did not perform as well in the field. Nitrogen reduction below

10 milligrams per liter (“mg/L”) appears to be difficult to achieve consistently without a secondary carbon source.

The *Spanish Springs Valley Water Reclamation Facility Plan*, completed in November 2004, recommended phased sewerage of the existing lots with septic systems in the area to TMWRF. Phased sewerage commenced in early 2005; Phase IA of the program is complete and serves approximately 211 homes. Washoe County recently received grant funding from the Army Corps of Engineers (“ACOE”) for the construction of Phase 1B, which will serve approximately 168 homes.

Using lessons learned in these areas, and especially in Spanish Springs Valley, the WCDWR conducted the *Septic Nitrate Baseline Data and Risk Assessment Study* (2007) throughout the densely populated portions of Washoe County. The goals of the study were to investigate the potential for nitrate contamination in the metropolitan and suburban areas of the Reno-Sparks metropolitan area, and to provide recommendations for prioritizing additional study of areas potentially contaminated by septic systems. Sixteen Project Areas were identified for investigation. Data from these specific areas were analyzed to determine the potential for areas with high-density septic systems to contribute to water quality degradation.

Results of the *Septic Nitrate Baseline Data and Risk Assessment Study* and previous studies point to the importance of density of septic systems, distance to sensitive receptors, and parcel size. The following recommendations are made:

- Collect additional water quality and water level data from domestic well owners in all Project Areas.
- Collect water quality samples from surface water bodies adjacent to and downstream of high density septic systems.
- Perform additional analysis of currently available data, including basic mass balance and vadose-zone modeling of areas requiring further investigation.
- Perform a geographic information system (“GIS”)-based analysis of land-use, septic system age, and water quality trends around water supply wells.
- Consider the potential for other sources of nitrate contamination.

Water and Sanitary Sewer Financial Assistance Program: The 2009 Legislature Approved AB 54 authorizing Washoe County to establish a program to provide financial assistance to persons to connect to a public water or sewer system, and to owners of public or private property to make such property resistant to flood damage. The program is a direct response to property owner needs that are the result of changing economic conditions. When a property owner’s domestic well or on-site septic system fails and a community water or sewer system is available, existing state and Health District regulations require that the property be connected to the municipal system.

Hooking up to a municipal water or sewer system can cost between \$15,000 and \$30,000 per property. The proposed Water and Sanitary Sewer Financial Assistance Program will assist property owners by offering financing for on-site and public right of way costs including connection fees, line extension fees, meter set fees, on-site trenching and plumbing needed to transfer from on-site to community systems, and required abandonment of septic systems and domestic wells.

The initial focus of the financing program will be in assisting property owners in these areas:

- Spanish Springs (septic to sewer conversion)
- Mayberry Ranch Estates (septic to sewer conversion)
- Heppner Subdivision (domestic well to community water system conversion)
- Callahan Ranch (domestic well to community water system conversion)

Proposed Action Items

9.3.6.A Continue to collect data and develop regional strategies to address existing future nitrate contamination due to high densities of septic systems.

Relevant Planning Documents

ECO:LOGIC, 2007, *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan*, ECO:LOGIC, Prepared for City of Reno and Washoe County.

Kennedy/Jenks Consultants / Stantec, 2004, *Spanish Springs Valley Water Reclamation Facility Plan*.

Stantec, 2007, *City of Sparks Conceptual Facility Master Plan*, Stantec, Prepared for City of Sparks.

WCDWR, 2007, *Septic Nitrate Baseline Data and Risk Assessment Study for Washoe County, PHASE I: Prioritization of Study Areas & Assessment of Data Needs*.

9.4 Truckee Meadows NPDES Storm Water Discharge Permit

Specific Issues and Linkages

The most recent Municipal Storm Water Discharge Permit was issued to the Reno, Sparks and Washoe County (the “co-permittees”) on May 26, 2010. The co-permittees are required to update the Storm Water Management Program (“SWMP”) for the five-year permit term within 18 months of the issue date or by November of 2011. This update warrants an evaluation of the program element needs, activities and schedule from the present to 2015.

The Storm Water Permit Coordinating Committee (“SWPCC”) anticipates that, based on talks with NDEP and review of national regulatory trends, a Waste Load Allocation (“WLA”) will be assigned to storm water in the future. It is not yet known how or when a storm water WLA will be implemented, or what constituents will be covered.

Alternatives Evaluated to Address the Issues

The SWPCC has reviewed the conditions of the new permit and have requested funding from the Regional Water Management Fund (“RWMF”) to complete the required program update.

Proposed Action Items

9.4.A SWPCC to work with agency staff, consultants and regulators and prepare a program update per the conditions of the May 2010 Storm Water Discharge Permit.

