

2015 NYS Geospatial Applications Awards Competition Entry Form

Please use the below template to submit your entry for the **2015 NYS Geospatial Applications Awards Competition**. By entering the competition, you grant permission for the NYSGIS Association to publish and publicize your entry.

Required Information

Sponsoring Organization:

Niagara County Department of Economic Development

Stakeholder/Participant List (by Organization):

Niagara County Department of Economic Development

- Samuel Ferraro, Commissioner
- Benjamin Bidell, AICP, GISP, Senior Planner
- Amy Fisk, AICP, Senior Planner

Niagara County Information Technology

- Larry Helwig, Director
- Lisa Casey, GIS Coordinator

Niagara County Real Property Tax Services

- John Shoemaker, Director

Ecology and Environment

- Gregory Coniglio, GISP, PMP, GIS Developer

Title:

Niagara County Brownfields Tracking Tool

Abstract:

The Niagara County Brownfields Tracking Tool is an ArcGIS Desktop 10.2 application used by the Niagara County Department of Economic Development to map, track, and analyze data as part of the Niagara County Brownfields Program. Since 1999, Niagara County has received over \$5.3 million in federal and state grant funding to carry out brownfield assessment and cleanup work, helping to redevelop vacant and underutilized land. The Brownfields Tracking Tool is used to monitor the extensive work being carried out across Niagara County. The application integrates federal, state, and county brownfields data with comprehensive countywide basemap data that can be used to assess the impacts of brownfields on physical, social, and economic conditions in the county. The application is aided by a custom ArcGIS Desktop Add-In created by Department staff that provides form-based tools for adding, editing, and retrieving data. The tools also provide access to site photos, environmental reports, and other data stored on network drives. The application improves data storage and retrieval, while greatly enhancing staff productivity. The latest version of the application can be viewed online as a demonstration video:

www.dropbox.com/s/gyfpj0jlyad3pq3/NCCED_Brownfields_Tools.wmv.

Statement of the Problem:

In 2002, Niagara County completed a GIS Needs Assessment and Implementation Plan, which was then updated in 2005. In 2007, Niagara County used a New York State Archives grant to hire a GIS consultant to begin implementing GIS across County departments in accordance with the Plan. This included developing a Brownfields GIS Application. The Department of Economic Development had been using GIS since the late 1990's, but lacked a comprehensive approach to data development, maintenance, and quality assurance. This was perhaps most evident in its Brownfields Program, which relied on piecemeal data obtained from a variety of sources in both spatial and non-spatial formats and different data structures. The data was converted to GIS and updated only on an ad hoc basis, despite a constant influx of environmental reports.

Response to the Problem:

In 2008, the Department of Economic Development standardized, consolidated, and updated its brownfields GIS data and related tables, which included information on site characteristics, environmental assessments, and parcel ownership history. This allowed data to be mined from environmental reports and input into the GIS using a consistent format and workflow. The data was provided to the consulting team, which converted it to geodatabase format and designed a series of custom, form-based tools for adding, updating, and retrieving data efficiently. The tools were integrated into a comprehensive GIS basemap, providing access to a wide range of geographic data to better understand the impacts of brownfields on the community. The application became known as the Niagara County Brownfields Tracking Tool.

The custom GIS tools built by the consultant were created for ArcGIS Desktop 9.2 using Visual Basic for Applications. However, after updating to ArcGIS Desktop 10.0 in 2013, the consultant converted the tools from VBA, no longer supported in ArcGIS Desktop, to Visual Basic for .NET. While much of the functionality of the tools was preserved, the legacy code yielded a number of unhandled exception errors that made the tools difficult to use, even after further updates. In addition, the structure, which relied on a combination of file and personal geodatabases, complicated renewed efforts by Department staff to streamline and consolidate data.

In 2015, the Department of Economic Development again consolidated its brownfields data, eliminating unnecessary fields in the datasets and bringing all county data into a single feature class stored in a file geodatabase. Previously, hazardous waste and petroleum brownfields GIS data were stored as separate feature classes in a file geodatabase, while environmental and ownership data were stored as related tables in a personal geodatabase. Federal and state data continue to be stored as separate features classes. The brownfields GIS tools were then rebuilt in-house leveraging training in GIS programming received by Department staff. The tools were built as an ArcGIS Desktop 10.2 Add-In using C# for .NET. In addition to tools for adding, editing, and retrieving brownfields data, the tools include new functionality such as access to site photos and folders containing environmental reports, data filtering mechanisms, and quality assurance measures that ensure minimum data standards and data integrity.

