City of
Baker City, Oregon

WATERSHED MANAGEMENT PLAN

2014

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WATERSHED MANAGEMENT PLAN

FOR

CITY OF BAKER CITY, OREGON

2014

This project is funded through the Oregon Infrastructure Finance Authority -
Safe Drinking Water Revolving Loan Fund Grant for Source Water Protection.

ANDERSON PERRY & ASSOCIATES, INC.

Civil Engineers

La Grande, Oregon
Walla Walla, Washington

 Job No. 781-46

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1. Introduction

Purpose of Watershed Management Plan (WMP)

The purpose of the City of Baker City's WMP is to build partnerships among stakeholders, characterize the watershed, define goals and identify solutions, develop an implementation program, and measure results. This WMP includes compiling information and partnering with the U.S. Forest Service (USFS), as a majority of the watershed land is owned by the USFS. This WMP follows Environmental Protection Agency (EPA) guidance for preparation of WMPs (EPA 2008).

Mission Statement

The mission of the WMP is to foster effective, economical, and equitable management of water and ensure the continued protection of the Baker City Watershed to provide clean drinking water to stakeholders and support functions of the environment by strengthening existing management measures, creating strategies to mitigate risks to the watershed, and implementing a framework to adapt to new challenges.

Scope of Watershed Planning Effort

The basic objective for managing the watershed is to maintain or improve the present quality and quantity of water. Water quality will take priority over water quantity in management decisions. The scope of this watershed planning effort is to update the existing 1991 WMP and expand it to include watershed control planning as well as action items for improving the watershed. The geographic scope of the planning effort is to encompass only the municipal watershed of Baker City (which is a part of the larger Powder Basin Watershed). By focusing on only the municipal watershed, this WMP supports the development of specific actions to improve watershed health. This geographic area is referred to as the Baker City Watershed in this document.

Acknowledgements

According to Baker City Resolution No. 3653, Baker City Council formally requested coordination status with all federal and state agencies maintaining jurisdiction over lands and resources within and appurtenant to the Baker City urban growth boundary.

The City of Baker City would like to thank all members of the technical advisory group, the community advisory group, as well as USFS, Oregon Department of Fish and Wildlife (ODFW), Oregon Department of Environmental Quality (DEQ), Oregon Health Authority - Drinking Water Services (DWS), EPA, Oregon Department of Geology and Mineral Industries (DOGAMI), and other contributors to this WMP.

This WMP was funded through the Oregon Infrastructure Finance Authority - Safe Drinking Water Revolving Loan Fund Grant for Source Water Protection.

Executive Summary

Document Organization

This document is organized into five sections. Section 1 introduces the WMP. Section 2 describes stakeholder participation. Section 3 compiles existing information to characterize the watershed. Section 4 describes goals and objectives for watershed health and lists strategies to accomplish these goals. Section 5 details the time frame and phasing of implementing and evaluating the success of these strategies.

Summary

The Baker City Watershed has been well protected since its origin. The land was designated as a municipal watershed in the 1912 Cooperative Agreement between Baker City and the Secretary of Agriculture (U.S. Department of Agriculture [USDA] 1990). A Memorandum of Understanding (MOU) from 1991 between the City of Baker City and the USFS has provided regulatory guidance to control and respond to impacts to the watershed. This WMP provides the current watershed characterization information, key goals, and an implementation plan to ensure the watershed continues to produce high quality water for the community and ecosystem. The stakeholders focused efforts in three key areas, as follows.

- Watershed integrity will be preserved through regulations including permit/ordinance reviews and revising the 1991 MOU between Baker City and the USFS (as of the date of this publication, the revised MOU is undergoing internal review). Improving engineering controls such as fencing and signage is also critical to ensuring access to the watershed is limited.
- Forest health management will be accomplished through planning, funding, and conducting fuel reduction projects over the next 10 years, if approved by the USFS for projects on USFS land.
- Water quality will be maintained and improved through small- and large-scale projects over the next 10 years, or until work is finished, including replacing the Mountain Line with modern piping material, completing the ultraviolet (UV) treatment facility, and implementing monitoring and reporting requirements of a Watershed Control Plan (WCP). Through these means, the City will work to retain the currently allowed filtration exemption for the watershed water sources. The DWS is the regulatory agency providing the filtration exemption.

Limiting access to the watershed, reducing fire risk through forest management, and working to improve water quality through treatment and monitoring are goals that the WMP will address through incremental measures to sustain the current high quality watershed function as well as future quality.

2. Watershed Management Plan Community Input

Overview

Community participation entails community advisory group and technical advisory group involvement. Both groups provided input on the WMP. The technical advisory group reviewed the technical aspects of the WMP. These groups helped develop the WMP. To gain general community input on the WMP, the community was invited to a public meeting held on October 16, 2014, (see Appendix A, Community Participation).

Technical Advisory Group Members

Table 1 lists the Technical Advisory Group members involved in the WMP and their affiliations/areas of expertise.

TABLE 1

Technical Advisory Group Members

Organization	Name	Title	E-mail Address	Notes	Responses
USFS	Jeff Tomac	Whitman District Ranger	jtomac@fs.fed.us	Fuels Management	Yes, e-mail confirmation
USFS	Willy Crippen	Fire Management Officer for the Whitman Ranger District	wcrippen@fs.fed.us	Fuels Management	Yes, e-mail confirmation
USFS	Robert Macon	Heritage, Minerals, Recreation, and Special Uses Staff Officer	rmacon@fs.fed.us		Yes, e-mail confirmation
Baker City Public Works	Jake Jones	Water Plant Operator	jjones@bakercity.com	Water Management	Yes, verbal confirmation
Baker City Public Works	Michelle Owen	Public Works Director	mowen@bakercity.com		Yes, verbal confirmation
Baker City Public Works	Larry McBroom	Public Works Supervisor	lmcbroom@bakercity.com	Water Management	Yes, verbal confirmation
Baker City Public Works	Jason Melo	Water Specialist	jmelo@bakercity.com	Water Management	Yes, verbal confirmation
Oregon Water Resources Department (OWRD)	Rick Lusk	Assistant Manager, Emergency Response Watermaster District 8	Rick.M.LUSK@wrd.state.or.us	Water Management	Yes, e-mail confirmation
U.S. Fish and Wildlife Service (USFWS)	Gary Miller	Supervisor	gary_miller@fws.gov	Fisheries	No response
Oregon Department of Forestry (ODF)	Logan McCrae	Stewardship Forester	lmccrae@odf.state.or.us	Fuels Management	Yes, e-mail confirmation
ODFW	Brian Ratliff	District Biologist	Brian.s.ratliff@state.or.us	Ungulates - Goats	Yes, e-mail confirmation
City Council	Clair Button	Councilor	cfbutton@gmail.com	Land Management	Yes, e-mail confirmation
City Council	Barbara Johnson	Councilor	bjohnson@bakercity.com		Yes, e-mail confirmation

Organization	Name	Title	E-mail Address	Notes	Responses
Oregon State University Extension Office	Bob Parker	Forest Engineering, Resources and Management	bob.parker@oregonstate.edu	Fuels Management	Yes, e-mail confirmation
OHA	Bill Goss	Regional Engineer, Oregon Drinking Water Services	william.h.goss@state.or.us	Water Quality	Yes
OHA	Russell Kazmierczak	DWS Hydrologist	russell.a.kazmierczak@state.or.us	Water Quality	Yes
DEQ	John Dadoly	Powder River Basin Coordinator	dadoly.john@deq.state.or.us	Water Quality	No response
DEQ	Sheree Stewart	Drinking Water Protection Program Coordinator	stewart.sheree@deq.state.or.us	Water Quality	Yes, phone confirmation
USFS	Mike Hall	Forestry Technician	michaelhall@fs.fed.us	Fuels Management	Yes, e-mail confirmation
Oregon Department of Geology and Mineral Industries (DOGAMI)	Ben Mundie	Awards Program / Reclamationist	ben.mundie@mlrr.oregongeology.com	Mines	Yes
Confederated Tribes of the Umatilla Indian Reservation (CTUIR)	Teara Farrow Ferman	Cultural Resources Program Manager	tearafarrow@ctuir.org	Cultural Resources Management	No response
CTUIR	Audie Huber	Intergovernmental Affairs Manager Department of Natural Resources	audiehuber@ctuir.org	Natural Resources Management	No response
Confederated Tribes of Warm Springs (CTWS)	Brad Houslet	Fisheries Department Manager	bhouslet@wstribes.org	Natural Resources Management	No response
CTWS	Sally Bird	Cultural Resources Program Manager	sbird@wstribes.org	Cultural Resources Management	No response
Powder Basin Watershed Council (PBWC)	Johanna Sedell	Executive Director	pbwced@qwestoffice.net	Watershed Management	Yes, e-mail confirmation
PBWC	Nancy Rorick	Board Chair	nrorick@yahoo.com	Watershed Management	Yes, e-mail confirmation
Baker Valley Soil and Water Conservation District	Whitney Collins	District Manager	whitney.collins@bakercountyswcds.com	Water Quality	Yes, e-mail confirmation
Baker City Fire Department	Cliff Hall	Interim Fire Chief	chall@bakercity.com	Fuels Management	No response
Baker City Fire Department	Gary Timm	Baker County Emergency Management / Fire Authority	gtimm@bakercity.com	Fuels Management	Yes, verbal confirmation

Involvement Process

Technical Advisory Group members were contacted based on their areas of expertise and at the recommendation of community members. A meeting was planned to solicit ideas and feedback for the WMP (see Appendix A, Community Participation).

The following details how feedback on the WMP was obtained and summarizes the public meeting comments.

Technical Advisory Group

Invitations were sent via e-mail, followed by phone calls to obtain consent from each individual in the Technical Advisory Group. The draft WMP was e-mailed to the Technical Advisory Group on September 17, 2014, requesting review within two weeks. Comments were incorporated into the draft WMP, which was made available for public review. Written comments were received from eight Technical Advisory Group members. Verbal comments and input were received from six additional members of the Technical Advisory Group. These comments were integrated into the WMP.

Public Outreach

The public meeting was announced in a variety of ways. Radio advertisements were made throughout the week prior to the meeting. A newspaper advertisement was placed in the Baker City Herald (see Appendix A). A notice was included in the Public Works mailer and on the City's website (see Appendix A). The full text WMP was included on the City's website. An e-mail invitation was sent to the Baker City Public Works Advisory Group (see Appendix A).

Public Meeting

The public meeting was held on October 16, 2014, in the Council Chambers of City Hall. The meeting was attended by 14 people (including both Technical Advisory Group members and members of the public). Each person was asked to sign in (see Appendix A). The meeting lasted approximately 1.5 hours. Members of the community were given a brief presentation and asked to submit comment forms (see Appendix A). Verbal comments were also noted (see Appendix A). Two written comments were received. In general, verbal public comments were focused on the need for vegetation management in the watershed. Concerns were raised regarding the length of the process for the USFS to permit and plan thinning operations and the need to get the Governor/USFS to recognize the watershed as a priority for fuels reduction. Firefighting time and response was also discussed. It was emphasized that thinning would not be a commercial effort, but rather needed to be considered a public safety priority. Additional comments included recommendations for clear cutting the watershed, diverting water for mining purposes, and holding City staff responsible for the *Cryptosporidium* outbreak of 2013. Comments linked to specific goals and priorities were incorporated into this WMP.

3. Watershed Inventory and Characterization

Background

The Baker City Watershed is composed of approximately 10,000 acres, located about 6 miles west of Baker City. The watershed is located within the Powder Basin Watershed (HUC 8 17050203). Approximately 160 acres are owned by the City, and the remainder is Wallowa-Whitman National Forest, administered by the USFS (Baker City 1991). See Appendix B, 1991 MOU and Attachments, for this agreement. The land was designated as a municipal watershed in the 1912 Cooperative Agreement between Baker City and the Secretary of Agriculture (USDA 1990). See Appendix B, 1991 MOU and Attachments, for the 1904 proclamation and the 1912 agreement. The Watershed GIS Mapbook (transmitted electronically to the City of Baker City), contains all data used to characterize the watershed in this WMP.

The watershed is located in Meridian 33 (Willamette Meridian), Township 8S, Range 38E, Sections 33, 34, and 35; Township 9S, Range 38E, Sections 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 22, 23, 24, 25, 26, and 36; and Township 9S, Range 39E, Sections 7, 17, 18, 19, 20, 29, 30, and 31. See Figure 1, Location and Vicinity Maps.

The water system is gravity fed from intakes high in the Elkhorn Mountain Range through water transmission pipelines to the City's storage reservoirs (see Figure 2, Current System Map). The City's watershed accounts for approximately 88 percent of the municipal water supplied to Baker City.

Baker City's predecessors developed the water system in 1862, with the City acquiring the water rights in 1900 and 1901. From this early beginning, Baker City has actively maintained and upgraded the water collection system as possible to continue to serve the municipal needs of the City.

The boundary of the watershed, for the purposes of this WMP, is the land area within Baker City's legal agreement with the USFS. The watershed boundary is slightly different than the boundary of the hydrological drainage area that serves the 12 diversions (see Appendix C [Figure C-1], USFS and DEQ Watershed Maps).

Drinking Water System Description

This section summarizes the Baker City Watershed, water supply well, storage reservoirs, water treatment system, and distribution system. Twelve diversions located within the watershed collect snowmelt runoff and spring water, which is carried by a pipeline network to the City's 4.5 million gallon (MG) reservoir. This water reaches the water plant through either the Mountain Line pipeline or the Goodrich Line pipeline. Additionally, there is a bypass pipeline in Marble Creek that connects to the Goodrich Line (see Figure 2, Current System Map).

Water within the Mountain Line passes through a generator then continues into a flume where chlorine is injected. The water then proceeds into the chlorine contact chamber for disinfection. The Goodrich Line feeds directly into the flume to receive chlorine injection and then drains into the chlorine contact

chamber. After the chlorine contact chamber, water is moved through the UV facility, which is currently temporary, but a permanent UV facility is being constructed and will be completed within the next year.

The City's existing basalt groundwater supply well is utilized for aquifer storage and recovery (ASR) and water supply. Watershed water is injected into the deep basalt well in the winter and removed in the summer when water supply demands are usually at their highest. The ASR well and pump station are located adjacent to the generator building. The pump discharge piping connects into the flume within the chlorine building, as do the Goodrich Line and Mountain Line. Within the flume, the water supply receives chlorine disinfection prior to entering into the chlorine contact chamber and then flows to the UV reactor (AP 2013).

The City currently has two ground storage reservoirs in use. The 4.5 MG concrete chlorine contact chamber acts as a storage reservoir and contact chamber for disinfection. Beside the chlorine contact reservoir, there is a 3.0 MG concrete ground storage reservoir downstream of the contact chamber from which water supply is distributed into the distribution system via the Carter Street Line. Flow from the contact chamber, the Carter Street Line, and the Indiana Street Line are metered. All flowmeters were upgraded in 2014 with the installation of the UV treatment facility. Additionally, the contact chamber meter readings are logged by the operator on a daily basis. The City also has a 0.92 MG open ground storage reservoir that is no longer in service. This reservoir was taken out of service in the late 1980s when the cover liner began to leak.

The original water distribution system was constructed in the early 1900s and consisted of relatively small diameter steel water lines. The original water lines have been replaced and upgraded from the early 1980s to the present. Approximately half of the lines are cast iron with the other half upgraded to ductile iron.

The City of Baker City currently serves 4,549 connections, with residential connections making up the largest portion of users. There are 3,959 residential and 590 commercial connections. The residential water use accounts for about 63 percent of the City's total water use. The City has no industrial water users currently being served by the water system (AP 2013). The City is currently updating the Water Facilities Master Plan and considering alternative water sources. The water produced from the Baker City Watershed is integral to the functioning of this system.

Public Education and Outreach

Baker City currently conducts public outreach about water issues in a variety of ways. Regular communication is made to customers. The City posts water conservation facts and ideas on the City's website under the Public Works section. In addition to the website, the City periodically includes articles about water source issues in the annual Consumer Confidence Reports sent out to each customer. The City is also considering utilizing free educational materials available through the OWRD and visiting with other cities in Oregon to see what has been done elsewhere to promote water conservation.

The City has started a Community Outreach Program designed to educate and create awareness on water conservation topics. The Public Works Department visits local elementary school children (typically fourth graders) to present information on how the watershed works, how to conserve water, and to provide additional resources to the elementary students to reinforce the idea of conservation practices.

The City offers the technical assistance of a Water Specialist to all of their customers to determine if leaks exist at private residences. The City provides the results of water quality testing on the website and in a mailer to all customers (Baker City 2013).

Applicable Regulations and Guidance

This WMP adheres to local, state, and federal regulations and was prepared following EPA guidance for developing watershed plans (EPA 2008). This WMP will serve as a comprehensive management plan as well as a WCP. It is in compliance with Oregon Administrative Rule (OAR) 333-061-0032(2)(c)(B), OAR 333-061-0075, and follows guidelines from the EPA's March 1991 "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources," specifically Section 3.3.1 and Appendix J.

Wallowa-Whitman Forest maps, forest management plans, Baker City Public Works data, Water Quality Reports, historical information, City and County planning documents, Powder Basin Watershed Action Plan (DEQ 2013), as well as historical information from the previous watershed plan (Baker City 1991) and the Water Management and Conservation Plan (AP 2007; AP 2013) were reviewed and incorporated into this document to ensure that the goals of this plan support the vision of the larger regional planning documents.

Physical and Natural Features

The watershed is located in the Blue Mountains on the eastern slope of Elkhorn Ridge. Elevations range from 4,500 feet at the Goodrich Creek intake to 8,931 feet at Elkhorn Peak above Goodrich Lake. Elevation of the existing water pipeline ranges from 5,400 feet near Little Mill Creek to 5,150 feet near the Elk Creek settling tanks (Baker City 1991). Prominent features of the watershed include streams, a lake, riparian vegetation, wetlands, alpine forests, large rock outcroppings, and steep sloping terrain.

Climate and Topography

The climate of the watershed is classified as Temperate Continental-cool summer phase. Warm, moist fronts from the Pacific Ocean are blocked by the Cascade Mountain range located 200 miles to the west of the watershed. Typically, there is low precipitation and low humidity. Precipitation predominantly occurs in the winter. The mean annual average temperature is 45.5°F (range is -28°F to 104°F) (DEQ 2013).

The topography is characterized by the steep slopes of the Elkhorn Mountains (see Figure 3, Topographic Map).

Vegetative Cover

The vegetative cover of the area includes three broad groupings: Principal Forest Zone, Subalpine Zone, and Alpine Zone. In the Principal Forest Zone, canopy cover varies between 40 to 80 percent with plants including alders, willows, snowberry, and other native shrubs. The canopy cover in the Subalpine and Alpine Zones consists of ponderosa pine (*Pinus ponderosa*), lodgepole pine (*Pinus contorta*), Douglas Fir (*Pseudotsuga menziesii*), white fir (*Abies concolor*), and larch (*Larix*) (see Figure 4, Watershed Vegetation (includes mines and invasive species).

With the exception of the portion of the watershed located on private land, there has been very little forest-stand management activities in the past few decades.

In the 1950s through the 1960s a few ridges accessible from the Pipeline Road (7140200) (the road located primarily over the Mountain Line) were harvested to the level of "light partial harvest and salvage." Less than 10 percent of the entire area has ever been commercially harvested (USDA 1995a).

In 1995, the USFS issued a Record of Decision on the Washington/Watershed Project Final Environmental Impact Statement (USDA 1995b). This project included 14,000 acres (which included the Baker City Watershed). Alternative 4A was chosen, which included a mix of commercial and non-commercial treatments as well as eliminating the Washington Gulch cattle and horse domestic grazing allotment. This alternative was chosen to work to return forest conditions to their normal range of variability, protect water quality and reduce fire risk in the watershed. Projects implemented through this EIS include Washington Timber Sale, Washington Watershed Thinning, Wilson Timber Sale, Hibbard Thinning, Pilot Thinning, and Elk Creek Fuels Reduction. In these projects, 1,340 acres were commercially thinned and harvested, 1,250 acres were pre-commercial thinned then piled and burned, and 700 acres of prescribed under burning was accomplished (USDA 1995a).

In 2004, the USDA (USFS) and USDI signed the Decision Memo for Categorical Exclusion for Foothills Fuels Reduction Project. This decision approved the commercial thinning, pre-commercial thinning, whip felling, mechanized slash treatment, hand piling, and pile burning and under-burning on the 2,160 acres in the interface of USFS land and private land along the base of the Elkhorn Mountains west of Baker City (USDA 2004). Some helicopter logging occurred as part of this project. This project was designed to continue activities planned under the Washington/Watershed Environmental Impact Statement (USDA 1995a). The intent of these continuing activities was to protect the watershed from high-intensity wildfires.

On the private portion of the watershed, more thinning efforts have occurred. In 2006, a report on the effectiveness of thinning activities was prepared with the title "GWEB Project #98-039 Baker City Watershed Forest Health Project Compliance Monitoring Report." The author was able to identify and document positive effects from the project funded by a Governor's Watershed Enhancement Board (GWEB) grant. The project included cutting, piling, and burning fuels to significantly reduce fuels and to increase fuel breaks. A hand crew selectively thinned and burned small slash piles in a few high risk places from 1997 to 2000. Tree and brush cutting was done by Forest Service employees. Piling of cut trees and brush was done by Powder River Corrections inmate crews. The project received considerable media attention. The total cost of the project was $63,320.11; the report indicated that approximately half of the areas identified as needing thinning had actually been thinned (Oregon Watershed Enhancement Board [OWEB] 2006). Figure 5A, Fuel Management Areas, shows all known areas where thinning has occurred, and places where potential thinning could occur. Figure 5B is a map generated by the USFS showing the names of each project associated with USFS vegetation management projects from 1996 to 2010. See Appendix C (Figures C-2, C-3, and C-4) USFS and DEQ Watershed Maps.

Invasive Species/Noxious Weeds

Invasive species are currently under relative control in the watershed. Noxious weeds are located in a few areas and include spotted knapweed (*Centaurea biebersteinii*), diffuse knapweed (*Centaurea diffusa*), St. John's wort (*Hypericum perforatum*), gypsy flower (*Cynoglossum officinale*), and Canada thistle (*Cirsium arvense*). In close proximity to the watershed are the same species as well as Scotch cottonthistle (*Onopordum acanthium*) and sulphur cinquefoil (*Potentilla recta*). Invasive plants in the watershed are mostly along the Mountain Line, likely due to disturbance, and due to this area being more heavily surveyed (see Figure 4, Watershed Vegetation [includes mines and Invasive species]).

Geology and Soils

The watershed primarily consists of rocks of the Permian and Upper Triassic age. In the central part much of the exposed rocks are sedimentary. A mixture of volcanic rocks, including old basaltic and andesitic lava flows and gabbroic and dioritic intrusive bodies, is found to the north and south. The upper-most parts of the main creeks (north-central part of the watershed) are remnants of glacier-carved cirques. Slopes exceed 35 degrees and lack vegetation. The glacial moraines consist of unconsolidated and poorly sorted deposits of boulders, gravel, sand, and silt from the Quaternary age. The geologic features of the watershed have also been subject to small gold mines and prospects (Baker City 1991).

There are 38 different soil and rock map units within the Baker City Watershed. Most soils are non-hydric, with the exception of a small area near Goodrich Creek. The vast majority of soil types are moderately deep (20 to 40 inches to bedrock) or very deep (over 60 inches to bedrock) and consist of colluvium, residuum, or glacial till over argillite or granite bedrock. The watershed area soils typically have soil textures of silt loam, loam, or sandy loam with over 35 percent rock fragments (skeletal) by volume, and have volcanic ash incorporated into the soil profile. Soil and rock map units are shown on Figure 6, Watershed Soil and Rock Map Units (Trochlell 2014; Natural Resources Conservation Service [NRCS] 2014).

Hydrophobicity is the inability of soils to absorb waters after a fire. In a watershed, the steepness of the slopes, high organics, and organic ash in surface layers have the potential to indicate hydrophobicity problems. However, the surface layers of the soils are internally well drained (due to the 25 percent rock fragments), which mitigates the hydrophobicity.

There are inherent features of steep and very steep slopes (30 to 60 percent and 60 to 90 percent) that create conditions that are very different from other areas. Approximately 93 percent of the watershed area is sloped between 30 and 90 percent. The Elkhorns have these characteristics. See Figure 7, Watershed Slopes and Hydrology.

The Elkhorns are characterized by low precipitation, high natural fertility, and high volcanic ash in surface layers. Erosion is significant because it can multiply the after-effects of fire. Erosion is listed at a moderate risk level near the Goodrich Creek intake area in the Source Water Assessment Summary provided by DEQ (DEQ 2003). A fire could create an increased risk of landslides; however, well drained soils are resistant to this and are typically associated with a low transmission of sediments. Additionally, the high volcanic ash content in soils is important to the system to provide a good basis for rapid regrowth after disturbance.

To date, there has been no LIDAR mapping of the watershed. LIDAR information could be used for the assessment of landslide potential, erosion, and watershed management.

Mine Locations

Mining claims have been maintained on some properties, but there has been little or no production for decades. A search of Bureau of Land Management (BLM) records in the LR2000 system for the following locations was conducted: Meridian 33 (Willamette Meridian), Township 8S, Range 38E, Sections 33, 34, and 35; Township 9S, Range 38E, Sections 2, 3, 4, 9, 10, 11, 12, 13, 14, 15, 16, 22, 23, 24, 25, 26, and 36; and Township 9S, Range 39E, Sections 7, 17, 18, 19, 20, 29, 30, and 31. There were a total of six unique active claims within the watershed boundaries. The mining claims on Marble Creek are owned by Blue Mountain Lime Company.

There are several test mine pits (likely for gold) throughout the watershed; these are largely overgrown and historical in nature. DOGAMI identified a gold placer operation within the watershed boundary that was exempt from the permitting process because the site was less than 5 acres and produced less than 5,000 cubic yards of material in any 12-month period. The contact is Paul Malstrom for T9S, R39E, Section 32. A check of LR2000 on September 4, 2014, indicated all mining claims held by Paul Malstrom are closed. The DOGAMI file was closed due to inactivity in 2005.

There are two larger mines in the watershed. One historic gold lode mine is the Stub Mine, located in T9S, R39E, Sections 20 and 29, W.M. It was inventoried in 1968 but did not appear active, and there was no production information. However, a mine tunnel is described as "several hundred feet long," which would indicate there may be waste rock dumps at the surface. No mine drainage was described. With no activity, even with mine waste piles at the surface, the potential for sediment from these piles is low because the site would have self-reclaimed since the 1960s. There was no current owner listed. It is not in a drainage from which the City takes water and lacks processing facilities. It has not operated for several decades and water quality impacts are negligible and ever decreasing (Baker City 1991).

The larger mine is the Monarch Marble Mine, which is located in T9S, R38E, Sections 13 and 14, W.M. This was the only large scale operation in the watershed. It produced limestone from 1958 to 1965 without "any noticeable detrimental effect on the water quality" (Baker City 1991). According to the best available records, a decommissioning of the quarry (in later years called the Marble Creek Quarry) appears to have occurred in 1992. All structures, including scaffolding, storage tanks, and buildings, were removed. The Marble Creek Quarry location can be seen on Figure 4, Watershed Vegetation (includes mines and invasive species). It is on the east side of the watershed, approximately in the center; it is the largest watershed mine.

Fish

Known populations of bull trout have been identified within the lower reaches of Salmon Creek outside the watershed. The distribution and relative abundance of bull trout and other fish were systematically surveyed by the USFS in Salmon Creek (electrofished 100 meters per kilometer) in 2013 and 2014 upstream of the USFS boundary. Bull trout (and rainbow trout) were found near the upper limit of distribution shown on Figure 8, and bull trout were also found at higher densities approximately 1 kilometer upstream. No fish were found at the next site upstream, located below

the diversion structure at the watershed boundary; however, there was no flow in the stream channel below the diversion structure. Thus, the distribution of bull trout extends upstream in Salmon Creek to within 1 kilometer downstream of the watershed boundary.

Bull trout distribution was similarly extensively surveyed throughout the upper Powder River Basin during 2013 to 2014. The populations are small, narrowly distributed, and isolated by the by the loss of connectivity from habitat alterations and migratory life history forms. The bull trout population in Salmon Creek is one of only three populations in the Powder River Basin that are also not threatened by hybridization and competition with introduced brook trout (Howell and Archuleta 2014).

No other listed species have been identified in the watershed basin or creeks (AP 2007). Four species of salmon have been extirpated from the basin. These anadromous fish were eliminated from most of the Powder River Basin by the construction of the Thief Valley Dam in 1932 as well as the construction of the Brownlee, Oxbow, and Hells Canyon Dams on the Snake River (DEQ 2013).

Native fish that may be present in the watershed include redband trout, rainbow trout, white sturgeon, mountain whitefish, bull trout, mottled sculpin, slimy sculpin, torrent sculpin, shorthead sculpin, Paiute sculpin, northern pikeminnow, chiselmouth, peamouth, longnose dace, speckled dace, redside shiner, largescale sucker, mountain sucker, and bridgelip sucker (DEQ 2013; NWPCC 2004).

Introduced fish that may be present in the watershed include brook trout, lake trout, westslope cutthroat trout, carp, black crappie, white crappie, largemouth bass, smallmouth bass, and walleye (DEQ 2013; NWPCC 2004).

None of these native or introduced fish have been confirmed to be present in the watershed (see Figure 8, Fish Presence and Impaired Streams (303(d) List) of the Watershed).

Wildlife

The watershed is located in the Sumpter Wildlife Management Unit. Wildlife populations are under management of the USFWS and ODFW in the watershed. Within the watershed boundaries there may be mountain goats, elk, deer, coyotes, bears, cougars, wolves, foxes, bobcats, wild turkeys, woodpeckers, song birds, and many raptors such as red tail, rough-legged hawks, and bald eagles. Source habitat for the pileated woodpecker, goshawk, and American marten is located in the watershed. Pileated woodpecker USFS management areas are also located in the watershed. See Figure 9A-B, Watershed Wildlife. Lynx have reportedly never been sighted in the watershed.

The following information represents ODFW data collection efforts in the watershed and Sumpter Unit:

- Bear Data: Bears are not densely populated in the watershed, so ODFW does not track this population. Data include where bear are tagged (with tetracycline), and whether the teeth of killed bears have tetracycline markers in them. No locational data are available (Ratliff 2014).
- Deer and Elk Data: ODFW tracks deer and elk data for winter range only. There are no deer and elk in the watershed during winter. The only population level data estimates available

are for summer use of the entire Sumpter Unit (of which the watershed is a small part) (Ratliff 2014). The management objective for deer is 7,000 animals in the Sumpter Unit, and the management objective for elk is 2,000 animals in the Sumpter Unit. Table 2 below shows deer and elk population estimates (post-winter population indices, which are derived from direct/trend/count data or population modeling from composition data, harvest data, and winter severity estimates) for the Sumpter Unit. The watershed comprises approximately 0.1 percent of the Sumpter Unit, but the area may receive disproportionate use due to the high quality of the habitat.

TABLE 2

Sumpter Unit Deer and Elk Population Estimates 2004-2014

Year	Deer (Management Objective = 7,000)	Elk (Management Objective = 2,000)
2004	6,720	1,680
2005	5,740	1,800
2006	6,510	1,760
2007	5,950	1,600
2008	5,670	1,580
2009	5,880	1,440
2010	5,180	1,520
2011	4,550	1,420
2012	5,040	1,440
2013	4,830	1,580
2014	5,930	1,580

- Goat Data: Populations of mountain goats in the watershed are healthy enough that between 2001 and 2012 ODFW has trapped 226 goats and kids to start and reestablish populations in other areas of their native habitat. There are point counts of goats in the watershed (near Goodrich).

The minimum population for the Elkhorn mountain goat population for the past 10 years, 2004-2014 (provided by ODFW), is shown on Table 3 hereafter. This represents the minimum population that information from surveys confidently predicts; however, it is likely that more are present (on the order of 10 to 30 percent).

TABLE 3

Elkhorn Mountain Goat Population Estimates 2004-2014

Year	Total
2004	133
2005	157
2006	192
2007	174
2008	242
2009	199
2010	302
2011	268
2012	263
2013	142
2014	176

Figure 9A shows the mountain goat range in the Sumpter Unit within the watershed boundary.

Livestock and Agriculture

With the exception of the private portion of the watershed, livestock is not allowed within the boundaries of the watershed. Preventative measures have been instituted to reduce incidence of straying within the watershed. These measures include fence maintenance, fence construction, and discussions with landowners. Cattle grazing in the private portion of the watershed located below the Elk Creek intake line are not influencing any water that is entering the municipal reservoir. The Stovepipe allotment and the Blue Canyon allotment are adjacent to the watershed and grazing occurs on these. Table 4 details the allotments adjacent to the watershed. The boundaries and fencing of these allotments can be seen on Figure 10, Range Allotments and Fences. Appendix D, Private Landowner Agreements and Allotments, contains the permits. Permit holders are responsible for construction and maintenance of structural improvements for range rehabilitation.

TABLE 4

Watershed Adjacent Allotments

Allotment Name	Season of Use	Livestock Class	Number	Expiration
Stovepipe	June 1 through September 30	Cow/calf pair	266 (Term Grazing Permit)	December 31, 2015
Blue Canyon	June 1 through September 30	Cow/calf pair	107 (Term Grazing Permit) 27 (Private Land Grazing Permit) 11 (BLM Grazing Permit [billed by the USFS])	December 31, 2016

Agriculture is not permitted within the Baker City Watershed. There are no agricultural lands present above the watershed, so nutrient/pesticide runoff is not of concern.

Hydrology/Precipitation

The hydrology of the watershed is dictated by the headwater areas in the Elkhorn Mountains. Goodrich Lake is located in the northwest corner of the watershed. Creeks that flow down from the Elkhorn Mountains to the east (outside of the watershed boundary) include Goodrich Creek, Mill Creek, Marble Creek, and Salmon Creek. To the west, inside the watershed boundary, are Little Mill Creek, Big Mill Creek, Little Marble Creek, Marble Creek, Big Salmon Creek, Little Salmon Creek, and Elk Creek. Two springs are in the area: Marble Springs and Camper Springs. Water from these creeks and springs flows into the Mountain Line for use in the municipal water supply (see Figure 2, Current System Map).

The City uses 12 diversions within the watershed for water supply, accounting for approximately 88 percent of the City's supply. Having this many diversions provides flexibility and limits some vulnerabilities (AP 2007). The watershed includes diversions at the upper reaches of several creeks that ultimately drain into the Powder River. The Powder River is a water quality limited stream with total maximum daily load (TMDL) limits under development. Generally, the Powder River flows north through Baker Valley, then southwest through Keating Valley into the Brownlee Reservoir. The total length of the Powder River is approximately 114 miles (DEQ 2013).

The average annual watershed precipitation, based on data from 1979 through 2013 from the NRCS Bourne SNOTEL, is 32 inches. Bourne SNOTEL is located to the northeast of the watershed at an elevation of 5,800 feet. The average precipitation in the form of snow is 59.0 inches per year. Interpolated data from the USFS show precipitation ranging from 20 to 36 inches in the watershed (see Figure 11, Watershed Annual Precipitation). The average annual precipitation in the watershed is summarized on Table 5 below.

TABLE 5

Annual Precipitation in the Watershed

Month	Precipitation at Bourne SNOTEL (inches)	Snow Water Equivalent at Bourne SNOTEL (inches)
January	5.3	7.2
February	4.8	11.5
March	3.5	14.5
April	3.5	15.5
May	2.4	7.4
June	2.8	0.17
July	2.1	0
August	0.88	0
September	1.0	0
October	0	0
November	2.0	0.17
December	4.1	2.6
Total	**32.2**	**59.0**

Minor snow avalanche activity in the watershed is a common winter occurrence. Most avalanches occur as snow calving off and falling into Goodrich Lake. Should an avalanche fall elsewhere, it could pose a landslide hazard during spring melting conditions. No documented information on avalanches in the watershed was obtained.

Wildfire Conditions

Increased risk of a large wildfire event is due to the buildup of forest fuels over time. Unnaturally dense stands competing for limited water, on steep slopes, are at increased risk of wildfires and insects/diseases (Baker County 2014). A number of fires have occurred in the watershed. These were mostly caused by lightning strikes and quickly stopped (see Figure 12, Watershed Fire History). See Appendix C, USFS and DEQ Watershed Maps, for fire history and prescribed fire activities. The Face of the Elkhorns is identified as a wildland-urban interface (WUI) area in the Baker County Community Wildfire Protection Plan (CWPP). It is a high priority/risk category. This area includes the Baker City Watershed and Mountain Line as well as a natural gas pipeline and two ODFW deer/elk winter feeding stations. The wildland fire protection agencies are listed as ODF, BLM, and USFS. The specific hazard issues relevant to the watershed include lack of defensible space, high use recreation, topography, limited access, high fuel loading associated with dead/down juniper, overstocked forest stands, and abundant flashy fuels (Baker County 2014).

WUI Goals/Projects 2011-2016 that are relevant to the watershed, from Appendix A of the CWPP, are listed on Table 6 below.

TABLE 6

Wildland-Urban Interface Goals Relevant to the Watershed

WUI Goals/Projects 2011-2016	Time Frame	Lead Agency/Cooperators
Create, restore and maintain a fire resistant landscape sufficient to minimize the risk and damage caused by wildland fire within the WUI, by removing dead and down material, thinning standing trees and shrubs, under-burning, chip/burn piles, and utilize biomass where cost effective. Continue with maintenance of Pilot, Foothills, Blue Poker, East Face and Wilson projects. Continue to remove juniper that has been cut. Continue to seek National Fire Plan grants to conduct fuels treatment projects on private lands.	Ongoing	BLM, USFS, Baker City and private landowners. Technical assistance and potentially financial assistance from ODF on private land.
Develop safety corridors including roads, natural fuel breaks and Defensible Fuels Profiles Zones. Identify and implement Fuels Treatments along major roads and highways and natural fuel breaks.	Ongoing	USFS, ODF
Maintain and improve the interagency wildland fire presence and response capability. Infrastructure improvements to include new BLM guard station in Baker City which may also provide for better interagency housing.	By June 2016	USFS, BLM, ODF, Baker County Emergency Management
Develop and maintain a pre-suppression and evacuation plan.	By June 2016	Baker County Interagency Fire Advisory Team
Provide education and prevention messages targeted at creating defensible space, fuels reduction and improved structure access.	Ongoing	Baker County Interagency Fire Prevention Team. On site contacts by Bowen Valley and Baker Valley Rural Fire Departments, USFS, BLM, ODF
Maintain and upgrade emergency notification systems. Seek funding to purchase technical equipment necessary for upgrades to the reverse 911 system.	Ongoing	Baker County Emergency Management, Baker County 911 Consolidated Dispatch Center, Baker County Sheriff's Office
Explore opportunities to improve access into and within the Baker City Watershed for fire suppression purposes.	Ongoing	USFS/Baker City

In addition to these goals, several accomplishments relevant to the watershed are listed in The Face of the Elkhorns evaluation. These include improved fire response by obtaining a local interagency single engine air tanker plane agreement (2007) to provide additional capacity as needed, review of road access with the Baker County Road Department, obtained additional firefighting equipment, increased training, increased fire prevention messages, and fuel reductions (pre-2006 and 2006-2011 combined) of 5,372 acres of USFS land, 2,662 acres of BLM land, and 1,336 acres of private land. These were not completed within the watershed, but may pave the way to do so in the future (Baker County 2014).