9.4.B Continued SWPCC communication with NDEP is necessary regarding the anticipated future storm water WLA.

9.5 Integrated Use of Water Rights

Specific Issues and Linkages

There are many competing demands for water rights that must be considered from a broad planning perspective so that the limited availability will go the farthest in satisfying the water resource needs of the region. Some of the primary uses for Truckee River and tributary water rights in the planning area are listed below:

- Dedication of water rights for maintenance of in-stream flows in the lower Truckee River as required by the *Negotiated Settlement* (PL 101-618, 1990) and *TROA*.
- Dedication of water rights for water quality enhancement in the lower Truckee River as required by the *Water Quality Settlement Agreement* (“WQSA”), 1996.
- Dedication of Truckee River water rights to TMWA for M&I supplies.
- Dedication of water rights for reclaimed water return flow requirements to maintain in-stream flows and satisfy downstream water rights.
- Dedication of certain tributary creek water rights in the South Truckee Meadows for new surface water M&I supplies.
- Allocation of water rights to facilitate groundwater recharge using surface water and/or, possibly in the future, purified reclaimed water.

To independently satisfy these primary uses for water rights, plus others, could eventually require more water rights than the river and its tributaries can provide. The many competing demands for water rights and resources from the Truckee River and other sources need to be coordinated to the maximum extent possible by developing cooperative management strategies that satisfy two or more competing demands with the same water.

As presented in Section 6.3, the region has available water resources to meet the projected demand increases; however, there are water supply imbalances in some of the planning areas that will need to be addressed over the long term. These imbalances are not water resource availability issues, as water resource management options are available to help mitigate the potential negative effects. Rather, the issue is how to efficiently manage the use of the resources and minimize the resulting impacts, and who shares in the cost of mitigation.

Policy 2.1.a, Effluent Reuse - Efficient Use of Water Resources and Water Rights, is intended to provide guidance to purveyors when developing long range plans for effluent management.

Alternatives Evaluated to Address the Issues

- *TROA* operation of Truckee River reservoirs will be expanded creating greater flexibility, thereby increasing dry year reserves.
- Management options for tributary water rights dedicated for municipal water supply during non-drought conditions.
- In 1998, Reno, Sparks, Washoe County and PLPT began purchasing water rights as a result of the WQSA.
- Reno, Sparks and Washoe County, have agreed in *TROA* Section 1.E.4 to provide 6,700 af of additional Truckee River water rights for water quality purposes.

- As part of the investigation of the potential consolidation of TMWA and WCDWR, the two purveyors conducted a preliminary assessment of the potential opportunities that may be achieved from consolidated management of TMWA and WCDWR water rights and water resources.

Proposed Action Items

The NNWPC, TMWA, Washoe County, Reno and Sparks have undertaken efforts to respond to numerous recommendations for the integrated use of water rights. Cooperative management strategies should be developed among local governments, effluent providers and water purveyors that maximize the benefits derived from the available water resources. Additional work that needs to be completed includes:

9.5.A Continue the implementation of *TROA* and related agreements. Compare the water demand and water right recovery estimates to future conditions imposed by *TROA* and related agreements.

9.5.B Continue the water rights recovery program to convert inactive Truckee River water rights to beneficial use and update the water right status and demand projections regularly.

9.5.C Finalize and implement recommendations developed from the potential consolidated management of TMWA and WCDWR water rights and water resources.

9.5.D Continue the analysis and development of non-structural measures to improve Truckee River water quality, enable increased TMWRF discharges, and ensure the future sustainability of the river.

9.5.E Quantify groundwater and surface water resources and determine the feasibility of conjunctive use or other programs, including but not limited to expanded recharge projects, use of Fish Springs Ranch water supplies, and conversion of tributary water rights to M&I water supply and other beneficial uses.

9.5.F Develop cooperative management strategies among local governments, reclaimed water providers and water purveyors that maximize the benefits of available reclaimed water resources.

9.5.G Monitor existing and future water demand and planning area growth projections, and develop plans to resolve any major discrepancies in consideration of available water resources and geographic constraints.

Relevant Planning Documents

Negotiated Settlement (PL 101-618, 1990)

Truckee River Operating Agreement, Section 1.E.4

Water Quality Settlement Agreement ("WQSA"), 1996

9.6 Water Resources and Land Use Planning

Specific Issues and Linkages

The importance of integrating water resource management with land use planning has come to light in several forums in recent years. Rapid growth between 2003 and 2006 in the TMSA and outlying valleys has led to questions about the sustainability of the region's water resources. Specific regional-scale issues include:

- The availability and cost of water resources to supply the demands of existing and future development.
- The capacity to reuse or dispose of treated wastewater effluent generated by future development.
- The importance of flood plain management in reducing the risk of future flooding within the community.
- The importance of maintaining natural recharge to sustain groundwater resources.
- The potential of the region to use “green infrastructure” and Low Impact Development techniques to enhance regional aesthetics and quality of life while preserving or enhancing natural resources.

