

3.13 PUBLIC SERVICES AND UTILITIES

This section characterizes existing public safety and service agencies responsible for serving the KVVWPP in Kittitas County. Affected agencies include law enforcement, fire protection, emergency medical service, and schools. This section also describes utilities that would service the KVVWPP, including those related to public water supply, wastewater, solid waste, and communication services. Potential impacts on the services and utilities are discussed, and mitigation measures are identified. Stormwater drainage is discussed in Section 3.3, Water Resources. Supply of, and demand for, electricity is discussed in Section 3.5, Energy and Natural Resources.

The analysis in this section is primarily based on information provided by the Applicant in the ASC (Sagebrush Power Partners LLC 2003a, Section 5.3). Where additional information has been used to evaluate the potential impacts associated with the proposal, such as *the Kittitas County Comprehensive Plan and Solid Waste Management Plan*, that information has been referenced. Personal communications with state and county public service agencies that have existing or potential jurisdiction over the project site were conducted.

3.13.1 Affected Environment

This section describes existing public services and utilities in Kittitas County and potential impacts associated with construction and operation of the KVVWPP. The evaluation includes law enforcement, fire protection, emergency medical services, schools, water supply, sewer, solid waste, and communication services.

Public Services

Law Enforcement

The Kittitas County Sheriff's Department and the Washington State Patrol provide law enforcement services for the entire county, except for some cities that provide their own law enforcement—Cle Elum, Roslyn (covered by Cle Elum), Kittitas, and Ellensburg. All state routes (US 97, SR 970, SR 10, SR 821, I-90, and I-82) are patrolled by the Washington State Patrol. The County Sheriff's Department serves the unincorporated areas of Kittitas County.

The law enforcement services provided by the County Sheriff include traffic control, drug enforcement, search and rescue, and civil calls. The Sheriff's office recently implemented a traffic safety program and is in the final stages of developing a proposal for a new criminal justice facility in the area. Other county law enforcement services include a K9 unit, SWAT team, marine patrol, and search and rescue. The County Sheriff has 25 deputies on patrol, three detectives, a criminal chief, and an under sheriff. All officers are state-certified, and many have additional training for drugs, search and rescue, traffic control, and accidents. The Sheriff's Department is state accredited and has recently received federal certification.

The Washington State Patrol provides traffic enforcement on state highways, and drug enforcement, Hazardous Materials Team (HAZMAT) oversight, and incident response. The

Washington State Department of Ecology in Yakima (approximately 35 miles south of Ellensburg) provides a HAZMAT response team.

Fire Protection

There are three fire districts in the general project area: Fire District No. 1 (Rural Thorp), Fire District No. 2 (Rural Ellensburg), and Fire District No. 7 (Cle Elum). The City of Ellensburg has its own fire department. DNR provides fire protection on the properties it manages. As shown in Figure 3.13-1, approximately 80% of the project site is not contained in any of the fire districts.

The only district in which wind turbines would be located is Fire District No. 1, where approximately 19 turbines are proposed. There would be 31 turbines on DNR property under the middle scenario. The remaining turbines would be outside of any fire district or DNR property (Figure 3.13-1).

Fire District No. 1 operates three staffed stations that serve approximately 43 square miles. The main station is in downtown Thorpe, approximately three miles southeast of the southern end of turbine strings B and C. Approximately 10 square miles of the project area are within Fire District No. 1's jurisdiction (approximately 19 wind towers). A 21-member volunteer fire crew and a paid part-time fire chief staff the three stations. Fire District No. 1 is equipped with one Class A engine, two reserve engines, one brush truck, one mini-pumper, one 4,500-gallon water tender, one 2,000-gallon water tender, and one rescue squad truck. Estimated fire response time to the project site is approximately 20 minutes and is currently restricted due to the unimproved condition of the southern portion of Hayward Hill Road (approximate 3,000-foot segment between the North Branch Canal and SR 10) (Evans, pers. comm., 2003).

DNR is a "wildland" fire-fighting department and is not equipped or trained for handling structural fires. DNR's Southeast Regional Office is located in north Ellensburg. The DNR work (fire) stations closest to the project site are located in Cle Elum and Ellensburg. DNR employs 11 full-time fire fighters in Kittitas County, and hires approximately 40 temporary fire fighters during the summer peak fire season. The Ellensburg and Cle Elum DNR fire stations, combined, operate with five fire engines. Five additional fire engines can be brought in from Wenatchee. The Ellensburg station also operates DNR's "helitack" program for fighting fires from the air, and is equipped with two helicopters, each with a 325-gallon water bucket and the capacity to transport up to six people. Current response times to the project site depend on a variety of factors, including wind speed. DNR currently estimates it could reach the project site by helicopter in 10-15 minutes (Monroe, pers. comm., 2003).

DNR has warning levels that indicate the level of fire danger on their property, ranging from Level One (low fire danger) to Level Five (extreme fire danger). Warning levels are assigned on a daily basis. At Level Five, total shutdown is expected in DNR's entire zone of control, including industrial activity. In 2002, fire danger levels in the project area were in the Level Three-Low to Level Three-High range, with approximately one week designated as Level Four. In 2001, fire danger levels in the project area reached Level Five (Monroe, pers. comm., 2003).

Figure 3.13-1

Fires that occur most frequently in the project area are wildland fires (grass, brush, and timber), vehicle fires, and structural fires. District fire departments also receive calls for boating (e.g., District No. 1 responds to fires on the Yakima River) and hunting accidents; emergency medical situations such as heart attacks; recreational mishaps; propane spills and fires; and assistance to the State Patrol for HAZMAT. The majority of fires are caused by people, with only a few naturally occurring fires (i.e., lightning) (Taylor, pers. comm., 2002).

