

November 2015

# Community Source Water Protection Plan

For Public Water Systems in Churchill County, Nevada

Prepared by:  
The CSWP  
Local Planning Team  
In Churchill County

Carson River Estates  
Churchill County  
Fallon Naval Air Station  
Fallon Paiute Shoshone  
Tribe  
Old River Water Company  
Wildes Manor  
Carson Watershed  
Subconservancy District  
Nevada Farm Bureau,  
Churchill County  
Truckee Carson Irrigation  
District  
Nevada Division of  
Environmental Protection  
Resource Concepts, Inc.



*Photography by: Marie Nygren*

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Resource Concepts, Inc.

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## Acknowledgements

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Organizations	Phone Number	Email Address
<b>Public Water Systems</b>		
Carson River Estates	(775) 427-4336	<a href="mailto:ckhansen@charter.net">ckhansen@charter.net</a>
Fallon Paiute Shoshone Tribe	(775) 423-3725	<a href="mailto:richard@enviro-fpst.org">richard@enviro-fpst.org</a>
Naval Air Station Fallon (NAS Fallon)	(775) 426-2243	<a href="mailto:becky.kurtz@navy.mil">becky.kurtz@navy.mil</a>
Kennametal, Inc.	(775) 428-6255	<a href="mailto:greg.mcmillen@kennametal.com">greg.mcmillen@kennametal.com</a>
Old River Water Company	(775) 423-1265	<a href="mailto:norske@phonewave.net">norske@phonewave.net</a>
Wildes Manor	(775) 233-0122	<a href="mailto:banjo47@hotmail.com">banjo47@hotmail.com</a>
<b>Churchill County</b>		
Planning Department	(775) 423-7627	<a href="mailto:planning-director@churchillcounty.org">planning-director@churchillcounty.org</a>
County Manager	(775) 423-5136	<a href="mailto:countymanager@churchillcounty.org">countymanager@churchillcounty.org</a>
GIS	(775) 423-7627	<a href="mailto:planning-gis@churchillcounty.org">planning-gis@churchillcounty.org</a>
Emergency Management	(775) 423-4188	<a href="mailto:ccem@phonewave.net">ccem@phonewave.net</a>
Sand Creek Water System	(775) 428-0264	<a href="mailto:building-mh@churchillcounty.org">building-mh@churchillcounty.org</a>
<b>State of Nevada</b>		
Nevada Division of Environmental Protection	(775)-687-9503	<a href="mailto:kborgzinner@ndep.nv.gov">kborgzinner@ndep.nv.gov</a>
<b>Technical Resources</b>		
Carson Watershed Subconservancy District	(775) 887-7450	<a href="mailto:edjames@CWSD.org">edjames@CWSD.org</a>
Truckee Carson Irrigation District	(775) 423-2141	<a href="mailto:rusty@tcid.org">rusty@tcid.org</a>
Nevada Farm Bureau, Churchill County	(775) 423-6056	<a href="mailto:wolfpack@cccomm.net">wolfpack@cccomm.net</a>
Resource Concepts, Inc. & Subconsultants	(775) 883-1600	<a href="mailto:jill@rci-nv.com">jill@rci-nv.com</a> <a href="mailto:lynn@rci-nv.com">lynn@rci-nv.com</a>

## List of Acronyms

BHPS	Bureau of Health Protection Services (State/presently Bureau of Safe Drinking Water)
BLM	USDI Bureau of Land Management
BOR	USDI Bureau of Reclamation
BSDW	Bureau of Safe Drinking Water (State/DEP)
BWPC	Bureau of Water Pollution Control (State/DEP)
CSWP	Community Source Water Protection
CWSD	Carson Water Subconservancy District
DCNR	Department of Conservation and Natural Resources (State)
DEP	Division of Environmental Protection (State)
DHHS	Department of Health and Human Services (State)
EPA	U.S. Environmental Protection Agency (Federal)
FPST	Fallon Paiute Shoshone Tribe
GIS	Geographic Information System
GPM	Gallons per Minute
GPS	Global Positioning System
ISWP	Integrated Source Water Protection
MCL	Maximum Contaminant Level
NAC	Nevada Administrative Code
NAS	Naval Air Station
NDEP	Nevada Division of Environmental Protection (State)
NRS	Nevada Revised Statutes
NVRWA	Nevada Rural Water Association
PCS	Potential Contaminant Source
PWS	Public Water System
RCI	Resource Concepts, Inc.
SWPA	Source Water Protection Area
USDI	United States Department of the Interior
USGS	United States Geological Survey
WHPA	Wellhead Protection Area
WHPP	Wellhead Protection Program

## Executive Summary

The purpose of this Community Source Water Protection Plan (CSWP Plan) is to document the public drinking water resources in Churchill County and the measures that the public water systems intend to implement to protect those resources from contamination. This CSWP Plan is a tool to facilitate cooperation between water purveyors, local and State agencies, industry, community leaders, and citizens to aid in the management and continued safety of the drinking water resources in Churchill County.

In November 2014, the Churchill County Commissioners were provided with an overview of the State of Nevada's Integrated Source Water Protection Program (ISWP Program). At that time, the County Commissioners requested participation in the ISWP Program. The ISWP Program is voluntary, and is focused on preventing the pollution of community drinking water sources, including ground water, lakes, rivers, springs, and streams. This CSWP Plan is an outcome of the ISWP Program and includes the public water systems throughout Churchill County except for the City of Fallon, which has an existing Wellhead Protection Plan (2006).

The Local Planning Team responsible for creating this document is composed of representatives from the various public water systems in Churchill County and from Local and State government agencies. The Team met frequently over the course of a year to develop this plan. Summaries of the meetings, the agendas and meeting materials are provided in Appendix B.

This CSWP Plan provides a framework for the long-term protection of public drinking water supply sources. The Team identified four plan goals to protect drinking water quality to guide the CSWP Plan development and to implement this plan:

- Develop a local plan/program to ensure the availability of clean drinking water sources for future generations.
- Encourage water resource protection measures that will promote sustainable economic growth.
- Increase community awareness of the source of their drinking water supply and how they can help to protect that supply.
- Encourage collaboration and communication between entities in and surrounding Churchill County.

Source water in Churchill County consists of both groundwater and springs. Drinking water is pumped from 34 active public wells and two springs in the County. Most of the wells pump from three aquifers in the Fallon Area: "shallow", "intermediate" and "basalt" aquifers. The Carson River and related irrigation canals are important sources for groundwater recharge in the "shallow" aquifer. The "shallow" aquifer has the greatest risk of pollution from facilities or activities at the land surface because groundwater is only 5 to 10 feet below the ground. The shallow aquifer and surface contaminants have the potential to reach the intermediate and basalt aquifers, particularly if groundwater levels decline.

Source Water Protection Areas (SWPAs) are composed of the land surrounding water supply sources where activities are managed to protect the water supply from becoming contaminated. These management area boundaries were developed by the Team based on well locations, water system operations and local groundwater models. Maps of the SWPAs are provided in Appendix A.