In addition to these regional scale issues, some land use plans for outlying rural areas have identified imbalances between groundwater resources, appropriations and potential domestic well demands, such as the *Warm Springs Valley Area Plan* (Washoe County, 2010).

Alternatives Evaluated to Address the Issues

Following are some events pertinent to water resource management and regional land use planning ~~that have occurred in the last five years:~~

- *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan completed* (November 2007)
- *City of Sparks TMSA/FSA Conceptual Facility Master Plan completed* (January 2008)
- *Washoe County Consensus Forecast 2008-2030* adopted by Regional Planning Commission (“RPC”), including 2030 forecasted population of 620,323 (June 2008)
- *TROA signing* (September 2008)
- Washoe County Ballot Question #3: “Shall the Truckee Meadows Regional Plan be amended to reflect and to include a policy or policies requiring that local government land use plans be based upon and in balance with identified and sustainable water resources available within Washoe County?” passed by a majority of voters (November 2008)
- Reno, Washoe County and Sparks TMSA/FSA facility plans included an amendment to the *Regional Water Plan* (January 2009).
- Regional Plan amended to require the Regional Planning Commission to adopt a Consensus Population Forecast that is consistent with the estimated population that can be supported by the sustainable water resources identified in the *Regional Water Plan*; and Regional Planning Governing Board *Regulations on Procedure* amended to require that a comparison with the estimated population that can be supported by the sustainable water resources, as identified in the *Regional Water Plan*, be included as part of the process for updating and maintaining the adopted Consensus Forecast (January 2010)
- Truckee Meadows Regional Planning Agency (“TMRPA”), NNWPC and purveyors agreed on a methodology to calibrate consensus population forecast to annual certified population estimates and disaggregate population into subareas for water demand projections (April 2010).

- WRWC continues to find that the forecasted population can be supported by the sustainable water resources as set forth in the *Regional Water Plan* (May 2010).
- *Washoe County Consensus Forecast 2010-2030* adopted by RPC, including 2030 forecasted population of 590,490. (July 2010)

Proposed Action Items

9.6.A Continue working with TMRPA staff to strengthen appropriate linkages between the *Regional Plan* and the *Regional Water Plan*

9.6.B Review areas within the TMSA boundary for gaps in facility planning and develop a plan to respond to changes in land use and the TMSA that affect current facility plans

9.6.C Coordinate with other entities on the development of a GIS parcel based tool that can be used to estimate potential water demands and wastewater flows based on approved land use

9.6.D Coordinate with local land use planning agencies to address rural groundwater basin imbalances

Relevant Planning Documents

Amendment to the *Regional Water Plan*, 2009.

ECO:LOGIC, 2007, *City of Reno and Washoe County TMSA/FSA Water, Wastewater and Flood Management Facility Plan*.

Stantec Consultants, 2008, *City of Sparks TMSA/FSA Conceptual Facility Master Plan* .
Truckee Meadows Regional Plan, 2002, as amended.

Truckee River Operating Agreement, 2008, www.usbr.gov/mp/troa/final/troa_final_09-08_full.pdf.

Washoe County Consensus Forecast 2010-2030 adopted by Regional Planning Commission 2010.

Washoe County Consensus Forecast 2008-2030 adopted by Regional Planning Commission June 2008.

Washoe County Master Plan, Warm Springs Valley Area Plan, 2010.

9.7 Local Government Drainage Programs

Specific Issues and Linkages

The recent economic downturn and corresponding decrease in local government general fund revenues has constrained capital expenditures budgets for new storm water facilities and associated operations and maintenance at local governments without dedicated storm water funding mechanisms.

Some local governments are exploring the potential creation of utility districts with the goal to shift from the general fund to utility district-based funding for storm water related functions.

Local government drainage programs and the Flood Project have some similar and complimentary responsibilities and needs, e.g. flood plain management, adjoining facilities, and the need to form utility districts, or other types of funding districts, to generate revenue for flood management services.

Alternatives Evaluated to Address the Issues

In February 2009, the Washoe County Board of Commissioners (“BCC”) directed Public Works staff to seek public input and explore facility and financing alternatives for the possible creation of an unincorporated County utility district.

Proposed Action Items

9.7.A Local government public works departments and the Flood Project are expected to discuss and reach consensus concerning funding and other issues involving local drainage programs and the Flood Project.