All fire districts have emergency medical equipment and extraction equipment for auto accidents. Most fire districts have minimal services (equipment and personnel) for search and rescue. All districts have bimonthly or monthly training meetings. None of the rural fire districts have received special training for fires that might occur in the nacelles of wind turbines. Fire District No. 2 has Basic Life Support (BLS) services. Fire District No. 1 is working towards a BLS (Evans, pers. comm., 2002). All rural county fire districts have mutual aid agreements with neighboring districts and with the City of Ellensburg's fire department. District No. 1 and District No. 7 have contracts with specific landowners. District No. 2 does not have landowner contracts.

Emergency Medical Services

The City of Ellensburg fire department provides emergency medical services (EMS) for the entire county and bills patrons for services received that may include treating falls, burns, fractures, lacerations, and heart attacks. Ambulances are located at Ellensburg, and the towns of Kittitas and Cle Elum. Also, Cascade Search and Rescue is located in Ellensburg. Emergency calls are dispatched through the Sheriff's office to the fire districts, which provide search and rescue support.

Kittitas County Community Hospital in Ellensburg serves the entire county. There are 50 licensed beds, but only 36 are set up to be used, and those beds are not used to capacity. The hospital provides Level-Four trauma service, with a limited number of specialists available. Patients with head injuries, severe burns, or trauma are transported to facilities such as Harbor View Medical Center in Seattle. Victims of less severe accidents may be transported to Yakima for hospitalization and treatment. There is a heliport on the roof of the hospital, and a helicopter is available for emergency response (Jensen, pers. comm., 2002).

Schools

School districts in the general project vicinity include District 400 (Thorpe), District 401 (Ellensburg), District 403 (Kittitas), and District 404 (Cle Elum/Roslyn). School bus routes use federal, state, and county roads for student transportation to the schools. Table 3.13-1 summarizes the facilities and enrollment for the 12 schools in the project vicinity.

Table 3.13-1: School District Student Population in the KVVWP Area, 2002-2003 School Year

District	School Name	Street Address	Grade Levels	2002-2003 Enrollment
Thorp (400) ¹ Ellensburg (401)	Thorp School District	10831 North Thorp Highway, Thorp	K-12	185
	Lincoln Elementary School	200 South Sampson St. Ellensburg	K-5	416
	Mount Stuart Elementary School	705 West 15th Avenue Ellensburg	K-5	399
	Valley View Elementary School	1508 East Third Avenue Ellensburg	K-5	451
	Morgan Middle School	400 East 1st Avenue Ellensburg	6-8	690
	Ellensburg High School	1300 East 3rd Avenue Ellensburg	9-12	887
Kittitas (403)	Kittitas Elementary School	North Pierce Street Kittitas	K-5	258
	Kittitas High School	North Pierce Street Kittitas	6-12	282
Cle Elum-Roslyn (404)	Cle Elum Roslyn Elementary School	2696 SR 903	K-5	418
	Walter Strom Middle School	2694 SR 903 Cle Elum	6-8	237
	Cle Elum-Roslyn High School	2692 SR 903 Cle Elum	9-12	309

Sources: GreatSchools Inc. 2003

1 Klein, pers. comm., 2003; Thorp School District enrollment data as of September 2002.

The Thorp School District has a capacity of approximately 225 students, and currently is below maximum capacity (Klein, pers. comm., 2003). The Ellensburg School District currently is at capacity, and is using portable classrooms at its three elementary schools and high school. At this time, any potential increases in enrollment would have to be accommodated through increased class sizes (Torset, pers. comm., 2003). The Kittitas School District currently also is at capacity. However, a recently passed bond to build a new middle school-high school, anticipated to be constructed and operational by the Fall of 2004, would result in increased enrollment capacity for approximately 100 additional elementary school students (Harding, pers. comm., 2003). The Cle Elum-Roslyn School District has a total capacity of 962 students and currently is at capacity (Cle Elum-Roslyn School District 2001).

Utilities

Water Supply and Wastewater

Water supply in the project area is provided by wells. Wastewater services are provided by septic tanks.

Solid Waste

Waste Management has the franchise for solid waste collection service in Kittitas County. Two transfer stations, one in the upper county (Cle Elum) and one in the lower county (Ellensburg) provide solid waste collection services in the project area. A new Cle Elum transfer station, located between Cle Elum and Roslyn, opened in the spring of 2003; this station currently receives less than 150 tons per day but has a capacity for 300 tons/day. The Ellensburg transfer station currently receives approximately 150 tons per day and has a capacity of between 250 and 300 tons per day (Bach, pers. comm., 2002). Waste Management operates the transfer stations. There are drop boxes for recycling at both transfer stations, but mixed paper recycling is not offered (Bach, pers. comm., 2002). Moderate-risk wastes, such as oil and antifreeze, are accepted at each transfer station and recycled on a periodic basis (Kittitas County 1997c).

The county's only municipal landfill is the Ryegrass Landfill, a 640-acre parcel located in the lower county, approximately 18 miles east of Ellensburg. The Ryegrass facility is currently closed to all solid waste except construction and demolition debris (CDL). Because the Ryegrass Landfill cannot accept Kittitas County's municipal solid waste, garbage is transferred from the county transfer stations to the Greater Wenatchee Regional Landfill, a privately owned and operated facility located in East Wenatchee in Douglas County. In 1999, the volume of solid waste disposed of at the Greater Wenatchee Regional Landfill was 459,519 cubic yards. Waste Management of Greater Wenatchee estimates the facility has a projected capacity of 6,433,266 cubic yards, or approximately 14 years (Douglas County Solid Waste Program Office 2002).

