



## **WV GIS Technical Center 2010 ANNUAL REPORT**

Fiscal Year 2010 (1 July 2009 - 30 June 2010)

### **Mission and Objectives**

The West Virginia GIS Technical Center, located in the Department of Geology and Geography at West Virginia University, provides focus, direction and leadership to users of geographic information systems (GIS), digital mapping and remote sensing within the State of West Virginia. The WV GIS Technical Center (WVGISTC) was established under Executive Order No. 4-93 and continued under Executive Order No. 10-10, which specify that the Technical Center shall provide technical services to support the development and operation of GIS in West Virginia.

The primary objectives of the Center are to reduce the duplication of GIS data development among organizations; disseminate GIS spatial data, Web map services, mapping applications, and other geographic information free-of-charge through the Internet; develop and build new data additions to the West Virginia Spatial Data Infrastructure; assist with strategic planning, development and implementation of GIS and mapping guidelines statewide; provide advisory services and training programs in GIS; and conduct research and provide education towards improvement of geographic information technologies in West Virginia. The Center coordinates with the State GIS Coordinator to accomplish these objectives.

### **Personnel**

The staff consists of two geography professors who serve as co-directors, five full-time employees, and student and temporary employees hired periodically to accomplish project tasks.

- Dr. Gregory Elmes, Co-director
- Dr. Trevor Harris, Co-director
- Kurt Donaldson, Manager
- Frank LaFone, Senior Internet Programmer
- Evan Fedorko, GIS Analyst
- Eric Hopkins, GIS Analyst
- Kevin Kuhn, GIS Analyst

### **Funding and Programmatic Oversight**

Primary FY 2009-10 funding of \$287,863 was received from the state-appropriated Mineral Lands Mapping Program (Fund 0253, Activity 207) approved under House Bill 2222 in February 1995. Fiscal management of this program was delegated to the WV Geological & Economic Survey. Additional external funding was obtained from several grants and service contracts. Programmatic oversight is through the Office of State GIS Coordinator and GIS Policy Council.

## **Projects and Activities FY 2010**

### ***Build and Disseminate State's Spatial Data Infrastructure***

The WVGISTC supports digital data conversion, data development, and coordination with federal geospatial data initiatives, statewide mapping programs, and local (county, municipal) data producers. The Center collaborates with the WV Office of State GIS Coordinator and other partners to create a value-added, high temporal and spatial resolution base map for West Virginia. Base layers such as imagery, elevation, transportation, streams and administrative map layers benefit the public. Data development efforts for the past fiscal year included the following:

*National Hydrology Dataset (NHD):* Established an NHD Stewardship program for West Virginia. Partners: USGS, NRCS, WVOSGC, WVDEP, WVU NRAC.

*Road Centerlines:* Investigated the integration of multiple statewide transportation datasets to support linear referencing, routing, and addressing. Partners: WVDOT, RTI.

*Orthophotos:* Coordinated the transfer of statewide 2009 National Agricultural Imagery Program (NAIP) orthophotos. Converted quarter quad NAIP orthophotos to MrSID files and made the compressed files available on Data Clearinghouse; in addition, created a Web map service of new imagery. Partner: USDA.

*Geographic Names:* Updated schools and other cultural features in the national gazetteer database, also known as the Geographic Names Information System. A school mapping application (<http://www.mapwv.gov/schools>) and print-ready maps were published to validate the data. Partner: USGS.

*Flood Hazard Layers:* Created a statewide seamless file of flood hazard data. Assisted in the development of Advisory Flood Height data: Partners: FEMA, WVDHSEM, private sector.

*Addressable Structures:* Created locator services for site and street address data extracted from Statewide Addressing and Mapping System. Partner: WV DHSEM.

*Surface Tax Parcel:* WVGISTC assisted Randolph County with its county parcel digital mapping program by generating the annotation layer for its surface tax maps.

