3.0 Affected Environment

3.1 Air Quality

3.1.1 Climate

The regional climate of the proposed Project area is predominantly classified as continental with some areas in Wyoming classified as temperate semi-arid. Surface wind direction and precipitation vary in the proposed Project area due to significant geographical features. The climate of the west slope in western Colorado is primarily influenced by Pacific air masses, which flow over the Sierra Nevada and Cascade Mountains. As the air masses pass over these mountains, they lose much of the moisture that is typical of maritime air. This produces the arid environment of the intermountain region. In fact, the overwhelming characteristic of the intermountain portion of the west slope climate at lower elevations is arid. Typically, arid climates receive less than 10 inches of precipitation annually. The higher elevations, localized areas, and mountains generally receive greater amounts of precipitation, often 4 to 5 times as much as lower elevations.

As shown in **Table 3.1-1**, specific characterization of the local weather based on data from Meeker, Colorado, indicates an average annual maximum temperature of 60.4 degrees Fahrenheit (°F) and an average annual minimum temperature of 27.4°F. As shown in **Table 3.1-2**, specific characterization of local weather data from Wamsutter, Wyoming, indicates an average annual maximum temperature of 55.3°F and an average annual minimum temperature of 27.3°F. Average annual precipitation in each location is less than 20 inches.

3.1.2 Existing Air Quality

National Ambient Air Quality Standards (NAAQS) have been established by the USEPA for six criteria pollutants. The purpose of the NAAQS is to protect human health (primary standards) and public welfare (secondary standards). Pollutant concentrations in the ambient air that are greater than the NAAQS are considered potentially harmful. The USEPA set NAAQS for the following air contaminants: nitrogen dioxide (NO_2), carbon monoxide (CO), ozone (O_3), sulfur dioxide (SO_2), lead (Pb), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), and particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$). The states are required to implement and enforce the NAAQS under a process called State Implementation Plans, which are approved by the USEPA.

The USEPA (2008) has designated areas of the U.S. as “attainment,” “non-attainment,” or “unclassified” with respect to ambient air quality standards. Federal and state air quality regulations are designed to ensure that ambient air quality from existing and new sources are in compliance with the ambient standards. All areas of Colorado and Wyoming through which the Project would be located are classified as attainment for all criteria pollutants. NAAQS and Colorado and Wyoming Ambient Air Quality Standards (CAAQS and WAAQS, respectively) are listed in **Table 3.1-3**.

Table 3.1-1 Average Temperature and Precipitation at Meeker, Colorado

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (°F)	36.4	40.4	48.1	58.5	69.1	79.0	85.7	83.1	75.1	63.6	49.0	37.3	60.4
Average Min. Temperature (°F)	6.9	11.6	20.1	28.1	34.7	40.4	47.0	46.0	37.6	28.2	18.6	9.4	27.4
Average Total Precipitation (in.)	1.10	1.02	1.34	1.72	1.48	1.20	1.37	1.79	1.59	1.50	1.18	1.13	16.43
Average Total Snowfall (in.)	15.0	11.9	11.3	5.5	0.6	0.0	0.0	0.0	0.5	2.7	9.2	13.0	69.6
Average Snow Depth (in.)	5	4	1	0	0	0	0	0	0	0	1	3	1

Source: Western Regional Climate Center (WRCC) 2008, Station 055484 – Period of Record: 1/11/1900 to 6/30/2007.

Table 3.1-2 Average Temperature and Precipitation at Wamsutter, Wyoming

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (°F)	27.9	32.7	41.2	53.7	64.6	75.8	83.9	81.5	72.2	59.0	41.0	29.9	55.3
Average Min. Temperature (°F)	7.3	10.5	17.8	26.0	34.2	42.3	49.0	47.1	38.5	28.6	17.1	9.4	27.3
Average Total Precipitation (in.)	0.25	0.24	0.37	0.69	1.05	0.76	0.79	0.79	0.76	0.57	0.34	0.23	6.84
Average Total Snowfall (in.)	4.0	3.4	3.7	2.6	0.8	0.0	0.0	0.0	0.3	1.2	3.3	3.4	22.9
Average Snow Depth (in.)	2	1	1	0	0	0	0	0	0	0	0	1	0

Source: WRCC 2008, Station 489459 – Period of Record: 8/1/1948 to 11/30/2004.

Table 3.1-3 Ambient Air Quality Standards

Pollutant	Averaging Period	NAAQS (µg/m^3)	CAAQS (µg/m^3)	WAAQS (µg/m^3)
NO_2	Annual	100	100	100
CO	1-Hour 8-Hour	40,000 10,000	40,000 10,000	40,000 10,000
SO_2	3-Hour 24-Hour Annual	1,300 365 80	700 365 80	1,300 260 60
PM_{10}	24-Hour Annual	150 50	150 50	150 50
$PM_{2.5}$	24-Hour[1] Annual	35 15	35 15	35 15
O_3	8-Hour	147	147	147
Pb	Monthly Quarterly	-- 1.5	1.5 --	-- 1.5
Hydrogen sulfide (H_2S)	0.5-Hour	--	--	40/70[2]

[1]Based on the annual 98th percentile concentration.

[2]40 microgarms per cubic meter (µg/m^3) not to be exceeded more than twice in any 5 consecutive days. 70 µg/m^3 not to be exceeded more than twice per year.

National standards, other than O_3 and those based on annual averages, are not to be exceeded more than once a year. Annual pollutant averaging periods shall not be exceeded. The 8-hour O_3 standard is attained when the fourth highest 8-hour concentration in each year, averaged over 3 consecutive years, is equal to or less than the standard of 0.075 parts per million (ppm).

The CDPHE and WDEQ have responsibility for monitoring statewide air quality. Most monitoring typically is performed in areas where levels of air pollution are anticipated to be significant. Ambient air monitoring data in the vicinity of the proposed Project does not exist in Colorado, as there are no monitoring locations for criteria pollutants located in Rio Blanco or Moffat counties. Per the CDPHE, background levels in the vicinity of the proposed Project area in Colorado are identified in **Table 3.1-4**.

Table 3.1-4 Air Quality Background Levels in Colorado

Pollutant	Averaging Period	Concentration	Units	Location
PM_{10}	Annual	11	ug/m^3	American Soda, Piceance 2003-2005
	24-hour	36	ug/m^3	
SO_2	Annual	0.002	ppm	Unocal, 1983-1984
	3-hour	0.009	ppm	
	24-hour	0.005	ppm	
NO_2	Annual	0.005	ppm	Rural default based on EnCana near Parachute Creek
CO	1-hour	1.0	ppm	American Soda, Piceance 2003-2005
	8-hour	1.0	ppm	

Source: CDPHE 2008.

There is an air quality monitoring station located approximately 2 miles west of Wamsutter, Wyoming. The station began operation in March 2006. Monitoring equipment includes an O_3 analyzer, NO_2 analyzer, PM_{10} monitor, and meteorology sensors. At this time, the station is not equipped with a digital camera. This station broadcasts near real-time meteorology and pollutant measurements. When data from this monitor was reviewed on February 20, 2008 (WDEQ 2008), the 8-hour rolling average for O_3 was 0.057 ppm, the 24-hour rolling average for NO_2 was 0.011 ppm, and the 24-hour rolling average for PM_{10} was 6 µg/m³. Each of these readings is well below the NAAQS and WAAQS identified in **Table 3.1-3**. As mentioned previously, air quality in the region is classified as being in attainment for all criteria pollutants.

The nearest federal Prevention of Significant Deterioration (PSD) Class I Areas are the Flat Tops Wilderness area, located approximately 35 miles (56 km) from the Project, and the Mount Zirkel Wilderness area located approximately 70 miles (113 km) from the Project. Dinosaur National Monument, a Colorado-designated Class I area for SO_2, is located approximately 30 miles (48 km) from the Project.

3.1.3 Carbon Dioxide Emissions

Carbon dioxide (CO_2), methane (CH_4), and nitrous oxide are all naturally occurring greenhouse gases (GHGs) whose concentrations in the atmosphere have increased as a result of human activities since the dawn of the industrial revolution. GHGs in general, and CO_2 in particular, have become an issue of intense public debate and much recent litigation. In Massachusetts v. USEPA, the U.S. Supreme Court held that CO_2 satisfies the definition of "air pollutant" and that the USEPA has authority to regulate emissions of CO_2 and other GHGs from new motor vehicles under the CAA (Supreme Court of the United States 2006). It is important to note that the Court did not rule that CO_2 and other GHGs were subject to regulation under the Clean Air Act (CAA), nor did the Court require creation of any standards or emission control requirements for GHGs.

CO_2 is not a criteria pollutant for which NAAQS are set, nor is it regulated under New Source Performance Standards (NSPS), Maximum Achievable Control Technology, or any other CAA regulatory emission standards or limitations. Therefore, although CO_2 is an air pollutant, it is not a regulated air pollutant for CAA regulatory and permitting purposes. No regulatory limitations or other CAA emission standards apply to CO_2.

3.1.4 GRP Land Re-route Alternative

Given the relative proximity of the GRP Land Re-route Alternative to within approximately 1.1 mile of the Proposed Action, the affected environment regarding air quality would be the same as described for the Proposed Action.

3.2 Geology, Minerals, and Paleontological Resources

3.2.1 Physiography and Geology

The proposed Project route would cross parts of two major physiographic provinces: the Uinta-Piceance Basin Section of the Colorado Plateaus Province and the Wyoming Basin Province of the Rocky Mountain System Division (U.S. Geological Survey [USGS] 2003) (**Figure 3.2-1**). The Wyoming Basin Province generally consists of mountain ranges separated by broad basins, while the Colorado Plateau province is characterized by plateaus and mesas, often heavily incised by erosion. The proposed Project is in the Colorado Plateaus from MP 0.0 to approximate MP 48.0 and in the Wyoming Basins Province from approximate MP 48.0 to MP 152.2. Elevations range from approximately 6,200 to 7,400 feet above mean sea level (amsl), with the highest areas of elevation being encountered at the southern end of the proposed route.

The bedrock geology in the proposed Project area consists of Upper Cretaceous and Tertiary sedimentary rocks. The rock units and brief descriptions are presented on **Table 3.2-1**. The bedrock formations that would be crossed and location of formation contacts have been taken from the paleontological survey that was conducted for the Project in January 2008 (Erathem-Vanir Geological 2008) and from published USGS sources (Love and Christiansen 1985; Tweto 1979). Because of inter-fingering relationships between the Green River and Wasatch formations, contacts are often difficult to distinguish.

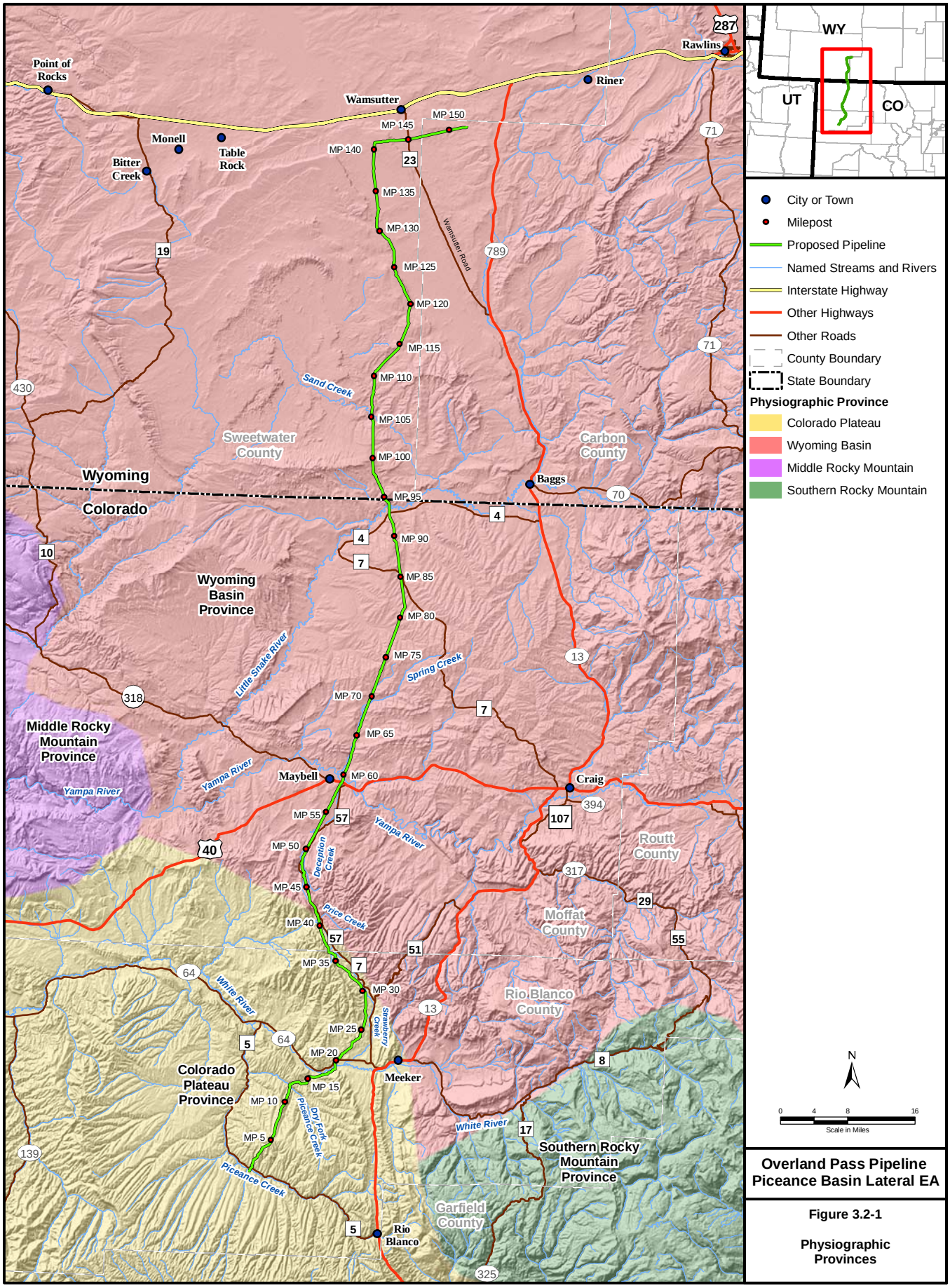
Unconsolidated Recent and Pleistocene-aged surficial deposits are present in the form of alluvium, colluvium, or sand dunes. These deposits can be found in stream valleys as modern alluvium (stream-laid deposits), older alluvium found on terraces, or eolian (wind-blown) deposits (Love and Christiansen 1985; Tweto 1979).

3.2.2 Mineral Resources

The primary mineral resources in the proposed Project area are oil and natural gas. The proposed Project route would cross the Uinta-Piceance Basin and the Greater Green River Basin, important oil and gas producing basins. The proposed Project is located in two sub-basins of the Greater Green River Basin: the Sand Wash Basin and the Washakie Basin. **Table 3.2-2** provides a summary of the oil and gas fields that would be crossed by the proposed Project. Analysis of the proposed route indicates that approximately 22 oil and gas wells were located within 400 feet of the centerline of the Proposed Action (**Table 3.2-3**). Most of the wells are producing gas wells, but several have been plugged and abandoned or the status was not determinable from the database.

Another important mineral resource in the vicinity of the proposed Project is coal. The proposed Project lies within two defined coal resource regions: the Uinta Coal Region and the Green River Coal Region (Averitt 1972). The proposed Project would cross the Danforth Coal Field that lies in the Uinta Coal Region. No major operating coal mines are in the vicinity of the proposed Project (Guilinger and Keller 2004; Colorado Division of Reclamation Mining and Safety 2008; Wyoming Mining Association 2008).

