City of Victor
Source Water Protection Plan

Teller County, Colorado
March 10, 2014

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Safe Water Consulting LLC
For the Community Water Provider:
City of Victor, PWSID# CO0160700

Aerial cover photo of the City of Victor was provided by Google Earth

This Source Water Protection Plan for the City of Victor was developed using the Colorado Rural Water Association's Source Water Protection Plan Template.

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ACRONYMS

ATSDR	Agency for Toxic Substances and Disease Registry
BLM	Bureau of Land Management
BMP	Best Management Practice
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
COGCC	Colorado Oil and Gas Conservation Commission
CRWA	Colorado Rural Water Association
DOI	Department of the Interior
EPA	Environmental Protection Agency
GIS	Geographic Information System
HUC	Hydrologic Unit Code
IPCC	Intergovernmental Panel on Climate Change
NRCS	Natural Resources Conservation Service
PSOC	Potential Source of Contamination
SDWA	Safe Drinking Water Act
SWAA	Source Water Assessment Area
SWAP	Source Water Assessment and Protection
SWPA	Source Water Protection Area
SWPP	Source Water Protection Plan
USDA	United States Department of Agriculture
USFS	United States Forest Service
USGS	United States Geological Survey

EXECUTIVE SUMMARY

There is a growing effort in Colorado to protect community drinking water sources from potential contamination. Many communities are taking a proactive approach to preventing the pollution of their drinking water sources by developing a source water protection plan. A source water protection plan identifies a source water protection area, lists potential contaminant sources and outlines best management practices to implement to decrease risks to the water source. Implementation of a source water protection plan provides an additional layer of protection at the local level beyond drinking water regulations.

The City of Victor values a clean, high quality drinking water supply and decided to work collaboratively with area stakeholders to develop a Source Water Protection Plan. The source water protection planning effort consisted of public planning meetings and individual meetings with water operators, government, and agency representatives during the months of July 2012 to March 2014 at
Victor City Hall, 500 Victor Avenue, Victor, CO 80860. During the development of this Plan, a Steering Committee was formed to develop and implement this Source Water Protection Plan. Colorado Rural Water Association was instrumental in this effort by providing technical assistance in the development of this Source Water Protection Plan.

The City of Victor obtains its drinking water from the Gillette Alluvial Aquifer. Water is pumped to the City's treatment facility through a 12-inch, 6 mile long pipeline from one surface water intake, the Altman Intake on West Beaver Creek, a tributary of the Arkansas River. The City maintains two water storage reservoirs upstream from the intake, Victor Reservoir #2 and Bison Park Reservoir. In addition, the City purchases water from the City of Cripple Creek in order to satisfy the needs of the customers within their water district. The Source Water Protection Area for these water sources is located northeast of Victor, and includes the East and West Forks of the West Beaver Creek drainage, on the western flank of Pikes Peak. The SWPA drains an estimated 20.44 square miles (13,081.6 acres). This Source Water Protection Area is the area that the City of Victor has chosen to focus its source water protection measures to reduce source water susceptibility to contamination.

The Steering Committee conducted an inventory of potential contaminant sources and identified other issues of concern within the Source Water Protection Area. Through this process, it was determined that the highest priority potential contaminant sources and/or issues of concern are:

- Ash, silt and sediment as a result of forest fires.
- Updating the Watershed District Ordinance and creating an Intergovernmental Agreement between The City of Victor and Teller County. The ordinance gives municipalities the right to enact watershed protection ordinances and regulations for the purpose of maintaining and protecting waterworks.
- Transportation related pollution as a result of runoff from roadways.

The complete inventory is included in the section entitled Discussion of Potential Contaminant Sources and Issues of Concern.
The Steering Committee developed several best management practices that may help reduce the risks from the potential contaminant sources and other issues of concern.

The best management practices are centered on the themes of building partnerships with community members, businesses, and local decision makers; raising awareness of the value of protecting community drinking water supplies; and empowering local communities to become stewards of their drinking water supplies by taking actions to protect their water sources.

The following list highlights best management practices which pertain to the highest priority potential contaminant sources and other issues of concern.

- Provide a copy of the final Source Water Protection Plan along with GIS shape files of the source water protection area to US Forest Service, the Northeast Teller County Fire Protection District, and the Teller County Office of Emergency Management for consideration during fire suppression as well as when planning and implementing wild land fire mitigation projects.

- Identify, plan, and budget for an emergency backup power supply at the pumps on the Cripple Creek wells so that drinking water operations can continue in the event that a fire disrupts the power supply.

- Accidents, Incidents, and Spills – Distribute City of Victor Emergency Response Cards to all local emergency responders (State Patrol, Teller County Sheriff's Office, Teller County Office of Emergency Management, and Northeast Teller County Fire Protection District, CDOT, City of Victor and City of Cripple Creek Fire Departments and especially local dispatch), and keep the information on the emergency response cards updated.

- The Victor City Attorney will work with Jim Neu, Rifle City Attorney, to update Victor's Watershed District Ordinance in accordance with Section 31-15-707(1)(b), C.R.S., and Article XX of the State Constitution

The Steering Committee recognizes that the usefulness of this Source Water Protection Plan lies in its implementation and will begin to execute these best management practices upon completion of this Plan.

This Plan is a living document that is meant to be updated to address any changes that will inevitably come. The Steering Committee will review this Plan at a frequency of once each year or if circumstances change resulting in the development of new water sources and source water protection areas, or if new risks are identified.

INTRODUCTION

The City of Victor operates a community water supply system that supplies drinking water to four hundred eighty residents located within Teller County, Colorado. The City of Victor obtains their drinking water from two reservoirs, the Gillette Alluvial aquifer, and one surface water intake on West Beaver Creek in the Upper Arkansas River watershed. The City of Victor recognizes the potential for contamination of the source of their drinking water, and realizes that it is necessary to develop a protection plan to prevent the contamination of this valuable resource. Proactive planning and implementing contamination prevention strategies are essential to protect the long-term integrity of their water supply and to limit their costs and liabilities.[1]

Table 1. Primary Contact Information for City of Victor

PWSID	PWS Name	Name	Title	Address	Phone	Website
160700	City of Victor	Dan Delaney	Public Works Supt.	500 Victor Ave. P.O. Box 86, Victor, CO. 80860	(719) 321-8873	ddelaney@victorco.us

Purpose of the Source Water Protection Plan

The Source Water Protection Plan (SWPP) is a tool for the City of Victor to ensure clean and high quality drinking water sources for current and future generations. This Source Water Protection Plan is designed to:

- Create an awareness of the community's drinking water sources and the potential risks to surface water and/or groundwater quality within the watershed;
- Encourage education and voluntary solutions to alleviate pollution risks;
- Promote management practices to protect and enhance the drinking water supply;
- Provide for a comprehensive action plan in case of an emergency that threatens or disrupts the community water supply.

Developing and implementing source water protection measures at the local level (i.e. county and municipal) will complement existing regulatory protection measures implemented at the state and federal governmental levels by filling protection gaps that can only be addressed at the local level.

Protection Plan Development

[1] The information contained in this Plan is limited to that available from public records and the City of Victor at the time that the Plan was written. Other potential contaminant sites or threats to the water supply may exist in the Source Water Protection Area that are not identified in this Plan. Furthermore, identification of a site as a "potential contaminant site" should not be interpreted as one that will necessarily cause contamination of the water supply.

The Colorado Rural Water Association's (CRWA) Source Water Protection Specialist, Dylan Eiler, helped organize and facilitate the source water protection planning process. The goal of the CRWA's Source Water Protection Program is to assist rural and small communities served by public water systems to reduce or eliminate the potential risks to drinking water supplies through the development of Source Water Protection Plans, and provide assistance for the implementation of prevention measures.

The source water protection planning effort consisted of a series of public planning meetings and individual meetings. Information discussed at the meetings helped the City of Victor develop an understanding of the issues affecting source water protection for the community. The Steering Committee then made recommendations for management approaches to be incorporated into the Source Water Protection Plan. In addition to the planning meetings, data and other information pertaining to Source Water Protection Area was gathered via public documents, internet research, phone calls, emails, and field trips to the protection area. A summary of the meetings is represented below.

Table 2. Planning Meetings

Date	Purpose of Meeting
July 16, 2012	Presentation of the Source Water Protection Planning process to the City of Victor.
September 2, 2012	Field assessment of Victor's water system. This helped in verifying coordinates of intakes and identifying potential contaminant sources.
February 26, 2013	First Planning Meeting - Presentation on the process of developing a Source Water Protection Plan for the City of Victor. Review of the State's Source Water Assessment for Victor, and delineation of the Source Water Protection Area.
April 10, 2013	Second Planning Meeting – Develop and prioritize potential contaminant source inventory. Review and modify State susceptibility analysis.
May 15, 2013	Third Planning Meeting – Develop best management practices for potential contaminant sources and issues of concern.
March 4, 2014	Fourth Planning Meeting – Review draft Source Water Protection Plan and develop Action Plan for implementation of best management practices.

Stakeholder Participation in the Planning Process

Local stakeholder participation is vitally important to the overall success of Colorado's Source Water Assessment and Protection (SWAP) program. Source water protection was founded on the concept that informed citizens, equipped with fundamental knowledge about their drinking water source and the threats to it, will be the most effective advocates for protecting this valuable resource. Local support and acceptance of the Source Water Protection Plan is more likely where local stakeholders have actively participated in the development of their Protection Plan.

The City of Victor's source water protection planning process attracted interest and participation from fifteen stakeholders including local citizens and landowners, private businesses, water operators, local and state governments, and agency representatives.

During the months of July, 2012 through March, 2014 six stakeholder meetings were held. To encourage local stakeholder participation in the planning process, meetings were held at Victor City Hall - 500 Victor Ave, Victor, CO 80860. Stakeholders were notified of meetings via phone calls and email, and input from these participants was greatly appreciated.

Steering Committee

During the development of this Plan, a volunteer Steering Committee was formed from the stakeholder group to develop and implement this Source Water Protection Plan. Specifically, the Steering Committee's role in the source water protection planning process was to advise the City of Victor in the identification and prioritization of potential contaminant sources as well as management approaches that can be voluntarily implemented to reduce the risks of potential contamination of the untreated source water. All members attended at least one Steering Committee meeting and contributed to planning efforts from their areas of experience and expertise. Their representation provided diversity and led to a thorough Source Water Protection Plan. The City of Victor and the Colorado Rural Water Association are very appreciative of the participation and expert input from the following participants.

Table 3. Stakeholders and Steering Committee Members

Stakeholder	Title	Affiliation	Steering Committee Member
Aaron Doussett	Environmental Health Officer	Teller County Environmental Health	X
Dan Delaney	Public Works Superintendent	City of Victor	X

Debra Downs	City Administrator	City of Victor	X
Dylan Eiler	Source Water Protection Specialist	Colorado Rural Water Association	X
Jan Fetrow	Senior Planner	Teller County Planning Department	X
Kim Gortz	Source Water Program PM	Colorado Springs Utilities	X
Mickey Groves	Operator in Responsible Charge	City of Victor	X
Jeffrey Hovermale	Lands, Minerals and Special Uses	US Forest Service - Pikes Peak Ranger District	X
Bret Mathers	Wildlife Technician	Colorado Parks and Wildlife	X
Kevin Riley	Process Manager	Cripple Creek & Victor Gold Mining Co.	X
Tom Slane	Vice President	Balke Trust	X
John Smeins	Hydrologist	BLM	X
Rick Streily	Plan Developer	Safe Water Consulting LLC	
Michael Wallace	Council Member	City of Victor	X
Jeff Williams	President	Balke Trust	X

Development and Implementation Grant

The City of Victor has been awarded a $5,000 Development and Implementation Grant from the Colorado Department of Public Health and Environment (CDPHE). This funding is available to public water systems and representative stakeholders committed to developing and implementing a source water protection plan. A one to one financial match (cash or in-kind) is required. The City of Victor was approved for this grant in November, 2012, and it expires on November 26, 2014. The City of Victor has contracted with Safe Water Consulting to produce the Source Water Protection Plan and sixty percent of the funding will be used to pay for these consulting services, the remaining forty percent will be used to implement, manage and monitor the strategies outlined in this plan.

WATER SUPPLY SETTING

Location and Description

The City of Victor is located in Teller County, on the western slopes of the Front Range in Central Colorado. Established as a Statutory City in 1894, Victor is Teller County's southernmost city. The City of Victor is located 5.4 miles southeast of the Teller County seat, Cripple Creek, and 46 miles west of the City of Colorado Springs at latitude 38°42'35"N, longitude 105°8'27"W (38.709609, -105.140859). Primary access to Victor is via State Highway 24-West, to State Highway 67.

Gold was discovered in Victor in the late 19th century. With the largest gold mines located just above Victor on Battle Mountain, Victor became known as the "City of Gold Mines". The Cripple Creek & Victor Gold Mining Company (CC&V) was formed in 1976. By 1990, CC&V discovered a reserve of over 81 metric tons of contained gold within the Cresson deposit and began the first large-scale open pit mining operation in the district in 1994; run by AngloGold Ashanti Ltd. Various modern mining operations in addition to tourist based enterprises provide employment and revenue for the community. (1) Paraphrased from Wikipedia, The Free Encyclopedia http://en.wikipedia.org/wiki/Victor,_Colorado#History

Victor is governed by a Mayor and four City Council members. Victor is situated at an elevation of 9,780 ft. and covers an area of 0.27 square miles. (2010 Census) The City serves 435 households with a population of 400 local area residents and growth is anticipated to remain level over the next five year period.

The City of Victor's source water protection area includes both private and public lands. The private land including mining claims lie within unincorporated areas of Teller County. The public lands include portions of the Pike National Forest and Bureau of Land Management. Land use on private land consists of ranching and rural residential development.

