5.0 Cumulative

5.1 Cumulative Impacts

NEPA requires federal agencies to consider the cumulative impacts of proposals under their review. Cumulative impacts are defined in the CEQ regulations 40 CFR 1508.7 as "…the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency… or person undertakes such other actions." These actions include current and projected area development (e.g., oil and gas); management activities and authorizations on public lands (e.g., range conversion and forestry programs); land use trends; and applicable industrial/infrastructure components (e.g., utility corridors). Although the individual impacts of each separate project might not be significant, the additive effects of multiple projects could be.

The primary cumulative impact study area consists of an existing utility corridor that the Overland Pass pipeline would traverse throughout its length. The widest portion of this corridor (approximately 2 miles wide) extends from Granger, Wyoming (RP 30) to the Wyoming/Colorado border (RP 330). Up to eight existing natural gas, refined products, and NGL pipelines occupy this corridor. Other linear facilities located within or adjacent to this large pipeline corridor include I-80, the Union Pacific Transcontinental Railroad, several fiber optic cables, and low voltage electrical transmission lines. Also included in this cumulative study area are pipeline projects approved or under construction (Rockies Express West, Enterprise Western Expansion). Nearby communities in Wyoming served by I-80 include Wamsutter, Rawlins, Laramie, and Cheyenne. Oil and gas well field developments are located within this major east-west utility corridor in the Great Divide Basin (vicinity of Wamsutter).

The reasonably foreseeable pipeline projects are those currently being reviewed under NEPA (Overthrust Wamsutter Pipeline Project, Pinedale Anticline Pipeline Supplemental Environmental Impact Statement [SEIS], Kanda Lateral), and oil and gas field and mining development applications and Environmental Assessments (EAs) submitted to the BLM.

Projects and activities included in this analysis generally are those located within the same counties directly affected by construction of the Overland Pass. Most effects of more distant projects are not assessed because their impact generally would be localized and would not significantly contribute to cumulative impact in the proposed project area. However, the air quality study area consists of the regional air sheds. **Table 5.1-1** identifies existing, under construction, or proposed projects that were evaluated in the Overland Pass cumulative analysis.

Figure 5.1-1 is a schematic drawing illustrating the number of existing gas and liquids pipelines included in the existing utility corridor where the Overland Pass would be located, as well as sensitive resources encountered along the entire route. The majority of the existing pipelines in this utility corridor were constructed in the last 30 years, and the revegetation of the ROW has varied with climate and soil type. From Rawlins eastward, grasslands largely have recovered to former cover; the shrub-scrublands consisting of saltbush and Wyoming sagebrush from Rawlins, Wyoming, west to Opal, Wyoming, have only partially recovered former shrub cover and height. Recent or proposed pipeline projects, such as the Overthrust Wamsutter Expansion Pipeline, and Enterprise Western Expansion, would be only partially revegetated by the time Overland Pass proposes to construct its pipeline.

For this analysis, cumulative impacts were based on existing (through 2006) and foreseeable project surface disturbances that occur within 1 mile of the proposed Overland Pass pipeline route. **Table 5.1-2** provides an estimate of the utility use surface area for the projects considered in this analysis. It is estimated that the total cumulative utility surface use area for this project exceeds 200 square miles over the 759.9-mile Proposed Action length. The Overland Pass pipeline would contribute approximately 5 percent of this total, and other new pipeline projects from 1 to 2 percent. Surface disturbance widths of 75 feet were assumed for the small diameter pipeline projects (Overland Pass, Enterprise Western Expansion), and 125 feet for the large diameter

Rockies Express West pipeline. Older existing pipelines and the I-80 corridor which have largely revegetated ROWs are discussed within cumulative impacts as appropriate (e.g., habitat fragmentation).

Table 5.1-1 Projects with Potential Cumulative Impacts on Resources within the General Area of the Proposed Overland Pass Pipeline