Oil shale resources may be present where the proposed Project would cross the Uinta and Green River Formations (**Table 3.2-1**). Oil shale has been mined in the vicinity, but there are no operating mines. Other mineral resources in the area include uranium, limestone, and aggregate. Uranium and limestone have been mined near Maybell, Colorado. While limestone is actively mined, there is no current uranium mining activity (Guilinger and Keller 2004; Colorado Division of Reclamation Mining and Safety 2008). From approximate MP 100.0 to MP 140.0, the proposed route would cross rock that may be underlain by oil shale deposits of the Green River Formation, but the deposits are low grade (less than 25 barrels per ton) and there are no



Overland Pass Pipeline
Piceance Basin Lateral EA

Figure 3.2-1

Physiographic Provinces

Table 3.2-1 Summary of Geologic and Paleontologic Resources Along the Proposed Route

Geologic Formation/Deposit	Age	Description	Fossil Potential/BLM Condition[1]	Approximate MP
Alluvium/Colluvium	Quaternary (Recent)	Sand, silt, clay, and gravel	None/3	Sporadically throughout entire route
Older alluvium/colluvium	Pleistocene	Sand, silt, clay, and gravel	Vertebrates/3	Near major river crossings, pediment surfaces
Uinta Fm (Tu)	Eocene	Sandstone and siltstone	Vertebrates, invertebrates, plants, trackways/1	MP 0.0 – 16.0 intertongued w/Tgp and Tgl
Green River Fm (Tg) Parachute Creek Mbr (Tgp) Undivided Garden Gulch, Douglas Creek, & Anvil Points Mbrs (Tgl) Laney Member (Tgla) contains: LeClede & Hartt Cabin Beds Tipton Tongue (Tgt) Lumen Tongue (Tglu)	Eocene	Sandstone, siltstone, and marlstone (oil shale)	Vertebrates, invertebrates, plants, traces/1	MP 16.0 – 19.0 Interfingers throughout most of the pipeline route
Wasatch Fm (Tw) Cathedral Bluffs Tongue (Twc) Niland Tongue (Twn)	Eocene	Claystone, mudstone, sandstone, and conglomerate	Vertebrates, invertebrates, plants, traces/1-2	19.0 – 42.0
Mesaverde Group (Kmvg) Williams Fork Formation (Kmw) Iles Formation (Kmi)	Late Cretaceous	Sandstone, shale, and coal beds	Vertebrates, invertebrates, plants, traces/2	42.0 – 48.0 mixed w/Quaternary deposits
Mancos Shale (Km)	Late Cretaceous	Organic-rich, marine shale	Invertebrates, plants, traces, rarely vertebrates/2	48.0 – 51.0 mixed w/Quaternary deposits and Tbp
Browns Park (Tbp)	Miocene	Slightly consolidated tuffaceous sediment	Vertebrate, invertebrates, plants/2-3	51.0 – 62.5

Table 3.2-1 Summary of Geologic and Paleontologic Resources Along the Proposed Route

Geologic Formation/Deposit	Age	Description	Fossil Potential/BLM Condition[1]	Approximate MP
Williams Fork (Kmw)	Late Cretaceous	Sandstone, shale, and coal beds	Vertebrates, invertebrates, plants, traces/2	62.5 – 63.0
Lewis Shale (Kls)	Late Cretaceous	Marine shale containing isolated sandstone lenses	Invertebrates, vertebrates (rare)/2	63.0 – 63.25
Lance Formation and Fox Hills Sandstone (Kla)	Late Cretaceous	Sandstone, carbonaceous shale, and thin coal beds	Vertebrates, invertebrates, plants, traces/1-2	63.25 – 63.5
Fort Union	Paleocene	Shale, sandstone, and coal	Vertebrates, invertebrates, plants	63.5 – 64.0
Wasatch Fm (Tw) Cathedral Bluffs Tongue (Twc) Niland Tongue (Twn)	Eocene	Claystone, mudstone, sandstone, and conglomerate	Vertebrates, invertebrates, plants, traces/1-2	64.0 – 152.0 mixed w/ Twc, Twn, Tgla
Green River Formation	Eocene	Sandstone, siltstone, and marlstone (oil shale)	Vertebrates, invertebrates, plants, traces/1	139.0 – 143.0
Wasatch Formation	Eocene	Claystone, mudstone, sandstone, and conglomerate	Vertebrates, invertebrates, plants, traces/1-2	143.0 – 143.5
Green River Formation	Eocene	Sandstone, siltstone, and marlstone (oil shale)	Vertebrates, invertebrates, plants, traces/1	143.5 – 144.0
Wasatch Formation	Eocene	Claystone, mudstone, sandstone, and conglomerate	Vertebrates, invertebrates, plants, traces/1-2	144.0 – 152.0
Washakie Formation (Twa); Adobe Town Member (Twka)	Eocene	Interbedded Volcaniclastic sedimentary rock and clastic sandstone	Vertebrates, invertebrates, plants, traces/1	101.0 – 107.0 Very intermittent

[1]BLM conditions defined in Section 3.2.4.

Source: Erathem-Vanir Geological (2008); Love and Christiansen (1985); Tweto (1979).

Table 3.2-2 Oil and Gas Fields Crossed by the Proposed Route

Field Name	Status	State	Producing Strata	Approximate MP
Piceance Creek	Active	Colorado	Cretaceous, Tertiary	1.0 – 7.0
Powell Park	Active	Colorado	Cretaceous, Tertiary	20.0 – 22.0
Danforth Hills North	Active	Colorado	Jurassic	49.0 – 50.0
Big Hole	Active	Colorado	Cretaceous	80.0 – 82.0
State Line	Shut-in	Wyoming	Tertiary	95.0 – 98.0
Cedar Breaks	Active	Wyoming	Cretaceous	103.0 – 104.0
Wild Rose	Active	Wyoming	Cretaceous	133.0 – 139.0
Frewen	Active	Wyoming	Cretaceous	140.0 – 143.0
Echo Springs	Active	Wyoming	Cretaceous	150.0 – 152

Sources: DeBruin (2005); Colorado Oil and Gas Conservation Commission (2008); Wray et al. (2002); Wyoming Oil and Gas Conservation Commission (2006).

Table 3.2-3 Oil and Gas Wells within 400 Feet of the Proposed Route

Milepost	Distance from Centerline (feet)	Relative Direction from Centerline
0.8	146	West
3.0	184	East
3.3	141	West
3.4	242	East
4.1	337	West
5.2	297	East
20.2	223	West
20.9	166	West
49.2	55	East
49.3	355	West
51.2	350	West
80.0	257	West
81.9	348	East
104.0	364	East
124.2	371	East
124.5	273	West
125.1	213	West
125.1	214	West
125.6	81	West
132.0	12	East
136.9	203	West
138.6	381	West

Sources: Colorado Oil and Gas Conservation Commission (2008); Wyoming Oil and Gas Conservation Commission (2008).

active oil shale extraction operations in the vicinity of the Wyoming portion of the proposed Project (Root et al. 1973; Wyoming Mining Association 2008). There are several sand and gravel pits in the vicinity of the proposed route (**Table 3.2-4**).

Table 3.2-4 Aggregate Pits in Close Proximity to the Proposed Pipeline Route

MP	Location (Section, Township, Range)	Status
5.0 – 5.25	NE Section 8, T2S, R96W	Intermittent
16.0	SWSW Section 31, T1S, R95W	Active
57.0 – 58.0	Section 33, T7N, R95W	Undetermined; numerous pits in vicinity
	Section 4, T6N, R95W	

Source: Colorado Division of Reclamation Mining and Safety (2008).

An important mineral resource in the Piceance Basin is the sodium carbonate mineral nahcolite, which is similar to trona that is mined in the Green River Basin of Wyoming. Sodium carbonate has a variety of industrial uses. Nahcolite occurs in association with oil shale and the resource potential in the Piceance Basin is estimated at 32 billion tons (Dyni 1996). The proposed route would not cross any active nahcolite mines (Guilinger and Keller 2004; Colorado Division of Reclamation Mining and Safety 2008). The proposed route is east of the high-grade nahcolite deposits and is underlain by nahcolite bearing oil shale beds that are less than 100 feet thick while the thickest nahcoilite bearing beds are up to 1,000 feet thick 6 miles northwest of the MP 1.0 (Hardy et al. 2003; Dyni 1996).

Sodium carbonate mineralization may be present in the members of the Green River Formation that would be crossed in the Wyoming portion of the proposed Project, but would be of very low grade as compared to the trona further west in the Green River Basin or nahcolite deposits in the Piceance Basin (Dyni 1996). There are no mines that extract this commodity along the proposed route in Wyoming (Wyoming Mining Association 2008).

3.2.3 Geological Hazards

Geologic hazards are natural physical conditions that can result in damage to the land and structures, or injury to people. Potential geologic hazards in the proposed Project area consist of seismic related hazards, landslide, and flooding/scour. The conditions necessary for the occurrence of other geologic hazards, such as subsidence and volcanism, are not present in the proposed Project area (Colorado Geological Survey 2001; National Atlas 2008).

3.2.3.1 Seismicity

Northwest Colorado and south-central Wyoming have historically had little earthquake activity (USGS 2008a; Case and Green 2000). The strongest earthquake reported in the proposed Project area occurred on April 5, 1999, in southwestern Carbon County, about 20 miles southeast of Wamsutter, Wyoming (Case et al. 2002). A 4.6 magnitude earthquake was felt over a large area of Sweetwater and Carbon counties, Wyoming. Damage consisted of cracked walls and masonry. No potentially active faults were identified near or along the proposed route (USGS and Colorado Geological Survey 2008). An active fault is defined as a fault where movement has occurred in the last 10,000 years (USGS 2008b).

The USGS ground motion hazard mapping indicates that potential ground motion hazard in the proposed Project area is low to moderate. The hazard map used estimates of peak ground acceleration expressed as a

percentage of the acceleration of gravity with a 2 percent probability of exceedence in 50 years (Frankel et al. 1997; USGS 2008c). The ground motion from a large earthquake event in the proposed Project area would create ground motions of 20 percent or less of gravity.

3.2.3.2 Landslides

Landslide is a term used for various processes involving the movement of earth material down slopes (USGS 2004). Landslides can occur in a number of different ways in different geological settings. Large masses of earth become unstable and by gravity begin to move downhill. The instability can be caused by a combination of steep slopes, periods of high precipitation, undermining of support by natural processes (stream erosion), or unintentional undercutting or undermining the strength of unstable materials in the construction of roads and structures.

The proposed Project is located in areas of varying landslide susceptibility and recorded incidence (**Table 3.2-5**). Landslide susceptibility "refers to the likelihood of a landslide occurring in an area on the basis of terrain conditions," but does not take into account the probability of occurrence (National Research Council 2004). Incidence is based on the percentage of area involved in movement (low: less than 1.5 percent; moderate: 1.5 to 15 percent, and high: more than 15 percent) (Radbruch-Hall et al. 1982). A segment of the proposed route that would cross areas characterized by low incidence and high susceptibility is the Uinta Formation where slides and slumps involve the Parachute Creek member (O'Sullivan 1987). An area of moderate incidence and low susceptibility that would be crossed by the proposed route is the Tertiary lake bed and continental deposits of the Green River and Wasatch Formations (Radbruch-Hall et al. 1982). In this area, beds become unstable due to sliding and flowing, especially during wet conditions. The northern segment of the proposed route is in an area that has less relief than the southern portion of the route (MP 0.0 to MP 116.0) and potential slope instability is moderated. The proposed route would not cross identified landslide deposits (Carrara 1980; Colton et al. 1976; Hail and Pipiringos 1994; Hail and Smith 1994; Roehler 1985; Whitney 1981; Wyoming Geological Survey 2004). The proposed route would not cross steep slopes where the bedrock is the Mancos Shale.

Table 3.2-5 Landslide Incidence and Susceptibility Along the Proposed Route

Pipeline Segment (Approximate Mileposts)	Landslide Incidence	Landslide Susceptibility
0.0 – 19.0	Low	High
19.0 – 116.0	Low	Moderate
116.0 – 152.0	Low to moderate	Low

Sources: National Atlas (2008); Radbruch-Hall et al. (1982).

3.2.3.3 Flood Hazards

In general, seasonal flooding hazards exist where the proposed pipeline route would cross major streams and rivers, and flash flooding hazards exist where the proposed pipeline route would cross localized drainages. The proposed pipeline route would cross 5 perennial streams and 50 ephemeral drainages, all of which are locations where seasonal or flash flooding could occur (**Appendix A**).

3.2.3.4 Subsidence

No ground subsidence or karst hazards are present in the vicinity of the proposed route (Colorado Geological Survey 2001; National Atlas 2008).

3.2.4 Paleontological Resources

The BLM Paleontology Resources Management Manual establishes a classification system for ranking paleontological areas as to their potential for noteworthy occurrences of fossils (BLM 1998). The handbook states:

"Public lands may be classified based on their likelihood to contain fossils, using the following criteria:

a. Condition 1 – Areas that are known to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. Consideration of paleontological resources would be necessary if the Field Office review of available information indicates that such fossils are present in the area.

b. Condition 2 – Areas with exposures of geological units or settings that have high potential to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. The presence of geologic units from which fossils have been recovered elsewhere may require further assessment of these same units where they are exposed in the area of consideration.

c. Condition 3 – Areas that are very unlikely to produce vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils based on their surficial geology, igneous or metamorphic rocks, extremely young alluvium, colluvium, or aeolian deposits or the presence of deep soils. However, if possible, it should be noted at what depth bedrock may be expected in order to determine if fossiliferous deposits may be uncovered during surface disturbing activities.

Either Condition 1 or Condition 2 may trigger the initiation of a formal analysis of existing data prior to authorizing land-use actions involving surface disturbance or transfer of title. Condition 3 suggests that further paleontological consideration is generally unnecessary."

Table 3.2-1 summarizes the paleontologic resource potential and sensitivity of geologic formations crossed by the proposed route. The proposed route was surveyed for paleontologic resources (Erathem-Vanir Geological 2008). Most of the proposed route is underlain by Condition 1 and 2 formations, indicating a high degree of sensitivity for the probability of scientifically important fossils. Eight new fossil localities were discovered and a number of previously documented localities were identified.

3.2.5 GRP Land Re-route Alternative

The surficial geological materials that would be crossed by the GRP Land Re-route Alternative consist of recent and older alluvium (Tweto 1979). The bedrock is composed of the Wasatch Formation (**Table 3.2.1**). Only one oil and gas well was identified within 400 feet of the re-route (377 feet east of approximate MP ALT-1.2). It was an exploratory well that was plugged and abandoned in 1995 (COGCC 2008). There are no gravel pits or other mining activities close to the re-route (Colorado Division of Reclamation Mining and Safety 2008). There are no geologic hazards due to seismicity, landslides, or subsidence. The potential flood hazard would be greater since the re-route would cross 5 more drainages. The paleontological potential would be low since the re-route would cross alluvial material at the surface and most likely within the depth of excavation.

3.3 Soils

The soil baseline characterization for the proposed Project route in Colorado is based on Soil Survey Geographic (SSURGO) database review and analyses. Field mapping methods using national standards are used to construct the soil maps in the SSURGO database. Mapping scales generally range from 1:12,000 to 1:63,360. SSURGO is the most detailed level of soil mapping done by the NRCS. SSURGO digitizing duplicates the original soil survey maps. The map extent for a SSURGO dataset is a soil survey area (NRCS 2007a).

Sweetwater and Carbon counties in Wyoming do not have an NRCS correlated soil survey. General Soil Map (STATSGO) data are used for those areas where SSURGO data are unavailable. STATSGO data contain physical and chemical properties, as well as interpretative grouping for approximately 18,000 soil series recognized in the U.S (NRCS 2007b).

Soil resources within the proposed Project area have formed within the Cool Central Desertic Basins Mountains and Plateaus Major Land Resource Area (MLRA) 34A (NRCS 2006a). The physiography of the area is characterized by alluvial fans, piedmont plains, and pediments slope from the surrounding mountains that form broad intermountain basins. Elevations throughout this MLRA range from 6,200 to 7,200 feet amsl. The dominant soils are Orthents. They are shallow to very deep and medium to fine textured and have a frigid temperature regime, an aridic moisture regime, and mixed or montmorillonitic mineralogy. Torriorthents (Patent and Garsid series) and Haplargids (Diamondville and Fraddle series) are on piedmont plains, alluvial fans, and pediments. Torrifluvents are on floodplains. Shallow Torriorthents (Blazon and Haterton series) are on rough, broken slopes. Some Torriorthents (Elkol series) and Torrifluvents (Laney series) have a high content of exchangeable sodium.

A variety of soils occur across the proposed Project area. This soil variability stems primarily from a variety of parent materials as influenced by topography, aspect, elevation, vegetation, and differential rates of mineral weathering. The soils formed from alluvium, residuum, and colluvium parent materials derived from sandstones and shales.

The Rio Blanco County survey area consists of river basins and moderately to steeply sloping mountains. The proposed route originates near Piceance Creek. The Piceance Creek basin consists of a nearly level narrow valley floor with deep alluvial soils. The valley is bounded by steep, eroded areas of hills, ridges, and canyon sides with shallow soils and outcroppings of sandstone, shale, limestone, or siltstone. The White River Valley is a broad valley with deep alluvial, often hydric soils. The valley is surrounded by ridges, foothills, and mountainsides with shallow to moderately deep soils formed in residuum and colluvium.

The Moffat County survey area consists of river basins, rolling hills, and moderately to steeply sloping mountains. The proposed route crosses two of the rivers within the survey area, the Yampa and Little Snake. The Yampa River basin consists of a nearly level broad valley floor with deep alluvial soils and strongly rolling hills dissected by numerous creeks. The Little Snake River basin consists of a nearly level valley floor with deep alluvial soils and strongly rolling hills dissected by numerous intermittent creeks. Steep breaks are common in this basin. The mountainous areas consist of strongly sloping narrow to broad plateaus dissected by very steep-sided gulches dropping several hundred feet below the plateaus.

The Sweetwater County and Carbon County survey areas consist of shrublands on gently rolling to moderately steep slopes. The proposed route crosses the Willow and Sand Creek drainages in the south portion of Sweetwater County, while avoiding Willow Creek Rim. The proposed route would continue north through moderately sloping breaks and gradually transitions to gently rolling hills.

Appendix B contains a table listing the various soil types within the proposed Project area. The soils proposed to be disturbed are developing on a variety of slopes ranging from 1 to 90 percent. Some of these have a severe hazard of erosion by water. A propensity for gullying is common to selected soil types within the

proposed Project area. In Colorado, soil types such as Badland, Gullied Land, and Torrifluvents are typically eroded and often unvegetated. Maybell and Ryan Park soils would be encountered in Wyoming and Colorado. These soils are droughty and prone to wind erosion when disturbed. Hydric soils may be present on soils characterized by swales, floodplains, stream terraces, alluvial fans, alluvial flats, and valley floors. Soils such as Hagga are found in Colorado and Wyoming and are poorly drained with a fluctuating water table. A saline phase of the Battlement soil would be encountered in Colorado. The soils have saline soil properties, which can affect reclamation potential.

The U.S. Department of Agriculture NRCS defines prime farmland as land that has the best combination of physical and chemical characteristics for producing crops and that is available for these uses. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods. Approximately 207 acres of Prime Farmland would be crossed by the proposed route in Colorado. There would be no occurrences of Prime Farmland along the proposed route in Wyoming.

Topsoil depths in Colorado and Wyoming are listed in **Table 3.3-1** and **Table 3.3-2**, respectively. Topsoil depths along the proposed pipeline route were quantified by grouping the lower limit of the component soil-series A horizons into one of five groups: 0 to 6 inches, 6 to 12 inches, 12 to 18 inches, 18 to 24 inches, and greater than 24 inches.

Table 3.3-1 Topsoil Depth Along the Proposed Pipeline Route in Colorado (acres)

Proposed Action	County	0-6 inches	6-12 inches	12-18 inches	18-24 inches	>24 inches
Permanent Easement	Rio Blanco	108.0	62.4	25.8	18.4	10.4
Temporary Easement	Rio Blanco	54.6	31.7	12.6	8.7	5.2
TWAs	Rio Blanco	24.4	23.1	8.4	0.9	5.3
Permanent Easement	Moffat	185.0	134.5	7.6	8.0	16.1
Temporary Easement	Moffat	105.7	67.1	3.8	3.8	7.8
TWAs	Moffat	30.6	26.0	0.7	2.1	8.5
Totals[1]		**508.3**	**344.8**	**58.9**	**41.9**	**53.3**

[1]Does not include 51.6 acres for an off-ROW existing contractor/pipe yard or 5.5 acres for new and potentially widened access roads. Discrepancies in acreage totals are due to rounding.

