



PARK CITY MUNICIPAL CORPORATION

**WATER PIPELINE INTERCONNECTION
JUDGE TUNNEL WATER LINE**

**ENVIRONMENTAL ASSESSMENT AND
FINDING OF NO SIGNIFICANT IMPACT**

**APRIL 2010
UPDATED MARCH 2013**



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EXECUTIVE SUMMARY

This Environmental Assessment (EA) has been prepared to evaluate the environmental impacts associated with the construction of a water pipeline to convey water from municipal water works connected to the Judge Tunnel portal located in Park City, Utah, to Quinn's Water Treatment Plant (QWTP) near Quinn's Junction in Park City, Utah downstream and northeast of the Judge Tunnel. The project will be funded in part through grants from the U.S. Environmental Protection Agency (EPA). Therefore, this EA has been prepared to comply with the requirements of the National Environmental Policy Act (NEPA) 42 U.S.C. §§ 4321 et seq. and implementing regulations found at 40 C.F.R. §§ 1500 et seq. and 40 C.F.R. Part 6.

The overall purpose of the proposed Judge Tunnel pipeline is to increase the use and reliability of the Judge Tunnel as a water supply source for Park City. The proposed action is to convey Judge Tunnel water that currently discharges from the Judge Tunnel waterworks to QWTP to comply with the National Primary Drinking Water Standards promulgated at 40 C.F.R. Part 141, in accordance with the Safe Drinking Water Act, 42 U.S.C. § 300f et seq. This includes water that currently is discharged to a drainage channel (located approximately ½ mile up Empire Canyon) and Judge Tunnel water that currently enters Park City Municipal Corporation's (PCMC) drinking water system. After construction of the project, water from the Judge Tunnel will no longer directly enter the Park City culinary water system.

Under normal circumstances, all of the water from the Judge Tunnel waterworks is diverted into the Park City Municipal Corporation's (PCMC) drinking water delivery system. However, there are particular conditions when all of this water cannot be diverted for drinking water, and is discharged into Empire Creek (tributary to Poison Creek), and eventually to Silver Creek. This occurs during the following conditions:

- Spring runoff conditions when flows reach peaks of approximately 2,500 gallons per minute.
- Periods of tunnel maintenance, high flows, or other tunnel upsets when water turbidity exceeds 5 NTU.

The pipeline will be used to convey water from Judge Tunnel to the QWTP where it will be blended with other raw water sources and treated for use in the PCMC drinking water system. The Judge Tunnel pipeline may also be used as part of a raw water delivery system to irrigate City parks and other large irrigated areas with Judge Tunnel water. This will be subject to any future Clean Water Act Utah Pollutant Discharge Elimination System (UPDES) surface water discharge permit requirements. The Judge Tunnel pipeline will also be routed near the existing Spiro Water Treatment Plant (WTP), which is a potential site for a future pre-treatment plant to comply with a future UPDES permit. The Judge Tunnel pipeline may be oversized from Spiro WTP to QWTP to allow for the future possibility of conveying Spiro Tunnel water and other sources to QWTP for treatment.

This Environmental Assessment is for the collection and conveyance of this water from the Judge Tunnel waterworks to Quinn's Junction. PCMC proposes to install a 12-inch to 18-inch water pipeline to convey this water. Four pipeline alignments and a No Action option were evaluated. The proposed alternative is Option 1 – Treasure Hill; approximately 24,000 feet in length.

The four pipeline alignments evaluated are described briefly below and more thoroughly in Section 2 of this report.

Alignment Option 1 – Treasure Hill (Proposed Alternative)

This alignment goes down Empire Canyon road and heads northwest along an existing water line to the Woodside tank. It then continues north in the foothills through the Park City Mountain Resort and along west Park City on Lowell Avenue before coming through the Park City Golf Club course, then east down Homestake Road and Kearns Boulevard to connect to an existing pipeline on Wyatt Earp Way.

Alignment Option 2 – Marsac Avenue to Deer Valley Dr.

This alignment goes down Empire Canyon road and heads east up to Prospect Ridge, then drops down to Marsac Avenue, then to Deer Valley Drive. It ties into an existing waterline that goes along Deer Valley Drive and Bonanza Drive. The alignment then heads east toward the proposed water treatment plant.

Alignment Option 3– Chatham Crossing

This alignment goes down Empire Canyon road and heads east up to Prospect Ridge. The alignment then travels down Prospect Ridge and drops down to Marsac Avenue. The alignment eventually drops down and goes along the Deer Valley ponds. It continues on Solamere Drive and heads north and follows an existing 30' water line easement north through the Chatham Crossing subdivision to the Park City Rail Trail where it heads east towards Wyatt Earp Way.

Alignment Option 4 – US-40 Frontage Road

This alignment goes down Empire Canyon road and heads east up to Prospect Ridge then drops down to Marsac Ave. The alignment continues east eventually following the easement to the Morning Star Estates Subdivision, and follows an existing 50' right-of-way then crosses through the Gillmor property. It then travels north along the Summit County frontage road to an existing dirt road on the south side of Silver Creek where it heads west then north across the rail trail and Silver Creek to the proposed water treatment plant. A portion of this alignment is located in Summit County.

A summary of the main environmental issues identified in the environmental analysis is as follows:

- 1) Pipeline alignment Options 1 and 2 are within the PCMC Soils Ordinance Boundary; compliance measures necessary.
- 2) Crossing of tributary to McLeod Creek required; Army Corps of Engineers (ACOE) permitting may be necessary.
- 3) Potential impacts to Silver Creek. See Section 1.3.
- 4) Temporary impacts to wetlands anticipated; wetland delineation and permitting may be necessary.

PARK CITY MUNICIPAL CORPORATION
JUDGE TUNNEL WATER LINE
ENVIRONMENTAL ASSESSMENT

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LIST OF ACRONYMS AND ABBREVIATIONS

ACOE	Army Corps of Engineers
BMPs	Best Management Practices
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
cfs	cubic feet per second
DEQ	Utah Department of Environmental Quality
DWQ	Utah Division of Water Quality
DWR	Utah Division of Water Rights
E&T	Endangered and Threatened Wildlife Species
EA	Environmental Assessment
EPA	US Environmental Protection Agency
F	Fahrenheit
FONSI	Finding of No Significant Impact
LUST	Leaking Underground Storage Tank
mg/L	milligrams per liter
NEPA	National Environmental Policy Act
NWI	National Wetlands Inventory
PABFx	Palustrine Aquatic Bed Semipermanently Flooded Excavated
PABG	Palustrine Aquatic Bed Intermittently Exposed
PABGx	Palustrine Aquatic Bed Intermittently Exposed Excavated
PCMC	Park City Municipal Corporation
PDD	Peak Day Demand
PEMC	Palustrine Emergent Seasonally Flooded
PSS/EMC	Palustrine Scrub-Shrub Emergent Seasonally Flooded
QWTP	Quinn's Water Treatment Plant
ROD	Record of Decision
SBWRD	Snyderville Basin Water Reclamation District
SHPO	State Historic Preservation Office
STORET	Storage and Retrieval
TMDL	Total Maximum Daily Load
UPDES	Utah Pollutant Discharge Elimination System
UPCM	United Park City Mines
USACE	US Army Corps of Engineers
USDA	US Department of Agriculture
USGS	US Geological Services
USFWS	US Fish and Wildlife Service
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program

1.0 INTRODUCTION

1.1 PURPOSE AND NEED

This Environmental Assessment (EA) has been prepared to evaluate the environmental impacts associated with the construction of a water pipeline to convey water from municipal waterworks connected to the Judge Tunnel portal located in Park City, Utah to Quinn's Junction. This EA was prepared in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. The project will be funded in part through grants from the U.S. Environmental Protection Agency (EPA). Park City has received four Special Appropriation Act or earmark grants of: \$433,700 in fiscal year (FY) 2003, \$867,800 (FY2004), \$384,900 (FY2005), and \$286,800 (FY2006). The City must provide a 45% match for the grants. [Previously, EPA completed an environmental review for the grants for a drinking water treatment plant located at the Judge Tunnel. Park City decided not to build that project.]

The overall purpose of the proposed Judge Tunnel pipeline is to increase the use and reliability of the Judge Tunnel as a water supply source for Park City. The proposed action is to convey Judge Tunnel water that currently discharges from the Judge Tunnel waterworks to QWTP for treatment so that it will comply with the National Primary Drinking Water Standards promulgated at 40 C.F.R. Part 141, in accordance with the Safe Drinking Water Act, 42 U.S.C. § 300f et seq. This includes water that currently is discharged to a drainage channel (located approximately ½ mile up Empire Canyon) and Judge Tunnel water that currently enters Park City Municipal Corporation's (PCMC) drinking water system.

Most of the year, 100% of the water from the Judge Tunnel is diverted into the PCMC drinking water delivery system. The water is currently piped from Judge Tunnel directly into the City's water system after chlorination. However, there are particular conditions when all of this water cannot be diverted, and it is discharged for short periods of time into an ephemeral stream, Empire Creek (tributary to Poison Creek), and eventually to Silver Creek. This occurs generally during the following conditions:

- ♦ Spring runoff conditions when flows reach peaks of approximately 2,500 gallons per minute. This generally for a short duration in late May and early June.
- ♦ Periods of tunnel maintenance, high flows, or other tunnel upsets when water turbidity exceeds 5 NTU.

This project is needed to provide a reliable means of conveyance by capturing turbid and excess flows from Judge Tunnel, and to transport the water to a newly constructed water treatment facility known as the Quinn's Water Treatment Plant (QWTP) located near Quinn's Junction in Park City, Utah. After construction of the project, water from the Judge Tunnel will no longer directly enter the Park City culinary water system.

In the future, the proposed Judge Tunnel pipeline may be used for the following additional purposes:

- ♦ Convey water from the Judge Tunnel to the QWTP or another future water treatment plant for additional treatment for discharge into Silver Creek to meet the requirements of a future UPDES (surface water) discharge permit, or irrigation of city parks and other large irrigated areas subject to future UPDES permit requirements.
- ♦ It may be sized with the future possibility of conveying Spiro Tunnel water and other sources in addition to Judge Tunnel water from near the Spiro WTP to QWTP.

Judge Tunnel water also needs to comply with the National Primary Drinking Water Standards promulgated at 40 C.F.R. Part 141, in accordance with the Safe Drinking Water Act, 42 U.S.C. § 300f et seq. which limit antimony concentrations in drinking water to 6 parts per billion (ppb). Park City routinely samples the tunnel water for antimony. In December of 2009 the antimony concentration exceeded the 6 ppb limit for drinking water. In November of 2010, the Utah Division of Drinking Water (DDW) and PCMC entered into a Bilateral Compliance Agreement (BCA), which specified actions to be taken by PCMC to bring the antimony levels into compliance. One of the listed solutions in the BCA is the Judge Tunnel pipeline to QWTP and blending Judge water with other sources to reduce the antimony concentration. In August of 2012, DDW and PCMC entered into a Compliance Order/Enforcement Agreement that extended the date to implement a solution to comply with the antimony MCL to June 15, 2014. This agreement also specifies the Judge Tunnel pipeline to QWTP and blending as a solution. This project will provide a means for blending the tunnel water with other water sources to produce antimony concentrations below the 6 ppb threshold in compliance with the Safe Drinking Water Act. Once QWTP is upgraded to accept Judge Tunnel water the blending will occur at QWTP or in the raw water system before treatment at QWTP.

This Environmental Assessment is for the collection and conveyance of this water from the Judge Tunnel portal to Quinn's Junction. PCMC proposes to install a 8-inch to 18-inch water pipeline to convey this water. Four pipeline alignments and a No Action option were evaluated. The proposed alternative is Option 1 – Treasure Hill; approximately 24,000 feet in length. This alignment goes down Empire Canyon road and heads northwest along an existing water line to the Woodside tank. It then continues north in the foothills through the Park City Mountain Resort and along west Park City on Lowell Avenue before coming through the Park City Golf Club course, then east down Homestake Road and Kearns Boulevard to connect to an existing pipeline on Wyatt Earp Way.

1.2 STUDY AREA

The study area is located in Park City, Utah, north-central Utah, approximately 20 miles east of Salt Lake City (Figure 1). Park City is located in Summit County, Utah, in a mountainous region with an elevation of approximately 6,800 ft to 9,000 feet. The average maximum temperature is 56.1 degrees Fahrenheit (F); the average minimum temperature is 31.9 degrees F; average total precipitation is 20.72 inches; and average annual snowfall is 168.76 inches. Park City is approximately 12 square miles in size, with a population of 7,800 in 2009.

1.3 PROJECT HISTORY AND BACKGROUND

Development of the excess flow and turbid water from Judge Tunnel water as a potable water source was evaluated in 2004. The proposed project included the construction of a water treatment facility in Empire Canyon, to treat up to 1,500 gallons per minute of groundwater flowing from the tunnel. A Finding of No Significant Impact (FONSI) was issued by EPA on August 23, 2004. Subsequently, PCMC determined the construction of a water treatment plant in this location would be cost prohibitive, and therefore the project did not proceed. Since that time, PCMC has evaluated alternatives for utilizing this water, and is now proposing the conveyance of this water to QWTP. The construction of the new QWTP was completed in May, 2012. The location of this treatment facility is near Quinn's Junction, approximately one mile east of Wyatt Earp Way.

Components that have been constructed to support this project or the new water treatment plant include:

1. One mile of the Judge Tunnel waterline from Wyatt Earp Way to the QWTP. This project was constructed using local funding.
2. The Lost Canyon Import Raw Waterline. This is the main source for QWTP and will be the water source to be blended with Judge Tunnel water.

The Judge Tunnel water is currently captured within the mine portal and conveyed into a water tank located to the north and down-gradient of the Judge Tunnel portal, approximately 700 horizontal feet (see conceptual sketch below). An overflow device is located upstream of the tank to release turbid water or excess water during high peak flows. The water that is sent to the tank is chlorinated and stored for use in PCMC's existing drinking water system.

The proposed project will utilize approximately 900 feet of existing pipeline from the Judge Tunnel Portal to Empire Canyon Tank. A potential screening facility as well as drainage and minor piping improvements will be constructed near the tank. The potential screening facility would be used to screen out gravel and larger material that may flow from the Judge Tunnel. The facility would be relatively small with a footprint of less than 200 square feet and would be located near Empire Canyon Tank. However, current plans do not call for this type of facility because the Empire Canyon Tank can be modified to function as a settling basin to remove this type of material from the Judge Tunnel pipeline.

Approximately 2,200 feet of existing pipeline from the Empire Canyon Tank location to the Daly Canyon Pump Station will also be used as part of this project. The new pipeline will connect at this location to the existing pipeline.



Figure 1A Judge Tunnel Portal Area

The proposed project is expected to eliminate the historic sporadic flow from Judge Tunnel overflow waterworks to the ephemeral Empire Creek except during an emergency. Table 1 shows the historic flows in Silver Creek at a gauge station located approximately 3.7 miles downstream of the Judge Tunnel Overflow to Empire Creek. The flow measured at this gauge station includes other tributaries to Silver Creek but does not account for ditch losses between Judge Tunnel and the gauge station, which are estimated to be significant (as much as 20%). Empire Creek near Judge Tunnel is an ephemeral tributary to Silver Creek. Typical flows in this portion of Empire Creek are the result of storm events, snow melt, and Judge Tunnel overflow. The flows contributed by Judge Tunnel overflow to Silver Creek ranged from 11% to 51% since 2004, with the average being 18%. Figure 1 shows the daily total flow from Judge Tunnel as an overall percentage to Empire Creek and the PCMC water system. The figure reflects the fact that the Judge Tunnel overflow to Empire Creek does not produce a consistent or reliable discharge to Empire Creek. A technical memo was prepared to address the possible effects of reduced flows in Silver Creek as a result of eliminating occasional Judge Tunnel overflows (Appendix N). This technical memo was amended to include comments from the U.S. Fish and Wildlife Service and a proposed replacement amount for what Judge Tunnel has historically contributed to the Silver Maple Claims Wetlands (Appendix O).

Table 1 Historical Silver Creek and Judge Tunnel Annual Flow Volume Data

Year	Silver Creek (acre-feet)	Judge Tunnel to Silver Creek (via Empire Creek) (acre-feet)	Percent of Silver Creek from Judge Tunnel*	Judge Tunnel to Drinking Water System (acre-feet)
2004	856	97	11%	1,057
2005	2,856	681	24%	932
2006	2,149	307	14%	1,324
2007	489**	280	57%	1,040
2008	1258**	230	18%	1,132
2009	537	274	51%	1,128
2010	1,075	278	26%	1,038
2011	2,267	252	11%	1,165
2012 (as of 11/9)	1,265	53	7%	1,077
Projected 2012	1,485	108	7%	1,264
Average	1,485	279	19%	1,120
**Average excluding 2007 & 2008	1,603	285	18%	1,130

* Does not account for ditch losses and assumes 100% of discharge flow reaches Silver Creek

** Gauging station for flow measurement was unreliable during these years. This was due to known hardware malfunction and time required to replace measuring device.