Results:

The Niagara County Brownfields Tracking Tool includes data on brownfield sites in federal, state, and county programs, which allows sites enrolled in multiple government programs to be easily identified and monitored. The data is integrated into a comprehensive basemap that includes a wide range of GIS data to help understand the physical, social, and economic impacts of brownfields on the community. Custom GIS tools allow staff to easily add, update, and retrieve brownfields data, while storing all county brownfields data in a single feature class further eases data access. The application allows information from environmental reports to be added efficiently and a standard data structure ensures that any new GIS data produced by consultants can be integrated seamlessly. In-house programming capability allows for rapid troubleshooting and modification of the toolset. This ensures flexibility and strengthens the long-term viability of the application within the Department of Economic Development.

Return on Investment/Cost-Benefit Analysis:

Development of the Brownfields Tracking Tool required Niagara County staff time only, likely saving County taxpayers in excess of \$10,000. The initial capital outlay for the consultant to build the application and provide subsequent technical support was funded through a New York State Archives grant. Initial conversion of tabular data to GIS through geocoding was carried out by Department of Economic Development staff. Updates to brownfields GIS data and creation of new data continue to be carried out by Department staff. The Brownfields Tracking Tool was built over a GIS basemap that serves as a framework and template for all GIS maps and custom applications developed for the County, which is both cost effective and ensures consistent use of data. The new custom GIS tools developed for ArcGIS Desktop 10.2 were created in-house, resulting in huge cost savings. For the modest investment of State grant dollars and in-kind staff time, the County has cutting edge tools for mapping, tracking, and analyzing brownfields data. This greatly increases the productivity of Department staff who previously relied on disjointed tables and hard copy reports to track brownfields information.

Key Participants: (Name, Organization, Title)

- Benjamin Bidell, AICP, GISP, Senior Planner, Niagara County Dept. of Economic Development
- Amy Fisk, AICP, Senior Planner, Niagara County Dept. of Economic Development

Contact Information:

Name	Phone #	Email
Benjamin Bidell	(716) 278-8756	benjamin.bidell@niagaracounty.com

Deadline & Submission Information

The deadline for entries is Tuesday, September 15, 2015. Please E-mail this completed template to Ben Houston at Benjamin.h.houston@gmail.com, with “GIS Applications: [Name of Submitting Organization]” in the message Subject line.

Thank you for your submission and Good Luck!

