

## **Breeding Bird Survey**

**Results of 2011 Breeding Bird  
Surveys at the Ball Hill  
Wind Energy Project Area  
Towns of Villenova and Hanover,  
Chautauqua County, New York**

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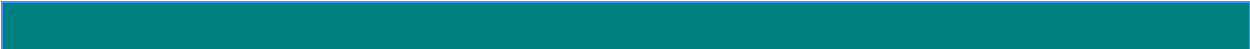
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# List of Abbreviations and Acronyms

BBS	Breeding Bird Survey
DEGS	DEGS Wind I, LLC
DEIS	Draft Environmental Impact Statement
E & E	Ecology and Environment, Inc.
MW	megawatt
Noble	Noble Environmental Power
NYSDEC	New York State Department of Environmental Conservation
Project	Ball Hill Wind Energy Project
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey

# 1

## Project Background

DEGS Wind I, LLC (DEGS) is proposing to construct and operate the Ball Hill Wind Energy Project (project) in Chautauqua County, New York. In 2007, Noble Environmental Power (Noble) performed pre-construction development for the Noble Ball Hill Wind Farm and submitted a Draft Environmental Impact Statement (DEIS) to the Town of Villenova and a Joint Application for Permits to the New York State Department of Environmental Conservation (NYSDEC) and the United States Army Corps of Engineers (USACE). However, Noble suspended development of the project without finalizing these permitting tasks. In late 2010, DEGS purchased the project from Noble. Ecology and Environment, Inc. (E & E) prepared a Critical Issues Analysis for the project in November 2010 in support of DEGS' due diligence assessment of the Noble Ball Hill Wind Energy Project. DEGS is currently proposing to construct the project with 58 1.6-megawatt (MW) turbines in a slightly revised formation than previously proposed by Noble.

E & E conducted supplemental breeding bird surveys for DEGS during June 2011 at the proposed project area as part of the pre-construction avian studies. This report summarizes the results of the 2011 breeding bird surveys and supplements the data and analyses provided in the Noble DEIS, Appendix J, Bird and Bat Risk Assessment (E & E September 2008).

# 2

## Methodology

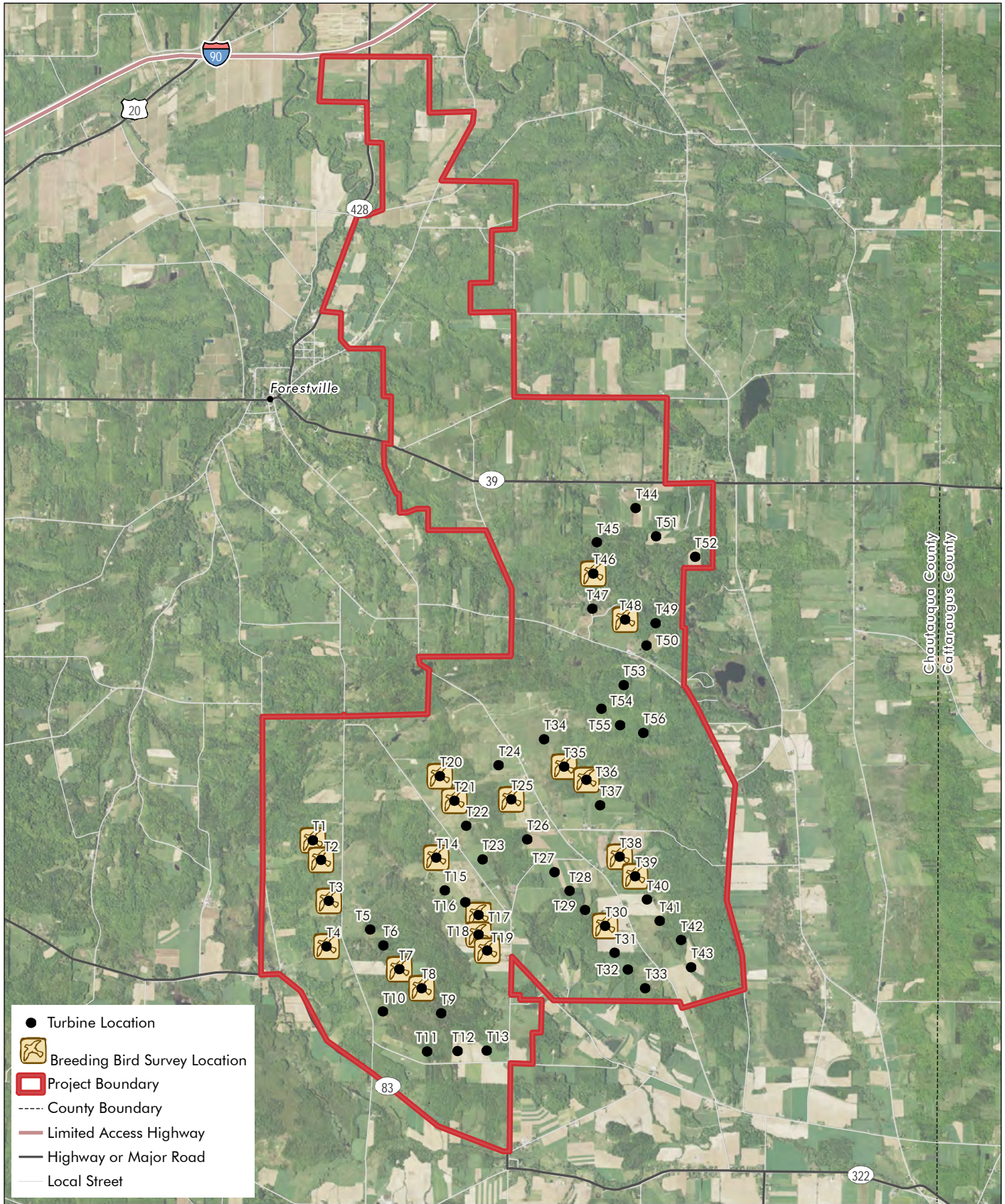
Supplemental breeding bird surveys were conducted June 16 and 17, 2011, at 25 locations within the proposed project area (see Figure 2-1). June is the primary breeding season for bird species within western New York and is the best time to detect local populations.

Survey points were placed at 25 of the proposed wind turbine locations within the project area. Survey locations were selected based on proposed turbine locations, habitat, and accessibility. Land-use was broken into agricultural, hemlock – northern hardwoods, beech/maple mesic, and successional field and shrub habitats. Agriculture was the dominant habitat-type for proposed wind turbines, and represented 64% of the survey effort (16 points); the remaining 36% (9 points) were performed in hemlock–northern hardwoods (2 points), beech/maple mesic (3 points), and successional field and shrub (4 points) habitats. See Appendix A, Table A-1, for a list of all survey locations and associated habitat (primary).

Surveys were conducted by an E & E avian specialist, following modified United States Geological Survey (USGS) Breeding Bird Survey (BBS) methods (USGS 2007). Rather than recording all birds identified by sight and/or sound over a three-minute period, as per the BBS survey protocol, all birds identified by sight and/or sound over a five-minute period at each survey point were recorded as per the NYSDEC Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects (“NYSDEC Guidelines”) (NYSDEC 2009). Birds observed flying over the survey area were recorded separately (flying over or beneath 450 feet), as they are less likely to be associated with the surrounding habitat. Any species observed while in the project area, but not during surveys, were noted but not included in the following analysis. Data from these surveys were used to document the occurrence and distribution of bird species in the project area as well as identify critical habitat of listed species and identify areas of greater/lesser bird activity.

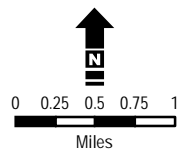
The surveys were conducted by an E & E avian specialist from approximately a half-hour before sunrise until 10:30 a.m. on the mornings of June 16 and 17, 2011. Weather conditions were favorable and conducive for breeding bird surveys. Mornings yielded light cloud cover and winds, giving way to clear skies and minimal wind for the remainder of both survey days. At no time during either survey was there any precipitation or constant winds exceeding an estimated 5 to 8 miles per hour.





Source: ESRI 2010; NAIP 2010.

Figure 2-1:  
Breeding Bird Survey Locations  
Ball Hill Project Site



# 3

## Results

A total of 502 birds of 66 species were recorded (see Appendix B, Table B-1, for results by point). The most common species detected within the project area were Bobolink (93 birds), Red-winged Blackbird (67), and Savannah Sparrow (31). Flyovers accounted for only 10 of the 502 birds detected and occurred at six of the 25 survey locations. Flyovers included Canada Goose (2), American Goldfinch (4), Common Grackle (1), Red-winged Blackbird (1) and Cedar Waxwing (2). These species are known to breed in or within proximity to the project area, and the number of flyovers is relatively low in comparison to the total number of birds identified. Thus, these birds were included in the results that follow.

