Bluestone Wind Project

Case No. 16-F-0559

1001.25 Exhibit 25

Effect on Transportation

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EXHIBIT 25 EFFECT ON TRANSPORTATION

(a) Conceptual Site Plan

The Preliminary Design Drawings prepared function as the conceptual site plan. These drawings identify access road locations and widths, the approximate number of turbines to be accessed per road and other access roads associated with staging yards, the operation and maintenance (O&M) site, concrete batch plant, and substation/switchyard locations. The Route Evaluation Study (see Appendix AAA) establishes the Route Evaluation Study Area, which is the area within which all potential haul routes are encompassed, from where they exit Interstate 86 to where they end at the delivery site. The Route Evaluation Study identifies and characterizes public road constraints (e.g., inadequate turning radii/intersections, road conditions and widths, culvert, bridge, and road load limitations, and overhead clearance), anticipated haul routes, and road intersection suitability, to the extent possible within the Route Evaluation Study Area. Maps detailing the route characteristics outlined above are provided in the Route Evaluation Study. The final haul routes for the turbines and necessary components will be reviewed in consultation with the Towns of Sanford and Windsor, will be finalized in coordination with the selected turbine manufacturer, and will be used in the preparation of the final construction drawings.

(b) Description of the Pre-construction Characteristics of Roads in the Area

The Route Evaluation Study includes an extensive analysis of existing road and traffic conditions near the Facility Site. Data on traffic volumes, accident frequency, school bus routes, emergency service responder information, and load-restricted bridges/culverts are presented in Sections IV, VII, IX, and X of the Route Evaluation Study and are summarized below.

(1) Traffic Volume and Accident Data

Traffic volume data within the Route Evaluation Study Area were obtained from the New York State Department of Transportation (NYSDOT) Traffic Data Online Viewer. Traffic volume data is available for most of the county roads and all the state roads. Of these roads, State Line Road (CR 225) has the highest Annual Average Daily Traffic (AADT), with 902 vehicles per day. Most of the local town roads do not have traffic volume data. Section IX of the Route Evaluation Study summarizes traffic volumes on the state and county routes within the Route Evaluation Study Area.

Accident data contained in the Accident Location Information System (ALIS) was acquired from the NYSDOT Regional Office in Binghamton. The data in the ALIS included information for 16 of the routes proposed for use during Facility construction. The ALIS data is dated from March 12, 2013 to March 31, 2018.

Based on the accident data and AADT for the roadway segments, average accident rates can be established and compared to New York State averages. The NYS average accident rate for undivided two-lane roadways is 2.1 accidents/million vehicle miles (acc/mvm). State Line Road (from SR 17 EB off ramp to Old SR 17) and Old SR 17 are below the statewide average. SR 41 (from SR 17 to Hawkins Road) and North Sanford Road (from Clark Road to SR 41) are above the statewide average. As set forth the Route Evaluation Study, the high accident rate along these road segments is due to deer and/or wet surfaces, which account for 85% of the accident total. No accident rate data have been developed for Big Hollow Road or any town roads as no AADT data is available for these roads. Appendix B of the Route Evaluation Study provides a table summarizing accident rates within the Route Evaluation Study Area.

(2) School District Bus Routes

Portions of the Windsor Central School District and the Deposit Central School District are found within the Route Evaluation Study Area. As per information provided by the Windsor Central District, the District has buses operating on Pazzelli Road between 6:50 am and 7:00 am and between 3:45 pm and 4:00 pm. The information received shows that Route 17 is anticipated to have at least one school bus in the morning and afternoon while two county roads will have six or seven buses during the same periods, and two town roads will have one or two school buses during the same periods.

The Deposit Central School District has buses operating on SR 41, Farnham Road, Pazelli Road, William Law Road, North Sanford Road, Loomis Hill and Shaver Hill Road in the morning between 6:45 am and 7:30 am and in the afternoon between 3:00 pm and 4:00 pm. The remaining nine town roads included in the Route Evaluation Study Area will not have school bus traffic.

(3) Emergency Service Providers

Emergency service provider stations near the Facility include: Broome County Sheriff's Office, Deposit Volunteer Fire & EMS, Oquaga Fire Station, West Windsor Fire Company, Afton Fire District, Deposit Fire Hall, NYS Police, United Health Wilson and Binghamton Hospitals, and Our Lady of Lourdes Hospital. Figure 10 of the Route Evaluation Study contains a map that provides the location of these emergency service providers. This map of

emergency service provider locations will be posted in the Facility's O&M building (and provided to the emergency service providers) and all turbines will have a unique 911 ID/address.

In consulting with the emergency service providers listed above, the Applicant was informed that emergency service providers in the area typically do not follow specified routes in responding to emergencies. The conditions and circumstances of an emergency inform the route, and emergency service providers in the area will use whatever route is appropriate.

(4) Available Load Bearing and Structural Rating Information

Load-restricted bridge data within the Route Evaluation Study Area were acquired from the R-Posted Bridge and Posted Bridge listing for Broome County dated 5/17/18 on the NYSDOT Posted Bridges online website. In addition, the Applicant's transportation consultant drove all potential haul routes to identify load-restricted bridges and/or roadways within the Route Evaluation Study Area. Posted bridges have a specific weight limit in tons that is posted on a sign; R-Posted bridges cannot safely carry vehicles over legal weight limits. According to the NYSDOT's Highway Data Services, there is one Posted bridge in the Route Evaluation Study Area—BIN 2225670, located on Clark Road—which has a limit of 22 tons. There are no R-Posted bridges within the Route Evaluation Study Area.

At the start of the potential regional destination routes, there are two interstate bridges (SR 17 over State Line Road; SR 17 over SR 41) that will not be subject to loads because of interstate off ramp locations. Construction vehicles will exit the interstate at the off-ramps prior to crossing these bridges. If there are any changes to the potential construction routes in the future that direct traffic over these bridges between ramps, they will be checked for adequacy with respect to loading along with horizontal width and vertical height restrictions during the Special Hauling Permit Application process with NYSDOT.

