



**Environmental Design & Research,**  
Landscape Architecture, Engineering & Environmental Services, D.P.C.

217 Montgomery Street, Suite 1000, Syracuse, New York 13202  
P. 315.471.0688 • F. 315.471.1061 • www.edrdpc.com

## memorandum

**To:** Ms. Daria Merwin  
New York State Office of Parks,  
Recreation & Historic Preservation  
(NYSOPRHP)

**From:** Grant Johnson, Cultural Resources Analyst (EDR)  
Patrick Heaton, Director of Cultural Resources (EDR)

**Date:** July 24, 2015

**Reference:** NYSOPRHP Project Review #08PR0564  
Arkwright Summit Wind Farm (formerly New Grange Wind Farm)  
Historic-Architectural Resources Summary

**EDR Project No:** 15017

On behalf of Arkwright Summit Wind, LLC (a subsidiary of EDP Renewables; formerly, New Grange Wind Farm, LLC; “the Applicant”), Environmental Design & Research, Landscape Architecture, Engineering, & Environmental Services, D.P.C. (EDR) has prepared this summary of consultation (to date) with the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) relative to historic-architectural resources for the proposed Arkwright Summit Wind Farm (formerly identified as the New Grange Wind Farm; “the Project”) in the Town of Arkwright, Chautauqua County, New York (see attached Figure 1). The Applicant is continuing the review process for their Joint Permit Application for a Special Use Permit and Wind Overlay Zone, and associated review under the State Environmental Quality Review Act (SEQRA), for the Project with the Town of Arkwright, who is serving as SEQRA Lead Agency. EDR is currently preparing a Second Supplemental Environmental Impact Statement (SEIS2) on behalf of the Applicant for submission to the Town of Arkwright. A 5-mile historic-architectural resources survey for the proposed Project was previously conducted in 2009, which was reviewed by the NYSOPRHP under Project Review No. 08PR0564. The purpose of this submission is to update NYSOPRHP regarding the anticipated layout and description of the proposed Project, and to propose next steps in order to complete the review of the Project’s potential impacts to historic-architectural resources. Please note that this memorandum applies only to historic-architectural resources. A separate memorandum will be provided to NYSOPRHP that summarizes the archaeological resources survey process for this Project.

### Revised Project Description

The Applicant is proposing to develop a wind-powered generating facility consisting of up to 36 turbines; consisting of 2 turbines with a nameplate capacity of 2.0 megawatts (MW) and 34 turbines with a nameplate capacity of 2.2

megawatts (MW), for a total anticipated nameplate generating capacity of 78.8 MW. However, to allow for flexibility on final site selection, the Applicant is evaluating and seeks approval for 38 turbine sites. The largest wind turbines presently being considered for the Project are the Vestas 2.0 MW and 2.2MW V-110 wind turbines. For the purpose of presenting a conservative analysis, the assessment of potential environmental impacts throughout this SEIS2 assumes that the Project will use Vestas V-110 wind turbines. Each wind turbine consists of three major mechanical components: the tower, nacelle, and rotor. Assuming use of the Vestas V-110 turbines, the anticipated tower height for the Project, or “hub height” (height from foundation to top of tower), is approximately 95 meters (312 feet). The V-110 has a rotor diameter of 110 meters (361 feet), resulting in a total height of 150 meters (492 feet).

In addition to the turbines, the Project will include construction and operation of 1 permanent meteorological tower, a system of gravel access roads, electrical collection and communication cable networks, an overhead transmission lead, an operations and maintenance (O&M) facility, and a substation and associated point of interconnection (POI) switchyard. In addition to the permanent components of the Project, the Project will require a temporary laydown yard and construction work space, including, but not limited to, areas to store Project components (laydown yards), construction vehicle parking areas, and cleared areas for turbine assembly.

The Project, as currently conceived, will include up to 36 turbine locations (see attached Figure 2), which is reduced from up to 47 turbine locations proposed in the Draft Environmental Impact Statement (DEIS) (Tetra Tech, 2008a) and 44 turbine locations proposed in the Supplemental Environmental Impact Statement (SEIS) (Tetra Tech, 2009a). The revised Project layout has not been finalized at this time. The locations of proposed wind turbines and associated Project infrastructure (e.g., access roads and collection line routes) are in the process of being sited. Factors that are being considered in the siting process include maximization of energy production, setbacks (in accordance with Article VI-A of the Wind Energy Facilities Law), constructability, and avoidance and/or minimization of environmental impacts pursuant to SEQRA. As presently envisioned, many of the proposed 36 turbine locations are common, or immediately proximate, to the 44 locations previously analyzed in the SEIS (Tetra Tech, 2009a).

The attached “Revised Project Layout” map (Figure 2) is intended to provide NYSOPRHP with an updated understanding of the Project layout and components as presently envisioned by the Applicant. The “Project Layout Comparison” map (Figure 3) provides a comparison of all Project components included in the 2009 SEIS layout and the 2015 SEIS2 layout

### Summary of Previous Historic-Architectural Survey and Agency Consultation to Date

As you are aware, review of the potential environmental impacts of the proposed Project has included consultation with the NYSOPRHP (under Project Review No. 08PR0564). To support that consultation, the Applicant retained Tetra Tech, Inc. (Tetra Tech) between 2007 and 2009 to conduct cultural resources investigations to investigate the Project's potential effect on archaeological and historic-architectural resources. As part of the SEQRA permitting and review process, Tetra Tech completed a 5-mile-radius study of historic architectural resources in 2009 for the proposed Project on behalf of the Applicant (Tetra Tech, 2009b).

Below is a summary of cultural resources fieldwork, reports, and consultation with the NYSOPRHP (per their role as State Historic Preservation Office [SHPO]) for this project to date.

### **Summary of NYSOPRHP Correspondence**

<b>Date</b>	<b>Summary of Submittal/Correspondence</b>
January 2008	Tetra Tech completed a Phase 1 Cultural Resources Investigation for the New Grange Wind Farm Project (Tetra Tech, 2008b). Regarding historic-architectural resources, the Phase 1 report recommended a full architectural survey be conducted in accordance with the NYSOPRHP <i>Guidelines for Wind Farm Development Cultural Resources Survey Work</i> (NYSOPRHP, 2006).
February 4, 2008	In response to a request for a Wind Overlay Zone and special use permit submitted by New Grange Wind Farm, LLC to the Town of Arkwright in January 2008, NYSOPRHP provided a scope of cultural resources survey work for historic-architectural and archaeological surveys (Bonafide, 2008). The scope of work for a survey of historic buildings recommended a 5-mile area of potential effect (APE) to be surveyed using a topographic survey to determine areas of Project visibility within the APE. NYSOPRHP indicated that the survey would identify all buildings and sites within the study area previously listed or determined eligible for inclusion on the National Register of Historic Places (NRHP), as well as identify and evaluate all buildings 50 years or older within the study area based on NRHP eligibility criteria. NYSOPRHP indicated the need to verify the APE prior to survey work being undertaken, and then a 1-mile "ring" survey would occur to verify the evaluation methodology, followed by a survey of the remaining APE. Survey results would be provided in a standardized report format, along with GPS data gathered at each property surveyed.
February 27, 2008	The Applicant's Draft Environmental Impact Statement (DEIS) (Tetra Tech, 2008a) was accepted as complete by the Arkwright Town Board (Lead Agency). The DEIS indicated that background research for the historic-architectural survey had begun and an APE had been defined. The DEIS section related to historic-architectural resources included a list of identified NRHP-eligible and NRHP-listed properties within the APE.
June 17, 2008	Tetra Tech initiated the discussion of the historic-architectural survey for the New Grange Wind Project with NYSOPRHP staff via email (Tetra Tech, 2008c).
June 25, 2008	Tetra Tech submitted a letter to NYSOPRHP (Tetra Tech, 2008d) indicating the intent to perform an historic-architectural survey within the proposed Project APE. A viewshed map was provided with the letter, indicating the visual APE of the Project where the historic-architectural survey would occur.
July 17, 2008	A preliminary meeting between Tetra Tech and NYSOPRHP was held via teleconference (Tetra Tech, 2008e). NYSOPRHP confirmed the visual APE as the APE for the historic-architectural survey, and

Date	Summary of Submittal/Correspondence
	indicated that based on past performance, Tetra Tech would not have to conduct a 1-mile ring study and could conduct the full, 5-mile survey. NYSOPRHP requested that the population centers of Dunkirk and Fredonia should not be surveyed until they had further reviewed the viewshed map. NYSOPRHP also requested that all cemeteries within the APE should be surveyed unless they are of recent construction.
July 28, 2008	A follow up call between Tetra Tech and NYSOPRHP (Tetra Tech, 2008f) was held regarding the survey strategy for the portions of the Town and City of Dunkirk and Village of Fredonia within the APE. NYSOPRHP agreed to a survey strategy focusing on streetscapes and not addressing individual buildings unless the buildings are particularly noteworthy.
August 6, 2008	A call between Tetra Tech and NYSOPRHP (Tetra Tech, 2008g) was held regarding surveying buildings outside the APE (specifically Lily Dale Spiritualist Assembly). NYSOPRHP indicated that only buildings within the APE needed to be taken into account when considering the potential for a historic district.
February 5, 2009	Tetra Tech submitted a <i>Historic Architectural Resources Investigation 5-Mile Ring Study</i> (Tetra Tech, 2009b) to NYSOPRHP for review (Tetra Tech, 2009c). The survey included identification of all previously determined eligible or listed on the NRHP, as well the evaluation of potential NRHP-eligible historic properties in the 5-mile radius study area. The study resulted in identification of 100 properties and three historic districts previously determined eligible or listed on the NRHP, and the recommendation of 184 properties and two historic districts eligible for listing on the NRHP. Regarding visual effects on historic properties, the report's conclusions included the following: "284 properties, including resources listed on, determined eligible for, or recommended as potentially eligible for the National Register of Historic Places may have views of the Project...While none of the Project impact assessment factors described above will completely eliminate the overall impact of the Project, they may minimize it to the point that it falls below the threshold of being judged an adverse effect for specific properties, especially in cases where resources are buffered by several of these factors. This is the case for 78 properties, where each of these resources is both more than 3.7 miles from the nearest Project element and is oriented in such a way that the project and resource cannot be included in the same view. Similarly, 49 resources are located more than 3.7 miles from the project and are expected to be screened from views of it by seasonal vegetation. Finally, 22 resources are located more than 3.7 miles from the project, and are oriented so that their main façade and the project will not be visible in a view from the nearest public right of way, and are expected to be screened from the Project by seasonal vegetation" (Tetra Tech, 2009b: 16). Regarding mitigation, the report concluded the following: "Because of the topography of the area, the scattered locations of the affected resources, and the various visibility factors that influence the effect of the Project on these individual resources, it is difficult to implement visual impact mitigation measures for each specific property. Based on the collective impact to these properties within the APE, the applicant will provide specific mitigation measures that reflect local historic preservation priorities for identified historic properties and/or the overall historic landscape within the APE for consideration by the lead agency. Based on lead agency consultation with the SHPO, USACE and interested local parties, the applicant will work with the lead agency to develop a proposed mitigation plan that can be undertaken to offset the impact of the Project on NRHP-listed and NRE properties within the APE" (Tetra Tech, 2009b: 24).
March 9, 2009	NYSOPRHP issued a response letter (Bonafide, 2009a) to the <i>5-Mile Ring Study</i> . The letter indicated that NYSOPRHP concurred with eligibility recommendations for 251 of the resources surveyed by Tetra Tech, including three eligible historic districts, and also determined that six of the resources surveyed were determined to not meet NRHP eligibility criteria. NYSOPRHP indicated that they had identified several key loci where visual impacts should be carefully assessed, including the villages of Fredonia, Forestville, Hamlet, and Sheridan, and recommended appropriate visual simulations be created to better understand the full extent of the potential visual impacts associated with the Project. Regarding effects