Relevant Planning Documents

Report to NNWPC by Washoe County Department of Public Works, (May 5, 2010)

9.8 Regional Flood Plain Management and Flood Control

Specific Issues and Linkages

Chapter 5, Flood Management and Storm Water Drainage, identifies a number of issues and linkages concerning the Truckee River Flood Project, including:

Joint Powers Authority (“JPA”): Reno, Sparks and Washoe County are discussing the development of an interlocal cooperative agreement that would create a JPA to govern the flood project consistent with the provisions of recent state legislation. Certain emergency, regulatory, and revenue powers are contemplated. Revenue powers would include the ability to issue bonds similar to other municipalities. Regulatory functions may include measures consistent with existing development codes to protect the flood management facilities and mitigate the adverse impact that new development may have on flooding and on the level of protection the facilities are designed to provide. The plans and regulatory measures would be developed in collaboration with the JPA members’ planning staffs and proposed, as appropriate, for approval and inclusion in the local government development codes. Regulatory functions may also include establishing a flood impact analysis procedure and process to measure the possible impact of land uses and development projects on the flood management facilities. This process may utilize a regional hydrologic modeling tool.

Flood Plain Storage and Critical Flood Pools: Flood plain storage is a critical component of flood protection. Many properties that were built in compliance with Federal Emergency Management Agency (“FEMA”) standards for the National Flood Insurance Program (“NFIP”) may be at risk because of loss of flood plain storage. Reno, Sparks, Washoe County and Flood Project staff members involved in flood plain storage volume mitigation seek to ensure that the Flood Project remains feasible and future flood impacts are minimized. Critical Flood Pool (Zone 1) is (or will soon be) addressed in local ordinances, Zones 3 and 4; however, will need attention before a funding agreement can be executed with the ACOE. Development of a Regional Hydrologic Model will be needed for this effort. Development that displaces flood plain storage outside Zone 1 (but within the area flooded in 1997) and that occurs after the time current conditions are set (but before the Flood Project is finished) is an ongoing concern.

Flood Plain Management Plan: The Flood Project, in order to receive federal cost share funds through the ACOE, is required to have in place and ready to implement, a flood plain

management plan that deals with the impacts to the Flood Project caused by changes in the watershed. Development of a Regional Hydrologic Model will be needed for this effort.

Federal and Local Funding for the \$1.2 - \$1.6 Billion Project: The Flood Project is the largest public works project ever undertaken in northern Nevada. The ACOE is expected to contribute more than half of the project cost and the community will be required to contribute the remainder. Although the Flood Project is locally funded by a 1/8-cent sales tax, additional funds will be required to meet the local sponsor's required funding contribution. It is expected that one or more "Flood Funding Areas" will be established over time to meet the funding need. The local sponsors are also discussing which of the proposed Flood Project elements could be built with local funds only and what level of protection that would provide.

Local Programs: Local Drainage programs have some similar and complimentary responsibilities, e.g. flood plain management, adjoining facilities and the need to form utility districts, or other types of funding districts, to generate revenue for local flood control and drainage services.

Upstream Dam Operations: Releases from Lake Tahoe at the Tahoe City Dam and other reservoirs according to TROA will have an affect on flood flows in the Truckee Meadows.

Alternatives Evaluated to Address the Issues

Negotiations concerning a Cooperative Agreement to create a JPA, as mentioned above, are underway.

Proposed Action Items

9.8.A The parties to the Cooperative Agreement are expected to resolve issues and complete the JPA negotiations.

9.8.B Issues regarding flood plain storage in Zone boundaries need to be addressed and ordinances to address Zones 3 and 4 will be needed.

9.8.C A Flood Plain Management Plan will need to be developed and submitted to the ACOE.

9.8.D Continue development of a regional hydrologic model.

Relevant Planning Documents

Regional Water Planning Commission, 2003, *Regional Flood Plain Management Strategy*, prepared by the Flood Plain Management Subcommittee for the Regional Water Planning Commission.

9.9 Groundwater Quality Protection and Remediation

9.9.1 Groundwater Remediation

Specific Issues and Linkages

PCE in Central Truckee Meadows: Groundwater underlying the central Truckee Meadows is contaminated by tetrachloroethylene (also known as perchloroethylene or "PCE") as described in Section 2.2.4. The Central Truckee Meadows Remediation District ("CTMRD") program,

created in 1995 to address the problem, is administered on behalf of the Board of County Commissioners by the WCDWR.

Sparks Solvent/Fuel Site (“SS/FS”): The SS/FS is also described in Section 2.2.4. A new municipal well field comprised of six wells with a sustainable capacity of approximately 8,300 gpm or more to the north of the tank farm is likely to result in significant changes in local hydrodynamics when it is put into operation. Changes may include an increased risk to groundwater utilized for municipal water supply from contaminants at SS/FS. NDEP is overseeing and directing the ongoing remediation of contaminated soils and groundwater at this site.

