3.13 UTILITIES AND INFRASTRUCTURE

3.13.1 Introduction

The following section describes the existing utilities and infrastructure within the White Pass Study Area (refer to Figure 1-4). For the purposes of this analysis, utilities are discussed under the following categories: structures, lifts, power, communications, water, and wastewater treatment.

3.13.2 Affected Environment

3.13.2.1 Structures

Refer to Figure 1-4 for the spatial arrangement of existing facilities.

Day Lodge: The White Pass day lodge was reconstructed over an existing day lodge during the 1969-70 construction season, with a major addition in 1988. During the summer of 2003, White Pass added approximately 2,000 square feet and 180 additional restaurant seats to the lodge in response to increasing visitation (refer to Section 3.11 – Recreation). The lodge, with three floors covering 22,000 square feet, is wood timber framed with stucco siding and a concrete foundation with stone veneer. The main floor (center) houses the cafeteria and provides most of the seating capacity. A 3,500-square foot outdoor deck is accessed off this floor.

Upper Maintenance Shop: This structure was constructed in 1966 and is used for lift, vehicle, and area maintenance support, employee lockers, and the mountain operations office. The building includes 1½ floors with 1,100 square feet dedicated to maintenance and 800 square feet for employee services.

Lower Maintenance Shop: The "Lower Shop" was purchased from the State of Washington and moved across the street to the ski area when WSDOT relocated their operations one-half mile west of the summit in 1976. The main snow grooming fleet is housed within this 3,200-square foot steel frame building.

Mountain Manager Residence: South of the maintenance shop and closer to the ski slopes is the three-story 3,400-square foot mountain manager residence.

General Manager's Residence: This 1,200-square foot, 1.5 story structure is located near the Nordic system trailhead. It was constructed in 1998.

Ticket Booth: All lift ticket sales and ski school sales are handled from this 400-square foot structure with six point-of-purchase sales windows located between the day lodge and Chair 1 (*Great White Express*).

Guest Resort Complex: The Village Inn and Summit House is a 59-unit condominium complex located within the SUP area, on the north side of US 12. The condominium complex has the capacity to sleep 250. The Village Inn, developed in 1965-66, consists of 56 units in four buildings and a heated swimming

pool. The Summit House, consisting of three units in one building, replaced the Ski View restaurant in 2000.

Yurts: In 2001, White Pass installed a 30-foot diameter yurt with a deck and flush toilet at the Nordic center to provide facilities for Nordic skiers. In 2002, a similar yurt and composting toilet were installed along the Quail trail to provide facilities for skiers in the *Paradise* pod.

Kracker Barrel Convenience Store: Located adjacent to the east end of the condominium complex, this structure was constructed as a general store and service station in 1965-66. In 1980, a second story was added for employee housing and in 1995, the two service bays were removed and building remodeled to include minor food service and indoor seating. The building has 3,200 square feet on the main floor and 1,900 on the second. An 850-square foot canopy provides shelter for two gasoline pumps and entry cover to the store.

Ski Clubs: Two ski clubs are present at White Pass. The Yakima Valley Ski Club is located in the base area, adjacent to the bottom terminal of *Lower Cascade*. The 2,000-square foot Yakima Valley Ski Club lodge was renovated in 2003. The recent renovations reduce a members need to load and haul equipment back and forth to the mountain each trip due to new oversized ski lockers. The locker area located in the lodge is heated and offers wall to wall carpeting. The Olympic Ski Club is located to the west of the base area facilities. These clubs operate under separate SUPs with the Forest Service.

3.13.2.2 Lifts

The existing chairlifts at White Pass include one high speed quad - Chair 1 (*Great White Express*), a triple – Chair 3 (*Lower Cascade*), and two doubles – Chair 2 (*Pigtail*) and Chair 4 (*Paradise*), as well as a surface tow – (*Platter*). Chairs 1 and 2 provide access to the summit, while Chair 3 and the Surface lift cater to beginners and include a teaching area. Chair 4 accesses the majority of intermediate terrain; however, this lift may only be reached from the summit of the mountain. Chairs 2 and 4 are top drive while chairs 1 and 3 are bottom drive. All lifts have auxiliary backup, generators with fuel storage tanks located above ground. Additional lift information and specifics are provided in Table 3.13-1.

Table 3.13-1:
Existing White Pass Lift Specifications

Lift Name	Lift Type	Vert. Rise	Horiz. Length	Slope Length	Hourly Capacity
		(ft.)	(ft.)	(ft.)	(pph)
1. Great White Express	Det. Quad	1,521	4,814	5,125	2,100
2. Pigtail	Double	1,493	4,628	4,987	900
3. Lower Cascade	Triple	510	2,166	2,232	1,800
4. Paradise	Double	712	2,675	2,804	1,200
5. Platter	Platter lift	66	512	517	400

3.13.2.3 Power

Electric power is provided by Benton Rural Electric Association (REA) via lines coming from the east. The transformer capacity is 2,970 kW; however, the existing line is not capable of delivering more than 1,550 kW to the summit. At some point during the expansion, electrical power needs would exceed this capacity and new, higher capacity lines would need to be constructed. Based on recent experience, it appears technically feasible to utilize the existing powerline corridor with upgraded conductors and utility poles.

In addition, the day lodge, maintenance shops, mountain manager's residence, and waste treatment facilities are served by a backup auxiliary 125 kW diesel powered generator. Within the existing SUP area, power to chairs 2 and 4 has been installed in the underground access road to the top of the mountain (refer to Figure 2-1). Chair 1 is adjacent to the main line and transformer, and Chair 3 and the platter are provided power from a spur from the main line.

3.13.2.4 Communications

Telephone services are provided by Century Tel. Relay stations are located within the White Pass SUP area, but do not interfere with daily operations.