Project /Activity	Project Location (State)	Counties Where Project Coincides with the Proposed Overland Pass Pipeline	Description	Anticipated Date of Construction/ Project Status
Multiple existing natural gas, NGLs, and petroleum products pipelines; fiber optic cables; ancillary aboveground facilities (compressor and pump stations).	Wyoming, Colorado, Kansas	All counties crossed by the project.	In Wyoming, multiple pipelines (up to 8) are located in a wide utility corridor that extends from RP 27 to RP 330. The Overland Pass pipeline is not located in this utility corridor between RP 54 and RP 103, and from RP 137 to RP 163. From RP 330, the Overland Pass pipeline parallels the Southern Star natural gas pipeline for the majority of the length to the terminus at RP 749.	Existing, constructed prior to 2006
Rockies Express/ Entrega Project.	Wyoming, Colorado	Wyoming: Sweetwater, Carbon, Albany, Laramie; Colorado: Weld	328 miles of 42-inch-diameter natural gas pipeline. The Overland Pass pipeline parallels the Rockies Express/Entrega Pipeline for 164 miles from RP 166 east of Wamsutter to the Colorado/Wyoming border (RP 330). The project includes a new compressor station at Wamsutter, Wyoming. The Echo Springs lateral that feeds the Entrega Pipeline near Continental Divide would cross over the Overland Pass pipeline north of I-80.	Construction underway; in-service by 2007
Enterprise Western Expansion Project	Wyoming	Sweetwater	50,000 bpd expansion of existing NGL pipeline system, consisting of 202 miles of looped pipeline segments and pump station upgrades. Three loop segments would be located adjacent to the Overland Pass pipeline ROW. Total length parallel to Overland Pass pipeline is approximately 20 miles.	ROD issued in 2005; under construction
Overthrust Wamsutter Pipeline (evaluated as part of the Rockies Express West Project).	Wyoming	Sweetwater	77 miles of 36-inch-diameter natural gas pipeline between Green River (Kanda) and Wamsutter, includes 2 compressor stations. This project (among others) would convey gas to the Rockies Express/Entrega Pipeline at Wamsutter.	Draft EIS released in November 2006
El Paso Kanda Lateral Project	Utah, Wyoming	Sweetwater	128 miles of 30-inch natural gas pipeline between the Uinta Basin, Utah, and Kanda, Wyoming. The Kanda Lateral would cross over the Overland Pass pipeline at the Kanda hub (RP 63).	Draft EA in preparation; construction expected in late 2007
Questar Rendevous Pipeline Project	Wyoming	Sweetwater	Approximately 103 miles of 30-inch pipeline from the Pinedale Anticline to the vicinity of Granger, Wyoming. This pipeline would cross over the Overland Pass pipeline at RP 28.	Included in the Pinedale Anticline Supplemental EIS being prepared by the Pinedale BLM office
Oil and Gas Development	Wyoming	Sweetwater	Vermillion Basin Area; up to 56 gas wells southwest of Bitter Creek.	Drilling in progress
		Sweetwater	Pappy Draw Exploratory Coal Bed Methane (CBM) Project; drill 20 exploratory wells in BLM's Pappy Draw Unit Area.	BLM EA in progress
		Carbon	Atlantic Rim Natural Gas Development Project; drill 2,200 wells over 20 years in southern Carbon County.	BLM Final EIS in progress
		Carbon	Seminoe Road Gas Development Project; drill and operate 1,240 CBM wells over a 30- to 40-year project life; includes 16-inch diameter gas transmission pipeline.	BLM Final EIS in progress
		Sweetwater	Continental Divide – Creston Project: drill and develop 1,250 natural gas wells approximately 40 miles southwest of Rawlins, Wyoming.	BLM NOI published March 2006
		Sweetwater, Uinta, and Lincoln	Moxa Arch Area Infill Gas Development Project: infill drill 1,860 natural gas wells.	BLM Draft EIS in progress

Table 5.1-1 Projects with Potential Cumulative Impacts on Resources within the General Area of the Proposed Overland Pass Pipeline

Project /Activity	Project Location (State)	Counties Where Project Coincides with the Proposed Overland Pass Pipeline	Description	Anticipated Date of Construction/ Project Status
		Carbon	Brown Cow II POD: drill and develop 12 coal bed natural gas (CBNG) wells in Atlantic Rim Natural Gas Development project area, approximately 7.5 miles north of Baggs.	FONSI/DR issued September 2006
		Sweetwater	Hiawatha Field Project: drill up to 4,207 natural gas wells.	NOI issued in September 2006
Mining	Wyoming	Sweetwater	Pit 14 (Coal) Lease: addition of maintenance tract adjacent to the existing Black Butte Mine.	Final EIS issued November 2006

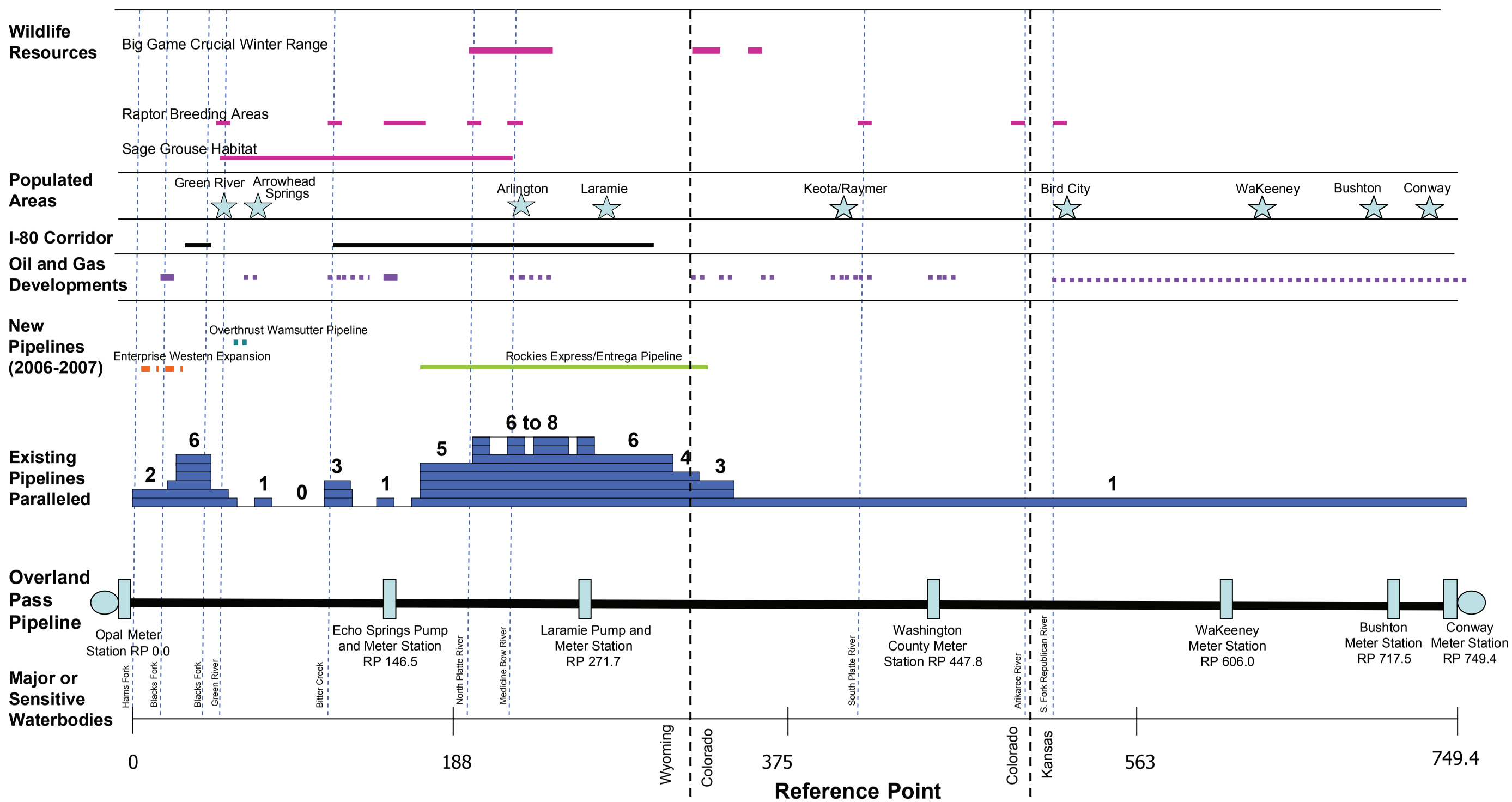
Table 5.1-2 Estimated Cumulative Utility Use Area within the Existing Utility Corridor Occupied by the Proposed Overland Pass Pipeline