Potential Contaminant Sources (PCSs) are facilities and activities with a risk of polluting groundwater and effecting public drinking water supplies. Inventories of PCSs and their locations were completed by meeting with water system operators, evaluating local hydrogeology, reviewing electronic databases (parcel records, environmental permits, etc.), and conducting field investigations. PCSs mapped in Churchill County include: commercial and industrial facilities (such as gas stations, auto repair shops, fuel pipeline) along transportation corridors (primarily Highway 50 and the railroad), residential subdivisions served by septic systems, agricultural areas, and animal holding facilities. Primary contaminant concerns include high nitrates from septic systems and hazardous or poisonous materials from commercial, industrial, residential and agricultural areas. Shallow wells are at the highest risk of contamination. The Team acknowledged that the irrigation canal system water quality is extremely important to protect because it is a primary groundwater recharge source. The Team identified unprotected, unused wells as a high priority threat to be addressed because these are conduits for contaminants to reach groundwater.

Using the information gathered and analyzed, the Team developed three types of management strategies to address the plan goals: 1) County-wide strategies, 2) focused strategies for source water protection areas and 3) specific strategies for individual public water systems. The source water protection management strategies focus on public education and outreach, collaboration and planning, maintenance and good housekeeping, and infrastructure improvement.

The Team developed an Action Plan, provided in Appendix E, which describes the specific actions to be implemented, the responsible parties for implementing the actions, the type of assistance that will be needed for completion and the priority and expected implementation year. Naturally the actions will be implemented as funding, staff and time allow. As a result of the CSWP Plan process, several of the highest priority actions are currently underway, including completing a feasibility study for abandoning unprotected, unused wells and providing education and outreach to persons in the Source Water Protection Areas. Additional information regarding public education and outreach are provided in Appendix F.

This CSWP Plan will be revisited annually in January to ensure its continued success. Source Water Protection will be on the agenda for the TCID annual meeting in March to receive input and concerns from water users relative to source water protection. The public water providers may identify new sources of contamination or experience an event that changes the characteristics of a water supply. Regular updates will ensure that the CSWP Plan incorporates significant future changes. The County Master Plan updates will include a review of the CSWP Plan.

This CWSP Plan, developed by the Local Planning Team, is an excellent tool to help protect drinking water in Churchill County. The Plan identifies goals, drinking water resources, potential contaminant sources, strategies and actions to prevent drinking water contamination, and a path to keep the plan relevant.

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- Appendix C Capture Zone Evaluation Report (*Sensitive Information\**)
- Appendix D Potential Contaminant Source Summary (*Sensitive Information\**)
- Appendix E Action Plan
- Appendix F Public Education and Outreach Plan

*\* See NDEP Integrated Source Water Protection Program Coordinator or Churchill County Planning Department for review*

## 1.0 INTRODUCTION

### 1.1 Overview

Community Source Water Protection involves voluntary actions to prevent the pollution of community drinking water sources, including groundwater, lakes, rivers, springs and streams. It includes developing and implementing a Community Source Water Protection Plan (CSWP Plan) to manage land uses and “man-made” sources of contamination in the vicinity of public water supplies. Local plans are long-term commitments by the communities to protect their drinking water (NDEP, 2010).

Source Water Protection Areas (SWPAs) are comprised of the land surrounding a water supply source where activities should be managed to protect the water quality. The SWPAs allow communities to plan for and respond to situations before contamination occurs.

### 1.2 Background

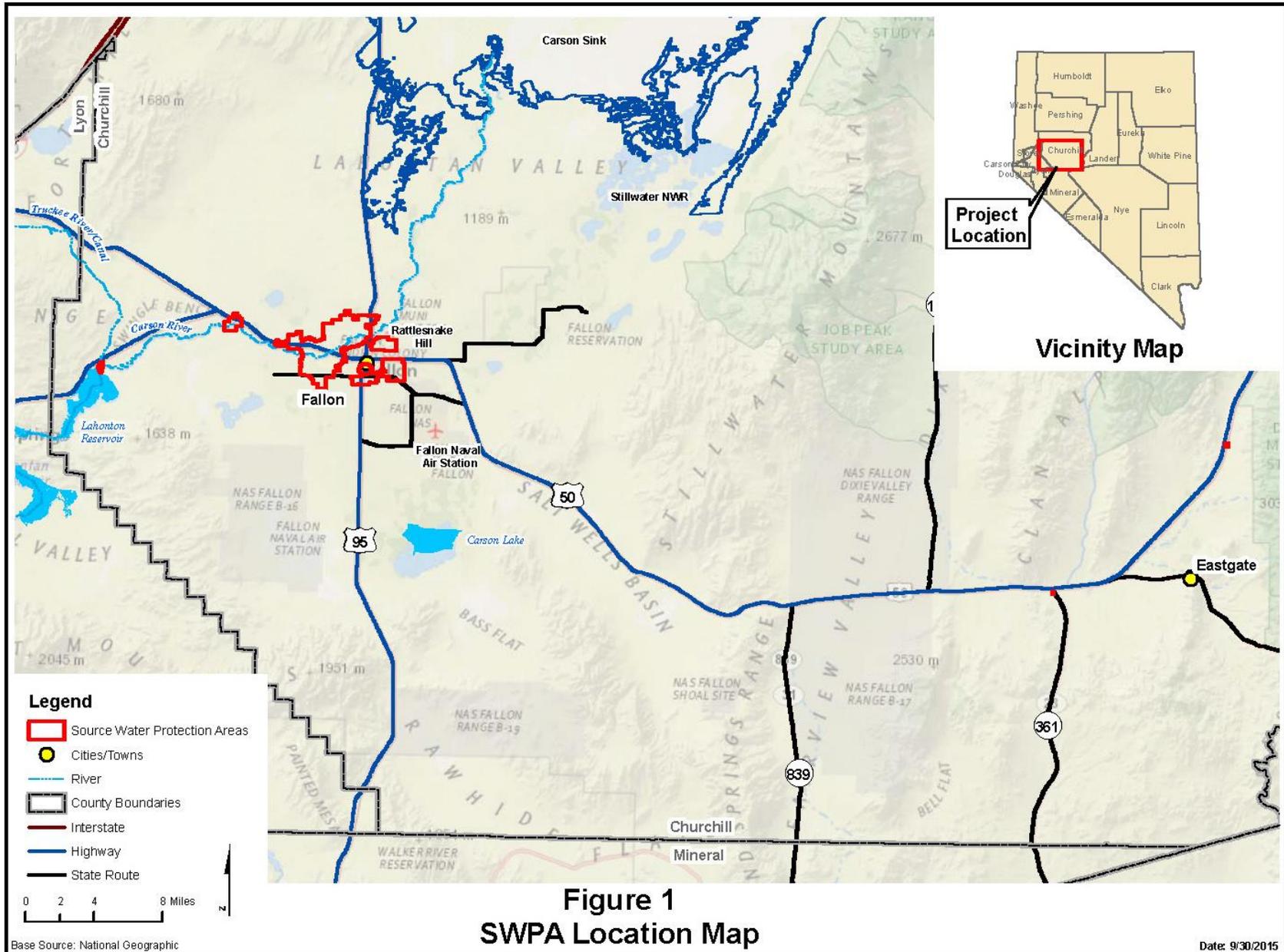
Public Water Systems (PWSs) in Churchill County, Nevada, have voluntarily participated in the development of this comprehensive and coordinated CSWP Plan in order to protect their drinking water resources and thereby ensure a high quality, sustainable water supply for their communities. This CSWP Plan includes 27 PWSs that manage 34 active wells in Churchill County mostly to the west and north of the City of Fallon (Figure 1). For purposes of this Plan, the term “Community” collectively refers to the PWSs, residents and local government located within areas of Churchill County. This plan does not include the water system managed by the City of Fallon. A Wellhead Protection Plan for the City of Fallon dated March, 2006 was prepared by Converse Consultants and previously endorsed by the State of Nevada.

