

## 2.9 Transportation and Utilities

### 2.9.1 Key Issues

The key transportation and utility issues in the PRB study area include:

- Highway capacity and safety issues from development-related traffic changes;
- Railroad capacity and safety issues related to potential increases in coal production;
- Utility capacity requirements related to increased development; and
- Potential utility ROW/easement requirements and related conflicts with other land uses or transportation corridors.

### 2.9.2 Study Area

The study area for transportation and utilities includes all or portions of Sheridan, Johnson, Campbell, and Converse counties (see **Figure 1-1**). It includes all of the area administered by the BLM Buffalo Field Office, a portion of the area administered by the BLM Casper Field Office, and a portion of the TBNG, which is administered by the USFS (see **Figure 1-2**). State and private lands also are included in the study area (see **Figure 1-3**).

### 2.9.3 Current Conditions

#### 2.9.3.1 Transportation

##### Highways and Roads

Consistent with the low population density in the study area, the major road network is quite sparse. In the approximately 120-mile by 140-mile PRB study area, there are only two major north-south highways, and one major route with several lesser, two-lane primary highways running east and west (see **Figure 1-1**). I-25 runs north and south along the west side of the study area, intersecting I-90 at Buffalo; I-90 continues northwesterly through Sheridan and on to Billings, Montana, and easterly through Gillette, across northeast Wyoming, and on to Rapid City, South Dakota. South of Buffalo, I-25 runs through Casper, Douglas, Wheatland, and Cheyenne and continues on through Colorado's Front Range cities. The other major north-south highway is SR 59 running through the eastern part of the study area from the Montana state line through Weston, Gillette, and Bill, to Douglas and I-25.

I-90 is the primary east-west route through the PRB study area. I-90 is the northernmost continuous interstate route across the U.S. from Seattle to Boston. It crosses the study area from the Montana state line through Sheridan, Buffalo, and Gillette and exits Wyoming into South Dakota. Primary, two-lane east-west highways include U.S. Highway 14 and 16 on a northerly route from Gillette to I-90 at Sheridan (U.S. Highway 14) and Buffalo (U.S. Highway 16), and SR 387 from Reno Junction/Wright to I-25 at Midwest, just outside of the study area.

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Several short segments of U.S. highways and secondary state roads and numerous county roads also provide local access to public and private lands in the study area. In addition, there is a complex network of essentially unimproved, and only minimally maintained, local roads serving the area, some of which are not open to public access without landowner permission.

Traffic volumes on the road network in the study area are highly variable. The highest volume counts are found on major roadways in or near the largest communities. In rural areas, the interstate highways (I-90 and I-25) carry the largest traffic volumes, followed by major state highways. Traffic volumes for major roads are presented in **Table 2.9-1**. Current traffic volumes are well within the capacity of major highways in the study area.

There is no readily discernible pattern to changes in traffic volumes over the past 5 years, except that the largest numerical increases generally have occurred in or near the larger communities (see **Table 2.9-1**). Other than that, the rates of change in traffic volumes have varied a great deal throughout the study area. The percent changes in traffic volumes were larger from 1998 to 2003 than from 1994 to 1998, primarily in the Gillette and Sheridan areas. This change in traffic growth rates tracks with the increased population growth rates in Campbell and Sheridan counties in the latter half of the past decade, which have been driven by increases in coal and CBNG employment (**Table 2.9-1**).

There are numerous improved and unimproved (four-wheel drive) roads within the study area. BLM transportation planning for the study area is discussed in the updated RMPs for the Buffalo and Casper field offices (BLM 1977; 2001). Based on BLM Manual, Section 9113 (BLM 1985), roads on BLM lands are classified, based on the amount of traffic movement, into three classes: collector, local, and temporary resource roads. Collector roads generally provide access to large land tracts and are the major access routes into development areas with relatively high average daily traffic rates. They usually connect with or are extensions of public road systems and are operated to support long-term land uses. Local roads normally serve a smaller area and have lower traffic volumes than collector roads. They connect with collectors or public road systems. In mountainous terrain, local roads may be single lane roads with turnouts. Resource roads generally are point access or spur roads that connect with local or collector roads and carry low traffic volumes.