PCE in Lemmon Valley: Groundwater near the Reno-Stead Airport in the West Lemmon Valley hydrographic basin is also affected by solvent contamination. A PCE plume, identified there in 1994, is associated with military activities at the Stead Air Force Base during the 1940s and 1950s. Corrective actions are successfully controlling contaminant migration and cleaning up the impacted groundwater.

Alternatives Evaluated to Address the Issues

PCE in Central Truckee Meadows: CTMRD program funds have paid for the construction and ongoing operation of three air-stripping treatment facilities that remove PCE from five TMWA wells. Program funds have also been used for the preliminary design of two additional treatment systems (using activated carbon) for wells with low levels of PCE. Treatment will be implemented for these wells (Sparks Avenue and Poplar #2) in the event PCE concentrations increase to the action level. A regular and systematic groundwater monitoring program was implemented in late 2003 to identify potential source areas, identify areas of higher risk, support resource management, and to prioritize other program activities. CTMRD program activities also include focused stakeholder efforts to minimize the possibility for ongoing releases of PCE and ongoing source management on the part of WCDWR and NDEP to identify and mitigate (where practical and cost-effective) PCE sources that are contributing to PCE plumes in the Central Truckee Meadows. By minimizing the potential for ongoing releases and by mitigating sources contributing to the plumes, the time (and associated cost) required for well head treatment for PCE in the Truckee Meadows will decrease.

Sparks Solvent/Fuel Site (“SS/FS”): The plume is being hydraulically contained with extraction wells and contaminated groundwater is treated. NDEP is overseeing and directing the ongoing remediation of contaminated soils and groundwater and is aware that changes to the monitoring and remediation strategy employed at the site may be necessarily with the development of the new well field.

Corrective actions are successfully controlling contaminant migration and cleaning up the impacted groundwater. Remediation at this site is being implemented by the responsible parties under direction and oversight of NDEP (see Section 2.2.4).

Proposed Action Items

9.9.1.A PCE in Central Truckee Meadows: Continue CTMRD implementation of the Remediation Management Plan (“RMP”), including treatment, monitoring, source management, outreach and administration.

9.9.1.B Sparks Solvent/Fuel Site (“SS/FS”): Monitor the effects of the new municipal well field to the north of the tank farm for changes in the local hydrodynamics and adjust the remediation strategy as necessary.

9.9.1.C PCE in Lemmon Valley: Continue remediation activities.

Relevant Planning Documents

Camp Dresser and McKee, Bouvette Consulting and Washoe County Department of Water Resources, 2002, *Central Truckee Meadows Remediation District, Remediation Management Plan*, prepared for the Central Truckee Meadows Remediation District.

9.9.2 Groundwater Protection

Specific Issues and Linkages

In addition to remediation of contaminated groundwater, groundwater quality is protected by a number of activities including regular water quality monitoring, pumping schedules, programs to comply with drinking water standards (such as iron or radionuclides), public education and wellhead protection planning.

Wellhead Protection Programs: Water purveyors that manage wellfields are encouraged to develop Wellhead Protection Plans (“WHPP”) to protect groundwater quality through the delineation of zones of groundwater movement toward municipal supply wells and strategies to protect wellhead protection zones (see Section 2.2.4).

Alternatives Evaluated to Address the Issues

WHPPs have been developed and approved by NDEP for the following Public Purveyor systems:

- Truckee Meadows (TMWA’s entire system)
- South Truckee Meadows (STMGID)
- Arrowcreek (WCDWR)
- Hidden Valley (WCDWR)
- Lemmon Valley (WCDWR)
- Spanish Springs (WCDWR)

Proposed Action Items

9.9.2.A Continue development of WHPPs for systems not covered by approved plans.

Relevant Planning Documents

TMWA, 2008, *Wellhead Protection Plan*

WCDWR, 2004, *STMGID and Arrowcreek Wellhead Protection Plan*

WCDWR, 2004, *Hidden Valley Wellhead Protection Plan*

WCDWR, 1994, *Lemmon Valley Wellhead Protection Plan*

WCDWR, 2008, *Spanish Springs Wellhead Protection Plan*

INSERT

Table 9-1 WRWC / NNWPC Proposed Action Plan

Table 9-2 Issues and Proposed Action Items

References Cited

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AMEC, 2000, *Sparks Effluent Pipeline Extension*, prepared for City of Sparks.

Carlos, W. J., Miller, W., Devitt, D. A., Fernandez, G., 2004, *Evapotranspiration Satellite Irrigation Controller Study*.

Buzzone and Svetich, October 9, 2009, *Truckee River Total Maximum Daily Load*, presentation to the WRWC.