CDL is currently disposed on a separately permitted 15-acre parcel located adjacent to the Ryegrass Landfill. The Ryegrass Construction and Demolition Debris Landfill, operated by Kittitas County, accepts inert materials including asphalt, construction debris, fencing, roofing material, concrete, and brick (Sagebrush Power Partners LLC 2003c). Licensed contractors with loads over one ton haul their CDL directly to the Ryegrass facilities. County and city residents

with less than one ton of CDL waste bring their demolition debris directly to the transfer station. From there, the CDL is hauled to the permitted CDL site for disposal (Kittitas County 1997c).

Communication Services

The Ellensburg Telephone Company supplies telephone services in the project area. It is a multi-service organization that supplies local telephone service to approximately 1,149 square miles of the county as well as pager and alarm services (Kittitas County 2002a). Cellular phone service is available from a variety of providers. DSL internet service is provided by Ellensburg Telephone in its service territory and Inland Internet in Cle Elum, Roslyn, and Ronald.

Charter Communications in Ellensburg, R&R Cable Company in Roslyn, and TCI Cable Company in Cle Elum provide cable television services. Broadcast television stations are UHF channels and are transmitted from facilities located south and east of Ellensburg. Reception quality varies greatly based on local topography and distance from the transmitters. Radio transmission reception quality varies throughout Kittitas County.

3.13.2 Impacts of Proposed Action

This section evaluates potential direct (construction, operations, and decommissioning) impacts on identified public service agencies and utilities from the proposed action. The discussion of direct impacts to public services and utilities focuses primarily on the service providers' ability to accommodate increased demand. These types of direct impacts are primarily generated by the total number of construction and operations workers employed at the project site and therefore are not specifically associated with or attributable to specific project elements such as the wind turbines and meteorological towers, existing and new gravel access roads, additional power lines, and the proposed O&M facility and substations. Direct impacts associated with or attributable to specific project elements are discussed, where applicable. For example, the potential for the project to directly interfere with local area communication systems, including television, cell phone, and radio service, is addressed under Operations and Maintenance Impacts; this potential impact is primarily associated with the proposed turbines. Indirect impacts are not anticipated because the project is not expected to substantially induce regional growth to an extent that would result in significant increases in the demand for public services or utilities.

Construction Impacts

Table 3.13-2 summarizes potential construction impacts to public services and utilities under the three project scenarios.

Table 3.13-2: Summary of Potential Construction Impacts: Public Services

	82 Turbines/3 MW (Lower End Scenario)	121 Turbines/1.5 MW (Middle Scenario)	150 Turbines/1.3 MW (Upper End Scenario)
Public Services			
Law Enforcement			
Increased demand for police protection services (e.g., traffic violations, accidents)	Same as middle scenario	Total 253 employees; maximum 160 employees during peak construction month	Same as middle scenario
Fire Protection and Emergency Medical Services			
Increased fire risk/demand for fire protection services	231 total acres disturbed	311 acres disturbed	371 total acres disturbed
Increased demand for emergency medical services	Same as middle scenario	Total 253 employees; maximum 160 employees during peak construction month	Same as middle scenario
Schools			
Increased demand for school services	Same as middle scenario	Total 253 employees; maximum 160 employees during peak construction month	Same as middle scenario
Utilities			
Water and Wastewater			
Increased demand for water	2.6 to 6.4 million gallons of water for dust control	2 to 5 million gallons of water for dust control	Same as middle scenario
Increased demand for sewage treatment	Same as middle scenario	Sanitary waste discharged to portable toilets; 253 total employees	Same as middle scenario
Solid Waste			
Increased demand for solid waste disposal services	Same as middle scenario	Volume of CDL wastes <100 tons	Same as middle scenario

Sources: Sagebrush Power Partners LLC 2003a, c.

Public Services

Law Enforcement

Construction activities associated with the project would increase traffic volume on roadways surrounding the project site, as a result of both commuting construction workers and the transportation of materials. This increased volume would likely occur in mid-summer to fall when vacationers use the roadways. It is possible that the number of accidents and calls for service along major roadways (e.g., US 97, SR 10, and I-90) would increase for approximately six months, after which most of the onsite work would be done.

The demand for traffic enforcement activities would peak when construction employment peaks at approximately 160 employees for approximately one month. Out-of-area workers are not expected to move their families into the project area because each craft would be completed within three and one-half months or less. They would likely either commute (from the Seattle area or Yakima area) or stay in temporary housing for the period of time needed to complete their tasks. As described in Section 3.7, Socioeconomics, this analysis assumes that as many as

112 non-local workers could be employed at the project site during the peak construction month (this includes potential out-of-state workers) and would likely stay in temporary housing.

There likely would be additional calls for response during the construction phase, primarily because of increased traffic and accident potential. Other law enforcement concerns during construction include construction site security against theft and vandalism. This impact would be similar under the three different project scenarios because the level of construction employment is expected to be the same. However, because the construction period is short (approximately one year), the increased service calls are not anticipated to be sufficient in number to require additional law enforcement staff resources in the project area. See Section 3.10, Transportation, for further discussion of traffic safety hazards.

Fire Protection

The project site is generally arid rangeland with a predominant groundcover of grasses and sagebrush. Given the site conditions, project construction could temporarily increase the risk of fire at the project site and in the broader project area. The highest expected fire risks are grass fires during the hot, dry summer season. This risk would be greatest for the upper end scenario, which would result in the most ground disturbance (371 acres).

