

GEOGRAPHIC INFORMATION SYSTEMS

Volume 9, Number 3

December 2005

FGDC Grant Awarded to Westchester County GIS

Federal funding will advance local government web mapping programs

Westchester County GIS has recently been selected as one of 36 national organizations or public agencies to receive a 2005 Cooperative Agreement Program (CAP) grant administered through the Federal Geographic Data Committee (www.fgdc.gov). The highly competitive grant program will enable the county to assist three municipalities in the county including the City of Mt. Vernon, Town of Mamaroneck (including the incorporated villages of Larchmont and Mamaroneck), and the Village of Hastings towards building "localized" web mapping programs. By partnering with and leveraging the county's existing GIS and web mapping architecture, the proposed program will provide each of the three municipalities with significant cost savings as opposed to building web mapping programs solely with local resources and funding.

Built on top of Environmental System Research Institute (www.esri.com) indus-

try-leading ArcIMS internet mapping technology, each web mapping portal will have similar user interfaces and functionality providing access to a wide range of county GIS datasets. Local spatial datasets developed by the municipality such as tax parcel data, can also be incorporated into the application at the discretion of each local government. Users will be able to view/identify, perform general ad hoc queries, add/remove layers, geocode single address locations, and create 8x11 maps on a wide range of environmental, demographic, planimetric, cultural, and facility data using a predefined map template. Access to each of the web mapping portals will be through individual local government websites.

One of the highlights of this collaborative program will be in expanding national web exposure for each municipality through registration with the Geospatial One-Stop (GOS) which is an online tool for combin-

ing thousands of geospatial resources from federal, state, local, and private sources. Upon completion of the project, the Google-driven search engines integrated with the GOS portal (www.geodata.gov) will harvest metadata records for both the spatial datasets and newly created web mapping service for each municipality.

Finally, the grant program will also include metadata training (www.fgdc.gov/metadata/meta_stand.html) at four locations throughout the county over the next 12 months. Dates, times and exact locations of the metadata training, which will be provided free of charge, will be posted on the county's GIS web site. The first training session is scheduled for December 20th in downtown White Plains. For more information on the 2005 CAP grant program or information on metadata training sessions, visit the county's GIS website at <http://giswww.westchestergov.com> or contact Ana Hiraldo at (914) 995-4416.



The FGDC grant will enable the county to leverage and redesign its generalized web mapping application (mapping Westchester County) to support community-specific mapping programs in Mt. Vernon, Mamaroneck, and Hastings.

New GIS Publication highlights Westchester County GIS

Westchester County GIS has recently been featured in a new GIS book produced by the International City/County Association and the ESRI Press. Entitled "The GIS Guide for Local Government Officials," the book highlights case studies and examples on how GIS technology assists local government officials in decision making and coordinating resources. Westchester County is highlighted in an article "Data Sharing in Westchester County" which describes development of the countywide GIS Data Sharing Intermunicipal Agreement (IMA) and the cost savings associated with inter-governmental data sharing. To order a copy of the book visit <http://book-store.icma.org>.

2005 NYS GIS Conference

The 21st Annual 2005 New York State GIS Conference was held at the Hyatt Regency in Rochester, NY October 17-18. Westchester County GIS staff contributed a total of six map posters including: *Westchester County GIS 2005 Environmental Map Series* (Ilir Tota and Chris Smith); *Automating Sewer Inspections for Westchester County Department of Environmental Facilities* (Deb Parker and Rachel Arulja); *Creating a Digital Elevation and Hillshade Model for Westchester County* (Cindy Louie); and *Development of an ArcIMS Criminal Data Warehouse Intranet Application* (Tong Zhou). Ana Hiraldo's poster entitled "Local Government Data Integration with Westchester County GIS" won 3rd place in the poster contest. All NYS GIS conference posters can be viewed at giswww.westchestergov.com. In addition to the map posters, Sam Wear made a presentation "GeoSpatial One-Stop (GOS Version 2) New Opportunities for Data Sharing, Data Access, and Web Services for NYS Governments and Agencies".