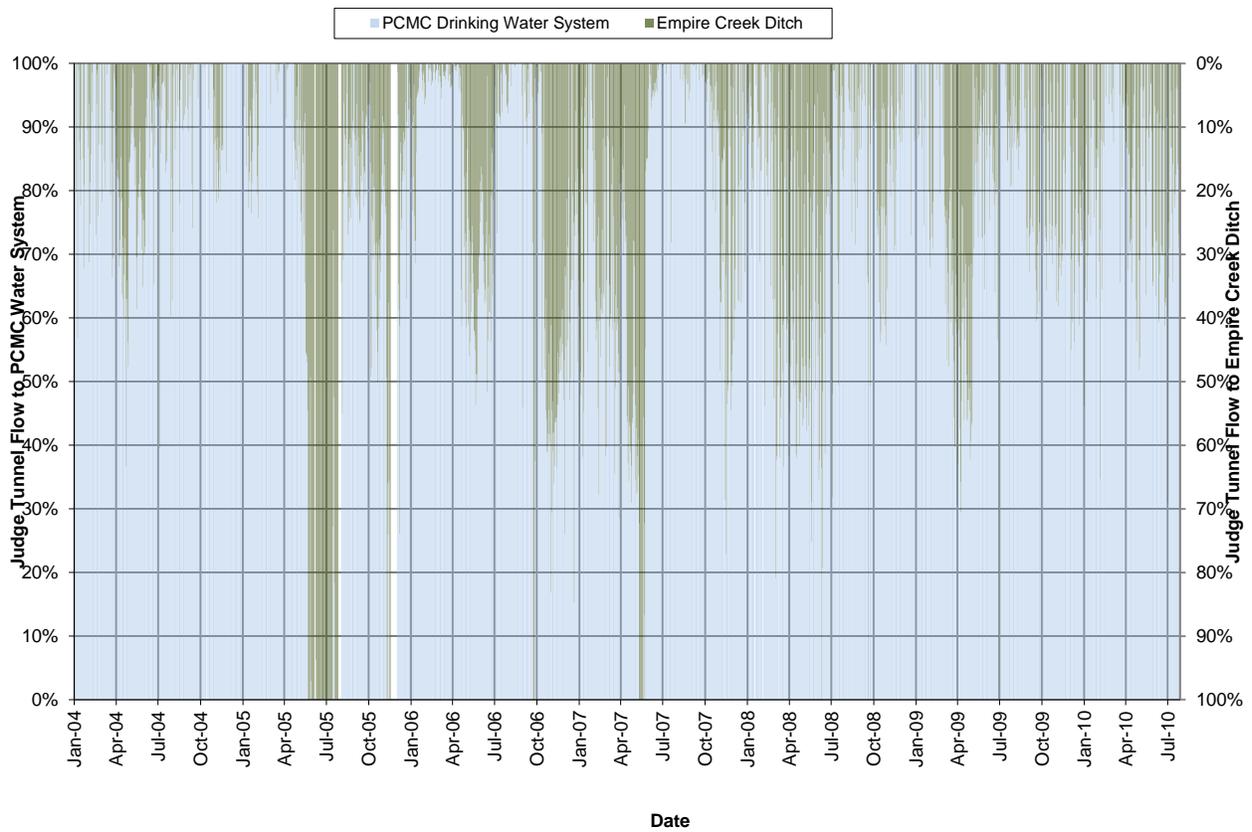
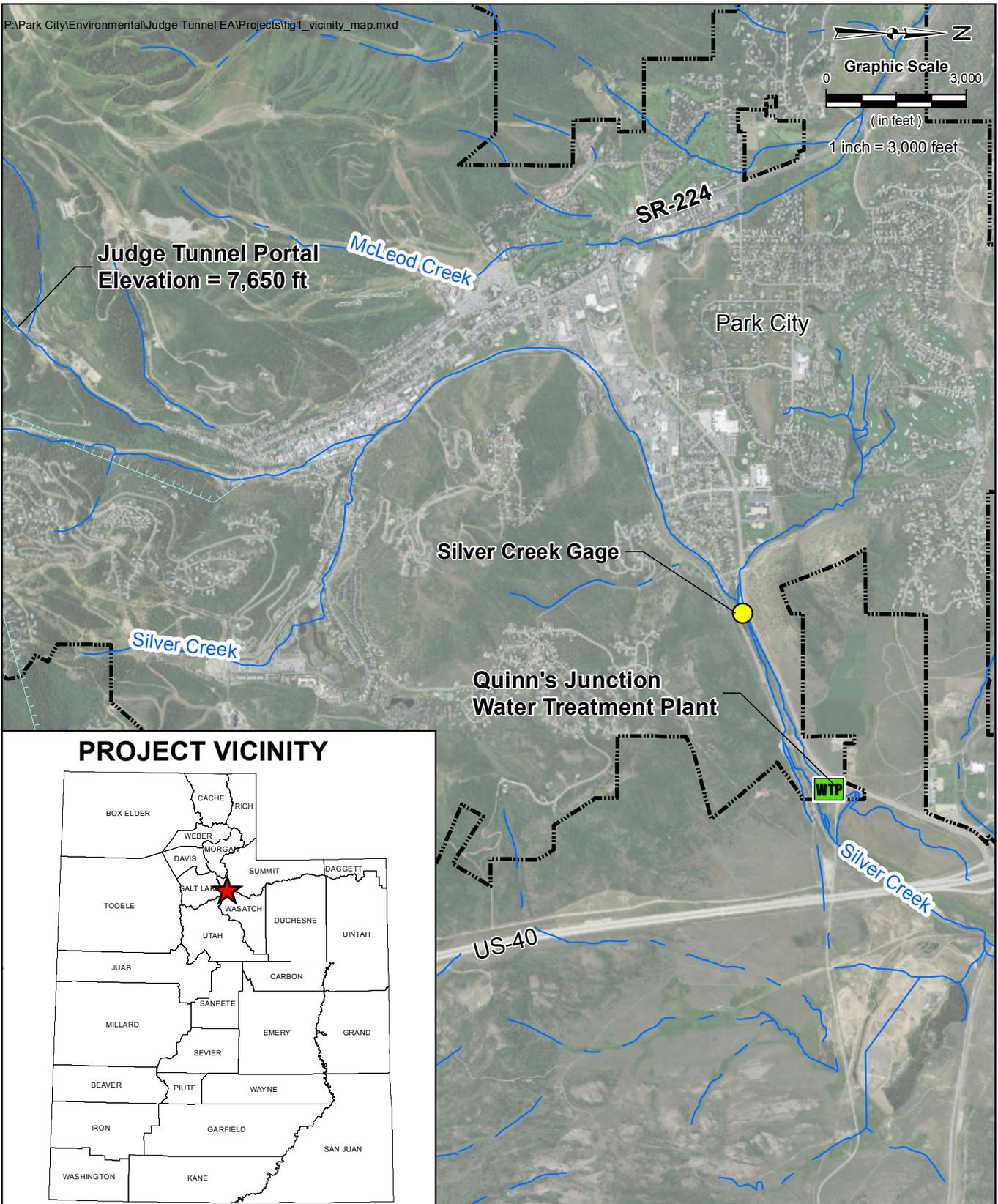
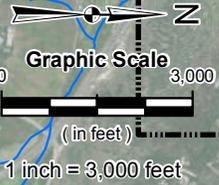


Figure 1B Judge Tunnel Flows to PCMC and Empire Creek Ditch



PROJECT VICINITY



Stantec



Legend

-  Park City Limits
-  Streams
-  Tunnels

Client/Project
Park City Municipal Corporation
Judge Tunnel Water Line
Environmental Assessment

Figure No.
1.0

Title
Project Vicinity Map

2.0 ALTERNATIVES

This chapter identifies and compares several alternatives for the water pipeline. A no action alternative and four pipeline alignment alternatives were evaluated (Figure 2). These options are based upon topography, environmental considerations and property easements.

2.1 NO ACTION ALTERNATIVE

Under the no action alternative, the proposed pipeline would not be constructed. The portion of water that discharges from the waterworks at the Judge Tunnel portal to the drainage channel will not be collected and conveyed to the water system and will continue to be discharged to the tributary of Silver Creek.

2.2 PIPELINE ALIGNMENT ALTERNATIVES

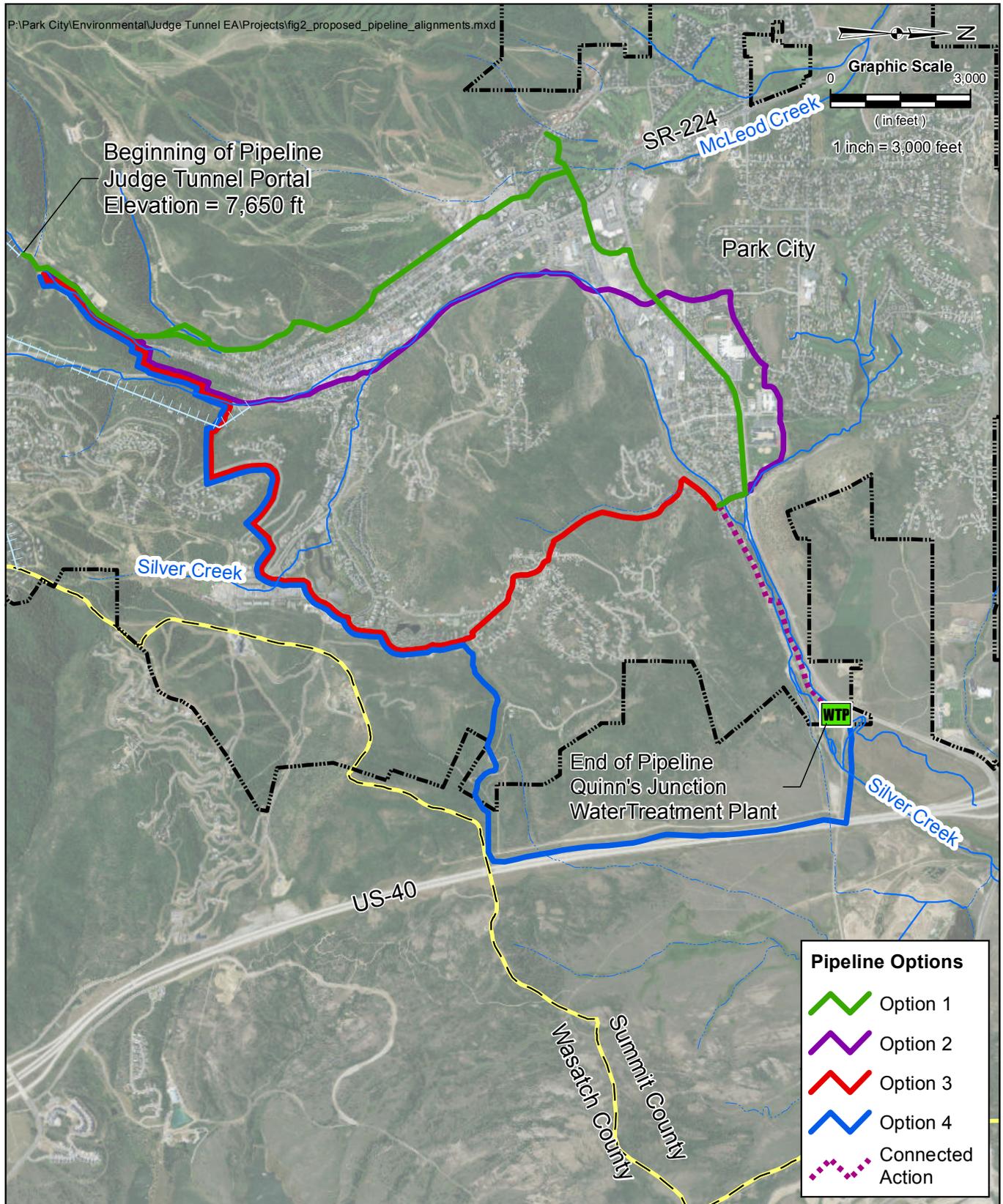
Four pipeline alignments were evaluated for the conveyance of the portion of water that discharges from the Judge Tunnel portal to the drainage channel. Each alignment was reviewed for land ownership, environmental impacts, schedule impacts, cost, long term maintenance, and fatal flaws. Based on this review, the proposed alignment for this project is Option 1 – Treasure Hill. This alignment option has the least private property impacts with 98% of the alignment following existing trails, public right of way, and Park City owned property, provides good access for maintenance, and provides the potential for future Judge Tunnel Water pretreatment if deemed necessary at a future water pretreatment plant planned for near Park City Golf Course.

2.2.1 Alignment Option 1 – Treasure Hill (Proposed Alternative)

This alignment is the proposed alternative for this project. This alignment goes down Empire Canyon road and heads northwest along an existing water line to the Woodside tank. It then continues north in the foothills through the Park City Mountain Resort and along west Park City on Lowell Avenue before coming through the Park City Golf Club course, then east down Homestake Road and Kearns Boulevard to connect to an existing pipeline on Wyatt Earp Way. This pipeline is 24,000 feet in length, with a portion in the Park City Soils Ordinance Boundary. Approximately 97% (20,300 feet) of the alignment is within existing roadways, trails, disturbed areas, or property already owned by Park City. This alignment requires crossing two ditches, one within the golf course and one in Empire Canyon. Both crossings may require a Clean Water Act Section 404 permit for the discharge of dredged or fill material into waters of the U.S. from the U.S. Army Corps of Engineers (Corps) and a Utah Stream Alteration Permit.)..

2.2.2 Alignment Option 2 – Marsac Avenue to Deer Valley Dr.

This alignment goes down Empire Canyon road and heads east up to Prospect Ridge, then drops down to Marsac Avenue, then to Deer Valley Drive. It ties into an existing waterline that goes along Deer Valley Drive and Bonanza Drive. The alignment then heads east toward the proposed water treatment plant. This pipeline is 23,000 feet in length, with a portion in the Park City Soils Ordinance Boundary. Approximately 74% (17,000 feet) of the alignment is within



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CONSULTING ENGINEERS

Legend

-  Park City Limits
-  Streams
-  Tunnels

Client/Project
Park City Municipal Corporation
Judge Tunnel Water Line
Environmental Assessment

Figure No.
2.0

Title
**Proposed Judge Tunnel
Pipeline Alignments**

existing roadways, trails, or disturbed areas. This alignment requires crossing Silver Creek, which will require a stream alteration permit from the State and a Clean Water Act Section 404 permit for the discharge of dredged and fill material into waters of the U.S. Wetlands are known in this area and will need to be formally delineated if impacted and a formal jurisdictional determination from the Corps will be required prior to permitting.

2.2.3 Alignment Option 3– Chatham Crossing

This alignment goes down Empire Canyon road and heads east up to Prospect Ridge. The alignment then travels down Prospect Ridge and drops down to Marsac Avenue. The alignment eventually drops down and goes along the Deer Valley ponds. It continues on Solamere Drive and heads north and follows an existing 30' water line easement north through the Chatham Crossing subdivision to the Park City Rail Trail where it heads east towards Wyatt Earp Way. This pipeline is 24,000 feet in length, with a portion in the Park City Soils Ordinance Boundary. Approximately 83% (20,000 feet) of the alignment is within existing roadways, trails, or disturbed areas. This alignment requires crossing Silver Creek near Deer Valley which will need a stream alteration permit from the State as well as a permit from the Corps of Engineer for the discharge of dredged or fill material into any waters of the U.S. pursuant to Clean Water Act Section 404. Wetlands are known in this area and will need to be formally delineated if impacted and a formal jurisdictional determination from the Corps will be required prior to permitting.

2.2.4 Alignment Option 4 – US-40 Frontage Road

This alignment goes down Empire Canyon road and heads east up to Prospect Ridge then drops down to Marsac Ave. The alignment continues east eventually following the easement to the Morning Star Estates Subdivision, and follows an existing 50' right-of-way then crosses through the Gillmor property. It then travels north along the Summit County frontage road to an existing dirt road on the south side of Silver Creek where it heads west then north across the rail trail and Silver Creek to the proposed water treatment plant. A portion of this alignment is located in Summit County. This pipeline is 31,400 feet in length. Approximately 83% (26,000 feet) of the alignment is within existing roadways, trails, or disturbed areas. This alignment is not in the Park City Soils Ordinance Boundary. This alignment requires crossing Silver Creek which will need a State stream alteration permit as well as a permit for the discharge of dredged or fill material into any waters of the U.S. pursuant to Clean Water Act Section 404. Wetlands are known in this area and will need to be formally delineated if impacted and a formal jurisdictional determination from the Corps will be required prior to permitting.

2.3 CONNECTED ACTIONS

A connected action to the proposed action is the installation of a water pipeline from Wyatt Earp Way to the Quinn's Water Treatment Plant. This connected action project was funded by Park City Municipal Corporation, and therefore was separate from the proposed project addressed in this EA. This pipeline segment is approximately 5,500 feet in length, and will connect the Judge Tunnel Pipeline that is the subject of this EA, from Wyatt Earp Way along the Rail Trail to Quinn's Water Treatment Plant. This project was completed in winter 2010.

2.4 GENERAL PROJECT SCENARIOS

The alignments have been evaluated based on action and no action alternatives.

Under a no action scenario, there is no Judge Tunnel pipeline project and the use of the Judge Tunnel water would remain the same until June 15, 2014 when the water could not be used for drinking due to antimony concentrations in accordance with per the Compliance Order/Enforcement Agreement between Park City and Utah Division of Drinking Water.

It is anticipated that the permit limits would not allow the discharge into the creek without treatment due to potential violations of surface water quality standards. The exact discharge limits are unknown at this time. The UPDES application was submitted by Park City in July 2011 and is still under review by the Utah Division of Water Quality. Additionally, without the project antimony levels in drinking water at the Empire/Judge waterworks may exceed the National Drinking Water Standard of 6 ppb.

The action alternatives to construct the Judge Tunnel Pipeline would include the following operational scenarios (applicable to all pipeline alignment alternatives):

1. **Location of Excess or Overflow Discharge Point**
 - a. Existing location, near the Judge Tunnel. Overflow discharges are unlikely to continue at the existing location after the future UPDES permit limits goes into effect, or
 - b. At QWTP, or.
 - c. At a future treatment facility after treatment for future UPDES permit requirements.
2. **Water Quantity -- Average quantity of Judge Tunnel water discharged as overflow/excess or used for drinking water.**
 - a. Maintain current water overflow flow conditions. On average 285 acre-feet (ac-ft) per year is discharged from the Judge Tunnel into Silver Creek tributaries. On average the Judge Tunnel provides 1,130 ac-ft per year for drinking water use. However, this amount fluctuates and varies continuously.
 - b. Use all of Judge Tunnel flow for drinking water and secondary irrigation water; on average reducing overflow discharges to 0 ac-ft and increasing drinking water and secondary water use to approximately 1400 ac-ft per year, depending on the yield of the Judge Tunnel.
3. **Drinking Water Treatment -- Judge Tunnel pipeline water continues to be used as a source of drinking water for Park City.**
 - a. Convey all drinking water to including the Judge Tunnel water QWTP for treatment and blending with other sources of drinking water. Antimony levels in drinking water are reduced by blending Judge Tunnel water with water from other sources.
 - b. Spiro Tunnel WTP is replaced with a pre-treatment plant to treat Judge Tunnel water and Spiro Tunnel water for use in the PCMC raw water system that feeds QWTP. The water could be used for irrigation or treated at QWTP for use in the drinking water system.
 - c. Treatment waste from the QWTP is sent to the Snyderville Basin Water Reclamation District (SBWRD) under a valid pretreatment permit (discharges to the wastewater sewer system). Currently PCMC has a pretreatment industrial discharge permit with SBWRD that allows the discharge of the waste stream from QWTP. During the period of the SBWRD temporary discharge permit, PCMC

monitors the water quality of the waste stream to determine appropriate dewatering methods or if one is required. If monitoring shows that standards set by the SBWRD permit may not be met, PCMC would evaluate the potential development of a dewatering facility at QWTP. The dewatering facility would remove solids in the waste stream, which can then be taken to an approved disposal site. See Appendix K for a copy of the PCMC current discharge permit issued by SBWRD.

4. **Overflow Treatment** – Water from Judge Tunnel not used in the drinking water system may require future treatment before discharge. Normal operations will utilize all Judge Tunnel water in the drinking water system and/or secondary water system. However, a future pretreatment plant is envisioned to treat Judge and potentially Spiro Tunnel water overflows that are not used in the QWTP. Any treatment facility discharging to Silver Creek would require an UPDES permit. Although the exact permit limits are not known, any future UPDES permit would include water quality based effluent limits (WQBELs) to ensure compliance with applicable water quality standards. Any WQBELs in the permit would need to be consistent with the waste load allocations in the Total Maximum Daily Load (TMDL) for Silver Creek. Treatment options under any such permit could include:
 - a. No treatment needed. This option appears unlikely as the Clean Water Act requires dischargers to meet TBELs in their permits upon the date of permit issuance.
 - b. Treatment of all or part of the water. Convey all Judge Tunnel water in the proposed pipeline to a future treatment facility to comply with UPDES permit and/or to QWTP for drinking water treatment and use. If the treatment facility could not initially meet its WQBELs, the anticipated compliance period for the UPDES permit would allow some discharges that exceed the applicable water quality criteria. Discharges resulting from the diversion of waste streams from any portion of the treatment facility or caused by factors beyond the reasonable control of the treatment facility operator would be subject, respectively, to the bypass or upset provisions in the UPDES permit or any applicable compliance agreement or order issued by the Utah Division of Water Quality.