*Mineral Parcels:* WVGISTC contributed to the State Tax Department, Property Tax Division (PTD) Mined Minerals GIS project by spatially locating, digitizing and attributing mineral parcels/accounts with known tax map locations (Geocode 3 level). In addition to the Geocode 3 parcel processing, the WVGISTC georeferenced the mineral/coal map images for all West Virginia counties that have them. Partners: WV DTR, WVOSGC.

*Trails:* Developed a statewide trail database using federal and state standards. Partners: WVDOT, trail stewards.

*Historical Geospatial Data:* Scanned Sanborn Fire Insurance Maps from the WVU Library archives.

## ***Mapping Projects and Applications***

During fiscal year 2010, WVGISTC participated in a number of mapping projects. Select projects are highlighted below:

*Flood Hazard Mapping and Hazard Determination Tool:* In partnership with the State Floodplain Manager, WVGISTC upgraded the online Flood Hazard Determination System with new flood hazard data and addresses from the Statewide Addressing and Mapping System. This interactive mapping tool, which utilizes the best available digital flood hazard data for West Virginia, allows home and business owners, insurance and real estate agents, developers, and flood plain managers to make informed decisions about the degree of flood risk faced and what precautions, if any, should be taken. The flood mapping application has garnered acclaim from FEMA as well as from the state floodplain management office and local floodplain managers and is part of the MapWV.gov initiative to make online mapping resources in the Mountain State available to the public. Link: <http://www.mapwv.gov/flood>

*SHPO Cultural Mapping:* In cooperation with the State Historic Preservation Office, WVGISTC created an archeological and architectural resources application using ArcGIS Server. The application permits different levels of access to cultural resources.

*Energy Research and Mapping:* In cooperation with government and academic institutions, WVGISTC continued work on mapping databases and modeling to locate potential geological sequestration sites in oil/ gas, coal, and saline formations. Link: <http://www.wvcarb.org>

*Mass Evacuation Modeling & Simulation:* WVGISTC continued work on a sub-grant funded by the WV Department of Military Affairs and Public Safety to simulate a mass evacuation event from the National Capitol Region to rural regions like West Virginia. The simulation model is being developed for emergency planners. Partners: WVDMAPS, private sector.

*Other Internet Mapping Applications:* WVGISTC continued support for a Trout Stream Stocking application for the WV Division of Natural Resources (<http://www.mapwv.gov/website/dnr/viewer.htm>), and a source water application for the WV Department of Health and Human Resources.

## ***Geographic Information Network Services***

WVGISTC provides a suite of Internet services to disseminate geographic data and information, including the MapWV.gov portal, State GIS Data Clearinghouse, and GIS People Directory.

*MapWV.gov:* MapWV.gov is a public gateway to online mapping resources in the Mountain State, providing a wealth of high-quality maps and geographic data via the Internet. The site provides access to static and dynamic maps as well as Web map services. The target audience of MapWV.gov is the general public or casual user who is seeking geospatial information. On average, almost 600 people have visited the site on a daily basis since it launched. In the last fiscal year alone, the site received over 900 unique visitors per day. Over 670,000 unique visitors have viewed this site since its inception and over 83,600 in the last fiscal year. The two most popular applications are the Trout Stream Stocking Tool and the Flood Hazard Determination Tool. These two tools account for nearly 50% of the total traffic to the site. To support the growth of this public service, a new enterprise hardware system was recently installed which expanded storage capacities from 16 to 52 Terabytes. <http://www.mapwv.gov/>.

*Data Clearinghouse:* The State GIS Data Clearinghouse continues to grow each year. Currently, the Data Clearinghouse features over 320 separate datasets valued at more than \$50 million dollars. Mapping professionals in the state and nation are the target audience for this website. Data is accessed by FTP download, Web map services, or links to data stewards who routinely post geospatial data on their websites. Aerial imagery is the data set in most demand in West Virginia. In the last fiscal year, the website hosted over 800 visits per day on average for a total of 57,784 unique visitors. Those visitors downloaded nearly 270,000 different files for a total of 3.41 terabytes of data during the same time

period. Since 2004, over two million geospatial professionals have visited the Data Clearinghouse, downloading over 11 Terabytes of data and 2.7 million files. The Data clearinghouse can be found at <http://wvgis.wvu.edu//data/data.php>.

