

Section 3.14

TRAFFIC AND TRANSPORTATION

This section describes the existing transportation network serving the proposed Wild Horse Wind Power Project (WHWPP) in Kittitas County near the City of Kittitas. It evaluates the potential traffic volume impacts on level of service, pavement conditions, and local transportation system. It also identifies mitigation measures to limit those impacts. The analysis in this section is based primarily on information provided by the Applicant in the Application for Site Certification (ASC) (Wind Ridge Power Partners LLC 2004, Section 3.15). Where additional information has been used to evaluate the potential impacts associated with the proposal, that information has been referenced.

Existing state transportation plans and local comprehensive plans were reviewed to identify pertinent policies, impact evaluation criteria, and planned roadway improvements (Wind Ridge Power Partners LLC 2004, Section 3.15). Vehicle trip generation for the WHWPP was based on the anticipated construction material needs and employees. During operation trips were based on number of employees and daily material needs. Level-of-service (LOS) analyses were conducted consistent with methods presented in the Highway Capacity Manual (Transportation Research Board 2000).

3.14.1 Affected Environment

The project site is located in rural Kittitas County north of the Vantage Highway between the City of Kittitas on the west and Vantage on the east. The project site access is located along Vantage Highway opposite the solid waste transfer station. Roadways included in this transportation analysis are I-90 and Vantage Highway between the City of Kittitas and Vantage; Main Street and Patrick Avenue, maintained by the City of Kittitas; and No. 81 Road, maintained by Kittitas County. Most of the public roads in the region are paved county roads, with a few state routes traversing the area. Figure 3.14-1 illustrates the principal transportation routes that would serve the site.

3.14.1.1 Existing Road Network

The WHWPP has identified two transporter routes to serve the project site from I-90: Transporter Route 1 through the City of Kittitas and Transporter Route 2 through Vantage. Transporter routes are roads used to bring in equipment, materials, and manpower from outside of the project study area to the project site. Transporter Route 1 would provide the primary access, and Transporter Route 2 would provide access for trucks with oversize loads. Site access

roads are newly constructed or improved gravel-surfaced roads that run from the site access location on Vantage Highway to and between the individual turbines.

Transporter Route 1 begins at the Port of Seattle and continues east along I-90 to the City of Kittitas (Exit 115). The route then continues north on Main Street through the city, east on Patrick Avenue, north on No. 81 Road, and east on Vantage Highway to the project site access location. Transporter Route 1 would be used for light-duty traffic, such as passenger vehicles, delivery trucks, single-unit construction vehicles, and equipment trucks. Within the City of Kittitas, the intersections of Main Street and Patrick Avenue, and Patrick Avenue and Road No. 81 have very tight turning radii. Along Road No. 81, the shoulders are gravel and only 2–3 feet wide.

I-90 varies between two and five lanes with 4- to 10-foot-wide paved shoulders and is classified as a Rural-Interstate, with rolling terrain in the vicinity of the project, according to the Washington State Department of Transportation (WSDOT) road classification system. I-90 has posted speed limits of 60 miles per hour (mph) in urban areas and 70 mph in rural areas. The 70-mph designation begins east of Issaquah.

Main Street is maintained by the City of Kittitas and has a posted speed limit of 35 mph immediately north of the I-90 ramps. This speed limit is reduced to 25 mph as the roadway enters the industrial and commercial areas of the town. Main Street is a level two-lane, north-south, undivided roadway with 2- to 5-foot-wide unpaved/dirt shoulders for most of the length. There is also a designated bicycle lane on either side of the road through the industrial section of Kittitas. There is no parking along Main Street through this industrial section, but there is angled pull-in parking along the next section of the roadway through the city's retail area. Access to Main Street is unrestricted as there are many driveways and minor cross streets through the city.

Patrick Avenue is maintained by the City of Kittitas and has a posted speed limit of 25 mph. This is a level two-lane, east-west, undivided roadway with designated paved bicycle lanes that are approximately 6 feet wide along either side of the road. There is no parking along Patrick Avenue, but access is fairly unrestricted as there are many driveways.

No. 81 Road is classified as a rural major collector by Kittitas County and has a posted speed limit of 35 mph. This is a level two-lane, north-south, undivided roadway with unpaved gravel shoulders approximately 1–2 feet wide. There is no designated parking along No. 81 Road, and access to the roadway is unrestricted as there are many residential driveways.

Vantage Highway was once a state highway but has since become classified as a rural minor collector and is maintained by Kittitas County. This road has a posted speed limit of 50 mph and is a two-lane, east-west, undivided roadway with paved shoulders approximately 2 feet wide. There is no designated parking along Vantage Highway, and there is minimal access to the roadway.

Transporter Route 2 begins at the Port of Seattle and continues east along I-90 to Vantage (Exit 136). The route then passes through Vantage and continues on Vantage Highway to the west to the project site access location. Transporter Route 2 would be used for oversize and over-length delivery vehicles because the route is better suited for larger vehicles.

The I-90 segment of this transporter route has the same characteristics as mentioned above. Vantage Highway has a posted speed limit of 35 mph within Vantage but 50 mph outside of

Vantage. The Vantage Highway segment of this transporter route has the same characteristics as previously described expect the grade from Vantage to the site access is approximately 3%.

3.14.1.2 Traffic Volumes

Table 3.14-1 shows the average daily traffic (ADT) volumes on major roadways along each transporter route in the study area. These volumes are based on the most current available traffic data from WSDOT (2002 Annual Traffic Report), Kittitas County, and the City of Kittitas.

Table 3.14-1 also shows the historical ADT volumes on I-90 between 1998 and 2002 and the estimated truck percentages on I-90. Kittitas County and the City of Kittitas do not have historical traffic data for the roadways along the transporter routes nor do they collect estimated truck percentages.

Table 3.14-1: Average Daily Traffic (ADT) Volumes and Estimated Truck Percentages

	1998 ADT	1999 ADT	2000 ADT	2001 ADT	2002 ADT	Est. Truck %
Transporter Route 1						
I-90 (west of Kittitas)	11,000	11,000	11,000	14,000	15,000	21
Main Street*	N/A	N/A	N/A	N/A	2,000	N/A
No 81 Road	N/A	N/A	N/A	N/A	1,300	N/A
Vantage Highway (west of site access)	N/A	N/A	N/A	N/A	1,146	N/A
Transporter Route 2						
I-90 (west of Vantage)	10,000	10,000	11,000	11,000	11,000	21
Vantage Highway (east of site access)	N/A	N/A	N/A	N/A	1,500	N/A

*ADT was collected in April 2003.

ADT = Average daily traffic.

N/A = Not available.

Source: Wind Ridge Power Partners LLC 2004, Section 3-15

Roadway Limitations

The Kittitas County road network would comprise the primary public haul routes used in the construction of the WHWPP. The regulatory framework for transportation in Kittitas County consists of program and project planning, design standards related to roadway geometry and paving materials, load limits for bridges, and weight limits or closures under defined circumstances. Kittitas County roads are designed to sets of standards with respect to paving materials and methods and with respect to roadway geometry and design. The planning and programming of public roads is included in the Kittitas County Transportation Plan, the 6-year Transportation Improvement Program and Annual Road Program. Kittitas County Road

Standards state the minimum requirements for public and private road construction in the county, as well as any exceptions to these standards. All new public road and bridge construction must also be in accordance with the current edition of WSDOT's "Standard Specifications for Road, Bridge, and Municipal Construction."