Development of this Plan is based on the guidance document entitled Nevada Integrated Source Water Protection Program (ISWP Program), which was prepared by the Nevada Division of Environmental Protection (NDEP) in February 2010 as an update to the 1994 State Wellhead Protection Program. The guidance document sets the framework for local plan development and outlines the criteria required for a CSWP plan to receive State endorsement. With a State-endorsed plan, a local Community may be eligible to receive additional technical assistance from the NDEP to continue implementing the management strategies outlined in the CSWP Plan. This CSWP Plan has been developed with the intention of achieving State endorsement.

### 1.3 Plan Purpose

The purpose of this Community Source Water Protection Plan is to document the public drinking water resources in Churchill County and the measures that the public water systems and local government intend to implement to protect those resources from contamination. The CSWP Plan is a tool to facilitate cooperation between water purveyors, local and State agencies, industry, community leaders, and citizens to aid in the management and continued safety of the drinking water resources in Churchill County.

Figure 1 Location Map



## **1.4 Description of Planning Area and Source Water**

### **1.4.1 Location and Setting**

Churchill County encompasses approximately 5,000 square miles in west-central Nevada and has a population of about 24,900 residents as of the 2010 census. The City of Fallon in Lahontan Valley is the county seat and the only incorporated city in the County with a population of approximately 8,600 residents. Lahontan Valley is the name generally applied to the irrigated portion of the surrounding Carson Desert on the western side of Churchill County (Figure 1).

Lahontan Valley is home to most of the residents of the county along with most of the agricultural, commercial, and industrial activity. Lahontan Valley is also home to the Naval Air Station (NAS) Fallon, a training facility for the U.S. Navy, including the TOPGUN program since 1996. The remainder of the county consists of widely scattered, small communities.

### **1.4.2 Public Water Systems**

A public water system is defined by NRS 445A.235 as “a system, regardless of ownership, that provides the public with water for human consumption through pipes or other constructed conveyances, if the system has 15 or more service connections, as defined in NRS 445A.843, or regularly serves 25 or more persons”. There are three types of public water systems in Churchill County that are regulated by the State of Nevada: Community, Transient Non-Community, and Non-Transient Non-Community. This CWSP plan includes 15 Community, 16 Transient Non-Community, and three Non-Transient Non-Community public water system wells. These types of systems are described in the following paragraphs. The current and proposed future public wells included in this plan are summarized by the public water system type in the following sections and tables.

#### ***Community Water Systems***

A Community Water System has at least 15 service connections used by year-round residents of the area served by the water system or regularly serves at least 25 year-round residents of the area served by the water system (NRS 445A.808). Examples include municipal water systems operated by a county, town or mobile home parks.

#### ***Transient Non-Community Water Systems***

A Transient Non-Community Water System does not regularly serve the same persons (NRS 445A.828). Examples include convenience stores, restaurants, parks, camping resorts, and gas stations throughout Churchill County.

#### ***Non-Transient Non-Community Water Systems***

A Non-Transient Non-Community Water System regularly serves at least 25 of the same persons for more than 6 months per year (NRS 445A.829). Examples include schools and manufacturing facilities.

### **1.4.3 Future Wells**

There are four locations that could be future wells for the County water system. The other PWSs identified locations for new wells in close proximity to their existing wells. The potential future County well locations included in this CSWP Plan are called “Golf Course Well”, “Sage Springs Well”, “Frey Well”, and “Travis Well”.

**Table 1-1. Active Community Water System Wells Considered in this Plan**

<b>Water System Number and Current Owner</b>	<b>Local Well Name/ State Identifier</b>	<b>Water System Type</b>
NV0000052 OK Mobile Home Park	Well 1 / W01	Community Water System
NV0000054 R and M Mobile Home Park	North Well / W03 South Well / W02	Community Water System
NV0000055 Tolas Waterworks Coop	W03	Community Water System
NV0000058 Wildes Manor	Well 1 / W01	Community Water System
NV0000303 Old River Water Company	Well 2 / W02 Well 3 / W03	Community Water System
NV0000306 Sandwinds Restaurant Sports Bar	The Well / W01	Non-Community Water System
NV0000350 NAS Fallon	3 wells	Community Water System
NV0000406 Sand Creek	Well 1	Community Water System
NV0000872 Sage Valley RV Park	Well 1 Well 2	Non-Community Water System
NV0000903 New Millennium Building Systems, LLC	Well 1	Non-Transient Non-Community Water System
NV0000921 Oasis Springs	Well 1	Non-Community Water System
NV0000929 Sonic Burger	Well 1	Non-Community Water System
NV0000938 Lattin Farms	Kitchen Well	Non-Community Water System
NV0002014 Nevada Livestock Marketing	Well 1	Non-Community Water System
NV0002017 Cold Springs Station	Well 2	Non-Community Water System
NV0002023 Sage Valley MHP	Well 1	Community Water System
NV0002024 Kennametal Inc.	Well 1	Non-Transient Non-Community
NV0002027 Middlegate Station	Well 1	Non-Community Water System
NV0002028 Lahontan Dam State Park	North Spring South Spring	Non-Community Water System
NV0002534 Fallon RV Park	Well 2 West Well 1 East	Non-Community Water System
NV0002541 Centroid	1 well	Non-Transient Non-Community

Water System Number and Current Owner	Local Well Name/ State Identifier	Water System Type
NV0002581 Skips Mini Market	Skips Well	Non-Community Water System
NV0002586 Hollywood Skate	Well 1	Non-Community Water System
NV0002587 Gas Store West	Well 1	Non-Community Water System
NV0002594 Fallon Livestock Exchange	Well 2	Non-Community Water System
NV00003068 Carson River Estates	Well 1 Well 2 Well 3	Community Water System
NA Fallon Paiute-Shoshone Tribe	2 Wells	Community Water System (no State jurisdiction)

Note: Information on U.S. Navy water system integration and management is maintained by the U.S. Navy; the Fallon Paiute Shoshone Tribe does not have a State of Nevada well number.

The water system numbers are from the Bureau of Safe Drinking Water (NDWIS, Dec.2012).

#### 1.4.4 Inactive Wells

There are numerous inactive wells in the plan area. These inactive wells are scheduled to be abandoned by the public water system and are not intended to be potable water sources in the foreseeable future. These inactive public water systems are generally located near the active systems analyzed in this plan.

### 1.5 Existing Plans and Studies

There are several existing investigations that are relevant to and or used in the development of this CSWP Plan. Key information considered are listed in the following sections and tables.