3.0 RESOURCES, POTENTIAL IMPACTS AND MITIGATION MEASURES

3.1 SUMMARY OF ISSUES

Environmental resources were evaluated for existing conditions and potential impacts caused by the proposed project. These resources, potential impacts and recommended mitigating measures are discussed in this chapter. Four main environmental issues were identified during this analysis and are as follows:

1. Potential impacts to soils - PCMC Soils Ordinance; Refer to Section 3.3
2. Potential impacts to surface waters - Silver Creek TMDL and reduced stream flows; Refer to Section 3.4
3. Stream crossings necessary – Silver Creek and an unnamed ditch (tributary of McLeod Creek); Refer to Section 3.4
4. Potential impacts to wetlands; Refer to Section 3.5

3.2 GEOLOGY, SOILS, AND GROUNDWATER

The Study Area is located in the Middle Rocky Mountain Physiographic Province, which includes the Wasatch and Uinta Ranges. The project area is in the Wasatch Hinterland section (Stokes, 1986), bounded by the Provo River to the south and the Weber River to the north. Elevations of the Wasatch Mountains range between 5,000 and almost 12,000 feet in elevation. The project area elevation ranges from 6300 feet to over 7200 feet, with an average of approximately 6,600 feet above mean sea level.

Geologically, the majority of the Study Area consists of volcanic rock units and alluvial deposits, with sedimentary rocks adjacent to the southern portion of the project area (Bromfield and Crittenden, 1971). According to Bromfield and Crittenden (1971) geologic formations that are exposed within the project area include:

- Quaternary Alluvium, Terrace Gravels, and Glacial Outwash sediments (clay, silt, sand, and gravel)
- Tertiary Keetley Volcanics, including
 - Silver Creek Breccia (light gray rhyodacitic to andesitic breccia, lahar, and tuff)
 - Richardson Flat Rhyodactic flows and subordinate breccias
- Triassic Ankareh Formation (mudstone, silty sandstone, sandstone, and conglomerate)
- Triassic Thaynes Formation (limestone, siltstone, and sandstone)
- Triassic Woodside Formation (shale and siltstone)
- Permian Park City Formation (limestone, siltstone and sandstone)

Landslides have been observed in an area west of US-40 and south of SR-248 apparently formed in the Quaternary Alluvium on steep slopes.

Structurally, the Study Area lies mainly within an erosional valley formed by Silver Creek flowing across and through the Keetley Volcanics. The sedimentary rocks in the southern portion of the Study Area generally strike to the northeast and dip to the northwest ranging from 20 to 55 degrees. The sedimentary rocks are complexly faulted and folded (Bromfield and Crittenden, 1971).

According to Bromfield and Crittenden (1971), a number of faults cross the proposed alignment, the largest of which is the Frog Valley Thrust Fault (Figure 3). There are apparently no data available to indicate if these faults are still active.

According to the EPA (2005) groundwater at the Study Area occurs in shallow unconsolidated aquifers below the original ground surface. These aquifers are primarily fed from local surface water recharge and are small and local in nature. Groundwater flow is generally from southeast to northwest toward Silver Creek. According to Holmes and others (1985) the unconsolidated alluvium is approximately 100 feet thick in the Silver Creek drainage.

Below the shallow aquifers is the bedrock aquifer of the Keetley Volcanics, which occurs at various depths and contains varying amounts of ground water depending upon local conditions. The hydraulic gradient in all aquifers is generally upward, but the connection between the bedrock aquifer and the shallow aquifers is weak (EPA, 2005).

Given that the proposed project is located in an area known to have high levels of metals that were associated with historic mining activities, soils and groundwater require special handling, and must be in accordance with local, State and Federal requirements. Please refer to Section 3.3 for further information.

3.2.1 Potential Impacts and Recommended Mitigation Measures

3.2.1.1 No Action Alternative

No impacts to these resources under this alternative, mitigation not necessary.

3.2.1.2 Proposed Pipeline Alignments

3.2.1.2.1 Alignment Option 1 - Treasure Hill (Proposed Alternative)

Temporary surface soil impacts during construction are anticipated. Construction erosion and sediment controls will serve to minimize these impacts. Refer to Section 3.4.3 for further information regarding these measures.

Construction of the pipe will include either restrained joints or high density polyethylene HDPE pipe to minimize impacts due to faults or landslides. A geotechnical investigation will be performed on the approved alignment. Construction documents will address any additional appropriate pipe construction methods or materials.

3.2.1.2.2 Alignment Option 2 – Marsac Avenue to Deer Valley Drive

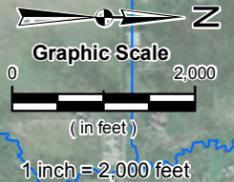
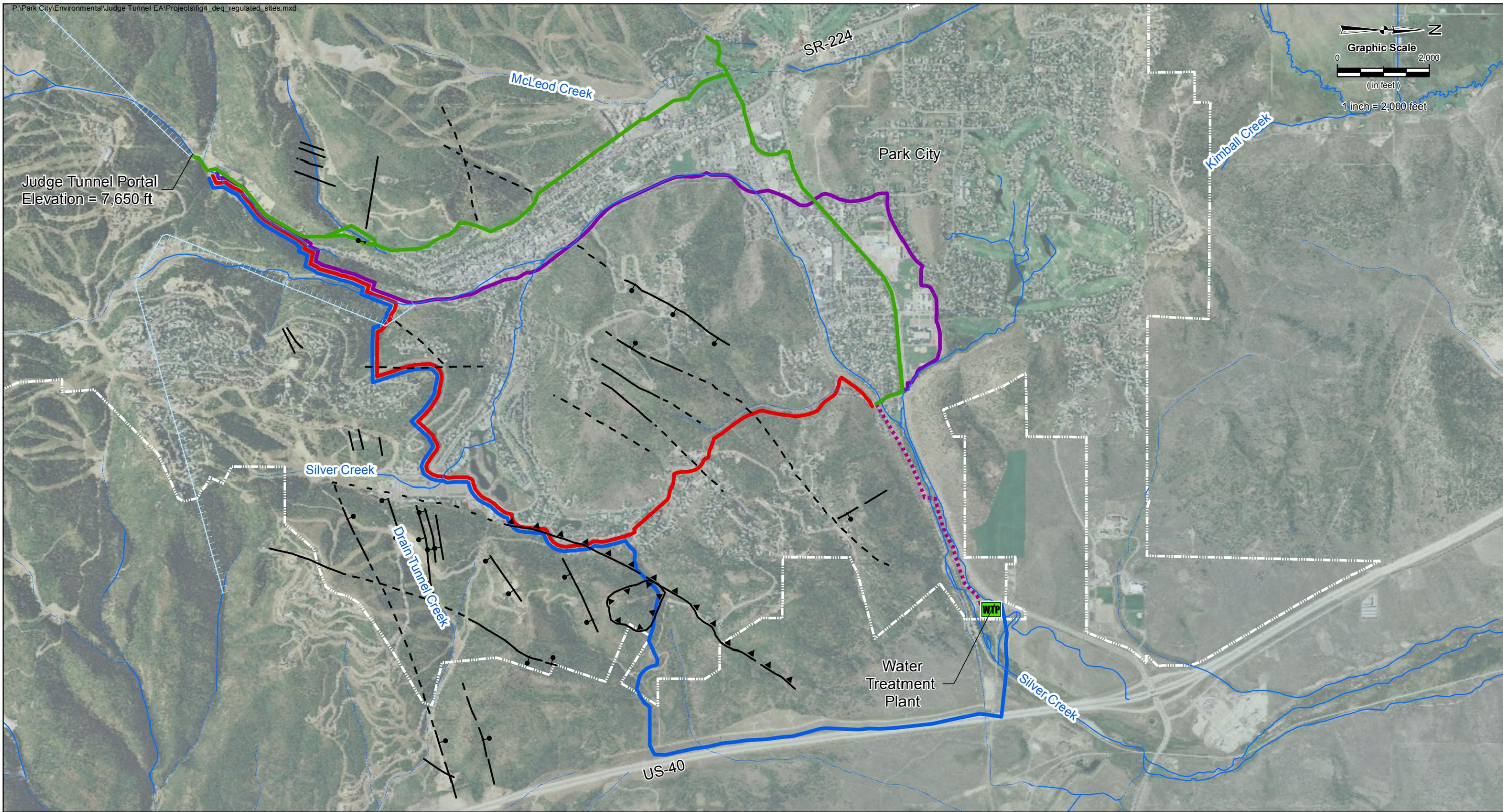
Potential impacts and mitigation measures are provided in Section 3.2.1.2.1 above.

3.2.1.2.3 Alignment Option 3 - Chatham Crossing

Potential impacts and mitigation measures are provided in Section 3.2.1.2.1 above.

3.2.1.2.4 Alignment Option 4 - US-40 Frontage Road

Potential impacts and mitigation measures are provided in Section 3.2.1.2.1 above.



Judge Tunnel Portal
Elevation = 7,650 ft

Water
Treatment
Plant

Pipeline Options

- Option 1
- Option 2
- Option 3
- Option 4
- - - Connected Action

Faults

- - - Fault, dashed where approximate
- Fault, Ball and Bar on downthrown side
- ▲— Thrust Fault, dashed where approximate dotted where concealed, dashed where inferred

Legend

- Park City Limits
- Streams
- Tunnels

Client/Project
Park City Municipal Corporation
Judge Tunnel Water Line
Environmental Assessment

Figure No.
3.0

Title
**Fault Lines Near the
Judge Tunnel Alignments**



3.3 GENERATED SOILS REGULATORY CLASSIFICATION AND UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY (DEQ) REGULATED SITES

Historic ore mining and processing activities have resulted in mine tailing waste in and around Park City; this has led to impaired soils and water. Such waste, when generated from the “extraction, beneficiation, and processing of ores and minerals” are exempt from regulation as hazardous waste under the federal Resource Conservation and Recovery Act (RCRA) per the Bevill Amendment to RCRA. 42 U.S.C. § 6921(b)(3)(A)(ii). Such wastes are, however, regulated under RCRA Subtitle D. 51 Fed. Reg. 24496, 24501 (July 3, 1986); 40 C.F.R. Part 257 and may be regulated by Park City’s Landscape and Maintenance of Soil Cover ordinance (Soil Ordinance).. In addition to Part 257 requirements, such waste may be subject to corrective action and imminent hazard requirements, or may become subject to RCRA Subtitle C if mixed with non-exempt waste.

In order to minimize exposure to these materials, Park City has established an ordinance that requires landowners to appropriately manage and remediate potentially contaminated historic mining waste materials. This ordinance includes a soils boundary in which mining wastes may be present and must be remediated in accordance with the Soil Ordinance. The municipal ordinance requires that parties, who request development permits within the Soil Ordinance boundary, submit appropriate studies and plans to address environmental issues associated with the historic mining waste. Material management plans must be developed, submitted and approved to show the historic mining waste is managed consistent with Bevill-exempt waste standards of care. The Park City Soil Ordinance is referenced and summarized below:

- Under Title 11 Chapter 15 Park City’s Soil Ordinance mandates historic Bevill-exempt mine waste is to be managed and disposed of in accordance with the Landscaping and Maintenance of Soil Cover institutional control. This ordinance is agreed upon by the US Environmental Protection Agency, and is a component of the Environmental Management System approved by EPA and the Utah Department of Environmental Quality in September 2004.

The preferred alignment is within ½ mile of the Empire Canyon Removal Action under the EPA Superfund Program. Final design for this alignment must be coordinated with EPA to avoid or mitigate impacts to this site. The alignment also may impact the Alice Load Voluntary Cleanup Program site. Final design for the alignment also must be coordinated with the EPA Region 8 Superfund Program and the Utah Division of Environmental Response and Remediation (DERR) where the alignment and its construction may impact a planned removal or remedial action in the vicinity of Kearns Boulevard and Wyatt Earp Way as described in Section 2.2.1.).

In addition, a review of state regulatory websites was conducted to locate potential hazardous waste sites within the project study area. The following websites were utilized:

- Division of Environmental Response and Remediation
<http://www.environmentalresponse.utah.gov/>

- Division of Solid & Hazardous Waste
<http://www.hazardouswaste.utah.gov/>

Following a review of the websites listed above, documented and permitted hazardous waste and CERCLA sites were identified and are presented in Table 2. Table 3 presents information regarding underground storage tanks (USTs), leaking underground storage tanks (LUSTs) and Voluntary Cleanup Programs (VCPs) in the Study Area. Figure 4 presents the proposed alignments with the PCMC soils ordinance identified, as well as identified regulated sites, underground storage tank locations and voluntary cleanup program sites within the project area.

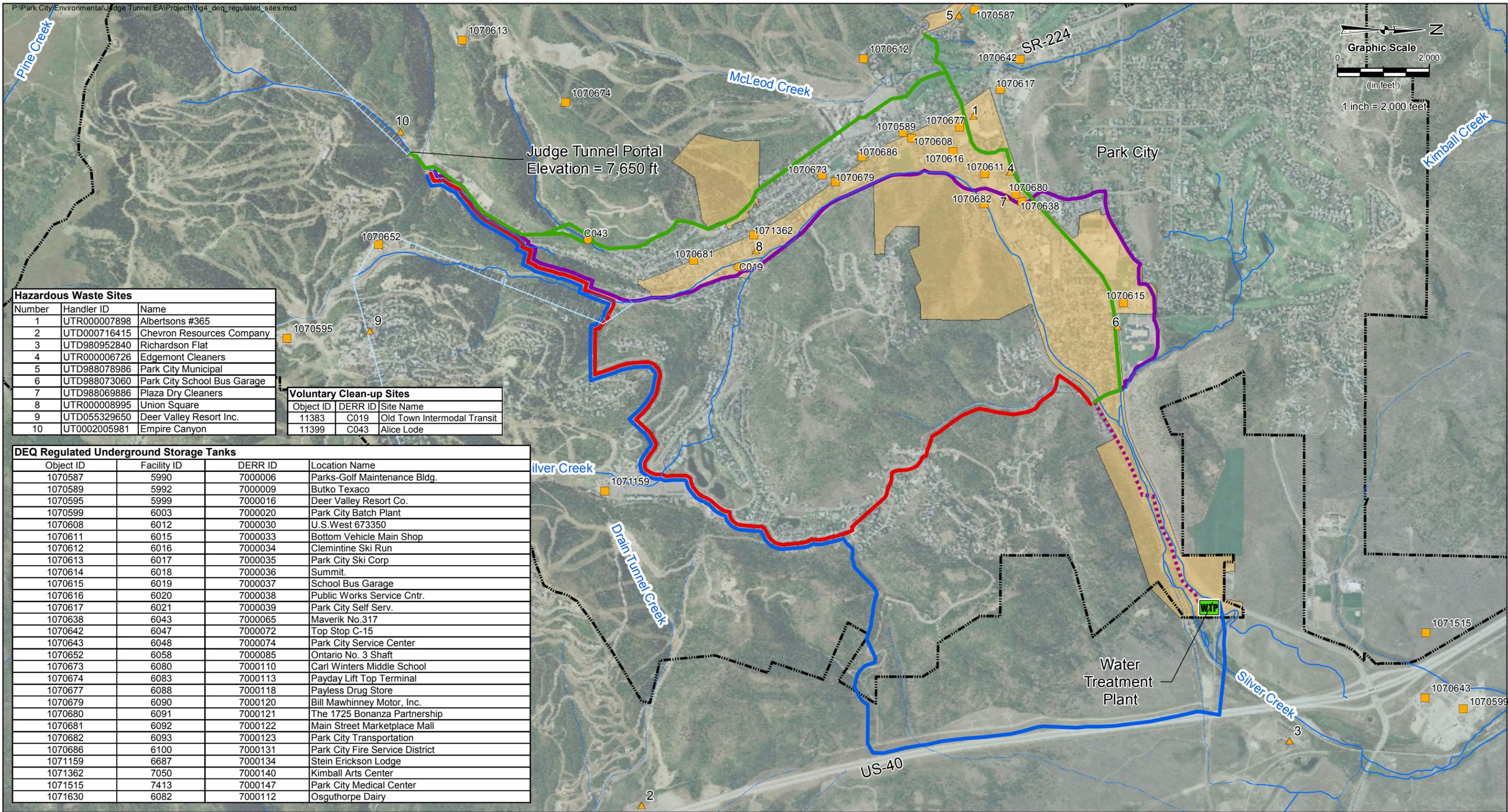
Table 2 Documented DEQ CERCLIS Sites

Sites	System ID	NAICS * Code	Description	Handler Type
Albertsons #365	UTR000007898	44511	Supermarkets & Other Grocery	Small Generator
Chevron Resources Company	UTD000716415	None	N/A	Small Generator
Deer Valley Resort Inc.	UTD055329650	None	N/A	Conditionally Exempt Small Generator
Edgemont Cleaners	UTR000006726	None	N/A	Conditionally Exempt Small Generator
Park City Municipal	UTD988078986	None	N/A	Small Generator
Park City School Bus Garage	UTD988073060	None	N/A	Conditionally Exempt Small Generator
Plaza Dry Cleaners	UTD988069886	None	N/A	Conditionally Exempt Small Generator
Union Square	UTR000008995	236116	New Multifamily Housing Construction (except Operative Builders)	Small Generator
Richardson Flats	UTD980952840		Proposed NPL	
Empire Canyon	UT0002005981		Removal Action	

*North American Industry Classification System

Table 3 UST/LUST/VCP Locations

Site	DERR ID	Site Type
Wasatch Mtn. State Park	1100062	UST
Wasatch Mtn. State Park Golf Shop	1100063	UST
Hailstone Maintenance Facility	1100064	UST
Alta Peruvian Lodge	4000019	UST
Alta Ski Lifts Co.	4000020	UST
Brighton Ski Area	4000099	UST
Snowbird Corp.	4000951	UST
Solitude Ski Resort Co.	4001332	UST
U.S.West 673140	4001799	UST
Parks-Gold Maintenance Bldg.	7000006	UST
Butko Texaco	7000009	UST
Deer Valley Resort Co.	7000016	UST
Park City Batch Plant	7000020	UST
U.S.West 673350	7000030	UST
Bottom Vehicle Maintenance Shop	7000033	UST
Clemintine Ski Run	7000034	UST
Park City Ski Corp.	7000035	UST
Summit	7000036	UST
School Bus Garage	7000037	UST
Public Works Service Cntr.	7000038	UST
Park City Self Serv.	7000039	UST
7-Eleven No. 53603 /1833-24022	7000051	UST
7-Eleven No.53606 Blue Roof	7000054	UST
The Canyons	7000060	UST
Maverik No.317	7000065	UST
Top Stop C-15	7000072	UST
Park City Service Center	7000074	UST
Ontario No. 3 Shaft	7000085	UST
Carl Winters Middle School	7000110	UST
Payday Lift Top Terminal	7000113	UST
Payless Drug Store	7000118	UST
Bill Mawhinney Motor, Inc.	7000120	UST
The 1725 Bonanza Partnership	7000121	UST
Main Street Marketplace Mall	7000122	UST
Park City Transportation	7000123	UST
Park City Park City Fire Service District	7000131	UST
Stein Erickson Lodge	7000134	UST
Kimball Arts Center	7000140	UST
Park City Medical Center	7000147	UST
Osguthorpe Dairy	7000112	UST
Old Town Intermodal Transit	C019	VCP
Alice Lode	C043	VCP