The following details accomplishments relating to the watershed:

1. WUI Goal/Project 2011-15

Provide education and prevention messages targeted at creating defensible space, fuels reduction and improved structure access.

On June 14, 2014, USFS, BLM, Baker County Emergency Management/Fire Division and Baker Rural Fire Protection District held a community meeting specifically on the Face of the Elkhorn Wildland Urban Interface area, which contains the watershed. Approximately 40 to 50 people participated and, during public comment period, 4 to 6 people shared a specific concern for the watershed and communicated the goal of seeing a more aggressive approach to reducing hazardous fuel loading, specifically, utilizing job creation and Powder River Correctional Facility inmates in conjunction with the USFS to accomplish the work.

2. WUI Goal/Project 2011-15

   Similar partnerships (USFS, BLM, ODF, Baker County Emergency Management/Fire Division, and two Rural Fire Districts) are currently preparing a pre-fire planning effort in the above WUI area. The goal is to connect with landowners in the area for public education and conduct fire risk assessments to be use by fire agencies prior to and during a wildfire incident. This project is aimed at private landowners below the watershed; however, joint education and outreach would be beneficial (Baker County Interagency Fire Prevention Team).

Communities and Current Land Use

Political Structure

Baker City has a county-wide water management group that encompasses all communities in the County (AP 2007). The Baker City watershed is managed by the City's Public Works Department and advised by the Public Works Advisory Committee, composed of community residents. The watershed management is overseen by the DWS as well as by the USFS. The City has a use agreement with the USFS that is formalized through an MOU that allows the City to manage the water system and the USFS to manage the forest. One goal of this WMP process will be to complete the revision of the MOU [currently undergoing internal review (see Appendix B, 1991 MOU and Attachments)].

Growth Trends

The population of Baker City has remained relatively stable. The recent population has varied from a low of 9,140 people in 1990 to a high of 10,160 in 2009. The historical growth rate from 1970 through 2012 is 0.136 percent per year. Population estimates were obtained from the Population Research Center at Portland State University in Portland, Oregon (PSU 2012).The low population growth rate experienced by the City of Baker City is expected to continue.

Land Use/Ownership and Development

The watershed is federal land managed by the USFS. There is no plan for development of this area, except for the reconstruction of the Mountain Line. There are no residential, commercial, or industrial developments in, above, or near the watershed. Small portions of the watershed are owned by private parties, Baker City, and a small section is owned by the BLM (see Figure 13, Property Ownership).

Because of the necessity to keep the watershed pristine and free of outside contaminates, access to the area is limited. Multiple uses are designated for the watershed by the USFS. Domestic water supply is the main use, although some areas are also allowed for logging, roads, livestock, and recreation. On the federally owned portions, only people with hunting permits are allowed within the gated watershed boundaries. They are allowed to bring one companion. Motorized vehicles are heavily restricted within the watershed boundaries (see Figure 14, Roadless Areas). Grazing of cattle occurs on the privately owned sections of the watershed (below the diversions) (USDA 2014). Adjacent range allotments (Stovepipe and Blue Canyon) are fenced off from the watershed (see Figure 10, Range Allotments and Fences). The City has agreements in place with landowners for watershed use and maintenance and is open to exploring options to obtain ownership of land upstream of the Goodrich Creek intake, if the land were to become available (see Appendix D, Private Landowner Agreements and Allotments).

Watershed Access

Entry to the watershed is highly restricted to recreational users. Hikers are allowed on developed USFS trails on the ridges on the west boundary of the watershed. No camping is permitted. Hunters are allowed into the watershed during deer and elk seasons if they obtain an entry permit from Baker City. The City issues permits to hunters with valid tags. They are good for the individual (plus one companion) only during the specific season. The Public Works Department keeps those records. Tags are issued only if the fire danger is low enough. Less than 10 percent of the Sumpter Unit hunters seek to use the watershed for hunting; see Table 7 below. Camping is not permitted for hunters. With the exception of USFS Road 6510, which bisects the watershed and is open to the public, motorized vehicles are not allowed within watershed boundaries. Enforcement of the restrictions against all-terrain vehicles (ATVs) is difficult (see Figure 14, Roadless Areas). To deter hunters from bringing vehicles into the watershed, the City offers the service of hauling an animal out of the watershed if the hunter brings it to the road. Non-point source impacts from recreation could include erosion of the road, fires, and impacts to water quality through improper use.

TABLE 7

Watershed Hunting Permits

Year	Total ODFW Sumpter Unit Tags Authorized	Total City Issued Permits to Hunt in the Watershed	Percent of Tag Holders Seeking to Hunt in the Watershed	Percent* Deer Permits	Percent* Elk Permits	Percent* Goat Permits
2010	--	249	--	43	57	NA
2011	3,309	149	5	35	63	2
2012	3,196	136	4	18	81	1
2013	2,211	189	9	32	65	3

**All percentages are approximate*

City Data:(Murphy 2014)

ODFW Data: (ODFW 2014)

Zones of Influence

A zone of influence is an area that is outside the legal boundaries of the watershed and may, because of activities or management practices, have a detrimental impact on the water quality

produced within the watershed. The zones of influence comprise the following categories summarized on Table 8.

TABLE 8

Zones of Influence

Category	Level of Protection
A - Areas that are in the watershed drainage basin and within 500 feet of a stream used by the City for domestic water supply.	Same restrictions as within the boundaries of the watershed. The Baker County Planning Department will notify Baker City 30 days prior to any development or zone changes in this area.
B - Areas that are in the watershed drainage basin and more than 500 feet from a stream used by the City for domestic water supply.	Open to full resource and activity use when good forest management practices are administered; activities will not degrade the water quality of the watershed.
C - Areas within one mile of the watershed boundary where it is likely that wildfire would burn into the watershed drainage basin.	Same fire priority as designated for the rest of the watershed. The Baker County Planning Department will notify Baker City 30 days prior to any development or zone changes in this area.
D - Other areas within one mile of the watershed boundary where it is unlikely that wildfire would burn into the watershed drainage basin.	Open to full resource and activity use. Management of the resources and activities in this area will occur in such a manner as not to affect the quantity or quality of the water within the watershed.

(Baker City 2014)

Trespassing

Baker City Ordinance No. 3273, which prohibits entry to the watershed, was updated in 2007 (as provided by Oregon Revised Statute 448.305 and 448.320). The current regulation is provided in Baker City Municipal Code Section 130.11, shown below. This ordinance makes it unlawful for any person to enter City-owned lands in the watershed without permission from the City Manager and USFS.

130.11 TRESPASSING ON WATERSHED

(A)

It shall be unlawful for any person to enter upon the watershed from which the City of Baker secures its water supply without being first authorized to do so by the City Manager of the City of Baker or the United States Forest Service. This prohibition shall not apply to persons hunting or trapping fur-bearing or predatory animals doing damage to public or private property, nor to persons hunting or trapping any bird or animal for scientific purposes as that term is defined in subsection (5) of O.R.S. § 497.298.

(B)

The term "watershed", as used in this section, is hereby defined to be all property acquired, owned or occupied by the City of Baker for its works, reservoirs, systems, springs, branches and pipes, and all lakes, springs, streams, creeks or tributaries acquired by the City of Baker, and by means of which its supply of water is secured, stored or conducted, including the areas draining into the lakes, springs, streams, creeks or tributaries or any thereof.

(Ord. 2303, passed 7-26-1950; Ord. 2439, passed 11-25-1957; Ord. 3273, passed 4-10-2007). Penalty, see § 130.99

Federal and state regulations apply to the watershed as well. Secretary's Regulation 36, Code of Federal Regulations (CFR) 261.53 (a), and Forest Order Number 233, signed September 1, 1991, was applied by the USFS to all national forest lands within the City's watershed boundaries to prohibit public entry, except by permission of the USFS. Appendix J of this order notes that the Baker City Watershed is closed yearlong to all public except for entry routes designated below.

> *1. BAKER CITY WATERSHED The area east of the Elkhorn Crest from Goodrich Creek to Elk Creek beginning at Marble Pass Trailhead and proceeding northwest along the top of the Elkhorn ridge to Elkhorn Peak; thence north and east along the ridge top between Pine Creek and Goodrich Creek to the Wallowa-Whitman National Forest boundary at the Pipeline Road 7140200; thence south and east along the Pipeline Road, crossing Marble Creek Road 6510, to a gate near Little Salmon Creek; thence east, south and west following the section lines between Sections 20 and 17, 21, 29 to Section 30; thence south along the line between Sections 30 and 29 to Elk Creek; thence southwest along a fence line on the ridge in Section 31 to Road 7220088 on Elkhorn Ridge; thence northwest along Elkhorn Ridge to Marble Pass Trailhead, the point of beginning.*
>
> *OPEN ROUTES: Road 6510, and 7140220 to the Road Closed sign.*

A review of the City's trespassing ordinance is a goal of this WMP. As noted by Bill Goss (DWS), the increased use of ATVs makes access to the watershed easier than in years past. It is noted that the Forest Service Order supersedes the City's trespassing ordinance, but that authority to issue hunting permits for use in the watershed was ceded to the City in the 1991 MOU/1991 Watershed Management Plan (Hall and Macon 2014). Permission from both the USFS and the City is required to enter the watershed. The City's trespassing ordinance does not imply ownership of federal lands.

Watershed Conditions

Watershed Supply

The primary source of the City's drinking water supply is the Baker City Watershed, which encompasses 10,000 acres composed of mostly federal land, and which contains Goodrich Lake Reservoir with a capacity of 210 MG and many other primary springs, streams, and diversions (Baker City 2012). As shown on Figure 2, Current System Map, 11 diversions located within the watershed collect snowmelt runoff and spring water that is utilized for the City's water supply. Appendix C (Figure C-1), USFS and DEQ Watershed Maps, shows the DEQ drinking water source areas and the watershed boundary. The major diversions are Goodrich Creek, Little Mill Creek, Mill Creek, Little Marble Creek, Marble Springs, Big Salmon Creek, and Elk Creek. The minor diversions are Camper Springs, Henry Springs, Finley Springs, and Little Salmon Creek. Water supply from the major and minor sources varies dependent on the time of year. As outlined on Table 9 below, fall through early spring is when the least amount of water is available, and spring and early summer is when water supply is at its greatest. Late summer has significant water supply availability because the Goodrich Creek Diversion is used primarily during this time. This water supply originates from stored water within Goodrich Reservoir. When the watershed supply is not sufficient to meet existing demands, the City's basalt water supply well is used as supplemental water. All diversions, with the exception of Goodrich Creek and Elk Creek, flow directly to the Auburn Line. Water from Elk Creek flows through the Elk Creek Line, from the Elk Creek settling basin to City reservoirs. All other diversions except Goodrich can be conveyed by the Auburn Pipeline to the Elk Creek Settling Tank and then to the reservoir via the Elk Creek Line. Table 9 describes each diversion.

TABLE 9

Watershed Water Supply

	Water Supply (gallons per minute [gpm])			Pipeline	
	Spring*	Early Summer High*	Fall (October 1 through December 1)	Main Line	Bypass Line
Major Sources:					
Goodrich**	0	0	0	Goodrich Pipeline	
Little Mill Creek	600	600	200	Auburn Line	Goodrich Pipeline via Marble Creek Pipeline
Big Mill Creek	1,600	1,600	200	Auburn Line	Goodrich Pipeline via Marble Creek Pipeline
Little Marble Creek	300	200	100	Auburn Line	Goodrich Pipeline via Marble Creek Pipeline
Marble Springs	1,500	1,000	400	Auburn Line	Goodrich Pipeline via Marble Creek Pipeline
Salmon Creek	1,500	1,000	200	Auburn Line	
Elk Creek	1,000	1,000	200	Elk Creek Sub Line	
Total	**6,500**	**5,400**	**1300**		
Minor Sources:					
Camper Springs	0	100	0	Auburn Line	
Henry Springs	0	100	0	Auburn Line	
Finley Springs	0	100	0	Auburn Line	
Little Salmon	0	100	0	Auburn Line	
Total	**0**	**400**	**0**		

**Flow rate shown does not include flow that bypasses the system. Therefore, a higher flow rate can be available at times. Additionally, all flow rates are subject to seasonal conditions and may vary considerably.*

***Goodrich Creek Diversion is not used during these times, only during winter and late summer low flow (not shown in this table).*

Water Rights

The City of Baker City has a primary certificated water right issued by the State of Oregon Water Resources Department for all watershed water sources that have a priority date of 1862 through 1901. This one certificate accounts for 28 separate water sources for an allowable flow of approximately 23,590 gpm (52.9 cubic feet per second [cfs]) (see Appendix F, Water Rights Certificates). There is also an additional certificated water right for the Powder River for 279 gpm (0.625 cfs). Goodrich Creek Reservoir has a certificated water right of 4,817 gpm (10.8 cfs) and a certificated water right to store 233.2 acre-feet. The City also has a certificated water right for the ASR well that includes 2,364 gpm (5.3 cfs) (AP 2007). The ASR well groundwater right priority date is 1977.

Water Quality Reports and Standards

The Baker City Municipal Watershed is one of four (Portland, Bend, Reedsport, and Baker City) in the state that currently fulfills DWS filtration exemption requirements. The watershed must comply with Safe Drinking Water Act (SDWA) requirements and requirements of the DWS. Surface water in the watershed has experienced contamination in the past. Contaminants of concern for the Baker City Watershed include fluoride, sodium, bacteria, and disinfection byproducts (Trihalomethanes [THMs] and haloacetic acids [HAAs]), according to the DEQ's 2013 Powder Basin Status Report and Action Plan, which included the Baker City Watershed. (No *E. coli* counts exceeding 50 per 100 milliliters (ml) have been reported, so it is not a water quality concern [DEQ 2013]). Baker City tests for a variety of substances including copper, lead, coliform, nitrates, *Cryptosporidium*, THM, and HAAs. Maximum contaminant levels (MCLs) and analysis results for these chemicals are listed in the 2013 Annual Water Quality Report (Baker City 2013) (see Appendix E, SDWA Exceedances, MCLs, Action Levels for Water Systems).

Existing Data Sources and Current Watershed Monitoring

Data collection near the watershed has taken place by a variety of organizations. Ambient surface water quality monitoring occurs below the watershed in Baker City on the Powder River at Highway 7. The station is Site 11490 and is part of a set of three monitoring stations in the Powder Basin Watershed. It is rated as fair on the Oregon Water Quality Index. From 2001 to 2010 there was no overall trend found in the data because dissolved oxygen appeared to be improving while phosphorus and bacteria were worsening. Total phosphorus data from the site showed low levels in the range of 0.07 milligrams per liter (mg/L) for most of the years with a range of 0.1 to 0.18 as the summer peak. There was a decreasing trend in concentrations (DEQ 2013).

In 2007, the DEQ increased surface water sampling in the Powder Basin Watershed for 303(d) listed parameters including bacteria and turbidity. This was to support the effort of developing future TMDLs for the basin. Ten locations on the Powder River and Burnt River were sampled five times in a 30-day period in 2010, 2011, and 2012. Sites throughout the Powder River Basin indicate exceedances of bacteria criteria were more widespread than previously thought based on older sampling (DEQ 2013). None of these locations were within the watershed.

In spring 2013, the PBWC began a program throughout the Powder River Basin to monitor temperature, dissolved oxygen, pH, conductivity, and turbidity in the first year. Nutrients and bacteria were added in the second year. Temperature monitoring is continuous. A 319 grant, the Oregon Watershed Enhancement Board, and the Idaho Power Company are providing funding for this effort (DEQ 2013). None of these locations are in the Baker City Watershed.

One stream in the Baker City Watershed, Elk Creek, is on the 303(d) list due to high water temperatures. It was placed on the list in 1998 (DEQ 2013) (see Figure 8, Fish Presence and Impaired Streams (303(d) List) of the Watershed).

Watershed supply source bacteria testing occurred in the summer of 2013 (before UV treatment was in place), when a *Cryptosporidium* outbreak caused the City to sample at each intake location in an attempt to determine the source of the contamination. *Cryptosporidium* is a single-cell parasite that is spread through fecal contamination. When digested through drinking

water, the primary symptom is acute diarrhea; although, in rare cases, it can be life threatening. During the outbreak, the City took direct samples from each diversion location, including the Elk Creek Diversion, Mill Creek, Little Mill Creek, Goodrich Creek Diversion, Little Marble Creek, Marble Springs, Salmon Creek Diversion, and several locations in the City. The cause of the outbreak was not positively identified; however, the species *C. parvum* is commonly found in cattle (although no positive samples from cattle in the area were found) (OHA 2014). The City now treats all water with UV light, a practice that inactivates the parasite and renders it harmless.

Drinking water from the watershed is tested after it has been chlorinated and treated with UV. This is performed in the storage tanks in Baker City and does not provide information about existing conditions within the watershed. The City collects samples at the vault just outside the chlorine contact chamber for combined water samples.

Monitoring Requirements

The source water is monitored by the City as required by the Surface Water Treatment Rule (SWTR) for surface systems without filtration to ensure that conditions of the DWS filtration exemption are met and to document any adverse effects to the water quality. The following data are collected by the City:

A. Sample Locations: The source water samples are collected at a location just prior to the point of disinfection application, and where it is no longer subject to surface runoff.

B. Aerial Observations: During the summer months, the watershed is visibly inspected from either fixed-wing or rotor-wing flights on an as-needed (maximum up to weekly) basis. Staff look for concentrations of large game, any sign of human activity, and proper containment of cattle on adjacent USFS allotments.

C. Cameras: Periodically staff will utilize "game" cameras to monitor activity along the Pipeline Road. This monitoring occurs in conjunction with the fall big game hunting seasons.

D. Fencing: A fence, installed in 2013 after the *Cryptosporidium* outbreak, surrounding the Elk Creek Diversion was checked and repaired in the spring as soon as access permitted and then weekly throughout the summer and fall. The fences for the USFS Elk Creek Allotment and the Blue Canyon Allotment are inspected and repaired prior to the spring turnout of cattle. In addition, the fences are monitored by the grazing allotment holder and City staff throughout the grazing season until cattle are removed (see Figure 10, Range Allotments and Fences) (Baker City 2014).

TMDL Development

TMDLs are being developed for the Powder River Basin. Sampling from the PBWC is supporting this effort. No TMDLs were available as of the writing of this WMP.

Potential Pollutant Sources

The greatest potential risks to the public water system within the boundaries of the Baker City Watershed are fire (fuel loads and illicit campfires), soil erosion (turbidity), and animals (biological contamination).

Point Sources

No point sources have been identified within the watershed. The only pipe is the Mountain Line, which is enclosed and not discharging in the watershed.

Non-Point Sources

The following sections describe how some of the features characterized in the above sections could act as non-point sources and impairments to the watershed.

Precipitation (Spring Runoff/Rain Events/Snow Events)

A common annual impact to the watershed is high turbidity caused by spring runoff. Turbidity can spike due to a thunderstorm event, small landslides into creek channels, or early snowmelt. Flooding is not a major concern (AP 2007). During this period it is common for the turbidity level to exceed the MCL for a short time. The City strategically isolates sections of the watershed with the highest turbidities (the south half of the watershed has a southern exposure and is isolated several weeks earlier than the north half, but then is back to normal while melt occurs on the northern half that has northern exposures) (Baker City 1991). If turbidity is greater than 1 Nephelometric Turbidity Unit (NTU), the City does not use that source of water and closes the nearest diversion. If turbidity is an issue, the City will use either the Goodrich Line or the Mountain Line until the source of the problem is found and isolated (Baker City 1991).

Snow avalanches in the watershed mostly fall into Goodrich Lake; however, they could have the effect of exacerbating spring runoff/landslide events. This is not considered a high risk to the watershed, but monitoring of snow pack conditions can provide information about potential risks if they do exist.

Erosion

The importance of minimizing soil erosion is critical within the Baker City Watershed. In the areas within the watershed that are used by animals or humans, there are risks associated with soil erosion. Hunting activities, roads, hiking trails, and other recreation may create disturbed areas that can provide transport pathways for sediment into the streams above the diversions. The areas adjacent to streambanks are more sensitive than where surface runoff does not flow directly into streams. Surface erosion risks are highly dependent upon physical and climatic characteristics, including soil type, underlying basalt geology, degree of slope, soils with high infiltration capacity, rainfall intensities, and density of forest canopy or other vegetation. In addition to the limited areas affected by humans and animals, other potential high soil erosion areas would include recent landslides or recent harvest areas where vegetation has not yet reestablished. These Zones of Influence, identified as Category A (within 500 feet of a stream upstream of a diversion) are sensitive areas that must receive increased attention for stabilization and minimizing soil erosion from all potential sources.

Watershed Access (Recreation Impacts)

As detailed in the Trespassing and Watershed Access sections of this WMP, people are allowed into the watershed on a very limited basis. However, the maximum amount of people allowed (City permit holders and one guest) has reached 500 in previous years. Hikers are allowed to use one trail that traverses the watershed; Marble Creek Road is open to the public to allow access to the Elkhorn Crest National Recreation Trail to the southwest of the watershed. The area is signed to warn the public to stay on the road to protect the watershed. The number of hunters, coupled with accidental hiking visitors with pets, can act as a non-point source of contaminants, erosion, illicit vehicles, and use of the watershed.

Wildlife Impacts

An abundance of wildlife exists within the watershed boundaries. Game management is the responsibility of ODFW, which has been working to maintain proper herd sizes of mountain goats, deer, and elk. Over the past 10 years, Sumpter Unit deer populations have been within 69 percent and 96 percent of ODFW management objectives, and elk have been between 71 and 90 percent of ODFW management objectives (see Table 2). This indicates that populations are within the range of historical variance. These values do not take into account the potential for disproportionate use of the watershed by ungulates. The contiguous, high quality habitat may incentivize greater use than the Sumpter Unit as a whole. Robust mountain goat populations have been identified in the Elkhorns and they are being monitored to ensure populations remain manageable (see Table 3). Large numbers of ungulates could degrade water quality due to overuse of streams. Because of steep topography in the watershed, concentrations of game animals near water intakes have not been a problem; however, careful management is a priority to prevent herds from being a non-point source of pollution to the watershed (Baker City 1991).

Transportation (Existing and Future Roads) Effects

Within the watershed, there are no major roads that are publically accessible. Except for Marble Creek Road (Road 6510), all existing roads are gated and used by the City water system specialist and a few other authorized users. Marble Creek Road is open to the public to allow access to the Elkhorn Crest National Recreation Trail to the southwest of the watershed. The area is signed to warn the public to stay on the road to protect the watershed.

There are no plans to develop future roads within the watershed. If roads are constructed, they will be created with care to minimize impacts to water quality. Select roads are available for wildfire control and other forest health purposes when needed (Baker City 1991).

With the planned repair of the Mountain Line, there will be a temporary increased use of watershed roads over the next ten years, or until the work is finished. Every effort will be made to reduce impacts to water quality due to erosion and turbidity. Construction sequencing, design, and zones of control will minimize impairments to the ecosystem while repairing a vital part of the municipal water system (see Figure 2, Current System Map).

Vegetation Management

Little thinning has occurred in the watershed for the past few decades, so many areas are overgrown. The watershed has a significant fuel load and is susceptible to wildfire events, which

could have significant detrimental effects on the City's primary water supply. If future fuel reduction occurs, there is the potential for these actions to affect water quality and quantity due to erosion, a reduced vegetative cover, and general increased activity in the watershed. These non-point sources of water impairment would be mitigated in the vegetation management plan through preventative actions and a hydrologic analysis to assess impacts of tree removal. Overall, the risk of forest fire increases with each passing year when no action is taken to manage fuels in the watershed.

Livestock Impacts

With approximately 300 cow/calf pairs grazing on the perimeter of the watershed, the potential for these animals to act as a non-point source is high. In the past year, increased attention to fencing and intake protection has occurred due to the 2013 *Cryptosporidium* outbreak. The cause of the outbreak was not positively identified; however, the species *C. parvum* is commonly found in cattle (although no positive samples from cattle in the area were found). Permit holders must follow the maintenance requirements of the permits to keep livestock from introducing sediment, causing erosion, and potentially introducing fecal contamination into the water intake at Elk Creek.

Future Mining Issues

Future mining in the watershed at a large scale could have a negative impact on water quality in terms of erosion and sediment released. There have been discussions of whether the City should request that the BLM remove the area within the boundaries of the watershed from mineral entry.

If the USFS were to apply for a mineral withdrawal for the watershed, any existing mining claims would have pre-existing rights that would allow mining on those claims even after the area was withdrawn from mineral entry. Before the USFS would approve mining within a mineral withdrawal, they would determine if the lime mined at these mining claims was considered "locatable" under the mining laws. Unless this lime had some unique properties that serve a special purpose for industry or some special need, the material would be considered "common" and not locatable under the mining laws, and the mining claim would not be valid. The second step would be the "prudent person test," which applies to locatable deposits. Authorizing the removal of "common variety" material is a discretionary decision by the USFS.

The City could potentially pursue the option to purchase Monarch Marble Mine and the private properties that border Goodrich Creek upstream of the diversion/intake. The estimated cost of the properties on Goodrich Creek is $235,000 (Baker County Assessor 2014). If those properties could come under City control, it could help ensure protection of the water quality.

Wildfires

Wildfire potential and fuels risk are a major vulnerability of the watershed and overall water quality. Fuel load types have been identified in locations in the watershed and fuel reduction opportunities are examined in the Watershed Goals and Objectives section of this WMP. The fact that diversions are generally not in the same canyon and/or draw provides some protection, but a wildfire in the watershed could be devastating to the water supply. If a fire were to occur,

the City would use available surface water diversions and the groundwater supply (Appendix F, Groundwater Rights). An uncontrolled fire could contribute to a non-point source of pollution to the creeks by introducing turbidity through particulate dispersion, increasing water temperatures, reducing riparian buffer areas, and reducing water filtration efficacy by removing vegetation from the system.

Every effort is made to prevent a wildfire from starting, and, if started, the goal would be to extinguish it quickly. Few fires have occurred in the watershed, and they have been small, mostly started by lightning strikes, and extinguished quickly with very little impact to the watershed (see Figure 12, Watershed Fire History).

Fire prevention is practiced by following all restrictions and requirements imposed by the USFS and ODF on the private lands below the watershed. ODF and the Baker County Fire Prevention Board are very proactive in wildfire awareness and prevention in the private lands adjacent to the watershed. ODF, Baker Rural Fire District (RFD) and Haines RFD have burning restrictions in place during periods of high fire danger.

Fire detection within the watershed has historically been through public reports, aerial detection flights, and reports from the City Water Specialist. The USFS has fire suppression responsibility within the watershed. If the Water Specialist is first on the site, the City Technical Services Department will be notified as to the location of the fire. The Technical Services Department will then notify USFS Fire Dispatch of the fire location. The Water Specialist would need wildland firefighting training to qualify to assist the USFS in firefighting efforts.

The goals and accomplishments outlined in The Face of the Elkhorns WUI section of the Baker County CWPP are aimed at reducing the incidence and severity of fires in the watershed, which in turn would provide positive effects on water quality (Baker County 2014).

Biological Contaminants

Biological contaminants can be introduced into the municipal watershed through non-point animal vectors. Currently, water from the watershed is treated with chlorine and UV treatment before being piped to the storage reservoir. Water testing occurs only at the storage reservoir after treatment. This includes testing for copper, lead, nitrate, *Cryptosporidium*, total and fecal coliforms, THMs, HAAs, and other semi-volatile organic compounds and volatile organic compounds. These results are reported in the Baker City Water Quality Report and Conservation Tips (Baker City 2012).

The most high-profile biological contamination of the watershed that occurred was the *Cryptosporidium* outbreak in the summer of 2013. In this case, the contamination was most likely due to a breech in fencing which allowed cattle too close to the source water. A fence has since been repaired, and the City has taken on responsibility for fence maintenance (AP 2013). Drinking water also undergoes UV treatment in addition to chlorination treatment. A primary goal of this WMP is to codify Baker City's goals for control of biological contamination through a WCP (contained in this document).

An additional potential source considered for biological contaminants was aerial fire retardants used in fire suppression efforts within the watershed. The USFS maintains a 300-foot buffer for surface water, per the Final Environmental Impact Statement (FEIS), Nationwide Aerial

Application of Fire Retardant. However, in some watersheds with high precipitation, there is potential for nutrients from the aerial fire retardants (ammonia polyphosphates) to cause blue-green algae blooms (USDA 2011). In the Baker City Watershed, because of the low precipitation during the summer and the strong research supporting the lack of effect on stream water quality outside of the buffer, this is not considered a high-risk source of biological contaminants to the watershed.

Data Gaps Analysis

While there is a lack of quantitative water quality data in the watershed (due to access restrictions that would make routine sampling difficult), there is a great deal of observational data from the water quality specialist that enables a good understanding of the factors that contribute to watershed management goals. There is also sampling downstream from the watershed, which provides data about pollutants possibly originating in the watershed. These sources of data create information that is robust and can be used for prioritizing the critical areas for the watershed. Additional data will be compiled as they are obtained or collected and presented in future reports.

4. Watershed Goals and Objectives

Baker City Watershed Management Approach

Baker City has a WMP from 1991 that had been serving as part of the WCP. This revised WMP includes a WCP to meet state and federal standards.

This WMP serves to support the larger planning mechanisms of the Power Basin Status Report and Action Plan (DEQ 2013) and the Blue Mountains National Forests Proposed Revised Land Management Plan (USDA 2014).

Collected data and input from the stakeholders have been used to prepare goals, priorities, and action strategies.

Critical Areas of Vulnerabilities

Watershed Integrity Preservation

Access to the watershed by animals and people is one area of vulnerability identified as most needing to be addressed. Area use will increase during rebuilding of the Mountain Line. A key component will be to control animal access in the watershed and entire drainage area. Continuing to control access to the watershed is a critical primary objective of the WMP. Livestock will not be allowed within the boundaries of the watershed. If needed, preventative measures will be used to prevent animals from trespassing into the watershed.

Fire Risks

Fire risk has increased over time in the watershed, as fuels have accumulated over decades of fire suppression. Because the watershed is in a roadless area, opportunities for treatment and harvesting are limited and would also pose some risks to increasing erosion and turbidity in the watershed (DEQ 2003). The potential for large-scale wildfire is a threat to the watershed to be addressed in this WMP. Identifying further opportunities for reducing fuels and developing fuel breaks are priorities for mitigating this vulnerability.

Water Quality

Pathogens have been identified in the watershed at minimal levels, with the exception of the *Cryptosporidium* outbreak in the summer of 2013. Increased monitoring, treatment, and preventative measures will be identified to reduce pathogen-inducing conditions. The key is to focus on prevention and reduction of turbidity, organics, and pathogens. This is identified as a vulnerability to be addressed.

Preliminary Management Goals and Strategies

Watershed Integrity Preservation

Sources of vulnerability to the watershed are an overabundance of animals, overuse by people, riparian habitat deterioration, and fence deterioration. By controlling entrance to the watershed, it

is hoped that the City's filtration exemption will be maintained. Preliminary goals and strategies include:

- Goal 1: Keep water rights secure and review mining restrictions.

  Strategy: Review existing water rights and attempt to acquire more, if possible. Review current mining claims.

- Goal 2: Review the City's trespassing ordinance.

  Strategy: Review the City's trespassing ordinance to determine if new ATV regulations are warranted to ensure that the watershed continues to be well protected.

- Goal 3: Improve and expand public education programs.

  Strategies:

  - Encourage people to stay out of the watershed, keep hunting animals and pets out of the watershed by initiating discussions with hunters and visitors in the watershed, and include information about the City's courtesy game pickup service to reduce the incentive to bring vehicles into the watershed.
  - Include information about upgrades to the water system (Mountain Line improvements) in newsletters and other media sources. Include information about fence maintenance and activities in the watershed. Baker City will also continue to publish watershed information in updates sent to water users (this WMP will also be made available on the City's website). Baker City will periodically make public service announcements regarding the watershed, if needed.
  - Continue to support the Baker County Interagency Fire Prevention Team with public education programs for wildfire prevention. Explore funding opportunities for public education and fire prevention programs.

- Goal 4: Maintain, inspect, and increase watershed fencing in critical areas.

  Strategy: Maintain Elk Creek fence and initiate Goodrich Creek Diversion fencing. Improve Marble Creek area fencing. Confirm the fence boundaries (collect GPS fence perimeter information). Document the current condition of the fence lines. The Water Specialist will continue to conduct periodic monitoring of fences, boundaries, and watershed conditions. This information will continue to be reported through annual reports and weekly bulletins.

- Goal 5: Increase signage in the watershed.

  Strategy: Increase road signs in the watershed so it is posted every one-quarter to one mile that the watershed is not for the public's use.

- Goal 6: Review hunting permits.

  Strategy: Work with ODFW to review hunting permits and ensure optimal herd management. Include a follow-up method to determine how many hunters used their City-issued permit to enter the watershed, and whether an animal was harvested. Refine the process for allowing/limiting access during fire season.

- Goal 7: Review grazing permits.

  Strategy: Determine the feasibility of increasing buffers on allotments, purchasing allotments, purchasing private property near the watershed if it becomes available, and reducing access to the watershed by animals. Ensure that current permit holders are following the conditions of their permit for fence repair, stock water, pipe repair, and brush clearing.

- Goal 8: Increase ASR storage projects.

  Strategy: Focus resources to ensure the aquifer contains a surplus of water for use during periods of high demand and low flow.

- Goal 9: Complete revision of the 1991 MOU between Baker City and the USFS to include the new goals and strategies of this WMP.

  Strategy: Baker City will meet with the USFS to draft and approve a new MOU.

Increased Forestland Management and Fire Risk Reduction

Reduction of fire risk will occur through a phased plan. Vegetation will be managed in such a way that it will maintain or enhance water quality. A fuels reduction strategy has been developed with substantial guidance from the USFS. Robert Macon and Michelle Owen will work together to ensure milestones are met. Preliminary goals and strategies include:

- Goal 1: Review all past thinning activities, prescribed burn areas, and fuel risk areas to prioritize thinning efforts. Implement and focus resources toward the CWPP goals relating to the watershed (2011-16 goals).

  Strategy: Review Figure 5A-B, Fuel Management Areas, and the CWPP The Face of the Elkhorns analysis and prioritize areas to be thinned in the next 10 years. Prioritize areas that were identified as high priority but not thinned in the Washington/Watershed Environmental Impact Statement and OWEB grant funding plans, and also those that will create fire breaks. Review the use of aerial fire retardants in the watershed and methods for fuel reduction to decrease the need for fire suppression.

- Goal 2: Obtain funding and partners for the fuel reduction efforts.

  Strategy: Apply for an OWEB grant with the USFS and Powder River Correctional Facility, similar to the 1998 grant that provided funding for USFS employees and inmate crews to access the watershed to thin priority areas. Seek funding for development of a Watershed Wildland Fire Recovery Plan.

- Goal 3: Work toward restoring the forest within the Baker City Watershed to within the historic range of variability by 2025.

  Strategy: Begin fuel reduction work as soon as possible by having Baker City request assistance from state and federal elected officials. This may include requesting an emergency declaration by the Governor and/or requesting federal dollars be allocated to assist with fuel reduction costs.

Strategy: USFS employees and Powder River Correctional Facility inmate crews will cut and pile trees and burn small piles. Piles from previous thinning efforts will also be burned. Maintenance burning will also be performed in previously-treated areas.

- Goal 4: Integrate WMP goals into the USFS 10-year action plan.

  Strategy: Work with the USFS to accomplish linking watershed fuel reduction goals to the USFS operating/action plans.

- Goal 5: Increase fire response preparedness in Public Works staff.

  Strategy: Consider the feasibility of training select Public Works staff in wildland firefighting/incident command system techniques.

- Goal 6: Mitigate risks of erosion in sensitive areas - Category A Zones of Influence (within 500 feet of a stream upstream of a diversion). Consider the feasibility of conducting LIDAR mapping of the watershed.

  Strategy: Prioritize management of areas that will result in erosion risk reduction in Category A Zones of Influence within the watershed. Work with local agencies (through the 2014 Oregon LIDAR Acquisition Prioritization Plan) to make LIDAR mapping of the watershed area a priority to allow for the assessment of landslide potential, erosion, and watershed management.

Water Quality Protection

Indicators of water quality impairment are pathogen presence, livestock presence, herd animal presence, and turbidity in water. Water quality will be protected at the watershed level as well as through treatment processes identified in the WCP portion of this WMP. The ultimate goal is to have no exceedances of pathogen MCLs. Preliminary goals and strategies include:

- Goal 1: Upgrade intake systems: flowmeters and intake screens.

  Strategy: Install permanent flowmeters at intake locations and change all intake screens to self-cleaning screens within three years.

- Goal 2: Protect water quantity and quality with effective piping methods.

  Strategy: Rebuild the Mountain Line within 10 years in a way that reduces effects on water quality during construction and ensures improved water quality after construction.

- Goal 3: Improve the water treatment process.

  Strategy: Complete the permanent UV treatment facility within one year; maintain the temporary facility in the interim.

- Goal 4: Support TMDL development efforts.

  Strategy: Provide data and input to regional TMDL development efforts to help create standards for water quality protection. Obtain data from regional sampling efforts to compare watershed water quality to regional water quality.

- Goal 5: Monitor water quality at intake locations and after treatment.

Strategy: As per the WCP below, conduct routine monitoring and testing for coliform at intake locations, when required, to ensure bacterial requirements are being met. Water will be tested after it is treated with chlorine and UV light to ensure drinking water standards are met.

- Goal 6: Review USFS policy regarding the use of aerial retardants in the watershed to ensure that regulations are in place to limit contributions to blue-green algae blooms and determine whether a monitoring program for reservoirs is warranted.

  Strategy: Consult with DWS and conduct a desktop review to determine if the watershed is at risk for blue-green algae blooms.

- Goal 7: Reporting.

  Strategy: The City of Baker City will conduct sanitary surveys when requested by DWS (not necessarily on an annual basis). When sanitary surveys are conducted, the City will submit the report by October 10 of the survey year. The DWS will use this information to write a watershed report.

- Goal 8: Delineate the hydrological boundary of the watershed to include the Goodrich Creek Diversion (currently located outside the watershed).

  Strategy: Work with DWS to create a map showing the hydrological watershed boundary. This will not change the legally-defined watershed boundary.

- Goal 9: Maintain the water filtration exemption via a WCP.

  Strategy: Approval of the WCP detailed below.

Watershed Control Plan

Introduction

Water quality protection and pathogen risk reduction will be accomplished through following the guidance of this WCP. The WCP has several components; it is primarily focused on human health protection, which is related to watershed health, but it also encompasses activities taking place outside of the watershed (i.e., treatment and storage) before the water is used by the public.