Overland Pass RP Begin	Overland Pass RP End	Miles	Existing Pipelines (Estimated)	Existing[1] Estimated Corridor Width (feet)	Existing Utility Use Surface Area (square mile)	Overthrust Wamsutter Pipeline Surface Area (square mile)	Overland Pass[3] Utility Use Surface Area (square mile)	Enterprise[3] Utility Use Surface Area (square mile)	Total Utility Use Surface Area (square mile)
0	9	9	0 to 2	100	0.2		0.1		0.3
9	27	18	3	300	1.5		0.3	0.1	1.9
27	44	17	6	600	5.0		0.2		5.2
44	50	6	6	300	2.8		0.1		2.9
50	54	4	2	150	1.5		0.1	0.1	1.7
54	62	8	1	75	0.9		0.1		1.0
62	68	6	0	0	0.0	0.1	0.1		0.2
68	76	8	1	75	1.1		0.1		1.2
76	103	27	0	0	0.0		0.4		0.4
103	120	17	3	500	11.4		0.2	0.1	11.7
120	137	17	0	500	13.0		0.2		13.2
137	148	11	1	75	2.1		0.2		2.3
148	159	11	0	0	0.0		0.2		0.2
159	163	4	1	75	2.3		0.1		2.4
163	196	33	5	600	22.3	0.7	0.5		23.5
196	236	40	6 to 8	500	22.3	0.9	0.6		23.9
236	269	33	6 to 8	700	35.7	0.8	0.5		36.9
269	294	25	6	400	22.3	0.6	0.4		23.2
294	307	13	6	500	29.1	0.3	0.2		29.6
307	323	16	4	300	18.4	0.4	0.2		19.0
323	336	13	3	300	19.1		0.2		19.3
336	749	413	1	75	10.6		5.9		16.5
Total		**749**			**221.5**	**3.8**	**10.6**	**0.3**	**236.3**

[1]The existing utility corridor includes pipelines, pump and compressor stations, fiber optic lines, Interstate Highways, and railroads. The overall corridor width is the sum of the widths of major linear utilities within approximately 1 mile of the proposed Overland Pass pipeline centerline. Secondary roads and highways are not included in this estimate.

[2]Overthrust Wamsutter Pipeline. The utility use area is based on a surface disturbance width of 125 feet.

[3]Overland Pass, Enterprise Western Expansion Pipelines. The utility use surface area for each project is based on a surface disturbance width of 75 feet.



Overland Pass Pipeline Project

Figure 5.1-1
Utility Corridor Relationships with Sensitive Resources

5.2 Cumulative Impacts to Resources

5.2.1 Climate and Air Quality

Cumulative fugitive dust (particulate) increases may occur where Overland Pass and Overthrust Wamsutter are using the same access road system to construct their projects (Section 5.2.7). Both projects would follow state and local requirements for dust control on roads and excavated surfaces. As noted previously, the two projects could overlap very briefly in the same work area.

Overland Pass proposes to use electrical pumps at two proposed locations in Wyoming. As a consequence, Overland Pass would not directly contribute to hydrocarbon emissions from its facilities. Indirectly, the electricity used by Overland Pass would be produced by coal-fired and natural gas-fired power plants within the region. It is anticipated that demands for project electrical power would be met by existing and new generating capacity. The specific locations of new generating capacity presently are not known.