3.13.2.5 Water

The water supply for White Pass is a tapped spring above the base area at an elevation of 5,200-feet, which provides water for the entire complex. Built into the domestic water system is a 52,000-gallon water storage tank with 350 gallons per minute recovery for fire protection (refer to Figure 1-4). A Certificate of Water Right from the WDOE approves the withdrawal of this water (WDOE 1976). During the 1996-97 season (Dec. 20 to March 16), the average peak weekend and holiday water use was 9,195 gallons/day (5 percent of capacity) for 1,870 skier visits, or an average of 4.92 gallons per visitor. On the highest visitor day use on record (2,949 skier visitors), 12,561 gallons were used (4.26 gal/visitor/day).

3.13.2.6 Wastewater

The ski area wastewater system was built between 1982-84 and includes both a 26,690-gallon septic tank and two separate drainfield halves, with a capacity of 12,000 gallons per day (GPD). There are two primary drainfields covering 16,300 square feet and one reserve drainfield covering 2,500 square feet. The septic tank capacity is 16,500 GPD. The system's overall design capacity is 12,000 GPD, and the current peak use of the treatment system is approximately 9,200 GPD (McCarthy 2005). In the event of a power outage, the base area diesel generator powers the primary wastewater system.

The resort area system on the north side of US 12 was rebuilt in 1991-92 and includes three levels of treatment: septic tank, re-circulating gravel filter (RGF) and drainfield. The total volume of the septic tanks is 24,570 gallons. The RGF consists of a 12,000 gallon re-circulating tank and a 4,000-square foot

gravel filter. There are two primary drainfields covering 11,310 square feet and one emergency gravity-fed reserve drainfield covering 1,567 linear feet.

The operation and maintenance of these utilities requires White Pass to be in compliance with State and Federal laws and regulations. Wastewater treatment systems with capacities of less than 14,500 GPD, such as the current system at White Pass, are regulated by local county health departments (in this case, the Yakima County Department of Health), while larger wastewater treatment systems fall under the jurisdiction of WDOE (Kennedy, pers. comm.). Compliance with applicable laws and regulations is currently being met and is expected to continue into the foreseeable future.

3.13.2.7 Roads

The White Pass Study Area contains 6.6 miles of roads, all within the existing SUP area, including 6.2 miles of native surface roads (refer to Table 3.3-2). This road system provides access to the lifts and other upper-mountain facilities for White Pass maintenance personnel. The majority of the roads realize several vehicle trips per year. A total of 28 stream crossings (18 culverts and 10 fords – Table 3.3-2) require annual inspections and the road system requires annual inspection under the annual operating plan. Refer to Sections 3.2 – Geology and Soils and 3.3 – Watershed Resources for detailed description of the effects of roads and stream crossings.

3.13.3 Environmental Consequences

3.13.3.1 Alternative 1

Under Alternative 1, utilities and infrastructure would remain as described for the affected environment. The existing infrastructure would be sufficient to accommodate the projected growth in visitation at White Pass.

3.13.3.2 Alternative 2

Structures

Under Alternative 2, the existing structures would remain as described for Alternative 1. The proposed mid-mountain lodge would be located between the two new proposed chairlifts. The two-story lodge would have a 2,000-square foot building footprint. This building would provide guest seating for 150 people, limited food service, and composting toilets. As a result, the number of buildings in the White Pass SUP area would increase by one, and White Pass would be able to provide guest services at a mid-mountain location.

Lifts

Alternative 2 includes two new lifts, Chair 6 (*Basin)* and Chair 7 (*Hogback Express*) in Pigtail and Hogback Basins. Both of the proposed lifts would be quads. However, Chair 6 would utilize fixed grip technology while Chair 7 would be a high-speed detachable quad. Table 3.13-2 presents the lift system

under Alternative 2. The lift installation would increase the uphill capacity at White Pass by 4,800 people per hour. The effect of the lifts on the ski experience is provided in Section 3.11 – Recreation.

Table 3.13-2:
White Pass Lift Specifications under Alternative 2

Lift Name	Lift Type	Vert. Rise	Horiz. Length	Slope Length	Hourly Capacity
		(ft.)	(ft.)	(ft.)	(pph)
1. Great White Express	Det. Quad	1,521	4,814	5,125	2,100
2. Pigtail	Double	1,493	4,628	4,987	900
3. Lower Cascade	Triple	510	2,166	2,232	1,800
4. Paradise	Double	712	2,675	2,804	1,200
5. Platter	Platter lift	66	512	517	400
6. Basin	Quad	617	3,497	3,560	2,400
7. Hogback Express	Det. Quad	867	4,041	4,162	2,400

Power

Under Alternative 2, the power demand in the White Pass Study Area would increase to 4,000 kW to serve the two proposed lifts and the mid-mountain lodge. **The existing Benton REA powerlines and transformer would be upgraded, either with additional powerline poles and/or with larger capacity conductors, all within the existing powerline corridor to accommodate the increased demand.** Power for the new lifts and lodge would be buried underground from the existing line near Chair 1, within the limits of proposed ski trails, with aerial crossings over streams.

Communications

Alternative 2 includes the installation of communication lines from the existing utility network on the mountain to the proposed expansion area in Hogback Basin. **Communication would be installed along existing and proposed ski trails in the same trench with power to minimize temporary ground disturbance when possible.** Communication lines would be installed between the top and bottom terminals of Chair 6 and Chair 7, as well as to the proposed mid-mountain lodge. The communications infrastructure would meet the needs of White Pass under Alternative 2.