The WCP must characterize the watershed hydrology and land ownership, identify watershed characteristics and activities that have or may have an adverse effect on source water quality, and monitor the occurrence of activities that may have an adverse effect on source water quality. This has been accomplished in Section 3, Watershed Inventory and Characterization.

The goal of the Baker City WCP is to maintain or improve the present quantity and quality of the raw water of the watershed, and to ensure water quality is maintained at or above the level set by the SWTR, effective December 31, 1990 (OAR Chapter 333-61-032). The SWTR is part of the amendments to the SDWA, EPA 40 CFR Parts 141 and 142. In addition, this WCP takes into account the Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) promulgated by the EPA in 2006 (Baker City 2014). This program also complies with EPA's March 1991 "Guidance Manual for Compliance with the Filtration and Disinfection

Requirements for Public Water Systems Using Surface Water Sources," specifically Section 3.3.1 and Appendix J. Section 3.3.1 addresses WCP best practices that are included in this WCP.

The SWTR and LT2ESWTR prescribe treatment by filtration to protect against potential adverse health effects of *Giardia lamblia*, viruses, Legionella, *Cryptosporidium,* and other pathogenic organisms that are removed by filtration. Filtration was mandated because *Giardia lamblia* and *Cryptosporidium* are not effectively deactivated by normal disinfection practices, and other organisms are more effectively controlled by the "dual barrier" concept, that is, filtration *plus* disinfection. The watershed control measures to limit human activities are designed to reduce the potential for viruses to occur in the water supply, thereby eliminating the need for filtration under certain conditions when other criteria are met (Baker City 2014). The UV treatment facility (temporary now, with a permanent facility under construction) will allow the City to be compliant with the LT2ESWTR of the SDWA. The UV system will be the second form of disinfection as required for a non-filtered surface water system. In addition, the UV system meets the 3-log *Cryptosporidium* inactivation requirement (see Figure 15, Water Supply System Schematic).

The City was notified by the DWS in a letter dated July 26, 1991, that the City meets all criteria for exemption to filtration. This exemption currently remains in place for the watershed supply sources.

Watershed Management/Operation

Organizational Structure

The City's Public Works Department has overall responsibility for the operation, maintenance, and construction of the Water Department, including the operation of the watershed. The watershed is the direct responsibility of the Water Specialist, who is supervised by the Water Supervisor, who in turn is supervised by the Director of Public Works, who reports directly to the City Manager. In the event additional help is needed for coverage because of illness, vacation, or just to assist with the workload, needed help is furnished by the Public Works Department.

Operations

The design of the collection and supply system allows for a great deal of flexibility in managing the watershed to ensure the City's ability to supply an adequate quantity and quality of domestic water to the City's customers. In the case of exceeding turbidity MCLs, the system has a turbidity monitor, alarm, and bypass station that automatically bypasses any turbid water and turns it to waste and, at the same time, sets off visual and audible alarms at the reservoir. The system also notifies the Water Specialist's home using an automatic dialer telephone. In the event the operator does not answer, it dials Public Works employees qualified to respond. When notified that the turbidity MCL is exceeded, the watershed operator locates the source of the problem and isolates it either by turning off the individual stream or isolating an entire section of the watershed. This can be accomplished by bringing the water to the City in one of the three transmission lines available.

If the turbidity is widespread or a long-lasting problem, the system is switched from surface water to groundwater by using the City's deep well, which has capacity exceeding the water demand in the spring when turbidity is more likely to occur. Even during periods of high demand, groundwater sources are adequate with some rationing. Also, an additional basalt water supply well is currently being developed (Baker City 2014).

Sanitary Survey of the Watershed

Performing sanitary surveys of the watershed fulfills OAR 333-061-0075. Sanitary surveys are required for all water systems utilizing surface water sources or groundwater sources that do not provide filtration treatment. The Baker City Watershed currently maintains its water filtration exemption and will conduct sanitary surveys of the watershed as deemed necessary by the DWS to meet the requirements of the filtration exemption, OAR 333-061-0032(2)(c)(B). Sanitary survey of the watershed includes an evaluation of the following features in the watershed and their effect on water quality. The Watershed Inventory and Characterization section of this WMP will serve as a baseline by which to compare the following features:

a. Nature and condition of intake facilities, diversions, screens, perimeter fences, signs, and gates.

b. Changes in surface geology, soils, presence of slides, vegetation characteristics, animal populations, and precipitation.

c. Human activities, grazing, zoning restrictions, logging, recreational activities, proximity of fecal contamination to the intakes, and measures to control activities in the watershed.

d. Nature of raw water, level of coliform organisms, vulnerability assessments of potential contaminants, algae, turbidity, color, mineral constituents, retention time in reservoir, and time required for flow from sources of contamination to intake. A list of water quality problems and how they were solved/are proposed to be solved.

e. Type and effectiveness of measures to control contamination and algae, disinfection applications and residuals carried, monitoring practices, and patrol of borders.

f. Special concerns regarding the watershed and/or operations and what is planned or has been done to address those concerns.

g. A written report will be made and submitted to the DWS with a copy to the Wallowa-Whitman National Forest no later than October 10 of the survey year as per OAR 333-061-0040(1)(e)(B)(i). The content will be consistent with the requirements above-stated in OAR 333-061-0032(2)(c)(B) and 333-061-0075(3).

Water Quality Objectives

Federal and State Requirements

Baker City's water system comes under the jurisdiction of two water quality regulating agencies: the EPA and the DWS. The State of Oregon assumed primacy in February 1986 for the enforcement of the federal SDWA. Therefore, the City of Baker City consults with the DWS.

a. Safe Drinking Water Act

The Federal Interim Primary Drinking Water Regulations went into effect in 1977 as a result of the SDWA of 1974 (Public Law 93-523). The primary regulations address requirements concerning elements, trace minerals, compounds, and microorganisms that may affect the health of the water consumer. The SDWA provides for monitoring, testing requirements, reporting and recordkeeping, and public notification procedures in the event of non-compliance. The SDWA does not prescribe treatment requirements, design standards, etc. It primarily deals with water quality performance. These regulations have necessitated the revision and upgrading of many water systems to meet the requirements of the SDWA. On August 6, 1996, President Clinton signed the 1996 SDWA Amendments. The previous 1986 Amendments specified a list of 83 contaminants to be regulated with a mandate to add 25 to the list every three years. The 1996 Amendments established a new risk-based contaminant selection (AP 2000). The City met these requirements through testing and system upgrades.

b. 1989 Surface Water Treatment Rule

Contained within the 1986 Amendments to the SDWA were statutory provisions requiring filtration of surface water supplies. These Amendments were finalized in 1989 and included the SWTR.

The water treatment section of this WCP meets the guidance of OAR 333-061-0032, "Treatment Requirements and Performance Standards for Surface Water, Groundwater Under Direct Influence of Surface Water [GWUDI], and Groundwater," especially section (2) "Requirements for systems utilizing surface water or GWUDI sources without filtration," (c) "site specific conditions," (B) "Maintain a comprehensive WCP which minimizes the potential for contamination by *Giardia lamblia* cysts, *Cryptosporidium* oocysts, and viruses in the source water."

According to these rules, filtration would be required for unfiltered water systems that do not meet specific requirements. These requirements are divided into two categories: source water quality conditions and site-specific conditions. The City meets the requirements for unfiltered water systems.

Source Water Quality Conditions

Coliform

Coliform bacteria analysis is utilized to measure the microbiological quality of drinking water and is primarily an indication of the absence or presence of disease-causing organisms. For the most part, coliform bacteria, which generally does not cause diseases, has been found to be hardier than actual disease-causing organisms. Though coliform is a good indicator for disease-causing organisms, it is not a catch-all solution for indication of pathogenic organisms. Experience has shown that some pathogenic organisms are more resistant to water treatment than coliform bacteria and that disease outbreaks have occurred although the coliform standard has been met. The SWTR identifies required limits for raw water fecal coliform occurrence in order to limit the probability of disease outbreak. As stated, these limits do not guarantee that a water-borne disease outbreak would not occur. Proper disinfection further limits the probability of disease outbreak.

To avoid filtration, at least 90 percent of the source water samples analyzed during the previous six months must have fecal coliform concentrations equal to or less than 20 per 100 ml for fecal coliforms and 100 per 100 ml for total coliforms. For the past several years the City tested for *E. coli*, but since August of 2013 the City has utilized the fecal coliform test and has consistently met the required criteria.

Turbidity

In addition to meeting raw water coliform requirements, the raw water must meet turbidity limits. Turbidity is a physical quality parameter of water that indicates its tendency to scatter light because of the presence of particulates. Turbidity is measured directly with an instrument employing the Nephelometric method, in which the light source is located at a 90-degree angle to the light receptor. Turbidity is of concern because of its potential for interfering with water treatment disinfection processes and microbiological analysis methods. It may affect disinfection by interfering with the formation of disinfect residuals or by shielding pathogenic organisms from the disinfectant. Turbidity can also be responsible for false negative bacteriologic test results. To avoid filtration, the raw water turbidity cannot exceed 5 NTUs on an ongoing basis while the system is being used. Additionally, if the NTU exceeds 1, one raw water sample must be collected for fecal or coliform analysis. Turbidity must be monitored continuously or grab samples collected every four hours. The City employs continuous monitoring.

According to water quality and production data from the past five years, there has not been a recorded incident of NTUs equal to or greater than 5. Most NTUs recorded were less than 1 although there were numerous occurrences of NTUs greater than 1. The main reason that the City does not see an occurrence of NTUs greater than 5 is the utilization of turbidity monitoring and the water bypass system. Monitoring results show that the City is meeting the turbidity requirements.

Site-Specific Conditions

The SWTR contains many site-specific conditions that are required to maintain an unfiltered water status. These conditions are:

- Adequate disinfection
- Reliable disinfection
- Adequate disinfection residual for finished water
- Adequate disinfection residual in the distribution system
- WCP
- Annual site inspection
- No identified water-borne disease outbreaks
- Compliance with MCL for coliform
- Compliance with MCL for THM

The following sections discuss how the City meets each of these criteria.

Adequate Disinfection

A disinfection treatment process used by a non-filtering water system must ensure 99.9 percent (3 log) inactivation of *Giardia* cysts and 99.99 percent (4 log) inactivation of viruses. This is accomplished by maintaining disinfectant residuals and disinfection contact time (CT) as provided in the SWTR.

The CT must be calculated each day the water system is used. Inactivation must be met every day the system serves water to the public with the exception of one day per month. The system, on a continual basis, must meet the CT requirements at least 11 of every 12 months. The only exception is if a system fails to meet the requirement two of the 12 months and the State deems the occurrences were due to unusual or unpredictable circumstances.

The City is currently meeting the requirements for inactivation of *Giardia* cysts and viruses with chlorination and contact time.

Reliable Disinfection

The disinfection system must be reliable. The system must include redundant components including auxiliary power with automatic startup and alarms and potential automatic shutoff when residuals fall below 0.2 mg/L, unless unreasonable risk to health or fire protection would subsequently occur. This requirement is met by the City with UV and chlorination procedures.

Finished Water Residual

The disinfection residual for water entering the distribution system cannot be less than 0.2 mg/L for more than four hours at a given time during use. The City's water meets the time requirements for all water entering the distribution system.

Distribution System Residual

The disinfection residual for water within the distribution system cannot be undetectable in more than 5 percent of the samples each month for any two consecutive months. The City meets this requirement as recorded in the monthly sampling results.

Watershed Control Plan

The City must develop a WCP to minimize the potential for contamination by *Giardia* cysts and viruses in the source water. The City meets this requirement because it has a WCP and this document is an update to it.

Annual Site Inspection

The system's WCP and disinfection treatment process must be inspected annually on site by the State. The on-site inspection must review:

- The effectiveness of the WCP
- Physical conditions of source intakes and protection
- System maintenance and procedures
- Disinfection equipment condition
- Operating procedures
- Records

From the inspection, needed equipment, maintenance, operation, or data collection are identified. A report of the on-site inspection must be prepared annually. The City meets this requirement by conducting an annual survey with DWS.

No Identified Disease Outbreaks

In order to maintain an unfiltered water status, the system must not have been identified as a source of water-borne disease outbreak (unless another method of treatment would mitigate the offending circumstances). The City meets this requirement through the new UV treatment system.

Compliance with MCL

The system must comply with the MCLs for total coliform and total THMs and HAAs. The State of Oregon can make exception to compliance with the total coliform MCL if it

determines that failure to meet the requirements was not caused by a deficiency in treatment. The City is in compliance with MCLs.

Interim Enhanced Surface Water Treatment Rule (IESWTR) (2002)

Though the 1996 Amendments to the SWDA did not immediately involve changes to the SWTR, two new rules emerged in 1998. The first rule was the IESWTR and the second rule was the Stage 1 Disinfectants/Disinfection Byproducts Rule (DBPR). Both rules were published in the Federal Register on December 16, 1998.

The IESWTR was developed to cover additional areas of concern that the original SWTR did not address. The goal of the SWTR is to reduce risk to less than one infection per year per 10,000 people. The rule is designed to optimize treatment reliability and enhance physical removal efficiencies to minimize the *Cryptosporidium* levels in finished water. It was determined that, due to the high pathogenic concentrations of some sources, the treatment levels identified in the SWTR may not still achieve this health goal. Additionally, these communities tend to increase disinfection levels in order to control microbial pathogens that can create health risks associated with disinfectant byproducts. Therefore, the IESWTR and the Stage 1 DBPR were developed to work together.

The rule establishes a Maximum Contaminant Level Goal (MCLG) of zero for *Cryptosporidium* and requires 2-log removal requirements for systems that filter. For unfiltered systems, *Cryptosporidium* must be included in watershed control requirements. The IESWTR requires sanitary surveys for all public water systems (regardless of size) using surface water or GWUDI.

The IESWTR applies to surface water sources for communities of 10,000 or more people. Compliance with the rule was required by December 17, 2001, and March 16, 2001, for elevated disinfection byproducts levels. According to the DWS, Baker City's unfiltered source will not be required to meet the turbidity and *Cryptosporidium* requirements as long as the unfiltered source requirements previously stated are met. IESWTR requirements are as follows:

THM and HAA Monitoring

If a system does not have sufficient existing data available to determine if a disinfection profile is required, four quarters of THM and HAA are needed to establish an annual average value. If the values established are less than 0.064 mg/L for THM and 0.048 mg/L for HAA, a disinfection profile is not required.

Disinfection Profile and Benchmark

Surface water systems having a THM of 0.065 mg/L, or HAA of 0.048 mg/L on an annual average must develop a disinfection profile. The disinfection profile identifies the daily inactivation represented by the CT value. From this profile, a disinfection benchmark is developed that is the lowest monthly average inactivation. The disinfection benchmark is used during the development of disinfection practice modifications to meet the more restrictive MCLs for the Stage 1 DBPR.

Cryptosporidium

For filtered surface water systems, the IESWTR sets a MCLG of zero for *Cryptosporidium* and sets a requirement for 2-log removal. For unfiltered sources, the IESWTR requires that the existing WCP include the control of potential sources of *Cryptosporidium*.

Cryptosporidium is proving to be a difficult organism to combat in surface water supply systems. Because of the oocysts' protective covering, *Cryptosporidium* is resistant to chlorine. Filtration systems also have problems removing *Cryptosporidium* because of its size (4 to 6 micrometers in diameter). Even state-of-the-art water systems have not been able to completely remove *Cryptosporidium*.

Turbidity Requirements

For filtered surface water supply systems, the IESWTR requires more restrictive turbidity limits. Presently, turbidity limits for filtered systems are 0.3 NTU for 95 percent of measurements taken each month and no greater than 1 NTU. The DWS has stated that Baker City's unfiltered water supply is not required to meet these more restrictive limits. Presently, Baker City's limits are that the raw water turbidity cannot exceed 5 NTUs and that additional coliform sampling is required if the turbidity exceeds 1 NTU.

Stage 1 DBPR

The Stage 1 DBPR was developed in conjunction with the IESWTR. The Stage 1 DBPR establishes MCLGs for some regulated DBPs, a more restrictive MCL for THM and HAA, and a new MCL for chlorite and bromate. For both byproducts and residuals, the goals are non-enforceable. The MCL and maximum residual disinfectant level (MRDL) are enforceable contaminant standards.

Treatment Technique

The rules also include treatment techniques for conventional filtration systems for minimizing the production of DBPs. Compliance can be achieved by removal of a specified percentage of total organic carbon using enhanced coagulation or enhanced softening.

Best Available Technology (BAT)

The BAT for each MCL and MRDL is set within the Stage 1 DBPR.

Long-Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR)

Effective March 2002, the LT1ESWTR is similar to the IESWTR when applied to small systems using surface water or groundwater under the direct influence of surface water.

Long-Term 2 Enhanced Surface Water Treatment Rule

The LT2ESWTR and the Stage 2 DBPR strengthen protection against microbial contaminants, especially *Cryptosporidium*, and reduce potential health risks of DBPs (EPA 2005).

The LT2ESWTR supplements existing regulations by targeting additional *Cryptosporidium* treatment requirements. The LT2ESWTR and Stage 2 DBPR address concerns about risk tradeoffs between eliminating pathogens and DBPs (EPA 2005).

The EPA implemented the LT2ESWTR in 2006, which required the City to perform sampling and testing, resulting in the detection of the *Cryptosporidium* oocyst in Baker City's surface water collection source (the watershed). In August 2013, 23 cases of cryptosporidiosis, an intestinal illness, were confirmed by the Baker County Health Department (OHA 2014). Detection of the parasite triggered the installation of the temporary UV light treatment system at the water treatment plant to inactivate the *Cryptosporidium* oocysts and render them harmless. The temporary UV light system has been in place since March of 2014, and the permanent UV treatment facility is currently under construction and will be complete by December 2014 (Baker City 2013).

Under the LT2ESWTR, systems are required to monitor water sources with two years of monthly sampling for *Cryptosporidium* to determine treatment requirements. Small filtered water systems are allowed to first monitor for *E. coli* bacterium because this is less expensive to analyze than *Cryptosporidium*, and only conduct *Cryptosporidium* monitoring if results exceed specified concentration levels (EPA 2005).

Systems must conduct a second round of monitoring six years after completing the initial round to determine if source water conditions have changed significantly. Systems are not required to monitor if they provide the maximum level of treatment required under the rule (EPA 2005).

All unfiltered water systems must provide at least 99 or 99.9 percent (2- or 3-log) inactivation of *Cryptosporidium*, depending on monitoring results. Baker City meets this inactivation requirement through UV treatment; by providing the maximum treatment level required under the rule, monitoring is not required.

5. Implementation and Evaluation

Implementation Schedule, Milestones, and Criteria for Evaluation

An implementation strategy is listed on Figure 16, Implementation Schedule, Milestones, and Criteria for Evaluation, and will be evaluated each year by the City.

Implementation Schedule

Goals, strategies, milestones, and evaluation methods are listed on Figure 16. Maintenance for this WMP will be directed by the Baker City Public Works Department with support from the USFS. WMP maintenance will include periodic reviews of the plan and reprioritization of goals. Reviews will occur when major changes occur in watershed conditions or municipal use of the watershed. Reviews will seek to include public stakeholder participants. A total revision of the WMP will occur in 10 years, if funding permits.

Interim Milestones

Milestones will be reviewed each year and discussed when Sanitary Survey Reports are required. The Sanitary Survey Reports will review progress toward goals, milestones, amount of fuel reduction, and the water quality standards results from the sanitary survey of the watershed and any water testing.

Monitoring and Evaluation

Effectiveness will be evaluated through the Sanitary Survey Report and DWS reports. Adaptive management will allow the City to modify goals and targets. The details of this WMP are listed earlier in the WCP portion of this document. Continued public and interagency involvement will be necessary to accomplish many goals in this WMP. Copies of the WMP will be available at City Hall in Baker City and on line.

Funding Sources

The technical advisory group can provide all initially needed technical support to accomplish goals and strategies. This WMP was funded through the Oregon Infrastructure Finance Authority - Safe Drinking Water Revolving Loan Fund Grant for Source Water Protection. Additional funding will be needed to complete the sanitary surveys, fuel reduction, water quality sampling, and reports. Ideally, an OWEB grant will be obtained, as well as USFS funding. Financial assistance will be required to increase fencing in the area. Following are preliminary estimates of financial assistance needed and possible sources of funding. See Figure 16 for funding needs and estimates.

- Expand Public Education Program - $5,000, EPA K-12 grant
- Fencing - Approximately $10,000 per mile (Mayer, Olson 2012), apply for EPA Section 319 funding and DWS funding
- Signs - $100 per sign, Water Fund - funded by utility rates (or OWEB grant, October 10, 2014 deadline)

- Thinning - $5,000,000, OWEB grants, USFS funding, others as available
- Upgrade Intake Systems - $3,500 per intake location, Water Fund - funded by utility rates
- Rebuild Mountain Line - $5,000,000, Water Fund - funded by utility rates
- UV Treatment Facility - $3,000,000, IFA Loan
- Water Monitoring - $1,500 per sample, apply for EPA Section 319 funding

Conclusion

- Baker City has a watershed that has served the community since its inception. The City has continued to proactively protect this resource, and this WMP provides a framework for active vegetation management, water quality monitoring, and institutional controls to ensure that the watershed continues to be a valuable and well protected resource into the future. Watershed integrity will continue to be preserved through regulations including permit/ordinance reviews and completing the revision of the 1991 MOU between Baker City and the USFS. Improving engineering controls such as fencing and signage is also critical to ensuring access to the watershed is limited.
- Forest health management will be accomplished through planning, funding, and conducting fuel reduction projects in conjunction with the CWPP objectives over the next 10 years, and as approved by the USFS.
- Water quality will be maintained and improved through small- and large-scale projects over the next 10 years including replacing the Mountain Line with modern piping material, completing the permanent UV treatment facility, and implementing monitoring and reporting requirements of a WCP. Through these means, the City will work to retain the filtration exemption for the watershed.

Limiting access to the watershed, reducing fire risk through vegetation management, and working to improve water quality through treatment and monitoring are goals that the WMP addresses to sustain high quality watershed function for the future.

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FIGURES

BAKER CITY WATERSHED BOUNDARY

MOUNTAIN LINE

RESERVOIRS, WELL AND WATER TREATMENT PLANT

MOUNTAIN LINE

To Haines

T.8-10 S., R.38-40 E., W.M.

SCALE IN FEET
4000 0 4000

Pocahontas

GOODRICH RD.
CREEK LN.
DUNCAN LN.
MILL CREEK LN.
BROWN RD.
OLD WING
SALMON CREEK RD.
POCAHONTAS RD.
ROUEN RD.
GULCH RD.
WASHINGTON
OSBORN
UNION
PACIFIC R.R.
U.S. HWY. 30
IMNAHA RD.
17TH ST.
H ST.
CAMPBELL LP.
BROADWAY AVE.
CARTER AVE.
INDIA AVE
BAKER CITY
BAKER
GRIFFIN GULCH

36 31 1 6 36 31

FOREST

PROJECT LOCATION

VICINITY MAP

CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN

LOCATION AND VICINITY MAPS

FIGURE
1

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Job# 781-46-020 Aug. 6, 2014 lbauer

GOODRICH CREEK MOUNTAIN LINE DIVERSION

GOODRICH DIVERSION

PINE CREEK RESERVOIR (NOT PART OF EXISTING WATERSHED)

GOODRICH LAKE

LITTLE MILL CREEK DIVERSION

COYOTE SPRING

BIG MILL CREEK DIVERSION

HAWK SPRING

LITTLE MARBLE CREEK DIVERSION

MARBLE SPRINGS DIVERSION

CAMPER SPRINGS DIVERSION

BIG SALMON CREEK DIVERSION

HERMAN SPRINGS DIVERSION

HENRY SPRINGS DIVERSION

LITTLE SALMON SPRINGS DIVERSION

LITTLE SALMON CREEK DIVERSION

NORTH PRONG WASHINGTON GULCH

MIDDLE PRONG WASHINGTON GULCH

SOUTH PRONG WASHINGTON GULCH

ELK CREEK DIVERSION

ELK CREEK LINE

ELK CREEK SETTLING TANK

WATERSHED BOUNDARY

NATIONAL FOREST BOUNDARY

WALLOWA - WHITMAN NATIONAL FOREST

INTERTIE PIPELINE FLOWMETER

MARBLE CREEK BYPASS

MARBLE CREEK PICNIC AREA

MARBLE CREEK SETTLING TANK

MARBLE CREEK DIVERSION

FINLEY SPRINGS DIVERSION

SLUM TOWN DIVERSION

MOUNTAIN LINE PIPELINE

ROCK SPRINGS DIVERSION

GOODRICH PIPELINE

CITY OF BAKER CITY

CITY RESERVOIR

GOODRICH PIPELINE FLOWMETER

WELL SUPPLY AND ASR WELL

RESERVOIR HYDRO PLANT

WATER TREATMENT PLANT

FOREBAY

GOODRICH RD.

GOODRICH CREEK

MILL CREEK

MARBLE CREEK

SALMON CREEK

POCAHONTAS ROAD

MILL CREEK LANE

MARBLE CREEK ROAD

SALMON CREEK ROAD

WASHINGTON GULCH

T8S T9S R38E R39E

16" 12" 14" 15" 16" 18" 18" 18" 18" 18" 16" 12" 20"DI 20"DI 12" 16"

1"=4000'

LEGEND

★ METERED SOURCES

Ⓜ PIPELINE FLOWMETER

MAJOR DIVERSION

MINOR DIVERSION / WATER RIGHT

COMPLETED PIPE REPLACEMENT

PIPE TO BE REPLACED

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CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN

CURRENT SYSTEM MAP

FIGURE
2

Q:\BAKER\781-46_WatershedMgmtPlan\dwg\Current System Map.dwg, FIG 2, 8/7/2014 8:17:09 AM, DWG To PDF.pc3, DMC

To Haines

T.8-10 S., R.38-40 E., W.M.

SCALE IN FEET

4000 0 4000

U.S. HWY. 30

BAKER CITY

RESERVOIRS, WELL AND WATER TREATMENT PLANT

MOUNTAIN LINE

BAKER CITY WATERSHED BOUNDARY

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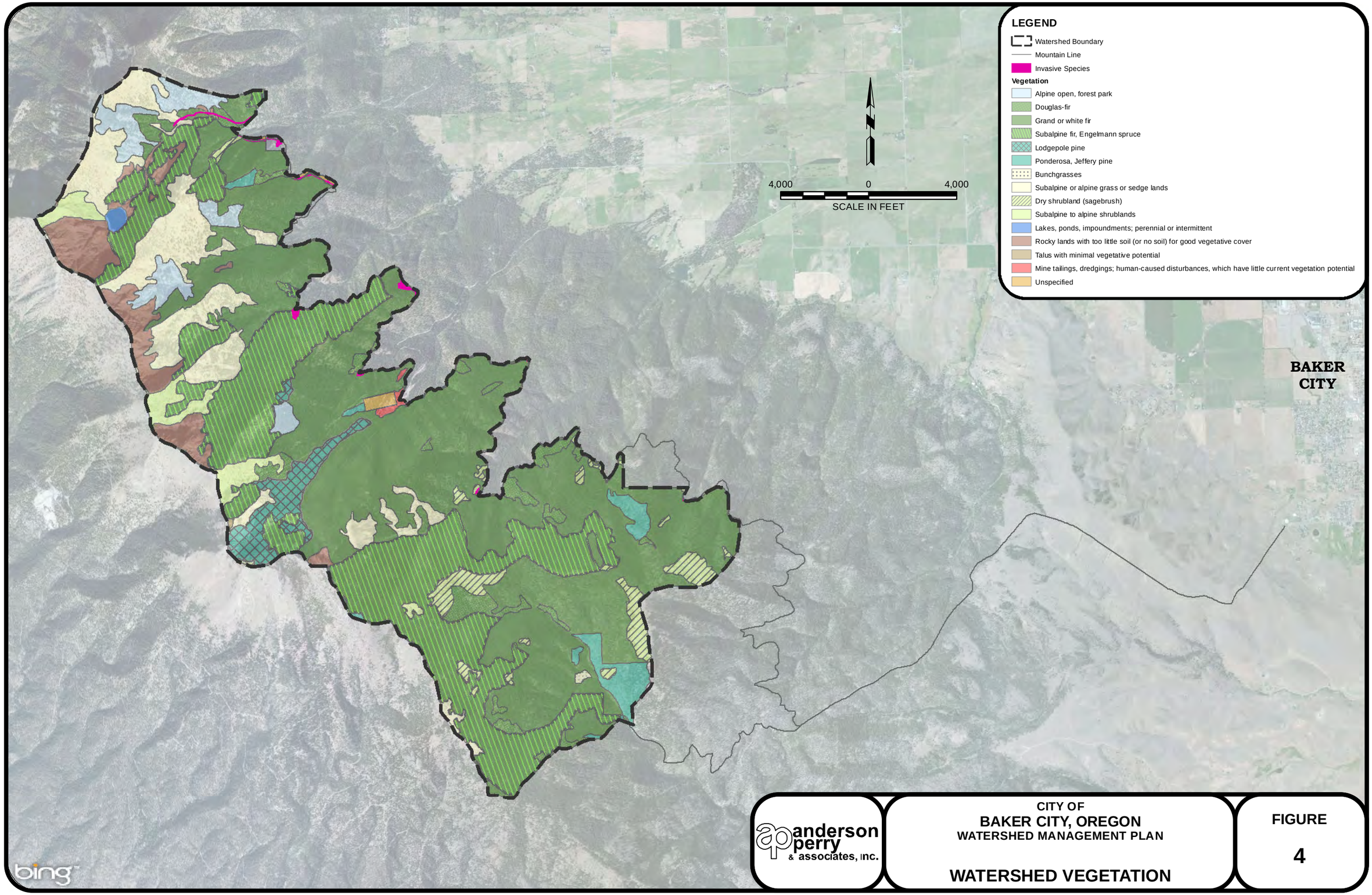
CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN

TOPOGRAPHIC MAP

FIGURE
3

Job# 781-46-020 Sep. 2, 2014 lbauer



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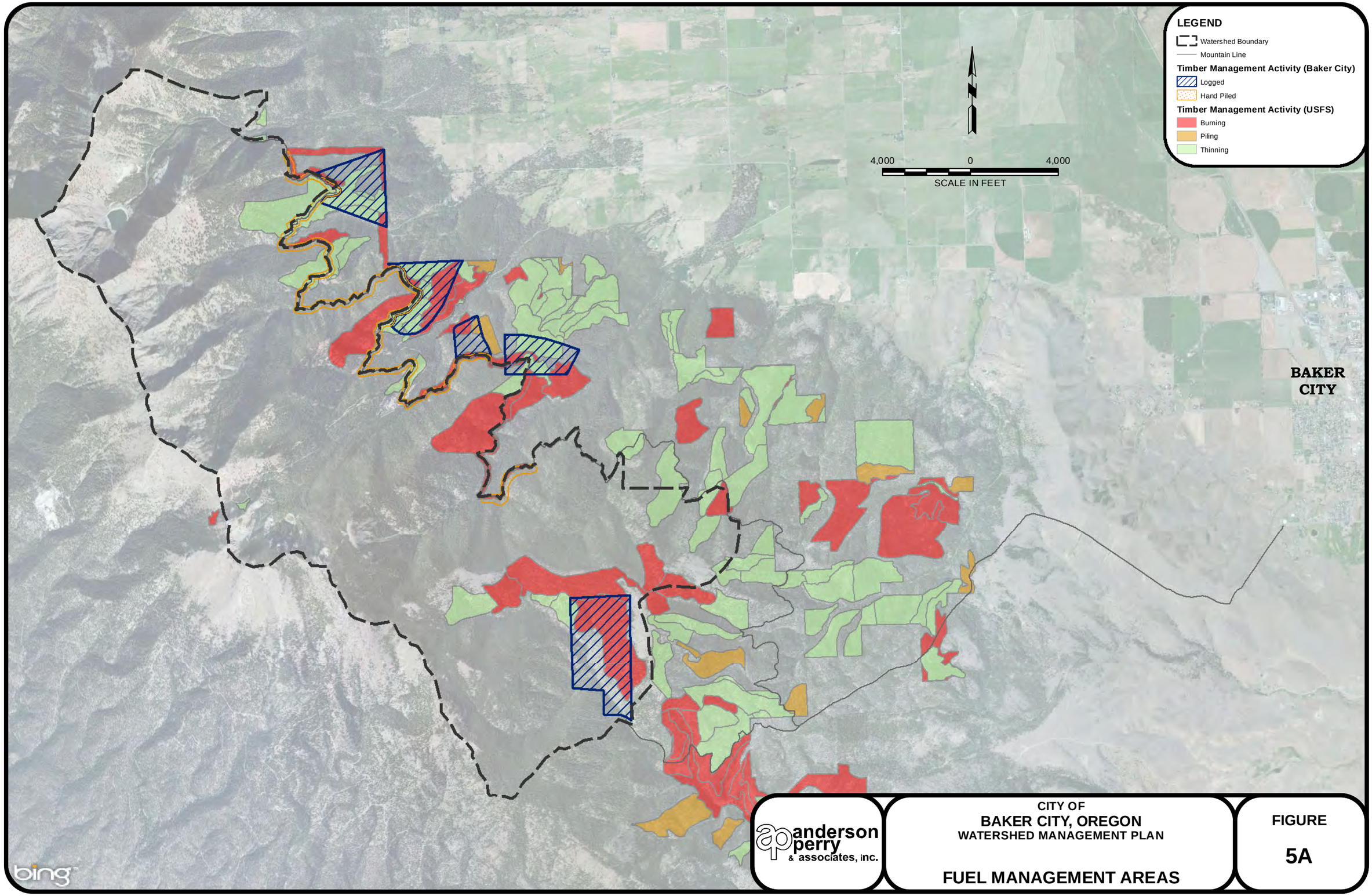
CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN

WATERSHED VEGETATION

FIGURE
4



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CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN

FUEL MANAGEMENT AREAS

FIGURE
5A

Past Fuels Activities 1996-2010

Baker City Watershed

Pine Creek Reservoir
South Prong Pine Creek
Goodrich Creek
Bear Creek
4 Goodrich Lake
Twin Lakes
Little Mill Creek
Mill Creek
Marble Creek
Little Marble Creek
Old Settlers Slough
West Fork Lake Creek
Lake Creek
Salmon Creek
Little Salmon Creek
Baboon Creek
Alder Creek
East Fork Alder Creek
Smith Creek
East Fork Miners Creek
Miners Creek
West Fork Birch Creek
East Fork Birch Creek
Bridge Creek
Union Creek
Deer Creek
Kolb Reservoir
Licklider Reservoir
T.8S
T.9S
T. 10 S
30

FOOTHILLS 036
FOOTHILLS 026
FOOTHILLS 034
FOOTHILLS 033
FOOTHILLS 031
FOOTHILLS 025
FOOTHILLS 029
FOOTHILLS 022
FOOTHILLS 039
FOOTHILLS 016
FOOTHILLS 019
FOOTHILLS 010
FOOTHILLS 008
FOOTHILLS 007
FOOTHILLS 003
FOOTHILLS 004
FOOTHILLS 006
FOOTHILLS 002
FOOTHILLS 001
WW 8 A
WW 13 A
WW 14 A
WW 21 A
WW 34 A
WW 39 A
WW 39 B
WW 504 A
WW 11 A
WW 12
WW 124 A
WW 125 A
WW 126
WW 127
WW 178 A
WW 128
WW 143 A
WW 156 A
WW 157
WW 174
WW 149
WW 150
WW 146
WW 148
WW 147
WASHINGTON 016A
WASHINGTON 010A
WASHINGTON 12 B
WASHINGTON 009
WASHINGTON 014
WASHINGTON 13
WASHINGTON 12 A
WASHINGTON 8
WASHINGTON 007
WASHINGTON 6
WASHINGTON 5
WASHINGTON 4 A
WASHINGTON 3 A
WASHINGTON 1 A
WASHINGTON 1 B
PIPELINE FUELBREAK 1
PIPELINE RX 101
WW 65
WW 67
WW 68
WW 69
WW 177
HIBBARD 077A
HIBBARD 077B
PILOT 1
PILOT 2 A
PILOT 2 B
PILOT 2 C
PILOT 3
PILOT 4
PILOT 5 A
PILOT 5 B
PILOT 6
PILOT 7
PILOT 8
PILOT 9
PILOT 10
PILOT 11
BAKER CITY RX 001
ELK CREEK FUELS 32
ELK CREEK FUELS 30
ELK CREEK FUELS 29
WILSON 33 B
WILSON 33 A
WILSON 9 A
WILSON 14 A
WILSON 15
WILSON 10 A
WILSON 108
WILSON 13
WILSON 11
WILSON 8
WILSON 007A
WILSON 006
WILSON 005
WILSON 004
WILSON 3

T.8-10 S., R.38-40 E., W.M.

NOTE:
MAP PROVIDED AND GENERATED BY THE USFS.