Table 3.3-2 Topsoil Depth Along the Proposed Pipeline Route in Wyoming (acres)

Proposed Action	County	0-6 inches	6-12 inches	12-18 inches	18-24 inches	>24 inches
Permanent Easement	Sweetwater	170.5	100.8	24.1	0.3	19.0
Temporary Easement	Sweetwater	85.2	50.4	12.1	0.1	9.6
TWAs	Sweetwater	36.8	17.3	5.0	0.2	4.3
Permanent Easement	Carbon	21.3	12.6	0.0	0.0	0.0
Temporary Easement	Carbon	10.7	6.1	0.0	0.0	0.0
TWAs	Carbon	3.6	2.1	0.0	0.0	0.0
Totals[1]		**328.1**	**189.3**	**41.2**	**0.6**	**32.9**

[1]Does not include 0.8 acre for potential widening of existing access roads. Discrepancies in acreage totals are due to rounding.

Table 3.3-3 and **Table 3.3-4** list slope presented as classes based on the aggregate percentages of component soil series that are within a particular class. Because of the importance of slope to assess erosion hazards, a separate evaluation of slope of soils along the ROW was conducted. A complex query was used to reduce the large number of slope classes used by the NRCS to a more useable grouping. The analysis identified the average of the slope range provided for each soil series into one of five classes: 0 to 5 percent, 5 to 8 percent, 8 to 15 percent, 15 to 30 percent, and greater than 30 percent slopes.

Table 3.3-3 Slope Class Along the Proposed Pipeline Route in Colorado (acres)

Proposed Action	County	0-5%	5-8%	8-15%	15-30%	>30%
Permanent Easement	Rio Blanco	31.9	34.2	49.9	92.1	16.9
Temporary Easement	Rio Blanco	19.9	17.0	24.6	46.6	8.7
TWAs	Rio Blanco	7.7	8.2	9.3	28.7	8.2
Permanent Easement	Moffat	56.8	151.3	76.1	49.4	17.6
Temporary Easement	Moffat	29.9	82.1	37.2	29.8	9.2
TWAs	Moffat	13.6	26.0	9.1	11.5	7.7
Totals[1]		**155.8**	**318.8**	**206.2**	**258.1**	**68.3**

[1]Does not include 51.6 acres for an off-ROW existing contractor/pipe yard or 5.5 acres for new and potentially widened access roads. Discrepancies in acreage totals are due to rounding.

Table 3.3-4 Slope Class Along the Proposed Pipeline Route in Wyoming (acres)

Proposed Action	County	0-5%	5-8%	8-15%	15-30%	>30%
Permanent Easement	Sweetwater	166.0	0.6	66.1	68.8	13.2
Temporary Easement	Sweetwater	83.0	0.3	33.1	34.4	6.6
TWAs	Sweetwater	27.4	0.2	16.3	16.4	3.3
Permanent Easement	Carbon	32.2	1.0	0.7	0.0	0.0
Temporary Easement	Carbon	16.0	0.5	0.3	0.0	0.0
TWAs	Carbon	5.4	0.2	0.1	0.0	0.0
Totals[1]		**332.9**	**2.8**	**116.6**	**119.6**	**23.1**

[1]Does not include 0.8 acre for potential widening of existing access roads. Discrepancies in acreage totals are due to rounding.

3.3.1 GRP Land Re-route Alternative

Given the relative proximity of the GRP Land Re-route Alternative to within approximately 1.1 mile of the Proposed Action, the affected environment regarding soil types would be similar to those described for the Proposed Action except that it would cross 1.08 additional miles of the Maybell series, 0.45 additional miles of the Ryark-Maybell complex, 0.08 additional miles of Torriorthents-Torripsamments complex, and 0.32 fewer miles of the Morapos series. Other soil types crossed would be similar to the corresponding segment of the Proposed Action with less than 0.02 miles difference.

3.4 Water Resources

3.4.1 Surface Water

3.4.1.1 Watersheds and Waterbodies

The proposed pipeline would be located within two major surface water regions: the Upper Colorado River Basin and the Great Divide Basin (**Figure 3.4-1**). Within the Upper Colorado River Basin, the primary waterbodies include the White and Yampa rivers, Piceance Creek (tributary to the White River), and the Little Snake River (tributary to the Yampa River). Spring Creek, Deception Creek, Bob Hughes Creek, Strawberry Creek, and the Dry Fork of Piceance Creek are additional tributary streams important to surface water resources along the proposed pipeline route. The Wyoming portion of the assessment area contains a number of small ephemeral or intermittent streams that form tributaries to Muddy Creek, which flows into the Little Snake River outside the Project area near Baggs, Wyoming. **Table 3.4-1** further describes the watersheds in the proposed Project area.

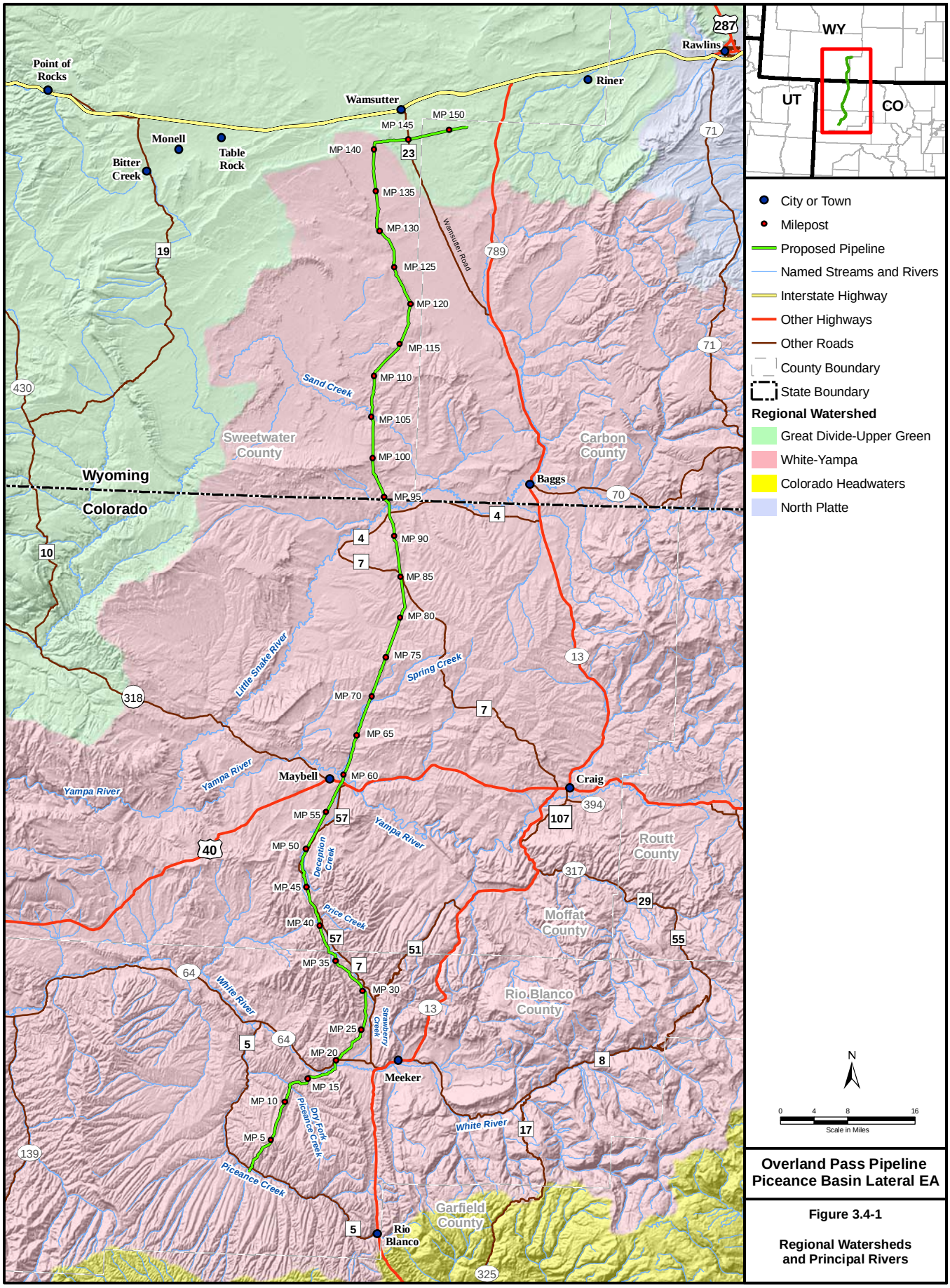
Table 3.4-1 Watershed Characteristics in the Proposed Project Area

Regional Watershed / Sub-basin	Begin MP / End MP	General Characteristics	Stream Gage Location: High Flow / Low Flow, cubic feet per second (cfs) [1]
Upper Colorado River Basin			
White River	0.0 / 36.5	Benches, mesas; cliffs and hillslopes with alluvial fans and stream valleys. Areas of low relief mix with areas of high relief.	White River below Meeker: 1,800 (June) / 336 (January)
Yampa River	36.5 / 73.5	Rolling sagebrush steppes with cuestas and hillslopes; alluvial fans and terraces near toeslopes.	Yampa River near Maybell: 6,210 (May) / 243 (September)
Little Snake River	73.5 / 142.4	Rolling sagebrush steppes bordering shaly benches and mesas; alluvial fans and gully systems below cliffs and hillslopes.	Little Snake River near Dixon, Wyoming: 2,560 (May) / 27 (October)
Great Divide Basin			
Closed Basin	142.4 / 152.0	Broad plains with dispersed dry lakes and sand dunes, floodplains and terraces, and rolling alluvial fans. Streams are ephemeral or weakly intermittent. Seasonally inundated lakes concentrate soluble salts.	Separation Creek near Riner: 9.7 (May) / 0.0 (September)

[1]Flow values are monthly averages in cubic feet per second, for the highest average flow month and the lowest average flow month.

Source: Chapman et al. 2004; Chapman et al. 2006; USGS 2008.

The Great Divide Basin is a large, enclosed basin (having no external drainage) in southwestern Wyoming. Only the proposed ROW immediately south of Wamsutter is located in the Great Divide Basin (**Figure 3.4-1**). The remainder of the project area primarily drains westward to the Green River. **Appendix A** further lists the waterbody crossings along the proposed Project route.



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Piceance Basin Lateral EA

Figure 3.4-1

Regional Watersheds and Principal Rivers

Based on USGS maps, approximately 60 waterbodies would be crossed by the proposed Project. Of these, 55 are intermittent or ephemeral. Five perennial stream crossings would include the Little Snake River, Yampa River, White River, Piceance Creek, and the Dry Fork of Piceance Creek. Of these, the Dry Fork crossing would be a minor crossing (less than 10 feet wide), the Little Snake River, White River, and Piceance Creek crossings would be intermediate (between 10 and 100 feet wide), and the Yampa River would be a major crossing (over 100 feet wide). There are no impaired waters along the proposed Project, nor are there waterbodies designated as Section 10 navigable water under the Rivers and Harbors Act, as defined by 33 CFR, Section 328.

The proposed Project closely parallels Spring Creek and Deception Creek at locations immediately upstream of the Yampa or White rivers. In addition to the streams, rivers, and other features identified above, a number of springs are located near the proposed ROW. These include a series of springs along Strawberry Creek, close to the proposed ROW and downgradient of it between MP 30.8 and MP 31.8. A stockpond with a nearby area of wetlands or seeps occurs in Coyote Basin, between MP 40.0 and MP 41.0. A spring also is located in this vicinity approximately 1 mile to the west, upgradient of the proposed ROW. Further north, the proposed ROW closely parallels an ephemeral tributary from approximately MP 44.0 to MP 46.3. The proposed ROW then closely parallels Bob Hughes Creek along the toe of a small ridge, from approximately MP 46.3 to MP 46.7. From MP 48.3 to MP 52.3, the proposed ROW closely parallels Deception Creek and would cross at MP 49.9 and again at MP 52.1, immediately upstream of Dry Lake Reservoir. Spring Creek is located alongside the proposed ROW from approximately MP 62.5 to MP 66.0. Barber Spring is located near MP 64.5, and Omsted Spring is located along the proposed ROW at MP 65.5. Mayberry Spring is located about 150 yards upstream of the proposed ROW at MP 78.0, where the pipeline would cross Greasewood Gulch. An unnamed spring is located downstream of the gulch, approximately 0.7 mile downgradient of the proposed ROW. Clayton Spring is located in a small draw, approximately 0.5 mile east of proposed MP 78.5.

In Wyoming, Lower Willow Creek Spring borders the stream channel approximately 0.5 mile west of MP 108.4, upstream and approximately 100 feet lower than the proposed ROW through the vicinity. Near Courthouse Butte, the proposed ROW is located between two parallel ephemeral channels from approximately MP 112.5 to MP 113.5. These are headwater channels that drain southwestward back to Willow Creek. Dad Dail Reservoir and Stratton Springs are located on the other side of the small divide, on South Barrel Springs Draw about 1 to 2 miles east of approximately MP 115.3 on the proposed ROW. The proposed ROW is on a higher bench through this area, with minimal drainage pathways leading to these water features. From MP 133.0 to MP 142.0, the proposed ROW would cross a small enclosed basin with a number of ephemeral tributaries leading to dry lakes such as the Red Lakes and other similar features. From approximately MP 145.0 to the northern terminus, the proposed ROW would cross ephemeral channels in another enclosed basin. These lead to several other dry lakes such as Fivemile Lake.

In addition to these identifiable features, a number of gully systems occur along the proposed ROW. These are particularly common in the eroding tablelands generally between Maybell, Colorado, and approximately MP 120.0.

3.4.1.2 Floodplains

In Rio Blanco County, Colorado, Federal Emergency Management Agency (FEMA) has identified Zone A flood hazard areas (100-year, 24-hour regulatory floodplains) in narrow delineations along the proposed ROW at Piceance Creek, the Dry Fork of Piceance Creek, the White River, and along Strawberry Creek to slightly upstream of Cave Gulch (MP 32.0) (FEMA 2008). In Moffat County, Colorado, and Sweetwater County, Wyoming, readily available maps depicting Zone A floodplain delineations have not been identified.

3.4.1.3 Water Supply Watersheds

The proposed route would not cross any protected public water supply watershed systems. No potable public water intakes are located within 3 miles downstream of any of the perennial stream crossings. Drinking water

sources at Maybell (downstream of the proposed Yampa River crossing) consist entirely of privately owned domestic wells (Poirot 2005). Based on review of USGS topographic maps, the proposed pipeline route would cross one aqueduct in Colorado at about MP 60.9.

No waterbodies crossed by the proposed pipeline route receive effluent from municipal or industrial wastewater treatment facilities within a 3-mile radius of the proposed crossing locations (USEPA 2004).

3.4.1.4 Sediment Contamination

The proposed pipeline route would not cross any watersheds containing areas of probable concern for sediment contamination (USEPA 2004). Additionally, none of the waterbodies crossed by the proposed pipeline route are known to contain contaminated sediments (Vranka 2004; Parker 2004).

3.4.2 Groundwater

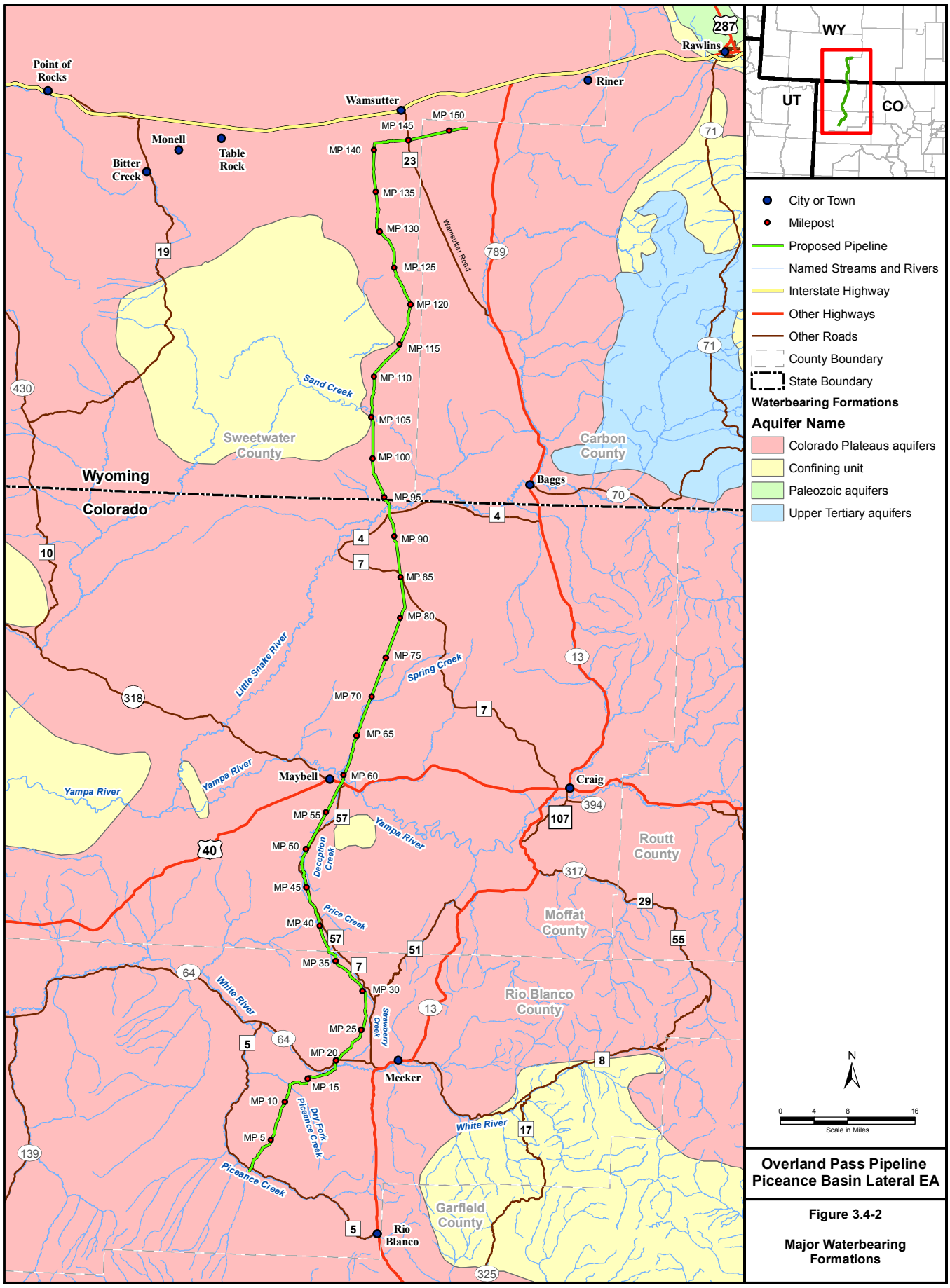
The proposed Project would be located within the Sand Wash Basin of northwestern Colorado and the Washakie Basin of Wyoming, sub-basins of the Wyoming Basin physiographic province (Thornbury 1965). The Project also would lie within the Colorado Plateaus physiographic province. The major water bearing formations underlying the proposed Project area are part of the Colorado Plateaus aquifer system (Thornbury 1965; Whitehead 1996) and the Upper Colorado River Basin Aquifer System (Whitehead 1996).