Figure 1 - Niagara County Brownfields Tracking Tool

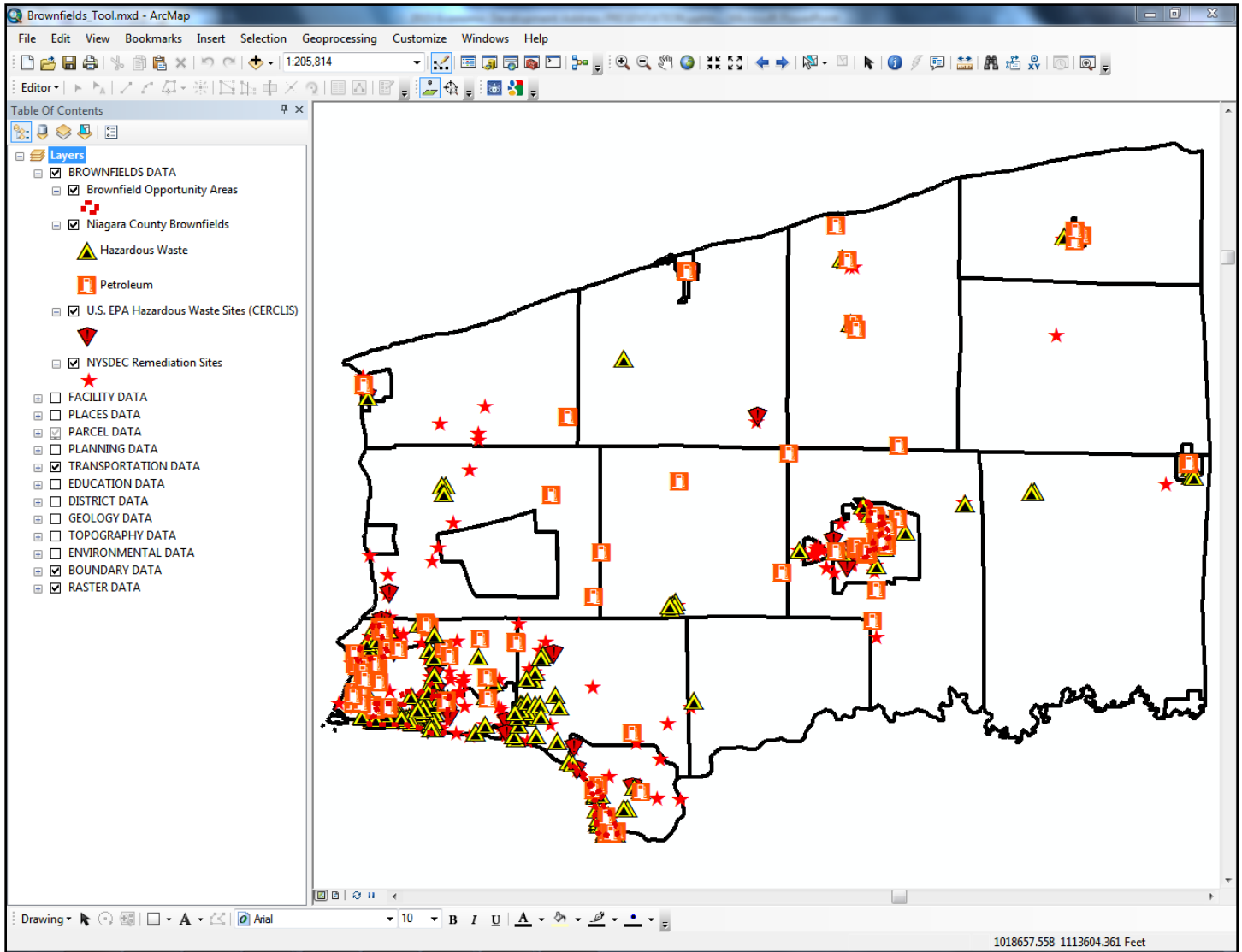


Figure 2 - Custom GIS Tools: Site Information Tab

The screenshot shows a web application window titled "Search and Update Brownfields". At the top, there is a search bar with "Youngstown Cold Storage" selected. To the right are checkboxes for "Hazardous Waste" and "Petroleum". Below this is a tabbed interface with "Site Information", "Environmental Information", and "File Information". The "Site Information" tab is active, displaying a form for "Brownfield Site Information".

Site Name:	Youngstown Cold Storage	Acres:	2.13
Site Type:	Hazardous Waste	Zoning Code:	R-11, Single-Family Residence
County ID:	H-44	Past Use:	Fruit Washing, Cold Storage, and Di
Site ID:	44	Present Use:	Vacant
SBL #:	59.06-3-6	Condition of Structures:	Poor
Address:	701 Third Street	Ownership:	Municipal
Municipality:	Village of Youngstown	Tax Status:	Muni-owned
Zip Code:	14174	Assessed Value:	177,800
Latitude:	43.244972029159	Date Updated:	5/9/2014 12:00:00 AM
Longitude:	-79.0478821866553		

At the bottom right of the form are "Save" and "Close" buttons.

Figure 3 - Custom GIS Tools: Environmental Information Tab

Search and Update Brownfields

Select a Brownfield: Hazardous Waste
 Petroleum

Site Information | **Environmental Information** | File Information

Brownfield Environmental Information:

Environmental Assessment: <input type="text" value="Phase I ESA, Phase II ESA, Site Inv"/>	Cleanup Funding: <input type="text" value="Local, NC BCRLF, NYS"/>
Assessment Dates: <input type="text" value="2006, 2007, 2008"/>	Activity and Use Limitations: <input type="text" value="N/A"/>
Additional Investigation Required: <input type="text" value="No"/>	Program Enrollment: <input type="text" value="NYS ERP"/>
Assessment Funding Source: <input type="text" value="EPA Pilot Grant, Local, NYS"/>	Program ID: <input type="text" value="E932122; NYN000204499"/>
Type of Contamination: <input type="text" value="Metals, PAHs, PCBs, VOCs,"/>	Site Source: <input type="text" value="NYS DEC"/>
Media Affected: <input type="text" value="N/A"/>	Redevelopment Information: <input type="text" value="N/A"/>
Cleanup Status: <input type="text" value="Completed"/>	Environmental Comments: <input type="text" value="COC issued; EPA removal action completed 2003"/>
Remediation Start Date: <input type="text" value="2009"/>	
Remediation Completion Date: <input type="text" value="2010"/>	

Figure 4 - Custom GIS Tools: File Information Tab

Search and Update Brownfields

Select a Brownfield: Youngstown Cold Storage

Hazardous Waste
 Petroleum



Site Information | Environmental Information | **File Information**

Brownfield File Information:

Documents: P:\Brownfields_Tool\GIS_Reports\Youngstown_Co Browse

Site Picture: P:\Brownfields_Tool\GIS_Reports\Site_Pictures\H- Browse

Municipal Seal: P:\Brownfields_Tool\GIS_Reports\Municipal_Si



Save Close