Roads serving the project site may have permanent or temporary roadway restrictions. These include height or weight restrictions. Kittitas County Code 10.28, "Seasonal Weight Restrictions," specifies load and weight restrictions on Kittitas County roads during load-sensitive periods. These include any weather conditions that could affect traffic on county roads, such as ice, snow, and fog. It also authorizes the county engineer to issue emergency permits for the operation of vehicles exceeding the allowable gross load.

The following portions of the Revised Code of Washington limit the size of undivided and public roads.

- RCW 46.44.010 Outside width limit.
- RCW 46.44.020 Maximum height—Impaired clearance signs.
- RCW 46.44.030 Maximum lengths.
- RCW 46.44.034 Maximum lengths—Front and rear protrusions.
- RCW 46.44.041 Maximum gross weights—Wheelbase and axle factors.
- RCW 46.44.042 Maximum gross weights—Axle and tire factors.

The Revised Code of Washington (RCW) 46.44.090, "Special Permits for Oversize or Overweight Movements," allows special permits to be issued for vehicles exceeding the maximum size/weight/load limits, which are specified in the RCW sections listed above.

From RCW 46.44.041, the maximum legal load is specified as 105,500 lbs. Because some construction transport vehicles related to the WHWPP may exceed this weight limit, a special permit in accordance with RCW 46.44.090 will be obtained.

In addition, WSDOT requires permits for "superloads" (vehicles with a gross weight exceeding 200,000 lbs. and/or a total width or height exceeding 16 feet).

Existing Roadway and Intersection Levels of Service

LOS is a qualitative measure describing operational conditions in a traffic stream and motorists' or passengers' perceptions of those conditions. It generally describes traffic conditions in terms of speed and travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. There are six LOS classifications, each given a letter designation from A to F. LOS A represents the best operating conditions and LOS F represents the worst.

To analyze traffic conditions, average daily traffic data from WSDOT, Kittitas County, and the City of Kittitas were used to determine the existing LOS for each of the roadways. An estimate of 10% of the ADT volume is used to determine the peak-hour volumes for state highways. The city and county roads involved in the study area are rural, so a conservative estimate of 15% of the ADT volume is used to estimate the peak-hour volumes for these roadways. Specific peak-hour counts were estimated using this method, as opposed to collecting data, because the low average daily volumes and roadway conditions indicate there is an adequate LOS.

LOS was based on the most current Highway Capacity Manual (HCM) (Transportation Research Board 2000). The ADT represents the estimated 2002 daily volumes in both directions of travel.

Existing Roadways LOS

To determine the LOS for selected roadways in the study area, daily traffic capacity was determined by estimating capacities obtained from the HCM. Daily traffic volumes were compared with these capacities to determine volume-to-capacity ratios, which were used to calculate the existing LOS. Table 3.14-2 summarizes the existing roadway traffic conditions in the project vicinity and includes existing roadway classification, number of lanes, daily volume, design capacity, peak-hour volume, and LOS.

A 60/40 directional split was assumed for level-of-service calculations for the existing traffic alternatives. A conservative truck percentage of 10% was assumed for roadways when actual truck data were not available.

Table 3.14-2: 2002 Conditions of Affected Roadways

Roadway	Classification	No. of Lanes	Average Daily Volume	Hourly Design Capacity ¹	PM Peak-Hour Volume ²	PM Peak-Hour LOS
Transporter Route 1						
I-90 (west of Kittitas)	Rural-Interstate	4	15,000	6,020	1,500	A
Main Street	City road	2	2,000	2,800	300	B
No. 81 Road	Rural major collector (County Road)	2	1,300	2,800	195	A
Vantage Highway (west of site access)	Rural minor collector (County Road)	2	1,146	2,800	172	C
Transporter Route 2						
I-90 (west of Vantage)	Rural-Interstate	4	11,000	6,020	1,100	A
Vantage Highway (east of site access)	Rural minor collector (County Road)	2	1,500	2,800	225	C

¹ Maximum number of vehicles per hour in both directions for LOS E.

² Peak-hour volumes estimated at 10% (for interstate roads) and 15% (for city and county roads) of ADT.

Source: Wind Ridge Power Partners LLC 2004, Section 3-15

The existing LOS for roadways surrounding the project site are LOS C or better, which represents generally smooth traffic conditions. Under these conditions, individual users feel unrestricted by the presence of others in the traffic stream.

Existing Intersections LOS

Major existing intersections along Transporter Route 1 include the I-90 ramp termini at Exit 115 (to Kittitas), Main Street and Patrick Avenue, and also No. 81 Road and Vantage Highway. Along Transporter Route 2 the I-90 ramp termini at Exit 136 (to Vantage) is the only major intersection. These intersections are all unsignalized.

WSDOT does not conduct individual counts at the ramp termini intersections because of the low volume. Kittitas County has not analyzed individual intersections since June 1996 according to the current Kittitas County comprehensive plan. Because the project area is rural and has low traffic volumes, these intersections are estimated to operate at LOS C or better.

Roadway Hazards

Accidents are generally expressed in terms of accident rate, where accident occurrence is indexed to the amount of traffic using a given roadway. For roadway segments, accident rates are computed as the number of accidents per million vehicle miles (mvm) of travel.

Table 3.14-3 shows an estimated number of accidents for I-90 based on multi-year accident rates. The most recent accident rates provided by WSDOT are from 2001. These 2001 accident rates were used to predict the number of accidents in 2002 along the transporter routes.

Table 3.14-3: Accident Rates and Numbers, 2002

Roadway	Milepost	Length (miles)	Accident Rate (acc/mvm)	2002	
				ADT	No. of Accidents
I-90 (west of Kittitas)	110.87	4.6	0.41 ^(a)	15,000	10
I-90 (west of Vantage)	115.47	20.96	0.84 ^(a)	11,000	71
Vantage Highway (west of site access)		11.0	4.36	1,146	20
Vantage Highway (east of site access)		10.2	1.07	1,500	6

^a 2001 Multi-year accident rate. Rate is in accidents per million vehicle miles.

Source: Wind Ridge Power Partners LLC 2004, Section 3-15

The 1996 WSDOT State Highway Accident Report (WSDOT 1996) indicates an average statewide accident rate of 0.86 accidents per mvm for similar types of roadways. The average statewide accident rate is higher than both of the I-90 segments analyzed.

Accident data for Vantage Highway was collected by Kittitas County. Twenty accidents occurred within the 11 miles of Vantage Highway between No. 81 Road and the project site access location (Transporter Route 1) in 2002. Six accidents occurred within the 10.2 miles of Vantage Highway between the project site access location and Vantage. The accident rate of the Vantage Highway on Transporter Route 1 is higher than the average statewide accident rate for state highways of 1.8 per mvm.

Sight distance could be of concern along a few stretches of Vantage Highway near milepost (MP) 25 on Transporter Route 2 due to the winding geography and steep side slopes. Field investigations revealed these areas are adequately signed to advise motorists to reduce their speed as they approach these areas; therefore, these locations are not considered to have safety issues.

Future Plans and Projects

Kittitas County Department of Public Works staff has stated that there is currently no construction project planned on county roads in the project area.

