Westchester gov.com

Robert P. Astorino, Westchester County Executive
County Board of Legislators

Robert P. Astorino
County Executive
Marguerite Beirne
Chief Information Officer
Sam Wear
Assistant Chief Information Officer (GIS)
Department of Information Technology
Geographic Information Systems

GEOGRAPHIC INFORMATION SYSTEMS

Volume 15 Number 1 *Spring 2011*

Public Water Distribution System Mapping

Critical infrastructure component the focus of countywide inventory

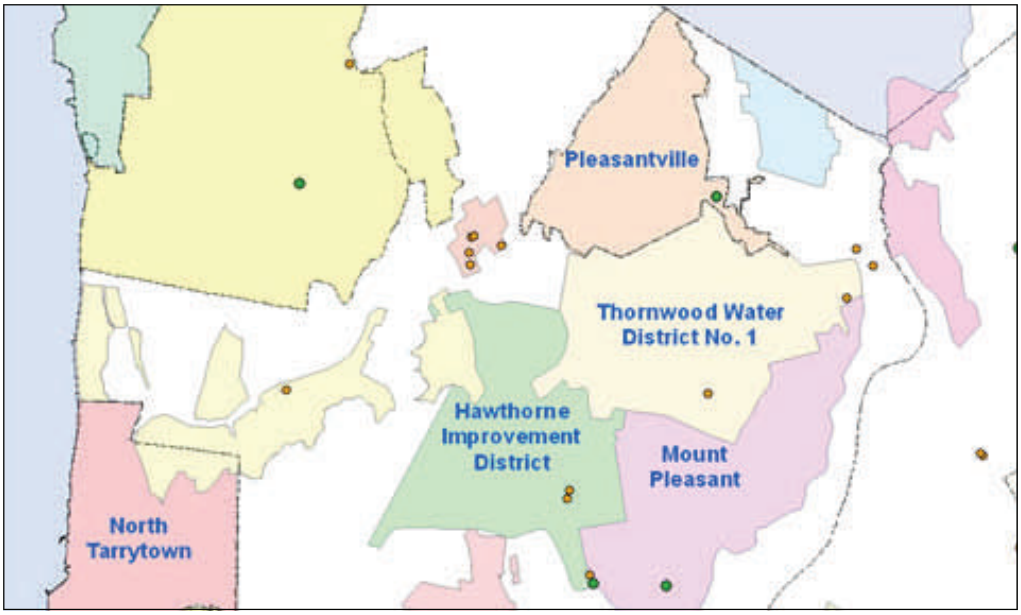
Recognizing the public drinking water supply system as one of the County's most important critical infrastructure elements, Westchester County Geographic Information Systems (GIS) has teamed with the Department of Emergency Services (DES) to initiate the development of a countywide geospatial database of the system. The effort is another project in the DES "GIS Lifelines" initiative and will be used by emergency planning and response personnel within the County's GIS mapping and viewing environments in the Department of Emergency Services (DES) and at the Emergency Operations Center (EOC). Staff from the County's Water Agency and Department of Health is also contributing to the project. The project is being funded through grant monies from the New York State Homeland Security Program.

"The GIS Lifelines projects are valuable Public Safety initiatives that will assist the Westchester County Department of Emergency Services equally in planning for and responding to emergencies," notes DES Deputy Commissioner John Cullen.

Through a formal Request for Proposal (RFP) process, the County selected Henningson, Durham, and Richardson Architecture and Engineering, P.C. (HDR) to assist the County in the compilation of the information and creating the geospatial database. In addition to assembling and organizing available digital water system distribution data (GIS and AutoCAD formats), HDR tasks will include confirming or developing service area boundaries for each system and geo-referencing hardcopy or non-spatial digital (raster/image) maps, and gathering information on connections, storage tanks, treatment plants and pump stations. Westchester County personnel will serve as facilitators throughout the course of the project.

Agencies and municipalities responsible for public water supply infrastructure vary throughout the County. Some municipalities maintain their own municipal water system infrastructure while others are served by water utilities. Towns in the northern portion of the County have limited municipal systems (serving only a portion of the municipality) or smaller designated "public" water supply systems serving condominium developments, property associations, or individual facilities such as schools, restaurants, hospitals, and parks. For this project, the County seeks to collect available water system infrastructure data for systems identified in a public water supply (PWS) table maintained by Westchester County Department of Health. The PWS table names 289 unique public water systems.

The project is currently underway with completion anticipated later during the calendar year. For more information, contact Ilir Tota at iat2@westchestergov.com.