A map of existing bridges is included as Figure 8 in the Route Evaluation Study and information on these bridges is included in Section IV of the Route Evaluation Study. Roadway restrictions and deficient intersection radius locations were observed in the field and researched from NYSDOT resources. These restrictions and deficiencies are discussed in Section VII of the Route Evaluation Study.

Within the Route Evaluation Study Area, there are 185 small (less than 36-inch diameter) culverts and 20 large (36-inch diameter or greater) culverts. Based on the Route Evaluation Study, approximately 80 of these culverts have less than 2 feet of cover over them. It is assumed that any culvert with less than 2 feet of cover may be

susceptible to damage from transportation of heavy loads during construction. The large culverts along the potential haul routes have been assigned a condition rating from NYSDOT and Broome County visual inspections consistent with the NYSDOT Culvert Inspection Field Guide, which is available at: https://on.ny.gov/2nYviKh. The culvert inspections do not include load ratings or sufficiency ratings, which are typically only available for bridges. These locations will be further analyzed during final engineering to determine if improvements are necessary prior to using the routes for deliveries of construction materials. Any necessary improvements as well as restoration of damaged culverts will be addressed in Road Use Agreements (RUAs)[1] with local municipalities. Figure 4 of the Route Evaluation Study includes a map of culvert locations.

The Applicant has consulted with local and county highway supervisors, including correspondence and meetings (see Section (d)(5)). Such consultations will continue throughout the Article 10 process and prior to construction. It is anticipated that town highway supervisors will provide information on the type, thickness, widths, and restrictions of roads within the towns, as well as conditions of town road culverts. All bridges on town roads are under the jurisdiction of the County.

(5) Traffic Volume Counts

The Facility is not within a congested urbanized area. Therefore, 24-hour traffic counts are not applicable and are not included in this Application.

(c) Project Trip Generation Characteristics

(1) Number, Frequency, and Timing of Vehicle Trips

The construction of each wind turbine will require the use of approximately 10 oversize/overweight (OS/OW) trucks. For the purposes of impact calculations, it is assumed that up to 33 wind turbines will be constructed. The exact construction vehicles have not yet been determined; however, it is known that the transportation of turbine components and associated construction material involves numerous conventional and specialized transportation vehicles. A summary of the types of construction vehicles that will be used to transport the turbine components and construction materials/equipment is provided below.

[1] For purposes of this Exhibit, the term "Road Use Agreement" (RUA) is intended to refer to proposed agreements with the municipalities regarding the use and restoration of local roads. As discussed below, these agreements may be included in the Host Community Agreement (HCA) or in a separate RUA. The RUA executed between the Applicant and the Town of Sanford is included as Appendix BBB to this Application.

Wind Turbine Equipment

- Blade Sections – Blades are typically transported on trailers with one blade per vehicle. Blades typically control the length of the design vehicle, and the radius of the curve along the travel route to the site. Specialized transport vehicles are designed with articulating (manual or self-steering) rear axles to allow maneuverability through the curves.
- Tower Sections – Towers are typically transported in three to five sections, depending on the supplier. Towers generally control the height and width of the design vehicle dimensions.
- Nacelle – The nacelle and related elements are typically the heaviest component transported. Typically, one nacelle is transported per truck.
- Hub and Nose Cone – The hub and nose cone are typically transported with one or more of the same element on a vehicle. These elements are not critical elements related to design vehicle dimensions.
- Escort Vehicles – Typically a car or pick-up truck.

Construction Equipment and Materials

- Gravel trucks with capacity of approximately 10 cubic yards (cy) per truck and estimated gross weight of 75,000 pounds (lbs.) (including anticipated truck weight) will be utilized for access road construction. Currently, the access routes are approximately 83,000 feet long (15.7 miles), a minimum of 16-feet wide, and have a gravel thickness of 12 inches.
- For assembly of the wind towers, cranes are transported in sections utilizing up to 16 trucks, resulting in numerous trips to the site. Assembled cranes may be crawled between tower sites or disassembled to travel along the local roads to the next site.
- Concrete trucks for construction of turbine foundations and transformer pads with a capacity of approximately 10 cy per truck and an estimated gross weight of 96,000 lbs. (including anticipated truck weight). The total amount of concrete required at each turbine location will be approximately 600 cy depending on model and size of turbine selected.
- Variety of conventional semi-trailers for delivery of reinforcing steel (two per turbine foundation) and small substation components and interconnection project material.
- Variety of conventional vehicles carrying water, fuels or chemicals for construction of the Facility.

Trucks and cars for transporting construction workers, small equipment, and tools are not included in the above list because of their minimal impact on traffic volume and road integrity.

The following table provides estimates of the total number of trips for all heavy vehicles entering the Facility Site associated with construction of Facility turbines and access roads.

Table 25-1. Estimated Total Number of Heavy Vehicle Trips Required for the Construction of Facility Turbines and Access Roads.

Component/Truck Type	Assumption	Trips
Blades	3 blades per turbine, 1 blade per truck	99
Towers	5 tower sections per turbine, 1 section per truck	165
Nacelle	1 nacelle per truck	33
Hub and Nosecone	Multiple pieces per vehicle, assume 3 per truck for each turbine	22
Road Construction	Gravel trucks, 10 cubic yards per truck, plus other construction equipment	5093
Crane	Several trips per access point depending on the degree of disassembly	104
Concrete	Concrete trucks, 600 cubic yards per turbine foundation, 10 cubic yards per truck. Approximately 60 trips per turbine.	1980
Total Heavy Vehicle Trips		7496

Note: A trip is defined as entry and exit from the Facility Site.

While OS/OW vehicles are traveling along delivery routes within the Facility Site, the existing traffic may experience minor delays as escort vehicles and/or flag persons stop traffic to allow safe passage. The Applicant has identified 12 routes for OS/OW vehicles transporting turbine components and supplies to the Facility Site identified as Access Routes A through L. Maps of the OS/OW access routes can be found in Figure 2 of the Route Evaluation Study. A table of construction vehicle routes/volumes is presented below.