Water

Under Alternative 2, potable water usage at the mid-mountain lodge would total approximately 225 gallons per day (McCarthy 2005). Potable water would be supplied by transporting water by snowcat in sanitized tanks to a 2,000-gallon sanitized storage tank at the mid-mountain lodge. A separate, 10,000 gallon water tank for fire protection would also be installed. Snowcats can transport approximately 500 gallons of water per trip, therefore requiring four trips to fully replenish the storage tank at the mid-mountain lodge for daily use. Water for both storage tanks would be transported from the base area. During times of peak visitation, it is anticipated that water would need to be transported every other day

to adequately meet demand. However, under typical skier operation, it is anticipated that water replenishment would only need to occur twice weekly. **This method of water supply to the mid-mountain lodge would require a commitment of a snowcat and operator on a routine basis during the ski season, as compared to supplying the water through a well or pipeline (refer to Modified Alternative 4).**

Table 3.13-3 presents water demand under each alternative. Under Alternative 2, on a peak day (110 percent of CCC), water demand would increase from 12,561 gal/day (24 percent of capacity) to 23,001 gal/day (44 percent of capacity). This increased demand would be well below the storage capacity of 52,000 gallons.

Table 3.13-3:
White Pass Water Demand

Parameter	Alt. 1	Alt. 2	Mod. Alt. 4	Alt. 6	Alt. 9
CCC	2,670	4,250	3,800	3,640	3,280
Peak Day[a]	2,949[1]	4,675	4,180	4,004	3,608
Peak Demand (gallons/day)[b]	12,561[1]	23,001	20,566	19,700	17,751
Average Demand (gallons/day)[c]	13,136	20,910	18,696	17,909	16,138
Gallons/user	4.92	4.92	4.92	4.92	4.92
% Capacity[d]	24%	44%	40%	38%	34%

[a] Based on highest skier visitation day measurements (refer to Section 3.13.2.5 – Water).
[b] For all except Alternative 1, Peak demand was calculated by multiplying Peak Day CCC by 4.92 (average water demand per skier based on measured current conditions).
[c] Calculated by multiplying CCC by 4.92 (average water demand per skier from existing conditions).
[d] Storage capacity is 52,000 gallons

Wastewater

Restroom facilities at the mid-mountain lodge would be provided by composting toilets, which generate little to no wastewater. Gray water (i.e., kitchen wastewater) and occasionally, liquid from the composting toilets would be disposed by using a RGF system, similar to the existing systems at White Pass, comprised of two septic tanks and drainfields. This system would provide secondary treatment. Capacities of the septic tanks would be sized to adequately accommodate water consumption at the lodge. The drainfield for the lodge would be approximately one-quarter acre in size and located down-slope of the lodge site, within the 50-foot building envelope for the lodge. Brazil (2004) indicates that the soils in the vicinity of the proposed lodge would provide excellent treatment and disposal of wastewater.

With increased water demand associated with the increased skier capacity at White Pass, the demand for wastewater treatment would increase. Under Alternative 2, the chairlifts in Pigtail/Hogback Basin would support a CCC of 1,580, or a peak use of 1,738 skiers at one time (refer to Appendix B). **Assuming 4.92 gallons per skier (as with water demand in Table 3.13-3), the wastewater treatment demand at the mid-mountain lodge would be the equivalent of 8,551 gallons per day if conventional flush toilets**

were used. However, the use of composting toilets would reduce this demand to approximately 225 gallons per day (refer to Section 3.13.3.2).

Table 3.13 FEIS1, presents total and base area wastewater treatment demand under each Action Alternative at peak CCC (110 percent of CCC).

Table 3.13 FEIS1:
Approximate White Pass Ski Area Wastewater Treatment Demand

Parameter	Alt. 2	Mod. Alt. 4	Alt. 6	Alt. 9
CCC (Skiers)	4,250	3,800	3,640	3,280
Peak CCC (Skiers)[a]	4,675	4,180	4,004	3,608
Peak Base CCC[b]	2,937	2,937	2,937	3,608
Total Peak Wastewater Generation (gallons/day)[c]	23,001	20,566	19,700	17,751
Base Ski Area Wastewater Generation (gallons/day)[d]	14,450	14,450	19,700[e]	17,751[f]

[a] Peak usage suggested at 110 percent of CCC as per Appendix B – Mountain Plan Specifications.
[b] Peak Base CCC was calculated by subtracting Peak Hogback CCC from Peak (total) CCC.
[c] Skier wastewater usage is assumed to be 4.92 gallons/day (based on current average usage). Peak wastewater generation was calculated by multiplying Peak CCC by 4.92 gallons/day.
[d] Base ski area wastewater generation was calculated by multiplying Peak Base CCC by 4.92 gallons/day.
[e] Under Alternative 6, no composting toilets are used in the Hogback and wastewater from the mid-mountain lodge would be piped to the base area (refer to Section 3.13.3.4 – Alternative 6).
[f] Under Alternative 9, wastewater from the mountain-top lodge would be piped to the base area (refer to Section 3.13.3.5 – Alternative 9).
Note: Wastewater treatment demand under Alternative 1 is 9,200 GPD (McCarthy 2005).

The remaining 2,937 peak day skiers would generate approximately 14,450 gallons of wastewater in the base area, which is above the 12,000-gallon flow capacity of the existing wastewater treatment system. Therefore, the existing wastewater treatment facility would be upgraded to accommodate the increased visitation under Alternative 2. Upgrades to the sewage treatment system may include equalization and/or addition of a drainfield. For equalization, one or more tanks, would be installed underground in a previously-disturbed area immediately west of the existing day lodge, requiring disturbance of approximately 0.05 acre of ground for installation. During low-use periods, wastewater would be pumped from the storage tanks to the septic tanks and into the wastewater treatment system. Meanwhile, if an upgrade of the drainfield was required, the upgrade would be installed near the existing drainfield and parking lot and disturb approximately 0.03 acre.

Roads

Under Alternative 2, no new roads would be developed in the White Pass Study Area. All transport of construction equipment or materials would be limited to helicopter transport, transport over the snow, or use of low-impact equipment over the ground, with a focus on minimizing the number of entries needed (refer to Table 2.4-1). **No road construction would be required. Maintenance of lifts and buildings would include access over the snow during the spring and/or the use of all-terrain vehicles during**

the summer and fall.[50] In the proposal to the Forest Service, White Pass has indicated that this limited access, with no roads, would be sufficient for construction and maintenance. Therefore, Alternative 2 would maintain the current network of 6.6 miles of roads.