The BLM and USFS are responsible for ensuring that new roads on federal lands meet the criteria for design and construction. BLM minimum road design and maintenance requirements are provided in BLM Manual, Section 9113 – Roads (BLM 1985).

New roads across non-federal lands would have to comply with the design and maintenance requirements of the State of Wyoming and local jurisdictions, mainly counties. An access permit from WYDOT would be required before a new road connection to a state highway could be constructed. An access permit also would be required before an existing private or ranch road accessing a state highway could be converted to public use.

Many of the existing roads within the study area need repairs or improvement. The fiscal year (FY) 2005 Surface Transportation Improvement Program (STIP), prepared by the WYDOT Planning Program, identified 184 projects addressing over 625 miles of roadway in the state (WYDOT 2004). Major projects scheduled for construction in the study area include widening and resurfacing of 5 miles of I-25 north of Buffalo, adding 33 miles of passing/climbing lanes to SR 59 in the Reno

**Table 2.9-1  
Annual Average Daily Traffic Counts**

County	Route	Location	AADT <sup>1</sup>									
			Counts by Year				Percent Change					
			1994	1998	1999	2003	1994-1998	Average Annual	1998-2003	Average Annual	1994-2003	Average Annual
Campbell	I-90	SR 59 intersection	5,460	6,070	6,380	7,710	11.2	2.7	27.0	4.9	41.2	3.9
	I-90	Gillette east urban limits	5,360	5,970	6,100	7,670	11.4	2.7	28.5	5.1	43.1	4.1
	I-90	Wyodak intersection	5,050	5,660	5,790	6,250	12.1	2.9	10.4	2.0	23.8	2.4
	U.S. Hwy 14-16	Rozet intersection	4,590	5,100	5,320	6,080	11.1	2.7	19.2	3.6	32.5	3.2
	SR 50	Savageton	460	500	550	690	8.7	2.1	38.0	6.7	50.0	4.6
	SR 59	Wyoming-Montana State line	290	300	300	360	3.4	0.9	20.0	3.7	24.1	2.4
	SR 59	Gillette, Lakeway Road south urban limits	17,170	18,690	17,760	17,180	8.9	2.1	-8.1	-1.7	0.1	0.0
	SR 59	Reno Junction (Wright)	2,210	2,150	2,250	2,790	-2.7	-0.7	29.8	5.3	26.2	2.6
	SR 59	Campbell-Converse County line	1,060	1,350	1,450	1,200	27.4	6.2	-11.1	-2.3	13.2	1.4
	SR 387	Campbell-Johnson County line	1,040	1,110	1,210	1,200	6.7	1.6	8.1	1.6	15.4	1.6
Converse	SR 59	Bill	1,280	1,350	1,450	1,350	5.5	1.3	0.0	0.0	5.5	0.6
Johnson	I-90	Junction I-25 (Buffalo tri-level intersection)	2,950	3,680	3,700	3,900	24.7	5.7	6.0	1.2	32.2	3.2
	I-90	Johnson-Campbell County line	3,950	5,030	5,140	4,440	27.3	6.2	-11.7	-2.5	12.4	1.3
	I-25/U.S. Hwy 87	Junction Kaycee interchange	2,400	2,800	2,802	3,030	16.7	3.9	8.2	1.6	26.3	2.6
Sheridan	I-90/U.S. Hwy 87	Wyoming-Montana State line	3,360	3,710	3,760	3,860	10.4	2.5	4.0	0.8	14.9	1.6
	I-90	Sheridan-Johnson County line	4,830	5,700	5,970	6,250	18.0	4.2	9.6	1.9	29.4	2.9
	U.S. Hwy 14	I-90	2,250	2,400	2,400	2,270	6.7	1.6	-5.4	-1.1	0.9	0.1
	U.S. Hwy 14-16	Ucross Junction	460	560	560	580	21.7	5.0	3.6	0.7	26.1	2.6
	U.S. Hwy 14-16	Sheridan-Campbell County line	170	180	180	400	5.9	1.4	122.2	17.3	135.3	10.0
	U.S. Hwy 16	Sheridan-Johnson County line	270	260	280	350	-3.7	-0.9	34.6	6.1	29.6	2.9
	SR 336	Sheridan east urban limits	3,950	4,100	4,200	5,500	3.8	0.9	34.1	6.1	39.2	3.7
SR 338	Sheridan north urban limits	970	1,050	1,050	1,610	8.2	2.0	53.3	8.9	66.0	5.8	