WSDOT has also been contacted, and the following projects that may affect the transport and/or operations of the proposed project have been identified:

- I-90: Gold Creek to Easton Hill paving project (MP 55.51 to MP 67.32). Scheduled for spring of 2004.
- I-90: Cle Elum Weigh Station roadway preparation project (MP 78.46 to MP 78.81). Scheduled for spring of 2005.
- I-90: Yakima River Bridge deck repair project (MP 78.81 to MP 78.85). Scheduled for 2006.
- I-90: Eastbound Cle Elum ramp paving project (MP 85.48 to MP 86.18). Scheduled for spring of 2004.
- I-90: Highline Canal to Elk Heights auxiliary lane project (MP 90.57 to MP 92.76). Scheduled for completion in July 2004.
- I-90: Rye Grass Summit to Vantage auxiliary lane project (MP 125.21 to MP 136.11). Scheduled for completion in late fall of 2004.

Local Comprehensive Transportation Plans

There are currently no plans for major improvements to roadways in use for the WHWPP or to the transportation system in Kittitas County. A review of the Kittitas County Comprehensive Plan identified no transportation goals, policies, or objectives that directly relate to the types of transportation impacts that may be caused by the project.

Public Transportation

Kittitas County is primarily a rural county with very limited public transportation. The City of Kittitas and the Vantage area, near the vicinity of the project site, currently do not have public transit systems. However, there is an accessible/special needs transportation program provided by the Kittitas County Action Council (KCAC) for citizens.

Air Traffic

There are no regional or municipal airports in the vicinity of the project site. The nearest airport is Kittitas County Airport (Bowers Field), approximately 1.5 miles north of the City of Ellensburg. The Kittitas County Airport (Bowers Field) does not have scheduled air service,

though charter plane service is available. Small planes may use private runways at ranches or farms in the area, but none has been identified in the immediate vicinity of the WHWPP, and the frequency of this type of use is unknown.

Rail Traffic

Burlington Northern operates an active main line between Auburn and the Tri-Cities over Stampede Pass, passing through Ellensburg. Portions of the line had been inactive until 1996, when the pass portion reopened to freight traffic. Approximately 4–10 trains traverse the route daily.

Waterborne Traffic

More than 100 miles southeast of the project site, the Ports of Pasco, Benton, and Kennewick operate on the Columbia River. Grain is the major commodity using barge transportation on this stretch of the river. Priest Rapids and Wanapum Dams restrict access upstream of these ports.

3.14.1.3 Kittitas Valley Alternative

Roadway segments included in the traffic analysis for the Kittitas Valley alternative include I-90 west of US 97; US 97 north of I-90; US 97 south of Bettas Road; Bettas Road; and Hayward Road. All of these road segments currently have PM peak-hour volumes that are well below the hourly design capacity of the road segment and PM peak hour LOS is B for I-90 west of US 97; C for both segments of US 97; and A for both Bettas and Hayward Roads.

Accident rates, expressed as the number of accidents per million vehicle miles, were calculated for the I-90 and US 97 road segments and are lower than the statewide average for these road types.

Future plans and projects within the Kittitas Valley alternative analysis area include paving of US 97 between Virden and Ellensburg and paving of I-90 between Gold Creek and Easton Hill, both of which are scheduled to occur in 2004.

Given the proximity of the Kittitas Valley alternative to the WHWPP (within the same county and general area), roadway limitations, local comprehensive travel plans, public transportation, air traffic, rail traffic, and waterborne traffic would all be similar to the WHWPP.

3.14.1.4 Desert Claim Alternative

The Desert Claim project area is served by a discontinuous system of two-lane county roads. Traffic volumes on county roads within the project area are relatively low and well within the capacity of the road network. Roads included in the traffic analysis for this alternative include I-90, US 97, Smithson Road, Reecer Creek Road, Wilson Creek Road, and Hungry Junction road. Existing LOS was calculated only for local roads under this Alternative and all have a current LOS of A. Accident rates have not been calculated for this alternative, however they would be expected to be as described for the WHWPP and Kittitas Valley alternatives for I-90 and US 97 and relatively low on local roads due to low traffic volumes on these roads.

Given the proximity of the Kittitas Valley alternative to the WHWPP (within the same county and general area), roadway limitations, local comprehensive travel plans, public transportation, air traffic, rail traffic, and waterborne traffic would all be similar to the WHWPP.

The Kittitas County Airport (Bowers Field) is located to the south of the Desert Claim alternative site and there is a potential for conflict between the use of the airspace for this airfield and the location of the turbines under this Alternative.

3.14.1.5 Springwood Ranch Alternative

I-90, SR 10, Thorp Prairie Road, and the Thorp Highway serve the Springwood Ranch area. Primary access to the site would be from I-90 at the Elk Heights interchange at MP 94. The Elk Heights interchange provides access to Thorp Prairie Road, which is adjacent to the west side of the site, and Taneum Road, immediately south of the site. Existing traffic volumes at the interchange are extremely low. The intersection of Elk Heights Road and Thorp Prairie Road, adjacent to the intersection, is estimated to serve approximately 10 vehicles during the PM peak hour. Neither existing LOS or accident rates have been calculated for this alternative, although existing LOS and accident rates are expected to be as described for the WHWPP and Kittitas Valley for I-90 and LOS is expected to be high and accident rates are expected to be low on local roads in the project area due to low traffic volumes.

Stop signs are the traffic controls at the I-90 ramps for Elk Heights Road. A stop sign is also located at the intersection of Thorp Prairie Road and Elk Heights Road. The roads adjacent to Springwood Ranch serve existing farms and ranches. Counts taken in 1999 indicate that traffic volumes at these intersections are very low, with weekday afternoon volumes of five or fewer vehicles (Kittitas County, 1999), and conditions have not changed significantly in the past few years.

The eastern edge of the Springwood Ranch site is located 8 miles northwest of Bowers Field. The project site underlies low-altitude airways used by aircraft flying over Kittitas County. Aircraft traveling to and from Bowers Field under instrument flight rules typically would not fly over or near the Springwood Ranch site.

The Cle Elum Municipal Airport and De Vere Field are located approximately 7 miles and 5 miles (respectively) from the northwestern corner of the Springwood Ranch site. Any protected airspace would not overlap with the Springwood Ranch project area.

3.14.1.6 Swauk Valley Ranch Alternative

Major roadways in the area include SR 970, SR 10, and I-90. Several roads maintained by Kittitas County, as well as private roads, are located in the project area. A series of rough access roads criss-cross the site. Existing LOS and accident rates have not been calculated for this alternative but we be similar to those described for the Springwood Ranch alternative.

3.14.2 Impacts of Proposed Action

This section evaluates potential transportation impacts that could result from the WHWPP. It summarizes vehicle trip generation associated with construction and operation of the WHWPP. Potential impacts on traffic volumes are evaluated for key roadways that would provide primary access to the project site. LOS analyses were conducted for 2004 (construction, operation, and maintenance impacts) and 2034 (operations and maintenance impacts).

Direct impacts would occur if predicted traffic levels exceed applicable LOS standards. Other types of direct transportation impacts include the potential for vehicles hauling material to the project site to exceed legal roadway load and weight limits and accident or navigational hazards (for both motorists and aviators). For the WHWPP, the primary concern is the potential transportation-related impacts attributable to vehicle trips (both trucks and automobiles). These trips would be associated with construction, operations and maintenance, and decommissioning of the various project elements. Potential aviation hazards would be specifically associated with the proposed turbine and meteorological towers. Indirect impacts are not anticipated because the WHWPP is not expected to substantially induce regional growth to the extent that would result in significant changes to off-site traffic. Table 3.14-4 summarizes potential transportation impacts under the three project scenarios.