The Echo Springs and Laramie pump stations would be located in rural locations, and 1 mile or more from any residential locations. Each pump station would be sited at a new location, and therefore would not interact cumulatively with other nearby industrial sources.

5.2.2 Geology

5.2.2.1 Mineral Resources

Nearly all of the proposed pipeline route, and those pipelines that parallel the proposed pipeline route, cross oil and gas producing reservoirs. Some of the existing pipelines overlie trona mineral and coal deposits. Other mineral sources crossed by the pipelines include gravel, uranium in the Medicine Bow Mountains, and copper, gypsum, carbonates, and granite along the flanks of the Laramie Range (BLM 2002b). Although the presence of facilities within the corridor that would be occupied by the existing and proposed pipelines would preclude extraction of gravel and other minerals, oil and gas production could be accomplished through well pad offsets and directional drilling. In most cases, the Overland Pass pipeline generally is adjacent to existing pipelines (e.g., Rockies Express West) in Wyoming. Where the proposed pipeline route is not adjacent to an existing pipeline or other utilities, it is due to routing or environmental concerns (e.g., steep terrain, cultural resource site) or realigned to join another ROW. The amount of near-surface coal deposits precluded from future development due to the proposed pipeline route adjacent represents a very small increase in the cumulative effects. In fact, a recent study of the coal basins underlying the Rawlins Field Office jurisdictional area (BLM 2002b) indicates that coal mining in this area is at a distinct economic disadvantage as compared to the Powder River Basin, and that no new mines are expected to open to exploit these coal deposits in the foreseeable future.

5.2.2.2 Geologic Hazards

Regional seismic hazards, including earthquake ground shaking and subsidence and fault movement sufficient to cause damage, are very unlikely (see Section 3.3). Several existing pipelines within the Overland Pass corridor cross faults but none of these faults are active. Consequently, cumulative impacts related to fault movement and seismic activity are not anticipated.

5.2.2.3 Paleontological Resources

The proposed pipeline route would cross approximately 54 miles of BLM Condition 1 geologic units on BLM lands in western Wyoming, and 18 miles on the PNG administered by the USFS in Colorado. Condition 1 is represented by “areas that are known to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils.” Construction of the Overland Pass, Enterprise Western Pipeline, and the Overthrust Wamsutter Pipeline would contribute approximately 1.7, 0.3, and 0.4 square miles, respectively, of surface and trench disturbance in Condition 1 units. Pre-construction paleontological surveys have been, or would be completed for approved projects. Trench monitoring would be conducted in areas with high potential for important fossils.

Fossil material would be recovered and recorded from sites that warrant these investigations. Construction of the Overland Pass pipeline would contribute to the cumulative exposure and potential loss of scientifically valuable fossils, but construction monitoring would ensure that new scientific information would be collected and added to the existing body of knowledge.

5.2.3 Soils

The cumulative area of previous soil disturbance within the study area from existing utility projects from Opal, Wyoming, to Conway, Kansas, is approximately 222 square miles (**Table 5.2-1**). Cumulative impacts where this line parallels older utilities would be minimal with the effective implementation of BMPs and mitigations. More recent utility projects may be in the process of rehabilitation. Potential cumulative impacts could occur where these disturbances overlap. These impacts would be highly localized and primarily limited to the time of construction and 3 to 5 years following construction with successful reclamation. Cumulative impact would be minimized, however, with the effective implementation of erosion control and restoration measures.

Some soils on previously re-vegetated ROWs may be re-disturbed by construction on adjacent new pipeline ROWs in the future. Pipeline projects scheduled for 2006 and 2007 construction (Overthrust Wamsutter Pipeline, Enterprise Western Expansion) would disturb 3.8 and 0.3 square miles where these projects parallel the proposed Overland Pass pipeline. The Proposed Action would disturb approximately 10.6 square miles in this utility corridor.

5.2.3.1 Erosion

Potential cumulative erosion impacts could occur where pipeline construction disturbance areas overlap, or are located near each other between RP 0 and RP 329. BMPs for soil management and protection would be applied across all ownerships for these pipeline projects. Revegetation mixtures would be applied that are appropriate to soil conditions and expected future uses (grazing, wildlife habitat). As a consequence, the potential for cumulative erosion increases caused by one or more of these projects is low.

5.2.3.2 Sensitive Soils

The primary sensitive soils cumulative impacts issue is the maintenance of agricultural soil productivity where these soils have been disturbed by multiple pipelines. Based on STATSGO soils data, the project would cross approximately 4.9 miles of hydric soils in Wyoming, 1.1 miles in Colorado, and 1.5 miles in Kansas. These areas generally equate to irrigated pasturelands where shallow water tables have been augmented by seasonal irrigation. The majority of these areas are located in Albany and Laramie counties, Wyoming. The primary cumulative impact issue is to ensure that surface drainage is restored across the proposed Overland Pass construction ROW as well as adjacent pipeline ROWs, and to ensure that soil compaction is relieved in haylands and pasture. The Overland Pass, Overthrust Wamsutter Pipeline, and Enterprise Western Expansion projects have prepared, or would be required to prepare plans to restore and monitor irrigated soils. Application of these plans would ensure that agricultural productivity would be maintained indefinitely.