Table 25-2. Construction Vehicle Volumes

Construction Routes	Gravel (Cubic Yards)	Number of Gravel Trucks	Concrete Mix (Cubic Yards)*	Number of Concrete Trucks	Number of Turbines per Access Route	Number of Turbine Delivery Flatbed Trucks	Number of Crane Trucks**
Access Route A	1252	13	600	60	1	10	4
Access Route B	5250	525	1200	120	2	20	8
Access Route C	4933	493	1800	180	3	30	12

Construction Routes	Gravel (Cubic Yards)	Number of Gravel Trucks	Concrete Mix (Cubic Yards)*	Number of Concrete Trucks	Number of Turbines per Access Route	Number of Turbine Delivery Flatbed Trucks	Number of Crane Trucks**
Access Route D	3040	304	1200	120	2	20	8
Access Route E	3105	310	1200	120	2	20	8
Access Route F	1069	107	600	60	1	10	4
Access Route G	5,286	529	1,200	120	2	20	8
Access Route H	8,578	858	2,400	240	4	40	16
Access Route I	4,997	500	1,800	180	3	30	12
Access Route J	6,305	630	2,400	240	4	40	16
Access Route K	12,213	1,221	2,400	240	4	40	16
Access Route L	854	85	600	60	1	10	4
Volume Totals	56,885	5,689	19,800	1,980	33	330	104

* Concrete volume per foundation was determined as an average value of 600 cubic yards per turbine
** Number of crane trucks are 8 per assembly. In some instances, crane walks traverse multiple access roads. These totals have been split between each associated access road.

Exact scheduling of construction work and required vehicles will be determined by the Applicant's contractor. In general terms, the construction process and vehicles required would include the following on a per turbine basis:

1. Clearing and grubbing of access roads, turbine sites, and electrical collection lines – Several flatbed trailers would be used to mobilize equipment. All subsequent work would be off-road, i.e., construction traffic increases would be limited to the mobilization and de-mobilization of the trailers. This would continue throughout the project, as necessary.

2. Grading of access roads and turbine sites – Several flatbed trailers would be used to mobilize equipment. All subsequent work would be off-road, i.e., construction traffic increases would be limited to the mobilization and de-mobilization of the trailers. This would continue throughout the project, as necessary.
3. Access road gravel placement – The number of gravel trucks used for access road gravel placement would vary by road (see Table 25-2). Public roads would likely see a traffic increase of approximately 2-3 vehicles per hour per road during construction.
4. Foundation construction – Sixty concrete trucks and three flatbed trailers carrying reinforcing steel would be used per turbine. This would result in a public road traffic increase of approximately 6 vehicles per hour during construction.
5. Crane pad construction – The delivery of gravel for crane pad construction would result in a public road traffic increase of approximately 2-3 vehicles per hour.
6. Delivery of turbine components – A total of ten trucks will be needed for the delivery of the components of a single turbine. These deliveries will likely be spread out over weeks. The maximum impact possible to public roads would be 10 OS/OW vehicles per day per turbine.
7. Crane delivery – Eight flatbed trucks will be needed to deliver the various parts of the crane assembly. This would result in a public road traffic increase of approximately eight vehicles for each mobilization demobilization needed.

Overlap of the tasks above due to concurrent construction activities would compound these construction traffic increases.

(2) Approach and Departure Routes for Trucks Carrying Water, Fuels, or Chemicals

Facility construction will involve relatively few trucks carrying fuel, water, chemicals, or other materials, particularly when compared to the construction of conventional power plants. All trucks carrying water, fuels, or chemicals during Facility construction will utilize the same haul routes used by other construction vehicles/component delivery haulers.

Facility operation will not require any significant regular deliveries of fuel, water, chemicals, or other materials.

(3) Hauling for Major Cut and Fill Activities

During the preliminary design process, every effort has been made to attempt to balance the earthwork on a per access road basis so that all materials removed during construction are reused on-site and do not need to be

transported. As a result, it is not anticipated that the grading to be performed would result in the transport of significant quantities of removed or imported material over roads within the Route Evaluation Study Area.

(4) Conceptual Haul Routes and Approach and Departure Routes

Final haul routes cannot be determined until the turbine manufacturer has been selected. Therefore, the final haul routes will be provided prior to Facility construction. When evaluating viable haul routes for delivery of turbine components and construction materials/equipment to the Facility, several items were considered. These items are:

- The roadway characteristics and condition;
- The number of bridges along a designated route;
- The condition of the bridges and culverts that are along the route;
- The number of intersections needing turning movements;
- Roadways with minimal sharp curves to avoid additional mitigation and/or safety issues; and
- Various potential restrictions such as narrow bridges, low overhead clearances and impacts from small intersection radii affecting the turning movements.

The Applicant's consultant drove all of the roads on the Facility Site and reviewed available data in light of the factors identified. Using that information, an experienced transportation engineer identified conceptual haul routes. The following are recommended routes to various Facility locations that pose particular logistical concerns (see Section (d)(2) below for a description of the delivery routes):

Access Route H (turbines T-14, T-15, T-16, T-19, T-21 and T-23) and Access Route I (turbines T-20 and T-22) – See Figure 1b of the Route Evaluation Study for the map of access route locations.

Many routes were investigated to reach these turbine sites. On SR 41 there are many obstacles causing issues with the turn onto Boskett Road. Immediately south of the intersection, there is a large concrete box culvert/bridge crossing a stream. Due to the proximity of the stream to Boskett Road, it is not possible to have a 200-foot radius turn without impacting the stream. An alternative route was studied that included a turn-around just north of North Sanford Road to attempt a turn onto Boskett Road from the north. Because additional mitigation (widening the roadway on Boskett Road, removing trees, and impacts close to an existing house) could be necessary to ensure safe travel onto this steep roadway, this route was not a viable candidate. This resulted in a design of a single lane turn from SR 41 to Boskett Road from the south. This design requires the placement of a temporary box culvert to avoid the stream impact.