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CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN

FUEL MANAGEMENT AREAS

FIGURE
5B

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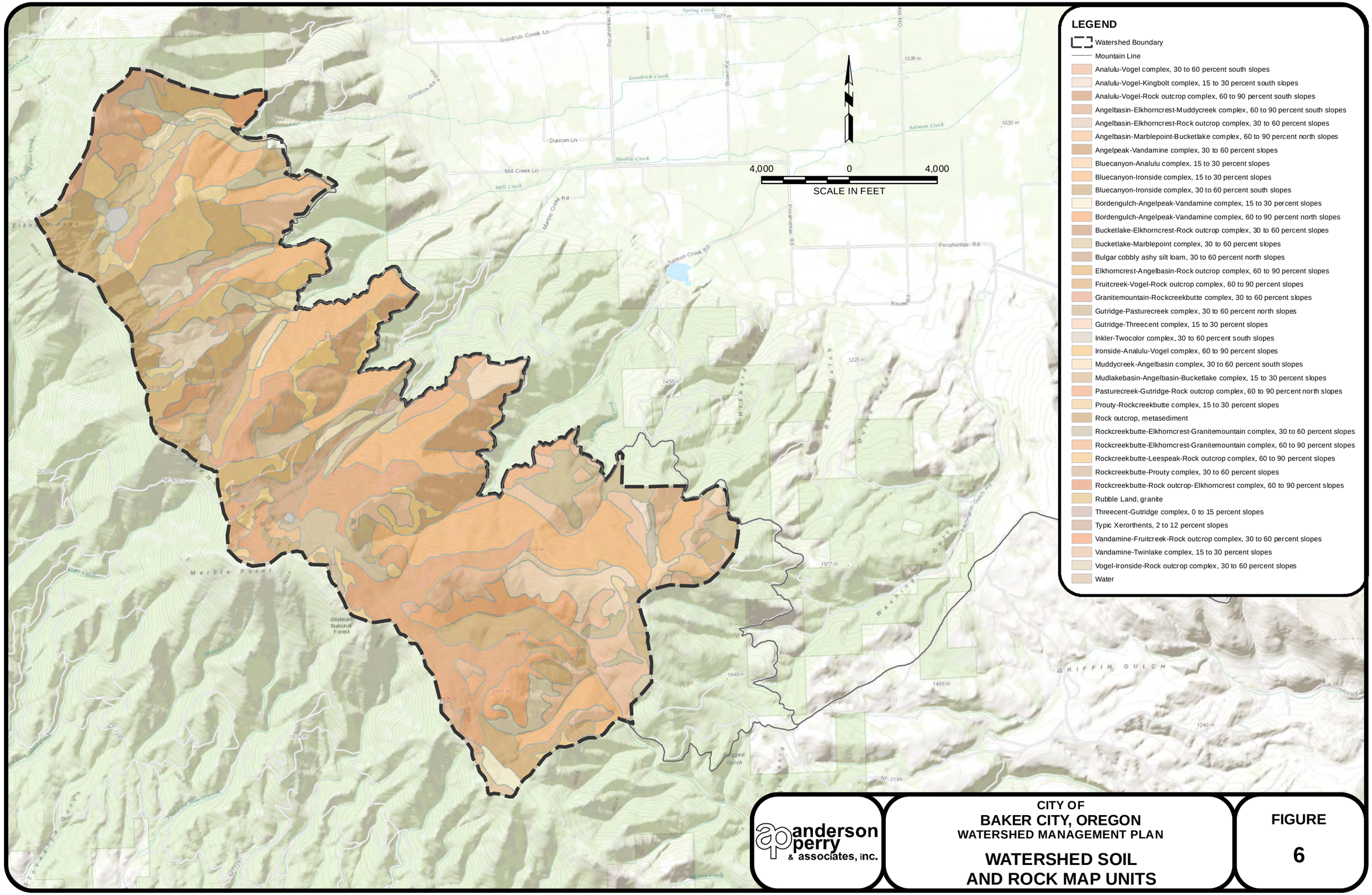

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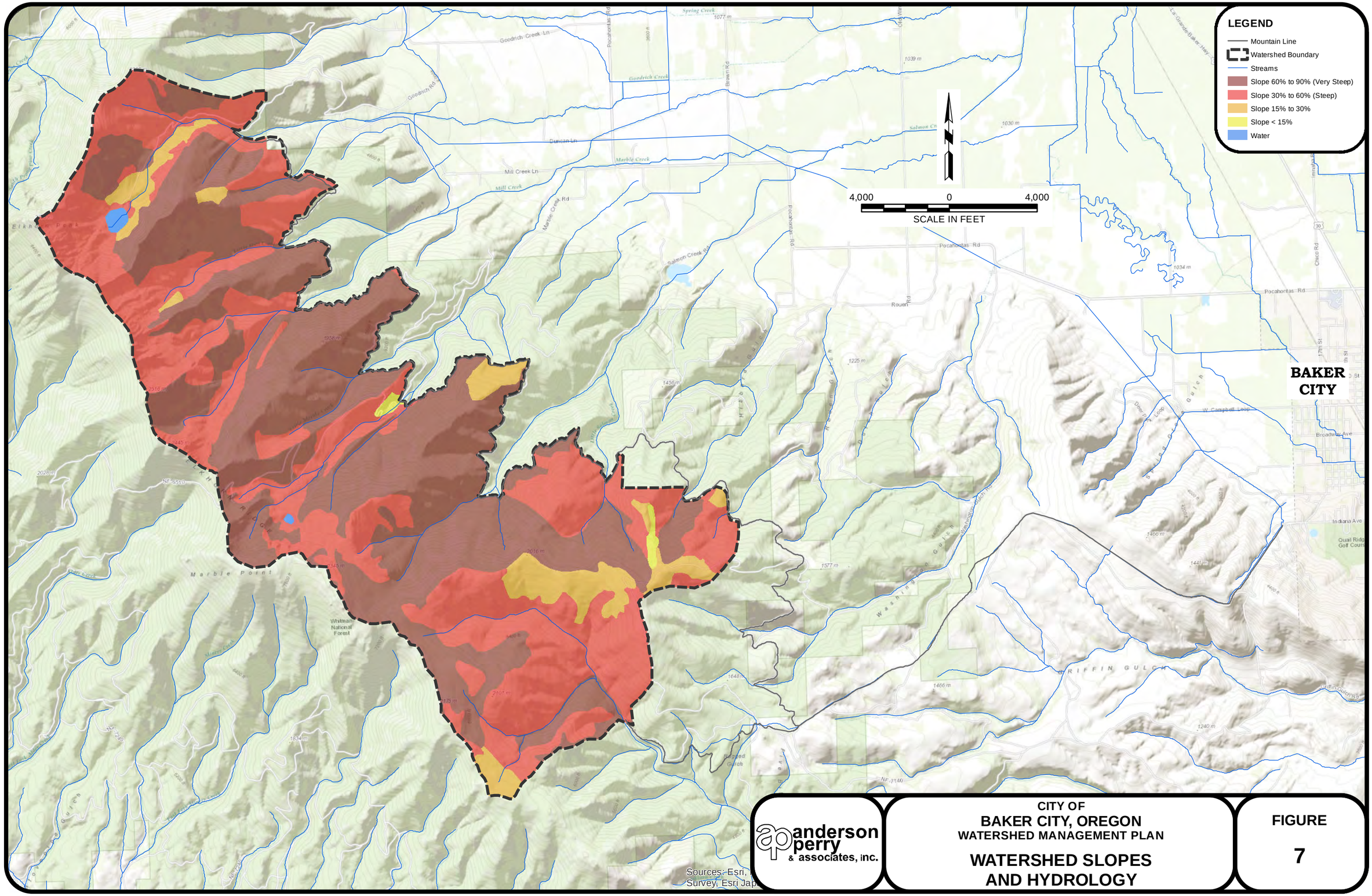

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CITY OF
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WATERSHED MANAGEMENT PLAN

WATERSHED SLOPES AND HYDROLOGY

FIGURE
7

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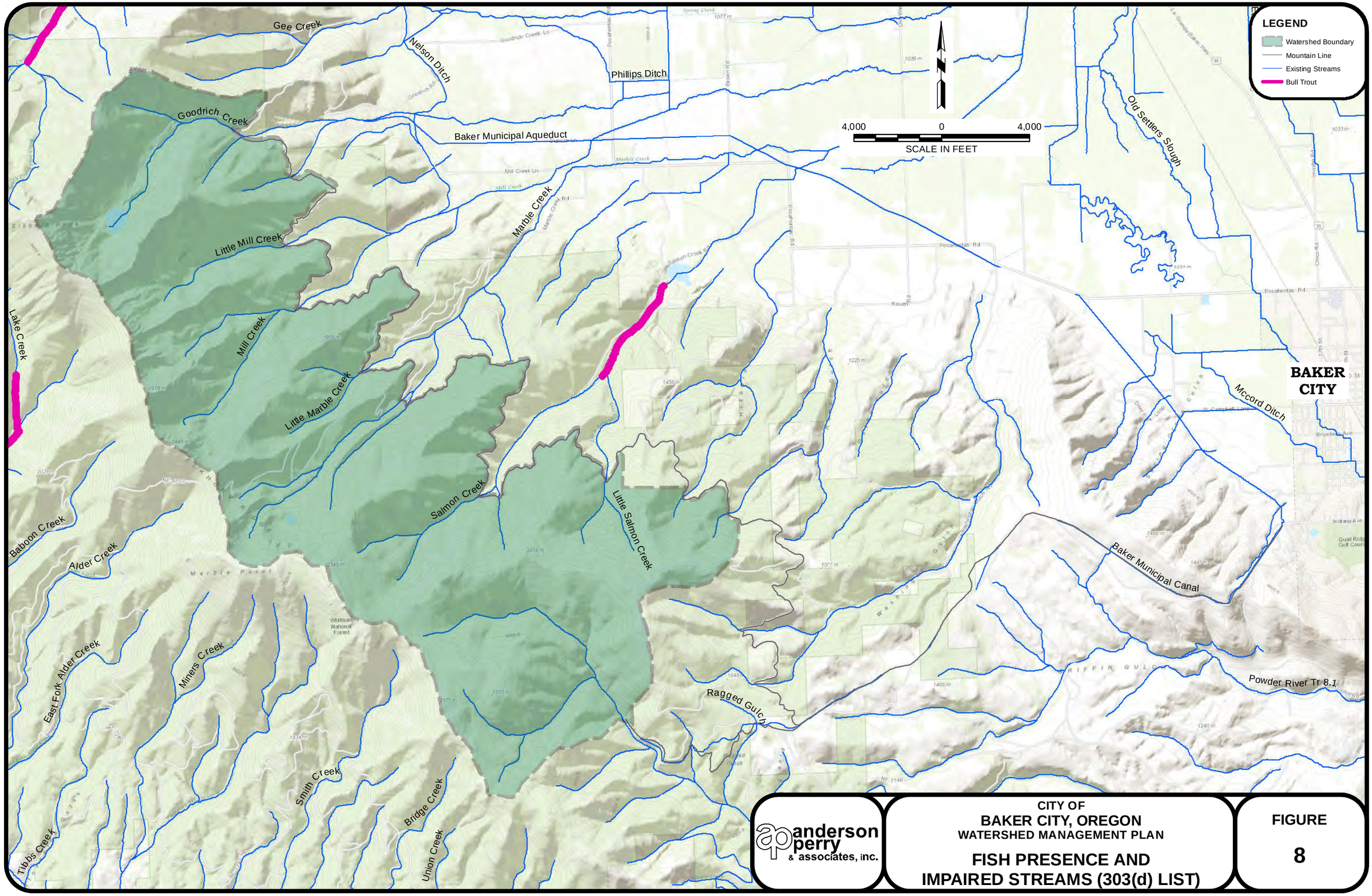

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CITY OF
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WATERSHED MANAGEMENT PLAN

FISH PRESENCE AND IMPAIRED STREAMS (303(d) LIST)

FIGURE
8

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LEGEND

- Mountain Line
- Watershed Boundary
- Mountain Goat Range
- Elk - Winter Range
- Elk - Summer Range

4,000 0 4,000

SCALE IN FEET

BAKER CITY

bing

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CITY OF
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WATERSHED MANAGEMENT PLAN

WATERSHED WILDLIFE

FIGURE
9A

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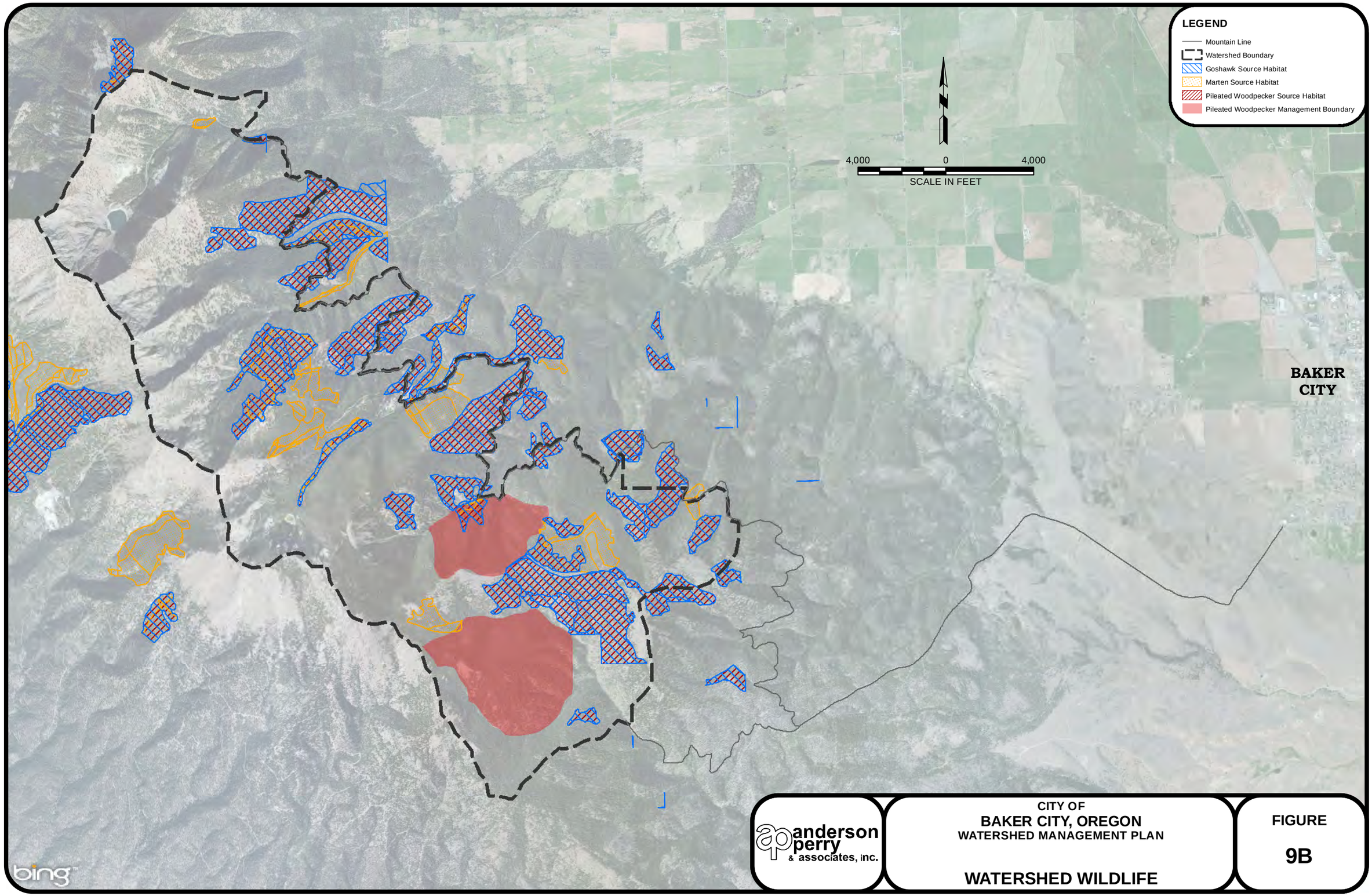

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CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN

WATERSHED WILDLIFE

FIGURE
9B

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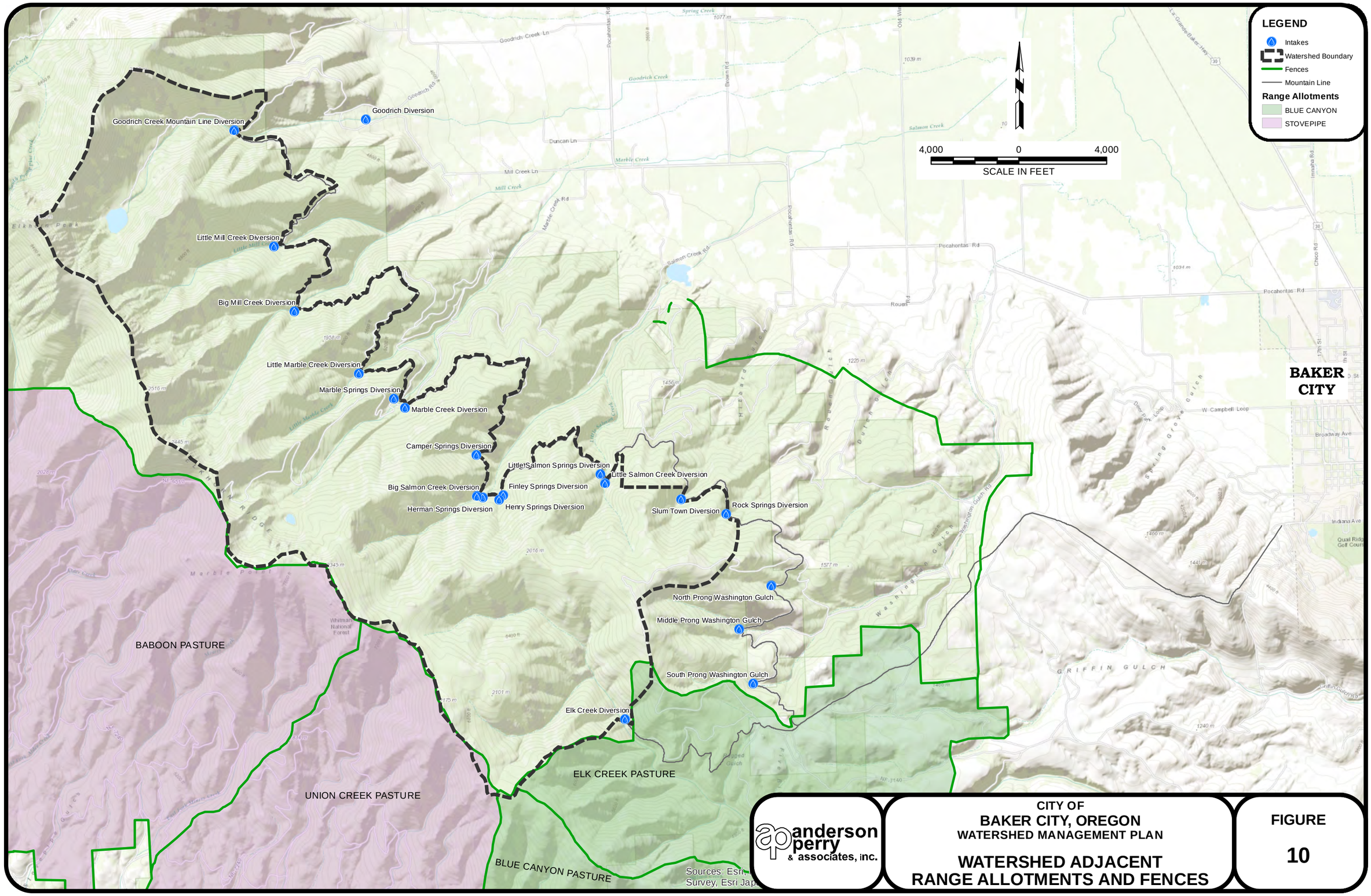

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CITY OF
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WATERSHED MANAGEMENT PLAN

WATERSHED ADJACENT RANGE ALLOTMENTS AND FENCES

FIGURE
10

\\LGSVR6\gisprojects\BakerCity\781-44_MountainLineEA\Figure-LivestockRange.mxd, 10/8/2014, 1:25:43 PM

LEGEND

- Watershed Boundary
- Mountain Line

Precipitation (Average Annual Inches)

- 10-12
- 12-14
- 14-16
- 16-18
- 18-20
- 20-24
- 24-28
- 28-32
- 32-36

4,000 0 4,000

SCALE IN FEET

BAKER CITY

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CITY OF
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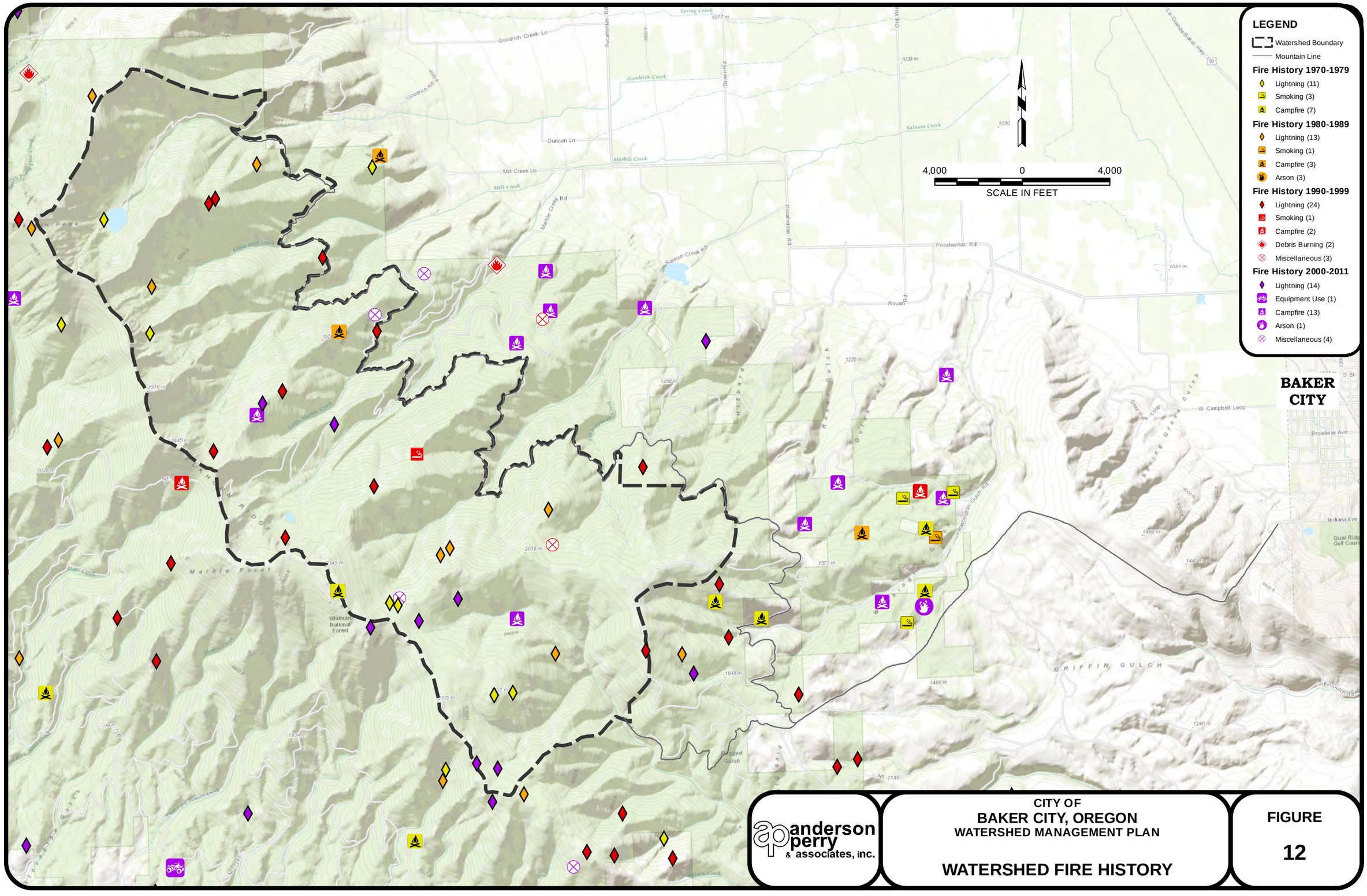
WATERSHED MANAGEMENT PLAN

WATERSHED ANNUAL PRECIPITATION

FIGURE
11

\\LGSVR6\gisprojects\BakerCity\Y81-44_MountainLineEA\Figure-Precipitation.mxd, 9/17/2014, 8:39:11 AM



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CITY OF
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WATERSHED MANAGEMENT PLAN

WATERSHED FIRE HISTORY

FIGURE
12

\\LGSVR6\gisprojects\BakerCity\781-44_MountainLineEA\Figure-FireHistory.mxd, 9/17/2014, 8:42:33 AM

PROPERTY OWNERSHIP

- UNITED STATES FOREST SERVICE
- BUREAU OF LAND MANAGEMENT (BLM)
- STATE OF OREGON
- PRIVATE (NO COLOR)

To Haines

T.8-10 S., R.38-40 E., W.M.

SCALE IN FEET

4000 0 4000

U.S. HWY. 30

BAKER CITY

MOUNTAIN LINE

RESERVOIRS, WELL AND WATER TREATMENT PLANT

BAKER CITY WATERSHED BOUNDARY

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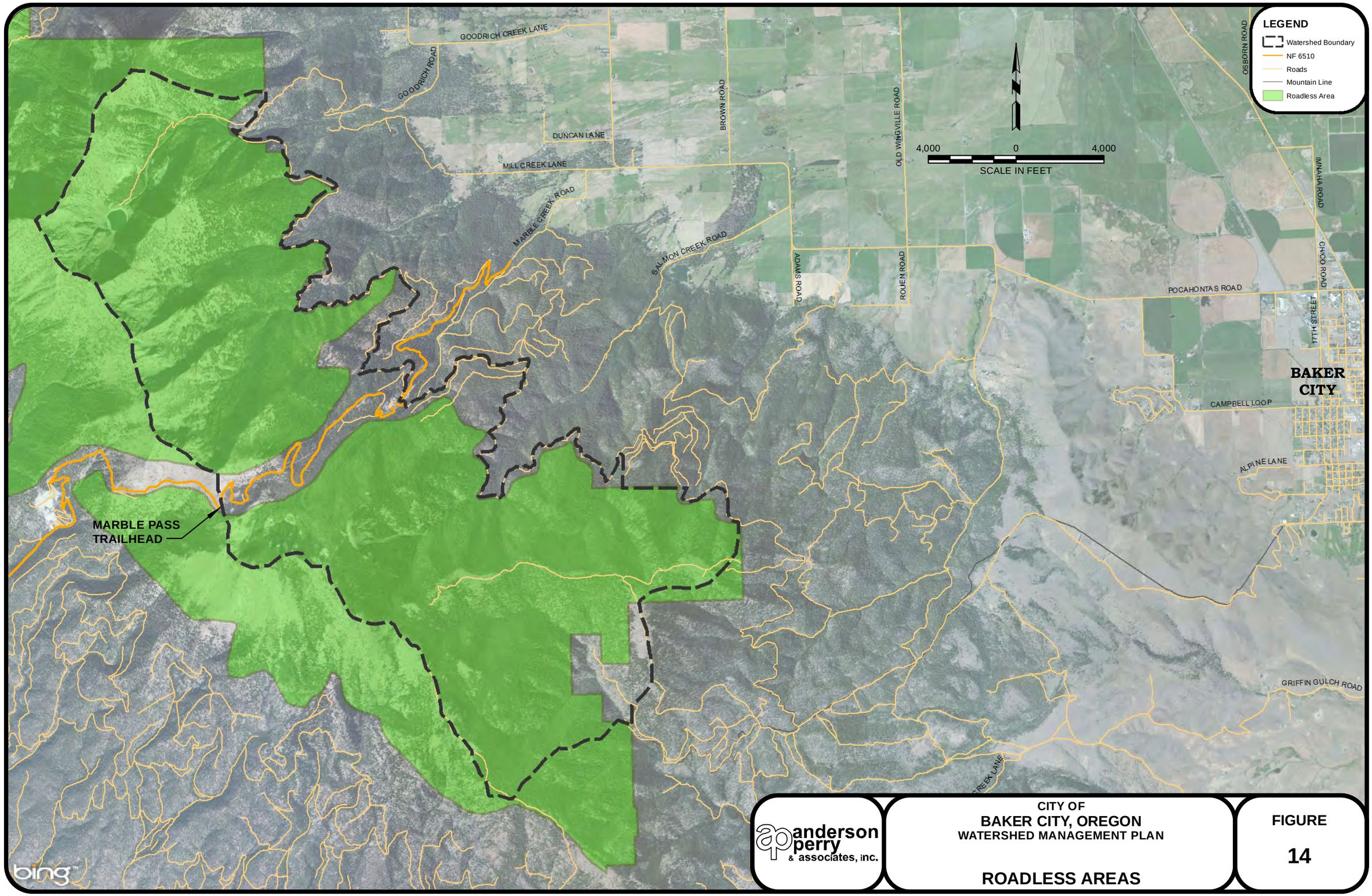
CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN

PROPERTY OWNERSHIP

FIGURE
13

Job# 781-46-020 Sep. 17, 2014 lbauer



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CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN

ROADLESS AREAS

FIGURE
14

LEGEND

ASR - AQUIFER STORAGE AND RECOVERY

MG - MILLION GALLON

WATER SUPPLY LINE AND FLOW DIRECTION

DRAIN LINE AND FLOW DIRECTION

TEMPORARY UV REACTOR

FUTURE UV REACTOR

GOODRICH SUPPLY LINE

ASR BOOSTER PUMP

ASR INJECTOR LINE

4.5 MG CHLORINE CONTACT CHAMBER

INLET

DRAIN

OUTLET

OVERFLOW

M

CHLORINE BUILDING

TURBIDITY BYPASS VAULT

GENERATOR BUILDING

WELL AND PUMP STATION

OLD MOUNTAIN SUPPLY LINE

OLD MOUNTAIN SUPPLY LINE BYPASS

ALTITUDE VALVE VAULT (TYP.)

DRAIN AND RISER VAULT

AV

CARTER STREET LINE

3.0 MG RESERVOIR

INLET

OUTLET & DRAIN

OVERFLOW

0.92 MG RESERVOIR

(NOT IN SERVICE)

INLET

OVERFLOW & DRAIN

OUTLET

MANHOLE (TYP.)

FLOW DIRECTION ARROW (TYP.)

CITY DISTRIBUTION SYSTEM

INDIANA STREET LINE

FLOWMETER (TYP.)

DRAIN

TURBIDITY BYPASS LINE

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CITY OF

BAKER CITY, OREGON

WATERSHED MANAGEMENT PLAN

WATER SUPPLY SYSTEM SCHEMATIC

FIGURE

15

Implementation Schedule,* Milestones, and Criteria for Evaluation

Major Goal	Goal No.	Goal	Strategy	Milestone 1	Milestone 2	Milestone 3	Cost/ Funding Need	Status/ Action	Frequency	Evaluation Method	Lead Agency
Watershed Integrity Preservation	1	Keep water rights secure and review mining restrictions.	Review existing water rights and attempt to acquire more, if possible. Review current mining claims.	Meet with the USFS to determine the risk of mining impacts on water quality.				Within one year.	Once.	Sanitary Survey Report	Baker City Public Works
	2	Review the City's trespassing ordinance.	Review the City's trespassing ordinance to determine if new ATV regulations are warranted to ensure that the watershed continues to be well protected.	Bring trespassing ordinance before the City Council within one year to determine whether increased restrictions related to ATVs in the watershed are necessary.				Within one year.	Once.	Sanitary Survey Report	Baker City Public Works
	3	Improve and expand public education programs.	• Encourage people to stay out of the watershed, keep hunting animals and pets out of the watershed by initiating discussions with hunters and visitors in the watershed, and include information about the City's courtesy game pickup service to reduce the incentive to bring vehicles into the watershed. • Include information about upgrades to the water system (Mountain Line improvements) in newsletters and other media sources. Include information about fence maintenance and activities in the watershed. Baker City will also continue to publish watershed information in updates sent to water users (this WMP will also be made available on the City's website). Baker City will periodically make public service announcements regarding the watershed, if needed. • Continue to support the Baker County Interagency Fire Prevention Team with public education programs for wildfire prevention. Explore funding opportunities for public education and fire prevention programs.	Publish WMP public meeting notices (within one year). Explore funding opportunities for public education and fire prevention programs.	Publish watershed-related updates in notices sent to water users.	Add a "What's New in the Watershed" section to the website (within one year).	$5,000	Ongoing.	Ongoing.	Sanitary Survey Report	Baker City Public Works
	4	Maintain, inspect, and increase watershed fencing in critical areas.	Maintain Elk Creek fence and initiate Goodrich Creek Diversion fencing. Improve Marble Creek area fencing. Confirm the fence boundaries (collect GPS fence perimeter information). Document the current condition of the fence lines. The Water Specialist will continue to conduct periodic monitoring of fences, boundaries, and watershed conditions. This information will continue to be reported through annual reports and weekly bulletins.	The fence, installed in 2013, surrounding the Elk Creek Diversion will be checked and repaired in the spring as soon as it is accessible and then regularly (weekly) throughout the summer and fall.	The fences for the USFS Elk Creek allotment and the Blue Canyon allotment will be inspected and repaired prior to the spring turn out of cattle.	Fence the Goodrich Creek Diversion area within two years and improve Marble Creek within two years.	$10,000 per mile of fencing.	Continuously.	Annually.	Sanitary Survey Report and water testing results.	Baker City Public Works
	5	Increase signage in the watershed.	Increase road signs in the watershed so it is posted every one-quarter to one mile that the watershed is not for the public's use.	Install half of the signs within five years.	Complete sign installation in ten years.		$100 per sign.	Within ten years, as pipeline is replaced.	As pipeline is replaced.	N/A	Baker City Public Works
	6	Review hunting permits.	Work with ODFW to review hunting permits and ensure optimal herd management. Include a follow-up method to determine how many hunters used their City-issued permit to enter the watershed, and whether an animal was harvested. Refine the process for allowing/limiting access during fire season.	Request ODFW or USFWS management report and review of permits in the watershed (one year).	Increase or decrease permits as needed to control populations (two years).	Introduce follow-up method to record success of hunts in the watershed with City permitting process.		Within two years.	Every five years.	ODFW/USFWS Report	ODFW/USFWS
	7	Review grazing permits	Determine the feasibility of increasing buffers on allotments, purchasing allotments, purchasing private property near the watershed if it becomes available, and reducing access to the watershed by animals. Ensure that current permit holders are following the conditions of their permit for fence repair, stock water, pipe repair, and brush clearing.	Identify all parts of the watershed with adjacent grazing permits, and prioritize fence repair and building in those areas (five years).	Review permits to ensure permit holders are following the conditions of the permit.			Within five years.	Ongoing.	Sanitary Survey Report	ODFW? Who does fences? Baker City?

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CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN
IMPLEMENTATION SCHEDULE, MILESTONES, AND CRITERIA FOR EVALUATION

FIGURE
16

	8	Increase ASR storage projects.	Focus resources to ensure the aquifer contains a surplus of water for use during periods of high turbidity.	80 percent recharged each year.				Annually.	Ongoing.	OHA Report	Baker City
	9	Complete revisions of the 1991 MOU between Baker City and the USFS to include the new goals and strategies of this WMP.	Baker City has met with the USFS, and a draft of the new MOU is undergoing internal review.	Draft Revised MOU within one year.	Final MOU within 1-1/2 years.			1-1/2 years.		Final MOU publication.	USFS/Baker City
Forestland Management and Fire Risk Reduction	1	Review all past thinning activities, prescribed burn areas, and fuel risk areas to prioritize thinning efforts. Implement and focus resources toward the CWPP goals relating to the watershed (2011-16 goals).	Review Figure 5A-B, Fuel Management Areas, and the CWPP The Face of the Elkhorns analysis and prioritize areas to be thinned in the next 10 years. Prioritize areas that were identified as high priority but not thinned in the Washington/Watershed Environmental Impact Statement and OWEB grant funding plans, and also those that will create fire breaks. Review the use of aerial fire retardants in the watershed and methods for fuel reduction to decrease the need for fire suppression.	Prioritize areas for fire management, thinning, prescribed burning, and restoration, within one year, with a vegetation management plan.				One year.	Evaluate progress every two years.	Thinning Plan	USFS/Baker City
	2	Obtain funding and partners for the fuel reduction efforts.	Apply for an OWEB grant with the USFS and Powder River Correctional Facility, similar to the 1998 grant that provided funding for USFS employees and inmate crews to access the watershed to thin priority areas. Seek funding for development of a Watershed Wildland Fire Recovery Plan.	Application due April or October (milestone is April).			$63,000 for the same amount of thinning as the 1998 OWEB Grant.	By April.	One time, but look for more grants.	If application is successful.	USFS/Baker City
	3	Work toward restoring the forest within the Baker City Watershed to within the historic range of variability by 2025.	1. Begin fuel reduction work as soon as possible by having Baker City request assistance from state and federal elected officials. This may include requesting an emergency declaration by the Governor and/or requesting federal dollars be allocated to assist with fuel reduction costs. 2. USFS employees and Powder River Correctional Facility inmate crews will cut and pile trees and burn small piles. Piles from previous thinning efforts will also be burned. Maintenance burning will also be performed in previously-treated areas.	Year-one thinning and request assistance.	Year-two thinning.	Year-three thinning.	Scale of project depends on funding amount.	Within one year of receiving funding.	Annually.	Sanitary Survey Report	USFS/Baker City
	4	Integrate WMP goals into the USFS 10-year action plan.	Work with the USFS to accomplish linking watershed fuel reduction goals to the USFS operating/action plans.	Meeting within six months.				Six months.	As needed.	When added to WMP.	USFS/Baker City
	5	Increase fire response preparedness in Public Works staff.	Consider the feasibility of training select Public Works staff in wildland firefighting/incident command system techniques.	Training within one year.			5,000	Within one year.	One time.	N/A	USFS/Baker City
	6	Mitigate risks of erosion in sensitive areas, including Category A Zones of Influence (within 500 feet of a stream upstream of a diversion). Consider the feasibility of conducting LIDAR mapping of the watershed.	Prioritize management of areas that will result in erosion risk reduction in Category A Zones of Influence within the watershed. Work with local agencies (through the 2014 Oregon LIDAR Acquisition Prioritization Plan) to make LIDAR mapping of the watershed area a priority to allow for the assessment of landslide potential, erosion, and watershed management.	Determine LIDAR feasibility within one year.	Determine erosion priorities within two years.		Unknown	Two years.	Adjust priorities as needed.	Sanitary Survey Report	Baker City/DWS

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CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN
IMPLEMENTATION SCHEDULE, MILESTONES, AND CRITERIA FOR EVALUATION

FIGURE
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CONT'D

Water Quality Protection through Watershed Control Plan	1	Upgrade intake systems: flowmeters and intake screens.	Install permanent flowmeters at intake locations and change all intake screens to self-cleaning screens within three years.	Upgrades halfway complete in one year.	Complete upgrades in three years.		$2,000 per intake system.	Within three years.	Replacements occur in summer.	Sanitary Survey Report	Baker City Public Works
	2	Protect water quantity and quality with effective piping methods.	Rebuild the Mountain Line within 10 years in a way that reduces effects on water quality during construction and ensures improved water quality after construction.	Begin construction in three years.	Halfway complete in six years.	Complete in ten years.	$5 million?	Ten years.	Ongoing.	Sanitary Survey Report	Baker City Public Works
	3	Improve the water treatment process.	Complete the permanent UV treatment facility within one year; maintain the temporary facility in the interim.	Halfway complete in two years.	Complete in five years.		$3 million.	Five years.	Ongoing.	OHA Report	Baker City Public Works
	4	Support TMDL development efforts.	Provide data and input to regional TMDL development efforts to help create standards for water quality protection. Obtain data from regional sampling efforts to compare watershed water quality to regional water quality.	Send annual report to relevant parties to facilitate discussion of TMDLs.				Ongoing.	When asked.	N/A	Baker City Public Works
	5	Monitor water quality at intake locations and after treatment.	As per the WCP below, conduct routine monitoring and testing for coliform at intake locations, when required, to ensure bacterial requirements are being met. Water will be tested after it is treated with chlorine and UV light to ensure drinking water standards are met.	Two years of monthly sampling for coliform.	As-needed sampling, reported in annual report.	Consider costs and benefits of installing continuous monitoring probes.	$20,000 per year (as-needed sampling and lab work). Probe cost unknown.	Ongoing.	Monthly for two years, then as needed.	Sanitary Survey Report	Baker City Public Works
	6	Review USFS policy regarding the use of aerial retardants in the watershed to ensure that regulations are in place to limit contributions to blue-green algae blooms and determine whether a monitoring program for reservoirs is warranted.	Consult with DWS and conduct a desktop review to determine if the watershed is at risk for blue-green algae blooms.	Complete review within 1 year, reassess goal based on findings.			Unknown.	Within one year.	One time, more reviews are needed.	Sanitary Survey Report	Baker City Public Works/DWS
	7	Reporting.	The City of Baker City will conduct sanitary surveys when requested by DWS (not necessarily on an annual basis). When sanitary surveys are conducted, the City will submit the report by October 10 of the survey year. The DWS will use this information to write a watershed report.	Annual report submission.			$10,000 per report per year.	Ongoing.	Annually.	Sanitary Survey Report	Baker City Public Works/OHA
	8	Delineate the boundary of the watershed to include the Goodrich Creek Diversion (currently located outside the watershed).	Work with DWS to create a new management boundary that includes this information.	Within 6 months.			$5,000	Within 6 months.	One time.	Final WMP, or Sanitary Survey Report	Baker City/DWS
	9	Maintain the water filtration exemption via a WCP.	Approval of the WCP detailed below.	Approval from OHA.				Within one year of final document.	Once. Will require revisions in the future.	Sanitary Survey Report	Baker City Public Works/OHA

*All dates are after WMP is completed.