Churchill County maintains a comprehensive Master Plan (2010). Master Plan goals and policies were reviewed for relevant information. The development of the CSWP Plan compliments the Churchill County Master Plan goals to “protect water resources and recharge areas” (CNR2); “to protect, improve, and maintain water quality, both surface and underground, in Churchill County” (PSF-2). It also implements Churchill County Master Plan Policy PSF 2.7:

*“Churchill County will develop and implement a wellhead protection program for current and future municipal groundwater wells including areas where future wells will be developed or have been identified in the Churchill County Water Resources Plan as areas having potential for groundwater development.”*

Previously, the City of Fallon was the only PWS in Churchill County with an existing wellhead protection plan (March 2006). The City of Fallon plan has opted to retain the 2006 document as a separate and stand-alone plan, however, their plan was reviewed during the CSWP Plan development process. The SWPAs were mapped and implementation measures identified in the plan were considered by the Team.

The Vulnerability Assessment Program and Source Water Assessment Program are both programs administered by the State of Nevada Bureau of Safe Drinking Water (BSDW) (additional information is available at <http://ndep.nv.gov/bsdw/>). The Vulnerability Assessment Program investigates and assesses the vulnerability to contamination of public water system sources, and is used to obtain waivers for various drinking water monitoring parameters. The Source Water Assessment Program is required by the federal Safe Drinking Water Act (SDWA) Amendments of 1996 to analyze existing and potential threats to the quality of the public drinking water throughout the State. Pertinent existing information from these programs was reviewed and used for individual water systems investigations (well locations, aquifer properties, and past potential contaminant sources).

There are a number of US Geological Survey (USGS) studies regarding groundwater hydrology that were used in the development of groundwater models for each well. All studies are referenced at the end of this document. The following studies were the primary information sources to characterize groundwater movement and aquifer parameters.

- Regional reports for the Carson River basin prepared by the USGS were key in the selection of groundwater parameters such as transmissivity values.
- Local USGS reports described groundwater quality and movement in the Fallon area.
- The Nevada Division of Water Resources Bulletins provided useful geology and hydrology information for the modeling in other areas of Churchill County.

Regulatory and other agencies maintain a variety of electronic databases useful in the mapping considered or developed for this CSWP Plan. Publicly available data were used for topography, geology, land ownership, zoning/land use, and potential contaminant sources.

## 2.0 TEAM FORMATION & PROGRAM GOALS

### 2.1 Team Formation Summary

In October 2014, the ISWP Program and Resource Concepts, Inc. (RCI) staff presented the CSWP Plan development process and assistance opportunities to the Churchill County Planning Commission. With their support a presentation was also provided to the Churchill County Board of County Commissioners in November 2014, resulting in letter from Churchill County to the State requesting participation in the program.

Following this request, the State sent letters inviting participation in the program to all PWS owners (Table 1-1) and many other stakeholders in the community (Appendix B). RCI also phoned and emailed PWS owners or operators to introduce them to RCI's role in the program and to solicit participation in the Local Planning Team. The "Kick-Off" meeting was held December 11, 2014 and hosted at the Churchill County commissioners' chamber. Subsequently, RCI met individually with interested PWSs to discuss the program with them and garner water system information. Owners and operators offered preliminary input about local concerns, which was later used to formulate management strategies.

Team meetings were held in January through October to review technical information and to develop the community's strategies for source water protection. Meeting agendas and summaries are provided in Appendix B. Invitations to public water well owners and other stakeholders were provided either via e-mail, regular mail or phone call prior to each meeting. Agendas and meeting materials were typically sent at least one week in advance of the meetings. RCI developed a web page ([www.rci-nv.com/source\\_water\\_protection](http://www.rci-nv.com/source_water_protection)) containing all pertinent project information including team members, meeting minutes, working documents, and maps.

### 2.2 Local Planning Team Members and Roles

Early in the planning process, the Local Planning Team was formed to develop this CSWP Plan. All Team members provided technical and planning information regarding their water system or area of expertise as outlined in Table 2-1. Team members as well as representatives of all of the PWSs were invited to meetings and kept apprised of the Plan progress.

**Table 2-1. Local Planning Team Members and Roles**

Name	Jurisdiction and Role
Chris Hansen Jim Perry	Carson River Estates HOA, PWS input
Eleanor Lockwood, County Manager Michael K Johnson, Planning Director Preston Denney, GIS Coordinator Marie Henson, Building Inspector, Sand Creek PWS	Churchill County Planning, mapping, coordination, and PWS input
Ed James, General Manager	Carson Water Subconservancy District Water quality protection and coordination within the watershed

Name	Jurisdiction and Role
Richard Black, Environmental Director Kevin Snodgrass, Public Works Manager	Fallon Paiute-Shoshone Tribe, PWS input and land management
Julie Wolf, President Sonya Johnson, Vice President	Churchill Farm Bureau Public outreach and education
Lon Bartoli, Senior Analyst Steve Hampton	Kennametal, Inc., PWS input
Becky Kurtz, Water Compliance	Fallon Naval Air Station, PWS input, land management, community assistance
Steve Bennett Jeff Hanson Bernard Ponte	Old River Water Company, PWS input
Rusty Jardine, District Manager & General Counsel	Truckee-Carson Irrigation District Water resource information, community coordination and outreach
Rick Sparks, Owner	Wildes Manor, PWS input
Lynn Zonge, Hydrologist Jill Sutherland, Engineer Don Henderson, Resource Specialist	Resource Concepts, Inc. Technical assistance
Kim Borgzinner, ISWPP Coordinator	Nevada DEP Technical and funding assistance

### 2.3 Source Water Protection Goals

The Team identified the following local community goals to protect drinking water during a series of meetings. These goals guide the development of this CSWP Plan and tie in with the management strategies described in Section 3.4 and the Action Plan, provided in Appendix E, to achieve source water protection.

**Table 2-2. Goals Established by the Local Planning Team.**

<ul style="list-style-type: none"> <li>Develop a local plan/program to ensure the availability of clean drinking water sources for future generations.</li> </ul>
<ul style="list-style-type: none"> <li>Encourage water resource protection measures that will promote sustainable economic growth.</li> </ul>
<ul style="list-style-type: none"> <li>Increase community awareness of the source of their drinking water supply and how they can help to protect that supply.</li> </ul>
<ul style="list-style-type: none"> <li>Encourage collaboration and communication between entities in and surrounding Churchill County.</li> </ul>

## 3.0 PLAN DEVELOPMENT

### 3.1 Drinking Water Source Inventory and Planning

#### 3.1.1 Plan Area Setting

Groundwater is the sole source of drinking water supply for all public water systems in Churchill County. The majority of public water systems in Churchill County are located in the Carson Desert Hydrographic Area. However, small isolated PWSs are also located in smaller isolated valleys on the eastern side of the County. Geologic and hydrologic details for each well are provided in the Capture Zone Evaluation Report provided as Appendix C.