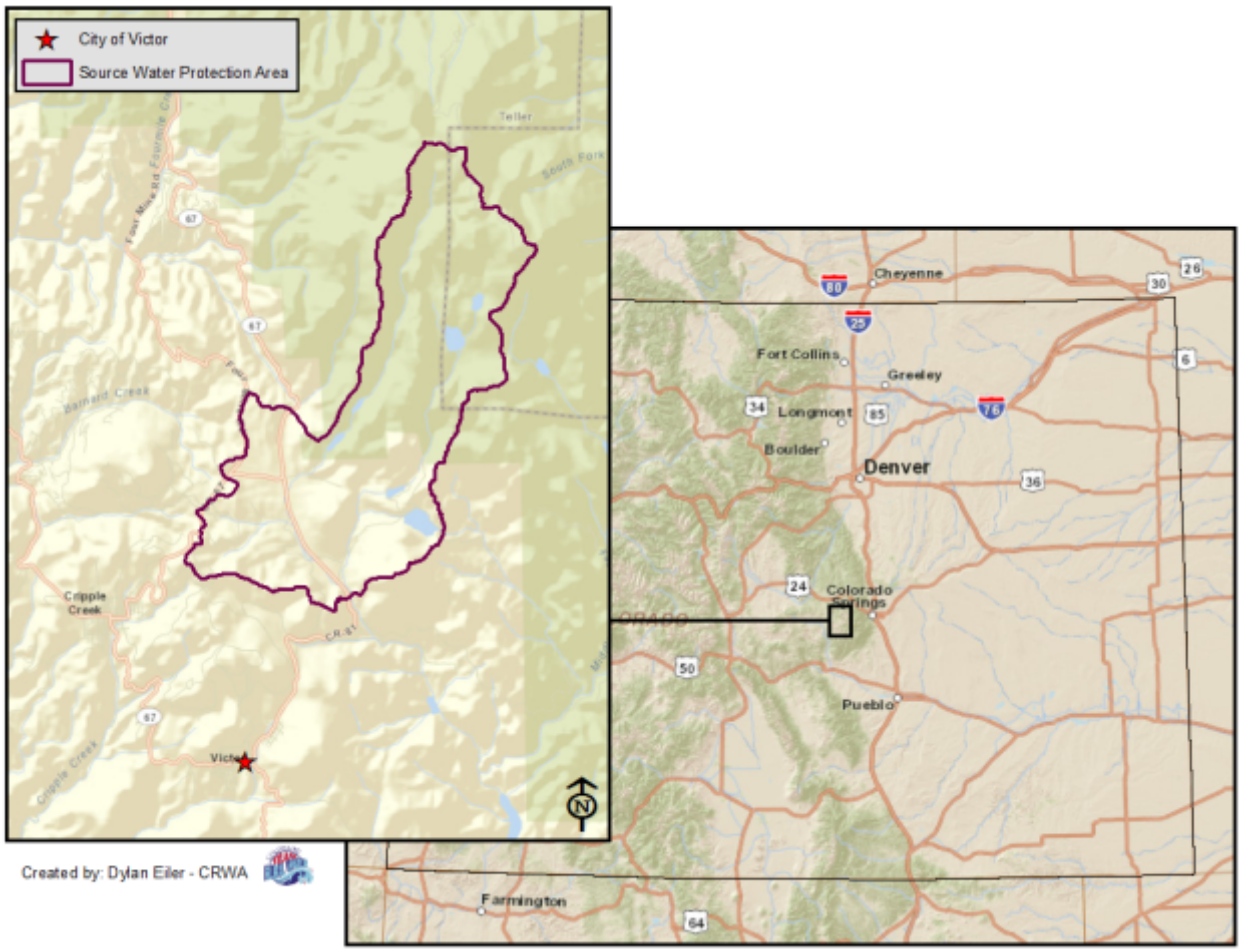


Figure 1. Location Map

Physical Characteristics

Elevations within the source water protection area range from 9,780 feet at the Altman Intake to the flanks of 14,110 ft. Pikes Peak. The area is characterized by a cool and invigorating climate. Climate zones range from Montane to Subalpine, with highs typically reaching 75 °F on the warmest days and commonly falling to reach 60 °F. This area is best characterized by steep, high mountain ranges and associated mountain valleys. The rugged, steep canyons of East and West Beaver Creek define the topography of the Beaver Creek drainage. The mean annual temperature of soils in this region is less than 8° C (46 °F). “Vegetation ranges from sagebrush-grass at lower elevations, and with increasing elevation ranges from coniferous forest and Aspen groves to alpine tundra.” (2) USDA – NRCS Rapid Assessment, Upper Arkansas Watershed, Aug., 2007, Pg. 7. The heaviest rains fall during July and August with average annual precipitation of 18.86 inches. The greatest snowfall occurs during March and April with average annual snowfall of 75.8 inches for the City of Victor. (3) Precipitation data from Wikipedia, The Free Encyclopedia, City of Victor - Climate section http://en.wikipedia.org/wiki/Victor,_Colorado#Climate

Soils

The predominant soil type within the source water protection area consists primarily of loamy type soils. Loam soil is composed of sand, silt and clay and in the Victor SWPA it is accompanied by various quantities of gravel, cobble and boulders. The surface area is often covered with cobbles, stones or boulders.

Soil type B that is present are Aquolls - sandy loam and Catamount - gravelly sandy loam. As defined by the Soil Conservation Service (SCS) soil scientists, Group B soils have moderate infiltration rates when thoroughly wetted. These soils have a moderate rate of water transmission (0.15 – 0.30 in/hr.)

Soil type C that is present is Fulvance – Cobbly loam. Group C soils have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine texture. These soils have a low rate of water transmission (0.05 – 0.15 in/hr).

Soil type D that is present has Bushpark & Catamount rock outcrop complex, slopes of 30 to 70% with sandy and gravelly loam over bedrock. These soils have high runoff potential and very low rate of water transmission when thoroughly wetted (0 - 0.05 IN/HR). (4) Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed [August/12/2013]

Because of the various degrees of soil permeability within the SWPA, contamination to the Victor water supply could occur as a result of a contaminate flowing directly into a tributary over soils with a low rate of transmission, or penetration of the Gillette aquifer through soils with higher transmissivity.

Geology

According to the USGS reconnaissance geologic map of the Cripple Creek and Pikes Peak area, the source water protection area is composed of several separate geological formations. The Rocks of Pikes Peak Batholith (1,000 M.Y. Age Group) – (Yp) Includes Pikes Peak, Mount Rosa, Windy Point and Redskin Granites in addition to various unnamed rocks. Formations along West Beaver Creek include (Qd) unclassified glacial till outwash along with (Qg) gravels and alluviums, derived from Pinedale and Bull Lake glaciers that were located on the southwest side of Pikes Peak during the Quaternary glacial period.

The Oil Creek Fault is indicated to run parallel with the South-West shore line of Bison Park Reservoir and intersects the South-West corner of Victor Reservoir #2. The fault line runs in north-westerly to south-easterly direction. (Figure 2 – Geology Map)

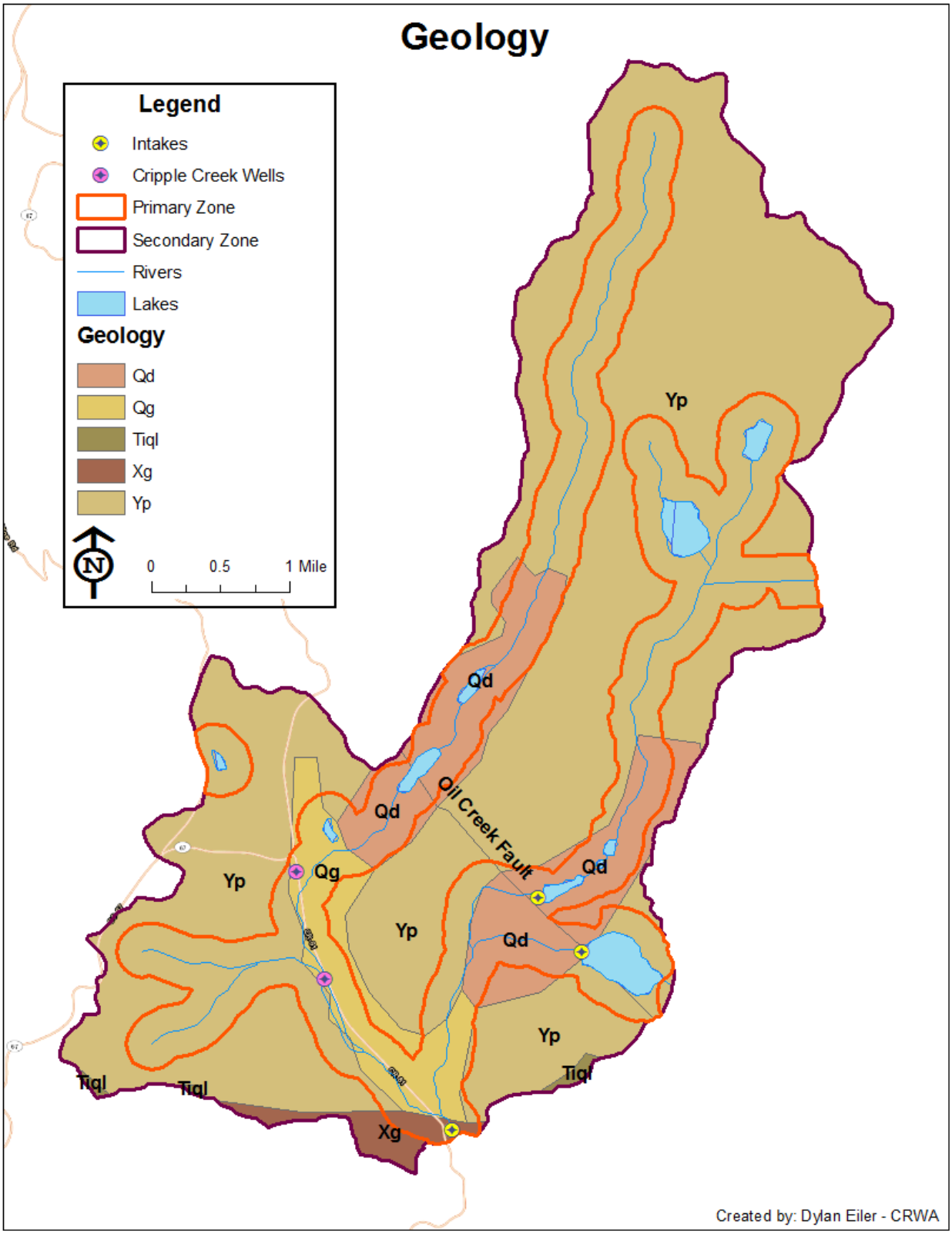


Figure 2. Geology Map

Hydrologic Setting

Surface Water Sources

The West Beaver Creek watershed (Hydrologic Unit Code (HUC) 110200020502 is a tributary to the Upper Arkansas River basin and lies within the Pikes Peak watershed area. The Source Water Protection Area lies within the Headwaters of West Beaver Creek watershed, on the western flank of Pikes Peak, and drains an estimated 20.44 square miles (13,081.6 acres). West Beaver Creek watershed receives flow from snowmelt fed reservoirs, including Bison Reservoir on Bison Creek and Bison Reservoir #2, just north of Bison Reservoir, on the East Fork of West Beaver Creek. Tributaries include Bison Creek and the East Fork of West Beaver Creek. Recreational use includes the Gold Camp Fishing Club, a members only club that provides camping and fishing assess to Bison Reservoir.

"Mountain Mutual Water Company, Cripple Creek, and the City of Victor (which supplies the CC&V mine) share the limited water resources of the Gillette Flats alluvial aquifer." (5) Mountain Mutual Water Co. web site mountainmutual.com/water_rights, Characteristics of the Gillette Flats alluvial aquifer, Para. 2

Municipal water is supplied to Victor from three watersheds: East Fork of West Beaver Creek, Bison Creek, and Boehmer Creek. At the present time, The City of Victor has an ample water supply for City residents. The Cripple Creek and Victor (CC&V) mining company is a large commercial customer of the City. In order to satisfy the demand for untreated water by the CC&V, the City of Victor purchases surplus water from the City of Cripple Creek. The City of Victor also supplies water to the small community of Gold Field located approximately 0.75 miles northeast of Victor on Highway 81.

Water Quality Standards

Under the Clean Water Act, every state must adopt water quality standards to protect, maintain and improve the quality of the nation's surface waters. The CDPHE's Water Quality Control Commission has established water quality standards that define the goals and limits for all waters within their jurisdictions. Colorado streams are divided into individual stream segments for classification and standards identification purposes (Table 3). Standards are designed to protect the associated classified uses of the streams (Designated Use). Stream classifications can only be downgraded if it can be demonstrated that the existing use classification is not presently being attained and cannot be attained within a twenty year time period (Section 31.6(2)(b)). A Use Attainability Analysis must be performed to justify the downgrade.

Impaired Waters

Table 4. Stream segments within the Surface Water Source Watershed and their Designated Uses and Impairment Status (Source: EPA "Water Quality Assessment and TMDL Information," 2013)

Waterbody Name	Waterbody ID	Location	Designated Use	Status
Altman Intake Structure on West Beaver Creek	160700-004	HUC 12: 110200020502	Agriculture Aquatic Life Cold Water-Class 1 Domestic Water Source Recreation Primary Contact	Good
Bison Park Reservoir on Bison Creek	160700-002	HUC 12: 110200020502	Agriculture Aquatic Life Cold Water-Class 1 Domestic Water Source Recreation Primary Contact	Good
Victor Reservoir #2 on Boehmer Creek	160700-003	HUC8: 11020002	Agriculture Aquatic Life Warm Water-Class 2 Domestic Water Source Recreation Secondary Contact	Good

Definitions of Designated Uses

The following definitions are paraphrased from Colorado Department of Public Health and Environment Water Quality Control Commission Regulation 31, sub-section 31.13:

Agriculture: These surface waters are suitable or intended to become suitable for irrigation of crops usually grown in Colorado and which are not hazardous as drinking water for livestock.

Aquatic Life: These surface waters presently support aquatic life uses as described below, or such uses may reasonably be expected in the future due to the suitability of present conditions, or the waters are intended to become suitable for such uses as a goal:

Class I - Cold Water Aquatic Life: These are waters that currently are capable of sustaining a wide variety of cold water biota, including sensitive species, or could sustain such biota but for correctable water quality conditions.

Class 2- Cold and Warm Water Aquatic Life: These are waters that are not capable of sustaining a wide variety of cold or warm water biota, including sensitive species, due to physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species.

Domestic Water Supply: These surface waters are suitable or intended to become suitable for potable water supplies. After receiving standard treatment (defined as coagulation, flocculation, sedimentation, filtration, and disinfection with chlorine or its equivalent) these waters will meet Colorado drinking water regulations and any revisions, amendments, or supplements thereto.

Recreation - Primary Contact Use: These surface waters are used for primary contact recreation or have been used for such activities since November 28, 1975.

Not Primary Contact Use (Secondary Contact Use): These surface waters are not suitable or intended to become suitable for primary contact recreation uses. There is not a reasonable likelihood that primary contact uses will occur in the water segment(s) within the next 20-year period.

Ground Water Sources

Gillette alluvial aquifer well No. 5 is a primary source of potable drinking water for the City of Victor. Well No. 5 is owned by the City of Cripple Creek and Victor purchases an estimated average of 34.26 million gallons of untreated water annually from Cripple Creek.

“Studies performed by HRS Water Consultants, Inc., suggest that the Gillette Flats alluvial aquifer – when it is receiving no surface flow input during the winter – generally provides a steady ground-water outflow of about 2.4 to 2.8 CFS. These studies also suggest that the aquifer can sustain no more than ~1.5 CFS of pumping, in the aggregate, from 6 or more well-spaced wells over the northern end of the aquifer, and no more than ~2 CFS of pumping, in the aggregate, in wells distributed over the entire aquifer. Also, the studies concluded that prolonged drought would reduce that yield.