Date	Summary of Submittal/Correspondence
	on historic-architectural resources, NYSOPRHP stated: “At this time the full extent of potential impacts from the proposed undertaking cannot be assessed absent simulations as part of a comprehensive visual analysis...However, OPRHP believes that sufficient information does exist to determine that under Section 106 of the National Historic Preservation Act this undertaking will an Adverse Effect on cultural resources. The introduction of the sleek, ultramodern, approximately 410 foot tall kinetic wind turbines...throughout this scenic landscape forever alters and changes the rural setting, which itself is a significant element in much of the survey area and serves as the backdrop for the architectural, cultural and scenic tourism heritage of these communities” (Bonafide, 2009). The NYSOPRHP letter concluded by recommending that visual analysis be utilized “to aid in the exploration of alternatives that avoid or minimize the adverse effect(s) to historic properties,” and that “all consultation regarding avoidance options and potential later mitigation options should involve those state/federal agencies directly associated with the permitting/approval process for this project” (Bonafide, 2009).
April 13, 2009	The Applicant’s Supplemental Environmental Impact Statement (SEIS) (Tetra Tech, 2009a) was accepted as complete by the Lead Agency. Relative to historic-architectural resources, the SEIS summarized NYSOPRHP recommendations included in the March 9, 2009 letter regarding resource eligibility determinations. The SEIS also noted that while there would be no direct physical impacts to any architectural resources within the Project APE, the Project would have an adverse effect on cultural resources: “Indirect impacts may result from operation of the Project. Operation of the Project could result in changes to the setting of architectural resources listed on, determined eligible for, or recommended as potentially eligible to the NRHP. Results of the fieldwork indicate that at least one element of the Project will likely be visible from 278 properties that are listed in or determined eligible for the NRHP” (Tetra Tech, 2009a: 2-47). Relative to mitigation of impacts on historic-architectural resources, the SEIS noted that the Applicant would consult with the Lead Agency and other interested parties to formulate mitigation measures.
August 25, 2009	In a letter to Hodgson Russ, LLP (Stebbins, 2009a), Horizon Wind Energy summarized its consultation with NYSOPRHP had resulted in a determination of adverse effect on aboveground cultural resources, and proposed to offer the Town of Arkwright mitigation actions to offset adverse effects from the Project. Horizon noted that the mitigation actions should be consistent with NYSOPRHP guidance, address the needs of the historical community, benefit the community as a whole, and provide tangible results. Proposed mitigation actions included stabilization and restoration of grave markers at Christian Cemetery and Cowden’s Corner Cemetery, both in the Town of Arkwright, as well as the establishment of a Cemetery Preservation Maintenance Fund. Proposed mitigation projects totaled \$102,000.
September 23, 2009	Horizon Wind Energy provided NYSOPRHP with a copy of a resolution passed by the Town of Arkwright accepting the cultural resources mitigation plan for the Arkwright Summit Wind Farm, noting the plan was created with input from the town supervisor and town historian (Stebbins, 2009b).
October 13, 2009	NYSOPRHP provided a response letter to Horizon’s proposed mitigation plan (Bonafide, 2009b), indicating it found the proposed cemetery projects to be appropriate. However, NYSOPRHP also reiterated their concern regarding potential visual effects associated with turbine locations and neighboring towns, and inquired if any further visual assessment or mitigation had been analyzed in the towns of Villenova, Hanover and Sheridan.
November 2, 2009	Horizon provided a response to the previous NYSOPRHP letter, indicating that the towns of Villenova, Hanover and Sheridan had been included in the analysis of historic resources within the Project study area (Stebbins, 2009c). In addition, Horizon noted, the Visual Resource Assessment (VRA) for the Project (Saratoga, 2008) included multiple viewpoints from neighboring towns, and the Supplemental VRA (SVRA) included in the SEIS for the Project (Saratoga, 2009) only included updated viewpoints in the

Date	Summary of Submittal/Correspondence
	Town of Arkwright per their comments as Lead Agency, and no comments had been receiving from other neighboring communities on the VRA or SVRA. Horizon indicated that no town supervisors from any towns other than Arkwright had provided comment on the DEIS or SEIS, so mitigation projects were developed with the Town of Arkwright.
March 1, 2010	In an email to NYSOPRHP, Horizon provided the names of town supervisors contacted as part of the cumulative impact analysis for the Project, and noted none had chosen to comment (Stebbins, 2010a). Horizon also included the cultural mitigation plan and resolution passed by the Town of Arkwright, and expressed the hope that the plan would be accepted by NYSOPRHP.
April 23, 2010	In response to the March 1 letter from Horizon (Bonafide, 2010a), NYSOPRHP indicated that the preliminary mitigation plan proposed for the Project was appropriate under Section 106 of the National Historic Preservation Act. NYSOPRHP requested that work on the funerary art proposed as part of the mitigation be undertaken by a contractor with a solid restoration track record, and that before and after digital images of all work be provided.
May 18, 2010	In May 2010, Horizon provided an outreach letter to town supervisors located within the Project APE to request additional mitigation projects that were beneficial to the public, accessible to the public, and historic in nature (Stebbins, 2010b).
May 20, 2010	The town supervisor of the Town of Villenova provided a response on May 20, 2010, indicating the Hamlet Cemetery would be an appropriate mitigation project (Park, 2010).
July 28, 2010	In a response to the town supervisor of Villenova, Horizon requested additional information on the possible Hamlet Cemetery mitigation project, including project purpose, detailed scope of work, and cost estimate (Stebbins, 2010c).
September 9, 2010	Horizon informed NYSOPRHP that additional outreach to municipalities within the Project APE had occurred, and only the Town of Villenova had responded (Stebbins, 2010d). Horizon noted they had contact the town supervisor directly and that sufficient details regarding a proposed cemetery project were not available, and they would not be responding further. Horizon indicated their intention to proceed with the original mitigation plan as proposed.
September 20, 2010	NYSOPRHP provided a response to Horizon indicated that they should continue to work with communities that had expressed an interest in proposed mitigation projects, and to keep NYSOPRHP informed regarding and proposed changes to the mitigation plan (Bonafide, 2010b).

#### Results of Previous Historic-Architectural Survey

The *Historic Architectural Resources Investigation 5-Mile Ring Study* (Tetra Tech, 2009b) conducted for the Project resulted in identification of the following:

- 100 resources previously listed in or determined eligible for the NRHP
- 3 historic districts previously listed in or determined eligible for the NRHP
- 184 resources determined to be potentially eligible for the NRHP
- 2 historic districts determined to be potentially eligible for the NRHP



NYSOPRHP concurred with all of the above recommendations except for six (6) buildings, for a total of 278 resources and five (5) historic districts previously listed in or determined eligible for the NRHP. Historic districts comprise a significant number of historic-architectural resources within the Project APE, including:

- Fredonia Commons Historic District, Fredonia (NRHP-listed, 25 resources)
- Proposed Fredonia Commons Historic District Expansion, Fredonia (NRHP-Eligible, 22 resources)
- Proposed Central Avenue Historic District, Fredonia (NRHP-Eligible, 29 resources)
- Proposed East Main Street Historic District, Fredonia (NRHP-Eligible, 37 resources)
- Proposed Center Street Historic District, Forestville (NRHP-Eligible, 15 resources)
- Proposed Sheridan Historic District, Sheridan (NRHP-Eligible, 15 resources)

In addition to the resources identified in the *5-Mile Ring Study*, EDR noted several previously identified historic-architectural resources within the Project APE in the NYSOPRHP Cultural Resources Information System (CRIS) database. The “Previously Identified Historic-Architectural Resources” map (Figure 4) indicates the locations of historic-architectural resources identified during the 2009 architectural survey conducted in support of the DEIS (Tetra Tech, 2009b), as well as those resources identified through review of the Project APE using the CRIS database. A total of ten (10) resources and one proposed historic district (Center Street Historic District, Forestville) were identified in CRIS within the APE not accounted for in the *5-Mile Ring Study*. In addition, one resource identified in the 2009 survey (15 Main Street, Village of Forestville, USN 01352.000110) was found to be no longer standing since the survey.

It is worth noting that the 2009 historic-architectural survey used the Project layout for the DEIS, which differs from the SEIS and SEIS2 Project layouts. The DEIS and SEIS2 layouts, and associated 5-mile study areas, are included on Figure 4. The extents of the Project footprint, and therefore the extents of the associated 5-mile study area, for the current (SEIS2) Project layout are smaller than and within the study area for the historic-architectural resources survey (Figure 4). The majority of previously identified NRHP-eligible and NRHP-listed resources are located within the APE for the SEIS2. A total of eight (8) of the identified NRHP-eligible resources are located outside of the SEIS2 Project APE and would not be considered for potential impacts from the Project.

#### Historic Resources Visual Effects Analysis

Construction of the Project will not require the demolition or physical alteration of any buildings or other potential historic resources. No direct physical impacts to historic-architectural resources will occur as a result of the Project.

The Federal Regulations entitled “Protection of Historic Resources” (36 CFR 800) include in Section 800.5(2) a discussion of potential adverse effects on historic resources. The following types of effects apply to wind energy projects include:

“Adverse effects on historic properties include, but are not limited to: [items i-iii do not apply]; (iv) Change of the character of the property’s use or of physical features within the property’s setting that contribute to its historic significance; (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property’s significant historic features; [items vi-vii do not apply]” (CFR, 2004b).

The implementing regulations for New York State Parks, Recreation and Historic Preservation Law, Section 14.09 (9NYCRR §428.7) state:

- a. In determining whether an undertaking will have an adverse impact on eligible or register property, the commissioner shall consider whether the undertaking is likely to cause:
  1. destruction or alteration of all or part of the property;
  2. isolation or alteration of the property’s environment;
  3. introduction of visual, audible or atmospheric elements which are out of character with the property or alter its setting;
  4. neglect of the property resulting in its deterioration or destruction.

The Project’s potential effect on a given historic property would be a change (resulting from the introduction of wind turbines) in the property’s visual setting. As it pertains to historic properties, *setting* is defined as “the physical environment of a historic property” and is one of seven aspects of a property’s *integrity*, which refers to the “ability of a property to convey its significance” (NPS, 1990:44-45). The other aspects of integrity include location, design, materials, workmanship, feeling, and association (NPS, 1990). The potential effect resulting from the introduction of wind turbines into the visual setting for any historic or architecturally significant property is dependent on a number of factors including distance, visual dominance, orientation of views, viewer context and activity, and the types and density of modern features in the existing view (such as buildings/residences, overhead electrical transmission lines, cellular towers, billboards, highways, and silos).



It is worth noting that visibility of a project does not necessarily indicate that an adverse effect will occur. The New York State Department of Environmental Conservation (NYSDEC) guidance concerning visual impacts on aesthetic resources of statewide significance (which include NRHP-listed/eligible structures) defines significant aesthetic impacts as those “that may cause a diminishment of the public enjoyment and appreciation of an inventoried resources, or one that impairs the character or quality of such a place. Mere visibility, even startling visibility of a project proposal, should not be a threshold for decision making. Instead a project, by virtue of its visibility, must clearly interfere with or reduce the public’s enjoyment and/or appreciation of the appearance of an inventoried resource” (NYSDEC, 2000:5).

In addition, visual setting may not be an important factor contributing to a given property’s historical significance. For instance, in most cases rural residential and farmstead properties in New York are determined NRHP-eligible under NRHP Criterion C (i.e., they “embody the distinctive characteristics of a type, period, or method of construction” [CFR, 2004b]). These properties are typically determined NRHP-eligible because they are representative examples of vernacular nineteenth-century architectural styles that retain their overall integrity of design and materials. These properties would retain the characteristics that caused them to be recommended eligible after the introduction of wind turbines and/or a transmission line into their visual settings. For these types of resources, the potential change in the setting resulting from the Project will not necessarily result in diminished public enjoyment and appreciation of a given historic property, or impair its character or quality (per NYSDEC, 2000, see above).

The potential visibility of the Project from the identified historic resources within the study area is summarized in Attachment 1 and depicted in Figure 4. The number of turbines potentially visible from each historic property within the study area (considering the effects of screening provided by mapped forest vegetation) is listed in Attachment 1. The visual effects analysis shown on Figure 4 includes analysis of potential visibility of the Project in the daytime.

It is important to note that because screening provided by buildings and street/yard trees, as well as characteristics of the proposed turbines that influence visibility (color, narrow profile, distance from viewer, etc.), are not taken into consideration in the viewshed analyses, being within the viewshed does not necessarily equate to actual Project visibility. Field review of potential Project visibility conducted as part of the Visual Resource Assessment (VRA) (Saratoga, 2008) and Supplemental Visual Resource Assessment (SVRA) (Saratoga, 2009) for the Project verified that visual screening provided by existing buildings, yard trees, and other objects limit views of the Project from many areas where viewshed mapping suggests the Project is potentially visible, especially within village and hamlet settings. It is worth noting that while the VRA and SVRA were conducted using previous, obsolete Project layouts, the SEIS2 Project

area is contained within the areas surveyed as a part of these assessments, and therefore the findings of the VRA and SVRA are applicable to this visual effects analysis.