ASR = Aquifer Storage and Recovery
ATV = All Terrain Vehicle
CWPP = Community Wildfire Protection Plan
MOU = Memorandum of Understanding
ODFW = Oregon Department of Fish and Wildlife
OHA = Oregon Health Authority
OWEB = Oregon Watershed Enhancement Board
TMDL = Total Maximum Daily Load
USFS = U.S. Forest Service
USFWS = U.S. Fish and Wildlife Service
UV = Ultraviolet
WCP = Watershed Control Plan
WMP = Watershed Management Plan

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CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN
IMPLEMENTATION SCHEDULE, MILESTONES, AND CRITERIA FOR EVALUATION

FIGURE
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CONT'D

Appendices Table of Contents

APPENDIX A
Community Participation

City sets meeting on water draft plan

10-6-14

■ Oct. 16 public meeting will present draft version of watershed management plan

Baker City officials are inviting residents to comment on the city's draft plan for managing its 10,000-acre watershed.

The city has scheduled a public meeting for Thursday, Oct. 16, at 6 p.m. at City Hall, 1655 First St.

The draft watershed management plan will be available on the city's website, www.bakercity.com, on Oct. 9.

The city gets about 88 percent of its water from streams, springs and one reservoir in the 10,000-acre watershed, which is on the east slopes of the Elkhorn Mountains about 10 miles west of town.

See **Watershed** / *Page 3A*

WATERSHED

Continued from Page 1A

The property was designated as a municipal watershed in 1912. Most of the land is managed by the U.S. Forest Service.

The watershed management plan is designed to protect the area and will include a set of goals and ways to measure results of efforts to achieve those goals.

The city's watershed has been a major source of discussion for city officials since late July of 2013, when doctors confirmed that city residents had been infected with cryptosporidium, a water-borne parasite that causes severe diarrhea and stomach cramps.

A report from the Oregon Health Authority concluded that although it's not certain how crypto contaminated the city's water supply, there is no other plausible explanation for the outbreak, which sickened at a minimum hundreds of people.

In response the city bought an ultraviolet light water treatment system that went online in mid-March of this year.

That temporary system will be replaced by a UV treatment plant that is being built now, and is scheduled to be finished before the end of the year.

The city does not filter its water — it's one of four Oregon cities that isn't required to do so — but it does treat drinking water with chlorine.

Chlorine is effective at protecting against certain contaminants but it doesn't safeguard against crypto.



The City of Baker City

invites you to attend the first public comment meeting for the

Baker City Watershed Management Plan.

Thursday, October 16, 2014, at 6:00 p.m.
in the Council Chambers of City Hall - located at 1655 First Street

Please join us to learn more about how we are working to protect our City's water source.
Questions and comments are invited.

Draft Plan available October 9, 2014, on the City of Baker City's Public Works website.

From: Dana Kurtz
Sent: Friday, October 10, 2014 12:59 PM
To: 'jtomac@fs.fed.us'; 'wcrippen@fs.fed.us'; 'Macon, Robert F -FS'; 'Jake Jones'; 'Michelle Owen'; 'lmcbroom@bakercity.com'; 'jmelo@bakercity.com'; 'LUSK Rick M'; 'gary_miller@fws.gov'; 'lmccrae@odf.state.or.us'; 'Brian Ratliff'; 'Clair Button'; 'Barbara Johson'; 'Parker, Bob'; 'william.h.goss@state.or.us'; 'Hall, Michael A -FS'; 'tearafarrow@ctuir.org'; 'audiehuber@ctuir.org'; 'bhouslet@wstribes.org'; 'sbird@wstribes.org'; 'Johanna Sedell'; 'nrorick@yahoo.com'; 'whitney.collins@bakercountyswcds.com'; 'chall@bakercity.com'; 'gtimm@bakercity.com'; 'russell.a.kazmierczak@state.or.us'; 'dadoly.john@deq.state.or.us'; 'stewart.sheree@deq.state.or.us'; 'Ben Mundie'
Cc: Brad Baird; Laurie Parry
Subject: Public Meeting Invitation--Baker City Watershed Management Plan

Dear Technical Advisory Group Members,

Thank you for all of your help in this review process. Below is the invitation to the first public meeting—we hope you can make it!

The City of Baker City will hold the first public comment meeting for the draft Baker City Watershed Management Plan on Thursday, October 16, at 6:00 p.m. in the Council Chambers of City Hall, located at 1655 First Street.

The Baker City Municipal Watershed is composed of approximately 10,000 acres, located about 6 miles west of Baker City. The land was designated as a municipal watershed in the 1912 Cooperative Agreement between Baker City and the Secretary of Agriculture. The water system is gravity fed through water transmission pipelines from intakes high in the Elkhorn Mountain Range, treated with chlorine and ultraviolet light, and stored in the City's reservoirs. The City's watershed accounts for approximately 88 percent of the municipal water supplied to Baker City.

The goal of the watershed planning process is to continue to protect this drinking water source, build partnerships among stakeholders, characterize the watershed, define goals and identify solutions, develop an implementation program, and measure results.

It is very important that watershed goals are representative of stakeholder priorities. This public meeting is an opportunity to learn more about the work that has been done to characterize the watershed, comment or recommend new draft goals, and to voice thoughts on what is important in the protection of this unique water source.

The City has created this draft Baker City Watershed Management Plan that has been reviewed by technical experts in the region. It will be available on the website on October 10, 2014.

Thank you for your help and please contact me with any questions.

Dana Kurtz
Environmental Scientist
Anderson Perry & Associates, Inc.
1901 N Fir Street / P.O. Box 1107
La Grande, Oregon 97850
541-963-8309 phone

MEETING SIGN-IN SHEET

Project:	Baker City Watershed Management Plan	**Meeting Date:**	October 16, 2014
Facilitator:	Dana Kurtz	**Place/Room:**	Council Chambers, City Hall

Name	Title	Organization	Phone	E-mail
Ed Hardt	Miner		377-9209	TWOHARDTS@hotmail.com
Willy Crippa	FMO	USFS	541 #523136	wcrippa@fs.fed.us
Dave Schwin	City Eng.	Baker City	541-524-2038	dschwin@bakercity.com
Chuck Chase	COMA	Miner	541-310-8910	Chase3285@msn.com
Bill Harvey	Contractor		523-9048	
Michelle Owen	PWD	COBC	4-2031	mowen@bakercity.com
Laurie Parry	AP	AP		
Gina Swartz	reporter	BCD	519-3716	gks516@gmail.com
ROBERT MACON	STAFF OFF.	WHITMAN RD	3	rmacon@fs.fed
Tonya Dias	Office MGR			
John Steiger	Retired		541-523-2289	
Dana Kurtz	AP	AP		

PUBLIC COMMENT SIGN-UP SHEET

Project:	Baker City Watershed Management Plan	**Meeting Date:**	October 16, 2014
Facilitator:	Dana Kurtz	**Place/Room:**	Council Chambers, City Hall

Name	Address	E-mail
John Steiger	730 4th Street Baker City Or. 97814	longjohn6@eoni.com
Ken Anderson	1760 Murray Baker City Or 97814	Ken2957@Yahoo.com

Public Meeting Comment Form

Draft Baker City Watershed Management Plan
Baker City, Oregon
October 16, 2014

Please place this form in the comment box or mail by October 23, 2014, to the address on the bottom of this sheet. Comments can also be e-mailed to dkurtz@andersonperry.com. Your comments assist us in developing a Watershed Management Plan that represents the priorities of our community. Your input is welcome and appreciated throughout the planning process.

Name: _____

Address: _____

Daytime Phone Number (optional): _____

E-mail Address (optional): _____

Please Print Comments (attach additional sheets if necessary)

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Mail this form to:

Anderson Perry & Associates, Inc.
Attn: Dana Kurtz
1901 N. Fir Street / P.O. Box 1107
La Grande, Oregon 97850

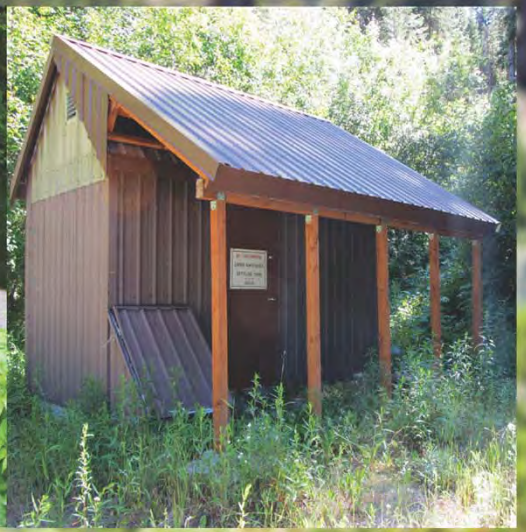
The City of Baker City

Watershed Management Plan

Public Meeting

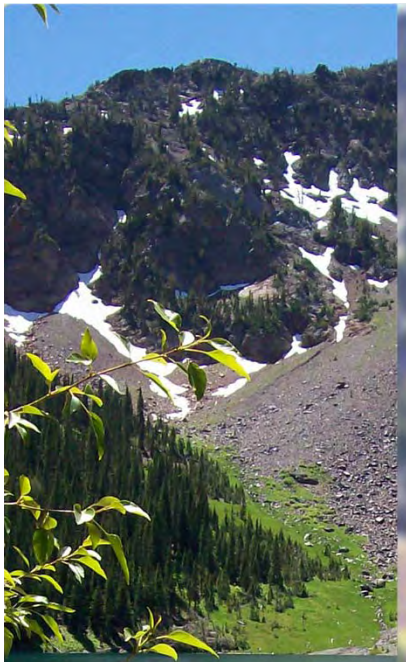
October 16, 2014

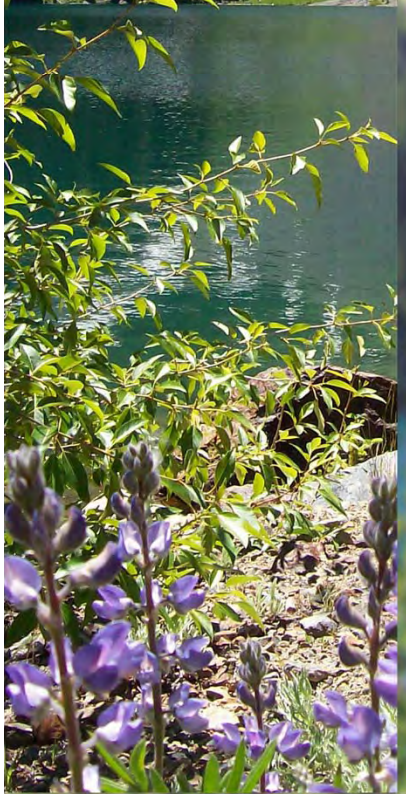




Introductions

- Michelle Owen, City of Baker City
- Dana Kurtz and Laurie Parry, Anderson Perry & Associates, Inc.
- Land manager, United States Forest Service (USFS)
- Oregon Department of Environmental Quality (DEQ) – Source Water Protection Grant
- Technical Committee
- Attendees





Meeting Format

- Meeting Goals (5 minutes)
- Watershed Summary (10 minutes)
- Overview of the Planning Process (5 minutes)
- Question and Comment Period (1 hour)
  - Equal time for each of the three goal sections
  - Limit comments to 2 minutes (notes and whiteboard)
  - Sign-in sheet
  - Comment cards (written comments are required)
  - Copies of the Watershed Management Plan (WMP) and goal table are also available online

Meeting Goals

- What We Hope to Accomplish:
  - Fulfill the spirit of the Environmental Protection Agency (EPA) stakeholder collaboration portion of planning
  - Feedback on what goals are important to the community
  - Information exchange
- Not Included in this WMP:
  - Road closures
  - Trail openings
  - Hunting regulations

What is a Watershed?

- An area of land where all of the water that is under it or drains off of it goes to the same place
- Baker City's watershed is part of the larger Powder Basin Watershed
- Baker City's is a legally defined municipal watershed

Produced by Lane Council of Governments

The reservation hereby established shall be known as The Baker City Forest Reserve.

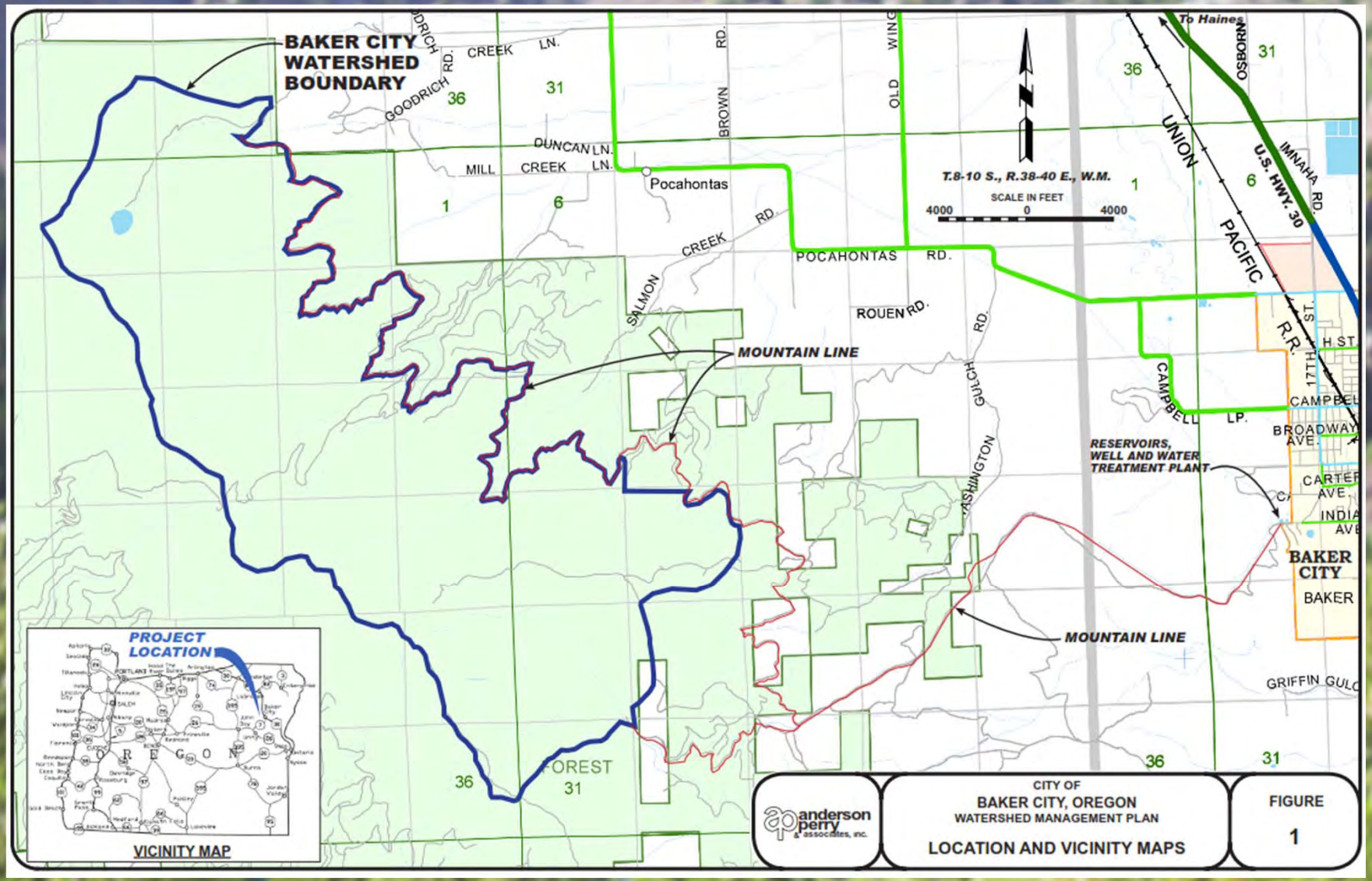
In Witness Whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this 5th day of February, in the year of our Lord one thousand nine hundred and four and of the Independence of the United States the one hundred and twenty-eighth.

[SEAL.]

THEODORE ROOSEVELT

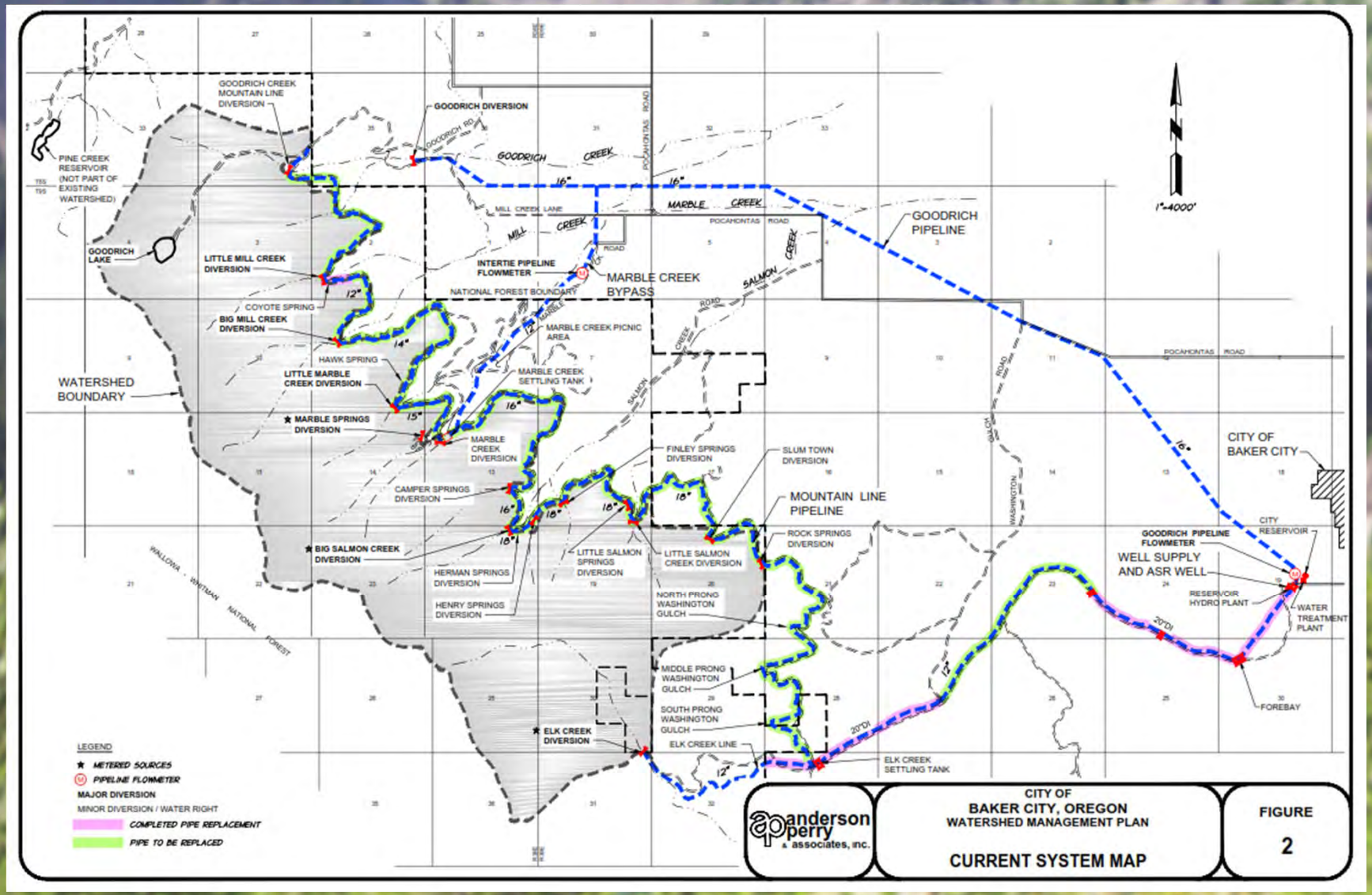
Baker City's Watershed



Characteristics of Baker City's Watershed

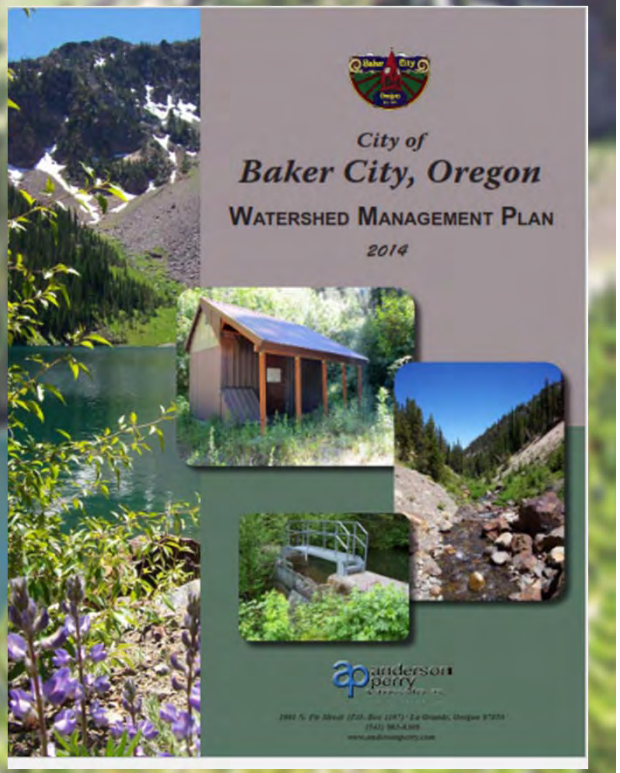
- The Baker City Watershed is composed of approximately 10,000 acres
- The USFS and the City of Baker City manage the watershed
- Natural features: forested areas, wildlife
- Institutional features: limited access, isolated
- Gravity-fed intakes bring the water to the City's storage reservoirs (12 diversions)
- Water is treated with chlorine and ultraviolet light
- The City maintains a water filtration exemption
- Provides 88 percent of municipal water

Baker City's Water System



Draft Watershed Management Plan

- Following EPA Watershed Management Planning Guide
  - Characterize the watershed
  - Identify vulnerabilities
  - Work with stakeholders to develop and prioritize stakeholder/ community goals
- Funded through the DEQ Source Water Protection Grant
- Updating the original 1991 WMP
- Technical and community review



Draft Mission Statement

Draft: The mission of the WMP is to foster effective, economical, and equitable management of water and ensure the continued protection of the Baker City Watershed to benefit all stakeholders and the environment by strengthening existing management measures, creating strategies to mitigate risks to the watershed, and implementing a framework to adapt to new challenges.

Goal Set 1: Watershed Integrity Preservation

- Goal 1: Keep water rights secure and review mining restrictions
- Goal 2: Review the City's trespassing ordinance
- Goal 3: Improve and expand public education programs
- Goal 4: Maintain, inspect, and increase watershed fencing in critical areas
- Goal 5: Increase signage in the watershed
- Goal 6: Review hunting permits
- Goal 7: Review grazing permits
- Goal 8: Increase aquifer storage and recovery projects
- Goal 9: Revise the 1991 Memorandum of Understanding between Baker City and the USFS to include the new goals and strategies of this WMP

Goal Set 2: Forestland Management and Fire Risk Reduction

- Goal 1: Review all past thinning activities, prescribed burn areas, and fuel risk areas to prioritize thinning efforts. Implement and focus resources toward the Community Wildfire Protection Plan goals relating to the watershed (2011-16 goals)
- Goal 2: Obtain funding and partners for fuel reduction efforts
- Goal 3: Work toward restoring the forest within the Baker City Watershed to within the historic range of variability by 2025
- Goal 4: Integrate WMP goals into the USFS 10-year action plan
- Goal 5: Increase fire response preparedness of Public Works staff
- Goal 6: Mitigate risks of erosion in sensitive areas - Category A Zones of Influence (within 500 feet of a stream upstream of a diversion). Consider the feasibility of conducting LIDAR mapping of the watershed.

Goal Set 3: Water Quality Protection

- Goal 1: Upgrade intake systems: flowmeters and intake screens.
- Goal 2: Protect water quantity and quality with effective piping methods.
- Goal 3: Improve the water treatment process.
- Goal 4: Support total maximum daily load development efforts.
- Goal 5: Monitor water quality at intake locations and after treatment.
- Goal 6: Review USFS policy regarding the use of aerial retardants in the watershed to ensure that regulations are in place to limit contributions to blue-green algae blooms and determine whether a monitoring program for reservoirs is warranted.
- Goal 7: Reporting.
- Goal 8: Delineate the hydrological boundary of the watershed to include the Goodrich Creek Diversion (currently located outside the watershed).
- Goal 9: Maintain the water filtration exemption via a Watershed Control Plan.

Conclusion/Next Steps

- Provide all comments by October 23, 2014
- New draft will be available on the website by November 6, 2014
- If determined necessary, a second public meeting will be held on Thursday, November 13, 2014
- Questions?

Appendix B
1991 MOU and Attachments

MEMORANDUM OF UNDERSTANDING
between
WALLOWA-WHITMAN NATIONAL FOREST
and
CITY OF BAKER CITY, OREGON

This Memorandum of Understanding (MOU), entered into on the 27th day of August, 1991, is by and between the United States Forest Service, hereinafter referred to as "Forest Service", acting by and through the Forest Supervisor of the Wallowa-Whitman National Forest, and the City of Baker City, Oregon, hereinafter referred to as "City", acting by and through its Mayor. This MOU is for the purpose of maintaining and protecting the quality of water from national forest lands and city-owned lands within the Watershed. The Watershed contributes approximately 95% of the domestic water supply for the residents of the City.

The Forest Service and City agree as follows:

1. Management plans and decisions must meet the intent of the original 1912 Cooperative Agreement between the City of Baker City and the U.S. Department of Agriculture (see copy of this Agreement attached as Exhibit 2) and to meet the requirements of the Surface Water Treatment Rule (SWTR).

2. The principal and most important use of the land owned by the City in the Watershed is as a municipal water supply. Water is the basic resource to be produced.

The National Forest lands in the Watershed are managed for multiple use in accordance with the 1990 Land and Resource Management Plan for the Wallowa-Whitman National Forest.

The plan requires the Watershed to be managed to maintain or improve water quality and quantity. Resource management shall alter watershed conditions only to the extent that existing water use is not adversely affected. Existing water treatment requires disinfection but not filtration according to current State & Federal standards and water quality data collected to-date.

3. Definitions: When referring to Watershed, the following descriptive terms will be used:

A) Watershed: This refers to all the lands between the northerly side of the Goodrich Drainage and the southerly side of the Elk Creek drainage and between the pipeline road and the crest of the Elkhorn Mountains to the west.

B) Legal Watershed: Refers to those lands administered by the Forest Service and City described by legal subdivisions in the 1912 Cooperative Agreement between the City of Baker City, Oregon, and the Secretary of Agriculture (a copy of which is attached as Exhibit 2).

C) Zones of Influence: This includes lands adjacent to the Watershed which will affect or be affected by management of the Watershed. Zones of Influence may or may not drain into the Watershed, but management of the resources and activities in these zones will be done in such a manner as to reflect the standards of management desired within the Watershed. These designations are shown on the attached maps, marked as Figures 1 and 2, pages 17-19 of this document.

4. The basic objective for managing this Watershed is to maintain or improve the present quality and quantity of water received. Water quality will take priority over water quantity in management decisions.

A) Records, including studies of either party pertaining to water quality, shall be made available for use by both parties.

B) Should the water quality, when sampled, fail to meet the raw water quality criteria for 48 hours, both parties will try to determine the cause or source of the water degradation.

C) If remedial measures or actions are necessary and practical, both parties will jointly develop a program of remedial measures to the degree necessary and for the period needed to correct the situation and bring the quality of water to meet the State's raw water quality standards. Actions by the Forest Service to correct adverse conditions originating on the National Forest lands in the Watershed will be limited to the application of land management practices.

5. Management directions for the Watershed are found in the "Baker City Watershed Management Plan" and the "Land and Resource Management Plan for the Wallowa-Whitman National Forest".

A) Fire Control: A wildfire in the Watershed could have long lasting and devastating effects on the quality and quantity of water produced in the Watershed. In an effort to mitigate any possible damage in the event of a fire, it is agreed that the Forest Service will:

i) Place the area in or near the Watershed on a Priority #1 for fire dispatch and control;

ii) Avoid use of fire retardants within domestic supply watersheds when other effective measures of fire control are available. When the use of fire retardants within domestic supply watersheds is necessary, all reasonable efforts will be made to avoid direct application into live streams. Only fertilizer-based retardants will be used.

iii) Place the Watershed on a Priority #1 for rehabilitation commensurate with the value of the Watershed; and

iv) When possible, avoid storing fuels or chemicals in the Watershed. In the case of an emergency, if fuels or chemicals must be stored in the Watershed, they will be stored in such a manner and location so that they cannot reach a stream.

B) Zones of Influence: A Zone of Influence exists outside the boundaries of the Watershed which could have a substantial impact on the water quality produced within the boundaries of the Watershed.

The areas designated as Zones of Influence lying within the National Forest boundaries will be managed with Best Management Practices (BMP) and as prescribed in the Watershed Management Plan. No activities will be allowed in the Zones of Influence which will have an adverse impact on the water quality or quantity. Special attention will be given to the use of any herbicides, pesticides, or other chemicals to assure no contamination is allowed to occur which would affect the water quality within the boundary of the Watershed. Also, special attention will be given to any grazing permits given within the Zones of Influence to ensure that livestock will not stray into the Watershed.

C) Uses and Development Plans: Resource and activity use and development plans on Forest Service lands within the boundaries of the Watershed will be allowed only on a regulated basis.

i) Secretary's Regulation 36 CFR 261.53(e) will be applied by the Forest Service to all national forest lands within the City's Watershed boundaries to prohibit public entry, except by permission of the Forest Service.

ii) Secretary's Regulation 36 CFR 261.53(e) will be continued for the period covered by the Baker City Municipal Watershed Management Plan.

iii) The City will enforce its Ordinance No. 2303 (marked as Exhibit 4, and ORS 449.327 and 449.328, where applicable, to prohibit public entry into all city-owned lands within the Watershed boundaries, except by permission.

iv) The Forest Service will provide and maintain the necessary signs, posting the boundaries of the Watershed, and giving public notice of the regulated closure under Regulation 36 CFR 261.53(e) on National Forest lands. The City will provide and maintain the necessary signs, posting the boundaries outside National Forest land, and giving public notice of the regulated closure under City Ordinance No. 2303 and ORS 449.327 and 449.328.

v) Both parties agree to provide patrols needed to enforce 36 CFR 261.53(e). These patrols will advise the public of the regulations and locations of closure boundaries, and will report names and addresses of violators to the Forest Service. City patrols will enforce both City and State regulations.

vi) All persons employed on or occupying any of these national forest lands and city-owned lands within the Watershed and the Zones of Influence for any purpose will be required to comply with the regulations governing these lands. Such regulations shall include appropriate measures for compliance with laws and sanitary regulations, and such other rules of conduct as may be proposed by the City and approved by the Forest Supervisor.

6. The Forest Service and the City will initiate only those resources and activity programs which will have the concurrence of both parties, except for measures necessary for the proper protection and care of the forest. Both agencies will be involved at all levels of planning, implementing and monitoring resources and activity programs.

The Forest Service and the City will cooperate in the preparation and release of informational and educational material pertaining to this Memorandum of Understanding. The design, preparation, and reporting of the special studies made by either party or as a cooperative undertaking may be used externally by either party. Special studies shall be submitted to the other party for review and comment prior to their release. It is further provided that each party may independently use information about or derived from this cooperative undertaking for its internal use without the knowledge or consent of the other party.

7. Nothing in this MOU shall affect the rights of the city or the federal government or others to the use of water yielded from national forest lands covered under this agreement.

8. Nothing in this MOU shall be construed as obligatory of either party to expend funds, nor involve the United States or the City in any contracts or other obligation for future payment of monies in excess of appropriations authorized by law.

9. The Forest Service will continue to exercise authority in control and management of the national forest land covered by this agreement as in the case of other national forest land, except as specified in this agreement.

i) Secretary's Regulation 36 CFR 261.53(a) will be applied by the Forest Service to all national forest lands within the City's Watershed boundaries to prohibit public entry, except by permission of the Forest Service.

ii) Secretary's Regulation 36 CFR 261.53(a) will be continued for the period covered by the Baker City Municipal Watershed Management Plan.

iii) The City will enforce its Ordinance No. 2303 (marked as Exhibit 4, and ORS 449.327 and 449.328, where applicable, to prohibit public entry into all city-owned lands within the Watershed boundaries, except by permission.

iv) The Forest Service will provide and maintain the necessary signs, posting the boundaries of the Watershed, and giving public notice of the regulated closure under Regulation 36 CFR 261.53(a) on National Forest lands. The City will provide and maintain the necessary signs, posting the boundaries outside National Forest land, and giving public notice of the regulated closure under City Ordinance No. 2303 and ORS 449.327 and 449.328.

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vi) All persons employed on or occupying any of these national forest lands and city-owned lands within the Watershed and the Zones of Influence for any purpose will be required to comply with the regulations governing these lands. Such regulations shall include appropriate measures for compliance with laws and sanitary regulations, and such other rules of conduct as may be proposed by the City and approved by the Forest Supervisor.

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9. The Forest Service will continue to exercise authority in control and management of the national forest land covered by this agreement as in the case of other national forest land, except as specified in this agreement.

10. This agreement shall remain in effect until cancelled by written notice from either party to the other, not less than two (2) years (unless mutually agreed otherwise) prior to the date of cancellation.

11. No member or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this agreement or to any benefit that may arise therefrom, unless it is made with a corporation for its general benefit.

12. In carrying out the terms of this agreement, there shall be no discrimination against persons because of race, color or national origin.

IN WITNESS WHEREOF, the parties have executed this Memorandum of Understanding on the day and year first hereinabove written.

CITY OF BAKER CITY, OREGON:

By: _____
Mayor

ATTEST: _____
City Recorder

UNITED STATES FOREST SERVICE:

By: _____
Forest Supervisor

A PROCLAMATION.

Preamble. Vol. 26, p. 1103.

Whereas, it is provided by section twenty-four of the Act of Congress, approved March third, eighteen hundred and ninety-one, entitled, "An act to repeal timber-culture laws, and for other purposes", "That the President of the United States may, from time to time, set apart and reserve, in any State or Territory having public land bearing forests, in any part of the public lands wholly or in part covered with timber or undergrowth, whether of commercial value or not, as public reservations, and the President shall, by public proclamation, declare the establishment of such reservations and the limits thereof";

And whereas, the public lands in the State of Oregon, within the limits hereinafter described, are in part covered with timber, and it appears that the public good would be promoted by setting apart and reserving said lands as a public reservation;

Forest reserve, Oregon.

Now, therefore, I, Theodore Roosevelt, President of the United States, by virtue of the power in me vested by section twenty-four of the aforesaid Act of Congress, do hereby make known and proclaim that there are hereby reserved from entry or settlement and set apart as a Public Reservation all those certain tracts, pieces or parcels of land lying and being situate in the State of Oregon and particularly described as follows, to wit:

Boundaries.

In Township eight (8) South, Range thirty-seven (37) East, Willamette Meridian, Oregon, Sections one (1), two (2), three (3), ten (10) to fifteen (15), both inclusive, twenty-two (22) to twenty-seven (27), both inclusive, thirty-four (34), thirty-five (35) and thirty-six (36); in Township nine (9) South, Range thirty-seven (37) East, Sections one (1), two (2), three (3), ten (10) to fourteen (14), both inclusive, and twenty-three (23) to twenty-six (26), both inclusive; in Township eight (8) South, Range thirty-eight (38) East, the west half of the south-east quarter and the south-west quarter of Section five (5), Sections six (6), seven (7), eight (8), seventeen (17) to twenty (20), both inclusive, and twenty-nine (29) to thirty-four (34), both inclusive, and the west half of the north-west quarter and the west half of the south-west quarter of Section thirty-five (35); in Township nine (9) South, Range thirty-eight (38) East, Sections two (2) to thirty (30), both inclusive, and thirty-four (34), thirty-five (35) and thirty-six (36); in Township nine (9) South, Range thirty-nine (39) East, Sections seven (7), eighteen (18), nineteen (19), twenty (20), the west half of the north-west quarter and the west half of the south-west quarter of Section twenty-nine (29), Section thirty-one (31), and the west half of the north-west quarter of Section thirty-two (32).

Lands excepted.

Excepting from the force and effect of this proclamation all lands which may have been, prior to the date hereof, embraced in any legal entry or covered by any lawful filing duly of record in the proper United States Land Office, or upon which any valid settlement has been made pursuant to law, and the statutory period within which to make entry or filing of record has not expired: *Provided*, that this exception shall not continue to apply to any particular tract of land unless the entryman, settler or claimant continues to comply with the law under which the entry, filing or settlement was made.

Reserved from settlement.

Warning is hereby expressly given to all persons not to make settlement upon the lands reserved by this proclamation.

The Baker City Forest Reserve.

The reservation hereby established shall be known as The Baker City Forest Reserve.

In Witness Whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the City of Washington this 5th day of February, in the year of our Lord one thousand nine hundred and four and [SEAL.] of the Independence of the United States the one hundred and twenty-eighth.

THEODORE ROOSEVELT

By the President:
FRANCIS B. LOOMIS
Acting Secretary of State.

EXHIBIT '2'

Supervisor's copy.

Whitman Supervision of City Watershed Protection Baker, Org

Whitman-Ness Baker, City of Municipal Watershed, Protection of Jan. 12/12

UNITED STATES DEPARTMENT OF AGRICULTURE

OFFICE OF THE SECRETARY.

- - -

COOPERATIVE AGREEMENT FOR THE PURPOSE OF CONSERVING AND PROTECTING THE WATER SUPPLY OF THE CITY OF BAKER, OREGON.