Currently, there are about 2 CFS of adjudicated rights to this aquifer water -- some of it belonging to Mountain Mutual Water Company (MMWC), some of it belonging to Cripple Creek, and some of it belonging (at least contractually) to the City of Victor. These adjudicated rights approach the limits of the aquifer's capacity” (6) Mountain Mutual Water Company web site, http://mountainmutual.com/water_rights.htm Characteristics of the Gillette Flats alluvial aquifer, Para. 3 & 4

Groundwater Protection

Groundwater protection is managed as two separate issues of quantity and quality in Colorado. Quantity issues are managed through the Colorado Division of Water Resources/Office of the State Engineer. The Division of Water Resources administers and enforces all surface and groundwater rights throughout the State of Colorado, issues water well permits, approves construction and repair of dams, and enforces interstate compacts. The Division of Water Resources is also the agency responsible for implementing and enforcing the statutes of the Groundwater Management Act passed by the Legislature as well as implementing applicable rules and policies adopted by the Colorado Groundwater Commission and the State Board of Examiners of Water Well Construction and Pump Installation Contractors.

The CDPHE’s Colorado Water Quality Control Commission is responsible for promulgating groundwater and surface water classifications and standards. Colorado's Water Quality Control Commission has established basic standards for groundwater

regulations that apply a framework for groundwater classifications and water quality standards for all waters within their jurisdictions. Standards are designed to protect the associated classified uses of water or a designated use. The groundwater classifications are applied to groundwaters within a specified area based upon use, quality and other information as indicated in the CDPHE Water Quality Control Commission's Regulation No. 41, "The Basic Standards for Ground Water." Statewide standards have been adopted for organic chemicals and radionuclides. Significant areas of the state have been classified for site specific use classification and the remainder of the state's groundwater is protected by interim narrative standards.

Classifications and standards are implemented by seven separate state agencies through their rules and regulations for activities that they regulate. Regulated activities include mining and reclamation, oil and gas production, petroleum storage tanks, agriculture, Superfund sites, hazardous waste generation and disposal, solid waste disposal, industrial and domestic wastewater discharges, well construction and pump installation, and water transfers.

Colorado has proactive groundwater protection programs that include monitoring groundwater for agricultural chemicals and pesticides, issuing groundwater discharge permits; voluntary cleanup program, permitting for large hog farm operations, and educational programs. In addition, water wells must have a permit and meet minimum standards of construction and pump installation.

Water Quality Data

The Colorado Dept. of Public Health and Environment requires routine sampling and monitoring of Victor's treated potable water. "The water quality issues include Giardia and Cryptosporidium removal, seasonal algae, and occasional iron and manganese". (7) City of Victor Water System Planning Report, Integra Engineering, Raw Water Quality, (Pg. 2-4) According to the Agency for Toxic Substances and Disease Registry *(ATSDR)* past and current water quality sampling data reveal no contaminants at levels of health concern. Mining activities have not affected the local drinking water. There are no known private wells in the vicinity of CC&V that are being used for drinking water; therefore, no human exposure to groundwater. *ATSDR concluded that no health effects are expected from using or drinking municipal water in Victor.* (8) The Agency for Toxic Substances and Disease Registry (ATSDR)
http://www.atsdr.cdc.gov/HAC/pha/pha.asp?docid=826&pg=1 Drinking Water Quality

Drinking Water Supply Operations

Water Supply and Infrastructure

The City of Victor draws its water supply from four raw water sources, Bison Park Reservoir (Big Bison), Victor Reservoir #2, West Beaver Creek via the Altman Intake Pumping Station, and the City purchases ground water from Cripple Creek Well No. 5. “Raw water is captured from the East Fork of West Beaver Creek with storage provided by Bison Park Reservoir, with a capacity of about 340 million gallons, and the Number Two Reservoir with a capacity of about 68 million gallons. Water is delivered via a twelve-inch, eight-inch and six-inch diameter raw water transmission pipeline system. Also, when activated, the Altman Pump Station diverts stream water directly from West Beaver Creek into the raw water transmission system. The City’s raw water system serves mining and milling activities as well as providing the source for potable water treatment.” (9) City of Victor Water System Planning Report, Integra Engineering, Raw Water Quality, (Pg. 2-1). Raw water is delivered through this network of piping to the Cripple Creek and Victor (CC&V) Gold mine and to the City’s treatment plant via water meters at Grassy Creek, Bull Hill and Gold Mine. The raw water system is shown schematically in Figure 6, prepared by Wright Water Engineers, Inc. 2004

Figure 3. Bison Park Reservoir

Figure 4. Bull Hill Water Treatment Plan

Raw water from the pipeline enters the City’s Bull Hill Water Treatment Plant. The Bull Hill treatment plant has the maximum capacity to treat 300,000 gallons of raw water per day, with a peak daily demand of 175,000 gallons per day. Current estimates by the water system indicate that the average daily demand by the water system’s customers is approximately 175,000 gallons per day.

Figure 5. Aerial photo of Bison Park Reservoir and Victor Reservoir No. 2

The City's raw water treatment includes the following processes and procedures:

1. Raw water enters the Bull Hill WTP.
2. Chlorine is added for pre-disinfection.
3. Flows through a Static Mixer.
4. Then water enters the Axia treatment unit.
5. Water is filtered by the Memcore Microfiltration modules.
6. Soda Ash is added for pH adjustment.
7. Chlorine is added post filtration to satisfy Chlorine demand and maintain minimum chlorine residuals throughout the supply system
8. Water then flows into the Wet Well to satisfy disinfection contact time.
9. Treated water flows by gravity to the 250,000 gallon storage tank.

Table 5. Surface Water Supply Information

Water System Facility Name	Water System Facility Number	Surface Water Source	Constructed Date	Appropriation Date	Appropriation Amount (af/yr)
Altman Intake Structure	160700-004	West Beaver Creek	1860	1860, 1861, 1893	1,602.9
Bison Park Reservoir	160700-002	Bison Park Drainage & East Branch of West Beaver Creek	1901	1901	1147.8
Victor Reservoir #2	160700-003	East Branch of	1897	1897	202.77

		West Beaver Creek			

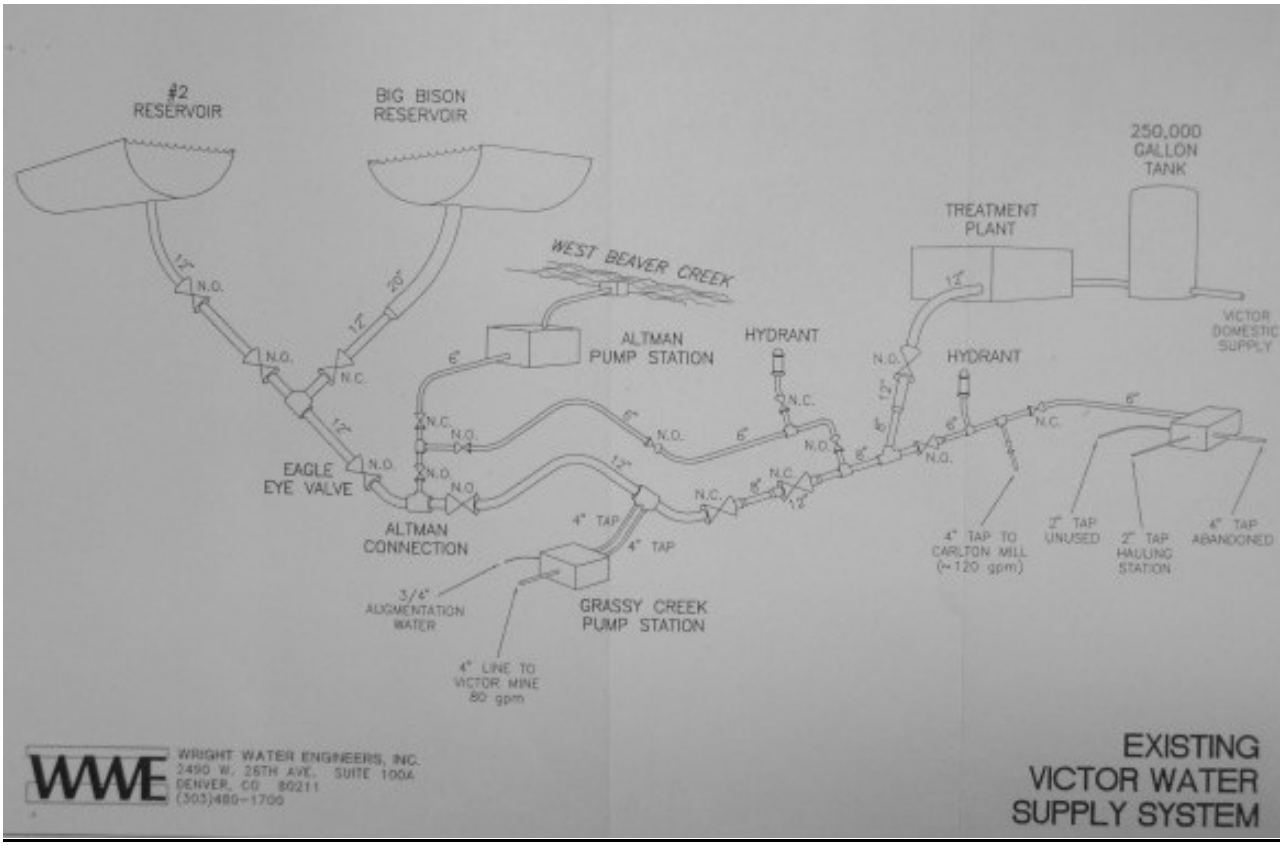


Figure 6 – Water System schematic reproduced from Chapt. 2 of the 2004 Water System Planning Report, by Wright Water Engineering Inc., Denver, CO.

Water Supply Demand Analysis

The City of Victor serves an estimated 435 connections and approximately 400 residents and other users in the service area annually. The water system currently has the capacity to produce 300,000 gallons per day. Estimates by the water system indicate that the average daily demand is approximately 174,860 gallons per day, based upon 2012 usage data. Using these estimates, the water system has a surplus average daily demand capacity of 2,461,917 gallons per day.

Using the surplus estimates above, the City of Victor has evaluated its ability to meet the average daily demand of its customers in the event the water supply from one or more of its water sources becomes disabled for an extended period of time due to potential contamination. The evaluation indicated that the City of Victor may be able to meet the average daily demand of its customers if one of the water sources became disabled for an extended period of time (see Water Demand Estimator below). The majority of the potable water consumed by the City of Victor's water customers is derived from Cripple Creek's groundwater Well No. 5, and the majority of surface water

within the SWPA is sold to Victor industrial water users. The greatest impact to contamination of the water sources within the SWPA would be to the industrial users, resulting in a significant economic impact to the area. The ability of the City to meet the daily demand for an extended period of time is directly affected by flow within the drainages, senior water rights, in addition to the amount of available treated water reserve in storage at the time the water source became contaminated or disabled.

The potential financial and water supply risks related to the long-term disablement of one or more of the community's water sources are a concern to the Steering Committee. As a result, the Steering Committee believes the development and implementation of a source water protection plan for The City of Victor can help to reduce the risks posed by potential contamination of its water source(s). Additionally, the City of Victor has developed an Emergency Response Plan (Appendix A) to coordinate rapid and effective response to any emergency incident that threatens or disrupts the community water supply.

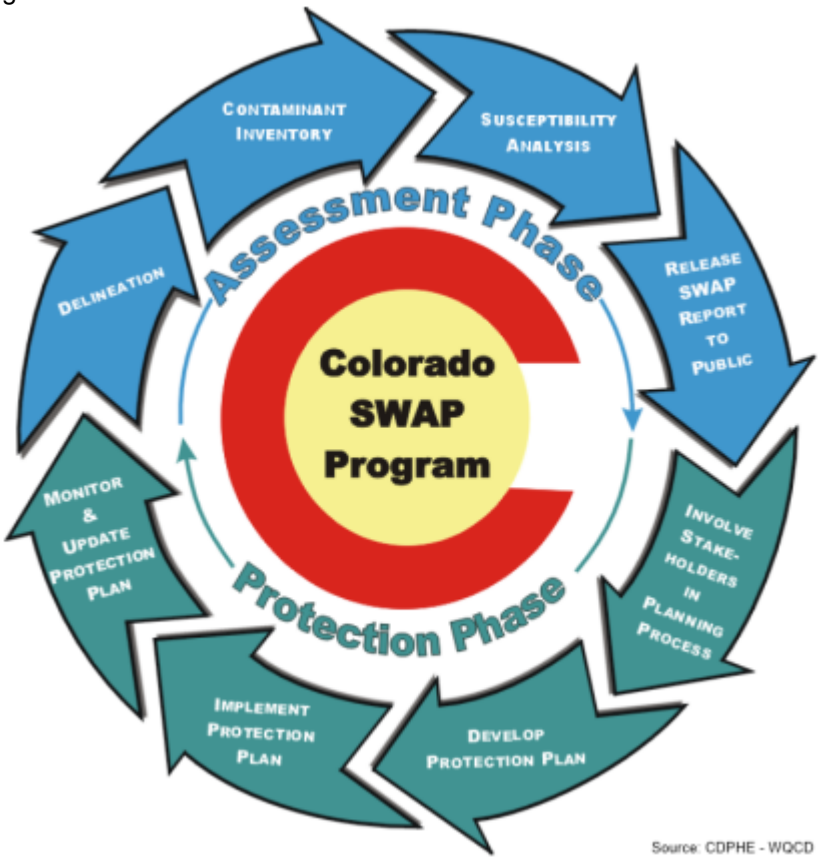
Water Source ID	Permitted Water Supply (ac-ft/yr)	Permitted Peak Daily Capacity (gals/day)	Average Daily Demand (gals/day)	Average Peak Daily Demand (gals/day)
CO 160700-004	1,603	1,431,066	94,902	94,902
CO 160700-002	1,148	1,024,690	67,953	67,953
CO 160700-003	203	181,021	12,005	12,005
		0	0	0
		0	0	0
Total	**2,954**	**2,636,777**	**174,860**	**174,860**
Estimated Surplus (+) or Deficit (-) Capacity:			**2,461,917**	**2,461,917**

OVERVIEW OF COLORADO'S SWAP PROGRAM

Source water assessment and protection came into existence in 1996 as a result of Congressional reauthorization and amendment of the Safe Drinking Water Act. The 1996 amendments required each state to develop a source water assessment and protection (SWAP) program. The Water Quality Control Division, an agency of the Colorado Department of Public Health and Environment (CDPHE), assumed the responsibility of developing Colorado's SWAP program. The SWAP program protection plan is integrated with the Colorado Wellhead Protection Program that was established in amendments made to the federal Safe Drinking Water Act (SDWA, Section 1428) in 1986.

Colorado's SWAP program is an iterative, two-phased process designed to assist public water systems in preventing potential contamination of their untreated drinking water supplies. The two phases include the Assessment Phase and the Protection Phase as depicted in the upper and lower portions of Figure 7, respectively.