3.13.3.3 Modified Alternative 4

Structures

Under Modified Alternative 4, the proposed mid-mountain lodge would be a two-story building with a 2,000-square foot building footprint, including composting toilets. This building would have guest seating for 150 people, limited food service, and restroom facilities, as described for Alternative 2. A ticket booth would be constructed adjacent to the Yakima Ski Club building in association with a new 7-acre parking lot. The wooden structure would have a building footprint of 400 square feet and would include a composting toilet. As a result, the number of buildings in the White Pass SUP area would increase by two, and White Pass would be able to provide guest services at a mid-mountain location, similar to Alternative 2. In addition, the composting toilet adjacent to the proposed ticket booth would provide restroom access for those skiers in the eastern portion of the base area.

Lifts

Lifts for Modified Alternative 4 would be the same as described under Alternative 2, except the *Basin* lift would be a triple rather than a quad (refer to Figure 2-4). Table 3.13-4 presents the specifications for chairs 6 and 7 under Modified Alternative 4. The lift installation would increase the uphill capacity at White Pass by 3,600 people per hour. The effect of the lifts on the ski experience is provided in Section 3.11 – Recreation.

Table 3.13-4:
Chair 6 and 7 Lift Specifications under Modified Alternative 4

Lift Name	Lift Type	Vert. Rise	Horiz. Length	Slope Length	Hourly Capacity
		(ft.)	(ft.)	(ft.)	(pph)
6. Basin	Triple	617	3,497	3,560	1,800
7. Hogback Express	Det. Quad	867	4,041	4,162	1,800

Power

Under Modified Alternative 4, the power demand within the White Pass Study Area would be as described for Alternative 2, except that distribution to the lift terminals would be revised according to the terminal locations under Modified Alternative 4 (refer to Figure 2-5). The Benton REA would provide sufficient power through larger conductors and a larger transformer, as described for Alternative 2.

[50] Under Forest Service Manual 7705, a road is defined as "A motor vehicle travelway over 50 inches wide, unless designated and managed as a trail."

Communications

Under Modified Alternative 4, the effects to communications infrastructure in the White Pass Study Area would be as described for Alternative 2, except that distribution to the lift terminals would be revised according to the terminal locations under Modified Alternative 4 (refer to Figure 2-5). The communications infrastructure would continue to meet the needs of White Pass under Modified Alternative 4.

Water

Under Modified Alternative 4, on a peak day (110 percent of CCC), water demand would increase from 12,561 gal/day (24 percent of capacity) to 20,566 gal/day (40 percent of capacity), as shown in Table 3.13-3. In Modified Alternative 4, a waterline would be constructed from the base area to provide a water supply for the mid-mountain lodge. The waterline would be buried with power and communication lines, utilizing aerial crossings over streams. The aerial crossings would involve a rigid, insulated conduit and anchor bracing to hold the structure in place and provide resistance against snowpack. The installation of a waterline would be an extensive utility project when compared to the snowcat transportation of water described under Alternative 2. If the installation of a waterline is determined to be detrimental to resources or economically unfeasible, an on-site well would be drilled to provide a water supply for the proposed mid-mountain lodge.

If the well were to be built, the overall projected water demand for Modified Alternative 4 would be the same as under the trenched waterline, but the domestic water demand for the mid-mountain lodge would come from the groundwater well. The groundwater withdrawal would be approximately 225 gallons/day for potable use by the guests of the mid-mountain lodge. The well would be located upslope of the mid-mountain lodge, within the 50-foot building envelope surrounding the lodge, and would meet all construction and notice requirements of WAC 173-160 (1998). The operation and maintenance of this utility requires White Pass to be in compliance with State and Federal laws and regulations. Compliance with applicable laws and regulations is currently being met and is expected to continue into the foreseeable future. The well would be developed to provide water for 25 or more different people each day for 60 or more days within a calendar year, and authorization would be obtained as a Group A public water supply from the Washington State Department of Health under WAC 246-290 (WAC 2004a; Kennedy, pers. comm.). Additionally, the well water would be required to comply with state drinking water quality standards (WAC 2004b). **With proper maintenance, the operation of a well near the mid-mountain lodge would provide the most reliable source of water for potable and fireflow uses, with the least amount of infrastructure, due to the proximity to the lodge.** The localized soil moisture and flow regime impacts from the proposed groundwater withdrawn are not expected to be measurable due to the low volume of the withdrawal and surface disposal of grey water through a septic drainfield (refer to Section 3.3 – Watershed Resources). In addition, the comparatively higher cost of pumping water from the base area to the lodge would make a waterline less desirable than an onsite well. Evaluation of

both water supply systems for the lodge site allows for selection of the least environmentally damaging system at the time of construction.

Wastewater

Wastewater treatment and disposal under Modified Alternative 4 would be the same as Alternative 2, although the total demand for wastewater treatment would be slightly lower. Under Modified Alternative 4, the chairlifts in the Pigtail/Hogback Basin would support a CCC of 1,130, or a peak use of 1,243 skiers at one time (refer to Appendix B). **Assuming 4.92 gallons per skier (as with water demand in Table 3.13-3), the wastewater treatment demand at the mid-mountain lodge would be the equivalent of 6,116 gallons per day if conventional flush toilets were used (refer to Table 3.13 FEIS1). However, the use of composting toilets would reduce this demand to approximately 225 gallons per day. Secondary wastewater treatment would be as described for Alternative 2.**

The remaining 2,937 peak day skiers would generate approximately 14,450 gallons of wastewater in the base area each day, which is above the 12,000 gallon flow capacity of the existing wastewater treatment system. Therefore, as described under Alternative 2, the existing wastewater treatment facility would be upgraded to accommodate the increased visitation under Modified Alternative 4. Upgrades to the sewage treatment system may include equalization and/or addition of a drainfield. For equalization, one or more tanks would be installed underground in a previously-disturbed area immediately west of the existing day lodge, requiring disturbance of approximately 0.05 acre of ground for installation. During low-use periods, wastewater would be pumped from the storage tanks to the septic tanks and into the wastewater treatment system. Meanwhile, if an upgrade of the drainfield was required, the upgrade would be installed near the existing drainfield and parking lot and disturb approximately 0.03 acre. Additionally, the proposed composting toilet adjacent to the proposed ticket booth in the eastern portion of the base area would decrease the demand for wastewater treatment at the base area.