*GIS Contacts and News:* WVGISTC maintains a list of people interested in GIS news, events and activities in West Virginia. People directories are maintained by an Access Database connected to a Web interface and ConstantContact.com email marketing services. WVGISTC also provides support with news postings, online surveys, and the ConstantContact free email service utilized by the WV Association of Geospatial Professionals.

### ***Assists with strategic planning, development, and implementation of statewide mapping guidelines.***

*Rules and Policies related to Surveying:* WVGISTC and other partners worked with the GIS and surveying communities approving a map disclaimer policy and rules related to the "Inclusions and Exclusions of Surveying Practice" as prescribed in Section 210.25 of the NCEES Model Rules. In June 2010, legislation (HB 4450) related to land surveyors (Chapter 30, Article 13A) was approved by Governor Manchin. Specifically, paragraph 10, Scope of Practice, includes the "Inclusions and Exclusions of Surveying Practice." Importantly, these new rules help to delineate the scope of practice for GIS and surveying professionals.

*Trail Standards:* WVGISTC created a spatial database of trail lines and attributes integrated with the WV State Trail Coordinator's (WVSTC) tabular database of trail information. This dataset was constructed utilizing WV DOT guidelines and the Federal Interagency Trail Data Standard.

*WV GIS Strategic Plan:* WVGISTC assisted the State GIS Coordinator in reviewing a new draft of the state GIS strategic plan.

### ***Technical Support, Educational and Training Services***

WVGISTC provides outreach, educational and training support, and advisory services to the citizens, government agencies, non-profit organizations, and businesses of West Virginia in the area of GIS and related spatial data handling technologies.

*2010 WV GIS Conference:* WVGISTC provided administrative support for the biennial state GIS conference.

*2010 Workshops:* WVGISTC assisted in the organization of LIDAR and homeland security workshops held in conjunction with the 2010 WV GIS Conference.

*Instructor-Led Training:* Staff presented workshops and training throughout the year, including five "Introduction to GIS" courses by an ESRI-certified instructor.

*WV Association of Geospatial Professionals:* WVGISTC provided administrative support for the GIS User Group.