Figure 7. Source Water Assessment and Protection Phases



Source Water Assessment Phase

The Assessment Phase for all public water systems consists of four primary elements:

1. Delineating the source water assessment area for each of the drinking water sources;
2. Conducting a contaminant source inventory to identify potential sources of contamination within each of the source water assessment areas;
3. Conducting a susceptibility analysis to determine the potential susceptibility of each public drinking water source to the different sources of contamination;
4. Reporting the results of the source water assessment to the public water systems and the general public.

The Assessment Phase involves understanding where the City of Victor's source water comes from, what contaminant sources potentially threaten the water sources, and how susceptible each water source is to potential contamination. The susceptibility of an individual water source is analyzed by examining the properties of its physical setting and potential contaminant source threats. The resulting analysis calculations are used to report an estimate of how susceptible each water source is to potential contamination. A Source Water Assessment Report was provided to each public water system in Colorado in 2004 that outlines the results of this Assessment Phase.

Source Water Protection Phase

The Protection Phase is a voluntary, ongoing process in which all public water systems have been encouraged to voluntarily employ preventative measures to protect their water supply from the potential sources of contamination to which it may be most susceptible. The Protection Phase can be used to take action to avoid unnecessary treatment or replacement costs associated with potential contamination of the untreated water supply. Source water protection begins when local decision-makers use the source water assessment results and other pertinent information as a starting point to develop a protection plan. As depicted in the lower portion of Figure 7, the source water protection phase for all public water systems consists of four primary elements:

1. Involving local stakeholders in the planning process;
2. Developing a comprehensive protection plan for all of their drinking water sources;
3. Implementing the protection plan on a continuous basis to reduce the risk of potential contamination of the drinking water sources; and
4. Monitoring the effectiveness of the protection plan and updating it accordingly as future assessment results indicate.

The water system and the community recognize that the Safe Drinking Water Act grants no statutory authority to the Colorado Department of Public Health and Environment or to any other state or federal agency to force the adoption or implementation of source water protection measures. This authority rests solely with local communities and local governments. The source water protection phase is an ongoing process as indicated in Figure 7. The evolution of the SWAP program is to incorporate any new assessment information provided by the public water supply systems and update the protection plan accordingly.

SOURCE WATER PROTECTION PLAN DEVELOPMENT

Source Water Assessment Report Review

The City of Victor has reviewed the Source Water Assessment Report along with the Steering Committee. These Assessment results were used as a starting point to guide the development of appropriate management approaches to protect the source water(s) of Victor from potential contamination. A copy of the Source Water Assessment Report for Victor can be obtained by contacting the City of Victor or by downloading a copy from the CDPHE's SWAP program website located at: http://www.colorado.gov/cs/Satellite/CDPHE-WQ/CBON/1251596793639.

Defining the Source Water Protection Area

A source water protection area is the surface and subsurface areas from which contaminants are reasonably likely to reach a water source. The purpose of delineating a source water protection area is to determine the recharge area that supplies water to a public water source. Delineation is the process used to identify and map the area around a pumping well that supplies water to the well or spring, or to identify and map the drainage basin that supplies water to a surface water intake. The size and shape of the area depends on the characteristics of the aquifer and the well, or the watershed. The source water assessment area that was delineated as part of the City of Victor's Source Water Assessment Report provides the basis for understanding where the community's source water and potential contaminant threats originate, and where the community has chosen to implement its source water protection measures in an attempt to manage the susceptibility of their source water to potential contamination.

After carefully reviewing their Source Water Assessment Report and the CDPHE's delineation of the Source Water Assessment Area for the City of Victor's sources, the Steering Committee chose to modify it before accepting it as their Source Water Protection Area for this Source Water Protection Plan. The CDPHE delineation includes the East Fork of West Beaver Creek drainage and the lower areas of the West Fork of West Beaver Creek drainage. Because contamination anywhere within the East and West Fork watershed area would directly affect the ability of the City of Victor to provide suitable water for their customers, the SWPA was modified to include the upper limits and headwaters of the West Fork of West Beaver Creek drainage area.

Primary Zone – The Primary Zone encompasses an area estimated to be 8.22 square miles and is defined as a 1,000 foot wide band on either side of the streams and reservoirs. The Primary Zone includes ranch land, public lands, Bison Reservoir, Bison Reservoir #2, the Altman Water Intake Structure and three groundwater wells that are owned by the City of Cripple Creek, including well No. 5. The area within the Primary zone is heavily forested with considerable amounts of under-brush and fallen dead timber. The primary potential contamination concern within the Primary Zone of the

SWPA is impacts associated with potential wild land forest fires. Land ownership within the Primary Zone is:

- State = 0.1%
- BLM = 8.6%
- USFS = 28.0%
- Private = 63.3%

Secondary Zone – The Secondary Zone encompasses an area estimated to be 20.44 square miles and is defined as the entire watershed, upstream of the Altman Intake Structure. All of the Primary Zone is contained within the Secondary Zone. A breakdown of total land ownership within the Secondary Zone is estimated to be:

- State = 0.8%
- BLM = 10.1%
- USFS = 37.1%
- Private = 52.0%

City of Victor Source Water Protection Area

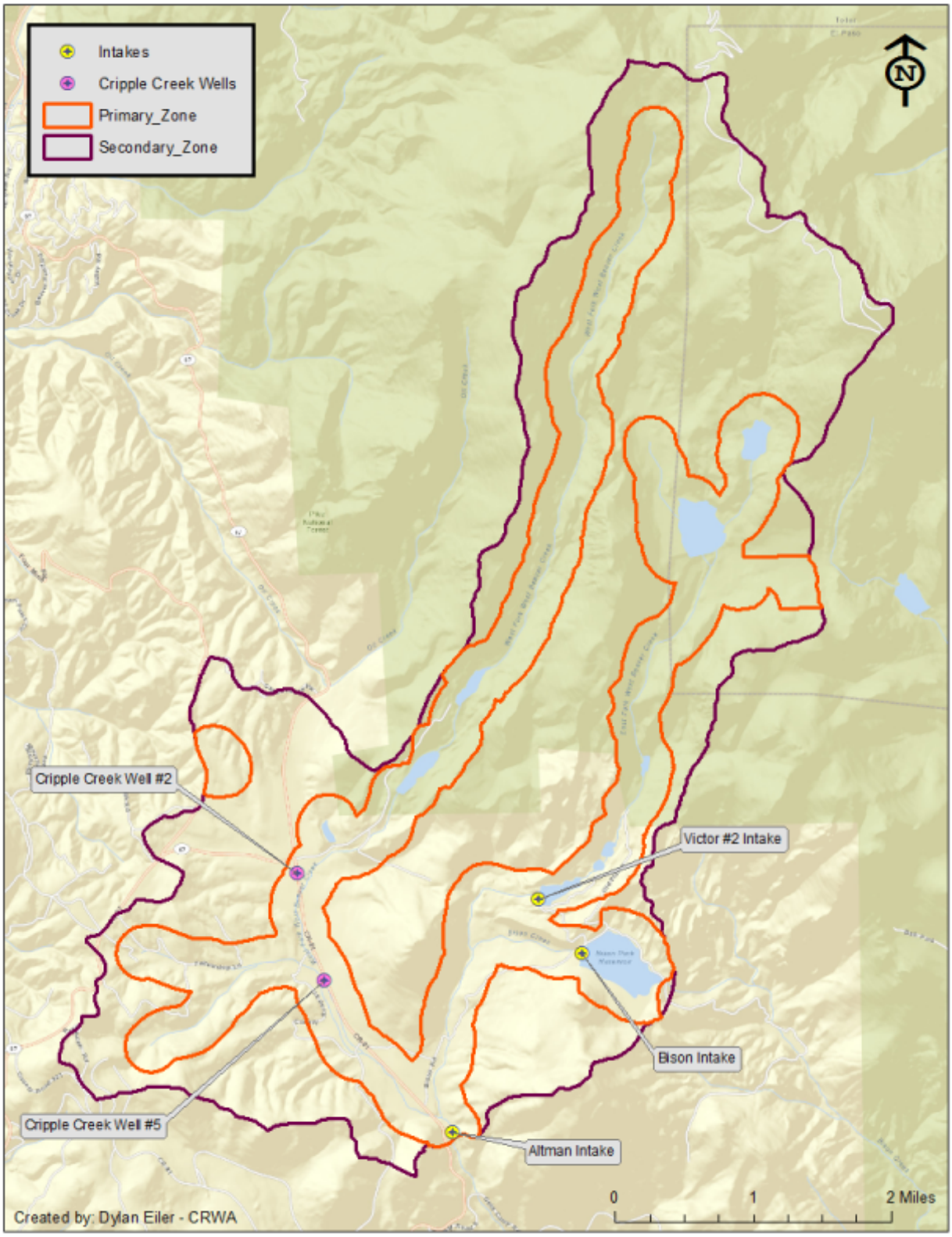
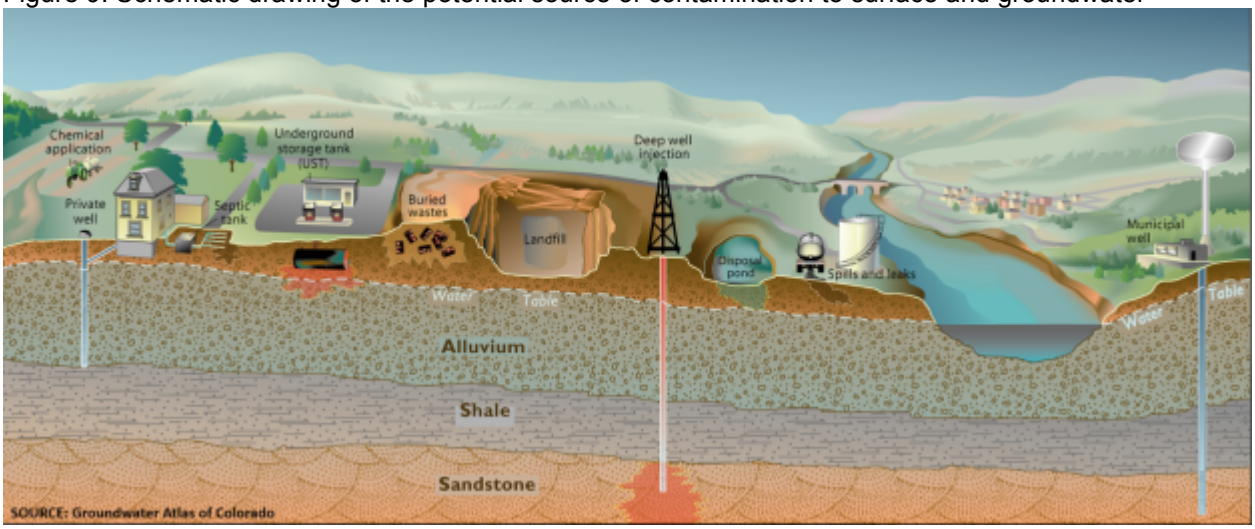


Figure 8 – Primary and Secondary Zones define the boundaries of the Source Water Protection Area surrounding the Beaver Creek Watershed.

Potential Contaminant Source Inventory and Other Issues of Concern

Many types of land uses have the potential to contaminate source waters: spills from tanks, trucks, and railcars; leaks from buried containers; failed septic systems, buried or injection of wastes underground, use of fertilizers, pesticides, and herbicides, road salting, as well as urban and agricultural runoff. While catastrophic contaminant spills or releases can wipe out a water resource, groundwater degradation can result from a plethora of small releases of harmful substances. According to the USEPA, nonpoint-source pollution (when water runoff moves over or into the ground picking up pollutants and carrying them into surface and groundwater) is the leading cause of water quality degradation (GWPC, 2008).

Figure 9. Schematic drawing of the potential source of contamination to surface and groundwater



In 2001 – 2002, as part of the Source Water Assessment Report, a contaminant source inventory was conducted by the Colorado Department of Public Health and Environment to identify selected potential sources of contamination that might be present within the source water assessment areas. Discrete[2] contaminant sources were inventoried using selected state and federal regulatory databases including: mining and reclamation, oil and gas production, above and underground petroleum tanks, Superfund sites, hazardous waste generators, solid waste disposal, industrial and domestic wastewater dischargers, and water well permits. Dispersed contaminant sources were inventoried using then recent land use / land cover and transportation maps of Colorado, along with selected state regulatory databases. The contaminant inventory was completed by mapping the potential contaminant sources with the aid of a Geographic Information System (GIS).

The State's contaminant source inventory consisted of draft maps, along with a summary of the discrete and dispersed contaminant sources inventoried within the

[2] The WQCD's assessment process used the terms "discrete" and "dispersed" potential sources of contamination. A discrete source is a facility that can be mapped as a point, while a dispersed source covers a broader area such as a type of land use (crop land, forest, residential, etc.).

source water assessment area. The City of Victor was asked, by CDPHE, to review the inventory information, field-verify selected information about existing and new contaminant sources, and provide feedback on the accuracy of the inventory. Through this Source Water Protection Plan, the City of Victor is reporting its findings to the CDPHE.

After much consideration, discussion, and input from local stakeholders, the City of Victor and the Steering Committee have developed a more accurate and current inventory of contaminant sources located within the Source Water Protection Area. Upon completion of this contaminant source inventory, the City of Victor has decided to adopt it in place of the original contaminant source inventory provided by the CDPHE.

Contaminant Source Inventory (in no particular order):

- Forest Fires
- Transportation and Roads (Maintenance Spills)
- Development (Existing and Future)
- Onsite Wastewater Treatment Systems (Existing and Future)
- Sand and Gravel Mining Operations
- Stormwater
- Oil and Gas (Future Development)
- Livestock Grazing

In addition to the discrete and dispersed contaminant sources identified in the contaminant source inventory, the Steering Committee has also identified other issues of concern that may impact the City of Victor's drinking water sources.

Additional Issues of Concern (in no particular order)**:**

- Watershed District Ordinance Update and Intergovernmental Agreement with Teller County

Priority Strategy

After developing a contaminant source inventory and list of issues of concern that is more accurate, complete, and current, the Steering Committee began the task of prioritizing this inventory for the implementation of the Best Management Practices outlined in this Source Water Protection Plan (see Table 6).

The strategy which the City and Steering Committee used is based on four criteria.

1. **Migration Potential or Proximity to the Water Source** - The migration potential generally has the greatest influence on whether a contaminant source could provide contaminants in amounts sufficient for the source water to become contaminated at concentrations that may pose a health concern to consumers of the water. Shorter migration paths and times of travel mean less chance for dilution or degradation of the contaminant before it reaches water sources. The

proximity of a potential contaminant source of contamination to the City of Victor's water sources was considered relative to the two sensitivity zones in the Source Water Protection Area (i.e. Primary Zone and Secondary Zone).

