

GEOGRAPHIC INFORMATION SYSTEMS

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Vehicle and Asset Tracking Application Launched

Five County departments participate in initial deployment

Westchester County GIS is testing an application, developed under contract with Applied GIS, Inc. (www.appliedgis.com), which tracks both county vehicles and GPS-enabled mobile phones utilizing ESRI ArcGIS desktop software.

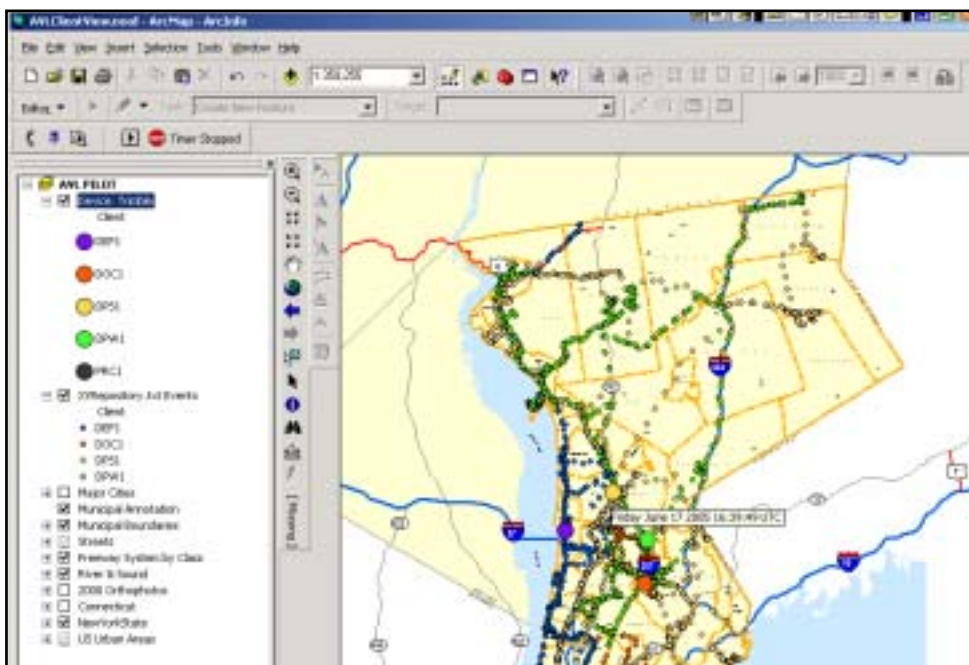
The prototype application was written as a proof-of-concept to track Nextel i730 phones. Using a combination of programming languages and Nextel's wireless network, a text file on a county web server is populated with Client ID (phone number), latitude/longitude, date, and time. This information is then rendered in desktop ArcGIS. Web-based administrative tools are provided to add or delete client devices, control data upload intervals, or allow user configuration of the phone.

The application was developed concurrently with a technology needs assessment, prepared by Applied GIS in conjunction with Waypoint Technology Group ([\[pointtech.com\]\(http://pointtech.com\)\). The assessment evaluated factors including communication mode \(traditional radio frequency \(RF\) vs. cellular\), existing IT infrastructure, and compatibility with county systems such as emergency dispatch and prisoner transport \(Dept. of Corrections\). The needs assessment involved extensive departmental interviews and research of both turnkey and component systems, and resulted in proposals for several AVL solutions that could meet current and future needs.](http://www.way-</p></div><div data-bbox=)

With the intent of moving towards an application which could track and map a variety of devices, the prototype application (AVLClient) was modified to also track conventional vehicle-based GPS devices. The county purchased Trimble CrossCheckGSM units (www.trimble.com) with magnet-mounted antennae for GPS and GSM (Global System for Mobile Communications, an international standard for handling digital voice and data trans-

missions). Vehicles from the departments of Public Safety, Corrections, Public Works (Traffic Engineering), Parks and Environmental Facilities were configuring with the units.