Roads

Under Modified Alternative 4, no new roads would be developed in the White Pass Study Area. All transport of construction equipment or materials would be limited to helicopter transport, transport over the snow, or use of low-impact equipment over the ground, with a focus on minimizing the number of entries needed (refer to Table 2.4-1). **No road construction would be required.** Maintenance of lifts and buildings would include access over the snow during the spring and/or the use of ATVs during the summer and fall. As described under Alternative 2, in the proposal to the Forest Service, White Pass has indicated that this limited access, with no roads, would be sufficient for construction and maintenance. Therefore, Modified Alternative 4 would maintain the current network of 6.6 miles of roads.

3.13.3.4 Alternative 6

Structures

Under Alternative 6, a ticket booth with composting toilet would be constructed near the Yakima Valley Ski Club, as described for Modified Alternative 4. Additionally, a two-story, mid-mountain lodge would be constructed along the existing Quail trail at the intersection with the proposed egress trail from the Chair 6 (*Basin*) pod. The footprint of the proposed lodge would be 2,000 square feet. This building would have guest seating for 150 people, limited food service, and restroom facilities, similar to Alternative 2. As a result, the number of buildings in the White Pass SUP area would increase by two, and White Pass would be able to provide guest services at a mid-mountain location. In addition, the composting toilet adjacent to the proposed ticket booth would provide restroom access for those skiers in the eastern portion of the base area.

Lifts

Alternative 6 includes Chair 6 (*Basin*) in Pigtail Basin (the eastern portion of the expansion area), in the same alignment as described for Alternative 2 and Modified Alternative 4 (refer to Figure 2-6). Unlike Alternative 2 or Modified Alternative 4, this lift would be installed as a detachable quad (refer to Table 3.13-2). The lift installation would increase the uphill capacity at White Pass by 2,400 people per hour. The effect of the lift on the ski experience is provided in Section 3.11 – Recreation.

Power

The power demand in the White Pass Study Area would increase to 3,500 kW to service Chair 6 and the mid-mountain lodge. The existing Benton REA powerlines would be upgraded with larger capacity conductors and transformers within the existing powerline corridor to accommodate the increased demand, as described under Alternative 2. Power for this lift and lodge would be buried underground, beginning at the current powerline near Chair 1, and within the limits of proposed ski trails, with aerial crossings over streams.

Communications

Alternative 6 communications infrastructure would be as described for Alternative 2, except that the system would serve only Chair 6 and the mid-mountain lodge, which would be located along the existing Quail trail. The communications infrastructure would continue to meet the needs of White Pass under Alternative 6.

Water

Water would be transported to the mid-mountain lodge from the existing water system through the installation of a supply line following the existing access road to the bottom terminal of Chair 4 along the Main Street and Quail trails.

Under Alternative 6, on a peak day (110 percent of CCC), water demand would increase from 12,561 gal/day (24 percent of capacity) to 19,700 gal/day (38 percent of capacity), as shown in Table 3.13-3.

Wastewater

Wastewater generated from the mid-mountain lodge would be piped to water treatment facilities in the base area. In order to minimize grading impacts associated with installation of the pipeline, both sewer and water would be installed in the same roadway. Installation of these lines would comply with County and State regulations for separation (typically 15 feet of horizontal separation).

With the existing overall design capacity of the ski area wastewater treatment system of 12,000 GPD, the demand for wastewater treatment (approximately 19,700 GPD) would exceed the capacity of the wastewater treatment facilities at White Pass (refer to Table 3.13 FEIS1). As such, White Pass would be required to upgrade the existing sewage treatment system by equalization and/or adding a drainfield. For equalization, White Pass would install storage tanks to hold wastewater during peak periods. One or more tanks, totaling approximately 8,000 to 15,000 gallons, would be installed underground in the previously disturbed area immediately west of the existing day lodge, requiring disturbance to approximately 0.05 acre of ground for installation. During low-use periods, wastewater would be pumped from the storage tanks to the septic tanks and into the wastewater treatment system. Meanwhile, if an upgrade of the drainfield was required, the upgrade would be installed near the existing drainfield and parking lot and disturb approximately 0.03 acre. Additionally, the proposed composting toilet adjacent to the proposed ticket booth in the eastern portion of the base area would decrease the demand for wastewater treatment.

Roads

Under Alternative 6, one new road, with a length of approximately 0.25 mile, would provide access to the bottom terminal of the *Basin* chairlift.[51] During construction, all construction materials and equipment would be transported to the bottom terminal site via the new road. For any construction activities above the bottom terminal site, all transportation of construction equipment or materials would be limited to helicopter transport, transport over the snow, or use of low-impact equipment over the ground, with a focus on minimizing the number of entries needed (refer to Table 2.4-1). Mitigation Measure MM11 details that the SWPPP would specify conditions under which 'over-the-ground' access would be allowed, in the event of low snow cover or poor snow conditions.

[51] This new permanent road would be constructed in the White Pass Inventoried Roadless Area, which is also in a Tier 2 Key Watershed (refer to Section 3.14 – Land Use). The Northwest Forest Plan (USDA and USDI 1994) Standards and Guidelines specifically prohibit this activity. Construction of the road would require a site-specific modification of the Standards and Guidelines, which would require a coordinated review by the Regional Interagency Executive Committee and Regional Ecosystem Office. If this road would be selected in the Decision on this EIS, the Decision could not be rendered until Regional Interagency Executive Committee concurs that such a modification to the Standards and Guidelines is consistent with the objective of the Standards and Guidelines. Such coordination has not take place as of the publication of this FEIS.