The County's public water distribution system inventory and mapping project will focus on establishing more definitive boundaries for water districts which will aid in identifying specific properties and facilities. Unlike municipal-wide systems, some are very small servicing locations such as a single hospital or condominium complex.

Upcoming GIS Events

NYC Arc User Group Symposium
June 17, 2011
26 Federal Plaza
New York City
http://www.nycarcuser.org

2011 NYS Geospatial Summit
June 15 - 16, 2011
Welch-Allyn Lodge
Skaneateles, NY
http://www.nygeosummit.org/

2011 NEARC Conference
November 13-16, 2011
Saratoga Hilton Hotel
Saratoga Springs, NY
http://www.northeastarc.org/2011

ESRI Community Map

Westchester County is currently working with ESRI to integrate County basemap features into ESRI's "*World Topographic Map*" as part of the Community Maps Program. Through the program, GIS organizations share their local data with ESRI which then integrates and combines the local data with other similar datasets into uniform and consistent map services. The County contributed data layers such as building footprints, 2-foot contours, transportation, environmental and landmark features. Westchester County is one of 287 contributors worldwide to the Community Maps program. Community Map services are free and can be used with ArcGIS 9.3 SP1, 9.3.1, 10, and the ArcGIS Web Mapping APIs. For more information, contact Cindy Marx at llc4@westchestergov.com.

Tax Parcel Viewer Updates

Municipal Tax Parcel Viewer, which was developed by County GIS and delivered to public and local municipalities over the Internet, is an application that enables assessors and citizens to query local tax parcel data, identify property owners, print tax maps, and generate "abutter" mailing labels. The viewer is currently being made available to 23 municipalities, including: Peekskill, Cortlandt, Eastchester, Mt. Kisco, Rye Brook, Croton-on-Hudson, Dobbs Ferry, Elmsford, Hastings-on-Hudson, Irvington, Pelham, Sleepy Hollow, Tarrytown, Tuckahoe, and Ossining. County GIS continues to update the availability of individual municipal viewers on an on-going basis. For a complete listing of the available municipalities and to access the viewer, please visit our Interactive Mapping webpage. For more information, contact Zhenglu Zhang at zqz1@westchestergov.com.

AGX Mash-up Award

GIS staff member Sam Wear's "myNewYorkviewer" ArcGIS Explorer (AGX) mash-up came in third place in the recent *2011 National Map Users Conference Mashathon competition*. Over 30 users contributed mash-ups from across the country were included in the competition. Drawing from his recent IPA (Intergovernmental Personnel Act) detail with the U.S. Geological Survey in Reston, VA, Wear focused his mash-up on the Marcellus Shale gas development in the Southern Tier region of New York state. The mash-up included a wide range of authoritative federal, state, and local datasets and map services. Download the AGX project.

Adaptive Deer Management Program in County Parks

GPS and ArcPad improve field surveys

Overabundance of white-tailed deer (*Odocoileus virginianus*) is becoming a common issue in New York State, with far-reaching ecological consequences. On recommendations of the Westchester County Citizen's Task Force on White-tailed Deer and Forest Regeneration, an Adaptive Deer Management Program was initiated in 2009 in two Westchester County parks. By reducing deer herds, the program aims to limit over-browsing of important tree and plant species, promote forest regeneration, and increase wildlife habitat and biodiversity. Controlled bow hunting was determined to be the safest, most effective method to decrease deer populations while keeping parks open to the public, and a limited bow hunting season was implemented in 2009 by the County's Parks, Recreation and Conservation Department (PRC).

In 2010, the program was expanded to two additional parks with typically high public usage in the fall. Though restricted as to dates, times, and areas to prevent possible conflicts, the 2010 hunt harvested 168 deer, suggesting that bow hunting can be a viable method for population control in high-use areas.

To monitor the program's impact, PRC evaluates both forest condition and deer population over time using science-based methods. "Browse impact pellet count" surveys help estimate deer numbers and their impact on forest health. For each park, five one-mile-long transects were created (parallel lines, a thousand feet apart). A wildlife curator walks each transect, stopping every hundred feet to sample a plot and record the number of deer pellet groups found. At alternate sites, the severity of deer browse damage to target tree species is also recorded.

In the first year, these surveys were performed using a map and compass to stay on course, pacing off the hundred-foot intervals, and obstacles like vast expanses of the head-high pricker bush Japanese Barberry, swamps with knee-deep mud, or rocky hillsides forced observers off-course from planned survey locations. "I'd heard from a land manager at Vassar College who conducts similar deer surveys with a hand-held Trimble GPS unit like one the GIS group has, so I decided to give it a try," said wildlife curator Dan Aitchison.