#### 3.1.2 Historical, Current and Projected Future Groundwater Conditions

The Carson Desert is the terminus of the Carson River, which drains the eastern slope of the Sierra Nevada about 70 miles to the west. Flow of the Carson River and a diversion from the Truckee River are stored in Lahontan Reservoir and used for irrigation of about 56,000 acres in Lahontan Valley (Figure 1). About 170,000 acre-feet are delivered annually from the reservoir to 1,500 headgates through 340 miles of canals and laterals. About 350 miles of drains route return flow and groundwater seepage from the irrigated lands to wetland areas.

There are three aquifers of interest related to public water supply wells in the area around Fallon: “shallow”, and “intermediate”, and “basalt” aquifers. The depth to the water table beneath much of the valley floor is from 5 to 10 feet below land surface and is recharged by the Carson River and the irrigation canal network has been shown to effect the “shallow” aquifer. The depth of the “shallow” aquifer extends from the ground surface to roughly 50 feet. The “intermediate” aquifer extends from 50 feet below land surface to depths of 500 to 1,000 feet below the land surface and is the source of groundwater for most wells in the Fallon area. The depth to the “basalt” aquifer is shallow in the vicinity of Rattlesnake Hill and deeper moving away from Rattlesnake Hill (Glancy, 1986), and is the water source for the highest capacity wells, including wells for the City of Fallon water system. Naturally occurring arsenic and manganese concentrations are a concern for many of the PWSs and treatment is needed to meet drinking water standards in some areas.

Groundwater levels have declined since the 1980’s in response to increased annual pumping and, recently, a four year drought. Drought related declines are anticipated to recover under average climatic conditions and river flows as it has in the past. Groundwater conditions are anticipated to remain relatively stable, unless the current drought persists or new development rates significantly increase. Churchill County is not anticipating a significant surge in population growth despite the recent industrial expansion in neighboring Storey County.

#### 3.1.3 Current Measures for Protecting Groundwater from Potential Contaminants

Although none of the public water systems in Churchill County, other than the City of Fallon system, have wellhead protection plans, the need to protect the quantity and quality of water resources has been recognized in Churchill County and numerous measures have been implemented. For example, local agencies and emergency response personnel are keenly aware that the river and irrigation canals are significant sources of groundwater recharge, and that these resources need to be protected from contamination. Key current actions, and how they relate to the Source Water Protection Goals in Section 2.3, to protect source water are listed in the following table.

**Table 3-1. Current Actions Implemented to Protect Source Water**

<ul style="list-style-type: none"> <li>• Extensive groundwater studies have been conducted regarding the aquifer system and interaction with the irrigation system in the Lahontan Valley. These studies help to garner an understanding of where the community drinking water sources.</li> </ul>
<ul style="list-style-type: none"> <li>• Groundwater monitoring networks have been established and monitoring is on-going in the Lahontan Valley. The sharing of this information encourages collaboration and helps to identify contaminant issues before they become wide spread.</li> </ul>
<ul style="list-style-type: none"> <li>• The County has adopted Master Plan Goals and Policies to protect water resources. Protection is one of the goals of this SWP Plan.</li> </ul>
<ul style="list-style-type: none"> <li>• The County has enacted ordinances for new development to restrict the proliferation of septic systems. Septic systems are potential contaminant sources.</li> </ul>
<ul style="list-style-type: none"> <li>• A regional wastewater treatment collection and treatment system has been constructed as an alternative to on-site septic systems. This treatment system will reduce the need for septic systems for future generations.</li> </ul>
<ul style="list-style-type: none"> <li>• The Truckee Carson Irrigation District and Fire Districts are informed and prepared for emergency response to spills or accidents that could contaminate ground or surface water. Encouraging collaboration and communication is one of the CSWP goals.</li> </ul>
<ul style="list-style-type: none"> <li>• The solid waste disposal program accepts many types of household hazardous materials and promotes used oil recycling. Proper disposal of waste is one way residents can help to protect the water they drink from contamination.</li> </ul>
<ul style="list-style-type: none"> <li>• Good communication is maintained between the State, County, and PWSs regarding hazardous materials incidents and/or groundwater remediation, a CWSP goal.</li> </ul>

## 3.2 Source Water Protection Areas and Delineation

### 3.2.1 SWPA Development

In Churchill County, Source Water Protection Areas (SWPAs) are the areas of land surrounding a well where activities should be managed to protect the public water supply. The extents of the SWPAs for public wells in Churchill County was determined through a step-wise process that involved GIS mapping, team discussions, and management considerations.

The first step in defining the SWPAs involved mapping the extent of the well capture zones per the State guidance document (2010). The well capture zones were developed using a computer program, which predicts groundwater travel influenced by well pumping. The capture zones were prepared for 2-, 5-, 10-, and 25-year times of travel to each well. Many of the existing and future public supply wells have close or overlapping capture zones that were merged together in mapping. The complex aquifer system in the Fallon area was also considered in predicting transport of potential contaminants to drinking water sources. Calculated capture zones were overlaid with maps showing: current and historic Carson River channels; irrigation canals, ditches and drains; and aquifer/recharge area characteristics. The mapped information was presented and vetted at several Team meetings to consider management areas for source water protection. In-depth descriptions of the data and methods utilized to evaluate groundwater flow are provided in the Capture Zone Evaluation Report (Appendix C).

In addition to capture zones and hydrogeology, the Local Planning Team mapped and reviewed a variety of other data including: zoning, land use, topography, parcel boundaries and potential contaminant

sources (see Section 3.3) The Team members shared their knowledge regarding locations of industrial, agricultural and commercial activities. Such development can present groundwater contamination risks if the associated hazardous materials are managed poorly. Both past activities and anticipated future development were considered in setting SWPA boundaries.

The last step in drawing the SWPA boundaries began as a GIS exercise where all parcels touching the 10-year or 25-year capture zones were highlighted. The Team wanted the SWPAs to coincide with parcel boundaries, so that the areas could be identified with a mechanism already in the County land use system. Upon review, the Team selected the parcels touching the larger 25-year capture zone as the main basis for the SWPAs. They wanted to be more inclusive due to the importance of groundwater movement from recharge areas at the ground surface, through the layered aquifer system, to wells in the Fallon area. Maps of the final SWPAs are provided in Appendix A.

Three small isolated PWSs were evaluated using a fixed 1,100-foot radius or local topography. These methods were considered appropriate due to the uncertainty of computer generated results given low pumping rates and minimal aquifer data. The SWPAs for these three locations were generally based on the property boundaries for the parcels managed by the PWS owner or activities immediately adjacent to those parcels.

### **3.2.2 SWPA Extent and Characteristics**

The Team delineated eight SWPAs that include the current and planned future public wells in Churchill County. The final SWPAs were named for ease of reference based on the relative location of the SWPA, and the maps are provided in Appendix A.

The largest SWPA is the “Central” SWPA (6,664 acres) located west and north of the City of Fallon, which includes 17 of the 27 active PWSs in Churchill County. There are 24 existing PWS wells and 4 future well locations. Both the “shallow” and “intermediate” aquifers are sources of drinking water. The “Central” SWPA extends west along the Highway 50 corridor, south across Sheckler Road to include the capture zone of the Sand Creek PWS well, and north along the Carson River to Highway 95. The majority of the area is characterized by residential development, interspersed with irrigated fields, with strips of commercial and industrial development along both sides of Highway 50. Residential development in this SWPA is primarily served by private onsite wells and septic systems (over 1,400 septic systems and over 1,200 wells). The Carson River and irrigation network throughout the “Central” SWPA can be sources of recharge to the “shallow” aquifer and potentially the confined “intermediate” aquifer.