THIS AGREEMENT, made and entered into this 12th day of January, one thousand nine hundred and twelve, by and between the City of Baker, State of Oregon, through C. L. Palmer, its Mayor, and the UNITED STATES DEPARTMENT OF AGRICULTURE, through JAMES WILSON, Secretary of Agriculture, WITNESSETH THAT,

WHEREAS, The following described lands: Including portions of Sections 33 and 34, T. 8 S., R. 38 E., W. M., Sections 3, 10, 14, 24, and portions of Sections 2, 4, 5, 9, 11, 12, 13, 15, 16, 22, 23, 25, and 36, T. 9 S., R. 38 E., W. M., and portions of Sections 7, 18, 20, 30 and 31, and Section 19, T. 9 S., R. 39 E., W. M., bounded as follows: Beginning at a point on Goodrich Creek in the S. E. 1/4, Section 34, T. 8 S., R. 38 E., at the intake of the old Auburn Ditch, now the Baker Municipal Ditch; thence in an easterly direction to the National Forest boundary at a point about seven chains north of the southeast corner of Section 34; thence south to said southeast corner of Section 34 along National Forest boundary; thence east about eight chains along said

Extra Copy

Supervisor's copy

National Forest boundary to the aforesaid Auburn Ditch; thence in a general southeasterly direction following said ditch to the National Forest boundary about 24 chains north of the southeast corner of Section 18, T. 9 S., R. 39 E.; thence south along said Forest boundary to the S. E. corner of Section 18; thence along Forest boundary on the north, east and south sides of Section 20, T. 9 S., R. 39 E., except such portions as lie below the aforesaid Baker Municipal Ditch; thence south along Forest boundary to a point about five chains south of the southeast corner of Section 30, T. 9 S., R. 39 E., W. M., where the Baker Municipal Pipe-line crosses the National Forest boundary; thence in a northwesterly direction along said pipe-line to its intake on Elk Creek; thence in a southwesterly direction following the ridge up to the top of the main divide of Elkhorn Mountains; thence in a northwesterly direction along the main divide of said Elkhorn Mountains to a point in Section 5, T. 9 S., R. 38 E., where the main ridge connects with the divide north of Goodrich Creek; thence in a northeasterly direction down said divide to the point of beginning; enclosing all of the drainage area above the Baker Municipal Ditch and Pipe-line, comprising an area of 10,000 acres, more or less, within the boundaries of the Whitman National Forest, forming a part of the watershed from which the water supply of the said City is

obtained:

NOW, THEREFORE, for the purpose of conserving and protecting the water supply of the said City, the Secretary of Agriculture agrees:

FIRST. That the use of said lands will not be permitted without the approval of the proper city authorities except for the following purposes, to-wit: Measures necessary for the proper protection and care of the forests; the marking, cutting and disposition of such timber as in the judgment of the forest officers may be removed without injury to the water supply of said city; for the construction of roads, trails, telephone lines and other means of transportation and communication not inconsistent with the objects of this agreement, and for rights of way acquired under Acts of Congress.

SECOND. That all persons employed on or occupying any of these lands for any purpose will be required to comply with the regulations governing national forests, and to observe such sanitary regulations as may be proposed by the said city and approved by the Secretary of Agriculture.

THIRD. That, so far as practicable with the means at his disposal, the Secretary of Agriculture will extend and improve the forests upon these lands by seeding and planting and by the most approved methods of silviculture and forest management.

AND THE BOARD OF COMMISSIONERS FOR THE CITY OF BAKER, OREGON, AGREES:

That the said city will cooperate with the Forest Service in patroling the above-described lands for the enforcement of the regulations and the prevention and suppression of forest fires; and that the additional guards rendered necessary by this agreement shall be appointed by and be directly responsible to the supervisor of the Whitman National Forest, but their compensation will be paid by the said city.

The undersigned agree to the above propositions and agree to carry them out as far as they have official power and authority to do so.

CITY OF BAKER,

By C. L. Palmer
Mayor.

ATTEST: A B Stevens
City Clerk.

WITNESS: _____

(Sgd) W. M. Hays.
Acting Secretary of Agriculture.

RESOLUTION NO. 931.

WHEREAS: The United States Department of Agriculture by and through the office of the Secretary of Agriculture, has proposed to the City of Baker a contract to coop-

erate with said department in providing for the patrol of the forest lands from which said city procures its supply of water, for the purpose of protecting the said water shed and to prevent and suppress forest fires, NOW THEREFORE

BE IT RESOLVED BY THE CITY OF BAKER: That the Mayor of the City of Baker be, and hereby is, authorized and directed to sign said contract for and in behalf of the City of Baker.

Adopted by the Board of Commissioners this 16th day of January, 1912.

ATTEST: A B Sterns
City Clerk.

APPROVED: By the Mayor of the City of Baker, Oregon, this 16th day of January, 1912.

C L Palmer
Mayor.

STATE OF OREGON)
) ss.
County of Baker)

I, A. B. Sterns, City Clerk of the City of Baker, State of Oregon, do hereby testify that the foregoing is a true, full and exact transcript of and from the original rs resolution as same appears on record in my office and in my official care and custody.

In testimony whereof I have hereunto subscribed my name and affixed the seal of the City of Baker, Oregon, this 16th day of January, 1912.

A B Sterns
City Clerk.

Amendment to Co-op of 1-12-12

8/21/44

THIS SUPPLEMENTAL AGREEMENT, entered into this 21st day of August, 1944, by and between the City of Baker, State of Oregon, through Henry McKinney, its Mayor, and the Forest Service, through the Supervisor of the Whitman National Forest, witnesseth:

WHEREAS, the United States Department of Agriculture, through the Secretary of Agriculture, and the City of Baker, through its Mayor, did on January 12, 1912, enter into a cooperative agreement, and

WHEREAS, that agreement provided for the conserving and protecting of the water supply of Baker through certain cooperative actions in connection with the protection of national forest lands located within the watershed from which the City's water supply is obtained, and

WHEREAS, one of these cooperative actions provides that the compensation of extra guards employed by the Forest Service shall be paid by the City of Baker, and

WHEREAS, it now appears evident that the payment of this compensation so as to promote the objectives of the agreement can best be made through the provisions of a supplemental or working agreement entered into between the Forest Supervisor of the Whitman National Forest and the Mayor of the City of Baker,

NOW, Therefore, it is mutually agreed by the parties hereto that

1. They will cooperate in the protection and preservation of the watershed as hereinbefore mentioned from the date of this supplemental agreement until such time as the supplemental agreement may be terminated by either party at any time upon the giving of ten (10) days' written notice to the other party.

2. The City of Baker will, during the term of this supplemental agreement, deposit with the Regional Fiscal Agent, Forest Service, Portland, Oregon, in advance, when and as called for by the Forest Supervisor of the Whitman National Forest, such sum or sums, not exceeding $1,000.00 in any one calendar year, as are necessary to cover costs of the protection and preservation of the watershed lands in pursuance of the terms of this agreement, provided that sums in excess of $1,000.00 for any one calendar year may be deposited with the approval of the City of Baker. The sum or sums so deposited will be expended by the Forest Service under the Act of June 30, 1914 (38 Stat. 430), and shall be available until expended for the protection and improvement of the national forest, including forest fire protection and more particularly the following: The payment of compensation of and the supplying of transportation, equipment and subsistence to guards and other employees of the Forest Service.

3. No member of or delegate to Congress, or Resident Commissioner, after his election or appointment, and either before or after he has qualified, and during his continuance in office, shall be admitted to any share or part of this contract or agreement, or to any benefit to arise thereupon. Nothing, however, herein contained shall be construed to extend to any incorporated company, where such contract or agreement is made for the general benefit of such incorporation or company. (Sec. 3741, Rev. Stat., and Secs. 114-116 Act of March 4, 1909, 35 Stat. 1109).

CITY OF BAKER

By _____
Mayor

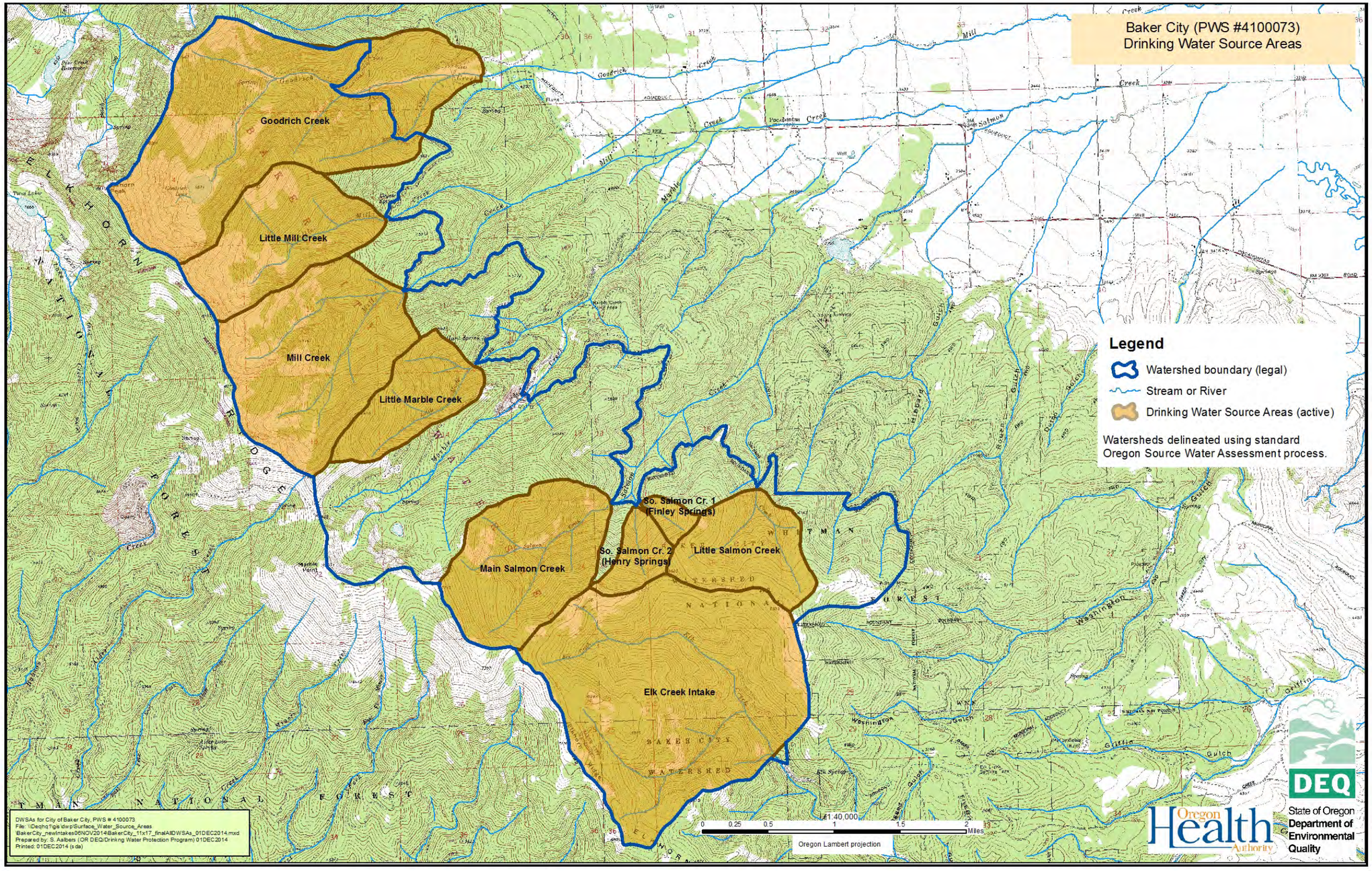
ATTEST:

_____
City Clerk

U. S. FOREST SERVICE

By _____
Forest Supervisor

Appendix C
USFS Watershed Maps



NOTE:
MAP PROVIDED AND GENERATED BY OREGON DEQ/DRINKING WATER PROTECTION PROGRAM.

anderson perry & associates, inc.

CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN

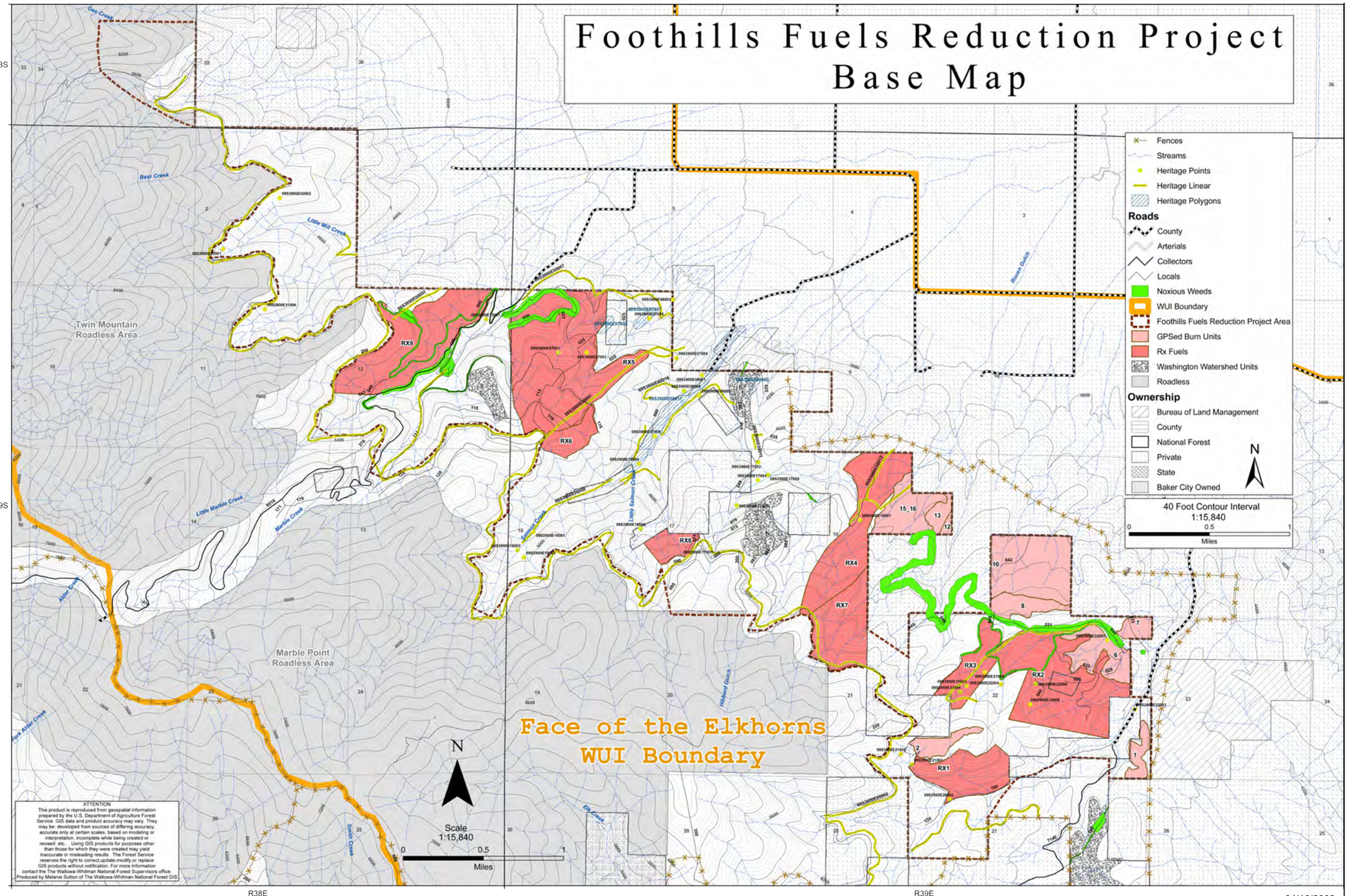
DRINKING WATER SOURCE AREAS AND WATERSHED BOUNDARY

APPENDIX

C-1

Job# 781-46-020 Dec. 3, 2014 lbauer

Foothills Fuels Reduction Project Base Map



04/16/2008

NOTE:
MAP PROVIDED AND GENERATED BY THE USFS.

anderson perry & associates, inc.

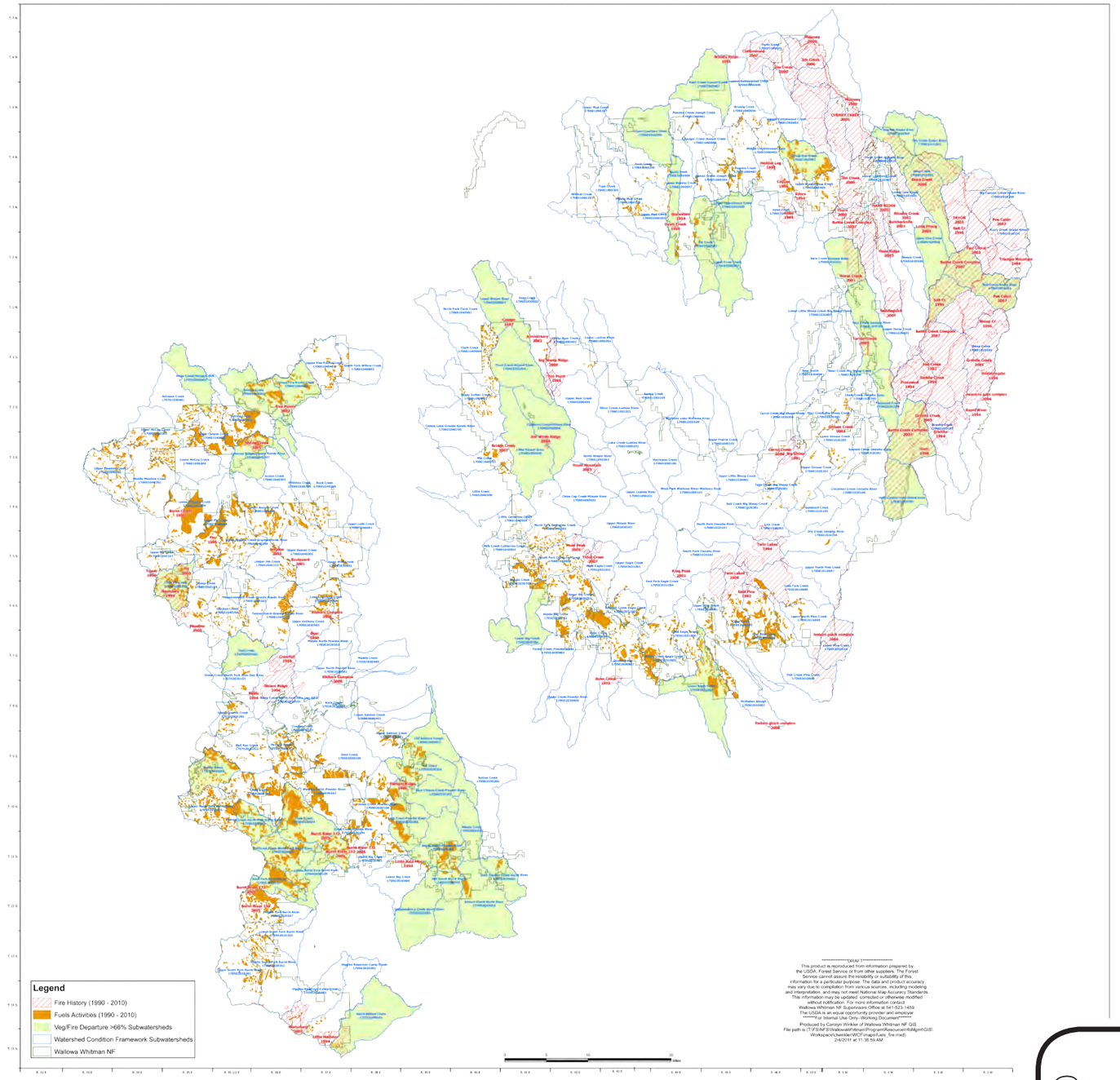
CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN

FOOTHILLS FUELS REDUCTION PROJECT BASE MAP

APPENDIX
C-2

Job# 781-46-020 Dec. 3, 2014 lbauer

Watershed Condition Framework Fire History and Prescribed Fire Activity (1990 - 2010)



NOTE:
MAP PROVIDED AND GENERATED BY THE USFS.

anderson perry & associates, inc.

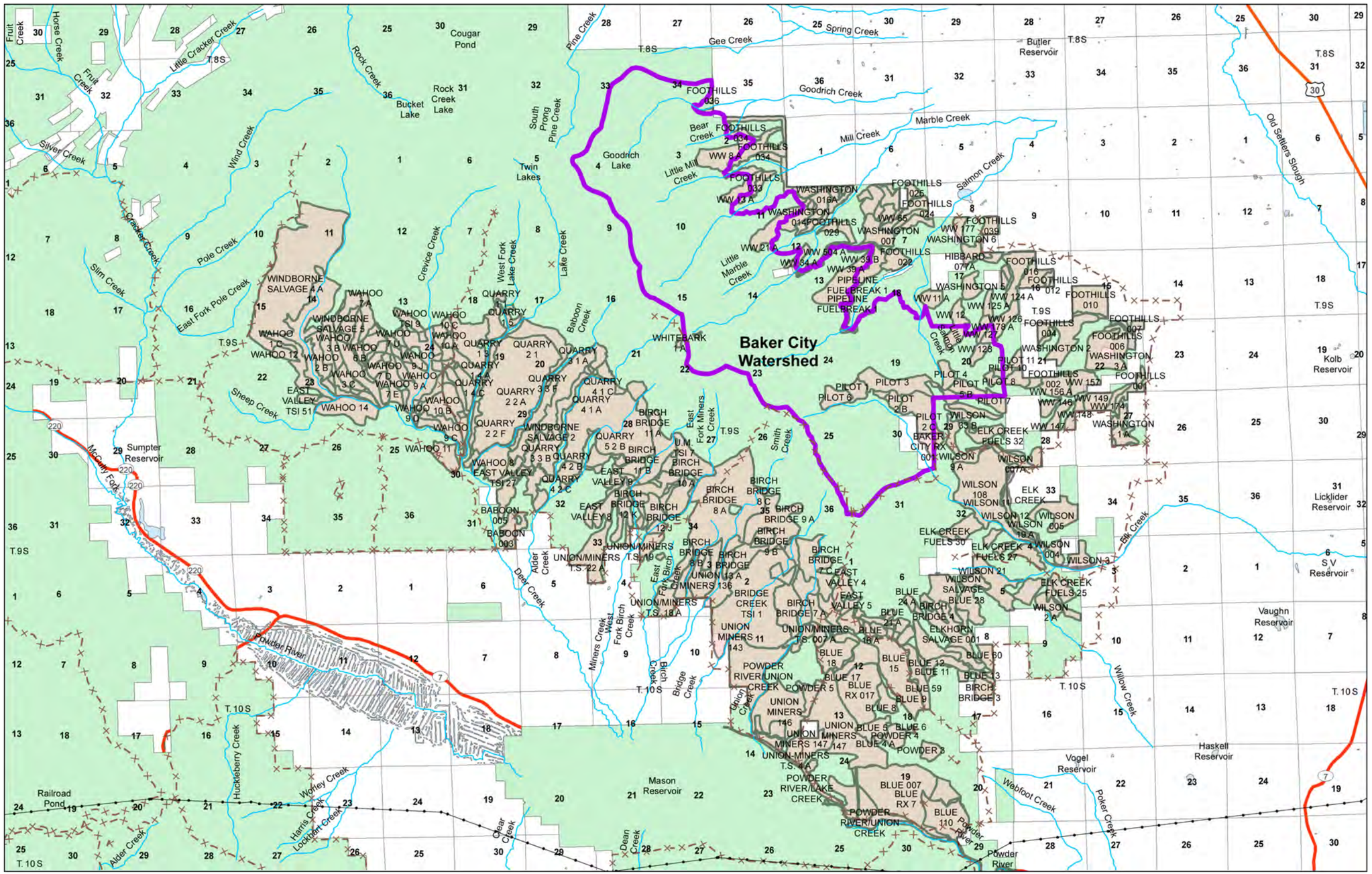
CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN

FRAMEWORK FIRE HISTORY AND PRESCRIBED FIRE ACTIVITY (1990-2010)

APPENDIX

C-3

Job# 781-46-020 Dec. 3, 2014 lbauer



NOTE:
MAP PROVIDED AND GENERATED BY THE U.S. FOREST SERVICE.

anderson perry & associates, inc.

CITY OF
BAKER CITY, OREGON
WATERSHED MANAGEMENT PLAN

U.S. FOREST SERVICE FUELS REDUCTION MAP

APPENDIX
C-4

Job# 781-46-020 Dec. 3, 2014 lbauer

Appendix D
Private Landowner Agreements and Allotments

Property Ownership

Goodrich Diversion Area

Property Ownership

REF#	NAMES	MAP#LOT#
7827	POST, BUD E	08S3835D 100
7828	BAKER CITY	08S3835D 200
7831	POST, BUD E	08S3835D 400
7832	COEN, ROBIN K	08S3835D 300

7820	GUYER, RANDELL C ETAL	08S38 4800
7829	POST, BUD E	08S38 4700
7830	GUYER, RANDELL C ETAL	08S38 4900
14653	POST, BUD E	08S3835D 100

Reference Figures 2 and 3

Zone of Influence

Property Owner Agreements in Appendix

Forest Service Grazing Permits Surrounding the Baker City Watershed

Allotment Name	Season of Use	Livestock Class	Number
Stovepipe	6/1-9/30	Cow/calf pair	266 Term Grazing Permit
Blue Canyon	6/1-9/30	Cow/calf pair	107 Term Grazing Permit 27 Private Land Grazing Permit 11 BLM Grazing Permit (Billed by the FS)

USDA-Forest Service FS-2200-10 (12/99)

TERM GRAZING PERMIT - PARTS 1 AND 2 (Reference FSM 2230)	Page 1 of 9
	Permittee Number 197
	Permit Number 27002W

PART 1

Foster Ranch Inc. *(Name of Permittee)* of 18826 Elk Creek Lane; Baker City 97814 *(Post Office Address, Including Zip)* hereinafter called the permittee, is hereby authorized to graze livestock owned by the permittee upon designated lands administered by the Forest Service within the Wallowa-Whitman (X appropriate box)
[X] National Forest [ ] National Grassland under the following terms and conditions:

1. Description of range. The livestock shall be grazed only upon the area described as follows: ~~described on attached page and/or~~ delineated on the attached map dated 3/10/2007, RLE, which is part of this permit. ~~(Strike out item or items not applicable.)~~

2. The number, kind, and class of livestock, period of use, and grazing allotment on which the livestock are permitted to graze are as follows, unless modified by the Forest Service in the Bill for Collection:

LIVESTOCK			PERIOD OF USE		GRAZING ALLOTMENT
NUMBER	KIND	CLASS	FROM	TO	
80	Cattle	Cow/calf	June 10	Oct. 10	Blue Canyon
* 320	Cattle	Cow/calf	July 10	Oct. 10	Bourne

3. It is fully understood and agreed that this permit may be suspended or cancelled, in whole or in part, after written notice, for failure to comply with any of the terms and conditions specified in Parts 1, 2, and 3 hereof, or any of the regulations of the Secretary of Agriculture on which this permit is based, or the instructions of Forest officers issued thereunder; or for knowingly and willingly making a false statement or representation in the permittee's grazing application, and amendments thereto; or for conviction for failure to comply with Federal laws or regulations or State and local laws relating to livestock control and to protection of air, water, soils and vegetation, fish and wildlife, and other environmental values when exercising the grazing use authorized by the permit. This permit can also be cancelled, in whole or in part, or otherwise modified, at any time during the term to conform with needed changes brought about by law, regulation, Executive order, allotment management plans, land management planning, numbers permitted or seasons of use necessary because of resource conditions, or the lands described otherwise being unavailable for grazing. Any suspension or cancellation action may be appealed pursuant to 36 CFR 251, Subpart C.

4. This permit supersedes permit 97009 issued to Foster Ranch, Inc.

I HAVE REVIEWED AND ACCEPT THE TERMS OF THIS PERMIT

SIGNATURE OF PERMITTEE OR HIS AUTHORIZED AGENT			DATE
Don Foster			1/18/07
SIGNATURE OF FOREST OFFICER	**NAME (PRINT)**	**TITLE**	**DATE**
Ken Anderson	Ken Anderson	District Ranger	1/30/07

* This line of permitted has been waived → C&V Foster

verified improvements in INFRA 09/10/08 KS

Updated - INFRA, Master List & Cardfile. KS 2/8/07

PART 2 - GENERAL TERMS AND CONDITIONS

1. **Validation of Permit.** The issuance of a Bill for Collection, payment of fees and actual turning on at least 90 percent of livestock the first grazing season after the permit is issued will validate this permit for the number, kind, and class of livestock, grazing allotment, and period of use for the particular year.

2. **Bill for Collection.** Each year, after validation and prior to the beginning of the grazing season, the Forest Service will send the permittee a Bill for Collection specifying for the current year the kind, number, and class of livestock allowed to graze, the period of use, the grazing allotment, and the grazing fees. This bill, when paid, authorizes use for that year and becomes part of this permit.

3. **Payment of Fees.** The permittee will not allow owned or controlled livestock to be on Forest Service-administered lands unless the fees specified in the Bill for Collection are paid.

4. **Administrative Offset and Credit Reporting.** Pursuant to 31 USC 3716 and CFRPart 3, Subpart B, any monies that are payable or may become payable from the United States, under this permit, to any person or legal entity not an agency or subdivision of a State or local government may be subject to administrative offset for the collection of a delinquent debt the person or legal entity owes to the United States. Information on the person's or legal entity's responsibility for a commercial debt or delinquent consumer debt owed the United States shall be disclosed to consumer or credit reporting agencies.

5. **Interest, Penalty, and Administrative Costs.** Pursuant to 31 USC 3717 and 7 CFR Part 3, Subpart B, interest shall be charged on any payment or fee amount not paid within 30 days from the date the payment was due. Interest shall be charged using the most current rate prescribed by the United States Department of the Treasury Fiscal Requirements Manual (TFRM-6-8020.20). Interest shall accrue from the date the payment was due. In addition, in the event the account becomes delinquent, administrative costs may be assessed. A penalty of 6 percent per year shall be assessed on any payment or fee amount overdue in excess of 90 days from the date the first billing was due. Payments will be credited on the date received by the designated collection officer or deposit location. If the due date(s) for any of the above payments falls on a non-workday, the charges shall not apply until the close of business on the next workday.

6. **Term of Permit.** This permit is effective until Dec. 31, 2016 unless waived, cancelled, or otherwise terminated as provided herein. The permittee has first priority for receipt of a new permit at the end of the term subject to modification deemed necessary by the Forest Service.

In order to update terms and conditions, this permit may be cancelled at **any time** provided **a new permit** is **issued** to the existing permit holder for a new term of 10 years **following this update.**

7. **Ownership Requirement**

(a) Only livestock owned by the permittee are authorized to graze under this permit. To exercise use of the permit, the permittee will furnish all evidence of ownership requested by the Forest Service. Livestock purchased and subsequently sold back to the original owner, or to an agent, assignee, or anyone representing or acting in concert with the original owner, within a 24-month period without prior written approval by the Forest officer in charge will not be considered valid ownership of the livestock.

(b) Base property owned and used by the permittee to qualify for a term grazing permit must meet minimum base property requirements approved by the officer in charge.

8. Range and Livestock Management

(a) The allotment management plan for the land described on page 1, Part 1 is part of the permit, and the permittee will carry out its provisions, other instructions, or both as issued by the Forest officer in charge for the area under permit and will require employees, agents, and contractors and subcontractors do likewise.

(b) The number, kind, and class of livestock, period of use, and grazing allotment specified in the permit may be modified when determined by the Forest Officer in charge to be needed for resource protection. Except in extreme emergencies where resource conditions are being seriously affected by livestock use or other factors, such as fire, drought, or insect damage, notice of a scheduled reduction of numbers of livestock or period of use under a term permit will be given one (1) full year before a modification in permitted numbers or period of use becomes effective. This does not apply to annual adjustment in grazing as provided for in Section 8(c).

(c) When, in the judgment of the Forest Officer in charge, the forage is not ready to be grazed at the beginning of the designated grazing season, the permittee, upon request of the Forest officer, will defer placing livestock on the grazing allotment to avoid damage to the resources. The permittee will remove livestock from Forest Service-administered lands before the expiration of the designated grazing season upon request of the Forest officer when it is apparent that further grazing will damage the resources.

(d) The permittee will allow only the numbers, kind, and class of livestock on the allotment during the period specified in Part 1 hereof or the annual Bill for Collection, including any modifications made as provided for in Section 8(c). If livestock owned by the permittee are found to be grazing on the allotment in greater numbers, or at times or places other than permitted in Part 1 hereof, or specified on the annual Bill for Collection, the permittee shall be billed for excess use at the unauthorized use rate and may face suspension or cancellation of this permit.

(e) The permittee will not allow owned or controlled livestock to be upon any area of Forest Service-administered lands not described in either Part 1 hereof or the annual Bill for Collection.

(f) The Forest officer in charge may, at any time, place or fasten or require the permittee to place or fasten upon livestock covered by this permit appropriate marks or tags that will identify them as livestock permitted to graze on lands administered by the Forest Service. When requested by the Forest officer, the permittee will, at any time during the permitted period of use, including entry and removal dates, gather permitted livestock to enable an accurate count to be made thereof. The Forest Service may, at its option, gather and hold for counting all livestock grazing on the allotment.

(g) Only livestock marked, tagged, or branded as shown in the application upon which this permit is based, and as may be required under Section 8(f), will be allowed to graze under this permit unless the permittee has advance written approval from the Forest officer in charge to do otherwise.

(h) The permittee will pay the costs of, perform, or otherwise provide for the proportionate share of cooperative improvements and management practices on the permitted area when determined by the Forest officer in charge that such improvements and practices are essential to proper protection and management of the resources administered by the Forest Service.

(i) This permit is issued and accepted with the provision that the permittee will maintain all range improvements, whether private or Government-owned, that are assigned for maintenance to standards of repair, orderliness, and safety acceptable to the Forest Service. Improvements to be maintained and acceptable to maintenance are specified in Part 3 of this permit. The Government may maintain or otherwise improve said improvements when, in its opinion, such action will be to its advantage.

9. Nonuse. At least 90 percent of the livestock permitted must be grazed each year, unless the Forest officer in charge approves nonuse. Failure to place livestock on the allotted range/pasture without approved nonuse may result in cancellation of the term grazing permit in whole or in part.

10. Protection. The permittee, or the permittees' agents and employees, when acting within the scope of their employment, and contractors and subcontractors will protect the land and property of the United States and other land under jurisdiction of the Forest Service covered by and used in conjunction with this permit. Protection will include taking all reasonable precautions to prevent, make diligent efforts to suppress, and report promptly all fires on or endangering such land and property. The permittee will pay the United States for any damage to its land or property, including range improvements, resulting from negligence or from violation of the provisions and requirements of this permit or any law or regulation applicable to the National Forests System.

11. General.

(a) The Forest officer in charge may at any time require the permittee to give good and sufficient bond to insure payment for all damage or costs to prevent or mitigate damages sustained by the United States through the permittee's failure to comply with the provisions and requirements of this permit or the regulations of the Secretary on which it is based.

(b) This permit will be cancelled, in whole or in part, whenever the area described in this permit is withdrawn from the National Forest System by land exchange, modification of boundaries, or otherwise, or whenever the area described in this permit is to be devoted to a public purpose that precludes grazing.

(c) The permittee will immediately notify the Forest officer in charge of any change in control of base property, ownership of livestock, or other qualifications to hold this grazing permit.

(d) The permanent improvements constructed or existing for use in conjunction with this permit are the property of the United States Government unless specifically designated otherwise or covered by a cooperative agreement. They will not be removed nor compensated for upon cancellation of this permit, except in the National Forests in the 16 contiguous Western States when cancelled, in whole or in part, to devote land to another public purpose including disposal. In the event of such cancellation on the National Forests in the 16 Contiguous Western States, the permittee will be compensated for the adjusted value of approved range improvements installed or placed by him.

(e) The permittee may not transfer, assign, lease, or sublet this permit in whole or part.

(f) This permit includes the terms and conditions of Part 3 hereof, consisting of page 5 through 9 which follow.

FS-2200-10a (12/99)

USDA - FOREST SERVICE	Page 5 of 9
GRAZING PERMIT - PART 3 (Reference FSM 2230)	Permittee Number 197 Permit Number 27002W

Responsibilities for Construction and Maintenance of Structural Improvements or for Range Rehabilitation. (List the specific responsibilities of the permittee; or incorporate into the permit the cooperative agreement, management plan or other document which sets forth these responsibilities in detail. Fully identify the particular document or documents.)

FEATURE_TYPE	FEATURE_ID	FEATURE_NAME	FENCE_EMP
FENCE	16010215	BUCKNPOLE EXC.	0.33
FENCE	16010216	S BNDRY FENCE	2.236
FENCE	16010218	E. BNDRY FENCE	0.934
FENCE	16010220	NE BNDRY FENCE	2.806
FENCE	16010221	CAL/AUBURN FNC	2.915
FENCE	16010222	AUBURN/ELK FNC	2.145
FENCE	16010223	UPPR CALF EXC	1.0
FENCE	16010224	MID CALF EXC.	0.2
FENCE	16010225	LWR CALF EXC.	0.6
FENCE	16010310	W BNDRY FENCE	3.092
FENCE	16010311	S. BNDRY FENCE	3.243
FENCE	16010312	E. BNDRY FENCE	4.237
FENCE	16010313	SPAULD/POLE FN	1.338
FENCE	16010314	SILV/SPAULD FN	2.178
FENCE	16010315	NW BNDRY FENCE	0.219
FENCE	16010316	NE BNDRY FENCE	0.248
FENCE	16010317	WIND CR. EX.	0.33
WATER_SYSTEM	16010201	FIVE BIT SPRGS	
WATER_SYSTEM	16010203	ROUNDUP SPRING	
WATER_SYSTEM	16010204	BLUE CANYON	
WATER_SYSTEM	16010205	ELK SPRING	
WATER_SYSTEM	16010206	OLD BLUE SPRGS	
WATER_SYSTEM	16010209	ARROWHEAD SPR	
WATER_SYSTEM	16010211	W UNION #2 SPR	
WATER_SYSTEM	16010212	DAMIFINO SPRG	
WATER_SYSTEM	16010213	JIM SPRGS	
WATER_SYSTEM	16010214	BUCKNPOLE SPRG	
WATER_SYSTEM	16010300	NORTH POLE	
WATER_SYSTEM	16010303	WHITE ROCK	
WATER_SYSTEM	16010305	PINEGRASS SPRG	
WATER_SYSTEM	16010306	SPAULDING SPRG	
WATER_SYSTEM	16010307	HIDEAWAY SPRING	
WATER_SYSTEM	16010308	BIG PINE SPRGS	
Total Miles of Fence Maintenance			28.05

USDA - FOREST SERVICE	Page 6 of 9
GRAZING PERMIT - PART 3 (Reference FSM 2230)	Permittee Number 197 Permit Number 27002W

Special Terms and Conditions

The Standards and Guidelines contained in the Forest Plan are hereby incorporated as part of this permit. Full implementation of the standards and guidelines will occur through incorporation of an allotment management plan (AMP). Upon completion of the AMP, this Term Grazing Permit will be modified to incorporate the AMP. You will be expected to implement the AMP to ensure that the management of the allotment is consistent with the Forest Plan.