Table 3.14-4: Summary of Potential Transportation Impacts

Impacts	104 Turbines/3 MW	136 Turbines/1.5 MW (Most Likely Scenario)	158 Turbines/1 MW
Construction Impacts			
Construction trips	728 daily trips	812 daily trips	770 daily trips
	458 daily trips ¹	498 daily trips ¹	478 daily trips ¹
Parking requirements	Same	Approx. 2 acres	Same
Hazardous materials transport	Same	Diesel fuel and gasoline required for mobile construction equipment	Same
Roadway limitations	Less than 1.5 MW proposal because of 14% fewer trucks	Large number of trucks and trucks exceeding legal weight limits may cause pavement deterioration.	Less than 1.5 MW proposal because of 7% fewer trucks
Roadway hazards	Less than 1.5 MW proposal because of 14% fewer trucks	Increased risk of accidents.	Less than 1.5 MW proposal because of 7% fewer trucks
Aviation hazards	Same	No adverse effect	Same
Operation and Maintenance Impacts			
Operational trips	Same	36 daily trips	Same
Parking requirements	Same	Approx. 30 spaces	Same
Hazardous materials transport	Same	No adverse effect	Same
Road limitations	Same	No adverse effect	Same
Road navigation hazards	Same	No adverse effect	Same

Impacts	104 Turbines/3 MW	136 Turbines/1.5 MW (Most Likely Scenario)	158 Turbines/1 MW
Aviation hazards	Less than 1.5 MW proposal because of fewer wind turbines	Some risk to aviation because of wind turbine height, numbers, and placement.	More than the 1.5 MW proposal because there are more wind turbines
Road maintenance and public access requirements	Same	32 miles (165 acres) of roadways to maintain	Same
Tourism-induced traffic	Unknown	Unknown	Unknown
Decommissioning Impacts			
	Slightly less than 1.5 MW proposal as there are fewer wind turbines	Similar to those described for construction. However, assuming that roadways would remain in place, the resulting workforce and corresponding vehicle trips would be smaller	Slightly more than 1.5 MW proposal as there are more wind turbines

¹ Daily trips with rock quarry on-site.

Source: Wind Ridge Partners LLC 2004, c, f

On the basis of historical ADT levels on I-90, a 1% growth factor is assumed in establishing impacts on future background levels of traffic. This growth factor is considered reasonable because of the area's rural nature and because of the historical volume trends presented in Table 3.14-1.

Local policies are aimed at keeping the public road service at or above an accepted level of service determined by the county. Roadways that would experience heavy truck traffic can be assessed on an individual basis by the county during the project. All of the roadways in the study boundaries currently provide LOS C or better.

Table 3.14-5 describes the existing and future daily peak-hour traffic volumes and LOS values without the proposed action. It is estimated that during the peak hour in 2004, all roadways in the project vicinity would function at LOS C or better, without the WHWPP. An estimate of 10% of the ADT volume is used to determine the peak-hour volumes for state highways. The city and county roads involved in the study area are rural, so a conservative estimate of 15% of the ADT volume is used to estimate the peak-hour volumes for these roadways.

Table 3.14-5: Existing, Future Daily, and Peak-Hour Traffic Volumes and LOS without Project

Roadway	No. of Lanes	Existing Daily		Estimated Peak-Hour without Project			
		2002	2004	2002	LOS	2004	LOS
Transporter Route 1							
I-90 (west of Kittitas)	4	15,000	15,300	1,500	A	1,530	A
Main Street	2	2,000	2,040	300	B	306	B
No. 81 Road	2	1,300	1,326	195	A	199	A
Vantage Highway (west of site access)	2	1,146	1,169	172	C	175	C

Roadway	No. of Lanes	Existing Daily		Estimated Peak-Hour without Project			
		2002	2004	2002	LOS	2004	LOS
Transporter Route 2							
I-90 (west of Vantage)	4	11,000	11,220	1,100	A	1,122	A
Vantage Highway (east of site access)	2	1,500	1,530	225	C	230	C

Source: Wind Ridge Power Partners LLC 2004, Section 3-15

3.14.2.1 Construction Impacts

Traffic

The project construction period requiring the transportation of major equipment and constituting the highest amount of construction traffic would span approximately 6 months. It is anticipated that approximately half of the construction workers would access the site from within 40 miles of the WHWPP. These local workers would most likely be from Ellensburg, Yakima, or the surrounding area. It is anticipated that the other half of the construction workers would be non-local, originating from the Seattle area (approximately 125 miles to the west). See Section 3.12, "Population, Housing, and Economics," for information on the construction workforce.

Vantage Highway would be the primary roadway to and from the project site. As a result, this roadway would likely receive the largest impact from construction of the WHWPP. Workers from the Seattle area would most likely travel east on I-90; north, from Exit 115, through the City of Kittitas; and continue east on Vantage Highway to access the project site. Workers from the Yakima area would travel north on U.S. 82 and east on I-90 to the Kittitas exit where they would continue on the access route previously mentioned. Workers from the Ellensburg area would either use I-90 and the previously decided routes or use Vantage Highway as it leaves Ellensburg. These are the shortest and most direct routes from the surrounding major urban areas.

The wind turbines, towers, transformers, and other large equipment would be transported to the site using semi truck and lowboy trailers designed for heavy loads (i.e., multiple axles). These vehicles would travel along I-90 to Vantage and then along Vantage Highway to the site access.

Construction is anticipated to commence during April 2005. There would be an on-site workforce of about 160 workers during the peak month of construction as described in Section 2.2.6, "Project Construction Schedule and Workforce." The average daily workforce for the remaining months of construction would be about 90 workers. During the peak construction period, construction workers would generate an estimated 214 daily trips (assuming one-third of the workforce would carpool to the site), 107 of which would occur during the evening peak hour. These construction worker trips would consist of light-duty vehicles, which would travel on Transporter Route 1 through the City of Kittitas.

Construction-related traffic increases would consist of deliveries of project equipment and construction materials (such as water and steel) by truck. Truck deliveries are anticipated to occur between approximately 8 a.m. and 4:30 p.m. on workdays. In total, 25,789 heavy-duty

truck deliveries are expected during the construction period. Approximately 1,340 of these truck deliveries are oversized or over length and must travel on Transporter Route 2 through Vantage to access the site. The remaining trucks may travel on Transporter Route 1 through the City of Kittitas. Assuming 96 workdays (the 4 busiest months at 24 workdays per month), this would result in approximately 255 trucks (or 510 truck trips) per day on Transporter Route 1. This equates to 128 truck trips during the peak hour on Transporter Route 1, assuming a very conservative estimate that 25% of the 510 total truck trips would actually occur within the peak. A conservative estimate was assumed in order to show the possible effects on capacity. Similarly on Transporter Route 2, there would be 14 trucks per day, which equates to 28 truck trips or seven trucks during the peak hour.