Soil mixing and compaction could occur on other sensitive soils (shallow, wet, rocky, saline) during construction. Where these pipeline corridors overlap and compaction is not mitigated a reduction in infiltration and runoff could result. These effects would be addressed on a site-specific basis by the various projects and would be minimized by proper implementation of soil protection measures and mitigations for decompaction.

Table 5.2-1 Overland Pass Project Cumulative Impacts for River Crossings, and Streams Containing Fisheries in Wyoming

Crossing/ Method/ Ownership	Associated Parallel Buried Utilities	Issues	Proposed Construction Methods/ Mitigation Measures
Hams Fork River (RP0.9) Open Cut Private	Pipeline 75 feet upstream	• Bank armoring – stream channel modification. • Channel scouring. • Bank stabilization.	• Low flow construction period. • Flow bypass flumes to maintain flow during construction. • Channel floor armoring with rock to reduce scouring risk. • Sand bags to stabilize banks.
Blacks Fork River (RP 18.9) Open Cut Private	4 pipelines - 50 to 125 feet downstream	• Downstream sedimentation on resident fisheries habitat (Water quality classification 2AB). • Bank armoring – stream channel modification. • Channel scouring.	• Low flow construction period. • Flow bypass flumes to maintain flow during construction. • Channel floor armoring with rock to reduce scouring risk. • Rip rap (rock) to stabilize banks.
Blacks Fork River (RP 41.3) Open Cut Private	3 pipelines – 50 to 100 feet downstream.	• Downstream sedimentation on resident fisheries habitat (Water quality classification 2AB). • Existing erosion problem on adjacent ROW downstream; bank instability. • Channel scouring • Bank armoring – stream channel modification.	• Low flow construction period. • Flow bypass flumes to maintain flow during construction. • Spoil storage outside the channel; replace channel sediment with rock to reduce scouring risk. • Rip rap (rock) to stabilize banks.
Green River (RP 59.3) Open Cut Federal - USFS	No parallel utilities within 500 feet of the proposed crossing.	• Downstream sedimentation on game fisheries habitat (Class 1 Fishery). • Migration of Kokanee salmon (spawning period). • Channel scouring that could exceed pipe burial depth (USFS calculations). • Greater pipe burial depth would require greater channel spoil removal, resulting in greater stored spoil volume, and greater in-stream sedimentation.	• Low flow construction period; partially avoid Kokanee salmon migration period. • Flow bypass flumes to maintain flow during construction. • Spoil storage outside the channel; replace channel sediment with rock to reduce scouring risk. • Pull-in pipe section to reduce work time in the channel. Backfill trench with rock (from flume) to provide scour protection.
Bitter Creek (RP 107.2) Open Cut Private	4 pipelines, 1 fiber optic cable within 250 feet downstream of proposed crossing.	• Bank armoring – stream channel modification. • Channel scouring.	• Low flow construction period. • Excavation of trench across channel with backhoes (no flow management devices or channel armoring. • Bank stabilization with rip rap.

Table 5.2-1 Overland Pass Project Cumulative Impacts for River Crossings, and Streams Containing Fisheries in Wyoming

Crossing/ Method/ Ownership	Associated Parallel Buried Utilities	Issues	Proposed Construction Methods/ Mitigation Measures
North Platte River (RP 195.5) Open Cut State of Wyoming – Game and Fish Commission	3 pipelines within 300 feet upstream of the proposed crossing.	• Downstream sedimentation on resident fisheries habitat (Water quality classification 2AB). • Bank armoring – stream channel modification. • Channel scouring.	• Low flow construction period. • Excavation of trench across channel with backhoes timber mats. • Flow maintained with flumes under a 7-foot Portadam. • Spoil storage within the river (downstream). • Pull-in pipe section to reduce construction time within the river. • Bank stabilization with rip rap.
Medicine Bow River (RP 228.1) Open Cut Private	4 pipelines, 2 fiber optic cables from 50 to 300 feet downstream of the proposed crossing.	• Downstream sedimentation on resident fisheries habitat (Water quality classification 2AB). • Unfavorable crossing location (immediately downstream of two actively cutting river bends) because other pipelines are already located in the best crossing locations within this utility corridor. • Extensive bank stabilization required to prevent river from cutting into the permanent ROW.	• Low flow construction period. • Dry crossing – sandbag dams upstream and downstream of trench – single flume to bypass river flow. • Sandbags and rip rap to stabilize banks, especially bend immediately upstream of the ROW.

5.2.4 Water Resources

5.2.4.1 Surface Water

Overland Pass proposes to directionally drill the South Platte River and, consequently, there would be no cumulative sediment increases at this crossing. The proposed pipeline projects would follow the FERC procedures and/or BLM stipulations for open-cut crossing smaller perennial streams and intermittently flowing waterbodies. In most cases, the site-specific erosion control and bank stabilization measures would prevent cumulative sedimentation increases where the projects cross the same stream channel at the same location.

Overland Pass proposes to open cut the crossings of the rivers and larger streams in Wyoming. **Table 5.2-1** provides a summary of: the existing buried utilities located at the same crossing point; proposed crossing construction methods; applicant-committed measures to reduce sedimentation from channel excavation and to protect stream banks; and additional recommended measures to reduce water quality reductions at individual crossings. The crossing methods and adjacent utilities are described in site-specific crossing plans provided to BLM by Overland Pass.