Maintenance of the *Basin* lift bottom terminal site would include vehicle access on the road, while the remaining lift maintenance would be carried out over the snow during the spring and/or using all-terrain vehicles during the summer and fall.

The new road would receive extensive use during construction. However, the mobilization of construction equipment and materials would still require "no-road" methods for all construction above the bottom terminal site. As such, the majority of construction would still be required to take place over the snow, with helicopters, or using low-impact equipment. Considering the added cost of constructing the road, it would likely not significantly benefit operations during construction, as compared to using other low-impact construction techniques, of the other Action Alternatives.

Similar to the existing road system, the new road would receive several vehicle trips per year for maintenance activities. With access to the bottom terminal of the lift, White Pass maintenance staff would be required to access the remaining facilities in the *Basin* pod in a manner similar to the other Action Alternatives (i.e., no road access). As a result, the overall maintenance utility of the road under Alternative 6 would be diminished, because the majority of the maintenance would be done over the snow, or using ATVs.

The new road would require four additional culverts. Both the road and the new culverts would require annual inspections under the annual operating plan. Refer to Section 3.2 – Geology and Soils and Section 3.3 – Watershed Resources for detailed description of the effects of roads and stream crossings.

In order not to increase the mileage of roads in the Clear Fork Cowlitz Tier 2 Key Watershed, obliteration of 0.6 mile of Road 1284.016, an existing native surface road located approximately one mile northwest of White Pass, would occur under Alternative 6. The road to be obliterated was originally constructed for timber harvest and is now in Late-Successional Reserve. The road segment to be obliterated is at an operational maintenance level 1 and is proposed to remain at this level into the future. Construction of the new road would only take place after obliteration of the existing road, for a net loss of 0.35 mile of road in the watershed.

3.13.3.5 Alternative 9

Structures

A two-story mountain-top lodge would be constructed at the summit of Pigtail Peak, within the existing SUP boundary. The proposed lodge would be a 3,000-square foot, two-story wooden structure. This building would have guest seating for 150 people, limited food service, and restroom facilities. A ticket booth would also be constructed adjacent to the new parking lot, as described for Modified Alternative 4. As a result, the number of buildings in the White Pass SUP area would increase by two, and White Pass would be able to provide guest services at a mountain-top location. In addition, the composting toilet

adjacent to the proposed ticket booth would provide restroom access for those skiers in the eastern portion of the base area.

Lifts

Alternative 9 includes the installation of Chair 6 (*PCT*), a fixed-grip triple lift, in the eastern portion of the SUP area. Table 3.14-5 presents the lift specifications for Chair 6 under Alternative 9. The lift installation would increase the uphill capacity at White Pass by 1,800 people per hour. The effect of the lift on the ski experience is provided in Section 3.11 – Recreation.

Table 3.13-5:
Chair 6 Lift Specifications under Alternative 9

Lift Name	Lift Type	Vert. Rise	Horiz. Length	Slope Length	Hourly Capacity
		(ft.)	(ft.)	(ft.)	(pph)
6. PCT	Triple	519	2,855	2,919	1,800

Power

A new powerline would be required for the proposed *PCT* lift. Power would be trenched from the base lodge to the bottom terminal on existing trails. A spur for power to the top terminal would be installed from the existing line in the road to the summit. **The power demand at White Pass would increase to approximately 3,500 kW, as described for Alternative 6, and the Benton REA would increase the capacity of the conductors and increase the transformer capacity on the powerline supply to White Pass, thereby providing sufficient power to meet the demand, as described under Alternative 2.**

Communications

A communication line from the base lodge would be buried in the same trench as power to minimize ground disturbance. In addition, a communication line would be buried between the mountain-top lodge and the existing Chair 1 (*Great White Express*). The communications infrastructure would continue to meet the needs of White Pass under Alternative 9.

Water

Water would be transported by pipeline from the existing water source at the base area to the mountain-top lodge via the access road to the summit. Installation would require trenching and burial at a depth of no less than 8 feet to prevent freezing.

Under Alternative 9, peak day (110 percent of CCC) water demand would increase from 12,561 GPD (24 percent of capacity) to 17,751 GPD (34 percent of capacity), as shown in Table 3.13-3. Water storage would be sufficient to supply the increased demand under Alternative 9.

Wastewater

Wastewater from the mountain-top lodge would be piped from the proposed lodge to the existing treatment facilities near the base area via the summit access road. Installation of these lines would comply with both County and State regulations for separation (typically 15 feet of horizontal separation).

The 3,608 peak day skiers would generate approximately 17,751 gallons of wastewater in the base area per day, which is above the 12,000 gallon flow capacity of the existing wastewater treatment system (refer to Table 3.13 FEIS1). Therefore, the existing wastewater treatment facilities would not be sufficient to accommodate the increased visitation through storage of the over-capacity flows under Alternative 9.

As projected sewage treatment demand under Alternative 9 would exceed the capacity of the wastewater treatment facilities at White Pass, White Pass would be required to install storage tanks to hold wastewater during peak periods and/or construct an additional drainfield. For equalization, one or more tanks, totaling approximately 6,000 to 10,000 gallons, would be installed underground in the previously disturbed area immediately west of the existing day lodge, requiring disturbance to approximately 0.05 acre of ground for installation. During low-use periods, wastewater would be pumped from the storage tanks to the septic tanks and into the wastewater treatment system. Meanwhile, if an upgrade of the drainfield was required, the upgrade would be installed near the existing drainfield and parking lot and disturb approximately 0.03 acre. Additionally, the proposed composting toilet adjacent to the proposed ticket booth in the eastern portion of the base area would decrease the demand for wastewater treatment.