Fire District No. 1's ability to provide adequate fire protection services during construction would be restricted by the unimproved condition of the southern portion of Hayward Hill Road. Fire District No. 1 is in the process of negotiating with the Applicant to determine the extent of improvements required to this roadway to ensure adequate fire protection to the project site (Evans, pers. comm. 2003).

Another concern raised by Fire District No. 1 is its ability to provide adequate training and equipment to provide emergency rescue services to project personnel working on the wind towers (Evans, pers. comm. 2003). A similar concern was raised by the County Fire Marshall with respect to the Ellensburg Fire Department, the local emergency service provider, because they are not trained in high angle rescue or in removing persons from high areas (Kittitas County 2003). However, implementation of emergency preparedness measures proposed by the Applicant would reduce potential impacts to rescue personnel during an emergency situation (see Section 3.13.4, Mitigation Measures).

DNR would continue to implement fire protection services to the project site. DNR does not anticipate substantial effects on staffing levels during project construction. However, depending on the specific fire warning level in effect, DNR may impose restrictions on particular construction activities, such as welding and blasting activities, to reduce potential fire risks during project construction (Robinson, pers. comm. 2003).

The County Fire Marshall has raised the concern that the demand for fire protection services would occur before project tax revenues are realized. This could result in a temporary negative fiscal impact to the fire districts (Kittitas County 2003), but would be addressed through implementation of mitigation measures proposed by the Applicant (see Section 3.13.4, Mitigation Measures).

Emergency Medical Services

During project construction, the local demand for emergency medical services could increase slightly due to construction accidents that could occur at the project site or project vicinity. Project construction workers would be exposed to hazards caused by equipment failure, natural disaster, or human mistake that would require the services of local emergency response units to provide initial treatment and transportation to a local medical facility and the services of emergency rooms in the receiving facility. The specific level of demand for EMS response is unknown, but it would likely be similar under the three potential project scenarios.

With adequate safety measures in place, and considering the moderate size of the construction workforce (which would temporarily reach a peak of 160 workers under all three project scenarios) it is expected that project construction would generate few serious injury accidents requiring EMS response. Furthermore, the local hospital has capacity for additional patients and there are several ambulances available to service the project site.

It is expected that up to 112 construction workers would temporarily migrate to the local labor market from either outside the immediate region (i.e., Kittitas and Yakima counties) or from out of state. However, because the duration of their stay in the project area would be short (approximately four months), it is not likely that these temporary workers would create a significant increase in demand for emergency medical services during project construction.

Schools

The 112 non-local construction workers who would temporarily work on the project are only expected to work on a short-term basis, and not relocate their families to the area. The anticipated maximum duration of employment for each craft is three to three and one-half months. Therefore, there would be no significant impacts to school facilities expected during the construction phase of the project.

Utilities

Water Supply

Approximately 2 to 5 million gallons of water would be consumed for dust suppression and other construction purposes under the middle and upper end scenarios, while an estimated 2.6 to 6.4 millions gallons of water would be required under the lower end scenario due to a larger roadway footprint. The construction contractor would supply water used during construction. Water would be delivered to the project site via water trucks and obtained from a local source with a valid water right. This impact would be greatest under the lower end scenario because it would result in the largest temporary increase in water demand. However, this impact would not be significant under any of the three project scenarios due to the temporary nature of the impact and the availability of adequate water supplies.

Wastewater

No significant impacts to community wastewater disposal systems are anticipated because the project would not be connected to a sewer system during construction. The amount of wastewater generated during project construction would be similar under the three potential project scenarios because the expected number of employees would be the same. Sanitary wastes would be collected in “portable toilets” during construction. Disposal of sanitary wastes would be managed through a contract with a portable toilet waste vendor. The contractor would incorporate applicable state capacity requirements based on the construction worker population on the project site at any given time. Collected wastes would be managed and disposed of by the contracted vendor.

Solid Waste

During construction, the primary solid waste generated would be CDL such as scrap metal, cable, wire, wood pallets, plastic packaging materials, and cardboard. The total CDL volume is estimated to be 30 dumpsters weighing approximately 3 tons each on average under all three project scenarios. This results in an estimated total of less than 100 tons of CDL (Sagebrush Power Partners LLC 2003c).

The Ryegrass CDL landfill operated by Kittitas County would accept inert materials including asphalt, construction debris, fencing, roofing material, concrete, and brick. It is estimated that the landfill has approximately 10 years of remaining available capacity. There is adequate capacity in the Ryegrass Landfill to accommodate the anticipated amount of CDL generated under all three project scenarios (Johnson, pers. comm., 2003).

Normal waste would be accumulated onsite in drop boxes until it was hauled to the Ellensburg transfer station by either the EPC contractor or a local solid waste collection service provider such as Waste Management, which has the franchise for solid waste collection service in Kittitas County. Garbage would be transferred from the transfer station in Ellensburg to the Greater Wenatchee Regional Landfill located in East Wenatchee. The maximum number of construction workers anticipated to be present in the project area during the peak construction month would be approximately 160 under the three project scenarios. Given the temporary nature and duration of construction activities, garbage generated by construction workers in the project area would not have a significant impact on the capacity of the Greater Wenatchee Regional Landfill.

Most of the construction waste would be recyclable, other than the film plastic packaging material and food-related waste generated by the construction workforce. The construction contractor would develop specific recycling program details. It is anticipated that the only materials produced during project construction that would not be accepted at the Ryegrass Landfill are cardboard and food-related wastes (Sagebrush Power Partners LLC 2003c).

Operations and Maintenance Impacts

Table 3.13-3 summarizes potential operations and maintenance impacts to public services and utilities under the three project scenarios.