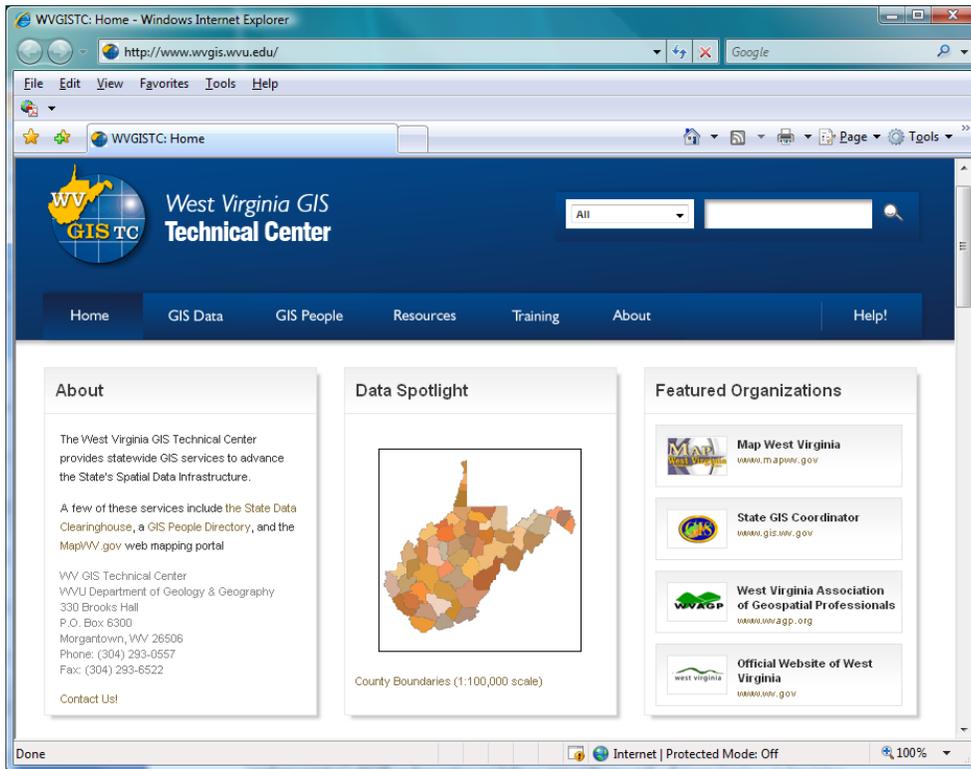


Figure 1: Home page of WVGIS Technical Center website.

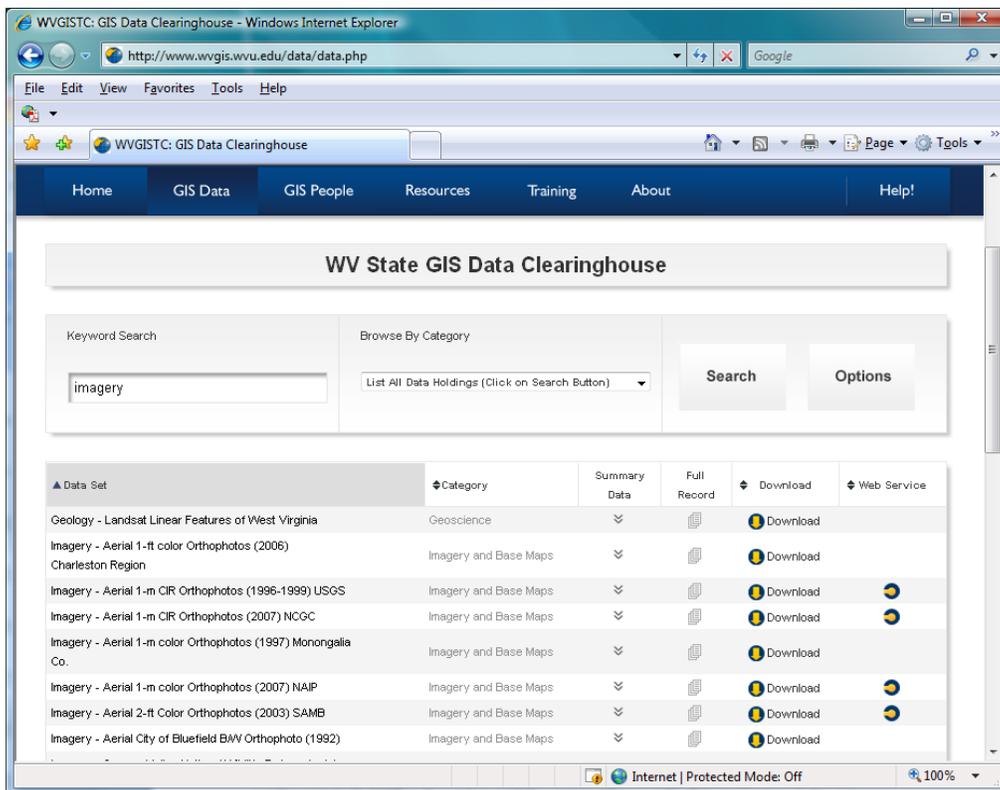


Figure 2: Data Clearinghouse updated content to include Web Map Services and other formats