The average number of birds detected per point was 20.8 with a range of nine to 72 birds (see Tables 4-1 and B-1). The average species count per point was 11.0 with a range of four to 18 species. Points T30, T19, T58, T20 yielded the greatest number of birds (72, 28, 25, and 25, respectively), while the greatest number of species were detected at survey points T58, T39, T7, and T8 (18, 16, 15, and 15, respectively). In general, points with high species richness and numbers of individual birds are correlated with mixed habitats, likely attributing to the increased number of birds and species. Edge habitat yielded the greatest species diversity, whereas agricultural habitats (i.e., hayfields not already mowed) yielded the greatest total number of birds, generally dominated by Red-winged Blackbird and Bobolink, species common to this habitat. The lowest number of birds were detected at points T59, T38, and T17 (9, 10, and 11, respectively) and the lowest number of species were detected at points T20, T19, T46, and T17 (4, 5, 7, and 7, respectively).

During the surveys, many birds were observed in small family groups and were also observed on occasion carrying food, two signs of breeding behavior. Early to mid-June is peak breeding time for many bird species and based on the observed behavior and time of year, it is highly likely that the vast majority of birds identified in the project area were local breeders.

No threatened or endangered species were observed during the surveys or time spent traveling throughout the project area (during non-survey time). One Grasshopper Sparrow was identified, which is a species of special concern in New York State. The solitary Grasshopper Sparrow was identified by sound and was heard multiple times throughout the 5-minute survey period at point T65. Based on the time of year detected, the habitat, and their known breeding range, it is likely that



### **3 Results**

this was a breeding individual utilizing the agricultural fields. However, agricultural fields are subject to recurring disturbance and in general, agricultural fields are not considered valuable breeding habitat.

# 4

## Discussion

The results of the 2011 breeding bird surveys were generally expected because of the presence of dominant habitat type. In general, most locations yielded a relatively low number of individual birds; however, the total number of species detected during the survey was consistent with expected resident breeding birds for this time of year.

The results of the 2011 breeding bird survey were consistent with the previous (2008 and 2007) breeding bird survey results (see Table 4-1 for comparison of results). The 2008 methodology was the same and many of the same survey locations were used for the 2011 surveys. The surveys conducted in 2007 were three minutes in length, and the 13 survey points were visited on two separate occasions (see Table 4-2 for comparison of survey locations from 2007, 2008, and 2011).

**Table 4-1 Breeding Bird Survey Results for 2011, 2008, and 2007**

	2007			
	2011	2008	6/11	6/26
Number of Survey Points	25	26	13	13
Number of Species Identified	66	72	56	60
Number of Birds	502	653	250	359
Average Species per Point	11	14.1	11.2	15.2
Average birds per Point	20.8	25.1	19.2	27.6

No federally or state-listed threatened or endangered species were identified during the 2011 as well as the 2007 and 2008 breeding bird surveys; however, one Grasshopper Sparrow (New York State species of special concern) was detected during the 2008 surveys and again in 2011 at point T65, an agricultural location, dominated by wheat and other tall grasses.

Based on the 2011 breeding bird survey results, there are no deviations from the findings in the DEIS, Appendix J, Bird and Bat Risk Assessment (E & E 2008) with respect to breeding birds and potential impacts to them from construction and operation of the project.

This is the third year of pre-construction breeding bird surveys. Collectively, the data from the three surveys will provide baseline data from the pre-construction to post-construction phases of development of the proposed project.

**Table 4-2 Breeding Bird Survey Locations At Turbines For 2011, 2008, and 2007.**

Proposed Turbine Number	2011 Breeding Bird Survey Point	2008 Breeding Bird Survey Point	2007 Breeding Bird Survey Point	Primary Habitat Type
T1	Yes	Yes	No	Successional Field
T2	Yes	Yes	No	Agricultural
T3	Yes	Yes	No	Successional Field
T4	Yes	No	No	Agricultural
T5	No	No	No	Agricultural
T6	No	Yes	Yes	Agricultural
T7	Yes	No	No	Agricultural
T8	Yes	Yes	No	Agricultural
T9	No	No	No	Beech/Maple Mesic
T10	No	No	No	Agricultural
T11	No	No	No	Hemlock-Northern Hardwoods
T12	No	No	No	Hemlock-Northern Hardwoods
T13	No	No	No	Successional Shrub
T14	Yes	Yes	No	Hemlock-Northern Hardwoods
T15	No	No	No	Hemlock-Northern Hardwoods
T16	No	No	No	Agricultural
T17	Yes	Yes	No	Agricultural
T18	Yes	No	No	Agricultural
T19	Yes	Yes	Yes	Successional Field
T20	Yes	No	No	Agricultural
T21	Yes	Yes	No	Agricultural
T22	No	No	No	Agricultural
T23	No	Yes	Yes	Agricultural
T24	No	No	No	Agricultural
T25	Yes	Yes	No	Successional Shrub
T26	No	No	No	Agricultural
T27	No	No	Yes	Agricultural
T29	No	No	No	Agricultural
T30	Yes	Yes	Yes	Agricultural
T31	No	No	No	Agricultural
T32	No	No	No	Agricultural
T33	No	Yes	No	Agricultural
T34	No	Yes	No	Beech/Maple Mesic
T35	Yes	Yes	No	Beech/Maple Mesic
T36	Yes	No	No	Beech/Maple Mesic
T38	Yes	No	No	Agricultural
T39	Yes	Yes	Yes	Agricultural

**Table 4-2 Breeding Bird Survey Locations At Turbines For 2011, 2008, and 2007.**

Proposed Turbine Number	2011 Breeding Bird Survey Point	2008 Breeding Bird Survey Point	2007 Breeding Bird Survey Point	Primary Habitat Type
T40	No	Yes	No	Hemlock-Northern Hardwoods
T41	No	No	No	Agricultural
T42	No	Yes	No	Agricultural
T43	No	Yes	No	Agricultural
T45	No	No	No	Agricultural
T46	Yes	No	No	Agricultural
T47	No	No	No	Hemlock-Northern Hardwoods
T48	Yes	No	No	Hemlock-Northern Hardwoods
T49	No	No	No	Hemlock-Northern Hardwoods
T50	No	No	No	Agricultural
T51	No	No	No	Successional Field
T52	No	No	No	Successional Field
T53	No	No	No	Successional Field
T54	No	Yes	Yes	Successional Field
T55	No	No	No	Agricultural
T56	No	Yes	No	Agricultural
T57	Yes	No	No	Agricultural
T58	Yes	Yes	No	Agricultural
T59	Yes	No	No	Beech/Maple Mesic
T60	No	Yes	No	Beech/Maple Mesic
T61	No	Yes	No	Hemlock-Northern Hardwoods
T62	No	No	No	Hemlock-Northern Hardwoods
T63	No	No	No	Agricultural
T64	No	Yes	No	Agricultural
T65	Yes	No	No	Agricultural
T66	Yes	Yes	No	Hemlock-Northern Hardwoods

# 5

## References

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**A**

**Breeding Bird Survey Point  
Locations**



## A Breeding Bird Survey Point Locations

**Table A-1 Ball Hill Breeding Bird Survey Locations (2011) with Global Positioning System Coordinates (Latitude/Longitude), Nearest Road, and Primary Habitat Type**

Turbine Number Survey Point	Latitude	Longitude	Nearest Road	Habitat Type (Primary)
T1	42 24'38.6"	079 10'21.9"	Zahm Road	Successional Field
T2	42 24'35.3"	079 10'00.9"	Round Top Road	Agricultural
T3	42 24'24.7"	079 10'05.3"	Round Top Road	Successional Field
T4	42 24'14.0"	079 09'59.4"	Round Top Road	Agricultural
T7	42 23'58.8"	079 09'26.6"	Round top Road	Agricultural
T8	42 23'46.3"	079 09'26.8"	Round Top Road	Agricultural
T14	42 23'07.3"	079 08'57.5"	Villanova Road	Hemlock-Northern Hardwoods
T17	42 23'06.7"	079 08'29.8"	Villanova Road	Agricultural
T18	42 24'35.7"	079 08'53.9"	Pope Hill Road	Agricultural
T19	42 24'06.4"	079 08'37.3"	Pope Hill Road	Successional Field
T20	42 24'08.1"	079 08'30.4"	Pope Hill Road	Agricultural
T21	42 23'54.2"	079 08'24.4"	Pope Hill Road	Agricultural
T25	42 24'35.1"	079 08'19.4"	Pope Hill Road	Successional Shrub
T30	42 24'29.7"	079 07'37.2"	North Hill Road	Agricultural
T35	42 23'38.2"	079 06'49.0"	Prospect Road	Beech/Maple Mesic
T36	42 23'34.4"	079 06'41.7"	Prospect Road	Beech/Maple Mesic
T38	42 23'40.2"	079 06'11.9"	Prospect Road	Agricultural
T39	42 23'48.7"	079 06'16.4"	Prospect Road	Agricultural
T46	42 25'00.3"	079 07'15.5"	Bartlett Hill Road	Agricultural
T48	42 25'16.9"	079 07'39.0"	Prospect Road	Hemlock-Northern Hardwoods
T57	42 26'23.5"	079 06'55.1"	Hurlbert Road	Agricultural
T58	42 26'28.1"	079 07'16.3"	Hurlbert Road	Agricultural
T59	42 26'31.4"	079 06'45.0"	Hurlbert Road	Beech/Maple Mesic
T65	42 27'17.3"	079 06'40.8"	Route 39	Agricultural
T66	42 27'22.4"	079 06'30.6"	Route 39	Agricultural