Hazardous Waste Sites

Number	Handler ID	Name
1	UTR000007898	Albertsons #365
2	UTD000716415	Chevron Resources Company
3	UTD980952840	Richardson Flat
4	UTR000006726	Edgemont Cleaners
5	UTD988078986	Park City Municipal
6	UTD988073060	Park City School Bus Garage
7	UTD988069886	Plaza Dry Cleaners
8	UTR000008995	Union Square
9	UTD055329650	Deer Valley Resort Inc.
10	UT0002005981	Empire Canyon

Voluntary Clean-up Sites

Object ID	DERR ID	Site Name
11383	C019	Old Town Intermodal Transit
11399	C043	Alice Lode

DEQ Regulated Underground Storage Tanks

Object ID	Facility ID	DERR ID	Location Name
1070587	5990	7000006	Parks-Golf Maintenance Bldg.
1070589	5992	7000009	Butko Texaco
1070595	5999	7000016	Deer Valley Resort Co.
1070599	6003	7000020	Park City Batch Plant
1070608	6012	7000030	U.S. West 673350
1070611	6015	7000033	Bottom Vehicle Main Shop
1070612	6016	7000034	Clemintine Ski Run
1070613	6017	7000035	Park City Ski Corp
1070614	6018	7000036	Summit
1070615	6019	7000037	School Bus Garage
1070616	6020	7000038	Public Works Service Cntr.
1070617	6021	7000039	Park City Self Serv.
1070638	6043	7000065	Maverik No.317
1070642	6047	7000072	Top Stop C-15
1070643	6048	7000074	Park City Service Center
1070652	6058	7000085	Ontario No. 3 Shaft
1070673	6080	7000110	Carl Winters Middle School
1070674	6083	7000113	Payday Lift Top Terminal
1070677	6088	7000118	Payless Drug Store
1070679	6090	7000120	Bill Mawhinney Motor, Inc.
1070680	6091	7000121	The 1725 Bonanza Partnership
1070681	6092	7000122	Main Street Marketplace Mall
1070682	6093	7000123	Park City Transportation
1070686	6100	7000131	Park City Fire Service District
1071159	6687	7000134	Stein Erickson Lodge
1071362	7050	7000140	Kimball Arts Center
1071515	7413	7000147	Park City Medical Center
1071630	6082	7000112	Osguthorpe Dairy



Pipeline Options

- Option 1
- Option 2
- Option 3
- Option 4
- ⋯ Connected Action

Regulated Sites

- ▲ Hazardous Waste Sites
- UST Sites
- VCP Sites
- Park City Soils Ordinance Zone

Legend

- Park City Limits
- Streams
- + + + Tunnels

Client/Project
Park City Municipal Corporation
Judge Tunnel Water Line
Environmental Assessment

Figure No.
4.0

Title
**Judge Tunnel Alignment
DEQ Regulated Sites**

3.3.1 Potential Impacts and Recommended Mitigation Measures for Generated Soils Regulatory Classification and Regulated Sites

3.3.1.1 No Action Alternative

No issues relating to the No Action Alternative.

3.3.1.2 Proposed Pipeline Alignments

3.3.1.2.1 Alignment Option 1 - Treasure Hill (Proposed Alternative)

A portion of this alignment will be within the PCMC soils ordinance boundary and may require mine waste soil remediation of removal and disposal in accordance with the ordinance and federal law, as applicable. Additionally, the final design must be coordinated with the EPA Region 8 Superfund Program and the United Park City Mines Company (which is responsible for Operation and Maintenance of the Empire Canyon Removal Action) to meet Removal Action O & M requirements.

This alignment is close to the following regulated sites:

- VCP C043 Alice Lode
- UST 1070677 Payless Drug Store
- Hazardous Waste Site 1 Albertson's #365
- Hazardous Waste Site 4 Edgemont Cleaners
- UST 1070680 The 1725 Bonanza Partnership
- UST 1070638 Maverick No. 317

Avoidance of these sites is recommended; coordination with the Utah Division of Environmental Response and Remediation and the Utah Division of Solid and Hazardous Waste may be necessary to understand the regulated boundary for each site.

Mitigation measures during construction should include the placement of trench plugs within the trench to eliminate the potential for groundwater to be conveyed through the trench. Construction documents should also include construction protocol, specifically segregating mine waste from clean soils.

The PCMC soils ordinance should be referenced during construction to direct the protocol when construction workers come into contact with mine waste. To prevent contact with mine waste, construction workers should reference Appendix A, Soils Ordinance Worker Health and Safety Notice.

The mine waste soils found within the Soil Ordinance boundary shall be handled by PCMC or the pipeline contractor as follows:

1. Contaminated soils will be capped in place;

2. Hauled and disposed of as per the Soil Ordinance to an approved mine waste soils storage or disposal facility.

Soils outside the Soil Ordinance boundary will be handled in accordance with Soil Management Plans prepared by a qualified environmental engineer at URS Corporation. The Soil Management Plans have not been completed.

3.3.1.2.2 Alignment Option 2 - Marsac Avenue to Deer Valley Drive

A portion of this alignment will be within the PCMC Soil Ordinance Boundary. Waste handling and worker safety procedures discussed for Section 3.3.1.2.1 apply to this option as well. Additionally, the final design must be coordinated with the EPA Region 8 Superfund Program and the United Park City Mines Company (which is responsible for Operation and Maintenance of the Empire Canyon Removal Action) to meet Removal Action O & M requirements.

This alignment is close to the following regulated sites:

- VCP C019 Old Town Intermodal Transit
- Hazardous Waste Site UTD988069886 Plaza Dry Cleaners
- UST 1070680 The 1725 Bonanza Partnership
- UST 1070638 Maverik No. 317

Avoidance of these sites is recommended; coordination with the Utah Division of Environmental Response and Remediation and the Utah Division of Solid and Hazardous Waste may be necessary.

3.3.1.2.3 Alignment Option 3 - Chatham Crossing

This option does not enter the PCMC Soils Ordinance Boundary, and there are no Utah Department of Environmental Quality (DEQ) regulated sites nearby. If mine waste is encountered, waste handling and worker safety procedures discussed for Section 3.3.1.2.1 apply to this section. Additionally, the final design of must be coordinated with the EPA Region 8 Superfund Program and the United Park City Mines Company (which is responsible for Operation and Maintenance of the Empire Canyon Removal Action) to meet Removal Action O & M requirements

3.3.1.2.4 Alignment Option 4 – US-40 Frontage Road

This option does not enter the PCMC Soil Ordinance Boundary, however, it does come close to the boundary. There are no DEQ regulated sites nearby. If mine waste is encountered, waste handling and worker safety procedures discussed for Section 3.3.1.2.1 apply to this section. Additionally, the final design must be coordinated with the EPA Region 8 Superfund Program and the United Park City Mines Company (which is responsible for Operation and Maintenance of the Empire Canyon Removal Action) to meet Removal Action O & M requirements.

3.4 WATER RESOURCES

This section provides a review of the water resources in the Study Area, including water quality and water quantity. This review was conducted in order to evaluate potential impacts from the proposed project.

3.4.1 Water Quality

This section addresses water quality in relation to impaired waterbodies, stormwater runoff, stream crossings and the potential impacts on water quality and recommended mitigation measures. In addition, this section addresses the current practice of discharging turbid water to Empire Creek from waterworks near the Judge Tunnel portal.

3.4.1.1 Impaired Waterbodies

Silver Creek and its tributaries are listed by the State of Utah, Division of Water Quality (DWQ) as a Category 4A waterbody from the headwaters to the confluence with the Weber River. Category 4A is for those waterbodies that have been classified as being impaired and a Total Maximum Daily Load (TMDL) study has been completed. Impairment is based upon the designated use for Silver Creek (Class 3A: Protected for cold water species of game fish and other cold water aquatic life). A TMDL study was completed and approved by EPA in 2004 (Utah 2006 Integrated Report Volume 1 – 305(b) Assessment). This study established defined targets for the pollutants of concern and an implementation strategy designed to reduce the levels of pollutants in the creek. Silver Creek is listed for elevated levels of cadmium and zinc; the probable cause is historical mining activities. In addition, Silver Creek is listed as water quality impaired due to elevated arsenic and total dissolved solids 2010. See Utah 2008 and 2010 Integrated Reports approved by EPA in February 2012.

Water quality data for Silver Creek is available through STORET, USGS and EPA. STORET is a repository for data gathered by various agencies universities, private citizens, and others; data is available on EPA's STORET website (<http://www.epa.gov/storet/>). USGS has conducted two studies on Silver Creek in 2000 and 2002. EPA also conducted sampling in 2000. This monitoring data supported the 303(d) listing and was utilized in setting the TMDL targets identified in Table 4.

Table 4 TMDL Water Quality Endpoints

Constituent (total recoverable)	Chronic (mg/L)
Zinc	0.39
Cadmium	0.0008*

*Based on hardness of 400 mg/L CaCO₃

Accordingly, the main implementation strategy for attaining the designated use is to clean up or isolate areas disturbed by historic mining activities. The following best management practices (BMPs) were identified in the TMDL:

1. Slope protection – minimize and protect exposed soil surfaces to help reduce erosion and the associated discharge of sediment to nearby streams. BMPs include mulching, hydromulching, geotextile, matting, etc.
2. Storm runoff routing – stormwater runoff can carry contaminated sediments from a contaminated site by either direct runoff or indirectly through groundwater. BMPs include silt fencing, straw bales, swales/ditches, berms, etc.
3. Isolation measures – isolating contaminated soils either onsite or removal to another location. BMPs include capping with an impervious surface, diversion of runoff, removal to a secure site, etc.
4. Temporary erosion control – requiring approved erosion control plans for stormwater pollution control during construction activities. BMPs include silt fencing, vegetative buffers, sedimentation ponds, etc.
5. Water treatment BMPs – removal of pollutants via treatment. Examples of BMPs include separators, treatment wetlands, etc.

These practices will be taken into consideration as appropriate in the required Stormwater Pollution Prevention Plan and Erosion Control Plan as discussed below in Section 3.4.1.2.

It is anticipated that there will be a benefit to the water quality in Empire Creek due to the removal of the discharge of this turbid water.

3.4.1.2 Stormwater

Utah Division of Water Quality requires coverage under the Storm Water General Permit for Construction Activities for projects disturbing one acre or greater. This permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP). The construction of the Judge Tunnel Pipeline will require a General Storm Water Permit and a SWPPP.

The Utah Division of Water Quality (DWQ) issues Utah Pollutant Discharge Elimination System (UPDES) permits for the discharge of stormwater associated with municipal activities under Title R317-8 of the Utah Clean Water Act (Utah, 2007). While Park City is not currently subject to these requirements, PCMC has implemented a stormwater management plan and ordinances in order to control the release of stormwater pollution. Park City implements a Stormwater Management Plan designed to reduce discharges of polluted stormwater runoff to the streams in the area. The objectives of this plan are as follows:

- Increase public awareness and involvement in water quality issues
- Increase enforcement and effectiveness of erosion and sediment controls at construction sites
- Discourage development in environmentally sensitive areas
- Pro-actively implement measures to meet EPA Phase II requirements

3.4.1.3 Stream Crossings

Crossing of Silver Creek or a ditch which is a tributary of McLeod Creek is necessary. A Stream Alteration Permit from the Utah Department of Natural Resources, Division of Water Rights (DWR) is required for a Silver Creek crossing (Section 73-3-29 of the Utah Code) and a Clean Water Act Section 404 permit for the discharge of dredged or fill material into waters of the U.S. may be required for the ditch crossing. Coordination with the US Army Corps of Engineers and the Utah DWR is recommended to ensure proper permitting of this activity.

3.4.2 Water Quantity

Hydrologic data is limited for this watershed, consequently, the Silver Creek TMDL recommends additional monitoring to better understand the hydrology of this watershed. The TMDL provides a brief review of weather data and flow data to estimate a water budget. This information suggests that the majority of the water exiting the watershed is not through surface flow, but rather through evapotranspiration, groundwater recharge, and other mechanisms. However, additional studies need to be conducted to further define this hydrologic system.

Flow data is available from a USGS gauging station located on Silver Creek and is presented in Table 5.

Table 5 USGS Silver Creek Stream Gauge Results

Site Name	Gauge No.	Ave. Annual Flow (cfs)	Max. Recorded Flow (cfs)	Water Years
Silver Creek (near Silver Creek Junction)	10129900	5.9	80 (2006)	(2002-2012)
Silver Creek (near Silver Creek Junction)	10129900	6.8	150 (2011)	(2008-2012)

Appendix A, Section 3.B.(6)(a) of Summit County/Park City Ordinance 381-A requires the flow rate of runoff from the development site not to exceed the pre-development runoff rate. Implementation of post-construction structural control measures will serve to ensure compliance with this ordinance, and minimize impacts caused by stormwater runoff.

Under normal circumstances, all of the water from the Judge Tunnel Portal is diverted into the existing PCMC water delivery system, and no water is discharged into Silver Creek tributaries. There are particular conditions which require bypassing the drinking water system, resulting in a temporary discharge to the drainage channel. This water is discharged during periods of excessive flows and during tunnel maintenance, and does not occur on a regular basis. There are other sources of water to this drainage channel, including stormwater and other tributaries, yet at times, the channel is dry.

The Judge Tunnel Pipeline Project has the potential to eliminate the discharge of water from Judge Tunnel into Empire Creek. Table 1 in Section 1.3 shows historical flow volumes from Judge Tunnel into Empire Creek and volumes for Silver Creek through the Silver Maple Claims

Wetlands. In order to quantify the impact on the Silver Maple Claims Wetlands, PCMC and the U.S. Fish and Wildlife Service, in partnership with the Bureau of Land Management, which owns the Silver Maple Claims Wetland, evaluated historical data while considering the nature of the flow patterns and system losses. Results of this evaluation and a proposed mitigation plan are shown in Appendix O.

3.4.3 Potential Impacts and Recommended Mitigation Measures for Water Quality

3.4.3.1 No Action Alternative

The discharge of water would continue. No impacts to water quality under this alternative.

3.4.3.2 Proposed Pipeline Alignments

3.4.3.2.1 Alignment Option 1 - Treasure Hill (Proposed Alternative)

Temporary impacts to water quality may occur during the installation of this pipeline. These impacts can be minimized by implementing erosion and sediment control best management practices required by state and local permits. The development and implementation of a Stormwater Pollution Prevention Plan is required by these permits. In addition, the following stipulations are required in order to meet the conditions established in the Silver Creek TMDL:

1. Slope protection
2. Storm runoff routing
3. Isolation measures
4. Temporary erosion control

Compliance with terms established in a Clean Water Act Section 404 permit and a Utah Stream Alteration Permit may be required for crossing the ditch which is a tributary of McLeod Creek.

3.4.3.2.2 Alignment Option 2 - Marsac Avenue to Deer Valley Drive

Potential impacts and mitigation measures are provided in Section 3.4.3.2.1 above.

3.4.3.2.3 Alignment Option 3 – Chatham Crossing

Potential impacts and mitigation measures are provided in Section 3.4.3.2.1 above.

3.4.3.2.4 Option 4 – US-40 Frontage Road

Potential impacts and mitigation measures are provided in Section 3.4.3.2.1 above.

3.4.4 Potential Impacts and Recommended Mitigation Measures for Water Quantity

3.4.4.1 No Action Alternative

The discharge of water would continue. No impacts to water quantity under this alternative.

3.4.4.2 Proposed Pipeline Alignments

3.4.4.2.1 Alignment Option 1 - Treasure Hill (Proposed Alternative)

Impacts to water quantity in Empire and Silver Creeks will occur due to the installation of this pipeline. As proposed, all of the Judge Tunnel flow would be used for drinking water and secondary irrigation water; on average reducing overflow discharges to 0 ac-ft and increasing drinking water and secondary water use per year.

The decreased flows to the Silver Maple Claim Wetlands, which typically receive overflows from Judge Tunnel, will be mitigated per Appendix O, which also describes water rights and sources that will be used to mitigate flows.

It should be noted that in the future, there may be cleanup actions at the Silver Maple Claims wetland. The historic tailings/mine waste deposited in the wetland may be removed and the wetlands restored under a future Superfund (CERCLA) and Natural Resource Damage Claim actions.

3.4.4.2.2 Alignment Option 2 - Marsac Avenue to Deer Valley Drive

Potential impacts and mitigation measures are provided in Section 3.4.4.2.1 above.

3.4.4.2.3 Alignment Option 3 – Chatham Crossing

Potential impacts and mitigation measures are provided in Section 3.4.4.2.1 above.

3.4.4.2.4 Option 4 – US-40 Frontage Road

Potential impacts and mitigation measures are provided in Section 3.4.4.2.1 above.

3.5 WETLANDS AND RIPARIAN HABITAT

A wetland assessment was conducted as a preliminary review of the study area to determine whether potentially jurisdictional wetlands may be present within the study area. This assessment was performed in order to provide recommendations for potential Section 404 permitting needs and compliance actions under the Clean Water Act for the discharge of dredged or fill material into waters of the U.S. The U.S. Army Corps of Engineers (Corps) requires a wetland delineation to be submitted in conjunction with Clean Water Act Section 404 permits to exhibit the limits and extents of jurisdictional wetlands. This assessment is not a formal wetland delineation - wetland areas are approximated and intended for advisory and planning purposes only. Any proposed impacts requiring Clean Water 404 permits will require a formal wetland delineation submittal to the Corps as well as a Clean Water Act jurisdictional determination completed by the Corps.

The wetland assessment performed herein is in accordance with the 1987 USACE Wetland Delineation Manual. Wetlands must exhibit three parameters to meet the USACE definition of a wetland: hydrophytic vegetation, hydric soils, and hydrology. Test holes were not excavated nor were sample points with existing vegetation percentages recorded for this wetland assessment. Available data was analyzed to determine if hydrophytic vegetation, hydric soils and hydrology may potentially be present on the project site. The U.S. Fish and Wildlife Service's National Wetland Inventory (NWI) maps for the area were used as a screening tool to identify potential wetlands on the subject property. The NWI Map exhibits wetlands based on the presence of wetland vegetation as determined by aerial photo interpretation and statistical sampling. Utah State University's GAP Analysis was used to identify types of vegetative cover including hydrophytic vegetation. The "*Soil Survey of the Summit Area, Utah, Parts of Summit, Salt Lake and Wasatch Counties, Utah*" published online for the U.S. Department of Agriculture's Natural Resource Conservation Service has mapped the soils in the study area. These studies were used to identify potential wetland areas in the project area.