The Colorado Division of Water Resources well permit database indicates that there are approximately 2,157 bedrock aquifer wells of record in the Sand Wash Basin. Records indicate that 90 percent of the water supply wells in the basin are 500 feet or less in depth. The average well depth is 245 feet, and the deepest well of record is 3,000 feet below ground surface (bgs).

Aquifers within the proposed project area consist mainly of consolidated sedimentary bedrock formations. **Figure 3.4-2** illustrates the locations of major water-bearing geologic formations that would underlie the proposed Project. Some of these aquifers overlap each other at varying depths. In addition to sedimentary rocks, narrow stream-laid deposits of sands and gravels form alluvial groundwater sources along major drainages. Significant alluvial aquifers occur along the Yampa and White rivers and Strawberry Creek. Alluvial aquifers also occur along the Little Snake River and Spring Creek, both tributaries to the Yampa River. Depth to water is shallow in these aquifer zones (often less than 20 feet). Water quality varies, but is typically suitable for domestic and agricultural uses.

Along the proposed Project route, primarily in Moffat County, Colorado, near the southeastern margins of the Washakie Basin, relatively small yields are supplied by aquifer zones of the Laney Member of the Green River Formation (Whitehead 1996; FERC 2005b). The Laney aquifer is the uppermost aquifer present locally in the Colorado Plateau Aquifer system. This aquifer consists of fractured sandstone beds assigned to the Laney Member of the Green River Formation. The sandstone beds of the uppermost Laney Member yield sufficient water for domestic and livestock-watering supplies. Water in the Laney aquifer is fresh to slightly saline.

The Wasatch Formation is the primary source of water to wells along the proposed Project route. A member of the Colorado Plateau aquifer system, the Tertiary-age Wasatch-Fort Union aquifer is the uppermost regional aquifer in the Sand Wash Basin. Depth to groundwater varies, but it is often under 200 feet bgs. Wells in the valley bottoms, west of the Little Snake River, indicate that water levels in the Wasatch-Fort Union aquifer are at or near land surface. East of the Little Snake, water levels in the Wasatch zone are generally below the land surface by several to 100 feet (Whitehead 1996). Reported well-yield values range from a few tenths of a gallon per minute (gpm) to 2,700 gpm. Ninety percent of the water-supply wells of record have a reported yield of 18 gpm or less, suggesting these wells are intended for domestic or livestock purposes. Hydraulic conductivities for the Wasatch-Fort Union aquifer range from 0.02 to 938 feet per day, based on aquifer pump tests (Whitehead 1996).



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Piceance Basin Lateral EA

Figure 3.4-2

Major Waterbearing Formations

Published water quality data for the Sand Wash Basin are minimal. Glover et al. (1998) indicate that the total dissolved solids (TDS) in the recharge areas for the Wasatch-Fort Union aquifer are less than 500 milligrams per liter (mg/l), but concentrations increase down the flow paths. Based on this interpretation, good water quality should exist along the western and eastern margins of the basin, with increasing TDS toward the Little Snake River (Whitehead 1996).

South of the Yampa River, sandstones of the Browns Park Formation also yield water. On a regional basis within Colorado, these units have been grouped with the Mesa Verde aquifer system (Robson and Banta 1995; FERC 2005b). In the Piceance Basin of Rio Blanco County and southern Moffat County, the Uinta Formation and the Parachute Creek Member of the Green River Formation contain the major aquifer zones. Regionally, these are part of the Uinta-Animas aquifer system (Robson and Banta 1995; FERC 2005b). Intergranular spaces in these rocks have mostly been filled with bicarbonate cements, but numerous fractures produce substantial permeability. Dissolved solids concentrations in the upper part of the aquifer range from 500 to over 1,000 mg/l.

Springs are known to occur along the southern half of the proposed route, and would likely occur at isolated locations in the northern portion as well. A number of these are located in or adjacent to alluvial deposits, at the intersection of the channel and groundwater flow within the stream terrace system. Others occur on hillsides at a distance upgradient from the proposed route. Springs in these locations are not likely to be affected by construction practices. The two closest mapped springs occur at MP 64.5 and MP 65.5, the Barber and the Omsted springs, respectively. Both springs are more than 2,000 feet from the centerline.

3.4.3 Wetlands

Wetlands adjacent to other waters of the U.S., such as streams, also are considered to be waters of the U.S. In addition, and as used herein, the term “wetlands” has a regulatory definition as defined in 33 CFR 328, 7(b). The term “wetland” is defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.” Note that the frequency and duration of saturation may vary by geographical region, and is largely dependent upon local climatic conditions.

Riparian areas form a wetland transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, glacial potholes, and the shores of lakes and reservoirs with stable water levels are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not exhibit the presence of vegetation dependent upon free water in the soil.

Based on field wetland surveys in Colorado and National Wetland Inventory (NWI) analysis in Wyoming (**Table 3.4-2**), wetlands occupy approximately 7.7 acres of the proposed pipeline ROW. Based on field surveys there are approximately 5.2 acres of wetlands along the proposed pipeline ROW in Colorado (West Water Engineering [WWE] 2008). The NWI analysis for Wyoming identified approximately 2.5 acres of wetlands in Sweetwater and Carbon counties. None of the proposed aboveground facilities are located within wetlands surveyed by OPPC.

Further field studies completed in the summer of 2008 and submitted after this EA was distributed to the public indicated that the pipeline would potentially cross a total of 29 wetlands. These included 20 previously delineated wetlands from the WIC Piceance and Entrega pipeline projects. The remaining 9 wetlands will be delineated by OPPC biologists prior to submission of the data to the USACE for 401/404 permitting. Most wetlands identified within the pipeline corridor and ancillary facilities are associated with perennial streams and springs. Wetlands within or adjacent to the proposed pipeline corridor are relatively small, and range in size from less than 0.1 acre to approximately 1.0 acre.

Wetland vegetation communities occurring along the proposed Project area include emergent wetland communities. The most common type of wetland along the proposed Project area is emergent wet meadow. Emergent wetlands are dominated by rooted herbaceous vegetation. Common water sources for wetland communities include sub-irrigation in alluvial settings, springs at surface/bedrock interfaces, seepage from ditches and canals, irrigation runoff, and ponding in concave topography.

Table 3.4-2 Summary of Wetland Types Crossed by the Proposed Pipeline Route

State /County	Wetland Classification	Milepost	Acres
Colorado			
Rio Blanco	PEM	18.8	0.6
	PEM	19.3	1.0
	PEM	31.5	0.6
	PEM	32.5	0.2
Moffat	PEM	38.9	0.01
	PEM	40.8	0.2
	PEM	41.3	0.4
	PEM	46.1	0.2
	PEM	59.2	0.1
	PEM	77.8	0.3
	PEM	93.6	0.2
	PEM	59.5	1.0
	PEM	83.5	0.4
Colorado Total			**5.2**
Wyoming			
Sweetwater	PEM	105.2	0.3
	PEM	107.6	0.3
	PEM	143.6	0.1
	PEM	143.8	1.1
	PEM	143.9	0.7
Wyoming Total			**2.5**
Total			**7.7**

3.4.4 GRP Land Re-route Alternative

Water resources along the GRP Land Re-route Alternative are similar to those described for the Proposed Action. Six ephemeral streams would be crossed by the alternative route; all of which are small streams that are headwater tributaries to Bighole Gulch. Similar to the ephemeral streams listed near MP 88 for the

Proposed Action in **Appendix A, Table A-1**, the beneficial use of these six tributaries is Aquatic Life Cold 2 (not capable of sustaining coldwater biota), Recreation 2 (suitable for wading or other streamside activities), and agriculture (including livestock watering).

Given the relative proximity of the GRP Land Re-route Alternative to within approximately 1.1 mile of the Proposed Action, the affected environment regarding groundwater would be the same as described for the Proposed Action.

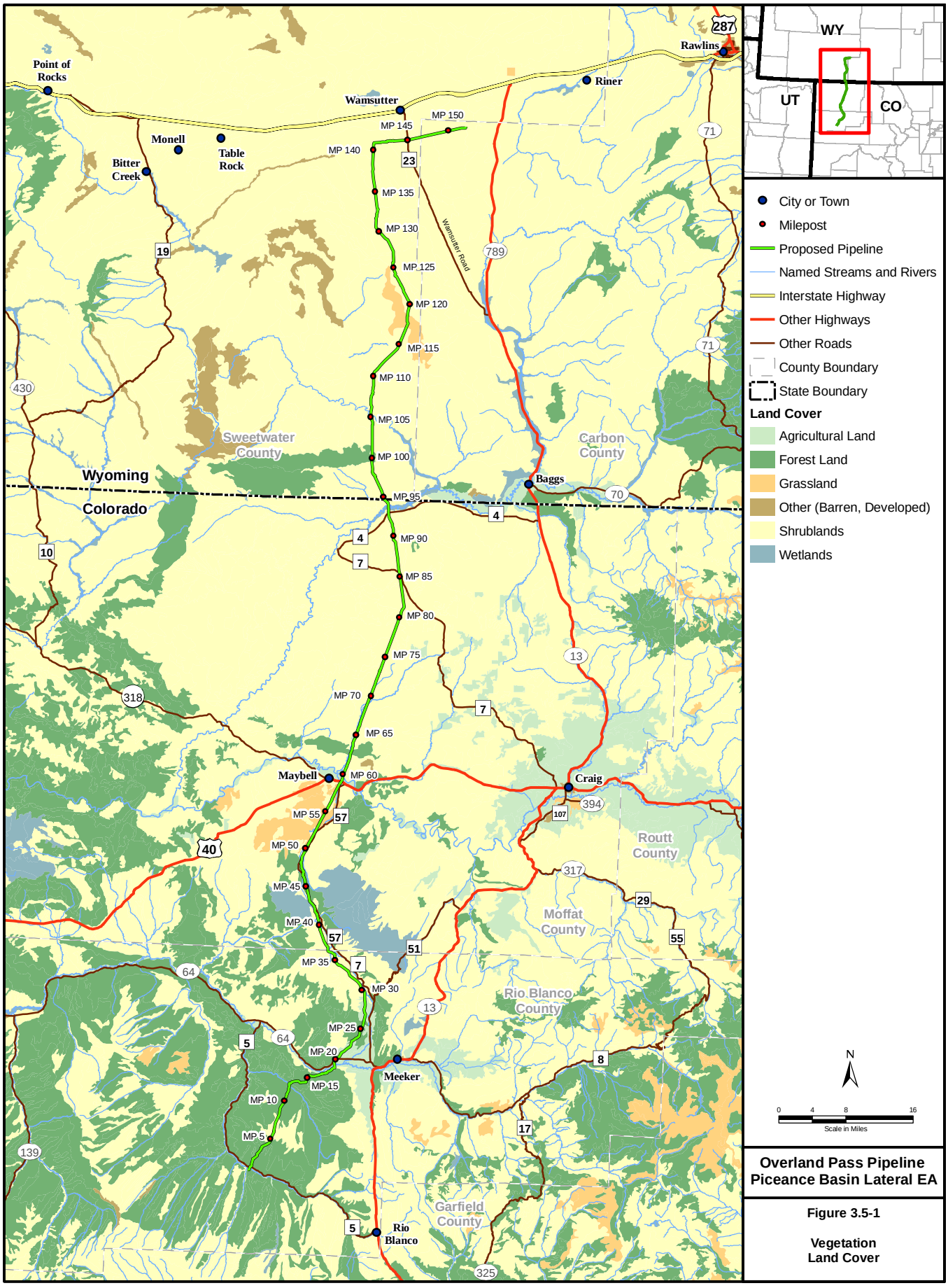
3.5 Vegetation

3.5.1 Vegetation Communities

Five general vegetation communities characterize the proposed Project area: shrub-scrub, woodlands, agricultural land, grassland, and wetlands. **Figure 3.5-1** depicts the distribution of these vegetation communities throughout the vicinity of the proposed Project and a general description of each is presented in **Table 3.5-1**.

Table 3.5-1 Vegetation Communities Crossed by the Proposed Pipeline Route

Vegetation Type	Sub-Community	Common Species
Shrub-scrub	Sagebrush	big sagebrush, black sagebrush, sand sagebrush, broom snakeweed, rabbitbrush, prickly pear, mountain mahogany, horsebrush, spiny hopsage, ephedra, saltbush, Indian ricegrass, needle and thread grass, western wheatgrass, Great Basin wildrye, crested wheatgrass, cheatgrass, and yarrow
	Salt desert scrub/ greasewood	greasewood, saltbush, spiny hopsage, budsage, winterfat, and western wheatgrass
	Foothill shrub-scrub	mountain mahogany, scrub oak (Gambel oak), serviceberry, mountain snowberry, western wheatgrass, and elk sedge
Woodlands	Pinyon-juniper woodland	Colorado pinyon pine, Utah juniper, one-seed juniper, Rocky Mountain juniper, big sagebrush, black sagebrush, mountain mahogany, snakeweed, bitterbrush, little rabbitbrush, Sandberg bluegrass, needle and thread grass, Indian ricegrass, squirreltail, western wheatgrass, stemless golden weed, oval buckwheat, yellow-eye cryptantha, scarlet gilia, dwarf cateye, brittle prickly pear, claretcup, and heartleaf twistflower
Agriculture	Pasture/hay/ orchard	irrigated hay and alfalfa fields, livestock feeding areas, horticultural areas
Grassland	Sagebrush steppe	big sagebrush, black sagebrush, broom snakeweed, rabbitbrush, prickly pear, mountain mahogany, ephedra, fourwing saltbush, winterfat, blue grama, bottlebrush squirreltail, Indian ricegrass, needle and thread grass, western wheatgrass, cheatgrass, Great Basin wildrye, yarrow, viscid rabbitbrush, and mountain snowberry
Wetlands	Emergent	baltic rush, inland saltgrass, alkali sacaton, sedges, bluejoint reedgrass, and bent grass
	Scrub-shrub	willow, thinleaf alder, river birch, and red-osier dogwood
	Littoral/playa	Due to their ephemeral nature, the entire composition of these wetlands can change over short periods of time
	Shoreline and aquatic bed	narrowleaf cottonwood, salt cedar, willow, thinleaf alder, river birch, red-osier dogwood, wild rose, serviceberry, and snow berry



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Piceance Basin Lateral EA

Figure 3.5-1

Vegetation
Land Cover

The two predominant vegetation communities that would occur in the proposed Project area are shrubland and woodland, comprising 72 and 15 percent of the vegetated lands based on miles crossed, respectively (**Table 3.5-2**).

Table 3.5-2 Vegetation Cover Types Along the Proposed Pipeline Route

Vegetation Cover Types	Miles Crossed
Shrub-scrub	109.9
Woodlands	22.5
Agricultural Land	10.4
Grasslands	7.9
Wetlands	1.5
Total	**152.2**

Source: CDOW 1998; WYGAP 1996.

3.5.1.1 Shrub-scrub

Shrubland accounts for approximately 72 percent of vegetation cover that would be crossed by the proposed pipeline route. This community designation includes sagebrush, salt desert shrub/greasewood, and foothills shrub-scrub sub-communities. Sagebrush is the most widespread shrubland sub-community. This vegetation type is characterized by an overstory of big sagebrush and an understory of grasses, forbs, and smaller shrubs. Salt desert shrub/greasewood occurs as a mosaic within sagebrush communities, frequently on the fringes of playas, desert lakes, ponds, rivers, and streams. Foothills shrub-scrub communities consist of both mountain mahogany and scrub oak sub-communities. This deciduous shrub forms dense thickets with sparse understory vegetation. It typically occurs on rocky or shallow soils and is often associated with a limestone, sandstone, or shale substrate. In oak scrub, Gambel oak is the dominant shrub, comprising more than a quarter of the total vegetation cover. This sub community occurs along the length of the proposed Project, extending from Colorado into Wyoming on the western slope of the Rocky Mountains.

3.5.1.2 Woodlands

Woodlands occur along approximately 15 percent of the proposed pipeline route. Woodland sub-communities include pinyon-juniper and riparian woodland. Colorado pinyon pine and Utah juniper dominate the pinyon-juniper woodland plant community. The pinyon-juniper sub-community is highly competitive and supports a highly variable understory. The pinyon component of this sub-community increases at higher elevations. The riparian woodland sub-community occurs adjacent to surface waters and is characterized by the presence of narrow leaf cottonwood and willow.

3.5.1.3 Agriculture

Agricultural land occurs along approximately 7 percent of the proposed pipeline route. This community is primarily comprised of irrigated hay and alfalfa fields. These areas are used primarily for livestock grazing.

3.5.1.4 Grassland

Grassland occurs along approximately 5 percent of the proposed pipeline route, with sagebrush steppe being the dominant sub-community. Sagebrush steppe is semi-closed steppe characterized by an overstory of sagebrush and understory of grasses, forbs, and smaller shrubs. Grass species comprise more than

50 percent of the species composition in this community; big sagebrush is the dominant shrub component throughout.