# B

## Species by Point Location

**Table B-1 2011 Breeding Bird Survey Results by Location**

Species	T2	T3	T4	T7	T8	T1	T14	T17	T21	T20	T19	T25	T18	T66	T65	T58	T57	T59	T46	T48	T30	T35	T36	T38	T39	Totals	
Canada Goose	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
Wild Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Turkey Vulture	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
Red-tailed Hawk	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	
Killdeer	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Ring-billed Gull	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	
Mourning Dove	0	0	0	0	1	0	0	0	1	0	0	0	1	1	2	1	0	0	1	1	0	0	0	1	0	10	
Black-billed Cuckoo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
Yellow-Billed Cuckoo	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Ruby-throated Hummingbird	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Red-bellied Woodpecker	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	4	
Yellow-bellied Sapsucker	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
Downy Woodpecker	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	2	
Hairy Woodpecker	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Northern Flicker	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	
Pileated Woodpecker	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	
Eastern Wood-Pewee	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	1	0	0	0	0	1	5	
Alder Flycatcher	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	5	
Eastern Phoebe	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	
Great Crested Flycatcher	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	
Eastern Kingbird	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	3	
Blue-headed Vireo	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Red-eyed Vireo	0	0	1	1	0	1	1	0	0	0	0	1	0	0	0	0	1	1	0	1	0	2	1	0	0	11	
Blue Jay	0	0	0	0	1	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	6	
American Crow	1	1	2	1	2	0	1	2	1	0	0	2	0	3	3	1	1	0	1	0	1	1	1	1	1	27	
Common Raven	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	
Northern Rough-Winged Swallow	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	
Barn Swallow	0	0	0	0	0	0	0	0	4	0	9	0	0	0	0	0	1	0	0	0	0	0	0	0	0	14	
Black-capped Chickadee	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	2	0	0	0	7	
House Wren	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3	
Veery	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	
Wood Thrush	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	5	
American Robin	1	0	1	0	0	0	0	0	2	0	0	0	1	0	1	2	0	1	0	1	0	1	0	2	1	14	
Gray Catbird	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	
Brown Thrasher	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2	
Cedar Waxwing	0	0	2	2	1	3	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	2	0	1	15	
Blue-winged Warbler	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Yellow Warbler	0	2	0	1	1	1	0	0	0	0	0	2	1	0	1	1	1	1	0	1	0	1	2	1	2	19	
Chestnut-sided Warbler	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	4	
Magnolia Warbler	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	2	
Blackburnian Warbler	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	
Black-throated Green Warbler	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
American Redstart	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	
Ovenbird	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	1	5	
Common Yellowthroat	0	1	2	1	2	1	0	1	0	0	0	0	1	3	0	0	1	0	0	1	1	2	1	0	0	18	
Hooded Warbler	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	
Scarlet Tanager	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	4	
Eastern Towhee	1	2	0	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	9	
Chipping Sparrow	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Field Sparrow	1	0	0	0	0	0	1	0	0	0	0	0	1	0	2	1	1	0	0	0	0	0	1	1	0	9	
Savannah Sparrow	1	0	1	0	2	0	0	3	2	3	2	0	2	1	4	0	4	0	3	0	3	0	0	0	0	31	
Song Sparrow	4	1	2	1	1	2	2	1	0	0	0	2	1	0	1	2	2	0	0	1	0	0	0	0	3	26	
Dark-eyed Junco	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
Northern Cardinal	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	4	
Rose-breasted Grosbeak	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0	1	6	
Indigo Bunting	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3	
Bobolink	2	0	2	0	1	0	0	2	3	18	13	6	3	2	0	0	2	0	16	0	23	0	0	0	0	93	
Red-winged Blackbird	0	0	4	0	0	0	0	0	3	2	0	2	1	3	1	0	1	0	8	1	41	0	0	0	0	67	
Eastern Meadowlark	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
Common Grackle	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	
Brown-headed Cowbird	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	3	
Baltimore Oriole	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	
Purple Finch	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
House Finch	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	
American Goldfinch	0	0	0	0	0	1	1	0	2	0	3	1	3	0	0	2	0	0	0	0	0	0	0	0	0	13	
Grasshopper Sparrow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
<b>Total Birds</b>	<b>16</b>	<b>12</b>	<b>21</b>	<b>18</b>	<b>19</b>	<b>15</b>	<b>12</b>	<b>11</b>	<b>23</b>	<b>25</b>	<b>28</b>	<b>19</b>	<b>19</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>16</b>	<b>9</b>	<b>31</b>	<b>14</b>	<b>72</b>	<b>17</b>	<b>15</b>	<b>10</b>	<b>20</b>	<b>502</b>	
Species Count	12	10	12	15	15	11	11	7	11	4	5	10	14	8	13	18	11	8	7	14	8	13	13	9	16		
<b>Total Species</b>	<b>66</b>																										

## **Eagle Surveys**

**Eagle Surveys at the Proposed  
Ball Hill Windpark  
Chautauqua County, New York**

**February 2013**

**Prepared for:**

**Ball Hill Windpark, LLC  
526 South Church Street, EC03T  
Charlotte, NC 28202**

**Prepared by:**

**ECOLOGY AND ENVIRONMENT, INC.  
368 Pleasant View Drive  
Lancaster, New York 14086**

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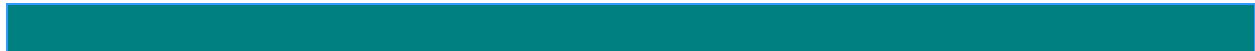
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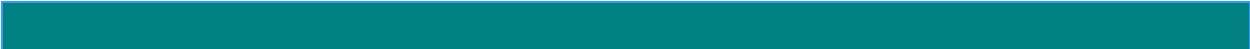
  

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# List of Abbreviations and Acronyms

agl	above ground level
Ball Hill	Ball Hill Windpark, LLC
BGEPA	Bald and Golden Eagle Protection Act
DECPG	Draft Eagle Conservation Plan Guidance
DEIS	Draft Environmental Impact Statement
E & E	Ecology and Environment, Inc.
ECL	Environmental Conservation Law
kV	kilovolt
MW	megawatt
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
O&M	operations and maintenance
Project	Ball Hill Windpark
ROW	right-of-way
RSZ	rotor-swept zone
SEQRA	(New York) State Environmental Quality Review Act
SDEIS	Supplemental DEIS
SWT	Siemens Wind Turbine
USFWS	United States Fish and Wildlife Service

# 1

## Background and Study Area

### 1.1 Wind Project Description

In September 2008, the Town of Villenova, as the New York State Environmental Quality Review Act (SEQRA) Lead Agency, accepted a Draft Environmental Impact Statement (2008 DEIS) for the proposed Noble Ball Hill Windpark in the towns of Villenova and Hanover, Chautauqua County, New York. A public comment period and public hearing were held and written and oral comments were received from involved agencies and the public.

In 2010, Ball Hill Windpark, LLC (Ball Hill) purchased the Noble Ball Hill Windpark Project. In 2011, Ball Hill submitted an amended application to the Villenova Town Board, as SEQRA Lead Agency, containing a revised project layout and utilizing new turbine technology, for the permits and approvals necessary to construct and operate its Ball Hill Windpark (Project) within the same project area as previously proposed and studied in the 2008 DEIS. In 2012, Ball Hill submitted a revised amended application using different turbine technology and a revised layout within the same Project Area as the 2008 DEIS. This revised application was accepted as complete by the Villenova Town Board in May 2012.

#### 1.1.1 Project Overview and Definitions

Ball Hill is proposing to construct and operate the Project in the Chautauqua County towns of Villenova and Hanover, located in western New York State (see Figure 1-1). The Project consists of generation and transmission components (see Figure 1-2).

More specifically, the Project would include the following:

- Installation and operation of 42 wind turbines within a 13,659-acre Project Area (35 in the town of Villenova and seven in the town of Hanover), with a capacity of 96.6 megawatts (MW) (see Table 1-1).
- Ball Hill proposes to install different wind turbine technology that was proposed and evaluated in the 2008 DEIS. Ball Hill proposes to install the Siemens Wind Turbine (SWT) 2.3-108 model cylindrical and/or tapered tubular tower wind turbine generator. The turbine is a three-bladed, upwind, horizontal axis wind turbine with a rotor diameter of 354 feet (108 meters).

