



GIS Visualization Services

UNDERSTANDING THROUGH SEEING

Building a major development—be it a wind tower, a commercial development, or a transmission line—is an expensive and potentially controversial undertaking. Carefully considering the aesthetic impact of such a development through the use of GIS (geographic information systems) tools can help to defuse tensions and reduce the time it takes to obtain community and regulatory approvals. These tools are essential whether you are working with a project’s proponent or an organization that believes the developer has not provided enough information.

Stone Environmental, Inc. is a leading innovator in the use of GIS tools to solve complex analytical and technical problems. Working for both developers and citizen organizations, we have conducted more than 30 viewshed analyses of cell tower and wind turbine developments proposed for Maine, Vermont, and New York. In Vermont, we completed 21 cell tower viewshed analyses as part of a detailed Environmental Site Assessment (ESA) and preparation of materials for permit applications under Act 250 (Vermont’s land use and development law). We are seasoned in rapid turnaround projects and have a complete library of in-stock and pre-processed GIS data.

Our visualization services are described here, and they are illustrated in a flyer that accompanies this handout.

Viewshed Analysis

Stone uses its expertise in GIS, custom databases, and statistical software to create maps showing both the visibility of a proposed development from any viewpoint and the number of structures (e.g. wind turbines) visible. We also conduct reverse analyses, which highlight those viewpoints where a proposed development will be least visible. As part of the visibility analysis, Stone can provide statistics summarizing how many of the proposed

structures are visible from any particular point and exactly which ones they are. This technique allows a developer to relocate or remove a structure from a sensitive area or develop a mitigation strategy to minimize its impact.

Photomontage

Sophisticated computer software is used to impose images of a proposed structure (e.g., a wind turbine) onto photographs of the development site taken from different locations. This specialized technique renders a very realistic illusion that the photo was taken with the structure actually there.



Photomontage of a proposed wind tower development in Maine.

The inputs in this “photo modeling” technique include curvature of the earth, elevation, vegetation, time of day, incidence of sun, humidity, and wind direction. The process is highly scientific and the photomontages produced are realistic enough to use as legal evidence in a court case for or against a proposed development.

Photo Simulation

When a photograph of a development site cannot be obtained (e.g. a nighttime view of a cell tower with lighting for aircraft), the photo simulation technique is used. We use traditional GIS data and scientific visual simulation software to produce simulated images of the landscape, vegetation, and proposed structures. This technique can be useful also in simulating a range of weather conditions that cannot be captured adequately in a photograph, such as how the proposed structures will look at night, in fog, or in a haze.

3-D Modeling

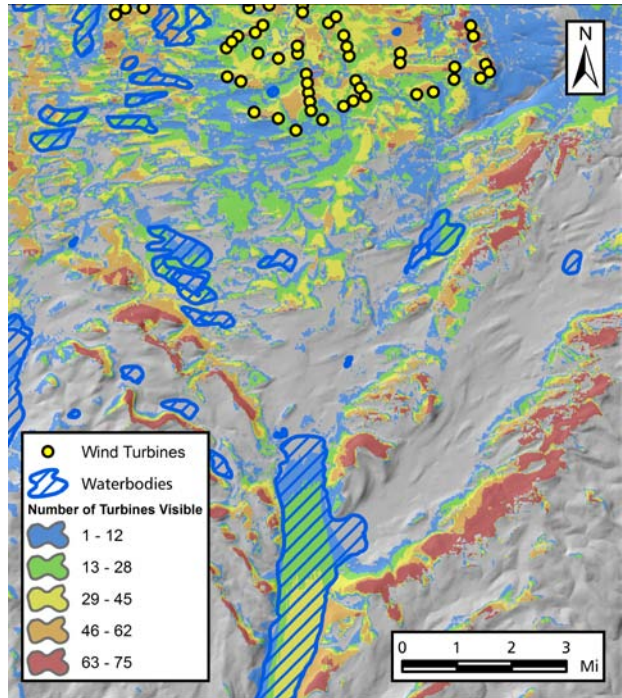
We use GIS data to create a three-dimensional computer simulation of the proposed development in its actual environment. This provides interested parties with a 3-D view of proposed structures, such as a large office building, from many different vantage points. The model replicates as much of the actual environment as possible, including existing buildings, vegetation, people, vehicles, and power lines. Our 3-D models are built using GIS data—such as land cover data—about the development site so that the final result is as realistic as possible. They are typically viewed as interactive ‘fly-through’ or ‘walk-through’ movies in which the viewer sees the proposed development from different angles or at different times. The movies can run on a computer, television, or any video display system.

Partners

Stone teams with landscape architects to provide the critical understanding of landscapes and aesthetic considerations often needed in development assessments.

About Stone

Stone Environmental, Inc. is a Small Business offering environmental consulting and specialty field services worldwide. Our four business units specialize in providing the following services to clients in the private and public sectors:



Wind turbine viewshed analysis, Jordanville, NY.

- Applied Information Management/GIS, Database, & Web Services
- Site Characterization Field Services
- Water Resources and Wastewater Management
- FIFRA Environmental Fate and Exposure Studies

Stone was incorporated in Vermont in 1992 and quickly became one of the top US firms evaluating the environmental effects of agrochemical use. Since then, we have become a multidisciplinary team of 28 professionals with expertise in a wide range of scientific disciplines.

We are listed on the US General Service Administration’s (GSA) Environmental Services Schedule for providing GIS Services (contract number GS-10F-0167-T).

Stone is located in Montpelier, Vermont, with satellite offices in Chicago and San Francisco.



STONE ENVIRONMENTAL INC

535 Stone Cutters Way
Montpelier, Vermont
05602 USA

Phone / 802.229.4541
Fax / 802.229.5417
Web Site / www.stone-env.com