2. **Contaminant Hazard** - The contaminant hazard is an indication of the potential human health danger posed by contaminants likely or known to be present at the contaminant source. Using the information tables provided by CDPHE (see Appendices E-H), the Steering Committee considered the following contaminant hazard concerns for each contaminant source:

    - **Acute Health Concerns** - Contaminants with acute health concerns include individual contaminants and categories of constituents that pose the most serious immediate health concerns resulting from short-term exposure to the constituent. Many of these acute health concern contaminants are classified as potential cancer-causing (i.e. carcinogenic) constituents or have a maximum contaminant level goal (MCLG) set at zero (0).

    - **Chronic Health Concerns** - Contaminants with chronic health concerns include categories of constituents that pose potentially serious health concerns due to long-term exposure to the constituent. Most of these chronic health concern contaminants include the remaining primary drinking water contaminants.

    - **Aesthetic Concerns** - Aesthetic contaminants include the secondary drinking water contaminants, which do not pose serious health concerns, but cause aesthetic problems such as odor, taste or appearance.

3. **Potential Volume** - The volume of contaminants at the contaminant source is important in evaluating whether the source water could become contaminated at concentrations that may pose a health concern to consumers of the water in the event these contaminants are released to the source water. Large volumes of contaminants at a specific location pose a greater threat than small volumes.

4. **Likelihood of Release** - The more likely that a potential source of contamination is to release contaminants, the greater the contaminant threat posed. The regulatory compliance history for regulated facilities and operational practices for handling, storage, and use of contaminants were utilized to evaluate the likelihood of release.

Prioritized Potential Contaminant Sources and Issues of Concern

Table 6

Victor PSOC's and Issues of Concern	Score
Forest Fires	35
Watershed District Ordinance Update and Intergovernmental Agreement between Teller County & the City o	20
Transportation and Roads (Maintenance and Spills)	15
Development (Exisiting and Future)	10
Onsite Wastewater Treatment Systems (Existing and Future)	9
Sand and Gravel Mining Operations	5
Stormwater	4
Oil and Gas (Future Development)	1
Livestock Grazing	1
Total	100

In addition to the aforementioned criteria, the Steering Committee considered the value and effect of mitigating the impacts that potential contaminant sources would have on the SWPA. It was determined that implementation of cost effective mitigation measures would not only significantly reduce the potential impact the contaminant would have on the water supply, but also reduce the costs associated with responding to and dealing with a potential contaminant.

To facilitate the ranking process, the Steering Committee performed an exercise where they set aside a total of 100 "resource units" to be used to mitigate the potential impact of contaminants and possibly prevent contamination all together. Those 100 units were then divided among the potential contaminant sources and issues of concern based upon the following factors:

- The potential overall impact of performing mitigation -vs- not performing mitigation or not addressing the issue of concern.
- The overall ability to perform the mitigation.
- The actual costs associated with the mitigation efforts.

The results of this exercise can be seen in Table 6 above.

Susceptibility Analysis of Water Sources

The City of Victor's Source Water Assessment Report contained a susceptibility analysis[3] to identify how susceptible an untreated water source could be to contamination from potential sources of contamination inventoried within its source water assessment area. The analysis looked at the susceptibility posed by individual potential contaminant sources and the collective or total susceptibility posed by all of the potential contaminant sources in the source water assessment area. The CDPHE developed a susceptibility analysis model for surface water sources and ground water sources under the influence of surface water, and another model for groundwater sources. Both models provided an objective analysis based on the best available

[3] The susceptibility analysis provides a screening level evaluation of the likelihood that a potential contamination problem could occur rather than an indication that a potential contamination problem has or will occur. The analysis is NOT a reflection of the current quality of the untreated source water, nor is it a reflection of the quality of the treated drinking water that is supplied to the public.

information at the time of the analysis. The two main components of the CDPHE's susceptibility analysis are:

1. **Physical Setting Vulnerability Rating** – This rating is based on the ability of the surface water and/or groundwater flow to provide a sufficient buffering capacity to mitigate potential contaminant concentrations in the water source.

2. **Total Susceptibility Rating** – This rating is based on two components: the physical setting vulnerability of the water source and the contaminant threat.

Upon review of the susceptibility analysis, the Steering Committee determined that the Physical Setting Vulnerability Rating and the Total Susceptibility Rating needed updated to more accurately reflect the current situation. The updated Total Susceptibility Rating can be seen in Table 7 below.

The City of Victor considered the State assessment and determined that there were additional facilities and issues of concern that the State did not take into consideration in their Assessment Report. The additional items include the following:

- Altman surface water intake structure on West Beaver Creek
- Future land development within the SWPA, including mining claims
- Onsite wastewater treatment systems (KOA)
- livestock
- oil and gas

The original physical setting vulnerability rating that was developed by the CDPHE has remained unchanged. No additional issues with the terrain and physical setting were identified. Although additional issues of concern and potential sources of contamination were identified, the likelihood of occurrence of a contaminant impacting the SWPA remains relatively low due to the remoteness of the location of the water sources and the limited public access to the water sheds.

Table 7. Updated Susceptibility Analysis

Source ID #	Source Name	Source Type	Total Susceptibility Rating	Physical Setting Vulnerability Rating
160700-004	Altman Intake on West Beaver Creek	Surface Water	Moderate	n/a
160700-002	Bison Park Reservoir on Bison Creek	Surface Water	Moderately Low	Moderately High
160700-003	Victor Reservoir #2 on Boehmer Creek	Surface Water	Moderately Low	Moderately High

DISCUSSION OF POTENTIAL CONTAMINANT SOURCES AND ISSUES OF CONCERN

The following section provides a brief description of potential contaminant sources and issues of concern that have been identified in this plan, describes the way in which they threaten the water source(s) and outlines best management practices.

Wildfires

Recent wildfires within the State of Colorado along with subsequent heavy rainfall over the burn scars have created a heightened awareness of the potential impacts that wildfires can have on water sheds and municipal water systems. A large high-severity fire within the SWPA and surrounding areas would have a significant impact on the Beaver Creek watershed.

The Pinchot Institute completed an overall watershed assessment of Colorado's Front Range Communities, including the Pikes Peak watershed. "The annual number of wildfires has increased from an average of 457 fires per year in the 1960s to an average of 2,707 fires per year in the current decade." (10) From Protecting Front Range Forest Watershed for High-Severity Wildfires, An assessment by The Pinchot Institute for conservation, (Pg.1). "Depending on intensity and duration, wildfires can change the soil composition of a watershed by consuming the vegetative litter layer at the surface of the soil and by destroying binding organic matter in the soil itself. A water-repellent zone or layer forms when hydrophobic organic compounds from burning vegetation coat soil aggregates or minerals at or parallel to the surface. This hydrophobic layer prevents water from penetrating soil aggregates and seals off soil during rainfall events, which accelerates surface runoff resulting in the transport and deposit of sediments." (11) Pinchot Institute Assessment (Pg.2).

If watersheds are not protected through mitigation projects such as fuel breaks, then sediment and organic debris can destroy reservoirs as a functional part of the water supply system. The alternatives to mitigation include the installation of costly post-fire catch basins and other structures that require maintenance. (12) Pinchot Institute Assessment (Pg.3). "Unfortunately, the unpredictable nature of wildfire makes it challenging to develop treatment-plant-specific strategies for treating source water degraded by the effects of wildfire. High-intensity rainfall events in steep, burned watersheds are likely to move large amounts of suspended and dissolved material into downstream water supplies. The following problems may result:

- Increased sediment loading of water-supply reservoirs, shortened reservoir lifetime, and increased maintenance costs;
- Increased nutrient loading of reservoirs, which may promote algal blooms and associated disagreeable taste and odor;
- Increased turbidity (cloudiness caused by suspended material) or increased iron and manganese concentrations, which may increase chemical treatment requirements and produce larger volumes of sludge, both of which would increase operating costs;

- Increased dissolved organic carbon concentrations, which during disinfection may help form unwanted by-products (for instance, regulated carcinogens such as chloroform and trihalomethanes)". (13) USGS – Wildfire Effects on Source-Water Quality (Pg. 4)

Land ownership is mixed within Victor's area of concern. The majority of land (52%) is privately owned and the remaining 48% is comprised of State and Federal lands, all adding to the challenge of coordinating an effective fire hazard mitigation effort.

Beaver Creek Watershed including the Victor SWPA

East and West Beaver Creek Watersheds are primarily in a category 1 Low Fire Hazard Area

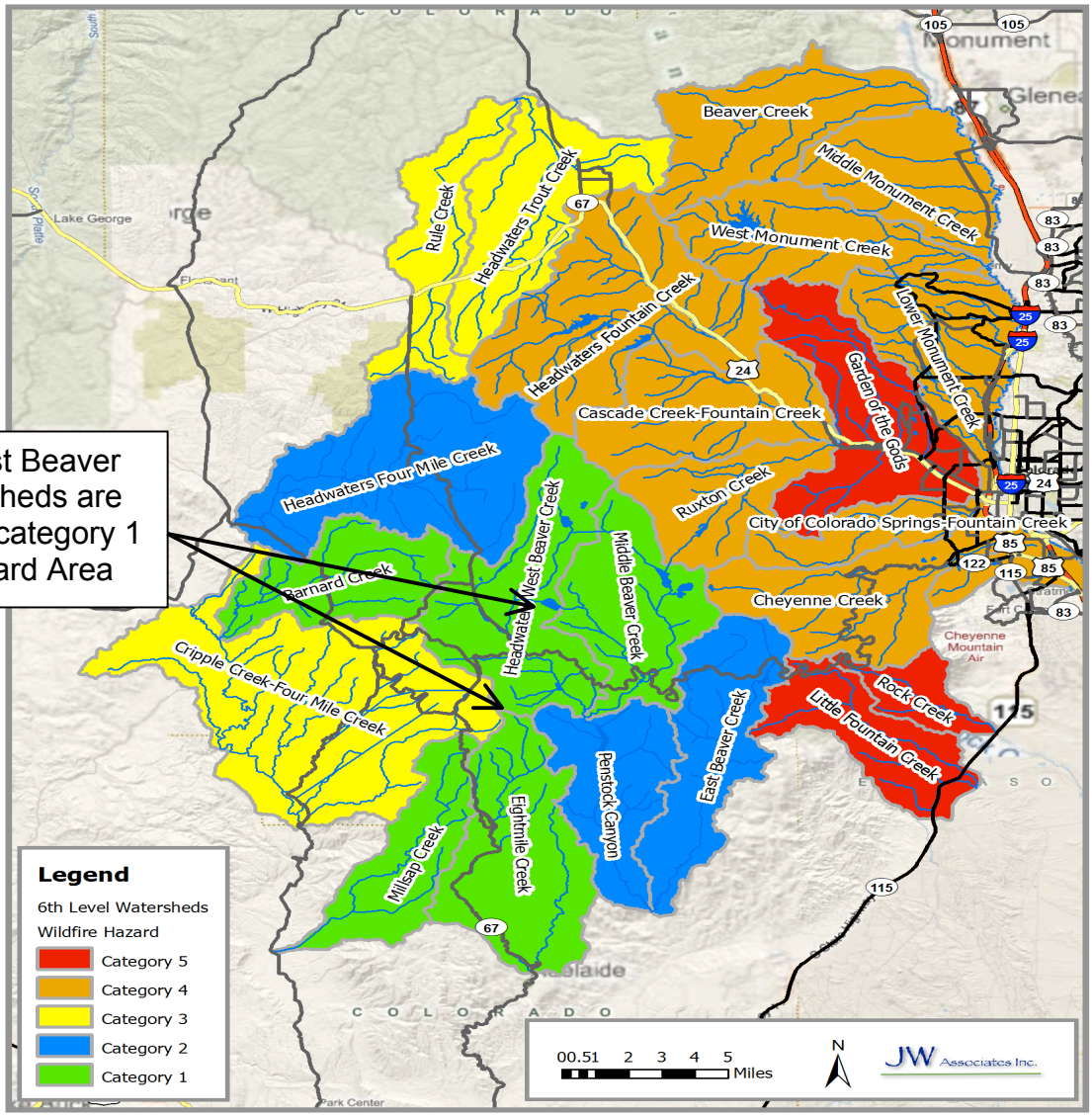


Figure 10. Pikes Peak Watershed Wildfire Hazard Ranking From JW Associates Inc. Pikes Peak Wildfire/Watershed Assessment Report V5 (Pg. 11)

Category 1 – Lowest Hazard Area
Category 2
Category 3

Wildfire - Best Management Practices Recommendations:

1) Provide a copy of the final Source Water Protection Plan along with GIS shapefiles of the source water protection area to US Forest Service, the Bureau of Land Management, the Northeast Teller County Fire Protection District, and the Teller County Office of Emergency Management for consideration during fire suppression as well as when planning and implementing wild land fire mitigation projects.

2) Identify, plan, and budget for an emergency backup power supply at the pumps on the Cripple Creek wells so that drinking water operations can continue in the event that a fire disrupts the power supply.

3) The City of Victor will research fire mitigation funding opportunities and collaboration opportunities with: the US Forest Service; the Bureau of Land Management; Colorado Parks and Wildlife; Colorado Springs Utilities and other agencies. Efforts will be focused on developing and implementing fire mitigation projects around Bison Park Reservoir, Victor Reservoir #2 and the East and West Forks of the West Beaver Creek Watershed, in an effort to reduce the impact of wildfires on Victor's drinking water supply.

4) Work with the Teller County Office of Emergency Management to establish procedures to help ensure a rapid coordinated firefighting effort with the USFS, BLM, Colorado Springs Utilities, and other agencies if/when a fire occurs.

5) Provide the US Forest Service and Bureau of Land Management with maps and shapefiles so that they can follow when applying fire retardant. According to the US Forest Service's "Implementation Guide for Aerial Application of Fire Retardant" and the "Aerial Application of Fire Retardant and Foam: Avoidance Areas," the US Forest Service and Bureau of Land Management will:
   a) Maintain a minimum 300 foot avoidance area on either side of all intermittent and perennial streams where water is flowing.
   b) Avoid aerial application of fire retardant or foam within 300 feet of waterways. A waterway is defined as a body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life.

Watershed District Ordinance Update and Intergovernmental Agreement with Teller County

A significant issue of concern deals with updating the City of Victor's existing Watershed District Ordinance 329 and associated map, that was adopted in 1991, and the need to create an Intergovernmental Agreement between the City of Victor and Teller County.

The Watershed District is created under the authority granted in Colorado Revised Statute C.R.S. § 31-15-707, and gives municipalities the right to enact watershed protection ordinances and regulations for the purpose of maintaining and protecting local waterworks from injury and the water from pollution. The City intends to implement

and enforce these regulations for the purpose of reviewing and permitting any activity within the District which creates a foreseeable risk of injury to the City's waterworks or pollution of the City's water supply.

The Steering Committee determined that it would be beneficial to update the existing Watershed District Ordinance in order to address concerns regarding present and future development within the County that could adversely affect the SWPA. The details of this revision to the Watershed District Ordinance will be determined by the Victor City Attorney in the coming year.