3.5.1.5 Wetlands

Wetlands occur along less than 1 percent of the proposed pipeline route. Wetlands crossed by the proposed pipeline route are discussed in more detail in Section 3.4.3.

3.5.2 Noxious Weeds

Noxious weeds are most prevalent in areas of prior surface disturbance, such as agricultural areas, roadsides, existing utility ROWs, and wildlife or livestock concentration areas. Prevention of the introduction or spread of noxious and invasive weeds is a high priority to federal, state, and county agencies. Under EO 13112 (FR 1999), Invasive Species, federal agencies shall not authorize, fund, or carry out actions likely to cause or promote the introduction or spread of invasive species in the U.S. or elsewhere unless it has been determined that the benefits of such actions outweigh the potential harm caused by invasive species and that all feasible and prudent measures to minimize the risk of harm will be taken in conjunction with the actions.

The terms “noxious weed” and “invasive weed” are often used interchangeably to describe any plant that is unwanted and grows or spreads aggressively. The term “noxious weed” is legally defined under both federal and state laws. Under the Federal Plant Protection Act of 2000 (formerly the Noxious Weed Act of 1974 [7 USC 2801-2814]), a noxious weed is defined as “any plant or plant product that can directly or indirectly injure or cause damage to crops, livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the U.S., the public health, or the environment” (Animal and Plant Health Inspection Service 2000). The Federal Plant Protection Act contains a list of 137 federally restricted and regulated noxious weeds, as per CFR Title 7, Chapter III, Part 360, including 19 aquatic and wetland weeds, 62 parasitic weeds, and 56 terrestrial weeds. Each state is federally mandated to uphold the rules and regulations set forth by this act and manage their lands accordingly.

In addition to federal noxious weed lists, each state crossed by the proposed project maintains a list of regulated and prohibited noxious and invasive weed species. Colorado regulates noxious and invasive species through the Colorado Noxious Weed Act, which classifies noxious weeds into three lists, A, B, and C (35 CRS 5.5 101-119). Each list has specific control requirements, with the most stringent requirements for those species found on List A. Only List A species are required by law to be controlled (Colorado Department of Agriculture 2007). County weed control boards or districts are present in most counties crossed by the analysis areas. These county weed control boards monitor local weed infestations and provide guidance on weed control. The species that are managed and regulated by the state and county agencies are included in **Appendix C**.

The three BLM field offices also provided lists of noxious weed species having the potential to occur along the proposed ROW (**Appendix C**). The BLM tries to manage and control the spread of these species. In total, there are 20 species included on these lists, of which 14 may occur in the proposed Project area in Colorado and 16 may potentially occur within the proposed Project area in Wyoming.

The states of Colorado and Wyoming also maintain similar, but not identical, lists of designated noxious weed species (**Appendix C**). In total, there are 42 noxious weed species that potentially occur within the proposed Project area in Colorado and 24 noxious weed species that potentially occur within the proposed Project area in Wyoming.

Additionally, field surveys were conducted for noxious weeds in 2007 (WWE 2008) and the findings are summarized in **Appendix C**.

3.5.3 Special Status Plant Species

In light of potential environmental consequences to special status plant species, a detailed analysis including historical occurrences within the region as well as a geologic and soil analysis of the proposed route was conducted to determine if sensitive plant species would be affected by the proposed Project.

In accordance with the Section 7 of the ESA, the lead agency (in this case, the BLM), in coordination with the USFWS must ensure that any action authorized, funded, or carried out does not jeopardize the existence of a federally listed threatened or endangered species, or result in the adverse modification of the designated critical habitat of a federally listed species. For the purpose of complying with Section 7(a)(2) of the ESA, BLM initiated informal consultation with the USFWS on February 8, 2008.

In addition, as stated in Special Status Species Management, BLM Manual 6840 (BLM 2001), it is BLM policy "to conserve listed species and the ecosystems on which they depend, and to ensure that actions requiring authorization or approval by the BLM are consistent with the conservation needs of special status species and do not contribute to the need to list any special status species, either under the provisions of the ESA, or other provisions" identified in Policy 6840.

A total of 18 sensitive plant species were originally identified as potentially occurring within the proposed Project area. These species, their associated habitats, and their potential for occurrence along the proposed route are summarized in **Appendix D**. Occurrence potential along the proposed route was evaluated for each species based on its habitat requirements and/or known distribution. Based on these evaluations, six BLM sensitive species (park rockcress, ephedra buckwheat, Utah genetian, narrow-leaf evening primrose, Rollins cryptanth, and Western prairie-fringed orchid) were eliminated from detailed analysis. The rationale for eliminating these species from further analysis is summarized in **Appendix D**.

Several of the threatened, endangered, and special status (TESS) plant species listed in the tables are only associated with habitats found in specific geological formations. Two federally listed plants species, Dudley Bluffs bladderpod, and Dudley Bluffs twinpod, and one BLM sensitive plant species, Piceance bladderpod, are found only in the white shale outcrops of the Green River Formation at elevations between 6,000 to 8,600 feet. Potential habitat for these plants exists in PL Gulch, Dry Fork of Piceance Creek, Hay Gulch near the White River, and the Little Snake River. Other TESS plants that potentially could be found in the proposed Project area are less restricted to geologic formations but are strongly associated with certain habitat types. One federally listed plant species, Ute ladies'-tresses, and three BLM sensitive plant species, many-stemmed spider-flower, persistent sepal yellowcress, and Ownbey's thistle, are often found in riparian or semi-moist environments. The remaining BLM sensitive plant species that potentially could be expected in the proposed Project area (Nelson milkvetch, Gibben's penstemon, and contracted Indian ricegrass) are plants generally associated with drier environments found in the sagebrush and pinyon-juniper plant communities.

3.5.4 GRP Land Re-route Alternative

Given the relative proximity of the GRP Land Re-route Alternative to within approximately 1.1 mile of the Proposed Action, the affected environment regarding vegetation would be similar to that described for the Proposed Action. However, the GRP Land Re-route Alternative would occur in areas where the vegetation communities have not been recently disturbed through construction activities, whereas the Proposed Action route would occur in areas where the vegetation communities have been recently affected by pipeline construction and revegetation activities. During the biological surveys conducted in 2008, the only noxious weed observed in the vicinity of the alternative route was scattered cheatgrass (*Bromus tectorum)* located throughout the proposed alternative corridor; no special status plants were observed along the alternative route. The presence of sparse cheatgrass in the vicinity is common throughout the landscape and is likely to occur in the re-route area.

3.6 Wildlife, Aquatic Resources, and Special Status Species

3.6.1 Wildlife

The predominant wildlife habitats along the proposed pipeline route consist of shrub-scrub (sagebrush, salt desert shrub/greasewood, mountain mahogany), woodlands (pinyon-juniper, riparian), agricultural land, grassland (sagebrush steppe, mixed grass prairie, short-grass prairie), and wetlands. These vegetation types support a diversity of wildlife species and are discussed in detail in Section 3.5.1, Vegetation. This section focuses on species of high economic and/or recreational importance and those that are considered sensitive to human disturbance.

3.6.1.1 Big Game

The primary big game species that occur within the proposed Project area are elk, mule deer, and pronghorn. White-tailed deer also could be present. Certain habitat ranges for these species are considered crucial for maintenance of game populations. In Wyoming, WGFD and the BLM have established several categories based on seasonal use of the habitat. For example, severe winter range areas are considered essential in determining a game population's ability to maintain itself at a certain level over the long term. These areas may not usually be a part of a herd's range, but are used as survival areas during extremely harsh winters when no alternative ranges or habitats are available. Likewise, the CDOW has identified severe winter ranges for elk, mule deer, and pronghorn in Colorado.

Elk inhabit a variety of habitats along the proposed Project route including grassland, shrubland, coniferous forests, aspen, and, to a lesser extent, agriculture and pastureland. Approximately 29.4 miles of severe winter range for elk would be crossed by the proposed Project route in Moffat County in western Colorado. No elk severe winter range would be crossed in Rio Blanco County. One severe winter range area of particular importance along the proposed Project route was identified by the CDOW. This area occurs from the north end of the Deception Creek Canyon in Moffat County through the Spring Creek Canyon, north of the Yampa River. A considerable portion of this critical area is located on the Bitter Brush SWA. No elk severe winter range would be crossed by the proposed Project route in Wyoming.

Mule deer occur throughout the majority of the proposed Project region, inhabiting virtually all vegetation types, but reach the greatest densities in shrublands on rough, broken terrain, which provides abundant browse and cover habitat. Approximately 24.0 miles of severe winter range for mule deer would be crossed by the proposed Project ROW in Rio Blanco and Moffat counties in Colorado, including one important winter range, as described above for elk. In addition, approximately 3.5 miles of crucial winter range would be crossed by the proposed Project route in Sweetwater County in southern Wyoming.

Pronghorn are generally found in prairie grassland and semi-desert shrubland habitats on flat to rolling terrain with good visibility. They are most abundant in short- or mid-grass prairies and are least common in xeric habitats. Approximately 12.3 miles of severe winter range for pronghorn would be crossed by the proposed Project route in Moffat County in western Colorado, including one important wintering area, as described above for elk. In addition, approximately 4.5 miles of crucial winter range would be crossed by the proposed Project route in Sweetwater County in southern Wyoming. The proposed route crosses pronghorn migration corridors at MP 93.3, MP 122.34, and MP 127.66.

3.6.1.2 State Wildlife Areas

In Colorado, the proposed pipeline route would cross two SWAs: the Piceance Creek SWA and Bitter Brush SWA (both owned by the CDOW). The Piceance Creek SWA would be crossed by the proposed pipeline at two locations in the area immediately south of the White River (MP 11.8 to MP 12.5 and MP 13.0 to MP 15.9). The Bitter Brush SWA is located along Deception Creek, south of the Yampa River (MP 55.0 to MP 58.0 and MP 58.3 to MP 58.9). Both of these SWAs constitute a portion of the big game severe winter range areas

described above. No Wildlife Habitat Management Areas would be crossed by the proposed route in Wyoming. State lands are discussed further in Section 3.7, Land Use.

The Piceance Creek SWA was purchased by the CDOW to provide hunting opportunities and winter range for deer and elk. The Piceance Creek SWA contains suitable habitat for nesting raptors (including American peregrine falcon, eagles, and northern goshawk), sage-grouse, and mountain plover. The SWA also provides potentially suitable habitat for special status plant species such as Piceance bladderpod, Dudley Bluffs bladderpod, narrow-stem gilia, Dudley Bluffs twinpod (a.k.a. Piceance twinpod), and Ute ladies'-tresses (FERC 2005b).

Small Game Species

Small game species that occur within the proposed Project area include upland game birds, waterfowl, furbearers, and other small mammals. Furbearers include beaver, muskrat, mink, badger, bobcat, coyote, and red fox. Small game species include greater sage-grouse, mourning dove, white-tailed jackrabbit, desert cottontail, Nuttall's cottontail, and a number of migratory waterfowl. The greater sage-grouse is considered the most sensitive small game species along the proposed Project route and is discussed further as a special status species in **Appendix D**.

Nongame Species

A diverse number of nongame species (e.g., small mammals, raptors, passerines, amphibians, and reptiles) occupy a variety of trophic levels and habitat types along the proposed pipeline route. Common wildlife species include small mammals such as bats, voles, squirrels, gophers, prairie dogs, woodrats, and mice. These small mammals provide a substantial prey base for predators in the area including larger mammals (coyote, badger, bobcat), raptors (eagles, buteos, accipiters, owls), and reptiles (FERC 2005a,b).

Raptors and Other Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1981, as amended (16 USC Section 703-712) and EO 13186 (FR 2001). The MBTA serves to protect migratory birds from deleterious impacts. EO 13186 was enacted to, among other things, ensure that environmental analyses of federal actions evaluate the impacts of actions and agency plans on migratory birds.

Other elements of EO 13186 state that the federal agency should restore and enhance the habitat for migratory birds and abate the detrimental alteration of the environment from pollution. EO 13186 also states that emphasis should be placed on species of concern, priority habitats, and key risk factors. Federally listed and other sensitive bird species are discussed in Section 3.6.3.

Migratory birds are considered integral to natural communities and act as environmental indicators based on their sensitivity to environmental changes caused by human activities. Some of the more visible bird species that occur within the proposed Project region are lark bunting, Brewer's sparrow, and chipping sparrow. Migratory bird species that use the shrub-scrub habitat type for nesting along the proposed Project route include Brewer's sparrow, sage sparrow, and sage thrasher (FERC 2005b). Grassland is frequented by such migratory birds as the horned lark, lark bunting, and vesper sparrow (Beidleman 2000). Common migratory birds within the woodland community (mainly pinyon-juniper) include the gray flycatcher, Bewick's Wren, chipping sparrow, and blue-gray gnatcatcher (FERC 2005b).

Representative raptor species that occur as residents or migrants within the proposed Project region include eagles (bald and golden eagles), buteos (red-tailed hawk, Swainson's hawk, ferruginous hawk), falcons (peregrine falcon, prairie falcon, American kestrel), accipiters (northern goshawk, Cooper's hawk, sharp-shinned hawk), owls (great-horned owl, burrowing owl, long-eared owl, short-eared owl, northern saw-whet owl), the northern harrier, and the turkey vulture. In order to assess current nest activity, OPPC

conducted raptor breeding surveys for the proposed Project during July and August 2007 and April and May of 2008 (WWE 2008). The bald eagle, golden eagle, northern goshawk, Swainson's hawk, ferruginous hawk, prairie falcon, and burrowing owl are discussed in detail in **Appendix D**.

The breeding raptor surveys were conducted to identify occupied territories or active nest sites located within 0.5 mile of the outside edge of the proposed construction ROW. Based on the results of the year 2007 and 2008 breeding raptor surveys, a total of 25 active nest sites (Colorado – 20, Wyoming – 5) were documented within 1 mile of the proposed route. The active nest sites were occupied by red-tailed hawk (10), golden eagle (2), burrowing owls (1), American kestrel (2), bald eagle (2), Cooper's hawk (1), Swainson's hawk (1), Sharp-shinned hawk (1), and great-horned owl (2); three nests were not identified to the species level.

3.6.2 Aquatic Resources

The proposed Project route would cross five waterbodies that support fisheries, including one that supports warmwater fisheries and four that support coldwater fisheries (**Table 3.6-1**). These fisheries are all in Colorado; no waterbodies that support fisheries would be crossed in Wyoming. No waterbodies are present within the boundaries of the proposed aboveground facilities; thus, there would be no impacts on fisheries at these locations.

Table 3.6-1 Fisheries Crossed by the Proposed Project

Waterbody	Milepost	Fishery Classification	Maximum Crossing Width	Proposed Crossing Method
Piceance Creek	0.28	Coldwater	25	Open Cut
Dry Fork Piceance Creek	12.01	Coldwater	<10	Dry Crossing
White River	19.31	Coldwater	75	HDD
Yampa River	59.53	Warmwater	140	HDD
Little Snake River	93.61	Coldwater	40	HDD

Sources. FERC 2005a,b; CH2M Hill Trigon, Inc. 2008.

Waterbodies that would be crossed by the proposed Project contain a variety of game and nongame fish species (CDOW 2008a; FERC 2005a,b; USFWS 2004a). Representative game fish species that occur in the vicinity of the proposed crossing of the Yampa River include smallmouth bass, channel catfish, and northern pike. Other non-game fish species having the potential to occur in the Yampa River near the proposed pipeline route include carp, fathead minnow, speckled dace, redside shiner, and bluehead sucker. Representative game species that occur in the White River include mountain whitefish, rainbow trout, brown trout, northern pike, channel catfish, and green sunfish. The Little Snake River supports a limited number of mountain whitefish and rainbow trout east of the proposed crossing below Baggs, Wyoming (FERC 2005b). Dry Fork Piceance Creek supports brook trout in non-drought years. Representative non-game species that occupy the White River, Little Snake River, Piceance Creek, and Dry Fork Piceance Creek include roundtail chub, speckled dace, redside shiner, mountain sucker, and flannelmouth sucker. The bluehead sucker, mountain sucker, roundtail chub, and flannelmouth sucker are discussed in detail in Section 3.6.3, Special Status Wildlife Species.

3.6.3 Special Status Wildlife Species

Special status species are those species for which state or federal agencies afford an additional level of protection by law, regulation, or policy. Included in this category are federally listed and federally proposed

species that are protected under the ESA, as amended, or are considered as candidates for such listing by the USFWS, and those species that are state-listed as threatened or endangered. For this EA, special status species also include those species that have been designated by the BLM as sensitive.

3.6.3.1 Terrestrial Animals

A total of 37 sensitive terrestrial species (mammals, birds, reptiles, and amphibians) were originally identified as potentially occurring within the proposed Project area. These species, their associated habitats, and their potential for occurrence along the proposed Project route are summarized in **Appendix D**. Occurrence potential along the proposed Project route was evaluated for each species based on its habitat requirements and/or known distribution. Based on these evaluations, six species (swift fox, yellow-billed cuckoo, Mexican spotted owl, trumpeter swan, Baird's sparrow, and boreal toad) were eliminated from detailed analysis (see **Appendix D** for rationale). The proposed Project would not affect these six species.

Northwestern Colorado has the largest population of greater sage-grouse in Colorado, containing approximately two-thirds of the sage-grouse counted in Colorado each year. Sagebrush habitats in northwest Colorado provide the largest concentration of high priority sagebrush habitat in the state. In fall 2007, CDOW defined core habitat areas for sage grouse in Colorado by considering factors such as proximity to leks, density of males on leks, and sagebrush patch size. These core areas, also referred to as high priority habitats, are the most critical to sage grouse and presumably other sagebrush obligates (CDOW 2008c).