IPEG Version 2

After reviewing and evaluating proposals which were received from a formal Request for Proposals (RFP) issued earlier in the fall, Westchester County GIS has selected Fountain Spatial, Inc. (formerly Applied GIS) to provide programming services associated with enhancements to the Indian Point Emergency GIS (IPEG) application. The application, which is utilized extensively by county emergency services staff, is written with ESRI's ArcGIS Engine 9.1 technology and designed for both networked or stand alone environments. In addition to making enhancements to application search capabilities, context menus and report generation, Fountain Spatial will also be responsible for updating user manuals and on-site installation and training. For more information, contact Tong Zhou at taz2@westchestergov.com.

GIS Grants

Westchester County GIS staff is working with 2005-2006 New York State Archives grant award recipients including the cities of *Peekskill* and *Mt. Vernon*, towns of *Mamaroneck* and *Ossining*, and the *Village of Pleasantville* on a wide range of GIS implementation tasks. State grant funding is anticipated to be used for the acquisition of hardware and software, data development, and consultant support services. Additional grant opportunities include the Real Property Tax Administration Technology Improvement Grant Program (RPTATIP). Grant applications are available at www.orps.state.ny.us and are due December 30, 2005. ESRI has recently announced the 2005 Homeland Security Commercial Equipment Direct Assistance Program (CEDAP). This program is designed to provide GIS software and training for first responders. For more information contact Ana Hiraldo at (914) 995-4416.

QA/QC Procedures Utilized with Base Map Update

In 2000, Westchester County embarked on the development of its first-ever digital land base, consisting of full-color orthophotography and planimetric features mapped to National Map Accuracy Standards at 1"=100'. A 15-month production effort by the project photogrammetrist resulted in 240 gigabytes of GIS datasets: over 270,000 building footprints, 1,370 miles of roadway, 4,567 miles of rivers and streams, 2,833 water bodies, and 166 miles of railroad track. Digital products included half-foot GeoTIF and MrSID images, and planimetric and topographic data in coverage format.

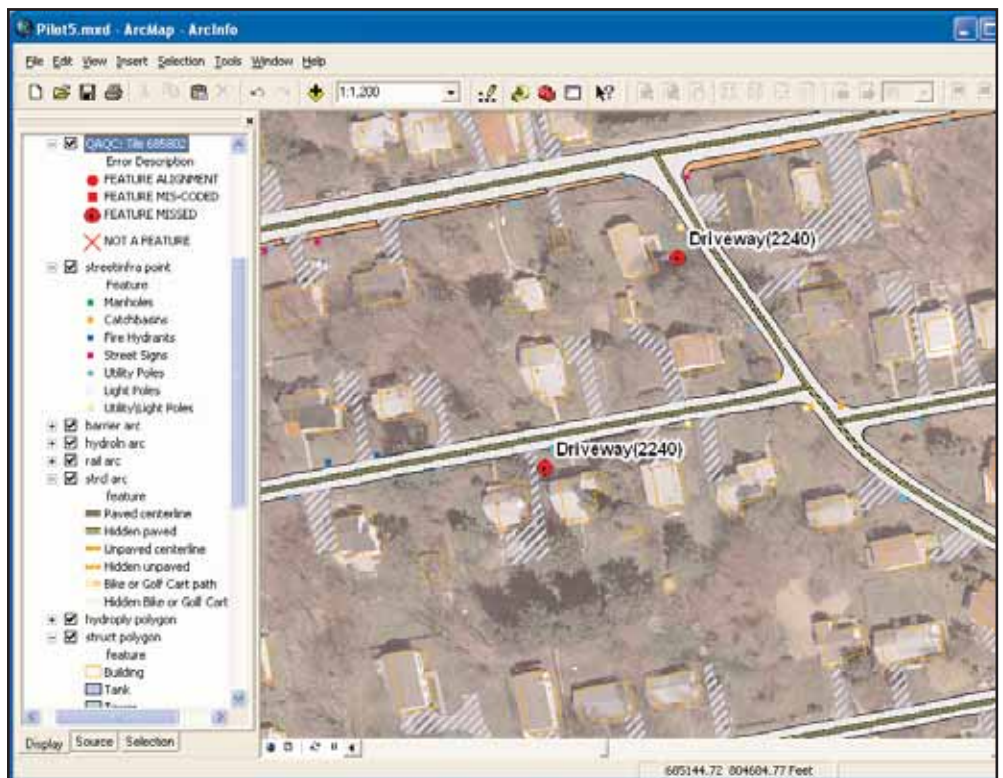
In 2003, the County began to plan an update to the countywide base map in concert with the New York State Digital Orthoimagery Program's 2004 aerial photography campaign. The County negotiated with NYS-DOP to fly at a lower altitude (3600' above mean sea level), to acquire 600-scale photography. In addition to updating existing planimetric data, the higher-resolution imagery would be used to map street features such as catch basins, fire hydrants, manholes, and produce 2-foot contours.