With ESRI's ArcPad software installed on the Trimble GeoXT, Dan can bring into the field a map of the park being surveyed, with orthophotos, transect lines and study sites, and record observations digitally. The GeoXT displays a red crosshair, showing the curator's exact location on the ArcPad map. "An error of one degree on a compass makes a big difference over a mile. With the GeoXT, I'm able to stay on course and make surveys on the mark. And instead of traversing rough terrain, swamps or barberry fields, I can circumvent them and get to the next plot unscathed" notes Aitchison. When a GPS satellite fix is not available, the map and compass serve as backup. For more information, please contact Dan Aitchison at dxa1@westchestergov.com.

PRC staff used the GeoXT as part of the Canada goose surveys conducted on the seven islands in Playland Lake. The surveys required kayaking to each of the islands and included collecting data on nearly 20 nest sites.

Vehicle Tracking System Migration

During the last four years, DoIT has managed an automated vehicle location (AVL) program used in the Departments of Public Safety, Probation and Correction. GPS devices in the vehicles calculate locations, which are wirelessly transmitted to a remote server. Authorized users log into TrimWeb application, where 73 vehicles are currently tracked, to view maps, replay tracks, generate reports, etc. The vendor, Trimble Navigation, is migrating the application to a different platform (hardware, wireless system, and web interface) and departments agreed to participate in a pilot to test the new system's functionality and interface.

Hardware was installed in six pilot vehicles in mid-April, and department users were provided logins for the password-secured GeoManager tracking application. Designated staff from participating departments will assess the system during a 90-day pilot period ending in July. Users also have access to online self-paced training, as well as telephone customer support. For more information, contact Deb Parker at dape@westchestergov.com.

Local Government User Group Meeting

GIS users from throughout Westchester County and representing several local governments, consulting firms, utilities, and academia convened at the spring GIS User Group Meeting on May 11 at **143 Grand Street** in downtown White Plains. A standing-room-only crowd of nearly 70 attendees listened to a wide range of GIS presentations and *Lightning Talks* (new this year) and to take note on how other users are utilizing GIS capabilities to solve problems and increase productivity. Attendees also had the chance to network and speak with representatives from GIS consulting firms as well as staff from the ESRI Albany and Boston offices.

Presentation subject matter varied across the user community including updates on two key countywide GIS initiatives in the areas of public water supply distribution system mapping and oblique (Pictometry) and street feature photography data capture; GIS mapping in the Thornwood Fire Department; GIS use in the Village of Croton-on-Hudson engineering department; and a status report on the GIS development at United Water (local water utility). User presentations also included a joint presentation from Pace University and the Town of Greenburgh on the use of the *iTree* software, and a report from Dr. Ryan Taylor on the emerging GIS curriculum at nearby SUNY Purchase. Staff from Westchester County provided announcements on new online Census 2010 products (data and maps), introduced new datasets and demonstrated internet utilities, applications and services.

The next Westchester County GIS User Group meeting is tentatively scheduled for November 16 which will coincide with GIS Day 2011. For more information or to become more involved with the User Group meetings, contact Connor Lynch at *cgl3@westchestergov.com* or Sam Wear at *stw1@westchestergov.com*.

Local government attendees listen as Paul Gisondo, Westchester County planner, speaks about the release of the 2010 Census for the County.

WCC Enrollment Maps

Each year, Westchester Community College (WCC) requests GIS staff to create a series of maps showing the location of WCC students enrolled during the fall semester. Addresses are geocoded and then aggregated by each of the County's state and federal assembly, senate, congressional and county legislative districts. For example, using fall 2009 enrollment data, County Legislative District #1 (Peekskill, Buchanan, and Cortland per 2010 county legislative boundaries) had the highest student population of approximately 937 students. The WCC business office uses these maps to support budget planning and provides the state with a set of the maps. For more information, contact Ilir Tota at *iat2@westchestergov.com*.