Roads

Under Alternative 9, no new roads would be developed in the White Pass Study Area. All transportation of construction equipment or materials would be conducted on existing roads within the SUP area. **Therefore, Alternative 9 would maintain the current network of 6.6 miles of roads.**

3.13.4 Cumulative Effects

A cumulative effects analysis was performed for each watershed at the site scale (White Pass Study Area). Past, present and reasonably foreseeable projects occurring within each watershed area are included in the analysis. Identified projects with cumulative effects may include activities that are both inside and outside the White Pass Study Area, such as the fiber optics line, described below (UCFC-19). Within the discussions below, cumulative effect to utilities and infrastructure are considered for short-term and long-term impacts. The cumulative effect on utilities and infrastructure is an increase in demand for power, water, wastewater treatment, roads and buildings, and an improvement of the communications infrastructure and services within the White Pass Study Area.

A list of past, present and reasonably foreseeable projects occurring within the Upper Clear Fork Cowlitz River watershed (refer to Table 3.13-5) and the Upper Tieton River watershed (refer to Table 3.13-6) that affect utilities and infrastructure are presented below. For a description of project actions, refer to Table 3.0-FEIS1 in Section 3.0 – Introduction.

Table 3.13-5:
Cumulative Effects of Past, Present, and Reasonably Foreseeable Projects in the Upper Clear Fork Cowlitz River Watershed on Utilities and Infrastructure

Project Number	Project Name	Cumulative Effects
UCFC-17	White Pass Ski Area Yurt Construction	Construction of the yurt near Chair 4 resulted in an increase in the demand for power in the White Pass Study Area in order to light and heat the yurt. The effects of this project overlap spatially and temporally with the White Pass expansion. Coupled with the White Pass expansion and the other projects listed in this table, this project will add to the cumulative increase in the long-term demand for power within the White Pass Study Area.
UCFC-19	Fiber Optics Line	The fiber optic line was installed in 2003, but has not yet been activated. This project resulted in an opportunity to increase the quality of communications services within the White Pass Study Area in the future. The effects of this project will overlap spatially and temporally with the White Pass expansion. Combined with the White Pass expansion and other projects listed in this table, this project will add to the cumulative increase the long-term availability and quality of communications services available within the White Pass Study Area.
UCFC-21	White Pass Ski Area Day Lodge Remodel	The Day Lodge was remodeled in 2003 to accommodate increased demand for guest services as the White Pass Ski Area, resulting in an increase in the demand for power, water, and wastewater treatment within the White Pass Study Area. The effects of this project overlap spatially and temporally with the White Pass expansion. Coupled with the White Pass expansion and the other projects listed in this table, this project will add to the cumulative increase in the long-term demand for utilities and infrastructure within the White Pass Study Area.

Table 3.13-6:
Cumulative Effects of Past, Present, and Reasonably Foreseeable Projects in the Upper Tieton River Watershed on Utilities and Infrastructure

Project Number	Project	Utilities
UT-2	White Pass Ski Area Sewer Line Replacement	Approximately 0.4 mile of existing sewer line from the condominiums to the drainfield will be replaced, resulting in an improvement in the conveyance system for sewage within the White Pass Study Area. This project overlaps spatially and temporally with the White Pass expansion. Coupled with the White Pass expansion and the other projects listed in this table, this project will add to the cumulative increase in the long-term quality of sewage treatment infrastructure in the White Pass Study Area.

Table 3.13-6:
Cumulative Effects of Past, Present, and Reasonably Foreseeable Projects in the Upper Tieton River Watershed on Utilities and Infrastructure

Project Number	Project	Utilities
UT-3	White Pass Ski Area Generator Shed and Propane Tank	The generator, shed and propane tank constructed adjacent to the condominiums in 2001 resulted in an increase in the availability of power in the White Pass Study Area. The effects of the generator overlap spatially and temporally with the White Pass expansion. Coupled with the White Pass expansion and the projects listed in this table, this project will add to the cumulative increase in the long-term quantity and availability of power in the White Pass Study Area.
UT-4	White Pass Ski Area Relocation of Chair 3 and Platter Lift	During the realignment of the Platter Lift and Chair 3, additional lighting was installed to improve night-skiing opportunities, resulting in an increase in the demand for power in the White Pass Study Area. The effects of this project overlap spatially and temporally with the White Pass expansion. Coupled with the White Pass Expansion and the projects listed in this table, this project will add to the cumulative increase in the long-term demand for power utilities within the White Pass Study Area.
UT-5	US Cellular Tower	Construction of the US Cellular tower on Pigtail Peak resulted in an increase in demand for power, and an increase in the availability and quality of communications services within the White Pass Study Area. The effects of this project overlap spatially and temporally with the White Pass expansion. Coupled with the White Pass expansion and projects listed in this table, this project will add to the cumulative increase in the long-term demand for power utilities and the long-term quantity and quality of communication services within the White Pass Study Area.
UT-6	White Pass Ski Area Restaurant/Condo Conversion	Conversion of the restaurant into three condominiums in 1999 resulted in an increase in demand for power, water, sewage treatment, roads and communications services within the White Pass Study Area. The effects of this project overlap spatially and temporally with the White Pass expansion. Coupled with the White Pass expansion and projects listed in this table, this project will add to the cumulative, long-term demand for utilities and infrastructure within the White Pass Study Area.
UT-7	White Pass Ski Area Cross Country Yurt	The cross-country yurt was constructed in 2001, resulting in an increase in demand for power, water and sewage treatment within the White Pass Study Area. The effects of this project overlap spatially and temporally with the White Pass expansion. Coupled with the White Pass expansion and other projects listed in this table, this project will add to the cumulative, long-term increase in the demand for utilities and infrastructure within the White Pass Study Area.
UT-8	White Pass Ski Area Manager's Cabin	The 1,825-square-foot Manager's Cabin resulted in an increase in demand for power, water, sewage treatment, and communications services within the White Pass Study Area. The effects of this project overlap spatially and temporally with the White Pass expansion. Coupled with the White Pass expansion and the other projects listed in this table, this project would add to the cumulative, long-term increase in demand for utilities and infrastructure within the White Pass Study Area.