Wetlands were mapped for a limited area in the vicinity of the water treatment plant as part of a formal wetland delineation for the PCMC Quinn's Junction Water Treatment Plant and Raw Water Line project. This information was also used as part of the wetland assessment.

A site visit was conducted by Stantec in September 2010 where the wetlands on the project were surveyed using a handheld Trimble GeoXT. An additional site visit was made by Bowen Collins & Associates on the updated alignment in June 2012. The Deer Valley Ponds and the Silver Creek riparian area and wetlands will not be impacted by the preferred alignment (Option 1); however, there are potential, unmapped wetlands along the south side of Kearns Boulevard near the end of the preferred alignment. If disturbances of these areas are expected to occur, a formal wetland delineation, state stream alteration permit, and application for a Nationwide Permit will need to be obtained for the temporary impacts of construction.

See Appendix J for field vegetation survey listing existing plants that could be used in the planning restoration.

3.5.1 Vegetation

Utah State University's GAP Analysis was used to identify types of cover in the study area. Cover types are listed by the principal or dominant plant species and may include prevalent associated species that may have a strong presence in localized areas within the cover type (see Figure 5). The complete list of cover types are listed below and details are provided in Appendix B.

Table 6 Vegetative Cover Types

S006	ROCKY MOUNTAIN CLIFF AND CANYON
S023	ROCKY MOUNTAIN ASPEN FOREST AND WOODLAND
S024	ROCKY MOUNTAIN BIGTOOTH MAPLE RAVINE WOODLAND
S030	ROCKY MOUNTAIN SUBALPINE MESIC SPRUCE-FIR FOREST AND
S031	ROCKY MOUNTAIN LODGEPOLE PINE FOREST
S032	ROCKY MOUNTAIN MONTANE DRY-MESIC MIXED CONIFER FOREST
S034	ROCKY MOUNTAIN MONTANE MESIC MIXED CONIFER FOREST AND
S039	COLORADO PLATEAU PINYON-JUNIPER WOODLAND
S046	ROCKY MOUNTAIN GAMBEL OAK-MIXED MONTANE SHRUBLAND
S071	INTERMOUNTAIN BASINS MONTANE SAGEBRUSH STEPPE
S078	INTERMOUNTAIN BASINS BIG SAGEBRUSH STEPPE
S083	ROCKY MOUNTAIN SUBALPINE MESIC MEADOW
S085	SOUTHERN ROCKY MOUNTAIN MONTANE-SUBALPINE GRASSLAND
S091	ROCKY MOUNTAIN SUBALPINE RIPARIAN SHRUBLAND
S102	ROCKY MOUNTAIN ALPINE MONTANE WET MEADOW
N11	OPEN WATER
N21	DEVELOPED, OPEN SPACE – LOW INTENSITY
N22	DEVELOPED, MEDIUM – HIGH DENSITY
N80	AGRICULTURE

The GAP Analysis exhibits the study area as being dominated by Intermountain Basins Montane Sagebrush Steppe (S071), Developed, Medium - High Intensity (N22) and Developed, Open Space - Low Intensity (N21). The Intermountain Basins Montane Sagebrush Steppe is typically comprised of upland sagebrush and grass species. Developed, Medium - High Intensity is typically a mix of single family, apartments and commercial/industrial with 50 - 100% impervious surfaces. Developed, Open Space - Low Intensity includes single family housing, landscaped areas, parks and golf courses with 20 - 49% impervious surfaces.

Some areas of hydrophytic vegetation are listed for the study area indicating potential wetland areas. The cover types are Rocky Mountain Subalpine-Montane Riparian Shrubland (S091), Rocky Mountain Subalpine-Montane Wet Meadow (S102) and Open Water (N11). Areas of impact to hydrophytic vegetation and open water are estimated for each of the proposed alignments in Table 7.

Table 7 Area of Impact to Hydrophytic Vegetation and Agricultural Land

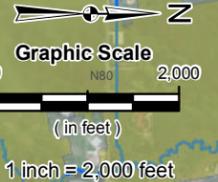
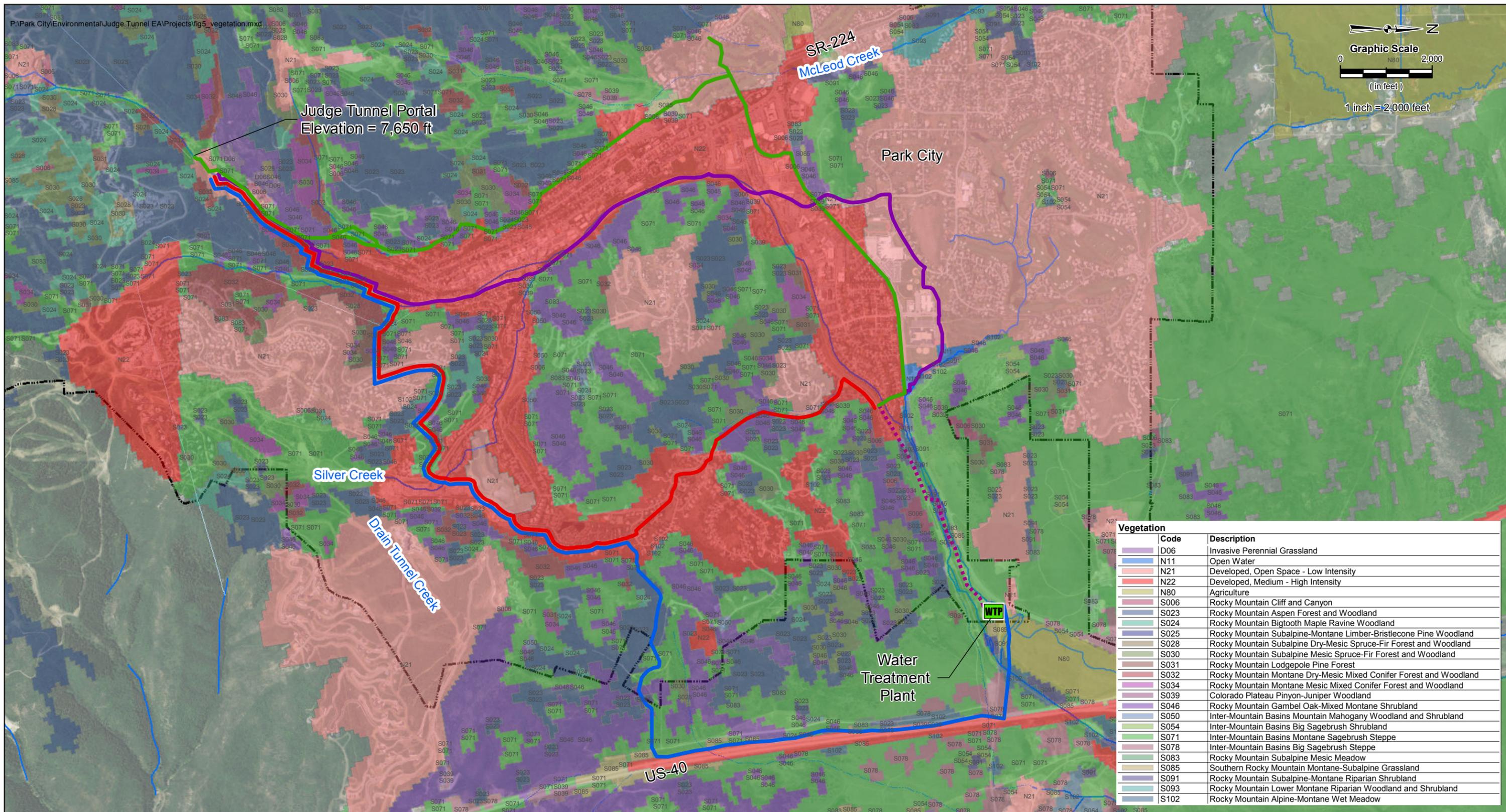
Alignment	Area of Impact (acres) ¹	
	Hydrophytic Vegetation	Open Water
Option 1: Treasure Hill	0	0.17
Option 2: Marsac-Deer Valley	0.01	0.5
Option 3: Chatham Crossing	0	0
Option 4: US-40 Frontage Rd.	0.9	0

¹ Areas were determined assuming a 20-foot corridor.

The majority of the hydrophytic vegetation is located in the Silver Creek Corridor near the water treatment plant location. The area designated as Open Water (N11) is located in a developed area. Based on observations made from aerial imagery, it is unlikely that open water is actually present.

3.5.2 Soils

The Soil Conservation Service's published studies "*Soil Survey of the Summit Area, Utah, Parts of Summit, Salt Lake and Wasatch Counties, Utah*" exhibits thirteen (13) different soil units in the study area (see Figure 6). The soils units are listed in the following table:



Vegetation	
Code	Description
D06	Invasive Perennial Grassland
N11	Open Water
N21	Developed, Open Space - Low Intensity
N22	Developed, Medium - High Intensity
N80	Agriculture
S006	Rocky Mountain Cliff and Canyon
S023	Rocky Mountain Aspen Forest and Woodland
S024	Rocky Mountain Bigtooth Maple Ravine Woodland
S025	Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland
S028	Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland
S030	Rocky Mountain Subalpine Mesic Spruce-Fir Forest and Woodland
S031	Rocky Mountain Lodgepole Pine Forest
S032	Rocky Mountain Montane Dry-Mesic Mixed Conifer Forest and Woodland
S034	Rocky Mountain Montane Mesic Mixed Conifer Forest and Woodland
S039	Colorado Plateau Pinyon-Juniper Woodland
S046	Rocky Mountain Gambel Oak-Mixed Montane Shrubland
S050	Inter-Mountain Basins Mountain Mahogany Woodland and Shrubland
S054	Inter-Mountain Basins Big Sagebrush Shrubland
S071	Inter-Mountain Basins Montane Sagebrush Steppe
S078	Inter-Mountain Basins Big Sagebrush Steppe
S083	Rocky Mountain Subalpine Mesic Meadow
S085	Southern Rocky Mountain Montane-Subalpine Grassland
S091	Rocky Mountain Subalpine-Montane Riparian Shrubland
S093	Rocky Mountain Lower Montane Riparian Woodland and Shrubland
S102	Rocky Mountain Alpine-Montane Wet Meadow

- Legend**
- Streams
 - Tunnels
 - Park City Limits

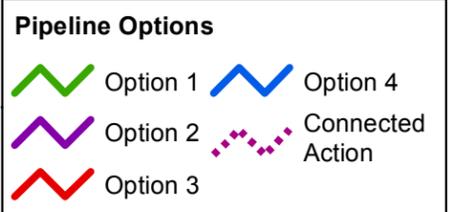
Client/Project
 Park City Municipal Corporation
 Judge Tunnel Water Line
 Environmental Assessment

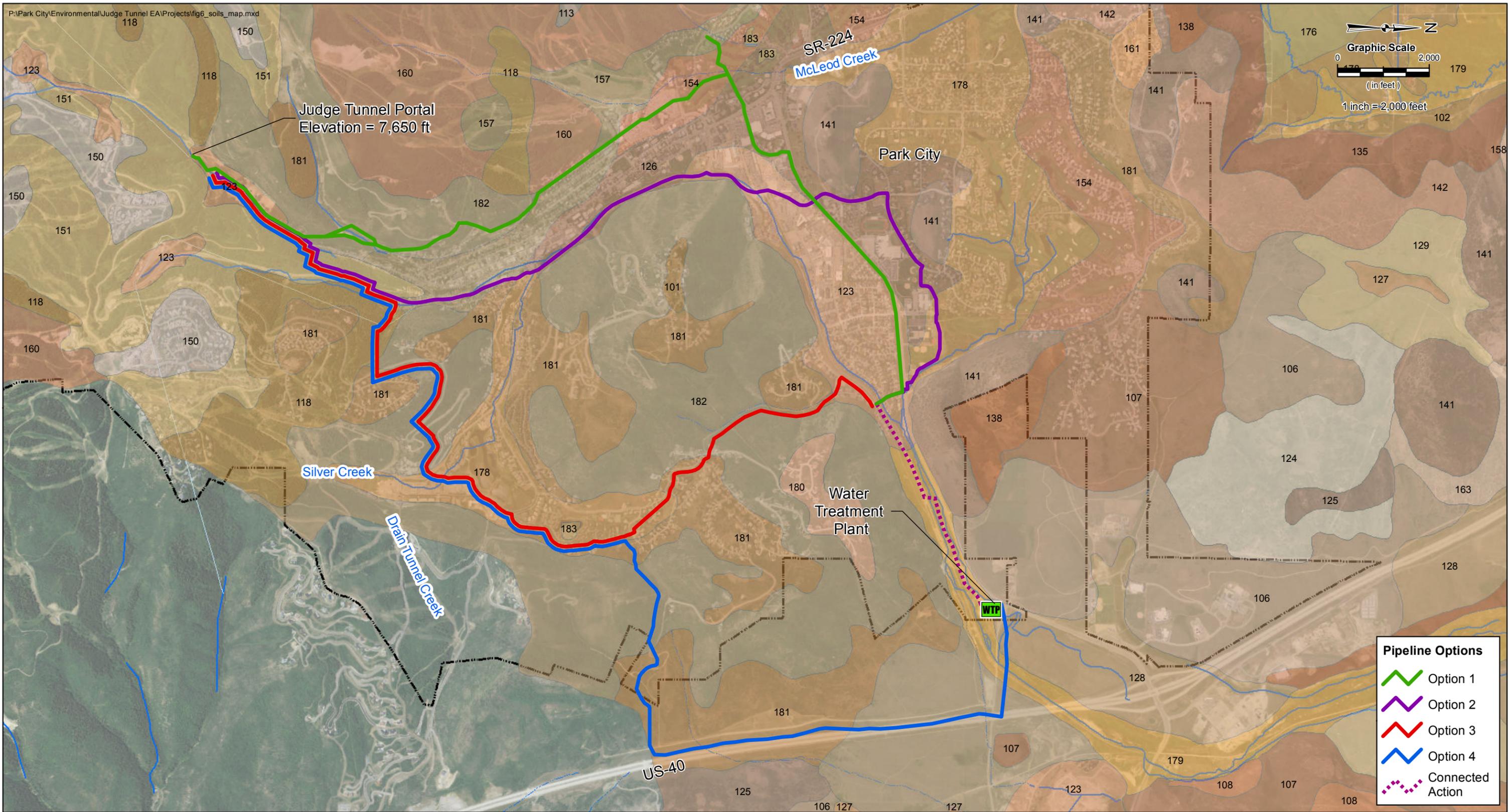
Figure No.
5.0

Title
**Judge Tunnel Alignment
 Vegetation Map**



**Bowen Collins
 & Associates, Inc.**
 CONSULTING ENGINEERS





Legend

- Park City Limits
- Streams
- Tunnels

Client/Project
Park City Municipal Corporation
Judge Tunnel Water Line
Environmental Assessment

Figure No.
6.0

Title
**Judge Tunnel Alignment
Soils Map**

Table 8 Soil Units Present in the Study Area

118	DROMEDARY-ROCK OUTCROP COMPLEX, 30-70%
123	DUMPS, MINES
126	ECHOCREEK LOAM, 2-10% SLOPES
128	FEWKES GRAVELLY LOAM. 2-8% SLOPES
141	HEINERS-FEWKES-HADES COMPLEX, 30-70% SLOPES
151	LUCKY STAR GRAVELLY LOAM, 30-60% SLOPES
154	MANILLA-ANT FLAT LOAMS, 2-8% SLOPES
157	MANILLA-HENEFER COMPLEX, 8-15% SLOPES
160	PARKCITY-DROMEDARY GRAVELLY LOAMS, 30-70%
178	WANSHIP LOAM, 0-3% SLOPES
179	WANSHIP-KOVICH LOAMS, 0-3% SLOPES
181	YEATES HOLLOW-HENEFER COMPLEX, 15-30%
182	YEATES HOLLOW-HENEFER COMPLEX, 30-60%

The Kovich soil series is listed on the Hydric Soils of the United States list. Echocreek Loam, 2-10% slopes (126), Wanship Loam, 0-3% slopes (178) and Wanship-Kovich loams, 0-3% slopes (179) are listed as hydric soils on the Utah List of Hydric Soils. These soils are typically found in flood plains and stream corridors. All other soils present in the study area are upland soils. Detailed soil unit descriptions are included in Appendix C. Areas of impact to hydric soils are estimated for each of the proposed alignments in Table 9. Hydric soils are located in the Silver Creek stream corridor near the water treatment plant and near the ponds at the base of Deer Valley. Other areas listed as having hydric soils are located in well developed areas. It is unlikely that wetlands are present in those areas.

Table 9 Areas of Impact to Hydric Soils

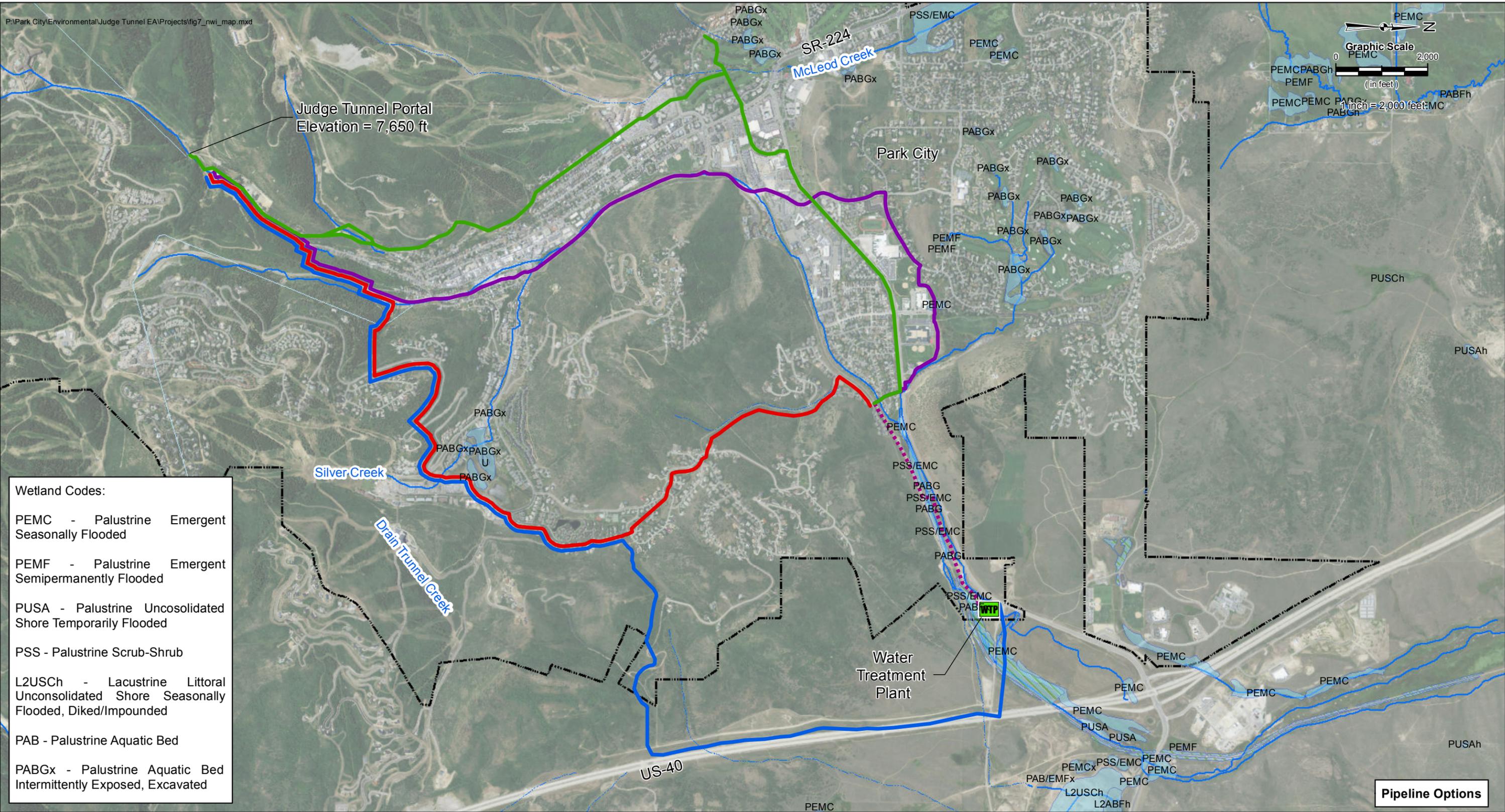
Alignment	Area of Impact (acres) ¹
	Hydric Soils
Option 1: Treasure Hill	2.0
Option 2: Marsac-Deer Valley	5.0
Option 3: Chatham Crossing	3.0
Option 4: US-40 Frontage Rd.	2.8

¹ Areas were determined assuming a 20-foot corridor.