Four other SWPAs are delineated in the vicinity of Fallon, which range in size from 431 to 935 acres. The “FPST” and “Southeast” SWPAs are composed primarily of agricultural lands. The “FPST” SWPA includes lands under several different jurisdictions: the Fallon Paiute Shoshone Tribe, Churchill County, and the City of Fallon. The drinking water source is the “basalt” aquifer, which is shallow and most vulnerable to contamination near Rattlesnake Hill, although deeper and less vulnerable moving away from Rattlesnake Hill. The “Southeast” SWPA is primarily in Churchill County, but overlaps the City in a small area near the wastewater treatment plant. The “South” SWPA is about 70% in the County and 30% in the City. It encompasses older areas of commercial and residential development south of downtown along South Maine Street, as well as agricultural and residential areas along Sheckler Road. The “West Highway 50” SWPA is also largely agricultural land, but includes commercial and industrial zoned lands along the Highway 50 corridor about 8 miles west of Fallon.

There are two small SWPAs east of Fallon along Highway 50, one at Cold Springs and one at Middlegate Station. The water systems are owned by the facility owners and the SWPAs represent the local property and adjacent development if appropriate. The Lahontan State Park operates several PWSs for campgrounds and other State recreation facilities. Their one PWS in Churchill County is located just east of the Lahontan Reservoir Dam and encompasses lands managed by the State.

### **3.3 Potential Contaminant Sources**

#### **3.3.1 PCS Inventory**

A potential contaminant source (PCS) inventory was performed to identify potential hazards to the quality of a community drinking water supplies. The Team considered the following broad categories within the SWPAs delineated for Churchill County water systems:

- Facilities that store and handle hazardous materials, nutrients, or chemicals. Discharge to the environment is not anticipated, but could potentially occur in accidental or catastrophic situations (manufacturing, industrial facilities, gas stations, automobile maintenance activities, research and school facilities).
- Facilities or activities that are regulated by State or Federal permits to discharge materials to the environment, such as municipal wastewater disposal systems, commercial septic systems, stormwater systems, etc.
- Facilities or activities that by their nature distribute materials to the environment, for example firefighting chemicals, weed and pest control chemicals, fertilizers, residential septic systems, and illegal dumping.
- Facilities or activities that convey polluting materials from one point to another, or create conduits for contaminants to reach groundwater. Discharge to the environment might occur over time through leakage, spills or accidents. These types of sources include pipelines and pump stations, railways, highways, irrigation canals/ditches, and wells that are unprotected and unused or poorly constructed.

Team members and PWS operators were interviewed to identify primary concerns. Other PCSs were identified and mapped using data from existing regulatory databases and mapped information. Existing groundwater studies helped the Team identify the pathways that contaminants might follow through the aquifer system in the Fallon area to the public water supply wells. Finally, PCSs within each SWPA were reviewed during several driving reconnaissance to observe the known and possible new PCSs.

#### **3.3.2 PCS Evaluation**

During preparation of the inventory and field review, areas of concern were discussed with the Team members and documented. Distribution of PCSs was considered for each SWPA, as well as individual water system capture zones. These inventory results assisted the Team in understanding the level of potential threats to the groundwater quality and in designing management tools to prevent future contamination. The following paragraphs summarize the evaluation findings. Detailed information about the methodology used to develop and evaluate the PCSs is provided in Appendix D.

- The most prevalent PCSs are agricultural activities, because all SWPAs in the Fallon area include irrigated fields, irrigation ditches, onsite septic systems and private wells, as past development in the County is predominantly served by these on-site systems. The greatest density of septic systems and wells occurs in the “Central” and “South” SWPAs.

- Commercial and industrial facility type PCSs are generally concentrated along the road corridors of Highway 50 and Highway 95 South, which cross the “Central” and “South” SWPAs. The most common types are auto repair shops, public storage facilities, gas stations, current and past fuel storage tanks, livestock holding facilities, and other regulated activities.

The unique characteristics of the aquifer system in the Fallon area are key to evaluating risks for the drinking water sources in Churchill County. USGS investigations have indicated three distinct water supply aquifers (“shallow”, “intermediate” and “basalt”) and the mechanisms for PCSs to reach those aquifers where considered by the Team.

- The “shallow” aquifer is directly influenced by recharge from the extensive network of irrigation canals and ditches, as well as the Carson River and its floodplain. This seasonal recharge is critical to the groundwater supplies in the area, but can also transport contaminants to groundwater. Many private wells and a few public water system wells pump water from the “shallow” aquifer. The “shallow” aquifer has the greatest risk of pollution from facilities or activities at the land surface because groundwater is only 5 to 10 feet below the ground. In addition, the Team pointed out that there are old, unprotected, unused wells, and wells with poor seals, in the shallow aquifer which are a potential conduit for contamination.
- The USGS indicates that the water chemistry of the confined “intermediate” and “basalt” aquifers shows little influence from surface water sources. However, the studies also point out that there exists a notable downward gradient between the aquifers. This suggests that preferential pathways connecting these aquifers and the “shallow” aquifer, such as old wells, drill holes, gravel lenses, and relict channels, are particular concerns for protecting drinking water quality. Most of the public water system wells and many private wells pump water from the “intermediate” aquifer.
- The larger PWSs, including the City of Fallon, benefit from the high flows produced by their wells in the “basalt” aquifer. Near Rattlesnake Hill, vertical gradients are from the shallow and intermediate aquifers to the basalt aquifer. The shallow near surface aquifer and surface contaminants have the potential to reach the basalt aquifer, particularly if groundwater levels decline due to pumping or continued drought. Again, unprotected, unused wells, and wells with poor seals, are a potential conduit for contamination.

### **3.4 Source Water Protection Management Strategies**

Based on the results of the PCS survey, the Team developed management strategies and an Action Plan (provided in Appendix E) to implement the CSWP Plan. These management strategies and Action Plan are the plan/program to ensure the availability of clean drinking water sources for future generations, which is the first SWP Plan goal. The following sections summarize the management strategies prioritized by the Team for the public water systems in Churchill County.

#### **3.4.1 Countywide Strategies**

Protecting groundwater supplies is important to the entire Churchill County population. The following strategies have been identified as applicable to all persons working or living in Churchill County.

##### ***Public Education and Outreach***

Increasing community awareness of the source of their drinking water supply and how they can help to protect that supply is one of the CSWP Plan goals as well as encouraging water resource protection measures that will promote sustainable economic growth. These goals will be achieved through

public education and outreach to help people that work and live in the County to understand how their actions at work and at home have the potential to impact the water quality of the community. This was identified as the highest priority by the Team. The following further describes education and outreach to be promoted by the Local Planning Team.

*Promote understanding of drinking water sources and contamination*

One of the main goals expressed by the Team members includes educating the public and businesses about drinking water; where it comes from and how to avoid causing contamination.