In addition to worker traffic and heavy-duty construction vehicles, there would be an estimated 30 light-duty delivery trucks daily for the peak of the construction period, resulting in 60 daily trips. These light-duty vehicles would travel on Transporter Route 1 through the City of Kittitas. Similar to heavy construction deliveries, light-duty delivery trips would not all occur within the peak hour. Assuming that 25% of all light-duty delivery trips would occur within the peak hour, 15 truck trips would occur on Transporter Route 1.

Transporter Route 1 would experience an additional 250 peak-hour trips during the peak of construction (107 worker trips, 128 heavy-duty delivery trips, and 15 light-duty delivery trucks). Transporter Route 2 would experience very little additional construction traffic at only seven peak-hour trips.

It is anticipated that truck deliveries would include the following:

- major equipment (e.g., tower sections, nacelles, blades);
- water trucks for road wetting during compaction, mixing concrete, and for dust control;
- fuel trucks for replenishing diesel and gasoline storage tanks;
- cement, sand, and aggregate for use in concrete foundations and trench shading;
- construction equipment delivery and pickup;
- reinforcing steel;
- mechanical equipment;
- electrical equipment and material (e.g., transformers, cable);
- miscellaneous steel, roofing, and siding;
- construction consumables; and
- contractor mobilization and demobilization.

Table 3.14-6 provides a summary of PM peak-hour traffic and LOS during the construction time period of the WHWPP. A 60/40 directional split was assumed for level-of-service calculations. This split was updated accordingly in the Highway Capacity Software (HCS) analysis, assuming that peak-hour construction traffic would be added in the peak direction. The truck percentage was also updated in the HCS analysis.

The LOS during the PM peak hour with construction worker traffic and delivery traffic causes some reduction in the LOS level; however, all transporter routes would operate at LOS C or better.

Table 3.14-6: Total PM Peak-Hour and LOS Construction Impacts to the Roadways

Roadway	No. of Lanes	2004 Base ADT	2004 PM Peak	Construction Worker Traffic	Construction Traffic	Total PM Peak	LOS
Transporter Route 1							
I-90 (west of Kittitas)	4	15,300	842*	107	150	1,099	B
Main Street	2	2,040	306	107	143	556	C
No. 81 Road	2	1,326	199	107	143	449	A
Vantage Highway (west of site access)	2	1,169	175	107	143	425	C
Transporter Route 2							
I-90 (west of Vantage)	4	11,220	617*	0	7	624*	A
Vantage Highway (east of site access)	2	1,530	230	0	7	237	C

*Freeway PM peak volumes are directional.

Source: Wind Ridge Power Partners LLC 2004, Section 3-15

The LOS Table 3.14-6 above was based on a scenario in which all gravel needed for construction on-site would be transported to the project location from off-site. Therefore, this is a conservative estimate of truck trips. The Applicant intends to utilize on-site gravel quarries at the project location to supply construction gravel. These on-site gravel quarries would significantly reduce the number of heavy vehicles accessing the site, thereby improving traffic operations.

With an on-site quarry, a total of 10,697 heavy-duty truck deliveries are expected during the construction period. Approximately 1,340 of these truck deliveries are oversized or over length and must travel on Transporter Route 2 through Vantage to access the site. The remaining trucks may travel on Transporter Route 1 through the City of Kittitas. Assuming 96 working days (the 4 busiest months at 24 workdays per month), this would result in approximately 98 trucks (or 196 truck trips) per day on Transporter Route 1. This equates to 49 truck trips during the peak hour on Transporter Route 1, assuming 25% of the 196 total truck trips would actually occur within the peak. Similarly on Transporter Route 2, there would be 14 trucks per day, which equates to 28 truck trips or 7 trucks during the peak hour.

Transporter Route 1 would experience an additional 171 peak-hour trips during the peak of construction (107 worker trips, 49 heavy-duty delivery trips, and 15 light-duty delivery trucks). Transporter Route 2 would experience very little additional construction traffic at only 7 peak-hour trips.

Table 3.14-7 shows the effect on LOS for the transporter routes with the use of on-site quarries.

Table 3.14-7: Effect of On-Site Gravel Quarry on Construction Impacts

Roadway	2004 PM Peak	0% Gravel On-Site		100% Gravel On-Site	
		Worker and Truck Traffic	LOS	Worker and Truck Traffic	LOS
Transporter Route 1					
I-90 (west of Kittitas)*	842	1,099	B	1,020	B
Main Street	306	556	C	477	C
No. 81 Road	199	449	A	370	A
Vantage Highway (west of site access)	175	425	C	346	C
Transporter Route 2					
I-90 (west of Vantage)*	617	624*	A	624	A
Vantage Highway (east of site access)	230	237	C	237	C

* Freeway PM peak volumes are directional.

Source: Wind Ridge Power Partners LLC 2004, Section 3-15

The LOS during the PM peak hour with construction worker traffic and delivery traffic causes some reduction in the LOS level; however, all transporter routes would operate at LOS C or better. There is a slight difference in the three scenarios as the 104-Turbine/3-MW and 158-Turbine/1-MW scenarios have less truck traffic.

Air Navigation Considerations

Construction equipment that might impact air navigation includes cranes used to assemble the towers. With appropriate FAA safety measures, this equipment would not pose a hazard to air navigation. There would be no difference between the three scenarios.

Parking during Construction

During construction, parking would be located at the site of the O&M facility and along the site access roads. The O&M facility site would also serve as a construction staging area. Personnel working on turbine foundations, electrical infrastructure, and turbine erection would park along turbine string roads. It is anticipated that roughly half of all construction worker vehicles would be parked at the O&M facility location, and the other half would be dispersed across the various turbine strings. With a peak workforce of 160 people, the maximum number of worker vehicles anticipated at any one time is 107, assuming that efforts to encourage carpooling would result in about one-third of construction workers carpooling to and from the project site. The maximum area required for parking (assuming no carpooling) would be less than 2 acres. The Applicant has used 2 acres for estimating project acreage and habitat impacts associated with vehicle parking. There would be no difference between the three scenarios.

Roadway Limitations

The WHWPP could be affected by seasonal roadway restrictions or cause roadway damage as a result of heavy or over-legal loads.

Winter snow at higher elevations and seasonal road restrictions imposed by the county will limit construction activities to the spring, summer, and fall. However, these restrictions are not anticipated to affect the construction schedule.

Depending on the final WTG vendor selected, it is possible that project equipment and components would be transported through the Port of Seattle, Tacoma, or other Puget Sound port authorities. Project equipment would likely be containerized, and project components would likely be shipped as a project cargo. These arrangements would be finalized following WTG vendor negotiations.

The transport of wind turbine components along state highways is necessary because there is no source for these highly specialized components within close proximity to the project site. The required materials and equipment must be shipped into the region from a larger metro area such as Seattle. The wind turbine blades and nacelles are manufactured as single units and cannot be divided. Many of the WTG vendors under consideration manufacture their components in Europe or Japan and would likely utilize the Port of Seattle (or another shipping port in Puget Sound) as an entry gateway. The proposed route for these super loads is along I-90, which is a state-maintained highway, and along Vantage Highway, which is a county-maintained road.

The largest type of transport vehicles used for the WHWPP would carry the nacelles and the turbine blades. The nacelle transport truck would be approximately 110 feet in length and weigh approximately 280,000 pounds. The blade transport truck would be approximately 160 feet in length and weigh approximately 155,000 pounds. It is estimated that 5–10 nacelles and 5–10 sets of turbine blades would arrive each week at the site via truck. All oversize or overweight vehicles will comply with local and state requirements.