3.6.3.2 Fish Species

Nine sensitive fish species were originally identified as potentially occurring within the Project area. These species, their associated habitats, and their potential for occurrence along the proposed Project route are summarized in **Appendix D**. The potential for occurrence at proposed stream crossings and downstream reaches was evaluated for each species based on its habitat requirements and/or known distribution. The proposed Project would cross designated critical habitat for the federally listed Colorado pikeminnow at the Yampa River crossing. This species has been found within the immediate vicinity of the proposed crossing in recent years by the CDOW (CDOW 2008b). The federally listed bonytail chub, humpback chub, and razorback sucker do not occur in the proposed Project area but are included in our detailed analysis based on potential water depletion activities (i.e., hydrostatic testing) associated with the proposed Project in the Colorado River Drainage (USFWS 2008). The closest occupied habitat for these three species is located at the following approximate distances downstream of the proposed crossings: 30 to 40 river miles downstream of the Yampa River crossing (razorback sucker, humpback chub, and bonytail chub); 70 river miles downstream of the White River crossing (razorback sucker); and at least 30 river miles downstream of the Little Snake River crossing (razorback sucker) (FERC 2005a,b).

3.6.4 GRP Land Re-route Alternative

The GRP Land Re-route Alternative proposes an alternative route for the pipeline through an area designated by CDOW as "core sage-grouse habitat" (CDOW 2008c). The proposed re-route travels within 0.6 miles of an active sage-grouse lek. The Proposed Action route travels through previously disturbed habitat that has already impacted local wildlife populations. Other than this distinction, given the relative proximity of the GRP Land Re-route Alternative to within approximately 1.1 mile of the Proposed Action, the affected environment regarding wildlife, aquatic resources, and special status species would be the similar to that described for the Proposed Action.

3.7 Land Use, Recreation, Visual Resources

3.7.1 Land Ownership

Approximately 53 percent (81.1 miles) of the land crossed by the proposed Project is managed or owned by public entities. The remaining 47 percent (approximately 71.1 miles) crosses privately owned land. Of the public land total, the majority is federal land managed by the BLM, while a smaller percentage is owned and managed by the states. **Figure 3.7-1** depicts the land ownership in the Project vicinity and **Table 3.7-1** summarizes land ownership that would be crossed by the Proposed Action.

Table 3.7-1 Summary of Land Ownership Crossed by the Proposed Project (miles)

State/Ownership	Federal	State	Private	Total
Colorado	28.5	7.8	58.7	95.0
Wyoming	43.8	1.0	12.4	57.2
Project Total	**72.3**	**8.8**	**71.1**	**152.2**

Federal lands managed by the BLM and crossed by the proposed route in Colorado are managed by two BLM field offices: the WRFO in Meeker, Colorado, and LSFO in Craig, Colorado. These lands are managed according to the guidelines outlined in the RMPs for these two field offices. These guidelines manage these lands for multiple uses as described above (BLM 1989, 1997). State-owned land in Colorado crossed by the proposed pipeline route is managed for wildlife habitat, recreational uses, or leased to private tenants for livestock grazing. Some state lands designated as special interest areas are discussed in Section 3.7.3.

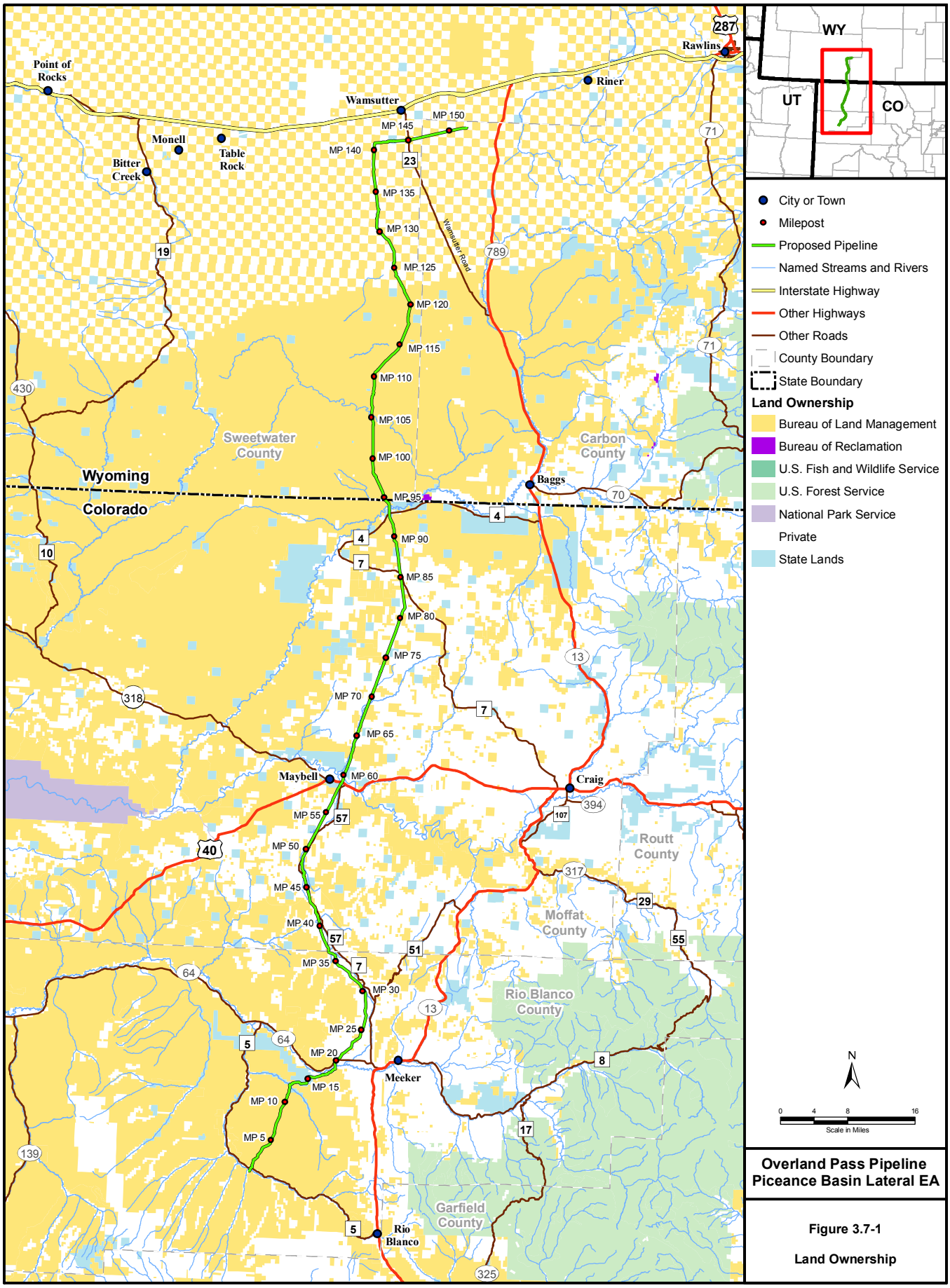
The federal lands managed by the BLM crossed by the proposed route in Wyoming are managed by the RFO in Rawlins, Wyoming. In general, the BLM manages these lands for multiple uses, including recreation, wildlife management, livestock grazing, wild horses, and mineral resources under guidelines set forth in the Rawlins RMP (BLM 2008a). Some federal lands designated as special interest areas are managed by the BLM as listed in Section 3.7.3.

3.7.2 Existing Land Uses

Land use types crossed by the proposed Project were assigned a land use classification using GAP Land Cover descriptions (CDOW 1998; WY GAP 1996). The proposed Project would cross four land use types: rangeland, agriculture, forest, and wetlands. A summary of miles crossed by the proposed route for each land use type is provided in **Table 3.7-2**.

3.7.2.1 Rangeland

Rangeland constitutes the predominant land use type that would be crossed by the proposed Project (117.8 miles; 77 percent). Of this, 59.9 miles of rangeland are on federal land managed by the BLM. Rangeland includes grasslands, pasture, livestock grazing areas, and shrublands. Grazing is permitted in specific allotments managed by the BLM or private landowners (**Table 3.7-3**). In Colorado, the BLM-managed grazing allotments are used for grazing cattle, sheep and horses (BLM 2007b). On the Wyoming BLM-managed lands, grazing consists primarily of cattle and sheep, with some horse and bison (BLM 2008a).



Overland Pass Pipeline
Piceance Basin Lateral EA

Figure 3.7-1

Land Ownership

Table 3.7-2 Summary of Land Use Types Crossed by the Proposed Project (miles)

State/County	Rangeland[1]		Agricultural[2]		Forest[3]		Wetlands[4]		Total Miles	
	Federal	Other	Federal	Other	Federal	Other	Federal	Other	Federal	Other
Colorado										
Rio Blanco	4.4	8.2	0.1	8.1	9.6	6.4	0.0	0.0	14.1	22.7
Moffat	13.1	36	0.2	2.1	0.5	4.5	0.5	1.0	14.3	43.6
Subtotal	*17.5*	*44.2*	*0.3*	*10.2*	*10.1*	*10.9*	*0.5*	*1.0*	*28.4*	*66.3*
Wyoming										
Sweetwater	39.0	11.5	0.0	0.0	1.4	0.0	0.0	0.0	40.4	11.5
Carbon	3.4	2.2	0.0	0.0	0.0	0.0	0.0	0.0	3.4	2.2
Subtotal	*42.4*	*13.7*	*0.0*	*0.0*	*1.4*	*0.0*	*0.0*	*0.0*	*43.8*	*13.7*
Project Total	**59.9**	**57.9**	**0.3**	**10.2**	**11.5**	**10.9**	**0.5**	**1.0**	**72.2**	**80.0**

[1]Rangeland consists of grasslands, pasture, livestock grazing areas, and shrublands.

[2]Agricultural land consists of irrigated and dry land crop fields and related facilities.

[3]Forest land consists mainly of non-agricultural wooded uplands.

[4]The values in this table have been rounded for presentation purposes. As a result, the totals may not reflect the exact sum of the addends in all cases.

Sources: CDOW 1998; WY GAP 1996.

Table 3.7-3 BLM Grazing Allotments Crossed by the Proposed Project

State/County	Approximate Crossing Length (miles)	Number of Grazing Allotments	Total AUMs[1]
Colorado			
Rio Blanco	24.2	12	119,610
Moffat	57.6	36	13,973
Wyoming			
Sweetwater	51.9	10	10,300
Carbon	5.6	1	2,680

[1]Includes Animal Unit Months (AUMs) on private and state lands.

In Colorado, the proposed pipeline route would cross approximately 61.7 miles of rangeland; the majority of which would be located on privately owned land in Moffat County. In Wyoming, the proposed pipeline route would cross approximately 56.1 miles of rangeland; 70 percent of which would be on federal land in Sweetwater County.

3.7.2.2 Agricultural

Agricultural land that would be crossed by the proposed Project consists of dryland pastures, irrigated pasture and hay meadows, farmlands, and associated farm or ranch facilities. Primary crops are grains and alfalfa. Some of the crop lands are dry-farmed while other areas are under irrigation, including pivot irrigation. In Colorado, approximately 11 percent (10.5 miles) of land that would be crossed by the proposed pipeline route are agricultural. No agricultural land would be crossed by the proposed pipeline route in Wyoming.

3.7.2.3 Forest Land

The primary forest land types are pinyon-juniper and juniper woodlands. Forest land accounts for 22.4 miles, or approximately 15 percent of the total length of the proposed pipeline route. The majority of the forest land crossed would be in Rio Blanco County, Colorado (16.0 miles). A small percentage of forest land that would be crossed by the proposed pipeline route would be in Wyoming, all of which (1.4 miles) would be in Sweetwater County.

3.7.2.4 Residential and Commercial Areas

Information about planned future residential and commercial developments was provided by the counties crossed by the proposed Project. There are no proposed commercial or residential development projects planned along the proposed pipeline route. The only development in the area consists of other oil and gas projects. OPPC would continue to coordinate with local planning and zoning offices to reduce the potential cumulative impacts that may result from concurrent pipeline and residential or commercial development.

3.7.3 Special Land Uses and Recreation

Generally, recreation and special interest areas include federal, state, or county parks and forests; conservation lands; wildlife habitat management areas; natural landmarks; scenic byways; designated trails; recreational rivers; and campgrounds. Recreation and special interest areas were identified using Colorado Natural Heritage Program (CNHP) records, landowner information, and NRCS data. The proposed pipeline route would cross a total of 10 recreation and special interest areas (one area would be crossed twice). **Figure 3.7-2** depicts the recreation and special interest areas in the proposed Project vicinity, and **Table 3.7-4** lists the location and land management agency responsible for each. The proposed route would not cross any Areas of Critical Environmental Concern (ACEC), Wilderness or Wilderness Study Areas, Wild and Scenic Rivers, or Conservation Reserve Program/Wetland Reserve Program lands. Other historic or culturally significant areas that would be crossed by the proposed pipeline route include the Overland and Cherokee trails, which are discussed further in Section 3.8, Cultural Resources.

Of the 10 recreation and special interest areas that would be crossed by the proposed route, eight are located in Colorado and two are located in Wyoming. The pipeline would not cross any developed recreation areas (i.e., campgrounds, picnic grounds, or organized recreation areas, such as baseball fields).

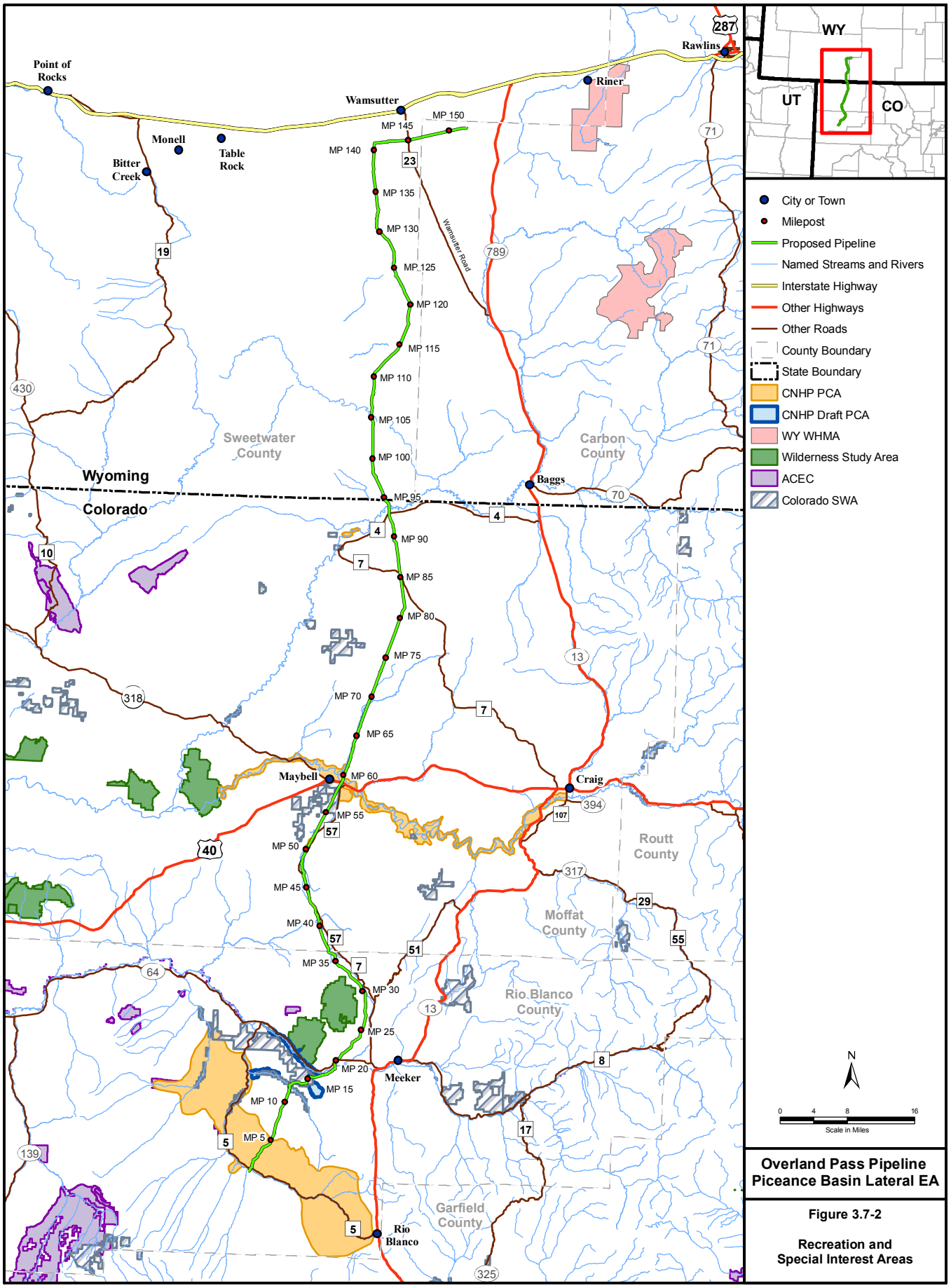


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Figure 3.7-2

Recreation and Special Interest Areas

Table 3.7-4 Recreation and Special Interest Areas Crossed by the Proposed Project

State/County	MP	Crossing Length (miles)	Name	Managing Agency/State
Colorado				
Rio Blanco	14.9 – 15.5	0.6	Hay Gulch Potential Conservation Area (PCA)[1]	State of Colorado
Rio Blanco	13.0 – 15.9	2.9	North Ridge Unit - Piceance Creek SWA	CDOW
Rio Blanco	11.8 – 12.5	0.7	Little Hills Experiment Station - Piceance Creek SWA	CDOW
Moffat	49.8 – 51.5	1.7	Deception Creek PCA	State of Colorado
Moffat	55.0 – 58.0	3.0	Bitter Brush SWA	CDOW
Moffat	58.3 – 58.9	0.6	Bitter Brush SWA	CDOW
Moffat	59.1 – 59.7 60.7 – 61.3	1.2	Middle Yampa River PCA	Various
Moffat	86.7 – 87.5	0.8	GRP	NRCS
Wyoming				
Sweetwater	97.6	NA	Cherokee Trail	BLM
Sweetwater	127.3	NA	Overland Trail	BLM

[1]Status currently under review by the CNHP.