The visibility analysis presented in Attachment 1 includes the distance from each historic resource to the nearest turbine in the SEIS2 layout. Three distinct distance zones were defined in the Project's VIA, as follows:

- *Foreground:* 0 to 0.5 mile. At these distances, a viewer is able to perceive details of an object with clarity.
- *Middleground:* 0.5 to 3.0 miles. The middleground is usually the predominant distance at which landscapes are seen. At these distances a viewer can perceive individual structures and trees but not in great detail.
- *Background:* Over 3.0 miles. The background defines the broader regional landscape within which a view occurs.

As indicated in Attachment 1, views of the Project will be screened by topography and/or vegetation from 62 of the 170 resources and historic districts listed or eligible for the NRHP within the SEIS2 study area. There is one resource located less than 0.5-mile from the Project (i.e., where the Project would be a feature in the foreground) and there are 28 resources located between 0.5 and 3.0 miles from the Project (i.e., where the Project would be a feature in the middleground). The Project will be visible from only fifteen of these resources. In addition, there are 141 resources located more than 3.0 miles from the Project (i.e., resources where the Project would be a feature in the background) – 92 of these have potential views of the Project. In addition, 8 of the resources included in Attachment 1 are located beyond 5 miles, and therefore, outside the SEIS2 study area, but are listed due to their inclusion in the 2009 *5-Mile Ring Study*. None of these resources have potential views of the Project.

When characterizing Project visibility, there are a number of factors involved when analyzing the impact and compatibility of the Project with the existing environment. Some of the factors include: landscape setting, visible horizon, contrast and color, and scale. As described in the VRA (Saratoga, 2008) and Supplemental VRA (Saratoga, 2009), the Project will result in generally greater visual contrast from vantage points located close to the turbines, where the turbines appear larger, and that provide relatively open views that feature multiple turbines. The potential visual effect of the Project on the visual setting associated with historic resources will generally be greater for resources where the Project is featured in the foreground and/or near middleground (i.e., within approximately two miles) of the view.

However, the actual visibility of the Project from these resources varies in terms of the number of turbines potentially visible and the extent of existing screening at each site.

One historic resource (the Arkwright Grange, 2667 Route 83, Town of Arkwright) recommended to be NRHP-eligible is located within 0.5 miles of the proposed turbines, and will feature turbines in the foreground of views of and from the site. In addition, there are twelve historic resources identified in the 2009 *5-Mile Ring Study* that are located between 0.5 and 2.0 miles of the Project, which will provide near middleground views of the Project. The visual impact of the Project will generally be more apparent from these properties because the turbines will appear larger and may be perceived as out of context compared to other features in the existing landscape.

From background distances (i.e., beyond three miles), the perceived visual impact becomes less due to increasing distance and screening by topography, tree lines, and structures. As shown in the viewshed analysis, the number of locations with potential views of the turbines is much less compared to the areas with potential middleground and foreground views. In addition, weather conditions such as haze and cloud cover (when applicable) are more likely to obscure views of the turbines at these distances.

#### Visual Simulations

In review correspondence dated March 9, 2009 and October 13, 2009, NYSOPRHP indicated that they had identified several key loci where visual impacts should be carefully assessed, including the villages of Fredonia, Sheridan, and Forestville, and the Hamlet of Hamlet, and recommended that visual simulations (or similar analyses) be created to better understand the full extent of the potential visual impacts associated with the Project. To show anticipated visual changes associated with the proposed project, high-resolution computer-enhanced image processing was used to create realistic photographic simulations of the completed Project from each of the areas identified by NYSOPRHP (see Figure 5). The photographic simulations were developed using a three-dimensional computer model of the proposed wind turbine created by EDR based on information provided by Arkwright Summit Wind Farm, LLC.

The locations of visual simulations are indicated on Figure 4 (Sheets 1-5), and the complete set of photographic simulations developed for this project is provided as Figure 5 (Sheets 1-6). From some of the vantage points identified by NYSOPRHP, the proposed Project will be screened by existing buildings and/or vegetation. In these instances, the simulations included in Figure 5 depict a color overlay of the accurate location and scale of the turbines, if the turbines were actually visible from those locations. These renderings are included to illustrate the effect that screening provided by vegetation, topography and/or buildings has on Project visibility from some of the locations indicated by

NYSOPRHP. An analysis of the Project's potential visual impacts on the areas identified by NYSOPRHP, based on the simulations as well as field observation, is provided below.

#### *Village of Fredonia*

The Village of Fredonia is located approximately 3.6 miles northwest of the Project site, and includes several NRHP-Eligible and NRHP-Listed properties, primarily clustered around the core of the village. The Fredonia Commons Historic District is comprised of 25 contributing resources (primarily nineteenth century commercial buildings) located primarily along East Main Street, and extending north to include some buildings surrounding the village common. Although the viewshed analysis in Figure 4 indicates considerable Project visibility, field review indicates that views toward the Project from within the historic district and historic core of the village are heavily to completely screened by buildings (see Insets 1-2). There are minimal opportunities within the historic district for any potential open views toward the Project, mostly available from streets radiating south from Main Street. The simulation prepared from the corner of Main and Water Streets indicates that views from the historic district toward the Project are completely screened by topography, vegetation and/or buildings (Figure 5, Sheet 1).



**Inset 1. Fredonia Commons Historic District, Village of Fredonia, Main Street, view to the southwest (left)**

**Inset 2. Fredonia Commons Historic District, Village of Fredonia, Main Street, view to the southeast (right)**

#### *Village of Sheridan*

The Village of Sheridan is located approximately 3.9 miles north of the Project site and is primarily residential in character with some commercial activity located along U.S. Route 20/Main Street. The proposed Sheridan Historic District is comprised of 15 contributing resources (primarily late nineteenth century residences) located along U.S. Route 20, west of Center Road. Although the viewshed analysis in Figure 4 indicates moderate potential Project visibility within the proposed historic district, field review indicates that views toward the Project from within the historic

district are significantly screened by buildings and vegetation (see Insets 3-4). The simulation prepared from Center Road, adjacent to the NRHP-eligible Sheridan Cemetery is the most open view of the Project near the proposed historic district. The simulation indicates that while views of some wind turbines are available above the tree line, (Figure 5, Sheet 2), the majority of the turbines are screened by topography and/or vegetation (Figure 5, Sheet 3).



**Inset 3. Proposed Sheridan Historic District, Village of Sheridan, West Main Street, view to the northwest (left)**

**Inset 4. Proposed Sheridan Historic District, Village of Sheridan, West Main Street, view to the southeast (right)**

#### *Village of Forestville*

The Village of Forestville is located approximately 3.4 miles northeast of the Project site. The village is comprised of a central commercial district along a divided street (Main Street), with residences located along roads radiating out from the commercial district. Several NRHP-eligible resources are located within and immediately adjacent to the commercial district. Although the viewshed analysis in Figure 4 indicates moderate potential Project visibility within the village commercial district, field review indicates that views toward the Project from within the historic district are heavily screened by buildings and vegetation (see Insets 5-6). The potential for any open views toward the Project within the commercial district is minimal.





**Inset 5. Proposed East Main Street Historic District, Village of Forestville, Main Street, view to the west (left)**  
**Inset 6. Proposed East Main Street Historic District, Village of Forestville, Main Street, view to the east (right)**

The simulation prepared from the corner of Main and Prospect Streets is representative of Project visibility within the commercial district of the Village of Forestville. The simulation indicates that views will be completely screened by buildings within the historic core of the village (Figure 5, Sheet 4). The viewshed analysis presented in Figure 4 also indicates potential areas of visibility in Forestville within the proposed Center Street Historic District, as well as along Cedar Street. Field review indicated that views along Center Street were likely to be completely screened by vegetation and buildings (see Insets 7-8). While the viewshed analysis also indicates potential areas of visibility along Cedar Street, field review indicated that views would likely be screened by vegetation. The simulation prepared from Cedar Street demonstrates that views from this location toward the Project will be screened by topography, vegetation, and/or buildings (Figure 5, Sheet 5).



**Inset 7. Proposed Center Street Historic District, Village of Forestville, view to the south (left)**  
**Inset 8. Proposed Center Street Historic District, Village of Forestville, view to the north (right)**



### *Hamlet of Hamlet*

The Hamlet of Hamlet is located approximately 2.8 miles east-southeast of the Project site, and is characterized by a few residences and religious buildings clustered around the intersection of New York State 83 and County Route 72. Multiple NRHP-eligible resources are located within the hamlet. The viewshed analysis in Figure 4 indicates minimal to no Project visibility within the hamlet, and moderate potential Project visibility along Route 83 and Route 72 west of the hamlet. Field review confirmed the viewshed analysis, and indicated that views would likely be completely screened by vegetation and buildings (see Insets 9-10). The simulation prepared from New York State Route 83 demonstrates that views from this location toward the Project will be completely screened by vegetation, and/or buildings (Figure 5, Sheet 6). Open views toward the Project are not likely to be available.



**Inset 9. Hamlet of Hamlet, New York State Route 83, view to the west (left)**



**Inset 10. Hamlet of Hamlet, New York State Route 83, view to the west-southwest (right)**

### Conclusion

The APE for the current SEIS2 Project layout is located entirely within the APE for the Project as presented in the DEIS, and therefore, the study area of the previous *5-Mile Ring Study* (Tetra Tech, 2009b). No new areas of potential Project visibility are included within the APE of the SEIS2 layout. In addition, the number of turbines included in the SEIS2 layout has been reduced from 44 to 36, thereby decreasing the potential for visibility from historic resources previously listed on or determined to be eligible for the NRHP. Therefore, it is the opinion of EDR that no further historic resources surveys need to be conducted for the Arkwright Summit Wind Farm.

Per Section 14.09 of the New York State Parks, Recreation, and Historic Preservation Law, the “introduction of visual, audible, or atmospheric elements which are out of character with [a historic property] or alter its setting” needs to be considered when determining whether an undertaking will have an adverse impact on historic resources (9NYCRR §428.7). The Project’s potential effect on historic resources would be a change (resulting from the introduction of wind

turbines) in the visual setting associated with a given historic resource. The potential effect of the Project on the visual setting associated with historic resources is highly variable, and is dependent on a number of factors including the distance to the project, the number of visible turbines, the extent to which the Project is screened or partially screened by buildings, trees, or other objects, and the amount of existing visual clutter and/or modern intrusions in the view. It is also worth noting that visual setting may or may not be an important factor contributing to a given property's historical significance.

In review correspondence dated March 9, 2009, NYSOPRHP stated that the Project would result in an indirect (visual) adverse effect on historic properties and that mitigation measures need to be considered. The reduction of the number of proposed turbines and corresponding reduced size of the visual study area does serve to reduce the potential visual impact of the Project. However, the results of the visual analysis described herein indicate that the overall effect of the Project in historic resources will be generally the same as that described in the previously prepared SEIS for the Project. Therefore, NYSOPRHP's determination of an adverse effect remains valid for the current configuration of the Project.

Mitigation options are limited, given the nature of the Project and its siting criteria (very tall structures typically located at the highest locally available elevations). Mitigation for impacts to historic properties therefore typically consist of projects that benefit historic properties and/or the public's appreciation of historic resources to offset potential impacts to historic properties resulting from the introduction of wind turbines into their visual setting. Mitigation projects that have been proposed for other wind energy projects in New York State have included activities such as additional historic resources surveys, NRHP nominations, monetary contributions to historic property restoration causes, development of heritage tourism promotional materials, development of educational materials and lesson plans, and development of public history materials, such as roadside markers.

As part of consultation with NYSOPRHP for the DEIS and SEIS, the Applicant had previously defined mitigation projects to address the impacts to cultural resources posed by the Project. In correspondence dated August 25, 2009, the Applicant indicated that consultations with the Town Supervisor and Town Historian of the Town of Arkwright had defined the following proposed mitigation actions related to two cemeteries in the Town of Arkwright, totaling \$102,000:

- Replication of degraded sections of the historic Christian Cemetery fence, at a cost not to exceed \$60,000
- Stabilization or restoration of up to 70 selected grave markers at the town-owned Christian Cemetery, at a cost not to exceed \$20,500

- Stabilization or restoration of up to 35 selected grave markers at the town-owned Cowden's Corners Cemetery, at a cost not to exceed \$10,500
- Creation of a Cemetery Preservation and Maintenance Fund of \$10,000
- Undertaking a boundary survey of the Christian Cemetery to determine the relationship between the boundaries of the lot and cemetery fence, at a cost not to exceed \$1000

Additional outreach to other municipalities located within the Project APE did not yield any proposed mitigation actions. In review correspondence dated September 20, 2010, NYSOPRHP indicated their approval of this proposed mitigation plan, and expressed that the Applicant should continue to work with any communities that expressed an interest in potential mitigation projects.