Table 3.13-3: Summary of Potential Operations and Maintenance, and Decommissioning Impacts: Public Services

	82 Turbines/3 MW (Lower End Scenario)	121 Turbines/1.5 MW (Middle Scenario)	150 Turbines/1.3 MW (Upper End Scenario)
Public Services			
Operations and Maintenance Impacts			
Law Enforcement			
Increased demand for police protection services	Same as middle scenario	12-14 workers (6-7 new to project area)	18-20 workers (9-10 new to project area)
Fire Protection and Emergency Medical Services			
Increased fire risk/demand for fire protection services	82 turbines; 118 acres total disturbed	121 turbines; 93 acres total disturbed	150 turbines; 94.9 acres total disturbed
Increased demand for emergency medical services	Same as middle scenario	12-14 workers (6-7 new to project area)	18-20 workers (9-10 new to project area)
Schools			
Increased demand for school services	Same as middle scenario	6-7 new permanent employees with families in project area	9-10 new permanent employees with families in project area
Decommissioning Impacts			
	Similar to those described for construction in Table 3.13-2	Similar to those described for construction in Table 3.13-2	Similar to those described for construction in Table 3.13-2
Utilities			
Operations and Maintenance Impacts			
Water and Wastewater			
Increased demand for water	Same as middle scenario	<1,000 gallons daily at O&M facility	Same as middle scenario
Increased demand for sewage treatment	Same as middle scenario	Wastewater discharged to onsite septic tank; 12-14 workers	Wastewater discharged to onsite septic tank; 18-20 workers
Solid Waste			
Increased demand for solid waste disposal services	Same as middle scenario	Approximately 0.0645 tons daily of solid waste	Approximately 0.0692 tons daily of solid waste
Communication Services			
Disruption of communication services	Same as middle scenario	Potential interference to television, cell phone, and radio reception	Same as middle scenario
Decommissioning Impacts			
	Similar to those described for construction in Table 3.13-2	Similar to those described for construction in Table 3.13-2	Similar to those described for construction in Table 3.13-2

Sources: Sagebrush Power Partners LLC 2003a, c.

Public Services

Law Enforcement

Project operation would not have a significant effect on local long-term demands for law enforcement services. The operating workforce is anticipated to be between 12 to 20 workers, which would have a minimal effect on traffic safety in the project vicinity. This impact would be greatest under the upper end scenario because it would employ the largest number of workers. Because onsite security measures would be incorporated into the project facility and operations plans, no additional staff and equipment resources to maintain local law enforcement and protection services are anticipated (see Section 3.13.4, Mitigation Measures).

Fire Protection

Impacts from fire, either from turbine nacelles due to mechanical failures (which are rare) or wildland fire at the project site, could increase or be more difficult to control unless provisions are made for fire fighters to have easy access to the project property. For mechanical fires, this impact would be greatest under the upper end scenario, which would operate the largest number of turbines (150). However, for wildland fires, this impact would be greatest under the lower end scenario, which would disturb the greatest amount of land (118 acres). Risk of fire during project operations would be minimized through implementation of project design features and fire prevention programs, as described in Section 3.13.4, Mitigation Measures.

Once the project is in operation and the property tax assessment for the project has been formally added to the Kittitas County tax rolls, the KVWPP would generate annual property tax revenues and local fire districts would receive a share of these revenues (see Section 3.7, Socioeconomics). However, there could be a lag between the completion of project construction and receipt of property tax revenues from this new facility. Therefore, there may be an initial period of project operation during which there are no new tax revenues to offset resources needed to meet increased demand for fire services. The Applicant proposes mitigation measures to minimize this potential impact (see Section 3.13.4).

Emergency Medical Services

Project operation would not have significant impacts on emergency medical service providers. The operations workforce for the project would be relatively small (12 to 20 workers). Furthermore, the project's O&M group and third-party constructors would receive regular emergency response and safety training to ensure that effective and safe action is taken to reduce and limit the impact of any emergency at the project site. In addition, the local labor market is expected to provide approximately half of the operations workers needed by the project. Therefore, project operation would create minimal population increases to the local area, and would generate only a minor increase in demand for emergency medical services.

Schools

Of the 12 to 20 workers required for project operations, approximately half are expected to be from the local area. Therefore, it is expected that the local area would experience a minimal population increase of between 6 (under the lower end and middle scenarios) and 10 (under the upper end scenario) new families. It is not known where the new permanent residents associated with the project would reside. School districts that serve the population centers of Ellensburg and Cle Elum-Roslyn currently are at capacity, whereas the school districts that serve the more rural areas of Thorp and Kittitas have the existing or projected capacity to absorb additional enrollment growth associated with families moving into the area for project operation. Because enrollment capacity is available in the region, no operational impact to local schools is expected.

Utilities

Water Supply

No significant impacts to water supply are anticipated because the project would not be connected to a public water utility, and would have its own source of water. A new water well would be installed to provide water at the O&M facility for bathroom and kitchen use and for general maintenance purposes. Water consumption is expected to be less than 1,000 gallons per day under all three project scenarios.

Wastewater

No significant operational impacts on wastewater services are anticipated. Wastewater from project operation would be treated in an onsite septic system installed at the O&M facility pursuant to the requirements of the Kittitas County Environmental Health Department. The volume of wastewater generated would be nominal under the three project scenarios, but would be greatest under the upper end scenario due to the larger workforce. Solids that are collected in the septic system would occasionally be pumped out of the collection tank and hauled offsite for disposal at an authorized wastewater treatment facility.

Discharges to the septic system would be typical of an ordinary office facility (domestic sewage, dishwashing liquid, hand soap). There would be no industrial discharges. Hydraulic and lubricating fluids as well as anti-freeze would be managed and contained so that they would not discharge to the septic system. Trace amounts of oils or greases may enter the shop floor drain but would be captured by a grease trap installed between the floor drain and the septic tank to prevent such materials from entering the septic system.