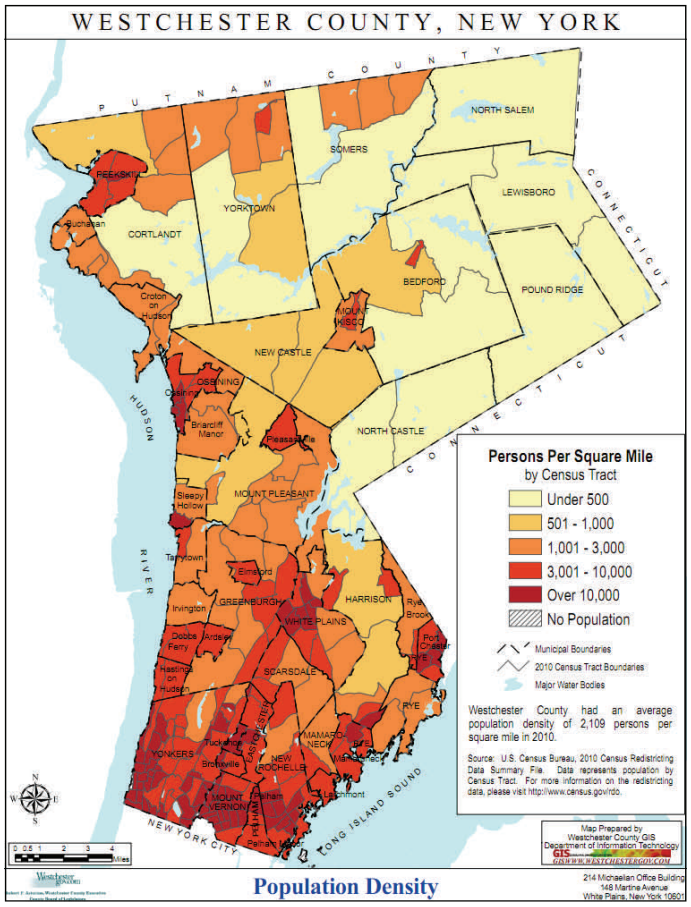
GIS Map Services

Westchester County GIS is now publishing a suite of *industry standard online* map services which can be accessed by a growing number of clients such as Google Earth, ArcGIS Explorer, GAIA 3, and even AutoCAD. Map services are increasingly being used as an efficient means to "publish" and make accessible large catalogs of an agency's GIS database and eliminate the need for a user to download individual coverages for just viewing purposes. Often, map services include the most current and authoritative data an organization is publishing. A listing of ESRI client map services being published by Westchester County GIS is available at *http://gis.westchestergov.com/ArcGIS.Services*. For more information, contact Xiaobo Cui at *xxc1@westchestergov.com*.

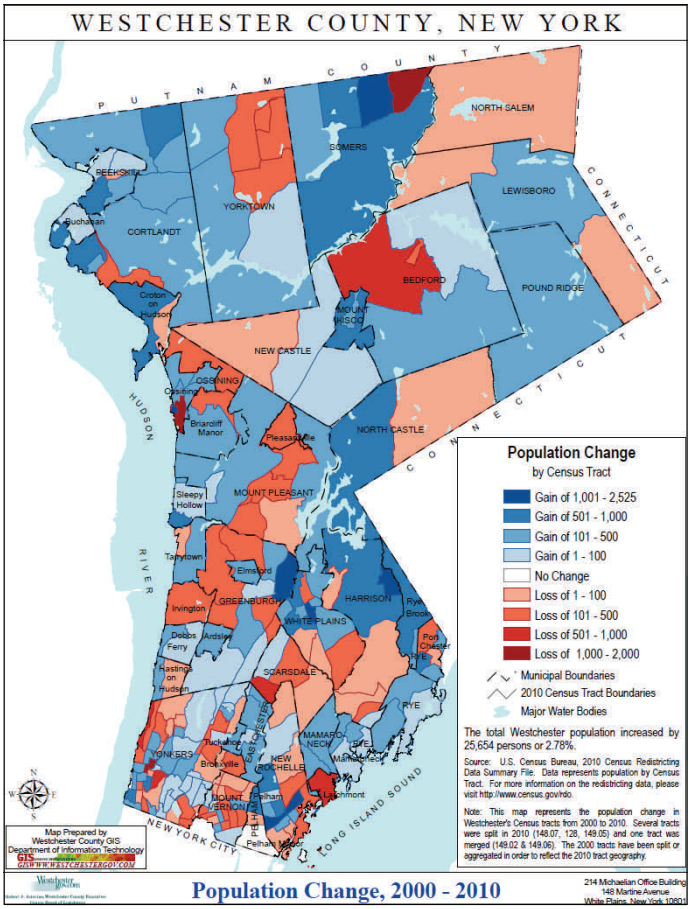
ArcReader, KMZ & GeoPDF

For desktop GIS users, Westchester County GIS continues to make a variety of files and products available for download. Countywide ESRI shapefiles and Google Earth KMZ files can be downloaded from the Data Warehouse link on the County's GIS website, while individual municipal ArcReader project files can be accessed from the Shared Services link. (Users will need the free ArcReader client which can be downloaded from the ESRI website. Over the next several months, County staff will increase the availability of GeoPDF files which can be viewed with Adobe Acrobat Reader. Users with the Adobe GeoPDF toolbar (also free download) can also add/remove layers of data and "mark-up" the file. Watch the GIS website for future GeoPDF announcements.