AVLClient "pools" each of the vehicle units at 15-second or user-specified intervals. The application refreshes to display the latest record for each device, using the text file coordinates. All location data is archived to a separate repository file. The project's next steps include reworking the application on a lightweight, more easily distributable platform, and, following evaluation by user departments, adding functions and features they find most important. "We look forward to further deployment of the application," notes Traffic Engineer Kevin Roseman, "Use of AVL technology will assist us to track and deploy forces more efficiently." For more information on AVLClient, contact Deborah Parker dape@westchestergov.com.



The most recent reported positions of the GPS-enabled vehicles are displayed in the AVLClient application (large dots identified by department abbreviation). Smaller dots show previous locations of vehicle activity which are stored in a file repository.

Celebrating GIS Day 2005

Map Poster Contest

Westchester County GIS will celebrate GIS Day 2005 on November 16th by hosting a map poster gallery in the first floor lobby of the county building located at 148 Martine Ave. in downtown White Plains. GIS users throughout Westchester County, including those from government, business, and academia, will contribute map posters featuring recent work and projects utilizing GIS technology. The highlight of the display will be a contest in which visitors will have the opportunity to select a "Best Map Poster." Contest winners will be eligible to win software or online training courses from ESRI. Other information on GIS technology will also be on display. The general public is encouraged to visit the display and participate. Individuals or agencies interested in submitting maps for the GIS Day poster may visit our website at <http://giswww.westchestergov.com>.

DOT Bus Stop Data Viewer

In 2004, Westchester County's Department of Transportation (DOT) contracted to have all Bee Line system bus stops inventoried and mapped. As part of the inventory, which was conducted by Urbitran (www.urbitran.com), information on bus stop (number/ID), bus shelter (yes/no), passenger information, and photographs were developed for each bus stop. Since then, GIS staff has worked with DOT personnel to assemble the data for integration into a customized ArcIMS intranet data viewer for widespread use within DOT. The initial release of the application provides access to the display and query of 3,100 plus active bus stops within the Bee Line system. Users can also view bus stop locational data in context of orthophotography and other facilities common to bus rider destinations such as train stations, libraries, commercial and retail areas, and recreational facilities. For more information on this DOT GIS initiative, contact Patty Chemka at psc1@westchestgov.com or Cindy Louie at llc4@westchestgov.com.

GIS Layers Updates

Staff continue to work closely with several county departments in the maintenance of numerous GIS coverages. Over the past several weeks, either spatial or attribute data has been updated in the following coverages: railroads, public schools, municipal buildings, libraries, hotels and motels, and theaters. Most coverages and accompanying metadata are available for download from the county's GIS website at giswww.westchestergov.com. For more information on coverage updating work, contact Cindy Louie at (914) 995-3014 or email at llc4@westchestgov.com.

GIS Events

NEARC

The Northeast Arc Users Group (NEARC) will host its 20th GIS user conference at the Holiday Inn by the Bay in Portland, Maine, September 18 - 21, 2005. With the theme "From the Mountains to the Sea," the conference is expected to attract over 500 GIS users including government agencies, industry and academia. To register or for more information visit www.northeast-arc.org.

NYS GIS Conference

The New York State 21st Annual GIS conference will be held at the Rochester Hyatt, Rochester, NY, October 17-18, 2005. A wide range of workshops, vendor presentations, and demonstrations including poster sessions are scheduled. For more information and registration visit the New York State GIS <http://nysgisconf.esf.edu>.

Criminal Data Warehouse Mapping Application

ArcIMS program provides access to criminal justice data

ESRI's ArcIMS web mapping technology has been chosen to extend an existing Westchester County criminal data warehouse (CDW) application to provide on-line mapping and data analysis capabilities for law enforcement agencies and other public safety personnel. Staff from both the county's GIS program and IT's Public Safety and Criminal Justice support group have worked closely with ESRI-Boston over the past several months to design an ArcIMS intranet application which provides access to multiple data sources including Public Safety's Record Management System, Correction's Jail Management application, Law Enforcement Fingerprint application, Probation's Criminal Court Offender Management application and County Clerk's Pistol Permit application. The application also enables users to generate reports and hard copy maps.