3.5.3 NWI and Delineated Wetlands

The NWI Map exhibits potential wetland areas located along the Silver Creek stream corridor near the water treatment plant and near the ponds at the base of Deer Valley (see Figure 7). The NWI program classified the wetland habitat located within the project area as the following:

- Palustrine Emergent Seasonally Flooded (PEMC)
- Palustrine Aquatic Bed Intermittently Exposed (PABG)



Wetland Codes:

PEMC - Palustrine Emergent Seasonally Flooded

PEMF - Palustrine Emergent Semipermanently Flooded

PUSA - Palustrine Unconsolidated Shore Temporarily Flooded

PSS - Palustrine Scrub-Shrub

L2USCh - Lacustrine Littoral Unconsolidated Shore Seasonally Flooded, Diked/Impounded

PAB - Palustrine Aquatic Bed

PABGx - Palustrine Aquatic Bed Intermittently Exposed, Excavated



- Legend**
- Stantec Delineated Wetlands
 - NWI Wetlands
 - Park City Limits
 - Streams
 - Tunnels

Client/Project
 Park City Municipal Corporation
 Judge Tunnel Water Line
 Environmental Assessment

Figure No.
7.0

Title
**Judge Tunnel Alignment
 NWI Map**

- Palustrine Aquatic Bed Intermittently Exposed Excavated (PABGx)
- Palustrine Aquatic Bed Semipermanently Flooded Excavated (PABFx)
- Palustrine Scrub-Shrub Emergent Seasonally Flooded (PSS/EMC)

A limited area in the vicinity of the water treatment plant was formally delineated for the PCMC Quinn’s Junction Water Treatment Plant and Raw Water Line project (see Figure 7). Areas of impact to NWI wetlands and delineated wetlands are summarized in Table 10.

Table 10 Areas of Impact to NWI and Delineated Wetlands

Alignment	Area of Impact (acres) ¹
	NWI and Delineated Wetlands
Option 1: Treasure Hill	0
Option 2: Marsac-Deer Valley	0.04
Option 3: Chatham Crossing	0.14
Option 4: US-40 Frontage Rd.	0.3

¹ Areas were determined assuming a 20-foot corridor.

3.5.4 Hydrology

Hydrology on the site consists of surface water, precipitation and snowmelt. Silver Creek and a ditch that is a tributary of McLeod Creek are present within the project area. Open water consists of the ponds located at the base of Deer Valley.

3.5.5 Investigation Results

The results of the wetland, vegetation and soil review indicate that the area along the Silver Creek stream corridor near water treatment plant and the area near the Deer Valley ponds have the greatest potential for the presence of wetlands. The estimated impacts to hydric soils, NWI and delineated wetlands, and hydrophytic vegetation are summarized in Table 11.

Table 11 Summary of Estimated Impacts to Wetland Areas

Alignment	Area of Potential Concern (acres)		
	NWI and Delineated Wetlands	Hydric Soils	Hydrophytic Vegetation
Option 1: Treasure Hill	0	2.0	0
Option 2: Marsac-Deer Valley	0.04	5.0	0.01
Option 3: Chatham Crossing	0.14	3.0	0
Option 4: US-40 Frontage Rd.	0.3	2.8	0.9

As the results indicate, all four alignment alternatives may temporarily impact jurisdictional wetlands (Waters of the U.S.). Option 1 may have potential impacts to wetlands located within ditch corridor that is a tributary to McLeod Creek. Option 2 may have potential impacts to wetlands located within the Silver Creek stream corridor. Option 3 and 4 may have potential impacts to wetlands located within the Silver Creek stream corridor and wetlands located near

the ponds at Deer Valley. This determination is primarily based on the presence of NWI wetlands and delineated wetlands. A formal delineation should be conducted to define the wetland boundaries as necessary for specific alternatives.

3.5.6 Potential Impacts and Recommended Mitigation Measures for Wetlands

3.5.6.1 No Action Alternative

No impacts to wetlands from this alternative.

3.5.6.2 Proposed Pipeline Alignments

3.5.6.2.1 Alignment Option 1 - Treasure Hill (Proposed Alternative)

No wetlands were found along the potential construction corridor of this alignment. The pipeline does cross two creeks which will require a State stream alteration permit. Mitigation for temporary impacts requires restoring impacted areas to pre-construction conditions and the site to be re-vegetated appropriately. All temporary fills must be removed from the site and impacted areas must be restored to pre-construction elevations.

3.5.6.2.2 Alignment Option 2 - Marsac Avenue to Deer Valley Drive

Temporary impacts to potentially jurisdictional wetlands or creek crossings may be anticipated during construction. A wetland delineation and USACE Section 404 Nationwide Permit 12 is necessary for installation of utility lines exceeding 500-feet in jurisdictional wetlands. Mitigation for temporary impacts requires restoring impacted areas to pre-construction conditions and the site to be re-vegetated appropriately. All temporary fills must be removed from the site and impacted areas must be restored to pre-construction elevations. Measures must be implemented to prevent draining of existing wetlands, such as installation of clay trench plugs, bentonite or other suitable material in the trench. Construction methods selected for utility installation may minimize impacts to jurisdictional wetlands.

Potential impacts and mitigation measures for wetlands are provided in Section 3.5.6.2.2 above.

3.5.6.2.4 Alignment Option 4 – US-40 Frontage Road

Potential impacts and mitigation measures for wetlands are provided in Section 3.5.6.2.2 above.

3.6 WILDLIFE

A review of the potential presence of listed Threatened and Endangered Wildlife Species (T & E Species) and their habitat types was conducted by Stantec for the Park City Municipal Corporation's proposed water line improvements in Summit County. Candidate species were also included in the review. This was to determine potential impact of proposed impacts from the stream restoration process for those T & E Species listed including: Yellow-billed Cuckoo,

Black-footed Ferret, Brown (Grizzly) Bears and Canada Lynx. In addition to T & E Species, State Sensitive Wildlife Species were also reviewed for Summit County. These species are discussed below. Plant species composition and density determine wildlife use but fragmentation of habitat is also of deep concern to wildlife managers. All of the reviewed species are affected by fragmentation but bald eagles and Canada lynx particularly prefer areas away from human activity.

An additional general wildlife assessment was completed during a walking survey of the updated alignment by Bowen Collins & Associates in June 2012.

3.6.1 Endangered and Threatened Wildlife Species

The Endangered Species Act (ESA) was enacted in 1973 to address the decline of fish, wildlife, and plant species in the United States and throughout the world. The purpose of the ESA is to conserve “the ecosystems upon which endangered and threatened species depend” and to conserve and recover listed species (ESA §, 16 U.S.C. 1531).

Under the ESA species may be listed as either “endangered” or “threatened.” The ESA defines an endangered species generally as any species that is in danger of extinction throughout all or a significant portion of its range. ESA § 3(6). A threatened species is one that is likely to become an endangered species within the foreseeable future throughout all or a significant part of its range. ESA § 3(20). All species of plants and animals, except pest insects are eligible for listing as endangered or threatened.

The ESA also affords protection to “critical habitat” for threatened and endangered species. The definition of “critical habitat” includes specific areas within the geographical area occupied by the species at the time it is listed, on which are found physical or biological features essential to the conservation of the species and which may require special management considerations or protection. ESA § 3(5)(A and B). Except when designated by the Secretary of the Interior, critical habitat does not include the entire geographical area that can be occupied by the threatened or endangered species. ESA § 3(5)(C).

Yellow-billed Cuckoo is listed as a Candidate for Endangered or Threatened status. This bird is not known to exist in Summit County according to the Utah Natural Heritage Program in their 2003 progress report. It requires low to mid-elevation riparian habitat with dense shrubby understory vegetation with an overstory forest. While dense Willow/Cottonwood habitats are preferred, the stream corridors on this site have limited willows and few overstory trees. Since the defined project area composes mostly Gambel Oak and Big Sagebrush, it is not expected that this species will be affected by the proposed work. Implementation of the proposed action would have no effect to the yellow-billed cuckoo.

Black-footed ferret is listed as Extirpated in Summit County by the U.S. Fish and Wildlife (USFWS) and the Utah Division of Wildlife. The species has been re-introduced in regions outside the study area but the populations are classified as “nonessential-experimental”. Because no populations have been reintroduced to this area, it is not expected that this species

will be affected by the proposed work. Implementation of the proposed action will have no effect on the black-footed ferret.

Brown (Grizzly) bears have used this area as part of their historic range but are also unknown in the area in the last several decades. The USFWS have listed the species as Extirpated (considered no longer to exist in Utah). Implementation of the proposed action will have no effect on the brown (grizzly) bear.

Canada lynx are unknown in the project area. Canada lynx sightings are exceedingly rare and the latest known lynx in Utah was identified by the U.S. Forest Service in the Manti-La Sal National Forest in 2002. This project is unlikely to affect this species. Implementation of the proposed action will have no effect on the Canada lynx.

3.6.2 State Sensitive Wildlife Species

Bald eagle habitat is considered limited on the site due to requirements for a mix of forested and open water areas. No breeding pairs of bald eagles have been known to exist in Summit County since 1976. Bald Eagles are known to use areas of Summit County as wintering areas but this would not have any significant overlap with optimum construction period for the proposed activities for the proposed pipeline. On June 28, 2007, it was announced that the Bald Eagle was to be removed from the Threatened and Endangered Species List. However, they are still under the scope of Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act that prohibits the disturbance of Bald Eagles or their nests. This project is unlikely to affect this species.

Bluehead Suckers are listed for Summit County and are present in the Weber River basin. The Bluehead Sucker has lost 55% of their original range due to damming and alterations of flow, sediment transport and water temperature. A known population is in the Weber River but outside of the project area. Bluehead Suckers like fast-flowing waters in high gradient streams. Since base flows in Silver Creek have been diverted to irrigation ditches above the proposed water treatment plant, this project does not contain suitable habitat. This species would not be affected by the project.

Bobolink is a neotropical bird that flies from their wintering grounds in South American to their North American breeding grounds arriving in mid-May in Utah. They nest in wet meadow and irrigated pasture areas and are particularly susceptible to early spring mowing. Very few areas in the proposed alignment match this description. As noted above, most of the project site is covered with Big Sagebrush and by developed areas. The little habitat in the proposed alignments is Agriculture. The only significant portions of the four alternative alignments with Agriculture are below the water treatment plant in Option 4 and a much smaller area at the upper end of the proposed water line where Options 1 and 4 join together.

The Bobolink rarely nests in grasses; nests are more typically associated with larger forbs and sedges. Known populations of this species are few compared to historical records. The nearest known breeding areas to the study area are in Kamas, Mountain Green, Morgan and Heber. No known breeding populations are within the study area, however the Utah National Heritage

Program has stated that the Bobolink have recent records of occurrence within the vicinity of the project area. Based on this information, the proposed work may affect this species. If breeding bobolinks are nesting in the study area, impacts to the species could be minimized or avoided by coordinating with wildlife agencies and avoiding nesting sites by ½ mile. With proper considerations, this project is not likely to affect this species.

The **Bonneville Cutthroat Trout** is a subspecies of the cutthroat trout native to the Bonneville Basin. Pure strains of this species are rare due to hybridization with non-native trout species, predation by and competition with stocked non-native fish and habitat loss/alteration. Increased sedimentation, increased water temperature and loss of pool habitat have contributed to the decline in this species. Bonneville Cutthroat Trout can be found from low elevation grassland streams to high elevation mountain streams. It does require a functional riparian zone with such components as structure, shade, cover and bank stability. As such, this species is not likely to be found in the areas upstream from Quinn's Junction because base flows have been diverted from Silver Creek for irrigation. This species is increasing due to captive propagation and restocking efforts. The Utah National Heritage Program has stated that the Bonneville Cutthroat Trout have recent records of occurrence within the vicinity the project area. With mitigation measures, this project will have minimal impacts to streams and should have no affect on this species.

Colorado River Cutthroat Trout are a native cutthroat trout species in the Colorado River drainage. This species is in the eastern portion of Summit County and is not found in the study area. This project will not affect this species.

The **Columbia Spotted Frog** prefers isolated areas with a perennial water source such as a spring or a seep. This species breeds very early in the spring and the egg hatch can occur between 3 and 21 days later, dependent on temperature. Breeding sites will have little or no current, deep silty substrate and are surrounded by dense vegetation. Habitat fragmentation and reduction are the main reasons for the decline in this species. Water reductions, pollution, livestock use and the introduction of non-native species are also considered to be factors in their decline. According to the Conservation Agreement and Strategy for the Columbia Spotted Frog signed by federal and state agencies in 2006, the upper Weber River basin has only one population. This population is a reintroduced population in the Swaner Preserve. This project will not affect this species.

Deseret Mountain Snail has one known population in Summit County but is not in the study area. Thirteen populations exist in the state and most are associated with leaf litter from Mountain Maple, Scrub Oak and Balsam Root. They are also often found in close association with limestone outcrops. The bulk of the proposed habitat in all of the alignment alternatives is through developed areas or through Sagebrush Steppe. It is not likely that this species will be affected by the project.

Ferruginous Hawk is typically a species found in pinyon-juniper and sagebrush steppe habitats. The area surrounding the proposed pipeline alignment has the potential for habitat for both nesting and wintering. Two nest sites in Summit County have been recorded in the

southwest corner of Summit County, therefore, coordination with State and Federal Wildlife agencies would be needed to determine if these would be impacted by the project. Prior coordination with the Utah National Heritage Program has stated that the Ferruginous Hawk have recent records of occurrence within the vicinity of the water treatment plant and the previous work conducted on the project. Based on this information, the proposed work may affect this species. Disturbances could be minimized by avoiding known nests by a ½ mile distance during nesting season. With proper considerations, this project can avoid adverse affects to this species.

Greater Sage-Grouse prefers areas dominated by Sagebrush (*Artemisia* spp.), in particular, Big Sagebrush (*Artemisia tridentata*) for breeding habitat or leks. Wet meadow areas can provide some additional habitat needs seasonally. The prime reason for low population of the species is related to fragmentation or reduction in habitat. Coordination with the Utah National Heritage Program in March 2010 has determined that no known breeding locations are within two miles of the proposed Judge Tunnel alignment. Based on this information, the proposed work is not likely to affect this species. State and Federal Wildlife agencies would be need to be notified if sage-grouse breeding areas are observed in the area. Such activity is unlikely due to the prior development along the proposed alignment.

Leatherside Chub is a small minnow native to streams and rivers in the southeast portion of the Bonneville Basin. Its decline is due to habitat alterations, predation by non-native game fish. This species also hybridizes with the introduced Red-Side Shiner. However, it is considered extirpated in streams and wetlands on the east side of the Salt Lake Valley. As such, this species is not expected to be present in the study area. This species is not likely to be affected by this project.

Lewis's Woodpeckers nest in the cavities of tall trees, sometimes in dead or fire damaged trees. They prefer Ponderosa Pine, Cottonwood and Sycamore trees. Large open park-like Ponderosa Pine forests are their preferred habitat for nesting. They also like Cottonwood trees in riparian areas. They prefer wooded areas with shrubs and tall grasses capable of supporting a substantial insect prey population. Oak woodlands are their preferred wintering habitat. Possible reasons for the decline of this species include competition with European Starlings for nesting sites, pesticide use and loss of riparian habitat. No known breeding pairs have been observed in Summit County since 1983. The study area has limited use for nesting areas but is more likely to be used for winter habitat. It is not expected that this project will affect this species.

Long-billed Curlews are a migrating shorebird species that breeds in arid grasslands, grassy shorelines and along the margins of agricultural areas. They require short grasses, bare ground, shade and abundant invertebrate prey. They migrate through Summit County but are not known to breed in the area. It is not expected that this project will affect this species.

The **Northern Goshawk** prefers wooded riparian areas and mature mountain forests. It is a native of North America but is not considered common in Utah. Nests are constructed in mature forests. While mature forests are preferred for hunting, various habitat types may be used for

hunting. The margins of riparian corridors can be utilized as prey enters and leaves the cover of trees and shrubs. It is not expected that this project will affect this species due to limited nature of disturbance relative to the overall hunting range of an individual Northern Goshawk.

Smooth Greensnakes prefer wet meadow, riparian wetlands and other moist areas where its solid green coloration provides good camouflage. This species is small, secretive and well camouflaged, so population numbers have not been estimated. The smooth greensnake eats mainly terrestrial insects. Degradation of mountain riparian zones from livestock use is a potential threat to this species. Reduction or alteration of understory vegetation is of particular concern for this species. According to the DWR's "*Vertebrate Information: A Progress Report*", this species is unknown in the project area, but they have some areas of "Substantial Value Habitat" within the study area, according to the Utah Conservation Data Center website. However, that habitat classification does not state that the snake is found in those areas. Due to the limited base flows in the upper Silver Creek, it is unlikely that this project will affect this species as it has not been reported in this area.

The **Three-Toed Woodpecker** prefers scaly barked conifers such as Lodgepole Pine and Engelmann Spruce. Spruce-fir forests are particularly used. This species is considered common in the Uinta Mountains, but uncommon in the rest of the state. Known breeding populations in Summit County are outside the proposed study area. It is not expected that this project will affect this species.

Western Pearlshell is currently considered to be extirpated from all historic populations in Utah. This species has not been reported since 1942. This species may initially have been over-estimated due to glochidia (larval mollusk) shed from imported trout used for stocking streams. It is not expected that this project will affect this species.