3.7.3.1 Colorado

Natural Areas

The proposed route would traverse three natural areas in the State of Colorado designated by the CNHP as Potential Conservation Areas (PCAs) due to the potential occurrence of sensitive plant and/or animal communities. These areas include the Hay Gulch PCA, the Deception Creek PCA, and the Middle Yampa River PCA.

The Hay Gulch PCA site supports a bluebunch wheatgrass (*Pseudoroegneria spicata*) grassland community and a population of Dudley Bluffs twinpod (*Physaria obcordata*). The Deception Creek PCA contains a sagebrush (*Artemisia tridentata* spp. *Tridentat/Leymus cinereus*) bottomland shrubland plant community. The Middle Yampa River PCA contains an occurrence of the skunkbrush (*Rhus trilobata*) riparian shrubland. Historically this area, supported populations of the Colorado pikeminnow (*Ptychocheilus lucius*) and the humpback chub (*Gila cypha*). Sections 3.5 and 3.6 discuss these special status plant and wildlife species in more detail.

Piceance Creek SWA and Bitter Brush SWA

The Piceance Creek SWA was purchased by the CDOW to provide hunting opportunities and winter range for deer and elk. Within this SWA, research on big game species occurs at the Little Hills Game Experiment Station and CDOW personnel reside in homes on the property. The station provides big and small game hunting opportunities, as well as fishing opportunities. The Bitter Brush SWA is managed for wildlife habitat, hunting, fishing, and wildlife viewing opportunities.

GRP Lands

One section of newly designated GRP land would be crossed by the proposed pipeline route. GRP is a voluntary program, run by the NRCS, Farm Service Agency, and the U.S. Forest Service, offering landowners the opportunity to protect, restore, and enhance grasslands on their property. It also provides assistance for rehabilitating grasslands. This land was designated as GRP land in August 2007.

3.7.3.2 Wyoming

Overland and Cherokee Trails

There are no historic interpretation signs or areas at the proposed Overland Trail or Cherokee Trail crossings, and no well-preserved wagon ruts are evident.

3.7.4 Visual Resources

The BLM is responsible for identifying and protecting scenic values on public lands under several provisions of the Federal Land Policy Management Act and NEPA. The BLM VRM system was developed to facilitate the effective discharge of that responsibility in a systematic, interdisciplinary manner. The VRM system provides the methodology to inventory existing scenic quality; assign visual resource inventory classes based on a combination of scenic values, visual sensitivity, and viewing distances; and assign visual management objectives.

The BLM general management objectives for public lands provide design standards to manage landscapes associated with the four VRM classes assigned to the various landscapes. The BLM VRM classes range from Class I to Class IV, with Class I being the most restrictive and Class IV the least restrictive. These VRM classes are determined through an inventory process and are used to provide guidance to management staff and industry when proposing and deliberating surface-disturbing activities.

Class I Objective. The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. Class I is assigned to those areas where a management decision has been made to maintain a natural landscape. This includes congressionally and administratively designated areas where decisions have been made to preserve a natural landscape.

Class II Objective. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Class III Objective. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

Class IV Objective. The objective of this class is to provide for management activities that require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Rehabilitation Areas. Areas in need of rehabilitation from a visual standpoint should be flagged during the inventory process. The level of rehabilitation will be determined through the RMP process by assigning the VRM class approved for that particular area.

The proposed Project would cross within 1 mile of VRM Class I lands and would cross lands designated as VRM Classes II (0.1 mile), III (87.2 miles), and IV (35.8 miles). **Figure 3.7-3** depicts the VRM Class I and Class II areas near the proposed Project.

3.7.5 GRP Land Re-route Alternative

The GRP Land Re-route Alternative would diverge from the Proposed Action route for approximately 2.0 miles in order to avoid crossing the 0.8-mile portion of GRP land. The total length of this alternative would be 3.3 miles; therefore, adding a net 1.3 miles to the total length of the project. The entire portion of the land crossed by the GRP Land Re-route Alternative is managed or owned by public entities with approximately 2.7 miles managed by the BLM and 0.6 mile is managed by the state of Colorado. In contrast, the majority of the lands crossed by the Proposed Action is managed or owned by state and private entities (0.9 and 0.8 mile, respectively). A small percentage (0.3 mile) is managed by the BLM.

The GRP Land Re-route Alternative is approximately 1.1 mile west of the Proposed Action and the affected environment regarding land use, grazing allotments, and visual resources would be the same as described for the Proposed Action. There are no additional recreation areas or special land uses were identified along the alternative route and the entire alternative route is with VRM Class III landscape.

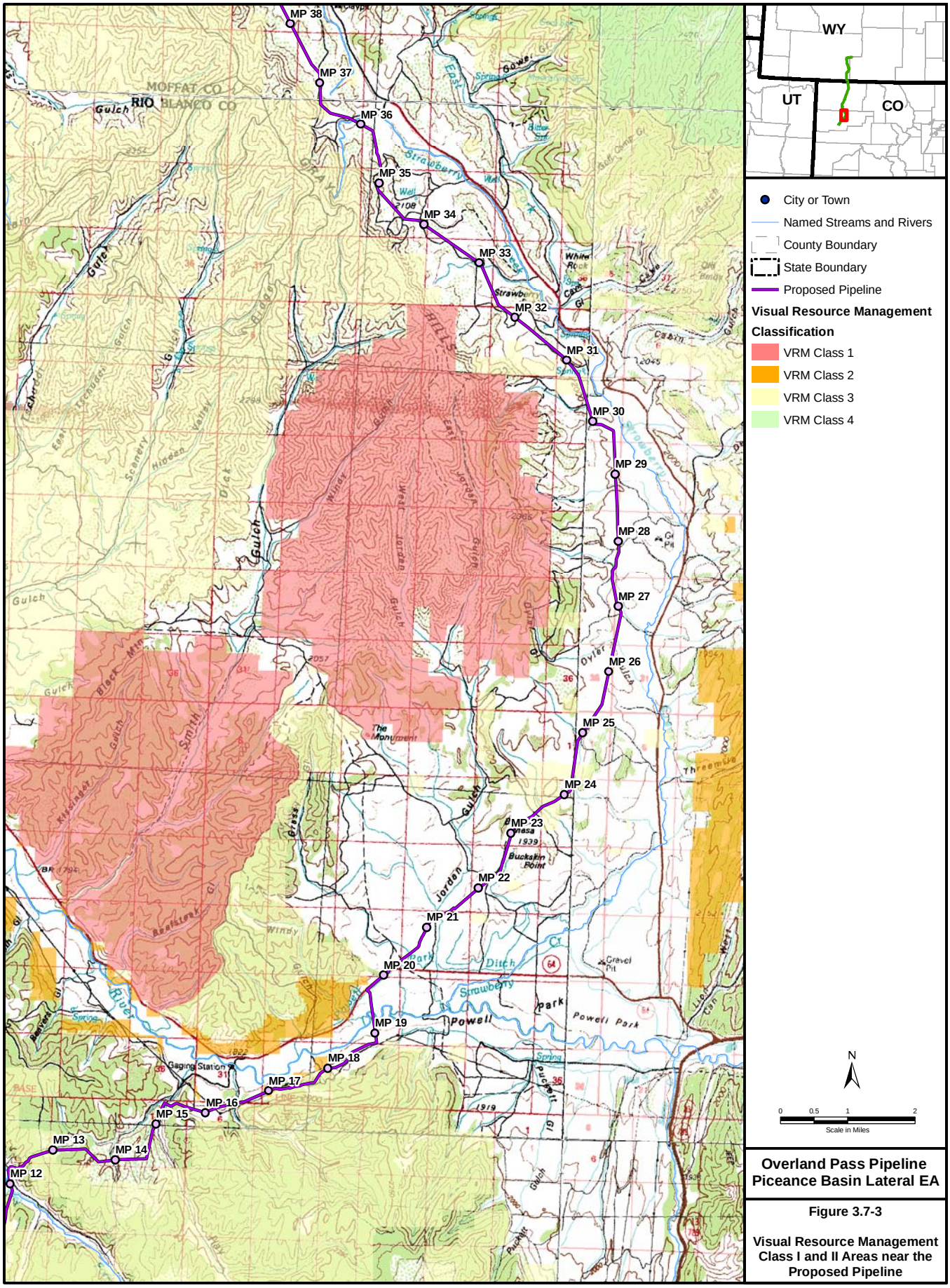

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Figure 3.7-3

Visual Resource Management Class I and II Areas near the Proposed Pipeline

3.8 Cultural Resources

From August to October 2007 and in May 2008, the majority of the proposed pipeline corridor was inventoried by Alpine Archaeological Consultants, Inc. (Alpine) in Colorado and Wyoming (Greubel et al. 2008; Mueller and Moore 2008). The inventory covered a 300-foot-wide corridor centered on the proposed pipeline centerline. Some portions of the proposed pipeline corridor, totaling 1.6 miles in Colorado and 9.5 miles in Wyoming, were not surveyed for cultural resources because the entire corridor had been adequately surveyed during previous cultural resource inventory projects. In addition, Alpine completed field inventories of newly defined proposed Project facilities, several minor reroutes, the J. L. Davis lateral, a pipe yard, access roads, and railroad siding.

Prior to the initiation of the field inventory, site file searches were conducted at state and federal agencies to identify areas previously subjected to cultural resource inventory and previously recorded sites. The identification of previously recorded sites serves two purposes: 1) to help formulate expectations regarding site types and densities likely to be encountered during the field inventory and 2) to ensure that sites previously recorded in the proposed pipeline corridor are either relocated or accounted for in some manner. The site file search study area included a 2-mile-wide corridor centered on the proposed pipeline centerline. Although most of the areas included in the 2008 field inventories were covered by the original site file searches, it was necessary for Alpine to conduct an additional file search for newly defined facilities and minor reroutes that fell outside of the original 2-mile-wide file search study area.

3.8.1 Colorado

In August 2007, Alpine conducted a site file search through the Colorado Office of Archaeology and Historic Preservation (OAHP). In addition, site files at the BLM WRFO and LSFO were examined, and Historic General Land Office (GLO) maps were inspected to identify potential historic site locations. As a result of the files search and GLO map review, 328 previously recorded sites were identified in the 2-mile-wide study corridor. Of the 328 sites, 284 are prehistoric and 44 are historic. Ninety-six percent of the prehistoric sites are classified as either open camps or open lithic scatters. The remaining prehistoric sites include isolated storage cists, rockshelters, and architectural sites. Prehistoric sites with architecture consist of sites with pithouses. Of the historic sites, 30 percent are agricultural complexes, which include homesteads, farms, and ranches. Twenty-three percent of the historic sites are roads or trails, and the remaining historic sites include bridges, canals and ditches, corrals, dams, brush fences, artifact scatters, and campsites.

In April 2008, Alpine conducted a site file search through the Colorado OAHP for those minor reroutes and newly defined facilities that fell outside of the original file search study area. Additionally, site files at the BLM WRFO and LSFO were examined, and Historic GLO maps at the two BLM field offices were inspected to identify potential historic site locations. As a result of the files search and GLO map review, a prehistoric open camp and a prehistoric fire-cracked rock scatter were identified in the file search study area.

During fall 2007, cultural resources inventories were conducted along the Colorado portion of the proposed pipeline corridor (Greubel et al. 2008). As a result of the inventories, 79 sites were located in the 300-foot-wide survey corridor. Of the 79 sites, 42 are prehistoric, 28 are historic, three are multi-component sites consisting of prehistoric and historic components, and six sites have been destroyed by previous disturbance. Thirty-five (83 percent) of the prehistoric sites are open camps. The remaining prehistoric sites include open lithic scatters, open lithic scatter and procurement area, and a storage cist. Historic sites include, but are not limited to, artifact scatters, homesteads, road segments, hunting camps, and ditches. One of the multi-component sites includes a prehistoric rockshelter and lithic scatter and historic structure. The remaining two multi-component sites consist of a historic homestead and prehistoric open camp, and a historic artifact scatter and prehistoric lithic scatter.

In May and June 2008, Alpine conducted additional field inventories of minor reroutes and newly defined facilities, as well as along segments of the proposed pipeline corridor that previously had been denied access

from the landowner (Mueller and Moore 2008). Thirteen sites were located during the inventories. Of these, 1 is a prehistoric open camp and 12 are historic sites, which include 4 scatters/hunting camps, 2 hunting camps, 2 ditches, and a road, artifact scatter, corral/hunting camp, and dugout with associated historic debris.

A summary of sites located during the 2007 and 2008 inventories in Colorado, plus their National Register of Historic Places (NRHP)-eligibility and management recommendations, can be found in **Appendix E**.

3.8.2 Wyoming

In July 2007, Alpine conducted a site file search through the Wyoming Cultural Records Office. In addition, site files at the BLM RFO were examined, and Wyoming GLO maps were inspected to identify potential historic site locations. As a result of the files search and GLO map review, 522 previously recorded sites were identified in the 2-mile-wide study corridor. Of the 522 sites, 470 are prehistoric and 52 are historic. Ninety-eight percent of the prehistoric sites are classified as either open camps or open lithic scatters. The remaining prehistoric sites include lithic procurement sites, a cairn, and architectural sites. Prehistoric sites with architecture include three sites with stone enclosures. Of the historic sites, 40 percent are historic artifact scatters and 37 percent are stock camps. The remaining historic sites include roads or trails, cabins, cairns, and historic inscriptions. Two important trails recorded in the proposed Project area are the Overland and Cherokee trails.

In April 2008, Alpine conducted a site file search at the BLM RFO for those minor reroutes and newly defined facilities that fell outside of the original file search study area. In addition, Historic GLO maps were inspected to identify potential historic site locations. No previously recorded sites were identified in the file search study area.

During fall 2007, cultural resources inventories were conducted along the Wyoming portion of the proposed pipeline corridor (Greubel et al. 2008). As a result of the inventories, 69 sites were located in the 300-foot-wide survey corridor. Of the 69 sites, 46 are prehistoric, 7 are historic, 3 are multi-component sites consisting of prehistoric and historic components, and 13 sites have been destroyed by previous disturbance. Twenty-five (54 percent) of the prehistoric sites are open camps and 16 (35 percent) are open lithic scatters. The remaining prehistoric sites include lithic scatters and a lithic processing site. Historic sites include artifact scatters, a road segment, open camp, and the Overland and Cherokee trails. One of the multi-component sites consists of a historic artifact scatter and prehistoric open lithic scatter. The remaining multi-component sites include a prehistoric open lithic scatter and historic isolate, and a prehistoric lithic scatter and historic trash scatter.

In May and June 2008, Alpine conducted additional field inventories of minor reroutes and newly defined facilities, as well as along segments of the proposed pipeline corridor that previously had been denied access from the landowner (Mueller and Moore 2008). Four sites were located during the inventories. Of these four sites, one is a prehistoric open camp and three are prehistoric lithic scatters; no historic sites were located during the inventory.

A summary of sites located during the 2007 and 2008 inventories in Wyoming, plus their NRHP-eligibility and management recommendations, can be found in **Appendix E**.

3.8.3 GRP Land Re-route Alternative

In August 2008, Alpine conducted a files search through the Colorado Office of Archaeology and Historic Preservation for the proposed GRP Land Re-route Alternative (Alexander 2008), and the site files and inspected the historic GLO maps at the BLM Little Snake Field Office. One previously conducted inventory was identified in the 2-mile-wide file search study area. No cultural resources were identified during the inventory. At this time, Alpine also conducted a Class III inventory along the approximate 3.3-mile-long alternative route. As a result of the inventory, one previously unrecorded prehistoric lithic scatter and four

previously unrecorded isolated finds (three prehistoric and one historic) were documented in the 300-foot-wide survey corridor. The prehistoric lithic scatter and all of the isolated finds are recommended as not eligible for the NRHP; no further work is recommended.

3.9 Native American Traditional Values

3.9.1 Ethnographic Context

Historic and archaeological data indicate that the Ute and Shoshone were the primary indigenous occupants of the Project area. From A.D. 1300 to 1700, the Ute generally occupied the portion of the Project area north of the San Juan Mountains and south of the Yampa River in western Colorado. The Shoshone homeland was primarily western Wyoming and southern Idaho, and north of the Uinta Mountains (Greubel et al. 2008).

After the 1700s, the Ute continued to inhabit primarily the Rocky Mountains and Colorado Plateau. The acquisition of the horse increased their range east to the High Plains to hunt and south to the Spanish and Pueblo settlements in northern New Mexico and northeastern Arizona for raiding and trading. The Ute lifeway continued until the 1850s, when gold was discovered in Colorado and white settlements and subsequent conflicts intensified. Treaties forced the Utes to reduce their range, and in 1881, the Ute were removed to one of three reservations, two in southeastern Colorado and one in northeastern Utah.

Historic evidence indicates that the Shoshone traveled great distances to hunt, trade, and raid. Between A.D. 1650 and 1700, the Shoshone acquired the horse, thus allowing more intensive bison hunting and greater travel for resource procurement. However, during this time the Crow, Blackfoot, and other tribes had acquired large quantities of firearms and horses and forced the Shoshone to withdraw to central and western Wyoming and southern Idaho. The Shoshone who lived in Wyoming would later be known as the Wind River or Eastern Shoshone.

The reader is referred to *Handbook of North American Indians, Volume 1: Plains* (DeMallie 2001) for a comprehensive ethnographic overview of the Project area.

3.9.2 Native American Consultation

In compliance with the NHPA, as amended, the BLM initiated government-to-government consultation for the Piceance Basin Lateral EA on September 26, 2007, by sending letters to Indian tribes either living in, or with traditional ties to, the proposed Project area. These tribes include Eastern Shoshone, Northern Arapaho, Northern Ute, Shoshone-Bannock, Southern Ute, and Ute Mountain Ute. The letters were sent to inform the various tribes of the proposed undertaking and invite the tribes to provide any information about places with traditional cultural importance that may be located in the proposed Project area. Included with the letters was a map of the proposed pipeline route and a self-addressed stamped postcard for the tribes to indicate their level of interest and return to the BLM. The Southern Ute were the only tribe to return the postcard in which they requested to be contacted in the event human remains are found during Project construction.