Camp Dresser and McKee, Bouvette Consulting and Washoe County Department of Water Resources, 2002, *Central Truckee Meadows Remediation District, Remediation Management Plan*, prepared for the Central Truckee Meadows Remediation District.

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ECO:LOGIC, August 2010, *Removing Refractory Organics from Wastewater Using MF-03-BAC Treatment (Draft)*.

ECO:LOGIC, July 2010, *North Valleys Initiative*, prepared for Washoe County.

ECO:LOGIC, February 2010, *Treated Effluent Recharge Estimates, Lemmon, Cold Springs, Spanish Springs, Warm Springs and South Truckee Meadows Valleys*.

ECO:LOGIC, 2009, *2009-2028 Draft North Valleys Water Facility Plan*, prepared for WCDWR.

ECO:LOGIC, 2009, *Draft South Truckee Meadows Water Facility Plan Update*, prepared for Washoe County Department of Water Resources.

ECO:LOGIC, 2007, *City of Reno and Washoe County TMSA/FSA Water Wastewater and Flood Management Facility Plan*.

ECO:LOGIC, 2007, *Spanish Springs Water Facility Plan Update*, prepared for WCDWR.

ECO:LOGIC, 2006, *White Lake Playa and Vicinity, Results of Geological and Hydrogeological Evaluations*, Prepared for Washoe County.

ECO:LOGIC, 2006, *North Valleys Reservoir Site, Results of Geological and Geotechnical Evaluations*, prepared for City of Reno.

ECO:LOGIC, 2005, *City Of Reno, North Valleys Effluent Disposal, Stead Vadose Zone Injection Wells Construction and Testing*, prepared for City of Reno.

ECO:LOGIC, 2005, *Washoe County Site, Injection Test Results Summary*, prepared for Washoe County.

ECO:LOGIC, 2005, *Fish Springs Ranch Facility Plan*.

ECO:LOGIC, 2004, *Orr Ditch Recharge Study*, prepared for RWPC.

ECO:LOGIC, 2004, *Spanish Springs Water Facility Plan*, prepared for WCDWR.

ECO:LOGIC, 2002, *South Truckee Meadows Facility Plan*, prepared for the Regional Water Planning Commission, Washoe County Department of Water Resources, and South Truckee Meadows General Improvement District.

ECO:LOGIC, 2002, *North Valleys Water Supply Comparison*, prepared for the RWPC.

JBR Environmental Consultants and Montgomery Watson, 1997, *Water Supply Alternatives Evaluation for the North Valleys*, prepared for the Washoe County Department of Comprehensive Planning.

Kennedy/Jenks Consultants and Stantec Consulting Engineers, 2005, *Spanish Springs Valley Water Reclamation Facility Plan*.

Pyramid Lake Paiute Tribe, 2001, *Water Quality Control Plan*.

Regional Water Planning Commission, 2005, *2004 – 2025 Washoe County Comprehensive Regional Water Management Plan, as amended*.

Regional Water Planning Commission, 2003, *Regional Flood Plain Management Strategy*, prepared by the Flood Plain Management Subcommittee for the Regional Water Planning Commission.

Regional Water Planning Commission, 1997, *1995-2015 Washoe County Comprehensive Regional Water Management Plan*.

RWPC Groundwater Task Force, 2003, *Final Report to the RWPC by the Groundwater Task Force*.

Stantec Consulting Engineers, 2008, *City of Sparks TMSA/FSA Conceptual Facility Master Plan*.

Truckee Meadows Regional Planning Agency, 2002, *Truckee Meadows Regional Plan, as amended*.

Truckee Meadows Water Authority, 2010, *Report on Aquifer Storage and Recovery, Spanish Springs Valley Hydrographic Basin, Jan 1 through June 30, 2010*.

Truckee Meadows Water Authority, 2009, *2010-2030 Water Resource Plan*.

Truckee Meadows Water Authority, 2003, *2005-2025 Water Resource Plan*.

Truckee River Operating Agreement, 2008, http://www.usbr.gov/mp/troa/final/troa_final_09-08_full.pdf.

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Washoe County, 2010, *Washoe County Master Plan, Warm Springs Valley Area Plan*.

Washoe County, 2010, *Washoe County Consensus Forecast 2010-2030*, adopted by the Truckee Meadows Regional Planning Commission July 2010, revised November 2010.

Washoe County, 2008, *Washoe County Consensus Forecast 2008-2030* adopted by Truckee Meadows Regional Planning Commission June 2008.

Washoe County Department of Water Resources, 2009, *Groundwater Flow and TDS Transport Modeling, Lemmon Valley, NV*.