Access Route F (turbine T-10) – See Figure 1b of the Route Evaluation Study for the map of access route locations.

An alternative route was investigated to reach the turbine site on this access route. At the intersection of William Law Road and Rector Road, there is a very dense forest with steep slope causing issues with the right turn onto Rector Road. This resulted in a large S-curve lane in the SE corner of the intersection. Unfortunately, this requires a much larger easement than the right turn in the SW corner, but this is the only viable option for this intersection improvement.

Access Route to Turbines East of SR 41 (turbines T-25, T-26, T-27, T-28, T-29, T-30, T-31, T-32, T-33, T-34, T-35, and T-40– See Figure 1b of the Route Evaluation Study for the map of access route locations.

There are several obstacles associated with the turn onto North Sanford Road from SR 41. The Route Evaluation Study evaluates turning from the north, south and an alternate route requiring the turbine delivery trucks to drive 5.3 miles further down SR 41 to Hawkins Road, where a temporary intersection improvement is viable. All three alternatives are being considered. Smaller construction vehicles will turn onto North Sanford Road from SR 41.

Any workers and employees in regular vehicles (pick-up truck size and smaller) will access the construction site and worker parking areas through use of whichever public road route is most logical and efficient for the respective individual/vehicle. Employees and workers accessing the site with heavy haul/construction equipment (i.e., dump trucks or larger), or anything that exceeds the posted weight limits on public roads, will follow the final haul routes.

(d) Traffic and Transportation Impacts

(1) Comparison of Traffic with and without the Project

Traffic Without the Project

Roads within the Route Evaluation Study Area carry relatively low levels of traffic. State Route 41, the only state route within the Route Evaluation Study Area, carries an average of 714 vehicles per day. State Line Road (CR 225) and Old SR 17 (CR 28) average 902 and 666 vehicles per day, respectively. Other county and town roads carry significantly less traffic. If the Facility were not built, traffic levels could be expected to remain at these levels.

Traffic During Project Construction

The Applicant estimates that during Facility construction the peak traffic level will occur mid-summer, when deliveries for access road aggregate, foundation concrete, turbine components, and main erection crane

components are occurring simultaneously. During these peak periods, the Applicant estimates that these deliveries could result in approximately 250 trucks entering and exiting the Facility Site in a given day. Traffic associated with these deliveries and connected construction activities will occur throughout the roads within the Route Evaluation Study Area but will be concentrated in areas where access roads or foundations are being installed.

Traffic Increases from Project Construction

During the peak construction traffic weeks, traffic levels could increase by approximately 20% on SR 41 and by 8% on Old SR 17 (see Figure 2 of the Route Evaluation Study). While this would be a noticeable change on these roads, it would be a temporary change and should not cause significant delays for drivers that normally use these roads.

Overall, due to the already low traffic volumes in the Route Evaluation Study Area, and the fact that construction traffic will be spread over a large geographic area, increased traffic volumes associated with Facility construction will not cause a significant impact to the area residents.

Traffic Increases from Project Operation

Traffic associated with the operation of the Facility could increase daily traffic counts on SR 41 by approximately 5%. See the Route Evaluation Study for further details.

Increased Collision Risk

During Facility construction, the increased truck traffic from aggregate trucks, equipment delivery trucks, concrete trucks, and turbine delivery vehicles will present an additional collision risk on the roads within the Route Evaluation Study Area. To minimize the risk of accidents, the Applicant will require contractors to drive at safe speeds and install warning signs for oncoming traffic in areas where construction or local traffic is particularly high (e.g., the entrance to the construction laydown yard). In addition, it may be necessary to provide traffic control (i.e., a contracted flag person or local police) for OS/OW delivery vehicles.

(2) Route Evaluation Study

As previously noted, the Applicant's transportation consultant drove all potential haul routes within the Route Evaluation Study Area to identify road conditions and potential obstacles to delivery of turbine components during construction (e.g., road width, turning radii, overhead clearance, presence of bridges and culverts, presence of steep slopes, etc.). Sections I through V of the Route Evaluation Study detail the field evaluation of the potential delivery and construction vehicle haul routes to and within the Route Evaluation Study Area that was conducted

on 5/9/2018 and 5/10/2018. The condition of the roads was noted by visual inspection. Additionally, roadside features, bridge and roadway horizontal/vertical restrictions, bridge/culvert locations, and possible restricted intersection radii locations were also included in the evaluation. A formal study will be conducted prior to construction consistent with the agreement coordinated with the local municipalities to determine if roads can handle construction traffic.

Generally, SR 41, between SR 17 and Hawkins Road, provides 12-foot lanes with shoulders that vary in width from 4 feet to 6 feet. At some culvert locations, the shoulder width is reduced to 3 to 4 feet. The roadway terrain is rolling. Currently, there is no load posting of this state highway, so it is assumed that this highway is adequate to handle the heavy loads.

Old SR 17, State Line Road, North Sanford Road, and Big Hollow Road have travel lanes that vary from 16 feet to 27 feet wide and shoulders that vary from 1 foot to 6 feet wide. The roadway terrain is rolling with some roads having roadside hazards such as steep slopes and sharp bends. There are five bridges located on the county roads identified as potential haul routes. In general, these roads have conditions rated “good”, and should only require local repairs and tree clearances. An exception to this is the northern portion of Big Hollow Road, which has a “poor” condition rating due to rutting and a narrow roadway.

The town roads along the evaluated routes have roadway surfaces that are either asphalt, chip and seal, gravel, or dirt. The road widths range from 11 feet to 27 feet, with some roads consisting of an 11-foot-wide single lane. The shoulder widths vary from 0 feet to 5 feet along these roads; shoulder material is asphalt, gravel, or dirt. The terrain for these roads is rolling. Roadside hazards are numerous and similar to those observed on county roads. Gravel roads typically have a material thickness of 5 to 6 inches. Town roads that are 20 feet wide or less, with thin asphalt or gravel surfaces, will likely require stabilization to support vehicle loads during construction. The majority of town road conditions are rated “fair” and should mostly require just local repairs with some road widening and tree clearing. Exceptions to this are Boskett Road and Rector Road, which are rated to be in “poor” condition due to rutting, narrow roadway, and low tree clearances.