*Encourage proper waste disposal*

Garbage and household hazardous waste disposal facilities are available in Churchill County. A strategy of promoting proper disposal will benefit water quality. Existing attractive flyers, mailers, bill inserts and promotional items that have been developed for other public water systems in Nevada are useful examples for the Team. The Team emphasized that short captions and bullet points are paramount to communication effectiveness when it comes to development of printed informational material.

*Maintain septic tank programs*

Churchill County has ordinances to limit proliferation of high density septic tanks, including a program to hook up sewer and water users as needed in a large area. In the absence of sewer hook-up availability, promoting appropriate septic tank operation and maintenance will be an ongoing strategy.

*Encourage well maintenance and proper abandonment*

Wells provide a direct conduit for potential contamination to community water sources. Education, maintenance and proper well abandonment is a high priority strategy.

***Collaboration and Planning***

Encouraging collaboration and communication between entities in and surrounding Churchill County was one of the CSWP Plan goals. Establishing and promoting collaboration between Churchill County agencies, local public water systems and local service agencies will maximize the effectiveness in all aspects of the plan actions. Community events are another avenue for collaboration and planning strategies. Neighboring counties have been open to collaborative efforts, making proper disposal of potential contaminants more easily and readily available.

**3.4.2 Focused Strategies for Source Water Protection Areas**

Specific strategies were developed for lands located within SWPAs to reduce the potential for source water contamination in SWPAs.

***Planning and Agency Review***

The SWPA locations can be integrated into the Local and State planning and agency review processes. Digital and hard copy maps of the SWPAs will be useful tools to help decision makers encourage the public to implement water quality protection measures. This strategy will help achieve the goal to encourage collaboration and communication between entities in Churchill County.

***Maintenance and Good Housekeeping***

Maintenance and good housekeeping, or best management practices, are every day or regularly scheduled actions that minimize surface runoff pollution and potential ground water contamination. These activities include regular equipment and infrastructure maintenance, proper material handling and storage or proper waste disposal.

***Infrastructure Improvement Assistance***

Infrastructure improvement strategies pertain to maintaining and improving the condition of existing infrastructure, as well as contingency planning for replacement wells in the event of well failure and assisting public water systems with emergency planning for alternative water sources. Infrastructure improvements may address wellhead security and abandonment of inactive wells, and feasibility studies and mapping for septic systems, sanitary sewer, irrigation, or drainage/infiltration facilities.

**3.4.3 Specific Strategies for Individual Public Water Systems**

During the process of identifying PCSs and delineating the SWPAs, each public water system within Churchill County identified specific needs that differ from the other public water systems. By identifying these needs within this document, it allows for assistance with prioritization, coordination with other jurisdictions and a vehicle for developing potential funding sources.

***Public Education and Outreach***

Site-specific education and outreach by public water systems to their customers regarding source water protection can be more effective than more general outreach. Opportunities include annual community gatherings, or posters, newsletters and flyers.

***Infrastructure Improvement Assistance***

Infrastructure projects are an effective means to minimize the potential for release of contaminants into the environment, or eliminate conduits for contaminants to reach public drinking water sources. Types of infrastructure considered include well closure and feasibility studies for other water sources to replace existing poor wells. Wellhead security and extension of wastewater infrastructure would also improve protection of groundwater quality. The CSWP Plan provides a means for identifying and prioritizing future needs, which is a foundation for funding assistance.

***Planning***

Many of the small public water systems desire assistance in planning for water source alternatives and contingencies, including collaboration with adjacent public water systems. By identifying planning as a management strategy, individual PWSs are specifically looking forward and encouraging collaboration to ensure the availability of clean drinking water sources for future generations.

**3.5 Contingency Plans**

Contingency planning within the context of this CSWP Plan provides guidance and direction to the local communities and public water systems in the event that the aquifer is significantly contaminated. The contingency plan describes the public water system's planning capacity to address a long-term emergency situation. Contingency planning considers the time frames needed for the public water system to switch to an alternate source, the quantity and quality of the alternate water sources, and the local resources. The contingency plan also includes conservation measures intended to prolong the use and availability of water supplies (e.g., during periods of interim decision making, remediation, or new source development).

**3.5.1 Existing Plans Relating to Contingency Measures**

The Nevada Administrative Code (NAC) requires public water systems to have plans for short-term and long-term contingencies to protect water quality and quantity. These plans include an emergency plan, cross-connection control plan, operation and maintenance manual and a water conservation plan. These plans are described in the following paragraphs and will be used in conjunction with this Contingency Plan depending on the situation.

***Emergency Plan***

The Emergency Plan contains short-term solutions to an immediate shutdown, either due to quantity problems, response to a contaminant threat, or a natural disaster. Public water systems in Nevada work with the Nevada Division of Emergency Management through County emergency management representatives if an emergency response is required. The Nevada Division of Emergency Management assists with short-term issues, such as spill response and coordinating the trucking of water to the afflicted public water system. The plan contains a list of available resources, emergency notifications, hypothetical scenarios and affected facilities including water sources, distribution systems, pump stations, and storage tanks.

***Cross Connection Control Plan***

The Cross Connection Control Plan provides information on how to prevent unauthorized connections to the public water system that could potentially contaminate the system during a loss of pressure. The plan identifies the activities needed to ensure that no unprotected service connections exist between the water system and sources of pollution or contamination.

***Operation and Maintenance Manual***

Each public water system maintains an Operations and Maintenance Manual (O & M Manual) that provides information on the purpose, function, operation and interaction of the system facilities, describes the capabilities and limitations of the system, and identifies procedures to control system processes. This manual is required under NAC 445A, 6667 and is maintained at each PWS facility for use by the operators and other facility personnel.

***Water Conservation Plan***

The Water Conservation Plans outline procedures to be followed during water shortages due to drought, overuse, or contamination. Water conservation plans require an analysis of the effectiveness of proposed water conservation measures, as well as an analysis of the effectiveness of utilizing a conservation-based water rate structure. The Water Conservation Plans also outline proposed water conservation enforcement measures.

**3.5.2 Short-Term Contingency and Emergency Plans**

The Emergency Plans for each public water system describe actions for short term contingencies in detail to provide temporary relief until permanent solutions can be implemented. Emergency water supply options are not intended to provide permanent solutions for the affected public water system. A list of potential alternate supply options include the following:

***Operational Adjustments***

In the event that one of the wells becomes contaminated, some of the public water suppliers could meet system demands by making operational adjustments such as using other wells and stored water.

***Boiled Water***

Boiled water may be ordered at the discretion of the well manager or as directed by the Bureau of Safe Drinking Water.

***Bottled Water or Potable Water Trucks***

Bottled water is available in the immediate area at local stores. Potable water trucks may be brought in from adjacent public water systems.

***Water Conservation and Rationing***

In the event that demand cannot be met, conservation and rationing orders may be given.

***Backup Generators***

In the event of an extended power failure backup generators may be used for wells to meet average day demand.

**3.5.3 Long-Term Contingency**

In the event of significant contamination of a drinking water source, the water providers with wells in the particular contaminated aquifer region may be subject to long-term deficits in their water supplies. The larger public water systems typically have multiple wells that can provide a level of flexibility in pumping from alternate wells. However, water supplies may also have to be supplemented by a new source, requiring an agreement with an adjacent water system or a replacement well. Replacement well siting is discussed in section 3.6.