The large number of trucks along Transporter Route 1 raises concerns regarding the deterioration of the roadway pavement. Existing pavement conditions on Main Street, No. 81 Road and Vantage Highway will be videotaped as necessary prior to construction of the WHWPP. This video log will be compared with the condition of the roadways after construction. If significant degradation in pavement condition is noted, the Applicant and Kittitas County or the City of Kittitas will attempt to determine responsible parties and will develop a plan for restoring the pavement to pre-project conditions as recorded in the video log. The Applicant will be responsible for restorative work made necessary by the WHWPP. The video log will be used to document pavement conditions in lieu of a pavement analysis.

Because the pavement near the project site along Vantage Highway is built to WSDOT standards and is of good bituminous or asphalt quality, the delivery of construction materials and equipment is not expected to degrade this roadway.

Along the segment of I-90 in which Transporter Route 1 and 2 overlap, there are two road restrictions in the westbound direction. There is a height-restricted bridge on I-90 (Cle Elum River Bridge) and a height-restricted snow shed west of Ellensburg. Because these are height restrictions in the westbound direction only, they are not anticipated to cause problems for loaded trucks carrying oversize equipment eastbound on I-90 to the project site. In the eastbound

direction there is a height-restricted overpass at Exit 62, which is adequately signed. All loads over 14 feet are required to exit at the eastbound off-ramp and re-enter via the eastbound on-ramp. This is a standard diamond interchange and is not anticipated to cause any problems for trucks. Vehicles can easily exit and re-enter I-90 to avoid the overpass. There are no other weight and load limits on any of the roads in the vicinity of the project site.

The WHWPP could also impact traffic operations on transporter routes. Construction activities will be limited to periods of appropriate weather both because of access to the site and the ability to pour concrete and erect towers. Thus, construction activity will take place during the spring, summer, and fall seasons. Seasonal traffic volumes are likely to be unaffected by construction because of the low traffic volumes in the area and lack of tourist-oriented facilities along the route. One special event that could potentially result in added traffic congestion would be concerts at the Gorge.

Other traffic operations impacts could result from roadway construction projects along I-90 or the transporter routes. The paving project on I-90 between MP 55 and MP 67 is within the four-lane section of the interstate. Traffic control for this paving project will include lane closures restricting traffic to single-lane movements eastbound and westbound. The paving is expected to occur only during daylight hours. Project-related heavy vehicles could potentially use these routes while they are under construction. See Section 3.14.7, "Cumulative Impacts," for a discussion of potential cumulative traffic impacts from these and other projects.

The roadway preparation project and deck repair project at MP 78, as well as the ramp paving project between MP 85 and MP 86, are not anticipated to affect project-related traffic. The auxiliary lane projects between MP 90 and MP 92 and between MP 125 and MP 136 will be conducted adjacent to the travel lanes. These travel lanes can still be utilized; therefore, adverse effects to project-related traffic are not anticipated. The Traffic Management Plan will include coordination between project-related construction traffic and these planned WSDOT construction projects.

The I-90 Rye Grass Summit to Vantage auxiliary lane project is in an area covered by Transporter Route 2 of the project. There may be potential conflicts for construction vehicles in this area due to lane closures and/or reduced lane and shoulder widths related to the WSDOT project if WSDOT has not completed construction before the WHWPP components are delivered.

Any potential conflicts between these projects and the proposed project will be discussed specifically with WSDOT, and a Traffic Management Plan (as noted in Section 3.14.5, "Mitigation Measures") will be prepared. This Traffic Management Plan will address any other planned county or WSDOT road construction projects that affect project construction and operations and include the use of additional signage, flaggers, and/or alternate route designations.

The three scenarios are very similar, with slightly less impact from the 104-Turbine/3-MW and 158-Turbine/1-MW scenarios because the total daily traffic is less for these two scenarios compared to the 136-Turbine/1.5-MW scenario.

Transportation of Hazardous Materials

Diesel fuel is the only potentially hazardous material that would be used in any significant quantity during construction of the WHWPP. During construction, fuel tanker trucks would be used for the refueling of fuel storage tanks on-site. The fuel tanker trucks will be properly licensed and professionally driven and will incorporate appropriate design features such as overflow prevention devices and fixed couplings to prevent accidental spills. Operating procedures to prevent and contain any accidental spills resulting from fuel transportation and transfer are described in detail in Section 3.16, "Health and Safety," of the application. Construction of any of the scenarios would not result in the generation of any hazardous wastes in quantities regulated by state or federal law.

Potentially small amounts of other hazardous materials that would be transported to the site during construction include lubricating oils, cleaners, and herbicides. Transportation of these materials will be conducted in a manner that is protective of human health and the environment and in accordance with applicable federal and WSDOT requirements. The transportation of this material would be the same for all three scenarios.

Roadway Hazards

It is anticipated that the addition of construction-generated traffic by the WHWPP would have little effect on the existing accident rate or pattern. The largest potential change is along Vantage Highway west of the site access. Along this segment of roadway the increase in truck traffic may result in more motorists attempting to pass slow-moving vehicles. This may result in a slightly higher accident rate.

Two alternative site entrance locations were evaluated near the Rye Grass Landfill. The east entrance location (approximately 10 miles east of the City of Kittitas), which is an existing private road entrance onto Vantage Highway, has limited sight distance to and from the east due to winding geography and steep side slopes. It also has limited sight distance to and from the west due to a crest in the roadway. The west entrance location, which is located directly across from the Rye Grass Landfill entrance, approximately 100 yards west of the previously mentioned entrance location, does not have sight distance safety issues. At that location there are no crests in the roadway, winding geography, or steep side slopes to obstruct vision to the site entrance intersection. This intersection also has adequately widened shoulders that may be beneficial to vehicles turning into and out of the site. The Applicant proposes to use this west entrance location for these reasons.

The Kittitas School District surrounds the project site. School bus stops along Vantage Highway are few in number and are adequately signed, so conflicts are not anticipated. In addition, stops along Vantage Highway can be made where adequate shoulders or private driveways are located, providing safety for children should construction traffic coincide with pick-up/drop-off times. School bus stops along No. 81 Road are also few in number and adequately signed. Buses making stops along this road are able to pull off the main roadway, providing children safety from traffic and allowing vehicles to pass.

A Traffic Management Plan will be submitted to the Washington State Energy Facility Site Evaluation Council (EFSEC) for review prior to the startup of construction, and that plan will

include measures to minimize impacts of construction-related traffic and minimize hazards during construction. Although all three scenarios would use the same road system and access to the site, there would be slightly fewer impacts from the 104-Turbine/3-MW and 158-Turbine/1-MW scenarios compared to the 136-Turbine/1.5-MW scenario because of less truck traffic.

3.14.2.2 Operation and Maintenance Impacts

Traffic

The WHWPP would operate continuously (24 hours per day, 7 days per week) using an automated monitoring system. It would also employ an estimated 14 to 18 full-time workers who would staff the project during core operating hours. The operations crew would normally work 8-hour days Monday through Friday, with additional hours on weekend shifts as required. This equates to a maximum of 36 trips a day or 18 trips during the peak hour. It is anticipated that nearly all of the operations workers would reside within 30 miles of the project site, most likely Ellensburg or the surrounding area. These operations workers would access the site in the same manner as described for construction workers. It is anticipated that project operations crews would drive light trucks and vans on-site to perform maintenance and supervision activities.