State roads and county roads will be utilized as much as possible for construction traffic within the Route Evaluation Study Area. Where necessary, town roads will be used as the last point of access to the wind turbine locations.

Below is a description of the condition of the specific road segments analyzed in Route Evaluation Study.

SR 41, SR 17 to Hawkins Road – The length of this segment is 9.2 miles. The asphalt pavement condition is rated good. The speed limit for this segment is generally 55 miles per hour (mph) with a speed reduction to 35 mph around various sharp bends. The road width is 23 to 24 feet and shoulder widths range from 3 to 6 feet. Most bridges and large culverts along this route have conforming bridge/culvert rails. The SR 17/I-86 NB and SB bridges over SR 41 just north of Old SR 17 have minimum vertical clearances of 16 feet. Total horizontal clearance under both bridges is approximately 75 feet. The minimum width between any bridge/culvert rails along this route is 32 feet at a location just south of Farnham Road. There are a variety of culvert sizes, from 12" to 72", along this route. Culvert ratings range from Excellent (new or showing no deterioration) to Poor (totally deteriorated or in failed condition). Two culverts in this area were rated as poor and one has shallow cover over it. The rest have between 3 feet and 5 feet of fill under the roadway/over the culvert. There are no traffic signals along this segment of SR 41.

Old SR 17 (CR 28), SR 17 WB Off Ramp to Page Road – The length of this segment is 3.0 miles. The asphalt pavement condition is rated good. The speed limit for this segment is generally 40 mph. The road width is 21 feet and shoulder widths range from 3 to 6 feet. There are 3 culverts with a poor rating and one with shallow cover along this segment of CR 28. There are no traffic signals along this segment of CR 28.

State Line Road (CR 225), SR 17 EB Off Ramp to Old SR 17 – The length of this segment is 0.2 miles. The asphalt pavement condition is rated good. The speed limit for this segment is unknown but is assumed to be generally 40 mph. The road width is 35 feet and shoulder widths range from 4 to 6 feet. There are no bridges or culverts along this portion of CR 225. The Route 17 NB and SB bridges over CR 225 just south of Old SR 17 have minimum vertical clearances of 20 feet. Total horizontal clearance under both bridges is approximately 70 feet. There are no traffic signals along this segment of CR 225.

North Sanford Road (CR 241), SR 41 to Clark Road – The length of this segment is 1.3 miles. The asphalt pavement condition is rated good. The speed limit for this segment is unknown but is assumed to be generally 40 mph. The road width is 20-22 feet and shoulder widths range from 1 to 3 feet. Most bridges and large culverts along this route have conforming bridge/culvert rails. There are no large culverts on this segment of road, however there are a few small culverts (less than 36"). Culvert conditions range from Excellent (new or showing no deterioration) to Fair (serious deterioration or not functioning as originally designed) and all have adequate cover. There are no traffic signals along this segment of CR 241.

Big Hollow Road (CR 245), Loomis Hill Road to END – The length of this segment is 2.1 miles. The chip and seal pavement and dirt surface condition ranges from good (from Loomis Hill Road to Lumber Road) to poor (Lumber

Road to END). The speed limit for this segment is unknown but is assumed to be generally 40 mph. The road width is 12-16 feet and shoulder widths range from 1 to 2 feet. There are no bridges on this segment of CR 245. Most large culverts along this route have conforming bridge/culvert rails and have condition ratings ranging from Excellent (new or showing no deterioration) to Poor (totally deteriorated or in failed condition). Three culverts in this segment have been classified as being in poor condition. The minimum width between any culvert rails along this route is 33 feet at a location just north of Lumber Road. Of all the culverts along this segment, one has shallow cover. There are no traffic signals along this segment of CR 245.

Information for local roads is summarized in Figures 5 and 6 of the Route Evaluation Study, Appendix AAA.

Once the Facility is commissioned and construction activities are officially concluded, traffic will be negligible. All traffic will be associated with Facility employees traveling to and from the O&M building and the individual turbines. Each turbine typically requires routine maintenance visits once every three months. Turbines or other Facility components will require periods of more frequent service if maintenance issue arise. Service visits typically involve one to two pick-up trucks. However, because all turbines and associated access road are located on and accessed from private land, public road use associated with routine maintenance will be limited. If major maintenance is needed (e.g., maintenance involving a crane), the language in the RUA between the Applicant and the host communities will dictate the procedures followed by the Applicant to ensure that any impacts to public roads are avoided or mitigated.

(3) Over-sized Deliveries

Existing roadway restrictions (height, width, weight) and deficient intersection radius locations were observed in the field and researched from NYSDOT resources during the preparation of the Route Evaluation Study (see Figure 8 of the Route Evaluation Study). As previously noted, the Applicant's transportation consultant drove all potentially impacted roads to identify physical restrictions/hazards. The results of this field evaluation are summarized in Section (d)(2) above. In addition, the consultant used aerial imagery to analyze 200-foot radius impacts at various intersections along haul routes. Detailed maps of intersection turning movements on aerial imagery are included in Figure 9 of the Route Evaluation Study.

As discussed in the Route Evaluation Study, transportation of the turbine blades will require use of a 155-foot trailer. Several general concerns relating to the transportation of this and other OS/OW loads were identified during the above-referenced field evaluation. Height restrictions such as vertical clearances under the SR 17 bridges, as well as overhead wires at eight locations along various roads (see Figure 6 of the Route Evaluation Study), will

prevent or make it difficult for OS/OW vehicles to access certain sites. The owners of the overhead wires that have insufficient clearance for OS/OW traffic will be contacted prior to construction to determine the appropriate course of action for providing the appropriate clearance. All clearance issues will be reviewed by the Applicant's contractor.