The Enterprise Western Expansion Project would be constructed across the Blacks Fork and Bitter Creek, and the Rockies Express/Entrega Project across the North Platte and Medicine Bow rivers several months to 1 year before the Overland Pass would cross the same waterbodies at nearly the same locations. Each project would be responsible for stabilizing the stream banks and the channel, and would be offset from the Overland Pass ROW. It is unlikely that these prior, but very recent projects would cause new channel stabilization requirements for Overland Pass.

However, there are existing channel and bank stability problems associated with other pipelines that share the pipeline corridor proposed for use by Overland Pass (**Table 5.2-1**). Existing bank erosion and channel down-cutting are occurring at the crossing of the Black Fork at RP 41.3. It is recommended that a scour control plan, and a joint project with the adjacent pipeline owners be undertaken to ensure the long-term stability of all adjacent pipelines in the corridor at that location.

The proposed Overland Pass crossing of the Medicine Bow River is in an unfavorable upstream position relative to other pipelines because of the large number of pipelines already installed at the same location. Extensive bank rip rap on upstream bends would be required to stabilize the permanent Overland Pass ROW. It is recommended that woody vegetation plantings be incorporated into the bank stabilization plan to reduce the amount of rock rip rap required.

Based on currently available schedules, the various projects would not be conducting concurrent hydrostatic tests at the same locations and, consequently, these projects would not cause cumulative water withdrawal volume reductions on the Green, North Platte, and Laramie rivers.

The proposed Overland Pass pipeline alignment parallels numerous pipelines and other linear features that cross alluvial floodplains and fans that are subject to periodic flooding and scour. Although Overland Pass has taken steps to avoid or limit the effects of scour, should an event occur, it could affect one or more other pipelines in addition to the Overland Pass pipeline. Potential cumulative damage interactions among pipelines as the result of a major channel scouring event are not expected.

5.2.4.2 Groundwater

Existing pipeline and other utility projects do not consume groundwater. None of the pipeline projects currently under construction (Overthrust Wamsutter Pipeline, Enterprise Western Expansion), and none of the proposed projects (Overland Pass) would use groundwater to hydrostatically test their pipeline. The proposed projects would implement spill containment and control plans as required by the BLM and state agencies. No cumulative impacts on groundwater volume or quality from these projects are expected.

5.2.4.3 Wetlands

Cumulative impacts to wetlands would occur where the Rockies Express/Entrega, Enterprise Western Expansion, and Overland Pass projects would be co-located between Overland Pass' RP 0 and RP 329 at the Cheyenne Hub. The majority of this disturbance would be in palustrine emergent wetlands and hayfields, dominated by grasses and sedges. Within Wyoming, the Overland Pass pipeline would disturb approximately 55 acres of wetland (primarily hayfields). In the segments co-located with Overland Pass, the Rockies Express/Entrega Pipeline would disturb approximately 98 acres. Where they are co-located with Overland Pass, the Enterprise Western Expansion would not cause cumulative wetland disturbance impacts. The natural gas pipeline projects would apply FERC wetland crossing procedures and/or BLM stipulations, and would be subject to conditions contained in USACE 404 permits and state water quality permits. None of the wetlands crossed would be permanently filled or drained. Therefore, cumulative effects to wetlands would be minor and short-term because of rapid recovery by grasses, sedges, and other herbaceous species.

5.2.5 Vegetation

5.2.5.1 Noxious Weeds and Invasive Plant Species

Based on input from local NRCS offices and the BLM, weed populations already exist, or potentially exist on the land adjacent to proposed construction ROWs for the Rockies Express West, Overthrust Wamsutter, Enterprise Western Expansion, and Overland Pass pipeline projects. These projects would apply weed controls prior to and during construction, including pre-construction weed control and equipment cleaning. These projects also would be responsible for monitoring and controlling weed invasions on federal lands; comparable programs have been recommended on private lands, subject to landowner agreements. Based on proposed weed control measures and equipment cleaning, these projects would not cumulatively contribute to new weed infestations.

The total amount of vegetation that may be affected by all of the proposed projects is substantial but still relatively small compared to the abundance of similar habitat in the project area. While these projects could potentially fragment vegetation habitat, this effect would be minimal because no densely forested areas would be crossed by the proposed pipelines. This effect would be further reduced by the co-location of many of these projects with existing ROWs. All of the projects would include mitigation measures designed to minimize the potential for long-term erosion, increase the stabilization of site conditions, and in many cases control the spread of noxious weeds, thereby minimizing the degree and duration of the cumulative impact of these projects.

5.2.6 Wildlife, Aquatic Resources, and Special Status Species

5.2.6.1 Wildlife

Habitat

The removal of forest land and shrubland habitats would result in a long-term habitat reduction because the regeneration of woody species is slow in the project region. Construction and operation of the proposed Overland Pass pipeline would incrementally add to the width of habitat discontinuities within existing utility corridors, which may affect the movement of species dependent on these habitats and would cumulatively reduce carrying capacity for woodland- and shrubland-dependent species.