To mitigate the Project's adverse effect on historic resources, the Applicant intends to enter into an agreement with the Town of Arkwright to fund the historic preservation projects described above.

If you have any questions about the information presented herein or would like to discuss the Project further, please contact Grant Johnson at [gjohnson@edrdpc.com](mailto:gjohnson@edrdpc.com) or Patrick Heaton at [pheaton@edrdpc.com](mailto:pheaton@edrdpc.com) – both of whom are also reachable at (315) 471-0688.

#### **Attachments:**

Attachment 1. Historic Resources Visual Effects Analysis Table

- Figure 1. Regional Project Location
- Figure 2. Revised Project Layout
- Figure 3. Project Layout Comparison
- Figure 4. Historic Resources Visual Effects Analysis
- Figure 5. Visual Simulations

## List of References:

Bonafide, John. 2008. Re: SEQRA, New Grange Wind Farm, Arkwright, Chautauqua County, 08PR00564. Review Correspondence from John Bonafide (NYSOPRHP) to Daniel Spitzer (Hodgson Russ, LLP). New York State Office of Parks, Recreation, and Historic Preservation, Waterford, NY. February 4, 2008.

Bonafide, John. 2009a. Re: ACOE/SEQRA, Arkwright Summit Wind Farm (Former New Grange Wind Farm), Arkwright, Chautauqua County, 08PR00564. Review Correspondence from John Bonafide (NYSOPRHP) to Thomas Stebbins (Horizon Wind Energy). New York State Office of Parks, Recreation, and Historic Preservation, Waterford, NY. March 9, 2009.

Bonafide, John. 2009b. Re: ACOE/SEQRA, Arkwright Summit Wind Farm, Arkwright, Chautauqua County, 08PR00564. Review Correspondence from John Bonafide (NYSOPRHP) to Thomas Stebbins (Horizon Wind Energy). New York State Office of Parks, Recreation, and Historic Preservation, Waterford, NY. October 13, 2009.

Bonafide, John. 2010a. Re: ACOE/SEQRA, Arkwright Summit Wind Farm, Arkwright, Chautauqua County, 08PR00564. Review Correspondence from John Bonafide (NYSOPRHP) to Thomas Stebbins (Horizon Wind Energy). New York State Office of Parks, Recreation, and Historic Preservation, Waterford, NY. April 23, 2010.

Bonafide, John. 2010b. Re: ACOE/SEQRA, Arkwright Summit Wind Farm, Arkwright, Chautauqua County, 08PR00564. Review Correspondence from John Bonafide (NYSOPRHP) to Thomas Stebbins (Horizon Wind Energy). New York State Office of Parks, Recreation, and Historic Preservation, Waterford, NY. September 20, 2010.

Code of Federal Regulations (CFR). 2004a. 36 CFR 800 – Protection of Historic Properties [incorporating amendments effective August 5, 2004]. <http://www.achp.gov/regs-rev04.pdf>.

CFR. 2004b. Title 36 - Parks, Forests, and Public Property, Chapter I - National Park Service, Department of the Interior, Part 60 - National Register of Historic Places, Section 60.4 - Criteria For Evaluation. [http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title36/36cfr60\\_main\\_02.tpl](http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title36/36cfr60_main_02.tpl).

National Park Service (NPS). 1990. *How to Apply the National Register of Historic Places Criteria for Evaluation*. National Register Bulletin No. 15. National Register Branch, National Park Service, U.S. Department of the Interior, Washington, D.C. <http://www.nps.gov/nr/publications/bulletins/pdfs/nrb15.pdf>.

New York State Department of Environmental Conservation (NYSDEC). 2000. *Assessing and Mitigating Visual Impacts*. Program Policy DEP-00-2. Division of Environmental Permits, New York State Department of Environmental Conservation, Albany, NY.

New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP). 2006. *New York State Historic Preservation Office Guidelines for Wind Farm Development Cultural Resources Survey Work*. New York State Office of Parks, Recreation, and Historic Preservation, Waterford, New York.

Park, Yvonne. 2010. Re: Town of Arkwright Mitigation Cultural Project. Correspondence from Yvonne Park (Town of Villenova supervisor) to Tom Stebbins (Horizon Wind Energy). May 20, 2010.

Saratoga Associates (Saratoga). 2008. *New Grange Wind Farm Visual Resource Assessment*. February 2008. Saratoga Associates, Saratoga Springs, NY.

Saratoga. 2009. *Arkwright Summit Wind Farm Supplemental Visual Resource Assessment*. March 2009. Saratoga Associates, Saratoga Springs, NY.

Stebbins, Thomas. 2009a. Re: Arkwright Summit Wind Project, proposed Actions to Mitigate, Adverse Effect to Above Ground Cultural Resources and Rural Landscape. Correspondence from Thomas Stebbins (Horizon Wind Energy) to Daniel Spitzer (Hodgson Russ LLP). August 25, 2009.

Stebbins, Thomas. 2009b. Correspondence from Thomas Stebbins (Horizon Wind Energy) to John Bonafide (NYSOPRHP). September 23, 2009.

Stebbins, Thomas. 2009c. Correspondence from Thomas Stebbins (Horizon Wind Energy) to John Bonafide (NYSOPRHP). November 2, 2009.

Stebbins, Thomas. 2010a. Re: Arkwright Summit Mitigation Plan. Email correspondence from Thomas Stebbins (Horizon Wind Energy) to John Bonafide (NYSOPRHP). March 1, 2010.

Stebbins, Thomas. 2010b. Correspondence from Thomas Stebbins (Horizon Wind Energy) to Yvonne Park (Town of Villenova supervisor). May 18, 2010.

Stebbins, Thomas. 2010c. Correspondence from Thomas Stebbins (Horizon Wind Energy) to Yvonne Park (Town of Villenova supervisor). July 28, 2010.

Stebbins, Thomas. 2010d. Correspondence from Thomas Stebbins (Horizon Wind Energy) to John Bonafide (NYSOPRHP). September 9, 2010.

Tetra Tech, Inc. (Tetra Tech). 2008a. *Draft Environmental Impact Statement: New Grange Wind Farm, LLC*. January 2008. Tetra Tech, Inc., Buffalo, New York.

Tetra Tech. 2008b. *Phase I Cultural Resources Investigation Report: New Grange Wind Farm Project: Town of Arkwright, Chautauqua County, New York*. January 2008. Tetra Tech, Buffalo, New York.

Tetra Tech. 2008c. Re: Discussion of Architectural Survey for New Grange Wind Farm Project. Call notes for discussion between James Sexton (Tetra Tech) and Daniel McEneny (NYSOPRHP). June 17, 2008.

Tetra Tech. 2008d. Re: New Grange Wind Farm, Towns of Arkwright and Pomfret, Chautauqua County, New York. Correspondence from Sydne B. Marshall (Tetra Tech) to Daniel McEneny (NYSOPRHP). June 26, 2008.

Tetra Tech. 2008e. Re: New Grange Wind Farm. Teleconference notes for discussion between James Sexton, Rob Mitchell and Sydne Marshall (Tetra Tech); Tom Stebbins (Horizon Wind Energy); and John Bonafide and Daniel McEneny (NYSOPRHP). July 17, 2008.

Tetra Tech. 2008f. Re: New Grange Wind Farm Historical Architecture Survey – Dunkirk and Fredonia. Call notes for discussion between James Sexton (Tetra Tech) and Daniel McEneny (NYSOPRHP). July 28, 2008.

Tetra Tech. 2008g. Re: New Grange Wind Farm – Lily Dale Spiritualist Assembly. Call notes for discussion between James Sexton (Tetra Tech) and Daniel McEneny (NYSOPRHP). August 6, 2008.

Tetra Tech. 2009a. *Supplemental Environmental Impact Statement: Proposed Arkwright Summit Wind Farm Project, Town of Arkwright, Chautauqua County, New York*. Tetra Tech, Inc., Buffalo, New York.

Tetra Tech. 2009b. *Historic Architectural Resources Investigation 5-Mile Ring Study: Arkwright Summit Wind Farm, Towns of Arkwright, Charlotte, Cherry Creek, Dunkirk, Hanover, Pomfret, Sheridan, Stockton, and Villenova, The Villages of Cassadaga, Fredonia and Forestville, and the City of Dunkirk, Chautauqua County, New York, OPRHP 08PRO564*. February 2009. Tetra Tech, Inc., Buffalo, New York.



**Attachment 1. Historic Resources Visual Effects Analysis Table**

<b>Site Identifier</b>	<b>National Register Eligible Property</b>	<b>National Register Eligibility Determination</b>	<b>Distance to Nearest Turbine (miles)</b>	<b># of Turbines Visible (per blade tip viewshed - daytime)</b>
93NR00464	Fredonia Grange #1	NRHP-Listed Site	3.4	32
90NR00115	Fredonia Commons Historic District	NRHP-Listed Site	3.6	32
90NR00116	US Post Office - Fredonia	NRHP-Listed Site	3.7	31
12SD000590	East Main Street Historic District	NRHP-Eligible Historic District	3.4	30
12SD000591	Fredonia Commons Historic District Expansion	NRHP-Eligible Historic District	3.4	32
NA	Sheridan Historic District	NRHP-Eligible Historic District	3.9	28
NA	Proposed Central Avenue Historic District	NRHP-Eligible Historic District	3.9	19
1352.000127	Center Street Historic District	NRHP-Eligible Historic District	4.1	29
01301.000024	Arkwright Grange (c. 1900), 2667 Route 83	NRHP-Eligible	0.4	6
01301.000033	Farmstead (c. 1850), 8903 Farrington Hollow Road	NRHP-Eligible	0.6	24
01301.000034	Arkwright Summit Cemetery	NRHP-Eligible	0.7	31
01301.000027	Farm Complex c. 1870 Barns & Pre-Civil War House	NRHP-Eligible	0.9	24
01301.000032	Burnham Hollow Cemetery	NRHP-Eligible	1.2	0
01301.000030	Residence (c. 1840), 2151 Bard Road	NRHP-Eligible	1.2	0
01301.000031	Residence (c. 1880), 2391 Bard Road	NRHP-Eligible	1.2	0
01301.000037	Cowdens Corner Cemetery	NRHP-Eligible	1.4	7
01301.000023	Rose Farm (c. 1870)	NRHP-Eligible	1.4	0
01323.000062	Residence (c. 1890), 2775 South Roberts Road	NRHP-Eligible	1.6	0
01323.000059	Residence (c. 1910), 3171 South Roberts Road	NRHP-Eligible	1.7	0
01323.000057	Residence (c. 1890), 3300 South Roberts Road	NRHP-Eligible	1.8	18
01323.000058	Residence (c. 1910), 3230 South Roberts Road	NRHP-Eligible	1.8	18
01301.000022	Residence (c.1847), 8129 Griswold Road	NRHP-Eligible	2.1	0
01323.000029	Burr-Goulding House	NRHP-Eligible	2.3	19
01323.000056	Residence (c. 1840, 1900), 10620 West Sheridan Drive	NRHP-Eligible	2.3	20
01323.000055	Residence (c. 1850), 3484 Route 20	NRHP-Eligible	2.4	20

Site Identifier	National Register Eligible Property	National Register Eligibility Determination	Distance to Nearest Turbine (miles)	# of Turbines Visible (per blade tip viewshed - daytime)
01320.000038	Residence (c. 1875), 3728 Route 83	NRHP-Eligible	2.4	0
01320.000040	Residence (c. 1875), 9761 Route 60	NRHP-Eligible	2.4	22
01323.000054	School No. 8 (c. 1885)	NRHP-Eligible	2.4	20
01320.000041	St. Anthony's Cemetery	NRHP-Eligible	2.4	0
01320.000039	Laona Cemetery	NRHP-Eligible	2.5	0
01320.000036	Residence (c. 1890), 9453 Route 60	NRHP-Eligible	2.5	0
01320.000037	Residence (c. 1890), 9460 Route 60	NRHP-Eligible	2.5	0
01326.000080	Residence (c. 1865-1890), 1394 Route 83	NRHP-Eligible	2.6	12
01326.000081	Hamlet Cemetery	NRHP-Eligible	2.8	16
01342.000004	Jones Mitchell House	NRHP-Eligible	2.9	0
01342.000222	Residential 1840-1865	NRHP-Eligible	2.9	19
01323.000060	West Sheridan Cemetery	NRHP-Eligible	2.9	22
01326.000084	Hamlet United Methodist Church (c. 1875)	NRHP-Eligible	3.1	0
01326.000083	Independent Order of Odd Fellows Lodge (c. 1890-1920)	NRHP-Eligible	3.1	0
01304.002063	Luce Hill Cemetery	NRHP-Eligible	3.1	3
01326.000071	Pope Hill Cemetery	NRHP-Eligible	3.1	1
01326.000041	Residence (c. 1840), 1141 NY 83	NRHP-Eligible	3.1	0
01342.000289	Residential (c. 1910)	NRHP-Eligible	3.1	7
01326.000075	Villanova Grange Hall/South Dayton Grange Hall	NRHP-Eligible	3.1	0
01342.000138	Italianate-Style Brick House	NRHP-Eligible	3.2	8
01342.000139	Italianate-Style Brick House	NRHP-Eligible	3.2	26
01323.000061	Residence (c. 1890), 3035 Route 20	NRHP-Eligible	3.2	25
01326.000085	School/Residence (c. 1881)	NRHP-Eligible	3.2	0
01342.000228	Residential (c. 1909)	NRHP-Eligible	3.3	28
01342.000226	Residential (c. 1865-1890)	NRHP-Eligible	3.3	26
01342.000290	Residential (c. 1890-1920)	NRHP-Eligible	3.3	28