In addition, as discussed in Section (d)(2) above, there are some local roads within the Route Evaluation Study Area that are narrow with only one lane. Some wind turbine access roads are located along these narrow roads, so it may be necessary to either widen the road or provide traffic control (i.e., a contracted flag person or a local police agency) for the OS/OW delivery vehicles. In addition, tight curves exist on some roadways. Additional widening with gravel may be needed in these locations to accommodate up to a 200-foot radius turn for the OS/OW delivery vehicles. Large culverts along the potential construction routes appear to have sufficient width to accommodate the OS/OW vehicles but will need to be checked during the Special Hauling Permit Application process.

Although there are no weight restrictions along state and county roads, the Towns of Windsor and Sanford may have local roads with load postings. Specific local concerns will be addressed with the town Highway Superintendent at the time the road is needed as a haul route.

For deficient intersections, the path of the 155-foot turbine blade delivery vehicle, having a 200-foot turning radius, was evaluated along the potential travel routes to the wind turbine sites to identify temporary intersection improvements that may be required. The turbine blades extend beyond the rear trailer of the delivery vehicle and may require additional mitigation (e.g., tree removal, sign relocation, utility pole/box relocation, or removal/relocation of other tall objects).

Figure 9 of the Route Evaluation Study provides tables of proposed roadway and intersection improvements, a map showing the location of these improvements, and detailed figures showing anticipated intersection turning movements. All improvements identified in this Exhibit will require verification and/or update after a Certificate has been issued by the Siting Board, when the final turbine supplier is identified.

(4) Measures to Mitigate for Impacts to Traffic and Transportation

Measures to mitigate impacts to traffic and transportation are presented in the Route Evaluation Study and are summarized below.

(i) Roads

Construction of the Facility may necessitate road improvements to accommodate OS/OW vehicles. Along the potential access routes, pavement widths vary from approximately 11 feet to 35 feet. In addition, there are three roads (Boskett Road, Rector Road, and the northern portion of Big Hollow Road) with a "poor" condition rating due to rutting and narrow conditions requiring significant tree clearing. Other roads in fair condition (Clark Road, Loomis Hill Road, Shaver Hill Road, Pazzelli Road, and Bryce Road) require only minor local repairs and tree clearing. All state and county roads are rated in good condition and likely will not require significant repairs. Any roadway that is less than 16 feet wide will require widening to accommodate the OS/OW vehicles. Figure 3 of the Route Evaluation Study highlights the roadways that are less than 16 feet wide. Radii of typical intersections (to the edge of pavement) along the potential access routes vary from approximately 25 to 200 feet. A radius of approximately 185 to 200 feet is typically necessary to accommodate the wheel paths of turbine delivery vehicles; 200 feet or more may be needed for the load clearance of these vehicles. Temporary widening of the road with an aggregate roadway surface will be required to accommodate the turning movements of turbine delivery vehicles in some locations. Further mitigation may be needed if the turbine blade extends beyond the outer trailer of the delivery vehicle. Figure 9 of the Route Evaluation Study identifies locations where these road improvements, turning improvements, and other mitigation measures will likely be necessary.

These road improvements will be made at the Applicant's expense prior to the arrival of OS/OW vehicles. Final transportation routing will not be determined until after a Certificate has been issued by the Siting Board, which will allow the Applicant to determine which of the 33 turbine locations (and associated access routes) will be constructed and thus which mitigation measures, if any, must be implemented. Final transportation routing will ultimately be designed in consultation with each town's Highway Superintendent to avoid/minimize, to the extent practical, safety issues associated with the use of the approved haul routes, which will confine the heavy truck travel to a few select roads.

The Applicant will repair damage done to roads affected by construction within the approved haul route at no expense to the town, county, or state, thereby restoring the affected roads to equal to or better than pre-construction conditions. Asphalt and gravel roads rated "Fair" to "Good" will be monitored during construction for pot-holing and pavement deterioration to ensure safety for general construction and local traffic. The volume and weight of both the general construction traffic and turbine delivery (OS/OW) vehicles may cause accelerated distress that could require temporary repair. These temporary repairs/improvements could include repaving with asphalt, adding gravel stone, and/or temporary traffic signs, and may be stipulated as a condition of a RUA with local municipalities.

After completion of construction activities, permanent road improvements may be needed to address damage caused by the heavy construction vehicle traffic; roads needing temporary repairs during construction are most likely to need permanent repairs. RUAs may require contractors to repair the roadways to pre-construction conditions using appropriate treatments (e.g., oil and stone, hot or cold mix asphalt, and/or additional gravel). Once a formal study is conducted, details regarding the temporary repairs, permanent road improvements, and/or mitigation measures anticipated for specific road segments will be provided in order to complete this agreement.

The Applicant anticipates complying with the substantive requirements of the local laws related to road use. Any time restrictions on delivery of Facility components will be addressed in the HCA and/or RUA between the Applicant and towns or during construction based on input from the Town Highway Superintendents.

No damage to roads due to normal operation of the built Facility is expected to occur. If any damage to local, county, or state roads is caused by operation of the Facility, repairs will be made at the Applicant's expense

(ii) Culverts and Bridges

As discussed in Section (d)(2) above, a preliminary assessment of culverts, including the amount of cover under the roadway and over the culvert, was conducted as part of the review of all potentially impacted roadways. In addition to this preliminary review, each culvert/drainage pipe will be analyzed during the final design of the roadway improvements to determine whether the amount of cover over the pipe is adequate and to identify any improvements needed to accommodate construction traffic. Necessary improvements will be addressed in the final RUA with local municipalities.

Preferred access routes have been selected to bypass deficient bridges and large culverts where possible to avoid additional mitigation. During the Special Hauling Permit application process, the NYSDOT and Broome County Public Works Department will be required to review and approve all bridges and culverts to be traversed along the access routes in the construction phase.

