

GEOGRAPHIC INFORMATION SYSTEMS

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Proposed Digital Flood Insurance Rate Maps Released

90-Day Public Review Period Underway

The Department of Homeland Security's Federal Emergency Management Agency (FEMA), in cooperation with the New York State Department of Environmental Conservation, recently released new hard-copy versions of the proposed digital flood insurance rate maps (DFIRM) for Westchester County. In development since 2003, the DFIRMs depict flood risk zones and Special Flood Hazard Areas (SFHAs)-areas that have a 1% or greater chance of flooding in any given year. It will be used with the accompanying Flood Insurance Study report to determine flood insurance requirements and applicable floodplain development regulations. The maps were issued September 29, 2006, and meetings with local officials were held November 27-29 at the County Center.

Because of its dense population and map update needs, Westchester County emerged as an early candidate for a flood map update under FEMA's Map Modernization efforts.

FEMA designed its Map Modernization plan in 1997 to address an increasing backlog of outdated maps. Because flood hazard conditions are dynamic, older maps may not reflect recent development and/or natural changes in the environment. Up-to-date maps support a flood insurance program that is more closely aligned with actual risk, encourages wise floodplain management, and increases the public's flood hazard awareness. For its part, Westchester County provided excellent GIS data including topography, base map features, and orthoimagery produced in 2000.

Dewberry (Fairfax, Virginia, www.dewberry.com), FEMA's prime contractor on the DFIRM project, is bringing the disparate individual communities' maps into a seamless countywide digital product. Dewberry was also responsible for developing new approximate study floodplain analysis and mapping for the DFIRM. New hydrologic and hydraulics analysis for over 130 miles

of stream throughout the county developed by Leonard Jackson Associates of Pomona, New York were used in the analysis. In total, the new DFIRMs represent a more updated flood hazard analysis throughout the county. Hardcopy maps are available for review at the Westchester County Department of Planning, 148 Martine Ave. 4th Floor. Interested individuals should contact David Kvinge at (914) 995-2089 to make arrangements to see the maps. Users can also obtain more information on FEMA's map modernization effort at www.fema.gov/plan/prevent/fhm/mm_main.shtm or the NYSDEC project website www.dec.state.ny.us/website/dow/wgit/fpm/index.html. Individuals may also contact FEMA's Paul Weberg at (212) 680-3638 or NYSDEC's William S. Nechamen at (518) 402-8151. County GIS will be making the new digital data available from its website once the data has been made final by FEMA.



This version of the newly released FEMA digital flood insurance rate maps highlights areas surrounding the Mamaroneck Village Marina in the Village of Mamaroneck. The cross hatch pattern represents special flood hazard areas subject to inundation by the 1% annual chance of flooding.



Green Map System

Westchester County GIS is pleased to announce a new partnership with the Green Map System (www.green-map.org). The Westchester County Green Map is aligned with Westchester County Executive Andy Spano's Climate Protection: Westchester Global Warming Task Force which includes representatives from industry, government, schools, and environmental organizations. Initial components of the Westchester County Green Map are scheduled for first quarter 2007. For more information on the Green Map Project, including how to contribute to the mapping program, contact Cindy Louie at llc4@westchestergov.com

Local Government News

This year's recipients of Local Government Records Management Improvement Fund (LGRMIF) Grants to conduct GIS User Needs Assessment (UNA) studies included the towns of **Somers**, **Eastchester** and the **Village of Pelham Manor**. The studies are currently being conducted by Bowne Management Systems and are expected to be completed by the end of this month. Both the towns of **Eastchester** and **Pelham** have also received funding from the NYS Office of Real Property-Real Property Tax Administration Technology Improvement Grant Program (RPTATIP) to develop digital tax parcel data. The **Town of Mamaroneck** is currently working with Sanborn Map Company on the development of digital tax parcel data which will include the villages of **Larchmont** and **Mamaroneck**. For more information, contact Ana Hiraldo at aeh2@westchestergov.com.

Tax Parcel Data Download

In collaboration with selected local governments throughout the county, Westchester County GIS is now making municipal tax map coverages available for download from the county's GIS website at giswww.westchestergov.com. All data has obtained directly from the local government or its tax map maintenance contractors. All tax map data is being made available in "as is" condition and has not been scrubbed, edited or verified by the county. The amount of attribute data associated with each tax parcel varies by municipality with some containing both section, block and lot (SBL) number and property classification codes while others have only SBL numbers. Assessor contact information is also available for users who need more information. To ensure successful data download please use Internet Explorer version 6.0 or higher. For more information on this project, contact Ana Hiraldo at aeh2@westchestergov.com.