Subsequent to the letters, the BLM telephoned the five tribes that had not responded to the consultation letter. As a result, the Eastern Shoshone requested additional information on the proposed Project and the Northern Arapaho Tribe requested participation in any field visits to the proposed Project area. To date, no responses to messages left for the Northern Ute, Ute Mountain Ute, and Shoshone-Bannock tribes have been received by the BLM.

On February 21, 2008, the BLM sent follow-up letters, which included a preliminary summary of the cultural resources inventory, to all six previously contacted tribes. In the letters, BLM requested review of the preliminary results of the cultural resource inventory and any information, concerns, or issues the tribes may have regarding the proposed Project. At this time, none of the tribes have responded to the second letter. The BLM will continue to make a good faith effort to consult with the tribes regarding the proposed Project.

3.9.3 GRP Land Re-route Alternative

If the GRP Land Re-route Alternative was selected for construction, the BLM would send a letter to the above-listed tribal groups to inform them of the revised pipeline route and solicit their concerns about places of traditional cultural importance that may be located along the proposed alternative. Consultation between the BLM and the identified tribal groups would follow the same protocol as for the Proposed Action.

3.10 Socioeconomics

3.10.1 Population, Employment, and Economics

In 2000, the population of Colorado was 4,301,261 and the population of Wyoming was 493,782. In part due to energy development activities, the estimated population in Colorado climbed by 10.5 percent to 4,753,377 in 2006. The estimated population in Wyoming increased by 4.3 percent to 515,004 over the same period (U.S. Census Bureau 2006). The four counties crossed by the proposed pipeline route are largely rural, generally with a single population center in proximity to the route. Garfield and Routt counties in northwestern Colorado, although not directly affected by the proposed route, border those directly affected counties, and thus may experience effects from the proposed Project. Therefore, these counties are included in the analysis where appropriate. The least populous county crossed by the proposed pipeline corridor is Rio Blanco County, Colorado, which had an estimated population of 6,180 in 2006. The most populated county directly affected by the proposed pipeline route is Sweetwater County, Wyoming, which had an estimated population of 38,763 in 2006. A majority of the population in Sweetwater County is centered near Rock Springs, Wyoming, which is approximately 70 miles west of the northern portion of the proposed Project. **Table 3.10-1** summarizes recent population changes for the proposed Project area.

Table 3.10-1 Population Change in the Proposed Project Area, 2000 to 2006

State / County	2000	2006 (estimated)	Change, 2000 to 2006	
			Absolute	Percent
Colorado				
Rio Blanco	5,986	6,180	194	3.2
Moffat	13,181	13,680	346	3.8
Garfield	43,791	51,908	8,117	18.5
Routt	19,690	21,580	1,890	9.6
Wyoming				
Sweetwater	37,613	38,763	1150	3.1
Carbon	15,639	15,325	-314	-2.0

Sources: Census 2000; U.S. Census Bureau 2006.

Of the counties potentially affected by the proposed Project, either directly or indirectly, only Routt and Garfield have experienced substantial population growth over the past 6 years. Moffat and Rio Blanco counties realized moderate population gain. Much of the growth in northwestern Colorado has been tied to the substantial energy exploration and development activity in recent years. Population changes in Wyoming have been relatively limited in scale, with Sweetwater County modestly gaining population and Carbon County modestly losing population between 2000 and 2006.

As of December 2007, Moffat and Rio Blanco counties in Colorado had relatively small labor forces (8,703 and 5,443, respectively). In Wyoming, approximately 11 percent of the civilian labor force resides within the two counties that would be affected by the proposed pipeline route. Of the two counties, Carbon County has the smaller civilian labor force with 8,104 persons, and Sweetwater County has the larger civilian labor force with a total of 24,104 persons.

Unemployment rates across the proposed Project area have declined over the past year, and as of December 2007, ranged from 2.2 percent in Rio Blanco County, Colorado to 3.5 percent in Moffat County, Colorado (**Table 3.10-2**) (Colorado Department of Labor and Employment 2007; Wyoming Department of Employment 2007). Statewide unemployment rates for the same period were 4.5 percent in Colorado and 3.1 percent in Wyoming. Given the limited size of the local labor force in these more rural counties, the number of available workers is very low, for example, 119 unemployed in Rio Blanco County, Colorado, and 278 unemployed in Carbon County, Wyoming.

Table 3.10-2 Labor Market Conditions in the Proposed Project Area, December 2007

State / County	Labor Force	Employed	Unemployed	Unemployment Rate
Colorado				
Rio Blanco	5,443	5,324	119	2.2%
Moffat	8,703	8,397	306	3.5%
Garfield	37,438	36,456	982	2.6%
Routt	16,172	15,729	443	2.7%
Wyoming				
Carbon	8,104	7,826	278	3.4%
Sweetwater	24,104	23,507	597	2.5%

Sources: Colorado Department of Labor and Employment 2007; Wyoming Department of Employment 2007.

In northwestern Colorado, the primary employment sectors of the counties crossed by the proposed pipeline route are agriculture, oil and gas development, trade and construction. Mining (both mineral and oil and gas development), public administration, and trade and tourism/travel also are important employment sectors in Wyoming. The latter is due in part to the I-80 corridor across southern Wyoming.

In 2005, per capita personal income was $37,510 in Colorado and $37,305 in Wyoming. The four counties traversed by the proposed pipeline route have per capita incomes ranging from $26,793 in Moffat County, Colorado, to $38,039 in Sweetwater County, Wyoming. Sweetwater County was the only county in which per capita personal income was higher than the state average (U.S. Bureau of Economic Analysis 2005).

3.10.2 Infrastructure

3.10.2.1 Housing

Housing availability within the proposed Project area is a function of the housing stock, recent economic and population growth, the inventory of short-term accommodations, such as recreational vehicle (RV) parks and hotel and motel rooms, and demand for housing from other sources. In 2000, the total housing supply ranged from 2,855 units in Rio Blanco County to 17,336 units in Garfield County. Carbon County registered a total housing supply of 8,307 units (**Table 3.10-3**).

Table 3.10-3 Housing Inventory in the Proposed Project Area

State / County	Total Units – 2000	Available Rental Units – 2000	Building Permits 2006
Colorado			
Rio Blanco	2,855	127	50
Moffat	5,635	189	52
Garfield	17,336	217	757
Routt	11,217	956	1,359
Wyoming			
Sweetwater	15,921	680	268
Carbon	8,307	360	58

Sources: Census 2000; Colorado Division of Local Government 2004; Wyoming Department of Administration and Information 2008.

A key indicator of housing availability to meet short-term needs is the number of available rental units. Among the rural counties in the western portion of the proposed Project area, the number of such units recorded in the 2000 Census ranged from 127 units in Rio Blanco County, Colorado, to 680 units in Sweetwater County, Wyoming. In the case of the latter, most of those units were in Rock Springs or Green River, a considerable distance from the proposed route.

A combined 428 new units were issued building permits in Rio Blanco, Moffat, Carbon, and Sweetwater counties in 2006 (U.S. Census Bureau 2006). Significant new construction has occurred in Routt and Garfield counties, although many of the new housing units were single-family residences.

A second, more critical component of local housing markets is the inventory of short-term accommodations. Such accommodations include RV spaces, motel and hotel rooms, and mobile home spaces. In some instances, recreational cabins and seasonal housing for migratory workers also may be available. With the exception of Rio Blanco County, Colorado, with only 404 units, the inventory of such accommodations is relatively larger in most of the counties because tourism, travel, and outdoor recreation play major roles in the local economies (**Table 3.10-4**).

The short-term accommodations tend to be geographically concentrated in the largest communities in each county, although there are some RV parks and smaller motels in outlying communities, particularly in Wyoming along the Interstate 80 (I-80) corridor in Sweetwater County and in southwestern Carbon County.

Vacancy surveys of rental housing in Wyoming indicate limited availability across the study area, with estimated vacancy rates of under 1.0 percent in Sweetwater County and 8.4 percent in Carbon County. However, the latter represents only about 50 units (Wyoming Housing Database Partnership 2004). Vacancy rates for rental housing are not reported for rural Colorado, but anecdotal reports suggest limited availability in many communities, although housing is reportedly more available in the Craig area following the recent completion of a major retrofit project at the nearby power plant. Anecdotal information also indicates limited availability of short-term lodging across most of the western portion of the study area, particularly in Sweetwater and Rio Blanco counties, due to ongoing energy resource development and seasonal tourism and hunting demand. Given the above, housing availability can be characterized as limited to very limited in most counties.

Table 3.10-4 Estimated Temporary Housing Inventory, Winter 2004

State/County	RV Spaces	Motel/Hotel Rooms	Mobile Home Spaces	Total	Temporary Housing Availability
Colorado					
Rio Blanco	108	143	153	404	Very Limited
Moffat	221	600	858	1,679	Fair to Good
Garfield	196	>1,000	NA	>1,196	Very Limited
Routt	105	>1,000	NA	>1,105	Good
Wyoming					
Sweetwater	215	1,718	3,696	5,629	Limited
Carbon	395	1,367	2,583	4,345	Limited
Total	**1,140**	**>5,828**	**7,290**	**>14,358**	

Note: RV spaces exclude some or all spaces in national forest and state park campgrounds. Only some, unknown number, of the mobile home spaces are available at any one time and may not be available for short-term use.

Source: FERC 2005a.

3.10.2.2 Public Services and Facilities

Table 3.10-5 outlines selected public services and facilities serving the proposed Project area. In general, the public services available are functions of the size and population of the county and the numbers of larger communities in the county. Law enforcement is provided by multiple providers including the respective state patrols, county sheriffs, and local police departments. In many instances, mutual aid/cooperative agreements among agencies allow members of one agency to provide support or backup to the other agencies in emergency situations.

A network of fire departments and districts provide fire protection and suppression services across the region. Many of the fire districts across the region are staffed by volunteers and are housed in stations located in the larger communities. Together, these factors can increase response times to incidents. Federal land management agencies also maintain wild land and forest fire suppression capabilities in the region, though these capabilities are not generally staffed for quick response dispatch.

At least one acute care hospital is operating in each county crossed by the proposed route, providing emergency medical care and in several cases also serving as the base for local emergency medical response and transport services. As in the case of fire suppression, response times to highway or construction-related accidents in parts of the proposed Project area may be lengthy given communication, dispatch and travel time considerations.

Table 3.10-5 Existing Public Services and Facilities in the Proposed Project Area

State/County	Police/Sheriff Departments[1]	Fire Departments[2]	Medical Facilities[3]
Colorado			
Rio Blanco	3	2	2 Hospitals
Moffat	2	2	1 Hospital
Garfield	1	6	1 Hospital
Routt	4	6	1 Hospitals
Wyoming			
Sweetwater	4	9	1 Hospital
Carbon	7	8	1 Hospital

[1]Capitol Impact 2008. Does not include special law enforcement units for universities.

[2]Firehouse Network 2008. Includes volunteer, district, city, and town departments, but does not include departments and services offered by the BLM or the Department of Defense.

[3]Colorado Health and Hospital Association 2008. Wyoming Hospital Association 2008.

Higher level trauma centers capable of treating serious injuries requiring more specialized or intensive care are located in Rock Springs, Wyoming. The most serious injuries may require transport to regional trauma centers in Grand Junction, Colorado, and Casper, Wyoming, or even to Denver, Colorado, or Salt Lake City, Utah. The regional trauma centers all provide emergency medical air transport, via either helicopter or fixed wing aircraft, with airports capable of accommodating fixed-wing aircraft located in Rifle, Meeker, and Craig, Colorado; and Rawlins and Rock Springs, Wyoming.

3.10.2.3 Transportation

The major transportation routes that would be crossed by the proposed Project include U.S. I-80, U.S. Highway 40, and Colorado State Highway 64. Access roads and the transportation network are discussed in Section 2.1. **Figures 2.1-2** and **2.1-3** show the access roads that would be used for the proposed Project.

Another significant transportation feature in the region is the Union Pacific Railroad mainline route across southern Wyoming. The railroad and I-80 corridors generally parallel each other across Sweetwater and Carbon counties.

3.10.3 Fiscal Relationships

Local municipal governments, school districts, and some other government-funded entities rely heavily on property and sales tax revenues to fund their ongoing operations. **Table 3.10-6** lists the 2005 total assessed valuation from all sources and estimated gross retail sales of all establishments for the four directly affected counties. Note that the values for Wyoming and Colorado counties are not directly comparable due to differences in property assessment practices, but comparisons between counties within a state reflect differences in the scale of development and natural resource wealth. For instance, assessments on mineral production account for about 63 percent of the total assessed valuation in Sweetwater County, Wyoming, and 76 percent of the total in Rio Blanco County, Colorado. Other state-assessed property, including utilities and oil and gas transmission systems, account for 48 percent of the total valuation in Moffat County, Colorado, and between 10 and 13 percent of the total in Sweetwater County, Wyoming, and Rio Blanco County, Colorado.

Statewide total assessed valuation on gas transmission pipelines in 2003 was $255.6 million in Colorado and $121.7 million in Wyoming.

Table 3.10-6 County Property and Sales Tax Base for Counties Crossed by the Proposed Project

State / County	Assessed Valuation 2005	Gross Retail Sales 2005
Colorado		
Rio Blanco	$434,639,420 (2005)	$407,800,000
Moffat	$390,341,690 (2005)	$291,835,000
Wyoming		
Sweetwater	$ 1,563,354,342 (2005)	$1,073,949,000
Carbon	$ 898,683,428 (2006)	$344,978,000

Note: Retail sales for Colorado are for calendar year 2005, those for Wyoming are Fiscal year 2005.

Sources: Colorado Department of Local Affairs 2006; Wyoming Department of Administration and Information 2008; Wyoming Taxpayers Association 2008.

Gross annual retail sales are a reflection of the local population, income, level of travel and tourism in the region, presence of special populations such as a college or university, and economic stimulus provided by special activities such as construction projects and energy and mineral resource development. In both states, all of the counties and many of the communities within the counties levy sales taxes on retail purchases. Based on total annual gross retail sales, Moffat County, Colorado, has the smallest trade and service sectors of all the counties crossed by the proposed Project, while Sweetwater County, Wyoming, has the largest.

3.10.3.1 Property Values

Approximately 48 percent of the land affected by construction and operation of the proposed Project would be on federal public lands. Six percent is state and local lands, and the remainder of the land that would be affected (46 percent) is privately owned. A detailed description of land ownership is presented in Section 3.7.

On both public and private lands, OPPC would acquire an easement for both the temporary (for construction) and permanent ROWs. The easement would provide OPPC the right to construct, operate, and maintain the pipeline, and establish a permanent ROW. In return, OPPC would compensate the landowner for use of the land and the temporary loss of crops or forage. Where the proposed pipeline route would cross federal land, OPPC would acquire a ROW grant for construction and operation of the proposed facilities. The ROW grant essentially allows OPPC to lease the land from the BLM.

3.10.4 Environmental Justice

A summary of the population types (i.e., races) residing within the four counties crossed by the proposed pipeline route based on U.S. Census Bureau data from 2000 is presented in **Table 3.10-7**. In Colorado, the proposed pipeline route would cross counties that contain a smaller proportion of minorities than are found statewide in Colorado. In Wyoming, demographics for the counties of Carbon and Sweetwater show a slightly larger proportion of minorities compared to the Wyoming statewide average.

The percent of population with incomes below the poverty level also are summarized in **Table 3.10-7**. In Colorado, Rio Blanco County has a poverty rate greater than the statewide average, while poverty rates in Moffat County are less than the statewide average. In Wyoming, the poverty rate in Sweetwater County has a

smaller percentage of people below the poverty line than the statewide average, while Carbon County is lightly higher than the statewide average.

Table 3.10-7 Environmental Justice Statistics in Affected Counties

State / County	Racial/Ethnic Categories (% of Total Population)						Persons Below Poverty Level, percent
	White	Black or African American	American Indian and Alaska Native	Other Races	Two or More Races	Hispanic[1]	
Colorado	**82.8**	**3.8**	**10.0**	**7.2**	**2.8**	**17.1**	**9.3**
Rio Blanco	95.0	0.2	0.8	2.0	1.7	4.9	9.6
Moffat	93.6	0.2	0.9	3.2	1.8	9.5	8.3
Wyoming	**92.1**	**0.8**	**2.3**	**2.5**	**1.8**	**6.4**	**11.4**
Sweetwater	91.6	0.7	1.0	3.6	2.4	9.4	7.8
Carbon	90.1	0.7	1.3	5.2	2.1	13.8	12.9

[1]Persons of Hispanic origin may be of any race and for census-gathering purposes, Hispanic is a self-identified category. In this table, individuals may have reported themselves as only Hispanic or in combination with one or more of the other races listed. This may result in the sum of percentages for all ethnic categories to be greater than 100 percent for any one county.

Source: Census 2000.

3.10.5 GRP Land Re-route Alternative

Given the relative proximity of the GRP Land Re-route Alternative to within approximately 1.1 mile of the Proposed Action, the affected environment regarding socioeconomics would be the same as described for the Proposed Action.

3.11 Public Health and Safety

3.11.1 Hazardous Materials and Wastes

Pre-existing soil contamination along the proposed pipeline route may exist. However, review of the USEPA Comprehensive Environmental Response, Compensation, and Liability Act Information System (CERCLIS) Database (USEPA 2006) and state Superfund Site Status Summaries indicates that the proposed pipeline route does not intercept any known areas of contamination. No Superfund sites are intersected or within 5 miles of the proposed pipeline route (USEPA 2006).

3.11.2 Emergency Response

The existing public services and facilities available in the Project vicinity are discussed in detail in Section 3.10.2. In general, the public services available are directly related to the number of cities and towns in each county as well as population figures. The number of police and/or sheriff departments within each county that would be affected by the proposed Project ranges from two departments in Moffatt County, Colorado, to seven departments in Carbon County, Wyoming. Sweetwater County, Wyoming, has nine fire departments and Carbon County has eight. Moffat and Rio Blanco counties in Colorado have two fire departments each. Rio Blanco County has two hospitals and the other counties each have one.

3.11.3 GRP Land Re-route Alternative

Given the relative proximity of the GRP Land Re-route Alternative to within approximately 1.1 mile of the Proposed Action, the affected environment regarding public health and safety would be the same as described for the Proposed Action.