**3.6 New Well Siting and New Water Sources**

Churchill County is the only public water system that has identified future well locations for this Plan (Section 1.4.2). The new well locations identified by Churchill County were included in this CSWP Plan and are mapped in the "Central" SWPA and the management strategies to protect these future locations are incorporated into the CSWP Plan. Several of the other systems (FPST, Old River Water Company, Carson River Estates, and NAS Fallon) have more than one active well for a redundant water supply.

Nineteen of the 27 PWSs active in Churchill County are served by one well. The non-community and some small community systems (such as mobile home parks), which often serve a single property, control a relatively small land area and new well location options are limited. Therefore by necessity, new well siting or water sources would be located near their existing wells and infrastructure.

New water sources for these systems may be able to take advantage of the layered aquifer system, particularly in the Fallon area. Studies may be prepared identifying different well depths and screened intervals, with improved well seals, that would in effect be new sources of drinking water. Studies may be needed for site-specific aquifer characteristics, including exploration wells and water quality sampling. New well designs would need to prevent the contamination from migrating along the well casing by using appropriate plugs and casing seals. The need for new wells and water sources would be identified on a case by case basis for individual water systems.

## **4.0 PLAN IMPLEMENTATION**

### **4.1 Action Plan Goals**

The CSWP Plan will be implemented through the Action Plan developed by the Team and provided in Appendix E. The Action Plan targets achieving the four goals of this CSWP Plan, addresses the identified PCSs, and is built from the Team's management strategies identified in Section 3.4 of this document.

The Action Plan implementation is dependent upon resource availability and the actions will be implemented as funding and time allows. The public water systems in Churchill County need technical and funding assistance in completing the action plan projects. While some actions have a higher priority than others, implementation will depend, to a large extent, on the resource and teaming opportunities that are available. The public water systems will take advantage of grants and other funding sources for implementation as they become available.

### **4.2 Action Plan Projects**

The Action Plan projects described in Appendix E are organized in three tables: 1) broad countywide projects, 2) projects within SWPA boundaries only, and 3) specific projects for individual public water systems. The projects are not listed in order of priority but rather grouped by the management strategy type (i.e. education, coordination, infrastructure, etc.). These action plan projects were identified and compiled through the Team meetings and meetings with individual PWSs to achieve the CSWP Plan goals. The specific actions also have supporting agencies, the priority, and projected completion timeframe.

The Action Plan addresses the primary contaminants of concern for the public water systems in Churchill County, described in Section 3. The countywide Action Plan projects include developing presentations for public meetings, materials for web pages and outreach to well and septic owners. Actions specific to land within the SWPAs include public outreach, changes to business or development permitting, good housekeeping actions, and infrastructure projects. Actions specific to public water systems are primarily related to infrastructure.

### **4.3 Potential Funding Opportunities**

There are a variety of potential funding sources that may be considered to implement the action plan. A key component for most funding sources is to build relationships and leverage resources. The Local Planning Team benefits from each other's knowledge and contacts. Table 4-1 lists some of the available potential funding sources.

### **4.4 CSWP Plan Updates**

The CSWP Plan is a dynamic living document. The Team will meet once per year in January to revisit the plan, assess the plan update needs, follow-up on implementation, coordination and progress. This meeting will be coordinated by Churchill County with the public water systems. The Team will also place Source Water Protection on the agenda for the TCID annual meeting in March to receive input and concerns from water users relative to source water protection. The Local Planning Team will strive to request assistance needs from the NDEP in May so that the NDEP may account for the funds in their June budgeting process. This CSWP Plan will be reviewed every five years relative to the County Master Plan updates.

**Table 4-1. Potential Funding Considerations**

Funding Agency	Program Name
Bureau of Reclamation	<ul style="list-style-type: none"> <li>&gt; Water and Energy Efficiency,</li> <li>&gt; Rural Water Supply</li> <li>&gt; Water for America</li> <li>&gt; System Optimization Review</li> </ul>
EPA	<ul style="list-style-type: none"> <li>&gt; Advancing Public Health Protection through Water Infrastructure Sustainability</li> <li>&gt; Clean Water State Revolving Fund</li> <li>&gt; Drinking Water State Revolving Fund</li> </ul>
USDA	<ul style="list-style-type: none"> <li>&gt; Water and Waste Disposal</li> <li>&gt; Water, Sewer, and Solid Waste Disposal Management</li> <li>&gt; Rural Development Solid Waste Planning</li> <li>&gt; Community Facilities Loan and Grant Program</li> </ul>
FEMA	<ul style="list-style-type: none"> <li>&gt; Flood Mitigation Assistance</li> </ul>
State of Nevada	<ul style="list-style-type: none"> <li>&gt; AB 198 Grants</li> <li>&gt; CWA 319 NPS Grants</li> <li>&gt; Solid Waste Program</li> <li>&gt; ISWP Program Implementation Grants</li> </ul>

## 5.0 PUBLIC PARTICIPATION

Public education is an important tool as identified in the Plan Goals, Management Strategies and the Action Plan to increase community awareness of the source of their drinking water and how they can help to protect that supply. Awareness promotes voluntary protection actions support for plan implementation. The objective of the CSWP Public Education and Outreach Plan (provided in Appendix F) is to present water providers, residents and other stakeholders with a set of tools and tactics that can be used to promote source water protection outreach and education.

The Action Plan, provided in Appendix E, identifies several specific audiences for targeted education and outreach to promote proper care and maintenance when potential contaminants are involved. The target audiences are residents, businesses and agricultural land managers in the greater Fallon area in Lahontan Valley as the primary target audience. The recharge area for the SWPAs includes most of the developed and agricultural areas in the valley west of Crook Road. The primary contamination threats to source water are improper chemical storage, use and disposal. The primary ways chemicals can contaminate source water are either through spill infiltration into the ground or by old unprotected wells or wells with poor seals.

Proposed methods for educating the target audiences range from watershed and groundwater model presentations at “Ag in the Classroom” and community events to flyers and posters. The appropriate educational tools depend on the extent of the community’s communication resources and the audience. Although the audiences range from community leaders, to business managers, to schoolchildren, the primary messages are the same. The following are the highlights of the public education plan provided in Appendix F.

### **Primary Messages**

#### What is source water protection?

Source water protection includes actions to prevent drinking water from becoming polluted. Much can be done to prevent pollution, such as the informed use of land and disposal of chemicals.

#### Why is it important to protect water at the source?

Protecting public drinking water supplies before pollution enters our drinking water supplies lessens potential health issues, and can avoid the high costs associated with water treatment or development of new water sources. People in Churchill County can help protect our source water by managing land uses and human-caused sources of contamination to prevent pollution before it enters our drinking water supply.

#### What contaminates the water we drink?

There are numerous pollutants that can contaminate surface and ground water. Some contaminants are a result of improper disposal of common household and business products such as cleaning products, waste oil, pet waste, fertilizers and pesticides. These and other harmful products, when improperly used, stored or disposed of may threaten to contaminate our drinking water.

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