Big Game

The Overland Pass pipeline would cross elk, mule deer, and pronghorn critical or crucial winter habitats in both Colorado and Wyoming, respectively. The incremental surface disturbance contributed by the Overland Pass pipeline to the cumulative projects would represent a small fraction (less than 1 percent) of the individual big game ranges crossed. Overland Pass, Overthrust Wamsutter Pipeline, and Enterprise Western Expansion Pipeline projects have coordinated with the BLM, CDOW, and WGFD to develop revegetation seeding

mixtures that include shrub, forb, and grass species that are used by big game, as well as other target species. The application of these mixtures, followed by ROW monitoring after construction (**Appendix B**) would ensure that there is a long-term effort to restore big game forage in designated critical (Colorado) and crucial (Wyoming) winter habitat.

These projects would cross big game winter ranges in relatively remote areas of southern Wyoming. These projects would be subject to winter construction closures depending on severity of the early winter, so that wintering big game conflicts would be largely avoided during this season. Big game winter range closures are being determined for the Overland Pass by the BLM in consultation with the WDGF.

5.2.6.2 Aquatic Resources

Overland Pass proposes to open-cut five streams (Hams Fork River, Blacks Fork River, Bitter Creek, Green River, North Platte River, Medicine Bow River, and Laramie River) in Wyoming that contains game fisheries (**Table 5.2-1**). Several of these waterbodies also would be crossed by the Overthrust Wamsutter Pipeline and Enterprise Western Expansion pipeline projects several months to 1 year earlier than the Overland Pass project. Cumulative waterbody construction impacts would not occur in the same season. Channel armoring measures, and sediment control measures are proposed by Overland Pass for these crossings to reduce downstream sedimentation on fish habitats. As described under water resources, pre-existing bank and channel instability associated with previous pipeline projects are contributing to increased sedimentation downstream of the utility corridor at the Hams Fork and Blacks Fork river crossings. BLM recommendation to reduce erosion and channel scouring at this location would benefit fisheries that would otherwise be affected by the project.

5.2.6.3 Special Status Species

With the exception of occasional foraging by bald eagles (but no winter roost sites), none of the species discussed below would be affected by other pipeline projects within the proposed pipeline cumulative study area.

Bald Eagle

Within the cumulative affects area, bald eagles use winter roosts and occasionally nest along the Green, North Platte, Medicine Bow, Rock Creek, and Laramie rivers. Pipeline crossings for the Rockies Express/Entrega Pipeline and Overland Pass pipelines would be subject to construction timing restrictions during critical bald eagle use seasons, and would be requested to implement measures to avoid the loss of roost or nest trees. No other known projects are scheduled for work locations at these crossings and these projects would be constructed in different years. Therefore, these projects would not contribute to cumulative impacts to bald eagle winter or nesting habitat, nor would construction activities coincide with bald eagle critical use periods along these rivers.

Black-footed ferret and other prairie dog colony inhabitants (burrowing owl, mountain plover)

The Overland Pass, Overthrust Wamsutter, Rockies Express/Entrega, and Enterprise Western Expansion pipeline alignments would cross prairie dog colonies between Opal (RP 0.0) and RP 152, east of Rawlins, Wyoming. The construction of these projects has and would cumulatively cause surface disturbance in prairie dog colonies and potential loss of prairie dog individuals, which are black-footed ferret prey. These projects would be subject to pre-construction surveys. If ferrets were sighted, construction would not be authorized until the necessary consultation with the USFWS had occurred. If mountain plovers or burrowing owls were sighted during pre-construction surveys, construction constraint periods would be established to ensure that fledglings leave the areas before construction begins. Based on these measures, no cumulative impacts to these species are expected, with the exception of the short-term surface disturbance within prairie dog colonies during construction.

Sage grouse

Active sage grouse lek (breeding) sites occur within 2 miles of the Overland Pass, Enterprise Western Expansion, and Overthrust Wamsutter pipeline routes in Wyoming. Projects would be subject to seasonal construction restrictions to avoid critical sage grouse breeding and brood-rearing periods. These projects would contribute to incremental increases in the width of the existing pipeline corridors. The combined construction ROWs through this segment could be as much as 200 feet, which could more than double the pipeline corridor width in some sagebrush habitats. Between Wamsutter and Arlington (a distance of approximately 110 miles), the Overland Pass would largely parallel Rockies Express West and would expand a large existing pipeline corridor through Wyoming sagebrush habitats. Reduction in sagebrush cover exposes sage grouse to higher predation rates and may limit bird movement across these discontinuities. Reduction in sage grouse populations and reductions in use of traditional lek sites have been documented in oil and gas well fields in Alberta, Wyoming, and Colorado (Connelly et al. 2000). Other factors, such as wildfires, periodic drought, invasion by cheatgrass, and intensive livestock grazing also adversely affect sage grouse habitat suitability (Connelly et al. 2004). In summary, the Overland Pass and other regional pipeline projects would contribute to the cumulative long-term reduction in, and fragmentation of sage grouse habitat in Wyoming by expanding an existing utility ROW. These projects would adhere to seasonal restrictions during sage grouse breeding and brood-rearing periods, and therefore cumulative indirect effects from increased human activity and noise during construction would not occur.

5.2.7 Land Use and Visual Resources

5.2.7.1 Land Use

Conversion and Construction Effects

The Overland Pass, Enterprise Western Expansion, Rockies Express/Entrega, and Overthrust Wamsutter pipeline projects incrementally would add to the acreage of aboveground oil and gas pipeline facilities in Wyoming. Assuming that approximately 300 acres are already dedicated to compressor stations, MLVs, meter stations, and pig launchers/receivers, Overland Pass proposes to add 14 acres in Wyoming for aboveground facilities. Enterprise Western Expansion Project would require an estimated 9 acres for new aboveground facilities (valves, pigging facilities, and interconnections), Rockies Express/Entrega would require approximately 17 acres in Wyoming, and Overthrust Wamsutter Pipeline would require 52 acres for its aboveground facilities in Wyoming.