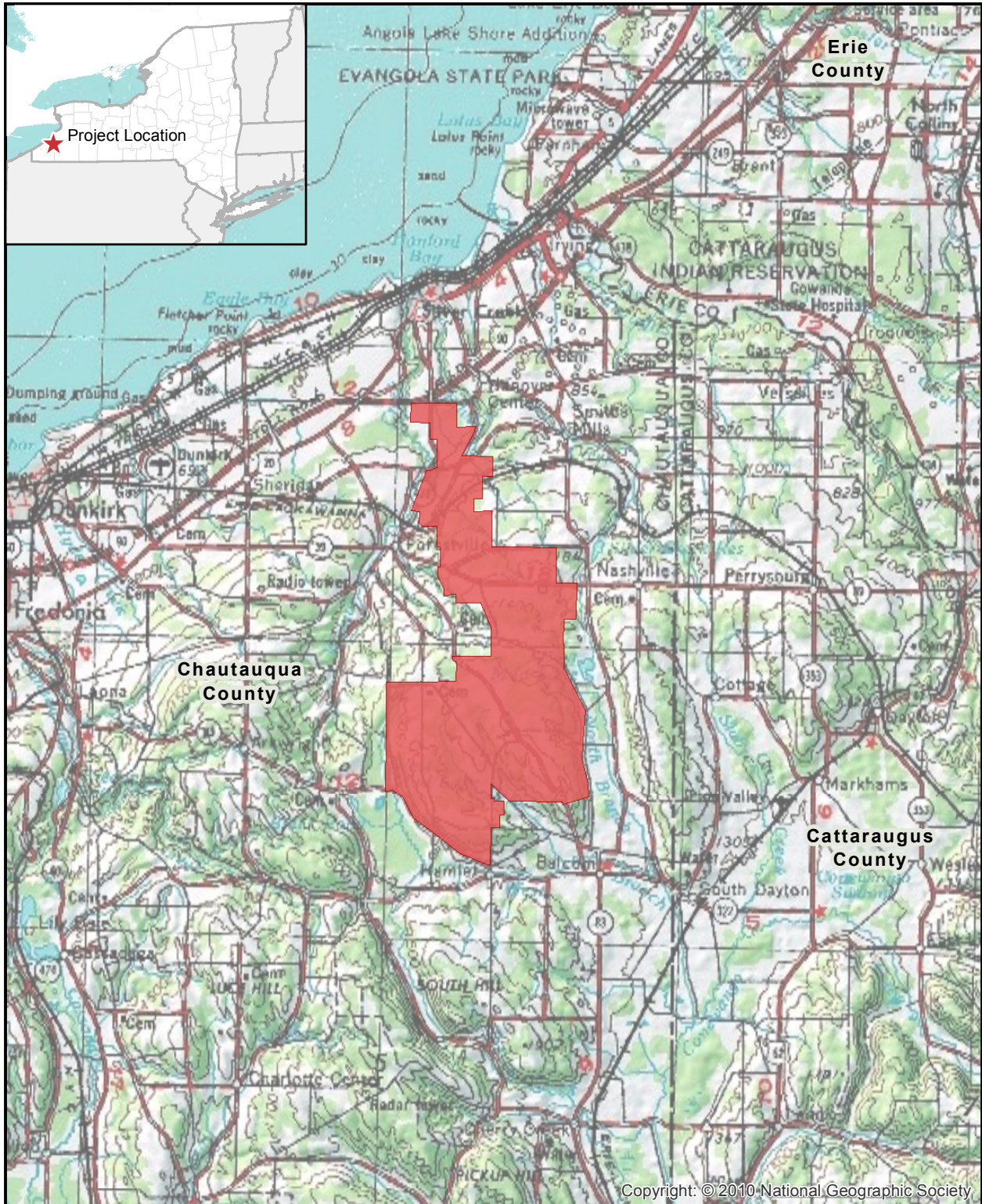
## 1 Background and Study Area

For 11 out of the 35 turbines sited in the town of Villenova, the blades of the wind turbines will be 85 feet (26 meters) from the ground (see Table 1-1). The remainder of the turbines, seven in the town of Hanover and 24 in the town of Villenova, the blades of the wind turbines will be 144 feet (44 meters) from the ground (see Table 1-1). The nacelle is located at the top of each tower and contains the electrical generating equipment. The turbine rotor and nacelle are mounted on top of a tubular tower. Separate tower heights were selected in the towns because of land use and height and air navigation restrictions in certain areas.

**Table 1-1 Turbine Models in the Towns of Hanover and Villenova for the Ball Hill Windpark Project**

Turbine Model	Town of Hanover	Town of Villenova	Total
SWT 2.3-108, 98 meter hub height	7	24	31
SWT 2.3-108, 80 meter hub height	0	11	11
<b>Total Number of Turbines</b>	<b>7</b>	<b>35</b>	<b>42</b>

- In the town of Hanover, the wind turbines will use tubular towers, giving a rotor hub height of 321.5 feet (98 meters). The total height for the turbine is 495 feet (151 meters) when a rotor blade is in the vertical position at the top of its rotation (see Table 1-1).
- In the town of Villenova, 11 of the 35 wind turbines will use tubular towers with a rotor hub height of 262 feet (80 meters). The total height for the turbine is 436.5 feet (133 meters) when a rotor blade is in the vertical position at the top of its rotation. The remaining 24 turbines will be mounted on towers similar to what is used in Hanover with a rotor height of 321.5 feet (98 meters) (see Table 1-1).
- Construction and use of 14.1 miles of access roads (11 miles in the town of Villenova and 3.1 miles in the town of Hanover), which would connect each wind turbine to a town or county roadway. The access roads would provide equipment and vehicle access for construction and subsequent maintenance of the facilities, as well as for emergency services, if needed. After construction of the Project, the 36-foot-wide access road would be scaled back to a permanent width of 16 feet, allowing Ball Hill to use the existing roadway for operations and maintenance (O&M) purposes.

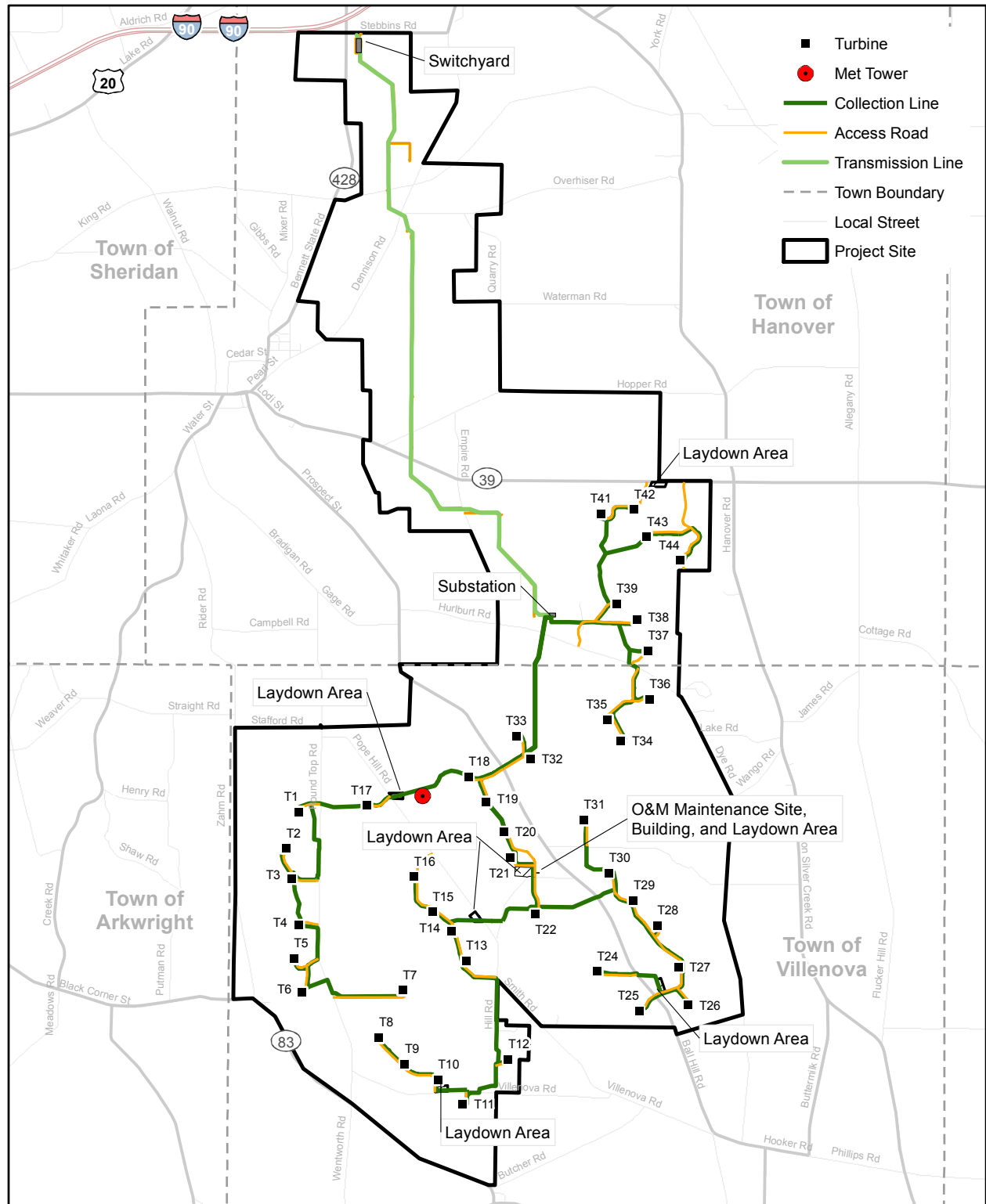


- County Boundary
- Project Site

Figure 1-1  
**General Project Area**  
Ball Hill Windpark  
Chautauqua County, New York  
Ball Hill Windpark, LLC

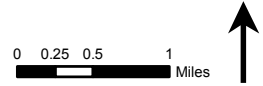
0 1 2 4 Miles





- Turbine
- Met Tower
- Collection Line
- Access Road
- Transmission Line
- - - Town Boundary
- Local Street
- Project Site

Figure 1-2  
**Project Facilities**  
 Ball Hill Windpark  
 Chautauqua County, New York  
 Ball Hill Windpark, LLC



Access roads for access to the transmission line are needed for construction and operation of the line (5.4 miles of new access roads). Access roads used for construction of the transmission line would be 20 feet wide. After construction these access roads would be scaled back to a permanent width of 12 feet and maintained as rough roads after construction for O&M. There will be no access roads constructed within wetlands for the Transmission Line. Any construction or O&M traffic through wetlands would utilize wetland mats or other approved means of access.