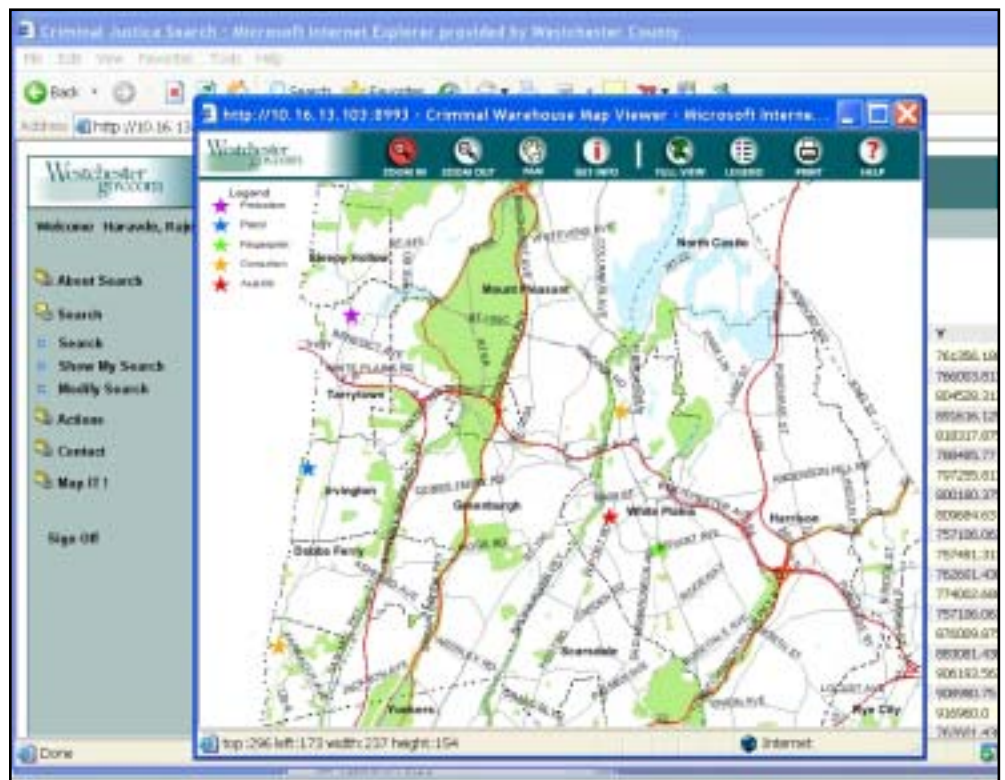
At the heart of the web mapping program is an existing criminal data warehouse application which was previously developed by the county. This existing application utilizes Group1 Address Broker to scrub addresses to standardized format for geocoding. After the addresses are cleaned, they are sent to a geocoding utility to be converted to XYs which will be recorded in the database and passed to the mapping component as part of the query results. The geocoding utility was written in Java using ArcSDE API. This process is run daily to keep information in

the database updated constantly.

Prior to integrating GIS mapping tools, the existing CDW application provides query results in tabular format only. The mapping component enables users to visualize spatial relationships and map the query results with other reference layers in the county's GIS database, including digital orthophotography. This ArcIMS application is written in Java using Java Connector.

Once query results are presented back to the user in tabular format, a "Map Results" link becomes available which the user can utilize to render the query in map format. When users click the link, a new window is open which "maps" the query results with the pre-built map service. Criminal "records" are presented as symbolized points with more labeling and information becoming available as the user "zooms-in" closer to the point. If users want to get detailed information about specific points, a "Get Info" tool is available to select/click on specific records. Detailed information from the source database on the selected point (record) is displayed in another window. Users also have the option to print out the map.

For more information on development of the criminal data warehouse mapping application, contact Tong Zhou at taz2@westchestergov.com or Mark Ruscigno at mjr2@westchestergov.com.



Criminal data records in the CDW application are processed outside of the GIS environment. ArcIMS has been integrated to simply map query results which is initiated by clicking the Map Results link in the right side of the CDW window. Unique types of criminal data records are symbolized differently. (Note five different colored stars in ArcIMS window).