The Allotment Management Plan (AMP) for the Blue Canyon Allotment was approved on February 14, 1994. The AMP describes the management practices and grazing system that will be implemented as part of this permit for the Blue Canyon Allotment.

The base property is land owned and used by the permittee for a farm or ranch operation and cannot be leased to another entity. Base property shall include basic livestock management facilities and used in conjunction with permitted livestock activities. The base property for this permit consists of 10 acres and is located at:

T.10S., R.40E., N1/2N1/2NE1/4SE1/4, Section 6 WM

Allowable Use – The maximum utilization levels listed here are identified in the Forest Plan or PACFISH Appendix B. The length of time spent in each unit depends on the identified resource objectives for the unit. If there is a conflict between the listed percent utilization and stubble height, use the more restrictive standard.

The Wallowa-Whitman National Forest Land and Resource Management Plan allowable use standards applicable to the Blue Canyon and Bourne Allotments based on current annual growth:

Uplands						Riparian			
Forest		Grassland		Shrubland		Grass/Grass Like		Shrubs	
Sat. Cond.	Unsat. Cond.	Sat Cond.	Unsat. Cond.	Unsat. Cond.	Unsat. Cond.	Sat. Cond.	Unsat. Cond.	Sat Cond.	Unsat. Cond.
45%	0-35%	55%	0-35%	45%	0-30%	45%	0-35%	40%	0-35%

Nondiscrimination

In connection with the performance of work under this permit, the permittee shall not discriminate against any employee because of race, color, creed, or national origin.

The permittee and his employees shall not discriminate by segregation or otherwise against any person on the basis of race, color, creed, or national origin by curtailing or refusing to furnish accomodations, facilities, services, or use privileges offered to the public generally.

The permittee shall include and require compliance with the above nondiscrimination provisions in any subcontract made with respect to the operations under this permit.

FS-2200-10b (9/85)

USDA - FOREST SERVICE	Page 7 of 9
	Permittee Number
GRAZING PERMIT - PART 3	197
(Reference FSM 2230)	Permit Number
	27002W

Management Practices.

WATER DEVELOPMENT MAINTENANCE STANDARDS

I. Spring Developments

A. Troughs:

1. Shall be capable of holding water for the intended purpose. Holes are to be plugged, mended or trough replaced.
2. Metal troughs shall have treated wood or rock supports under them to prevent rusting.
3. Troughs will be cleaned annually with debris removed and shall contain no more than 2 inches of mud, needles, etc. on bottom.
4. Shall have a functional escape ramp for birds and small mammals.

B. Pipes

1. Inlet pipe shall carry water from the spring box to the trough and not leak.
2. Drain pipe to be kept open, operating and able to drain overflow away from trough to keep area 20 feet around trough reasonably dry.
3. The inlet and overflow pipe shall be covered with soil, rock, logs, etc. to protect it.
4. Water shall not leak between the spring box and pipe.

C. Spring

1. Spring source shall be protected from livestock trampling to prevent soil displacement, turbidity and sealing of the water from the pipe.
2. A reasonable amount of water shall flow from spring into pipe.
3. Spring boxes to be kept clean of debris.

II. Stock Ponds and Reservoirs

1. When more than one half of the storage is lost due to siltation, the pond or reservoir shall be cleaned out.
2. Soil displacement shall be prevented in spillways. This may require riprap placement around the spillway.

FS-2200-10b (9/85)

USDA - FOREST SERVICE **GRAZING PERMIT - PART 3** (Reference FSM 2230)	Page 8 of 9
	Permittee Number 197
	Permit Number 27002W

Management Practices. (*Continued...*)

WALLOWA - WHITMAN NATIONAL FOREST

SPECIFICATIONS FOR FENCE MAINTENANCE

Fences shall be maintained by completing the following repairs:

1. Clearing - The fence right-of-way is 6 feet wide and 10 feet high on each side of the fence. All logs, trees, limbs, slash, brush, and other material will be removed from the right-of-way unless otherwise specified.

2. Wire - All broken wire shall be spliced only with good barbed wire or double strand barbless wire. Three or more splices within a distance of 20 feet will be replaced with a single splice. Broken wire will be pulled tight with wire stretchers. Use "pigtail" with at least three wraps. Alternate splices that may be used are the Western Union and Nicro Press. No twisting of wire to take up slack shall be permitted. All slack wire will be pulled tight with stretchers. Wire will be tied off with at least three wraps at all anchor points. Wire spacing and weighting to be the same as in the original construction.

3. Staples and Nails - Missing staples shall be replaced. Re-staple all loose wires. Staple not to be driven home but to a point just where the barbwire will render or give. Missing nails in jacks and figure-fours shall be replaced. 50D or 60D nails are to be used.

4. Gates - Gates will be repaired or replaced to as originally constructed and will be shut. When tightening bars are rebuilt, a chain will be used.

5. Rock-jacks, Figure-fours, and Stays - Rock-jacks that need rebuilding shall be constructed according to Forest Service specifications. Figure-fours that need replacing shall be built with the bottom piece touching the ground at one end and the other end at least 6 inches above the ground.

Wooden stays that need replacing shall be at least 2 inches in diameter and not over 4 inches in diameter.

Western larch is the preferred material. No limb wood, white fir, or ponderosa pine sapwood will be used. If round material is used, the bark shall be skinned on two sides. Jack and figure-four material shall not be less than 3 inches by 4 inches in size.

USDA-Forest Service

FS-2200-10 (12/99)

TERM GRAZING PERMIT - PARTS 1 AND 2 (Reference FSM 2230)	Page 1 of 10 Permittee Number R0110 Permit Number 26008

PART 1

Riggs, Michael of P.O. Box 550, Meridian, ID 83680 hereinafter
(Name of Permittee) *(Post Office Address, Including Zip)*
called the permittee, is hereby authorized to graze livestock owned by the permittee upon designated lands administered by the Forest Service within the Wallowa-Whitman (X appropriate box)
[x] National Forest [ ] National Grassland under the following terms and conditions:

1. Description of range. The livestock shall be grazed only upon the area described as follows: ~~described on attached page and/~~or delineated on the attached map dated 1/20/2005 RLE, which is part of this permit. (Strike out item or items not applicable.)

2. The number, kind, and class of livestock, period of use, and grazing allotment on which the livestock are permitted to graze are as follows, unless modified by the Forest Service in the Bill for Collection:

LIVESTOCK			PERIOD OF USE		GRAZING ALLOTMENT
NUMBER	KIND	CLASS	FROM	TO	
266	Cattle	Cow/calf	6/1	9/30	Stovepipe

3. It is fully understood and agreed that this permit may be suspended or cancelled, in whole or in part, after written notice, for failure to comply with any of the terms and conditions specified in Parts 1, 2, and 3 hereof, or any of the regulations of the Secretary of Agriculture on which this permit is based, or the instructions of Forest officers issued thereunder; or for knowingly and willingly making a false statement or representation in the permittee's grazing application, and amendments thereto; or for conviction for failure to comply with Federal laws or regulations or State and local laws relating to livestock control and to protection of air, water, soils and vegetation, fish and wildlife, and other environmental values when exercising the grazing use authorized by the permit. This permit can also be cancelled, in whole or in part, or otherwise modified, at any time during the term to conform with needed changes brought about by law, regulation, Executive order, allotment management plans, land management planning, numbers permitted or seasons of use necessary because of resource conditions, or the lands described otherwise being unavailable for grazing. Any suspension or cancellation action may be appealed pursuant to 36 CFR 251, Subpart C.

4. This permit supersedes permit ~~26008~~ 25005 issued to Larry D. Olson

I HAVE REVIEWED AND ACCEPT THE TERMS OF THIS PERMIT

SIGNATURE OF PERMITTEE OR HIS AUTHORIZED AGENT			DATE
			5-11-06
SIGNATURE OF FOREST OFFICER	**NAME (PRINT)**	**TITLE**	**DATE**
Ken Anderson	Ken Anderson	District Ranger	5/19/06

Updated INFRA, 6/12/06 KS
Created card file
Updated Master List

PART 2 - GENERAL TERMS AND CONDITIONS

1. Validation of Permit. The issuance of a Bill for Collection, payment of fees and actual turning on at least 90 percent of livestock the first grazing season after the permit is issued will validate this permit for the number, kind, and class of livestock, grazing allotment, and period of use for the particular year.

2. Bill for Collection. Each year, after validation and prior to the beginning of the grazing season, the Forest Service will send the permittee a Bill for Collection specifying for the current year the kind, number, and class of livestock allowed to graze, the period of use, the grazing allotment, and the grazing fees. This bill, when paid, authorizes use for that year and becomes part of this permit.

3. Payment of Fees. The permittee will not allow owned or controlled livestock to be on Forest Service-administered lands unless the fees specified in the Bill for Collection are paid.

4. Administrative Offset and Credit Reporting. Pursuant to 31 USC 3716 and CFRPart 3, Subpart B, any monies that are payable or may become payable from the United States, under this permit, to any person or legal entity not an agency or subdivision of a State or local government may be subject to administrative offset for the collection of a delinquent debt the person or legal entity owes to the United States. Information on the person's or legal entity's responsibility for a commercial debt or delinquent consumer debt owed the United States shall be disclosed to consumer or credit reporting agencies.

5. Interest, Penalty, and Administrative Costs. Pursuant to 31 USC 3717 and 7 CFR Part 3, Subpart B, interest shall be charged on any payment or fee amount not paid within 30 days from the date the payment was due. Interest shall be charged using the most current rate prescribed by the United States Department of the Treasury Fiscal Requirements Manual (TFRM-6-8020.20). Interest shall accrue from the date the payment was due. In addition, in the event the account becomes delinquent, administrative costs may be assessed. A penalty of 6 percent per year shall be assessed on any payment or fee amount overdue in excess of 90 days from the date the first billing was due. Payments will be credited on the date received by the designated collection officer or deposit location. If the due date(s) for any of the above payments falls on a non-workday, the charges shall not apply until the close of business on the next workday.

6. Term of Permit. This permit is effective until 12/31/2015 unless waived, cancelled, or otherwise terminated as provided herein. The permittee has first priority for receipt of a new permit at the end of the term subject to modification deemed necessary by the Forest Service.

In order to update terms and conditions, this permit may be cancelled at **any time** provided **a new permit is issued** to the existing permit holder for a new term of 10 years **following this update.**

7. Ownership Requirement

(a) Only livestock owned by the permittee are authorized to graze under this permit. To exercise use of the permit, the permittee will furnish all evidence of ownership requested by the Forest Service. Livestock purchased and subsequently sold back to the original owner, or to an agent, assignee, or anyone representing or acting in concert with the original owner, within a 24-month period without prior written approval by the Forest officer in charge will not be considered valid ownership of the livestock.

(b) Base property owned and used by the permittee to qualify for a term grazing permit must meet minimum base property requirements approved by the officer in charge.

8. Range and Livestock Management

(a) The allotment management plan for the land described on page 1, Part 1 is part of the permit, and the permittee will carry out its provisions, other instructions, or both as issued by the Forest officer in charge for the area under permit and will require employees, agents, and contractors and subcontractors do likewise.

(b) The number, kind, and class of livestock, period of use, and grazing allotment specified in the permit may be modified when determined by the Forest Officer in charge to be needed for resource protection. Except in extreme emergencies where resource conditions are being seriously affected by livestock use or other factors, such as fire, drought, or insect damage, notice of a scheduled reduction of numbers of livestock or period of use under a term permit will be given one (1) full year before a modification in permitted numbers or period of use becomes effective. This does not apply to annual adjustment in grazing as provided for in Section 8(c).

(c) When, in the judgment of the Forest Officer in charge, the forage is not ready to be grazed at the beginning of the designated grazing season, the permittee, upon request of the Forest officer, will defer placing livestock on the grazing allotment to avoid damage to the resources. The permittee will remove livestock from Forest Service-administered lands before the expiration of the designated grazing season upon request of the Forest officer when it is apparent that further grazing will damage the resources.

(d) The permittee will allow only the numbers, kind, and class of livestock on the allotment during the period specified in Part 1 hereof or the annual Bill for Collection, including any modifications made as provided for in Section 8(c). If livestock owned by the permittee are found to be grazing on the allotment in greater numbers, or at times or places other than permitted in Part 1 hereof, or specified on the annual Bill for Collection, the permittee shall be billed for excess use at the unauthorized use rate and may face suspension or cancellation of this permit.

(e) The permittee will not allow owned or controlled livestock to be upon any area of Forest Service-administered lands not described in either Part 1 hereof or the annual Bill for Collection.

(f) The Forest officer in charge may, at any time, place or fasten or require the permittee to place or fasten upon livestock covered by this permit appropriate marks or tags that will identify them as livestock permitted to graze on lands administered by the Forest Service. When requested by the Forest officer, the permittee will, at any time during the permitted period of use, including entry and removal dates, gather permitted livestock to enable an accurate count to be made thereof. The Forest Service may, at its option, gather and hold for counting all livestock grazing on the allotment.

(g) Only livestock marked, tagged, or branded as shown in the application upon which this permit is based, and as may be required under Section 8(f), will be allowed to graze under this permit unless the permittee has advance written approval from the Forest officer in charge to do otherwise.

(h) The permittee will pay the costs of, perform, or otherwise provide for the proportionate share of cooperative improvements and management practices on the permitted area when determined by the Forest officer in charge that such improvements and practices are essential to proper protection and management of the resources administered by the Forest Service.

(i) This permit is issued and accepted with the provision that the permittee will maintain all range improvements, whether private or Government-owned, that are assigned for maintenance to standards of repair, orderliness, and safety acceptable to the Forest Service. Improvements to be maintained and acceptable to maintenance are specified in Part 3 of this permit. The Government may maintain or otherwise improve said improvements when, in its opinion, such action will be to its advantage.

9. Nonuse. At least 90 percent of the livestock permitted must be grazed each year, unless the Forest officer in charge approves nonuse. Failure to place livestock on the allotted range/pasture without approved nonuse may result in cancellation of the term grazing permit in whole or in part.

10. Protection. The permittee, or the permittees' agents and employees, when acting within the scope of their employment, and contractors and subcontractors will protect the land and property of the United States and other land under jurisdiction of the Forest Service covered by and used in conjunction with this permit. Protection will include taking all reasonable precautions to prevent, make diligent efforts to suppress, and report promptly all fires on or endangering such land and property. The permittee will pay the United States for any damage to its land or property, including range improvements, resulting from negligence or from violation of the provisions and requirements of this permit or any law or regulation applicable to the National Forests System.

11. General.

(a) The Forest officer in charge may at any time require the permittee to give good and sufficient bond to insure payment for all damage or costs to prevent or mitigate damages sustained by the United States through the permittee's failure to comply with the provisions and requirements of this permit or the regulations of the Secretary on which it is based.

(b) This permit will be cancelled, in whole or in part, whenever the area described in this permit is withdrawn from the National Forest System by land exchange, modification of boundaries, or otherwise, or whenever the area described in this permit is to be devoted to a public purpose that precludes grazing.

(c) The permittee will immediately notify the Forest officer in charge of any change in control of base property, ownership of livestock, or other qualifications to hold this grazing permit.

(d) The permanent improvements constructed or existing for use in conjunction with this permit are the property of the United States Government unless specifically designated otherwise or covered by a cooperative agreement. They will not be removed nor compensated for upon cancellation of this permit, except in the National Forests in the 16 contiguous Western States when cancelled, in whole or in part, to devote land to another public purpose including disposal. In the event of such cancellation on the National Forests in the 16 Contiguous Western States, the permittee will be compensated for the adjusted value of approved range improvements installed or placed by him.

(e) The permittee may not transfer, assign, lease, or sublet this permit in whole or part.

(f) This permit includes the terms and conditions of Part 3 hereof, consisting of page 5 through 10 which follow.

FS-2200-10a (12/99)

USDA - FOREST SERVICE **GRAZING PERMIT - PART 3** (Reference FSM 2230)	Page 5 of 10 Permittee Number R0110 Permit Number 26008

Responsibilities for Construction and Maintenance of Structural Improvements or for Range Rehabilitation. (List the specific responsibilities of the permittee; or incorporate into the permit the cooperative agreement, management plan or other document which sets forth these responsibilities in detail. Fully identify the particular document or documents.)

Feature ID	Feature Name	Units	Condition Rating
16010800	Tope Springs	1	Critical
16010801	Marble Spring	1	Removal
16010802	Bluebird Spring	1	Critical
16010806	Grouse Spring	1	Critical
16010807	Sky High Spring	1	Poor
16010808	Bull Spring	1	Removal
16010810	Baboon Spring	1	Critical
16010811	Coyote Spring	1	Critical
16010812	Hornet Spring	1	Critical
16010814	Loop Spring	1	Satisfactory
16010816	Clearwater Spring	1	Good
16010817	Lost Trail Spring	1	Poor
16010818	Grey Owl Spring	1	Poor
16010820	Sedge Spring	1	Satisfactory
16010821	Blue Ice Spring	1	Satisfactory
16010822	Iceberg Spring	1	Critical
16010823	Eskimoe Spring	1	Removal
16010824	Roaring Spring	1	Satisfactory
16010825	Sheeptrail Spring	1	Good
16010830	West Boundary Fence	2.5	Poor
16010832	South Boundary Fence	1.2	Good
16010834	East Boundary Fence	2.1	Good
16010835	North Boundary Fence	1.9	Poor
16010836	Deer/Baboon Div. Fence	3.9	Poor
16010837	Baboon/Miner Div. Fence	2.6	Poor
16010838	Baboon Drift Fence	0.2	Removal

All Improvements reflected in INFRA 6/12/06 KS

FS-2200-10a (12/99)

USDA - FOREST SERVICE **GRAZING PERMIT - PART 3** (Reference FSM 2230)	Page 6 of 10 Permittee Number R0110 Permit Number 26008

Special Terms and Conditions

The Standards and Guidelines contained in the Forest Plan are hereby incorporated as part of this permit. Full implementation of the standards and guidelines will occur through incorporation of an allotment management plan (AMP). Upon completion of the AMP, this Term Grazing Permit will be modified to incorporate the AMP. You will be expected to implement the AMP to ensure that the management of the allotment is consistent with the Forest Plan.

The base property is land owned and used by the permittee for a farm or ranch operation and can not be leased to another entity. Base property shall include basic livestock management facilities and used in conjunction with permitted livestock activities. The base property for this permit consists of 10 acres and is located at:

T.10S., R.38E., sec. 8, SE1/4SE1/4NW1/4, WM

FS-2200-10a (12/99)

USDA - FOREST SERVICE **GRAZING PERMIT - PART 3** (Reference FSM 2230)	Page 7 of 10 Permittee Number R0110 Permit Number 26008

Special Terms and Conditions

Nondiscrimination

In connection with the performance of work under this permit, the permittee shall not discriminate against any employee because of race, color, creed, or national origin.

The permittee and his employees shall not discriminate by segregation or otherwise against any person on the basis of race, color, creed, or national origin by curtailing or refusing to furnish accomodations, facilities, services, or use privileges offered to the public generally.

The permittee shall include and require compliance with the above nondiscrimination provisions in any subcontract made with respect to the operations under this permit.

FS-2200-10b (9/85)

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GRAZING PERMIT - PART 3	R0110
(Reference FSM 2230)	Permit Number
	26008

Management Practices.

WATER DEVELOPMENT MAINTENANCE STANDARDS

I. Spring Developments

A. Troughs:

1. Shall be capable of holding water for the intended purpose. Holes are to be plugged, mended or trough replaced.
2. Metal troughs shall have treated wood or rock supports under them to prevent rusting.
3. Troughs will be cleaned annually with debris removed and shall contain no more than 2 inches of mud, needles, etc. on bottom.
4. Shall have a functional escape ramp for birds and small mammals.

B. Pipes

1. Inlet pipe shall carry water from the spring box to the trough and not leak.
2. Drain pipe to be kept open, operating and able to drain overflow away from trough to keep area 20 feet around trough reasonably dry.
3. The inlet and overflow pipe shall be covered with soil, rock, logs, etc. to protect it.
4. Water shall not leak between the spring box and pipe.

C. Spring

1. Spring source shall be protected from livestock trampling to prevent soil displacement, turbidity and sealing of the water from the pipe.
2. A reasonable amount of water shall flow from spring into pipe.
3. Spring boxes to be kept clean of debris.

II. Stock Ponds and Reservoirs

1. When more than one half of the storage is lost due to siltation, the pond or reservoir shall be cleaned out.
2. Soil displacement shall be prevented in spillways. This may require riprap placement around the spillway.

Management Practices. *(Continued...)*

WALLOWA - WHITMAN NATIONAL FOREST

SPECIFICATIONS FOR FENCE MAINTENANCE

Fences shall be maintained by completing the following repairs:

1. Clearing - The fence right-of-way is 6 feet wide and 10 feet high on each side of the fence. All logs, trees, limbs, slash, brush, and other material will be removed from the right-of-way unless otherwise specified.

2. Wire - All broken wire shall be spliced only with good barbed wire or double strand barbless wire. Three or more splices within a distance of 20 feet will be replaced with a single splice. Broken wire will be pulled tight with wire stretchers. Use "pigtail" with at least three wraps. Alternate splices that may be used are the Western Union and Nicro Press. No twisting of wire to take up slack shall be permitted. All slack wire will be pulled tight with stretchers. Wire will be tied off with at least three wraps at all anchor points. Wire spacing and weighting to be the same as in the original construction.

3. Staples and Nails - Missing staples shall be replaced. Re-staple all loose wires. Staple not to be driven home but to a point just where the barbwire will render or give. Missing nails in jacks and figure-fours shall be replaced. 50D or 60D nails are to be used.

4. Gates - Gates will be repaired or replaced to as originally constructed and will be shut. When tightening bars are rebuilt, a chain will be used.

5. Rock-jacks, Figure-fours, and Stays - Rock-jacks that need rebuilding shall be constructed according to Forest Service specifications. Figure-fours that need replacing shall be built with the bottom piece touching the ground at one end and the other end at least 6 inches above the ground.

Wooden stays that need replacing shall be at least 2 inches in diameter and not over 4 inches in diameter.

Western larch is the preferred material. No limb wood, white fir, or ponderosa pine sapwood will be used. If round material is used, the bark shall be skinned on two sides. Jack and figure-four material shall not be less than 3 inches by 4 inches in size.

Appendix E
SDWA Exceedances, MCLs, Action Levels for Water Systems

Appendix G. Safe Drinking Water Act monitoring compounds detected above action levels* for Baker City public water system

Source: Oregon SDWIS Database: January 1, 2000 through June 29, 2010

***Table includes summary of detections above an "action" level. In general, the action level for volatile and synthetic organic compounds (VOCs and SOCs) is concentration > 0. For inorganic compounds (IOCs), arsenic and nitrate, the action level used is ½ of the MCL. Action level for coliform, E. coli and fecal coliform is detection >0 in a repeat sample. For turbidity action level is >5 NTU.

Water Type	Analyte Name	PWS ID	PWS Name	Pop.	Subbasin	Watershed	Count of Detects	Min of Conc.	Max of Conc.
Surface Water Systems									
SW	Fluoride	00073	Baker City	10105	Powder River	Powder River-Rock Creek, Sutton Creek, and Baldock	1	4.9	4.9
SW	Sodium	00073	Baker City	10105	Powder River	Powder River-Rock Creek, Sutton Creek, and Baldock	1	21	21
SW	Coliform, Total (TCR)	00073	Baker City	10105	Powder River	Powder River-Rock Creek, Sutton Creek, and Baldock	1	present	present
SW	Total Haloacetic Acids	00073	Baker City	10105	Powder River	Powder River-Rock Creek, Sutton Creek, and Baldock	1	0.33	0.33
Groundwater Systems									
GW	Arsenic	00073	Baker City	10105	Powder River	Powder River-Rock Creek, Sutton Creek, and Baldock	2	0.006	0.006

[1] There is no drinking water standard for sodium; however sodium detections are noted since it is recommended that if the sodium content exceeds 20 mg/L, the system notify its customers so that anyone who is on a prescribed low-sodium diet can inform their doctor of this source of sodium in their diet.

333-061-0030 Maximum Contaminant Levels and Action Levels

(1) Maximum contaminant levels (MCLs) and Action Levels (ALs) for inorganic chemicals are applicable to all Community and Non-transient Non-community water systems and are listed in Table 1. The MCL for Fluoride is applicable only to Community Water Systems and the MCL for Nitrate is applicable to all water systems.

Table 1

Contaminant	MCL/AL (mg/l);
Antimony	0.006
Arsenic	0.010
Asbestos[1]	7 MFL
Barium	2
Beryllium	0.004
Cadmium	0.005
Chromium	0.1
Copper[2]	1.3
Cyanide	0.2
Fluoride	4.0
Lead[2]	0.015
Mercury	0.002
Nickel	MCL being re-evaluated by EPA
Nitrate (as N)	10
Nitrite (as N)	1
Total Nitrate + Nitrite (as N)	10
Selenium	0.05
Thallium	0.002

[1] MFL = million fibers per liter longer than 10 µm

[2] Action Level (AL)

(a) Compliance with the maximum contaminant levels for inorganic contaminants is calculated pursuant to OAR 333-061-0036(2)(i).

(b) Violations of secondary contaminant levels for fluoride (2.0 mg/l) require a special public notice. Refer to OAR 333-061-0042(7).

(c) The lead action level is exceeded if the concentration of lead in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with OAR 333-061-0036(2)(c)(A) through (E) is greater than 0.015 mg/L (i.e., if the "90th percentile" lead level is greater than 0.015 mg/L). The copper action level is exceeded if the concentration of copper in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with OAR 333-061-0036(2)(c)(A) through (E) is greater than 1.3 mg/L (i.e., if the "90th percentile" copper level is greater than 1.3 mg/L).

(A) The 90th percentile lead and copper levels shall be computed as follows: The results of all lead or copper samples taken during a monitoring period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number 1 for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level shall be equal to the total number of samples taken. The number of samples taken during the monitoring period shall be multiplied by 0.9. The contaminant concentration in the numbered sample yielded by this calculation is the 90th percentile contaminant level.

(B) For water systems serving fewer than 100 people that collect five samples per monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentrations. For a water system allowed by the Authority to collect fewer than five samples the sample result with the highest concentration is considered the 90th percentile value.

(2) Maximum contaminant levels for organic chemicals:

(a) The maximum contaminant levels for synthetic organic chemicals are shown in Table 2 and apply to all Community and Non-Transient Non-Community water systems. Compliance with MCLs shall be calculated pursuant to OAR 333-061-0036(3)(a)(G).

Table 2

Contaminant	MCL, mg/l
Alachlor	0.002
Atrazine	0.003
Benzo(a) pyrene	0.0002
Carbofuran	0.04
Chlordane	0.002
Dalapon	0.2
Dibromochloropropane	0.0002
Dinoseb	0.007
Dioxin(2,3,7,8-TCDD)	0.00000003
Diquat	0.02
Di(2-ethylhexyl) adipate	0.4
Di(2-ethylhexyl) phthalate	0.006
Endothall	0.1
Endrin	0.002
Ethylene Dibromide	0.00005
Glyphosate	0.7
Heptachlor	0.0004

Heptachor epoxide	0.0002
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Lindane	0.0002
Methoxychlor	0.04
Oxamyl(Vydate)	0.2
Picloram	0.5
Polychlorinated Biphenyls	0.0005
Pentachlorophenol	0.001
Simazine	0.004
Toxaphene	0.003
2,4-D	0.07
2,4,5-TP Silvex	0.05

(b) The maximum contaminant levels for disinfection byproducts are shown in Table 3 and apply to all Community and Non-Transient Non-Community water systems that add a disinfectant (oxidant) to the water supply at any point in the treatment process or deliver water in which a disinfectant has been added to the water supply.

Table 3

Disinfection Byproduct	MCL in mg/l
Total Trihalomethanes (TTHM)	0.080
Haloacetic acids (five)(HAA5)	0.060
Bromate	0.010
Chlorite	1.0

(A) Compliance with the MCLs for TTHM and HAA5 shall be calculated as a running annual arithmetic average as prescribed by OAR 333-061-0036(4)(c) and (4)(p) until the dates specified in Table 4, at which time compliance with the MCLs shall be calculated as a locational running annual arithmetic average pursuant to OAR 333-061-0036(4)(d).

Table 4

System type	Population	Compliance Date [1]
Water systems that are not part of a combined distribution system and water systems that serve	System serving ≥ 100,000	April 1, 2012
	System serving 50,000-99,999	October 1, 2012

the largest population in the combined distribution system	System serving 10,000-49,999	October 1, 2013
	System serving < 10,000	October 1, 2013 if no *Cryptosporidium* monitoring is required under OAR 333-061-0036(5)(e)(A)(iv) or October 1, 2014 if *Cryptosporidium* monitoring is required under OAR 333-061-0036(5)(e)(A)(iv) or OAR 333-061-0036(5)(e)(A)(v)
Other systems that are part of a combined distribution system	Purchasing water system or wholesale system	At the same time as the system with the earliest compliance date in the combined distribution system

[1] The Authority may grant up to an additional 24 months for compliance with MCLs and operational evaluation levels if capital improvements are required to comply with an MCL.

(B) Compliance with the MCL for Bromate shall be calculated as a running annual arithmetic average pursuant to OAR 333-061-0036(4)(l) and (r).

(C) Compliance with the MCL for Chlorite shall be calculated as a running annual arithmetic average pursuant to OAR 333-061-0036(4)(k) and (s).

(c) The maximum contaminant levels for volatile organic chemicals are indicated in Table 5 and apply to all Community and Non-Transient Non-Community water systems. Compliance with MCLs shall be calculated pursuant to OAR 333-061-0036(3)(b)(I) and (J).

Table 5

Contaminant	MCL, mg/l
Benzene	0.005
Carbon tetrachloride	0.005
cis-1,2-Dichloroethylene	0.07
Dichloromethane	0.005
Ethylbenzene	0.7
Monochlorobenzene	0.1
o-Dichlorobenzene	0.6
p-Dichlorobenzene	0.075
Styrene	0.1
Tetrachloroethylene(PCE)	0.005

Toluene	1.
trans-1,2-Dichloroethylene	0.1
Trichloroethylene (TCE)	0.005
Vinyl chloride	0.002
Xylenes(total)	10.
1,1-Dichloroethylene	0.007
1,1,1-Trichloroethane	0.2
1,1,2-Trichloroethane	0.005
1,2-Dichloroethane	0.005
1,2-Dichloropropane	0.005
1,2,4-Trichlorobenzene	0.07

(d) When the Authority has reason to believe that a water supply has been contaminated by a toxic organic chemical, it will determine whether a public health hazard exists and whether control measures must be carried out;

(e) The Authority may establish maximum contaminant levels for additional organic chemicals as deemed necessary when there is reason to suspect that the use of those chemicals will impair water quality to an extent that poses an unreasonable risk to the health of the water users;

(f) Persons who apply pesticides on watersheds above surface water intakes of public water systems shall comply with federal and state pesticide application requirements. (Safe Drinking Water Act (EPA), Clean Water Act (EPA), Federal Insecticide, Fungicide and Rodenticide Act (EPA), ORS 536.220 to 536.360 (Water Resources), 468B.005 (DEQ), 527.610 to 527.990 (DOF), 634.016 to 634.992 (Department of Agriculture)). Any person who has reasonable cause to believe that his or her actions have led to organic chemical contamination of a public water system shall report that fact immediately to the water supplier.

(3) Maximum contaminant levels for turbidity are applicable to all public water systems using surface water sources or groundwater sources under the direct influence of surface water in whole or in part. Compliance with MCLs shall be calculated pursuant to OAR 333-061-0036(5).

(a) Beginning January 1, 1992, the maximum contaminant levels for turbidity for systems which do not provide filtration treatment are as follows:

(A) The turbidity level cannot exceed 5 NTU in representative samples of the source water immediately prior to the first or only point of disinfectant application unless:

(i) The Authority determines that any such event was caused by circumstances that were unusual and unpredictable; and

(ii) As a result of any such event, there have not been more than two events in the past 12 months the system served water to the public, or more than five events in the past 120 months the system served water to the public, in which the turbidity level

exceeded 5 NTU. An "event" is a series of consecutive days during which at least one turbidity measurement each day exceeds 5 NTU. Turbidity measurements must be collected as required by OAR 333-061-0036(5)(a)(B).

(b) Beginning June 29, 1993 or 18 months after failure to meet the requirements of OAR 333-061-0032(1) through (3) whichever is later, the maximum contaminant levels for turbidity in drinking water measured at a point representing filtered water prior to any storage are as follows:

(A) Conventional filtration treatment or direct filtration treatment.

(i) For systems using conventional filtration or direct filtration treatment the turbidity level of representative samples of a system's filtered water, measured as soon after filtration as possible and prior to any storage, must be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month, measured as specified in OAR 333-061-0036(5).

(ii) For systems using conventional filtration or direct filtration treatment the turbidity level of representative samples of a system's filtered water, measured as soon after filtration as possible and prior to any storage, must at no time exceed 1 NTU measured as specified in OAR 333-061-0036(5).

(B) Slow sand filtration.

(i) For systems using slow sand filtration, the turbidity level of representative samples of filtered water, measured as soon after filtration as possible and prior to any storage, must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month, measured as specified in OAR 333-061-0036(5)(b), except that if the Authority determines there is no significant interference with disinfection at a higher turbidity level, the Authority may substitute this higher turbidity limit for that system.

(ii) The turbidity level of representative samples of filtered water must at no time exceed 5 NTU, measured as specified in OAR 333-061-0036(5)(b).

(C) Diatomaceous earth filtration.

(i) For systems using diatomaceous earth filtration, the turbidity level of representative samples of filtered water, measured as soon after filtration as possible and prior to any storage, must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month, measured as specified in OAR 333-061-0036(5)(b).

(ii) The turbidity level of representative samples of filtered water must at no time exceed 5 NTU, measured as specified in OAR 333-061-0036(5)(b).

(D) Other filtration technologies. Systems using filtration technologies other than those listed in paragraphs (3)(b)(A) through (C) of this rule must meet the maximum contaminant level for turbidity of 1 NTU in at least 95 percent of the measurements taken each month and at no time exceed 5 NTU, as specified in OAR 333-061-0036(5)(b)(A). The Authority may substitute a lower turbidity value(s) if it is determined that the above limit(s) cannot achieve the required level of treatment. The water system must demonstrate to the Authority that the alternative filtration technology in combination with disinfection treatment as specified in OAR 333-061-0032 and monitored as specified by OAR 333-061-0036 consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts and 99.99 percent removal and/or inactivation of viruses, and for all of those systems serving at least 10,000 people and beginning January 1, 2005 for all of those systems serving less than 10,000 people, 99 percent removal of *Cryptosporidium* oocysts.

(4) Maximum microbiological contaminant levels for all public water systems are as follows:

(a) The MCL is based on the presence or absence of total coliforms in a sample, rather than coliform density.

(A) For a system which collects 40 or more samples per month, total coliform-positive samples shall not exceed 5.0 percent of the samples collected during a month.

(B) For a system which collects fewer than 40 samples per month total coliform-positive samples shall not exceed more than one sample collected during a month.

(b) Any fecal coliform-positive repeat sample or *E. coli*-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or *E. coli*-positive routine sample shall be a violation of the total coliform MCL. Public notification for this potential acute health risk is prescribed in OAR 333-061-0042(2)(a)(A).

(c) All public water systems must determine compliance with the MCL for total coliforms in subsections (4)(a) and (b) of this rule on a monthly basis.

(d) A water system may demonstrate to the Authority that a violation of the total coliform MCL is due to a persistent growth of total coliforms in the distribution system rather than fecal or pathogenic contamination, a treatment lapse or deficiency, or a problem in the operation or maintenance of the distribution system. The system making the demonstration may use the health effects language of OAR 333-061-0097(4)(d) in the required public notice in addition to the mandatory language of OAR 333-061-0097(4)(a). This demonstration, made by the system in writing and submitted to the Authority for review and approval, shall show to the satisfaction of the Authority that the system meets the following conditions:

(A) No occurrence of *E. coli* in distribution system samples;
(B) No occurrence of coliforms at the entry point to the distribution system;
(C) The system meets treatment requirements prescribed in OAR 333-061-0032 as applicable;
(D) The system meets the turbidity MCL, if surface water sources are used;
(E) The system maintains a detectable disinfectant residual in the distribution system;
(F) The system has no history of waterborne disease outbreaks;
(G) The system has addressed requirements and recommendations of the previous sanitary survey conducted by the Authority; and
(H) The system fully complies with cross connection control program requirements.

(5) Maximum contaminant levels for radionuclides are applicable only to Community water systems and are indicated in Table 6:

Table 6

Contaminant	MCL
Gross Alpha (including Radium-226 but not Radon and Uranium)	15 pCi/L
Combined Radium-226 and Radium-228	5 pCi/L
Uranium	30 ug/L
Beta/Photon emitters	4 mrem/yr

(a) The average annual concentration of beta particle and photon radioactivity from man-made sources shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem per year according to the criteria listed in the National Bureau of Standards Handbook 69 as amended August, 1963. If two or more radionuclides are present, the sum total of their annual dose equivalent to the total body or to any organ shall not exceed 4 millirem/year.
(A) The average annual concentration of tritium assumed to produce a total body dose of 4 mrem/year is 20,000 pCi/L;
(B) The average annual concentration of strontium-90 assumed to produce a bone marrow dose of 4 mrem/year is 8 pCi/L.

(b) Compliance with the MCLs shall be calculated pursuant to OAR 333-061-0036(7)(c).

(6) Contaminant levels for secondary contaminants are applicable to all public water systems. These are indicated in Table 7. (Also note OAR 333-061-0036(8)).

Table 7

Secondary Contaminant:	Level, mg/l:
Color	15 color units
Corrosivity	Non-corrosive
Foaming agents	0.5
PH	6.5-8.5
Hardness (as CaCO3)	250
Odor	3 threshold odor number
Total dissolved solids(TDS)	500
Aluminum	0.05-0.2
Chloride	250
Copper	1
Fluoride	2.0
Iron	0.3
Manganese	0.05
Silver	0.1
Sulfate	250
Zinc	5

(a) Violations of secondary contaminant levels for fluoride require a special public notice. Refer to OAR 333-061-0042(7).

(b) Violations of maximum contaminant levels for fluoride (4.0 mg/l) require public notification as specified in OAR 333-061-0042(2)(b)(A).

(7) Acrylamide and Epichlorohydrin. Each public water system must certify annually to the state in writing, using third party certification approved by the state or manufacturer's certification, that when acrylamide and epichlorohydrin are used in drinking water systems, the combination, or product, of dose and monomer level does not exceed the levels specified as follows:

(a) Acrylamide: 0.05 percent dosed at 1 ppm or equivalent.

(b) Epichlorohydrin: 0.01 percent dosed at 20 ppm or equivalent.