Site Identifier	National Register Eligible Property	National Register Eligibility Determination	Distance to Nearest Turbine (miles)	# of Turbines Visible (per blade tip viewshed - daytime)
01342.000227	St. Anthony's Roman Catholic Church	NRHP-Eligible	3.3	26
01342.000217	Residence (c. 1840-1865)	NRHP-Eligible	3.4	0
01342.000216	Residential (c. 1890-1920)	NRHP-Eligible	3.4	21
01323.000044	Residence, 2909 Route 20	NRHP-Eligible	3.5	28
01323.000045	Residence, 2912 Route 20	NRHP-Eligible	3.5	0
01342.000218	Residential (c. 1890-1920)	NRHP-Eligible	3.5	0
01342.000230	Residential (c. 1840-1865)	NRHP-Eligible	3.5	29
01342.000231	Residential (c. 1865-1890)	NRHP-Eligible	3.5	30
01342.000248	Residential (c. 1865-1890)	NRHP-Eligible	3.5	28
01342.000229	Residential (c. 1890-1920)	NRHP-Eligible	3.5	30
01342.000232	Residential (c. 1890-1920)	NRHP-Eligible	3.5	30
01342.000233	Residential (c. 1890-1920)	NRHP-Eligible	3.5	30
01342.000234	Residential (c. 1890-1920)	NRHP-Eligible	3.5	30
01342.000249	Residential (c. 1890-1920)	NRHP-Eligible	3.5	28
01342.000288	Residential (c. 1890-1920)	NRHP-Eligible	3.5	28
01342.000287	Residential (c. 1910)	NRHP-Eligible	3.5	30
01352.000102	Commercial (c. 1860), 9 Water Street	NRHP-Eligible	3.6	5
01342.000291	Forest Hill Cemetery	NRHP-Eligible	3.6	0
01342.000219	Residential (c. 1840-1865)	NRHP-Eligible	3.6	0
01342.000235	Residential (c. 1865-1890)	NRHP-Eligible	3.6	31
01342.000286	Residential (c. 1840-1865)	NRHP-Eligible	3.6	29
01301.000029	Christian Cemetery	NRHP-Eligible	3.7	4
01342.000012	College Performing Arts Center	NRHP-Eligible	3.7	31
01342.000220	Residential (c. 1840-1865)	NRHP-Eligible	3.7	0
01342.000236	Residential (c. 1840-1865)	NRHP-Eligible	3.7	31
01342.000237	Residential (c. 1840-1865)	NRHP-Eligible	3.7	31

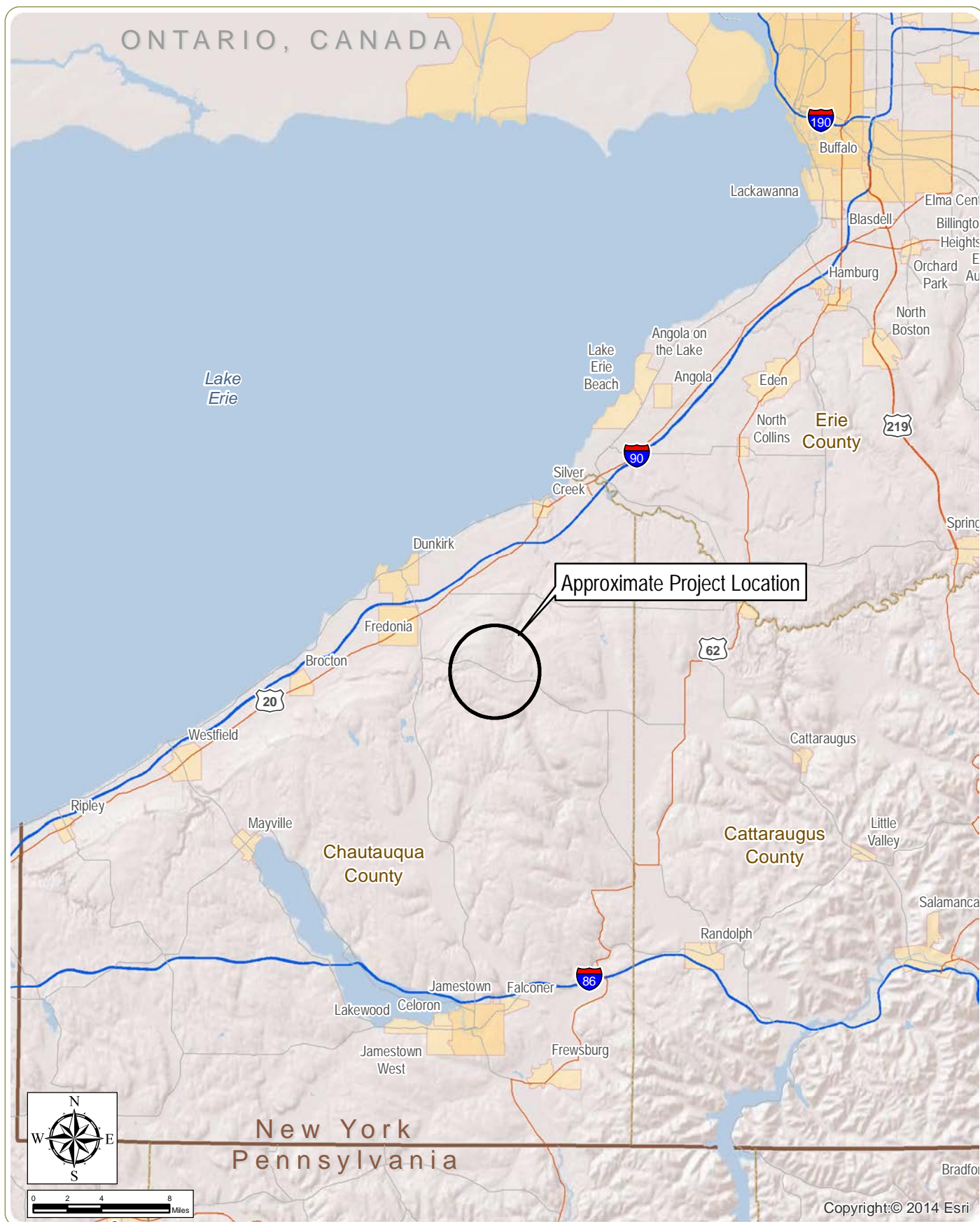
Site Identifier	National Register Eligible Property	National Register Eligibility Determination	Distance to Nearest Turbine (miles)	# of Turbines Visible (per blade tip viewshed - daytime)
01342.000221	Residential (c. 1890-1920)	NRHP-Eligible	3.7	10
01342.000137	Abner Clark House (Greek Revival)	NRHP-Eligible	3.8	19
01352.000103	Cyrus D. Angell House (c. 1830)	NRHP-Eligible	3.8	0
01342.000052	Dunkirk-Fredonia Telephone Co Bldg.	NRHP-Eligible	3.8	31
01314.000089	Forestville Cemetery (Prospect)	NRHP-Eligible	3.8	0
01352.000104	Forestville M.E. Church (c. 1861)	NRHP-Eligible	3.8	28
01352.000065	Residence (c. 1812), 43 Main Street	NRHP-Eligible	3.8	0
01342.000053	Chamber of Commerce	NRHP-Eligible	3.9	32
01352.000106	Commercial (c. 1870), 25 Main Street	NRHP-Eligible	3.9	23
01352.000105	Commercial (c. 1870), 27 Main Street	NRHP-Eligible	3.9	22
01352.000108	Commercial (c. 1875), 3 Prospect Street	NRHP-Eligible	3.9	31
01342.000045	Dr. Franklin Oriental Water Cure Building	NRHP-Eligible	3.9	31
01352.000107	Forestville Baptist Church (c. 1855)	NRHP-Eligible	3.9	29
01342.000055	Fredonia Normal School	NRHP-Eligible	3.9	32
01308.000023	Holy Trinity Cemetery	NRHP-Eligible	3.9	0
01352.000112	Residence (c. 1865-1890), 1 Lodi Street	NRHP-Eligible	3.9	30
01352.000111	Residence (c. 1865-1890), 2 Prospect Street	NRHP-Eligible	3.9	30
01352.000109	Residence (c. 1900), 1 Prospect Street	NRHP-Eligible	3.9	31
01342.000238	Residential (c. 1851)	NRHP-Eligible	3.9	32
01342.000224	Residential (c. 1840-1865)	NRHP-Eligible	3.9	32
01342.000250	Residential (c. 1865)	NRHP-Eligible	3.9	31
01342.000223	Residential (c. 1890-1920)	NRHP-Eligible	3.9	32
01323.000073	Sheridan Cemetery	NRHP-Eligible	3.9	0
01308.000021	St. Hegwig's Cemetery	NRHP-Eligible	3.9	19
01352.000101	Commercial (c. 1860), 2 Pearl Street	NRHP-Eligible	4.0	30
01342.000136	Frame Italianate-Style House	NRHP-Eligible	4.0	17

Site Identifier	National Register Eligible Property	National Register Eligibility Determination	Distance to Nearest Turbine (miles)	# of Turbines Visible (per blade tip viewshed - daytime)
01352.000010	Hose House (c. 1896)	NRHP-Eligible	4.0	0
01323.000081	Residence (c. 1890), 2679 Route 20	NRHP-Eligible	4.0	28
01352.000072	Residence (c. 1890), 4 Pearl Street	NRHP-Eligible	4.0	28
01349.000015	Residence (c. 1910), 8999 Glasgow Road	NRHP-Eligible	4.0	38
01342.000283	Residential (c 1866/1916)	NRHP-Eligible	4.0	24
01342.000239	Residential (c. 1840-1865)	NRHP-Eligible	4.0	32
01342.000280	Residential (c. 1840-1865)	NRHP-Eligible	4.0	0
01342.000281	Residential (c. 1890-1920)	NRHP-Eligible	4.0	10
01342.000282	Residential (c. 1890-1920)	NRHP-Eligible	4.0	0
01342.000093	SUNY Fredonia, Alumni House (Awald House)	NRHP-Eligible	4.0	0
01342.000094	SUNY Fredonia, Fenner House	NRHP-Eligible	4.0	0
01323.000080	Commercial (c. 1900), 2684 Route 20	NRHP-Eligible	4.1	28
01352.000098	Residence (c. 1860), 13 Cedar Street	NRHP-Eligible	4.1	14
01352.000113	Residence (c. 1865-1890), 21 Pearl Street	NRHP-Eligible	4.1	0
01323.000082	Residence (c. 1900), 2678 Route 20	NRHP-Eligible	4.1	28
01323.000083	Residence (c. 1910), 2633 Route 20	NRHP-Eligible	4.1	27
01342.000284	Residential (c. 1865-1890)	NRHP-Eligible	4.1	30
01342.000285	Residential (c. 1899)	NRHP-Eligible	4.1	0
01342.000240	Residential (c. 1840-1865)	NRHP-Eligible	4.1	0
01342.000244	Residential (c. 1850)	NRHP-Eligible	4.1	15
01342.000241	Residential (c. 1875)	NRHP-Eligible	4.1	0
01342.000245	Residential (c. 1885)	NRHP-Eligible	4.1	2
01352.000114	Sherman House (c. 1860)	NRHP-Eligible	4.1	12
01308.000022	St. Mary's Cemetery	NRHP-Eligible	4.1	28
01342.000293	SUNY Fredonia, Fenton Hall	NRHP-Eligible	4.1	0
01342.000095	SUNY Fredonia, President's Residence	NRHP-Eligible	4.1	0