Traffic between the O&M facility and the individual turbines would be light. Besides day-to-day maintenance, there would be scheduled maintenance every 6 months.

Table 3.14-8 below describes current and future traffic volumes and LOS during the operation phase of the proposed action, including traffic volumes from the generation plant site, assuming a 30-year project life. Future year 2034 background volumes were estimated using a 1% growth factor. This growth factor is considered reasonable because of the area's rural nature and the historical counts shown in Table 3.14-1. A 60/40 directional split was assumed for level-of-service calculations for the existing traffic alternatives. This split was updated accordingly in the HCS analysis, assuming that peak-hour operations traffic would be added in the peak direction. As shown in Table 3.14-8, all roadways would operate at LOS C or better during evening peak conditions. There would be no difference between the three scenarios.

Table 3.14-8: Future Peak-Hour Roadway Segment Traffic Volumes and LOS with and without Project Impacts

Roadway	2004 PM Peak without Project		2004 PM Peak with Project		2034 PM Peak without Project (Horizon Year)		2034 PM Peak with Project (Horizon Year)	
	Traffic	LOS	Traffic	LOS	Traffic	LOS	Traffic	LOS
Transporter Route 1								
I-90 (west of Kittitas)*	842	A	860	A	1,089	B	1,107	B
Main Street	306	B	324	B	396	B	414	C
No. 81 Road	199	A	217	A	257	A	275	A
Vantage Highway (west of site access)	175	C	193	C	227	C	245	C
Transporter Route 2								

Roadway	2004 PM Peak without Project		2004 PM Peak with Project		2034 PM Peak without Project (Horizon Year)		2034 PM Peak with Project (Horizon Year)	
	Traffic	LOS	Traffic	LOS	Traffic	LOS	Traffic	LOS
I-90 (west of Vantage)*	617	A	617	A	799	A	799	A
Vantage Highway (east of site access)	230	C	230	C	297	C	297	C

*Freeway PM peak volumes are directional.

Source: Wind Ridge Power Partners LLC 2004, Section 3-15.

Maintenance trails for the transmission feeder line(s) would be privately owned and located on the project site and along the feeder line(s). Maintenance roads for turbines would be the same turbine string roads used for project construction. There would be no uncontrolled public access to project facilities on privately owned land during construction, operation, or decommissioning of the WHWPP.

Roadway Limitation

The operation of the WHWPP would have little impact on the condition of the public road system. Heavy truckloads would not be required until replacement of turbines or nacelles, which would occur over time with scheduled maintenance.

Parking

During the operational phase, parking would be at the O&M facility parking lot. With an anticipated operations workforce of 14 to 18 people, plus occasional guests and visitors, delivery vehicles, etc., no more than 30 vehicles are expected to be parked at the facility at any one time. This would be a smaller area than that required for the construction phase. The permanent parking area at the O&M facility will be graveled to reduce dust and soil erosion.

Transportation of Hazardous Materials

Hazardous materials to be transported to the site during operation include lubricating and mineral oils, cleaners, and herbicides in quantities below state and federal regulatory thresholds. Transportation of these materials will be conducted in a manner that is protective of human health and the environment and in accordance with applicable federal and WSDOT requirements.

No substantial quantities of industrial materials will be brought onto or removed from the project site during project operations. The only materials that would be brought onto the site would be those related to maintenance and/or replacement of the project facilities (e.g., nacelle or turbine components, electrical equipment). The only materials that would be removed from project facilities would be those parts or materials replaced during maintenance activities. Those

materials removed or replaced would not constitute a significant amount. There would be no difference between the three scenarios.

Traffic Hazards

Traffic generated by the operation of the WHWPP is not anticipated to affect the accident rate or pattern on roadways that are part of the transporter routes. The WHWPP would not alter public roadways except for the project site access. The proposed site access provides adequate sight distance for vehicles entering the roadway.

Air Navigation Considerations

The installation of wind turbines on the site may impact air navigation. The highest land formation of the project site is Whiskey Dick Mountain that is a ridge with an approximate elevation of 3,700 feet at one end and 3,900 feet at the other. Some wind turbines would be constructed on the ridge; however, most would be placed at lower elevations, primarily north of the ridge. The 3-MW turbines would be 410 feet above the ground and the 1-MW would be 249 feet. To provide adequate air traffic safety, the wind turbines will meet FAA safety lighting requirements. At present, FAA guidelines for lighting of wind turbines call for lights that flash white during the day (at 20,000 candela) and red (at 2,000 candela) at night. The exact number of turbines that would require lighting will be specified by the FAA after it has reviewed final project plans; however, typically, FAA has required that warning lights be mounted on the first and last turbines of each string and every 1,000 to 1,400 feet on the turbines in between. The 158-Turbine/1-MW scenario would have a slightly higher impact because of a larger number of wind turbines than the 104-Turbine/3-MW and 136-Turbine/1.5-MW scenarios.

3.14.2.3 Decommissioning Impacts

Decommissioning is assumed to include removal of wind turbine assemblies, grading and seeding roads to natural contours, while leaving wind turbine foundations in place. Heavy vehicle trips would primarily consist of trucks carrying wind turbines and transformers and be less than the number of trips required during construction. The resulting workforce and lightweight delivery vehicles trips would also be smaller. Mitigation would be determined at the time of decommissioning and would likely be similar to that recommended for construction. The 104-Turbine/3-MW scenario would have the least impact because of the fewer number of wind turbines to decommission with the 136-Turbine/1.5-MW scenario having slightly higher impacts and the 158-Turbine/1-MW scenario the largest impact.

3.14.3 Impacts of Alternatives

3.14.3.1 Impacts of Off-Site Alternatives

Kittitas Valley Alternative

Project construction would take approximately 1 year. It is anticipated that most of the employees would travel to the site from within a 75-mile radius. Construction traffic would utilize primarily U.S. 97, I-90, and the Kittitas County road network. The total number of vehicles during the construction peak would be 180 (160 vehicles for worker traffic and 20 vehicles for light-duty delivery). Construction traffic would result in an increase in total PM peak volumes on all road segments, and would be least noticeable on I-90 where it would increase by less than 200; would more than double for both segments of US 97; and would increase 100 fold on Bettas and Hayward Roads. While construction traffic associated with the WHWPP would not alter LOS for any roads, under the Kittitas Valley alternative the LOS for I-90 and US 97 south of Bettas Road would not change but it would go from C to D for US 97 north of I-90 and from A to B for both Bettas and Hayward Roads during construction. Construction traffic impacts would be mitigated with appropriate traffic-control procedures approved by WSDOT. Construction-related parking would be located at the O&M facility and along the site access roads. Three temporary project access points from U.S. 97 would be established. An approved Transportation Management Plan would include measures to minimize impacts of construction-related traffic.

Wind turbine components would need to be transported along state highways from a larger metropolitan area such as Seattle. Trucks delivering construction equipment and materials to the project site would exceed the WSDOT legal load limit, requiring special permits to be issued for vehicles exceeding the state's maximum size, weight, and load limits. Proper road signs and traffic management procedures would be utilized to prevent traffic disruptions from construction activities and slow or oversized, wide truckloads.

Increases in traffic could result in an increase in the accident rate on roads in the project area. This would be minimized through implementation of an approved Transportation Management Plan.