While installation of new pipelines in an existing corridor would incrementally reduce the area available for future development, use of established utility corridors concentrates cumulative land use impacts. With the exception of a rural residential area between Cheyenne and Laramie (Rockies Express/Entrega and Overland Pass), the Overland Pass, Overthrust Wamsutter, and Enterprise Western Expansion projects would not cumulatively affect residential land uses. The majority of rural residential lots between Cheyenne and Laramie are approximately 40-acre parcels. The existing corridor contains 5 to 6 utilities (pipelines and fiber optic cables) in this area. Adding Rockies Express/Entrega and Overland Pass together, the 50-foot permanent ROW for 8 utilities across the full width of a 40-acre parcel would be 12.1 acres, or approximately 30 percent of the parcel area. However, the existing pipeline corridor pre-dates the subdivision of existing rangeland in this area, and owners and new buyers were informed of the pipeline easements in their deeds.

Special Management Areas

The Overland Pass and the Rockies Express/Entrega pipelines both cross the Continental Divide Trail at RP 178.5. The construction periods of the two projects would not overlap at this location. Both projects would maintain recreational user access along this trail by providing short detours, and restoration of existing roads and trails.

5.2.7.2 Visual Resources

The majority of the proposed pipeline route across federal lands where visual management standards have been established are already highly modified by existing utility projects. Two Class II Visual Resource Management Areas where minimum landscape modifications would be allowed are located between RP 0 to RP 1.6 (Kemmerer Field Office), and between RP 59.2 to RP 60.4 (Rock Springs Field Office). No other proposed projects would be co-located with the proposed pipeline route at these locations; therefore cumulative visual resource impacts caused by additional pipeline construction would not occur.

The primary Overland Pass aboveground facilities (Echo Springs and Laramie pump and meter stations) would be constructed adjacent to an existing utility corridor. These new facilities would be located in rural locations, and therefore would not viewed by a large number of recreational and highway travelers. Cumulative impacts resulting from greater visibility of industrial facilities in natural settings are not expected.

5.2.8 Cultural Resources

Records searches and pedestrian surveys have been completed in Wyoming, Colorado, and Kansas. There is a potential for sites eligible to the NRHP to be affected by pipeline projects constructed adjacent to each other in the same utility corridor. Effects on eligible sites by the individual projects would be determined independently through reviews by the BLM and the SHPOs of the individual states. In some instances, the cumulative surface disturbance of multiple projects in the same corridor may require rerouting of one or more projects to minimize surface disturbance effects on cultural resources.

5.2.9 Socioeconomics

The Overland Pass pipeline and other pipeline projects may be constructed in a similar timeframe. While detailed schedules are not available, it is likely that the Overthrust Wamsutter Project could overlap with the Overland Pass construction timeframe and the two projects would be constructed in the same general area. Assuming approximately 1 mile of pipeline construction completed each day, the workforces of the two projects could broadly overlap over a period of several weeks. The Rendevous pipeline and Kanda Lateral also may be constructed in late 2007, and the workforces for these projects may place demands on local infrastructure (temporary housing, other services). The potential for the maximum cumulative workforce likely would occur in the vicinity of Green River and Rock Springs, Wyoming. Based on current high levels of oil and gas activity in this region, it is expected that there may be a shortage of temporary housing for non-local workers, resulting in longer employee commutes, or the requirement for contractors to obtain more temporary housing in the vicinity of the pipeline spreads. There also may be increased demands on local emergency services, based on the large number of projects underway at the same time, and the large distances to be traveled for emergency response.

The majority of the Overland Pass and Overthrust Wamsutter work areas are in rural areas, with good access to I-80 across Wyoming. Cumulative traffic impacts are not expected except where multiple projects are being constructed simultaneously, such as the vicinity of Kanda and Granger in western Wyoming. These cumulative impacts would be short-term as pipeline spreads move away from congested areas.

The Overland Pass and Overthrust Wamsutter projects would follow transportation plans to manage construction vehicles, and would follow standard measures for fence repair, provision of temporary gates, and provision of temporary crossings for livestock. Equipment turning onto and off state highways and access roads may require flagmen and other controls to limit the risk of accidents on public roads. Both projects would be required to obtain local crossing permits for county roads, which would define weight limits and maintenance standards. The BLM and USFS have defined minimum standards for maintenance of existing roads, and construction and operation of any new permanent roads on BLM- or USFS-administered land.

The construction workforces for projects occurring in the same time frame would contribute to short term increases in local sales tax revenues, and long term increases in the property tax base. Few long-term

employees would be needed to operate these new pipelines, and therefore no long term impacts to employment and demands on local services are expected.

5.2.10 System Safety and Reliability

As discussed previously, no cumulative operational safety impacts are expected among pipelines and other facilities located in the same general utility corridor because of the spacing between pipelines, the depth of soil cover, and requirements to meet USDOT Minimum Federal Safety Standards in Title 49 CFR Part 192 and Part 95.