- Construction and use of an underground electrical collection system, which would allow delivery of electricity to a new substation to be constructed in the town of Hanover. The underground the electrical collection system as currently sited will be installed on private lands parallel to the right-of-way (ROW) corridors as the turbine access roads wherever feasible. A total of 26.7 miles of collection lines (including underground collection lines collocated with access roads) would be installed (21.4 miles in the town of Villenova and 5.3 miles in the town of Hanover). Approximately 10 miles of lines would be installed within new ROWs over private lands between turbines (7 miles in the town of Villenova and 3 miles in the town of Hanover). As currently designed 0.1 mile (515 feet) of collection line will be overhead line just to the north of the intersection of North Hill Road and Pope Hill Road. The overhead collection is utilized to reduce wetland impacts in the existing ravine as well as topography constraints.
- Construction and use of a new substation (Hanover substation) within the Project Area in the town of Hanover, which would tie the electrical collection system into a new 115-kilovolt (kV) transmission line. The substation footprint would be approximately 175 feet by 290 feet. A short access road would be constructed from Hurlbert Road to the new substation.
- Construction and use of a 6-mile-long overhead 115-kV transmission line in the town of Hanover, which would transfer the energy from the new substation to the new switchyard. As part of construction of the transmission line, 5.4 miles of access roads would be constructed for access. These roads would be 20 feet wide during construction and maintained as 12-foot wide rough roads after construction for O&M. As currently designed, there would be no pole locations within wetlands. There will be no access roads constructed within wetlands. Any construction, O&M traffic, or other approved means of access through wetlands would utilize wetland mats. The majority of the transmission line access roads (4.0 miles) would be contained within the 80-foot ROW and 1.4 miles would be new access road constructed on private land. The transmission line will be located in a 120-foot ROW. The line will be centered in an 80-foot cleared area with the remaining 20 feet on each side reserved for selective tree removal as needed to reduce tree conflicts with the line.

- Construction and use of a switchyard within the Project Area in the town of Hanover. The proposed switchyard would provide a connection to an existing 230-kV National Grid transmission line, which would provide access to the grid. The switchyard footprint would be approximately 225 by 611 feet. A short access road would be constructed from Stebbins Road (County Route 86) to the new switchyard.
- Construction and use of an O&M facility on 2.8 acres within the Project Area. Ball Hill is leasing a 5-acre parcel, however, construction and operation of the O&M building and laydown area will only impact 2.8 of those 5 acres. Therefore, for the following discussion of the O&M facility, the totals include the 2.8 acres of impact. During construction, the area for the O&M building site would be used as a laydown area and would be 10.4 acres. Upon completion of construction, 7.6 acres around the O&M building would be restored to allow existing uses to resume and 2.8 acres would be maintained as an O&M laydown area as part of the O&M building site. As mentioned above, Ball Hill has leased 5 acres, but only 2.8 acres would be impacted. The O&M building footprint would be approximately 140 feet by 50 feet constructed as a single story with amenities including a maintenance shop, offices, and a conference room.

### 1.1.2 Definitions

The following terms are used throughout this document to describe the proposed action.

- **Project.** “Project” refers to all activities involved in the construction, operation, and decommissioning of the Ball Hill Windpark Project described above and all components thereof, including, but not limited to, wind turbines (including blades, towers, pads, and foundations); electrical transmission and collection lines and poles; trenches; access roads; laydown and O&M areas; and related structures.
- **Project Area.** The Project Area is denoted by the outer boundary of the geographic area that includes all turbine sites, access roads, transmission line and collection system components, substation, and switchyard.
- **Project Site.** The Project Site contains all parcels within the Project Area that have the potential to be permanently or temporarily disturbed as a result of the construction, operation, or decommissioning of Project facilities (including wind turbines, electrical collection and transmission lines, utility trenches, utility poles, access roads, staging areas, and other related structures). Ball Hill Windpark, LLC has obtained property interests or is in the process of finalizing negotiations for all parcels that would host Project components or for which a setback waiver within the Project Site is required.
- **Turbine Site.** A turbine site is a staging area (maximum of 183-foot radius from the turbine pedestal) used during construction of wind turbines and in-

cludes a foundation for that structure, a gravel crane pad, and the surrounding construction/maintenance area. Within the staging area, an approximately 185-by 185-foot area would be cleared and graded to a slope of 2% or less to facilitate the layout of turbine components. Disturbance outside of this 185-by 185-foot area would generally be limited to selective tree cutting necessary for rotor assembly and storage of excess topsoil, subsoil, or woody material, including roots, logs, and/or wood chips. The turbine site refers to the total area associated with each turbine that would experience temporary impacts during construction, as described. Once installed, permanent impacts at each turbine site would include a 100- by 60-foot gravel crane pad, which would be left in place post-construction, and each wind turbine would permanently occupy a round, slightly exposed base approximately 18 feet in diameter.

## **1.2 Project Permitting**

The Project is subject to the New York SEQRA (Environmental Conservation Law [ECL] Article 8) and its implementing regulations (6 New York Codes, Rules and Regulations [NYCRR] Part 617). Following the Lead Agency's acceptance of the DEIS, Ball Hill revised the project layout, changed turbine technology and acquired any additional lands necessary for the Project. Accordingly, the Lead Agency required a Supplemental DEIS (SDEIS) to be prepared to describe the Project and analyze associated impacts. This report is being submitted in support of the SDEIS and as part of continued coordination with the United States Fish and Wildlife Service (USFWS) and New York State Department of Environmental Conservation (NYSDEC) regarding Bald Eagle issues and permits. Ecology and Environment, Inc. (E & E) is working with Ball Hill on the permitting for this Project.

## **1.3 Eagle Surveys Overview**

The USFWS released the *Draft Eagle Conservation Plan Guidance* (DECPG) for public comment in February 2011 (USFWS 2011). The DECPG explains the USFWS's approach to issuing programmatic non-purposeful eagle take permits and provides guidance to applicants for conservation practices and adaptive management necessary to meet standards required for issuance of a take permit and to be in compliance with the Bald and Golden Eagle Protection Act (BGEPA). The DECPG was drafted based on the USFWS Final Eagle Permit Rule (USFWS 2009) under the BGEPA authorizing limited issuance of permits to take Bald and Golden Eagles where the take is associated with but not the purpose of an otherwise lawful activity. The USFWS received approximately 2,000 comments on the DECPG. Revised DECPG Technical Appendices (still draft for review) were released in August 2012. A final edition of the DECPG has not been released; however, USFWS is implementing the DECPG prior to releasing a final edition.

Ball Hill and E & E met with the USFWS in Cortland, New York, on April 2, 2012, to discuss the Project and the confirmed presence of several Bald Eagle nests within 10 miles of the Project Area. The USFWS recommended conducting eagle surveys as per the DECPG. Ball Hill anticipated this recommendation and initiated surveys in March 2012. Surveys were conducted monthly through Feb-



ruary 2013, which marked one full year of monthly surveys meeting the minimum recommendations in the DECPG.

The stated objectives of the DECPG are to maintain a stable or increasing population of breeding Bald and Golden Eagles in concert with science-based take regulations and procedure development that are “neither excessive nor unduly burdensome.”

The DECPG recommends field studies that are used to generate an eagle exposure rate, which is an estimate of the predicted number of eagle fatalities per year at a given project site. The annual predicted mortality rate for eagles is then used to determine the site categorization, which is then used to deduce the likelihood that the site would meet the criteria for the issuance of a programmatic eagle take permit.

This study was designed to document the movements of eagles in accordance with the recommended methods and metrics outlined in Appendix C of the DECPG. The 2012-2013 data supplements data collected from numerous avian studies that have been conducted within the Project Area since 2006.

Ball Hill and E & E met with the USFWS in Cortland, New York, on December 11, 2012, to review the survey results to date and to coordinate regarding pursuit of a programmatic Bald Eagle non-purposeful take permit.

# 2

## Methodology

### 2.1 Eagle Surveys

Thirteen point-count survey locations were established within the Project Area (see Figure 2-1). Survey points included an 800-meter radius and were separated by at least 1,600 meters as per the DECPG. Point locations were concentrated in the areas of proposed turbines (points 1 through 10), and three points were surveyed along the proposed transmission line (points 11 through 13).