Creation of an intergovernmental agreement between the City of Victor, the City of Cripple Creek and Teller County, will help to create an overall awareness of the SWPA as well as help to address concerns regarding public use and development impacts within the SWPA.

Watershed District Ordinance Update and Intergovernmental Agreement (IGA) between Victor, and Teller County - Best Management Practices and Recommendations:

1) The Victor City Attorney will work with Jim Neu, Rifle City Attorney, to update Victor's Watershed District Ordinance in accordance with Section 31-15-707(1)(b), C.R.S., and Article XX of the State Constitution

2) The City of Victor will endeavor to work with the City of Cripple Creek and the County of Teller to create an intergovernmental agreement that acknowledges the various elements of the Source Water Protection Plan and the Source Water Protection Area

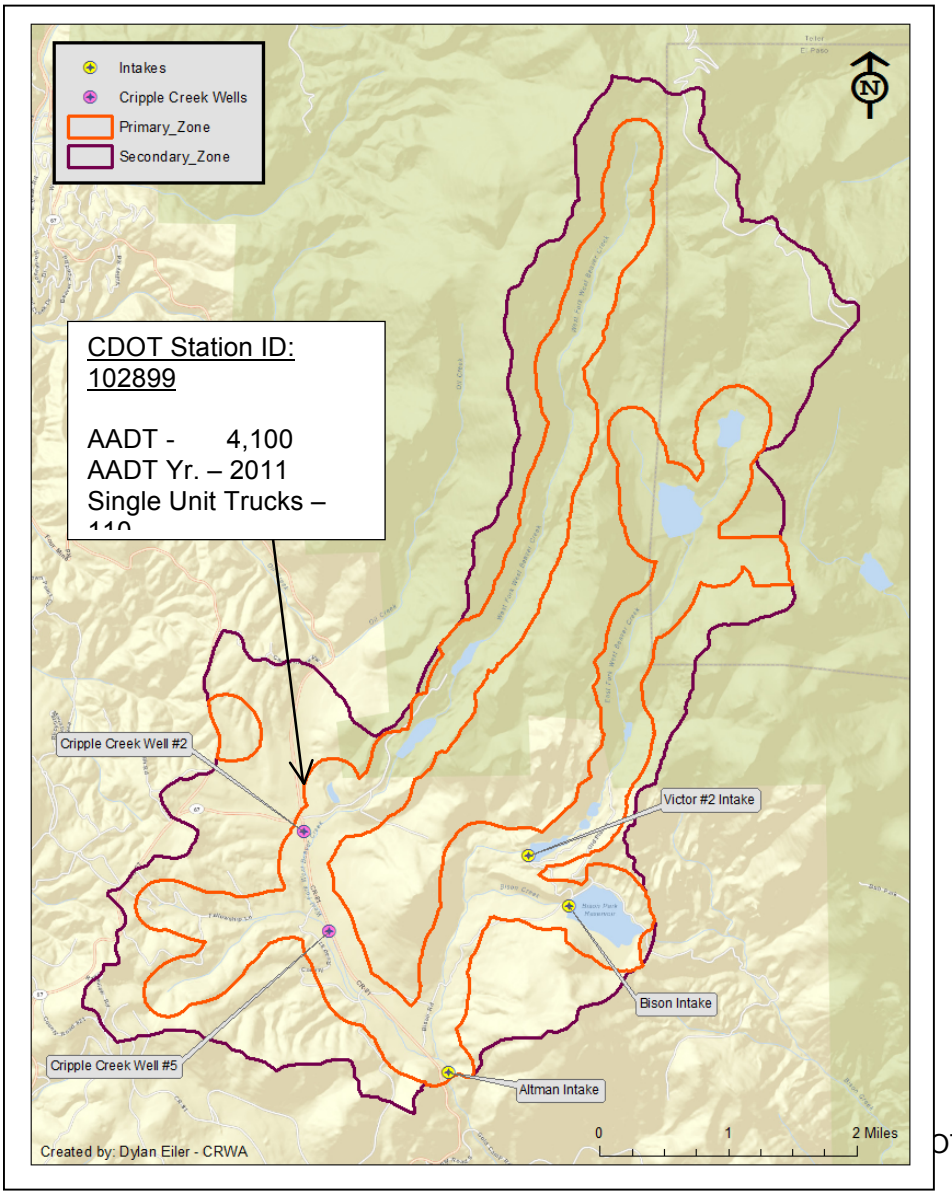
Transportation and Roads (Maintenance and Spills)

The source water protection area is located outside the boundaries of the City of Victor. The SWPA is accessed via State Highway 81 (Lazy S Ranch Rd.). Highway 81 is an asphalt surfaced roadway that runs parallel with West Beaver Creek and is a primary access route for the City of Victor. Highway 81 intersects State Highway 67 in close proximity to Cripple Creek well No. 5 and an estimated 2.4 miles north of the Altman Water Intake Structure. Highway 67 is a primary access road to the City of Cripple Creek, a very popular tourist destination.

A 2012 traffic study conducted by the Colorado Department of Transportation (CDOT) indicates an Annual Average Daily Traffic (AADT) Count of 4,100 vehicles.

Table 8. CDOT Traffic Study Data Analysis

Year	Station ID	Description	Beg Ref	End Ref	AADT	AADT Single	AADT Comb	% Trucks	DHV	2014 Projected AADT	2014 Projected Single Trucks	2014 Projected Combined Trucks
2012	102899	ON SH 67 N/O CR 81 GILLETTE	56.774	65.805	4100	110	90	4.7%	16	6554	176	144
AADT = Annual Average Daily Traffic												
DHV = Design Hour Volume												



OT traffic study

Contaminant Pathways

Vehicular spills may occur along the transportation route within the source water protection areas from trucks that transport fuels, waste, and other chemicals that have a potential for contaminating the source waters. Chemicals from accidental spills are often diluted with water, potentially washing the chemicals into the soil and infiltrating into the groundwater and/or running off into surface waters. Roadways and roadside ditches are also frequently used for illegal dumping of hazardous or other potentially harmful wastes.

Polluted runoff is now widely recognized by environmental scientists and the EPA as the single largest threat to water quality in the United States. According to the EPA Office of Water, “Runoff pollution is that associated with rainwater or melting snow that washes off roads, bridges, parking lots, rooftops, and other impermeable surfaces. As it flows over these surfaces, the water picks up dirt and dust, rubber and metal deposits from tire wear, antifreeze and engine oil that has dripped onto the pavement, pesticides and fertilizers, and discarded cups, plastic bags, cigarette butts, pet waste, and other litter. These contaminants are carried into our lakes, rivers, streams, and oceans.”

Contaminants in runoff pollution from roads, highways, and bridges include:

- Sediment: Sediment is produced when soil particles are eroded from the land and transported to surface waters. Natural erosion usually occurs gradually because vegetation protects the ground. When land is cleared or disturbed to build a road or bridge, however, the rate of erosion increases. The vegetation is removed and the soil is left exposed, to be quickly washed away in the next rain. Erosion around bridge structures, road pavements, and drainage ditches can damage and weaken these structures.
    a. Soil particles settle out of the water in a lake, stream, or bay onto aquatic plants, rocks, and the bottom. This sediment prevents sunlight from reaching aquatic plants, clogs fish gills, chokes other organisms, and can smother fish spawning and nursery areas.
    b. Other pollutants such as heavy metals and pesticides adhere to sediment and are transported with it by wind and water. These pollutants degrade water quality and can harm aquatic life by interfering with photosynthesis, respiration, growth, and reproduction.
- Oils and Grease: Oils and grease are leaked onto road surfaces from car and truck engines, spilled at fueling stations, and discarded directly onto pavement or into storm sewers instead of being taken to recycling stations. Rain and snowmelt transport these pollutants directly to surface waters.
- Heavy Metals: Heavy metals come from some "natural" sources such as minerals in rocks, vegetation, sand, and salt. But they also come from car and truck exhaust, worn tires and engine parts, brake linings, weathered paint, and rust. Heavy metals are toxic to aquatic life and can potentially contaminate ground water.
- Debris: Grass and shrub clippings, pet waste, food containers, and other household wastes and litter can lead to unsightly and polluted waters. Pet waste from urban areas can add enough nutrients to estuaries to cause premature aging, or "eutrophication."

- Road Salts: In the Snow Belt, road salts can be a major pollutant in both urban and rural areas. Snow runoff containing salt can produce high sodium and chloride concentrations in ponds, lakes, and bays. This can cause unnecessary fish kills and changes to water chemistry.

- Fertilizers, Pesticides, and Herbicides: If these are applied excessively or improperly, fertilizers, pesticides, and herbicides can be carried by rain waters from the green parts of public rights-of-way. In rivers, streams, lakes, and bays, fertilizers contribute to algal blooms and excessive plant growth, and can lead to eutrophication. Pesticides and herbicides can be harmful to human and aquatic life. (15) "Controlling Nonpoint Source Runoff Pollution from Roads, Highways and Bridges" EPA, Office of Water, August 1995 (EPA-841-F-95 008a) http://www.epa.gov/owow/nps/roads.html

Transportation and Roads (Maintenance and Spills) - Best Management Practices:

1) Accidents, Incidents, and Spills – Distribute City of Victor Emergency Response Cards to all local emergency responders (State Patrol, Teller County Sheriff's Office, Teller County Office of Emergency Management, and Northeast Teller County Fire Protection District, CDOT, City of Victor and City of Cripple Creek Fire Departments and especially local dispatch), and keep the information on the emergency response cards updated.

2) Maintenance and Operations - Meet with CDOT and Teller County Transportation Department to provide them with a copy of the Source Water Protection Plan and map of the SWPA along with GIS shape files. Encourage them to continue the use of their road Best Management Practices to prevent road materials from entering the source waters. Recommendations for application of road de-icing and dust abatement materials include:
    a. Applying minimum amounts necessary;
    b. Apply only when removal of snow and ice cannot be accomplished by blading, plowing or sanding;
    c. Minimize use of chemicals in and adjacent to streams, aquifers, and flood prone areas; and
    d. Avoid dumping or storing chemically treated or sanded snow where it can melt and infiltrate groundwater or flow into surface waters.
    e. Install "Source Water Protection Area" signage.

3) Meet with Teller Park Soils Conservation District to discuss vegetation management plans within the SWPA and provide them with a map of the SWPA. Also request an inventory and labels for all herbicides and pesticides being used and the BMP's

Land Development (Existing and Future)

Forest losses impact many plant and animal species in both aquatic and terrestrial habitats. Forest and wetland losses increase overland flow and reduce filtration of sediments and pollutants, increasing the likelihood that pollutants will reach streams, rivers, and estuaries. (16) From Protecting and restoring Americas Watersheds (Chapt. 2, Pg. 14, Para. 2)

"The replacement of natural vegetation diminishes the ability of the land to absorb water and remove pollutants. Studies show a lawn of turf-grass with its shallow roots produces three times as much runoff as an area planted with deep-rooted native plants. Impervious surface's such as roofs, parking lots, driveways and streets where water cannot soak into the ground.

- Impervious surfaces cause more surface runoff. The introduction of as little as 10-20% impervious cover may double the amount of surface runoff as compared to areas with natural cover.
- Increased surface runoff can overwhelm creeks and streams, causing bank erosion and downstream flooding.
- Oil, dirt and pollutants accumulate on paved surfaces and are washed into streams with the increased surface runoff.
- Curbs, gutters and storm drains dump polluted runoff directly into streams." (17) McHenry County Conservation Foundation "Welcome to your watershed" – (Pg. 1) http://www.foxriverecosystem.org/pdfs/Materials/welcometoyourwatershed.pdf

Residential and Commercial Development

"Development can harm local surface and ground water so that it cannot safely be used as drinking water. When groundwater is found at shallow depths, pollutants from the surface are not filtered out before reaching the groundwater. Pollutants reaching groundwater sources are difficult to remove and may make groundwater supplies for water supply unattractive for future water supply development.

Development can also cause problems with the quantity of surface and groundwater. When land is covered with pasture or forest, water sinks in and replenishes groundwater. Or it enters surface streams at a moderate rate so that flooding is reduced. When more land is covered with concrete and rooftops, water runs off more quickly and pollutants are not filtered out. Streams become degraded and provide poor habitat for fish and the small creatures that make up the food chain for fish. Stream banks erode more quickly, flood more often, and are shallower during dry spells." (18) US EPA, Green Communities, Land Use impacts on water, Residential and commercial development. http://www.epa.gov/greenkit/toolwq.htm

The Teller County Shooting Society ("TCSS") is seeking approval of a **Special Use Permit** to allow a Private Recreational Facility (outdoor shooting range) on a ±142.7-acre tract of land located approximately one mile southeast of the intersection of State

Highway 67 and CR 81 (Gillette Flats area). The ±142.7-acre tract is located on a site that was formerly part a working horse and cattle ranch known as the Lazy-S Ranch. The property is currently owned by the Cripple Creek & Victor Gold Mining Company ("CC&V") and is being leased to the Teller County Shooting Society ("TCSS") to develop and operate an NRA-sanctioned shooting sports center for the use of the Teller County Shooting Society. The leased property will be used by TCSS solely for the purposes of development and/or construction and/or maintenance of the shooting sports center and associated accessory facilities as described below. The name of the proposed facility, which will not be open to the general public but rather will operate as a private membership club, is the Gold Camp Shooting Sports Center. (19) Teller County Planning Commission Regular Monthly Meeting: June 11, 2013 Agenda Item No. IV

“The main human exposure to lead associated with shooting ranges is through lead contaminated soil. Lead can be introduced into the environment at shooting ranges in one or more of the following ways. Each of these pathways is site-specific and may or may not occur at each individual range:

- Lead oxidizes when exposed to air and dissolves when exposed to acidic water or soil.
- Lead bullets, bullet particles, or dissolved lead can be moved by stormwater runoff.
- Dissolved lead can migrate through soils to groundwater”. (20) From U.S. Environmental Protection Agency “Best Management Practices for Lead at Outdoor Shooting Ranges” EPA-902-B-01-001 (Pg. I-2)

The City of Victor is interested in the proposed location of the Gold Camp Shooting Sports Center because it is indicated to be on the easterly, upslope side of the Altman Intake Structure on the West Fork of West Beaver Creek, within the boundaries of the SWPA. Soil within the proposed area is composed primarily of sand, silt and clay gravels and alluviums.

“Low permeability reduces the amount of historical leaching and increases the probability of the presence of basic (pH- increasing) minerals that can precipitate out of solution in groundwater or cause the lead to bond to the clay. All of the basic calcium and related minerals generally will have been removed from the clean silica sand and gravel soils, so the lead in solution in groundwater in these type soils can move long distances (miles) through the ground relatively unchanged. The more basic minerals like calcium and magnesium that are present in soils along the pathways through which the groundwater moves, the greater the lead precipitation (removal) rate.” (21) EPA-902-B-01-001 (Pg. I-4)

The wave of mining activity in the area produced a dense mosaic pattern of private patented mining claims that surround the source water protection area. The potential for development and construction of second homes and vacation cabins on these mining claims is an issue of concern for the City of Victor. Managing the potential for large scale development of these private mining claims could be an immense challenge. The Bureau of Land Management (BLM) and U.S. Forest Service (USFS) manage the majority of land in and around the SWPA. It will be important to foster and maintain an

open line of communication with the BLM and USFS regarding any prospective development of these mining claims. It is possible that the Victor Watershed District Ordinance and the proposed Intergovernmental Agreement can help to alleviate some of these concerns.