Project operations and maintenance could generate up to 40 workers commuting to and from the O&M facility on paved state and county roads during a 24-hour period. As for the WHWPP, this is not expected to affect LOS on roads in the project area such that LOS would be different than if the project wasn't built. Employees would park at the O&M facility parking lot, with no more than 25 vehicles parked at the facility at any one time. The proposed O&M facility parking lot may not be sufficient to accommodate future parking needs of both project employees and potential visiting tourists. The project applicant would be responsible for maintenance of turbine access roads, access ways, and other roads built to construct and operate the project. There would be no public access to project facilities on privately owned land during construction, operations, and maintenance.

Desert Claim Alternative

Potential construction impacts include additional traffic generated by construction workers, delivery of construction materials, and transport of wind turbine components that would be assembled on-site. Potential short-term impacts resulting from the construction of access roads would be potential delays or detours necessitated by construction activities on or adjacent to county roads. Under this alternative, construction traffic is expected to result in an increase in PM peak traffic of 80 trips which would not alter the level of service on roads in the project area. This impact would be similar to the WHWPP and less than described for the Kittitas Valley alternative. Construction related parking would be located on the project site.

Construction activities could also require temporary modifications to intersections of county roads to accommodate trucks transporting tower components, and damage to road surfaces may result from transport of components or construction materials. Construction traffic impacts should be mitigated through the development and approval of a construction Traffic Management Plan that would address transportation and access concerns during the construction period.

The traffic directly associated with project operations and maintenance would not impact existing levels of service on public roads in the project vicinity. Additional trips generated by service and supply deliveries would be occasional and negligible in volume.

Some of the proposed turbine locations within the Desert Claim project area would conflict with the protected airspace associated with the existing visual-flight-rules (VFR) traffic pattern, although the conflict involves operation by a category of aircraft that use Bowers Field on a very rare basis. The airspace conflict could be resolved, and the potential operations impact could be avoided by modifying the project plan to remove or relocate turbines and/or to install smaller turbines in selected locations or changing the airport operating procedures to employ a right-hand VFR traffic pattern for two of the four runways at Bowers Field.

Springwood Ranch Alternative

Due to the very low existing traffic volumes, the traffic generated by construction would not affect level of service on local roads in the project area and there would be few opportunities for slow-moving trucks delivering turbine components to delay local traffic. Potential impacts of construction include degradation of the road surface caused by trucks delivering tower components. In addition, the delivery of turbine components might be difficult due to the physical constrictions of the Elk Heights interchange and the adjacent intersection of Elk Heights Road and Thorp Prairie Road. The Thorp Prairie Road has numerous horizontal and vertical curves that might be problematic for transporters with low clearances. Increases in traffic could result in an increase in accidents in the project area. These issues would be addressed in a Transportation Management Plan prepared for the project.

Trips generated by on-site workers present during operation would not affect the existing level of service at local intersections. The wind towers would be closer to I-90 compared to the WHWPP, Kittitas Valley, and Desert claim alternatives, and it is anticipated that some travelers on I-90 would leave the freeway to take a closer look at the facility. In order to avoid tourists making U-turns on county roads with narrow or no shoulders, it would be necessary to construct

a turnaround and small off-road parking area at a suitable viewpoint on Thorp Prairie Road where interpretive information could be included.

A detailed evaluation of potential airspace conflicts has not been completed. However, based on the locations, it does not appear that a wind energy project at the Springwood Ranch site would interfere with air traffic or airspace at either Bowers Field or the Cle Elum Municipal Airport.

Swauk Valley Ranch Alternative

Construction traffic impacts would be similar to those described for the Springwood Ranch alternative. Most construction traffic would travel to the site using I-90, SR 10, and the Kittitas County road network. Construction-related parking would be located at an appropriate, designated area or along site access roads. Temporary access points from State or County roads may need to be established. A Transportation Management Plan will be prepared to minimize impacts of construction-related traffic.

Wind turbine components would need to be transported along state highways from a larger metropolitan area such as Seattle. Trucks delivering construction equipment and materials to the project site would exceed the WSDOT legal load limit, requiring special permits to be issued for vehicles exceeding the state's maximum size, weight, and load limits. Proper road signs and traffic management procedures would be utilized to prevent traffic disruptions from construction activities and slow or oversized, wide truckloads.

Trips generated by on-site workers present during operation would not affect the existing level of service at local intersections. The wind towers would be closer to I-90 compared to the WHWPP, Kittitas Valley, and Desert claim alternatives, and it is anticipated that some travelers on I-90 would leave the freeway to take a closer look at the facility. A site-specific plan to accommodate this activity would need to be developed as part of the Transportation Management Plan for this alternative.

3.14.3.2 Impacts of No Action Alternative

Under the No Action Alternative, the WHWPP would not be constructed or operated. The No Action Alternative assumes that future development would comply with existing zoning requirements for the project area, which is zoned Commercial Agriculture and Forest and Range. According to the county's zoning code, the Commercial Agriculture zone is dominated by farming, ranching, and rural lifestyles, and permitted uses include residential, green houses, and agricultural practices. Permitted uses in the Forest and Range zone include logging, mining, quarrying, and agricultural practices, as well as residential uses.

Based on the continued use of the site without change, average daily trips from the site would be one or fewer.

If the proposed project were not built, additional renewable and non-renewable energy facilities may have to be constructed to meet regional power needs. Impacts to traffic and transportation would depend on the specific location of such projects and current transportation services available in the vicinity of the sites.

3.14.4 Mitigation Measures

No significant unavoidable adverse impacts on traffic and transportation are associated with construction or operation of the proposed action. However, the Applicant has proposed the implementation of the following measures.

3.14.4.1 Construction

- The Applicant will prepare a Traffic Management Plan (to be submitted to EFSEC prior to construction for review), with the construction contractor outlining steps for minimizing construction traffic impacts;
- The Applicant will provide notice to adjacent landowners when construction takes place to help minimize access disruptions;
- The Applicant will provide proper road signage and warnings of “Equipment on Road,” “Truck Access,” or “Road Crossings” along Vantage Highway;
- When slow or oversized wide loads are being hauled, appropriate vehicle and roadside signing and warning devices will be deployed per the Traffic Management Plan. Pilot cars will be used as the DOT dictates, depending on load size and weight;
- The Applicant will construct necessary site access roads and an entrance driveway that will be able to service truck movements of legal weight and provide adequate sight distance;
- The Applicant will encourage carpooling for the construction workforce to reduce traffic volume;
- In consultation with Kittitas County, the Applicant will provide detour plans and warning signs in advance of any traffic disturbances;
- The Applicant will employ flaggers as necessary to direct traffic when large equipment is exiting or entering public roads to minimize risk of accidents;
- Where construction may occur near the roadway, one travel lane will be maintained at all times;

In addition to mitigation measures proposed by the Applicant, the following will be implemented:

- Applicant will videotape Transporter Route 1 roadways to document pavement conditions before and after construction and address changes in discussions with the City of Kittitas and Kittitas County.

3.14.4.2 Operation

Operation and maintenance of the WHWPP would not significantly affect traffic. However, the following measure is proposed.

- Follow FAA guideline for a wind turbine lighting and warning system.

3.14.5 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts on traffic and transportation are associated with construction of operation and maintenance of the WHWPP.