LIS GIS Study

Westchester County GIS was asked by the Center for International Earth Science Information Network (CIESIN) at Columbia University to provide support on a GIS-based analysis of Westchester County parcel data along Long Island Sound. The goal of the project is to assemble existing parcel data adjacent Long Island Sound and identify significant remaining unprotected and undeveloped parcels. A GIS-based assessment model and associated database will help NYS-DEC to improve current coastal management and assessment practices. For more information, contact Dr. Yuri Gorokhovich at ygorokho@ciesin.columbia.edu.

Blue Mountain Middle School Celebrates GIS Day

On November 16, Westchester County GIS staff participated in GIS Day activities at the Blue Mountain Middle School (www.henhudschools.org/bmms/index.htm) in Cortlandt Manor. Dietrich Knauer, currently a senior at Hendrick Hudson High School and a former student at the Middle School, organized various activities and presentations throughout the day.

Dietrich provided a "geography" awareness presentation in several of Sean Bugara's 7th grade science classes over the course of the day. (Mr. Bugara is a science teacher at the middle school). Each presentation consisted of a Powerpoint presentation tailored to natural science applications of GIS such as tracking annual precipitation in New York state, tracking avalanches, and an in-depth sea turtle study in Bermuda, as well as reviews of maps and posters of various Westchester County GIS projects. The presentation was followed by a "Question and Answer" period which was facilitated by county GIS staff members Ilir Tota and Cindy Louie. One of the most popular features of each session was each of the students finding their homes on a large orthophoto map of the middle school and surrounding area. At the end of each class, prizes were raffled out to the students including t-shirts, CD holders, caps, pins, and stickers donated by ESRI (www.esri.com) and the Replogle Globe Company (www.replogleglobes.com).

Although the sessions were brief, Blue Mountain Middle School students demonstrated a considerable amount of interest in the geography concepts and products which were presented. Students made connections with maps which were routinely interpreted correctly. Having a former middle school student (Dietrich Knauer) to serve as both a presenter and facilitator of the event made a good impression on the students as well. Dietrich plans to enter college next fall to study geography and GIS.

GIS Day is sponsored by the National Geographic Society (www.nationalgeographic.com/geographyaction), Association of American Geographers, University Consortium for Geographic Information Science, U.S. Geologic Survey, Library of Congress, Sun Microsystems, and ESRI. GIS Day is celebrated throughout the county, during Geography Awareness Week (www.mywonderfulworld.org/gaw.html), to educate children and adults about how geography makes a difference in our lives through the technology of GIS. The event allows geographic information systems (GIS) users to open their doors to schools, businesses, and the general public to demonstrate real-world applications of this technology. To be part of the next GIS Day or for more information visit www.gisday.com or contact Ana Hiraldo at aeh2@westchestergov.com.



Blue Mountain Middle School students enthusiastically participated in GIS Day activities on November 16. County GIS staff supported the work of Hendrick Hudson senior Dietrich Knauer (left) and science teacher Sean Bugara (right).

Probation Department Embraces Crime Mapping Capabilities

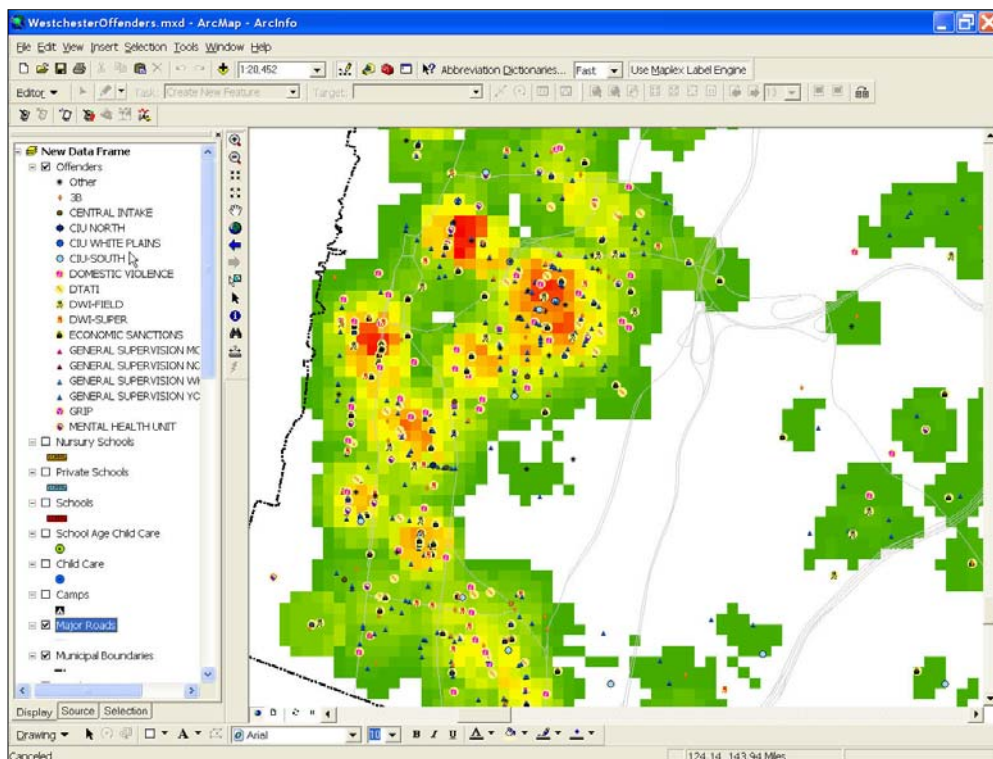
We have all seen it on CSI and other made-for-TV crime dramas; with a click of a button a hotspot map of various crimes or offender status is flashed up on the big screen for analysis by a room full of law enforcement personnel. Up to now, this has only been fiction for Westchester County's Department of Probation, but no more. Using various GIS tools and mapping techniques, county GIS staff is now helping build capacity in Probation to generate and interpret such maps.