Site Identifier	National Register Eligible Property	National Register Eligibility Determination	Distance to Nearest Turbine (miles)	# of Turbines Visible (per blade tip viewshed - daytime)
01326.000069	Forestville Wesleyan Church Complex c. 1858, Includes Cemetery & School	NRHP-Eligible	4.2	15
01323.000084	Residence (c. 1890), 2621 Route 20	NRHP-Eligible	4.2	30
01342.000242	Residential (c. 1840-1865)	NRHP-Eligible	4.2	3
01342.000243	Residential (c. 1890-1920)	NRHP-Eligible	4.2	5
01342.000211	Residential (c. 1920)	NRHP-Eligible	4.2	0
01342.000006	William Risley House	NRHP-Eligible	4.2	22
01341.000279	Chautauqua County Fairgrounds	NRHP-Eligible	4.3	1
01352.000100	Residence (c. 1870), 28 Center Street	NRHP-Eligible	4.3	0
01342.000225	Residential (c. 1843)	NRHP-Eligible	4.3	0
01342.000213	Residential (c. 1840-1860)	NRHP-Eligible	4.3	0
01342.000212	Residential (c. 1865-1890)	NRHP-Eligible	4.3	30
01323.000085	School No. 9 (c. 1840-1865)	NRHP-Eligible	4.3	31
01342.000247	SUNY Fredonia, Gregory Hall	NRHP-Eligible	4.3	27
01342.000092	SUNY Fredonia, Mason Hall	NRHP-Eligible	4.3	17
01314.000092	Swift Cemetery	NRHP-Eligible	4.3	0
01342.000135	Frame Italianate-Style House	NRHP-Eligible	4.4	3
01352.000116	Residence (Italianate, c. 1890), 7 Third Street	NRHP-Eligible	4.4	22
01342.000246	Residential (c. 1865-1890)	NRHP-Eligible	4.4	0
01320.000035	Former Pomfret School No. 16 (c.1890)	NRHP-Eligible	4.5	14
01314.000072	Residence (c. 1840), 1411 NY 39	NRHP-Eligible	4.5	0
01326.000086	Residence (c. 1840-1865), 691 Route 83	NRHP-Eligible	4.5	0
01342.000214	Residential (c. 1890-1920)	NRHP-Eligible	4.5	0
01341.000309	Willowbrook Park Cemetery	NRHP-Eligible	4.5	0
01341.000020	Chas. A. Widman House	NRHP-Eligible	4.6	28
01349.000019	Residence (c. 1900), 60 High Street	NRHP-Eligible	4.6	12
01341.000049	Public School No. 3	NRHP-Eligible	4.7	28



Site Identifier	National Register Eligible Property	National Register Eligibility Determination	Distance to Nearest Turbine (miles)	# of Turbines Visible (per blade tip viewshed - daytime)
01342.000215	Residential (c. 1890-1920)	NRHP-Eligible	4.7	0
01314.000090	Forestville Pioneer Cemetery	NRHP-Eligible	4.8	1
01349.000018	Residence (c. 1860), 35 North Main Street	NRHP-Eligible	4.8	0
01349.000016	Residence (c. 1865), 60 North Main Street	NRHP-Eligible	4.8	0
01349.000017	Residence (c. 1890-1920), 31 North Main Street	NRHP-Eligible	4.8	0
01341.000308	Altech Specialty Steel - Commercial/Factory (c. 1957)	NRHP-Eligible	4.9	31
01314.000091	Residence (c. 1840), 11051 Bennett State Road	NRHP-Eligible	4.9	3
01326.000087	Villanova Cemetery	NRHP-Eligible	4.9	6
01323.000053	Residence (c. 1860), 2248 Route 20	NRHP-Eligible	5.1	0
01304.002062	Pickett Cemetery	NRHP-Eligible	5.2	0
01326.000068	Farm Complex (c. 1860), 8562 NY 83	NRHP-Eligible	5.5	0
01304.002064	Residence (c. 1875), 2726 Hooker Road	NRHP-Eligible	5.5	0
01304.002065	Charlotte Center Cemetery	NRHP-Eligible	5.6	0
01304.002066	Charlotte Center Church	NRHP-Eligible	5.6	0
01326.000067	Farm Complex (c. 1920), 8025 NY 83	NRHP-Eligible	5.9	0
01304.002067	Farmstead (c. 1865-1890), 6749 Charlotte Center Road	NRHP-Eligible	6.2	0



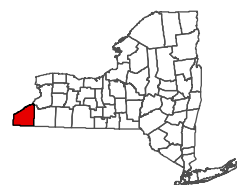
## Arkwright Summit Wind Farm

Towns of Arkwright and Pomfret - Chautauqua County, New York

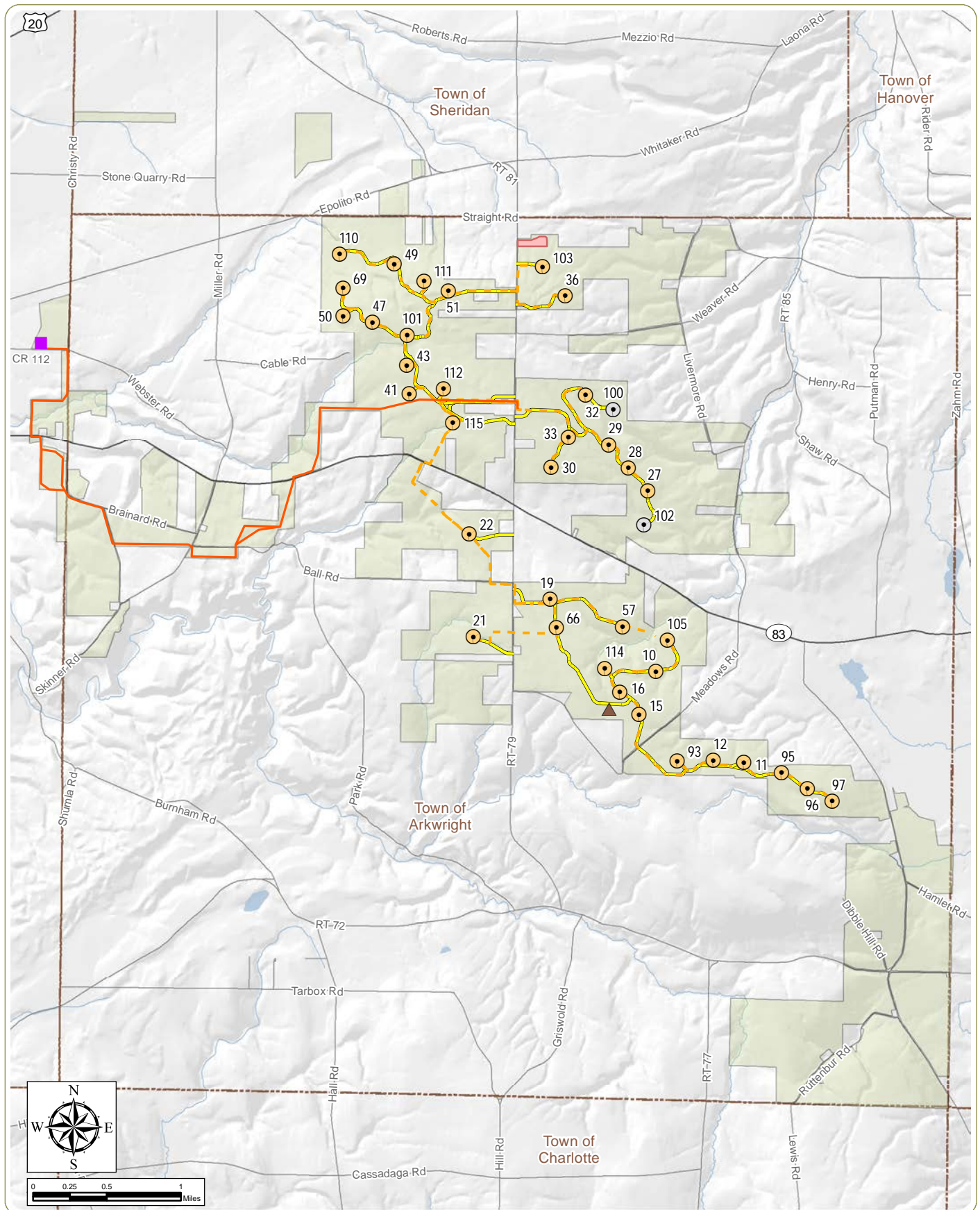
Figure 1: Regional Project Location

July 2015

Notes: 1. Basemap: ESRI ArcGIS Online "World Shaded Relief" Map Service and ESRI StreetMap North America, 2008.  
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.



www.edrdpc.com



## Arkwright Summit Wind Farm

Towns of Arkwright and Pomfret - Chautauqua County, New York

Figure 2: Revised Project Layout

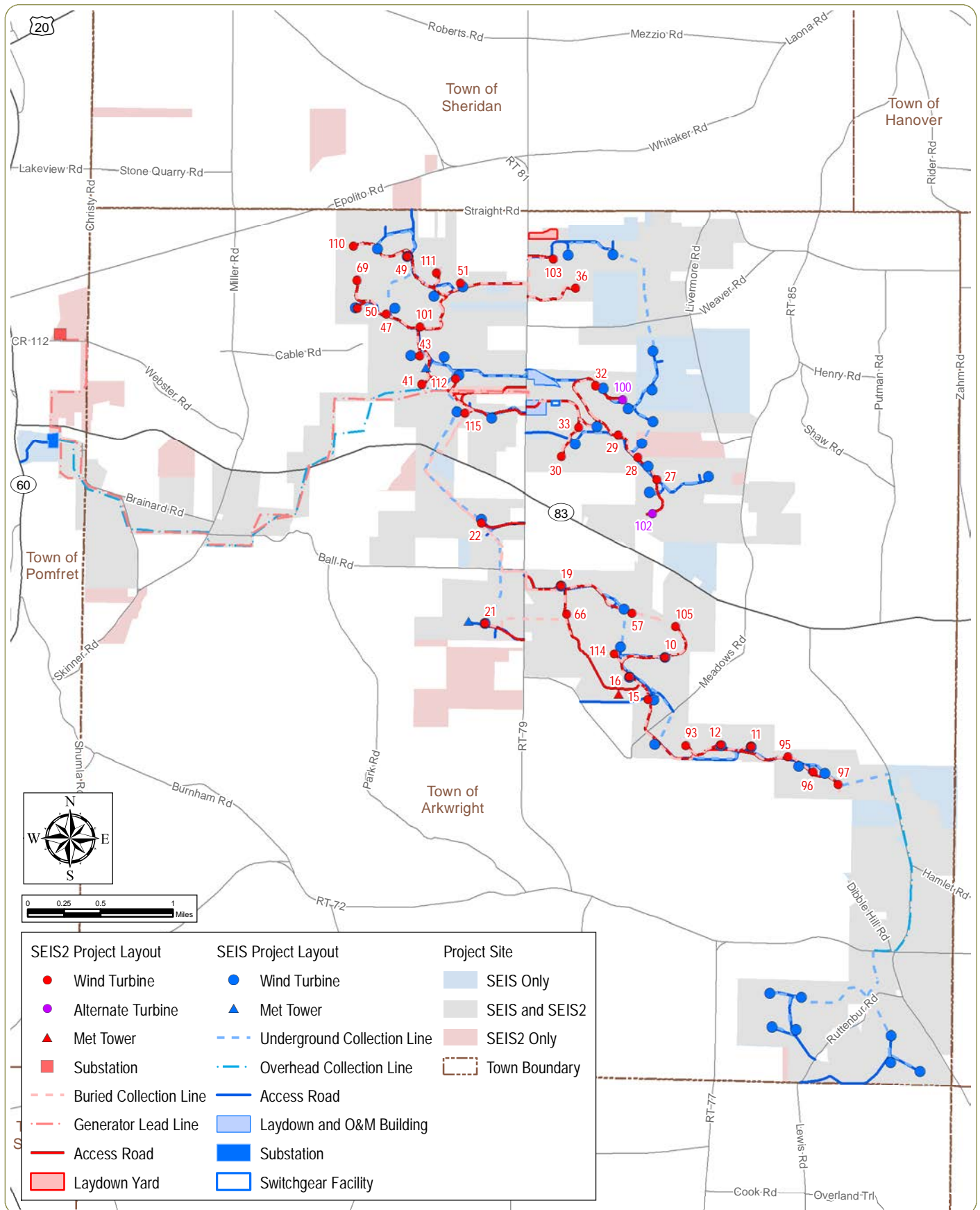
July 2015

- Notes: 1. Basemap: Hillshade generated from USGS digital elevation model data and ESRI StreetMap North America, 2008  
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.