Solid Waste

Solid waste generated by project operations would consist of typical office wastes (e.g., paper, cardboard, and food waste). The operations workforce under the three project scenarios is estimated to be between 12 and 20 employees. Assuming a solid waste generation factor of 9.2 pounds per employee per day, the estimated maximum daily amount of solid waste generated during project operations would be approximately 129 pounds (0.0645 tons) under the lower end

and middle scenarios. Under the upper end scenario, the maximum daily amount of solid waste generated would be 184 pounds (0.092 tons) (California Integrated Waste Management Board 2003). This waste would be stored in a dumpster until it is collected for removal. There is sufficient existing capacity at the local transfer stations to accommodate this amount of increased waste under project operations.

Lubricating oils and hydraulic fluids used in the individual wind turbine generators would need to be replenished or replaced periodically. The Applicant estimates these fluids would be replaced no more frequently than once per year and sometimes once every five years. The required amount of fluids would be similar under the three potential project scenarios (see Section 3.5, Energy and Natural Resources). Fluids would be removed in small, typically 5-gallon containers, and transferred via truck to the O&M facility for temporary storage (typically less than one per month) before being collected by a licensed transporter for recycling or disposal in accordance with applicable federal, state, and local regulations.

Communication Services

Microwave Communication Pathways. The Applicant commissioned a study of the potential for turbines to obstruct telecommunications facilities in the project area. Based on a turbine blade radius of approximately 130 feet, the study concluded that 12 proposed turbines could potentially obstruct five existing microwave paths in the project area. As a result of this study, 10 turbines were removed from the project layout and the remaining 2 were relocated. After making these adjustments to the site plan, the data were verified and the study concluded that the proposed turbine locations would not obstruct or interfere with existing microwave telecommunications facilities in the project area.

Under the lower end scenario, 82 turbines, each with a 150-foot blade radius, would be constructed. Under the upper end scenario, 150 turbines, each with a 100-foot blade radius, would be constructed. It is not known how the location and dimension of turbines under the lower or upper end scenarios would affect microwave paths in the project area. However, the Applicant plans to undertake final field measurement test surveys of communication microwave paths prior to construction. The results of these surveys may require that some turbine locations be adjusted slightly to avoid telecommunication interference (see Section 3.13.4, Mitigation Measures).

Television Reception. Based on the location of existing television transmitters in relation to project turbines, impacts to televisions that rely on standard antennas are not expected in Kittitas County population centers such as Ellensburg, Cle Elum, Roslyn, Kittitas, Thorp, and Vantage. However, it is possible that the project could affect television reception in a small, sparsely populated area immediately northwest of the project site. This area, known as Swauk Prairie, is a recessed valley bounded by Lauderdale Junction and the Teanaway River. The current quality of television reception in the Swauk Prairie area has been surveyed in a preliminary fashion and found to be highly variable.

Corona-caused television interference is the result of electrical discharges caused by a breakdown in air around conductors. It occurs only at very high voltages and usually in damp

weather conditions. The existing high-voltage transmission lines that traverse the project site or the proposed high-voltage substation may produce this type of interference. Other potential forms of television interference generated during turbine operations are signal reflection (ghosting) and signal blocking caused by the relative locations of the turbine structures and the receiving antenna with respect to the incoming television signal. Television systems that operate at higher frequencies, such as satellite receivers, are not affected by corona-generated television interference. However, because they are line-of-sight systems, physical interference from the turbine towers or blades is a possibility. Mitigation measures for this potential impact are discussed in Section 3.13.4. Cable television systems are unaffected by corona or the physical placement of the towers or blades of the machines.

Cell Phone Interference. The project's potential to interfere with or degrade cell phone service has been raised as an issue of concern by the public. The Applicant indicates that there is no documented evidence that wind turbines or towers interfere with cellular phone service or coverage. Maintenance personnel at wind power projects routinely use both cell phones and two-way radios when they are out among the turbines for communicating with other staff on and offsite. In areas of the United States with very large numbers of turbines and high densities of turbines, such as Altamont, Tehachapi, and Palm Springs in California, no problems have been reported with cell phone service. Furthermore, in Germany and elsewhere, cell phone antennae are being installed on the same towers as wind turbine generators (Sagebrush Power Partners LLC 2003c).

Degradation of existing cell phone service in the area resulting from the project is unlikely. However, the location of the cell phone user relative to the existing cell phone antennae and project turbines could possibly affect the quality of service at specific receiving locations. Cell phone reception is not affected by line-of-sight disruptions, but cell phone signals are not all-encompassing. Therefore, the relative position of the user, antenna, and intervening objects (such as the proposed turbine towers) could affect the boundaries of existing cell phone signals, and thereby create interference (Reed, pers. comm., 2003). Mitigation measures for this potential impact are discussed in Section 3.13.4.

Radio Interference. Another issue of concern raised by the public is the potential for the wind turbines to interfere with radio frequencies in the project area. For example, one local area resident operates an emergency-powered amateur radio station licensed by the federal government. The question focuses on the possibility of the emission of "harmful interference" in the frequency band of interest to the local resident. The term "harmful interference" is defined as "any emission, radiation or induction that endangers the functioning of a radio navigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radio communications service operating in accordance with this chapter" (CFR Title 47 Section 15.3[m]).