(iii) Utilities and Traffic Control Devices

Along construction access routes, there are low overhead wires present that will likely need to be raised to accommodate the transport material heights of OS/OW delivery vehicles. If necessary, permits to raise the wires will be obtained through coordination with local utility companies.

No new traffic control devices are anticipated to be necessary. As previously noted, it may be necessary to provide traffic control (i.e., a contracted flag person or a local police agency) for OS/OW delivery vehicles.

(5) Road Use and Restoration Agreements

In conjunction with this Application, the Applicant and/or its transportation consultant have met with Highway Superintendents from the Towns of Sanford and Windsor and have reached out but not yet connected with Broome County. During these meetings, the Applicant and/or its transportation consultant discussed the proposed Facility, the Article 10 process, RUAs and general construction and transportation processes when constructing a wind energy generating facility. No major issues, road projects or conflicting plans were identified by either of the Towns. In addition, all anticipated local permits required were identified. The Towns and Broome County have been provided with a copy of the HCA, which contains road use and restoration language. A final draft RUA has been sent to the Town on Windsor for their review and approval. The Town of Sanford has reviewed and accepted the RUA, an executed copy of which is provided in Appendix BBB. Preliminary site plans and improvement designs for county roads affected by the proposed Facility have been sent to the Broome County Highway Department and are currently under review.

A variety of special hauling permits will be required due to the large dimensions of the wind turbine components and construction cranes. The types of permits required will depend on the characteristics of the vehicle and its cargo, the number of trips, the distance traveled, and the duration. The NYSDOT Central Permit Office stipulates that when any vehicle exceeds 16 feet in width, 15'-11" in height, 160 feet in length, or 200,000 pounds in gross weight, or any combination of those, a Type 1S – Superload Trip Permit is required from NYSDOT. As some of the OS/OW vehicles used in the installation of the Facility will likely exceed these metrics, the Applicant will fill out and submit a PERM 12 Form – Special Hauling Pre-Approval Form for a future Type 1S – Superload Trip Permit. The NYSDOT website, www.dot.ny.gov/nypermits, outlines the guidelines, types and fees for various special hauling permits. Referring to the website, additional Permit Forms include the Type 1S – Superload Trip Permit such as PERM 39 – Application for Special Hauling Permit, PERM 39-1VC – Vehicle Configuration Attachment, PERM 39-4 – Additional Trailer Attachment (Option 1), PERM 99 – Additional Trailer Attachment (Option 2), PERM 85 – Special Hauling Route Survey. A Special Hauling Customer Guide is available under the PERM 30 form. The Applicant or other responsible party, such as the BOP Contractor or turbine supplier, will need to set up an account to complete the permit process. Highway Work Permits will be required from the respective municipalities for intersection and roadway improvements within the NYSDOT (PERM 33 Form), county and town rights-of-way.

Table 25-3 lists roadway agreements and permits required by the Towns of Sanford and Windsor, Broome County, and the New York State Department of Transportation. The Applicant is requesting that the Siting Board not preempt these requirements, and allow the State, County, and Towns to approve the listed road or highway work permits. See Exhibits 31 and 32 for additional information about local/State transportation-related permit requirements.

Table 25-3. Roadway Agreement and Permit Requirements for the Town of Sanford, the Town of Windsor, Broome County, and the New York State Department of Transportation.

Agency	Road Use Agreement	Highway Work Permit to Work Within ROW	Highway Utility Permit to Work Within ROW	Special Haul Permit for Oversized/ Overweight Vehicles	Permit to Exceed Posted Weight Limit Roads	Divisible Load Overweight Permit	Contact Information
Town of Sanford	✓	✓					Highway Superintendent JD Seymour 607-467-3214
Town of Windsor	✓						Highway Superintendent Richard Kohlbach 607-655-3214 windsorhwy@echoes.net
Broome County	✓	✓	✓	✓			Director of Highways Susan Brown 607-778-2228 bcdpwhighways @co.broome.ny.us
NYSDOT		✓	✓	✓	✓	✓	NYSDOT Transportation Maintenance 112 Barlow Road Binghamton NY 13904 607-775-0522

Additionally, for the county and towns where the local roads are being used for delivery and construction vehicle transport routes, RUAs with the affected municipalities are anticipated to be signed to memorialize the Applicant's rights and obligations for road use and repair either as a separate agreement or as part of the HCA.

The Applicant has not entered into any private road use and/or restoration agreements with landowners. All use of private property adjacent to public roads will be allowed through its standard lease or similar easement agreement with the landowner, as opposed to a RUA.

(e) Impact of the Project on Mass Transit Systems

No rail or bus mass transit systems are expected to be impacted by the proposed Facility. There are several airports, airstrips and heliports located within a 30-mile radius the Facility Site. Tri-Cities Airport, Greater Binghamton Airport, and Sydney Municipal Airport are respectively 27, 22, and 13 miles from the closest wind turbine. The UHS Wilson Medical Center heliport in Binghamton is 18 miles from the nearest wind turbine. This heliport has a 40-foot by 40-foot pad for vertical takeoff and landing. There are six wind turbine locations within 21 miles of this heliport.

As discussed in Section (f) below, the impact of the Facility on military and civilian air space, including military training and operations and other airport/heliport operations, are addressed by the Federal Aviation Administration (FAA) as part of its hazard review process. This process includes outreach through the U.S. Department of Defense's Siting Clearinghouse to evaluate the impact of potential aviation obstructions on military readiness.

(f) Federal Aviation Administration Review

The FAA is responsible for air traffic control and for evaluating and issuing determinations on petitions for objects that penetrate the nation's airspace. The submission of a project to the FAA for review initiates aeronautical studies of the location of each proposed turbine and permanent meteorological tower that includes outreach to other agencies. These studies are conducted under the provisions of 49 USC § 44718. The FAA can issue two types of determinations, one that identifies a potential hazard and another that identifies no hazard. If the proposed structure is over 499 feet or if a potential hazard to air navigation is identified based on the structure's location and/or height, then a Notice of Presumed Hazard (NPH) is issued. Structures over 499 feet automatically receive an NPH and must be publicly circulated prior to a final FAA determination. This notification identifies a potential hazard that must be further studied and/or mitigated in some manner. A Determination of No Hazard (DNH) will be issued if the FAA determines that the planned project will not pose a risk to aviation, including a review of potential aviation impacts to local airports.