- Wind Turbine
- Alternate Wind Turbine
- ▲ Met Tower
- Substation
- - - Buried Collection Line
- Generator Lead Line
- Access Road
- Laydown Yard
- Project Site
- - - Town Boundary







## Arkwright Summit Wind Farm

Towns of Arkwright and Pomfret - Chautauqua County, New York

Figure 3: Project Layout Comparison

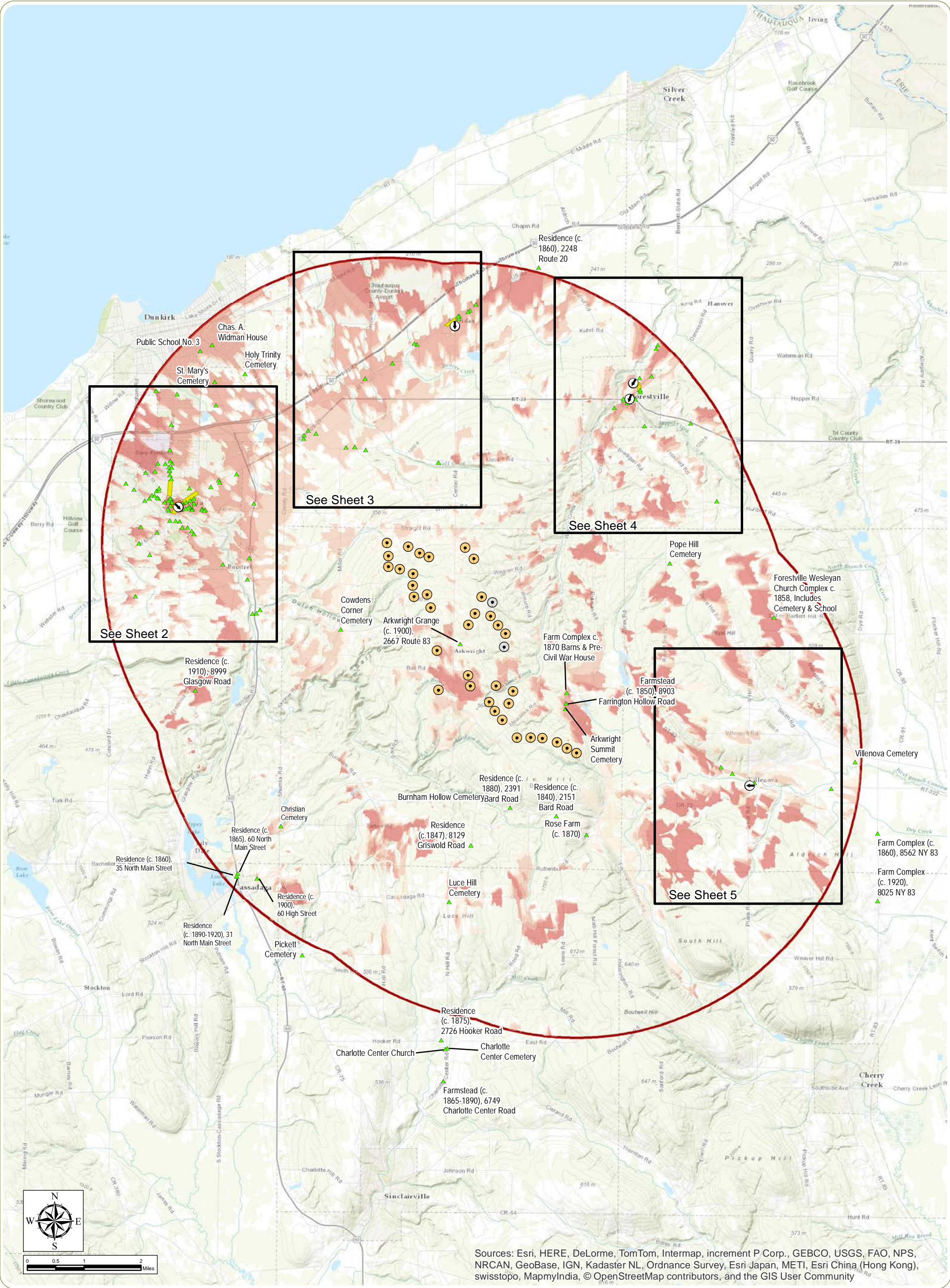
July 2015

Notes: 1. Basemap: ESRI StreetMap North America, 2008

2. This is a color graphic. Reproduction in grayscale may misrepresent the data.







**Arkwright Summit Wind Farm**  
Towns of Arkwright and Pomfret - Chautauqua County, New York

Figure 4: Historic Resources Visual Effects Analysis

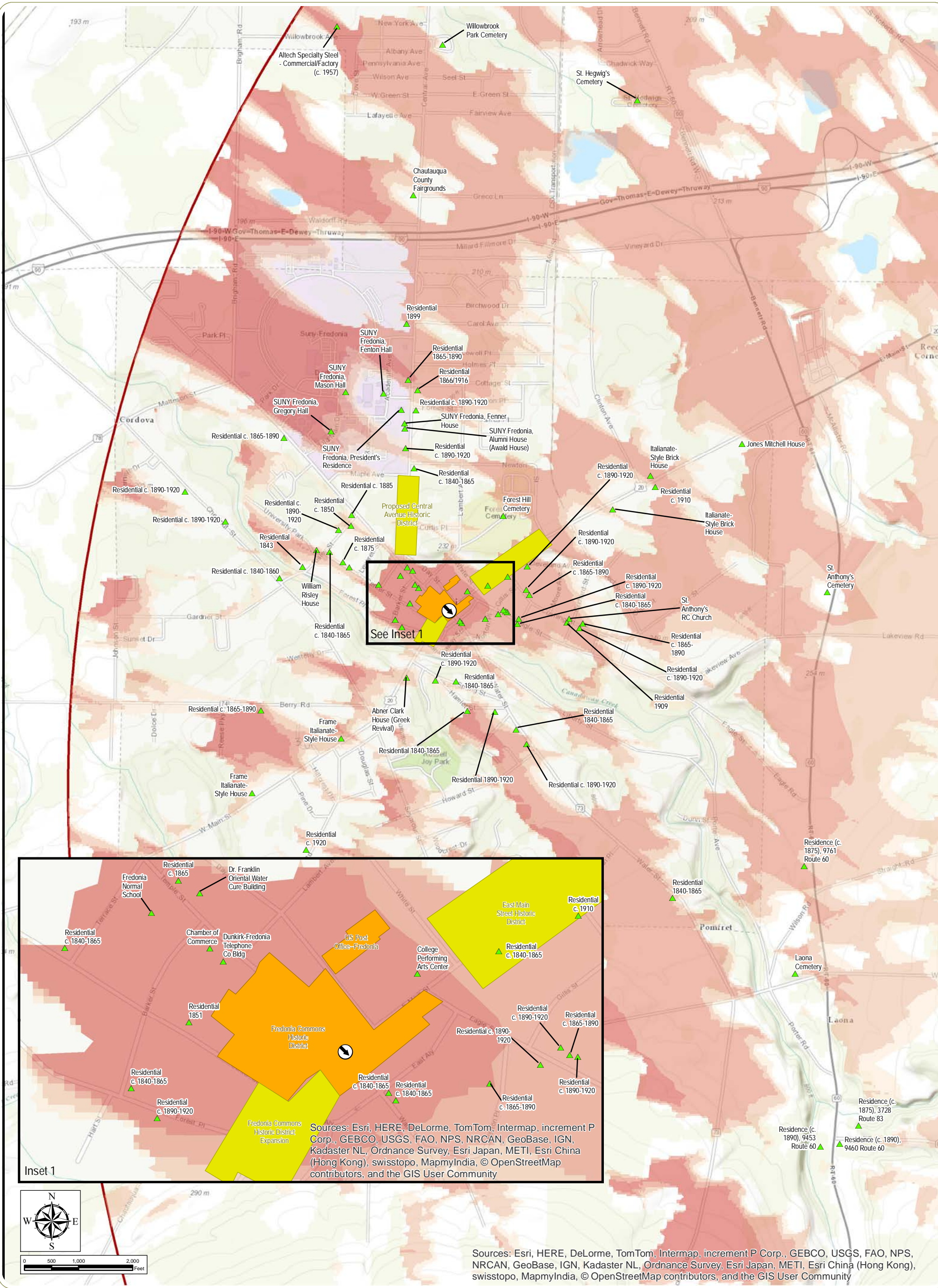
July 2015

Notes: 1. Basemap: ESRI "Topography" web map service.  
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.  
3. Potential turbine visibility based on combined screening effect of topography and mapped forest vegetation. Analysis based on a blade-tip height of 150 meters.

Number of Turbines Potentially Visible	
1 - 10 Turbines	
11 - 20 Turbines	
21 - 30 Turbines	
31 - 36 Turbines	







Arkwright Summit Wind Farm  
Towns of Arkwright and Pomfret - Chautauqua County, New York

Figure 4: Historic Resources Visual Effects Analysis

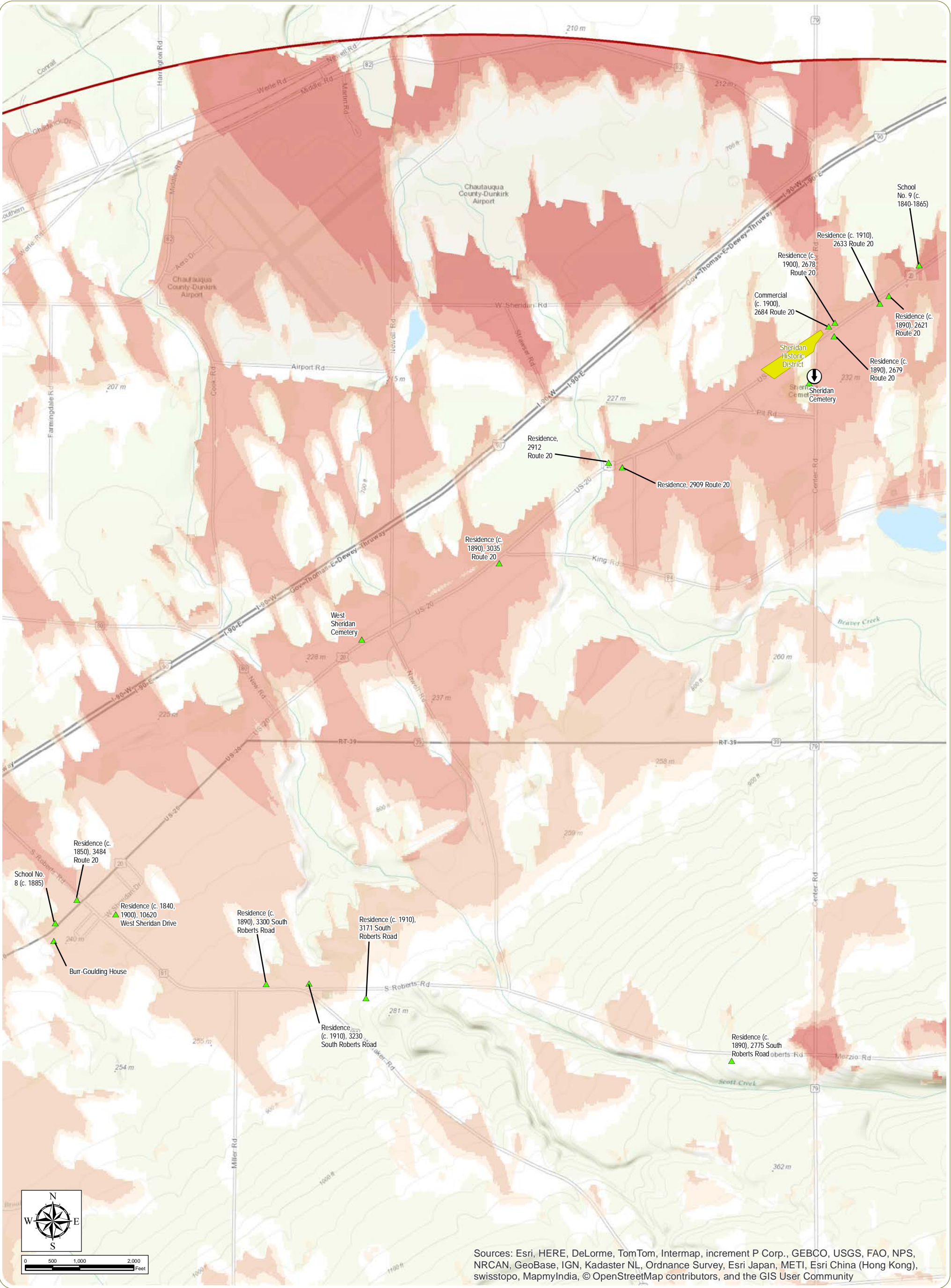
July 2015

Notes: 1. Basemap: ESRI "Topography" web map service.  
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.  
3. Potential turbine visibility based on combined screening effect of topography and mapped forest vegetation. Analysis based on a blade-tip height of 150 meters.