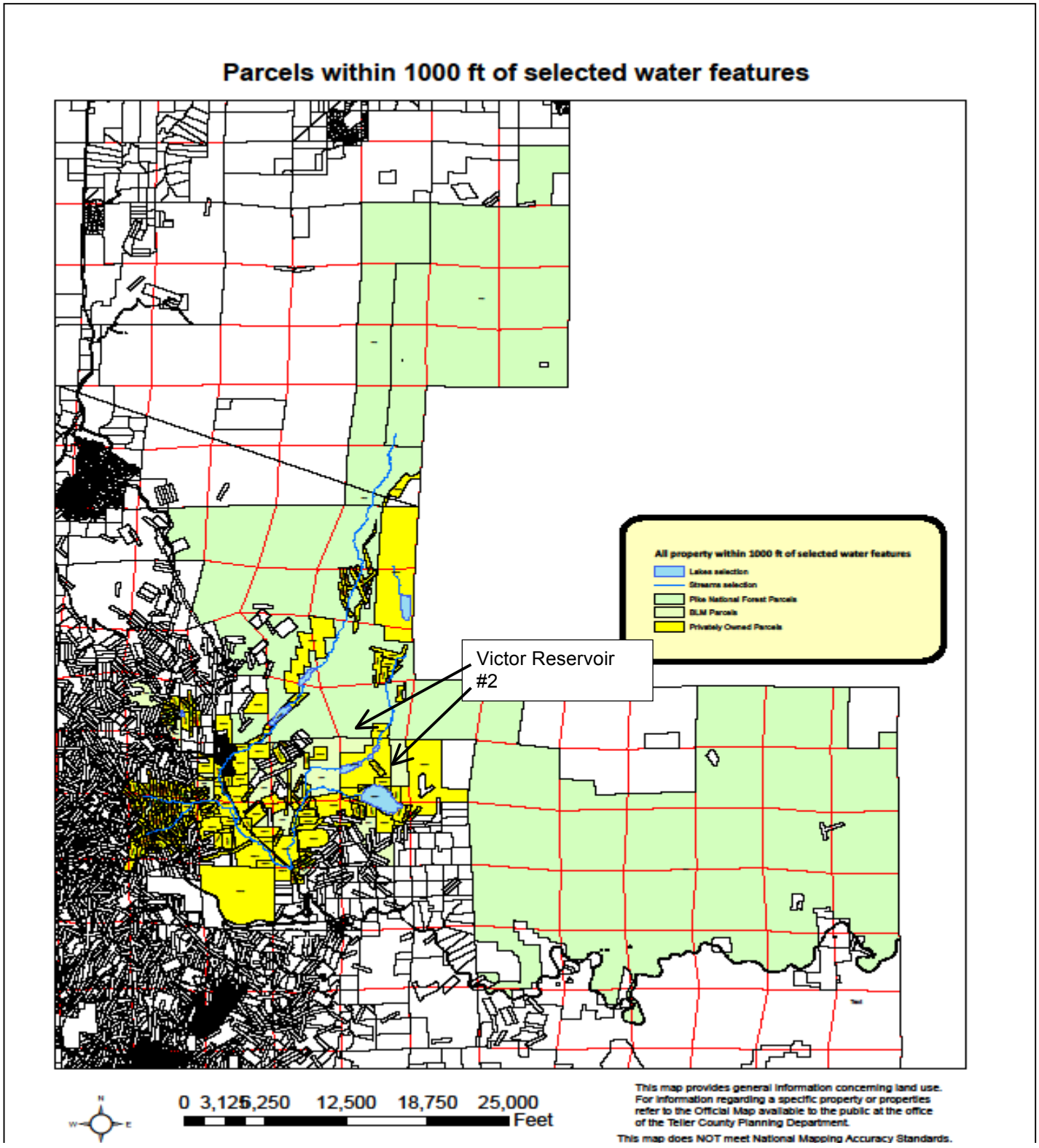


Figure 12. Parcel Map provided by the Teller County Planning Dept.

Development (Existing and Future) - Best Management Practices:

1) The City of Victor will explore the potential for land exchanges and/or acquisitions which will curtail development on land within Victor's source water protection area.

2) The City of Victor will encourage the Teller County land use planners to overlay the source water protection area on their land use map and refer to it during decisions about land use and future development within the source water protection area.

3) The City of Victor will encourage Teller County to notify the City of Victor if a special use permit is applied for which falls within the source water protection area. In accordance with the City of Victor Watershed District Ordinance, this will provide the opportunity for the City of Victor to review the application and/or permit and provide input where appropriate.

4) Foster a relationship with Lawrence Javernick, owner of the parcel located on the southwest corner of Bison Reservoir, and share Victor Emergency Response Card with him.

5) Maintain relationship with Bret Mathers, Wildlife Technician in the Pikes Peak State Wildlife Area, and manager of the parcel of land near Bison Reservoir. Also, share the Victor Emergency Response Card with him.

6) Gold Camp Shooting Complex – Monitor for possible lead contamination.

7) Recreation and Public Access – keep aware of any attempt to access Bison and Bison #2 Reservoirs for public recreation and utilize the Watershed District Ordinance to limit or prohibit access. The City of Victor will also look into installing signs and/or fencing at the boundaries of City property where there is private property adjacent to

Septic Systems - Onsite Wastewater Treatment Systems (OWTS)

A septic system is a type of onsite wastewater treatment system consisting of a septic tank that collects all the sewage and a leach field that disperses the liquid effluent onto a leach field for final treatment by the soil. Rural properties within the source water protection area rely on OWTS for reduction and disposal of household solid waste.

Septic systems are the second most frequently cited source of groundwater contamination in our country.

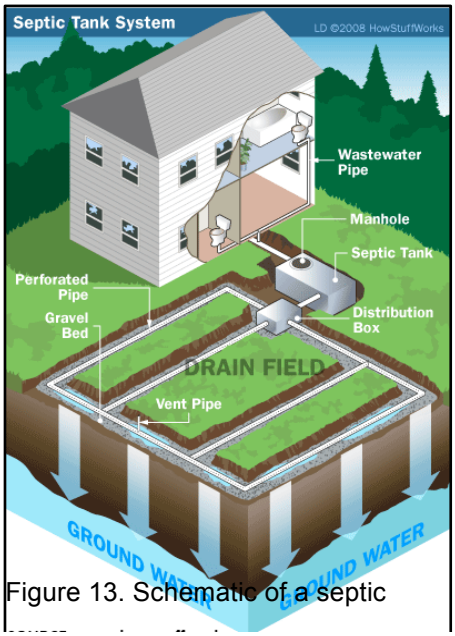


Figure 13. Schematic of a septic

Unapproved, aging, and failing septic systems have a large impact on the quality and safety of the water supply.

The failure to pump solids that accumulate in the septic tank may also eventually clog the lines and cause untreated wastewater to back up into the home, to surface on the ground, or to seep into groundwater. With proper design, construction and maintenance, septic systems can effectively reduce and eliminate household waste with little to no environmental impact from potential pollutants such as phosphorous, nitrogen, and harmful disease causing viruses and bacteria.

In Teller County onsite wastewater treatment systems are permitted by Teller County Environmental Health Dept. The County Health Dept. administers and enforces the minimum standards, rules, and regulations outlined in the state of Colorado's Revised Statutes (CRS 25-10-105). Teller County Sewage Disposal Regulations require that individual sewage disposal system components, equipment and installation practice meet or exceed the latest in proven sewage treatment technology. Further it requires that a permit be issued for the installation, repair, replacement or alteration of any new or existing OWTS.

Onsite Wastewater Treatment Systems (Existing and Future) - Best Management Practices:

1) Collaborate with the City of Cripple Creek and the Teller County Environmental Health Department to develop a public education program to provide basic information to existing septic system with the source protection area. Specifically, communicate with the KOA Campground owners and staff about Victor's source water protection plan. Public education will include: the proper use and maintenance of their septic systems and how the source of their drinking water can be affected by an inadequate functioning septic system.

2) The City of Victor will collaborate with the Teller County Environmental Health Department to make individuals, which are requesting a septic permit from Teller County, aware that they may also need a permit from the City of Victor in accordance with their updated Watershed District Ordinance when it goes into effect.

3) Coordinate with the Gold Camp fishing club to develop best management practices for the maintenance, use, and placement of "Port-A-Johns" at the Bison

Sand and Gravel Mining Operations

Ute Pass Sand and Gravel Inc. has an active open pit sand and gravel mining operation, located adjacent to the City of Cripple Creek's wells and approximately 2.5 miles up-stream from the Altman Water Intake Structure. A primary concern is that of increased sediment load on the West Beaver Creek watershed. As part of the production process, gravel mines routinely wash sand and aggregate material for use in

various types of construction. Mines are required by the EPA to capture surface runoff and treat it on site, generally in settling ponds where the sediment's drop out of the ponded water.

"Generally, aggregate and stone mines do not produce materials containing heavy metals or radionuclides. Because no current or historical aggregate or stone mines are known to have produced ARD (Acid Rock Drainage), acidic runoff containing heavy metals is not considered to be an environmental problem at these mines." (22) From Environmental Impacts of Aggregate and Stone Mining, (Blodgett, 2004)

Sand and Gravel Mining Operations - Best Management Practices:

1) Collaborate with the City of Cripple Creek on Best Management Practices for the Ute Sand and Gravel operations.

2) Inventory existing mining operations within the source water protection area and reach out to them to distribute Victor Emergency Response Cards.

Stormwater

Changing global temperatures have impacted weather patterns and the severity of storms. According to the 2007 Climate Change Synthesis Report, "the global average temperature increased by more than 1.3°F over the last century." (23) IPCC Climate Change 2007: Synthesis Report. Weather in the State of Colorado over the past decade has ranged from periods of drought resulting in extreme fire danger, to heavy rains that resulted in flash flooding.

Impacts of stormwater can be exacerbated by dense development in urban areas, steep terrain in mountainous areas, and hardened soils resulting from drought and forest fire. Stormwater that does not penetrate the ground surface becomes overland flow. The overland flow and flood water can carry a variety of pollutants, including: heavy metals; hazardous chemicals; and vehicle residue from roadways; agricultural fertilizer; animal feces; trash, debris, silt and sediment. Increased sediment and pollutant load results in increased water treatment costs and the increased potential for contaminants to enter the water supply.

The Clean Water Act (Section 402(p)) requires that operators of "discharges associated with industrial activity" obtain a National Pollutant Discharge Elimination System (NPDES) permit.
Federal regulations require NPDES permit coverage for stormwater discharges from the following categories of industrial activity:

- Category One (i): Facilities subject to federal stormwater effluent discharge standards in 40 CFR Parts 405-471
- Category Two (ii): Heavy manufacturing (for example, paper mills, chemical plants, petroleum refineries, and steel mills and foundries)

- Category Three (iii): Coal and mineral mining and oil and gas exploration and processing
- Category Four (iv): Hazardous waste treatment, storage, or disposal facilities
- Category Five (v): Landfills, land application sites, and open dumps with industrial wastes
- Category Six (vi): Metal scrapyards, salvage yards, automobile junkyards, and battery re-claimers
- Category Seven (vii): Steam electric power generating plants
- Category Eight (viii): Transportation facilities that have vehicle maintenance, equipment cleaning, or airport deicing operations
- Category Nine (ix): Treatment works treating domestic sewage with a design flow of 1 million gallons a day or more
- Category Eleven (xi): Light manufacturing (For example, food processing, printing and publishing, electronic and other electrical equipment manufacturing, and public warehousing and storage). (24) From U.S. EPA, EPA 833-B-09-002 Developing your Stormwater Pollution Prevention Plan. (Pg.3)

Stormwater runoff is indicated to be a relatively minor issue of concern to the Steering Committee. The relatively steep terrain within the Source Water Protection Area makes it susceptible to high velocity flows during periods of peak runoff from snowmelt and extreme rainfall events. The lack of development and dense vegetation provide a method of reducing the potential impact from stormwater. The natural ponds and man-made reservoirs in the SWPA serve a dual purpose. In addition to providing water storage, they serve as sediment basins to capture and hold the sediment during periods of extreme flow. Periodic bathymetric surveys of manmade water control facilities should be performed in order to ensure that adequate storage capacity is maintained. It is recommended that periodic maintenance be performed on these facilities including dredging operations to maintain adequate storage capacity and to remove and dispose of potentially hazardous sediment infill.

Stormwater - Best Management Practices:

1) Monitor local construction projects for compliance with State stormwater regulations.

Oil and Gas (Future Development)

Colorado Oil and Gas Conservation Commission: Rule 317B

The oil and gas industry in Colorado is regulated by the Colorado Oil and Gas Conservation
Commission (COGCC). The mission of the COGCC is “To promote responsible development of Colorado’s oil and gas natural resources." The Colorado legislature passed House Bill 1341 in spring 2007 to increase environmental and public health

protections in the face of unprecedented oil and gas development. House Bill 1341 directed the Colorado Oil and Gas Conservation Commission to make and enforce rules consistent with the protection of the environment, wildlife resources, and public health, safety, and welfare. In 2008, the COGCC developed and passed new rules that became effective on May 1, 2009 on federal land and
April 1, 2009 on all other land.

One of the new rules, Rule 317B, protects public water systems by protecting the source of their drinking water. It creates protection zones, or buffer zones, combined with performance requirements applicable within 5 miles upstream of the surface water intake. The most protected Internal Buffer Zone is located within 300 feet of a water segment and is a drilling excluding zone. The purpose for protecting this zone is that a significant release in these areas would likely contaminate surface water used as a drinking water source. Enhanced drilling and production requirements also apply in areas ½ mile from the water supply segment, in an Intermediate and Extended Buffer Zone (Colorado Oil and Gas Conservation Commission, 2008). (25) From City of Hotchkiss SWPP, Mihelich 2013 (P. 33)

Oil and Gas (Future Development) - Best Management Practices:

1) The City of Victor will investigate who the current Local Government Designee (LGD) and rely on the LGD to monitor for and to notify the City of any new permits. If new permits arise, the City of Victor will provide comments where appropriate.

2) The US Forest Service will begin an oil and gas environmental impact statement (EIS) for leases in the area. The City of Victor will monitor the process and provide input when and where appropriate.

3) Participate in BLM planning projects and work to have the source water protection areas incorporated in planning documents.