Washoe County Department of Water Resources, 2007, *Septic Nitrate Baseline Data and Risk Assessment Study for Washoe County, PHASE I: Prioritization of Study Areas & Assessment of Data Needs*.

Washoe County Department of Water Resources, 2002, *Spanish Springs Valley Nitrate Occurrence Facility Plan*, prepared for the Nevada Division of Environmental Protection.

Western Regional Water Commission, 2009, *Amendment to the Comprehensive Regional Water Management Plan*.

Water Quality Settlement Agreement ("WQSA"), 1996.

Northern Nevada Water Planning Commission

STAFF REPORT

DATE: August 27, 2015

TO: Chairman and Members, Northern Nevada Water Planning Commission
("NNWPC")

FROM: Jim Smitherman, NNWPC Water Resources Program Manager

SUBJECT: Discussion and possible direction to staff regarding any chapters of the Regional Water Management Plan ("RWMP") previously reviewed by the NNWPC in relation to the 2016 RWMP update.

SUMMARY

This agenda item is intended to be one in a series of standing items, ending upon the NNWPC's final recommendation to the Western Regional Water Commission concerning the 2016 RWMP update. Under this item, NNWPC members may discuss, and the NNWPC may direct staff on the subjects of any of the RWMP chapters reviewed, since the December 2014 meeting, in relation to the 2016 update.

Northern Nevada Water Planning Commission

STAFF REPORT

DATE: August 27, 2015
TO: Chairman and Members, Northern Nevada Water Planning Commission
FROM: Jim Smitherman, Water Resources Program Manager
SUBJECT: Program Manager's Report

Attached are updated reports for items (a) and (b) for your review. A verbal report will be given for item (c).

- a) Report on the status of Projects and Work Plan supported by the RWMF;
- b) Financial Report on the RWMF; and
- c) Report on the TMRPA's parcel-based population and employment modeling project.

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

	Project Name	Contractor / Provider	Amount	Balance Remaining	Percent Complete	Target Completion Date	Notes
1	Certified Landscape Technician Program 2014-2016 FY	Nevada Landscape Association (NLA)	25,000	12,500	50%	6/30/16	Work is in progress PO ends 9/30/16
2	Cloud Seeding - Additional Precip Monitoring Equipment	(DRI) Desert Research Institute	25,000	1,074	96%	9/30/15	Work is in progress Req'std extend to 9/30/15
3	Cloud Seeding Program for Water Year 2015	(DRI) Desert Research Institute	100,000	28,277	72%	3/31/16	Work is in progress
4	Cloud Seeding Program for Water Year 2015-16	(DRI) Desert Research Institute	100,000	100,000	0%	12/31/16	Developing Interlocal Agreement
5	Effluent Management Strategy	Stantec	25,000	25,000	0%	12/31/15	Work is in progress
6	Effluent Management - Linear Programming	(DRI) Desert Research Institute	20,356	15,990	21%	12/31/15	Work is in progress
7	Envision Videographers of WRWC meetings	Envision	2,000	2,000	0%	9/30/16	Work is in progress
8	Highland Canal Improvements	City of Reno	250,000	250,000	0%	1 yr from Effective Date	Awaiting signatures from Reno
9	Optimizing Investments in the Truckee River Watershed	The Nature Conservancy	57,787	57,787	0%	12/31/16	Work is in progress
10	Regional Data Development and Analytical Program (FY 2011-2012)	Truckee Meadows Regional Planning Agency	486,000	322,167	34%	6/30/16	Work is in progress
11	Regional Storm Water Quality Management Program (Third Amendment)	City of Reno	262,500	1,277	100%	9/30/15	Work is in progress

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

	Project Name	Contractor / Provider	Amount	Balance Remaining	Percent Complete	Target Completion Date	Notes
12	Regional Storm Water Quality Management Program (Third Amendment)	City of Reno	262,500	262,500	0%	6/30/16	Work is in progress
13	RWMP 2016 Cost & Finance Chapter Update	Hansford Economic Consultant	23,575	13,669	42%	12/31/15	Work is in progress
14	RWMP 2016 Update - Water Balance Update	Stantec	25,000	20,113	20%	6/30/15	Work is in progress Amending to 6/30/16 No Addit'l \$
15	Septic - Phase II	County - CSD	150,000	128,795	14%	9/30/15	Work is in progress Amending to 6/30/16 No Addit'l \$
17	Sosu TV Videographers of NNWPC meetings FY 2014-15	Sosu TV	3,000	3,000	0%	6/30/16	Work is in progress
18	TMDL Phase I Fifth Amendment	City of Reno (LimnoTech)	75,000	63,269	16%	9/30/15	Work is in progress
19	TMDL Phase 1 Sixth Amendment	City of Reno (LimnoTech)	75,000	75,000	0%	6/30/16	Work is in progress
20	TRIG Website Support FY 2014-2015	City of Reno	7,500	1,880	75%	9/30/15	Work is in progress
21	TRIG Website Support FY 2015-2016	City of Reno	7,500	7,500	0%	6/30/16	Awaiting return of ILA from Reno
22	Truckee River Corridor Management Plan	Keep Truckee Meadows Beautiful	22,000	22,000	0%	6/30/16	Work is in progress
23	TROA - 6,700 AF water rights purchase	TMWA	2,700,000	215,948	92%	Open Ended	Work is in progress