Local Government News

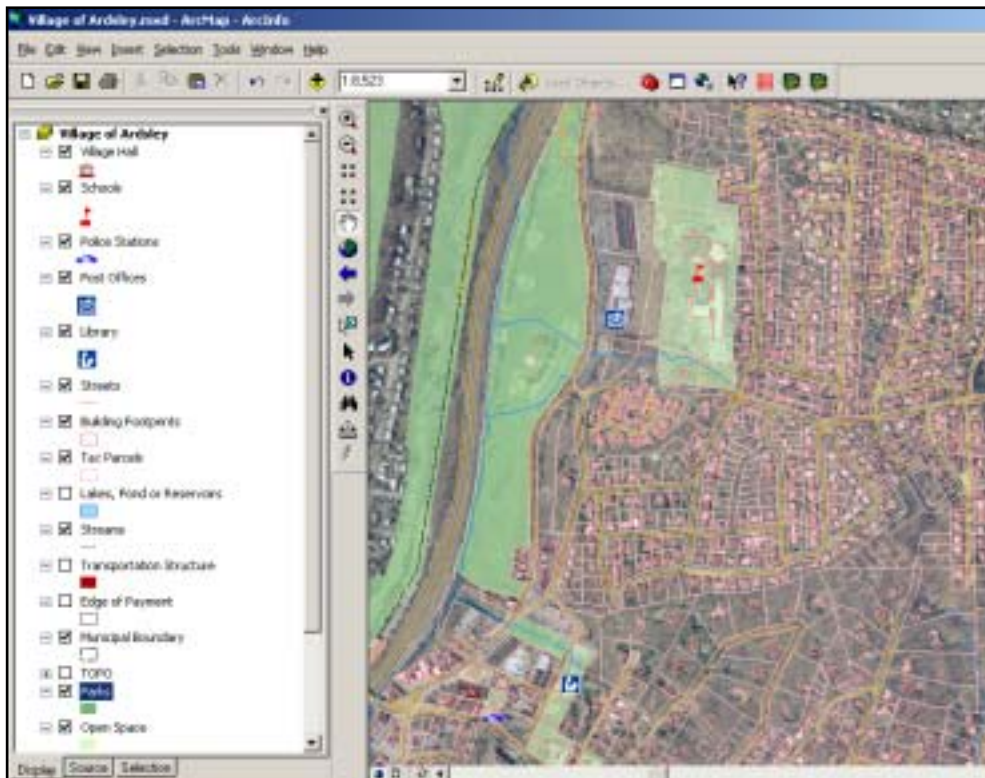
County's GIS Jumpstart Program has successful first 12 months

In August 2004, Westchester County GIS initiated a program designed to assist local government GIS programs. Known as the GIS Jumpstart Program (GJP), the county has successfully assisted and applied the program to six municipalities to date and is scheduled to contribute to additional programs over the next several months.

As originally designed, the GJP provides support in three major areas: Data, Applications, and Technical Support & Training. Data includes access to a wide range of data layers which include community facilities, planimetric and environmental features, and digital orthophotography. Applications include the GIS Data Viewer (web) and Tax Parcel Viewer (web or desktop) which provide basic GIS viewing and mapping functions, and Technical Support & Training which focuses on initial implementation strategies, hardware and software configurations, basic troubleshooting, and integrating GIS with other municipal systems. Training at the ESRI Virtual Campus (<http://campus.esri.com>) is also made available. Another easy-to-use desktop mapping application which is free and available to local governments is ArcReader. As part of GJP, county GIS staff create a "map" (using ArcPublisher) which is then viewed and accessed utilizing the ArcReader software. Much like the web-based applications, ArcReader

allows users to view/browse, perform general ad hoc queries, add/remove layers, identify, and create maps on most GIS datasets currently maintained by Westchester County GIS. Users can also print out maps using a built-in template costumed to include the municipality's logo or other local source notes. If available, local datasets can also be integrated into the program.