Surveys began and ended at various times during the day, with emphasis placed on the midday period, per the DECPG, as eagles are most active during this time. Surveys were conducted in all weather conditions, with the exception of those that limit visibility to below 200 meters vertically and 800 meters horizontally. Surveys were conducted with alternating start and end times to limit temporal bias.

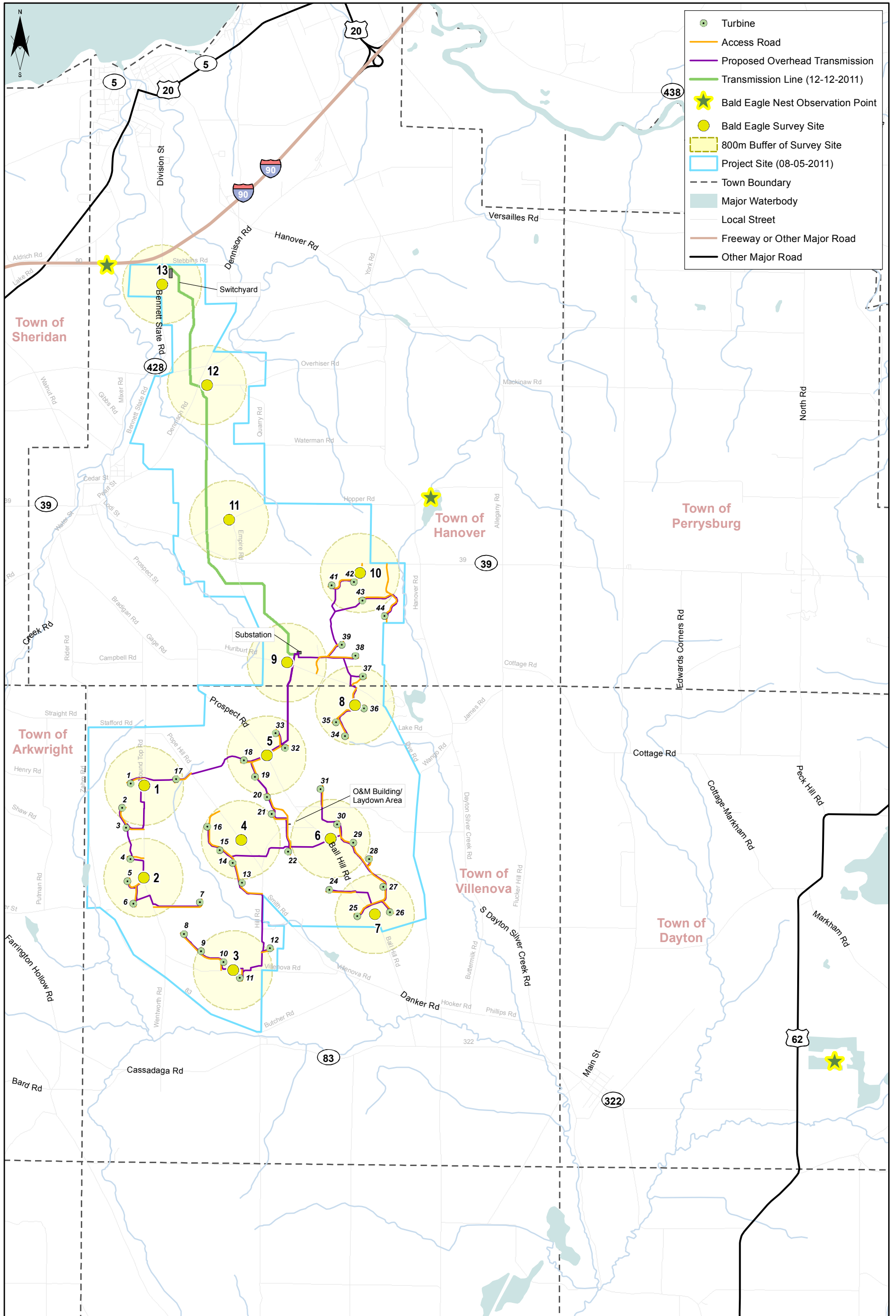
Each point-count survey spanned a period of one hour. To provide an efficient and standardized account of eagle exposure rates, eagles observed in flight were documented within 1-minute intervals. One exposure minute was recorded for any eagles observed perching throughout the hour-long survey windows. An E & E observer documented the times, directions, behavior, age, number of individuals, and approximate flight height for eagle flights during the point-count period. Because two different turbine heights would be used in the towns of Villenova and Hanover, the estimated rotor swept zone (RSZ) was combined to include the total RSZ between the two towns ranging from 89 to 495 feet agl. Estimated flight height was described as being within the RSZ (89 to 495 feet above ground level [agl]), above the RSZ (greater than 495 feet), or below the RSZ (0 to 89 feet agl). Following the USFWS issuance of revised, draft technical appendices of the DECPG in August 2012, E & E also began noting eagle flights as above or below 200 meters to be consistent with the revised protocol. In addition, weather data such as wind direction and speed, temperature, precipitation, and cloud cover were recorded.

Each survey of the 13 locations was split into two survey days; generally, six point-count surveys were conducted one day and seven were conducted on the other day. Two rounds of surveys per month were conducted from March 2012 through February 2013.



## **2.2 Characterization of the Local Nesting Population**

E & E obtained status information from NYSDEC from their 2012 monitoring of the local Bald Eagle nests. E & E provided information to NYSDEC regarding Bald Eagle activity and nesting within the Project Area.



Last Updated: 2/1/2013



Figure 2-1  
 Survey Sites  
 Ball Hill Windpark  
 Ball Hill Windpark, LLC

# 3

## Results

### 3.1 Eagle Survey Results

Seventeen Bald Eagle sightings and two Golden Eagle sightings were made during the point-count surveys (see Tables 3-1 and 3-2, Figure 3-1, and Appendix A, Table A-1). The greatest number of eagle observations were made at point 5 (six observations), followed by points 6 and 12 (three observations each), point 12 (three observations), point 10 (two observations), point 4 (two observations), and points 9, 11, and 13 (one observation each) (see Figure 3-1). Two incidental Bald Eagle sightings were made outside of survey point radii. One incidental Bald Eagle was observed to the east, outside of the survey radius of point 10, on May 25, 2012, circling above the RSZ. Another incidental Bald Eagle was observed to the south, outside of the survey radius of point 13, on August 8, 2012, circling within the RSZ.

Sightings within the Project Area ranged from 0 to 11 sightings per survey round. The greatest number of sightings occurred during the March 13 and 14, 2012, survey round, with a total of 10 Bald Eagle sightings and one Golden Eagle sighting. Bald Eagles were identified in the Project Area during six of the 24 survey rounds, including both March rounds, the late April round, the early August round, and the early September and October rounds. Golden Eagles were identified during two of the 24 survey rounds, with both observations occurring during the March migration period. The sighting rates in the Project Area (not including incidental sightings) are 0.05 Bald Eagle per hour and 0.01 Golden Eagle per hour.

Of the 19 eagles observed during the point-count surveys, eight were observed flying in the RSZ for at least a portion of the viewing time. The remaining 11 sightings were estimated to be flying either above or below the RSZ (see Table 3-2). The eagle survey effort amounted to a total of 312 hours (18,720 minutes) of survey time. The amount of time that Bald Eagles were observed within the RSZ amounted to 19 minutes (0.10% of the total survey time inside the Project Area), and the amount of time that Golden Eagles were observed within the RSZ amounted to 3 minutes (0.02% of the total survey time inside the Project Area).

Of the 17 Bald Eagles observed during the surveys, four were adults and 13 were immature. One of the Golden Eagles observed during the surveys was an adult and the other was an immature.

Weather conditions were conducive for Bald Eagle sightings during all survey dates except May 1, 2012 and January 29, 2013, when dense fog limited visibility and we abandoned survey efforts (see Appendix B). Precipitation occurred during ten of the survey dates (see Appendix B); however, the precipitation was generally light and periodic on those days. On most survey dates, temperature rose slowly throughout the day; the coolest temperatures were recorded during the winter season (December 2012 – February 2013) surveys, while the warmest were recorded during the July surveys. Winds and cloud cover were variable during most survey periods and across all survey dates (see Appendix B).

A majority of Bald Eagle sightings occurred during the March 13 and 14 survey. Wind direction during this period was from the southwest, which may have facilitated the movement of eagles migrating to the north. However, the majority of Bald Eagles observed on these days were determined to be local based on their behavior and flight direction. Of the 17 eagles observed; only two were determined to be migratory. Otherwise, no apparent trends were detected correlating weather conditions and eagle sightings.