The **Western Toad** prefers riparian areas within montane forested habitats but has not been found in the study area since 1983. This species prefers slow-moving areas of streams, such as side channels, beaver ponds, backwater areas and small pools. The Western Toad can cross miles of upland habitat between breeding periods. Although, this species was once present in the area, it is not known to exist in the area at present. Dewatering of Silver Creek for irrigation purposes have reduced likelihood of the species being present in the project area. This project is not expected to affect this species.

3.6.3 Summary

The following T & E Species and State Sensitive Wildlife Species have had recent records of occurrences within the study area: Bonneville Cutthroat Trout and Bobolink (see Table 12). Ferruginous Hawk and Greater Sage-Grouse are known to be in the area and have the potential for nesting, breeding and wintering site near the proposed pipeline alignments.

The Bonneville Cutthroat Trout has known populations downstream and the study area is in their historic range. Best Management Practices should be observed to limit potential damage to the downstream populations by increased sedimentation or increases in stream temperature.

This area has a potential for possible Ferruginous Hawk nesting sites, particularly on rock outcrops and large trees that may be near the proposed alignments. Coordination with Utah Division of Wildlife Resources is recommended to identify known breeding areas prior to construction. A minimum radius of ½ mile avoidance should be the priority around these populations during the breeding season.

The other bird species, Bobolink, may use areas in or around the proposed pipeline corridor. Coordination with Utah Division of Wildlife Resources is recommended to identify known breeding areas prior to construction. A minimum radius of ½ mile avoidance should be the priority around these populations during the breeding season.

Table 12 Summit County Threatened and Endangered Species & State Sensitive Species

Common Name	Scientific Name	Status
Threatened and Endangered Species		
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	C
Black-footed Ferret	<i>Mustela nigripes</i>	E - Extirpated
Brown (Grizzly) Bear	<i>Ursos arctos</i>	T - Extirpated
Canada Lynx	<i>Lynx canadensis</i>	T
State Sensitive Species		
Bald Eagle*	<i>Haliaeetus leucocephalus*</i>	CS*
Bluehead Sucker	<i>Catostomus discobolus</i>	CS
Boblink	<i>Dolichonyx oryzivorus</i>	SPC
Bonneville Cutthroat Trout	<i>Oncorhynchus clarkii utah</i>	CS
Colorado River Cutthroat Trout	<i>Oncorhynchus clarkii pleuriticus</i>	CS
Columbia Spotted Frog	<i>Rana luteiventris</i>	CS
Deseret Mountainsnail	<i>Oreohelix peripherica</i>	SPC
Ferruginous Hawk	<i>Buteo regalis</i>	SPC
Greater Sage-Grouse	<i>Centrocercus urophasianus</i>	SPC
Leatherside Chub	<i>Gila copei</i>	SPC
Lewis's Woodpecker	<i>Melanerpes lewis</i>	SPC
Long-billed Curlew	<i>Numenius americanus</i>	SPC
Northern Goshawk	<i>Accipiter gentilis</i>	CS
Smooth Greensnake	<i>Opheodrys vernalis</i>	SPC
Three-toed Woodpecker	<i>Picoides tridactylus</i>	SPC
Western Pearlshell	<i>Margaritifera falcata</i>	SPC
Western Toad	<i>Bufo boreas</i>	SPC

E – Endangered

T – Threatened

C – Candidate species for listing as Threatened or Endangered

Extirpated – A Threatened, Endangered or Candidate Species that is considered by the US Fish and Wildlife to no longer occur in Utah.

CS – Species receiving special management under a Conservation Agreement to preclude the need for Federal Listing as a Threatened or Endangered Species

SPC – Wildlife Species of Concern

* Removed from the Federal List of Endangered and Threatened Wildlife in July of 2007. This will not affect the federal protection provided under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Remains a Conservation Species with an existing conservation plan to protect the birds and their habitat.

3.6.4 Potential Impacts and Recommended Mitigation Measures for Wildlife

3.6.4.1 No Action Alternative

No impacts to wildlife under this alternative.

3.6.4.2 Proposed Pipeline Alignments

3.6.4.2.1 Alignment Option 1 - Treasure Hill (Proposed Alternative)

The lower portion of this alignment option is in developed areas and should have no impacts on any of the three potential species (Bonneville Cutthroat Trout, Bobolink and Ferruginous Hawk) in any of the areas below SR-224. Care should be taken to minimize soil disturbances into the drainages to avoid impacts to Bonneville Cutthroat Trout in the lower watershed.

3.6.4.2.2 Alignment Option 2 - Marsac Avenue to Deer Valley Drive

Similar to Alignment Option 1, this alignment is almost entirely within developed areas. None of the three sensitive species should be impacted by this alignment. Care should be taken to minimize soil disturbances into the drainages to avoid impacts to Bonneville Cutthroat Trout in the lower watershed.

3.6.4.2.3 Alignment Option 3 - Chatham Crossing

Alignment Option 3 crosses significant areas of Sagebrush Steppe habitat and a portion of that habitat is on Bureau of Land Management property. It is unlikely that this alignment contains significant presence of any of the three sensitive species due to the development surrounding all sides of the proposed alignment.

3.6.4.2.4 Alignment Option 4 - US-40 Frontage Road

Alignment Option 4 also crosses significant areas of Sagebrush Steppe habitat but only on private ground and much closer to developed areas such as US-40 and low density residential areas. It has a higher likelihood for Bobolink than the prior alignment options due to the proximity of a large agricultural area next to wetlands below the proposed water treatment plant. Care should be taken to minimize soil disturbances into the drainages to avoid impacts to Bonneville Cutthroat Trout in the lower watershed, especially since this alignment option is closest to open water areas below the proposed treatment plant. It is unlikely that this alignment contains significant presence of the Ferruginous Hawk due to the highway and low density development fragmenting the potential habitat

3.7 NOXIOUS AND INVASIVE WEED CONTROL

Noxious weeds are non-native plants that are highly destructive, competitive and difficult to control or eliminate (King County website, accessed Sept. 8, 2009). Construction activities have the potential to accelerate the spread of noxious weeds through direct dispersion of seeds and roots in the disturbed soils, or indirect dispersion of seeds and roots from construction vehicles

moving through the construction or staging areas (EPA, 2004). For activities with noxious weeds in the construction area, best management practices should be implemented to minimize disturbance to the extent possible.

3.7.1 Potential Impacts and Recommended Mitigation Measures for Noxious Weed Control

Control of noxious and invasive weeds is important to maintaining native vegetation. These weeds tend to overtake native species, grow aggressively, which results in reduced diversity and impacts wildlife habitat.

3.7.1.1 No Action Alternative

No impacts to vegetation under this alternative. No mitigation necessary.

3.7.1.2 Proposed Pipeline Alignments

3.7.1.2.1 Alignment Option 1 - Treasure Hill (Proposed Alternative)

Mitigation measures for noxious and invasive weed control include the following:

1. Identification of noxious weed infestations in any equipment staging areas, construction areas, and access roads;
2. Ensure vehicles and equipment arrive on the construction site weed-free, and depart weed-free;
3. In areas where noxious weeds have been identified, stockpile soil and vegetation adjacent to the area from which they were stripped to eliminate seed or root transport;
4. In areas designated from reclamation, ensure that fertilizer is not applied;
5. Ensure that straw or hay bales used for stormwater BMPs are certified as weed-free;
6. Re-vegetate utilizing the seed mixture included in the Project Specifications.

3.7.1.2.2 Alignment Option 2 - Marsac Avenue to Deer Valley Drive

Mitigation measures for noxious and invasive weed control provided in Section 3.7.1.2.1 above.

3.7.1.2.3 Alignment Option 3 - Chatham Crossing

Mitigation measures for noxious and invasive weed control provided in Section 3.7.1.2.1 above.

3.7.1.2.4 Alignment Option 4 - US-40 Frontage Road

Mitigation measures for noxious and invasive weed control provided in Section 3.7.1.2.1 above.

3.8 AIR QUALITY

Air quality conditions in Utah are monitored and regulated by the Utah Division of Air Quality based on the Federal National Ambient Air Quality standards. Currently, there is a particulate

monitoring station maintained by the Summit County Health Department. A report was completed in May 2010 that surveyed the air for 105 days, from December 23, 2009 through April 12, 2010. The results indicated that the levels were generally low with the exception of two dust storm days. According to the Division of Air Quality, Summit County is considered to be in attainment for air criteria pollutants.

The Division of Air Quality regulates fugitive dust from construction sites, requiring compliance with rules for sites disturbing greater than one-quarter of an acre. Utah Administrative Code R307-205-5 requires steps be taken to minimize fugitive dust from construction activities disturbing more than one-quarter of an acre (R307-205-5 is provided in Appendix D). Sensitive receptors include those individuals working at the site or motorists that could be affected by changes in air quality due to emissions from the construction activity. Due to the nature of the construction activity, no significant effect to air quality is anticipated.

3.8.1 Potential Impacts and Recommended Mitigation Measures for Air Quality

3.8.1.1 No Action Alternative

No impacts to air quantity under this alternative; mitigation not necessary.

3.8.1.2 Proposed Pipeline Alignments

3.8.1.2.1 Alignment Option 1 - Treasure Hill (Proposed Alternative)

In order to minimize fugitive dust due to the installation of this pipeline, mitigation measures must be implemented in compliance with the Utah Division of Air Quality permitting requirements. Such control may include watering and chemical stabilization of potential fugitive dust sources or other equivalent methods or techniques approved by the State's executive secretary.

3.8.1.2.2 Alignment Option 2 - Marsac Avenue to Deer Valley Drive

Mitigation measures identified in Section 3.8.1.2.1 above also apply to this alignment.

3.8.1.2.3 Alignment Option 3 - Chatham Crossing

Mitigation measures identified in Section 3.8.1.2.1 above also apply to this alignment.

3.8.1.2.4 Alignment Option 4 - US-40 Frontage Road

Mitigation measures identified in Section 3.8.1.2.1 above also apply to this alignment.

3.9 VISUAL RESOURCES

Landuse in the Park City area has varied over time from mining and agriculture, to residential development and winter sports. This is typical of mountainous areas in the west. The visual resources of this area include open spaces, hills and mountains. Ski areas, Olympic facilities and urban growth are also part of the viewshed.

Park City has adopted a General Plan that includes the following goal relating to aesthetic aspects of the area:

Park City should establish an open space buffer surrounding the community to define the natural and visual “basin” of the community’s location preserving sensitive lands and important vistas. The pattern, location, and appearance of development should not intrude on the visual quality of Park City or surrounding areas.

This Plan also includes action items for developing areas as follows:

- *Promote the use of such building materials as wood siding, rock accents, earth tones, and metal roofs that have historic precedents in a mountain community context.*
- *Minimize architectural styles and signage that are clearly not in keeping with the mountain resort character of the community.*
- *Maintain entry corridor aesthetics including open vistas and natural stream corridors.*

3.9.1 Potential Impacts and Recommended Mitigation Measures for Visual Resources

3.9.1.1 No Action Alternative

No changes to visual resources would occur under this alternative.

3.9.1.2 Proposed Pipeline Alignments

3.9.1.2.1 Alignment Option 1 - Treasure Hill (Proposed Alternative)

Impacts to visual resources will be temporary in nature, occurring during the construction phase of this project. With proper revegetation as addressed in Section 3.7, long-term impacts are not anticipated. No mitigation necessary.

3.9.1.2.2 Alignment Option 2 - Marsac Avenue to Deer Valley Drive

Refer to Section 3.9.1.2.1 above.

3.9.1.2.3 Alignment Option 3 – Chatham Crossing

Refer to Section 3.9.1.2.1 above.

3.7.1.2.4 Alignment Option 4 – US-40 Frontage Road

Refer to Section 3.9.1.2.1 above.

3.10 CULTURAL RESOURCES

A Class III Cultural Resource Inventory was conducted for the proposed project area (Appendix E). This consisted of a review of the existing data pertaining to known cultural resource site locations in the area as well as a site reconnaissance.

See Appendix E for additional historical or cultural sites as they relate to the preferred alignment.

3.11 TRAFFIC

Traffic records in the area are maintained by the Utah Department of Transportation. The Annual Average Daily Traffic counts for roads in Park City are:

- US-40 is approximately 24,000
- SR-248 is approximately 18,000
- Marsac Ave. is approximately 3,000

3.11.1 Potential Impacts and Recommended Mitigation Measures for Traffic

3.11.1.1 No Action Alternative

No impact to traffic volumes with this alternative.

3.11.1.2 Proposed Pipeline Alignments

3.11.1.2.1 Alignment Option 1 - Treasure Hill (Proposed Alternative)

Minimal increase in traffic during pipeline construction is anticipated. No long-term impact anticipated. Compliance with Park City Design Standards, Construction Specifications and Standard Drawings (500.7; see Appendix F) conditions is required. These conditions are as follows:

- Construction activities will be conducted so as to minimize obstruction of vehicular or pedestrian traffic and to prevent damage to completed work. In this regard, PCMC must be continuously informed as to the location(s) of this operation.
- No City street or roads shall be closed to vehicular traffic without the prior permission of the PCMC and not until after the affected emergency response authorities have been notified. Street closure authorization must be obtained from PCMC.
- In order that the effect to both the flow of traffic and damage to the new work is minimized, use of approved barricades, lights, flag men and other traffic control devices approved by the City Engineer, specified on the drawings or specifications or as may be required by law is required. All barricades needed overnight shall have flashing amber lights.

- Submittal of a traffic control plan to PCMC for approval is required prior to the start of work.

3.11.1.2.2 Alignment Option 2 - Marsac Avenue to Deer Valley Drive

Minimal increase in traffic during pipeline construction is anticipated. No long-term impact. See mitigation measures under Section 3.11.1.2.1.

3.11.1.2.3 Alignment Option 3 – Chatham Crossing

Minimal increase in traffic during pipeline construction is anticipated. No long-term impact. See mitigation measures under Section 3.11.1.2.1.

3.11.1.2.4 Alignment Option 4 – UT-40 Frontage Road

Minimal increase in traffic during pipeline construction is anticipated. No long-term impact. See mitigation measures under Section 3.11.1.2.1.

3.12 NOISE

Given the relatively urban nature of the study area, and the growth in population that the area is experiencing, the primary sources of noise in this area are associated with motor vehicles and human activities. The sensitive receptors are primarily residents, visitors, and wildlife.

Park City Municipal Code Title 6 – Health, Nuisance Abatement, Noise regulates noise disturbances with the intent to:

- Reduce the making and creation of excessive, unnecessary, or unusually loud noises,
- Prevent the making, creation, or maintenance of such excessive, unnecessary, or unusually prolonged, unusual, or unreasonable in their time, place, or use that affect and are a detriment to public health, comfort, convenience, safety, or welfare of the residents,
- Secure and promote the public health, comfort, convenience, safety, welfare, and the peace and quiet of the residents.

Park City Chapter 3 (G) of Title 6 includes a noise prohibition for construction work in particular areas in Park City, including single-family homes. In addition, this section stipulates hours that construction activities are allowed (see Appendix G).

3.12.1 Potential Impacts and Recommended Mitigation Measures for Noise

3.12.1.1 No Action Alternative

No impacts to noise levels from this alternative.

3.12.1.2 Proposed Pipeline Alignments

3.12.1.2.1 Alignment Option 1 - Treasure Hill (Proposed Alternative)

Minimal increase in noise during pipeline construction is anticipated. No long-term impact. Compliance with PCMC Municipal Code Title 6 and Park City Construction Management Plan conditions is required. These conditions are as follows:

- The hours of operation are 7AM to 9PM, Monday thru Saturday, and 9AM to 6PM on Sunday.
- Any noise above 65 decibels violates the noise ordinance, as well as any excessive or unusually loud noise that is plainly audible beyond the property line or outside the hours of operation.

3.12.1.2.2 Alignment Option 2 - Marsac Avenue to Deer Valley Road

Compliance with PCMC Code Title 6 will serve to minimize any impacts. Refer to Section 3.12.1.2.1 for specific conditions.

3.12.1.2.3 Alignment Option 3 – Chatham Crossing

Compliance with PCMC Code Title 6 will serve to minimize any impacts. Refer to Section 3.12.1.2.1 for specific conditions.

3.12.1.2.4 Alignment Option 4 – US-40 Frontage Road

Compliance with PCMC Code Title 6 will serve to minimize any impacts. Refer to Section 3.12.1.2.1 for specific conditions.

3.13 ENVIRONMENTAL JUSTICE

As directed by Executive Order 12898, all federal actions, programs, and policies shall identify and prevent and/or mitigate, to the greatest extent practicable, disproportionately high and adverse human health and environmental effects on minorities and low-income populations. For this project, a review of the locations of affordable housing units was conducted. As shown on Figure 8, the pipeline alignments will not affect these housing locations as they remain on city roads through the more dense areas of affordable housing. Mitigation measures are not necessary.

3.14 PRIME FARMLAND

Prime Farmland is defined by the U.S. Department of Agriculture as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses (USDA website). The loss of prime farmland to other uses puts pressure on less productive lands, which may impair the productive capacity of American agriculture.

States may also designate Farmland of Statewide Importance, which is defined as land with soils that nearly meet the requirements for prime farmland, and that economically produce high yield of crops when treated and managed according to acceptable farming methods.

Figure 9 provides the location of Prime Farmlands and Farmland of Statewide Importance in the project area.

3.14.1 Potential Impacts and Recommended Mitigation Measures for Prime Farmland

3.14.1.1 No Action Alternative

No impacts to prime farmland from this alternative.

3.14.1.2 Proposed Pipeline Alignments

3.14.1.2.1 Alignment Option 1 - Treasure Hill (Proposed Alternative)

This option crosses land that is classified as “Prime farmland if irrigated” and Farmland of Statewide Importance”. However, given the current land use (urban and ski resort) and slope of this land, it does not meet the appropriate definition.

3.14.1.2.2 Alignment Option 2 - Marsac Avenue to Deer Valley Road

Refer to Section 3.14.1.2.1 above.

