# 2017 Award Nomination

*Please email completed form to nygis77@gmail.com

| **Date:** | **Category:** |
|---|---|
| 8/30/17 | ☐ Lifetime Achievement<br>☐ Individual Contribution to the Profession<br>☐ GIS Champion<br>☐ You Tube Sensation<br>☐ UAV Innovation<br>X Geospatial Applications Program (*skip to entry form below*) |

**Nominee (please include name, address, phone, and email)**

**Submitted by (please include name, address, phone, and email)**

| **Sector:** | **Functional Area:** |
|---|---|
| ☐ Local Government | ☐ Transportation |
| ☐ State Government | ☐ Urban Planning |
| ☐ Tribal Government | ☐ Emergency Response |
| ☐ Private (For Profit) | ☐ Environmental |
| ☐ Private (non-Profit) | ☐ Infrastructure |
| ☐ Academic | ☐ Other (please note) _____ |

**Narrative Description of Contribution.** (Attach separate file or pages as necessary. Please refer to the Narrative Guidance for additional information on the narrative description.)

# 2017 NYS Geospatial Applications Awards Competition Entry Form

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Please use the below template to submit your entry for the **2017 NYS Geospatial Applications Awards Competition**. By entering the competition, you grant permission for the NYSGIS Association to publish and publicize your entry. Click here to view the 2016 submissions.

## Required Information

**Sponsoring Organization:** Spatial Analytix, LLC

**Stakeholder/Participant List (by Organization):**
Spatial Analytix, LLC (www.spatialanayltixllc.com)
Bard College (www.bard.edu)
Current Hydro, LLC (www.currenthydro.org)

**Title:** Micro-Hydropower Calculator Tool

**Abstract:** There is significant potential for the development of small, sustainable hydropower systems in New York State. Such hydropower systems have the lowest carbon footprint of any renewable energy resource including wind and solar. The web based Micro-Hydropower Calculation Tool was developed under a Renewable Energy Vision (REV) Campus Challenge Grant awarded by NYSERDA to the Bard College Office of Sustainability to explore the process and potential for installing micro-hydropower systems across the State. Bard College contracted with Spatial Analytix do demonstrate how geospatial tools and visualizations can assist stakeholders in assessing both the potential for power generation and the potential for environmental and other risks. The Micro-Hydropower Calculation Tool allows a user to select a site location and estimate both power generation and revenue potential using public domain datasets, including the most recent high-resolution elevation and image data services published by the NYS GIS Program Office.

**Statement of the Problem:** There are over 6000 legacy dams in NYS that have the potential to generate renewable electricity. Dam owners and stakeholders face significant challenges in determining the potential for power generation and return on investment at any given site. A significant initial investment is usually required to evaluate feasibility and revenue potential.

**Response to the Problem:** This map-based web application allows stakeholders to evaluate power generation potential at any location (e.g., dam sites) in NYS using public domain data sources such as the latest published NYS ortho and elevation data services, as well as USGS and ESRI published web services.

**Results:** With core logic published as an API, an adaptive browser-based graphical interface allows a user to interactively select potential inlet and outlet locations for a hypothetical hydropower facility from a map. The tool automatically calculates the elevation drop (head), the upstream drainage area and the estimated average flow. The tool allows the user manually input or dynamically calculate variables such as the total available head, the approximate average available flow, estimated required environmental bypass flow for maintaining stream health, and an average electricity rate in order to generate not only an estimate for total annual power production but total annual revenue. This is vital

for initial screen and investment decisions for these small (micro) hydropower projects.

**Return on Investment/Cost-Benefit Analysis.** **Do your best to use the ROI benefit and cost formulas found at GISCalc. Your project can then be used to strengthen GISCalc metrics:**

**Key Participants: (Name, Organization, Title)**
Benjamin Houston, Spatial Analytix
Christian Gass, Spatial Analytix
Joel Herm, President, Current Hydro, LLC
Laurie Husted, Director of Sustainability, Bard College

**URL (if applicable):**
http://bard-hydropower.civicmapper.com/map/
note: this app is undergoing revision from beta and may be updated in the future. I will notify you of any updates ASAP.

**Contact Information:**

| Name | Phone # | Email |
|---|---|---|
| Benjamin Houston | 845-224-7780 | benjamin.h.houston@gmail.com |

***Deadline & Submission Information***

**The deadline for entries is Friday, September 8th, 2017.** Please email this completed template to the NYSGISA Awards Committee at nygis77@gmail.com, with **"GIS Applications: [Name of Submitting Organization]"** in the message Subject line.

Thank you for your submission and Good Luck!