Livestock Grazing

The landscape within the City of Victor's Source Water Protection Area is home to a variety of animals both wild and domestic. Deer, Elk, Horses and Cattle graze on the vegetation. Domestic livestock graze on private and Federal lands in the area. Livestock operators are authorized to utilize U.S. Forest Service and B.L.M. land for grazing of livestock, by obtaining a grazing permit from the Federal agencies.

Livestock grazing within the SWPA occurs at a low frequency, and is a therefor a low concern to the Steering Committee. Grazing can however impact riparian health, stream-channel conditions and water quality. The most frequent water quality impacts include sediment, which carries pathogenic contamination, and increased water temperatures from loss of riparian vegetation. "Grazing activities with the highest

potential for direct and indirect impacts to water resources include long-term concentrated grazing in riparian areas, and trampling/trailing near water sources. Direct bank damage may add large amounts of sediment directly into streams, especially in wet meadow streams or erosive topography that is prone to gully formation." (26) From City of Hotchkiss SWPP, Mihelich 2013 (P. 42)

According to the Fact Sheet on the BLM's Management of Livestock Grazing, "In managing livestock grazing on public rangelands, the BLM's overall objective is to ensure the long-term health and productivity of these lands and to create multiple environmental benefits that result from healthy watersheds. The Bureau administers public land ranching in accordance with the Taylor Grazing Act of 1934."(27) DOI: BLM Livestock Grazing 2013

Livestock Grazing - Best Management Practices:

1) Identify ranchers within the SWPA, develop rapport, and maintain an open dialog with them. The goal is to make them aware of the location of the City of Victor source water protection area and to encourage them to notify the City of Victor if the concentration of livestock within the SWPA ever increases.

SOURCE WATER PROTECTION MEASURES

Best Management Practices

The Steering Committee reviewed and discussed several possible best management practices that could be implemented within the Source Water Protection Area to help reduce the potential risks of contamination to the community's source water. The Steering Committee established a "common sense" approach in identifying and selecting the most feasible source water management activities to implement locally. The focus was on selecting those protection measures that are most likely to work for the community. The best management practices were obtained from multiple sources including: Environmental Protection Agency, Colorado Department of Public Health and Environment, Natural Resources Conservation Service, and other source water protection plans.

The Steering Committee recommends the best management practices listed in Table 9, "Source Water Protection Best Management Practices" be considered for implementation by:

- The City of Victor
- Teller County Dept. of Transportation
- Teller County Planning Dept.
- Colorado Parks and Wildlife
- U.S.F.S. Pikes Peak Ranger District
- BLM
- Teller County Environmental Health Dept.

Evaluating Effectiveness of Best Management Practices

The City of Victor is committed to developing a tracking and reporting mechanism to gauge the effectiveness of the various source water best management practices that have been implemented. The purpose of tracking and reporting the effectiveness of the source water best management practices is to update water system managers, consumers, and other interested entities on whether or not the intended outcomes of the various source water best management practices are being achieved, and if not, what adjustments to the Source Water Protection Plan will be taken in order to achieve the intended outcomes. It is further recommended that this Plan be reviewed at a frequency of once each year or if circumstances change resulting in the development of new water sources and source water protection areas, or if new risks are identified.

The City of Victor is committed to a mutually beneficial partnership with the Colorado Department of Public Health and Environment in making future refinements to their source water assessment and to revise the Source Water Protection Plan accordingly based on any major refinements.

Table 9. Source Water Protection Best Management Practices

Issues	Best Management Practices	Implementers
Wild Fire	1) Provide a copy of the final Source Water Protection Plan along with GIS shape-files of the source water protection area to US Forest Service, the Northeast Teller County Fire Protection District, and the Teller County Office of Emergency Management for consideration during fire suppression as well as when planning and implementing wild land fire mitigation projects.	1) City of Victor
	2) Identify, plan, and budget for an emergency backup power supply at the pumps on the Cripple Creek wells so that drinking water operations can continue in the event that a fire disrupts the power supply.	2) City of Cripple Creek
	3) The City of Victor will research fire mitigation funding opportunities and collaboration opportunities with: the US Forest Service; the Bureau of Land Management; Colorado Parks and Wildlife; Colorado Springs Utilities and other agencies. Efforts will be focused on developing and implementing fire mitigation projects around Bison Park Reservoir, Victor Reservoir #2 and the East and West Forks of the West Beaver Creek Watershed, in an effort to reduce the impact of wildfires on Victor's drinking water supply.	3) City of Victor 4) City of Victor
	4) Work with the Teller County Office of Emergency Management to establish procedures to help ensure a rapid coordinated firefighting effort with the USFS, Colorado Springs Utilities, and other agencies if/when a fire occurs.	5) City of Victor
	5) Provide the US Forest Service with maps and shape-files so that they can follow when applying fire retardant. According to the US Forest Service's "Implementation Guide for Aerial Application of Fire Retardant" and the "Aerial Application of Fire Retardant and Foam: Avoidance Areas," the US Forest Service will: a) Maintain a minimum 300 foot avoidance area on either side of all intermittent and perennial streams where water is flowing. b) Avoid aerial application of fire retardant or foam within 300 feet of waterways. A waterway is defined as a body of water including lakes, rivers, streams and ponds whether or not they contain aquatic life.	a) U.S.F.S. Teller County Fire Protection District b) U.S.F.S.
Update the Watershed District Ordinance and	1) The Victor City Attorney will work with Jim Neu, Rifle City Attorney, to update Victor's Watershed District Ordinance in accordance	1) City of Victor

creating an Intergovernmental Agreement between The City of Victor and Teller County	with Section 31-15-707(1)(b), C.R.S., and Article XX of the State Constitution 2) The City of Victor will endeavor to work with the City of Cripple Creek and the County of Teller to create an intergovernmental agreement that acknowledges the various elements of the Source Water Protection Plan and the Source Water Protection Area	2) City of Victor
Transportation and Roads (Maintenance and Spills)	1) Accidents, Incidents, and Spills – Distribute City of Victor Emergency Response Cards to all local emergency responders (State Patrol, Teller County Sheriff's Office, Teller County Office of Emergency Management, and Northeast Teller County Fire Protection District, CDOT, City of Victor and City of Cripple Creek Fire Departments and especially local dispatch), and keep the information on the emergency response cards updated. 2) Maintenance and Operations - Meet with CDOT and Teller County Transportation Department to provide them with a copy of the Source Water Protection Plan and map of the SWPA along with GIS shape files. Encourage them to continue the use of their road Best Management Practices to prevent road materials from entering the source waters. Recommendations for application of road de-icing and dust abatement materials include: a) Applying minimum amounts necessary; b) Apply only when removal of snow and ice cannot be accomplished by blading, plowing or sanding; c) Minimize use of chemicals in and adjacent to streams, aquifers, and flood prone areas; and d) Avoid dumping or storing chemically treated or sanded snow where it can melt and infiltrate groundwater or flow into surface waters. e) Install "Source Water Protection Area" signage. 3) Meet with Teller Park Soils Conservation District to discuss vegetation management plans within the SWPA and provide them with a map of the SWPA. Also request an inventory and labels for all herbicides and pesticides being used and the BMP's already in place, to be filed as part of Victor's Source Water Protection Plan.	1) City of Victor 2) City of Victor a-d) CDOT & Teller County Transportation Dept. e) City of Victor & Teller County 3) City of Victor, Teller County & U.S.F.S.
Land Development (Existing and Future)	1) The City of Victor will explore the potential for land exchanges and/or acquisitions which will curtail development on land within	1) City of Victor

	Victor's source water protection area. 2) The City of Victor will encourage the Teller County land use planners to overlay the source water protection area on their land use map and refer to it during decisions about land use and future development within the source water protection area. 3) The City of Victor will encourage Teller County to notify the City of Victor if a special use permit is applied for which falls within the source water protection area. In accordance with the City of Victor Watershed District Ordinance, this will provide the opportunity for the City of Victor to review the application and/or permit and provide input where appropriate. 4) Foster a relationship with Lawrence Javernick, owner of the parcel located on the southwest corner of Bison Reservoir, and share Victor Emergency Response Card with him. 5) Maintain relationship with Bret Mathers, Wildlife Technician in the Pikes Peak State Wildlife Area, and manager of the parcel of land near Bison Reservoir. Also, share the Victor Emergency Response Card with him. 6) Gold Camp Shooting Complex – Monitor for possible lead contamination. 7) Recreation and Public Access – keep aware of any attempt to access Bison and Bison #2 Reservoirs for public recreation and utilize the Watershed District Ordinance to limit or prohibit access. The City of Victor will also look into installing signs and/or fencing at the boundaries of City property where there is private property adjacent to Bison Park Reservoir.	2) City of Victor 3) City of Victor 4) City of Victor 5) City of Victor 6) Teller County Environmental Health 7) City of Victor & Gold Camp Fishing Club
Onsite Wastewater Treatment Systems (Existing and Future)	1) Collaborate with the City of Cripple Creek and the Teller County Environmental Health Department to develop a public education program to provide basic information to existing septic system with the source protection area. Specifically, communicate with the KOA Campground owners and staff about Victor's source water protection plan. Public education will include: the proper use and maintenance of their septic systems and how the source of their drinking water can be affected by an inadequate functioning septic system.	1) City of Victor, City of Cripple Creek, & Teller County Environmental Health

Onsite Wastewater Treatment Systems (Existing and Future) Cont.	2) The City of Victor will collaborate with the Teller County Environmental Health Department to make individuals, which are requesting a septic permit from Teller County, aware that they may also need a permit from the City of Victor in accordance with their updated Watershed District Ordinance when it goes into effect. 3) Coordinate with the Gold Camp fishing club to develop best management practices for the maintenance, use, and placement of "Port-A-Johns" at the Bison Reservoir.	2) City of Victor & Teller County Environmental Health Dept. 3) City of Victor & Gold Camp Fishing Club
Sand and Gravel Mining Operations - Best Management Practices	1) Collaborate with the City of Cripple Creek on Best Management Practices for the Ute Sand and Gravel operations. 2) Inventory existing mining operations within the source water protection area and reach out to them to distribute Victor Emergency Response Cards.	1) City of Victor & City of Cripple Creek 2) City of Victor & Teller County Planning & Zoning
Stormwater	1) Monitor local construction projects for compliance with State stormwater regulations.	1) City of Victor & Teller County Planning & Zoning
Oil and Gas (Future Development) **Oil and Gas (Future Development) Cont.**	1) The City of Victor will investigate who the current Local Government Designee (LGD) and rely on the LGD to monitor for and to notify the City of any new permits. If new permits arise, the City of Victor will provide comments where appropriate. 2) The US Forest Service will begin an oil and gas environmental impact statement (EIS) for leases in the area. The City of Victor will monitor the process and provide input when and where appropriate. 3) Participate in BLM planning projects and work to have the source water protection areas incorporated in planning documents.	1) City of Victor & Local Government Designee 2) City of Victor 3) City of Victor & BLM
Livestock Grazing	1) Identify ranchers within the SWPA, develop rapport, and maintain an open dialog with them. The goal is to make them aware of the location of the City of Victor source water protection area and to encourage them to notify the City of Victor if the concentration of livestock within the SWPA ever increases.	1) City of Victor, Teller County Planning & Zoning, U.S.F.S., BLM

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5) Mountain Mutual Water Co. web site mountainmutual.com/water_rights, Characteristics of the Gillette Flats Alluvial Aquifer, Para. 2
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7) City of Victor Water System Planning Report, Integra Engineering, Raw Water Quality, (Pg. 2-4)
8) The Agency for Toxic Substances and Disease Registry (ATSDR http://www.atsdr.cdc.gov/HAC/pha/pha.asp?docid=826&pg=1 Drinking Water Quality Cripple Creek & Victor Gold Mining Co. web site: www.Ccvgoldmining.com
9) City of Victor Water System Planning Report, Integra Engineering, Raw Water Quality, (Pg. 2-1)
10) Protecting Front Range Forest Watershed for High-Severity Wildfires, An assessment by The Pinchot Institute for conservation, The Increasing Threat of High Severity Wildfires in Colorado, (Pg. 1)
11) Protecting Front Range Forest Watershed for High-Severity Wildfires, An assessment by The Pinchot Institute for conservation, The Increasing Threat of High Severity Wildfires in Colorado, (Pg. 2)
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13) USGS – Wildfire Effects on Source-Water Quality – Lessons from Fourmile Canyon Fire, Colorado, and implications for Drinking-Water Treatment. (Pg. 4)
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15) "Controlling Nonpoint Source Runoff Pollution from Roads, Highways and Bridges" EPA, Office of Water, August 1995 (EPA-841-F-95 008a) http://www.epa.gov/owow/nps/roads.html
16) Protecting and restoring Americas Watersheds (Pg. 14, Para. 2) http://water.epa.gov/type/watersheds/outreach/upload/2001_10_25_protecting_chap2.pdf
17) McHenry County Conservation Foundation "Welcome to your watershed" (Pg. 1) – http://www.foxriverecosystem.org/pdfs/Materials/welcometoyourwatershed.pdf
18) US EPA, Green Communities, Land Use impacts on water, Residential and commercial development. http://www.epa.gov/greenkit/toolwq.htm

19) Teller County Planning Commission Regular Monthly Meeting: June 11, 2013 Agenda Item No. IV
20) United States Environmental Protection Agency EPA-902-B-01-001 “Best Management Practices for Lead at Outdoor Shooting Ranges” http://www.epa.gov/region02/waste/leadshot/epa_bmp.pdf Pg. 1-2, Para.-3
21) United States Environmental Protection Agency EPA-902-B-01-001 “Best Management Practices for Lead at Outdoor Shooting Ranges” http://www.epa.gov/region02/waste/leadshot/epa_bmp.pdf (Pg. 1-4)
22) Environmental Impacts of Aggregate and Stone Mining – New Mexico Case Study, Steve Blodgett, M.S., Center for Science in Public Participation. January, 2004
23) IPCC (2007). Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Pachauri, R.K. and A. Reisinger (eds.)]. Geneva, Switzerland. Teller County Planning Commission Regular Monthly Meeting: June 11, 2013 Agenda Item No. IV
24) U.S. EPA, EPA 833-B-09-002 Developing your Stormwater Pollution Prevention Plan. (Pg.3)
25) City of Hotchkiss SWPP, Mihelich 2013 (P. 33)
26) City of Hotchkiss SWPP, Mihelich 2013 (P. 42)
27) U.S. Dept. of the Interior, Bureau of Land Management, Fact Sheet on the BLM’s Management of Livestock Grazing. 2013 Para. 3City of Hotchkiss SWPP, Mihelich 2013 (P. 3)

APPENDICES[4]

A. Emergency Response Plan

B. Source Water Assessment Report

C. Source Water Assessment Report Appendices

D. MOU Between CDPHE and U.S. Forest Service Rocky Mountain Region

E. Table A-1 Discrete Contaminant Types

F. Table A-2 Discrete Contaminant Types (SIC Related)

G. Table B-1 Dispersed Contaminant Types

H. Table C-1 Contaminants Associated with Common PSOC's

[4] All appendices are located on the CD version of this SWPP.