<sup>1</sup>AADT - average annual daily traffic.

Source: WYDOT 1995, 1999, 2004.

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Junction vicinity, reconstructing 11 miles of roadway and a bridge on SR 59 north of Gillette, reconstructing 11 miles of U.S. Highway 14/16 southeast of Spotted Horse, and reconstructing and widening 4 miles of SR 50 (4 J Road) near Savageton Road. The STIP also identifies preliminary engineering activities for projects planned through FY 2010.

The four counties in the study area have given varying degrees of attention to planning for transportation improvements. The general transportation planning goals for Campbell County are discussed in the City of Gillette/Campbell County Comprehensive Planning Program (City of Gillette and Campbell County 1994). They indicate traffic generation and potential traffic conflicts would be considered in evaluating new developments and zoning changes. The county currently is replacing scoria-surfaced roads with river gravel to reduce dust. Johnson County has no formal transportation plan. Sheridan County's Growth Management Plan (Sheridan County 2001a) recommends development of a Sheridan Urban Transportation Plan. Transportation issues identified in the Converse County Land Use Plan (Converse County 2003) include paving and other improvements required to accommodate traffic from increased residential development and mineral extraction and processing in rural areas where gravel roads previously were suitable.

### **Railroads**

Two major rail lines serve the study area (**Figure 1-1**). The BNSF enters Sheridan County from Montana north of Sheridan, runs southerly through the city, and then southeast through Clearmont to the City of Gillette in Campbell County. From Gillette, the railroad continues southeasterly to South Dakota. A secondary route jointly operated by BNSF and UP, primarily serving coal trains from PRB mines, generally heads straight south from Gillette into Converse County toward Douglas where it splits into southerly and easterly branches. There is a major marshalling yard and repair facility about 5 miles south of Bill. Several spur lines connect the railroad with existing and historical mines in the area. The typical ROW corridor for the railroad in the study area is 400 feet wide (BLM 2001b).

Current coal train traffic averages approximately 144 coal unit trains (loaded and empty) per day; 110 on the southern route and 34 on the northern route (Bartlett 2004, Roark 2004). The number of trains is very close to the number predicted for 1995 in the Powder River FEIS Coal (BLM 1981). The volume of coal shipped is greater than predicted, however, because trains today range from 118 to 135 100-ton cars, rather than the 100 100-ton cars predicted in 1981. Over 75 percent of the coal trains currently head south out of the PRB, compared to a nearly even north-south split predicted earlier. The difference has been accommodated by upgrading the line south of Bill, Wyoming, to a triple track configuration.

### **Airports**

Three public airports exist in the study area (AirNav.com 2001). The Gillette-Campbell County Airport is located 4 miles northwest of Gillette. The Gillette very high frequency omnidirectional range (VOR) (radio aid used for navigation) is located at the airport. The Sheridan County Airport and VOR are located southwest of the City of Sheridan. All development within the Sheridan County designated Airport Zone must comply with the Airport Master Plan (Barnard Dunkelberg & Company 1996). The Johnson County Airport and Crazy Woman VOR are located 3 miles northwest of the City of Buffalo.