Stat. Auth.: ORS 448.131
Stats. Implemented: ORS 431.110, 431.150, 448.131, 448.150 & 448.273

333-061-0031 Maximum Residual Disinfectant Levels

(1) The maximum residual disinfectant levels (MRDLs) are specified as follows in

Table 8

Disinfectant Residual:	MRDL in mg/l:
Chlorine	4.0 (as Cl_2)
Chloramines	4.0 (as Cl_2)
Chlorine dioxide	0.8 (as ClO_2)

(2) Compliance Dates: (a) Community Water Systems and Non-Transient Non-Community Water Systems. These systems serving at least 10,000 people using either surface water or groundwater under the direct influence of surface water must comply with this rule beginning January 1, 2002. Systems serving less than 10,000 people, using either surface water or groundwater under the direct influence of surface water or any system using only groundwater must comply with this rule beginning January 1, 2004.

(b) Transient Non-Community Water Systems. These systems serving at least 10,000 people using surface water or groundwater under the direct influence of surface water using chlorine dioxide as a disinfectant or oxidant must comply with this rule beginning January 1, 2002. Systems serving less than 10,000 people using surface water or groundwater under the direct influence of surface water using chlorine dioxide as a disinfectant or oxidant and systems using only groundwater not under the direct influence of surface water using chlorine dioxide as a disinfectant or oxidant must comply with this rule beginning January 1, 2004.

(3) MRDLs are enforceable in the same manner as maximum contaminant levels (MCLs) as found in OAR 333-061-0030.

Stat. Auth.: ORS 448.131
Stats. Implemented: ORS 431.110, 431.150, 448.131, 448.150 & 448.273

Appendix F
Water Rights Certificates

Watershed Agreements

A) 1904 Presidential Proclamation:

"Whereas, it is provided by section twenty-four of the Act of Congress, approved March third, eighteen hundred and ninety-one, entitled, "An act to repeal timber-culture laws, and for other purposes", "That the President of the United States may, from time to time, set apart and reserve, in any State or Territory having public land bearing forests, in any part of the public lands wholly or in part covered with timber or undergrowth, whether of commercial value or not, as public reservations, and the President shall, by public proclamation, declare the establishment of such reservations and the limits thereof";

And whereas, the public lands in the State of Oregon, within the limits hereinafter described, are in part covered with timber, and it appears that the public good would be promoted by setting apart and reserving said lands as a public reservation;

Now, therefore, I, Theodore Roosevelt, President of the United States, by virtue of the power in me vested by section twenty-four of the aforesaid Act of Congress, do hereby make known and proclaim that there hereby reserved from entry or settlement and set apart as a Public Reservation all those certain tracts, pieces or parcels of land lying and being situate in the State of Oregon and particularly described as follows, to-wit:

In Township eight (8) south, Range thirty-seven (37) East, Willamette Meridian, Oregon, Sections one (1), two (2), three (3), ten (10) to fifteen (15), both inclusive, twenty-two (22) to twenty-seven (27), both inclusive, thirty-four (34), thirty-five (35), and thirty-six (36); in Township nine (9) South, Range thirty-seven (37) East, Sections one (1), two (2), three (3), ten (10) to fourteen (14), both inclusive, and twenty-three (23) to twenty-six (26), both inclusive; in Township eight (8) South, Range thirty-eight (38) East, the west half of the south-east quarter and the south-west quarter of Section five (5), Sections six (6), seven (7), eight (8), seventeen (17) to twenty (20), both inclusive, and twenty-nine (29) to thirty-four (34), both inclusive, and the west half of the north-west quarter and the west half of the south-west quarter of Section thirty-five (35); in Township nine (9) South, Range thirty-eight (38) East, Sections two (2) to thirty (30), both inclusive, and thirty-four (34), thirty-five (35) and thirty-six (36); in Township nine (9) South, Range thirty-nine (39) East, Sections seven (7), eighteen (18), nineteen (19), twenty (20), the west half of the north-west quarter and the west half of the south-west quarter of Section twenty-nine (29), [Section 30 added 9/30/06] Section thirty-one (31), and the west half of the north-west quarter of Section (32).

Excepting from the force and effect of this proclamation all lands which may have been, prior to the date hereof, embraced in any legal entry or covered by any lawful filing duly of

record in the proper United States Land Office, or upon which any valid settlement has been made pursuant to law, and the statutory period within which to make entry or filing of record has not expired: *Provided*, that this exception shall not continue to apply to any particular tract of land unless the entryman, settler or claimant continues to comply with the law under which the entry, filing or settlement was made.

Warning is hereby expressly given to all persons not to make settlement upon the lands reserved by this proclamation.

The reservation hereby established shall be known as the Baker City Forest Reserve.

In Witness Whereof, I have hereunto set my hand and caused the seal of the United States to be affixed. Done at the City of Washington this 5th day of February, in the year of our Land one thousand nine hundred and four and [seal.] of Independence of the United States the one hundred and twenty-eighth."[1]

B) 1912 Cooperative Agreement Between the Secretary of Agriculture and Baker City:

The supplemented usage of the land within the Watershed boundary is determined by the U.S. Forest Service and the City of Baker City under the 1912 Cooperative Agreement. A copy of the agreements are included in Exhibit 2, attached hereto and by this reference incorporated herein. These Agreements states, in short, that the public lands with the Watershed boundary of the Whitman National Forest (now Wallowa-Whitman) are "reserved from all forms of location or entry and set aside as a municipal water-supply reserve for the benefit of the City of Baker City," and that use of the land will not be permitted without the approval of the City of Baker City except for the measures necessary for the proper protection and care of the forest.

C) Memorandums of Understanding:

Memorandums of Understanding have been entered into between the USFS and City, for the management of the Watershed with the purpose of assuring no degradation of the water quality and, ultimately, improving the water quality. A copy of the Memorandum of Understanding between the USFS and the City is included in Appendix 1, attached hereto and by this reference made a part hereof.

D) Non-USFS Land Owners:

1. There are only two privately owned parcels of land in the Watershed that are not managed by USFS. The first is a 160-acre parcel owned by City. The second is a 20-acre patented mining claim located on Marble Creek and owned by Monarch Marble. The Assessor record is attached. No activity has occurred at this location for many years. Property owner discussions were held as recently as 2010 reiterating the requirement for protection of the Watershed. See attached Easement.

2. There are also four parcels of land on Goodrich Creek outside the Watershed boundaries, but within the Watershed's Zone of Influence, Category "A". Easements are in place with private land owners within the Watershed and Zones of Influence are included in Exhibit 3. In addition Baker City has an agreement with Baker County requiring notification of any requested land actions in the Zone of Influence

STATE OF OREGON

COUNTY OF BAKER

CERTIFICATE OF WATER RIGHT

THIS CERTIFICATE ISSUED TO

BAKER CITY
P.O. BOX 650
BAKER CITY, OR 97814

confirms the right to use OF 5.0 CUBIC FEET PER SECOND (CFS) OF THE WATERS OF GOODRICH CREEK, 0.5 CFS FROM COYOTE SPRINGS, 5.0 CFS FROM LITTLE MILL CREEK, 5.0 CFS FROM BIG MILL CREEK, 0.5 CFS FROM HAWK SPRINGS, 1.25 CFS FROM LITTLE MARBLE CREEK, 5.0 CFS FROM BIG MARBLE CREEK, 0.625 CFS FROM CAMPER SPRINGS, 0.5 CFS FROM HERMAN SPRINGS, 5.0 CFS FROM BIG SALMON CREEK, 0.625 CFS FROM HENRY SPRINGS, 0.625 CFS FROM FINLEY SPRINGS, 0.5 CFS FROM LITTLE SALMON SPRINGS, 1.25 CFS FROM LITTLE SALMON CREEK, 0.625 CFS FROM SLUM TOWN SPRINGS, 0.5 CFS FROM ROCK SPRINGS, 0.5 CFS FROM NORTH PRONG OF WASHINGTON GULCH, 0.5 CFS FROM MIDDLE PRONG OF WASHINGTON GULCH, 0.5 CFS FROM SOUTH PRONG OF WASHINGTON GULCH, 0.625 CFS FROM CONN SPRINGS, 0.25 CFS FROM BYAM SPRINGS AND 3.75 CFS FROM ELK CREEK WITH A DATE OF PRIORITY OF 1862; 1.25 CFS OF THE WATERS OF GEE CREEK, 6.25 CFS FROM GOODRICH CREEK, 6.25 CFS FROM MILL CREEK AND 5.0 CFS FROM MARBLE CREEK WITH A DATE OF PRIORITY OF 1868; AND STORAGE IN GOODRICH CREEK RESERVOIR, FROM GOODRICH CREEK WITH A DATE OF PRIORITY OF 1901; FOR MUNICIPAL PURPOSES WITHIN BAKER CITY, BAKER COUNTY, OREGON.

This right was confirmed by decree of the Circuit Court of the State of Oregon for BAKER COUNTY. The decree is of record at Salem, in the Order Record of the WATER RESOURCES DIRECTOR, in Volume 6, at Page 291.

The right to the use of the water is subject to all other conditions and limitations contained in said decree.

The use of water from the new points of diversion shall not exceed the quantity of water that is available at the old points of diversion.

This is a final order in other than contested case. This order is subject to judicial review under ORS 183.484. Any petition for judicial review of the order must be filed within the 60 days of the date of service.

T-5665.SB

Certificate Number 80496

The location of the points of diversion are not specifically described except as follows:

GOODRICH CREEK (OLD AUBURN DITCH DIVERSION) - E 1 /2 SW 1/4 SE 1/4, SECTION 34, TOWNSHIP 8 SOUTH, RANGE 38 EAST, W.M.; AND

GOODRICH CREEK (OLD NELSON OR NEWTON & STURGILL DITCH DIVERSION) - S 1/2 SW 1/4 SE 1/4, SECTION 34, TOWNSHIP 8 SOUTH, RANGE 38 EAST, W.M.

BIG MARBLE CREEK (OLD POINT OF DIVERSION) NW 1/4 NW 1/4, SECTION 13, TOWNSHIP 9 SOUTH, RANGE 38 EAST, W.M.; 972 FEET SOUTH AND 339.8 FEET EAST FROM THE NW CORNER OF SECTION 13.

MARBLE SPRINGS INTAKE (NEW DIVERSION) - NW 1/4 NW 1/4, SECTION 13, TOWNSHIP 9 SOUTH, RANGE 38 EAST, W.M.; 931.2 FEET SOUTH AND 127.6 FEET EAST FROM THE NORTHWEST CORNER OF SECTION 13.

GOODRICH CREEK (NEW DIVERSION) - SE 1/4 SE 1/4, SECTION 35, TOWNSHIP 8 SOUTH, RANGE 38 EAST, W.M.; 80 FEET SOUTH AND 610 FEET EAST FROM THE NW CORNER, SE 1/4 SE 1/4, SECTION 35.

This certificate is issued to correctly describe the date of priority, confirms changes in POINTS OF DIVERSION approved by an orders of the Water Resources Director entered JANUARY 12, 1962, AND JANUARY 19, 1988, and supersedes Certificate 9608, State Record of Water Right Certificates.

Issued January 15, 2004.

Paul R. Cleary, Director
Water Resources Department

Recorded in State Record of Water Right Certificates Number 80496.

T-5665.SB

Application No. G-8381 C Permit No. G 7635

STATE OF OREGON WATER RESOURCES DEPARTMENT

Application for a Permit to Appropriate Ground Water

RECEIVED
AUG 16 1977
WATER RESOURCES DEPT
SALEM, OREGON

XX The City of Baker, a municipal corporation (Name of Applicant)

of Box 650 (Mailing Address), Baker (City)

State of Oregon, 97814 (Zip Code) Phone No. 523-4437 do hereby

make application for a permit to appropriate the following described ground waters of the State of Oregon:

1. The development will consist of one well already existing 16 in. to 500 ft. (Give number of wells, tile lines, infiltration galleries, etc.)

having a diameter of 10 in. to 800 ft. and an estimated depth of 800 feet.

2. The well or other source is to be located 166.28 ft. S. (N. or S.) and 673.93 ft. W. (E. or W.)

from the S. E. corner of S. W. ¼ of the N. E. ¼ of section 19 (Public Land Survey Corner)

T 9 S R 40 E W. M. Baker County, Oregon (If there is more than one well, each must be described)

being within the N. W. ¼ of the S. E. ¼ of

Sec. 19 Tp. 9 R. 40 E, W. M., in the county of Baker

3. Location of area to be irrigated, or place of use if use other than irrigation.

Township	Range	Section	List ¼ ¼ of Section	List use and/or number of acres to be irrigated
T 9 S	R 40 E	6	S½, SE¼ of sec 6	Municipal use
T 9 S	R 40 E	5	S½, S½ of sec 5	" " "
T 9 S	R 40 E	4	S½, S½ of sec 4	" " "
T 9 S	R 40 E	3	S½, SW¼ of sec 3	" " "
T 9 S	R 40 E	7	E½ of sec 7	" " "
T 9 S	R 40 E	8	ALL	" " "
T 9 S	R 40 E	9	ALL	" " "
T 9 S	R 40 E	10	W½ of sec 10	" " "
T 9 S	R 40 E	13	S½ SE¼, NE¼ &	" " "
T 9 S	R 40 E	"	N½ NE¼ SE¼ sec13	" " "
T 9 S	R 40 E	18	E½ of sec 18 & S¼,	
T 9 S	R 40 E	"	NW¼ & N½ & SW¼ sec 18	" "
T 9 S	R 40 E	17 & 16	ALL	" " "
T 9 S	R 40 E	15	NW¼ sec 15, & N ½,	
T 9 S	R 40 E	"	SW¼ of sec 15	" " "
T 9 S	R 40 E	19	E½ of sec 19	" " "
T 9 S	R 40 E	20 & 21	All	" " "
T 9 S	R 40 E	30	E½ of NE¼ of sec 30	" " "
T 9 S	R 40 E	29	N½ of sec 29	" " "
T 9 S	R 40 E	28	N½ of sec 28	" " "

these should be 39 E

4. It is estimated that 20 feet of the well will require 16" steel (Kind) casing.

5. Depth to water table is estimated 177 (Feet) Well drilled by Wallace Well Drilling

Form 690-3-0-1-77

6. *The amount of water which the applicant intends to apply to beneficial use is* ..... *cubic feet per second or* 2400 ..... *gallons per minute.*

7. *The use to which the water is to be applied is* municipal water supply

8. *If the flow to be utilized is artesian, the works to be used for the control and conservation of the supply when not in use must be described.*

non atresian

9. *If the location of the well, or other development work is less than one-fourth mile from a natural stream channel, give the distance to the channel and the difference in elevation between the stream bed and the ground surface at the source of development.*

More than ¼ mile from natrual stream.

10. *DESCRIPTION OF WORKS*

Include length and dimensions of supply ditch or pipeline, size and type of pump and motor, type of irrigation system to adequately describe the proposed distribution system.

Water will be conducted via 225' of 10" CI pipeline to city distribution reservoir.

11. *Construction work will begin on or before* started 7-18-77

12. *Construction work will be completed on or before* Completed 7-30-77

13. *The water will be completely applied to the proposed use on or before* 10-15-77

14. *If the ground water supply is supplemental to an existing supply, identify the supply and existing water right.* well will be used to supplement existing municipal water supply.

Application No. G-8381 *Permit No.* G 7635

Remarks:

James J Adamson
Director of Public Works
Signature of Applicant
City of Baker

This is to certify that I have examined the foregoing application, together with the accompanying maps and data, and return the same for completion

In order to retain its priority, this application must be returned to the Water Resources Director with corrections on or before December 6, *19*77

WITNESS my hand this 6th *day of* October, *19*77

James E. Sexson *Water Resources Director*

By Larry Tolt
Larry Tolt

RECEIVED
OCT 13 1977
WATER RESOURCES DEPT.
SALEM, OREGON

This instrument was first received in the office of the Water Resources Director at Salem, Oregon, on the 16 *day of* August, *19*77, *at* 11:00 *o'clock* A *M.*

Application No. G-8381 *Permit No.* G 7635

G 8352

Application No. G-8381 Permit No. G 7635

Permit to Appropriate the Public Waters of the State of Oregon

This is to certify that I have examined the foregoing application and do hereby grant the same, SUBJECT TO EXISTING RIGHTS INCLUDING THE EXISTING MINIMUM FLOW POLICIES ESTABLISHED BY THE WATER POLICY REVIEW BOARD and the following limitations and conditions:

The right herein granted is limited to the amount of water which can be applied to beneficial use and shall not exceed 5.3 *cubic feet per second measured at the point of diversion from the well or source of appropriation, or its equivalent in case of rotation with other water users, from* a well

The use to which this water is to be applied is municipal

If for irrigation, this appropriation shall be limited to ..... *of one cubic foot per second or its equivalent for each acre irrigated and shall be further limited to a diversion of not to exceed* ..... *acre feet per acre for each acre irrigated during the irrigation season of each year;*

and shall be subject to such reasonable rotation system as may be ordered by the proper state officer.

The well shall be constructed in accordance with the General Standards for the Construction and Maintenance of Water Wells in Oregon.

The works constructed shall include an air line and pressure gauge or an access port for measuring line, adequate to determine water level elevation in the well at all times.

The permittee shall install and maintain a weir, meter, or other suitable measuring device, and shall keep a complete record of the amount of ground water withdrawn.

The priority date of this permit is August 16, 1977

Actual construction work shall begin on or before December 2, 1978 *and shall thereafter be prosecuted with reasonable diligence and be completed on or before October 1, 19*79

*Complete application of the water to the proposed use shall be made on or before October 1, 19*80

WITNESS my hand this 2nd *day of* December, *19*77

James E. Sexson

W Resources Director

690 10-DGBC

STATE OF OREGON

COUNTY OF BAKER

CERTIFICATE OF WATER RIGHT

This is to certify, *That* CITY OF BAKER

of PO Box 650, Baker *, State of* Oregon 97814 *, has made proof to the satisfaction of the Water Resources Director, of a right to the use of the waters of* a well

a tributary of Powder River *for the purpose of* municipal

under Permit No. G-7635 *and that said right to the use of said waters has been perfected in accordance with the laws of Oregon; that the priority of the right hereby confirmed dates from* August 16, 1977

that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 5.3 cubic feet per second

or its equivalent in case of rotation, measured at the point of diversion from the well. The well is located in the NW 1/4 SE 1/4, Section 19, T9S, R40E, WM; 200 feet South and 700 feet West from SE Corner of SW 1/4 NE 1/4, Section 19.

The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, shall be limited to ---------- *of one cubic foot per second per acre,*

and shall conform to such reasonable rotation system as may be ordered by the proper state officer.

A description of the place of use under the right hereby confirmed, and to which such right is appurtenant, is as follows:

S 1/2 SE 1/4 NE 1/4
N 1/2 NE 1/4 SE 1/4
Section 13
Township 9 South, Range 39 East, WM

S 1/2 SE 1/4
Section 6

S 1/2 S 1/2
Section 5

S 1/2 S 1/2
Section 4

SEE NEXT PAGE

690-10-DGBC

STATE OF OREGON

COUNTY OF BAKER

CERTIFICATE OF WATER RIGHT

This is to certify, *That* CITY OF BAKER

of PO Box 650, Baker *, State of* Oregon 97814 *, has made proof to the satisfaction of the Water Resources Director, of a right to the use of the waters of* a well

a tributary of Powder River *for the purpose of* municipal

under Permit No. G-7635 *and that said right to the use of said waters has been perfected in accordance with the laws of Oregon; that the priority of the right hereby confirmed dates from* August 16, 1977

that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 5.3 cubic feet per second

or its equivalent in case of rotation, measured at the point of diversion from the well. The well is located in the NW 1/4 SE 1/4, Section 19, T9S, R40E, WM; 200 feet South and 700 feet West from SE Corner of SW 1/4 NE 1/4, Section 19.

The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, shall be limited to ---------- *of one cubic foot per second per acre,*

and shall conform to such reasonable rotation system as may be ordered by the proper state officer.

A description of the place of use under the right hereby confirmed, and to which such right is appurtenant, is as follows:

S 1/2 SE 1/4 NE 1/4
N 1/2 NE 1/4 SE 1/4
Section 13
Township 9 South, Range 39 East, WM

S 1/2 SE 1/4
Section 6

S 1/2 S 1/2
Section 5

S 1/2 S 1/2
Section 4

SEE NEXT PAGE

S 1/2 SW 1/4
Section 3

E 1/2
Section 7

ALL
Section 8

ALL
Section 9

W 1/2
Section 10

E 1/2
S 1/4 NW 1/4
N 1/4 SW 1/4
Section 18

ALL
Section 16

ALL
Section 17

NW 1/4
N 1/2 SW 1/4
Section 15

E 1/2
Section 19

ALL
Section 20

ALL
Section 21

E 1/2 NE 1/4
Section 30

N 1/2
Section 29

N 1/2
Section 28
Township 9 South, Range 40 East, WM

The right to the use of the water for the purposes aforesaid is restricted to the lands or place of use herein described.

WITNESS the signature of the Water Resources Director, affixed this date. December 8, 1983

William H. Young
Water Resources Director

Recorded in State Record of Water Right Certificates, Volume 46 *, page* 51748

7091B

NOTICE TO WATER WELL CONTRACTOR: The original and first copy of this report are to be filed with the WATER RESOURCES DEPARTMENT, SALEM, OREGON 97310 within 30 days from the date of well completion.

RECEIVED
AUG 3 1977
WATER RESOURCES DEPT.
SALEM, OREGON

WATER WELL REPORT
STATE OF OREGON
(Please type or print)
(Do not write above this line)

Baker 1148

State Well No. 9S/40E-19Q1
State Permit No. G-7635

(1) OWNER:
Name CITY OF BAKER #1
Address BAKER, OREGON

(2) TYPE OF WORK (check):
New Well ☑ Deepening ☐ Reconditioning ☐ Abandon ☐
If abandonment, describe material and procedure in Item 12.

(3) TYPE OF WELL:
Rotary ☑ Driven ☐
Cable ☐ Jetted ☐
Dug ☐ Bored ☐

(4) PROPOSED USE (check):
Domestic ☐ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

CASING INSTALLED:
Threaded ☐ Welded ☑
16" Diam. from +2 ft. to -20 ft. Gage .250
" Diam. from ft. to ft. Gage
" Diam. from ft. to ft. Gage

PERFORATIONS:
Perforated? ☐ Yes ☑ No
Type of perforator used
Size of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

(7) SCREENS:
Well screen installed? ☐ Yes ☑ No
Manufacturer's Name
Type Model No.
Diam. Slot size Set from ft. to ft.
Diam. Slot size Set from ft. to ft.

(8) WELL TESTS:
Drawdown is amount water level is lowered below static level
Was a pump test made? ☐ Yes ☑ No If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
EST. 1500 GPM AIR LIFT "
(PUMP TEST WILL BE MADE LATER) "
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m.
Temperature of water 68 Depth artesian flow encountered NONE ft.

(9) CONSTRUCTION:
Well seal—Material used NEAT CEMENT
Well sealed from land surface to 20 ft.
Diameter of well bore to bottom of seal 20 in.
Diameter of well bore below seal 16 in.
Number of sacks of cement used in well seal 15 sacks
How was cement grout placed?

Was a drive shoe used? ☐ Yes ☑ No Plugs Size: location ft.
Did any strata contain unusable water? ☐ Yes ☑ No
Type of water? depth of strata
Method of sealing strata off
Was well gravel packed? ☐ Yes ☑ No Size of gravel:
Gravel placed from ft. to ft.

(10) LOCATION OF WELL:
County BAKER Driller's well number 024-77
NW ¼ SE ¼ Section 19 T. 9S. R. 40E. W.M.
Bearing and distance from section or subdivision corner

(11) WATER LEVEL: Completed well.
Depth at which water was first found 195 ft.
Static level 177 ft. below land surface. Date 7-30-77
Artesian pressure lbs. per square inch. Date

(12) WELL LOG:
16" to 500 ft. Diameter of well below ~~casing~~ 10" to 800
Depth drilled 800 ft. Depth of completed well 800 ft.

Formation: Describe color, texture, grain size and structure of materials; and show thickness and nature of each stratum and aquifer penetrated, with at least one entry for each change of formation. Report each change in position of Static Water Level and indicate principal water-bearing strata.

MATERIAL	From	To	SWL
SLT. SOIL	0	2	
MED. HARD BROWN BASALT	2	68	
GREY BASALT	68	110	
BROWN BASALT	110	173	
BROKEN BROWN W/SOAPSTONE	173	195	W.B.
SOFT, BROWN W/SOAPSTONE	195	236	
BROWN BASALT	237	270	
RED BASALT	270	276	W.B.
BROWN BASALT	276	316	
BROKEN BROWN "	316	320	W.B.
BROKEN W/SOAPSTONE	320	355	
HARD GREY BASALT	355	381	
RED BROKEN BASALT	381	400	W.B.
GREY "	400	505	
HARD GREY BROKEN	505	528	
GREY W/SOAPSTONE	528	633	
HARD GREY BASALT	633	700	
SOFT GREY & BROKEN	700	711	W.B.
SOFT GREY	711	800	

Work started 7-18 19 77 Completed 7-30 19 77
Date well drilling machine moved off of well 8-1 19 77

Drilling Machine Operator's Certification:
This well was constructed under my direct supervision. Materials used and information reported above are true to my best knowledge and belief.
[Signed] (Drilling Machine Operator) Date 8-1, 19 77
Drilling Machine Operator's License No. 886

Water Well Contractor's Certification:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.
Name WALLACE WELL DRLG. CO. (Person, firm or corporation) (Type or print)
Address 2 SKYLINE DR. PENDLETON
[Signed] (Water Well Contractor)
Contractor's License No. 583 Date 8-1, 19 77

(USE ADDITIONAL SHEETS IF NECESSARY)

SP*45656-119

BAKE 51221

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)
Instructions for completing this report are on the last page of this form.

WELL I.D. # L 55508
START CARD # 163029

(1) LAND OWNER Well Number
Name CITY OF BAKER CITY
Address P.O. BOX 650
City BAKER CITY State ORE. Zip 97814

(2) TYPE OF WORK
☐ New Well ☐ Deepening ☒ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:
☐ Rotary Air ☐ Rotary Mud ☒ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:
☐ Domestic ☒ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☒ No Depth of Completed Well 518 ft.
Explosives used ☐ Yes ☒ No Type Amount

HOLE Diameter	From	To	Material	SEAL - NOT DISTURBED From	To	Sacks or pounds
15"	500'	520'				

How was seal placed: Method ☐A ☐B ☐C ☐D ☐E
☐ Other OCCURRED
Backfill placed from 520 ft. to 570 ft. Material BASALT FRAGMENTS
Gravel placed from ft. to ft. Size of gravel

(6) ~~CASING~~/LINER: - MEASUREMENTS FROM GROUND SURFACE

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
LINER ~~Casing~~	14"	3'	43'	.250"	☑	☐	☑	☐
CONE	14"x12"	345'	343.5'	.375"	☑	☐	☑	☐
	12"	345'	507.5'	.250"	☑	☐	☑	☐
	12"	507.5'	518'	.375"	☑	☐	☑	☐
Liner:					☐	☐	☐	☐
RING					☐	☐	☐	☐

Drive ~~shoe~~ used ☑ Inside ☐ Outside ☐ None
Final location of ~~shoe~~ RING : 518' (RING is 12" O.D. X 10" I.D. 1" THICK)

(7) PERFORATIONS/SCREENS:
☑ Perforations Method Punched SLOT
☑ Screens Type V-SLOT Material 304 SS

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
345'	507.5'	3"x1/4"	7344	12"		☐	☑
43'	343.5'	100		14"	PS	☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
		N/A	1 hr.

Temperature of water Depth Artesian Flow Found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:

(9) LOCATION OF WELL by legal description:
County BAKER Latitude Longitude
Township 9S N or S Range 40E E or W, WM.
Section 19 NE 1/4 SW 1/4
Tax Lot 600 Lot Block Subdivision
Street Address of Well (or nearest address) 4100 INDIANA AVE. BAKER CITY, ORE. 97814

(10) STATIC WATER LEVEL:
240 ft. below land surface. Date 02-13-04
Artesian pressure lb. per square inch Date

(11) WATER BEARING ZONES:
Depth at which water was first found

From	To	Estimated Flow Rate	SWL
	N/A		

(12) WELL LOG:
Ground Elevation

Material	From	To	SWL
- ATTEMPT TO CLEAN USING AN 8" BIT :	ORIGINAL HOLE 500'	570'	
- ORIGINAL HOLE ENLARGED FROM 10" TO 15" DIAMETER	500'	520'	
- BACKFILLING OF HOLE OCCURRED WHILE ENLARGING ~~HOR~~ REAMING 10" TO 15"			
BACKFILL	520'		
BOTTOM OF BACKFILLED HOLE ASSUMED TO BE	UNKNOWN & 570'		

RECEIVED
MAY 07 2004
WATER RESOURCES DEPT
SALEM, OREGON

Date started DECEMBER 10, '03 Completed FEB. 13, '04

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
WWC Number
Signed Date

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 633
Signed Michael Waldroop Date 05-01-04

ORIGINAL – WATER RESOURCES DEPARTMENT FIRST COPY – CONSTRUCTOR SECOND COPY – CUSTOMER

BAKE 51307

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765)
Instructions for completing this report are on the last page of this form.

(WELL I.D.)# L 55508
(START CARD) # 167811

(1) OWNER: Well Number Baker 1148
Name City of Baker City
Address PO Box 650
City Baker City State OR Zip 97814

(2) TYPE OF WORK
☐ New Well ☐ Deepening ☑ Alteration (repair/recondition) ☐ Abandonment

(3) DRILL METHOD:
☑ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger
☐ Other

(4) PROPOSED USE:
☐ Domestic ☑ Community ☐ Industrial ☐ Irrigation
☐ Thermal ☐ Injection ☐ Livestock ☐ Other test

(5) BORE HOLE CONSTRUCTION:
Special Construction approval ☐ Yes ☑ No Depth of Completed Well 800 ft.
Explosives used ☐ Yes ☐ No Type ____ Amount ____

HOLE Diameter	From	To	Material	SEAL From	To	Sacks or pounds
			See Baker 1148			
			for original			
			Construction			
			data.			

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☐ Other
Backfill placed from 748 ft. to 800 ft. Material Pea Gravel
Gravel placed from ____ ft. to ____ ft. Size of gravel ____

(6) CASING/LINER:

	Diameter	From	To	Gauge	Steel	Plastic	Welded	Threaded
Casing:					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐
Liner:					☐	☐	☐	☐
					☐	☐	☐	☐

Final location of shoe(s)

(7) PERFORATIONS/SCREENS:
☐ Perforations Method
☑ Screens Type Louvered Material steel

From	To	Slot size	Number	Diameter	Tele/pipe size	Casing	Liner
503	748	.250	5,880	6"	pipe	☐	☑
						☐	☐
						☐	☐
						☐	☐
						☐	☐

(8) WELL TESTS: Minimum testing time is 1 hour
☑ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal/min	Drawdown	Drill stem at	Time
1,800	54.5		1 hr.

Temperature of water F Depth Artesian Flow Found
Was a water analysis done? ☐ Yes By whom
Did any strata contain water not suitable for intended use? ☐ Too little
☐ Salty ☐ Muddy ☐ Odor ☐ Colored ☐ Other
Depth of strata:

(9) LOCATION OF WELL by legal description:
County Baker Latitude ____ Longitude ____
Township 9 S Range 40 E WM.
Section 19 NE 1/4 SW 1/4
Tax Lot 600 Lot ____ Block ____ Subdivision ____
Street Address of Well (or nearest address) 4100 Indiana Ave., Baker City, OR 97814

(10) STATIC WATER LEVEL:
229.4 ft. below land surface. Date 12-14-04
Artesian pressure ____ lb. per square inch. Date ____

(11) WATER BEARING ZONES:
Depth at which water was first found ____

From	To	Estimated Flow Rate	SWL

(12) WELL LOG:
Ground Elevation ____

Material	From	To	SWL
Cleaned existing rock well from 500' to 800'			
and install 6" screen from 503' to 748'			
Pull upper liner assembly up 4.5' from			
originally located by Stettler.			

RECEIVED
JAN 25 2005
WATER RESOURCES DEPT
SALEM, OREGON

Date started 11/17/04 Completed 12/27/04

(unbonded) Water Well Constructor Certification:
I certify that the work I performed on the construction, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
WWC Number 1709
Signed ____ Date 01/19/05

(bonded) Water Well Constructor Certification:
I accept responsibility for the construction, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
WWC Number 1523
Signed ____ Date 01/19/05

ORIGINAL & FIRST COPY-WATER RESOURCES DEPARTMENT SECOND COPY-CONSTRUCTOR THIRD COPY-CUSTOMER

STATE OF OREGON

COUNTY OF BAKER

CERTIFICATE OF WATER RIGHT

This Is to Certify, *That* CITY OF BAKER

of City Hall, Baker , *State of* Oregon , *has made proof*

to the satisfaction of the STATE ENGINEER of Oregon, of a right to store the waters of Goodrich Creek, tributary of Powder River, appropriated under application number 34874, permit number 27371 in Goodrich Reservoir

for the purposes of municipal use

under Reservoir Permit No. R-2615 *of the State Engineer, and that said right to store said waters has been perfected in accordance with the laws of Oregon; that the priority of the right hereby confirmed dates from* May 4, 1961

that the amount of water entitled to be stored each year under such right, for the purposes aforesaid, shall not exceed 233.2 additional acre feet

The reservoir is located in

NE¼ SE¼
NW¼ SE¼
Section 4
T. 9 S., R. 38 E., W. M.

WITNESS the signature of the State Engineer, affixed this date. July 5, 1973

CHRIS L. WHEELER
State Engineer

Recorded in State Record of Water Right Certificates, Volume 31 *, page* 39253

STATE OF OREGON

COUNTY OF BAKER

CERTIFICATE OF WATER RIGHT

This Is to Certify, That **CITY OF BAKER**

of **City Hall, Baker** **97814**, State of **Oregon**, has made proof to the satisfaction of the STATE ENGINEER of Oregon, of a right to the use of the waters of **Goodrich Reservoir constructed under application number R-34873, permit number R-2615**

a tributary of **Powder River** for the purpose of **municipal**

under Permit No. **27371** of the State Engineer, and that said right to the use of said waters has been perfected in accordance with the laws of Oregon; that the priority of the right hereby confirmed dates from **May 4, 1961**

that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed **233.2 acre feet stored water only to be appropriated at a rate of not to exceed 10.8 cubic feet per second**

or its equivalent in case of rotation, measured at the point of diversion from the stream. The point of diversion is located in the **NE¼ SE¼, Section 4, T. 9 S., R. 38 E., W. M., 120 feet South and 1020 feet West from E¼ Corner, Section 4.**

The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, shall be limited to of one cubic foot per second per acre,

and shall conform to such reasonable rotation system as may be ordered by the proper state officer.

A description of the place of use under the right hereby confirmed, and to which such right is appurtenant, is as follows:

E½ SE¼
Section 7
SW¼
W½ SE¼
Section 8
E½ SW¼
N½ SE¼
SW¼ SE¼
Section 9
Section 16
Section 17
E½ NE¼
E½ SE¼
Section 18
E½ NE¼
NE¼ SE¼
Section 19
NE¼
E½ NW¼
NW¼ NW¼
S½
Section 20
N½ NE¼
NW¼
SW¼
NW¼ SE¼
Section 21
N½ NE¼
SE¼ NE¼
Section 29

T. 9 S., R. 40 E., W. M.

The right to the use of the water for the purposes aforesaid is restricted to the lands or place of use herein described.

WITNESS the signature of the State Engineer, affixed this date. **July 5, 1973**

CHRIS L. WHEELER

State Engineer

Recorded in State Record of Water Right Certificates, Volume **31**, page **39254**

STATE OF OREGON

COUNTY OF BAKER

CERTIFICATE OF WATER RIGHT

This Is to Certify, *That* CITY OF BAKER

of PO Box 650, Baker *, State of* Oregon 97814 *, has made proof to the satisfaction of the Water Resources Director, of a right to the use of the waters of* Sam-O-Spring

a tributary of *for the purpose of*
municipal uses except potable water

under Permit No. 41868 *and that said right to the use of said waters has been perfected in accordance with the laws of Oregon; that the priority of the right hereby confirmed dates from* March 9, 1977
that the amount of water to which such right is entitled and hereby confirmed, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 1.34 cubic feet per second

or its equivalent in case of rotation, measured at the point of diversion from the stream. The point of diversion is located in the NE 1/4 SE 1/4, Section 16, T9S, R40E, WM; 840 feet South and 620 feet West from E 1/4 Corner of Section 16

The amount of water used for irrigation, together with the amount secured under any other right existing for the same lands, shall be limited to---------- of one cubic foot per second per acre,

and shall conform to such reasonable rotation system as may be ordered by the proper state officer.

A description of the place of use under the right hereby confirmed, and to which such right is appurtenant, is as follows:

SEE NEXT PAGE

E 1/2 SE 1/4
Section 7

S 1/2
Section 8

S 1/2
Section 9

All
Section 16

All
Section 17

E 1/2 E 1/2
Section 18

E 1/2 E 1/2
Section 19

All
Section 20

All
Section 21

N 1/2
Section 28

N 1/2
Section 29

E 1/2 NE 1/4
Section 30
Township 9 South, Range 40 East, WM

The right to the use of the water for the purposes aforesaid is restricted to the lands or place of use herein described. and is subject to the existing minimum flow policies established by the Water Policy Review Board

WITNESS the signature of the Water Resources Director, affixed this date. November 22, 1982

Water Resources Director

Recorded in State Record of Water Right Certificates, Volume 46 *, page* 51234

17208

STATE OF OREGON

COUNTY OF BAKER

CERTIFICATE OF WATER RIGHT

This is to Certify, *That* THE CITY OF BAKER

of Baker *, State of* Oregon *has a right to the use of the waters of* Powder River, a tributary of Snake River

for the purpose of the irrigation of 25 acres of land, and municipal purposes

and that said right has been confirmed by decree of the Circuit Court of the State of Oregon for Baker *County, and the said decree entered of record at Salem, in the Order Record of the STATE WATER BOARD of the State of Oregon, in Volume* 6 *, at page* 291*; that the priority of the right thereby confirmed dates from* November 5, 1892

that the amount of water to which such right is entitled, for the purposes aforesaid, is limited to an amount actually beneficially used for said purposes, and shall not exceed 1/40 of one cubic foot per second per acre; and shall be subject to all other conditions and limitations contained in said decree.

A description of the lands irrigated under such right, and to which the water is appurtenant (or, if for other purposes, the place where such water is put to beneficial use), is as follows: 25 acres in lots and blocks and City Park within the city limits of Baker, as the individual interests may appear.

The right to the use of the water for irrigation purposes is restricted to the lands or place of use herein described.

WITNESS the seal and signature of the State Water Board, affixed this 15th *day of* February *, 192* 3

STATE WATER BOARD

(*Seal of State Water Board*)

By PERCY A. CUPPER
State Engineer, President

Attest:

R. W. POTTER
Secretary

Recorded in State Record of Water Right Certificates, Volume 5 *, page* 3987.