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

	Project Name	Contractor / Provider	Amount	Balance Remaining	Percent Complete	Target Completion Date	Notes
24	Washoe ET Project Maintenance	DRI (Desert Research Institute)	10,000	3,150	69%	9/30/15	Work is in progress
25	Water Usage Review Program 2015-16 First Amendment	TMWA	100,000	100,000	0%	12/31/16	Work is in progress
26	WateReuse Research Foundation workshop	WateReuse Research Foundation	23,500	23,500	0%	6/30/16	Contract is being developed
27	Washoe ET weather station upgrades	(DRI) Desert Research Institute	29,050	25,000	14%	9/30/15	Work is in progress

8/20/2015
 Fund 766
 Report 400/ZF15
 Fiscal Year 2016; Period 1 through 2

**Financial Report on the
 Regional Water Management Fund**

Accounts	Plan Budget	Actual (Revenue & Expenses)	PO Commit (Remaining PO Balance)	Actual + PO	Available (Budget Minus Actual + PO)	Avail%	PreCommit (PO's Requested)	Available (Budget Minus PO Requisitions)	Avail%
State Grants	40,000.00-				40,000.00-	100-		40,000.00-	100-
* INTERGOVERNMENTAL	40,000.00-				40,000.00-	100-		40,000.00-	100-
Services O Agencies		4,984.00-		4,984.00-	4,984.00			4,984.00	
* CHARGES FOR SERVICES		4,984.00-		4,984.00-	4,984.00			4,984.00	
Interest-Pooled Inv.	58,028.00-	1,377.88-		1,377.88-	56,650.12-	98-		56,650.12-	98-
RGL Pooled Inv.		21.69		21.69	21.69-			21.69-	
URGL Pooled Inv.		1,006.10-		1,006.10-	1,006.10			1,006.10	
Water Surcharge 1.5%	1,475,479.00-	358,145.42-		358,145.42-	1,117,333.58-	76-		1,117,333.58-	76-
* MISCELLANEOUS	1,533,507.00-	360,507.71-		360,507.71-	1,172,999.29-	76-		1,172,999.29-	76-
** REVENUE	1,573,507.00-	365,491.71-		365,491.71-	1,208,015.29-	77-		1,208,015.29-	77-
Professional Services	1,774,050.00	44,704.86-	1,000,487.78	955,782.92	818,267.08	46-		818,267.08	46-
WRWC Staff & Legal	472,000.00	36,304.40	118,800.00	155,104.40	316,895.60	92.55		316,895.60	92.55
Fin Consult Services	10,000.00		8,500.00	8,500.00	1,500.00	15		1,500.00	15
Invest Pool Alloc Ex		36.35		36.35	36.35-			36.35-	
Office Supplies							79.99	79.99-	
Pmts to O Agencies		51,200.00-	215,948.00	164,748.00	164,748.00-			164,748.00-	
Seminars and Meetings	1,000.00				1,000.00	100		1,000.00	100
Advertising	4,000.00				4,000.00	100		4,000.00	100
Undesignated Budget	20,000.00				20,000.00	100		20,000.00	100
Travel	1,000.00				1,000.00	100		1,000.00	100
Overhead	130,905.00	15,821.78		15,821.78	115,083.22	355.40		115,083.22	355.40
** EXPENDITURES	2,412,955.00	43,742.33-	1,343,735.78	1,299,993.45	1,112,961.55	46-	79.99	1,112,881.56	46-
*** Total	839,448.00	409,234.04-	1,343,735.78	934,501.74	95,053.74-	11	79.99	95,133.73-	11

Northern Nevada Water Planning Commission

STAFF REPORT

DATE: August 27, 2015

TO: Chairman and Members, Northern Nevada Water Planning Commission

FROM: Jim Smitherman, Water Resources Program Manager

SUBJECT: Report on the Truckee Meadows Regional Planning Agency (“TMRPA”) parcel-based population and employment modeling project

Jim Smitherman, NNWPC Water Resources Program Manager, will provide a brief verbal report concerning the status of the TMRPA parcel-based population and employment modeling project.

JS:jd