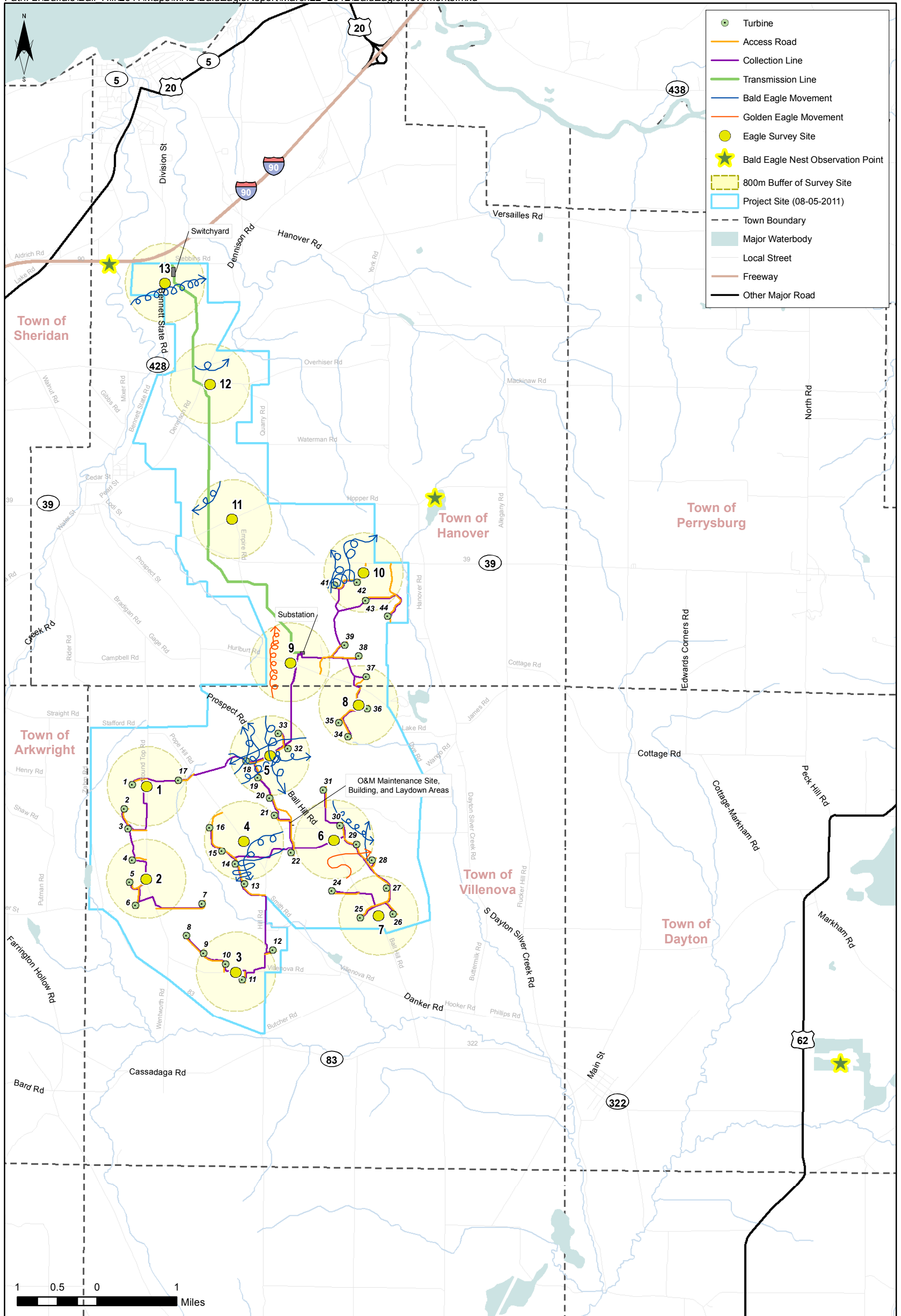
### **3.2 Bald Eagle Nests**

In 2011, there were two known Bald Eagle nests plus an unspecified number of Bald Eagle nests along Cattaraugus Creek within 10 miles of the Project Area (Pietrusiak 2012). Evidence of nesting was discovered in 2012 at two additional locations within 10 miles of the Project Area.

The specific nest locations are considered sensitive; therefore, only general locations are included here with approximate distances from the Project Area. The information is summarized based on Natural Heritage Program responses, discussions with Ken Roblee of NYSDEC Region 9 (Roblee 2012), and E & E field observations.

**Table 3-1 Eagle Sightings at Survey Points within the Project Area, 2012**

Survey Point	3/13 and 3/14	3/27 and 3/29	4/4 and 4/6	4/18 and 4/19	4/30, 5/1, and 5/10	5/23 and 5/25	6/13 and 6/15	6/27 and 6/28	7/10 and 7/11	7/24 and 7/25	8/7 and 8/8	8/28 and 8/29	9/11 and 9/12	9/25 and 9/26	10/9 and 10/12	10/25 and 10/31	11/14 and 11/17	11/28 and 11/30	12/11 and 12/13	12/26 and 12/31	1/8 and 1/10	1/26, 1/29, and 2/6	2/13 and 2/14	2/26	Sightings per Point	
<b>Bald Eagles</b>																										
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
13	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>Total Bald Eagles</b>	<b>10</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>17</b>	
<b>Golden Eagles</b>																										
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Golden Eagles</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	
Total Survey Time (mins.)	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	780	18,720
Total Survey Time (hrs.)	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	312
<b>Bald Eagle Sightings/Survey Period (in hrs.)</b>	<b>0.77</b>	<b>0.08</b>	<b>0.00</b>	<b>0.08</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.23</b>	<b>0.00</b>	<b>0.08</b>	<b>0.00</b>	<b>0.08</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.05</b>
<b>Golden Eagle Sightings/Survey Period (in hrs.)</b>	<b>0.08</b>	<b>0.08</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>



Last Updated: 2/1/2013

Figure 3-1  
Eagle Movement  
Ball Hill Windpark  
Ball Hill Windpark, LLC



**Table 3-2 Eagles Sighted within the RSZ**

Species	No. of Eagle Sightings	No. Observed Flying in RSZ	Percentage	Total Minutes in RSZ
Bald Eagle	17	7	41%	19
Golden Eagle	2	1	50%	3

- The “Thruway nest” occurs approximately 0.8 miles northwest of the proposed transmission line and is in the vicinity of the NYS Thruway. This nest site has been active for several years, and NYSDEC has indicated it was active again in 2012. E & E documented adult Bald Eagle use of this nest early in 2012; however, no young were ever observed at the nest, as viewed from a distance.
- The “Dayton nest” occurs approximately 5.5 miles southeast of the Project Area. This nest site has been active for at least five years and NYSDEC has indicated it was active again in 2012.
- There are an unspecified number of active nests along Cattaraugus Creek in the vicinity of the Cattaraugus Indian Reservation. The reservation is approximately 10.0 miles north of the Project Area at its closest point.
- The “Pomfret nest” is located approximately 7.0 miles west of the Project Area in the vicinity of the Fredonia reservoir. NYSDEC discovered nesting activity in this location in 2012.
- E & E discovered the “Hanover nest” in early April 2012. The nest is located in the vicinity of the Silver Creek reservoir approximately 1 mile east of the nearest Project component (an access road). Two adult Bald Eagles were observed regularly at the nest during subsequent visits in April and May 2012. A single Bald Eagle was observed perched near the nest in October and December 2012 and January and February 2013. The adult eagles were never observed inside or on the nest, but they were observed perched in the same tree as the nest. The eagles exhibited territorial behavior by driving off an Osprey and another adult Bald Eagle that approached the area. It is possible that there was an early nest failure and/or they were a young pair. Upon discovery of this nest, E & E informed NYSDEC of its location and status. On two occasions E & E observed one of the Bald Eagles flying to this site from the north-east (opposite direction of Project Area).

# 4

## Discussion

### 4.1 Eagle Surveys

Bald Eagles were occasionally observed in the Project Area following the March surveys, and Golden Eagles were not observed in the Project Area after the March surveys. The 10 Bald Eagle sightings on March 13 and 14, 2012, likely involved some multiple sightings of the same individuals, while the two Golden Eagle sightings were of different individuals (one adult and one immature). The Bald Eagles were likely a mix of migrants, locals, and transients and included adult and immature birds. Aside from the number of sightings on March 13 and 14, the results of the 2012-2013 surveys are generally consistent with the results reported in previous studies conducted by E & E in the Project Area, suggesting occasional Bald Eagle activity within the Project Area.

The Project Area is situated east and south of the Portage Escarpment and Lake Erie plain, where Bald Eagles and other raptor migrants are concentrated during spring migration. It is likely that some of the eagles observed in March through May within Project Area were migrants. Surveys performed on March 13, 2012, yielded the highest number of Bald Eagle sightings for any single day thus far (nine sightings). The winds on this day were strong and from the southwest, suggesting a day of migratory raptor movement; however, with the exception of two adults circling high to the northeast, the sightings were indicative of local movements rather than migrants. The local flights in the Project Area may have been between possible foraging areas (i.e., East Mud Lake, West Mud Lake, Lake Erie, Silver Creek Reservoir, Fredonia Reservoir, Dayton gravel ponds). Only one Bald Eagle sighting (an adult) was made at survey point 13, which is the survey point closest to the “Thruway nest.” With the proximity of that nest to Lake Erie (approximately 2.5 miles), it is likely that most foraging flights go toward the lake. Two immature Bald Eagles were sighted at survey point 10, which is the survey point closest to the “Hanover nest”. There were no sightings of the adult Bald Eagles from the “Hanover nest” at the nearest survey point.

The Project Area sightings have included a very low percentage of time during which eagles were observed within the RSZ: a total of 19 minutes within in the RSZ for seven Bald Eagle sightings, and a total of 3 minutes within the RSZ for one Golden Eagle sighting.