3.14.1.2.3 Alignment Option 3 – Chatham Crossing

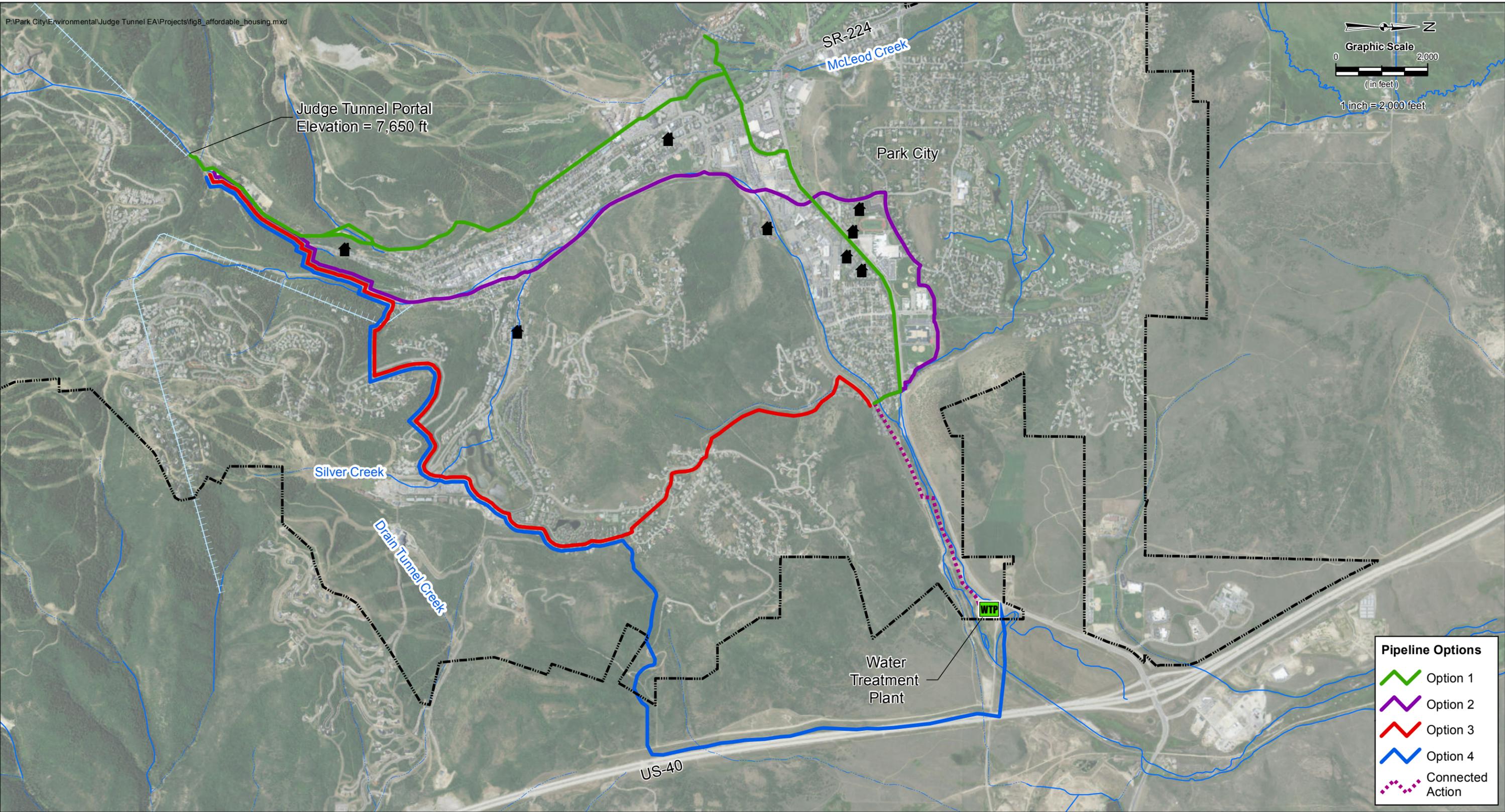
Refer to Section 3.14.1.2.1 above.

3.14.1.2.4 Alignment Option 4 – US-40 Frontage Road

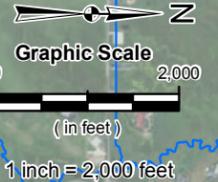
Refer to Section 3.14.1.2.1 above.

3.15 TRAILS

Park City is known for their well-kept and always growing recreational trails. It is important to maintain these trails during construction and to provide detours and appropriate signage when a trail will be closed. The construction documents shall include trails that may be temporarily closed during construction and direct the contractor to coordinate directly with PCMC’s trails coordinator, sustainability department, and Mountain Trails Foundation prior to and during construction.



P:\Park City\Environmental\Judge Tunnel EA\Projects\fig8_affordable_housing.mxd



Judge Tunnel Portal
Elevation = 7,650 ft

SR-224
McLeod Creek

Park City

Silver Creek

Drain Tunnel Creek

Water
Treatment
Plant

US-40

Pipeline Options

-  Option 1
-  Option 2
-  Option 3
-  Option 4
-  Connected Action



 Affordable Housing Location

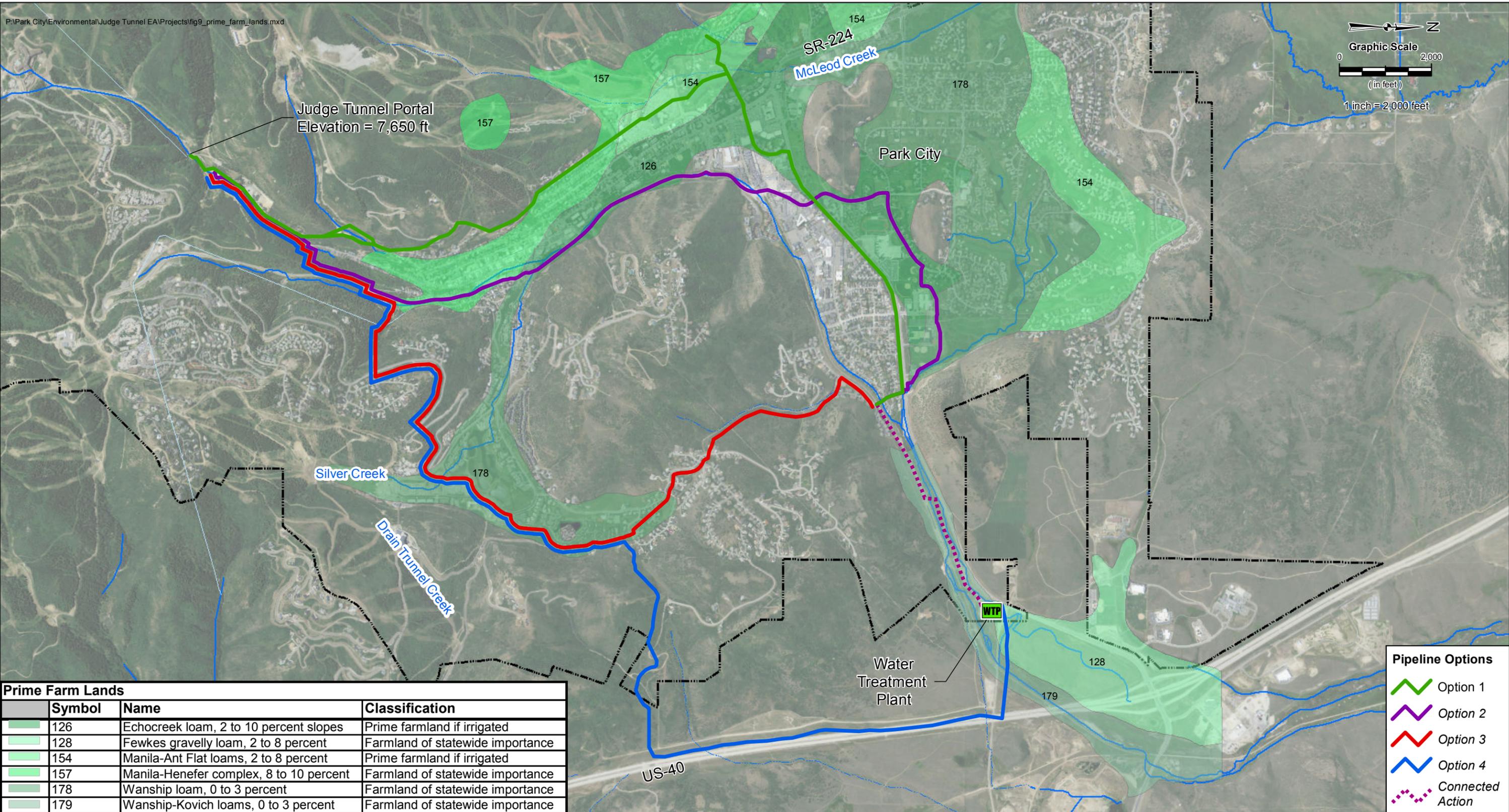
Legend

-  Park City Limits
-  Streams
-  Tunnels

Client/Project
Park City Municipal Corporation
Judge Tunnel Water Line
Environmental Assessment

Figure No.
8.0

Title
**Judge Tunnel Alignment
Affordable Housing Map**



Prime Farm Lands			
Symbol	Name	Classification	
126	Echocreek loam, 2 to 10 percent slopes	Prime farmland if irrigated	
128	Fewkes gravelly loam, 2 to 8 percent	Farmland of statewide importance	
154	Manila-Ant Flat loams, 2 to 8 percent	Prime farmland if irrigated	
157	Manila-Henefer complex, 8 to 10 percent	Farmland of statewide importance	
178	Wanship loam, 0 to 3 percent	Farmland of statewide importance	
179	Wanship-Kovich loams, 0 to 3 percent	Farmland of statewide importance	

Pipeline Options	
	Option 1
	Option 2
	Option 3
	Option 4
	Connected Action

Legend	
	Park City Limits
	Streams
	Tunnels

Client/Project
 Park City Municipal Corporation
 Judge Tunnel Water Line
 Environmental Assessment

Figure No.
9.0

Title
**Judge Tunnel Alignment
 Prime Farm Lands**



3.16 CONNECTED ACTIONS

A connected action to the proposed action is the installation of a water pipeline from Wyatt Earp Way to the Quinn's Water Treatment Plant. This connected action project was funded by Park City Municipal Corporation, and therefore was separate from the proposed project addressed in this EA. This pipeline segment is approximately 5,500 feet in length, and will connect the Judge Waterline from Wyatt Earp Way along the Rail Trail to Quinn's Junction Water Treatment Plant. This project was completed in winter 2010.

3.17 INDIRECT EFFECTS

Indirect effects are caused by the actions that are later in time or farther removed in distance, but are still reasonably foreseeable (CEQ 1508.8). With the implementation of the mitigating measures described herein, and compliance with the appropriate regulations and Municipal Codes, the potential for indirect effects would be minimized.

Community Growth Impacts – While there is a potential for this expanded source to contribute to continued population growth in Park City, mitigating measures include Park City's General Plan which encourages water efficiency strategies by recommending the development of responsible water conservation standards and requirements. In addition, Park City implements a water conservation plan to reduce water usage (see section below). Furthermore, use of this source could potentially offset the need to develop future water sources.

In accordance with State of Utah R309-510, Minimum Sizing Requirements, water system supply requirements are dictated by two separate conditions: peak day demand (PDD) and average yearly demand. PDD is the anticipated water demand on the day of highest water consumption. Average yearly demand is defined as one year's supply of water. A water system is required to legally and physically meet water demands under both conditions.

The proposed action in this EA will increase the overall supply available to meet the average yearly demand. However, the peak flows from Judge Tunnel are typically in late May and early June. PCMC PDD occurs historically in mid-July. During peak flows when the Judge Tunnel water is turbid, it cannot be used in PCMC drinking water system. The timing of Judge Tunnel peak flows and PCMC PDD do not coincide.

Additional water captured from Judge Tunnel as a result of the proposed action would increase the reliability of Judge Tunnel as a source. It would not, however, increase PCMC ability to meet PDD, because PCMC currently uses Judge Tunnel as a source to meet PDD. Thus, the proposed action in this EA will not increase PCMC source capacity as defined in State of Utah R309-510. Consequently, the proposed action is not anticipated to facilitate additional population growth in and of itself, but could contribute to population growth in conjunction with future source development.

Wetlands Along the Rail Trail –In section 1.3, Table 1 and Figure 1, explain that the water released from waterworks at Judge Tunnel contributes an average of 21% of flow to Silver Creek. This flow is unreliable and has varied greatly from one year to the next. A technical

memo was prepared to address the possible effects of reduced flows in Silver Creek as a result of eliminating occasional Judge Tunnel overflows (Appendix N).

Water Conservation Planning – Park City recently completed a Water Conservation Plan (Park City, 2009) that was adopted by PCMC as Resolution No. 24-09 on July 30, 2009 (see Appendix H). Through the use of growth projections and current water usage, Park City projected water usage through 2050, identifying water usage at current rates, and water usage with conservation; Table 13 presents these figures. Park City has adopted Utah’s conservation goal of a 25 percent reduction in per connection use by 2050, with half of this amount (12.5 percent) achieved in the first 20 years and the other half between 2020 and 2050.

Table 13 Park City Water Usage

Year	Based on Historic Use (acre-ft)	With Conservation (acre-ft)
2000	5,468	5,468
2010	7,718	7,235
2020	8,894	7,782
2030	9,695	8,079
2040	9,908	7,844
2050	10,121	7,590

This conservation plan has established the following goals:

- State of Utah goal of 25% water use reduction by 2050
- Ensure water fund has sufficient financial resources to cover cost of ongoing operations and maintenance, required improvements, capital renewal programs and economic contingencies
- Mitigate summer and winter peak day water use
- Inventory water consumption from entire Park City community
- Implement community water consumption reduction program in conjunction with partners

The Park City Water department has worked closely with the Parks and Golf Maintenance departments for the past several years to implement many diverse conservation measures in the community including:

- Efficient irrigation systems in all City owned parks, golf course and plantings
- Universal metering
- Water-wise plantings throughout City owned properties
- Xeriscape demonstration garden
- Every other day watering requirement
- Voluntary third-day watering

- Weekly Park Record water consumption chart
- Park City Water website: water conservation tips and xeriscape planning
- Water bill inserts and direct mailings regarding water conservation issues
- Enforcement of City water ordinance (since mid-1980's) including part-time citation personnel
- Recycle Utah children's education programs/Water Festival
- Local radio public service announcements
- Promotional water conservation give-aways
- Water conservation placards in restaurants and hotels
- Weather-Trak study, using weather controlled irrigation devices
- Conservation Rate Structure
- Ordinance for water use during periods of drought
- FTR position for a Water Resource Analyst to perform the duties of a water conservation manager established July 1, 2008

The conservation program adopted in 2008 and 2009 included the implementation of the following measures:

- Public education
- Enact conservation ordinance
- Customer outdoor water audits
- Enforcement
- Incorporation of Johnson Controls conservation measures
- Fixed base auto-water meter readings system installation
- System water audits
- Water budgeting rate structure
- Meter testing, repair and replacement program
- "Smart" irrigation technology
- Large landscape conservation programs

Park City has developed this plan to encourage water conservation, thereby reducing water usage in the area. Active water conservation may serve to negate or postpone future water delivery projects.

3.18 CUMULATIVE EFFECTS

Cumulative effects are an aggregate of many direct and indirect effects, and include past, present actions, or actions that can reasonably be expected to occur. The potential for direct

adverse effects to the environmental resources resulting from the alternatives is discussed in the previous sections.

Cumulative effects for this project may include maintenance and repair work on the pipeline. Any impacts from this work would likely be temporary in nature, and not likely to have long-term impacts.

3.19 BENEFICIAL EFFECTS

This project will allow PCMC to utilize all of the flow from Judge Tunnel in their drinking water and raw water systems. The drinking water quality will be able to consistently comply with the Code of Federal Regulation (CFR), Title 40, Ch. I, Part 141, National Primary Drinking Water Standards by blending with other water sources to reduce antimony concentrations. Additional water quality benefits are likely to be realized for Judge Tunnel water that is treated at QWTP to reduce turbidity. The treatment plant membranes will likely remove additional metals and water quality constituents typically present in Judge Tunnel water, particularly those associated with turbidity (lead and arsenic). These other constituents are not present in the Judge Tunnel water above their respective MCLs, but will likely see some reduction in levels after treatment at QWTP. The project also makes it possible to treat Judge Tunnel water in a future pretreatment plant. The pretreatment plant would be specifically designed to remove any water quality constituents of concern to appropriate levels for discharge to the drainage, and for use in the drinking water system with further treatment. Overall, the PCMC drinking water system will have a more reliable source with consistent water quality and stream water quality will improve.

4.0 REFERENCES

Bromfield, C. S. and Crittenden, M.D., 1971; Geologic Map of the Park City East Quadrangle, Summit and Wasatch Counties, Utah; U.S. Geologic Survey Geological Quadrangle Map GQ-852, Denver, Colorado.

Holmes, Walter F., Thompson, Kendall R., and Enright, Michael, 1985; Water resources of Park City Area, Utah, with Emphasis on Ground Water; State of Utah Department of Natural Resources technical Publication No. 85; Salt Lake City, Utah, 81p.

King County website <http://www.kingcounty.gov/environment/animalsAndPlants/noxious-weeds/faq.aspx#0B914E04A15F4EF889BF7E857E070351>

Loughlin, 2009: Phase 2 Assessment of Silver Creek Sinkholes Along Silver Creek, Park City, Summit County, Utah, For Snyderville Basin Water reclamation District (Draft); Loughlin Water Associates, LLC, Park City, Utah.

Park City General Plan, 2007.

Park City, 2009. Water Conservation Plan Park City, Utah.

Park City Municipal Corporation, 2009. Park City Judge Tunnel Water Line Alignment Evaluation, Portal to Quinn's Junction. Prepared by Stantec Consulting Inc.

Park City Municipal Corporation & Mountain Regional Water Special Service District, 2009. Water Pipeline Interconnection Water Treatment Plant Environmental Report.

Stokes, W.L., 1986; Geology of Utah, Utah Museum of Natural History University of Utah Occasional Paper Number 6; Utah Museum of Natural History, Salt Lake City, Utah, 277 p.

UDOT website <http://www.udot.utah.gov/main/f?p=100:pg:5822162656614010613:::V,T:1852>.

U.S. Department of Agriculture website
<http://soils.usda.gov/technical/handbook/contents/part622.html>

U.S. EPA, 2004. Environmental Assessment for the Judge Tunnel Water Treatment Facility.

U. S. EPA, 2005. Richardson Flat Tailings Site, Park City, Utah, Record of Decision; U.S. Environmental Protection Agency, Denver, Colorado.

U.S. EPA, 2009. Letter from Carol Campbell, EPA Assistant Regional Administrator to Tom Bakaly, Park City Manager, dated July 23, 2009.

U.S. EPA website <http://www.epa.gov/myenv/MYENVIEW.results2?minx=-111.567614&miny=40.599223&maxx=-111.431441&maxy=40.690854>

Utah Department of Environmental Quality, Division of Water Quality, 2004. Silver Creek Total Maximum Daily Load for Dissolved Zinc and Cadmium.

Utah Department of Environmental Quality, Division of Water Quality, 2006. Utah 2006 Integrated Report Volume I – 305(b) Assessment.

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PARK CITY MUNICIPAL CORPORATION
JUDGE TUNNEL WATER LINE
ENVIRONMENTAL ASSESSMENT
March 2013

APPENDICES

- Appendix A Park City Soils Worker Health and Safety Notice
- Appendix B Vegetative Cover Types
- Appendix C Soil Unit Descriptions
- Appendix D Fugitive Dust Regulation
- Appendix E Cultural Resource Inventory Report and National Historic Preservation Act Correspondance
- Appendix F PCMC Traffic Control Requirements
- Appendix G PCMC Noise Ordinance & Construction Mitigation Plan
- Appendix H Park City Water Conservation Plan
- Appendix I Agency Coordination
- Appendix J Vegetation Survey
- Appendix K Snyderville Basin Water Reclamation District Discharge Permit
- Appendix L Existing Site Photos
- Appendix M Threatened and Endangered Species
- Appendix N Silver Maple Claims Water Source Evaluation Technical Memo
- Appendix O Silver Maple Claims Wetland Mitigation Plan