In what is hoped to be the first of many such endeavors, GIS staff has created a hot spot map of individuals currently registered in county and state probation programs. ESRI's ArcGIS Spatial Analysis extension provides users with the ability to create cell-based "density" maps on a certain theme of probation data (code). Icons are associated with each probation code (DWI Unit, Sex Offender Unit, General Supervision Unit, etc) and associated to the probationer's address of record to give further context to the density map and assisting in exposing patterns in the data. The data itself was sourced from several Probation databases maintained collectively by Westchester County which had been previously scrubbed and geocoded using a custom-built GIS web service. The composite database consists of over eight thousand individuals currently on probation from ages 16 to 94.

To date, several different types of thematic maps have been generated. Most recently, maps of the Probation Department Cease-fire Project in Yonkers, Mount Vernon, White Plains and New Rochelle have been generated and distributed to broad acceptance within the department. A county wide Crease-fire Project map was also created. Hot spot maps highlighting probationers involved in gang-related incidents and DWI incidents have also been produced.

Jim Duque, a supervisor in the Department of Probation, notes "Use of Crime Mapping Data is in its infancy in the Department of Probation. However, so far we have been able to use this technology to visualize patterns and begin to analyze hot spots. It seems to have great potential."

Although all maps are currently being created by GIS staff, ArcGIS software has been installed in the Department of Probation with the intent of providing GIS mapping applications to department staff to utilize with their own resources. Training is anticipated for several Probation staff and it is hoped by the end of 2007, GIS will have made deep inroads to the analytics of crime data and patterns in Westchester's Department of Probation, leading to better positioning of resources to react to changing trends and patterns. It is also anticipated by displaying individual case loads on the map, caseload distribution can be streamlined for better efficiencies.



Using data provided by the Department of Probation, a county-wide density map of probation offenders was created. In the image above, a small section of this countywide map is shown. In addition to the density raster layer, symbols representing offender type are also included.

Planner Takes Map Prize

Paul Gisondo, Associate Planner in the Department of Planning, won second place in the map contest at the 22nd Annual New York State GIS Conference held in Lake Placid, October 23-24. Paul's new park map of Ward Pound Ridge Reservation combines features mapped from the county's photogrammetric base map (topo, building footprints, edge of pavement) with trail data collected with Global Positioning Systems (GPS). The map was initially designed and developed with ArcGIS and exported to Adobe Illustrator for final editing and publishing. The 11"x17" map replaces a hand-drawn black and white map which had become obsolete and difficult to update. A copy of the map can be downloaded at www.westchestergov.com/planning/maps&lists/WardPoundRidge11x17.pdf. For more information contact Paul Gisondo at pxg3@westchestergov.com. Congratulations Paul!

Chinese Delegation Visit

Delegations from the Chinese Wuhan Survey and Design Research Institute and the Singapore Land Authority recently visited Westchester County GIS. Both delegations discussed several components of the county GIS program including staffing, data and application development, and working relationships with state and federal programs. While the Singapore delegation was focused more on learning about the county's spatial data infrastructure policies - particularly with regard to the USGS Federal Geographic Data Committee (FGDC), the Chinese delegation focused more on the county's deployment of GIS and GPS applications in the areas of emergency services, and transportation and environmental features program. For more information, contact Xiaobo Cui at xxc1@westchestergov.com.