Central to the success of both the original project and the 2004 update is the incorporation of Quality Assurance/Quality Control (QA/QC) procedures by an independent contractor. By definition, QA/QC is intended to guarantee that products meet contracted

standards and criteria, confirming accuracy, completeness, connectivity, and conformance to design. While the QA/QC program for 2000 project relied in part on the production, exchange and manual review of hard-copy plots, the 2004 QA/QC program is substantially automated. This greatly speeds processing time, expedites data sharing between vendors and client, and results in improved project tracking and management of data deliveries. QA/QC procedures protect the significant investment an agency makes in large data development projects.

Automated QA/QC routines test for duplicate, incomplete or missing geometry, edge-matching discrepancies (such as between adjacent tiles), and consistency with 2000 datasets. Customized routines validate feature attributes: verifying values fall within prescribed domains, finding null values, etc. Automated procedures load image scans in a stereo environment, and each tile is visually checked for a wide range of digitizing errors, including missed, misaligned, or misinterpreted features. Finally, metadata is examined for FGDC compliance.

Due to the presence of vehicles, buildings, or shadows at the time of photography, some street features may have been obscured; as such, no dataset can be expected to be 100% complete. For more information on the base map QA/QC work, contact Deb Parker at (914) 995-3888.



QA/QC reports are produced directly in the GIS, using shapefile (SHP) format. Errors are recorded in standardized categories (feature missed, mis-coded, mis-aligned, incorrectly identified as a feature), by layer (TRANS is the edge-of-pavement layer) and by code (2240 for driveways).

New Black and White Aerial Photo Prints Available

New black and white aerial photo prints from spring 2004 aerial photography are now available in the county Planning Department. The new series of prints, which update and replace the set from spring 2000, were derived from the same photography supporting the current countywide base map update.

The new hardcopy photo index consists of 325 photo tiles that cover the entire county at a scale of 1"=200' on sheets measuring 36" x 36". The photos have been digitally corrected to allow perfect edge-matching of adjacent paper sheets. A selected number of the 325 photo tiles contain "sensitive sites" as identified by the Westchester County Department of Public Safety and are subject to distribution restrictions.

The Planning Department has long been the county's repository for hard copy aerial photography dating to 1925 which has typically been flown in 5-10 year increments. The department also maintains nine-by-nine inch (9" X 9") contact proof prints for most flights.

Department staffs are currently working with the Westchester County Archives and Records Center which recently received a grant from the NYS Archives Local Government Records Management Improvement Fund (www.archives.nysed.gov) for a pilot project to scan selected historical pho-

tos for integration into a GIS-based application (ArcIMS) which will provide "improved public access" to the 1925-2000 aerial photograph collection. These images will be georeferenced allowing GIS users to overlay with existing GIS vector datasets.

Funding from the grant will be utilized to scan and index original photographs as 600 dpi TIF images. The county's Records Center selected Applied Geographics, Inc. (www.appgeo.com) to coordinate review of the scanning effort, convert the images to jpeg2000 format, and to provide application development services. Funding will also be used to purchase new system hardware and software components. Additionally, the original photographs will be catalogued, housed in archival folders, and stored in environmentally controlled vaults at the Archives. The county's network and server system will provide storage, security, and backup for these new image files.

Black and white paper prints can be purchased from the Planning Department for \$5.00. Contact Karen Duffy at (914) 995-4418 or kdd4@westchestergov.com. For more information on the Archives project contact Patricia Dohrenwend, County Archivist, at (914) 231-1501 or pdn1@westchestergov.com.



New aerial photo prints have been produced by the Sanborn Map Company from the 2004 countywide base map update program. Based on April 2004 photography, the prints are "leaf-off" and include countywide coverage. This print covers the Hudson River shoreline along the northern section of the City of Yonkers.