Federal Aviation Administration (FAA) regulations require a 2-mile radius safety zone around airports to promote air navigational safety at the airport, and to reduce the potential for safety hazards for property and for persons on lands near airports. FAA regulations also require filing a notice (FAA Form 7460-1) for construction projects which extend 200 feet or greater above natural terrain and are located within 5 miles of an airport. Portions of the study area are located within the 2-mile safety zones for these airports.

### 2.9.3.2 Utilities

#### Electric Transmission

There are two major electric power line corridors through the study area, both running in a generally north-south direction. Both corridors contain 230-kilovolt power lines. The westerly corridor essentially parallels the I-90 corridor southward from the Montana border, passes around the City of Sheridan on the east, passes the City of Buffalo, also on the east side, and then connects into the I-25 corridor, which it parallels through Casper, Douglas, and on south to the Laramie River Station near Wheatland. The second major electric transmission corridor runs along the east side of the study area. It generally parallels SR 59 from the Montana border south past Gillette to the Douglas area. As part of the regional grid, it connects to the Wyodak/Neil Simpson/Wygen Power Plant complex near Gillette. Both major transmission lines connect to the 750-megawatt Dave Johnston Power Plant operated by PacificCorp near Glenrock.

#### Pipelines

The PRB study area is crossed by an extensive network of oil and gas transportation pipelines due to its history of oil and natural gas production. Currently, the gas collection network is expanding as new areas are being developed for CBNG production. Among the major crude oil lines are the 18-inch Belle Fourche pipeline running northeast from a junction near Kaycee to the Montana state line near the Campbell – Crook county line, and the 18-inch Rocky Mountain Pipeline System line running south to Casper from the same junction northeast of Kaycee.

There are numerous large diameter natural gas pipelines carrying gas from the extensive network of gathering lines to markets outside the basin, mainly to the south. There are a pair of parallel 24-inch Fort Union Gas Gathering System lines running nearly straight south from southeast of Gillette to the I-25 corridor west of Douglas. There is a 24-inch Thunder Creek Gas Services line also running nearly straight south from gas fields northwest of Gillette to the I-25 corridor between Douglas and Casper. There are two 16-inch lines running southerly from the Western Gas Resources processing plant northeast of Wright. One is a Kinder Morgan operating line, which parallels SR 59 into Douglas. The other is a McCulloch Interstate Gas Company line, which runs approximately 15 miles farther west, crossing the I-25 corridor west of Douglas. There are numerous smaller natural gas gathering and transmission lines lacing across the PRB that are operated by more than a dozen pipeline companies (De Bruin 2002).

### 2.9.4 Comparison to Previous Predictions

The Eastern Powder River Coal Final EIS (BLM 1979) predicted approximately 104 unit trains per day into and out of the PRB in 1990, half of which would be loaded and the other half returning

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empties. Approximately 58 of the 104 would be using the northern route and 46 would be using the southern route. The Powder River Regional Final EIS (BLM 1981) is not clear as to how many coal trains it anticipated, but it apparently predicted 71 trains per day on the southern route and 74 on the northern route in 1995. In comparison to these early estimates, current coal train traffic averages approximately 144 coal unit trains (loaded and empty) per day; 110 on the southern route and 34 on the northern route (Roark 2004; Bartlett 2004).

In addition, there have been substantial technological changes in the rail transport of PRB coal in the past 25 years. The early rail traffic estimates assumed trains of 100 cars, each carrying 100 tons of coal, pulled by 5 locomotives. In contrast, current trains range from 118 to 135 100-ton cars (most at the upper end of the range) pulled by three locomotives. These changes have been made possible by advancements in horsepower, adhesion, fuel efficiency, exhaust emissions, and electronic controls for the locomotives (Godsil 2004).

No new "greenfield" railroad main lines have been built in the PRB since the north-south route through the basin was built. This joint UP/BNSF line, operated by BNSF, is being upgraded in 2004 and 2005 from a double track to a triple track between Shawnee Junction, east of Douglas, to Mile Post 58, approximately 27 miles north of Bill (Brandt 2004). This upgrade has required minor widening of the ROW, but no major land acquisition (Godsil 2004).