Table 3.13-6:
Cumulative Effects of Past, Present, and Reasonably Foreseeable Projects in the Upper Tieton River Watershed on Utilities and Infrastructure

Project Number	Project	Utilities
UT-9	White Pass Ski Area Manager's Office	The 1,094-square-foot Manager's Office resulted in an increase in demand for power, water, sewage treatment, and communications services within the White Pass Study Area. The effects of this project overlap spatially and temporally with the White Pass expansion. Coupled with the White Pass expansion and the other projects listed in this table, this project would add to the cumulative, long-term increase in demand for utilities and infrastructure within the White Pass Study Area.
UT-12	Fiber Optic Line	The fiber optic line was installed in 2003, but has not yet been activated. This project resulted in an opportunity to increase the quality of communications services in the future. The effects of this project will overlap spatially and temporally with the White Pass expansion. Combined with the White Pass expansion and other projects listed in this table, this project will increase the availability and quality of communications services within the White Pass Study Area.
UT-30	US Cellular Backup power at White Pass Communications Site	Installation of a propane tank and generator on Pigtail Peak resulted in an increase in the availability of power in the White Pass Study Area. The effects of the generator overlap spatially and temporally with the White Pass expansion. Coupled with the White Pass expansion and the projects listed in this table, this project will result in an increase in the cumulative, long-term quantity and availability of power in the White Pass Study Area.
UT-31	Cellular Phone Carrier Improvements at White Pass Communication Site	Improvements to the cell tower on Pigtail Peak will result in an increase in the quality and availability of communications services in the White Pass Study Area. The effects of the generator overlap spatially and temporally with the White Pass expansion. Coupled with the White Pass expansion and the projects listed in this table, this project will result in an increase in the cumulative, long-term quality and availability of communications infrastructure and services in the White Pass Study Area.

The long-term, cumulative effect of the projects listed in the table above, combined with the effects of the White Pass expansion, is an increase in the demand for power, water, wastewater treatment, roads, communications, and other infrastructure within the White Pass Study Area. As described in Section 2.3, the Action Alternatives include improvements to the current wastewater facilities at White Pass to accommodate the increased demand. In addition, the Action Alternatives include upgrades to the power supply to meet the increased demand. The other infrastructure at White Pass is sufficient to meet the projected demand for utilities. Additionally, combined with the communications improvements associated with the White Pass expansion, the communications-related projects listed in the table above will result in a cumulative, long-term improvement to the communications services and infrastructure within the White Pass Study Area.

As described in Section 3.10 – Social and Economic Factors, ongoing economic development strategies along the US 12 corridor include:

Lewis County/Packwood

Overall Economic Development Plan for Cowlitz and Lewis Counties (CWCOG & LCEDC, 1997)

Lewis County Industrial Needs Analysis (E.D. Hovee & Company, 1997)

Packwood Community Action Plan (E.D. Hovee & Company, 1999)

Northwest Economic Adjustment Initiative Assessment – Packwood, Lewis County, Washington (NWAIA, 2000)

Lewis County Profile (Washington State Employment Security, 2001)

Draft USDA Forest Service Packwood Work Center Utilization Analysis (Dean Runyan Associates, 2004)

Yakima County/Naches

Naches, Washington 1993 Community Development Plan (Pacificorp, 1993)

Town of Naches – Land Use Element (Town of Naches, 1995)

Plan 2015 – A Blueprint for Yakima County Progress. Chapter IV – Economic Development Element (Yakima County, 1997)

US 12 Corridor

US 12 Corridor Charette (USDI-NPS, 2002)

White Pass Scenic Byway Corridor Management Plan (Lewis County, Gifford Pinchot National Forest and Okanogan-Wenatchee National Forests - draft, unpublished manuscript on file)

The most comprehensive of these strategies is the *US 12 Corridor Charette* (USDI-NPS, 2002). This document is the third in a series of studies that focus on the corridors leading to Mount Rainier. The document identifies the importance of gateway communities, such as Packwood and Naches, in the pursuit of shared regional goals.

While none of the strategies outlined in the US 12 Corridor Charette are known to be in a formal proposal, several relevant planning efforts are identified. These include the White Pass Scenic Byway Corridor Management Plan (draft, unpublished) which evaluates byway resources, provides design guidelines for visitor services and proposes site enhancements along US 12. This plan, currently in draft form, focuses on improving the highway corridor as a destination for recreational travelers, and finding

ways for tourism to contribute more to local economies. The US 12 Corridor Charette (USDI-NPS 2002) also identifies an opportunity for Packwood hotels to jointly sponsor a shuttle service to White Pass, as well as the potential for the development of a public parking area in Naches that could serve as a recreational staging area, providing shuttles to and from White Pass during the winter. Coupled with the increasing demand for utilities and infrastructure in the White Pass area, these planning efforts would likely build upon the available and planned utility upgrades, such as increased power transmission to the area and available cellular telephone service. However, these initiatives have not been identified as reasonably foreseeable for inclusion in Tables 3.0-FEIS1 and 3.0-FEIS2 as of publication of this FEIS.

The Lewis County Department of Public Works is in the process of developing a public sewage collection, treatment and disposal system for the downtown business area of Packwood, WA. This project will increase the availability of sewage treatment in the area surrounding White Pass. However, the Packwood sewage system is in the early preliminary planning stage, and therefore was determined not to be sufficiently foreseeable for inclusion in this analysis.

In combination with the past, present, and reasonably foreseeable projects described in Tables 3.13-5 and 3.13-6, the proposed White Pass expansion would result in a cumulative increase in the demand for utilities such as power, water, sewage treatment, communications, roads and other infrastructure, and a cumulative improvement of the communications services and infrastructure within the White Pass Study Area.