- Simulation Viewpoints
  - NRHP-Eligible Resources
  - NRHP-Eligible Historic District
  - NRHP-Listed Site
  - 5-Mile Study Area
- Number of Turbines Potentially Visible**
- 1 - 10 Turbines
  - 11 - 20 Turbines
  - 21 - 30 Turbines
  - 31 - 36 Turbines







**Arkwright Summit Wind Farm**  
Towns of Arkwright and Pomfret - Chautauqua County, New York

Figure 4: Historic Resources Visual Effects Analysis

July 2015

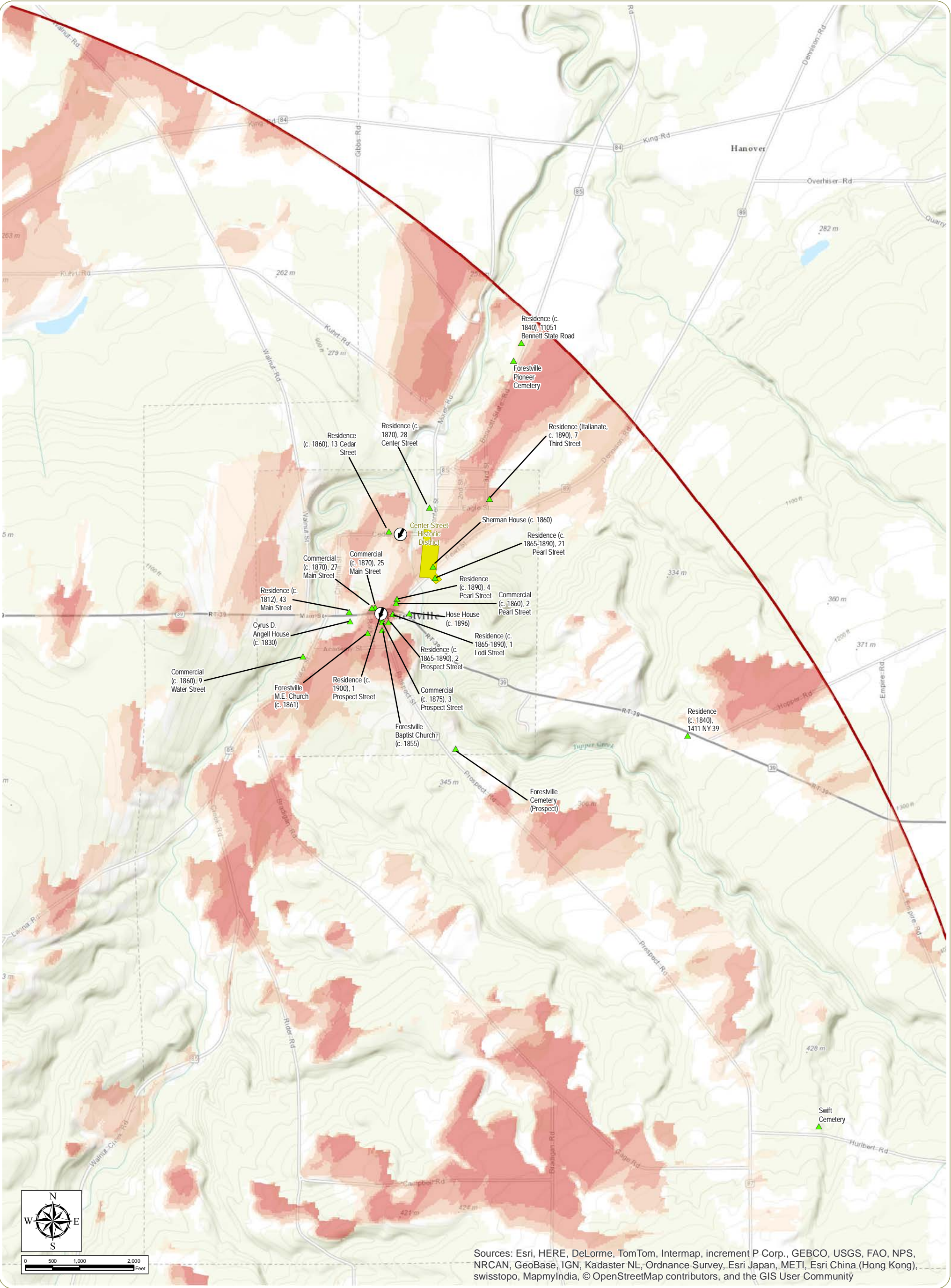
Notes: 1. Basemap: ESRI "Topography" web map service.  
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.  
3. Potential turbine visibility based on combined screening effect of topography and mapped forest vegetation. Analysis based on a blade-tip height of 150 meters.

- Simulation Viewpoints
- NRHP-Eligible Resources
- NRHP-Eligible Historic District
- NRHP-Listed Site
- 5-Mile Study Area

Number of Turbines Potentially Visible	
1 - 10 Turbines	
11 - 20 Turbines	
21 - 30 Turbines	
31 - 36 Turbines	







**Arkwright Summit Wind Farm**  
Towns of Arkwright and Pomfret - Chautauqua County, New York

Figure 4: Historic Resources Visual Effects Analysis

July 2015

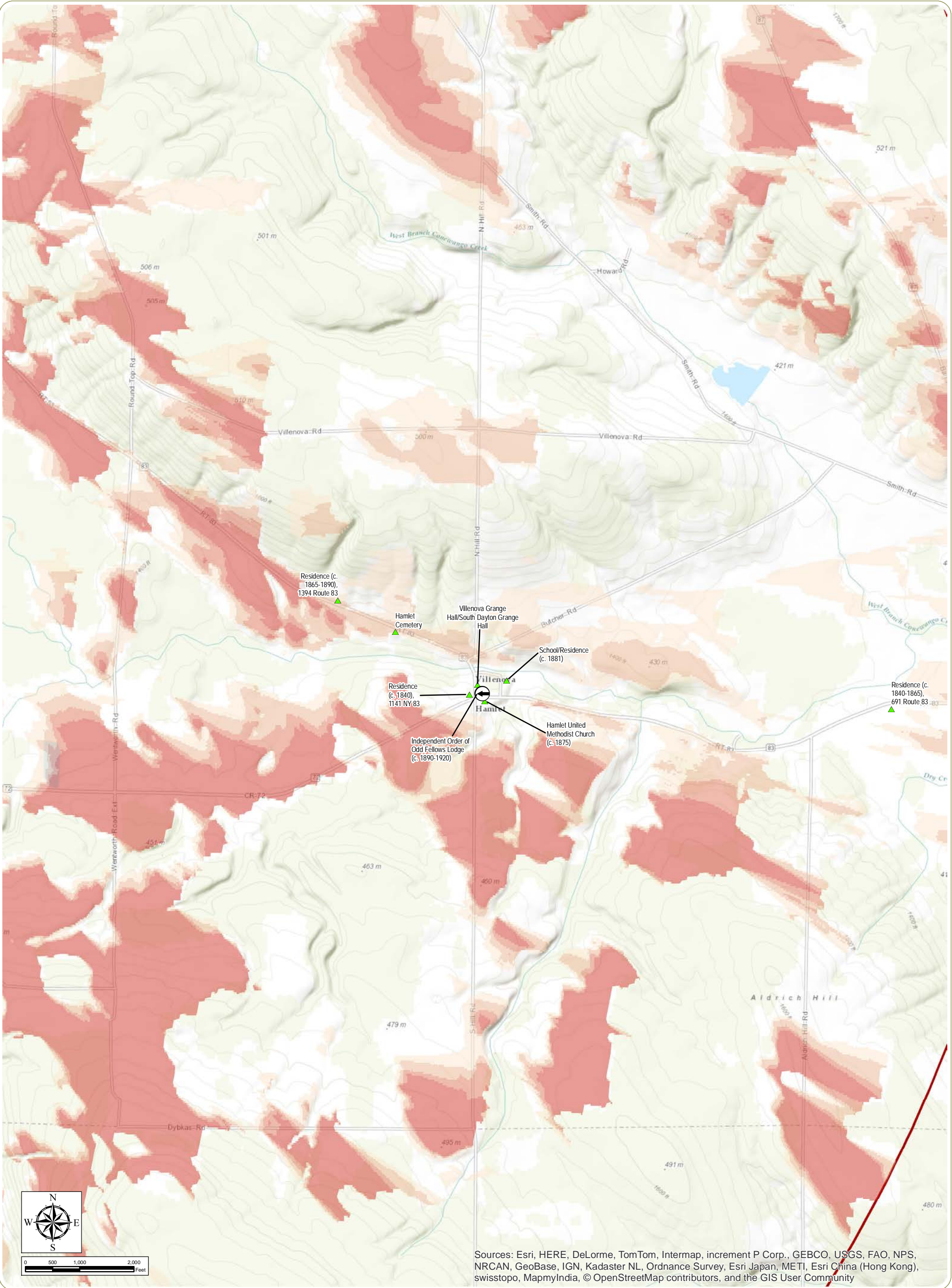
Notes: 1. Basemap: ESRI "Topography" web map service.  
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.  
3. Potential turbine visibility based on combined screening effect of topography and mapped forest vegetation. Analysis based on a blade-tip height of 150 meters.

- Simulation Viewpoints
- NRHP-Eligible Resources
- NRHP-Eligible Historic District
- NRHP-Listed Site
- 5-Mile Study Area

Number of Turbines Potentially Visible	
1 - 10 Turbines	
11 - 20 Turbines	
21 - 30 Turbines	
31 - 36 Turbines	







Arkwright Summit Wind Farm  
Towns of Arkwright and Pomfret - Chautauqua County, New York

Figure 4: Historic Resources Visual Effects Analysis

July 2015

Notes: 1. Basemap: ESRI "Topography" web map service.  
2. This is a color graphic. Reproduction in grayscale may misrepresent the data.  
3. Potential turbine visibility based on combined screening effect of topography and mapped forest vegetation. Analysis based on a blade-tip height of 150 meters.

- Simulation Viewpoints
- NRHP-Eligible Resources
- NRHP-Eligible Historic District
- NRHP-Listed Site
- 5-Mile Study Area

- Number of Turbines Potentially Visible
- 1 - 10 Turbines
  - 11 - 20 Turbines
  - 21 - 30 Turbines
  - 31 - 36 Turbines





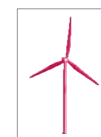


## Arkwright Summit Wind Farm

Towns of Arkwright and Pomfret - Chautauqua County, New York

Figure 5: Visual Simulations (Fredonia Commons Historic District - Main Street, view to the southeast)

July 2015



*Turbines screened by topography,  
vegetation and/or buildings.*







### Arkwright Summit Wind Farm

Towns of Arkwright and Pomfret - Chautauqua County, New York

Figure 5: Visual Simulations (Village of Sheridan Historic District - Center Road, view to the south)

July 2015







### Arkwright Summit Wind Farm

Towns of Arkwright and Pomfret - Chautauqua County, New York

Figure 5: Visual Simulations (Village of Sheridan Historic District - Center Road, view to the south)

July 2015



*Turbines screened by topography,  
vegetation and/or buildings.*

Page 3 of 6







## Arkwright Summit Wind Farm

Towns of Arkwright and Pomfret - Chautauqua County, New York

Figure 5: Visual Simulations (Village of Forestville - Main Street, view to the southwest)

July 2015



*Turbines screened by topography,  
vegetation and/or buildings.*



Page 4 of 6





### Arkwright Summit Wind Farm

Towns of Arkwright and Pomfret - Chautauqua County, New York

Figure 5: Visual Simulations (Village of Forestville - Cedar Street, view to the southwest)

July 2015



*Turbines screened by topography,  
vegetation and/or buildings.*



[www.edrdpc.com](http://www.edrdpc.com)





## Arkwright Summit Wind Farm

Towns of Arkwright and Pomfret - Chautauqua County, New York

Figure 5: Visual Simulations (Hamlet of Hamlet - New York State Route 83, view to the west)

July 2015



*Turbines screened by topography,  
vegetation and/or buildings.*