## 4.2 Golden Eagles

Golden Eagles are uncommon migrants over western New York. The two Golden Eagles observed during these surveys were flying north within the known migration period for this species in New York. In general, strong winds from the south are conducive to large migratory raptor movements during peak migratory periods of the year. Due to their known status in New York State and their brief appearance during surveys, it is assumed that both of these Golden Eagle individuals were migrants passing through the Project Area and not wintering birds, which would be expected during periods of migratory movement. Transient Golden Eagles would be expected to fly over the Project Area during usual periods of migration, specifically spring migration. Due to the brief period of time when Golden Eagles would be expected to fly over the Project Area and general uncommon nature of Golden Eagle occurrence, it is anticipated that they would be unlikely to be adversely affected by the Project.

## 4.3 Bald Eagle Nests

Bald Eagles continue to increase their presence and expand their distribution in Chautauqua County, as well as in western New York State, adjacent states, and the Great Lakes region. The number of known nest locations in the vicinity of the Project Area increased by two in 2012.

Nesting typically takes place in forested areas relatively close (usually less than 1.2 miles) to suitable foraging areas, typically large bodies of water (Buehler 2000). Undisturbed forested habitats near lakes, rivers, or wetlands are preferred (Nye 2008). Large nests of sticks and finer materials are typically built in the tops of the largest trees in the area and are reused for many years. Bald Eagles may build one or more alternate nest(s) within their territory and may switch to an alternate nest in successive years, particularly after a nesting failure (Buehler 2000). As Bald Eagle populations continue to increase, greater nest densities may occur in preferred habitats, and eagles may also begin to nest in less ideal habitats further from foraging areas.

## 4.4 Next Steps

Ball Hill will continue to coordinate with NYSDEC and the USFWS regarding nest activity in spring 2013 and permitting issues.

# 5

## References

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- \_\_\_\_\_. February 2011. *Draft Eagle Conservation Plan Guidance* (DECPG).

# A

## Eagle Surveys Sightings Data

**Table A-1 Eagle Survey Sightings (2012-2013), Ball Hill Wind Energy Project Area**

Species	Date	Time	Sighting Time (min.)	Number	Survey Point	Height	Flight Direction	Resight	Behavior	Age Class	Notes
Bald Eagle	3/13	1158	5	1	4	H	S	N	S/G	A	Flying above RSZ circling periodically with net movement south
Bald Eagle	3/13	1209	6	1	4	H	S	N	G/S	SA	Back and forth flight east then west with net movement south
Bald Eagle	3/13	1336	4	1	5	H	E	N	BM	SA	Came from the west being mobbed by three crows
Bald Eagle	3/13	1339	1	1	5	H	NW	N	S	SA	Second SA joined first (above), moving west. Presumed local.
Bald Eagle	3/13	1340	4	2	5	H	NE	N	S/G	A	two adults appeared high circling from south to northeast overhead. Presumed migrants.
Bald Eagle	3/13	1344	2	1	5	RSZ/H	SW	N	G/S	J	Juvenile flew from east to southwest gliding
Bald Eagle	3/13	1426	2	1	6	RSZ/H	SE	N	BM/S	SA	Gliding south and mobbed by three American crow - escaped and soared to the east
Bald Eagle	3/13	1437	1	1	6	L	N	Y	BM	SA	Briefly spotted near edge of survey area being mobbed by one American crow. Resight - presumed local.
Golden Eagle	3/13	1450	3	1	6	RSZ/H	N	N	G/S	SA	Flew out from near met tower to the west; flew over road and back towards tower; then north
Bald Eagle	3/14	1257	2	1	11	RSZ	SW	N	S/G	SA	Flew from lake direction and circled while moving southwest
Golden Eagle	3/27	1156	5	1	9	H	N	N	S	A	Seen circling very high over forest moving north
Bald Eagle	3/27	1508	5	1	5	H	S	N	S	SA	Second year eagle circling high overhead moving south
Bald Eagle	4/19	1407	3	1	13	H	E	N	S	A	Circling over forest, moving east. Began gliding towards survey area limit to the east.
Bald Eagle	8/8	1510	4	3	12	RSZ/H	E	N	S	J	All three together, some chasing. Moved out of sight together.

**Table A-1 Eagle Survey Sightings (2012-2013), Ball Hill Wind Energy Project Area**

Species	Date	Time	Sighting Time (min.)	Number	Survey Point	Height	Flight Direction	Resight	Behavior	Age Class	Notes
Bald Eagle	9/11	1154	7	1	10	H	SE	N	S/G	SA	Soaring north of point and then glided towards the southeast with periodic soaring.
Bald Eagle	10/9	1124	1	1	10	RSZ	NW	N	S	SA	First seen circling to the west, moved away
<b>Total</b>				<b>19</b>							

Key:

RSZ = rotor swept zone

**Height:**

L = 0 – 27.1m agl

RSZ = 27.1 – 150.9m agl

H = > 150.9m agl

**Behavior:**

S = Soaring

G = Gliding

CF = Continuous Flapping

FG = Flapping – Gliding

**Age:**

A = Adult

SA = Sub-adult

J = Juvenile

IM = Immature

# B

## Weather Data



**Table B-1 Weather Conditions by Survey Date for 2012-2013 Eagle Surveys**

Date	Survey Mean Temperature (°F)	Survey Max Temperature (°F)	Survey Min Temperature (°F)	Survey Avg. Wind Speed (mph)	Survey Wind Direction	Survey Max. Wind Speed (mph)	Visibility (miles)	Comments
<b>2012-2013 Surveys</b>								
3/13/2012	56	62	51	16	SW	20	2	Light rain
3/14/2012	55	63	33	5	SW	7	2	
3/27/2012	37	41	25	4	NE	9	2	
3/29/2012	36	38	34	8	NW	9	2	
4/04/2012	47	54	42	11	NW	14	2	Light rain
4/06/2012	41	48	33	9	NNE	13	2	
4/18/2012	51	55	32	4	NE	5	2	
4/19/2012	61	67	51	9	SW	12	2	
4/30/2012	56	61	42	5	SE	11	2	
5/01/2012	53	57	49	3	W	5	2	Heavy fog and light rain reduced visibility and surveys were concluded at 1:30pm. Remaining surveys completed on 5/10/2012.
5/10/2012	55	60	50	8	NW	20	2	
5/23/2012	73	79	63	4	NE	9	2	
5/25/2012	77	84	75	9	SW	13	2	
6/13/2012	59	66	64	7	N	10	2	
6/15/2012	69	83	63	8	N	14	2	
6/27/2012	64	70	61	5	NW	11	2	Light rain
6/28/2012	79	81	70	6	SW	11	2	
7/10/2012	72	74	67	4	NNE	7	2	
7/11/2012	78	84	66	5	NE	11	2	
7/24/2012	76	80	70	8	W	15	2	
7/25/2012	79	85	70	3	E	5	2	
8/07/2012	71	83	60	8	SW	15	2	
8/08/2012	75	85	67	7	SW	18	2	
8/28/2012	70	75	64	9	NW	7	2	
8/29/2012	69	77	57	5	NE	15	2	
9/11/2012	64	68	55	6	SW	11	2	
9/12/2012	66	75	53	5	S	9	2	
9/25/2012	61	68	49	13	SW	17	2	
9/26/2012	59	62	57	5	NE	13	2	

B-3

**Table B-1 Weather Conditions by Survey Date for 2012-2013 Eagle Surveys**

Date	Survey Mean Temperature (°F)	Survey Max Temperature (°F)	Survey Min Temperature (°F)	Survey Avg. Wind Speed (mph)	Survey Wind Direction	Survey Max. Wind Speed (mph)	Visibility (miles)	Comments
10/9/2012	50	57	32	9	SSW	12	2	
10/12/2012	44	49	39	10	NW	15	2	
10/25/2012	73	80	55	11	SE	19	2	
10/31/2012	42	44	41	3	SE	5	2	
11/14/2012	39	42	34	4	SE	7	2	
11/17/2012	41	50	34	4	E	7	2	
11/28/2012	33	34	32	9	S	12	2	Light snow
11/30/2012	35	36	33	2	SE	5	2	Light snow
12/11/2012	33	34	31	3	NW	5	2	Light snow
12/13/2012	33	42	27	3	SW	9	2	
12/26/2012	25	27	19	9	NE	12	2	Light snow
12/31/2012	29	31	28	8	SE	15	2	
1/8/2013	33	37	23	6	SW	9	2	
1/10/2013	34	29	38	4	SW	6	2	
1/26/2013	21	24	14	9	SW	11	2	
1/29/2013	37	38	36	5	SW	8	2	Heavy fog, light drizzle. Only one point completed. Surveys suspended due to poor visibility. Completed on 2/6/13.
2/6/2013	24	24	23	10	NW	12	2	
2/13/2013	31	36	28	3	SW	4	2	
2/14/2013	32	35	26	7	E	12	2	
2/26/2013	35	43	16	15	SE	25	2	Light rain only during portion of last surveys. All 13 points covered in one day by use of two avian surveyors.

B-4