To date the cities of **Mt. Vernon** and **Peekskill**, the **Village of Dobbs Ferry** and the towns of **Yorktown**, **New Castle**, and **North Salem** have joined with the county to participate in the program. Over the next three to four months, it is anticipated the villages of **Ardsey**, **Rye Brook** and **Town of North Castle** will also begin working with the county in some capacity with the GJP. The **Village of Ardsley** will be working with GIS staff to develop both the online GIS Data Viewer and Tax Parcel Viewer applications, while **Rye Brook** will be developing an ArcReader (desktop) project. The **Town of North Castle** is also looking to develop an ArcReader project which would allow town staff access to digital orthophotography and other GIS data layers. For more information on GJP or to view local government applications, visit the county GIS website at giswww.westchestergov.com and navigate to the Local Government link.



In developing the Village of Ardsley web-based GIS Data Viewer application, county GIS staff use desktop ArcGIS to create the initial "map document" which is then published in ArcIMS. First generation local government web-based data viewers include community facility locations, environmental features, tax parcel boundaries, and 2000 planimetric datasets.

ArcReader for Public Safety

GIS staff recently installed ArcReader in the Department of Public Safety as a desktop program. Though the department has data viewing and analysis capabilities with ArcIMS applications, ArcReader provides expanded hardcopy mapping capabilities which are routinely requested from Public Safety personnel. Included in the program are central county GIS data layers including orthophotography and planimetric features as well as agency specific datasets such as traffic accident data. As configured, all ArcReader datasets are dynamically linked to the central GIS database. Therefore, any updates to the GIS database will be automatically rendered in the ArcReader program. Because of ArcReader's ease of use and distribution, GIS staff is using ArcReader to share GIS data with other county departments which do not have access to either desktop or web-based GIS software. For more information, contact Cindy Louie at llc4@westchestergov.com.

NYCARC User Group

County GIS staff attended the 4th annual New York City Arc User Group Symposium. The event was held on Friday June 3 at New York University in Manhattan and involves ESRI software users and developers from the metropolitan region. The feature speaker was Mark Day, Project Manager at GeoDecisions, who made a presentation on Mapping and Homeland Security, and a presentation by Sam Wear on the NYS GIS/LIS Association. County staff also contributed map posters to the program. For more information on the NYC Arc User Group visit their website at www.nycarc.org.

GIS at County Airport

County GIS, DOT and airport staff recently met with representatives from First Environment, Inc. (www.firstenvironment.com), the agency responsible for developing and managing the airport environmental management system (EMS), to discuss GIS data use and distribution for upcoming contractor projects at the Westchester County airport. Facility management and security improvement projects are increasingly integrating spatial datasets being developed by both County GIS programs and engineering projects. The airport is moving towards requiring contractor Plan and As-built drawings, submitted for review by the Airport's Environmental Manager as required for ISO certification, to be in digital format. Also discussed were GIS software upgrades for airport EMS staff, and acquisition of two-foot elevation data from the County's 2004 basemap update. For more information on ongoing GIS use and applications at the county airport, contact Patty Chemka (914) 813-7756 or Deborah Parker (914) 995-3888.

2004 Imagery Now Available On-line

Partnership with New York State provides public access to orthophotography

Westchester County Spring 2004 half-foot pixel resolution and natural color imagery is now available for download from the New York State GIS Clearinghouse at


www.nysgis.state.ny.us/gateway/mg/2004/westchester or by using the Interactive Mapping Gateway at www1.nysgis.state.ny.us/MainMap.cfm. Users can create

custom maps using the application's navigating tools, perform location search and download county imagery in MrSid format. Due to the presence of sensitive content certain data/imagery is only available by following specific procedures established by both Westchester County Department of Public Safety and the NYS Office of Homeland Security.

The 2004 photography will serve as the basis for the updating of the 100-scale countywide planimetric data which was developed as part of the 2000 base map program. The current base map project also includes the mapping of street features (which were not mapped in 2000) including fire hydrants, manholes, catch basins and poles. Both the updating and new data development, which is being done by the Sanborn Map Company (www.sanbornmap.com) is currently underway and is expected to be completed over the next 12-15 months. The county is also currently reviewing options in developing countywide contour data. For more information, contact Deb Parker at dape@westchestergov.com.



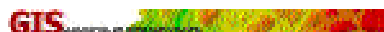
The state orthoimagery program provides data for download in both UTM Zone 18 and NAD 83 coordinate system and user options for downloading datasets are available depending on the type of user internet connection (modem vs. cable, etc).



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