All rotating electrical machines generate a certain amount of electrical noise that is a combination of many frequencies. As a result, each generator and its associated systems may create harmful interference. To date, information regarding the frequency spectrum of electrical noise generated by the wind turbine generators at locations surrounding the generator has been requested from the Applicant, but has not yet been provided. In the absence of this information,

the potential for the proposed wind power project to generate harmful interference and disrupt radio communications in the KVWPP area is identified as an unresolved issue. Recommended measures for mitigating this potential impact are provided in Section 3.13.4.

Decommissioning Impacts

Potential fire risks and fire prevention measures associated with decommissioning are similar in nature to those for project construction. Anticipated effects on other public services and utilities would be similar to those described for during project construction. Any solid waste generated during the facility shutdown or decommissioning process would be disposed of, as necessary, to comply with Kittitas County solid waste regulations.

3.13.3 Impacts of No Action Alternative

Under the No Action Alternative, the project would not be constructed or operated. However, development by others, and of a different nature, including residential development, could occur at the project site in accordance with Kittitas County's existing Comprehensive Plan and zoning regulations. Depending on the location, type, and magnitude of future development at the project site, impacts to public services and utilities could be similar to or even greater than the proposed action.

If the proposed project were not constructed, the region's power needs could be delivered through development of other generation facilities, most likely a gas-fired combustion turbine. The public service and utility impacts of such an alternative facility would depend on its location, but would require a greater amount of water for project operations. For example, it is estimated that a 60-average megawatt combusting turbine project would consume approximately 200 acre-feet of water annually, the appropriation of which may have adverse impacts on surface water or groundwater resources. In addition, drill cuttings for the on-shore gas extraction component of such a project would generate approximately 135 tons of solid waste (Bonneville and U.S. Department of Energy 1993), substantially greater than the amount anticipated to be generated by the proposed project.

3.13.4 Mitigation Measures

Mitigation Measures Proposed by the Applicant

General

The following mitigation measures would be implemented to reduce impacts to public services and utilities resulting from construction of the project:

- Tax revenues generated by the Applicant's project would mitigate potential impacts to public services and utilities. Should there be construction impacts requiring additional staffing levels during construction, or other impacts or costs related to services that would not be covered in a timely manner by tax revenues, the Applicant would enter into agreement(s)

with the appropriate local governmental agency for prepayment of taxes for mitigation of the cost impacts. This would include fire, police, and county roads.

- If emergency fire protection services are required during project operations prior to having an agreement in place, local fire officials informed the Applicant that the costs of these services could be billed to the project on a cost-recovery basis. Therefore, if an emergency occurs, the responding district(s) would bill the Applicant for their actual costs of responding.
- The Applicant would provide all local police, fire, and emergency medical agencies with emergency response information for the project including employee contact information, procedures for rescue operations to the nacelles, and location of rescue basket.

Law Enforcement

- The Applicant would consult with the county regarding the impact on county law enforcement staffing. If additional staffing is required, the Applicant proposes to mitigate by prepaying taxes in a sufficient amount to provide adequate staffing levels during construction.
- As described in Chapter 2, Section 2.2.4, Construction Activities, a full time security plan would be implemented during project construction to reduce the potential need for increased police services to the project site. For example, temporary fencing with a locked gate would be installed for a roughly 1.5-acre area adjacent to the site trailers for the temporary storage of special equipment or materials. In addition, construction trailers would be equipped with outdoor lighting and motion-sensor lighting, and access to the project site would be controlled. These measures would help to significantly reduce the potential for incidents at the project site that would require a response by local law enforcement agencies.
- As described in Chapter 2, Section 2.2.5, Operations and Maintenance Activities, the plant operations group would prepare a detailed security plan to protect the security of the project and project personnel. Site visitors including vendor equipment personnel, maintenance contractors, material suppliers, and all other third parties would require permission for access from authorized project staff prior to entrance. The plant operations manager, or designee, would grant access to critical areas of the site on an as-needed basis. Arrangements would be made with adjacent landowners that have legal ingress and egress easements across areas where project facilities would be located to ensure their continued access.

Fire Protection

- Fire risk potential is constantly tracked and reported during the summer fire season by the DNR; fire danger levels would be actively posted at the construction job site during the high-risk season.
- The construction manager would be responsible for monitoring fire conditions in the project area by contacting Washington DNR and implementing necessary fire precautions. A Fire Protection and Prevention Plan would be developed and implemented, in coordination with the Kittitas County Fire Marshall and other appropriate agencies. In addition, all onsite construction employees would be responsible for contributing to fire prevention through the following programs:
 - Construction Written Safety Program;
 - Construction Onsite Fire Suppression and Prevention; and

- Construction Offsite Fire Suppression Support.
- All turbines and towers and the substations would be built with engineered lightning protection systems and the footprint areas around these facilities would be graveled with no vegetation. In the event of a nacelle fire, project operations staff and fire personnel would not attempt to put it out, but would prevent the fire from spreading to adjacent lands. This can be achieved either by use of fire suppressant material or a small, controlled burn around the base of the tower (Sagebrush Power Partners LLC 2003a, Section 5.3.3.2.2).
- All onsite operations employees would be responsible for contributing to ongoing fire prevention in the project area through the following programs:
 - Operational Safety Program;
 - Operations Written Safety Program;
 - Emergency Action Plan;
 - Fire Prevention Plan.
- Onsite emergency plans would be prepared for the project in case of a major natural disaster or accident relating to or affecting the project. The plans would describe the emergency response procedures to be implemented during various emergency situations that may affect the project or surrounding community or environment.
- The Applicant would also be responsible for the following fire protection and prevention measures:
 - Contract with fire district(s) for protection services during construction;
 - Provide special training to fire district personnel on how to respond to fires related to wind turbines, and to EMS personnel in how to use a rescue basket that would be kept at the operations and maintenance facility for the purpose of removing injured employees from the towers;
 - Provide detailed maps that show all access roads to the project;
 - Provide keys to a master lock system that would enable emergency personnel to unlock gates that would otherwise limit access to the project;
 - Use spark arresters on all power equipment, e.g., cutting torches and cutting tools;
 - Inform workers at the project site of emergency contact phone numbers and train them in emergency response procedures;
 - Carry fire extinguishers in all maintenance vehicles; and
 - Coordinate with DNR when the fire danger is high.