GIS Data Downloads

GIS staff continue to work closely with county departments and local governments in the maintenance of coverages in the county's central GIS database. While early datasets (1987-1995) were automated at smaller scales (1"=2000'), recent data layers such as countywide planimetrics from the 2000 base map program have much higher accuracy and registration and meet national map accuracy standards (<http://nationalmap.gov/gio/standards/index.html>) at 1"=100'. Other countywide coverages which were either automated from other sources or smaller scales are being systematically re-registered to the county base for spatial consistency. Though public security issues and concerns restrict the distribution of some data coverages, Westchester County continues to maintain a proactive approach in providing over 70 coverages and accompanying metadata for download from the county's GIS website. For more information on county GIS database maintenance activities, contact Ilir Tota at (914) 995-8117.

GIS Staff Outreach

GIS staff recently made presentations at two county professional associations. On September 14th, Sam Wear provided an overview of the current countywide base map update to the *Municipal Administrators Association of Metro NY* with regard to anticipated delivery schedules and data elements which will be provided to local governments as part of the county's GIS Data Sharing Intermunicipal Agreement (IMA). On Friday, November 18th, GIS staff members Tong Zhou and Ana Hiraldo made presentations at the *Westchester County Tax Commission Annual Assessor Conference* highlighting current desktop and Internet tax map applications which the county makes available to local governments.

NYS GIS Association

The New York State GIS/LIS Association has formally announced a name change to the NYS GIS Association (www.nysgis.org). Formed in 2003 by a small group of New York GIS professionals, the Association has grown to include eight statewide regional chapters and maintain their website in partnership with the Institute for the Application of Geospatial Technology (www.iagt.org). With advocating educational and professional development opportunities as one of its primary goals, the Association works with the GIS Certificate Institute (www.gisci.org) to promote GIS certification throughout the state. The Association also provides support to the annual NYS GIS conference and promotes "skill-building" workshops with vendors and other professional associations. For more information, contact Sam Wear at stw1@westchestergov.com.

Westchester County GIS Celebrates GIS Day 2005

On November 16, 2005, Westchester County celebrated its 3rd annual GIS Day with a gallery of map posters in the lobby of the county office building in downtown White Plains. County workers and the general public were able to view posters which were

submitted by county staff, local government GIS users, and consultants that offer and provide GIS services throughout the county. Augmenting the display of maps was a poster contest which enabled viewers to vote on their choice for the top three posters. Held as

a part of the National Geographic Society's Geography Awareness Week, GIS Day is an international grassroots event designed to promote geographic literacy in schools, communities, and organizations. GIS Day enables GIS users around the world to open their doors and sponsor events that spread knowledge about the capabilities of GIS technology and the importance of geography throughout their communities.



Raj Mehta, City of New Rochelle Public Works Department, reviews a poster with county employees during GIS Day. Submitted by Columbia University, the poster displayed information on a county research project in collaboration with Westchester County Mental Health Services.

Paul Gisondo, Westchester County Dept. of Planning, won the poster contest with his map entitled "Colonial Greenway" which highlights a 14.5-mile regional trail loop system in the southeastern part of the county that is being developed by Westchester County and five municipalities. Second place was awarded to Ana Hiraldo, Westchester County GIS, and third, to George Musa, Columbia University, Child Psychiatric Epidemiology Group. Peter Eschweiler, former Westchester County Planning Commissioner and important contributor in establishing the county's GIS program in the mid-1980's, also attended the event and voted in the poster contest. The poster contest was made possible by support from Microdesk, Inc., Hewlett-Packard, and ESRI. PDF files of the winning posters are available for download from the county's website at <http://giswww.westchestergov.com>.


Andrew J. Spano, Westchester County Executive
County Board of Legislators

DEPARTMENT OF INFORMATION TECHNOLOGY

908 Michaelian Office Building
148 Martine Avenue
White Plains, NY 10601

Articles and graphics in this newsletter prepared by: Xiaobo Cui, Paul Gisondo, Ana Hiraldo, Cindy Louie, Deborah Parker, Ilir Tota, Sam Wear, and Tong Zhou.



<http://www.westchestergov.com>

Westchester County **GEOGRAPHIC INFORMATION SYSTEMS**

is published by the Westchester County Department of Information Technology

Andrew J. Spano, County Executive

Dr. Norman J. Jacknis, Chief Information Officer