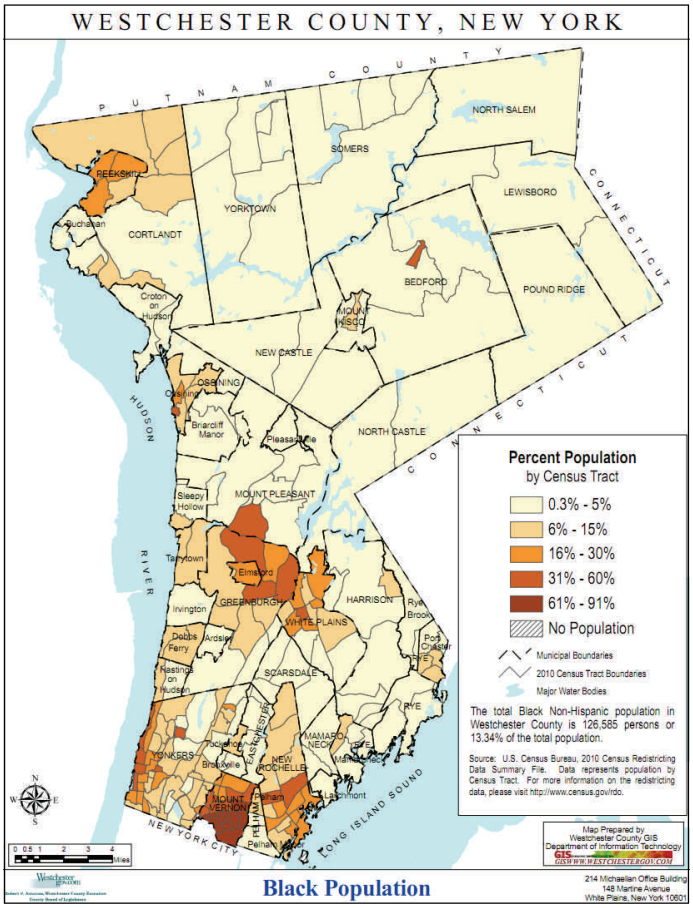
2010 Census Data



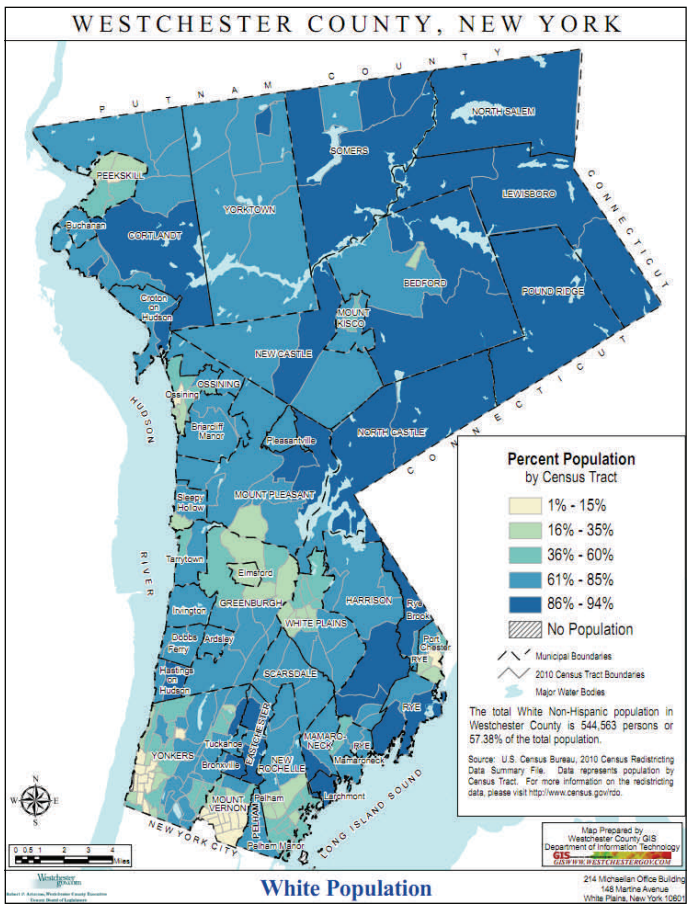
Population Density



Population Change, 2000 - 2010



Black Population



White Population

For more 2010 Census data, maps and map services, please visit our website at http://giswww.westchestergov.com.