The Applicant's proposed Fire and Explosion Risk Mitigation Plan is presented in Table 3.4-2 in Section 3.4, Health and Safety.

Emergency Medical Services

- Onsite emergency plans would be prepared to protect the public health, safety, and environment on and off the project site in the case of a major natural disaster or industrial accident relating to or affecting the project. The construction specifications would require that the contractors prepare and implement a Construction Health and Safety Program that includes an emergency plan. The Construction Health and Safety Program would include the following provisions:
 - Construction Injury and Illness Prevention Plan;
 - Construction Written Safety Program;

- Construction Personnel Protective Devices;
- Construction Onsite Fire Suppression Prevention; and
- Construction Offsite Fire Suppression Support.
- In the event that operations personnel are seriously injured and require evacuation from a remote location within the project area, the Applicant would make arrangements with the Kittitas Valley Community Hospital for helicopter transportation service.

Schools

Pursuant to the terms of the project lease agreement signed between the Applicant and DNR in July 2003, approximately \$5.6 million dollars would be generated by the project and diverted into a state trust fund for school construction over the life of the project (Daily Journal of Commerce 2003). Therefore, project-generated funding could be used to help offset the capacity issues being faced by the local school districts.

Water Supply

A licensed well contractor, in compliance with the requirements and standards of Chapter 173-160 WAC (Department of Ecology Minimum Standards for Construction and Maintenance of Wells) would install the domestic water well.

Wastewater

The Applicant would coordinate with Kittitas County and comply with the county's septic tank and subsurface disposal field design, installation, and maintenance requirements for systems with designed flows of less than 3,500 gallons/day pursuant to Kittitas County Code Title 13.04.

Communication Services

- Once the specific location and configuration of the turbines is identified on paper, the Applicant proposes to conduct final field measurement test surveys of communication microwave paths. If the results of these final surveys identify that the proposed turbines would interfere with or obstruct communication microwave paths, the Applicant would adjust the tower location, accordingly, to avoid line-of-sight interference.
- The Applicant plans baseline field studies to more precisely determine the existing quality of television reception in the Swauk Prairie prior to construction of the project. After the project is built, the Applicant plans follow-up field studies to determine if the quality of television reception could be degraded by project operations. In the event that the project creates significant television reception problems for residents in this area, the Applicant would consult with affected residents to develop an appropriate solution.

Additional Recommended Mitigation Measures

Fire Protection

Additional mitigation measures recommended by the County Fire Marshall (Kittitas County 2003) but not specified by the Applicant include the following:

- Comply with equipment rules and regulations required by DNR for work conducted in wildland/forested lands (e.g., fire extinguishers and shovels would be required on each piece of equipment);
- Limit parking areas for vehicles;
- Provide garbage containers; and
- Implement restrictions on burning.

In addition, the following mitigation measure is recommended to further reduce the potential for wildland fires during project construction:

- Implement the terms of any negotiated agreements between Fire District No. 1 and the Applicant regarding improvements to the southern portion of Hayward Hill Road to ensure adequate fire protection to the project area. If Hayward Hill Road were upgraded to meet fire department standards, it is estimated that Fire District No. 1 could respond to a project area fire in approximately seven to eight minutes. If the southern portion of Hayward Hill Road is not improved, Fire District No. 1 trucks responding to an emergency fire in the project area would need to be re-routed from Thorp to US 97. Under this scenario, estimated response times to the project area would be approximately three times longer (Evans, pers. comm., 2003).

Communication Services

If the Applicant's follow-up studies determine that the project creates significant television reception problems in the area, one of the following mitigation measures to minimize television interference impacts should be implemented by the Applicant:

- Improve the receiving antenna system;
- Install a remote antenna;
- Install an antenna for TV stations less vulnerable to interference;
- Connect affected residents to an existing cable system; or
- Connect affected residents to an existing satellite system.

To reduce the impact of potential cell phone degradation in the project area, the Applicant should implement the following mitigation measures:

- The Applicant should conduct a field study before and after project construction to determine if the quality of cell phone service in the project area is degraded by project operations.
- If cell phone degradation is identified as a result of project operations, the Applicant should be responsible for implementing appropriate mitigation to minimize impacts. This could

include developing and funding a program under which the cell phone service provider would establish new antenna locations to ensure continued high-quality reception and transmission. These locations could include the wind turbine generator towers or other locations as determined by the cell phone service provider.

Regarding the potential impact of radio interference in the project area, the Applicant should implement the following mitigation measures:

- Prior to construction, but after the final turbine make, model, and size and site configuration have been selected, the Applicant should provide data regarding the frequency spectrum of electrical noise generated by the wind turbine generators at locations surrounding the generator similar to those made for audible noise emissions. The Applicant should then compare this frequency spectrum with frequency spectrums from existing, operating radio communication devices in the project area to identify if potential harmful interference could occur.
- If radio interference is identified as a potential impact, mitigation could be accomplished by reducing the amount of noise generated or by screening the electrical equipment to prevent radiation of unwanted frequencies.

3.13.5 Significant Unavoidable Adverse Impacts

With implementation of the mitigation measures outlined above, no significant unavoidable adverse impacts to public services and utilities would be anticipated.