The Applicant submitted a Notice of Proposed Construction along with the proposed Facility layout to the FAA on 05/21/2018 for hazard determinations for each of the 33 turbines proposed to be constructed. This submission initiated formal consultation and the aeronautical studies described above. The FAA has not yet issued hazard determinations for the turbines based on aeronautical studies performed by the agency. The Applicant will provide updated correspondence and future determination(s) of any on-going aeronautical studies as they become available.

Lighting of the turbine nacelles will be implemented as per the requirements and determinations of the FAA. Specifications for anticipated turbine lights in accordance with the FAA's December 4, 2015 Advisory Circular 70/7460-1L, specifically Chapter 13 (Marking and Lighting Wind Turbines), which requires the use of FAA L-864 aviation lights (Chapter 13 of the FAA Circular is included in Appendix CCC). See Exhibit 18(b) for addition information about Facility lighting.

(1) Department of Defense Review

Upon receiving a notice under 49 USC § 44718, the FAA disperses information about the project to various offices within FAA as well as to outside agencies, including the Department of Defense (DoD) Siting Clearinghouse, which is responsible for evaluating the "mission compatibility" of proposed energy projects—a concept that encompasses all types of military facilities and activities, including interference with flight paths, other aviation operations, and radar function. The mission compatibility evaluation process is addressed in 32 CFR Part 211, which establishes procedures for both formal and informal reviews of projects subject to the FAA's review process.

Consistent with the discussion above, the Applicant has submitted a request for a formal hazard determination to the FAA. As part of that determination, the FAA will contact the DoD Siting Clearinghouse for input on the mission compatibility of the proposed project. The results of that assessment will be incorporated into the hazard determination issued by the FAA as outlined above.

The Applicant also has submitted a request for review to the National Telecommunications and Information Administration (NTIA). The NTIA oversees administration of the nation's radio frequency spectrum. Sponsors of projects that could interfere with radio signals, including radar, can submit a request to the NTIA to review the project to determine whether such interference may, in fact, occur and, if so, whether the interference poses a hazard. The request is submitted to the NTIA, which circulates the project information to the many agencies that are part of the Interdepartmental Radio Advisory Committee (IRAC). The IRAC includes the FAA and various DoD entities, among numerous other agencies. The NTIA assembles the responses from these agencies and informs the sponsor of the result. See Exhibit 26(a)(9) and (11) for a description of the Applicant's consultation with the NTIA. Copies of correspondence with the NTIA are found in Appendix DDD.

(2) Consultation with Nearby Airports/Heliports

The regulations require the Applicant to consult with: 1) the operators of airports within twelve miles that have runways exceeding 3200 feet; 2) the operators of airports within 6 miles with runways less than 3200 feet;

and 3) the operators of heliports within 3 miles. There are no airports or heliports in the vicinity of the Facility that meet these criteria.

In addition, the Applicant committed in the Public Involvement Program (PIP) Plan to reach out to specific airports and heliports. Consistent with these obligations, the Applicant consulted with the following airports: Greater Binghamton-Edwin A. Link Field Airport, Sidney Municipal Airport, Greene Airport, Chenango Bridge Airport, Luke Airport, Tri-Cities Airport, Wilson Memorial Regional Medical Center Heliport, and the Kirkwood Airpark Airport. The Applicant has worked to meet or otherwise consult with the managers of the above airports. The manager of the Greater Binghamton Airport did not identify any issues with the proposed Facility, provided that DNHs are received from the FAA. The manager of the Sidney Airport had no issues and stated that the area could use some development. The managers of the Green Airport, Chenango Bridge Airport, and Tri-Cities Airport did not identify any issues with the Facility. The remaining airport/heliport managers did not respond to the Applicant's outreach or were not reachable due to outdated public contact information. See Table 25-4 for details regarding the consultation the Applicant has conducted with the airports and heliports listed in the PIP Plan.

Table 25-4. Consultation with Airports Identified in the Public Information Program (PIP) Plan.

Airport	Airport Classification	Distance from Closest Turbine (Nautical Miles)	Status
Greater Binghamton Airport	Public	19.4	The Applicant's consultant spoke with the airport manager by phone on 07/13/2018. The airport manager stated that if DNHs were issued by the FAA he would have no concerns.
Sidney Airport	Public	10.9	The Applicant's consultant spoke with the airport manager by phone on 07/13/2018. The airport manager stated that the area could use some development and that he had no concerns.
Greene Airport	Public	15.4	No concerns were identified when the Applicant's consultant spoke to the airport manager by phone on 06/26/2018.
Chenango Bridge Airport	Private	13.6	No concerns were identified when the Applicant's consultant spoke to the airport manager by phone on 06/26/2018.
Luke Airport	Private	17.7	The Applicant's consultant left a message with the airport manager on 06/26/2018. As of 07/12/2018 the phone number provided was out of service.
Tri-Cities Airport	Public	23.5	No concerns were identified when the Applicant's consultant spoke to the airport manager by phone on 07/13/2018.
Wilson Memorial Heliport	Private-Heli	17.6	The Applicant's consultant left several messages with the airport manager but was not able to connect.
Kirkwood Airport	Unknown	9.6	The phone number provided is out of service.

The nearest military airport is located 75 miles from the Facility, well outside the 12-mile threshold for outreach set forth in the applicable regulations. As a result, the Applicant did not reach out directly to any military airports/heliports. As previously noted, however, an assessment of the impact of the Project on military readiness (including aviation operations) will be made as part of the FAA review process through outreach to the DoD Siting Clearinghouse.

(3) Responses from the FAA and DoD

See Section (f) and (f)(1) above for a discussion of the responses to date from the FAA and DoD.