2007 Airphoto Project

County GIS plans to partner once again with the New York State Digital Orthoimagery Program (NYS-DOP) for acquisition of color digital orthophotography during the Spring (April) flying season. The collaborative effort has proven to be a win/win effort for both agencies by leveraging the state's large investment in the statewide program and by eliminating the issue of duplicate data acquisition efforts. The state's orthophoto specification supports all of the county's photogrammetric needs and requirements. Counties participating in NYS-DOP incur those costs to upgrade the products from the basic level negotiated by the state, such as the increased spatial resolution, color infrared, or panchromatic (black/white) options. The 2007 will result in the third complete set of half-foot true-color orthophotography covering the county. For more information, contact Deb Parker at dape@westchestergov.com.

Articles and graphics in this newsletter prepared by: David Blake, Xiaobo Cui, Jim Duque, Paul Gisondo, Yuri Gorokhovich, Ana Hiraldo, Cindy Louie, Deborah Parker, Ilir Tota, and Sam Wear.



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New Digital Countywide Soil Survey Available

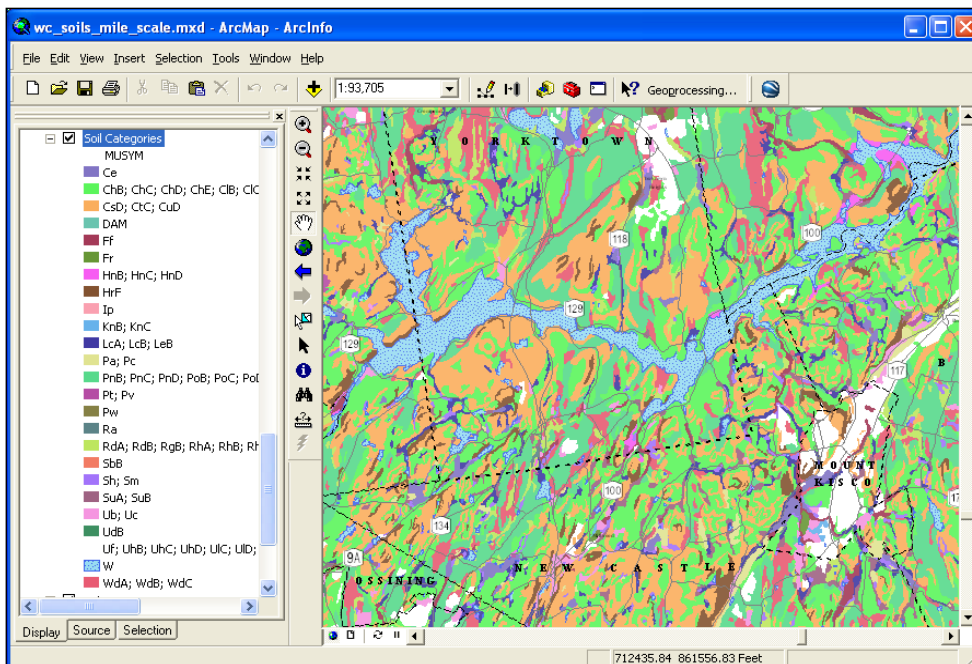
The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) recently released an updated digital soil survey which includes Westchester County.

This is the first comprehensive digital update of the Westchester County soil survey which was originally automated in the early 1990's from 1"=1000' scale soil survey mylar.

The new soil survey dataset is accompanied by metadata which describes soil components, properties and attribute coding. Also included in the metadata is a description of all automation procedures which included the combination of traditional digitizing techniques, field verification, and interpretation of remote sensing imagery.

County GIS and Planning Department staff have also generated a new countywide hydric soils layer base on three essential hydrophytic characteristics. Hydric soils are often characteristic forms of hydrophytic vegetation (www.wetlands.com/coe/87manp3a.htm) and wetland hydrology features. Hydric soils are located in areas of depression that are either very or somewhat poorly drained and/or frequently flood, and generally contain 0% to 3% slope. Both the composite countywide soils and hydric soils datasets will be available for download at giswww.westchestergov.com.

For more information visit the NRCS website at www.nrcs.usda.gov. or contact Ilir Tota at iat2@westchestergov.com. Users may also want to explore the NRCS Web Soil Survey online at websoilsurvey.nrcs.usda.gov/app to review soil datasets for specific geographic areas.



Hydric Soils classifications were selected using reports from the new USDA soils database. Symbols then were extracted from the entire county soil data categories to create a new Hydric Soils layer.